cabur

Electronic
Products for electrical panels

2011 - 2012 edition

CSQ CERTIFICAZIONE DEI SISTEMI QUALITÀ DELLE AZIENDE
UNI EN-ISO 9001

CSQ IQNet
UNI EN-ISO 14001

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WARNING **If not specified, the technical data in this catalogue are typical and measured at 25°C (77°F), 230 Vac, Unom, Vdc and rated current; ripple is measured at 20 MHz with probe connected to 0.1 µF. The technical data in this catalogue are typical and are not binding for Cabur and may be modified without prior notice, simply for production or improvement and/or evolution reason. Please contact our technical-commercial offices for any relevant confirmation or updates. For more informations visit our web site www.cabur.eu.**

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Quality wins! That's guaranteed!

Quality, reliability, high technology, know-how, efficient use are all aspects and features of a product of primary importance.
For the safety and piece of mind of its Customers, Cabur designs and creates its Electronic Products with great care, using selected materials and components, in perfect harmony with the Quality choices made by the company in the last few decades. That's why we can guarantee our electronic products for five years.

Cabur's electronic products warranty

Cabur guarantees its electronic products against manufacturing defects and faults as well as defects due to their parts and/or components (except for wearable parts and/or components) for 5 years starting from the date of the shipping document issued by Cabur.

www.cabur.eu/5

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Electromechanical relay modules

Solid state relay modules

Passive interface modules

Accessories

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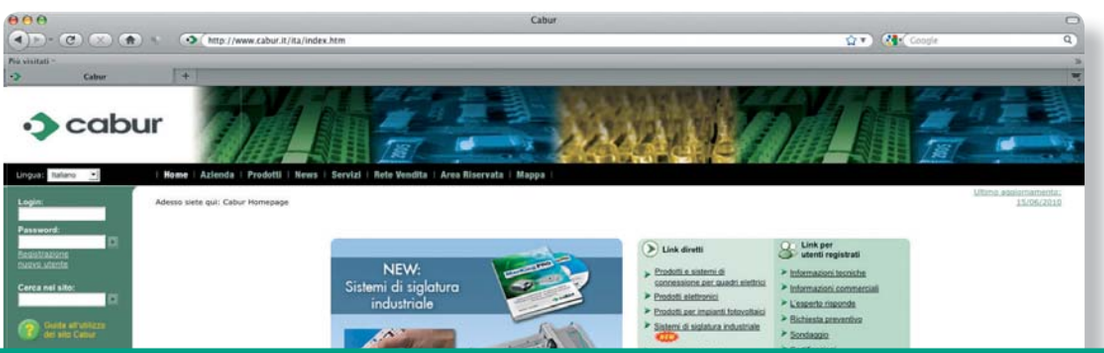
- **Terminal blocks for electrical boards**
  terminal boards for electric panels, polyamide screw-clamp and spring-clamp terminal blocks, melamine terminal boards, control terminal boards, power terminal boards, mobile terminal blocks, distribution protected terminal boards, 12 pole polyamide terminal boards
- **Electronic products for electrical boards**
  power supplies, analog modules, relay modules, signal converters
- **Connection systems for photovoltaic plants**
  connectors, tools, wires, anchorage brackets for photovoltaic panels, string boxes, surge protection devices, diodes, fuse holders
- **Industrial marking systems** NEW
  plotters and printing systems, tags and accessories for wire and terminal block identification, tags for contactors and buttons, modular strips for distribution panels, panel identification tags



If you wish to receive complete and updated technical documentation on Cabur products, please send a request using the dedicated form that you can download

online on the www.cabur.eu website

http://www.cabur.eu/documentations

or just fill in, and send the form below

PLEASE SEND ME THE COMPREHENSIVE TECHNICAL DOCUMENTATION

Surname ..... Name ..... Function .....

Company Name ..... Field of activity: ❑ Distributor ❑ Installer ❑ Panel Builder ❑ Other

Address ..... Town ..... Postcode .....

Telephone ..... Fax ..... E-mail .....

The data provided will be stored and used by Cabur srl in both paper and electronic form, both directly and through a reliable service provider, safely and with attention to privacy. At any time, you may exercise your rights pursuant to Italian Legislative Decree no. 196/2003, by writing to the data manager at the following address: Cabur srl, with offices in Altare (SV), Località Isola Grande 45 - Italy. I authorize the use of my data in accordance with Italian Legislative Decree no. 196/2003, as amended, for:

- The provision of goods and services (necessary to send documentation) YES ☐ NO ☐
- Statistical profiles and processing YES ☐ NO ☐
- Sending commercial communications YES ☐ NO ☐
- Communication of data to agencies and partner companies YES ☐ NO ☐

I agree to my personal data being processed for the a.m. purposes.
Signature

.....

Date .....

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+39 019 58999280

Shortly after its foundation, back in 1952, Cabur became a leading manufacturer of electrical panel terminal blocks, by focusing on installers' needs and providing leading edge technical solutions that, in some cases, would become popular in the industry.
In particular, in our product design and manufacturing, we have pioneered a quality focus on raw materials, functionality, reliability over time, and respect for the environment. That is the reason why Cabur was granted Class 1E (Equipment for Nuclear Power Generating Stations) qualification as early as in 1985 and, in addition, the ISO 9001/UNI-EN 29001 (Quality) and ISO 14001 (Environment) certifications, as well as compliance to Atex standards for "Ex e" installations on the most important terminal block lines.

UNI EN-ISO 14001

UNI EN-ISO 9001

The Headoffices

In 2006 a significant growth in company structure urged the organization to move from the historic site in Albissola Marina to a new logistic and manufacturing centre in Altare (SV).
Rather than moving abroad, Cabur has opted to invest in Italy, by acquiring a new state-of-the-art 15,000 sqm production site.
By doubling our production surface and increasing our staff with the recruitment of new people, we will be able to rationalise and make our current production processes, logistics, and sales, even more efficient.

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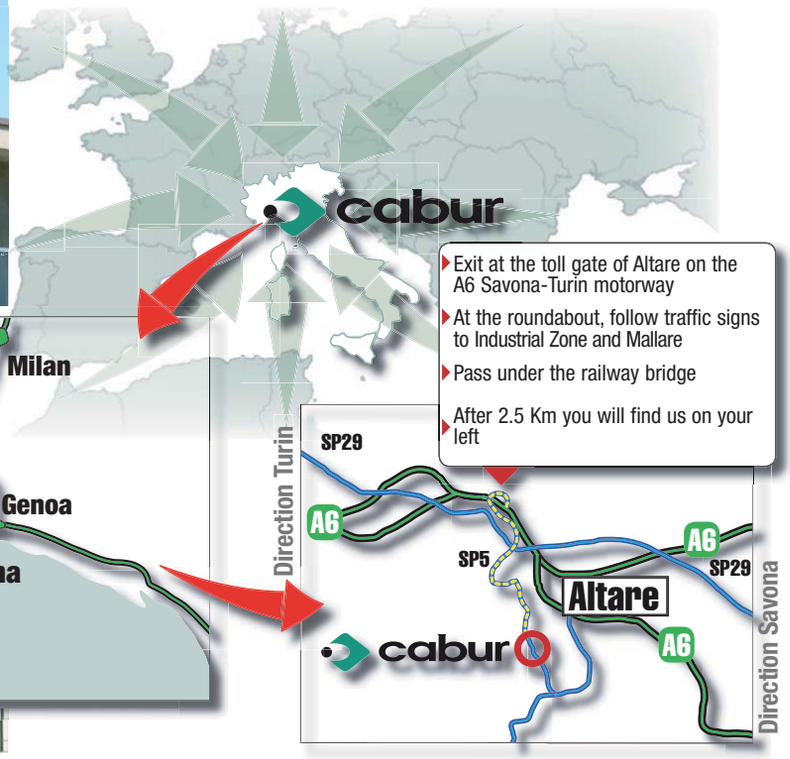
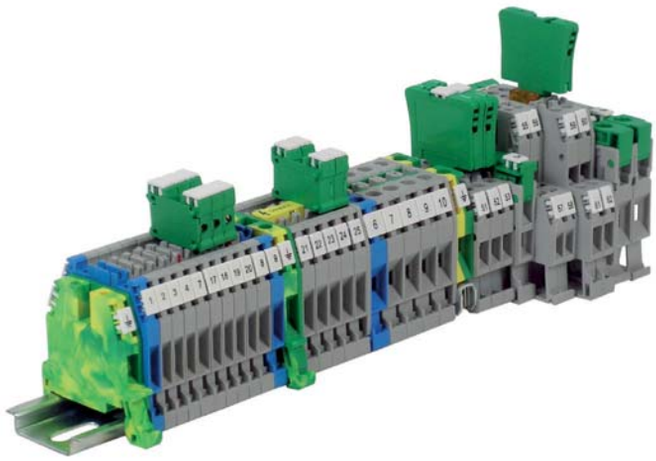


Product range

With over 50 years of experience, Cabur develops and produces, by its own designs, a wide range of products for the electrical industry, providing the best in working conditions, in terms of operability and reliability.
Current production of:

- **Terminal blocks for electrical boards**
- **Electronic products for electrical boards**
- **Installation products**
- **Connection systems for photovoltaic equipments**
- **Industrial marking systems**

Fully meets users' varied and complex installation needs.
Our varied and diversified production represents the optimal synthesis of Cabur's long experience as partner of Italy's most important Industries and Research Laboratories, combined with foreign activities and collaboration, always with the aim of pinpointing and meeting users' installation needs.



In particular as a result of a specific planning decision, products in our "standard" series are designed to meet the fundamental requirements of the most severe installation conditions and environments, thus avoiding to produce special product series for specific applications. This kind of planning has determined a clear qualitative improvement in the entire production, as well as a more streamlined and simplified product management, first of all to the advantage of the Distribution, which can guarantee to final Clients the most efficient service.

In addition to terminal blocks, Cabur product offering features a full range of electronic products for electric panels for plant and machine automation and process control. These products are designed for an easy deploy and for easy material management, thanks to the use of innovative and leading-edge technology.

The new line of products for industrial marking completes the range with innovative printing solutions, labels for wires, terminal blocks and buttons, tags and modular strips for distribution boards.

Highest ...mass produced quality

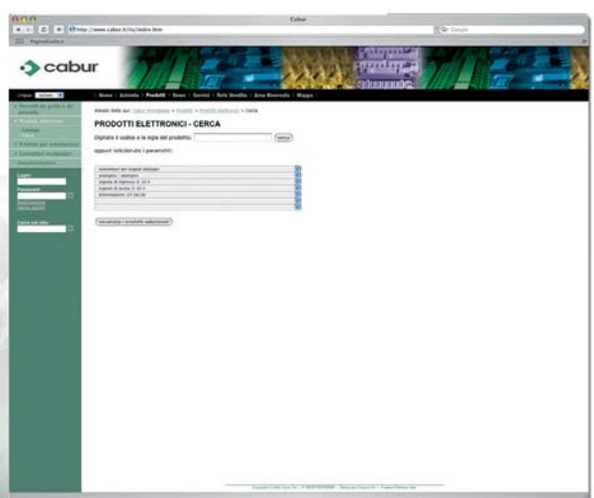
We guarantee top performance of our contacts and maximum flexibility of connection solutions.
A full range of standard products for automation panels is available at all major Wholesalers. Full support is provided by Cabur sales force both in Italy and in over 30 countries abroad, as well as by our Engineers, in order to provide our clients with the best installation solutions.

www.cabur.eu web site

On our web site, our customers and industry operators can always get up-to-date information on new products and sales offers.
All data sheets of Cabur product range, including those in this Catalogue, are available on our online catalogue featuring advanced user-friendly search functions.

Moreover, on our web site you can:
- ask our specialists for technical information and application advice
- contact our sales staff and ask them for estimates
- download manuals and other technical literature
- get access to quality and compliance certificates
- look at our latest sales literature
- ask for free catalogues and brochures
- … and much more.

By this newsletter, Cabur communicates also via e-mail its main innovations and commercial activities to all those who apply for it through the registration form.
In conclusion, Cabur web site (**www.cabur.eu**) is the ideal tool to get real time information and contacts with our company.



www.cabur.eu

Real time information on our company, products, and certifications

In order to be promptly updated about the availability of new technical and commercial documentation, please register on the site and join the newsletter service.

Quality and Environment

ISO 9001 CSQ Certification

UNI EN-ISO 9001

Until recently, Cabur "Quality" was simply recognised through the appreciation of its customers. This has allowed the company to become a leader in Italy in the design, production and distribution of "terminal blocks for electrical panels" and, more recently, to extend its products offering to the segment of "electronic products" with recognised reliability levels in both Italian and foreign markets.
Obviously, this cannot be the result of improvisation, but of a constant organisation process begun back in 1985 with the definition and implementation of a Quality Assurance Programme based on ANSI N 45.2 (referred to the particularly severe nuclear environment) that has involved the entire structure of the Company and has made each function and worker responsible for quality standards.
Since 1995, CSQ (international institute for the certification of business quality systems) has certified the Quality system designed and adopted by Cabur.
The Quality system refers to the most complete and severe standard amongst UNI EN ISO 9000 series defining the requirements for Total Quality in Companies, that is ISO 9001, including the activities of Product Design, Development, Manufacturing and Customer Service.
After the issue of the new Edition of the Standard (ISO 9001:2008), the whole Quality System has been revised and renewed to be fully compliant with the new regulations. This compliance was confimed by CSQ with the new Certificate issued in 2009.


CERTIFICATO N. 9105.CABU
CERTIFICATE N.
CABUR SRL
ISO 9001:2008


IQNet
THE INTERNATIONAL CERTIFICATION NETWORK
CERTIFICATE
Quality Management System
which fulfills the requirements of the following standard
ISO 9001:2008
Registration Number: IT - 34959

ISO 14001 CSQ Certification

UNI EN-ISO 14001

In its continuous improvement process, CABUR has adopted an environmental management system since 2001, obtaining the international CSQ UNI EN 14001 recognition.
This goal represents a guarantee given of the respect Cabur has for the surrounding environment as well as a demonstration of the adoption of environmental safeguard rules and, additionally, a pledge for constant ecological improvement.
This kind of Certification is still quite uncommon in Italy; Cabur has nevertheless been able to achieve and add it to its corporate philosophy, which is always aimed at the anticipation, rather than to the passive adaptation, of those needs that are becoming more and more urgent and global. Environment is undoubtedly one of these issues and, anticipating many other companies, not only in Italy, Cabur firmly decided to adopt a system that monitors and prevents environmental risk, inherent to every stage of its manufacturing process.
Operational procedures and other paper documentation were unified and harmonised with the running Quality Assurance System and the manual, becoming of both Quality and Environmental Management, is now a complete reference point. The Quality Assurance and Environmental Management Department is at your complete disposal to provide any further information and/or clarification on the entire Quality / Environment System and Customer Service. Cabur can provide you with a copy of both CSQ and EQNET certificates, or with a copy of the Quality and Environmental Management manual.


CERTIFICATO N. 9191.CBR2
CERTIFICATE N.
CABUR SRL
ISO 14001:2004


IQNet
THE INTERNATIONAL CERTIFICATION NETWORK
CERTIFICATE
Environmental Management System
which fulfills the requirements of the following standard
ISO 14001:2004
Registration Number: IT - 20498

The 2002/95/CE Directive

The 2002/95/CE Directive, known as RoHS, sets limits to the use of specific dangerous materials in electric and electronic devices.
The Directive applies exclusively to devices included in the following categories, as listed in attachment 1A of 2002/96/EC Directive, also knows as WEEE, excluding categories 8 and 9.

1. Large appliances excluding fixed ones
2. Small appliances
3. IT and telecommunication appliances
4. Consumers' appliances
5. Lighting appliances
6. Electric and electronic tools, excluding large fixed industrial tools
7. Toys and devices for hobbies and sports
10. Vending machines

Cabur Products' compliance to RoHS Directive

Cabur products are generally deployed in electric panels for electric distribution and for industrial automation, which are excluded from the application field of the RoHS Directive, as components of "fixed industrial tools" and of "fixed installations".
Nevertheless, in consideration of the needs of those Customers deploying Cabur products into devices and appliances that need to be RoHS compliant, we have decided to review our production according to RoHS Directive requirements.
From the beginning of the year we have been disposing of non-compliant items, not only to reduce dangerous substances but to eliminate them completely from components in our production, with a Zero Tolerance mindset.
The small amount of our products which is currently non-RoHS compliant consists of dated stocked parts or of those few items that cannot be produced by different materials or process yet. In any case, as mentioned above, these items are deployed in product categories that are not listed in the RoHS Directive application field.
Our staff is available for further details both on our products and on the application of the RoHS Directive.
For more information, please click on www.cabur.eu

CE Marking

All products in this catalogue meet all EU applicable standards when the catalogue was printed. Therefore, all required CE markings are placed on the products and on all product related documents.

Do not hesitate to contact our staff for any further information and/or explanations on Reference Standards. Cabur Customer Service can provide you with certificates of compliance to Reference Standards, type approvals, and CE markings.

Cabur power house

Continues to renew and expand its range of power supplies for use in industrial automation and control of processes and systems, improving product performance and technology to meet the needs created by the continuing changes in applications and regulations.

QUALITY AND SAFETY: Cabur was the first Italian company to obtain UL508 Industrial Control Equipment certification for industrial automation processes and Hazardous Location Class 1 Div. 2 for processes in dangerous areas, as well as to have been certified as conforming to the Directives on Electric Safety. It also has been EMC certified by an accredited laboratory. All of these are indispensable for the CE certified label.

INNOVATION AND RESEARCH:

• 1997 - Cabur is the first Italian company to produce switching power suppliers for Din-rail with 90-264Vac/110-340Vdc universal input.

• 2001 - Cabur is the first Italian company to produce high efficiency power supplies with resonant technology (the 20A three-phase dissipates only 36W compared with over 75W for our competitors at the time).

• 2009 – With the new generation of power supplies in the catalogue, Cabur has further improved performance using "Synchronous Rectifier" technology, which reduces power dissipation and operating temperature to the minimum, an indispensible factor in minimizing the size of the power supplies, which are the smallest on the market.

The lifespan of a power supply is halved by every +10°C increase in operating temperature. Hence, reducing operating temperature is fundamental to endurance and reliability, two objectives that can be achieved only by using circuit technology and next generation components. Thanks to this combination, Cabur has achieved output of over 94% (the new 20A three-phase dissipates only 28W, compared to the 50-75W in heat dissipation found in other products currently on the market).

HIGH OVERLOAD CAPACITY: the new power supplies have an overload capacity of over +50% for 5 seconds or for several minutes (please see the technical data), while maintaining stable output voltage even under these conditions.

SYSTEM COMMUNICATIONS: all the CSF, CSG, and CSW Series models are provided with "intelligent" alarm contacts that commutate when the output voltage drops below -10% of the nominal value. This allows the controls to activate automated or emergency procedures to reduce machine stoppage, production losses, and the risk to safety.

TOTAL PROTECTION: all models are provided with output protection against overload short circuiting, overtemperature, and overvoltage, both for input and output. Input for the three-phase models includes the Active Surge Suppressor – Inrush Current Limiter, which avoids malfunctioning in the case of overvoltage generated by commutation of loads or malfunctions on industrial networks, where the value can reach 3-4 times the network voltage, with a duration of 1.3ms (Regulation VDE-0160), which can be destructive for the input components. This increases reliability, especially in networks subject to power surges and power malfunctions.

SHORT CIRCUIT and overload protection: this serves to protect the power supply from malfunctions due to overloading and overheating of the components. This function can be designed by starting with different application needs, with varying practical results and costs. In automated applications, the operating conditions and the nature of the loads can vary greatly and are only partially known to the power supply designer. Power suppliers for automated processes need to meet a number of requirements. They need to be protected from overcurrent, but at the same time they need to be able to supply loads which call for a high peak current, working at temperatures of at least 45° C, according to regulations, and sometimes higher, in critical ventilation situations and guaranteeing high reliability and acceptable costs.

The overcurrent protection must support the high peak currents required by loads such as filament lamps (cold, they make a short circuit), capacitive loads such as dc/dc converters and filter condensators (when these switch on they are seen as a short-circuit for a few tenths of a ms) or inductive loads (engines in dc, electromagnets, etc.) which at peak require currents from 5 – 30 times their nominal power. Frequently, all these loads must be started up at the same time. The peak current must be provided for a sufficient duration to "start" the load, which can go from a few tenths of a ms up to 5s.

With high power power supplies, which power various loads protected from overcurrent, the capacity to provide overcurrent is indispensable to guarantee selectivity in protection interventions. This is because it allows the fuse of the malfunctioning load to be "burned" before the electronic protection of the power supply intervenes, disconnecting the output and hence the entire system.

ELECTRONIC OVERLOAD POWER SUPPLY PROTECTION CAN BE OBTAINED USING VARIOUS TECHNIQUES:

– switch off the output as soon as possible: this is cost effective but doesn't allow for either start up of heavy loads nor for protection selectivity for various loads.

– constant power protection: if the allowed overload is sufficiently high, it is possible to start up heavy loads. However, if the condition continues, the power supply will continue to operate in overload and with a high thermal stress level. Hiccup protection: combines the advantages of the techniques described above, while limiting the disadvantages because it allows over +50-100% of the overload for at least 5 seconds, and then switches off output for a longer break. In this way, the peak power necessary for heavy load peaks is obtained while component heating is decreased, as they can cool off during the break. Hiccup protection with high overcurrent output, for durations from 200 ms to over 5 sec., has been proven to satisfy the new requirements established by the Machinery Directive EN 60204-1.

Real operating temperature: the operating temperature range for all Cabur models is between –20 and +50°C at full load without derating (see technical data), certified in accordance with the rigorous UL508 standard. The project takes into consideration the ambient temperature, allowed overcurrent, and overcurrent duration when determining component size, and is always more than the 45°C required by the standards for electric panels. Ambient temperature is a fundamental reference parameter, because this influences not only performance, but also component operating temperature and power supply duration.

HOLD UP TIME: this is the time in which the power supply output supplies nominal voltage at nominal load. This performance is important because it limits the cases in which machine/system stoppage can occur due to voltage "holes" in the network. EMC standards establish that Hold Up time must be at least 10ms. For all Cabur power supplies, Hold Up time is greater than that required by the official standards, which ensures better operational consistency in networks with frequent voltage holes.

MTBF: this figure should be taken with a care, because it is the result of theoretical calculations that are easy to manipulate. For example, if we know that the mortality rate for 25 year old men is 0.1%/year, the resultant MTBF, calculated in accordance with SN29500 – IEC 61709, would be 800 years. Obviously, this result is highly unrealistic. The significant piece of information is the "life expectancy," which for men averages about 75 years – less spectacular but more realistic. The same reasoning can be applied to electronic products for which, in accordance with the calculation methods, we can use an MTBF of 750,000 hours (85 years), or a life expectancy of about 70,000 hours (7.9 years, on average). The second estimate is less optimistic, but is without doubt closer to reality. As a consequence, data published regarding MTBF must be interpreted based on the credibility of the calculation methods used. In addition to the values according to SN 29500, Cabur has also chosen to declare those according to the MIL HDBKn217F standards, which are much stricter.

CUSTOM POWER SUPPLIES: Cabur designs and produces "custom" power supplies on request to meet the requirements of regulations and the high demanding applications. Furthermore our laboratory offers technical documentation and the measures which prove the conformity of the products with the directives on Electric Safety and Electromagnetic Compatibility, besides the necessary technical support to define the product characteristics on the basis of the client's needs and our own experience.

THE ENVIRONMENT AND ROHS CONFORMANCE: Cabur was one of the first Italian companies to obtain the International Environmental Certificate UNI EN ISO 14001, certified by CSQ for ecologically compatible treatment of all the materials used in our production.

General Notes

PARALLEL AND REDUNDANT PARALLEL CONNECTION: all Cabur power supplies can be connected in parallel to combine the power of two or more power supplies. In addition, models that already include an output separation diode (ORing diode) are available for use with redundant parallels (please see the related item in the catalogue). We recommend adjusting the outputs of all the power supply units to the same voltage (tolerance ± 50 mV), applying the same calibration load, before connecting them in parallel. We also recommend using power supply units of the same model. If it is necessary to connect two power supplies without internal diodes in redundant parallel, the connection must be completed as in fig. 1.
CONNECTION IN SERIES: all Cabur power supplies can have their outputs connected in series to double the voltage (see fig. 2) or to obtain dual voltage output, for example with ± 12V or ±24 V (see fig. 3). We recommend that you use power supplies of the same model and an anti-parallel diode, of an appropriate size to resist the maximum current of the power supply.

POWER SIGNAL OK: this is found on all CSF, CSG, and CWS models. The 1A/30Vdc contact commutates when output voltage falls below the threshold of -10% of nominal voltage, in the case of a short circuit on the output line or an overload that exceeds the specifications, or due to network failure.

100-340Vdc POWER SUPPLY: available for certain models (please see technical data), which respect the following:
– power supply of 110…127 Vdc, reduces output current by 25%
– min. voltage allowed 100 Vdc, max 340 for single phase, 280…775 Vdc for single/two-phase, 564… 775Vdc for three-phase (please see technical data)
– respect input polarity as indicated in the instructions.

NOTE FOR POWER SUPPLIES WITH SECONDARY INPUT FROM A TRANSFORMER

INSULATION: this series of power supply units is not insulated.

TYPE OF USE: they are suitable for use in PELV (one pole of the Protective Extra Low Voltage earthed) and SELV (Safety Extra Low Voltage, no pole earthed).
The transformer used must have double or reinforced isolation in accordance with CEI 14.6 / EN 60742.
In the case of use in PELV circuits, only earth one pole of the 24 Vdc of the power supply unit.
In the case of use in SELV circuits, do not earth the input earth terminal.

Earthing one pole of the secondary of the transformer and the 24Vdc of the power supply would damage the power supply.

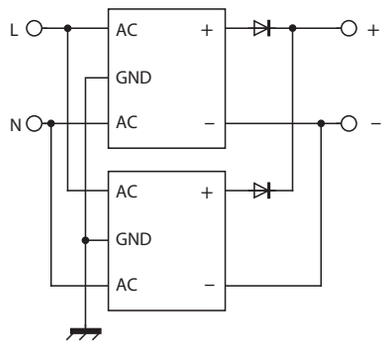


figure 1

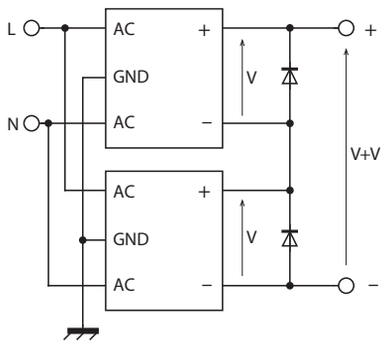


figure 2

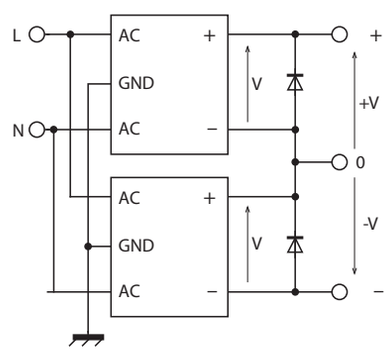


figure 3

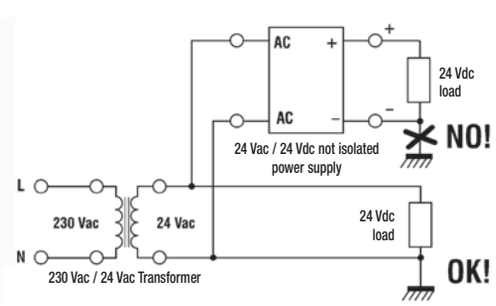


figure 4

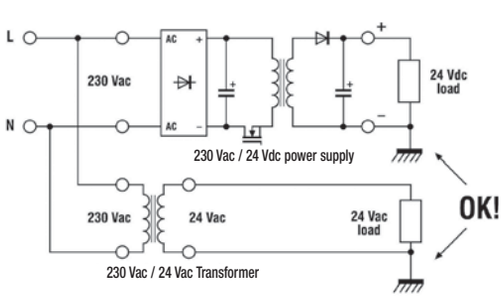


figure 5

Power supply quick selection table

These tables allow you to quickly select only the items, then check if all product's technical data meet your application requirements.

Single-phase switching power supply - Cool Power series

Output voltage	Output current	Input voltage	Notes	Type	Cat. No.	Page
10…15 Vdc	1.5…1 A	90…264 Vac / 100...320 Vdc	(1) (8) (9)	CSF30B	XCSF30B	22
12…15 Vdc	6 A	90…264 Vac / 100...345 Vdc	(1) (7) (8) (9)	CSF85B	XCSF85B	23
12…15 Vdc	16 A	120 Vac / 230 Vac	(2) (7) (8)	CSF240B	XCSF240B	25
24 Vdc	1.2 A	90…264 Vac / 100...320 Vdc	(1) (9)	CSF30C	XCSF30C	22
24 Vdc	3.5 A	90…264 Vac / 100...345 Vdc	(1) (7) (9)	CSF85C	XCSF85C	23
24 Vdc	3.5 A	90…264 Vac / 100...345 Vdc	(1) (6) (7) (9)	CSF85CP	XCSF85CP	23
24 Vdc	5 A	90…264 Vac / 100...345 Vdc	(1) (7) (9)	CSF120C	XCSF120C	24
24 Vdc	5 A	90…264 Vac / 100...345 Vdc	(1) (6) (7) (9)	CSF120CP	XCSF120CP	24
24 Vdc	10 A	120 Vac / 230 Vac	(2) (7)	CSF240C	XCSF240C	25
24 Vdc	10 A	120 Vac / 230 Vac	(2) (6) (7)	CSF240CP	XCSF240CP	25
24 Vdc	20 A	120 Vac / 230 Vac	(2) (6) (7)	CSF500C	XCSF500C	27
48 Vdc	2.5 A	90…264 Vac / 100...345 Vdc	(1) (6) (7)	CSF120DP	XCSF120DP	24
48 Vdc	5 A	120 Vac / 230 Vac	(2) (6) (7)	CSF240DP	XCSF240DP	25
48 Vdc	10 A	120 Vac / 230 Vac	(2) (6) (7)	CSF500D	XCSF500D	27
72 Vdc	3.5 A	120 Vac / 230 Vac	(2) (6) (7) (8)	CSF240G	XCSF240G	26
72 Vdc	6.7 A	120 Vac / 230 Vac	(2) (6) (7) (8)	CSF500G	XCSF500G	28

Single-phase switching power supply - Easy Power series

Output voltage	Output current	Input voltage	Notes	Type	Cat. No.	Page
24 Vdc	3.5 A	90…264 Vac	(1)	CSP85C	XCSP85C	31
24 Vdc	3.5 A	90…264 Vac	(1)	CSL85C	XCSL85C	31
24 Vdc	5 A	90…264 Vac	(1)	CSP120C	XCSP120C	32
24 Vdc	5 A	90…264 Vac	(1)	CSL120C	XCSL120C	32
24 Vdc	10 A	120 Vac / 230 Vac	(2)	CSP240C	XCSP240C	33
24 Vdc	10 A	120 Vac / 230 Vac	(2)	CSL240C	XCSL240C	33

Single-phase switching power supply - Domotic Power series

Output voltage	Output current	Input voltage	Notes	Type	Cat. No.	Page
5…15 Vdc	3...1.5 A	90…264 Vac / 100...345 Vdc	(1) (8) (9)	CSD30E	XCSD30E	18
±12…±15	0.6 A	90…264 Vac / 100...345 Vdc	(1) (8) (9)	CSD30F	XCSD30F	18
12 Vdc	1.2 A	90…264 Vac / 100...315 Vdc	(1) (9)	CSD15B	XCSD15B	17
12…15 Vdc	3.5…3 A	90…264 Vac / 100...345 Vdc	(1) (8) (9)	CSD50B	XCSD50B	19
24 Vdc	0.6 A	90…264 Vac / 100...315 Vdc	(1) (9)	CSD15C	XCSD15C	17
24 Vdc	1.2 A	90…264 Vac / 100...345 Vdc	(1) (9)	CSD30C	XCSD30C	18
24 Vdc	3 A	90…264 Vac / 100...345 Vdc	(1) (9)	CSD70C	XCSD70C	20

Single phase, 2-phase and 3-phase switching power supply - Universal Power series

Output voltage	Output current	Input voltage	Notes	Type	Cat. No.	Page
12…15 Vdc	8…7 A	1-2x 230-400-500 Vac	(1) (3) (8)	CSW120B	XCSW120B	35
12…15 Vdc	8…7 A	1-2x 230-400-500 Vac	(1) (3) (7) (8) (9)	CSW121B	XCSW121B	36
12…15 Vdc	16…15 A	1-2-3x 230-400-500 Vac	(1) (3) (4) (7) (8) (9)	CSW241B	XCSW241B	38
24 Vdc	5 A	1-2x 230-400-500 Vac	(1) (3)	CSW120C	XCSW120C	35
24 Vdc	5 A	1-2x 230-400-500 Vac	(1) (3) (7) (9)	CSW121C	XCSW121C	36
24 Vdc	10 A	1-2x 230-400-500 Vac	(1) (3) (7)	CSW240C	XCSW240C	37
24 Vdc	10 A	1-2-3x 230-400-500 Vac	(1) (3) (4) (7) (9)	CSW241C	XCSW241C	38
48 Vdc	2.5 A	1-2x 230-400-500 Vac	(1) (3) (6) (7) (9)	CSW121DP	XCSW121DP	36
48 Vdc	5 A	1-2-3x 230-400-500 Vac	(1) (3) (4) (6) (7) (9)	CSW241DP	XCSW241DP	38
72 Vdc	3.3 A	1-2-3x 230-400-500 Vac	(1) (3) (4) (6) (7) (8) (9)	CSW241G	XCSW241G	38

Power supply quick selection table

These tables allow you to quickly select only the items, then check if all product's technical data meet your application requirements.

2-phase and 3-phase switching power supply - Triple Power series

Output voltage	Output current	Input voltage	Notes	Type	Cat. No.	Page
24 Vdc	3.5 A	2x 400-500 Vac	(3)	CSB85C	XCSB85C	40
24 Vdc	6 A	2x 400-500 Vac	(3)	CSB150C	XCSB150C	41
24 Vdc	10 A	3x 400-500 Vac	(4) (7)	CSG240C	XCSG240C	42
24 Vdc	20 A	3x 400-500 Vac	(4) (7)	CSG500C	XCSG500C	43
24 Vdc	30 A	3x 400-500 Vac	(4) (7)	CSG720C	XCSG720C	44
24 Vdc	40 A	3x 400-500 Vac	(4) (7)	CSG960C	XCSG960C	45
24 Vdc	100 A	3x 400-500 Vac	(4) (6) (7) (8)	CSG2401C	XCSG2401C	46
48 Vdc	10 A	3x 400-500 Vac	(4) (6) (7)	CSG500D	XCSG500D	43
48 Vdc	15 A	3x 400-500 Vac	(4) (6) (7)	CSG720D	XCSG720D	44
48 Vdc	20 A	3x 400-500 Vac	(4) (6) (7)	CSG960D	XCSG960D	45
48 Vdc	50 A	3x 400-500 Vac	(4) (6) (7) (8)	CSG2401D	XCSG2401D	46
72 Vdc	6.7 A	3x 400-500 Vac	(4) (6) (7) (8)	CSG500G	XCSG500G	43
72 Vdc	13.3 A	3x 400-500 Vac	(4) (6) (7) (8)	CSG960G	XCSG960G	45
72 Vdc	33 A	3x 400-500 Vac	(4) (6) (7) (8)	CSG2401G	XCSG2401G	46
170 Vdc	14 A	3x 400-500 Vac	(4) (6) (7) (8)	CSG2401R	XCSG2401R	46

Power supply with IP65 protection degree

Output voltage	Output current	Input type	Input voltage	Notes	Type	Cat. No.	Page
24 Vdc	5 A	single-phase	90…264 Vac / 100...345 Vdc	(1) (7) (9)	CSF565	XCSF565	29

Power supply with input from transformer

Output voltage	Output current	Input type	Input voltage	Notes	Type	Cat. No.	Page
1.2…24 Vdc	1.5 A	from transformer	9…26 Vac	(5) (8)	CL1R	XCL1R	53
1.2…24 Vdc	5 A	from transformer	9…26 Vac	(5) (8)	CL5R	XCL5R	53
24 Vdc	10 A	from transformer	24 Vac	(5)	CSE10	XCSE10	52

Filtered power supply with not stabilised output

Output voltage	Output current	Input type	Input voltage	Notes	Type	Cat. No.	Page
12…24 Vdc	1 A	from transformer	9…20 Vac	(5)	AR1	XAR1	54
12…24 Vdc	6 A	from transformer	9…20 Vac	(5)	AR6	XAR6	54

DC/DC isolated converter

Input voltage	Output voltage	Output current	Notes	Type	Cat. No.	Page
12 Vdc	24 Vdc	5 A	(9)	CSA120BC	XCSA120BC	48
12 Vdc	48 Vdc	2.5 A	(9)	CSA120BD	XCSA120BD	48
24 Vdc	12…15 Vdc	7 A	(8) (9)	CSA120CB	XCSA120CB	48
24 Vdc	24 Vdc	5 A	(9)	CSA120CC	XCSA120CC	48
48 Vdc	12…15 Vdc	8 A	(8) (9)	CSA120DB	XCSA120DB	49
48 Vdc	24 Vdc	5 A	(9)	CSA120DC	XCSA120DC	49
110 Vdc	24 Vdc	10 A	(6) (7) (9)	CSA240FC	XCSA240FC	49

(All single phase wide range power supply can be feed at 110 Vdc)

Note

(1) wide range single-phase input
(2) double range single-phase input
(3) two-phase input
(4) three-phase input
(5) input from a secondary of a transformer
(6) redundant version
(8) with failure contact (power good)
(8) with adjustable output
(9) DC/DC converter

Modular switching power supply CSD series

DOMOTIC POWER

Single phase switching power supplies with output power up to 70W for civil and industrial automation applications.
The housings have the standard dimensions for installation in DIN modular panels, and are **optimized for the deployment in the field of building automation**. The high performance and compact size make them an excellent solution for low-depth electrical panels.
The high efficiency and low dissipated power save energy and increase the life of the components.

Suggested uses

- Applications in industrial automation
- Applications in civil automation
- General applications in systems fit into small remote panels

Main features

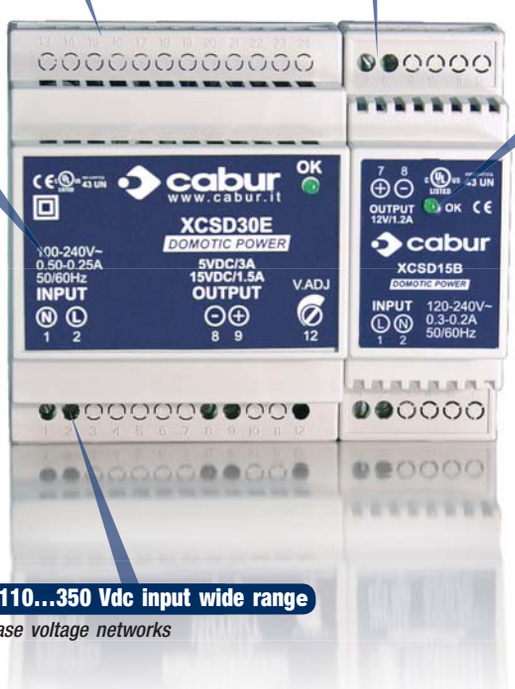
- The 90…264 Vac and 110…370 Vdc input makes them suitable for use on all power supply lines.
- These power supplies are Insulation Class 2, thus they don't require grounding, which reduces costs and times during installation into remote panels, surveillance and monitoring systems.
- Their high efficiency reduces energy consumption and working temperature and allows their use in small panels.
- Their backup power allows the supply of continuous current at least +50% above the rated value ensuring safety and reliability.
- Dimensioned power supply and surge protection supplying breakaway starting currents 150% above the rated value required by heavy loads.
- Thermal protection prevents faults caused by prolonged overload at high ambient temperatures.
- Their internal components' high efficiency and excellent ventilation offer small dimensions and IP20 protection against accidental contacts in compliance with IEC529.

Short circuit and overload
Designed to provide load start up current required by medium loads

Compact size
Ideal solution for electrical panels with low profile

High Efficiency
Designed to save energy and reduce working temperature

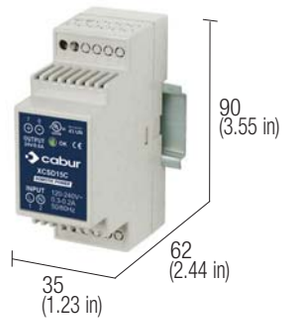
Power boost
The output power supplied reaches up to 130% of the rated value



90…264 Vac and 110…350 Vdc input wide range
Suitable in single phase voltage networks

Single-phase switching power supply 120-230 Vac output power 15 W

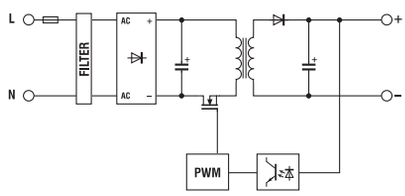
- Single-phase input 90…264 Vac and DC 100…315 Vdc
- Short circuit, overload, over temperature, input overvoltage protections
- Isolation Class 2, no grounding needed
- Compact dimensions
- Suitable for applications in SELV and PELV circuits



NOTES

The depth dimension includes the DIN rail clamp.
(2) Over 50°C (122°F) apply a derating: C version: -0.015 A/°C; B version: -0.03 A/°C.
(3) Overload and short circuit current depends on the total line resistance

BLOCK DIAGRAM



VERSIONS	Cod. XCSD15C	Cod. XCSD15B
Output 24 Vdc 0.6 A	**CSD15C**	
Output 24 Vdc 0.6 A redundant version	–	
Output 12 Vdc 1.2 A		**CSD15B**
Output 48 Vdc 0.3 A		–

INPUT TECHNICAL DATA	
Input rated voltage	**120–230 Vac** (range 90…264 Vac / 100…315 Vdc)
Frequency	47...63 Hz
Current @ nominal Iout (Uin 120 /230 Vac)	0.3 A / 0.16 A ± 10%
Inrush peak current	< 5 A
Power factor	> 0.6
Internal protection fuse	T 1 A replaceable
External protection on AC line	circuit breaker: 2 A - C characteristic - fuse: T 2 A

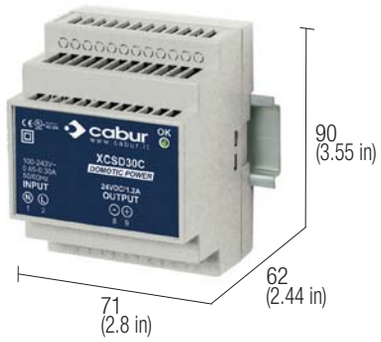
OUTPUT TECHNICAL DATA		
Output rated voltage	**24 Vdc** ± 1%	**12 Vdc** ± 0.5 Vdc
Output adjustable range	—	—
Continuous current	**0.6 A** @ 50°C (2)	**1.2 A** @ 50°C (2)
Overload limit	1.08 A (3)	2.16 A (3)
Short circuit peak current	—	—
Load regulation	< 1%	< 1%
Ripple @ nominal ratings	≤ 30 mVpp	≤ 30 mVpp
Hold up time @ In (Uin 120 / 230 Vac)	>12 ms / >20 ms	>12 ms / >20 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection	
Status display	"DC OK" green LED	
Alarm contact threshold	–	–
Parallel connection	possible	possible
Redundant parallel connection	possible with external ORing diode	possible with external ORing diode

GENERAL TECHNICAL DATA		
Efficiency (Uin 120 / 230 Vac)	>85% / >87%	>85% / >87%
Dissipated power (Uin 120 / 230 Vac)	19 W / 13 W	21 W / 15 W
Operating temperature range	–20...+60°C, with derating over 50°C / over temperature protection (2)	
Input/output isolation	3 KVac / 60 s SELV output	
Input/ground isolation	class 2 without PE connection	
Output/ground isolation	class 2 without PE connection	
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508	
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11	
MTBF @ 25°C @ nominal ratings	>750'000 h acc. to SN 29500 / >250'000 h acc. to MIL Std. HDBK 217F	
Overvoltage category/Pollution degree	II / 2	
Protection degree	IP 20 IEC 529, EN60529	
Connection terminal	2.5 mm^2 fixed screw type	
Housing material	UL94V-0 plastic material	
Approx. weight	130 g (5.12 oz)	
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components	

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—

Single-phase switching power supply 120-230 Vac output power 30 W

- Single-phase input 90…264 Vac and DC 100…345 Vdc
- Short circuit, overload, over temperature, input overvoltage protections
- Isolation Class 2, no grounding needed
- Compact dimensions
- Suitable for applications in SELV and PELV circuits



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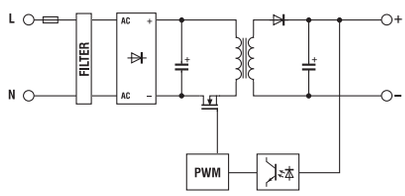
NOTES

The depth dimension includes the DIN rail clamp.
(2) Over 50°C (122°F) apply a derating: C and F versions: -0.03 A/°C; E version: -0.08…-0.04 A/°C.
(3) Overload and short circuit current depends on the total line resistance.
(4) Output current depends on the output voltage: 3.3A @ 5Vdc, 2A @ 9Vdc, 2.2A @ 12Vdc, 1.5A @ 15Vdc.

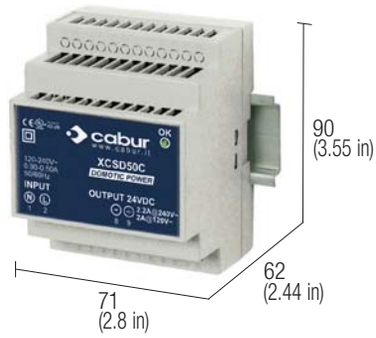
BLOCK DIAGRAM



VERSIONS	Cod. XCSD30C		Cod. XCSD30E	Cod. XCSD30F
Output 24 Vdc 1.2 A	**CSD30C**			
Output 24 Vdc 1.2 A redundant version		**–**		
Output 5…15 Vdc 3.3…1.5 A			**CSD30E**	
Output ±12...±15 Vdc 0.6 A				**CSD30F**
INPUT TECHNICAL DATA				
Input rated voltage	**120–230 Vac** (range 90…264 Vac / 100…345 Vdc)			
Frequency	47...63 Hz			
Current @ nominal Iout (Uin 120 /230 Vac)	0.55 A / 0.28 A ± 10%		0.45 A / 0.25 A ± 10%	0.4 A / 0.2 A ± 10%
Inrush peak current	< 13 A		< 13 A	< 13 A
Power factor	> 0.6			
Internal protection fuse	T 2 A replaceable			
External protection on AC line	circuit breaker: 3 A - C characteristic - fuse: T 3.15 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc** ± 1%		**5…15 Vdc**	**±12...±15 Vdc**
Output adjustable range	—		5…15 Vdc	±12...±15 Vdc
Continuous current	**1.2 A** @ 50°C (2)		**3.3…1.5 A** @ 50°C (2)(4)	**2x0.6 A** @ 50°C (2)
Overload limit	1.6 (3)		4 A (3)	>2x0.8 A (3)
Short circuit peak current	—		—	—
Load regulation	< 1%		< 1%	< 1%
Ripple @ nominal ratings	≤ 50 mVpp		≤ 50 mVpp	≤ 50 mVpp
Hold up time @ In (Uin 120 / 230 Vac)	>30 ms / >60 ms		>50 ms / >100 ms	>50 ms / >100 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection			
Status display	"DC OK" green LED			
Alarm contact threshold	–	–	–	–
Parallel connection	possible		possible	possible
Redundant parallel connection	possible with external ORing diode		possible with external ORing diode	possible with external ORing diode
GENERAL TECHNICAL DATA				
Efficiency (Uin 120 / 230 Vac)	>85% / >87%		>87% / >89%	>87% / >89%
Dissipated power (Uin 120 / 230 Vac)	5.2 W / 4.5 W		4.5 W / 3.7 W	4.5 W / 3.7 W
Operating temperature range	–20...+60°C, with derating over 50°C / over temperature protection (2)			
Input/output isolation	3 KVac / 60 s SELV output			
Input/ground isolation	class 2 without PE connection			
Output/ground isolation	class 2 without PE connection			
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508			
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11			
MTBF @ 25°C @ nominal ratings	>750'000 h acc. to SN 29500 / >250'000 h acc. to MIL Std. HDBK 217F			
Overvoltage category/Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection terminal	2.5 mm² fixed screw type			
Housing material	UL94V-0 plastic material			
Approx. weight	200 g (7.06 oz)			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

Single-phase switching power supply 120-230 Vac output power 50 W

- Single-phase input 90…264 Vac and DC 100…345 Vdc
- Short circuit, overload, over temperature, input overvoltage protections
- Isolation Class 2, no grounding needed
- Compact dimensions
- Suitable for applications in SELV and PELV circuits



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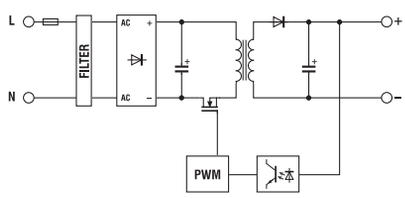
NOTES

The depth dimension includes the DIN rail clamp.
(2) With 100...127 Vdc input voltage, constant output power and Ta>45°C, the output current must be derated by 25%
(3) Over 50°C (122°F) apply a derating: C version: -0.06 A/°C; B version: -0.085 A/°C.
(4) Overload and short circuit current depends on the total line resistance.

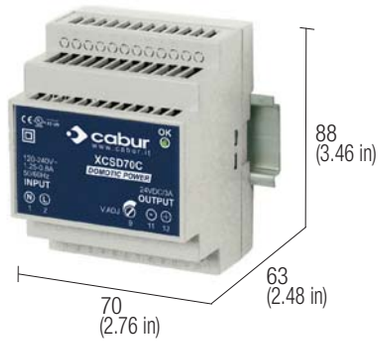
BLOCK DIAGRAM



VERSIONS	Cod. XCSD50B		
Output 24 Vdc 2.2 A	–		
Output 24 Vdc 2.2 A redundant version			
Output 12…15 Vdc 3.5...3 A		**CSD50B**	
Output 48 Vdc 1.1 A			–
INPUT TECHNICAL DATA			
Input rated voltage	**120–230 Vac** (range 90…264 Vac / 100…345 Vdc) (2)		
Frequency	47...63 Hz		
Current @ nominal Iout (Uin 120 /230 Vac)	0.9 A / 0.5 A ± 10%		
Inrush peak current	< 15 A		
Power factor	> 0.6		
Internal protection fuse	T 2 A replaceable		
External protection on AC line	circuit breaker: 3 A - C characteristic - fuse: T 3.15 A		
OUTPUT TECHNICAL DATA			
Output rated voltage		**12…15 Vdc**	
Output adjustable range		12…15 Vdc	
Continuous current		**3.5…3 A** @ 50°C (3)	
Overload limit		4.37…3.75 A (4)	
Short circuit peak current		—	
Load regulation		< 1%	
Ripple @ nominal ratings		≤ 50 mVpp	
Hold up time @ In (Uin 120 / 230 Vac)		>20 ms / >40 ms	
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection		
Status display	“DC OK” green LED		
Alarm contact threshold		–	
Parallel connection		possible	
Redundant parallel connection		possible with external ORing diode	
GENERAL TECHNICAL DATA			
Efficiency (Uin 120 / 230 Vac)		>88% / >90%	
Dissipated power (Uin 120 / 230 Vac)		6.8 W / 5.5 W	
Operating temperature range	–20...+60°C, with derating over 50°C / over temperature protection (3)		
Input/output isolation	3 KVac / 60 s SELV output		
Input/ground isolation	class 2 without PE connection		
Output/ground isolation	class 2 without PE connection		
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508		
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11		
MTBF @ 25°C @ nominal ratings	>750'000 h acc. to SN 29500 / >250'000 h acc. to MIL Std. HDBK 217F		
Overvoltage category/Pollution degree	II / 2		
Protection degree	IP 20 IEC 529, EN60529		
Connection terminal	2.5 mm² fixed screw type		
Housing material	UL94V-0 plastic material		
Approx. weight	200 g (7.06 oz)		
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components		
MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**		
Mounting rail type according to IEC60715/G32	—		

Single-phase switching power supply 120-230 Vac output power 70 W

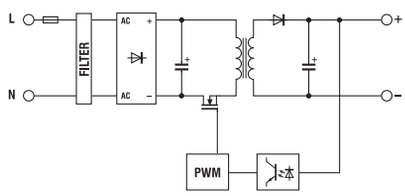
- Single-phase input 90…264 Vac and DC 100…345 Vdc
- Short circuit, overload, over temperature, input overvoltage protections
- Isolation Class 2, no grounding needed
- Compact dimensions
- Suitable for applications in SELV and PELV circuits



NOTES

The depth dimension includes the DIN rail clamp.
(2) With 100...127 Vdc input voltage, constant output power and Ta>45°C, the output current must be derated by 25%.
(3) Over 50°C (122°F) apply a derating: C version: -0.15 A/°C.
(4) Overload and short circuit current depends on the total line resistance.

BLOCK DIAGRAM



VERSIONS	Cod. XCSD70C			
Output 24 Vdc 3 A	**CSD70C**			
Output 24 Vdc 3 A redundant version		–		
Output 12…15 Vdc 5…4 A			–	
Output 48 Vdc 1.5 A				–
INPUT TECHNICAL DATA				
Input rated voltage	**120–230 Vac** (range 90…264 Vac / 100…370 Vdc) (2)			
Frequency	47...63 Hz			
Current @ nominal Iout (Uin 120 /230 Vac)	1.25 A / 0.8 A ± 10%			
Inrush peak current	< 15 A			
Power factor	> 0.6			
Internal protection fuse	T 2 A not replaceable			
External protection on AC line	circuit breaker: 4 A C characteristic - fuse: T 3.15 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**			
Output adjustable range	24...27.5 Vdc			
Continuous current	**3 A** @ 55°C (3)			
Overload limit	4 A (4)			
Short circuit peak current	—			
Load regulation	< 1%			
Ripple @ nominal ratings	≤ 60 mVpp			
Hold up time @ In (Uin 120 / 230 Vac)	>15 ms / >30 ms			
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection			
Status display	"DC OK" green LED			
Alarm contact threshold	–			
Parallel connection	possible			
Redundant parallel connection	possible with external ORing diode			
GENERAL TECHNICAL DATA				
Efficiency (Uin 120 / 230 Vac)	>87% / >89%			
Dissipated power (Uin 120 / 230 Vac)	10.4 W / 8.6 W			
Operating temperature range	–20...+60°C, with derating over 55°C (3)			
Input/output isolation	3 KVac / 60 s SELV output			
Input/ground isolation	class 2 without PE connection			
Output/ground isolation	class 2 without PE connection			
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508			
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11			
MTBF @ 25°C @ nominal ratings	>750'000 h acc. to SN 29500 / >250'000 h acc. to MIL Std. HDBK 217F			
Overvoltage category/Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection terminal	2.5 mm² fixed screw type			
Housing material	UL94V-0 plastic material			
Approx. weight	250 g (8.82 oz)			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

Switching power supply CSF series

COOL POWER

DIN-rail single phase switching power supplies, specifically designed for applications in industrial automation panels and process control panels. They can deliver +60% to +80% of the nominal current for a sustained period keeping the output voltage constant; the alarm contact is controlled by a voltage threshold, and it switches when the voltage drops under 90% of the rated output value.
Thanks to these features and to the numerous international certifications, this series of power supplies allows engineers to meet all the requirements of the new EN 60204-1 Machinery Directive, to enable the protection devices connected to the output to trigger quickly, safely and above all selectively, thus ensuring continuity of service to the other parts of the system.

Suggested uses

- Applications in industrial automation requiring high levels of efficiency and reliability
- Applications requiring selectivity of surge protection devices on DC lines.
- Application in machinery automation requiring high levels of reliability in terms of control and safety voltage
- Applications in process control
- Heavy duty uses
- Applications in civil automation

Main features

- The 90…264 Vac and 110…370 Vdc input makes them suitable for use on all power supply lines.
- Threshold alarm contact warning when the voltage drops 90% below the rated value.
- Versions with integrated Oring diode for redundant parallel connections, avoiding the use of external devices and reducing dimensions and installation costs.
- Their high efficiency reduces energy consumption and components' operating temperature allowing their use in small panels and under severe ambient conditions.
- Their backup power allows the supply of current and voltage at least +60-80% above the rated value for a few minutes ensuring safety and reliability.
- The output voltage may be adjusted and the output is protected against the input of surges coming from the DC line and caused by inductive loads.
- The output is equipped with double electronic protection devices preventing dangerous voltages which may damage powered components in the event of internal faults.
- Thermal protection prevents faults in the event of prolonged overloads at high ambient temperatures.
- Their design ensures excellent ventilation to internal components, small dimensions and IP20 protection against accidental contacts in compliance with IEC529.
- Thanks to their high efficiency and excellent ventilation, they are the smallest devices available on the market.

Special power supplies for engines in DC, Brushless, and relative drives

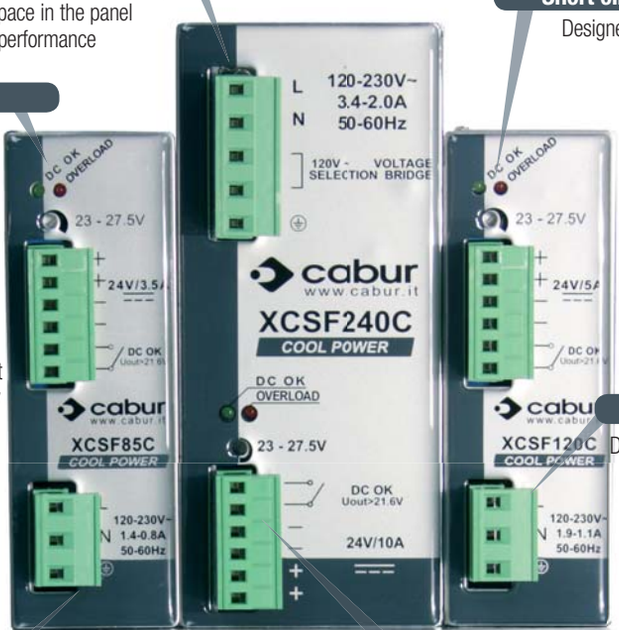
New 48Vdc and 72-85Vdc models have been introduced, designed to reliably power engines in DC. They:

- Supply peak power equal to even 4-5 times the nominal current, which is required by the engine during the peak phase
- Have an output stage protected from overvoltage generated by the engines and drives during braking, which could otherwise cause malfunctions or cause the power supply to lose control over output voltage stability
- Provide output voltage at 48Vdc, and 72-85Vdc. By increasing the voltage of the engine power supply, the same power can be obtained at lower current, with notable advantages for performance, engine construction, cables, and drives.

Extremely compact dimensions
They are among the smallest on the market, optimising the use of space in the panel without compromising performance

Power boost
The output power reaches 120% of the nominal value for several minutes, up to 160% during an overload, and up to 300% in the event of a short-circuit, to enable the protection devices connected to the output to trigger quickly, safely and selectively, without the use of additional modules

Short circuit and overload
Designed to provide load start up current required by heavy loads



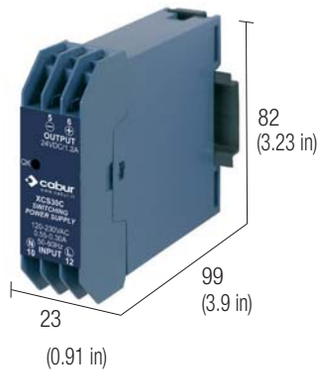
High Efficiency
Designed to save energy and reduce working temperature

Integrated smart alarm contact
Activated when output voltage decreases below 90% of rated value

90…264 Vac and 110…350 Vdc input wide range
Suitable in all single phase supply voltage networks

Single-phase switching power supply 120-230 Vac output power 30 W

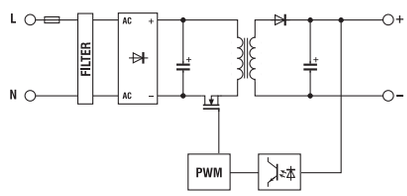
- Single-phase input 90…264 Vac and DC 100…320 Vdc
- Short circuit, overload, over temperature protection
- Isolation Class 2, no grounding needed
- Compact dimensions
- Suitable for applications in SELV and PELV circuits



NOTES

The depth dimension includes the DIN rail clamp.
(1) Version available upon request; for information call our sales department, local agent or representative
(2) With 100...127 Vdc input voltage, constant output power and Ta>45°C, the output current must be derated by 25%
(3) Over 50°C (122°F) apply a derating: C version: -0.03 A/°C; B version: -0.038 A/°C; F version: -0.013 A/°C
(4) Overload and short circuit current depends on the total line resistance.

BLOCK DIAGRAM

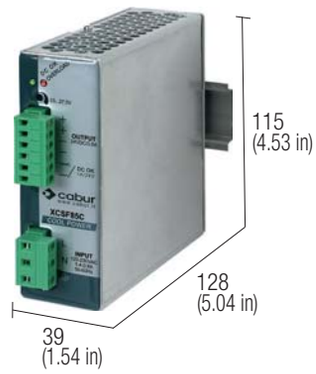


VERSIONS	Cod. XCSF30C	Cod. XCSF30B	Cod. XCSF30F
Output 24 Vdc 1.2 A	**CSF30C**		
Output 10…15 Vdc 1.5 A		**CSF30B**	
Output ±12...±15 Vdc 0.5 A			**CSF30F (1)**

INPUT TECHNICAL DATA			
Input rated voltage	**120–230 Vac** (range 90…264 Vac / 100…320 Vdc) (2)		
Frequency	47...63 Hz		
Current @ nominal Iout (Uin 120 /230 Vac)	0.55 A / 0.3 A ± 10%	0.35 A / 0.2 A ± 10%	
Inrush peak current	< 25 A		
Power factor	> 0.60		
Internal protection fuse	T 1,25 A not replaceable		
External protection on AC line	circuit breaker: 2 A - C characteristic - fuse: T 2 A		
OUTPUT TECHNICAL DATA			
Output rated voltage	**24 Vdc** ± 1%	**12 – 15 Vdc**	**±12 ±15 Vdc**
Output adjustable range	—	10…15 Vdc	±12…±15 Vdc
Continuous current	**1.2 A** @ 50°C (3)	**1.5…1 A** @ 50°C (3)	**0.5 A** @ 50°C (3)
Overload limit	1.4 A (4)	1.7…1.2 A (4)	0.8…0.6 A (4)
Short circuit peak current	—	—	—
Load regulation	< 1%		
Ripple @ nominal ratings	≤ 50 mVpp		
Hold up time @ In (Uin 120 / 230 Vac)	>10 ms / >30 ms		
Overload / short circuit protections	hiccup at the overload limit with auto reset		
Status display	"DC OK" green LED		
Alarm contact threshold	—		
Parallel connection	possible		
Redundant parallel connection	possible with external ORing diode		
GENERAL TECHNICAL DATA			
Efficiency (Uin 120 / 230 Vac)	>86% / >87%		
Dissipated power (Uin 120 / 230 Vac)	4.7 W / 4.3 W		
Operating temperature range	–20...+60°C, with derating over 50°C (3)		
Input/output isolation	3 KVac / 60 s SELV output		
Input/ground isolation	class 2 without PE connection		
Output/ground isolation	class 2 without PE connection		
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508, UL60950		
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11		
MTBF @ 25°C @ nominal ratings	>750'000 h acc. to SN 29500 / >250'000 h acc. to MIL Std. HDBK 217F		
Overvoltage category/Pollution degree	II / 2		
Protection degree	IP 20 IEC 529, EN60529		
Connection terminal	2.5 mm² fixed screw type		
Housing material	UL94V-0 plastic material		
Approx. weight	140 g (4.94 oz)		
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components		
MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**		
Mounting rail type according to IEC60715/G32	—		

Single-phase switching power supply 120-230 Vac output power 85 W

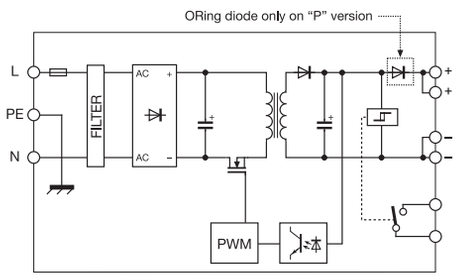
- Single-phase input 90…264 Vac and DC 100…345 Vdc
- Short circuit, overload, over temperature, input and output overvoltage protections
- High outrush current to guarantee downstream overcurrent protections selectivity and to start-up heavy loads
- Failure contact for Uout -10%
- Compact dimensions
- Suitable for applications in SELV and PELV circuits



NOTES

The depth dimension includes the DIN rail clamp.
(2) With 100...127 Vdc input voltage, constant output power and Ta>45°C, the output current must be derated by 25%
(3) Over 45°C (113°F) apply derating: CSF3-CSF3P: -0.06 A/°C for version C, CP and CPH; -0.10 A/°C for version B
(4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.
(5) Only on version CSF85CP, for orders, adds the letter H to the code (XCSF85CPH)

BLOCK DIAGRAM



VERSIONS	Cod. XCSF85C	Cod. XCSF85CP	Cod. XCSF85B	
Output 24 Vdc 3.5 A	**CSF85C**			
Output 24 Vdc 3.5 A redundant version		**CSF85CP**		
Output 12…15 Vdc 6 A			**CSF85B**	
Output 48 Vdc 1.8 A				–

INPUT TECHNICAL DATA	
Input rated voltage	**120–230 Vac** (range 90…264 Vac / 100…345 Vdc) (2)
Frequency	47...63 Hz
Current @ nominal Iout (Uin 120 /230 Vac)	1.6 A / 0.9 A ± 10%
Inrush peak current	< 20 A
Power factor	> 0.65
Internal protection fuse	T 2 A replaceable
External protection on AC line	circuit breaker: 4 A - C characteristic - fuse: T 4 A

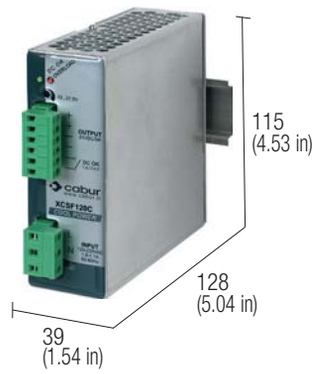
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**		**12…15 Vdc**	
Output adjustable range	23...27.5 Vdc		12…15 Vdc	
Continuous current	**3.5 A** @ 50°C	(3)	**6 A** @ 50°C	(3)
Overload limit	6 A for >30 s with Uout >90% Un	(4)	9 A for >30 s with Uout >90% Un	(4)
Short circuit peak current	10 A for 50 ms	(4)	10 A for 50 ms	(4)
Load regulation	< 1%		< 1%	
Ripple @ nominal ratings	≤ 70 mVpp		≤ 30 mVpp	
Hold up time @ In (Uin 120 / 230 Vac)	>20 ms / >70 ms		>15 ms / >60 ms	
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection			
Status display	"DC OK" green LED / "DC OK" alarm contact/ "Overload" red LED			
Alarm contact threshold	21.6 Vdc		10.8 Vdc	
Parallel connection	possible		possible	
Redundant parallel connection	possible with external ORing diode	factory provided with internal ORing diode	possible with external ORing diode	

GENERAL TECHNICAL DATA		
Efficiency (Uin 120 / 230 Vac)	>85% / >89%	>83% / >87%
Dissipated power (Uin 120 / 230 Vac)	15 W / 11 W	17 W / 13 W
Operating temperature range	–20...+60°C, with derating over 50°C / over temperature protection (3)	
Input/output isolation	3 KVac / 60 s SELV output	
Input/ground isolation	1.5 KVac / 60 s	
Output/ground isolation	0.5 KVac / 60 s	
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508, UL60950	
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11	
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F	
Overvoltage category/Pollution degree	II / 3	
Protection degree	IP 20 IEC 529, EN60529	
Connection terminal	2.5 mm² pluggable screw type	
Housing material	aluminium	
Approx. weight	400 g (14.12 oz)	
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components	

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—

Single-phase switching power supply 120-230 Vac output power 120 W

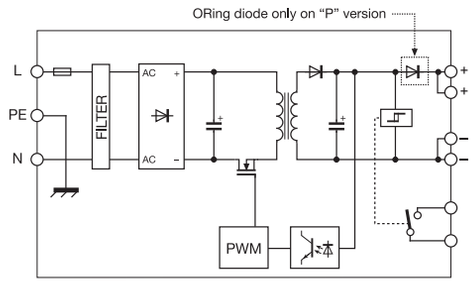
- Single-phase input 90…264 Vac and DC 100…345 Vdc
- Short circuit, overload, over temperature, input and output overvoltage protections
- High outrush current to guarantee downstream overcurrent protections selectivity and to start-up heavy loads
- Failure contact for Uout -10%
- Compact dimensions
- Suitable for applications in SELV and PELV circuits



NOTES

The depth dimension includes the terminal blocks and the DIN clamp.
(2) With 100...127 Vdc input voltage, constant output power and Ta>45°C, the output current must be derated by 25%
(3) Over 45°C (113°F) apply a derating-0.08 A/°C for version C, CP and CPH; -0.12 A/°C for version B; -0.05 A/°C for version DP;
(4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.
(5) Only on version CSF120CP, for orders, adds the letter H to the code (XCSF120CPH)
(6) article available till seel-out

BLOCK DIAGRAM

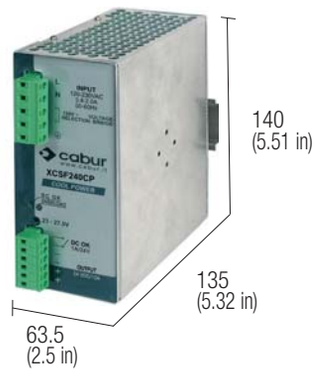


Special version for DC motors

VERSIONS	Cod. XCSF120C	Cod. XCSF120CP	Cod. XCSF120B	Cod. XCSF120DP
Output 24 Vdc 5 A	**CSF120C**			
Output 24 Vdc 5 A redundant version		**CSF120CP**		
Output 12…15 Vdc 7 A			**CSF120B (6)**	
Output 48 Vdc 2.5 A				**CSF120DP**
INPUT TECHNICAL DATA				
Input rated voltage	**120–230 Vac** (range 90…264 Vac / 100…345 Vdc) (2)			
Frequency	47...63 Hz			
Current @ nominal Iout (Uin 120 /230 Vac)	1.9 A / 1.1 A ± 10%			
Inrush peak current	< 20 A			
Power factor	> 0.65			
Internal protection fuse	T 3.15 A replaceable			
External protection on AC line	circuit breaker: 4 A - C characteristic - fuse: T 4 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**		**12…15 Vdc**	**48 Vdc**
Output adjustable range	23...27.5 Vdc		12…15 Vdc	45…55 Vdc
Continuous current	**5 A** @ 45°C (3)		**7 A** @ 45°C (3)	**2.5 A** @ 45°C (3)
Overload limit	8 A for >30 s with 90% Un (4)		8 A for >30 s with 90% Un (4)	8 A for >30 s with 90% Un (4)
Short circuit peak current	15 A for 50 ms (4)		15 A for 50 ms (4)	7.5 A for 50 ms (4)
Load regulation	< 1%		< 1%	< 1%
Ripple @ nominal ratings	≤ 30 mVpp		≤ 40 mVpp	≤ 30 mVpp
Hold up time @ In (Uin 120 / 230 Vac)	>17 ms / >72 ms		>24 ms / >80 ms	>16 ms / >81 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection			
Status display	"DC OK" green LED / "DC OK" alarm contact/ "Overload" red LED			
Alarm contact threshold	<21.6 Vdc		<10.8 Vdc	<43.2 Vdc
Parallel connection	possible		possible	possible
Redundant parallel connection	possible with external ORing diode	factory provided with internal ORing diode	possible with external ORing diode	factory provided with internal ORing diode
GENERAL TECHNICAL DATA				
Efficiency (Uin 120 / 230 Vac)	>86% / >90%		>85% / >89%	>86% / >90%
Dissipated power (Uin 120 / 230 Vac)	19 W / 13 W		21 W / 15 W	20 W / 13 W
Operating temperature range	–20...+60°C, with derating over 45°C / over temperature protection (3)			
Input/output isolation	3 KVac / 60 s SELV output			
Input/ground isolation	1.5 KVac / 60 s			
Output/ground isolation	0.5 KVac / 60 s			
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508, UL60950			
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11			
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F			
Overvoltage category/Pollution degree	II / 3			
Protection degree	IP 20 IEC 529, EN60529			
Connection terminal	2.5 mm² pluggable screw type			
Housing material	aluminium			
Approx. weight	400 g (14.12 oz)			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

Single-phase switching power supply 120-230 Vac output power 240 W

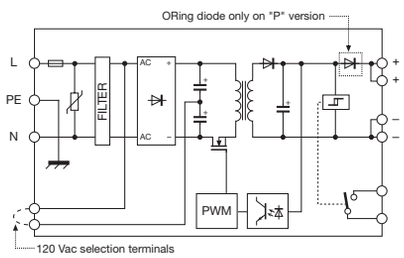
- Single-phase input 120 and 230 Vac
- Short circuit, overload, over temperature, input and output overvoltage protections
- High outrush current to guarantee downstream overcurrent protections selectivity and to start-up heavy loads
- Failure contact for Uout -10%
- Compact dimensions
- Suitable for applications in SELV and PELV circuits



NOTES

The depth dimension includes the terminal blocks and the DIN clamp.
(2) Double input selectable with external jumper, DC supply allow only between 300 and 345 Vdc
(3) Over 45°C (113°F) apply a derating: -0.17 A/°C for version C, CP and CPH; -0.27 A/°C for version B; -0.08 A/°C for version DP;
(4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.
(5) Only on version CSF240CP, for orders, adds the letter H to the code (XCSF240CPH)

BLOCK DIAGRAM

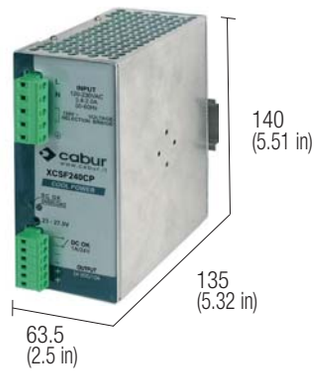


Special version for DC motors

VERSIONS	Cod. XCSF240C	Cod. XCSF240CP	Cod. XCSF240B	XCSF240DP
Output 24 Vdc 10 A	**CSF240C**			
Output 24 Vdc 10 A redundant version		**CSF240CP**		
Output 12…15 Vdc 16 A			**CSF240B**	
Output 48 Vdc 5 A redundant version				**CSF240DP**
INPUT TECHNICAL DATA				
Input rated voltage	**120 - 230 Vac** (range 90…132 Vac / 185…264 Vac / 300...345 Vdc) (2)			
Frequency	47...63 Hz			
Current @ nominal Iout (Uin 120 /230 Vac)	3.5 A / 1.8 A ± 10%			
Inrush peak current	< 35 A			
Power factor	> 0.6			
Internal protection fuse	T 6.3 A replaceable			
External protection on AC line	circuit breaker: 6 A C characteristic - fuse: T 6.3 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**		**12…15 Vdc**	**48 Vdc**
Output adjustable range	23...27.5 Vdc		12…15 Vdc	45…55 Vdc
Continuous current	**10 A** @ 45°C (3)		**16 A** @ 45°C (3)	**5 A** @ 45°C (3)
Overload limit	15 A for >30 s with Uout >90% Un (4)		24 A for >30 s with Uout >90% Un (4)	7.5 A for >30 s with Uout >90% Un (4)
Short circuit peak current	>25 A for 400 ms (4)		>25 A for 400 ms (4)	>25 A for 400 ms (4)
Load regulation	< 1%		< 1%	< 1%
Ripple @ nominal ratings	≤ 50 mVpp		≤ 50 mVpp	≤ 50 mVpp
Hold up time @ In (Uin 120 / 230 Vac)	>30 ms / >60 ms		>30 ms / >60 ms	>30 ms / >60 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection			
Status display	"DC OK" green LED / "DC OK" alarm contact/ "Overload" red LED			
Alarm contact threshold	21.6 Vdc		10.8 Vdc	43.2 Vdc
Parallel connection	possible		possible	possible
Redundant parallel connection	possible with external ORing diode	factory provided with internal ORing diode	possible with external ORing diode	factory provided with internal ORing diode
GENERAL TECHNICAL DATA				
Efficiency (Uin 120 / 230 Vac)	>88% / >90%		>87% / >90%	>88% / >90%
Dissipated power (Uin 120 / 230 Vac)	32 W / 27 W		35 W / 27 W	32 W / 27 W
Operating temperature range	–20...+60°C, with derating over 45°C / over temperature protection (3)			
Input/output isolation	3 KVac / 60 s SELV output			
Input/ground isolation	1.5 KVac / 60 s			
Output/ground isolation	0.5 KVac / 60 s			
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508, UL60950			
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11			
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F			
Overvoltage category/Pollution degree	II / 3			
Protection degree	IP 20 IEC 529, EN60529			
Connection terminal	2.5 mm² pluggable screw type			
Housing material	aluminium			
Approx. weight	920 g (32.48 oz)			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

Single-phase switching power supply 120-230 Vac output power 240 W

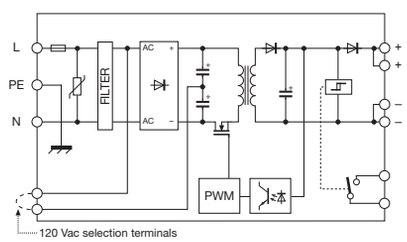
- Single-phase input 120 and 230 Vac
- Short circuit, overload, over temperature, input and output overvoltage protections
- High outrush current to guarantee downstream overcurrent protections selectivity and to start-up heavy loads
- Failure contact for Uout -10%
- Compact dimensions
- Suitable for applications in PELV circuits



NOTES

The depth dimension includes the terminal blocks and the DIN clamp.
(2) Double input selectable with external jumper, DC supply allow only between 300 and 345 Vdc
(3) Over 45°C (113°F) apply a derating: -0.17 A/°C for version C, CP and CPH; -0.27 A/°C for version B; -0.08 A/°C for version DP;
(4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.
(5) Version CSF240G is not suitable for SELV applications

BLOCK DIAGRAM



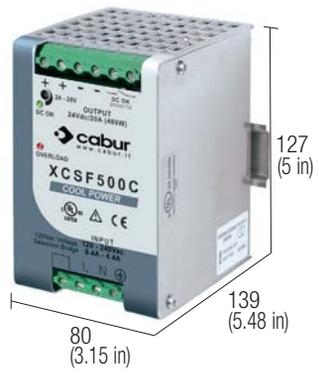
Special version for DC motors

VERSIONS	Cod. XCSF240G			
Output 72 Vdc 3.5 A redundant version	**CSF240G**			

INPUT TECHNICAL DATA				
Input rated voltage	**120 - 230 Vac** (range 90…132 Vac / 185…264 Vac / 300...345 Vdc) (2)			
Frequency	47...63 Hz			
Current @ nominal Iout (Uin 120 /230 Vac)	3.5 A / 1.8 A ± 10%			
Inrush peak current	< 35 A			
Power factor	> 0.6			
Internal protection fuse	T 6.3 A replaceable			
External protection on AC line	circuit breaker: 6 A C characteristic - fuse: T 6.3 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**72 Vdc**			
Output adjustable range	72…85 Vdc			
Continuous current	**3.5 A** @ 50°C (3)			
Overload limit	>13.8A for >30 s with Uout >90% Un (4)			
Short circuit peak current	>25 A for 400 ms (4)			
Load regulation	< 1%			
Ripple @ nominal ratings	≤ 50 mVpp			
Hold up time @ In (Uin 120 / 230 Vac)	>30 ms / >60 ms			
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection			
Status display	"DC OK" green LED / "DC OK" alarm contact/ "Overload" red LED			
Alarm contact threshold	64.8 Vdc			
Parallel connection	possible			
Redundant parallel connection	factory provided with internal ORing diode			
GENERAL TECHNICAL DATA				
Efficiency (Uin 120 / 230 Vac)	>89.5% / >89.5%			
Dissipated power (Uin 120 / 230 Vac)	28 W / 28 W			
Operating temperature range	–20...+60°C, with derating over 45°C / over temperature protection (3)			
Input/output isolation	3 KVac / 60 s not SELV output (5)			
Input/ground isolation	1.5 KVac / 60 s			
Output/ground isolation	0.5 KVac / 60 s			
Standard/approvals	IEC950, EN60950, UL508			
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11			
MTBF @ 25°C @ nominal ratings	>500'000 h secondo SN 29500 / >150'000 h secondo MIL Std. HDBK 217F			
Overvoltage category/Pollution degree	II / 3			
Protection degree	IP 20 IEC 529, EN60529			
Connection terminal	2.5 mm² pluggable screw type			
Housing material	aluminium			
Approx. weight	920 g (32.48 oz)			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

Single-phase switching power supply 120-230 Vac output power 500 W

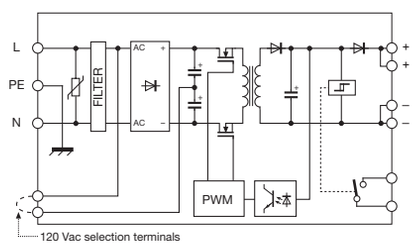
- Single-phase input 120 and 230 Vac
- Short circuit, overload, over temperature, input and output overvoltage protections
- High outrush current to guarantee downstream overcurrent protections selectivity and to start-up heavy loads
- Compact dimensions
- Suitable for applications in SELV and PELV circuits
- Failure contact for Uout -10%



NOTES

The depth dimension includes the DIN rail clamp.
(2) Double input selectable with external jumper.
(3) Over 45°C (113°F) apply a derating: C version: -0.34 A/°C for version C; -0.17 A/°C for version D;
(4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.

BLOCK DIAGRAM

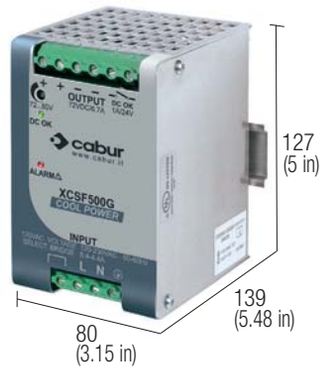


Special version for DC motors

VERSIONS	Cod. XCSF500C		Cod. XCSF500D
Output 24 Vdc 20 A	–		
Output 24 Vdc 20 A redundant version	**CSF500C**		
Output 12…15 Vdc 40 A		–	
Output 48 Vdc 10 A redundant version			**CSF500D**
INPUT TECHNICAL DATA			
Input rated voltage	**120–230 Vac** (range 90…132 Vac / 185…264 Vac) (2)		
Frequency	47...63 Hz		
Current @ nominal Iout (Uin 120 /230 Vac)	4.1 A / 2 A ± 10%		
Inrush peak current	< 25 A with electronic limiter		
Power factor	> 0.75 with PFC		
Internal protection fuse	—		
External protection on AC line	circuit breaker: 16 A C characteristic - fuse: T 15 A		
OUTPUT TECHNICAL DATA			
Output rated voltage	**24 Vdc**		**48 Vdc**
Output adjustable range	24...28 Vdc		45…55 Vdc
Continuous current	**20 A** @ 45°C (3)		**10 A** @ 45°C (3)
Overload limit	30 A for >5 s with Uout >90% Un (4)		15 A for >5 s with Uout >90% Un (4)
Short circuit peak current	>50 A for 5 s (4)		>50 A for 5 s (4)
Load regulation	< 0.5%		< 0.5%
Ripple @ nominal ratings	≤ 50 mVpp		≤ 50 mVpp
Hold up time @ In (Uin 120 / 230 Vac)	>12 ms / >20 ms		>12 ms / >20 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection		
Status display	"DC OK" green LED / "DC OK" alarm contact/ "Overload" red LED		
Alarm contact threshold	21.6 Vdc		43.2 Vdc
Parallel connection	possible		possible
Redundant parallel connection	factory provided with internal ORing diode		factory provided with internal ORing diode
GENERAL TECHNICAL DATA			
Efficiency (Uin 120 / 230 Vac)	>90% / >92%		>90% / >92%
Dissipated power (Uin 120 / 230 Vac)	55 W / 43 W		55 W / 43 W
Operating temperature range	–20...+60°C, with derating over 45°C / over temperature protection (3)		
Input/output isolation	3 KVac / 60 s SELV output		
Input/ground isolation	1.5 KVac / 60 s		
Output/ground isolation	0.5 KVac / 60 s		
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508		
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11		
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F		
Overvoltage category/Pollution degree	II / 2		
Protection degree	IP 20 IEC 529, EN60529		
Connection terminal	4 and 6 mm² fixed screw type		
Housing material	aluminium		
Approx. weight	1,3 kg (45.89 oz)		
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components		
MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**		
Mounting rail type according to IEC60715/G32	—		

Single-phase switching power supply 120-230 Vac output power 500 W

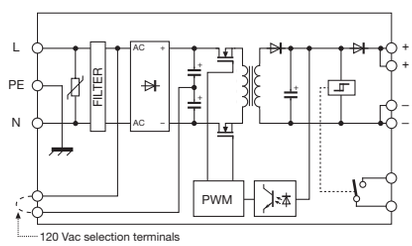
- Single-phase input 120 and 230 Vac
- Short circuit, overload, over temperature, input and output overvoltage protections
- High outrush current to guarantee downstream overcurrent protections selectivity and to start-up heavy loads
- Compact dimensions
- Suitable for applications in PELV circuits



NOTES

The depth dimension includes the DIN rail clamp.
(2) Double input selectable with external jumper.
(3) Over 45°C (113°F) apply a derating: C version: -0.34 A/°C for version C; -0.17 A/°C for version D;
(4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.
(5) Version CSF240G is not suitable for SELV applications

BLOCK DIAGRAM

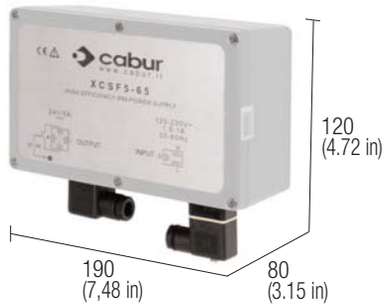


Special version for DC motors

VERSIONS	Cod. XCSF500G			
Sortie 72 Vdc 6.7 A versione redondante	**CSF500G**			
INPUT TECHNICAL DATA				
Input rated voltage	**120–230 Vac** (échelle 90…132 Vac / 185…264 Vac) (2)			
Frequency	47...63 Hz			
Current @ nominal Iout (Uin 120 /230 Vac)	8.4 A / 4.4 A ± 10%			
Inrush peak current	< 35 A			
Power factor	> 0.67			
Internal protection fuse	—			
External protection on AC line	circuit breaker: 16 A C characteristic - fuse: T 15 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**72 Vdc**			
Output adjustable range	72…85 Vdc			
Continuous current	**6.7 A** @ 50°C (3)			
Overload limit	>10A for >5 s con Uout >90% Un (4)			
Short circuit peak current	>20 A for 400 ms (4)			
Load regulation	< 1%			
Ripple @ nominal ratings	≤ 100 mVpp			
Hold up time @ In (Uin 120 / 230 Vac)	>30 ms / >35ms			
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection			
Status display	"DC OK" green LED / "DC OK" alarm contact/ "Overload" red LED			
Alarm contact threshold	<64.8 Vd			
Parallel connection	possible			
Redundant parallel connection	factory provided with internal ORing diode			
GENERAL TECHNICAL DATA				
Efficiency (Uin 120 / 230 Vac)	>92% / >92%			
Dissipated power (Uin 120 / 230 Vac)	42 W / 72 W			
Operating temperature range	–20...+60°C, with derating over 45°C / over temperature protection (3)			
Input/output isolation	3 KVac / 60 s SELV output (5)			
Input/ground isolation	2 KVac / 60 s			
Output/ground isolation	0.7 KVac / 60 s			
Standard/approvals	IEC950, EN60950, UL508			
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11			
MTBF @ 25°C @ nominal ratings	>500'000 h secondo SN 29500 / >150'000 h secondo MIL Std. HDBK 217F			
Overvoltage category/Pollution degree				
Protection degree	IP 20 IEC 529, EN60529			
Connection terminal	4 and 6 mm² fixed screw type			
Housing material	aluminium			
Approx. weight	1,3 kg (45.89 oz)			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

Single-phase switching power supply 120-230 Vac IP65 protection degree

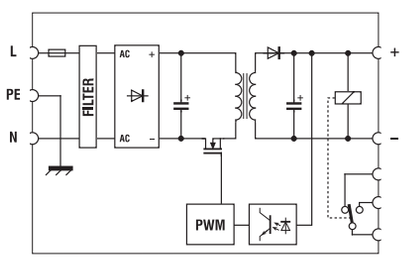
- Single-phase input 90…264 Vac and DC 100…345 Vdc
- Short circuit, overload, over temperature, input and output overvoltage protections
- Suitable to be mounted directly on the machinery frame, don't require any protective enclosure
- IP65 pluggable screw connectors
- Suitable for applications in SELV and PELV circuits



NOTES

The depth dimension includes the terminal blocks and the DIN clamp.
(1) With 100...127 Vdc input voltage, constant output power and Ta>45°C, the output current must be derated by 25%
(2) Overload and short circuit current depends on the total line resistance.

BLOCK DIAGRAM



VERSIONS	Cod. XCSF565
Output 24 Vdc 5 A	**CSF5-65**

INPUT TECHNICAL DATA	
Input rated voltage	**120–230 Vac** (range 90…264 Vac / 100…345 Vdc) (1)
Frequency	47...63 Hz
Current @ nominal Iout (Uin 120 /230 Vac)	1.8 A / 1 A ± 10%
Inrush peak current	< 20 A
Power factor	> 0.7
Internal protection fuse	T 3.15 A replaceable
External protection on AC line	circuit breaker: 4 A - C characteristic - fuse: T 4 A
OUTPUT TECHNICAL DATA	
Output rated voltage	**24 Vdc**
Output adjustable range	23...27.5 Vdc
Continuous current	**5 A** @ 60°C
Overload limit	8 A (2)
Short circuit peak current	—
Load regulation	< 1%
Ripple @ nominal ratings	≤ 50 mVpp
Hold up time @ In (Uin 120 / 230 Vac)	>10 ms / >20 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection
Status display	"DC OK" green LED / "DC OK" alarm contact
Alarm contact threshold	—
Parallel connection	possible
Redundant parallel connection	possible with external ORing diode
GENERAL TECHNICAL DATA	
Efficiency (Uin 120 / 230 Vac)	>87% / >90%
Dissipated power (Uin 120 / 230 Vac)	18 W / 12 W
Operating temperature range	–20...+60°C / over temperature protection
Input/output isolation	3 KVac / 60 s SELV output
Input/ground isolation	1.5 KVac / 60 s
Output/ground isolation	0.5 KVac / 60 s
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F
Overvoltage category/Pollution degree	II / 2
Protection degree	IP 20 IEC 529, EN60529
Connection terminal	2.5 mm² IP65 pluggable screw connectors
Housing material	aluminium
Approx. weight	1.9 Kg (67.02 oz)
Mounting information	vertical on rail or panel mounting by means of screws
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—

Switching power supply CSL and CSP series

EASY POWER

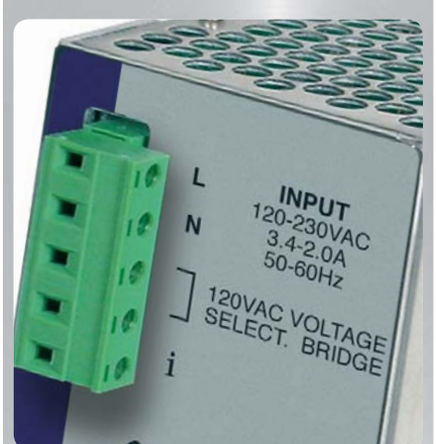
Single phase DIN rail power supplies for general applications in automation and installation. **With particulary high quality / price ratio**, these products are ideal and convenient for applications where loads do not require high peak currents. They can deliver over +40% of nominal current for a sustained period, keeping the output voltage stable and ensuring continuity of supply to the system. **With these features, this range of power supplies enables designers to meet the requirements of the Machinery Directive, EN 60204-1**, allowing the protection devices connected to the output to trigger quickly, safely and selectively, thus ensuring continuity of service to the other parts of the system.

Suggested uses

- Applications in civil automation
- General applications in the installation of systems

Main features

- Equipped with 120 - 230 Vac input, they are suitable for use in all single-phase networks.
- Their high efficiency reduces energy consumption and components' operating temperature allowing their use in small panels and under severe ambient conditions.
- Backup power +40% above the rated voltage ensuring safety and reliability.
- The output voltage may be adjusted and is protected against the input of surges caused by inductive loads on the DC line and is equipped with double electronic protection devices preventing damages to powered equipment in the event of internal faults.
- Short-circuit, overload and thermal protection devices prevent faults in the event of prolonged overloads at high ambient temperatures.
- Their design ensures excellent ventilation to internal components, very small dimensions and IP20 protection against accidental contacts in compliance with IEC529.
- Compared to other products having similar power and costs, they offer higher performances, functions and reliability.



Short circuit, overload and thermal protections
Avoids failures caused by overload at high ambient temperatures

Adjustable output voltage
Protected against the input of surges coming from the DC line and caused by inductive loads

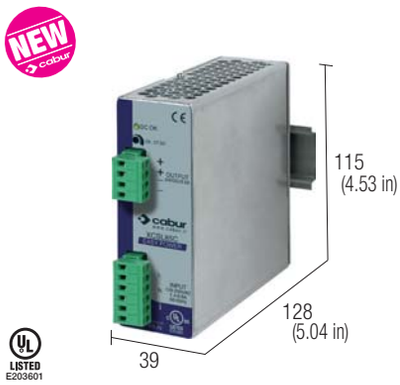
Power boost
The output power reaches 120% of the nominal value for several minutes, up to 140% during an overload, and up to 300% in the event of a short-circuit, to enable the protection devices connected to the output to trigger quickly, safely and selectively, without the use of additional modulesi

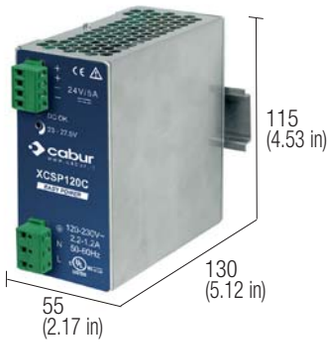
Extremely compact dimensions
They are among the smallest on the market, optimising the use of space in the panel without compromising performance

High Performance
Reduces energy consumption and reduces the working temperature of the components and allows use in small panel and in heavy environmental conditions

Single-phase switching power supply 120-230 Vac output power 85 W

- Single-phase input 90…264 Vac
- Short circuit, overload, over temperature, input and output overvoltage protections
- Suitable in civil automation and general applications in the installation of systems
- Suitable for applications in SELV and PELV circuits

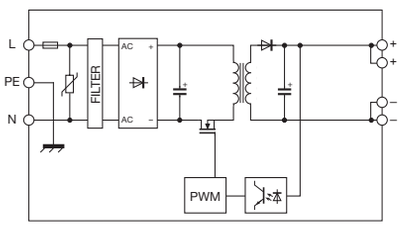




NOTES

The depth dimension includes the terminal blocks and the DIN clamp.
(3) Over 45°C (113°F) apply a derating of -0.06 A/°C
(4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.
(5) Version available after September 2011

BLOCK DIAGRAM



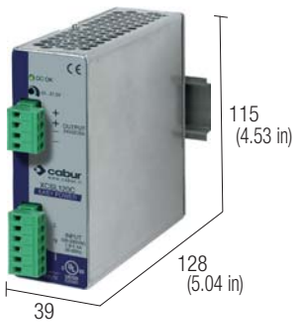
Items sold until sell-out,
will be replaced by **CSL85C** series

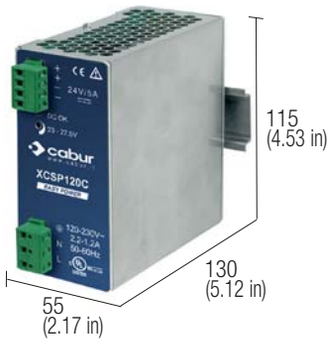
VERSIONS	Cod. XCSL85C	Cod. XCSP85C
Output 24 Vdc 5 A	**CSL85C (5)**	**CSP85C**
Output 24 Vdc 5		

INPUT TECHNICAL DATA		
Input rated voltage	**120–230 Vac** (range 90…264 Vac)	
Frequency	47...63 Hz	
Current @ nominal Iout (Uin 120 /230 Vac)	1.6A / 0.9 A ± 10%	
Inrush peak current	< 20 A	
Power factor	> 0.65	
Internal protection fuse	T 2 A replaceable	
External protection on AC line	circuit breaker: 4 A - C characteristic - fuse: T 4 A	
OUTPUT TECHNICAL DATA		
Output rated voltage	**24 Vdc**	**24 Vdc**
Output adjustable range	23...27.5 Vdc	23...27.5 Vdc
Continuous current	**3.5 A** @ 45°C (3)	**3.5 A** @ 45°C (3)
Overload limit	5 A per >30 s con Uout >90% Un (4)	>5 A (4)
Short circuit peak current	9 A per 50 ms	—
Load regulation	< 1%	< 1%
Ripple @ nominal ratings	70 mVpp	≤ 40 mVpp
Hold up time @ In (Uin 120 / 230 Vac)	>20 ms / >70 ms	>10 ms / >20 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection	
Status display	"DC OK" green LED	
Alarm contact threshold	—	
Parallel connection	possible	
Redundant parallel connection	possible with external ORing diode	
GENERAL TECHNICAL DATA		
Efficiency (Uin 120 / 230 Vac)	>86% / >90%	>85% / >89%
Dissipated power (Uin 120 / 230 Vac)	12 W / 8 W	15 W / 11 W
Operating temperature range	-20...+60°C, with derating over 45°C / over temperature protection (3)	
Input/output isolation	3 KVac / 60 s SELV output	
Input/ground isolation	1.5 KVac / 60 s	
Output/ground isolation	0.5 KVac / 60 s	
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508	
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11	
MTBF @ 25°C @ nominal ratings	>400'000 h acc. to SN 29500 / >100'000 h acc. to MIL Std. HDBK 217F	
Overvoltage category/Pollution degree	II / 2	
Protection degree	IP 20 IEC 529, EN60529	
Connection terminal	2.5 mm² pluggable screw type	
Housing material	aluminium and stainless steel	
Approx. weight	400 g (14.10 oz)	
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components	
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32	—	

Single-phase switching power supply 120-230 Vac output power 120 W

- Single-phase input 90…264 Vac
- Short circuit, overload, over temperature, input and output overvoltage protections
- Suitable in civil automation and general applications in the installation of systems
- Suitable for applications in SELV and PELV circuits

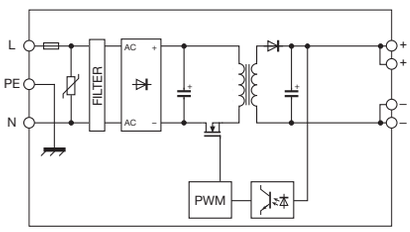




NOTES

The depth dimension includes the terminal blocks and the DIN clamp.
(3) Over 45°C (113°F) apply a derating of -0.08 A/°C
(4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.
(5) Version available after September 2011

BLOCK DIAGRAM



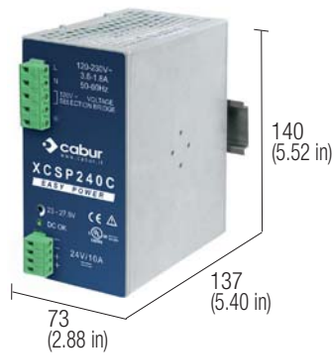
Items sold until sell-out,
will be replaced by **CSL120C** series

VERSIONS	Cod. XCSL120C	Cod. XCSP120C
Output 24 Vdc 5 A	**CSL120C (5)**	**CSP120C**
Output 24 Vdc 5 A		

INPUT TECHNICAL DATA		
Input rated voltage	**120–230 Vac** (range 90…264 Vac)	
Frequency	47...63 Hz	
Current @ nominal Iout (Uin 120 /230 Vac)	1.9 A / 1.1 A ± 10%	
Inrush peak current	< 20 A	
Power factor	> 0.65	
Internal protection fuse	T 3.15 A replaceable	
External protection on AC line	circuit breaker: 4 A - C characteristic - fuse: T 4 A	
OUTPUT TECHNICAL DATA		
Output rated voltage	**24 Vdc**	**24 Vdc**
Output adjustable range	23...27.5 Vdc	23...27.5 Vdc
Continuous current	**5 A** @ 45°C (3)	**5 A** @ 45°C (3)
Overload limit	8 A per >30 s con Uout > 90% Un (4)	>6 A (4)
Short circuit peak current	13 A per 50 ms (4)	—
Load regulation	< 1%	< 1%
Ripple @ nominal ratings	30 mVpp	≤ 40 mVpp
Hold up time @ In (Uin 120 / 230 Vac)	>17 ms / >72 ms	>10 ms / >20 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection	
Status display	"DC OK" green LED	
Alarm contact threshold	—	
Parallel connection	possible	
Redundant parallel connection	possible with external ORing diode	
GENERAL TECHNICAL DATA		
Efficiency (Uin 120 / 230 Vac)	>87% / >91%	>86% / >90%
Dissipated power (Uin 120 / 230 Vac)	18 W / 12 W	19 W / 13 W
Operating temperature range	-20...+60°C, with derating over 45°C / over temperature protection (3)	
Input/output isolation	3 KVac / 60 s SELV output	
Input/ground isolation	1.5 KVac / 60 s	
Output/ground isolation	0.5 KVac / 60 s	
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508	
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11	
MTBF @ 25°C @ nominal ratings	>400'000 h acc. to SN 29500 / >100'000 h acc. to MIL Std. HDBK 217F	
Overvoltage category/Pollution degree	II / 2	
Protection degree	IP 20 IEC 529, EN60529	
Connection terminal	2.5 mm² pluggable screw type	
Housing material	aluminium and stainless steel	
Approx. weight	400 g (14.10 oz)	
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components	
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32	—	

Single-phase switching power supply 120-230 Vac output power 240 W

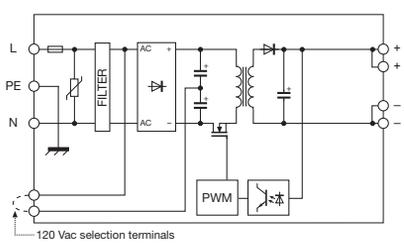
- Single-phase input 120 and 230 Vac
- Short circuit, overload, over temperature, input and output overvoltage protections
- Suitable in civil automation and general applications in the installation of systems
- Suitable for applications in SELV and PELV circuits



NOTES

The depth dimension includes the terminal blocks and the DIN clamp.
(2) Double input selectable with external jumper.
(3) Over 45°C (113°F) apply a derating of -0.17 A/°C
(4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.
(5) Version available after September 2011

BLOCK DIAGRAM



Items sold until sell-out,
will be replaced by **CSL240C** series

VERSIONS	Cod. XCSL240C	Cod. XCSP240C
Output 24 Vdc 10 A	**CSL204C (5)**	**CSP240C**
INPUT TECHNICAL DATA		
Input rated voltage	**120–230 Vac** (range 90…132 Vac / 185…264 Vac) (2)	
Frequency	47...63 Hz	
Current @ nominal Iout (Uin 120 /230 Vac)	3.5A / 1.8 A ± 10%	
Inrush peak current	< 35 A	
Power factor	> 0.6 / >0.85	
Internal protection fuse	T 6.3 A sostituibile	
External protection on AC line	magnetotermico: 6 A curva C - fusibili: T 6.3 A	
OUTPUT TECHNICAL DATA		
Output rated voltage	**24 Vdc**	**24 Vdc**
Output adjustable range	23...27.5 Vdc	23...27.5 Vdc
Continuous current	**10 A** @ 45°C (3)	**10 A** @ 45°C (3)
Overload limit	14 A per >30 s with Uout > 90% Un (4)	>14 A (4)
Short circuit peak current	>24 A per 400 ms	—
Load regulation	< 1%	< 1%
Ripple @ nominal ratings	50 mVpp	≤ 60 mVpp
Hold up time @ In (Uin 120 / 230 Vac)	>30 ms / >60 ms	>20 ms / >40 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection	
Status display	"DC OK" green LED	
Alarm contact threshold	—	
Parallel connection	possible	
Redundant parallel connection	possible with external ORing diode	
GENERAL TECHNICAL DATA		
Efficiency (Uin 120 / 230 Vac)	>87% / >90%	>88% / >90%
Dissipated power (Uin 120 / 230 Vac)	35 W / 27 W	32 W / 27 W
Operating temperature range	-20...+60°C, with derating over 45°C / over temperature protection (3)	
Input/output isolation	3 KVac / 60 s SELV output	
Input/ground isolation	1.5 KVac / 60 s	
Output/ground isolation	0.5 KVac / 60 s	
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508	
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11	
MTBF @ 25°C @ nominal ratings	>400'000 h acc. to SN 29500 / >100'000 h acc. to MIL Std. HDBK 217F	
Overvoltage category/Pollution degree	II / 2	
Protection degree	IP 20 IEC 529, EN60529	
Connection terminal	2.5 mm² pluggable screw type	
Housing material	aluminium and stainless steel	
Approx. weight	920 g (32.48 oz)	
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components	
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32	—	

Switching power supply CSW series

UNIVERSAL POWER

DIN rail switching power supplies with universal input 185 ... 550 Vac single phase and two-phase applications in industrial automation and process control. The input circuit technology makes them immune to surges caused by failures in the three-phase networks with neutral wire, increasing application reliability. Compared to single-phase power supplies, **this series has a higher reliability in industrial environments**. The input circuit uses components with an operating voltage of 900 V, more resistant to voltage peaks present in industrial networks, than the components used in single phase power supplies.
The capability to operate from 185 to 550 Vac allows for installations in both single-phase 230V and three-phase 400V networks.

Suggested uses

- In single or three-phase systems requiring great flexibility
- Applications in industrial automation and process control
- Heavy duty uses
- Applications in civil automation

Main features

- The wide-range input 185…550 Vac may be supplied single-phase 230…240 Vac, two-phase 208 Vac and two-phase 400…500 Vac ensuring excellent adaptability to AC networks and enabling to get rid of the isolating transformer.
- The two-phase input enables to reduce dimensions, wiring, installation costs and space inside the panel.
- They enable to get rid of the transformer for adapting to power voltages.
- Versions with DC OK alarm contact.
- Their high efficiency reduces energy consumption and components' operating temperature allowing their use in small panels and under severe ambient conditions.
- Great backup power allowing to supply at least + 50% above the rated voltage for 5 seconds ensuring safety and reliability.
- The output voltage may be adjusted and is protected against the input of surges on the DC line and is equipped with double electronic protection devices disconnecting output in the event of internal faults.
- Dimensioned short-circuit and overload protection supplying breakaway starting currents 150% above the rated value required by heavy loads; thermal protection prevents failures in the event of prolonged overloads at high ambient temperatures.
- Their design ensures excellent ventilation to internal components, very small dimensions and IP20 protection against accidental contacts in compliance with IEC529.
- Thanks to their high efficiency and excellent ventilation, they are the smallest devices available on the market.

185…550 Vac wide range input

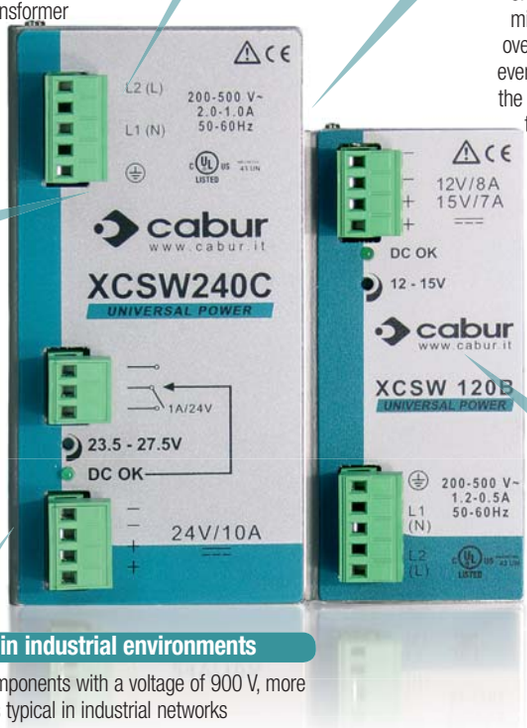
Connectable in 230 or 240V single-phase lines, in 208, 400 or 500 V three-phase lines for the maximum adaptability to the AC lines, by removing the isolation transformer

Power boost

The output power reaches 120% of the nominal value for several minutes, up to 150% during an overload, and up to 250% in the event of a short-circuit, to enable the protection devices connected to the output to trigger quickly, safely and selectively, without the use of additional

Two-phase input

Saves space, wiring, installation costs



High Performance

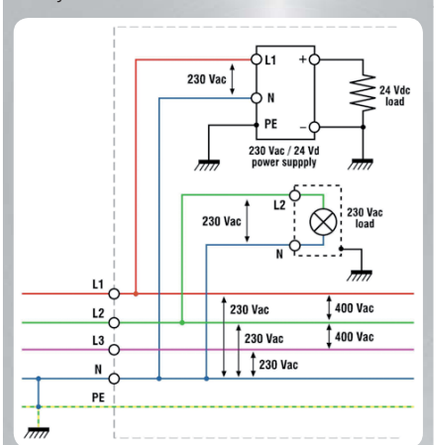
Reduces energy consumption and the operating temperature of the components and allows installation in small panels

Increased reliability in industrial environments

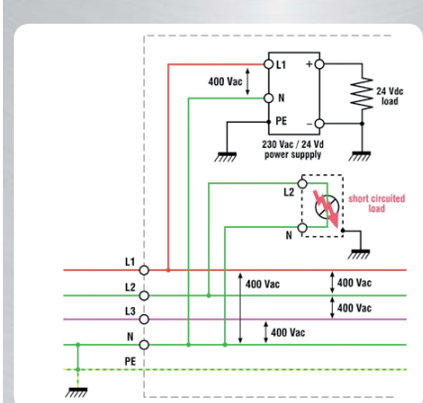
The input circuit uses components with a voltage of 900 V, more resistant to voltage peaks typical in industrial networks

Greater reliability

Compared to single-phase power supplies, this Series is more reliable in industrial applications. The input stage uses components with 900 V operating voltage, which are more resistant to voltage peaks in industrial power lines compared to components used in single-phase supplies, whose operating voltage is 550V in high-quality power supplies, but often 400...450 V in low-cost products. Being able to work from 185 to 550 Vac, these power supplies are immune to power failures; at 230 Vac input (L1-N), when another device connected to L2-N goes short, the neutral rises up to approx. 400 Vac and the input is supplied phase/phase until the protection is activated, which takes place - at best -in 300 ms; this is one of the most common causes of damages to 230-Vac single-phase power supplies in industrial applications. Another example of faults in 230-Vac single-phase devices powered between phase-neutral is due to the disconnection or accidental interruption of the panel's neutral from the system's neutral: failing to return to the neutral point, the neutral rises up to phase voltage applying approx. 400 Vac to single-phase loads, inevitably damaging the system.



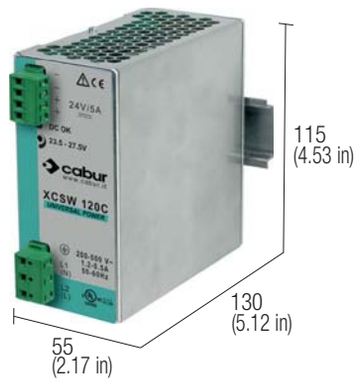
Typical application with three-phase network and neutral. The latter is used to obtain a 230-Vac voltage in order to supply power to loads (in the example, a simple bulb) and power supplies.



A simple short-circuit on the load causes a rise in the neutral's potential, all the devices connected to it will be powered between two phases, i.e. with a value of approx. 340...400 Vac instead of 230 Vac.

1 or 2-phase switching power supply 230-400-500 Vac output power 120 W

- Both single-phase and two-phase input 185...550 Vac
- High reliability and immunity against over voltage due to failures on AC line
- Short circuit, overload, over temperature, input and output overvoltage protections
- High outrush current to guarantee downstream overcurrent protections selectivity and to start-up heavy loads
- High efficiency and low dissipated power
- Suitable for applications in SELV and PELV circuits



NOTES

The depth dimension includes the terminal blocks and the DIN clamp.

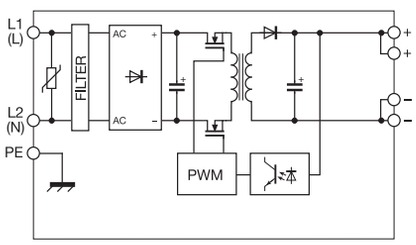
(1) Version available upon request; for information call our sales department, local agent or representative

(2) 550 Vdc max for UL508

(3) Over 50°C (122°F) apply a derating of about 3 W/°C

(4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.

BLOCK DIAGRAM



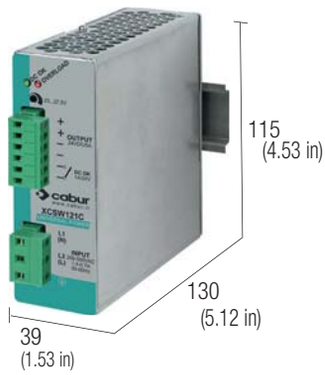
Item available till sell-out,
will be replaced by **CSW121**

VERSIONS	Cod. XCSW120C		Cod. XCSW120B	
Output 24 Vdc 5 A	**CSW120C**			
Output 24 Vdc 5 A redundant version		–		
Output 12…15 Vdc 7 A			**CSW120B**	
Output 48 Vdc 2.5 A				–
INPUT TECHNICAL DATA				
Input rated voltage	1-2x **230-400-500 Vac** (range 185…550 Vac / 270…725 Vdc) (2)			
Frequency	47...63 Hz			
Current @ Iout max. (Uin 230 / 400 Vac)	1.1 A / 0.55 A			
Inrush peak current	< 20 A			
Power factor	> 0.65			
Internal protection fuse	–			
External protection on AC line	circuit breaker: 2x 6 A C characteristic - fuse: 2x T 3.15 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**		**12…15 Vdc**	
Output adjustable range	24...27.5 Vdc		12…15 Vdc	
Continuous current	**5 A** @ 50°C (3)		**8 A** @ 12 Vdc / **7 A** @ 15 Vdc	
Overload limit	6.5 A for >5 s with Uout >90% Un (4)		8.8…7.7 A for >5 s with Uout >90% Un (4)	
Short circuit peak current	15 A for 0.5 s (4)		> 15 A for 0.5 s (4)	
Load regulation	< 1%		< 1%	
Ripple @ nominal ratings	≤ 50 mVpp		≤ 50 mVpp	
Hold up time (Uin 230 / 400 Vac)	>20 ms / >200 ms		>20 ms / >200 ms	
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection			
Status display	"DC OK" green LED			
Alarm contact threshold	–		–	
Parallel connection	possible		possible	
Redundant parallel connection	possible with external ORing diode		possible with external ORing diode	
GENERAL TECHNICAL DATA				
Efficiency (Uin 230 / 400 Vac)	>86% / >88%		>84% / >86%	
Dissipated power (Uin 230 / 400 Vac)	20 W / 16 W		20 W / 17 W	
Operating temperature range	–20...+60°C, with derating over 50°C / over temperature protection (3)			
Input/output isolation	3 KVac / 60 s SELV output			
Input/ground isolation	2 KVac / 60 s			
Output/ground isolation	0.5 KVac / 60 s			
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508			
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11			
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F			
Overvoltage category/Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection terminal	2.5 mm² pluggable screw type			
Housing material	aluminium and stainless steel			
Approx. weight	600 g (21.18 oz)			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

1 or 2-phase switching power supply 230-400-500 Vac output power 120 W

- Single-phase and 2-phase input 185...550 Vac
- High reliability and immunity against over voltage due to failures on AC line
- Short circuit, overload, over temperature, input and output overvoltage protections
- High outrush current to guarantee downstream overcurrent protections selectivity and to start-up heavy loads
- High efficiency and low dissipated power
- Suitable for applications in SELV and PELV circuits

Available from September 2011



NOTES

The depth dimension includes the terminal blocks and the DIN clamp.

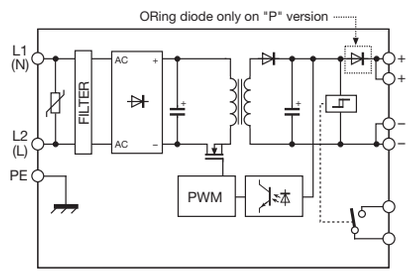
(1) Version available upon request; for information call our sales department, local agent or representative

(2) 550 Vdc max for UL508

(3) Over 50°C (122°F) apply a derating of about 3 W/°C

(4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.

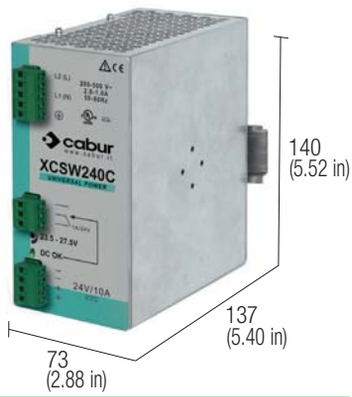
BLOCK DIAGRAM



VERSIONS	Cod. XCSW121C	Cod. XCSW121B	Cod. XCSW121DP	Cod. XCSW121G
Output 24 Vdc 5 A	**CSW121C**			
Output 12…15 Vdc 7 A		**CSW121B**		
Output 48 Vdc 2.5 A redundant version			**CSW121DP (1)**	
Output 72 Vdc 1.5 A redundant version				**CSW121G (1)**
INPUT TECHNICAL DATA				
Input rated voltage	1-2x **230-400-500 Vac** (range 185…550 Vac / 270…725 Vdc) (2)			
Frequency	47...63 Hz			
Current @ Iout max. (Uin 230 / 400 Vac)	1.1 A / 0.55 A			
Inrush peak current	< 20 A			
Power factor	> 0.65			
Internal protection fuse	–			
External protection on AC line	circuit breaker: 2x 6 A C characteristic - fuse: 2x T 3.15 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**	**12…15 Vdc**		
Output adjustable range	24...27.5 Vdc	12…15 Vdc		
Continuous current	**5 A** @ 50°C (3)	**8 A** @ 12 Vdc / **7 A** @ 15 Vdc		
Overload limit	7.5 A for >5 s with Uout >90% Un (4)	10...9 A for >5 s with Uout >90% Un (4)		
Short circuit peak current	15 A for 0.5 s (4)	> 15 A for 0.5 s (4)		
Load regulation	< 1%	< 1%		
Ripple @ nominal ratings	≤ 50 mVpp	≤ 50 mVpp		
Hold up time (Uin 230 / 400 Vac)	>20 ms / >200 ms	>20 ms / >200 ms		
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection			
Status display	"DC OK" green LED / "DC OK" alarm contact/ "Overload" red LED			
Alarm contact threshold	21.6 Vdc	10.8 Vdc		
Parallel connection	possible	possible		
Redundant parallel connection	possible with external ORing diode	possible with external ORing diode		
GENERAL TECHNICAL DATA				
Efficiency (Uin 230 / 400 Vac)	>86% / >88%	>84% / >86%		
Dissipated power (Uin 230 / 400 Vac)	20 W / 16 W	20 W / 17 W		
Operating temperature range	–20...+60°C, with derating over 50°C / over temperature protection (3)			
Input/output isolation	3 KVac / 60 s SELV output			
Input/ground isolation	2 KVac / 60 s			
Output/ground isolation	0.5 KVac / 60 s			
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508			
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11			
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F			
Overvoltage category/Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection terminal	2.5 mm² pluggable screw type			
Housing material	aluminium and stainless steel			
Approx. weight	600 g (21.18 oz)			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

1 or 2-phase switching power supply 230-400-500 Vac output power 240 W

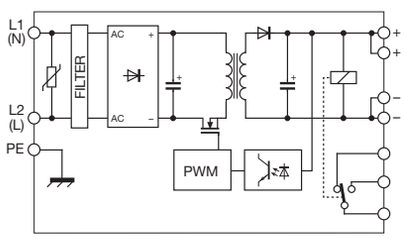
- Both single-phase and two-phase input 185...550 Vac
- High reliability and immunity against over voltage due to failures on AC line
- Short circuit, overload, over temperature, input and output overvoltage protections
- High outrush current to guarantee downstream overcurrent protections selectivity and to start-up heavy loads
- High efficiency and low dissipated power
- Suitable for applications in SELV and PELV circuits



NOTES

The depth dimension includes the terminal blocks and the DIN clamp.
(1) Version available upon request; for information call our sales department, local agent or representative
(2) 550 Vdc max for UL508
(3) Over 50°C (122°F) apply a derating of about 3 W/°C
(4) Overload and short circuit current depends on the total line resistance.

BLOCK DIAGRAM



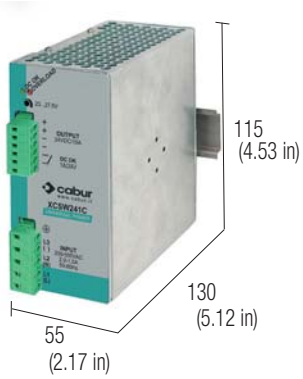
Item available till sell-out, will be replaced by CSW241.. series

VERSIONS	Cod. XCSW240C		Cod. XCSW240B	Cod. XCSW240D
Output 24 Vdc 10 A	**CSW240C**			
Output 24 Vdc 10 A redundant version		–		
Output 12…15 Vdc 16...15 A			**XCSW240B (1)**	
Output 48 Vdc 5 A				**XCSW240D (1)**
INPUT TECHNICAL DATA				
Input rated voltage	1-2x **230-400-500 Vac** (range 185…480 Vac / 270…650 Vdc) (2)			
Frequency	47...63 Hz			
Current @ Iout max. (Uin 230 / 400 Vac)	2 A / 1 A			
Inrush peak current	< 20 A			
Power factor	> 0.65			
Internal protection fuse	–			
External protection on AC line	circuit breaker: 2x 6 A C characteristic - fuse: 2x T 6.3 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**		**12…15 Vdc**	**48 Vdc**
Output adjustable range	24...27.5 Vdc		12…15 Vdc	45…55 Vdc
Continuous current	**10 A** @ 50°C (3)		**16 A** @ 12 Vdc / **15 A** @ 15 Vdc	**5 A** @ 50°C (3)
Overload limit	12 A for >5 s with Uout >90% Un (4)		20…18 A for >5 s with Uout >90% Un (4)	6 A for >5 s with Uout >90% Un (4)
Short circuit peak current	20 A for 0.5 s (4)		20 A for 0.5 s (4)	20 A for 0.5 s (4)
Load regulation	< 1%		< 1%	< 1%
Ripple @ nominal ratings	≤ 80 mVpp		≤ 80 mVpp	≤ 80 mVpp
Hold up time (Uin 230 / 400 Vac)	>20 ms / >120 ms		>20 ms / >120 ms	>20 ms / >120 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection			
Status display	"DC OK" green LED / "DC OK" alarm contact			
Alarm contact threshold	–		–	–
Parallel connection	possible		possible	possible
Redundant parallel connection	possible with external ORing diode		possible with external ORing diode	possible with external ORing diode
GENERAL TECHNICAL DATA				
Efficiency (Uin 230 / 400 Vac)	>88% / >90%		>87% / >89%	>88% / >90%
Dissipated power (Uin 230 / 400 Vac)	33 W / 27 W		34 W / 28 W	33 W / 27 W
Operating temperature range	–20...+60°C, with derating over 50°C / over temperature protection (3)			
Input/output isolation	3 KVac / 60 s SELV output			
Input/ground isolation	2 KVac / 60 s			
Output/ground isolation	0.5 KVac / 60 s			
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508			
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11			
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F			
Overvoltage category/Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection terminal	2.5 mm² pluggable screw type			
Housing material	aluminium and stainless steel			
Approx. weight	1 Kg (35.3 oz)			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

1, 2 or 3-phase switching power supply 230-400-500 Vac output power 240 W

- Single-phase, 2-phase and 3-phase input 185...550 Vac
- High reliability and immunity against over voltage due to failures on AC line
- Short circuit, overload, over temperature, input and output overvoltage protections
- High outrush current to guarantee downstream overcurrent protections selectivity and to start-up heavy loads
- High efficiency and low dissipated power
- Suitable for applications in SELV and PELV circuits

Available from September 2011



NOTES

The depth dimension includes the terminal blocks and the DIN clamp.

(1) Version available upon request; for information call our sales department, local agent or representative

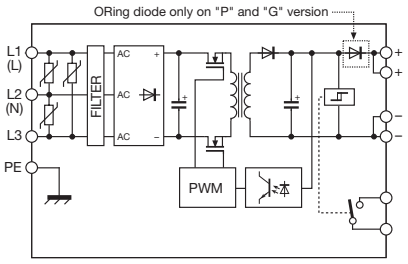
(2) 550 Vdc max for UL508

(3) Over 50°C (122°F) apply a derating of about 3 W/°C

(4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.

(5) Version CSW241G is not suitable for SELV applications

BLOCK DIAGRAM



VERSIONS	Cod. XCSW241C	Cod. XCSW241B	Cod. XCSW241DP	Cod. XCSW241G
Output 24 Vdc 10 A	**CSW241C**			
Output 12…15 Vdc 16...15 A		**XCSW241B** (1)		
Output 48 Vdc 5 A redundant version			**CSW241DP** (1)	
Output 72 Vdc 3.3 A redundant version				**CSW241G** (1) (5)
INPUT TECHNICAL DATA				
Input rated voltage	1-2-3x **230-400-500 Vac** (range 185…550 Vac / 270…770 Vdc) (2)			
Frequency	47...63 Hz			
Current @ Iout max. (Uin 230 / 400 Vac)	2 A / 1 A			
Inrush peak current	< 20 A			
Power factor	> 0.65			
Internal protection fuse	–			
External protection on AC line	circuit breaker: 2-3x 6 A C characteristic - fuse: 2-3x T 6.3 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**	**12…15 Vdc**	**48 Vdc**	
Output adjustable range	24...27.5 Vdc	12…15 Vdc	45…55 Vdc	
Continuous current	**10 A** @ 50°C (3)	**16 A** @ 12 Vdc / **15 A** @ 15 Vdc	**5 A** @ 50°C (3)	
Overload limit	15 A for >5 s with Uout >90% Un (4)	20…18 A for >5 s with Uout >90% Un (4)	6 A for >5 s with Uout >90% Un (4)	
Short circuit peak current	20 A for 0.5 s (4)	20 A for 0.5 s (4)	20 A for 0.5 s (4)	
Load regulation	< 1%	< 1%	< 1%	
Ripple @ nominal ratings	≤ 80 mVpp	≤ 80 mVpp	≤ 80 mVpp	
Hold up time (Uin 230 / 400 Vac)	>20 ms / >120 ms	>20 ms / >120 ms	>20 ms / >120 ms	
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection			
Status display	"DC OK" green LED / "DC OK" alarm contact/ "Overload" red LED			
Alarm contact threshold	21.6 Vdc	10.8 Vdc	43.2 Vdc	–
Parallel connection	possible	possible	possible	possible
Redundant parallel connection	possible with external ORing diode	possible with external ORing diode	possible with external ORing diode	possible with external ORing diode
GENERAL TECHNICAL DATA				
Efficiency (Uin 230 / 400 Vac)	>88% / >90%	>87% / >89%	>88% / >90%	
Dissipated power (Uin 230 / 400 Vac)	33 W / 27 W	34 W / 28 W	33 W / 27 W	
Operating temperature range	–20...+60°C, with derating over 50°C / over temperature protection (3)			
Input/output isolation	3 KVac / 60 s SELV output (5)			
Input/ground isolation	2 KVac / 60 s			
Output/ground isolation	0.5 KVac / 60 s			
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508			
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11			
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F			
Overvoltage category/Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection terminal	2.5 mm² pluggable screw type			
Housing material	aluminium and stainless steel			
Approx. weight	1 Kg (35.3 oz)			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

Switching power supply CSB and CSG series

TRIPLE POWER

DIN-rail 3-phase switching power supplies specifically designed for applications in industrial automation control panels.
They can deliver over +50% of the nominal current for a sustained period keeping a stable output voltage.
The alarm contact is controlled by a voltage threshold and it switches when the voltage drops below 90% of the rated value.
Thanks to these features and to the numerous international certifications, this series of power supplies allows engineers to meet all the requirements of the new EN 60204-1 Machinery Directive, to enable the protection devices connected to the output to trigger quickly, safely and selectively, thus ensuring continuity of service to the other parts of the system.

Suggested uses

- Applications in machinery automation requiring high levels of reliability in terms of control and safety voltage
- In applications requiring selectivity of surge protection devices on DC lines
- Applications in industrial automation
- Heavy duty uses

Main features

- Equipped with 340…550 Vac / 507…770 Vdc, they are suitable for use on all power lines.
- Their high efficiency reduces energy consumption and components' operating temperature allowing their use in small panels and under severe ambient conditions.
- Great backup power allowing to supply at least + 50% above the rated voltage for 5 seconds, keeping output voltage constant and ensuring safety and reliability.
- The output voltage may be adjusted and is protected against the input of surges on the DC line and is equipped with double electronic protection devices preventing damages to powered components in the event of internal faults.
- Dimensioned short-circuit and overload protection supplying breakaway starting currents 150% above the rated value required by heavy loads.
- Thermal protection prevents faults in the event of prolonged overloads at high ambient temperatures.
- Their design ensures excellent ventilation to internal components, very small dimensions and IP20 protection against accidental contacts in compliance with IEC529.

Integrated smart alarm contact
Activated when output voltage decreases below 90% of rated value

Extremely compact dimensions
They are among the smallest on the market, optimising the use of space in the panel without compromising performance

Power boost
The output power reaches 120% of the nominal value for several minutes, up to 150% during an overload, and up to 250% in the event of a short-circuit, to enable the protection devices connected to the output to trigger quickly, safely and selectively, without the use of additional modules

Very high efficiency
Designed to save energy and reduce the working temperature

Wide range
The widest range on the market, with power ratings from 120 to 2400W and output voltages of 24, 48 and 72 V, for uses including powering special motors

Special power supplies for engines in DC, Brushless, and relative drives

New 48Vdc, 72-85Vdc, and 110-180Vdc models have been introduced, designed to reliably power engines in DC. They:

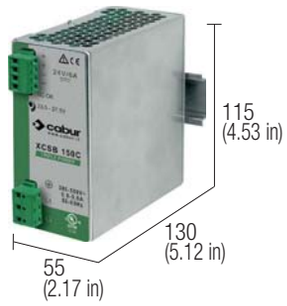
- Supply peak power equal to even 4-5 times the nominal current, which is required by the engine during the peak phase
- Have an output stage protected from overvoltage generated by the engines and drives during braking, which could otherwise cause malfunctions or cause the power supply to lose control over output voltage stability
- Provide output voltage at 48Vdc, and 72-85Vdc. By increasing the voltage of the engine power supply, the same power can be obtained at lower current, with notable advantages for performance, engine construction, connection wires, and drives.

New active electronic ASSIL protection

Three-phase networks can cause reliability problems for electronic devices due to various phenomena. Simple activation of a protection or the commutation of a load can generate holes in the network and voltage peaks whose size depends on several variables.
These damaging phenomena are governed by the VDE0160-2 standard and cannot be resolved using traditional passive protections (varistors, NTC).
The solution is the active ASSIL circuit (Active Surge Suppressor and Inrush Current Limiter). A power semi-conductor "opens" the DC side in less than 0.1 ms in the case that voltage exceeds 750V, preventing damaging voltage peaks from reaching the convertor's MOSFET.
The protection circuit also serves to actively limit the inrush current, which allows for precise coordination of the overcurrent protections, as well as eliminating undesirable bursts which can occur when the network returns to its nominal value after a voltage hole.

2-phase switching power supply 400-500 Vac output power 85 W

- Two-phase input 340...550 Vac
- It saves cabling costs and line protection costs
- Short circuit, overload, over temperature, input and output overvoltage protections
- High outrush current to guarantee downstream overcurrent protections selectivity and to start-up heavy loads
- High efficiency and low dissipated power
- Suitable for applications in SELV and PELV circuits



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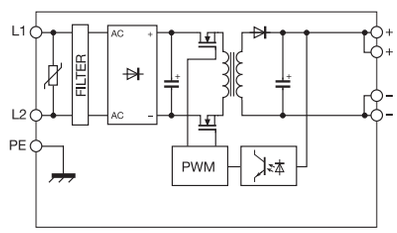
NOTES

The depth dimension includes the terminal blocks and the DIN clamp.
(3) Over 50°C (122°F) apply a derating of about 2 W/°C
(4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.

BLOCK DIAGRAM



Item available till sell-out, will be replaced by **CSW121C**

VERSIONS	Cod. XCSB85C			
Output 24 Vdc 3.5 A	**CSB85C**			
Output 24 Vdc 3.5 A redundant version		—		
Output 12…15 Vdc 7 A			—	
Output 48 Vdc 1.75 A				—
INPUT TECHNICAL DATA				
Input rated voltage	2x **400–500 Vac** (range 340…550 Vac)			
Frequency	47...63 Hz			
Current @ Iout max. (Uin 400 / 500 Vac)	0.5 A / 0.45 A			
Inrush peak current	< 50 A			
Power factor	> 0.65			
Internal protection fuse	—			
External protection on AC line	circuit breaker: 2x 6 A C characteristic - fuse: 2x T 6.3 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**			
Output adjustable range	24...27.5 Vdc			
Continuous current	**3.5 A @ 50°C (3)**			
Overload limit	6 A for >5 s con Uout > 90% Un (4)			
Short circuit peak current	15 A for 0.4 s (4)			
Load regulation	< 1%			
Ripple @ nominal ratings	≤ 60 mVpp			
Hold up time (Uin 400 / 500 Vac)	>50 ms / >60 ms			
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection			
Status display	"DC OK" green LED			
Alarm contact threshold	–			
Parallel connection	possible			
Redundant parallel connection	possible with external ORing diode			
GENERAL TECHNICAL DATA				
Efficiency (Uin 400 / 500 Vac)	>88% / >90%			
Dissipated power (Uin 400 / 500 Vac)	12 W / 9 W			
Operating temperature range	–20...+60°C, with derating over 50°C / over temperature protection (3)			
Input/output isolation	3 KVac / 60 s SELV output			
Input/ground isolation	2 KVac / 60 s			
Output/ground isolation	0.5 KVac / 60 s			
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508			
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11			
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F			
Overvoltage category/Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection terminal	2.5 mm² pluggable screw type			
Housing material	aluminium			
Approx. weight	600 g (21.18 oz)			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

2-phase switching power supply 400-500 Vac output power 150 W

- Two-phase input 340...550 Vac
- It saves cabling costs and line protection costs
- Short circuit, overload, over temperature, input and output overvoltage protections
- High outrush current to guarantee downstream overcurrent protections selectivity and to start-up heavy loads
- High efficiency and low dissipated power
- Suitable for applications in SELV and PELV circuits

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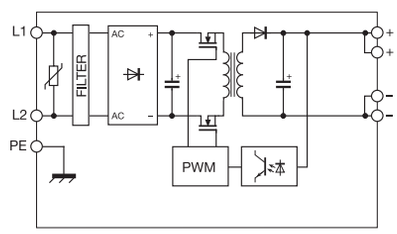
NOTES

The depth dimension includes the terminal blocks and the DIN clamp.
(3) Over 50°C (122°F) apply a derating of about 2 W/°C
(4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.

BLOCK DIAGRAM



Item available till sell-out, will be replaced by **CSW121C**

VERSIONS	Cod. XCSB150C			
Output 24 Vdc 5 A	**CSB150C**			
Output 24 Vdc 5 A redundant version		—		
Output 12…15 Vdc 8...7 A			—	
Output 48 Vdc 3 A				—
INPUT TECHNICAL DATA				
Input rated voltage	2x **400–500 Vac** (range 340…550 Vac) (2)			
Frequency	47...63 Hz			
Current @ Iout max. (Uin 400 / 500 Vac)	0.7 A / 0.55 A			
Inrush peak current	< 50 A			
Power factor	> 0.65			
Internal protection fuse	—			
External protection on AC line	circuit breaker: 2x 6 A C characteristic - fuse: 2x T 6.3 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**			
Output adjustable range	24...27.5 Vdc			
Continuous current	**6 A @ 50°C (3)**			
Overload limit	9 A for >5 s with Uout >90% Un (4)			
Short circuit peak current	20 A for 0.4 s (4)			
Load regulation	< 1%			
Ripple @ nominal ratings	≤ 60 mVpp			
Hold up time (Uin 400 / 500 Vac)	>50 ms / >60 ms			
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection			
Status display	"DC OK" green LED			
Alarm contact threshold	–			
Parallel connection	possible			
Redundant parallel connection	possible with external ORing diode			
GENERAL TECHNICAL DATA				
Efficiency (Uin 400 / 500 Vac)	>90% / >91%			
Dissipated power (Uin 400 / 500 Vac)	17 W / 15 W			
Operating temperature range	–20...+60°C, with derating over 50°C / over temperature protection (3)			
Input/output isolation	3 KVac / 60 s SELV output			
Input/ground isolation	2 KVac / 60 s			
Output/ground isolation	0.5 KVac / 60 s			
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508			
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11			
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F			
Overvoltage category/Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection terminal	2.5 mm² pluggable screw type			
Housing material	aluminium			
Approx. weight	600 g (21.18 oz)			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

3-phase switching power supply 400-500 Vac output power 240 W

- Three-phase input 340...550 Vac or two-phase with derating
- Short circuit, overload, over temperature, input and output overvoltage protections
- High outrush current to guarantee downstream overcurrent protections selectivity and to start-up heavy loads
- High efficiency and low dissipated power
- Suitable for applications in SELV and PELV circuits

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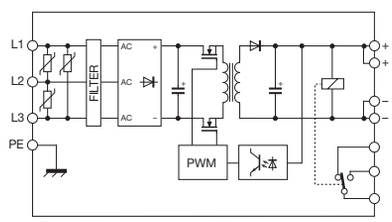
NOTES

The depth dimension includes the DIN rail clamp.
(3) Over 50°C (122°F) apply a derating of about 6 W/°C
(4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.

BLOCK DIAGRAM

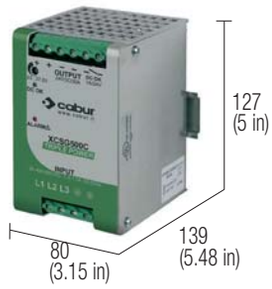


Item available till sell-out, will be replaced by **CSW241C**

VERSIONS	Cod. XCSG240C			
Output 24 Vdc 10 A	**CSG240C**			
Output 24 Vdc 10 A redundant version		—		
Output 12…15 Vdc 20 A			—	
Output 48 Vdc 5 A				—
INPUT TECHNICAL DATA				
Input rated voltage	3x **400–500 Vac** (range 340…550 Vac)			
Frequency	47...63 Hz			
Current @ Iout max. (Uin 400 / 500 Vac)	0.6 A / 0.42 A			
Inrush peak current	< 50 A			
Power factor	> 0.7			
Internal protection fuse	—			
External protection on AC line	circuit breaker: 3x 6 A C characteristic - fuse: 3x T 1.5 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**			
Output adjustable range	24…28 Vdc			
Continuous current	**10 A** @ 50°C (3)			
Overload limit	13.5 A for >1,5 s with Uout >90% Un (4)			
Short circuit peak current	>25 A for 1.5 s (4)			
Load regulation	< 1%			
Ripple @ nominal ratings	≤ 50 mVpp			
Hold up time (Uin 400 / 500 Vac)	>20 ms / >30 ms			
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection (3)			
Status display	"DC OK" green LED / "DC OK" alarm contact			
Alarm contact threshold	–			
Parallel connection	possible			
Redundant parallel connection	possible with external ORing diode			
GENERAL TECHNICAL DATA				
Efficiency (Uin 400 / 500 Vac)	>90% / >90%			
Dissipated power (Uin 400 / 500 Vac)	27 W / 27 W			
Operating temperature range	–20...+60°C, with derating over 50°C / over temperature protection (3)			
Input/output isolation	3 KVac / 60 s SELV output			
Input/ground isolation	2 KVac / 60 s			
Output/ground isolation	0.5 KVac / 60 s			
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508			
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11			
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F			
Overvoltage category/Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection terminal	4 mm² fixed screw type			
Housing material	aluminium			
Approx. weight	1 Kg (35.3 oz)			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

3-phase switching power supply 400-500 Vac output power 500 W

- Three-phase input 340...550 Vac or two-phase with derating
- Short circuit, overload, over temperature, input and output overvoltage protections
- High outrush current to guarantee downstream overcurrent protections selectivity and to start-up heavy loads
- High efficiency and low dissipated power
- Suitable for applications in SELV and PELV circuits
- Input protected by ASSIL circuit (Surge Suppressor and Inrush Limiter)



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NOTES

The depth dimension includes the DIN rail clamp.

(1) Version available upon request; for information call our sales department, local agent or representative

(3) Over 50°C (122°F) apply a derating of about 6 W/°C

(4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.

(5) Version CSG500G is not suitable for SELV applications

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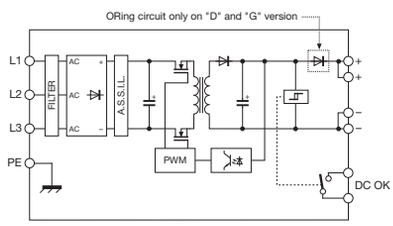
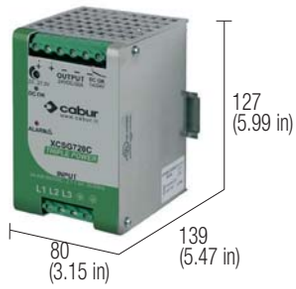


NEW

			Special version for DC motors	Special version for DC motors
VERSIONS	**Cod. XCSG500C**		**Cod. XCSG500D**	**Cod. XCSG500G**
Output 24 Vdc 20 A	**CSG500C**			
Output 12…15 Vdc 40 A		—		
Output 48 Vdc 10 A redundant version			**CSG500D**	
Output 72 Vdc 6.7 A redundant version				**CSG500G (5)**
INPUT TECHNICAL DATA				
Input rated voltage	3x **400–500 Vac** (range 340…550 Vac)			
Frequency	47...63 Hz			
Current @ Iout max. (Uin 400 / 500 Vac)	1 A / 0.6 A			
Inrush peak current	< 35 A			
Power factor	> 0.75 with PFC			
Internal protection fuse	—			
External protection on AC line	circuit breaker: 3x 6 A C characteristic - fuse: 3x T 3.15 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**		**48 Vdc**	**72 Vdc**
Output adjustable range	24...28 Vdc		45…55 Vdc	72…85 Vdc
Continuous current	**20 A** @ 50°C (3)		**10 A** @ 50°C (3)	**6.7 A** @ 50°C (3)
Overload limit	>30 A for >5 s with Uout >90% Un (4)		>15 A for >5 s with Uout >90% Un (4)	10 A for >5 s with Uout >90% Un (4)
Short circuit peak current	>50 A for 5 s (4)		>50 A for 5 s (4)	>20 A for 5 s (4)
Load regulation	< 0.5%		< 0.5%	< 1%
Ripple @ nominal ratings	≤ 50 mVpp		≤ 50 mVpp	≤ 100 mVpp
Hold up time (Uin 400 / 500 Vac)	>12 ms / >20 ms		>15 ms / >30 ms	>15 ms / >18 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection / ASSIL circuit			
Status display	"DC OK" green LED / "DC OK" alarm contact/ "Overload" red LED			
Alarm contact threshold	<21.6 Vdc		<43.2 Vdc	<21.6 Vdc
Parallel connection	possible		possible	possible
Redundant parallel connection	possible with external ORing diode		factory provided with internal ORing diode	factory provided with internal ORing diode
GENERAL TECHNICAL DATA				
Efficiency (Uin 400 / 500 Vac)	>93% / >94%		>93% / >94%	>95% / >95%
Dissipated power (Uin 400 / 500 Vac)	36 W / 30 W		36 W / 30 W	26 W / 26 W
Operating temperature range	–20...+60°C, with derating over 50°C / over temperature protection (3)			
Input/output isolation	3 KVac / 60 s SELV output (5)			
Input/ground isolation	2 KVac / 60 s			
Output/ground isolation	0.5 KVac / 60 s			
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508			
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11			
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F			
Overvoltage category/Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection terminal	6 mm² fixed screw type			
Housing material	aluminium			
Approx. weight	1.3 Kg (45.89 oz)			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

3-phase switching power supply 400-500 Vac output power 720 W

- Three-phase input 340...550 Vac or two-phase with derating
- Short circuit, overload, over temperature, input and output overvoltage protections
- High outrush current to guarantee downstream overcurrent protections selectivity and to start-up heavy loads
- High efficiency and low dissipated power
- Suitable for applications in SELV and PELV circuits
- Input protected by ASSIL circuit (Surge Suppressor and Inrush Limiter)



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NOTES

The depth dimension includes the DIN rail clamp.

(1) Version available upon request; for information call our sales department, local agent or representative

(3) Over 50°C (122°F) apply a derating of about 6 W/°C

(4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.

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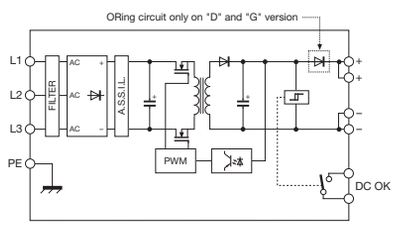

Special version for DC motors

VERSIONS	Cod. XCSG720C			
Output 24 Vdc 30 A	**CSG720C**			
Output 24 Vdc 30 A redundant version		**(1)**		
Output 12…15 Vdc 60 A				
Output 48 Vdc 15 A			**CSG720D (1)**	
INPUT TECHNICAL DATA				
Input rated voltage	3x **400–500 Vac** (range 340…550 Vac)			
Frequency	47...63 Hz			
Current @ Iout max. (Uin 400 / 500 Vac)	1.4 A / 1.1 A			
Inrush peak current	< 30 A			
Power factor	> 0.75			
Internal protection fuse	—			
External protection on AC line	circuit breaker: 3x 10 A C characteristic - fuse: 3x T 5 A			
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**		**48 Vdc**	
Output adjustable range	24…28 Vdc		45…55 Vdc	
Continuous current	**30 A** @ 50°C (3)		**15 A** @ 50°C (3)	
Overload limit	45 A for >5 s with Uout >90% Un (4)		22.5 A for >5 s with Uout >90% Un (4)	
Short circuit peak current	>50 A for 1.5 s (4)		>50 A for 1.5 s (4)	
Load regulation	< 1%		< 1%	
Ripple @ nominal ratings	≤ 200 mVpp		≤ 200 mVpp	
Hold up time (Uin 400 / 500 Vac)	>10 ms / >15 ms		>10 ms / >15 ms	
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection / ASSIL circuit			
Status display	"DC OK" green LED / "DC OK" alarm contact/ "Overload" red LED			
Alarm contact threshold	<21.6 Vdc		<43.2 Vdc	
Parallel connection	possible		possible	
Redundant parallel connection	possible with external ORing diode		factory provided with internal ORing diod	
GENERAL TECHNICAL DATA				
Efficiency (Uin 400 / 500 Vac)	>91% / >92%		>92% / >93%	
Dissipated power (Uin 400 / 500 Vac)	66 W / 60 W		60 W / 55 W	
Operating temperature range	–20...+60°C, with derating over 50°C / over temperature protection (3)			
Input/output isolation	3 KVac / 60 s SELV output			
Input/ground isolation	2 KVac / 60 s			
Output/ground isolation	0.5 KVac / 60 s			
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508			
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11			
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F			
Overvoltage category/Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection terminal	6 mm² fixed screw type			
Housing material	aluminium			
Approx. weight	1.3 Kg (45.86 oz)			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

3-phase switching power supply 400-500 Vac output power 960 W

- Three-phase input 340...550 Vac or two-phase with derating
- Short circuit, overload, over temperature, input and output overvoltage protections
- High outrush current to guarantee downstream overcurrent protections selectivity and to start-up heavy loads
- High efficiency and low dissipated power
- Suitable for applications in SELV and PELV circuits
- Input protected by ASSIL circuit (Surge Suppressor and Inrush Limiter)

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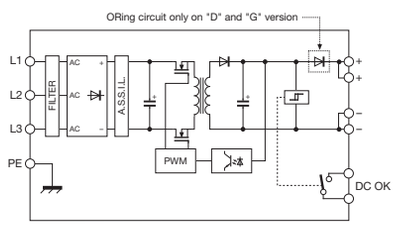
CE

NOTES

The depth dimension includes the DIN rail clamp.

(3) Over 50°C (122°F) apply a derating of about 18 W/°C
(4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.
(5) Version CSG960G is not suitable for SELV applications

BLOCK DIAGRAM



NEW

	Special version for DC motors	Special version for DC motors
VERSIONS	**Cod. XCSG960C**	**Cod. XCSG960D**	**Cod. XCSG960G**
Output 24 Vdc 40 A	**CSG960C**		
Output 12...15 Vdc 80 A	—		
Output 48 Vdc 20 A redundant version		**CSG960D**	
Output 72 Vdc 13.3 A redundant version			**CSG960G** (5)
INPUT TECHNICAL DATA			
Input rated voltage	3x **400–500 Vac** (range 340…550 Vac)		
Frequency	47...63 Hz		
Current @ Iout max. (Uin 400 / 500 Vac)	2.2 A / 1.1 A		
Inrush peak current	< 20 A		
Power factor	> 0.65		
Internal protection fuse	—		
External protection on AC line	circuit breaker: 3x 10 A C characteristic - fuse: 3x T 6.3 A		
OUTPUT TECHNICAL DATA			
Output rated voltage	**24 Vdc**	**48 Vdc**	**72 Vdc**
Output adjustable range	24…28 Vdc	45…55 Vdc	72…85 Vdc
Continuous current	**40 A** @ 50°C (3)	**20 A** @ 50°C (3)	**13.3 A** @ 50°C (3)
Overload limit	60 A for >5 s with Uout >90% Un (4)	30 A for >5 s with Uout >90% Un (4)	18.6 A for >5 s with Uout >90% Un (4)
Short circuit peak current	>90 A for 5 s (4)	>80 A for 5 s (4)	>30 A for 5 s (4)
Load regulation	< 1%	< 1%	< 1%
Ripple @ nominal ratings	100 mVpp	≤ 250 mVpp	≤ 100 mVpp
Hold up time (Uin 400 / 500 Vac)	>10 ms / >15 ms	>10 ms / >15 ms	>15 ms / >18 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection		
Status display	"DC OK" green LED / "DC OK" alarm contact/ "Overload" red LED		
Alarm contact threshold	<21.6 Vdc	<43.2 Vdc	<21.6 Vdc
Parallel connection	possible	possible	possible
Redundant parallel connection	possible with external ORing diode	factory provided with internal ORing diode	factory provided with internal ORing diode
GENERAL TECHNICAL DATA			
Efficiency (Uin 400 / 500 Vac)	>94% / >94%	>94% / >94%	>92% / >92%
Dissipated power (Uin 400 / 500 Vac)	61 W / 61 W	61 W / 61 W	85 W / 85 W
Operating temperature range	–20...+60°C, with derating over 50°C / over temperature protection (3)		
Input/output isolation	3 KVac / 60 s SELV output (5)		
Input/ground isolation	2 KVac / 60 s		
Output/ground isolation	0.5 KVac / 60 s		
Standard/approvals	EN50178, EN61558, EN60950, IEC950, UL508		
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-11		
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F		
Overvoltage category/Pollution degree	II / 2		
Protection degree	IP 20 IEC 529, EN60529		
Connection terminal	6 mm² fixed screw type		
Housing material	aluminium		
Approx. weight	1,2 Kg (70.55 oz)		
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components		
MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**		
Mounting rail type according to IEC60715/G32	—		

3-phase switching power supply 400-500 Vac output power 2400 W

- Three-phase input 340...550 Vac or two-phase with derating
- Short circuit, overload, over temperature, input and output overvoltage protections
- High outrush current to guarantee downstream overcurrent protections selectivity and to start-up heavy loads
- High efficiency and low dissipated power
- Suitable for applications in SELV and PELV circuits
- Input protected by ASSIL circuit (Surge Suppressor and Inrush Limiter)

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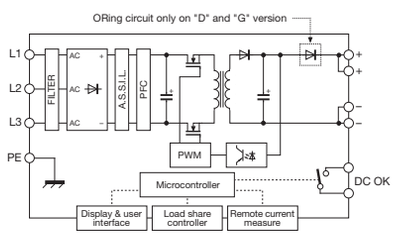
NOTES

The depth dimension includes the DIN rail clamp.
(3) Over 45°C (113°F) apply a derating of about 40 W/°C
(4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.
(5) Available from July 2011

BLOCK DIAGRAM



Special version for DC motors

VERSIONS	Cod. XCSG2401C	Cod. XCSG2401D
Output 24 Vdc 40 A	**CSG2401C (6)**	
Output 24 Vdc 40 A redundant version		**CSG2401D (6)**
Output 12…15 Vdc 80 A		
Output 48 Vdc 20 A		
INPUT TECHNICAL DATA		
Input rated voltage	3x **400–500 Vac** (range 340…550 Vac)	
Frequency	47...63 Hz	
Current @ Iout max. (Uin 400 / 500 Vac)	4.2 A / 3.5 A	
Inrush peak current	< 2 A (with active inrush current limiter)	
Power factor	> 0.92	
Internal protection fuse	—	
External protection on AC line	circuit breaker: 3x 10 A C characteristic - fuse: 3x T10 A	
OUTPUT TECHNICAL DATA		
Output rated voltage	**24 Vdc**	**48 Vdc**
Output adjustable range	11.5…29 Vdc	23…58 Vdc
Continuous current	**100 A** @ 45°C (3)	**50 A** @ 45°C (3)
Overload limit	150 A for >5 s with Uout >90% Un (4)	75 A for >5 s with Uout >90% Un (4)
Short circuit peak current	>150 A for 5 s (4)	>75 A for 5 s (4)
Load regulation	< 1%	< 1%
Ripple @ nominal ratings	≤ 200 mVpp	≤ 200 mVpp
Hold up time (Uin 400 / 500 Vac)	>10 ms / >10 ms	>10 ms / >10 ms
Overload / short circuit protections	programmable (see on right side)	
Status display	"DC OK" green LED / "DC OK" alarm contact / "Overload" red LED / LCD display	
Alarm contact threshold	programmable (see on right side)	
Parallel connection	possibile	
Redundant parallel connection	possibile	
GENERAL TECHNICAL DATA		
Efficiency (Uin 400 / 500 Vac)	>92% / >92%	>92% / >92%
Dissipated power (Uin 400 / 500 Vac)	200 W / 200 W	200 W / 200 W
Operating temperature range	–20...+60°C, con derating oltre 45°C / protezione termica (3)	
Input/output isolation	3 KVac / 60 s SELV output (5)	
Input/ground isolation	1.5 KVac / 60 s	
Output/ground isolation	0.5 KVac / 60 s	
Standard/approvals	EN60950, IEC950, UL508	
EMC Standards	EN 55011, EN 61000-3-2, EN61000-4-5 Surge immunity Level IV, VDE0160	
MTBF @ 25°C @ nominal ratings	>500'000 h secondo SN 29500 / >150'000 h secondo MIL Std. HDBK 217F	
Overvoltage category/Pollution degree	II / 2	
Protection degree	IP 20 IEC529, EN60529	
Connection terminal	4-6 mm² fixed screw type	
Housing material	aluminium	
Approx. weight	2,8 Kg (98,76 oz)	
Mounting information	vertical on rail, allow 60 mm spacing between adjacent components	
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32	—	

APPLICATIONS

Series CSG2401 has an internal microprocessor that controls the many functions of the power supply, which can be programmed thanks to a user-friendly menu activated by 4 buttons on the front and shown on the front display.

Front display: during normal operation, this shows the output voltage value and current used by the load; during programming, it allows for the choice of the various functions available.

Input protection: the input circuit has been designed to avoid the most common problems seen in three-phase networks. It therefore has:
1) a special ASSIL (Active Surge Suppressor and Inrush Limiter) circuit to protect it against overvoltage in accordance with VDE0160;
2) a PFC circuit failure (latched shutdown) circuit;
3) a system for controlling lack of phase that automatically reduces output power;
4) an auto-restart switch-off system in the event of overvoltage and undervoltage.

Output protection: limit current can be selected as between 10% and 100% of rated current; protection type against overload and short circuit can be chosen from:
1) hiccup autoreset with limit current, equal to 150% of rated current and ON/OFF time equal to 5 secs./10 secs. (values can be altered manually);
2) constant power.

Output signals: in addition to the "DC OK" and "FAULT" LEDs, the device also has:
1) an analogue signal 0...10V or 4...20mA that provides an indication of current used by the load;
2) a programmable alarm contact able to signal and record the exceeding of the various limits to a memory: output voltage, input current, output overload, overtemperature and other parameters that can be defined by programming.

Additional functions: the following functions are also available:
1) battery charger: the acid lead battery charging function can be selected;
2) remote sensing (sense): this allows for the monitoring and compensation of voltage drops on long power supply lines;
3) remote switch-off: the power supply can be switched off and disabled from a remote position;
4) auxiliary voltage: auxiliary 12 Vdc is also available, regardless of the main output voltage status;
5) temperature control: by connecting an external sensor (NTC), the battery charge temperature can be controlled;
6) communication port: by means of an RS232 communication device, the power supply can be piloted and monitored from a remote position.

3-phase switching power supply 400-500 Vac output power 2400 W

- Three-phase input 340...550 Vac or two-phase with derating
- Short circuit, overload, over temperature, input and output overvoltage protections
- High outrush current to guarantee downstream overcurrent protections selectivity and to start-up heavy loads
- High efficiency and low dissipated power
- Suitable for applications in PELV circuits
- Input protected by ASSIL circuit (Surge Suppressor and Inrush Limiter)

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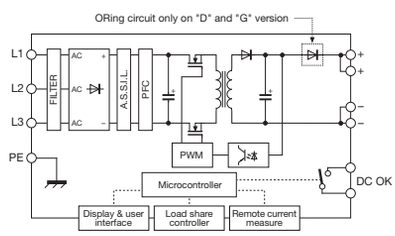
NOTES

The depth dimension includes the DIN rail clamp.
With DC input voltage, the output current must be derated by 30%
(3) Over 45°C (113°F) apply a derating of about 40 W/°C
(4) For this peak current, the output voltage does not drop more than 10% of the nominal value, but the current value, provided by the power supply also depends on the total line resistance.
(5) Available from July 2011
(6) Version CSG2401G and CSG2401R is not suitable for SELV applications

BLOCK DIAGRAM



Special version for DC motors

VERSIONI	Cod. XCSG2401G	Cod. XCSG2401R
Uscita 72 Vdc 33 A versione ridondante (5)	**CSG2401G (5) (6)**	
Uscita 170 Vdc 14 A versione ridondante (5)		**CSG2401R (5) (6)**

INPUT TECHNICAL DATA		
Input rated voltage	3x **400–500 Vac** (range 340…550 Vac)	
Frequency	47...63 Hz	
Current @ Iout max. (Uin 400 / 500 Vac)	4.2 A / 3.5 A	
Inrush peak current	< 2 A (with active inrush current limiter)	
Power factor	> 0.92	
Internal protection fuse	—	
External protection on AC line	circuit breaker: 3x 10 A C characteristic - fuse: 3x T10 A	
OUTPUT TECHNICAL DATA		
Output rated voltage	**72 Vdc**	**170 Vdc**
Output adjustable range	34.5…87 Vdc	80…190 Vdc
Continuous current	**33 A** @ 45°C (3)	**14 A** @ 45°C (3)
Overload limit	50 A per >5 s con Uout>90% Un (4)	21 A per >5 s con Uout>90% Un (4)
Short circuit peak current	>50 A per 5 s (4)	>21 A per 5 s (4)
Load regulation	< 1%	< 1%
Ripple @ nominal ratings	≤ 200 mVpp	≤ 200 mVpp
Hold up time (Uin 400 / 500 Vac)	>10 ms / >10 ms	>10 ms / >10 ms
Overload / short circuit protections	programmable (see on right side)	
Status display	"DC OK" green LED / "DC OK" alarm contact/ "Overload" red LED / LCD display (see on right side)	
Alarm contact threshold	programmable	
Parallel connection	possibile	
Redundant parallel connection	possibile	
GENERAL TECHNICAL DATA		
Efficiency (Uin 400 / 500 Vac)	>92% / >92%	>92% / >92%
Dissipated power (Uin 400 / 500 Vac)	200 W / 200 W	200 W / 200 W
Operating temperature range	–20...+60°C, con derating oltre 45°C / protezione termica (3)	
Input/output isolation	3 KVac / 60 s SELV output (5)	
Input/ground isolation	1.5 KVac / 60 s	
Output/ground isolation	0.5 KVac / 60 s	
Standard/approvals	EN60950, IEC950, UL508	
EMC Standards	EN 55011, EN 61000-3-2, EN61000-4-5 Surge immunity Level IV, VDE0160	
MTBF @ 25°C @ nominal ratings	>500'000 h secondo SN 29500 / >150'000 h secondo MIL Std. HDBK 217F	
Overvoltage category/Pollution degree	II / 2	
Protection degree	IP 20 IEC529, EN60529	
Connection terminal	4 and 6 mm² screw type	
Housing material	aluminium	
Approx. weight	2,8 Kg (98,76 oz)	
Mounting information	vertical on rail, allow 60 mm spacing between adjacent components	
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32	—	

APPLICATIONS

Series CSG2401 has an internal microprocessor that controls the many functions of the power supply, which can be programmed thanks to a user-friendly menu activated by 4 buttons on the front and shown on the front display.

Front display: during normal operation, this shows the output voltage value and current used by the load; during programming, it allows for the choice of the various functions available.

Input protection: the input circuit has been designed to avoid the most common problems seen in three-phase networks. It therefore has:
1) a special ASSIL (Active Surge Suppressor and Inrush Limiter) circuit to protect it against overvoltage in accordance with VDE0160;
2) a PFC circuit failure (latched shutdown) circuit;
3) a system for controlling lack of phase that automatically reduces output power;
4) an auto-restart switch-off system in the event of overvoltage and undervoltage.

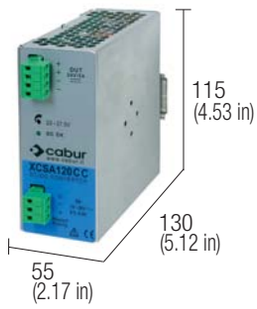
Output protection: limit current can be selected as between 10% and 100% of rated current; protection type against overload and short circuit can be chosen from:
1) hiccup autoreset with limit current, equal to 150% of rated current and ON/OFF time equal to 5 secs./10 secs. (values can be altered manually);
2) constant power.

Output signals: in addition to the "DC OK" and "FAULT" LEDs, the device also has:
1) an analogue signal 0...10V or 4...20mA that provides an indication of current used by the load;
2) a programmable alarm contact able to signal and record the exceeding of the various limits to a memory: output voltage, input current, output overload, overtemperature and other parameters that can be defined by programming.

Additional functions: the following functions are also available:
1) battery charger: the acid lead battery charging function can be selected;
2) remote sensing (sense): this allows for the monitoring and compensation of voltage drops on long power supply lines;
3) remote switch-off: the power supply can be switched off and disabled from a remote position;
4) auxiliary voltage: auxiliary 12 Vdc is also available, regardless of the main output voltage status;
5) temperature control: by connecting an external sensor (NTC), the battery charge temperature can be controlled;
6) communication port: by means of an RS232 communication device, the power supply can be piloted and monitored from a remote position.

DC/DC Insulated converters output power 120 W

- DC wide range input
- Short circuit, overload, over temperature protection
- Compact design



CE

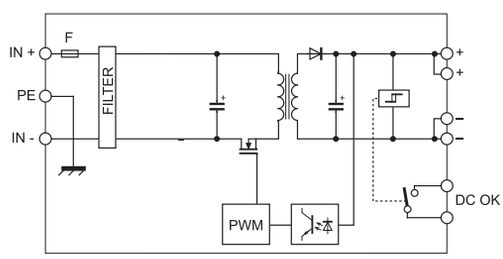
NOTES

The depth dimension includes the terminal blocks and the DIN clamp.

(1) Inrush current is measured with input supplied by a battery; the current peak vary depending on the internal impedance of the current source and depending on cables and connections resistance.

(2) According to EN60950 insulation tests on input side must be made only with DC instruments.

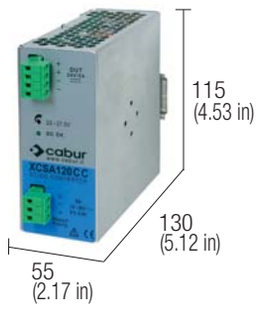
BLOCK DIAGRAM



VERSIONS	Cod. XCSA120BC	Cod. XCSA120BD	Cod. XCSA120CB	Cod. XCSA120CC
12 Vdc / 24 Vdc 5 A	**CSA120BC**			
12 Vdc / 48 Vdc 2.5 A		**CSA120BD**		
24 Vdc / 12 Vdc 7 A			**CSA120CB**	
24 Vdc / 24 Vdc 5 A				**CSA120CC**
INPUT TECHNICAL DATA				
Input rated voltage	**12 Vdc** (range 10.5…18 Vdc)	**12 Vdc** (range 10.5…18 Vdc)	**24 Vdc** (range 18…36 Vdc)	**24 Vdc** (range 18…36 Vdc)
Current @ Iout max.	12 A ±10%	12 A ±10%	5.1 A ±10%	5.8 A ±10%
Inrush peak current	< 60A / < 2ms (1)	< 60A / < 2ms (1)	< 110A / < 2ms (1)	< 90A /< 2ms (1)
Standby power	<1.5 W @ 12 Vdc	<1.5 W @ 12 Vdc	<1 W @ 24 Vdc	<1.5 W @ 24 Vdc
Internal protection fuse	T 20 A replaceable		T 10 A replaceable	
External protection on AC line	≥25 A C characteristic		≥13 A C characteristic	
Overvoltage input protection circuit	Passive varistor and active shutdown at 19 Vdc		Passive varistor and active shutdown at 38 Vdc	
OUTPUT TECHNICAL DATA				
Output rated voltage	**24 Vdc**	**48 Vdc**	**12...15 Vdc**	**24 Vdc**
Output adjustable range	22.5...27.5 Vdc	45…55 Vdc	12...15 Vdc	22.5...27.5 Vdc
Continuous current	**5 A** @ 24 Vdc	**2.5 A** @ 48 Vdc	**7 A** @ 12 Vdc	**5 A** @ 24 Vdc
Overload limit	6.5 A	3.4 A	9.1 A	6.5 A
Short circuit peak current	12 A for 300 ms	5.8 A for 300 ms	15 A for 300 ms	12 A for 300 ms
Load regulation	<0.5%		<0.5%	<0.5%
Ripple @ nominal ratings	≤ 100 mVpp		≤ 100 mVpp	≤ 150 mVpp
Hold up time @ In	>1 ms		>2 ms	
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection			
Status display	"DC OK" green LED			
Alarm contact threshold	—			
Parallel connection	possible			
Redundant parallel connection	possible with external ORing diode			
GENERAL TECHNICAL DATA				
Efficiency (Uin 110 Vdc)	> 83%	> 83%	>87%	>87%
Dissipated power (Uin 110 Vdc)	<25 W	<25 W	<16 W	<18 W
Operating temperature range	–20...+50°C			
Input/output isolation	2.1 kVdc / 60s (2)			
Input/ground isolation	1.41 kVdc / 60s (2)			
Output/ground isolation	0.75 kVdc / 60s (2)			
Standard/approvals	IEC950, EN60950			
EMC Standards	EN50081-1, EN50082-2, EN61000-3-2			
MTBF @ 25°C @ nominal ratings	>500'000 h secondo SN 29500 / >150'000 h secondo MIL Std. HDBK 217F			
Overvoltage category/Pollution degree	II / 2			
Protection degree	IP 20 IEC 529, EN60529			
Connection terminal	2.5 mm² pluggable screw type			
Housing material	aluminium			
Approx. weight	550 g (19.40 oz)			
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			

DC/DC Insulated converters output power 120 W

- DC wide range input
- Short circuit, overload, over temperature protection
- Compact design



CE

NOTES

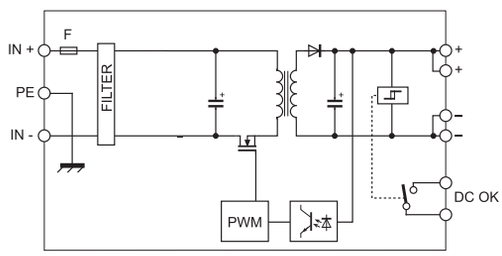
The depth dimension includes the terminal blocks and the DIN clamp.

(1) Inrush current is measured with input supplied by a battery; the current peak vary depending on the internal impedance of the current source and depending on cables and connections resistance.

(2) Over 50°C (122°F) apply a derating -3 W/°C, max 60°C

(3) According to EN60950 insulation tests on input side must be made only with DC instruments.

BLOCK DIAGRAM



VERSIONS	Cod. XCSA120DB	Cod. XCSA120DC
48 Vdc / 12 Vdc 8 A	**CSA120DB**	
48 Vdc / 24 Vdc 5 A		**CSA120DC**

INPUT TECHNICAL DATA		
Input rated voltage	**48 Vdc** (range 36…72 Vdc)	**48 Vdc** (range 36…72 Vdc)
Current @ Iout max.	2.8 A ±10%	2.8 A ±10%
Inrush peak current	< 120A / < 2ms (1)	< 120A / < 2ms (1)
Standby power	<2 W @ 48 Vdc	<2 W @ 48 Vdc
Internal protection fuse	T 5 A replaceable	
External protection on AC line	≥6 A C characteristic	
Overvoltage input protection circuit	Passive varistor and active shutdown at 76 Vdc	

OUTPUT TECHNICAL DATA		
Output rated voltage	**12...15 Vdc**	**24 Vdc**
Output adjustable range	12...15 Vdc	22.5...27.5 Vdc
Continuous current	8 A @ 12 Vdc	5A @ 24 Vdc
Overload limit	12 A	6.5 A
Short circuit peak current	18 A per 300 ms	13 A per 300 ms
Load regulation	<0.5%	<0.5%
Ripple @ nominal ratings	≤ 100 mVpp	≤ 200 mVpp
Hold up time @ In	2 ms	4.5 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection	
Status display	"DC OK" green LED	
Alarm contact threshold	—	
Parallel connection	possible	
Redundant parallel connection	possible with external ORing diode	

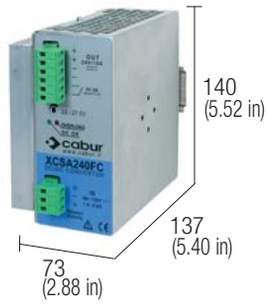
GENERAL TECHNICAL DATA		
Efficiency (Uin 110 Vdc)	>89%	>90%
Dissipated power (Uin 110 Vdc)	<17 W	<13 W
Operating temperature range	–20...+60°C, with derating over 50°C	
Input/output isolation	2.1 kVdc / 60s (2)	
Input/ground isolation	1.41 kVdc / 60s (2)	
Output/ground isolation	0.75 kVdc / 60s (2)	
Standard/approvals	IEC950, EN60950	
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-5-5, EN61000-4-6, EN61000-4-11	
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F	
Overvoltage category/Pollution degree	II / 2	
Protection degree	IP 20 IEC 529, EN60529	
Connection terminal	2.5 mm² pluggable screw type	
Housing material	aluminium	
Approx. weight	550 g (19.40 oz)	
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components	

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—

DC/DC Insulated converters output power 240 W

- DC wide range input
- Short circuit, overload, over temperature protection
- Already preset with internal ORing diode for redundant connection
- Compact design

NOTA:
NOTE: also the power supplies CSD, CSF30, CSF85 and CSF120 series can be supplied in DC 110 V

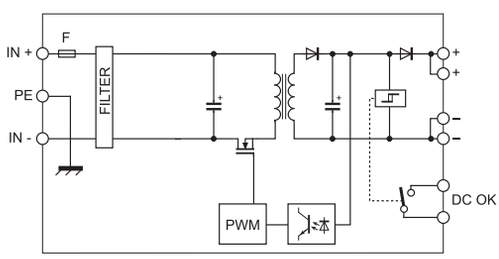


CE

NOTES

The depth dimension includes the terminal blocks and the DIN clamp.
(1) Inrush current is measured with input supplied by a battery; the current peak vary depending on the internal impedance of the current source and depending on cables and connections resistance.
(2) Over 50°C (122°F) apply a derating -6 W/°C, max 60°C
(3) According to EN60950 insulation tests on input side must be made only with DC instruments.

BLOCK DIAGRAM



VERSIONS	Cod. XCSA240FC
110 Vdc / 24 Vdc 10 A	—
110 Vdc / 24 Vdc 10 A ridondante	**CSA240FC**

INPUT TECHNICAL DATA	
Input rated voltage	**110 Vdc** (range 90…130 Vdc)
Current @ Iout max.	2.4 A ±10%
Inrush peak current	< 150A / < 2ms (1)
Standby power	<3.4 W @ 110 Vdc
Internal protection fuse	T 5 A replaceable
External protection on AC line	≥6 A C characteristic
Overvoltage input protection circuit	Passive varistor and active shutdown at 136 Vdc

OUTPUT TECHNICAL DATA	
Output rated voltage	**24 Vdc**
Output adjustable range	22.7…27 Vdc
Continuous current	**10 A @ 50°C (2)**
Overload limit	15 A
Short circuit peak current	21 A for 300 ms
Load regulation	<1.5%
Ripple @ nominal ratings	≤ 100 mVpp
Hold up time @ In (Uin 110 Vdc)	>4 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection
Status display	"DC OK" green LED / "DC OK" alarm contact / "Overload" red LED
Alarm contact threshold	—
Parallel connection	possible
Redundant parallel connection	factory provided with internal ORing diode

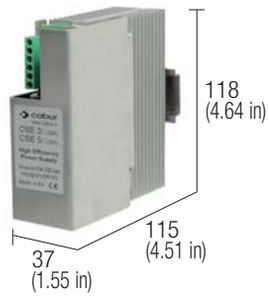
GENERAL TECHNICAL DATA	
Efficiency (Uin 110 Vdc)	>89%
Dissipated power (Uin 110 Vdc)	<28 W
Operating temperature range	–20...+60°C, with derating over 50°C (2)
Input/output isolation	2.1 kVdc / 60s (3)
Input/ground isolation	1.41 kVdc / 60s (3)
Output/ground isolation	0.75 kVdc / 60s (3)
Standard/approvals	IEC950, EN60950
EMC Standards	EN61000-6-2, EN61000-6-4, EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-5-5, EN61000-4-6, EN61000-4-11
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F
Overvoltage category/Pollution degree	II / 2
Protection degree	IP 20 IEC 529, EN60529
Connection terminal	2.5 mm² pluggable screw type
Housing material	aluminium
Approx. weight	800 g (28.24 oz)
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—

Switching power supply input 24 Vac output power 72…120 W

- Standard input voltage 24 Vac
- Dissipated power less than 10%
- Short circuit, overload, over temperature protection
- Input protection fuse

Items sold until sell-out, will be replaced by CL5R series



CE

NOTES

The depth dimension includes the terminal blocks and the DIN clamp.
(1) Over 25°C (77°F) apply derating: CSE3: -0.5 W/°C; CSE5: -0.85 W/°C; max 60°C

BLOCK DIAGRAM

VERSIONS	Cod. XCSE3	Cod. XCSE5
Output 24 Vdc 3 A	**CSE3**	
Output 24 Vdc 5 A		**CSE5**

INPUT TECHNICAL DATA		
Input rated voltage	**24 Vac** (range 24…28 Vac)	
Frequency	50...60 Hz	
Current @ Iout max.	4 A	5 A
Internal protection fuse	T 8 A replaceable	
External protection on AC line	circuit breaker: 10 A C characteristic - fuse: T 10 A	

OUTPUT TECHNICAL DATA		
Output rated voltage	**24 Vdc**	**24 Vdc**
Output adjustable range	23…25 Vdc	23…25 Vdc
Continuous current	**3 A** @ 25°C (1)	**5 A** @ 25°C (1)
Overload limit	4 A	5.5 A
Short circuit peak current	—	—
Load regulation	< 1%	
Ripple @ nominal ratings	< 100 mVpp	
Hold up time @ In	>20 ms	
Overload / short circuit protections	constant current, limit current, auto reset / over temperature protection	
Status display	"DC OK" green LED	
Parallel connection	possible	
Redundant parallel connection	possible with external ORing diode	

GENERAL TECHNICAL DATA		
Efficiency	>90%	>90%
Dissipated power	< 8 W	< 13 W
Operating temperature range	–10...+60°C, with derating over 45°C / over temperature protection (1)	
Input/output isolation	not insulated	
Input/ground isolation	0.5 KVac / 60 s	
Output/ground isolation	0.5 KVac / 60 s	
Reference Standards	IEC 664-1, DIN VDE 0110.1	
EMC Standards	EN55011, EN55022	
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F	
Overvoltage category/Pollution degree	II / 2	
Protection degree	IP 20 IEC 529, EN60529	
Connection terminal	2.5 mm² fixed screw type	
Housing material	metal	
Approx. weight	500 g (17.64 oz)	550 g (19.40 oz)
Mounting information	vertical on rail, allow 20 mm spacing between adjacent components	

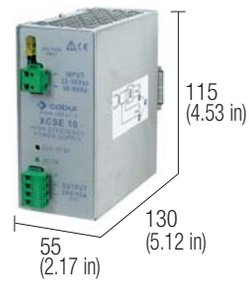
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—

APPLICATIONS

CSE power supplies are suitable for use in SELV and PELV circuits.
WARNING! In PELV circuits, in which one safety low voltage pole is connected to the ground, **a pole of the secondary of the transformer too must not be connected to ground at once**; the only one pole to be grounded is normally the negative of the 24 Vdc output of the power supply and effectively used as control voltage.
The connection to ground of one pole of the transformer Vac output together with one pole of the 24 Vdc of the power supply output damages the power supply.
Input and output of the CSE Series power supplies are not isolated. Safety isolation function is therefore assigned to the external transformer which has to comply with EN60742 Std.

Switching power supply input 24 Vac output power 240 W

- Standard input voltage 24 Vac
- Dissipated power less than 10%
- Short circuit, overload, over temperature protection
- Input protection fuse

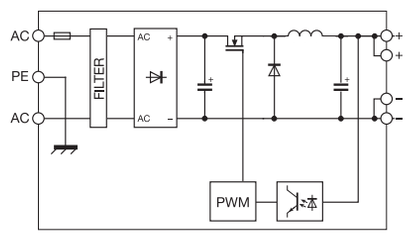


CE

NOTES

The depth dimension includes the terminal blocks and the DIN clamp.
(1) Over 45°C (113°F) apply a derating -4 W/°C, max 60°C.

BLOCK DIAGRAM



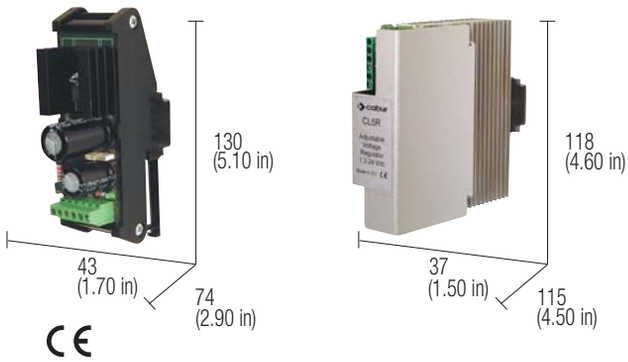
VERSIONS	Cod. XCSE10
Output 24 Vdc 10 A	**CSE10**
INPUT TECHNICAL DATA	
Input rated voltage	**24 Vac** (range 21…30 Vac)
Frequency	50...60 Hz
Current @ Iout max.	12 A
Internal protection fuse	T 20 A replaceable
External protection on AC line	circuit breaker: 25 A C characteristic - fuse: T 25 A
OUTPUT TECHNICAL DATA	
Output rated voltage	**24 Vdc**
Output adjustable range	22…26.5 Vdc
Continuous current	**10 A** @ 25°C (1)
Overload limit	12 A
Short circuit peak current	—
Load regulation	< 1%
Ripple @ nominal ratings	< 200 mVpp
Hold up time @ In	>10 ms
Overload / short circuit protections	hiccup at the overload limit with auto reset / over temperature protection
Status display	"DC OK" green LED
Parallel connection	possible
Redundant parallel connection	possible with external ORing diode
GENERAL TECHNICAL DATA	
Efficiency (Uin 110 Vdc)	>90%
Dissipated power (Uin 110 Vdc)	< 26 W
Operating temperature range	–10...+60°C, with derating over 45°C / over temperature protection (1)
Input/output isolation	not insulated
Input/ground isolation	0.5 KVac / 60 s
Output/ground isolation	0.5 KVac / 60 s
Reference Standards	IEC 664-1, DIN VDE 0110.1
EMC Standards	EN55011, EN55022
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F
Overvoltage category/Pollution degree	II / 2
Protection degree	IP 20 IEC 529, EN60529
Connection terminal	2.5 mm² fixed screw type
Housing material	metal
Approx. weight	600 g (21.16 oz)
Mounting information	vertical on rail, allow 20 mm spacing between adjacent components
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—

APPLICATIONS

CSE power supplies are suitable for use in SELV and PELV circuits.
WARNING! In PELV circuits, in which one safety low voltage pole is connected to the ground, **a pole of the secondary of the transformer too must not be connected to ground at once**; the only one pole to be grounded is normally the negative of the 24 Vdc output of the power supply and effectively used as control voltage.
The connection to ground of one pole of the transformer Vac output together with one pole of the 24 Vdc of the power supply output damages the power supply.
Input and output of the CSE Series power supplies are not isolated. Safety isolation function is therefore assigned to the external transformer which has to comply with EN60742 Std.

Adjustable linear power supply input 24 Vac

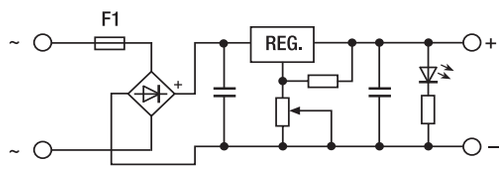
- Adjustable output voltage 1.2...24 Vdc
- Output current 1.5 and 5 A
- Short circuit, overload, over temperature protection



NOTES

The depth dimension includes the terminal blocks and the DIN clamp.
(1) See "Applications"

BLOCK DIAGRAM



VERSIONS	Cod. XCL1R	Cod. XCL5R
Output 1.2 A	**CL1R**	
Output 5 A		**CL5R**
INPUT TECHNICAL DATA		
Input rated voltage	**9…26 Vac** (see Tab. 1)	
Frequency	50...60 Hz	
Current @ Iout max.	2,5 A	6 A
Internal protection fuse	T 3 A replaceable	T 10 A replaceable
External protection on AC line	MCB: 4 A C characteristic - fuse T 4 A	MCB: 10 A C characteristic - fusibilie T 10 A
OUTPUT TECHNICAL DATA		
Output rated voltage	**1.2...24 Vdc**	**1.2...24 Vdc**
Output adjustable range	(see Tab. 1 and Tab. 2)	(see Tab. 1 and Tab. 2)
Continuous current	**0.3...1.5 A** (see Tab. 2)	**0.8...5 A** (see Tab. 2)
Overload limit	—	—
Load regulation	< 1%	
Ripple @ nominal ratings	< 50 mVpp @ 24 Vac	
Hold up time @ In	>20 ms	
Overload / short circuit protections	constant current, limit current, auto reset / over temperature protection	
Status display	"DC OK" green LED	
GENERAL TECHNICAL DATA		
Operating temperature range	–20...+45°C / over temperature protection (1)	
Input/output isolation	not insulated	
Input/ground isolation	0.5 KVac / 60 s	
Output/ground isolation	0.5 KVac / 60 s	
Reference Standards	IEC 664-1, DIN VDE	
EMC Standards	EN50081-1, EN61000-6-4	
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F	
Overvoltage category/Pollution degree	II / 2	
Protection degree	IP 00 IEC 529, EN60529	
Connection terminal	2.5 mm² fixed screw type	
Housing material	UL94V-0 plastic material	aluminium
Approx. weight	120 g (4.23 oz)	350 g (12.35 oz)
Mounting information	vertical on rail, allow 20 mm spacing between adjacent components	
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32	**PR/DIN/AC, PR/DIN/AS, PR/DIN/AL**	—

APPLICATIONS

The CL-R linear reguated power supply series of CABUR is provided with adjustable output and it can satisfy all those needs related to the feeding of small loads with non-standard rated voltage and at an extremely limited cost. It can be mounted on the rail in whatever position, providing that enough space for the free circulation of the air remains for the cooling; the CL1R model having an IP 00 protection degree, its use is intended inside a protected enclosure. Even if the power supply is protected from over-current it is advisable to respect the rated values shown in table 1 and 2.

(1) **CL1R** and **CL5R** give the rated performances if fed by a voltage between 24 and 27 Vac, as indicated on **Tab. 1**; with input voltage between 24 and 27 Vac, the maximum output current for output voltages lower than 24 Vdc are indicted on **Tab. 2**; to achieve a good voltage stabilization and low ripple, linear power supplies must be fed with an input voltage higher than output voltage, while if they are supplied with 24 Vac, and adjusted for 24 Vdc output, when rated current is supplied, the ripple increases and voltage stabilization decreases; input voltages higher than 27 Vac increases power dissipation and increases operating temperature of the component, and might cause thermal protection shut down.
The products are preadjusted to Vout 24 Vdc with Vin 26 Vac.

INPUT (Vac)	Uout max. (Vdc)	Iout max (A) XCL1R	Iout max (A) XCL5R
24...27	24	1.5	5
16...18	15	1.5	5
14...16	12	1.5	5
12...14	10	1.5	5
12	9	1.5	5
9	5	1.5	5

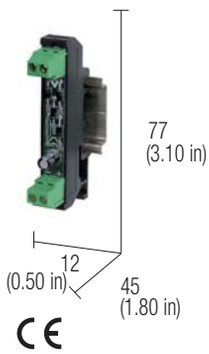
Tab. 1 (see explanation on right side)

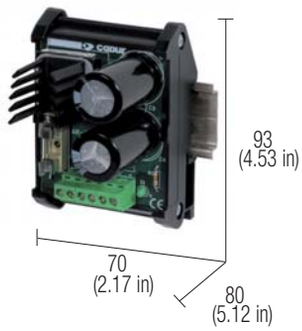
INPUT (Vac)	Uout max. (Vdc)	Iout max (A) XCL1R	Iout max (A) XCL5R
24	24	1.5	5
24	15	0.8	2.5
24	12	0.7	2
24	10	0.5	1.5
24	9	0.45	1.3
24	5	0.3	0.8

Tab. 2 (see explanation on right side)

Filtered power supplies without transformer with non regulated output

- DIN rail mounting
- Suitable for rectifying 6 Vac to 20 Vac
- V output = Vac input x 1.41 (-1V)

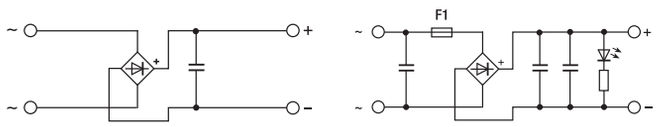




NOTES

(2) Version available upon request; for information call our sales department, local agent or representative
(3) They can work with input from min. 6 Vac to 30 Vac max., the non regulated output voltage depends on the load and on the variations of the input voltage supplied by the transformer
(4) They are protected from overcurrent by their input fuse (except AR1 model); it is recommended to protect cables of the output line with fuses of value coordinated with the current of the load and cables.

BLOCK DIAGRAM



VERSIONS	Cod. XAR1	Cod. XAR2
Output 1 A	**AR1**	
Output 6 A		**AR6**
INPUT TECHNICAL DATA		
Input rated voltage	**6…20 Vac**	
Frequency	50...60 Hz	
Current @ Iout max.	1.2 A @ 20 Vac	7.2 A @ 20 Vac
Internal protection fuse	not available	T 8 A replaceable
External protection on AC line	MCB: 1 A C characteristic - fuse T 1 A	MCB: 10 A C characteristic - fusibile T 10 A
OUTPUT TECHNICAL DATA		
Output voltage (without load)	Uout = (Uin x 1.41) (3)	
Output voltage (full load)	Uout = (Uin x 1.41) -2 (3)	
Continuous current	**1 A** @ 20°C	**6 A** @ 20°C
Overload limit	1 A	9 A
Load regulation	—	
Ripple @ nominal ratings	≤ 10%	
Hold up time @ In	>20 ms	
Overload / short circuit protections	not available, insert external fuse (4)	
Status display	"DC OK" green LED	
Parallel connection	—	
Redundant parallel connection	—	
GENERAL TECHNICAL DATA		
Operating temperature range	–20...+45°C / max 60°C	
Input/output isolation	not insulated	
Input/ground isolation	0.5 KVac / 60 s	
Output/ground isolation	0.5 KVac / 60 s	
Reference Standards	IEC 664-1, DIN VDE	
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F	
Overvoltage category/Pollution degree	II / 2	
Protection degree	IP 00 IEC 529, EN60529	
Connection terminal	2.5 mm² fixed screw type	
Housing material	UL94V-0 plastic material	
Approx. weight	22 g (0.77 oz)	140 g (4,93 oz)
Mounting information	vertical on rail, allow 50 mm spacing between adjacent components	
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32	**PR/DIN/AC, PR/DIN/AS, PR/DIN/AL**	

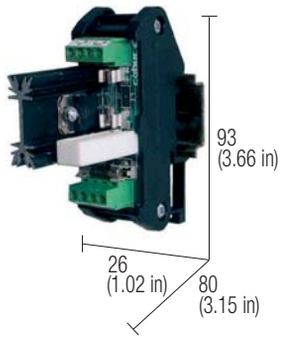
APPLICATIONS

A rectified and filtered power supply is made with a rectifier bridge and a filter capacitor, that converts the alternating voltage into a continuous voltage. Since the power supply unit is not regulated, the output voltage varies considerably according to the current required by the load and according to the ±10% mains voltage variations.
The formula indicated in the output specifications allows to calculate the output voltage with Zero load, with 50% load and full load. This allows you to choose the most suitable transformer for your needs.
These units offer a low cost and a reliable voltage source suitable for loads such as relays, contactors, solenoid valves or loads that can work with relatively high ripple and wide voltage variations; in applications where mains is unstable or troubled, **it might be not suitable to feed microprocessor devices, analog converters, encoders and electronic devices which are sensitive to voltage variations.**

INPUT (Vac)	OUTPUT without load (Vdc)	OUTPUT full load (Vdc)
20	28.7	24.2
18	25.4	21.4
15	21.2	17.2
12	17	15
9	12.7	8.7
6	8.5	4.5

Accessory for charging buffer batteries

- Battery charger
- Allows to connect in redundant parallel two power supplies
- Suitable for power supplies up to 10 A
- Battery protection fuse
- Battery feedback protection diode
- Current charge limiting resistor



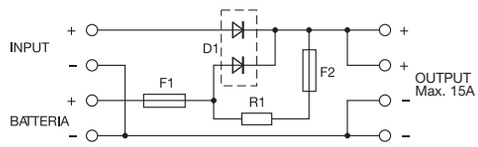
NOTES

The depth dimension includes the terminal blocks and the DIN rail clamp.

(1) The charging current is dependent on the battery type and the required level of charge, it's about:
- 0,5A max @ 12Vdc battery
- 1A max @ 24Vdc battery

(2) The device do not avoid total discharge which always shortens battery life.

BLOCK DIAGRAM



VERSIONS	Cod. XCSBC
	CSBC
GENERAL TECHNICAL DATA	
Power supply rated voltage	6...30 Vdc
Power supply rated current	> 3 A
Load rated voltage	6...29.5 Vdc
Load max current	10 A
Charge current limitation	(1)
Battery disconnecting voltage	not available
IN/OUT drop voltage	0.5 V
Battery protection fuse	F1 = T 6.3 A / F2 = T 1 A
Protections	battery short circuit /overload (2)
Alarm signal	—
Operating temperature range	–10...+50°C
Reference Standards	IEC 664-1, DIN VDE
Overvoltage category/Pollution degree	II / 2
Protection degree	IP 20 IEC 529, EN60529
Connection terminal	2.5 mm² fixed screw type
Housing material	UL94V-0 plastic material
Approx. weight	80 g (2.82 oz)
Mounting information	vertical on rail, adjacent
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	**PR/DIN/AC, PR/DIN/AS, PR/DIN/AL**

APPLICATIONS

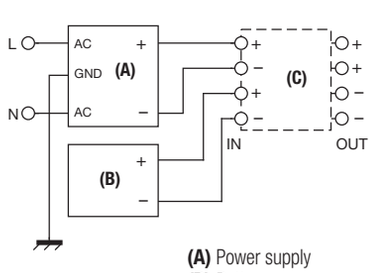
1. Battery charger

With this module is possible to use a Cabur power supply as a battery charger while it is feeding the load.
The diode provides decoupling between the battery and the power supply; the resistance limits the current charge limiting power supply output current and assuring longer life to the battery. The F1 fuse protects the battery and its wiring against short circuit.
The next picture shows the connections.

2. Parallel connection of power supplies

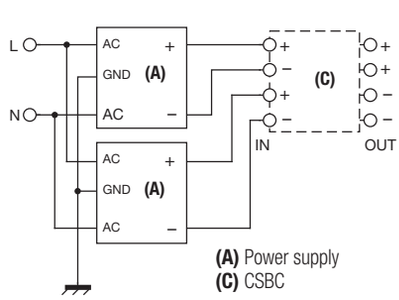
It is possible to use this module also to connect two power supplies in parallel, not provided with output decoupling diode, eliminating "Fuse 2" in series to charging current limiting resistor.
The next picture shows the connections.

1. Battery charger



(A) Power supply
(B) Battery
(C) CSBC

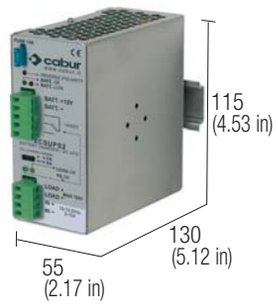
2. Parallel connection of power supplies



(A) Power supply
(C) CSBC

Accessory for charging and controlling buffer batteries

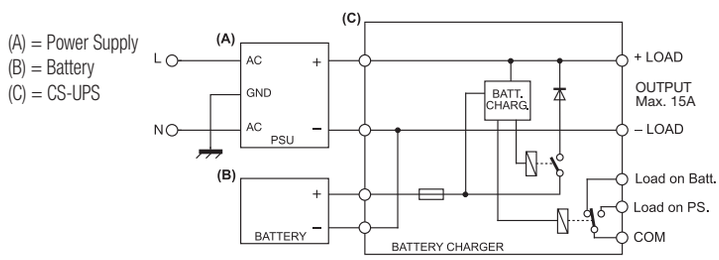
- Suitable for power supply with adjustable output
- Suitable for lead batteries
- Suitable for charging batteries while feeding loads
- Battery protection fuse
- "Deep discharge" battery protection
- Status display LED and failure contact



NOTES

The depth dimension includes the DIN rail clamp.

BLOCK DIAGRAM



VERSIONS	Cod. XCSUPS1	Cod. XCSUPS2
Output 24 Vdc	**CS-UPS1**	
Output 12 Vdc		**CS-UPS2**
GENERAL TECHNICAL DATA		
Power supply input voltage	26...28.5 Vdc	12...15 Vdc
Power supply rated current	≥ 3 A	≥ 3 A
Load rated voltage	**26...28 Vdc**	**10...15 Vdc**
Max load current	**15 A**	**15 A**
Charging current	selectable 2 A or 4 A	selectable 2 A or 4 A
Battery disconnection voltage	≤ 18 Vdc ±0.5V	≤ 9.2 Vdc ±0.5V
IN/OUT voltage drop	0.4 V	
Battery protection fuse	T 15 A 42 V blade type	
Protections	Reverse polarity, short circuit, battery overload, battery deep discharge	
Alarm signals — Power supply OK:	SPDT 24 V / 1 A	
Battery OK	green LED	
Battery LOW	red LED	
Load OK	yellow LED	
Battery reverse polarity	green LED	
Operating temperature range	–10...+50°C	
EMC Standards	IEC 664-1, DIN VDE	
Overvoltage category/Pollution degree	II / 2	
Protection degree	IP 20 IEC 529, EN60529	
Connection terminal	2.5 mm² pluggable screw type	
Housing material	aluminium	
Approx. weight	300 g (10.58 oz)	
Mounting information	vertical on rail, adjacent	
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32	—	

APPLICATIONS

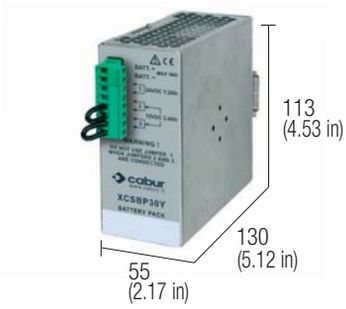
All power supplies with adjustable output voltage to +15% of rated voltage can be used as lead battery chargers, suitable to be used as back up supply in case of AC line breakdown.
The CS-UPS-1 circuit regulate the current charging the battery, and it is possible to set it up to 2A or 4A charging current ; CS- UPS1 disconnects the load form the battery whenever the battery voltage drops under 19Vdc, to avoid total discharge which always shortens battery life.
The module is provided with a fuse protecting the battery and its cable to prevent fire risk in case in case of short circuit. The module is provided with the following leds diplay:
PS OK: The green LED is on when the power supply feeding the CS-UPS1 is OK and the load is supplied by the power supply while the battery is continuously charged.
LOAD OK: Yellow LED is on when CS-UPS1 feeds the load.
BATT. OK: Green LED is on when the power supply is turned OFF or disconnected and indicates that the battery is connected and can feed the load.
BATT. LOW: Red LED on when the battery is low or discharged.
REVERSE BATTERY: Red LED is on when battery is connected with reverse polarity.
Alarm contact: a relay with an SPDT contact 1A/24V switches when the load is no more supplied by the power supply and then is supplied by the battery. This contact allows to get a remote warning on the status of the system even in the case that the power supply is turned OFF or damaged, or non more supplied for any reasons.

Example 1:
XCSF120C + XCSUPS1 + batteria

Example 2:
XCSF120C + XCSUPS1 + XCSBP30Y

Batteries holder module

- 12 or 24 Vdc selectable output voltage
- Suitable for sealed lead rechargeable batteries
- Suitable for CSBC, CS-UPS, CSC75
- Suitable for DIN rail installation

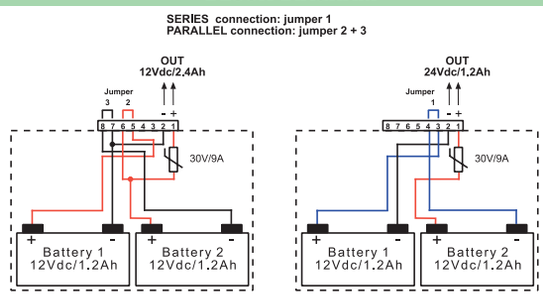


CE

NOTES

The depth dimension includes the terminal blocks and the DIN rail clamp.
(1) Into XCSBP30Y are necessary two batteries 8911012

BLOCK DIAGRAM



VERSIONS

Batteries holder module (empty)	**CSBP30Y**	**Cod. XCSBP30Y**
Battery (1)	**BAT12V1,2AH**	**Cod. 8911012**

APPLICATIONS

GENERAL TECHNICAL DATA

Batteries type	2 sealed batteries 12 Vdc 1.2 Ah	
Internal protection fuse	15 A	
Setup type	**parallel**	**series**
Output voltage	12 Vdc 2.4 Ah	24 Vdc 1.2 Ah
Charging current max.	0.6 A	0.3 A
Discharging current max.	5 A	3 A
Operating temperature range	–10...+50°C	
EMC Standards	IEC 664-1, DIN VDE	
Overvoltage category/Pollution degree	II / 2	
Protection degree	IP 20 IEC 529, EN60529	
Connection terminal	2.5 mm² pluggable screw type	
Housing material	aluminium	
Approx. weight	1.2 kg (42,36 oz)	
Mounting information	vertical on rail, adjacent	

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—

Example 1:
XCSC120C + XCSBP30Y

Example 2:
XCSF120C + XCSUPS1 + XCSBP30Y

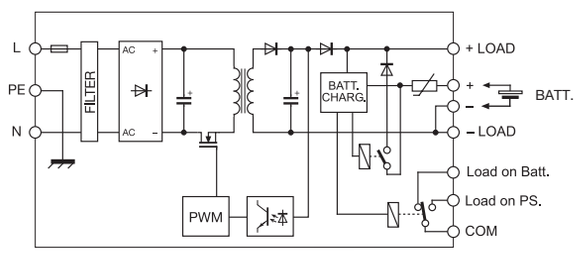
Switching power supply with integrated battery charger

- Suitable for 12 Vdc loads and batteries
- Suitable for lead batteries
- Suitable for charging batteries while feeding loads
- Battery protection circuit
- "Deep discharge" battery protection
- Status display LED and failure contact

NOTES

The depth dimension includes the terminal blocks and the DIN clamp.
(2) With 100...127 Vdc input voltage, constant output power and Ta>45°C, the output current must be derated by 25%
(3) In addition to the current load, the device supplies about 0.8 A for battery charging
(4) Over 50°C (122°F) apply a derating -0.13 A/°C, max 60°C

BLOCK DIAGRAM



VERSIONS	Cod. XCSC120B	Cod. XCSC120C
Output 12 Vdc 5 A	**CSC120B**	
Output 24 Vdc 5 A		**CSC120C**

APPLICATIONS

INPUT TECHNICAL DATA	
Input rated voltage	**120–230 Vac** (range 90…264 Vac / 100…370 Vdc) (2)
Frequency	47...63 Hz
Current @ nominal Iout (Uin 120 /230 Vac)	2.0 A / 1.1 A ± 10%
Inrush peak current	< 20 A
Power factor	> 0.6
Internal protection fuse	T 3.15 A replaceable
External protection on AC line	circuit breaker: 4 A - C characteristic - fuse: T 3.15 A

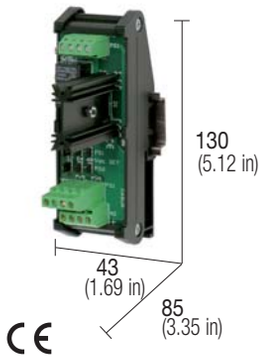
OUTPUT TECHNICAL DATA		
Output voltage with operating power supply	**12.5…15.5 Vdc**	**23…27.5 Vdc**
Output voltage with batteries	12…14.4 Vdc	24…26.2 Vdc
Continuous current	**7 A** @ 50°C (3)	**5 A** @ 50°C (3)
Overload limit	>11 A for >30 s	>8 A for >30 s
Short circuit peak current	>18 A for >50 ms	>12 A for >50 ms
Load regulation	< 1%	< 1%
Ripple @ nominal ratings	80 mVpp	80 mVpp
Hold up time @ In (Uin 120 / 230 Vac)	>24 ms / >80 ms	>17 ms / >72 ms
Overload / short circuit protections	with operating power supply: hiccup at the overload limit with auto reset non operating power supply: auto resettable electronic fuse against battery short circuit with non operating power supply: threshold-relay against battery deep discharge	
Alarm signals	"PSU OK" green LED / failure contact / "BATTERY" red LED	
Max. charging current	0.8 A (suitable for sealed lead batteries up to 15 Ah)	

GENERAL TECHNICAL DATA		
Efficiency (Uin 120 / 230 Vac)	>86% / >90%	>90%
Dissipated power (Uin 120 / 230 Vac)	21 W / 13 W	< 13 W
Operating temperature range	–20...+60°C, with derating over 50°C / over temperature protection (4)	
Input/output isolation	1.5 KVac / 60 s SELV output	
Input/ground isolation	1.5 KVac / 60 s	
Output/ground isolation	0.5 KVac / 60 s	
Standard/approvals	IEC950, EN60950	
EMC Standards	EN55011, EN61000-6-1	
MTBF @ 25°C @ nominal ratings	>500'000 h acc. to SN 29500 / >150'000 h acc. to MIL Std. HDBK 217F	
Overvoltage category/Pollution degree	II / 2	
Protection degree	IP 20 IEC 529 EN60529	
Connection terminal	2.5 mm² pluggable screw type	
Housing material	aluminium	
Approx. weight	500 g (17.65 oz)	
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components	

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	**–**

Accessory for power supplies redundant parallel connections

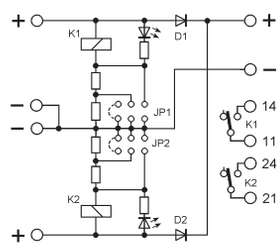
- Suitable for power supplies without Oring diodes
- Compact dimensions
- Three selectanle voltages 12, 24 and 48 Vdc
- 2 status/relays contacts
- Power supplied status LED



NOTES

The depth dimension includes the terminal blocks and the DIN rail clamp.

BLOCK DIAGRAM



VERSIONS	Cod. XCSBD
	CSBD

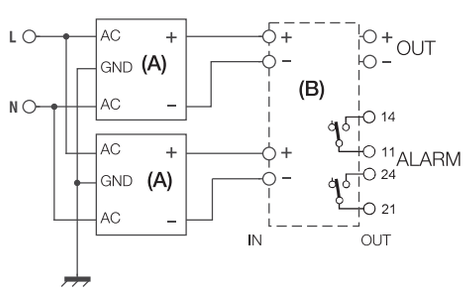
GENERAL TECHNICAL DATA	
Power supply rated voltage	**12–24–48 Vdc** selectable
Power supply rated current	15 A, max 30 A
Load rated voltage	**12–24–48 Vdc** selectable
Load max current	15 A
IN/OUT drop voltage	0.7 V @ 15 A
Protections	—
Alarm signal	2 contacts NA 2A @ 230 Vac
Operating temperature range	–20...+50°C
Reference Standards	IEC 664-1, DIN VDE
Overvoltage category/Pollution degree	II / 2
Protection degree	IP 00 IEC 529, EN60529
Connection terminal	2.5 mm² fixed screw type
Housing material	UL94V-0 plastic material
Approx. weight	120 g (4.23 oz)
Mounting information	vertical on rail, adjacent

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	**PR/DIN/AC, PR/DIN/AS, PR/DIN/AL**

APPLICATIONS

This module allows the customer to connect in redundant parallel two power supplies not provided with built in Oring diodes (output decoupling diodes); a jumper bridge allows to select 12, 15, 24 or 48 Vdc operating voltage; each channel is provided with status indication led, status relay and contact for remote failure alarm.

Block diagram



(A) Power supply
(B) CSBD

MBC2K
Motor brake controller

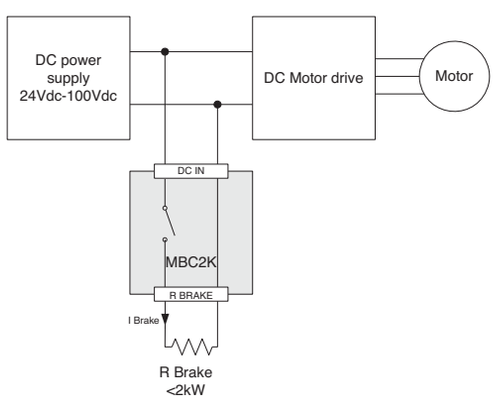
The **MBC2K** is a device controlled by a microprocessor, that can automatically insert a power resistor into the DC BUS for braking a motor fed by the same DC Bus through a motor drive. The function of the MBC2K is to dissipate the energy delivered by the motor in an external resistor thus damping the resulting overvoltage on the DC Bus.
On top of that the MBC2K provides several protections to ensure reliable operation.
MBC2K can be connected to any DC Bus within 24Vdc and 100Vdc. The simplified application diagram is shown in Figure 1, while the unit front view with all its controls is shown in Figure 2.
Up to 4 MBC2K units can be connected in parallel to increase the braking power up to 8kW max.
The MBC2K is provided with a 2.5 digits 7 segments LED display, used to display the DC Bus voltage (with +/- 1V accuracy), to help the user during the setup phase and/or to show error messages.

MBC2K Setup
The MBC2K unit needs to be set up before operating.
The setup phase consists of 3 menu pages. The user can navigate through the menu pages by pressing the MENU button and the values on each menu page can be changed by pressing **SET / RESET** button.
The three menu pages are the following:
a) Brake intervention threshold (VTH) setup
b) Hysteresis around the brake intervention threshold voltage
c) Master / Slave mode, used for parallel connection up to four modules.

MBC2K protection and error codes
The MBC2K unit integrates several active protections to guarantee reliable operations in normal conditions. As soon as a faulty event is detected the MBC2K power stage is switched off so that no uncontrolled current flow through the brake resistor is possible. A fault condition is indicated by the continuous blinking of the Alarm LED. Remote sensing of the status of the MBC2K unit is possible thanks to the Alarm relay dry contact. To help the user to understand which faulty event occurred, an error code is displayed on the 7 segments LED display. Every protection is latched, so that to put back the MBC2K unit in “operation mode”.

Parallel connection up to 4 MBC2K units
The MBC2K brake controller provides a feature allowing connecting up to 4 identical MBC2K units to **increase the peak braking power up to 8kW**. In any case every MBC2K unit can handle only 2kW of peak braking power therefore every MBC2K unit need its own 2kW brake resistor.
To realize this feature the MBC2K is equipped with a Synchronization Bus used to synchronize the operation of all the units connected to the synchronization bus. The principle of operation relies on one MBC2K unit configured as the **master** and others MBC2K units (up to 3) configured as **slave**.
The master measures the DC Bus voltage and decides when to insert its brake resistor in the circuit; on top of that it sends a command on the synchronization bus.
The slaves connected on the synchronization bus are waiting for the command sent by the master; when they receive the command they insert their brake resistors in the circuit too. Please note that even when the MBC2K is configured in slave mode, all its circuits protections are functional.

Figure 1: Simplified application diagram



1. SET/RESET button: used to reset the protections and to change setup values in setup mode.
2. MENU button: used to enter into setup mode and to navigate through menu pages.
3. Synchronization bus connector: used to parallel up to 4 units.
4. Resistor temperature sensor connector: used to connect an optional brake resistor temperature sensor.
5. Alarm dry contact connector: an SPDT contact provide remote failure signal.
6. Brake resistor connector: used to connect the brake resistor wires 2.5mm²
7. DC Bus connector: used to connect the MBC2K unit to the power supply Bus (24….100Vdc).
8. Protective earth (PE) connection: to connect the module to the protective earth.
9. LED display 100’s indicator: used to display numbers >99 on 2 digits; when this indicator is lit and the display shows “03” this means 103V.
10. Brake indicator LED: used to display braking activity; when lit it means that there is a current flow through the brake resistor.
11. 2.5 digits 7-segment display: in operating mode it shows the voltage measured on the DC Bus (accuracy +/- 1V); it’s used also to show menu items and error codes.
12. Alarm LED: used to indicate a fault condition of the unit.

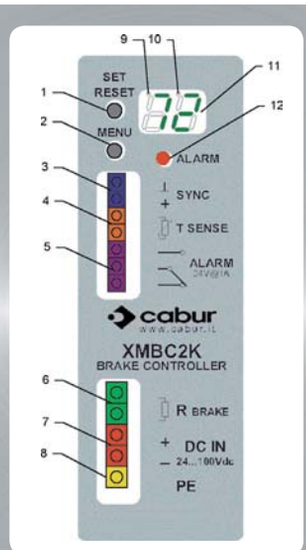


Figure 2: MBC2K Front View

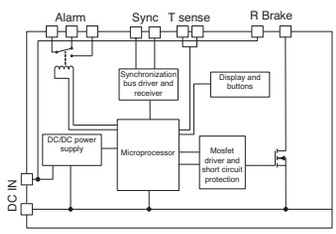
Motor brake controller

- 20 threshold levels with automatic activation
- Each module can drive 2kW bracking power
- It is possible to connect up to four modules master/slave to get 8kW total braking power
- Symple functions programming and set up
- Control of the temperature of the braking resistor

NOTES

The depth dimension includes the terminal blocks and the DIN clamp.

BLOCK DIAGRAM



VERSIONS	Cod. XMBC2K
	MBC2K

INPUT TECHNICAL DATA	
Nominal DC BUS voltage range	**24…100 Vdc**
Maximum braking current	50 A for 1 s
Brake activation voltage	**27….106 V, threshold adjustable in 20 steps**
Brake voltage hysteresis	3 V o 6 V selectable
User interface	2 setup push buttons (SET/RESET and MENU) 2 x 7 segment LED displays 1 LED for general alarm indication 1 SPDT dry contact for general alarm remote warning
Protections	Undervoltage on DC BUS < 22 Vdc Overvoltage on DC BUS > 110 Vdc Brake resistor overtemperature (if the temperature sensor is present) Module Internal overtemperature > 90°C (194°F) Brake resistor interrupted or not connected Short circuit : braking current > 80 A Overload : braking time > 1 s
Parallel connection	Up to 4 units can be connected in parallel through synchronization bus for a total braking power of 8kW (4 x 2kW braking resistors are needed)

GENERAL TECHNICAL DATA	
Dissipated power	**20 W**
Operating temperature range	0...+70°C
Input/output isolation	—
Input/ground isolation	500 Vac / 60s
Output/ground isolation	—
Standard/approvals	IEC950, EN60950 for SELV use up to 60Vdc; using the MBC2K at voltages greater than 60Vdc is not classifiable as SELV
EMC Standards	EN55011 Class B
Overvoltage category/Pollution degree	I / 2
Protection degree	IP 20 IEC 529, EN60529
Connection terminal	1.5 and 2.5 mm² pluggable screw type
Housing material	aluminium
Approx. weight	200 g
Mounting information	vertical on rail, allow 10 mm spacing between adjacent components
Approx. weight	120 g
Mounting information	vertical on rail, adjacent

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—

APPLICATIONS

The MBC2K is a device controlled by a microprocessor, that can automatically insert a power resistor into the DC BUS for braking a motor fed by the same DC Bus through a motor drive. The function of the MBC2K is to dissipate the energy delivered by the motor in an external resistor thus damping the resulting over-voltage on the DC Bus

On top of that the MBC2K provides several protections to ensure reliable operation.

MBC2K can be connected to any DC Bus within 24Vdc and 100Vdc. The simplified application diagram is shown in Figure 1, while the unit front view with all its controls is shown in Figure 2.

Up to 4 MBC2K units can be connected in parallel to increase the braking power up to 8kW max.

The MBC2K is provided with a 2.5 digits 7 segments LED display, used to display the DC Bus voltage (with +/- 1V accuracy), to help the user during the setup phase and/or to show error messages.

AC Surge Protection Devices

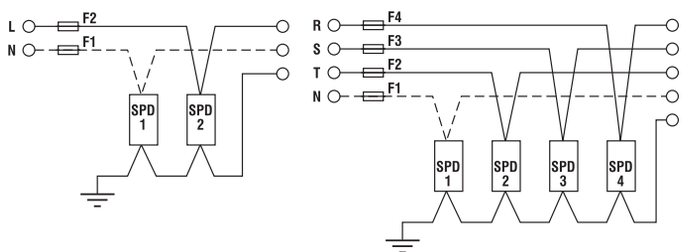
These are Surge Protection Devices (SPD) that prevent transitional impulsive overvoltage, conducted via the mains power supply, the earth network or signal networks, from damaging electronic command and control systems and electronic appliances in general. Series BY7 protection devices limit dangerous overvoltage to standard levels tolerated by the appliances intended for use in Overvoltage Category II or greater (impulsive overvoltage max. 2.5kV) in zone protected from overvoltage B and C (Zones 1 and 2) if the plant does not have a lightning arrester, in protection zone C (Zone 2) if the plant has a lightning arrester, and are SPD in Test Class II as required by standards IEC1024, IEC1312-1, EN50083-1 in force (see figure 1 the following pages)

Where and how to use them
In accordance with current standards, series BY7 surge protection devices must be installed on incoming power lines to electrical distribution and control and command boards for automation, in order to guarantee immunity to the transistors of the equipment contained, such as PLC, industrial PCs, power supplies, inverters, etc.. For command and control boards, generally in Overvoltage Category II according to IEC EN 644-1 to be compliant with EMC standards, maximum impulsive overvoltage applied to equipment must be below 2.5kV, as indeed is also required by EN61000-4-4, 4-5. If SPDs with residual overvoltage of less than 2.5kV, which can be withstood by equipment, are not installed on command and control boards, overvoltage may cause plant or machine failure or breakdown, with costs that certainly exceed the cost of the SPDs. Installation of SDPs is also required, in any case, in order to comply with EMC standards and CE marking of the board.

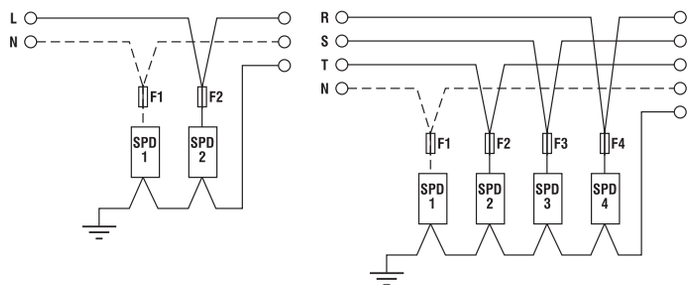
Performance
They consist of a wiring socket that can be assembled onto a DIN rail and a removable protection module that contains the discharge, making it easy to disconnect the SPD during insulation tests or for quick replacement at the end of its working life. They are able to withstand ten 20kA impulses of Isc discharge current with impulse 8/20 and a single 40kA impulse, which is statistically very rare. As required by the product regulations on the SPDs, the BY7 series is equipped with an automatic thermal cut-off device able to disconnect the line transformer in the event of failure, providing an indication of the failure discharge visible on the front of the unit and via a clean contact. When, after numerous discharges and years of service the module has deteriorated, it can be rapidly replaced by removing it from its base socket and replacing it with another, identical one, without disconnecting the power supply.

Fuses and protection devices
BY7 series overvoltage dischargers have an incorporated device that disconnects the transformer at the end of its working life (close to short circuit or short circuited). They must, however, be fitted with protection against short circuit current upstream and differential protection against indirect contact (generally already included in the installation). If installed downstream of highly sensitive differential protection devices, we recommend using the configuration with gas discharger (see layouts on the following pages). The diagrams below illustrate an example protection connection according to priority type.

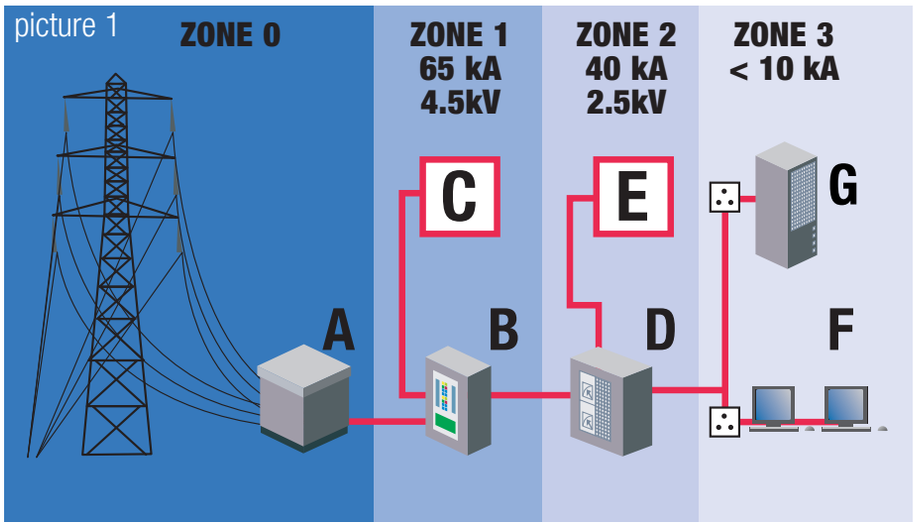
Protection takes priority



Continuity of services takes priority



Surge Protection Devices



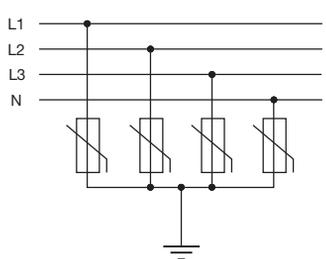
Lightning protection zones
Zone 0 - Zone where items are subject to direct lightning strikes or where an unattenuated electromagnetic field occurs as a result of the strike.
Zone 1 - Zone where items are subject to low level direct lightning strikes. The conducted impulse lightning currents and/or switching surges are reduced compared with Zone 0.
Zone 2 - Remnants of lightning impulse currents and/or switching surges are reduced compared with Zone 1.
Zone 3 - Surges, caused by oscillation effects, magnetic field couplings and internal switching surges are reduced compared with Zone 2
A - Sub Station
B - Main distribution board
C - Heavy machinery
D - Local distribution board
E - Light machinery
F - Workstation
G - Equipment

Example of connection for different networks

TN 3-phase system

No. 4 ISPD14440 +
No. 1 screw jumper 9000394

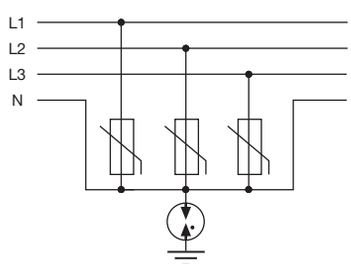
BLOCK DIAGRAM



TT 3-phase system

No. 3 ISPD14440 +
No. 1 ISPD1444G +
No. 1 screw jumper 9000394

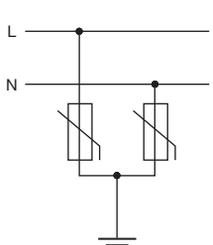
BLOCK DIAGRAM



TN single phase system

No. 2 ISPD14275 +
No. 1 screw jumper 9000392

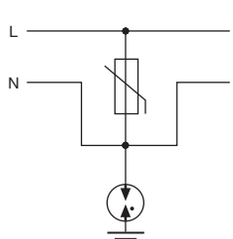
BLOCK DIAGRAM



TT single phase system

No. 1 ISPD14275 +
No. 1 ISPD1425G +
No. 1 screw jumper 9000392

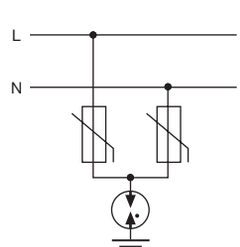
BLOCK DIAGRAM



TT single phase system

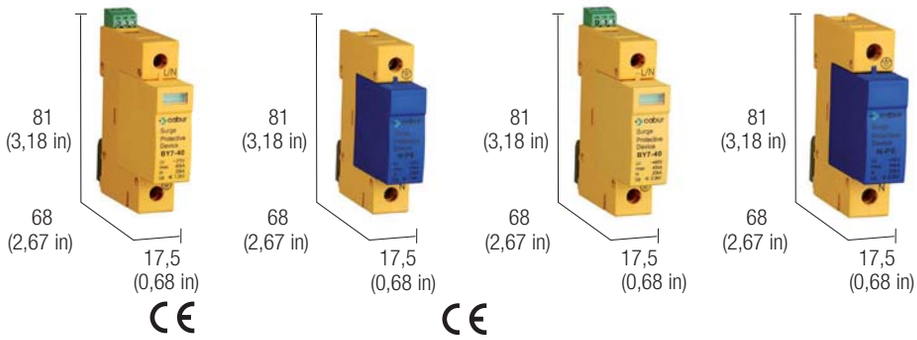
No. 2 ISPD14275 +
No. 1 ISPD1425G +
No. 1 screw jumper 9000393

BLOCK DIAGRAM



Surge protection devices

- Rugged contacts
- Pluggable protection
- Efficiency status indicator on front panel
- Available screw jumpers for parallel conection



NOTES

(1) When the termal protection disconnects the SPD, the contacts 11-14 open and contacts 11-12 close

BLOCK DIAGRAM

VERSIONS	Cod. ISPD14275	Cod. ISPD1425G	Cod. ISPD14440	Cod. ISPD1444G
	BY7-40/1-275	BY7-NPE/40-275	BY7-40/1-440	BY7-NPE/40-440
ELECTRICAL TECHNICAL DATA				
Category	II	II	II	II
Type of network systems	TN-S; TN-C; TT; IT	TN-S; TN-C; TT; IT	TN-S; TN-C; TT; IT	TN-S; TN-C; TT; IT
Tecnology	MOV (Metal Oxide Varistor)	GDT (Gas Discharge T	MOV (Metal Oxide Varistor)	GDT (Gas Discharge Tube)
Rated voltage	Un 230 Vac	Un 230 Vac	Un 400 Vac	Un 400 Vac
Maxium continuous voltage	Uc 275 Vac	Uc 255 Vac	Uc 440 Vac	Uc 440 Vac
Voltage protection level	Up ≤ 1.200 V	Up ≤ 1.800 V	Up ≤ 2.000 V	Up ≤ 1.800 V
Norminal discharge current (8/20)	In 20 kA	In 30 kA	In 20 kA	In 30 kA
Maxium discharge surge current (8/20)	Imax 40 kA	Imax 40 kA	Imax 40 kA	Imax 40 kA
GENERAL TECHNICAL DATA				
Connection terminal	4 ... 25 mm² fixed screw type			
Response time	ta < 25 nS			
Operating temperature range	-40°C < T < 80°C			
Status dispaly	Green OK / Red FAILURE	No	Green OK / Red FAILURE	No
Remote signal	SPDT 1 A/230 Vac (1)	No	SPDT 1 A/230 Vac (1)	No
Remote signal connection	1,5 mm² pluggable 6 A - 120 V	No	1,5 mm² pluggable 6 A - 120 V	No
Housing material	UL94V0	UL94V1	UL94V2	UL94V3
Protection degree	IP20	IP21	IP22	IP23
Colour	Yellow	Blue	Yellow	Blue
Packaging quantity	1	1	2	3
Approx. Weight	135 g	95 g	135 g	95 g
Mounting information	vertical on rail, without spacing between adjacent components			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB			
Replacement varistor				
Screw type jumper 2 poles	Cod. 9000392 (BP2)			
Screw type jumper 3 poles	Cod. 9000393 (BP3)			
Screw type jumper 4 poles	Cod. 9000394 (BP4)			

Adjustable electronic overcurrent protection from 1…10 A / 24 Vdc

figure 1

According to the new EN60204-1 Std. it is **compulsory** to protect wires on SELV-PELV lines against the effects of surges. The standard requires that surge protection devices on 24Vdc cut the fault off before the 24 Vdc control drops below 21.6 V, disconnecting power to controls and preventing the starting of emergency and safety functions.
According to EN 60204-1 and EN 61131-1 and -2, surge protection devices on SELV-PELV lines must be able to disconnect shorts within 10ms and dangerous surges within 5s. The use of power supplies with high output surge capacity and precise and quick protection devices enables to cut faults off before 24V drops below 21.6V disconnecting power to controls.

Fuses and magneto-thermic switches on 24 Vdc lines do not have I /t features enabling to quickly and precisely cut faults off; moreover fuses may be replaced with different types thus altering the system's protection and safety.

The correct coordination of the circuitry into which the surge protection device is incorporated must take into account the line's total R: R connections + R wires + R protection + residual R of the damaged load. R total value must always enable that the protection device's tripping current may flow in the circuit; it is also important to avoid undersizing the protection device in order to prevent inconvenient trips due to the load's breakaway starting I, or oversizing it thus increasing t of intervention.

The whole circuitry made up of power supply, surge protection device, wires and connections must be designed so as to enable the safe interruption of surges within 5s before 24 Vdc drops below 21.6 Vdc. This condition may be met using Cabur's power supplies - series CSF and CSG - dimensioned to supply high output surge (>+50% of rat.I for >5s) and electronic surge protection devices with CEP System which are more precise and quicker than magneto-thermic switches and devices whose tripping t does not depend upon ambient T and may be reset with local or remote controls.

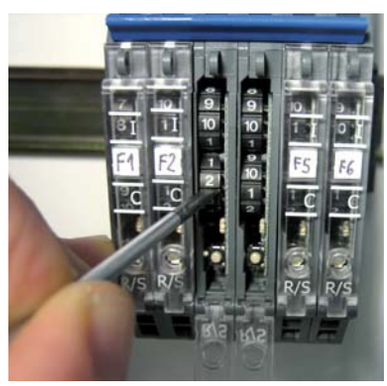


figure 3

Features of protection devices
Mgts have two different intervention curves: Thermal and Magnetic. The magnetic relay trips exclusively in the event of a short with different I/ t curves: thermal relays have all the same intervention curve, regardless of the mgt curve and in the event of a surge, they operate as described in figure 2: surge currents 1.13 x In are cut in >1h and with surges > 1.45 X In, the tripping takes place in a few minutes.
The disconnection of short currents is carried out by a magnetic relay whose tripping t goes from 0.01 to 0.1 sec, with very high currents which the power supply may not be able to supply; an mgt C5 used on DC has >70A safe tripping, a current that only power supplies with much higher rated I, i.e. 40A, may be able to supply (and not all of them) and that can not be supplied by 10A power supplies.
Using mgt as surge protection device, if the power supply has a surge I 1.2 times its rat. I, disconnection will take place in 20…60 min, while with 2.5 currents higher than rat.I it will take place between 25 sec. and 2 min., depending on amb.T., whose times are too long to ensure the stability of 24V, for protecting wires and the selectivity of protection devices. In the event of a failure - until the protection device trips - the power supply remains with a higher surge of In x 1.5 x 5s and 24V drops below 21.6V leaving standard functions and most of all safety functions with no power supply.

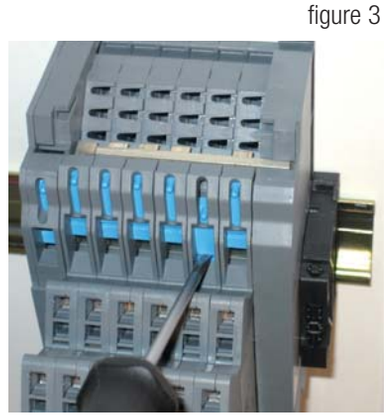


figure 4

Selectivity of protection devices
In the event of a surge or a short, only the damaged circuit is disconnected by its protection device with no repercussions on the supply of the other loads. This function is obtained with power supplies having high surge capacity and quick and precise protection devices.

CEP system - a smart system for current's control
CEP "recognizes" surges at their lowest and more precise stage and disconnects the damaged circuit as quickly as possible. For an excellent flexible use, the CEP system allows to set 10 tripping currents ranging from 1A to 10A in 1A steps and 3 intervention curves "Fast - Normal - Delayed" (see figure 3).
The protection status is displayed by two leds and by a remote alarm transistor output; the load may be activated / deactivated by pressing a button on the front (figure 5) or by the PLC remote control. The possibility of separately controlling single channels is useful during installation, because the various components may be separately activated and tested and - in big systems - the remote control may be used in order to gradually activate loads thus preventing simultaneous overloads when the system is started up. Another important features in terms of safety is the possibility of manually disconnecting the load, which means that even when protection devices are reset from the remote control, the load will remain inactive thus preventing dangerous situations.

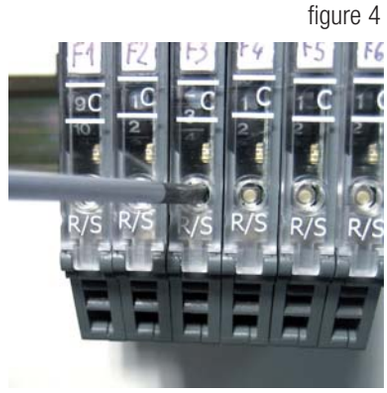
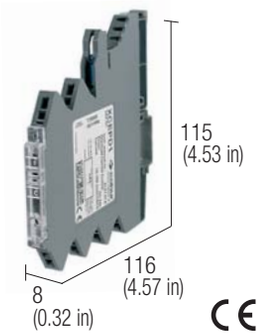


figure 5

Programmable electronic overcurrent protection 1...10 A / 24 Vdc

- Programmable from 1 A to 10 A in 1 A steps
- 3 programmable characteristic curves
- Remote or local ON/OFF control
- Status signal with LED and remote signal
- Slide contact for the manual load disconnection
- Sealable front cover allows to protect the set up of the protection

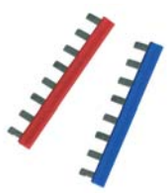


1) sealable front cover
2) current selector
3) identification label
4) characteristic curve selector
5) ste/reset button

NOTES

The measures include the overall dimensions and the fixing to the guide.
(1) Version available upon request; for information call our sales department, local agent or representative
(2) 24 Vdc remote pulse switch the protection at falling edge. The pulse duration must be: ON = pulse > 1 s / OFF = pulse > 100 ms and < 800 ms
(3) The three standard intervention curves are described in the grafics; the C EP-D3 Version is also provided with a curve programmable through a software

BLOCK DIAGRAM



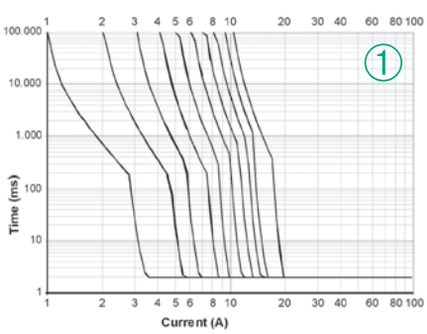
CEP-BCR and CEP-BCB

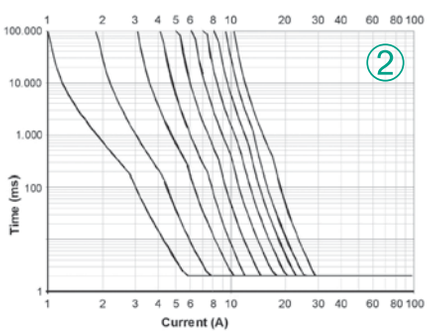
CEP-MTW

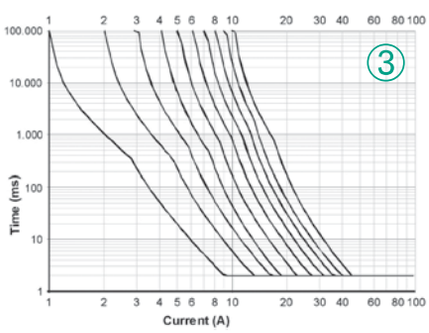
CEP-SS

VERSIONS	Cod. XCEPD1	Cod. XCEPD2	Cod. XCEPD3
With overload indication	**CEP-D1 (1)**		
With status indication (ON/OFF/Overload)		**CEP-D2**	
With one wire bus			**CEP-D3**
INPUT TECHNICAL DATA			
Rated voltage	**24 Vdc** (range 18…32 Vdc)		
Rated current	10 A dc max.		
Max system current	40 A dc with CEP-RCC copper rail		
Protection	Internal against reverse polarity		
Remote control ON/OFF	24 Vdc external pulse		24 Vdc external pulse and by software (2)
OUTPUT TECHNICAL DATA			
Rated voltage	**24 Vdc** (voltage drop <170 mV @ Un / In)		
Current min. / max.	1...10 A dc programmable in 10 step of 1 A		
Programmable characteristic curves	slow, medium, fast		slow, medium, fast and a special programmable custom curve (3)
Switch ON capacity	10.000 µF		
Status indication	green LED: fixed = ok, flashing = Iout at 90% of the nominal, red LED: fixed = output manually switched off, slow flashing = overcurrent, quick flashing = error		
Status display	open collector transistor (overcurrent status)	open collector transistor (ON/OFF status)	open collector transistor (programmable status)
GENERAL TECHNICAL DATA			
Operating temperature range	–25...+60°C, derating Imax. 8 A over 40°C		
Input/output isolation	3 KVac / 60 s SELV output		
Protection degree	IP 20 IEC 529, EN60529		
Reference Standards	EN60950-1, EN61131-1, EN61131-2, EN60898, EN60947-4-1, EN50081		
Connection terminal	0.25...2.5 mm² fixed screw type		
Housing material	PA 6.6 (UL94V-0, NFF I2, F2)		
Approx. weight	120 g (4.24 oz)		
Mounting information	vertical on rail, adjacent without gap, we recommend the use of end brackets		
MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**		
Mounting rail type according to IEC60715/G32	—		
Distribution kit (terminal + end bracket)	CEP-SS	(cod. XCEPSS)	
Distribution rail (busbar)	CEP-RCC	(cod. XCEPRCC)	
Insulation cover for distribution rail	CEP-RCP	(cod. XCEPRCP)	
Plug-in jumper red	CEP-BCR	(cod. XCEPBCR)	(8 poles)
Plug-in jumper blue	CEP-BCB	(cod. XCEPBCB)	(8 poles)
Marking tag	CEP-MTW	(cod. XCEPMTW)	(table with 50 tags)

Intervention curves:
1) fast
2) medium
3) slow







EMI filters quick selection table

These tables allow you to quickly select only the items, then check if all product's technical data meet your application requirements.

3-phase filter without neutral wire 400-480 Vac

Current	Common mode (L / PE) attenuation (dB)						Differential mode (L / L) attenuation (dB)						Cat. No.	Page
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz		
7 A	20	60	60	60	50	35	25	60	65	60	55	40	XFTDV07ST2	68
16 A	15	50	55	60	50	35	25	55	60	60	55	40	XFTDV16ST2	68
30 A	15	50	55	60	50	35	25	55	60	60	55	40	XFTDV30ST2	68
42 A	55	70	70	45	35	20	45	45	45	45	45	30	XFTDV42ST2	68
55 A	15	55	55	55	50	35	25	55	60	60	50	40	XFTDV55ST2	68
75 A	15	55	55	55	50	30	20	50	50	50	55	40	XFTDV75ST2	68
100 A	35	50	45	25	15	7	30	35	35	35	30	7	XFTDV100ST2	68
150 A	20	30	40	45	40	30	30	40	40	45	40	25	XF150TDS84C	69
180 A	20	30	40	45	40	30	30	40	40	45	40	25	XF180TDS84C	69
200 A	55	60	55	30	20	–	45	30	25	10	10	5	XF200TDDS84C	70
300 A	30	30	23	10	8	5	35	30	25	14	10	5	XF300TDSS84C	71
400 A	30	30	20	10	5	2	30	30	20	10	8	2	XF400TDSS84C	71

3-phase filter with neutral wire 400-480 Vac

Current	Common mode (L / PE) attenuation (dB)						Differential mode (L / L) attenuation (dB)						Cat. No.	Page
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz		
10 A	10	20	20	20	30	25	10	20	25	25	30	30	XF10TYG9	73
16 A	25	50	50	50	45	30	35	55	60	60	40	30	XF16TYT2	72
20 A	10	15	20	35	40	25	10	15	20	20	25	20	XF20TYS9	73
25 A	25	50	50	50	45	30	35	55	60	60	40	30	XF25TYT2	72
36 A	25	50	50	50	40	25	30	50	55	50	40	30	XF36TYT2	72
50 A	25	45	45	40	40	25	30	50	50	40	40	30	XF50TYT2	72
100 A	10	20	25	30	30	20	30	40	40	35	35	25	XF100TYT2	72

Single-cell single-phase filter 120-250 Vac

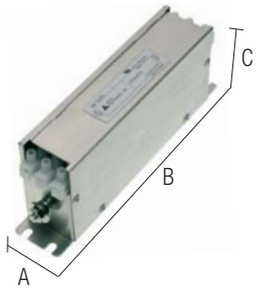
Current	Common mode (L / PE) attenuation (dB)						Differential mode (L / L) attenuation (dB)						Cat. No.	Page
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz		
3 A	20	30	35	45	50	45	7	35	50	45	45	45	XF03DKBG5B	74
6 A	15	20	25	40	45	45	10	20	45	45	50	45	XF06DKBG5B	74
12 A	10	20	22	35	45	40	10	20	40	45	45	45	XF12DKBG5B	74
16 A	10	18	20	35	45	30	10	18	40	40	40	35	XF16DKCG5B	74
20 A	10	18	20	30	35	35	10	12	35	35	40	40	XF20DKCG5B	74
30 A	10	25	30	45	50	35	12	40	50	50	50	45	XF30DKCS5B	74

Double-cell single-phase filter 120-250 Vac

Current	Common mode (L / PE) attenuation (dB)						Differential mode (L / L) attenuation (dB)						Cat. No.	Page
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz		
3 A	45	60	60	55	45	45	12	45	45	45	45	45	XF03DPCG5C	75
6 A	30	50	60	55	50	35	8	45	45	45	45	45	XF06DPCG5C	75
12 A	15	25	35	55	55	35	12	40	40	35	35	40	XF12DPCG5C	75
16 A	20	35	45	60	50	35	12	40	40	45	45	50	XF16DPCG5C	75
20 A	15	40	45	50	50	40	12	45	45	45	35	50	XF20DPCG5C	75
30 A	10	30	35	55	45	30	18	45	50	40	40	40	XF30DPGS5C	75

3-phase filter without neutral TDV series

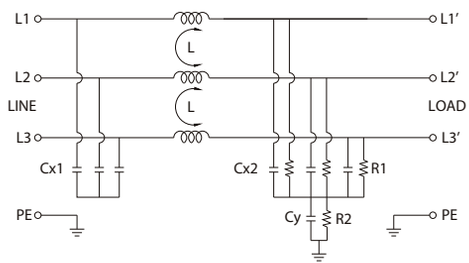
- Models from 7 to 130 A
- High attenuation from 50 kHz to 30 MHz
- High attenuation also with long cables
- Minimum space on the panel



NOTES

Dimensions and diagrams are indicative, for more details see the products data sheet.
(1) According to EN60950 insulation tests on input side must be made only with DC instruments.

BLOCK DIAGRAM



VERSIONS

Rated current	Type	Cat. No.	Dimensions A	B	C	Weight (kg)
7 A	**F 07 TDV ST2**	XFTDV07ST2	42 (1,65 in)	192 (7,56 in)	72 (2,84 in)	
16 A	**F 16 TDV ST2**	XFTDV16ST2	47 (1,85 in)	252 (9,93 in)	72 (2,84 in)	
30 A	**F 30 TDV ST2**	XFTDV30ST2	52 (2,05 in)	272 (10,72 in)	87 (3,43 in)	
42 A	**F 42 TDV ST2**	XFTDV42ST2	52 (2,05 in)	312 (12,29 in)	87 (3,43 in)	
55 A	**F 55 TDV ST2**	XFTDV55ST2	87 (3,43 in)	252 (9,93 in)	92 (3,62 in)	
75 A	**F 75 TDV ST2**	XFTDV75ST2	92 (3,62 in)	272 (10,72 in)	137 (5,4 in)	
100 A	**F 100 TDV ST2**	XFTDV100ST2	90 (3,55 in)	270 (10,64 in)	150 (5,91 in)	

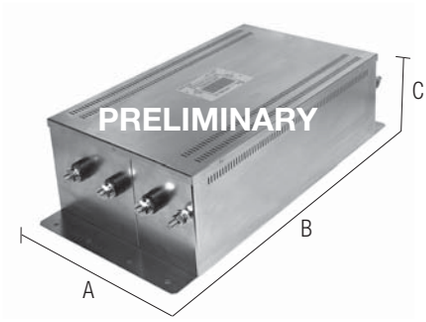
GENERAL TECHNICAL DATA

Rated voltage	480 Vac ± 10%	
Rated current	see versions table	
Frequency	50…60 Hz	
Leakage current at 480 Vac 60 Hz	30 mA	
Operating temperature range	–25...+85°C	
Insulation L/L	1.45 KVdc / 60 s	(1)
Insulation L/PE	2.25 KVdc / 60 s	(1)
Overvoltage category/Pollution degree	—	
Protection degree	IP 20 IEC 529, EN60529	
Connection terminal	screw terminals	
Housing material	metal	
Approx. weight	see versions table	
Mounting information	on the panel with screws	

Type	Common mode (L / PE) attenuation (dB)						Differential mode (L / L) attenuation (dB)					
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 07 TDV ST2	20	60	60	60	50	35	25	60	65	60	55	40
F 16 TDV ST2	15	50	55	60	50	35	25	55	60	60	55	40
F 30 TDV ST2	15	50	55	60	50	35	25	55	60	60	55	40
F 42 TDV ST2	55	70	70	45	35	20	45	45	45	45	45	30
F 55 TDV ST2	15	55	55	55	50	35	25	55	60	60	50	40
F 75 TDV ST2	15	55	55	55	50	30	20	50	50	50	55	40
F 100 TDV ST2	35	50	45	25	15	7	30	35	35	35	30	7

3-phase filter without neutral TDS series

- Models from 150 to 180 A
- High attenuation from 150 kHz to 30 MHz
- High attenuation also with long cables



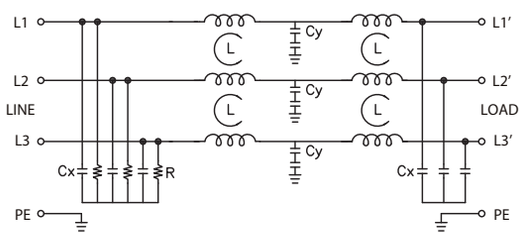
NOTES

Dimensions and diagrams are indicative, for more details see the products data sheet.

(1) Version available upon request; for information call our sales department, local agent or representative

(2) According to EN60950 insulation tests on input side must be made only with DC instruments.

BLOCK DIAGRAM



VERSIONS

Rated current	Type	Cat. No.	Dimensions A	Dimensions B	Dimensions C	Weight (kg)
150 A	**F 150 TDS 84C**	XF150TDS84C (1)	202 (7,96 in)	390 (15,37 in)	122 (4,81 in)	
180 A	**F 180 TDS 84C**	XF180TDS84C (1)	202 (7,96 in)	390 (15,37 in)	122 (4,81 in)	

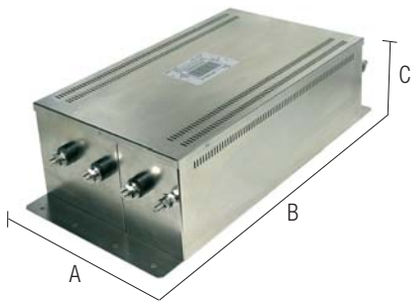
GENERAL TECHNICAL DATA

Rated voltage	480 Vac ± 10%
Rated current	see versions table
Frequency	50…60 Hz
Leakage current at 480 Vac 60 Hz	500 mA
Operating temperature range	–25...+85°C
Insulation line/line	1 KVdc / 60 s (2)
Insulation line/PE	1 KVdc / 60 s (150A) – 2.25 KVdc / 60 s (180A) (2)
Overvoltage category/Pollution degree	—
Protection degree	IP 20 IEC 529, EN60529
Connection terminal	with screw bolts
Housing material	metal
Approx. weight	see versions table
Mounting information	on the panel with screws

Type	Common mode (L / PE) attenuation (dB)						Differential mode (L / L) attenuation (dB)					
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 150 TDS 84C	20	30	40	45	40	30	30	40	40	45	40	25
F 180 TDS 84C	20	30	40	45	40	30	30	40	40	45	40	25

3-phase filter without neutral serie TDDS

- High attenuation from 150 kHz to 30 MHz
- High attenuation also with long cables



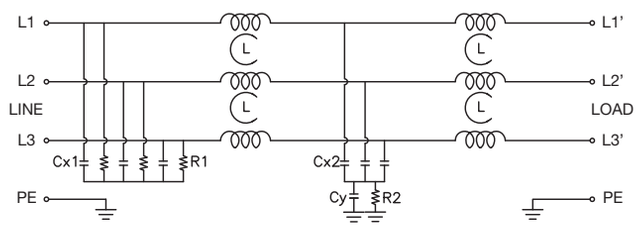
NOTES

Dimensions and diagrams are indicative, for more details see the products data sheet.

(1) Version available upon request; for information call our sales department, local agent or representative

(2) According to EN60950 insulation tests on input side must be made only with DC instruments.

BLOCK DIAGRAM



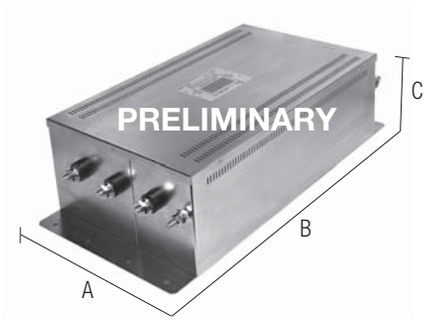
VERSIONS			Dimensions			Weight
Rated current	Type	Cat. No.	A	B	C	(kg)
200 A	**F 200 TDDS 84C**	XF200TDDS84C (1)	240 (9,46 in)	477 (18,79 in)	140 (5,52 in)	

GENERAL TECHNICAL DATA	
Rated voltage	480 Vac ± 10%
Rated current	200 A
Frequency	50…60 Hz
Leakage current at 480 Vac 60 Hz	500 mA
Operating temperature range	–25...+85°C
Insulation line/line	1 KVdc / 60 s (2)
Insulation line/PE	1.8 KVdc / 60 s (2)
Overvoltage category/Pollution degree	—
Protection degree	IP 20 IEC 529, EN60529
Connection terminal	with screw bolts
Housing material	metal
Approx. weight	see versions table
Mounting information	on the panel with screws

Type	Common mode (L / PE) attenuation (dB)						Differential mode (L / L) attenuation (dB)					
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 200 TDDS 84C	55	60	55	30	20	/	45	30	25	10	10	5

3-phase filter without neutral TDSS series

- Models from 300 to 600 A
- High attenuation from 150 kHz to 30 MHz
- High attenuation also with long cables



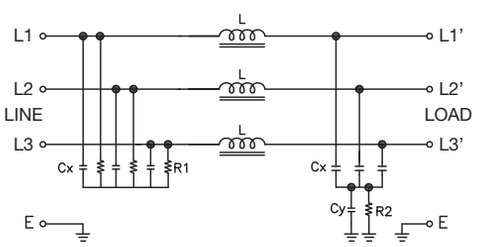
NOTES

Dimensions and diagrams are indicative, for more details see the products data sheet.

(1) Version available upon request; for information call our sales department, local agent or representative

(2) According to EN60950 insulation tests on input side must be made only with DC instruments.

BLOCK DIAGRAM



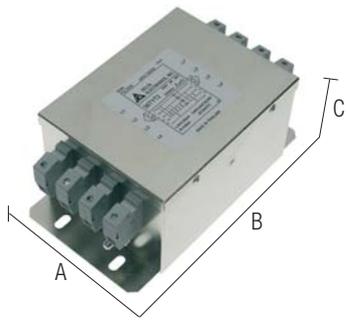
VERSIONS			Dimensions			Weight
Rated current	Type	Cat. No.	A	B	C	(kg)
300 A	**F 300 TDSS 84C**	XF300TDSS84C (1)	242 (9,53 in)	525 (20,69 in)	142 (5,59 in)	
400 A	**F 400 TDSS 84C**	XF400TDSS84C (1)	242 (9,53 in)	525 (20,69 in)	142 (5,59 in)	

GENERAL TECHNICAL DATA	
Rated voltage	480 Vac ± 10%
Rated current	see versions table
Frequency	50…60 Hz
Leakage current at 480 Vac 60 Hz	1000 mA
Operating temperature range	–25...+85°C
Insulation line/line	0.6 KVdc / 60 s (2)
Insulation line/PE	1 KVdc / 60 s (2)
Overvoltage category/Pollution degree	—
Protection degree	IP 20 IEC 529, EN60529
Connection terminal	with flat plug
Housing material	metal
Approx. weight	see versions table
Mounting information	on the panel with screws

Type	Common mode (L / PE) attenuation (dB)						Differential mode (L / L) attenuation (dB)					
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 300 TDSS 84C	30	40	40	25	20	15	40	40	50	35	30	20
F 400 TDSS 84C	25	35	30	20	20	10	40	35	35	20	15	10

3-phase filter with neutral serie TYT

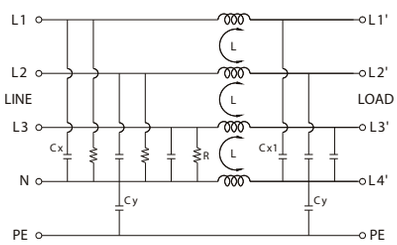
- Models from 16 to 100 A
- High attenuation from 150 kHz to 30 MHz
- High attenuation also with long cables



NOTES

Dimensions and diagrams are indicative, for more details see the products data sheet.
(1) According to EN60950 insulation tests on input side must be made only with DC instruments.

BLOCK DIAGRAM



VERSIONS

Rated current	Type	Cat. No.	Dimensions A	B	C	Weight (kg)
16 A	**F 16 TYT2**	XF16TYT2	107 (4,22 in)	191,5 (7,55 in)	82 (3,23 in)	
25 A	**F 25 TYT2**	XF25TYT2	107 (4,22 in)	191,5 (7,55 in)	82 (3,23 in)	
36 A	**F 36 TYT2**	XF36TYT2	107 (4,22 in)	191,5 (7,55 in)	82 (3,23 in)	
50 A	**F 50 TYT2**	XF50TYT2	124 (4,89 in)	194 (7,64 in)	104 (4,1 in)	
100 A	**F 100 TYT2**	XF100TYT2	162 (6,38 in)	252 (9,93 in)	132 (5,2 in)	

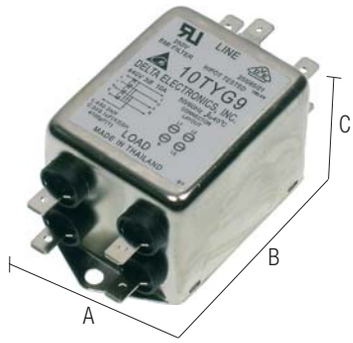
GENERAL TECHNICAL DATA

Rated voltage	440 Vac ± 10%
Rated current	see versions table
Frequency	50...60Hz
Leakage current at 480 Vac 60 Hz	3 mA
Operating temperature range	–25...+85°C
Insulation line/line	1.45 KVdc / 60 s (1)
Insulation line/PE	2.25 KVdc / 60 s (1)
Overvoltage category/Pollution degree	—
Protection degree	IP 20 IEC 529, EN60529
Connection terminal	screw terminals
Housing material	metal
Approx. weight	see versions table
Mounting information	on the panel with screws

Type	Common mode (L / PE) attenuation (dB)						Differential mode (L / L) attenuation (dB)					
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 16 TYT2	25	50	50	50	45	30	35	55	60	60	40	30
F 25 TYT2	25	50	50	50	45	30	35	55	60	60	40	30
F 36 TYT2	25	50	50	50	40	25	30	50	55	50	40	30
F 50 TYT2	25	45	45	40	40	25	30	50	50	40	40	30
F 100 TYT2	10	20	25	30	30	20	30	40	40	35	35	25

Compact 3-phase filter with neutral TY series

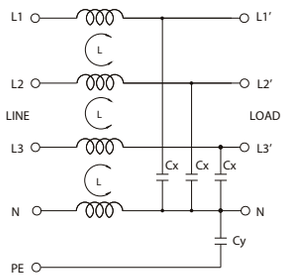
- Models from 10 to 20 A
- High attenuation from 150 kHz to 30 MHz
- High attenuation also with long cables
- Eccellent quality/price/performances ratio



NOTES

Dimensions and diagrams are indicative, for more details see the products data sheet.
(1) According to EN60950 insulation tests on input side must be made only with DC instruments.

BLOCK DIAGRAM



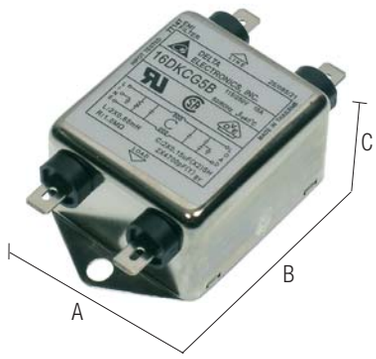
VERSIONS			Dimensions			Weight
Rated current	Type	Cat. No.	A	B	C	(kg)
10 A	**F 10 TYG9**	XF10TYG9	50 (1,97 in)	85 (3,35 in)	44 (1,73 in)	
20 A	**F 20 TYS9**	XF20TYS9	50 (1,97 in)	97 (3,82 in)	44 (1,73 in)	

GENERAL TECHNICAL DATA		
Rated voltage	440 Vac ± 10%	
Rated current	see versions table	
Frequency	50...60Hz	
Leakage current at 480 Vac 60 Hz	0.5 mA	
Operating temperature range	–25...+85°C	
Insulation line/line	1.45 KVdc / 60 s	(1)
Insulation line/PE	2.25 KVdc / 60 s	(1)
Overvoltage category/Pollution degree	—	
Protection degree	IP 20 IEC 529, EN60529	
Connection terminal	with flat plug (10 A) and with screw terminals (20 A)	
Housing material	metal	
Approx. weight	see versions table	
Mounting information	on the panel with screws	

Type	Common mode (L / PE) attenuation (dB)						Differential mode (L / L) attenuation (dB)					
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 10T YG9	10	20	20	20	30	25	10	20	25	25	30	30
F 20 TYS9	10	15	20	20	25	20	10	15	20	20	25	20

Single-cell single-phase filter DK series

- Models from 3 to 30 A
- High attenuation from 150 kHz to 30 MHz
- High attenuation also with long cables
- Minimum space on the panel



NOTES

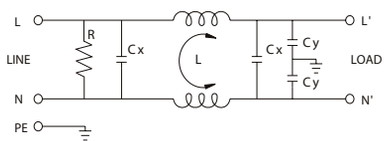
Dimensions and diagrams are indicative, for more details see the products data sheet.

(1) 0.25 mA @ 115 Vac e 0.45 mA @ 250 Vac for models from 3…20 A - 1 mA @ 115 Vac e 2 mA @ 250 Vac for the model of 30 A.

(2) According to EN60950 insulation tests on input side must be made only with DC instruments.

(3) With flat plug for models from 3…20 A – with screw bolt for the model from 30 A.

BLOCK DIAGRAM



VERSIONS

Rated current	Type	Cat. No.	Dimensions A	Dimensions B	Dimensions C	Weight (kg)
3 A	**F 03 DK BG5B**	XF03DKBG5B	64,5 (2,54 in)	34 (1,34 in)	30 (1,18 in)	
6 A	**F 06 DK BG5B**	XF06DKBG5B	64,5 (2,54 in)	34 (1,34 in)	30 (1,18 in)	
12 A	**F 12 DK BG5B**	XF12DKBG5B	64,5 (2,54 in)	34 (1,34 in)	30 (1,18 in)	
16 A	**F 16 DK CG5B**	XF16DKCG5B	45,5 (1,79 in)	71,5 (2,82 in)	30 (1,18 in)	
20 A	**F 20 DK CG5B**	XF20DKCG5B	51,8 (2,04 in)	84,8 (3,34 in)	30 (1,18 in)	
30 A	**F 30 DK CS5B**	XF30DKCS5B	56,5 (2,23 in)	114 (4,49 in)	46,4 (1,83 in)	

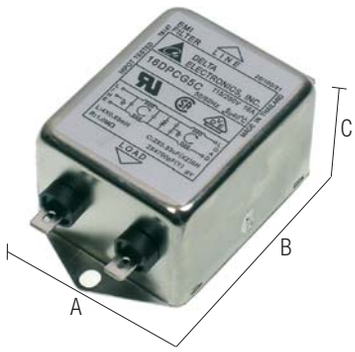
GENERAL TECHNICAL DATA

Rated voltage	115–250 Vac ± 10%
Rated current	see versions table
Frequency	50…60 Hz
Leakage current at 480 Vac 60 Hz	0.25…1 mA / 0.45…2 mA (1)
Operating temperature range	–25...+85°C
Insulation line/line	1.45 KVdc / 60 s (2)
Insulation line/PE	2.25 KVdc / 60 s (2)
Overvoltage category/Pollution degree	—
Protection degree	IP 20 IEC 529, EN60529
Connection terminal	with flat plug (from 3 to 20 A) / with screw bolt (30 A) (3)
Housing material	metal
Approx. weight	see versions table
Mounting information	on the panel with screws

Type	Common mode (L / PE) attenuation (dB) 0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	Differential mode (L / L) attenuation (dB) 0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 03 DK BG5B	20	30	35	45	50	45	7	35	50	45	45	45
F 06 DK BG5B	15	20	25	40	45	45	10	20	45	45	50	45
F 12 DK BG5B	10	20	22	35	45	40	10	20	40	45	45	45
F 16 DK CG5B	10	18	20	35	45	30	10	18	40	40	40	35
F 20 DK CG5B	10	18	20	30	35	35	10	12	35	35	40	40
F 30 DK CS5B	10	25	30	45	50	35	12	40	50	50	50	45

Double-cell single-phase filter DP series

- Models from 3 to 30 A
- High attenuation from 150 kHz to 30 MHz
- High attenuation also with long cables
- Minimum space on the panel



NOTES

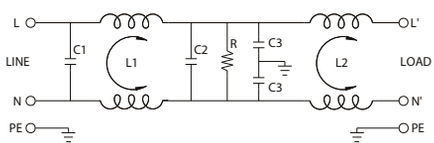
Dimensions and diagrams are indicative, for more details see the products data sheet.

(1) 0.25 mA @ 115 Vac e 0.45 mA @ 250 Vac for models from 3…20 A - 1 mA @ 115 Vac e 2 mA @ 250 Vac for the model of 30 A.

(2) According to EN60950 insulation tests on input side must be made only with DC instruments.

(3) With flat plug for models from 3…20 A – with screw bolt for the model from 30 A.

BLOCK DIAGRAM



VERSIONS

Rated current	Type	Cat. No.	Dimensions A	Dimensions B	Dimensions C	Weight (kg)
3 A	**F 03 DP CG5C**	XF03DPCG5C	84,8 (3,34 in)	75 (2,96 in)	52 (2,05 in)	
6 A	**F 06 DP CG5C**	XF06DPCG5C	152,9 (6,02 in)	143 (5,63 in)	51,3 (2,02 in)	
12 A	**F 12 DP CG5C**	XF12DPCG5C	84,8 (3,34 in)	75 (2,96 in)	52 (2,05 in)	
16 A	**F 16 DP CG5C**	XF16DPCG5C				
20 A	**F 20 DP CG5C**	XF20DPCG5C	56,5 (2,23 in)		46.4 (1,83 in)	
30 A	**F 30 DP GS5C**	XF30DPGS5C				

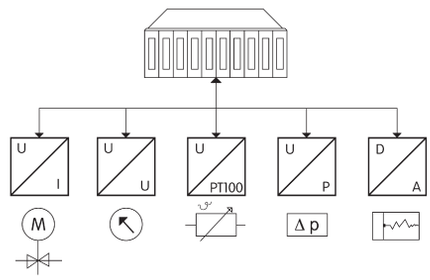
GENERAL TECHNICAL DATA

Rated voltage	115–250 Vac ± 10%
Rated current	see versions table
Frequency	50…60 Hz
Leakage current at 480 Vac 60 Hz	0.25…1 mA / 0.45…2 mA (1)
Operating temperature range	–25...+85°C
Insulation line/line	1.45 KVdc / 60 s (2)
Insulation line/PE	2.25 KVdc / 60 s (2)
Overvoltage category/Pollution degree	—
Protection degree	IP 20 IEC 529, EN60529
Connection terminal	with flat plug (from 3 to 20 A) / with screw bolt (30 A) (3)
Housing material	metal
Approx. weight	see versions table
Mounting information	on the panel with screws

Type	Common mode (L / PE) attenuation (dB)						Differential mode (L / L) attenuation (dB)					
	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz	0.15 MHz	0.5 MHz	1 MHz	5 MHz	10 MHz	30 MHz
F 03 DP CG5C	45	60	60	55	45	45	12	45	45	45	45	45
F 06 DP CG5C	30	50	60	55	50	35	8	45	45	45	45	45
F 12 DP CG5C	15	25	35	55	55	35	12	40	40	35	35	40
F 16 DP CG5C	20	35	45	60	50	35	12	40	40	45	45	50
F 20 DP CG5C	15	40	45	50	50	40	12	45	45	40	35	50
F 30 DP GS5C	10	30	35	55	45	30	18	45	50	40	40	40

Applications of analog converters and galvanic isolation

These convert electric signals generated by sensors for measuring physical quantities such as: temperature (RTD thermocouples and PT100 thermal resistors), frequency (proximity, contacts, photoelectric cells), current (HV, Hall sensors), resistance (potentiometers), voltage, pressure, level etc., into standardised electrical signals, adapting them to the I/O of industrial PLC's, DCS's, and PC's (control), or they convert a given analog signal into a different one, adapting it to the inputs/outputs of the control, or allow remote transmission of the signal without interference via galvanic isolation (Fig. 1).



ADAPTATION OF THE SIGNAL

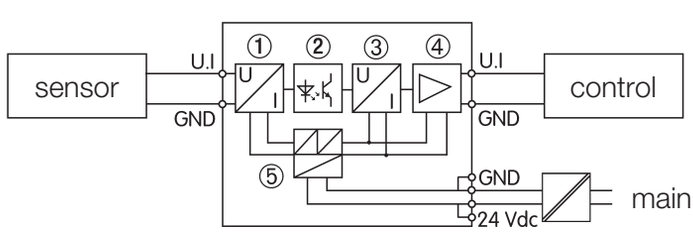
fig. 1

Adaptation between sensor output signal and control input signal

physical quantity measured	sensor output	converter input		converter output	
Temperature	Normally one of the signals indicated in the next column	0 – 60 mV	±60 mV	0 – 5 V	±5 V
Frequency		0 – 100 mV	±100 mV	0 – 10 V	±10 V
Current		0 – 500 mV	±500 mV	0 – 20 mA	±20 mA
Resistance		0 – 1 V	±1 V	4 – 20 mA	
Voltage		0 – 5 V	±5 V		
Pressure		0 – 10 V	±10 V		
Level measurement		0 – 5 mA	±5 mA		
		0 – 10 mA	±10 mA		
		0 – 20 mA	±20 mA		
		0 – 20 mA			

Remote transmission of the signal

The voltage signals reach a max. distance of 10-20 m, beyond this they lose reliability and become very sensitive to earth and induced interference for this reason, in order to transmit at a distance more than 20 m, a voltage signal must be converted into a current signal and galvanically isolated.(Fig. 2).
Current signals exceed 300 m of transmission distance and are less sensitive to induced interference. In order to transmit a current signal at a distance galvanic isolation is required.



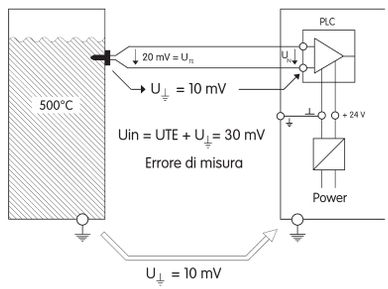
BLOCK DIAGRAM OF AN AMPLIFIER WITH GALVANIC ISOLATION

① Input amplifier
② Opto-isolator
③ Signal adapter
④ Output amplifier
⑤ DC/DC converter

fig. 2

Galvanic isolation of the signal:

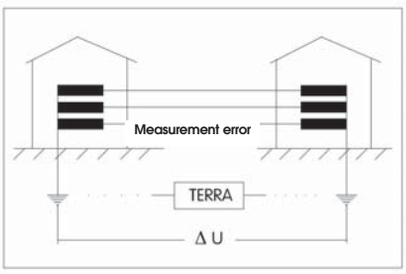
- electrically isolates and separates the circuit of the sensor from the control and power supply circuits. Thus each circuit operates with reference to its own zero potential which, being isolated from other circuits, cannot be altered by differences in potential always present between different earth references (Figs. 3).



NON-ISOLATED THERMOCOUPLE AND DIFFERENT ZERO POTENTIALS

fig. 3

- isolates and separates the various zero potentials between power supply, control and sensors/actuators;
- allows transmission of the signal without errors or interference and with greater reliability;
- the higher the isolation (in KV), the greater the security of transmission where there are zero potentials, electromagnetic interference, transients (lightning, discharges etc.) (Fig. 4).

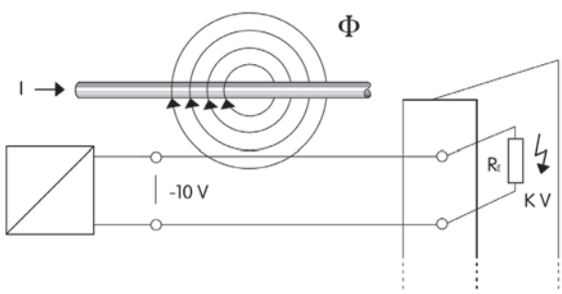


POTENTIAL DIFFERENCE AND EARTH CIRCUITS

fig. 4

Galvanic isolation is necessary when:

- the distance between control and sensor/actuator is more than 20 m;
- the earth references are different;
- the zero potentials are high, or potentially high in the case of discharges or earth dispersed currents;
- electromagnetic interference is present;
- the signal cables are wired in conduits with power cables (Fig. 5).

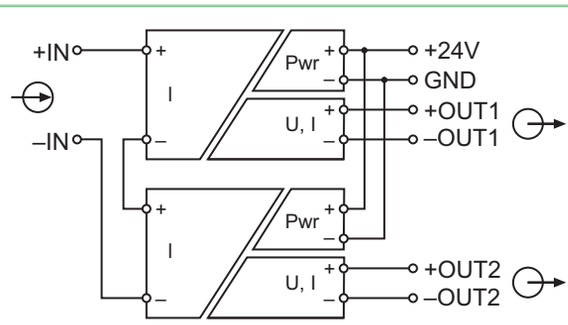


INTERFERENCE

fig. 5

Series and parallel connection of the analogue converter

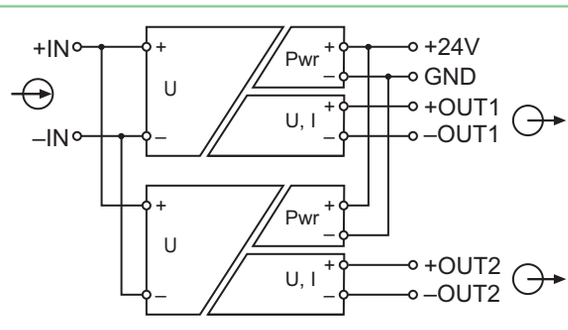
- To achieve redundancy of a signal or just to duplicate it, you can connect the input of more analogue converters to a single sensor.
- In case of current signals, the input of the converters must be connected in series (Fig. 6).



SERIAL CONVERTERS

fig. 6

- In case of voltage signals, the input of the converters must be connected in parallel (Fig. 7).



PARALLEL CONVERTERS

fig. 7

Analog converters selection table

These tables allow you to quickly select only the items, then check if all product's technical data meet your application requirements.

Analog converters and isolators

Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
0...60 / 0...100 / 0...500 mV ±60 / ±100 / ±500 mV 0...1 / 0...2 / 0...5 / 0...10 V ±1 / ±2 / ±5 / ±10 V 0...5 / 0...10 / 0...20 / 4...20 mA ±5 / ±10 / ±20 mA	0...5 / 0...10 / ±5 / ±10 V 0...20 / 4...20 / ±20 mA	3 ways	24 Vdc	(1) (4)	CA-PI/PO1	XSSAPIPO1	81
0...60 / 0...100 / 0...300 / 0...500 mV 0...1 / 0...10 / 0...20 / 2...20 V 0...5 / 0...10 / 0...20 / 4...20 / ±5 / ±20 mA	0...10 V 0...20 / 4...20 mA	3 ways	24 Vac/dc	(1) (4)	CWUAA 6-0516	X756516	82
0...60 / 0...100 / 0...300 / 0...500 mV 0...1 / 0...10 / 0...20 / 2...20 V 0...5 / 0...10 / 0...20 / 4...20 / ±5 / ±20 mA	0...10 V 0...20 / 4...20 mA	3 ways	24...240 Vac/dc	(1) (5)	CWUAA 6-0517	X756517	82
0...10 V 0...20 / 4...20 mA	0...10 V 0...20 / 4...20 mA	3 ways	24 Vac/dc	(1) (4)	CWNAA 7-0539	X756539	83
0...10 V 0...20 / 4...20 mA	0...10 V 0...20 / 4...20 mA	3 ways	24...240 Vac/dc	(1) (5)	CWNAA 6-0510	X756510	83
0...10 V	0...10 V	3 ways	24 Vac/dc	(2) (4)	CWAA 6-0530	X756530	84
0...10 V	0...20 mA	3 ways	24 Vac/dc	(2) (4)	CWAA 6-0531	X756531	84
0...10 V	4...20 mA	3 ways	24 Vac/dc	(2) (4)	CWAA 6-0532	X756532	84
0...20 mA	0...10 V	3 ways	24 Vac/dc	(2) (4)	CWAA 6-0533	X756533	85
0...20 mA	0...20 mA	3 ways	24 Vac/dc	(2) (4)	CWAA 6-0534	X756534	85
0...20 mA	4...20 mA	3 ways	24 Vac/dc	(2) (4)	CWAA 6-0535	X756535	85
4...20 mA	0...10 V	3 ways	24 Vac/dc	(2) (4)	CWAA 6-0536	X756536	86
4...20 mA	0...20 mA	3 ways	24 Vac/dc	(2) (4)	CWAA 6-0537	X756537	86
4...20 mA	4...20 mA	3 ways	24 Vac/dc	(2) (4)	CWAA 6-0538	X756538	86
0...20 / 4...20 mA	0...20 / 4...20 mA	2 ways	—	(4)	CWPAA 7-0526	X756526	87
0...20 / 4...20 mA	0...20 / 4...20 mA	2 ways	—	(3) (4)	CWPAA 7-0527	X756527	87
-30...+30 V / -50...+50 mA / -5...+5 A	0...20 / 4...20 mA	3 ways	24 Vdc	(6) (7)	LCONALSFDT	X756360	88

Notes

(1) programmable input and output signal via DIP switches

(2) single range input and output signal (not programmable), articles generally not in stock but available upon request, for info please contact our sales department

(3) two channels version

(4) 1.5 KVac / 60 s two way isolation (input / output) or 1.5 KVac / 60 s three way isolation (input / output / supply)

(5) 4 KVac / 60 s three way isolation (input / output / supply)

(6) Input and Output signal range programmable via dip-switch and software

(7) 2.5 KVac / 60 three way isolation (input / output / supply)

Analog converters selection table

These tables allow you to quickly select only the items, then check if all product's technical data meet your application requirements.

Current converter

Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
0…50 A ac	adjustable threshold 1…30 A	2 ways	24 Vdc	(3) (4)	CCIS-2	XCCIS2	93
0…1 A ac/dc	0...10 V 0...20 / 4...20 mA	2 ways	24 Vdc	(2)	WAA 7-0540	X756540	94
0…5 A ac/dc	0...10 V 0...20 / 4...20 mA	2 ways	24 Vdc	(2)	WAA 7-0541	X756541	94
0…10 A ac/dc	0...10 V 0...20 / 4...20 mA	2 ways	24 Vdc	(2)	WAA 7-0542	X756542	94

Notes

(1) single I/O version
(2) three programmable output signals
(3) open collector threshold output
(4) threshold output with one changeover relay

Programmable frequency to analog signal converters

Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
0…28.8 kHz (21 ranges)	0...10 V 0...20 / 4...20 mA	2 ways	24 Vac/dc	(1)	CWNFA 6-0524	X756524	97

Auxiliary power supply for sensors and potentiometers

Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
24 Vdc	10 Vdc	2 Vie			CWCV 7-6184	X766184	98

NPN and PNP signal polarity inverter

Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
NPN (17…30 Vdc)	PNP				CI-NPN/PNP	XNPNPNP	99
PNP (17…30 Vdc)	NPN				CI-NPN/PNP	XNPNPNP	99

Analog converters selection table

These tables allow you to quickly select only the items, then check if all product's technical data meet your application requirements.

Converters for temperature sensors

Sensor Type	Input	Output	Isolation	Power supply	Notes	Type	Cat. No.	Page
PT100 e PT1000 (2, 3, 4 wires), Thermocouples B, C, E, J, K, N, R, S, T, Potentiometers 0-600 kOhm	Programmable -200...+2400°C (-328...+4352°F) according to sensor type	0...10 V / -10...+10 V 0...20 mA / 4...+20 mA	3 ways	24 Vdc	(1) (2)	LCONTADFDT	X756340	89
PT100 e PT1000 (2, 3, 4 wires), Thermocouples B, C, E, J, K, N, R, S, T, Potentiometers 0-600 kOhm	Programmable -200...+2400°C (-328...+4352°F) according to sensor type	2 thresholds (NO contacts)	3 ways	24 Vdc	(2)	LCONTLSFDT	X756370	90
PT100 3 wire (RTD)	-50…+50°C (-58…+122°F) -50…+100°C (-58…+212°F) -50…+150°C (-58…+302°F) 0…+100°C (+32…+212°F) 0…+150°C (+32…+302°F) 0…+200°C (+32…+392°F) 0…+300°C (+32…+572°F) 0…+400°C (+32…+752°F)	0...10 V 0...20 / 4...20 mA	3 ways	24 Vac/dc	(2)	CWPT 6-0816	X756816	91
PT100 3 wire (RTD)	-50…+50°C (-58…+122°F) -50…+100°C (-58…+212°F) -50…+150°C (-58…+302°F) 0…+100°C (+32…+212°F) 0…+150°C (+32…+302°F) 0…+200°C (+32…+392°F) 0…+300°C (+32…+572°F) 0…+400°C (+32…+752°F)	0...10 V 0...20 / 4...20 mA	3 ways	24...240 Vac/dc	(2)	CWPT 6-0817	X756817	91
Thermocouples J (FeCuNi) and K (NiCrNi)	-50…+200°C (-58…+392°F) -50…+350°C (-58 …+662°F) 0…+200°C (+32…+392°F) 0…+400°C (+32…+752°F) 0…+600°C (+32…+1112°F) 0…+800°C (+32…+1472°F) 0…+1000°C (+32…+1832°F) 0…+1200°C (+32…+2192°F)	0...10 V 0...20 / 4...20 mA	3 ways	24 Vac/dc	(2)	CWTH 6-0844	X756844	92
Thermocouples J (FeCuNi) and K (NiCrNi)	-50…+200°C (-58…+392°F) -50…+350°C (-58 …+662°F) 0…+200°C (+32…+392°F) 0…+400°C (+32…+752°F) 0…+600°C (+32…+1112°F) 0…+800°C (+32…+1472°F) 0…+1000°C (+32…+1832°F) 0…+1200°C (+32…+2192°F)	0...10 V 0...20 / 4...20 mA	3 ways	24...240 Vac/dc	(2)	CWTH 6-0847	X756847	92

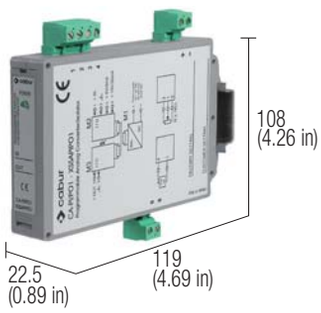
Notes

(1) programmable input and output signals via software

(2) programmable input and output signals via dip-switch

Programmable analog signal converter

- 19 input scales
- 7 output scales
- 1 SPST (NO) alarm contact
- IN/OUT isolation >3 KVac
- Auxiliary supply output for loop-powered sensors
- Input for potentiometer



CE

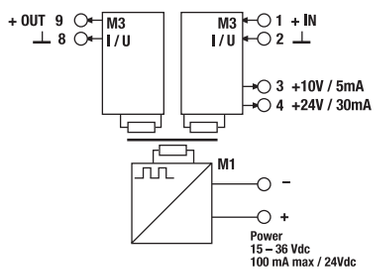
TAB.1 - INPUT SELECTION TABLE

INPUT RANGE		SW1 (INPUT)							
UNIPOLAR	BIPOLAR	1	2	3	4	5	6	7	8
0 – 60 mV	± 60 mV								
0 – 100 mV	± 100 mV		●						
0 – 500 mV	± 500 mV			●					
0 – 1 V	± 1 V				●				
0 – 2 V	± 2 V						●		
0 – 5 V	± 5 V			●	●	●	●		
0 – 10 V	± 10 V							●	
0 – 5 mA	± 5 mA	●		●					
0 – 10 mA	± 10 mA	●			●				
0 – 20 mA	± 20 mA	●					●		
4 – 20 mA	—	●				●			●

NOTES

The dimensions includes the terminal blocks and the DIN clamp.
(1) The modules in stock are programmed and calibrated with with 0...10 V and 0...10 V output. Modules programmed and calibrated for all other possible configurations can be supplied on request.

BLOCK DIAGRAM



TAB.2 - OUTPUT SELECTION TABLE

OUTPUT RANGE	INPUT TYPE	SW2 (OUTPUT)								SW3
		1	2	3	4	5	6	7	8	
0 – 5 V	UNIP.	X		●				●		U
	BIP.	X	●	●				●	●	U
± 5 V	UNIP.	X			●			●		U
	BIP.	X		●				●		U
0 – 10 V	UNIP.	X		●						U
	BIP.	X	●	●					●	U
± 10 V	UNIP.	X			●					U
	BIP.	X		●						U
0 – 20 mA	UNIP.	X		●				X		I
	BIP.	X	●	●				X	●	I
± 20 mA	UNIP.	X			●			X		I
	BIP.	X		●				X		I
4 – 20 mA	UNIP.	X				●	●	X		I
	BIP.	X	●			●	●	X	●	I

● = ON
= OFF
X = ANY

VERSIONS	Cat. No. XCAPIP03
	CAPIP03
INPUT TECHNICAL DATA	
Input signal (1)	19 programmable ranges (see Table 1)
Impedance voltage / current mode	1 MΩ / 50 Ω
Max. input voltage	15 V
Max. input current	30 mA
OUTPUT TECHNICAL DATA	
Output signal (1)	7 programmable ranges (see Table 2)
Applicable load (voltage / current model)	≥ 10 KΩ / ≤ 500 Ω
Max. output voltage	12 V
Max. output current	25 mA
GENERAL TECHNICAL DATA	
Supply voltage	15...36 Vdc
Rated current	100 mA max. @ 24 Vdc
Auxiliary DC feed output max. current	10 Vdc 5 mA / 24 Vdc 30 mA
Gain error	< 0.1% FS
Offset error	< 0.05 % FS
Linearity error	< 0.1% FS
Zero adjustment / Span adjustment	± 10% FS
Transmission frequency	400Hz...1kHz according to full-scale
Rise time	150 mV / µs
Bandwidth	1 kHz @ -6 dB
Phase delay	< 10 µs
I/O / supply isolation	> 3 KVac / 60 s
Continuous voltage isolation	800 Vac max.
Reference Standard	IEC 664-1, DIN VDE0110.1
Overvoltage category/Pollution degree	III / 2
Operating temperature range	-10... +65°C
Δ T	5°C
Protection degree	IP 20 IEC 529, EN60529
ECM standards	EN 50081-2 , EN 50082-2
Connection terminal	2.5 mm² pluggable screw type (14 AWG)
Housing material	polyamide UL94V-0
Approx. weight	150 g (5.29 oz)
Mounting information	vertical on rail, allow 5 mm spacing between adjacent component
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32	—
Plug-in jumper red	—
white	—
blue	—

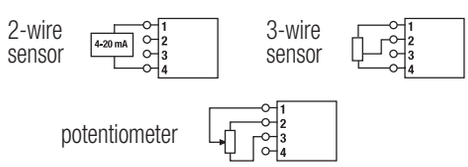
INPUT STAGE

The module can manage single-pole and two-pole inputs, choosing from among the ranges (see Table 1):

- 0…60 mV ± 60 mV
- 0…100 mV ± 100 mV
- 0…500 mV ± 500 mV
- 0…1 V ± 1 V
- 0…5 V ± 5 V
- 0…10 V ± 10 V
- 0…5 mA ± 5 mA
- 0…10 mA ± 10 mA
- 0…20 mA ± 20 mA
- 4…20 mA

The input stage provides two auxiliary supply outputs, for feeding loop powered sensor and potentiometer directly from the module (10V e 24V).

Example of connection:



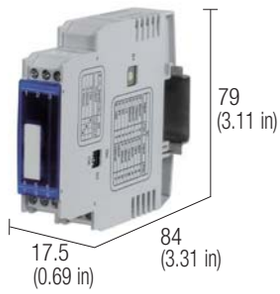
OUTPUT STAGE

The module supplies in output single-pole and two-pole signals with the following ranges (see Table 2):

- 0…5 V ± 5 V
- 0…10 V ± 10 V
- 0…20 mA ± 20 mA
- 4…20 mA

Programmable analog signal converters

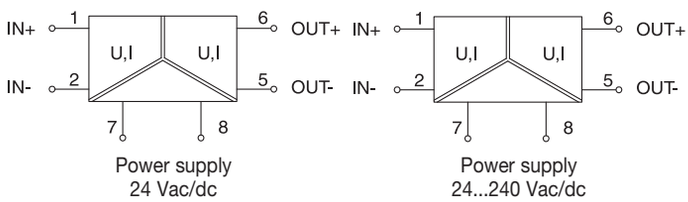
- 3 ways galvanic isolation
- 14 programmable input range
- 3 programmable output range
- Simple programming
- Available version with 24-240 Vac/dc supply voltage



NOTES

The dimensions includes the DIN clamp.
(1) Adjustable via rotary-switch
(2) Adjustable via dip-switch
(3) range 16.8…30 Vdc / 19.2…28.8 Vac
(4) range 16.8…264 Vdc / 19.2…264 Vac
(5) 3-way isolation: IN/OUT/power supply

BLOCK DIAGRAM



VERSIONS	Cat. No. X756516	Cat. No. X756517
24 Vac/dc supply voltage	**CWUAA 6-0516**	
24-240 Vac/dc supply voltage		**CWUAA 6-0517**
INPUT TECHNICAL DATA		
Input signal (1)	**0...60 / 0...100 / 0...300 / 0…500 mV 0…1 / 0…10 / 0…20 / 2…20 V 0…5 / 0…10 / 0…20 / 4…20 / ±5 / ±20 mA**	**0...60 / 0...100 / 0...300 / 0…500 mV 0…1 / 0…10 / 0…20 / 2…20 V 0…5 / 0…10 / 0…20 / 4…20 / ±5 / ±20 mA**
Input resistance	330 KΩ with input voltage 100 Ω with input current	330 KΩ with input voltage 100 Ω with input current
OUTPUT TECHNICAL DATA		
Output signal (2)	**0…10 V 0…20 / 4…20 mA**	**0…10 V 0…20 / 4…20 mA**
Applicable load	>1 KΩ with output voltage <400 Ω with output current	>1 KΩ with output voltage <400 Ω with output current
GENERAL TECHNICAL DATA		
Supply voltage	**24 Vac/dc** (3)	**24-240 Vac/dc** (4)
Rated current	≤ 35 mA ± 10% @ 24 Vdc	≤ 35 mA ± 10% @ 24 Vdc
Accuracy	0.1% @ 23°C FS	0.1% @ 23°C FS
Trasmission frequency	< 30 Hz	< 30 Hz
Temperature coefficient	0.02% / K FS	0.02% / K FS
Isolation	1.5 KVac / 60 s (5)	4 KVac / 60 s (5)
ECM standards	EN 50081-2, EN 50082-2	EN 50081-2, EN 50082-2
Reference Standard	IEC 664-1, DIN VDE	IEC 664-1, DIN VDE
Overvoltage category/Pollution degree	III / 2	III / 2
Protection degree	IP 20 IEC 529, EN60529	IP 20 IEC 529, EN60529
Operating temperature range	-25…+60°C	-25…+60°C
Connection terminal	2.5 mm² fixed screw type	2.5 mm² fixed screw type
Housing material	Noryl UL94V-0	Noryl UL94V-0
Approx. weight	65 g (2.29 oz)	75 g (2.65 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap

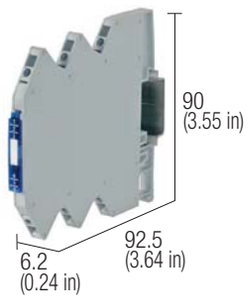
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—
Plug-in jumper red	—
(16 poles, 16 A) white	—
blue	—

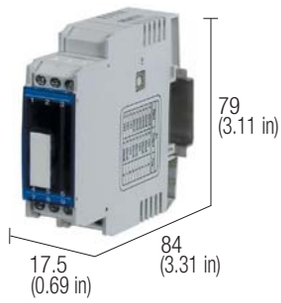
APPLICATIONS

Multifunction converters can be used to convert and isolate the most common standard analog signals; the input of the modules can be set up into 14 signal ranges and the output can be set for up to 3 most important analog ranges. The set up is possible by simply switching the position of a dip switch on the side of the module.
The many different input / output combinations offered by multifunctions modules allows to reduce inventory for both new and replacement products and provides many signal conversion solutions.
The "3 ways" galvanic isolation assures total isolation between input, output and supply input; this feature, and the "self calibrating signal circuitry", gives excellent accuracy without any manual adjustment.
If a single signal must provide several output channels it is possible to use many modules connecting their inputs in parallel as long as the signal is voltage, or in series when signal is current.

Programmable analog signal converters

- 1.5 KV, 3 ways, IN/OUT/supply voltage isolation
- 3 programmable input range
- 3 programmable output range
- Simple programming and self calibrating
- Available version with 24-240 Vac/dc supply voltage

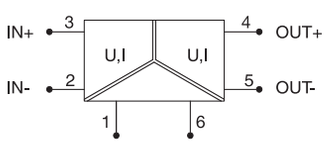




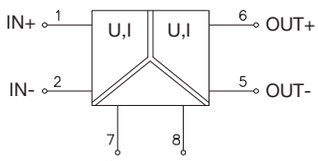
NOTES

The dimensions includes the DIN clamp.
(1) range 16.8…30 Vdc / 19.2…28.8 Vac
(2) range 16.8…264 Vdc / 19.2…264 Vac
(3) 3-way isolation: IN/OUT/power supply

BLOCK DIAGRAM



Power supply
24 Vac/dc



Power supply
24...240 Vac/dc

VERSIONS	Cat. No. X756539	Cat. No. X756510
24 Vac/dc supply voltage	**CWNAA-7-0539**	
24-240 Vac/dc supply voltage		**CWNAA-6-0510**
INPUT TECHNICAL DATA		
Input signal	**0…10 V** **0…20 / 4…20 mA**	**0…10 V** **0…20 / 4…20 mA**
Input resistance	330 KΩ with input voltage 100 Ω with input current	330 KΩ with input voltage 100 Ω with input current
OUTPUT TECHNICAL DATA		
Output signal	**0…10 V** **0…20 / 4…20 mA**	**0…10 V** **0…20 / 4…20 mA**
Applicable load	>1 KΩ with output voltage <400 Ω with output current	>1 KΩ with output voltage <400 Ω with output current
GENERAL TECHNICAL DATA		
Supply voltage	**24 Vac/dc** (1)	**24-240 Vac/dc** (2)
Rated current	≤ 35 mA ± 10% @ 24 Vdc	≤ 35 mA ± 10% @ 24 Vdc
Accuracy	0.1% @ 23°C FS	0.1% @ 23°C FS
Trasmission frequency	< 30 Hz	< 30 Hz
Temperature coefficient	0.02% / K FS	0.02% / K FS
Isolation	1.5 KVac / 60 s (3)	4 KVac / 60 s (3)
ECM standards	EN 61000-6-2, EN 61000-6-4	EN 50081-2, EN 50082-2
Reference Standard	IEC 664-1, DIN VDE	IEC 664-1, DIN VDE
Overvoltage category/Pollution degree	III / 2	III / 2
Protection degree	IP 20 IEC 529, EN60529	IP 20 IEC 529, EN60529
Operating temperature range	-25…+60°C	-25…+60°C
Connection terminal	2.5 mm² fixed screw type	2.5 mm² fixed screw type
Housing material	Noryl UL94V-0	Noryl UL94V-0
Approx. weight	40 g (1.41 oz)	75 g (2.65 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap

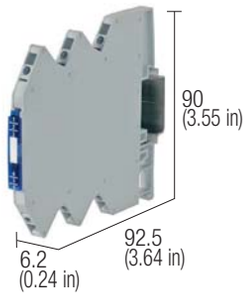
MOUNTING ACCESSORIES		PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB	
Mounting rail type according to IEC60715/TH35-7.5			
Mounting rail type according to IEC60715/G32		—	
Plug-in jumper	red	CWBK 7-0802 Cat. No. X766802	—
(16 poles, 16 A)	white	CWBK 7-0803 Cat. No. X766803	—
	blue	CWBK 7-0804 Cat. No. X766804	—

APPLICATIONS

Multi-function converters can be used to convert and isolate the most common standard analog signals; the input and the output can be set up into 3 different signal ranges. The set up is possible by simply switching the position of a dip switch on the side of the module.
The input / output combinations offered by these modules provide the most common input/output configurations more economically when compared to 14 input / 3 output modules and reduces inventory.
If a single signal must provide several output channels it is possible to use many modules connecting their inputs in parallel as long as the signal is voltage, or in series when signal is current.

Analog signal converters

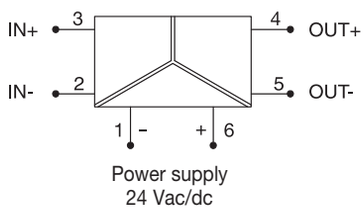
- 1.5 KV, 3 ways, IN/OUT/supply voltage isolation
- Fixed value
- Compact dimension, 6.2 mm pitch



NOTES

The dimensions includes the DIN clamp.
(1) range 16.8…30 Vdc / 19.2…28.8 Vac
(2) 3-way isolation: IN/OUT/power supply

BLOCK DIAGRAM



VERSIONS	Cat. No. X756530	Cat. No. X756531	Cat. No. X756532
IN: 0...10 V / OUT: 0...10 V	**CWAA 7-0530**		
IN: 0...10 V / OUT: 0...20 mA		**CWAA 7-0531**	
IN: 0...10 V / OUT: 4...20 mA			**CWAA 7-0532**
INPUT TECHNICAL DATA			
Input signal	**0…10 V**	**0…10 V**	**0…10 V**
Input resistance	330 KΩ	330 KΩ	330 KΩ
OUTPUT TECHNICAL DATA			
Output signal	**0...10 V**	**0...20 mA**	**4...20 mA**
Applicable load	>1 KΩ	<400 Ω	<400 Ω
GENERAL TECHNICAL DATA			
Supply voltage	24 Vac/dc (1)	24 Vac/dc (1)	24 Vac/dc (1)
Rated current	≤ 13 mA ± 10%	≤ 13 mA ± 10%	≤ 13 mA ± 10%
Accuracy	0.1% @ 23°C FS	0.1% @ 23°C FS	0.1% @ 23°C FS
Trasmission frequency	< 30 Hz	< 30 Hz	< 30 Hz
Temperature coefficient	0.02% / K FS	0.02% / K FS	0.02% / K FS
Isolation	1.5 KVac / 60 s (2)	1.5 KVac / 60 s (2)	1.5 KVac / 60 s (2)
ECM standards	EN 61000-6-2, EN 61000-6-4	EN 61000-6-2, EN 61000-6-4	EN 61000-6-2, EN 61000-6-4
Reference Standard	IEC 664-1, DIN VDE	IEC 664-1, DIN VDE	IEC 664-1, DIN VDE
Overvoltage category/Pollution degree	III / 2	III / 2	III / 2
Protection degree	IP 20 IEC 529, EN60529	IP 20 IEC 529, EN60529	IP 20 IEC 529, EN60529
Operating temperature range	-25…+60°C	-25…+60°C	-25…+60°C
Connection terminal	2.5 mm² fixed screw type	2.5 mm² fixed screw type	2.5 mm² fixed screw type
Housing material	PPE	PPE	PPE
Approx. weight	40 g (1.41 oz)	40 g (1.41 oz)	40 g (1.41 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap	vertical on rail adjacent without gap

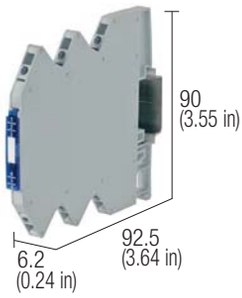
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—
Plug-in jumper red	CWBK 7-0802 Cat. No. X766802
(16 poles, 16 A) white	CWBK 7-0803 Cat. No. X766803
blue	CWBK 7-0804 Cat. No. X766804

APPLICATIONS

These converters can be used to convert and isolate the most common standard analog signals; each model is designed for a single input output signal function, and they are the right solution in applications where many modules handling the same signal are used, where they allow a large cost reduction compared with multi function modules. These modules are provided with 3 ways galvanic isolation between input output and supply voltage. If a single signal must provide several output channels it is possible to use many modules connecting their inputs in parallel as long as the signal is voltage, or in series when the signal is current.

Analog signal converters

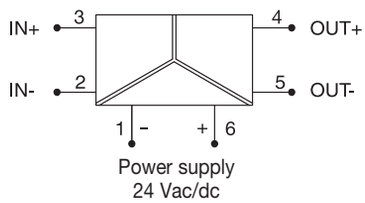
- 1.5 KV, 3 ways, IN/OUT/supply voltage isolation
- Fixed value
- Compact dimension, 6.2 mm pitch



NOTES

The dimensions includes the DIN clamp.
(1) range 16.8…30 Vdc / 19.2…28.8 Vac
(2) 3-way isolation: IN/OUT/power supply

BLOCK DIAGRAM



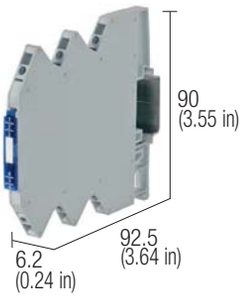
VERSIONS	Cat. No. X756533	Cat. No. X756534	Cat. No. X756535
IN: 0...20 mA / OUT: 0...10 V	**CWAA 7-0533**		
IN: 0...20 mA / OUT: 0...20 mA		**CWAA 7-0534**	
IN: 0...20 mA / OUT: 4...20 mA			**CWAA 7-0535**
INPUT TECHNICAL DATA			
Input signal	**0...20 mA**	**0...20 mA**	**0...20 mA**
Input resistance	100 Ω	100 Ω	100 Ω
OUTPUT TECHNICAL DATA			
Output signal	**0...10 V**	**0...20 mA**	**4...20 mA**
Applicable load	>1 KΩ	<400 Ω	<400 Ω
GENERAL TECHNICAL DATA			
Supply voltage	**24 Vac/dc** (1)	**24 Vac/dc** (1)	**24 Vac/dc** (1)
Rated current	≤ 13 mA ± 10%	≤ 13 mA ± 10%	≤ 13 mA ± 10%
Accuracy	0.1% @ 23°C FS	0.1% @ 23°C FS	0.1% @ 23°C FS
Trasmission frequency	< 30 Hz	< 30 Hz	< 30 Hz
Temperature coefficient	0.02% / K FS	0.02% / K FS	0.02% / K FS
Isolation	1.5 KVac / 60 s (2)	1.5 KVac / 60 s (2)	1.5 KVac / 60 s (2)
ECM standards	EN 61000-6-2, EN 61000-6-4	EN 61000-6-2, EN 61000-6-4	EN 61000-6-2, EN 61000-6-4
Reference Standard	IEC 664-1, DIN VDE	IEC 664-1, DIN VDE	IEC 664-1, DIN VDE
Overvoltage category/Pollution degree	III / 2	III / 2	III / 2
Protection degree	IP 20 IEC 529, EN60529	IP 20 IEC 529, EN60529	IP 20 IEC 529, EN60529
Operating temperature range	-25…+60°C	-25…+60°C	-25…+60°C
Connection terminal	2.5 mm² fixed screw type	2.5 mm² fixed screw type	2.5 mm² fixed screw type
Housing material	PPE	PPE	PPE
Approx. weight	40 g (1.41 oz)	40 g (1.41 oz)	40 g (1.41 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap	vertical on rail adjacent without gap
MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**		
Mounting rail type according to IEC60715/G32	—		
Plug-in jumper (16 poles, 16 A) red	CWBK 7-0802 Cat. No. X766802		
Plug-in jumper (16 poles, 16 A) white	CWBK 7-0803 Cat. No. X766803		
Plug-in jumper (16 poles, 16 A) blue	CWBK 7-0804 Cat. No. X766804		

APPLICATIONS

These converters can be used to convert and isolate the most common standard analog signals; each model is designed for a single input output signal function, and they are the right solution in applications where many modules handling the same signal are used, where they allow a large cost reduction compared with multi function modules. These modules are provided with 3 ways galvanic isolation between input output and supply voltage. If a single signal must provide several output channels it is possible to use many modules connecting their inputs in parallel as long as the signal is voltage, or in series when the signal is current.

Analog signal converters

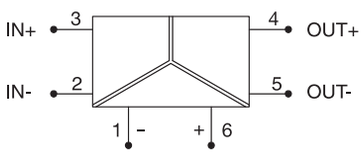
- 1.5 KV, 3 ways, IN/OUT/supply voltage isolation
- Fixed value
- Compact dimension, 6.2 mm pitch



NOTES

The dimensions includes the DIN clamp.
(1) range 16.8…30 Vdc / 19.2…28.8 Vac
(2) 3-way isolation: IN/OUT/power supply

BLOCK DIAGRAM



Power supply
24 Vac/dc

VERSIONS	Cat. No. X756536	Cat. No. X756537	Cat. No. X756538
IN: 4...20 mA / OUT: 0...10 V	**CWAA 7-0536**		
IN: 4...20 mA / OUT: 0...20 mA		**CWAA 7-0537**	
IN: 4...20 mA / OUT: 4...20 mA			**CWAA 7-0538**
INPUT TECHNICAL DATA			
Input signal	**4...20 mA**	**4...20 mA**	**4...20 mA**
Input resistance	100 Ω	100 Ω	100 Ω
OUTPUT TECHNICAL DATA			
Output signal	**0...10 V**	**0...20 mA**	**4...20 mA**
Applicable load	>1 KΩ	<400 Ω	<400 Ω
GENERAL TECHNICAL DATA			
Supply voltage	24 Vac/dc (1)	24 Vac/dc (1)	24 Vac/dc (1)
Rated current	≤ 13 mA ± 10%	≤ 13 mA ± 10%	≤ 13 mA ± 10%
Accuracy	0.1% @ 23°C FS	0.1% @ 23°C FS	0.1% @ 23°C FS
Trasmission frequency	< 30 Hz	< 30 Hz	< 30 Hz
Temperature coefficient	0.02% / K FS	0.02% / K FS	0.02% / K FS
Isolation	1.5 KVac / 60 s (2)	1.5 KVac / 60 s (2)	1.5 KVac / 60 s (2)
ECM standards	EN 61000-6-2, EN 61000-6-4	EN 61000-6-2, EN 61000-6-4	EN 61000-6-2, EN 61000-6-4
Reference Standard	IEC 664-1, DIN VDE	IEC 664-1, DIN VDE	IEC 664-1, DIN VDE
Overvoltage category/Pollution degree	III / 2	III / 2	III / 2
Protection degree	IP 20 IEC 529, EN60529	IP 20 IEC 529, EN60529	IP 20 IEC 529, EN60529
Operating temperature range	-25…+60°C	-25…+60°C	-25…+60°C
Connection terminal	2.5 mm² fixed screw type	2.5 mm² fixed screw type	2.5 mm² fixed screw type
Housing material	PPE	PPE	PPE
Approx. weight	40 g (1.41 oz)	40 g (1.41 oz)	40 g (1.41 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap	vertical on rail adjacent without gap

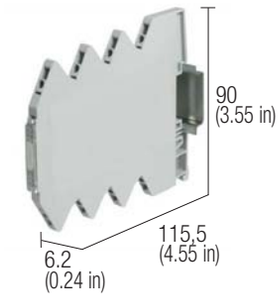
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—
Plug-in jumper red	CWBK 7-0802 Cat. No. X766802
(16 poles, 16 A) white	CWBK 7-0803 Cat. No. X766803
blue	CWBK 7-0804 Cat. No. X766804

APPLICATIONS

These converters can be used to convert and isolate the most common standard analog signals; each model is designed for a single input output signal function, and they are the right solution in applications where many modules handling the same signal are used, where they allow a large cost reduction compared with multi function modules. These modules are provided with 3 ways galvanic isolation between input output and supply voltage. If a single signal must provide several output channels it is possible to use many modules connecting their inputs in parallel as long as the signal is voltage, or in series when the signal is current

Passive galvanic isolators

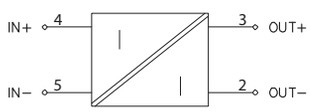
- Do not require power supply
- Suitable for loop powered sensors
- 2 Ways I/O 500 V isolation
- Single and double channel version
- Compact dimension, 6.2 mm pitch

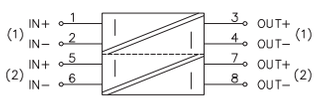


NOTES

The dimensions includes the DIN clamp.
(1) Input voltage must have a value higher than the value calculated with this formula, where Rb is load resistance (see pic.1); for calculation refer to the diagram comparing minimum input voltage with output load and wires resistance values; refer to the diagram (see pic. 2) to define if application conditions allow to get full 20 mA output signal
(2) 2-way isolation: IN/OUT

BLOCK DIAGRAM





VERSIONS	Cat. No. X756526	Cat. No. X756527
Single channel	**CWPAA 7-0526**	
Double channel		**CWPAA 7-0527**
INPUT TECHNICAL DATA		
Input signal	1 channel 0…20 mA, 4…20 mA	2 channels 0…20 mA, 4…20 mA
Input current	—	—
Input voltage (1)	2.7 + (20 mA x Rb)	2.7 + (20 mA x Rb)
Input resistance	100 Ω	100 Ω
OUTPUT TECHNICAL DATA		
Output signal	1 channel 0…20 / 4…20 mA, (max 21 mA)	2 channels 0…20 / 4…20 mA, (max 21 mA)
Applicable load	<400 Ω with output current	<400 Ω with output current
GENERAL TECHNICAL DATA		
Supply voltage	—	—
Rated current	12 mA	12 mA
Accuracy	0.1 FS (23°C)	0.1 FS (23°C)
Rise time (10..90%)	10 ms	10 ms
Trasmission frequency	30 Hz @ 3 dB	30 Hz @ 3 dB
Temperature coefficient	0.02% FS	0.02% FS
Isolation	1.5 KVac / 60 s (2)	1.5 KVac / 60 s (2)
ECM standards	EN 61000-6-2, EN 61000-6-4	EN 61000-6-2, EN 61000-6-4
Reference Standard	IED 664-1, DIN VDE	IED 664-1, DIN VDE
Overvoltage category/Pollution degree	III / 2	III / 2
Protection degree	IP 20 IEC 529 EN60529	IP 20 IEC 529 EN60529
Operating temperature range	-25…+60°C	-25…+60°C
Connection terminal	1.5 mm² fixed screw type	1.5 mm² fixed screw type
Housing material	Luranyl	Luranyl
Approx. weight	35 g (1.24 oz)	35 g (1.24 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32	—	
Plug-in jumper red	CWBK 7-0802 Cat. No. X766802	
(16 poles, 16 A) white	CWBK 7-0803 Cat. No. X766803	
blue	CWBK 7-0804 Cat. No. X766804	

APPLICATIONS

The passive galvanic isolators can isolate the signal generated by loop powered sensors, where the applied load must have a resistance lower than 400 Ω 20 mA, including the cable resistance; the applied input voltage has to be higher than 2.7 V compared with output voltage (see note 2). If above conditions are satisfied, passive isolators reduce cabling costs and eliminate power supplies thereby saving costs. If above conditions are not satisfied, passive module introduces a signal attenuation.

figure 1

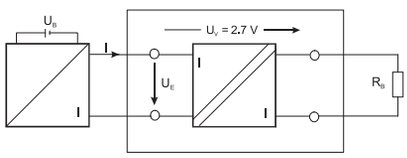
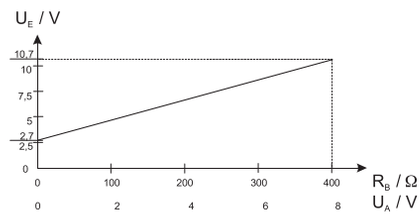
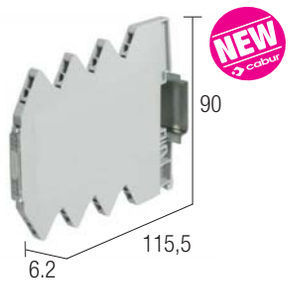


figure 2



Programmable converter analogue signal / threshold

- 3 ways I/O 2.5 KV isolation
- programmable input ranges via dip-switch and customizable via software FDT/DTM
- 2 threshold customizable via software FDT/DTM
- Symple functions programming

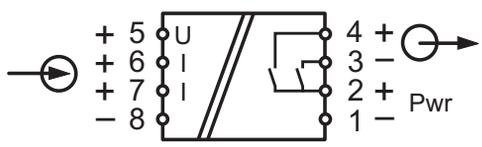


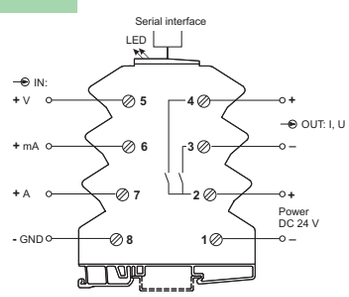
CE

NOTES

The dimensions includes the DIN clamp.
(1) Version with spring-clamp terminals available on request
(2) Input temperature ranges can be set via dip switch and adjustable via FDT/DTM software.
Output ranges can be set via FDT/DTM software
(3) 3-way isolation: IN / OUT/ supply

BLOCK DIAGRAM





VERSION	Cod. X756360		Cod. X756894
With screw terminals (standard)	**LCONALSFDT**		
With spring terminals		**(1)**	
Programming tool			**LCONZBUSB**
INPUT TECHNICAL DATA			
Input signal (1)	**-30…+30 V**	**-50…+50 mA**	**-5…+5 A**
Input resistance	330 KΩ	30 Ω	10 mΩ
Zero / Spam	adjustable via software FDT/DTM		
OUTPUT TECHNICAL DATA			
Threshold regulation	programmable via software FDT/DTM		
Contact type	2 NO contact (solid state relay)		
Max. switching voltage / current	30 Vdc / 100 mA		
Status indication	2 yellow LED		
Operating mode	limit value, window, tendency, inverting and hold function		
GENERAL TECHNICAL DATA			
Supply voltage	24 Vdc (16.8…30 Vdc)		
Rated current	18 mA ± 10% @ 24 Vdc		
Accuracy	0.1% FS		
Data processing	24 Bit		
Linearity error	< 100 ppm FS		
Temperature coefficient	<100 ppm/°C		
Response time	1...500 ms (adjustable, default 30 ms)		
Isolation	2.5 KVac / 60 s (3)		
EMC Standard	EN 50081-2, EN 50082-2		
Reference Standard	IEC 664-1, DIN VDE		
Overvoltage category/Pollution degree	III / 2		
Protection degree	IP20		
Operating temperature range	-40…+70°C		
Connection terminal	1.5 mm² fixed screw type		
Housing material	Noryl UL94V-0		
Approx. weight	600 g		
Mounting information	vertical on rail adjacent without gap		
MOUNTING ACCESSORIES			
Profilato d'appoggio a norma IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**		
Profilato d'appoggio a norma IEC60715/G32	—		
Ponte di parallelo rosso (16 poli, 16 A) bianco blu	CWBK 7-0802 cod. X766802 CWBK 7-0803 cod. X766803 CWBK 7-0804 cod. X766804		

APPLICATIONS

CWTPR 7-0360 is an analog signal conveter that provides high accuracy measurement and that can be connected to a wide range of analogue sensors.
Input range and the output thresholds can be modified with a FDT/DTM software and an USB interface.
Are available two normally open contact with solid state relay.

Programmable converters for temperature sensors

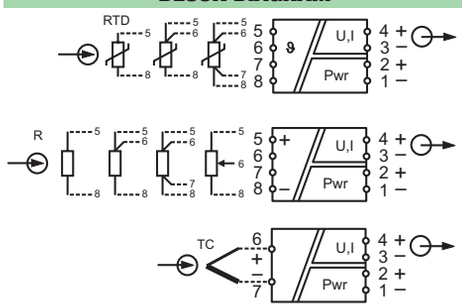
- For PT100, PT1000 sensors, thermocouples, potentiometers
- 3 ways I/O 2.5 KV isolation
- 145 programmable input ranges via dip-switch and customizable via software FDT/DTM
- 5 programmable output ranges via dip-switch and customisable via software FDT/DTM
- Compact dimension, 6.2 mm pitch

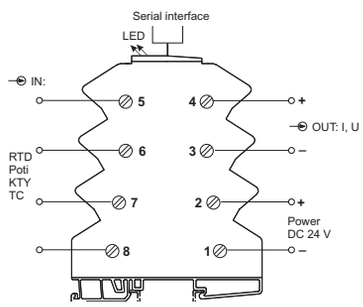
CE

NOTES

The dimensions includes the DIN clamp.
(1) Version with spring-clamp terminals available on request
(2) Input temperature ranges, and output signals, can be set via dip switch, or adjustable via FDT/DTM software.
(3) 3-way isolation: IN / OUT/ supply

BLOCK DIAGRAM





VERSIONS	Cod. X756340	Cod. X756894
With screw terminals (standard)	**LCONTADFDT**	
With spring terminals	**(1)**	
Programming tool		**LCONZBUSB**
INPUT TECHNICAL DATA		
Input signal	PT100, PT1000 sensor potenziometer 0…600kΩ therrmocouple B, C, E, J, K, N, R, S, T type	
Temperature range	-200…+1400°C, according to sensor type (2)	
OUTPUT TECHNICAL DATA		
Output signal	0…10 / -10…+10 V, (max. 10.25 V) 0…20 / 4…20 mA, (max 21 mA) (2)	
Applicable load	>2 KΩ with output voltage <650 Ω with output current	
Display signals	green LED = OK , flashing red LED = error	
GENERAL TECHNICAL DATA		
Supply voltage	24 Vdc (16.8...30 Vdc)	
Rated current	18 mA max. @ 24 Vdc	
Accuracy	10K/span(K) + 0.2% FS (for RTD) / 10K/span(K) + 0.4% FS (for TE)	
Data processing	24 bit	
Linearity error	±0.05% FS – ±0.1% FS (for TE)	
Temperature coefficient	<100 ppm/°C	
Response time	5...500 ms (regolabile, default 30 ms)	
Isolation	2.5 KVac / 60 s (3)	
ECM standards	EN 61000-6-2, EN 61000-6-4	
Reference Standard	IEC 664-1, DIN VDE	
Overvoltage category / Pollution degree	III / 2	
Protection degree	IP 20 IEC 529 EN60529	
Operating temperature	-40…+70°C	
Connection terminal	1.5 mm² fixed screw type	
Housing material	PPE	
Approx. weight	40 g (1.41 oz)	
Mounting information	vertical on rail adjacent without gap	
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32	—	
Plug-in jumper red	CWBK 7-0802 cod. X766802	
Plug-in jumper white	CWBK 7-0803 cod. X766803	
Plug-in jumper blue	CWBK 7-0804 cod. X766804	

APPLICATIONS

CSWTPR 7-0340 is a temperature to analog signal conversion module that provides high accuracy measurement and that can be connected to a wide range of temperature sensors. The module can be used for a temperature range from -200 to + 1.400°C.
With resistive sensors it is possible to select among 2, 3, 4 wire connections. Input and output ranges can be modified with a FDT/DTM software and an USB interface.

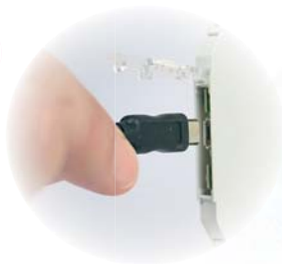
Range*	S1				S2						
Start	7	8	1	2	End	3	4	5	6	7	8
-200°C	●				0°C	●					
-150°C	●	●			50°C		●	●			
-100°C	●		●		100°C	●	●		●		
-50°C		●		●	150°C	●			●	●	
0°C	●	●	●	●	200°C	●	●	●	●		
					250°C	●				●	
Sensor*	S1	1	2	3	300°C	●	●			●	
Pt100	●				350°C	●		●		●	
Pt1000		●			400°C	●	●	●		●	
TE J	●	●			450°C	●			●	●	
TE K			●		500°C	●	●		●	●	
R	●	●	●		550°C	●		●	●	●	
					600°C	●	●	●	●	●	
Output*	S1	4	5	6	650°C	●					●
0 – 20mA	●				700°C	●	●				●
4 – 20mA		●			750°C	●		●			●
0 – 10V	●	●			800°C	●	●	●			●
±10V				●	850°C	●			●		●
					900°C	●	●		●		●
					950°C	●		●	●		●
					1000°C	●	●	●	●		●
					1050°C	●				●	●
					1100°C	●	●			●	●
					1150°C	●		●		●	●
					1200°C	●	●	●		●	●
					1250°C	●			●	●	●
					1300°C	●	●		●	●	●
					1350°C	●		●	●	●	●
					1400°C	●	●	●	●	●	●

● → Switch On

S1-S2 1-8 off: FDT/DTM

Programmable converter temperature sensor / threshold

- For PT100, PT1000 sensors, thermocouples, potentiometers
- 3 ways I/O 2.5 KV isolation
- 145 programmable input ranges via dip-switch and customizable via software FDT/DTM"
- 2 threshold customizable via software FDT/DTM
- Compact dimension, 6.2 mm pitch

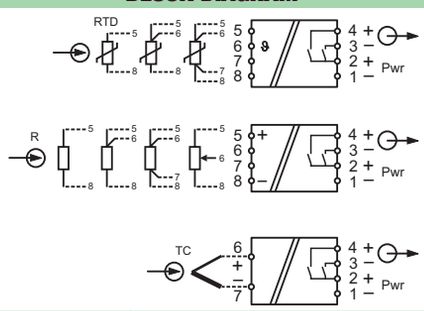


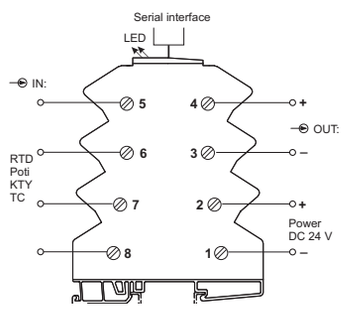
CE

NOTES

The dimensions includes the DIN clamp.
(1) Version with spring-clamp terminals available on request
(2) Input temperature ranges can be set via dip switch and adjustable via FDT/DTM software.
Output ranges can be set via FDT/DTM software
(3) 3-way isolation: IN/OUT/power supply

BLOCK DIAGRAM





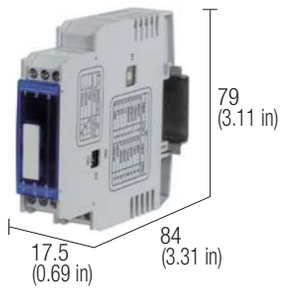
VERSIONS	Cod. X756370	Cod. X756894
With screw terminals (standard)	**LCONTLSFDT**	
With spring terminals	**(1)**	
Programming tool		**LCONZBUSB**
INPUT TECHNICAL DATA		
Input signal	PT100, PT1000 sensor potenziometer 0…600kΩ therrmocouple B, C, E, J, K, N, R, S, T type	
Temperature range	-200…+1400°C, according to sensor type (2)	
OUTPUT TECHNICAL DATA		
Threshold regulation	programmable via software FDT/DTM	
Contact type	2 NO contact (solid state relay)	
Max. switching voltage / current	30 Vdc / 100 mA	
Status indication	2 yellow LED	
Operating mode	limit value, window, tendency, inverting and hold function	
GENERAL TECHNICAL DATA		
Supply voltage	24 Vdc (16.8...30 Vdc)	
Rated current	18 mA max. @ 24 Vdc	
Accuracy	10K/span(K) + 0.2% FS (for RTD) / 10K/span(K) + 0.4% FS (for TE)	
Data processing	24 bit	
Linearity error	±0.05% FS (for RTD and potentiometer) / ±0.1% FS (for TE)	
Temperature coefficient	<100 ppm/°C	
Response time	5...500 ms (regolabile, default 30 ms)	
Isolation	2.5 KVac / 60 s (3)	
ECM standards	EN 61000-6-2, EN 61000-6-4	
Reference Standard	IEC 664-1, DIN VDE	
Overvoltage category / Pollution degree	III / 2	
Protection degree	IP 20 IEC 529 EN60529	
Operating temperature	-40…+70°C	
Connection terminal	1.5 mm² fixed screw type	
Housing material	PPE	
Approx. weight	40 g (1.41 oz)	
Mounting information	vertical on rail adjacent without gap	
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32	—	
Plug-in jumper red	CWBK 7-0802 cod. X766802	
Plug-in jumper white	CWBK 7-0803 cod. X766803	
Plug-in jumper blue	CWBK 7-0804 cod. X766804	

APPLICATIONS

CWTPR 7-0370 is a temperature to analog signal conversion module that provides high accuracy measurement and that can be connected to a wide range of temperature sensors. The module can be used for a temperature range from -200 to + 1.400°C. With resistive sensors it is possible to select among 2, 3, 4 wire connections.
Input range and the output thresholds can be modified with a FDT/DTM software and an USB interface.
Two normally open contact with solid state relay are available.

Programmable converters for RTD sensors

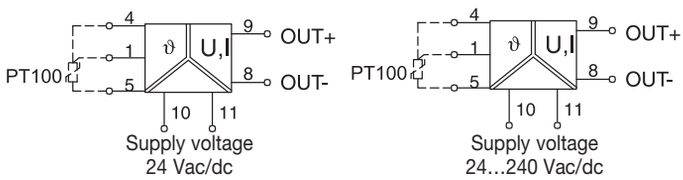
- Converters for PT100 sensors
- 3 ways galvanic isolation
- 8 programmable input range
- 3 programmable output range
- Simple programming
- Version with 24-240 Vac/dc supply voltage



NOTES

The dimensions includes the DIN clamp.
(1) Adjustable via rotary-switch
(2) Adjustable via dip-switch
(3) They can also be used with 2 wire PT100 sensor, connecting the terminals 1 and 4
(4) range 16.8…30 Vdc / 19.2…28.8 Vac
(5) range 16.8…264 Vdc / 19.2…264 Vac
(6) 3-way isolation: IN/OUT/power supply

BLOCK DIAGRAM



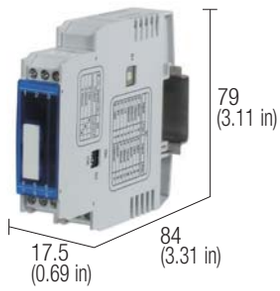
VERSIONS	Cat. No. X756816	Cat. No. X756817
24 Vac/dc supply voltage	**CWPT 6-0816**	
24-240 Vac/dc supply voltage		**CWPT 6-0817**
INPUT TECHNICAL DATA		
Input signal	PT100 3 wires (3)	PT100 3 wires (3)
Temperature range (1)	-50…+50°C (-58…+122°F) -50…+100°C (-58…+212°F) -50…+150°C (-58…+302°F) 0…+100°C (+32…+212°F) 0…+150°C (+32…+302°F) 0…+200°C (+32…+392°F) 0…+300°C (+32…+572°F) 0…+400°C (+32…+752°F)	-50…+50°C (-58…+122°F) -50…+100°C (-58…+212°F) -50…+150°C (-58…+302°F) 0…+100°C (+32…+212°F) 0…+150°C (+32…+302°F) 0…+200°C (+32…+392°F) 0…+300°C (+32…+572°F) 0…+400°C (+32…+752°F)
Supply current	0.5 mA	0.5 mA
OUTPUT TECHNICAL DATA		
Output signal (2)	0…10 V 0…20 / 4…20 mA	0…10 V 0…20 / 4…20 mA
Applicable load	>1 KΩ with output voltage, <400 Ω with output current	>1 KΩ with output voltage, <400 Ω with output current
GENERAL TECHNICAL DATA		
Supply voltage	24 Vac/dc (2)	24-240 Vac/dc (3)
Rated current	≤ 35 mA ± 10% @ 24 Vdc	≤ 35 mA ± 10% @ 24 Vdc
Accuracy	<0.3% FS	<0.3% FS
Trasmission frequency	<30 Hz	<30 Hz
Temperature coefficient	0.015% / K FS	0.015% / K FS
Isolation	1.5 KVac / 60 s (6)	4 KVac / 60 s (6)
ECM standards	EN 50081-2, EN 50082-2	EN 50081-2, EN 50082-2
Reference Standard	IEC 664-1, DIN VDE	IEC 664-1, DIN VDE
Overvoltage category/Pollution degree	III / 2	III / 2
Protection degree	IP20	IP20
Operating temperature range	-20…+60°C	-20…+60°C
Connection terminal	2.5 mm² fixed screw type	2.5 mm² fixed screw type
Housing material	Noryl UL94V-0	Noryl UL94V-0
Approx. weight	75 g (2.65 oz)	85 g (3.00 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32	—	
Plug-in jumper red	—	
(16 poles, 16 A) white	—	
blue	—	

APPLICATIONS

The modules convert and isolate signals generated by 3 wire / 2 wire PT100 (RTD) sensors into analog signals; the module can be set into 8 temperature ranges and for up to 3 most important analog ranges.
Set up is easily achieved by setting a dip-switch on one side of the module.
The modules provide input and output isolation, assuring high signal accuracy, and can be used with isolated and not isolated sensors. Two wire sensors can be used by connecting a jumper wire between 1 and 4 terminal blocks.

Programmable converters for thermocouples

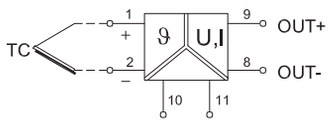
- Converters for sensors with thermocouples J and K type
- 3 ways galvanic isolation
- 8 programmable input range
- 3 programmable output range
- Simple programming
- Version with 24-240 Vac/dc supply voltage



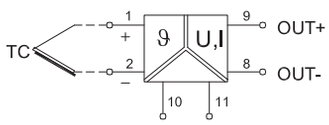
NOTES

The dimensions includes the DIN clamp.
(1) Adjustable via rotary-switch
(2) Adjustable via dip-switch
(3) range 16.8…30 Vdc / 19.2…28.8 Vac
(4) range 16.8…264 Vdc / 19.2…264 Vac
(5) "3-way isolation: IN/OUT/power supply

BLOCK DIAGRAM



Supply voltage
24 Vac/dc



Supply voltage
24…240 Vac/dc

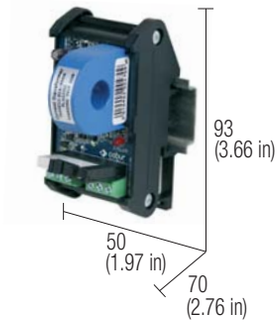
VERSIONS	Cat. No. X756844	Cat. No. X756847
24 Vac/dc supply voltage	**CWTH 6-0844**	
24-240 Vac/dc supply voltage		**CWTH 6-0847**
INPUT TECHNICAL DATA		
Input signal	thermocouples FeCuNi (J type) e NiCrNi (K type) according to DIN/IEC584-1	thermocouples FeCuNi (J type) e NiCrNi (K type) according to DIN/IEC584-1
Temperature range (1)	-50…+200°C (-58…+392°F) -50…+350°C (-58 …+662°F) 0…+200°C (+32…+392°F) 0…+400°C (+32…+752°F) 0…+600°C (+32…+1112°F) 0…+800°C (+32…+1472°F) 0…+1000°C (+32…+1832°F) 0…+1200°C (+32…+2192°F)	-50…+200°C (-58…+392°F) -50…+350°C (-58 …+662°F) 0…+200°C (+32…+392°F) 0…+400°C (+32…+752°F) 0…+600°C (+32…+1112°F) 0…+800°C (+32…+1472°F) 0…+1000°C (+32…+1832°F) 0…+1200°C (+32…+2192°F)
Supply current	—	—
OUTPUT TECHNICAL DATA		
Output signal (2)	0…10 V 0…20 / 4…20 mA	0…10 V 0…20 / 4…20 mA
Applicable load	>1 KΩ with output voltage, <400 Ω with output current	>1 KΩ with output voltage, <400 Ω with output current
GENERAL TECHNICAL DATA		
Supply voltage	24 Vac/dc (3)	24-240 Vac/dc (4)
Rated current	≤ 35 mA ± 10% @ 24 Vdc	≤ 35 mA ± 10% @ 24 Vdc
Accuracy	<0.5% FS	<0.5% FS
Trasmission frequency	<30 Hz	<30 Hz
Temperature coefficient	0.015% / K FS	0.015% / K FS
Isolation	1.5 KVac / 60 s (5)	4 KVac / 60 s (5)
ECM standards	EN 50081-2, EN 50082-2	EN 50081-2, EN 50082-2
Reference Standard	IEC 664-1, DIN VDE	IEC 664-1, DIN VDE
Overvoltage category/Pollution degree	III / 2	III / 2
Protection degree	IP20	IP20
Operating temperature range	-20…+60°C	-20…+60°C
Connection terminal	2.5 mm² fixed screw type	2.5 mm² fixed screw type
Housing material	Noryl UL94V-0	Noryl UL94V-0
Approx. weight	65 g (2.29 oz)	75 g (2.65 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32	—	
Plug-in jumper red	—	
(16 poles, 16 A) white	—	
blue	—	

APPLICATIONS

The modules convert and isolate signals generated by thermocouples type J (FeCuNi) or K (NiCrNi) into an analog signal; can be set into 8 temperature input ranges, and can be set for up to 3 most important analog ranges. The set up is possible by setting a dip-witch on one side of the module.
The modules provide input and output isolation, assuring high signal accuracy, and can be used with isolated and not isolated sensors.

Current to threshold converters

- For AC current measure
- Adjustable threshold value
- Versions with transistor or relay output
- IN/OUT 3 KV isolation

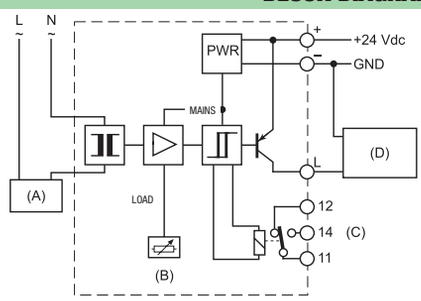


CE

NOTES

The dimensions includes the terminal blocks and the DIN clamp.
(1) Isolation referred to conductor being measured, not isolated (naked) and in contact with the wall of the toroid. By using isolated conductors, the isolation value of the conductor is added to isolation of the module.

BLOCK DIAGRAM



(A) AC load
(B) Threshold
(C) Output with SPDT contact
(D) Digital input drive by transistor
Power supply
24 Vac/dc

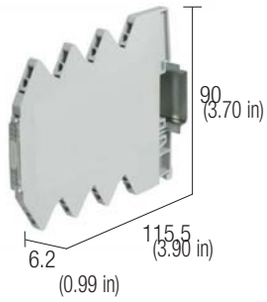
VERSIONS	Cod. XCCIS2
	CCIS-2
INPUT TECHNICAL DATA	
Max. measured current	50 A (AC)
Max. measured voltage	600 Vac (1)
Frequency	50…60 Hz
Sensor's hole diameter	Ø 13 mm
OUTPUT TECHNICAL DATA	
Threshold regulation	2…40 A
Threshold hysteresis	± 10%
Max. output current	100 mA open collector PNP
Output status	"high" 24 V (closed) with I < threshold "low" 0 V (open) with I > threshold
Response time	20 ms
GENERAL TECHNICAL DATA	
Supply voltage	24 Vdc ± 10%
Max rated current	100 mA
Operating temperature range	0…60°C
Input/output isolation	> 3 KVac /60 s
Connection terminal	2.5 mm² fixed screw type (14 AWG)
Housing material	polyamide UL94V-03
Approx. weight	100 g (3.53 oz)
Mounting information	vertical on rail adjacent without gap
MOUNTING ACCESSORIES	
Profilato d'appoggio a norma IEC60715/TH35	**PR/3/AC, PR/3/AS**
Profilato d'appoggio a norma IEC60715/G32	**PR/DIN/AC, PR/DIN/AS, PR/DIN/AL**
Plug-in jumper red	—
(16 poles, 16 A) white	—
blue	—

APPLICATIONS

This module converts a current flowing through circuit into a threshold that can be adjusted by the potentiometer; when the current reaches the threshold value, the relay or the transistor switches; the wire must be feed through the hole of the current sensor for current detection.

Current to analog converters

- For AC/DC current measurements
- Protected against transients
- Power supplied LED
- 3 output signals available

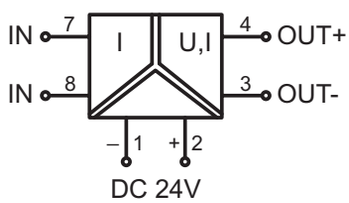


CE

NOTES

The dimensions includes the terminal blocks and the DIN clamp.
(1) Do not connect directly to a 400 V line

BLOCK DIAGRAM



VERSIONS	Cod. X756540	Cod. X756541	Cod. X756542
0…1 A input	**WAA 7-0540**		
0…5 A input		**WAA 7-0541**	
0…10 A input			**WAA 7-0542**
INPUT TECHNICAL DATA			
Input signal	0…1 A AC/DC	0…5 A AC/DC	0…10 A AC/DC
Max. input voltage	400 V (1)	400 V (1)	400 V (1)
Current wire connection	1.5 mm² screw type	1.5 mm² screw type	1.5 mm² screw type
OUTPUT TECHNICAL DATA	**VOLTAGE**	**CURRENT**	
Output signal	0…10 V	0…20 mA / 4…20 mA	
Max. output signal	11 V	21 mA	
Applicable load	>1 KΩ	<400 Ω	
GENERAL TECHNICAL DATA			
Supply voltage	24 Vdc (16.8...30 Vdc)	24 Vdc (16.8...30 Vdc)	24 Vdc (16.8...30 Vdc)
Rated current	13 mA	13 mA	13 mA
Operating temperature	-25…+60°C	-25…+60°C	-25…+60°C
Linearity error	< 0.1% FS (23°C)	< 0.1% FS (23°C)	< 0.1% FS (23°C)
Offset error	< 0.5% FS (23°C)	< 0.5% FS (23°C)	< 0.5% FS (23°C)
Temperature coefficient	< 150 ppm / K FS	< 150 ppm / K FS	< 150 ppm / K FS
Response time	–	–	–
Protection degree	IP20	IP20	IP20
Connection terminal	1.5 mm² screw type	1.5 mm² screw type	1.5 mm² screw type
Approx. weight	55 g (1.94 oz)	55 g (1.94 oz)	55 g (1.94 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap	vertical on rail adjacent without gap

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—
Plug-in jumper red	CWBK 7-0802 cod. X766802
(16 poles, 16 A) white	CWBK 7-0803 cod. X766803
blue	CWBK 7-0804 cod. X766804

APPLICATIONS

Through a "HALL" sensor they grant AC/DC current measurements.
The presence of current in a circuit indicates not only that power is supplied but also that the circuit is closed and the load connected and active.
It's also possible to know the work conditions of the circuit.
The module guarantees galvanic isolation between the current conductor and the analog.

● → Switch On		S1			
Input	Output	1	2	3	4
0-1A	0-10V				
0-1A	0-20mA	●			
0-1A	4-20mA		●		

Range WAA7-0540

● → Switch On		S1			
Input	Output	1	2	3	4
0-5A	0-10V				
0-5A	0-20mA	●			
0-5A	4-20mA		●		

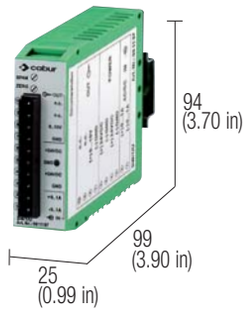
Range WAA7-0541

● → Switch On		S1			
Input	Output	1	2	3	4
0-10A	0-10V				
0-10A	0-20mA	●			
0-10A	4-20mA		●		

Range WAA7-0542

Current to analog converters

- For AC/DC current measurements
- Protected against transients
- Power supplied LED
- 3 output signals available



CE

NOTES

The dimensions includes the terminal blocks and the DIN clamp.

BLOCK DIAGRAM

Article available until sell-out
XW000928 will be replaced by **X756540**
XW000929 will be replaced by **X756541**
XW000930 will be replaced by **X756542**

VERSIONS	Cat. No. XW000928	Cat. No. XW000929	Cat. No. XW000930
0…1 A input	**SW01VA**		
0…5 A input		**SW05VA**	
0…10 A input			**SW10VA**
INPUT TECHNICAL DATA			
Input signal	0…1 A AC/DC	0…5 A AC/DC	0…10 A AC/DC
Max. input voltage	380 V	380 V	380 V
Current wire connection	2.5 mm² pluggable screw type	2.5 mm² pluggable screw type	2.5 mm² pluggable screw type
OUTPUT TECHNICAL DATA	**VOLTAGE**	**CURRENT**	
Output signal	0…10 V	0…20 mA / 4…20 mA	
Max. output signal	11 V	22 mA	
Applicable load	>2 KΩ	<500 Ω	
GENERAL TECHNICAL DATA			
Supply voltage	24 Vdc ± 10%	24 Vdc ± 10%	24 Vdc ± 10%
Rated current	60 mA	60 mA	60 mA
Operating temperature	0…55°C	0…55°C	0…55°C
Linearity error	< 0.5%	< 0.5%	< 0.5%
Offset error	< 0.5%	< 0.5%	< 0.5%
Amplification error	< 0.2%	< 0.2%	< 0.2%
Temperature coefficient	< 0.02%/K	< 0.02%/K	< 0.02%/K
Surge immunity	200 V	200 V	200 V
Response time	10 mS	10 mS	10 mS
Protection degree	IP20	IP20	IP20
Connection terminal	2.5 mm² pluggable screw type	2.5 mm² pluggable screw type	2.5 mm² pluggable screw type
Approx. weight	100 g (3.53 oz)	100 g (3.53 oz)	100 g (3.53 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap	vertical on rail adjacent without gap

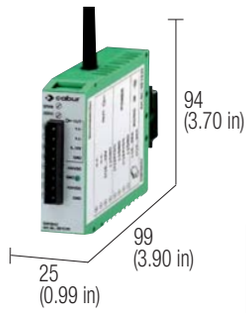
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35-7.5		**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32		—
Plug-in jumper	red	—
(16 poles, 16 A)	white	—
	blue	—

APPLICATIONS

In 99 mm depth measure is included the space occupied by the terminal block provided with the product. Through a "HALL" sensor they grant AC/DC current measurements.
The presence of current in a circuit indicates not only that power is supplied but also that the circuit is closed and the load connected and active.
It's also possible to know the work conditions of the circuit.
The module guarantees galvanic isolation between the current conductor and the analog output and, if not connected in series to the controlled current, cannot be damaged by power surges or short circuits.

Current to analog converters

- For AC/DC current measurements
- Protected against transients
- Power supplied LED
- 3 output signals available

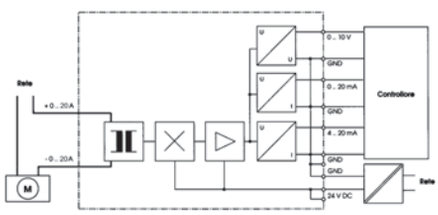


Article available until sell-out

NOTES

The dimensions includes the terminal blocks and the DIN clamp.

BLOCK DIAGRAM



VERSIONS	Cat. No. XW000931	Cat. No. XW000932
0…20 A input	**SW20VA**	
0…50 A input		**SW50VA**
INPUT TECHNICAL DATA		
Input signal	0…20 A AC/DC	0…50 A AC/DC
Max. input voltage	380 V	380 V
Current wire connection	Ø 8 mm	Ø 8 mm
OUTPUT TECHNICAL DATA	**VOLTAGE**	**CURRENT**
Output signal	0…10 V	0…20 mA / 4…20 mA
Max. output signal	11 V	22 mA
Applicable load	>2 KΩ	<500 Ω
GENERAL TECHNICAL DATA		
Supply voltage	24 Vdc ± 10%	24 Vdc ± 10%
Rated current	60 mA	60 mA
Operating temperature	0…55°C	0…55°C
Linearity error	< 0.5%	< 0.5%
Offset error	< 0.5%	< 0.5%
Amplification error	< 0.2%	< 0.2%
Temperature coefficient	< 0.02%/K	< 0.02%/K
Surge immunity	200 V	200 V
Response time	10 mS	10 mS
Protection degree	IP20	IP20
Connection terminal	2.5 mm² pluggable screw type (14 AWG)	2.5 mm² pluggable screw type (14 AWG)
Approx. weight	100 g (3.53 oz)	100 g (3.53 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap

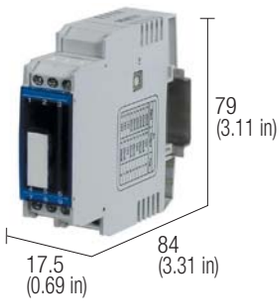
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35		**PR/3/AC, PR/3/AS**
Mounting rail type according to IEC60715/G32		**PR/DIN/AC, PR/DIN/AS, PR/DIN/AL**
Plug-in jumper	red	—
(16 poles, 16 A)	white	—
	blue	—

APPLICATIONS

In 99 mm depth measure is included the space occupied by the terminal block provided with the product.
They allow the user to measure AC/DC currents by an “HALL” sensor.
The presence of current in a circuit indicates not only that power is supplied but also that the circuit is closed and the load connected and active. It is also possible to know the working conditions of the controlled circuit.
The module guarantees galvanic isolation between the current conductor and the analog output and, if not connected in series to the controlled current, cannot be damaged by power surges or short circuits.

Frequency to analog signal converters

- Adjustable frequency range 0...28.8 Khz
- 3 programmable analog signal output ranges
- 3 ways I/O 2.5 KV isolation

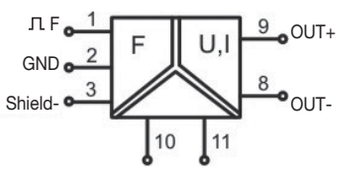


CE

NOTES

The dimensions includes the terminal blocks and the DIN clamp.
(1) range 16.8…30 Vdc / 19.2…28.8 Vac
(2) 3-way isolation: IN/OUT/power supply

BLOCK DIAGRAM



AC/DC 24V

VERSIONS	Cat. No. X756524
	CWNFA 6-0524
INPUT TECHNICAL DATA	
Input signal (range)	0…28.8 KHz adjustable via DIP switch
Input signal (type)	AC/DC 0.6…30 Vpp
Input resistance	50 KΩ
Hysteresis	0.5 Vpp o 5 Vpp adjustable via DIP switch
OUTPUT TECHNICAL DATA	
Output signal	0…10 V, (max. 10.6 V) 0…20 / 4…20 mA, (max 21 mA)
Applicable load	>1 KΩ with output voltage <400 Ω with output current
Ripple	< 5 mVeff
GENERAL TECHNICAL DATA	
Supply voltage	24 Vac/dc (1)
Rated current	20 mA
Accuracy	0.1 FS (23°C)
Linearity error	0.02%
Ripple	0.1%
Setting time (accuracy 1%)	200 ms
Temperature coefficient	70 ppm/K
Isolation	1.5 KVac / 60 s (2)
ECM standards	EN 61000-6-2, EN 61000-6-4
Reference Standard	IED 664-1, DIN VDE
Overvoltage category	III
Pollution degree	2
Protection degree	IP 20 IEC 529 EN60529
Operating temperature range	-25…+60°C
Connection terminal	1.5 mm² fixed screw type
Housing material	PPE
Approx. weight	70 g (2.47 oz)
Mounting information	vertical on rail adjacent without gap
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32	—
Plug-in jumper red	—
white	—
blue	—

APPLICATIONS

This module is used to convert a frequancy signal, with either sinusoidal or square waveform, into a standard analog signal (eg. 0…10 V, 0..20 mA, 4…20 mA). A microprocessor provides a high resolution, high stability and accuracy output signal and a dip switch gives the possibility to select a calibrated range of frequency measurement from 0 … 100 Hz up to 0…28.8 kHz.

S2 ● → Switch On

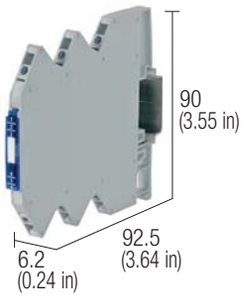
Range*	1	2	3	4	5	6	8
0 – 100Hz	●	●	●	●			
0 – 200Hz	●	●	●		●	●	
0 – 250Hz	●	●			●	●	
0 – 400Hz	●	●	●		●		
0 – 500Hz	●	●			●		
0 – 750Hz		●			●		
0 – 1kHz	●	●				●	
0 – 1.5kHz		●				●	
0 – 2kHz	●	●		●	●	●	
0 – 2.5kHz	●			●	●	●	
0 – 3kHz		●		●	●	●	
0 – 4kHz	●	●		●	●		
Hysteresis	0.5Vpp						
	5Vpp						●

Range*	1	2	3	4	5	6
0 – 5kHz	●			●	●	
0 – 6kHz		●		●	●	
0 – 8kHz	●	●		●		●
0 – 10kHz	●			●		●
0 – 12kHz		●		●		●
0 – 16kHz	●	●				
0 – 20kHz	●					
0 – 24kHz		●				
0 – 28.8kHz						

● → Switch On	S1		
Output	1	2	3
0-10V	●		
0-20mA		●	
4-20mA			●

Auxiliary supply output for sensors and potentiometers

- Stabilized switching converter
- IN 16.8…20 Vdc / 9…11 Vdc 60 mA
- Suitable to feed potentiometers and sensors

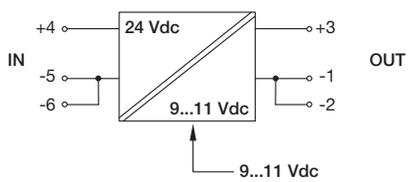


CE

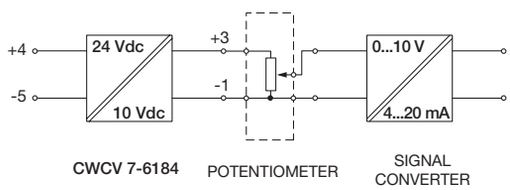
NOTES

The dimensions includes the DIN clamp.
(1) range 16.8…30 Vdc

BLOCK DIAGRAM



EXAMPLE



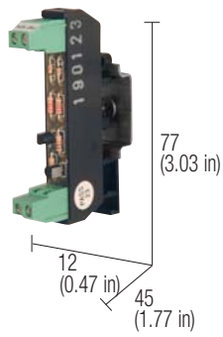
VERSIONS	Cat. No. X766184
With screw connection (standard)	**CWCV 7-6184**
With spring connection	
INPUT TECHNICAL DATA	
Rated voltage	24 Vdc (1)
Current @ Iout max.	30 mA @ 10 Vdc
Protection fuse	T 1 A (external)
OUTPUT TECHNICAL DATA	
Voltage	10 Vdc (9…11 Vdc adjustable)
Maximum current	60 mA
Continuous current	60 mA
Load regulation	< 1%
Ripple @ rated U-I output	≤ 50 mVpp
Overload / short circuit protection	sì
Output signal	yellow LED Power OK
Parallel connection	possible with external diode
GENERAL TECHNICAL DATA	
Operating temperature range	-25...+60°C
Input/output isolation	50 Vac / 60 s
Protection degree	IP 20 IEC529, EN60529
EMC Standards	EN 50081-1, EN 50082-2, EN 61000-3-2
Surge immunity	EN61000-4-2, EN61000-4-4
Connection terminal	1.5 mm² screw type / 1.5 mm² spring type (16 AWG)
Housing material	Noryl UL94V-0
Approx. weight	35 g (1.24 oz)
Mounting information	vertical on rail adjacent without gap
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—
Plug-in jumper red	CWBK 7-0802 Cat. No. X766802
white	CWBK 7-0803 Cat. No. X766803
blue	CWBK 7-0804 Cat. No. X766804

APPLICATIONS

For the highest accuracy of electronic measurements in process control and automation systems, a stable supply source is required to feed reference voltages. Accuracy of position sensors, such as linear or rotary potentiometers, depends greatly on the stability and accuracy of the DC supply of the sensor. For this reason our modules are provided with a calibrated DC output dedicated to feed the sensor for the highest accuracy, and this feature also helps to save space and the cost of an external DC supply source.

NPN and PNP signal polarity inverter

- Converts a NPN sensor in a PNP sensor and vice versa
- Compact design

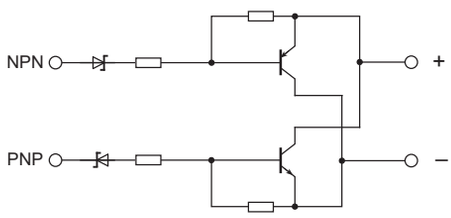


CE

NOTES

The dimensions includes the terminal blocks and the DIN clamp.
(1) range 17...30 Vdc

BLOCK DIAGRAM



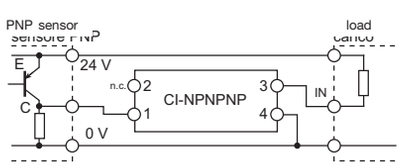
VERSIONS	Cat. No. XNPNPNP
	CI-NPN/PNP
INPUT TECHNICAL DATA	
Input voltage	24 Vdc (1)
Max. current	200 mA
Max. frequency	120 KHz
GENERAL TECHNICAL DATA	
OFF state current	—
ECM standards	EN 61000-6-2, EN 61000-6-4
Reference Standard	IEC 664-1, DIN VDE
Overvoltage category	II
Pollution degree	2
Protection degree	IP 20 IEC 529 EN60529
Operating temperature range	0...55°C
Connection terminal	morsetti a vite 2.5 mm2 fissi
Housing material	Poliammide UL94V-0
Approx. weight	20 g (0.71 oz)
Mounting information	vertical on rail adjacent without gap
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	PR/3/AC, PR/3/AS
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL
Plug-in jumper red	—
white	—
blue	—

APPLICATIONS

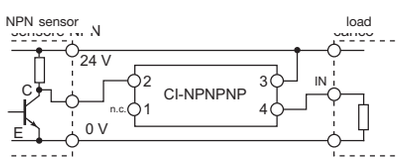
It converts signal form PNP sensors into NPN signal and vice versa. It allows to adapt the PLC inputs to all sensors on the market, regardless of their output polarity, and it is a great help for maintenance and allows in any case a quick replacement of failed sensors when you need a PNP sensor but you have a NPN type.

EXAMPLE

Conversion from PNP to NPN



Conversion from NPN to PNP



Single relay modules quick selection table

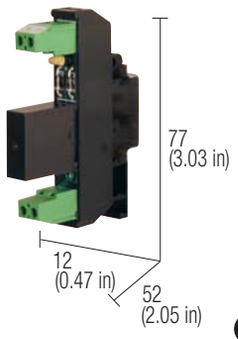
These tables allow you to quickly select only the items, then check if all product's technical data meet your application requirements.

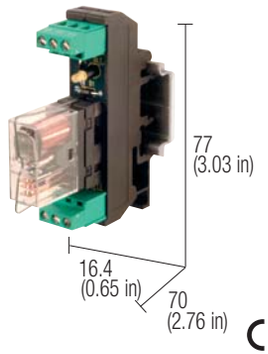
Number of relays	Input rated voltage	Output		Notes	Type	Cat. No.	Page
		type / no. of contacts	rated current				
1	12 Vdc	SPDT	16A	(2)	RF1012D	XRF1012D	102
1	12 Vdc	SPDT	10A	(1)	CM1C012	XCM1C012	103
1	12 Vdc	DPDT	5A	(1)	CM2C012	XCM2C012	104
1	12 Vdc	4PDT	3A	(1)	CM4C012	XCM4C012	105
1	12 Vac	SPDT	10A	(1)	CM1A012	XCM1A012	106
1	12 Vac	DPDT	5A	(1)	CM2A012	XCM2A012	107
1	12 Vac/dc	SPDT	6A	(1)	CWRE7-0848	X766848	110
1	24 Vdc	SPST(NO)	5A	(2)	RFA024D	XRFA024D	101
1	24 Vdc	SPDT	16A	(1)	RE1024D	XRE1024D	101
1	24 Vdc	SPDT	16A	(2)	RF1024D	XRF1024D	101
1	24 Vdc	SPDT	12A	(1)	CM1C024	XCM1C024	103
1	24 Vdc	SPDT	12A	(1)	RE1824D	XRE1824D	101
1	24 Vdc	SPDT	12A	(2)	RF1824D	XRF1824D	101
1	24 Vdc	DPDT	8A	(1)	CM2C024	XCM2C024	104
1	24 Vdc	4PDT	3A	(1)	CM4C024	XCM4C024	105
1	24 Vac/dc	SPDT	6A	(1)	CWRE7-0842	X766842	110
1	24 Vac/dc	SPDT	6A	(2) (3)	CKR16	XCKR16	109
1	24 Vac/dc	DPDT	8A	(1)	RE2024D	XRE2024D	102
2	24 Vac/dc	DPST(NO)	5A	(2)	CKR25	XCKR25	109
1	24 Vac	SPDT	12A	(1)	CM1A024	XCM1A024	106
1	24 Vac	DPDT	8A	(1)	CM2A024	XCM2A024	107
1	48 Vdc	SPDT	10A	(1)	CM1C048	XCM1C048	103
1	48 Vdc	DPDT	5A	(1)	CM2C048	XCM2C048	104
1	48 Vac/dc	SPDT	6A	(1)	CWRE7-0845	X766845	110
1	110 Vdc	SPDT	10A	(1)	CM1C110	XCM1C110	103
1	110 Vdc	DPDT	5A	(1)	CM2C110	XCM2C110	104
1	110...120 Vac/dc	SPDT	6A	(1)	CWRE7-0846	X766846	110
1	120 Vac	SPDT	10A	(1)	CM1A120	XCM1A120	106
1	120 Vac	DPDT	5A	(1)	CM2A120	XCM2A120	107
1	230 Vac	SPDT	6A	(1)	CWRE7-0847	X766847	110
1	230 Vac	SPDT	10A	(1)	CM1A230	XCM1A230	106
1	230 Vac	DPDT	5A	(1)	CM2A230	XCM2A230	107

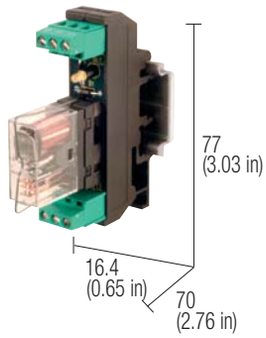
Notes

(1) version with pluggable relay
(2) version with fixed relay
(3) protection fuse on the contact
(4) without LED and protection diode

24 Vdc SPDT single relay
R series





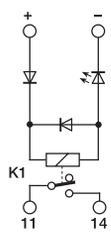


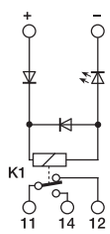
NOTES

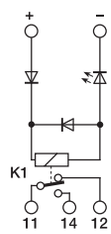
(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical

(2) Version available upon request

BLOCK DIAGRAM

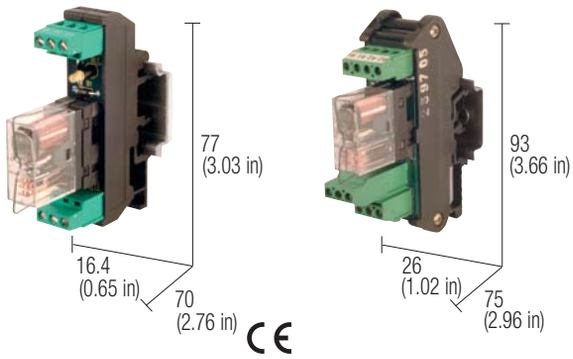






VERSIONS	Cat. No. XRFA024D	Cat. No. XR_1824D	Cat. No. XR_1024D
Pluggable relay	**–**	**RE1824D**	**RE1024D**
Fixed relay	**RFA024D**	**RF1824D**	**RF1024D**
INPUT TECHNICAL DATA			
Rated voltage	**24 Vdc ± 10%**	**24 Vdc ± 10%**	**24 Vdc ± 10%**
Rated current (1 channel)	15 mA ± 10%	22 mA ± 10%	27 mA ± 10%
Turn ON time	15 ms	15 ms	15 ms
Turn OFF time	5 ms	5 ms	5 ms
Protection circuit	damping & polarity protection diode	damping & polarity protection diode	damping & polarity protection diode
OUTPUT TECHNICAL DATA			
Type and number of contacts	SPST(NO) $AgSnO_2$	SPDT $AgSnO_2$	SPDT $AgSnO_2$
Nominal current (resistive load)	5 A / 250 Vac	12 A / 250 Vac	16 A / 250 Vac
Current breaking power	**5 A**	**12 A**	**16 A**
Current of the fuse max.	—	—	—
GENERAL TECHNICAL DATA			
Operating temperature	–10...+50°C	–10...+50°C	–10...+50°C
Coil/contact isolation	2.5 KVac / 60 s	2.5 KVac / 60 s	2.5 KVac / 60 s
Isolation between output terminals	0,5 kVac / 60 s (between open contact)	0,5 kVac / 60 s (between open contact)	0,5 kVac / 60 s (between open contact)
Protection degree	IP 00 IEC529, EN60529	IP 00 IEC529, EN60529	IP 00 IEC529, EN60529
Overvoltage category / pollution degree	III / 2	III / 2	III / 2
Reference Standard	IEC 664-1, DIN VDE 0110.1	IEC 664-1, DIN VDE 0110.1	IEC 664-1, DIN VDE 0110.1
Status display	green LED	green LED	green LED
Connection terminals	2.5 mm² fixed screw type AWG26-14	2.5 mm² fixed screw type AWG26-14	2.5 mm² fixed screw type AWG26-14
Housing material	UL94V-0 plastic material	UL94V-0 plastic material	UL94V-0 plastic material
Approx. weight	30 g (1.07 oz)	44 g (1.55 oz)	44 g (1.55 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap	vertical on rail adjacent without gap
MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**		
Mounting rail type according to IEC60715/G32	**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**		
Replacement relay (1)	Cat. No. 8904000	Cat. No. 8904001	Cat. No. 8904058
Screw type jumper black	—	—	—

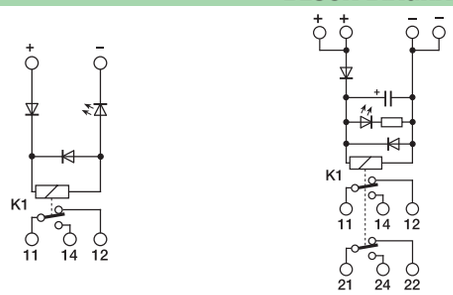
24 Vdc SPDT single relay
R series



NOTES

(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical
(2) Version available upon request

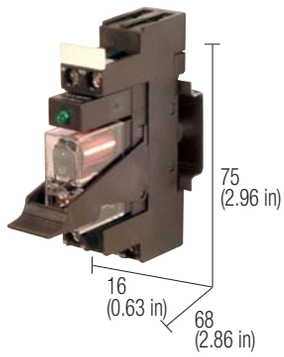
BLOCK DIAGRAM



VERSIONS	Cat. No. XRF1012D	Cat. No. XRE2024D
Pluggable relay	**–**	**RE2024D**
Fixed relay	**RF1012D**	**–**
INPUT TECHNICAL DATA		
Rated voltage	**12 Vdc ± 10%**	**24 Vac / dc ± 10%**
Rated current (1 channel)	44 mA ± 10%	22 mA ± 10%
Turn ON time	15 ms	15 ms
Turn OFF time	5 ms	5 ms
Protection circuit	damping & polarity protection diode	damping & polarity protection diode
OUTPUT TECHNICAL DATA		
Type and number of contacts	SPDT $AgSnO_2$	DPDT $AgSnO_2$
Nominal current (resistive load)	16 A / 250 Vac	8 A / 250 Vac
Current breaking power	**16 A**	**8 A**
Current of the fuse max.	—	—
GENERAL TECHNICAL DATA		
Operating temperature	–10...+50°C	–10...+50°C
Coil/contact isolation	2.5 KVac / 60 s	2.5 KVac / 60 s
Isolation between output terminals	0,5 kVac / 60 s (between open contact)	0,5 kVac / 60 s (between open contact)
Protection degree	IP 20 IEC529, EN60529	IP 00 IEC529, EN60529
Overvoltage category / pollution degree	III / 2	III / 2
Reference Standard	IEC 664-1, DIN VDE 0110.1	IEC 664-1, DIN VDE 0110.1
Status display	green LED	green LED
Connection terminals	2.5 mm² fixed screw type AWG26-14	2.5 mm² fixed screw type AWG26-14
Housing material	UL94V-0 plastic material	UL94V-0 plastic material
Approx. weight	44 g (1.55 oz)	76 g (2.68 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32	**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**	
Replacement relay (1)	Cat. No. 8904032	Cat. No. 8904002
Screw type jumper black	—	—

Single relay DC input series CM

- Pluggable relay
- Mounting on DIN rail or panel through central screw
- Compact dimensions
- Cross and slotted screws
- Screw type jumper available



NOTES

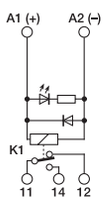
The height dimension includes 35 mm DIN rail.

(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.

(2) On request, there are available versions without signalling and protection circuit; for the order, please add the suffix "Z" to the item code (for example: XCM1C024Z).

(3) On request, there are available versions with gold-plated contact; for the order, please add the suffix "U" to the item code (for example: XCM1C024U).

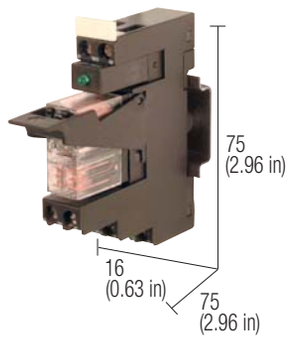
BLOCK DIAGRAM



VERSIONS	Cat. No. XCM1C012	Cat. No. XCM1C024	Cat. No. XCM1C048	Cat. No. XCM1C110
12 Vdc	**CM1C012**			
24 Vdc		**CM1C024**		
48 Vdc			**CM1C048**	
110 Vdc				**CM1C0110**
INPUT TECHNICAL DATA				
Rated voltage	**12 Vdc** ±10%	**24 Vdc** ±10%	**48 Vdc** ±10%	**110 Vdc** ±10%
Rated current (1 channel)	44 mA ±10%	22 mA ±10%	12 mA ±10%	11 mA ±10%
Turn ON time	15 ms	15 ms	15 ms	15 ms
Turn OFF time	5 ms	5 ms	5 ms	20 ms
Protection circuit	damping diode (2)			
OUTPUT TECHNICAL DATA				
Type and number of contacts	SPDT $AgSnO_2$ (3)			
Nominal current (resistive load)	12 A / 250 Vac			
Current breaking power	**12 A**			
Current of the fuse max.	—			
GENERAL TECHNICAL DATA				
Operating temperature range	–10...+50°C			
Coil/contact isolation	4 kVac / 60 s			
Isolation between output terminals	1 kVac / 60 s (between open contact)			
Protection degree	IP 20 IEC 529, EN60529			
Overvoltage category/Pollution degree	III / 2			
Reference Standard	IEC 664-1, DIN VDE 0110.1			
Status display	green LED (2)			
Connection terminal	2.5 mm² fixed screw type AWG26-14			
Housing material	UL94V-0 plastic material			
Approx. weight	54 g (1.90 oz)			
Mounting information	vertical on rail adjacent without gap or panel with screw			
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32	—			
Replacement relay (1)	Cat. No. 8904039	Cat. No. 8904001	Cat. No. 8904008	Cat. No. 8904047
Screw type jumper black	Cat. No. XCMB16B			
white	—			
blue	—			

DPDT single relay DC input series CM

- Pluggable relay
- Mounting on DIN rail or panel through central screw
- Compact dimensions
- Cross and slotted screws
- Screw type jumper available

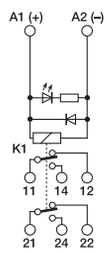


NOTES

The height dimension includes 35 mm DIN rail.

(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.

BLOCK DIAGRAM

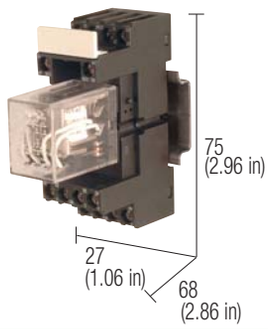


VERSIONS	Cat. No. XCM2C012	Cat. No. XCM2C024	Cat. No. XCM2C048	Cat. No. XCM2C110
12 Vdc	**CM2C012**			
24 Vdc		**CM2C024**		
48 Vdc			**CM2C048**	
110 Vdc				**CM2C0110**
INPUT TECHNICAL DATA				
Rated voltage	**12 Vdc ±10%**	**24 Vdc ±10%**	**48 Vdc ±10%**	**110 Vdc ±10%**
Rated current (1 channel)	44 mA ±10%	22 mA ±10%	24 mA ±10%	11 mA ±10%
Turn ON time	15 ms	15 ms	15 ms	15 ms
Turn OFF time	5 ms	5 ms	5 ms	20 ms
Protection circuit	damping diode			
OUTPUT TECHNICAL DATA				
Type and number of contacts	DPDT $AgSnO_2$			
Nominal current (resistive load)	8 A / 250 Vac			
Current breaking power	**8 A**			
Current of the fuse max.	—			
GENERAL TECHNICAL DATA				
Operating temperature range	–10...+50°C			
Coil/contact isolation	4 kVac / 60 s			
Isolation between output terminals	1 kVac / 60 s (between open contact)			
Protection degree	IP 20 IEC 529, EN60529			
Overvoltage category/Pollution degree	III / 2			
Reference Standard	IEC 664-1, DIN VDE 0110.1			
Status display	green LED			
Connection terminal	2.5 mm² fixed screw type AWG26-14			
Housing material	UL94V-0 plastic material			
Approx. weight	67 g (2.37 oz)			
Mounting information	vertical on rail adjacent without gap or panel with screw			

MOUNTING ACCESSORIES					
Mounting rail type according to IEC60715/TH35-7.5		**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32		—			
Replacement relay	(1)	Cat. No. 8904040	Cat. No. 8904002	Cat. No. 8904009	Cat. No. 8904054
Screw type jumper	black	Cat. No. XCMB16B			
	white	—			
	blue	—			

4PDT single relay DC input series CM

- Pluggable relay
- Mounting on DIN rail or panel through central screw
- Compact dimensions
- Cross and slotted screws
- Screw type jumper available

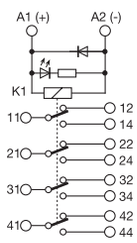


NOTES

The height dimension includes 35 mm DIN rail.

(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.

BLOCK DIAGRAM

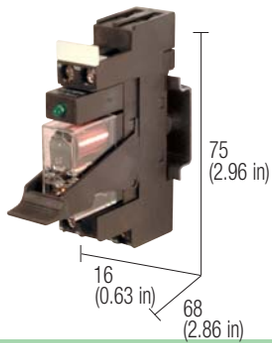


VERSIONS	Cat. No. XCM4C012	Cat. No. XCM4C024	Cat. No. XCM1C048	Cat. No. XCM1C110
12 Vdc	**CM4C012**			
24 Vdc		**CM4C024**		
48 Vdc			—	
110 Vdc				—
INPUT TECHNICAL DATA				
Rated voltage	**12 Vdc ±10%**	**24 Vdc ±10%**		
Rated current (1 channel)	75 mA ±10%	38 mA ±10%		
Turn ON time	20 ms	20 ms		
Turn OFF time	20 ms	20 ms		
Protection circuit	damping diode			
OUTPUT TECHNICAL DATA				
Type and number of contacts	4PDT $AgSnO_2$			
Nominal current (resistive load)	3 A / 250 Vac			
Current breaking power	**3 A**			
Current of the fuse max.	—			
GENERAL TECHNICAL DATA				
Operating temperature range	–10...+50°C			
Coil/contact isolation	4 kVac / 60 s			
Isolation between output terminals	1 kVac / 60 s (between open contact)			
Protection degree	IP 20 IEC 529, EN60529			
Overvoltage category/Pollution degree	III / 2			
Reference Standard	IEC 664-1, DIN VDE 0110.1			
Status display	green LED			
Connection terminal	2.5 mm² fixed screw type AWG26-14			
Housing material	UL94V-0 plastic material			
Approx. weight				
Mounting information	vertical on rail adjacent without gap or panel with screw			

MOUNTING ACCESSORIES					
Mounting rail type according to IEC60715/TH35-7.5		**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32		—			
Replacement relay	(1)	Cat. No. 8904018	Cat. No. 8904030		
Screw type jumper	black	Cat. No. XCMB27B			
	white	—			
	blue	—			

Single relay AC input series CM

- Pluggable relay
- Mounting on DIN rail or panel through central screw
- Compact dimensions
- Cross and slotted screws
- Screw type jumper available

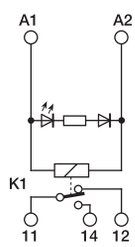


NOTES

The height dimension includes 35 mm DIN rail.

(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.

BLOCK DIAGRAM

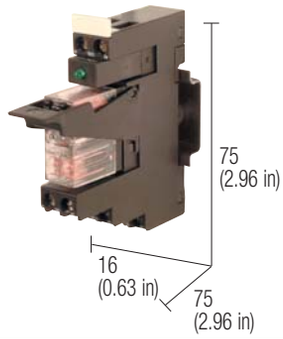


VERSIONS	Cat. No. XCM1A012	Cat. No. XCM1A024	Cat. No. XCM1A120	Cat. No. XCM1A230
12 Vdc	**CM1A012**			
24 Vdc		**CM1A024**		
120 Vdc			**CM1A120**	
230 Vdc				**CM1A230**
INPUT TECHNICAL DATA				
Rated voltage	**12 Vac ±10%**	**24 Vac ±10%**	**120 Vac ±10%**	**230 Vac ±10%**
Rated current (1 channel)	95 mA ±10%	48 mA ±10%	10.5 mA ±10%	6 mA ±10%
Turn ON time	15 ms	15 ms	15 ms	15 ms
Turn OFF time	10 ms	10 ms	10 ms	10 ms
Protection circuit	—			
OUTPUT TECHNICAL DATA				
Type and number of contacts	$SPDT\ AgSnO_2$			
Nominal current (resistive load)	12 A / 250 Vac			
Current breaking power	**12 A**			
Current of the fuse max.	—			
GENERAL TECHNICAL DATA				
Operating temperature range	–10...+50°C			
Coil/contact isolation	4 kVac / 60 s			
Isolation between output terminals	1 kVac / 60 s (between open contact)			
Protection degree	IP 20 IEC 529, EN60529			
Overvoltage category/Pollution degree	III / 2			
Reference Standard	IEC 664-1, DIN VDE 0110.1			
Status display	green LED			
Connection terminal	2.5 mm² fixed screw type AWG26-14			
Housing material	UL94V-0 plastic material			
Approx. weight	54 g (1.91 oz)			
Mounting information	vertical on rail adjacent without gap or panel with screw			

MOUNTING ACCESSORIES					
Mounting rail type according to IEC60715/TH35-7.5		**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32		—			
Replacement relay	(1)	Cat. No. 8904016	Cat. No. 8904048	Cat. No. 8904049	Cat. No. 8904050
Screw type jumper	black	XCMB16B			
	white	—			
	blue	—			

DPDT single relay AC input series CM

- Pluggable relay
- Mounting on DIN rail or panel through central screw
- Compact dimensions
- Cross and slotted screws
- Screw type jumper available

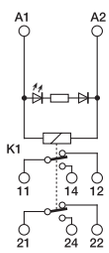


NOTES

The height dimension includes 35 mm DIN rail.

(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.

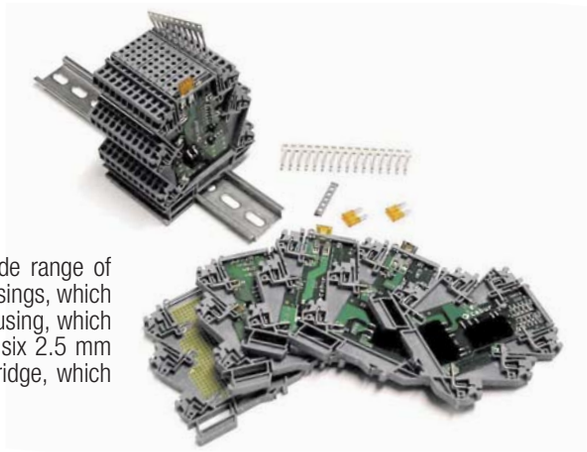
BLOCK DIAGRAM



VERSIONS	Cat. No. XCM2A012	Cat. No. XCM2A024	Cat. No. XCM2A120	Cat. No. XCM2A230
12 Vac	**CM2A012**			
24 Vac		**CM2A024**		
120 Vac			**CM2A120**	
230 Vac				**CM2A230**
INPUT TECHNICAL DATA				
Rated voltage	**12 Vac ±10%**	**24 Vac ±10%**	120 Vac ±10%	230 Vac ±10%
Rated current (1 channel)	95 mA ±10%	48 mA ±10%	10.5 mA ±10%	6 mA ±10%
Turn ON time	15 ms	15 ms	15 ms	15 ms
Turn OFF time	10 ms	10 ms	10 ms	10 ms
Protection circuit	—			
OUTPUT TECHNICAL DATA				
Type and number of contacts	DPDT $AgSnO_2$			
Nominal current (resistive load)	8 A / 250 Vac			
Current breaking power	**8 A**			
Current of the fuse max.	—			
GENERAL TECHNICAL DATA				
Operating temperature range	–10...+50°C			
Coil/contact isolation	4 kVac / 60 s			
Isolation between output terminals	1 kVac / 60 s (between open contact)			
Protection degree	IP 20 IEC 529, EN60529			
Overvoltage category/Pollution degree	III / 2			
Reference Standard	IEC 664-1, DIN VDE 0110.1			
Status display	green LED			
Connection terminal	2.5 mm² fixed screw type AWG26-14			
Housing material	UL94V-0 plastic material			
Approx. weight	67 g (2.37 oz)			
Mounting information	vertical on rail adjacent without gap or panel with screw			

MOUNTING ACCESSORIES					
Mounting rail type according to IEC60715/TH35-7.5		**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**			
Mounting rail type according to IEC60715/G32		—			
Replacement relay	(1)	Cat. No. 8904017	Cat. No. 8904055	Cat. No. 8904056	Cat. No. 8904057
Screw type jumper	black	Cat. No. XCMB16B			
	white	—			
	blue	—			

CK system interface



The series is a collection of interfaces for sensors and actuators, is composed by a wide range of electromechanical relay and solid state relay modules and passive interfaces in modular housings, which are only 6 mm wide thus saving valuable space. All products are mounted inside the CK housing, which is also available for use as a housing for custom. The CK housing can be equipped with six 2.5 mm spring-clamp terminals and four contacts for the insertion of a PTC parallel connection bridge, which provides for quick and easy circuit bridging and saves space and harness time.

The product range is currently composed by:

- Single electromechanical relay with 6 A/250 Vac SPDT protected with replaceable fuse, status Led display on front panel, AC/DC input and positive or negative common on relay coil.
- Double electromechanical relay with 5 A/250 Vac SPST (NO), two status LED displays on front panel, AC/DC input and positive or negative common on relay coil.
- Single solid state relay for common negative load, 5 A /48 Vdc output current, protected with replaceable fuse, status LED display on front panel and positive or negative common on input.
- Double solid state relay suitable for 12-24 Vdc 2.5 A loads, status LED display on front panel and positive or negative common of the input and output as well.
- Diode-holder modules with common anode (CK…AC) or common cathode (CK…CC).
- Lamp and LED test modules.
- Supply connection and distribution modules with LED display.

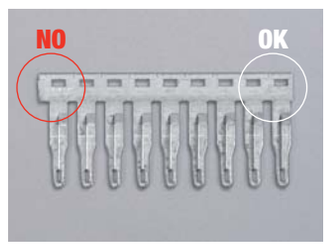
Composition of an interface with the CK System:

- The required modules must be selected and mounted on the DIN rail.
- The common poles of inputs and outputs can be connected in parallel using the fast connection bridges **PTC/CK/42**.
- For the connection of inputs and outputs of the relay module interface, we recommend to use the **CKF** supply distribution module: it allows to connect and distribute the feeding potential to inputs and outputs on all adjacent modules; the CKF module can be mounted as first module, or even better, in the middle position of the interfaces assembly, to divide 50+50% the current on the bridge and to reduce voltage drop and heating; the CKF- - is available with LED for ON display, and is equipped with four 2.5 mm / AWG 26 ÷ 14 / 24 A rated spring-clamp terminals - input and output.
- In order to assure the IP XXB protection degree, the last module must be protected and insulated using the **CK/PT** end section.
- Main technical data and BLOCK DIAGRAM are printed on one side of each module; for individual terminal block marking, CNU/8 marking tags are available;CNU/8 marking tags are available in blank format for pen or plotter marking, or with the Cabur Jet marking printer.
- If the input and output power supply cables of the interface assembly are directly connected to eg. the first module, two cables must be connected on a single terminal block (feeding wire and load wire) forcing to reduce the cross-section of each conductor to less than 2,5 mm^2; consequently, this means a current and a reduction of the total number of relay modules that can be fed; the problem can be solved by using the CKF feeder distribution module as described in the third point.

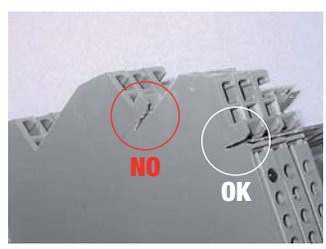
Easy Bridge system

The fast connection bridge **PTC/CK/42** has 42 poles, and a rated current of 32 A; WARNING: the total current is limited by the rated current of the spring-clamp terminal block (24 A): if a PTC/CK serves 10 relays, a rated current of 2,4 A can be distributed on to each relay.
The use of PTC/CK bridges is simple and cost effective; the following instructions must be followed:

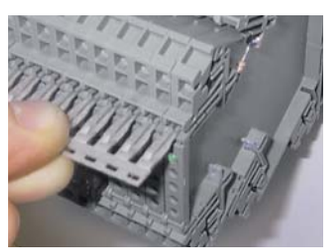
- after having cut the PTC/CK/42-pole bar according to required number of poles, in order to maintain the IPXXB protection degree the bar must be sheared in proximity of the end poles (see pictures 1 and 2);
- insert the jumper in the slot of the CK terminals (see picture 3);
- by using the blade of a screwdriver, the PTC bridge must be pushed down until it snaps into the female contacts; in case of long jumpers, the operation shall be started by pushing the bridge in the middle, then gradually on left / right sides; the jumper will then result completely IPXXB insulated (see picture 4);
- to remove the jumper, the blade of a screwdriver shall be inserted into the slot provided in the upper side of the PTC bridge, then lifted up and finally extracted; in case of long jumpers, the bridge shall be lifted in the middle, then gradually on left / right sides (pictures 5 and 6).

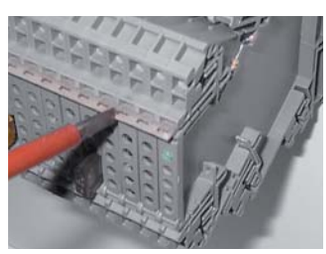


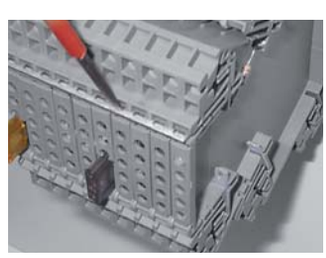
1

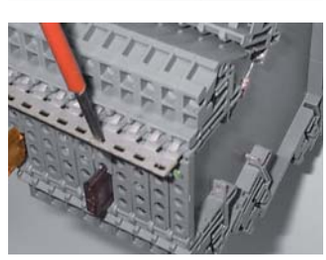


2


3

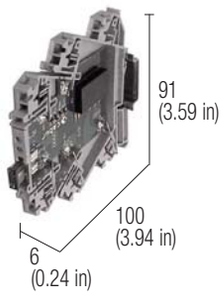

4

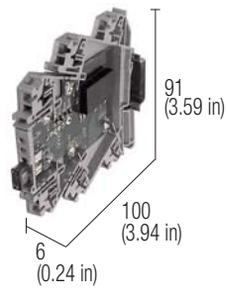

5


6

24 Vdc relay modules
CKR series

- Built-in replaceable contact protection fuse
- AC/DC common negative or positive input
- Status LED display, reverse polarity protection, crow-bar diode
- 6 mm wide
- Plug-in jumper available





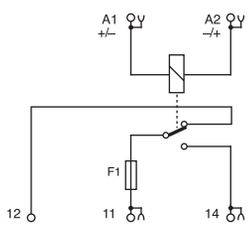
NOTES

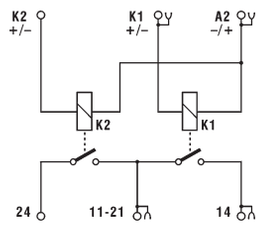
(1) The contact rated voltage is 250 Vac; max operating voltage of the contact of the module is 50 Vac-Vdc, limited by the voltage ratings of the adopted type of fuse, which is rated for ≤50 Vac-75 Vdc SELV voltages; WARNING: if used with higher voltage, it does not guarantee breaking power and thus safety, and IP protection degree is lowered to IP 00; fuses with higher current ratings are not allowed and do not protect the contact against short circuit and overcurrents

(2) Version available upon request.

(3) In order to assure the IP20 protection degree, the last module must be protected and insulated using the CK/PT end section.

BLOCK DIAGRAM

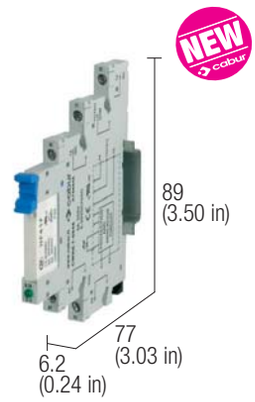




VERSIONS	Cat. No. XCKR16	Cat. No. XCKR25
1 channel	**CKR16**	**—**
2 channels	**—**	**CKR25**
INPUT TECHNICAL DATA		
Rated voltage	**24 Vac/dc ± 10%**	**24 Vac/dc ±10%**
Rated current (1 channel)	≤15 mA ± 10% @ 24 Vdc	≤13 mA ±10% @ 24 Vdc
Turn ON time	5 ms	5 ms
Turn OFF time	10 ms	10 ms
Protection circuit	bridge rectifier	bridge rectifier
OUTPUT TECHNICAL DATA		
Type and number of contacts	SPDT $AgSnO_2$	2PST (NO) $AgSnO_2$
Nominal current (resistive load)	6 A / 250 Vac	5 A / 250 Vac
Current breaking power	**30 A**	**30 A**
Current of the fuse max.	—	—
GENERAL TECHNICAL DATA		
Operating temperature	-20…+60°C	-20…+60°C
Coil/contact isolation	3 KVac / 60 s	3 KVac / 60 s
Isolation between output terminals		
Protection degree	IP 20 IEC529, EN60529	IP 00 IEC529, EN60529
Overvoltage category / pollution degree	II / 2	II / 2
Reference Standard	IEC 664-1, DIN VDE 0110.1	IEC 664-1, DIN VDE 0110.1
Status display	green LED	green LED
Connection terminals	2.5 mm² AWG26-14 fixed spring type	2.5 mm² AWG26-14 fixed spring type
Housing material	polyamide UL94V-0	polyamide UL94V-0
Approx. weight	40 g (1.41 oz)	43 g (1,52 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap
Mounting information		
ACCESSOIRES DE MONTAGE		
Mounting rail type according to IEC60715/TH35	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	
Mounting rail type according to IEC60715/G32	—	
Replacement relay (1)	—	—
Plug-in jumper —	Cat. No. PTCCK42 (42 poles)	Cat. No. PTCCK42 (42 poles)
Marking tags blank	Cat. No. NU0851	Cat. No. NU0851
End plate	Cat. No. XCKPT	Cat. No. XCKPT

Relay modules AC/DC input series CWRE

- Pluggable relay
- Status LED display
- 6.2 mm wide
- Plug-in jumper available



NOTES

The height dimension includes 35 mm DIN rail.

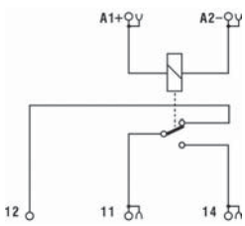
(1) Version available upon request; for information call our sales department, local agent or representative.

(2) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.

APPLICAZIONI

The CWRE series is suitable for the commutation of signals and is equipped with a pull-out relay to make the maintenance operations easy. Furthermore this series offers the possibility to execute the parallel on both the input and output side by the means of a proper comb jumper.

BLOCK DIAGRAM



VERSIONS	Cat. No. X766848	Cat. No. X766842	Cat. No. X766845	Cat. No. X766846	Cat. No. X766847
12 Vac/dc	CWRE7-0848				
24Vac/dc		CWRE7-0842			
48 Vac/dc (1)			CWRE7-0845 (1)		
115 Vac/dc				CWRE7-0846	
230 Vac/dc					CWRE7-0847
INPUT TECHNICAL DATA					
Rated voltage	**12 Vac/dc ±10%**	**24 Vac/dc ±10%**	**48 Vac/dc ±10%**	**115 Vac/dc ±10%**	**230 Vac/dc ±10%**
Rated current (1 channel)	10 mA ±10%	7 mA ±10%	5 mA ±10%	4 mA ±10%	4 mA ±10%
Turn ON time	8 ms	8 ms	7 ms	8 ms	8 ms
Turn OFF time	5 ms	5 ms	7 ms	13 ms	13 ms
Protection circuit	bridge rectifier				
OUTPUT TECHNICAL DATA					
Type and number of contacts	SPDT $AgSnO_2$ (3)				
Nominal current (resistive load)	6 A / 250 Vac ; 6 A / 30 Vdc				
Current breaking power	**DC 13: 24 V / 1A; 115V / 200 mA; 230 V / 100 mA**				
Current of the fuse max.	—				
GENERAL TECHNICAL DATA					
Operating temperature	–40...+70°C				
Coil/contact isolation	4 kVac / 60 s				
Isolation between output terminals	1 kVac / 60 s (between open contact)				
Protection degree	IP 20 IEC 529, EN60529				
Overvoltage category / pollution degree	III / 2				
Reference Standard	IEC 664.1, DIN VDE 0110.1				
Status display	green LED				
Connection terminals	2.5 mm² fixed screw type AWG26-14				
Housing material	UL94V-0 plastic material				
Approx. weight	35 g (1.23 oz)				
Mounting information	vertical on rail adjacent without gap				
MOUNTING ACCESSORIES					
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**				
Mounting rail type according to IEC60715/G32	—				
Replacement relay (2)		Cat. No. 8904027			
Plug-in jumper black	—				
white	—				
blue	CWBK7-0813 (Cat. No. X766813) (20 poli)				

Multiple relay modules quick selection table

These tables allow you to quickly select only the items, then check if all product's technical data meet your application requirements.

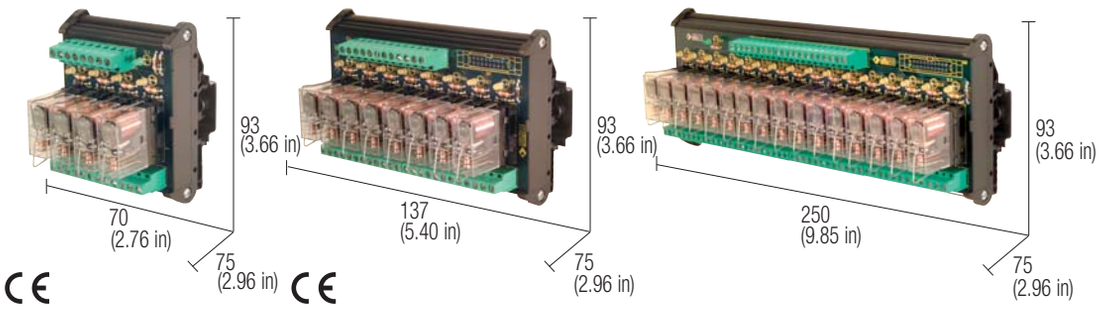
Number of relays	Input rated voltage	Output type / no. of contacts	Rated current	Notes	Type	Cat. No.	Page
4	24 Vdc	SPDT	12 A	(1) (4)	R41E24	XR041E24	113
8	24 Vdc	SPDT	12 A	(1) (4)	R81E24	XR081E24	113
16	24 Vdc	SPDT	12 A	(1) (4)	R161E24	XR161E24	113
4	24 Vac/dc	SPDT	12 A	(1) (6)	R41EAD	XR041EAD	114
8	24 Vac/dc	SPDT	12 A	(1) (6)	R81EAD	XR081EAD	114
16	24 Vac/dc	SPDT	12 A	(1) (6)	R161EAD	XR161EAD	114
4	24 Vac/dc	SPDT	12 A	(1) (6) (8)	R41U24F	XR041U24F	115
8	24 Vac/dc	SPDT	12 A	(1) (6) (8)	R81U24F	XR081U24F	115
16	24 Vac/dc	SPDT	12 A	(1) (6) (8)	R161U24F	XR161U24F	115
4	24 Vdc	DPDT	8 A	(1) (4)	R42E24	XR042E24	116
8	24 Vdc	DPDT	8 A	(1) (4)	R82E24	XR082E24	116
16	24 Vdc	DPDT	8 A	(1) (4)	R162E24	XR162E24	116
4	24 Vac/dc	DPDT	8 A	(1) (6)	R42EAD	XR042EAD	118
8	24 Vac/dc	DPDT	8 A	(1) (6)	R82EAD	XR082EAD	118
16	24 Vac/dc	DPDT	8 A	(1) (6)	R162EAD	XR162EAD	118
8	24 Vac/dc	SPDT	12 A	(1) (6) (9) (10)	RMP081CM	XRMP081CM	119
4	110 Vdc/120 Vac	SPDT	10 A	(1) (6)	R41E11A	XR041E1A	120
8	110 Vdc/120 Vac	SPDT	10 A	(1) (6)	R81E11A	XR081E1A	120
16	110 Vdc/120 Vac	SPDT	10 A	(1) (6)	R161E11A	XR161E1A	120
4	230 Vac	SPDT	10 A	(1) (6)	R41E22A	XR041E2A	121
8	230 Vac	SPDT	10 A	(1) (6)	R81E22A	XR081E2A	121
16	230 Vac	SPDT	10 A	(1) (6)	R161E22A	XR161E2A	121
4	24 Vac/dc	SPDT	8 A	(2) (6)	CR4-1	XCR41	122
4	24 Vac/dc	SPDT	8 A	(1) (6)	CRE4-1	XCRE41	122
8	24 Vac/dc	SPST(NO)	8 A	(1) (6)	CRE8-1	XCRE81	122
8	24 Vac/dc	SPST(NO)	8 A	(2) (6)	CR8-1	XCR81	122
4	24 Vac/dc	DPDT	8 A	(2) (6)	CR4-2SC	XCR42SC	123
4	24 Vac/dc	DPDT	8 A	(1) (6)	CRE4-2SC	XCRE42SC	123

Note

(1) version with pluggable relay
(2) version with fixed relay
(3) with socket but without relay
(4) negative common, positive command
(5) positive common, negative command
(6) universal control voltage, negative DC command, positive DC, AC
(7) with connector input command
(8) with protection fuse on the relay contact
(9) with test push button
(10) with test switch

24 Vdc SPDT relay modules negative common

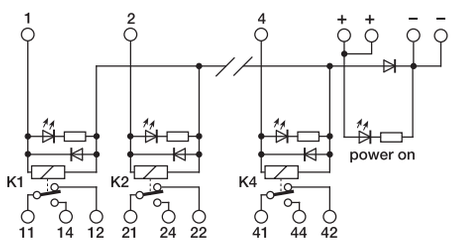
- DC control voltage
- Negative control voltage
- Status LED display
- Pluggable relay



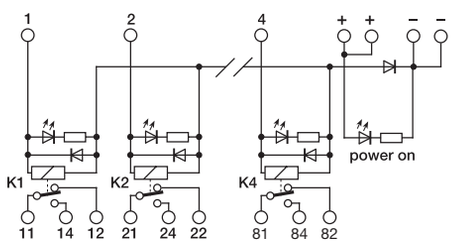
NOTES

The height dimension includes 35 mm DIN rail.
(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical

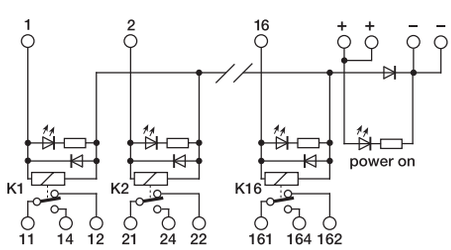
BLOCK DIAGRAM



4 relay module



8 relay module



16 relay module

VERSIONS	Cat. No. XR041E24	Cat. No. XR081E24	Cat. No. XR161E24
4 relay module	**R41E24**		
8 relay module		**R81E24**	
16 relay module			**R161E24**

INPUT TECHNICAL DATA	
Rated voltage	24 Vdc ± 10%
Rated current (1 channel)	22 mA ± 10%
Turn ON time	15 ms
Turn OFF time	5 ms
Protection circuit	damping & polarity protection diode

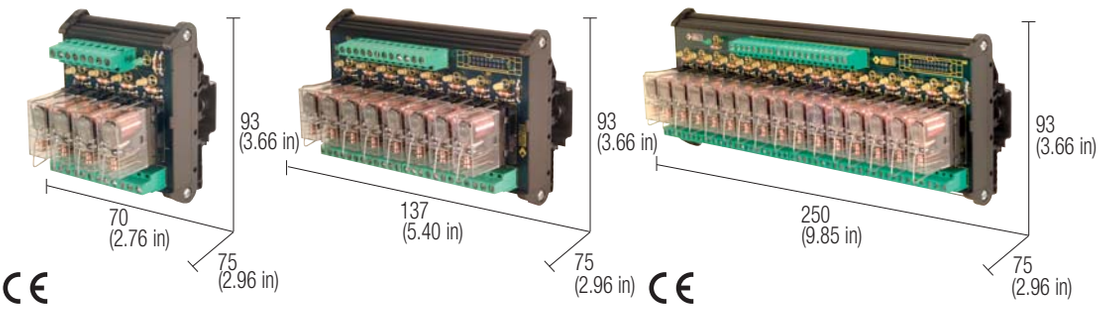
OUTPUT TECHNICAL DATA	
Type and number of contacts	SPDT $AgSnO_2$
Nominal load (resistive)	12 A / 250 Vac
Current breaking power	12 A
Current of the fuse max.	—

GENERAL TECHNICAL DATA			
Operating temperature range	-10...+50°C		
Coil/contact isolation	2.5 KVac / 60 s		
Isolation between output terminals	1 KVac / 60 s (between open contact)		
Protection degree	IP 20 IEC 529, EN60529		
Overvoltage category / Pollution degree	III / 2		
Reference Standard	IEC 664-1, DIN VDE 0110.1		
Status display	green LED / yellow LED		
Connection terminal	2.5 mm² fixed screw type		
Housing material	UL94V-0 plastic material		
Approx. weight	188 g (6.63 oz)	342 g (12.06 oz)	657 g (23,17 oz)
Mounting information	vertical on rail adjacent without gap		

MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35		PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32		PR/DIN/AC - PR/DIN/AS - PR/DIN/AL
Replacement relay (1)		Cat. No. 8904001
Screw type jumper	red	—
	white	—
	blue	—

24 Vdc SPDT relay modules positive common

- DC control voltage
- Positive control voltage
- Status LED display
- Pluggable relay

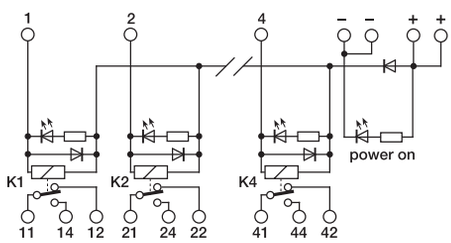


NOTES

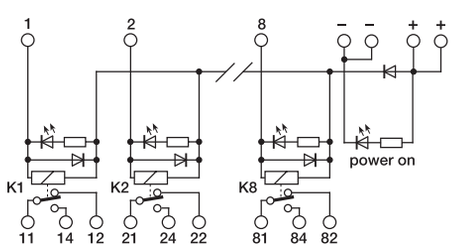
The height dimension includes 35 mm DIN rail.
(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical

Article available until sell-out
XR041E24P will be replaced by XR041EAD
XR081E24P will be replaced by XR081EAD
XR161E24P will be replaced by XR161EAD

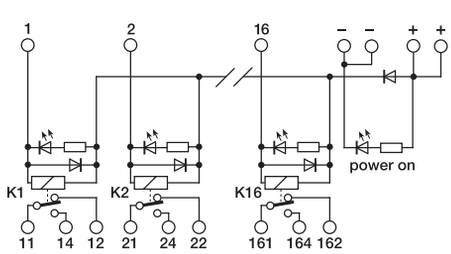
BLOCK DIAGRAM



4 relay module



8 relay module

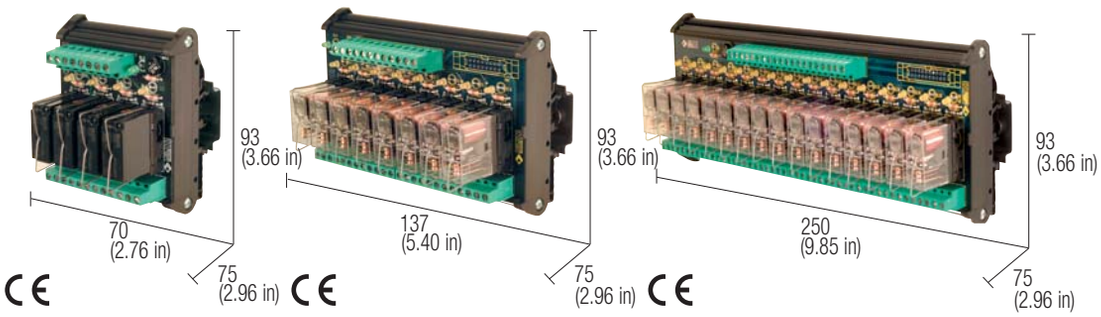


16 relay module

VERSIONS	Cat. No. XR041E24P	Cat. No. XR081E24P	Cat. No. XR161E24P
4 relay module	**R41E24P**		
8 relay module		**R81E24P**	
16 relay module			**R161E24P**
INPUT TECHNICAL DATA			
Rated voltage	24 Vdc ± 10%		
Rated current (1 channel)	22 mA ± 10%		
Turn ON time	15 ms		
Turn OFF time	5 ms		
Protection circuit	damping & polarity protection diode		
OUTPUT TECHNICAL DATA			
Type and number of contacts	SPDT $AgSnO_2$		
Nominal load (resistive)	12 A / 250 Vac		
Current breaking power	12 A		
Current of the fuse max.	—		
GENERAL TECHNICAL DATA			
Operating temperature range	-10...+50°C		
Coil/contact isolation	2.5 KVac / 60 s		
Isolation between output terminals	1 KVac / 60 s (between open contact)		
Protection degree	IP 00 IEC 529, EN60529		
Overvoltage category / Pollution degree	III / 2		
Reference Standard	IEC 664-1, DIN VDE 0110.1		
Status display	green LED / yellow LED		
Connection terminal	2.5 mm² fixed screw type		
Housing material	UL94V-0 plastic material		
Approx. weight	188 g (6.63 oz)	342 g (12.06 oz)	657 g (23,17 oz)
Mounting information	vertical on rail adjacent without gap		
MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB		
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL		
Replacement relay (1)	Cat. No. 8904001		
Screw type jumper red	—		
white	—		
blue	—		

24 Vac/dc SPDT relay modules universal control voltage

- DC and AC control voltage
- Positive or negative control voltage
- Status LED display
- Pluggable relay



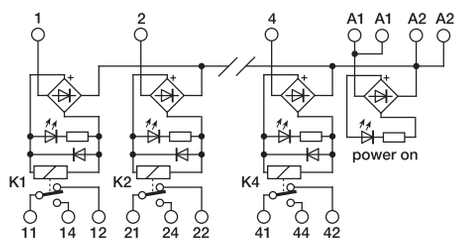
NOTES

The height dimension includes 35 mm DIN rail.
(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical
(2) Version available upon request.

POWER SUPPLY

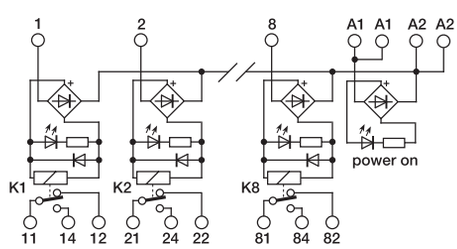
A1 = +	A2 = –	negative common
A1 = –	A2 = +	positive common
A1 = ~	A2 = ~	AC power supply

BLOCK DIAGRAM

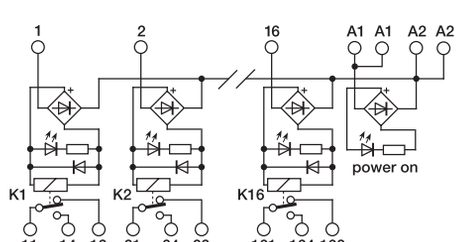


4 relay module

VERSIONS	Cat. No. XR041EAD	Cat. No. XR081EAD	Cat. No. XR161EAD
4 relay module	**R41EAD**		
8 relay module		**R81EAD**	
16 relay module			**R161EAD**
INPUT TECHNICAL DATA			
Rated voltage	24 Vac/dc ± 10%		
Rated current (1 channel)	22 mA ± 10%		
Turn ON time	15 ms		
Turn OFF time	5 ms		
Protection circuit	bridge rectifier		
OUTPUT TECHNICAL DATA			
Type and number of contacts	SPDT $AgSnO_2$		
Nominal load (resistive)	12 A / 250 Vac		
Current breaking power	12 A		
Current of the fuse max.	—		
GENERAL TECHNICAL DATA			
Operating temperature range	-10...+50°C		
Coil/contact isolation	2.5 KVac / 60 s		
Isolation between output terminals	1 KVac / 60 s (between open contact)		
Protection degree	IP 00 IEC 529, EN60529		
Overvoltage category / Pollution degree	III / 2		
Reference Standard	IEC 664-1, DIN VDE 0110.1		
Status display	green LED / yellow LED		
Connection terminal	2.5 mm² fixed screw type		
Housing material	UL94V-0 plastic material		
Approx. weight	192 g (6.76 oz)	345 g (12.18 oz)	688 g (24.29 oz)
Mounting information	vertical on rail adjacent without gap		
MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB		
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL		
Replacement relay (1)	Cat. No. 8904001		
Screw type jumper red	—		
white	—		
blue	—		



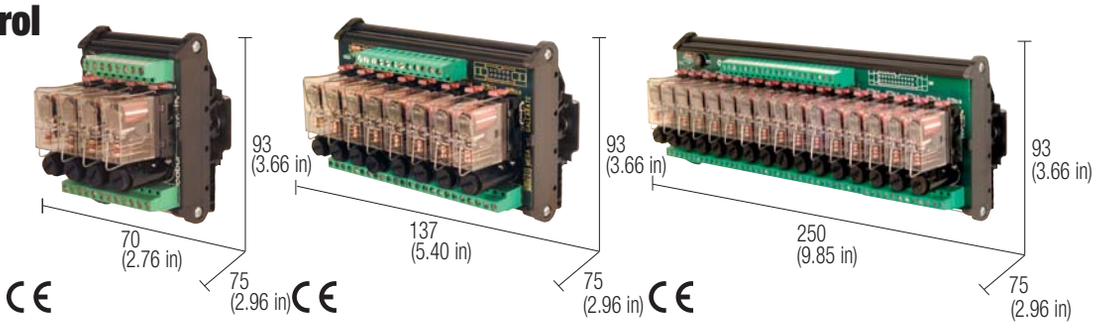
8 relay module



16 relay module

24 Vac/dc SPDT relay modules universal control voltage with fuse

- DC and AC control voltage
- Positive or negative control voltage
- Status LED display
- Pluggable relay
- Output contact with protection fuse



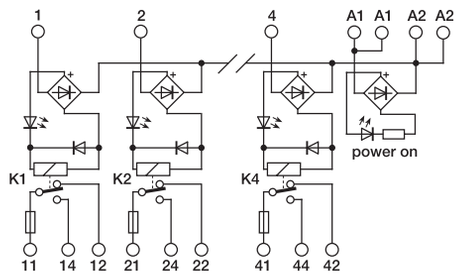
NOTES

The height dimension includes 35 mm DIN rail. (1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical. (2) The interface is supplied without a fuse and the screw plug of the fuse-holder is provided in a bag inside the packaging. The fuse must be dimensioned according to load. The max. value of 6.3 A is referred to EN60127-complying fuses and the homologation rated current of the fuseholder. Fuses of a higher value may damage the fuse-holder and module.

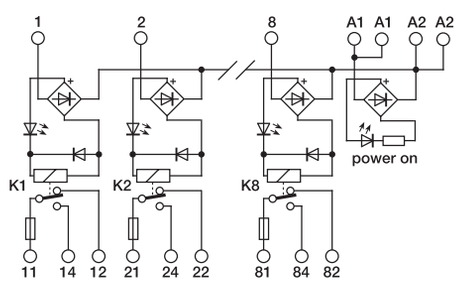
POWER SUPPLY

A1 = +	A2 = –	negative common
A1 = –	A2 = +	positive common
A1 = ~	A2 = ~	AC power supply

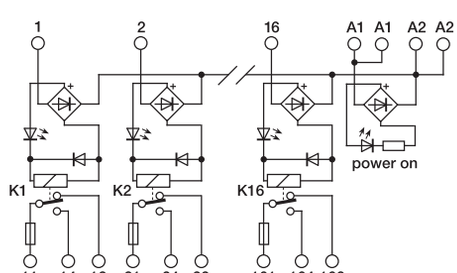
BLOCK DIAGRAM



4 relay module



8 relay module

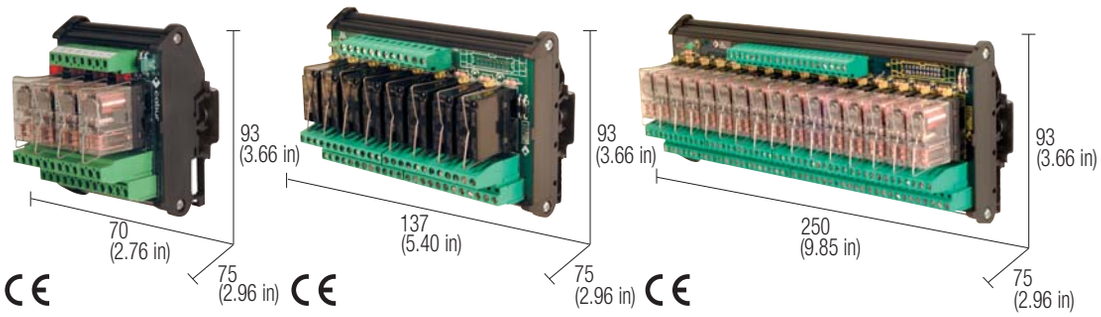


16 relay module

VERSIONS	Cat. No. XR041U24F	Cat. No. XR081U24F	Cat. No. XR161U24F
4 relay module	**R41U24F**		
8 relay module		**R81U24F**	
16 relay module			**R161U24F**
INPUT TECHNICAL DATA			
Rated voltage	24 Vac/dc ± 10%		
Rated current (1 channel)	22 mA ± 10%		
Turn ON time	15 ms		
Turn OFF time	10 ms		
Protection circuit	bridge rectifier		
OUTPUT TECHNICAL DATA			
Type and number of contacts	SPDT $AgSnO_2$ per 4 relé		
Nominal load (resistive)	12 A / 250 Vac		
Current breaking power	12 A		
Current of the fuse max.	6,3 A (2)		
GENERAL TECHNICAL DATA			
Operating temperature range	-10...+50°C		
Coil/contact isolation	2.5 KVac / 60 s		
Isolation between output terminals	1 KVac / 60 s (between open contact)		
Protection degree	IP 00 IEC 529, EN60529		
Overvoltage category / Pollution degree	III / 2		
Reference Standard	IEC 664-1, DIN VDE 0110.1		
Status display	green LED / yellow LED		
Connection terminal	2.5 mm² fixed screw type		
Housing material	UL94V-0 plastic material		
Approx. weight	210 g (7.41 oz)	326 g (11.51 oz)	770 g (27.18 oz)
Mounting information	vertical on rail adjacent without gap		
MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB		
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL		
Replacement relay (1)	Cat. No. 8904001		
Screw type jumper red	—		
white	—		
blue	—		

24 Vdc DPDT relay modules negative common

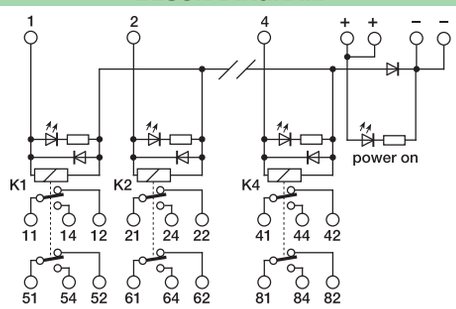
- DC control voltage
- Negative control voltage
- Status LED display
- Pluggable relay



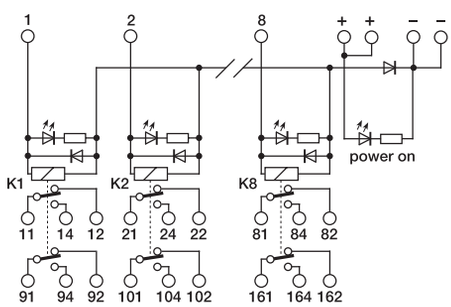
NOTES

The height dimension includes 35 mm DIN rail.
(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.

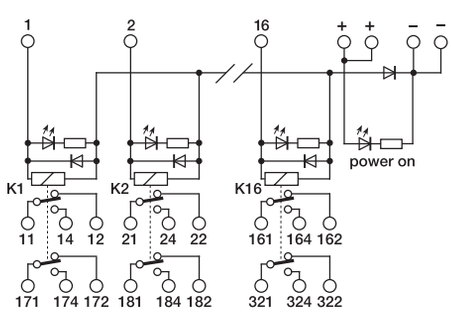
BLOCK DIAGRAM



4 relay module



8 relay module



16 relay module

VERSIONS	Cat. No. XR042E24	Cat. No. XR082E24	Cat. No. XR162E24
4 relay module	**R42E24**		
8 relay module		**R82E24**	
16 relay module			**R162E24**

INPUT TECHNICAL DATA	
Rated voltage	24 Vdc ± 10%
Rated current (1 channel)	22 mA ± 10%
Turn ON time	15 ms
Turn OFF time	10 ms
Protection circuit	damping & polarity protection diode

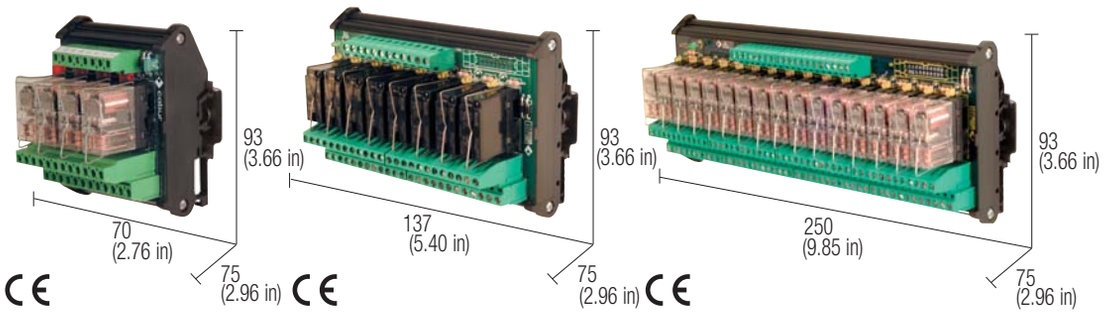
OUTPUT TECHNICAL DATA	
Type and number of contacts	DPDT AgNi
Nominal load (resistive)	8 A / 250 Vac
Current breaking power	8 A
Current of the fuse max.	—

GENERAL TECHNICAL DATA			
Operating temperature range	-10...+50°C		
Coil/contact isolation	2.5 KVac / 60 s		
Isolation between output terminals	1 KVac / 60 s (between open contact)		
Protection degree	IP 00 IEC 529, EN60529		
Overvoltage category / Pollution degree	III / 2		
Reference Standard	IEC 664-1, DIN VDE 0110.1		
Status display	green LED / yellow LED		
Connection terminal	2.5 mm² fixed screw type		
Housing material	UL94V-0 plastic material		
Approx. weight	225 g (7.94 oz)	419 g (14.78 oz)	811 g (28.60 oz)
Mounting information	vertical on rail adjacent without gap		

MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35		PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32		PR/DIN/AC - PR/DIN/AS - PR/DIN/AL
Replacement relay (1)		Cat. No. 8904002
Screw type jumper	red	—
	white	—
	blue	—

24 Vdc DPDT relay modules positive common

- DC control voltage
- Positive control voltage
- Status LED display
- Pluggable relay

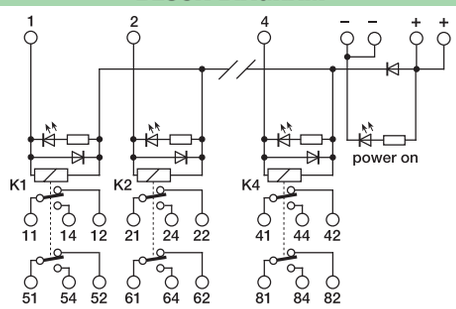


NOTES

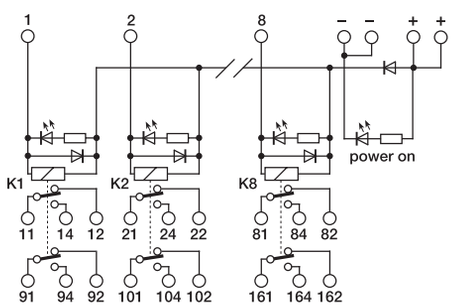
The height dimension includes 35 mm DIN rail.
(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.

Article available until sell-out
XR042E24P will be replaced by XR042EAD
XR082E24P will be replaced by XR082EAD
XR162E24P will be replaced by XR162EAD

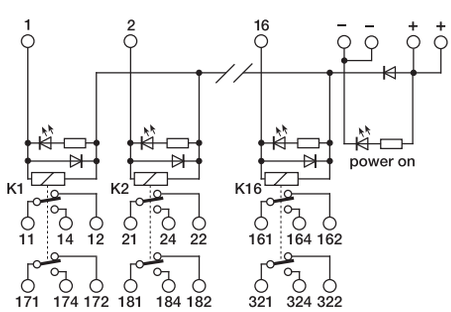
BLOCK DIAGRAM



4 relay module



8 relay module



16 relay module

VERSIONS	Cat. No. XR042E24P	Cat. No. XR082E24P	Cat. No. XR162E24P
4 relay module	**R42E24P**		
8 relay module		**R82E24P**	
16 relay module			**R162E24P**

INPUT TECHNICAL DATA	
Rated voltage	24 Vdc ± 10%
Rated current (1 channel)	22 mA ± 10%
Turn ON time	15 ms
Turn OFF time	5 ms
Protection circuit	damping & polarity protection diode

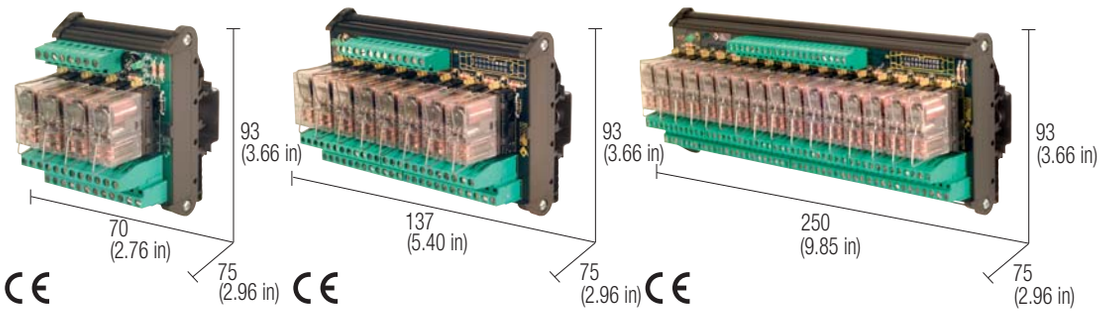
OUTPUT TECHNICAL DATA	
Type and number of contacts	DPDT AgNi
Nominal load (resistive)	8 A / 250 Vac
Current breaking power	8 A
Current of the fuse max.	—

GENERAL TECHNICAL DATA			
Operating temperature range	-10...+50°C		
Coil/contact isolation	2.5 KVac / 60 s		
Isolation between output terminals	1 KVac / 60 s (between open contact)		
Protection degree	IP 00 IEC 529, EN60529		
Overvoltage category / Pollution degree	III / 2		
Reference Standard	IEC 664-1, DIN VDE 0110.1		
Status display	green LED / yellow LED		
Connection terminal	2.5 mm² fixed screw type		
Housing material	UL94V-0 plastic material		
Approx. weight	225 g (7.94 oz)	419 g (14.78 oz)	811 g (28.60 oz)
Mounting information	vertical on rail adjacent without gap		

MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35		PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32		PR/DIN/AC - PR/DIN/AS - PR/DIN/AL
Replacement relay (1)		Cat. No. 8904002
Screw type jumper	red	—
	white	—
	blue	—

24 Vac/dc DPDT relay modules universal control voltage

- DC and AC control voltage
- Positive or negative control voltage
- Status LED display
- Pluggable relay



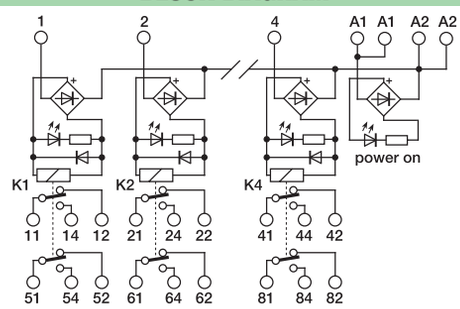
NOTES

The height dimension includes 35 mm DIN rail.
(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.
(2) Version available upon request.

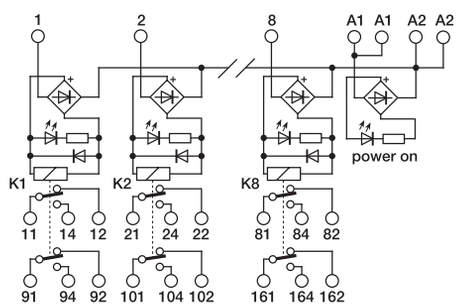
POWER SUPPLY

A1 = +	A2 = –	negative common
A1 = –	A2 = +	positive common
A1 = ~	A2 = ~	AC power supply

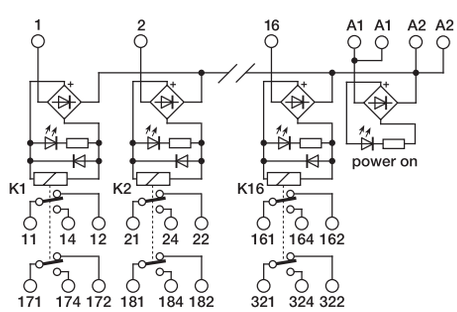
BLOCK DIAGRAM



4 relay module



8 relay module

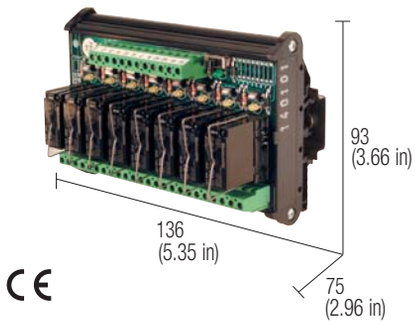


16 relay module

VERSIONS	Cat. No. XR042EAD	Cat. No. XR082EAD	Cat. No. XR162EAD
4 relay module	**R42EAD**		
8 relay module		**R82EAD**	
16 relay module			**R162EAD**
INPUT TECHNICAL DATA			
Rated voltage	24 Vac/dc ± 10%		
Rated current (1 channel)	22 mA ± 10%		
Turn ON time	15 ms		
Turn OFF time	5 ms		
Protection circuit	bridge rectifier		
OUTPUT TECHNICAL DATA			
Type and number of contacts	DPDT AgNi		
Nominal load (resistive)	8 A / 250 Vac		
Current breaking power	8 A		
Current of the fuse max.	—		
GENERAL TECHNICAL DATA			
Operating temperature range	-10...+50°C		
Coil/contact isolation	2.5 KVac / 60 s		
Isolation between output terminals	1 KVac / 60 s (between open contact)		
Protection degree	IP 00 IEC 529, EN60529		
Overvoltage category / Pollution degree	III / 2		
Reference Standard	IEC 664-1, DIN VDE 0110.1		
Status display	green LED / yellow LED		
Connection terminal	2.5 mm² fixed screw type		
Housing material	UL94V-0 plastic material		
Approx. weight	227 g (8.01 oz)	427 g (15.07 oz)	835 g (29.48 oz)
Mounting information	vertical on rail adjacent without gap		
MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/ TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB		
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL		
Replacement relay (1)	Cat. No. 8904002		
Screw type jumper red	—		
white	—		
blue	—		

24 Vac/dc relay modules universal control voltage with test push button

- DC control voltage
- Positive or negative control voltage
- Status LED display
- Pluggable relay
- Test with push button and micro switch



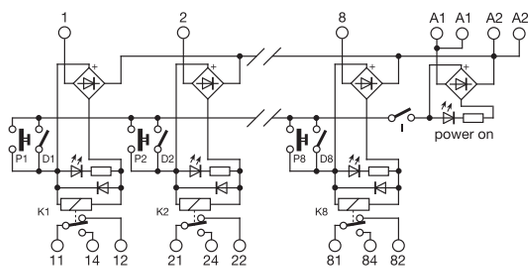
NOTES

The height dimension includes 35 mm DIN rail.
(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.
(2) They replace XRP08124 and XRD08124 models.

POWER SUPPLY

A1 = +	A2 = –	negative common
A1 = –	A2 = +	positive common
A1 = ~	A2 = ~	AC power supply

BLOCK DIAGRAM



P = test button
D = dip-switch
IG = master switch (disable the push button and dip-switch)

VERSIONS	Cat. No. XRMP081CM (2)
Con pulsante e dip switch	**RMP081CM**

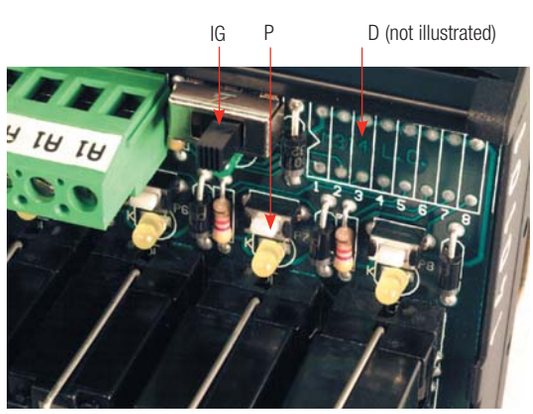
INPUT TECHNICAL DATA	
Rated voltage	24 Vac/dc ± 10%
Rated current (1 channel)	22 mA ± 10%
Turn ON time	15 ms
Turn OFF time	5 ms
Protection circuit	bridge rectifier

OUTPUT TECHNICAL DATA	
Type and number of contacts	SPDT $AgSnO_2$ per 8 relé
Nominal load (resistive)	12 A / 250 Vac
Current breaking power	12 A
Current of the fuse max.	—

GENERAL TECHNICAL DATA	
Operating temperature range	-10...+50°C
Coil/contact isolation	2.5 KVac / 60 s
Isolation between output terminals	1 KVac / 60 s (between open contact)
Protection degree	IP 00 IEC 529, EN60529
Overvoltage category / Pollution degree	III / 2
Reference Standard	IEC 664-1, DIN VDE 0110.1
Status display	green LED / yellow LED
Connection terminal	2.5 mm² fixed screw type
Housing material	UL94V-0 plastic material
Approx. weight	350 g (12.36 oz)
Mounting information	vertical on rail adjacent without gap

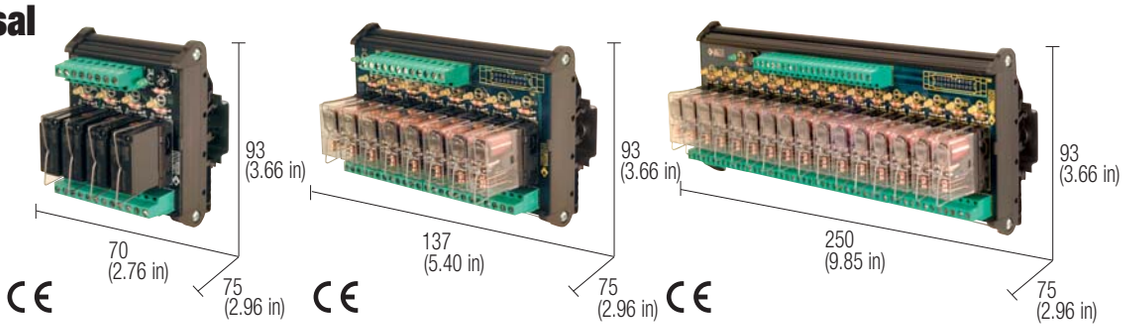
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL
Replacement relay (1)	Cat. No. 8904001
Screw type jumper red	—
white	—
blue	—

This series of products allows piloting with alternating and direct current, in which case only positive control is possible. We also recommend cutting JP jumpers if piloting takes place via low-current devices (e.g. proximity sensors).
On both versions it is possible the temporary turn on of the relay by pushing the relative button.
On model RD08124 it is possible to switch on the relays permanently with a Dip-Switch.



110...120 Vac/dc SPDT relay modules universal control voltage

- DC and AC control voltage
- Positive or negative control voltage
- Status LED display
- Pluggable relay



NOTES

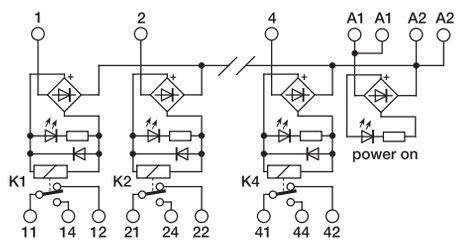
The height dimension includes 35 mm DIN rail.
(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.

Article available until sell-out

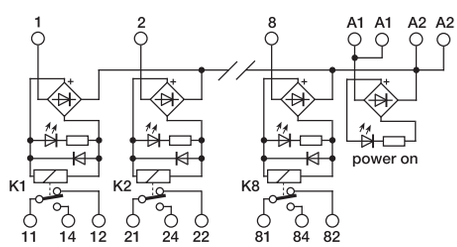
With 110 Vdc rated voltage:
- replace XR041E11A with no.4 XCM1C110 and no.1 XCMB16B
- replace XR081E11A with no.8 XCM1C110 and no.1 XCMB16B
- replace XR161E11A with no.16 XCM1C110 and no.2 XCMB16B

With 120 Vac rated voltage:
- replace XR041E11A with no.4 XCM1A120 and no.1 XCMB16B
- replace XR081E11A with no.8 XCM1A120 and no.1 XCMB16B
- replace XR161E11A with no.16 XCM1A120 and no.2 XCMB16B

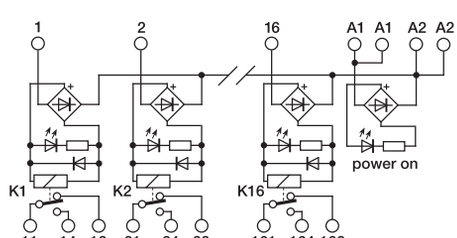
BLOCK DIAGRAM



4 relay module



8 relay module



16 relay module

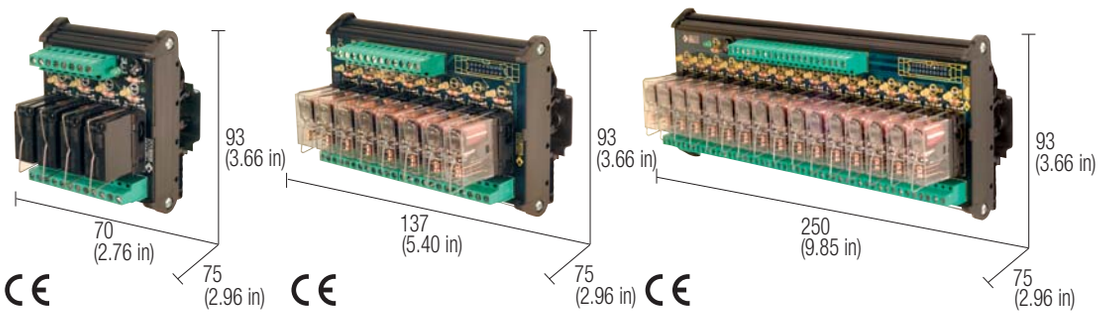
VERSIONS	Cat. No. XR041E1A	Cat. No. XR081E1A	Cat. No. XR161E1A
4 relay module	**R41E11A**		
8 relay module		**R81E11A**	
16 relay module			**R161E11A**
INPUT TECHNICAL DATA			
Rated voltage	110 Vdc / 120 Vac ± 10%		
Rated current (1 channel)	11 mA ± 10%		
Turn ON time	7 ms		
Turn OFF time	3 ms		
Protection circuit	bridge rectifier		
OUTPUT TECHNICAL DATA			
Type and number of contacts	SPDT AgNi		
Nominal load (resistive)	12 A / 250 Vac		
Current breaking power	12 A		
Current of the fuse max.	—		
GENERAL TECHNICAL DATA			
Operating temperature range	-10...+50°C		
Coil/contact isolation	2.5 KVac / 60 s		
Isolation between output terminals	1 KVac / 60 s (between open contact)		
Protection degree	IP 00 IEC 529, EN60529		
Overvoltage category / Pollution degree	III / 2		
Reference Standard	IEC 664-1, DIN VDE 0110.1		
Status display	green LED / yellow LED		
Connection terminal	2.5 mm² fixed screw type		
Housing material	UL94V-0 plastic material		
Approx. weight	192 g (6.76 oz)	345 g (12.18 oz)	688 g (24.29 oz)
Mounting information	vertical on rail adjacent without gap		
MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB		
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL		
Replacement relay (1)	Cat. No. 8904047		
Screw type jumper red	—		
white	—		
blue	—		

POWER SUPPLY

A1 = +	A2 = –	negative common
A1 = –	A2 = +	positive common
A1 = ~	A2 = ~	AC power supply

230 Vac SPDT relay modules

- AC control voltage
- Status LED display
- Pluggable relay

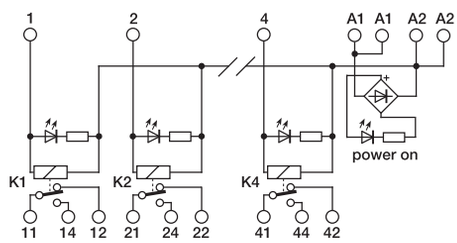


NOTES

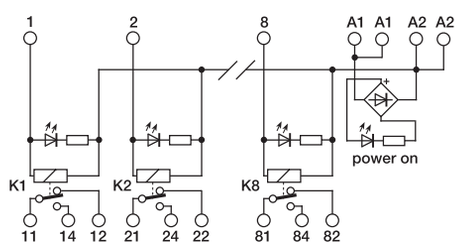
The height dimension includes 35 mm DIN rail.
(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.

Article available until sell-out
replace XR041E22A with no.4 XCM1A230 and no.1 XCMB16B
replace XR081E22A with no.8 XCM1A230 and no.1 XCMB16B
replace XR161E22A with no.16 XCM1A230 and no.2 XCMB16B

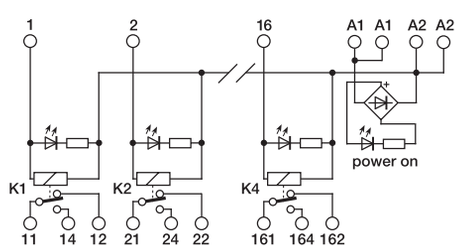
BLOCK DIAGRAM



4 relay module



8 relay module

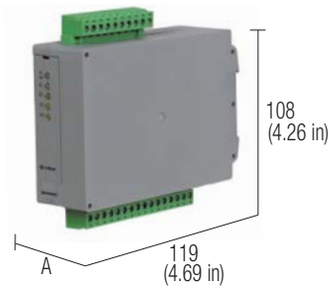


16 relay module

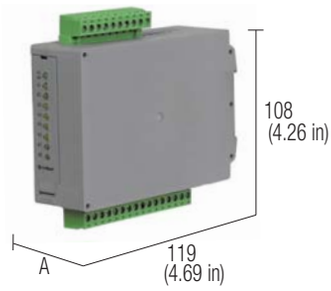
VERSIONS	Cat. No. XR041E2A	Cat. No. XR081E2A	Cat. No. XR161E2A
4 relay module	**R41E22A**		
8 relay module		**R81E22A**	
16 relay module			**R161E22A**
INPUT TECHNICAL DATA			
Rated voltage	230 Vac ± 10%		
Rated current (1 channel)	10 mA ± 10%		
Turn ON time	7 ms		
Turn OFF time	2 ms		
Protection circuit	—		
OUTPUT TECHNICAL DATA			
Type and number of contacts	SPDT $AgSnO_2$		
Nominal load (resistive)	12 A / 250 Vac		
Current breaking power	12 A		
Current of the fuse max.	—		
GENERAL TECHNICAL DATA			
Operating temperature range	-10...+50°C		
Coil/contact isolation	2.5 KVac / 60 s		
Isolation between output terminals	1 KVac / 60 s (between open contact)		
Protection degree	IP 00 IEC 529, EN60529		
Overvoltage category / Pollution degree	III / 2		
Reference Standard	IEC 664-1, DIN VDE 0110.1		
Status display	green LED / yellow LED		
Connection terminal	2.5 mm² fixed screw type		
Housing material	UL94V-0 plastic material		
Approx. weight	192 g (6.76 oz)	345 g (12.18 oz)	688 g (24.29 oz)
Mounting information	vertical on rail adjacent without gap		
MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB		
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL		
Replacement relay (1)	Cat. No. 8904050		
Screw type jumper red	—		
white	—		
blue	—		

Super compact 24 Vac/dc relay modules universal control voltage

- 3 kV I/O isolation
- 1 kV isolation between output contact
- Fast connection whit pluggable terminals
- DC and AC control voltage
- Positive or negative control voltage



A = 22.5 mm (0.88 in) CR version, 35 mm (1.38 in) CRE version

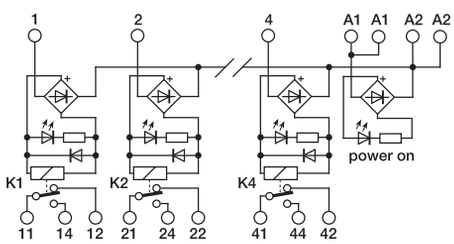


A = 22.5 mm (0.88 in) CR version, 35 mm (1.38 in) CRE version

NOTES

The height dimension includes 35 mm DIN rail.
(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.
CR4-1 and **CRE4-1**: relay module with SPDT, inputs and outputs with pluggable terminals.
CR8-1 and **CR8E-1**: 8 relay module with SPST (NO), inputs and outputs with pluggable terminals.

BLOCK DIAGRAM



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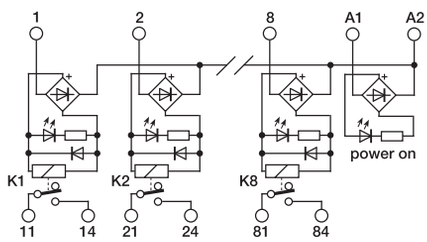


VERSIONS	Cat. No. XCRE41	Cat. No. XCR4	Cat. No. XCRE81	Cat. No. XCR81
Pluggable relay	**CRE4-1**		**CRE8-1**	
Fixed relay		**CR4-1**		**CR8-1**

INPUT TECHNICAL DATA		
Rated voltage	24 Vac/dc ± 10%	24 Vac/dc ± 10%
Rated current (1 channel)	16 mA ± 10%	16 mA ± 10%
Turn ON time	7 ms	7 ms
Turn OFF time	3 ms	3 ms
Protection circuit	bridge rectifier	bridge rectifier

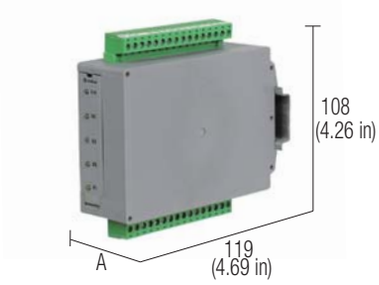
OUTPUT TECHNICAL DATA		
Type and number of contacts	SPDT AgNiO per 4 relé	SPST(NO) per 8 relay
Nominal load (resistive)	8 A / 250 Vac	8 A / 250 Vac
Current breaking power	2000 VA	2000 VA
Current of the fuse max.	—	—

GENERAL TECHNICAL DATA		
Operating temperature range	-10...+50°C	-10...+50°C
Coil/contact isolation	2.5 KVac / 60 s	3 KVac / 60 s
Isolation between output terminals	1 KVac / 60 s (between open contact)	1 KVac / 60 s (between open contact)
Protection degree	IP 20 IEC 529, EN60529	IP 20 IEC 529, EN60529
Overvoltage category / Pollution degree	III / 2	III / 2
Reference Standard	IEC 664-1, DIN VDE 0110.1	IEC 664-1, DIN VDE 0110.1
Status display	green LED / yellow LED	green LED / yellow LED
Connection terminal	2.5 mm² fixed screw type	2.5 mm² fixed screw type
Housing material	UL94V-0 plastic material	UL94V-0 plastic material
Approx. weight	143 g (5.05 oz) (180 g [6.35 oz] pluggable version)	199 g (7.02 oz) (250 g [8.83 oz] pluggable version)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap

MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL
Replacement relay (1)	Cat. No. 8904042	Cat. No. 8904042
Screw type jumper red	—	—
white	—	—
blue	—	—

Super compact 24 Vac/dc relay modules universal control voltage

- 3 kV I/O isolation
- 1 kV isolation between output contact
- Fast connection whit pluggable terminals
- DC and AC control voltage
- Positive or negative control voltage

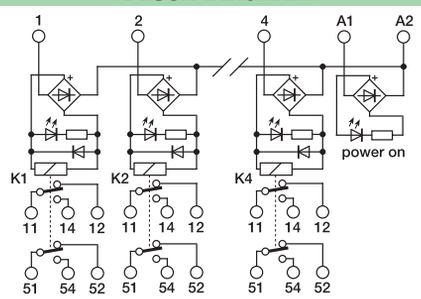


A = 22.5 mm (0.88 in) CR version, 35 mm (1.38 in) CRE version

NOTES

The height dimension includes 35 mm DIN rail.
(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.

BLOCK DIAGRAM



VERSIONS	Cat. No. XCRE42SC	Cat. No. XCR42SC
Pluggable relay	**CRE4-2SC**	
Fixed relay		**CR4-2SC**

INPUT TECHNICAL DATA	
Rated voltage	24 Vac/dc ± 10%
Rated current (1 channel)	25 mA ± 10%
Turn ON time	7 ms
Turn OFF time	2 ms
Protection circuit	bridge rectifier

OUTPUT TECHNICAL DATA	
Type and number of contacts	DPDT AgNi per 4 relé
Nominal load (resistive)	8 A / 250 Vac
Current breaking power	2000 VA
Current of the fuse max.	—

GENERAL TECHNICAL DATA	
Operating temperature range	-10...+50°C
Coil/contact isolation	2.5 KVac / 60 s
Isolation between output terminals	1 KVac / 60 s (between open contact)
Protection degree	IP 20 IEC 529, EN60529
Overvoltage category / Pollution degree	III / 2
Reference Standard	IEC 664-1, DIN VDE 0110.1
Status display	green LED / yellow LED
Connection terminal	2.5 mm² fixed screw type
Housing material	UL94V-0 plastic material
Approx. weight	137 g (180 g pluggable version)
Mounting information	vertical on rail adjacent without gap

MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35		PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32		PR/DIN/AC - PR/DIN/AS - PR/DIN/AL
Replacement relay (1)		Cat. No. 8904052
Screw type jumper	red	—
	white	—
	blue	—

PLC interface modules quick selection table

These tables allow you to quickly select only the items, then check if all product's technical data meet your application requirements.

Input modules

Number of channels	Connection type	Notes	Type	Cat. No.	Page
8 without isolation	12 Vdc	(1) (4)	IF16S7	XIF16S7	125
8 without isolation	12 Vdc	(1) (3)	IF16LS7	XIF16LS7	125
32 without isolation	12 Vdc	(1) (4)	IF416S7	XIF416S7	125
32 without isolation	12 Vdc	(1) (3)	IF416LS7	XIF416LS7	125

Output modules

Number of channels	Input voltage	Output		Notes	Type	Cat. No.	Page
		type / no. of contacts	rated current				
8	24 Vdc	SPST(NO)	8 A	(1) (3) (5)	CR8-3	XCR83	126
8	24 Vdc	SPST(NO)	8 A	(1) (3) (5)	CRE8-3	XCRE83	126
8	24 Vdc	SPDT	10 A	(1) (3) (5)	RFE8124	XRFE8124	126
8	24 Vdc	DPDT	5 A	(1) (3) (5)	RFE8224	XRFE8224	127
16	24 Vdc	SPDT	10 A	(2) (3) (5)	RFE16124	XRFE16124	128
16	24 Vdc	DPDT	5 A	(2) (3) (5)	RFE16224	XRFE16224	128

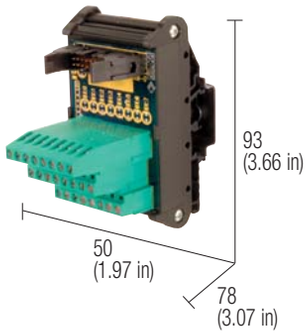
Notes

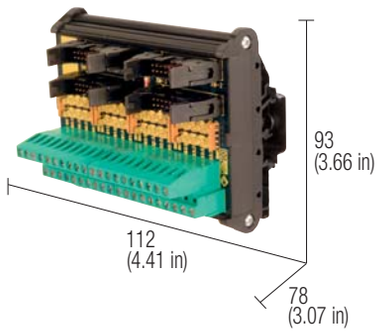
(1) suitable for PLC Siemens S7 series
(2) suitable for PLC Telemecanique
(3) with LED to display the status
(4) without LED to display the status
(5) version with pluggable relay

PLC S7 300 & S7 400
Interface modules

- I/O modules
- With or without status LED display
- Fast connection

Item available till sell-out

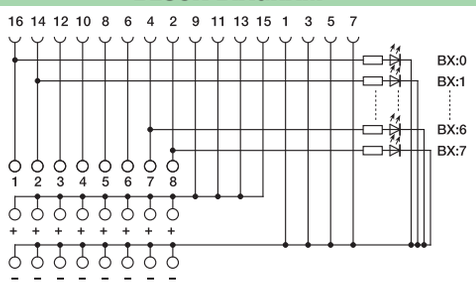




NOTES

(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.

BLOCK DIAGRAM



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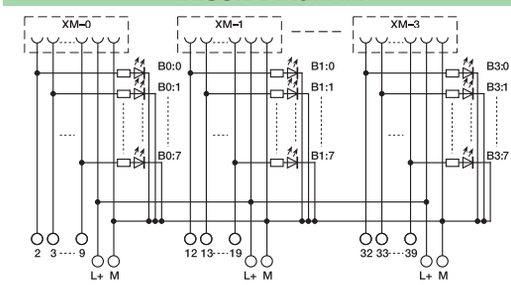


VERSIONS	Cat. No. XIF16S7	Cat. No. XIF416LS7	Cat. No. XIF416S7
With LED to display the status	—	IF416LS7	
Without LED to display the status	IF16S7		IF416S7

INPUT TECHNICAL DATA		
Rated voltage	24 Vdc ± 10%	24 Vdc ± 10%
Rated current (1 channel)	5 mA ± 10% (only with “Status LED” version)	5 mA ± 10% (only with “Status LED” version)
Turn ON time	—	—
Turn OFF time	—	—
Protection circuit	—	—

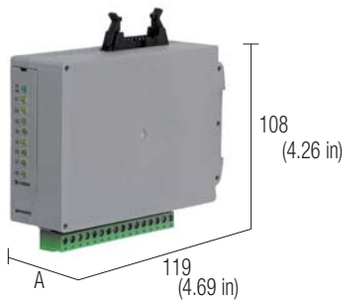
OUTPUT TECHNICAL DATA		
Type and number of contacts	8 channels without isolation	4 x 8 channels without isolation
Nominal load (resistive)	—	—
Current breaking power	—	—
Current of the fuse max.	—	—

GENERAL TECHNICAL DATA		
Operating temperature	-10...+50°C	-10...+50°C
Coil/contact isolation	—	—
Isolation between output terminals	—	—
Protection degree	IP 00 IEC529, EN60529	IP 00 IEC529, EN60529
Overvoltage category / Pollution degree	II / 2	II / 2
Reference Standard	IEC 664-1	IEC 664-1
Status display	LED (solo su IF16LS7)	LED (solo su IF416LS7)
Connection terminals	flat cable 16 poles male and 2.5 mm² fixed screw type	flat cable 16 poles male and 2.5 mm² fixed screw type
Housing material	polyamide UL94V-0	polyamide UL94V-0
Approx. weight	—	—
Mounting information	—	—

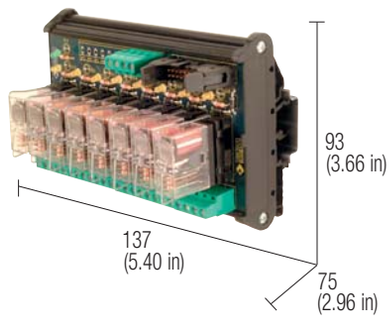
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35	PR/3/AC, PR/3/AS	PR/3/AC, PR/3/AS
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL
Replacement relay (1)		
Screw type jumper red	—	—
white	—	—
blue	—	—

PLC S7 300 & S7 400 Interface modules

- Very compact dimension in CR version
- Fast connection
- Pluggable relay
- Status LED display



A = 22.5 mm (0.88 in) CR version, 35 mm (1.38 in) CRE version



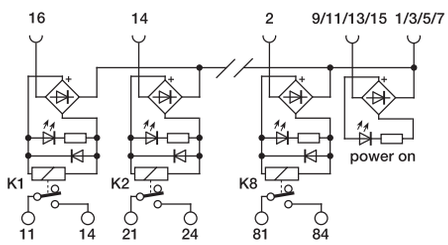
CE

Item available until sell-out will be replaced by XR081E24

NOTES

(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.
(2) Version available upon request.

BLOCK DIAGRAM



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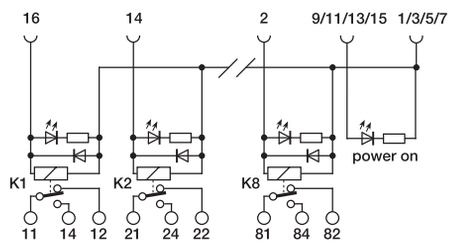
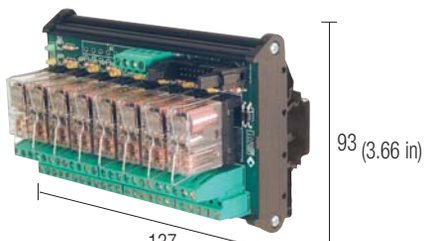


VERSIONS	Cat. No. XCRE83	Cat. No. XCR83	Cat. No. XRFE8124	
Pluggable relay	**CRE8-3**		**RFE8124**	
Fixed relay		**CR8-3**		**—**
INPUT TECHNICAL DATA				
Rated voltage	24 Vac/dc ± 10%		24 Vac/dc ± 10%	
Rated current (1 channel)	16 mA ± 10%		20 mA ± 10%	
Turn ON time	15 ms		15 ms	
Turn OFF time	5 ms		10 ms	
Protection circuit	bridge rectifier		damping & polarity protection diode	
OUTPUT TECHNICAL DATA				
Type and number of contacts	SPST(NO) per 8 relay		SPDT AgNiO per 8 relé	
Nominal load (resistive)	10 A / 250 Vac		10 A / 250 Vac	
Current breaking power	2000 VA		10 A	
Current of the fuse max.	—		—	
GENERAL TECHNICAL DATA				
Operating temperature range	-10...+50°C		-10...+50°C	
Coil/contact isolation	3 KVac / 60 s		2.5 KVac / 60 s	
Isolation between output terminals	1 KVac / 60 s (between open contact)		1 KVac / 60 s (between open contact)	
Protection degree	IP 20 IEC 529, EN60529		IP 00 IEC 529, EN60529	
Overvoltage category / Pollution degree	III / 2		III / 2	
Reference Standard	IEC 664-1, DIN VDE 0110.1		IEC 664-1, DIN VDE 0110.1	
Status display	green LED / yellow LED		green LED / yellow LED	
Connection terminal	flat cable 16 poles male		flat cable 16 poles male and 2.5 mm² fixed screw type	
Housing material	UL94V-0 plastic material		UL94V-0 plastic material	
Approx. weight	199 g (7.02 oz)		342 g (12.07 oz)	
Mounting information	vertical on rail adjacent without gap		vertical on rail adjacent without gap	
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB		PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB	
Mounting rail type according to IEC60715/G32	—		PR/DIN/AC - PR/DIN/AS - PR/DIN/AL	
Replacement relay (1)	Cat. No. 8904042		Cat. No. 8904001	
Screw type jumper red	—		—	
white	—		—	
blue	—		—	

PLC S7 300 & S7 400
Interface modules

- DC control voltage
- Negative control voltage
- Status LED display
- Pluggable relay
- Fast connection



93 (3.66 in)

137
(5.40 in)

75 (2.96 in)

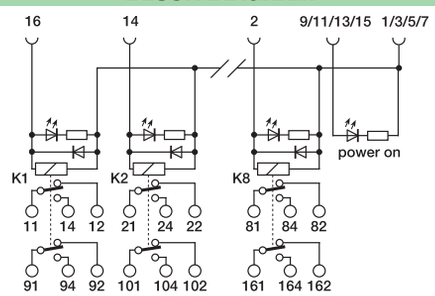
CE

**Item available until sell-out
will be replaced by XR082E24**

NOTES

(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.
(2) Version available upon request.

BLOCK DIAGRAM



VERSIONS	Cat. No. XRFE8224	
Pluggable relay	**RFE8224**	
Fixed relay		—

INPUT TECHNICAL DATA	
Rated voltage	24 Vdc ± 10%
Rated current (1 channel)	20 mA ± 10%
Turn ON time	15 ms
Turn OFF time	5 ms
Protection circuit	damping & polarity protection diode

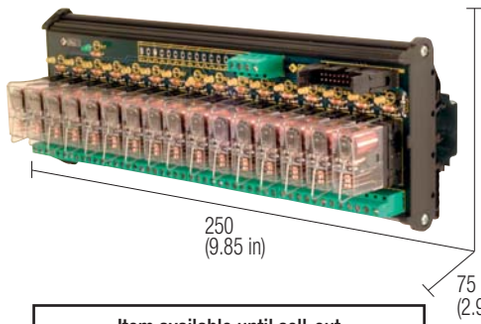
OUTPUT TECHNICAL DATA	
Type and number of contacts	DPDT AgNiO per 8 relé
Nominal load (resistive)	5 A / 250 Vac
Current breaking power	5 A
Current of the fuse max.	—

GENERAL TECHNICAL DATA	
Operating temperature range	-10...+50°C
Coil/contact isolation	2.5 KVac / 60 s
Isolation between output terminals	1 KVac / 60 s (between open contact)
Protection degree	IP 00 IEC 529, EN60529
Overvoltage category / Pollution degree	III / 2
Reference Standard	IEC 664-1, DIN VDE 0110.1
Status display	green LED / yellow LED
Connection terminal	flat cable 16 poles male and 2.5 mm² fixed screw type
Housing material	UL94V-0 plastic material
Approx. weight	419 g (14.79 oz)
Mounting information	vertical on rail adjacent without gap

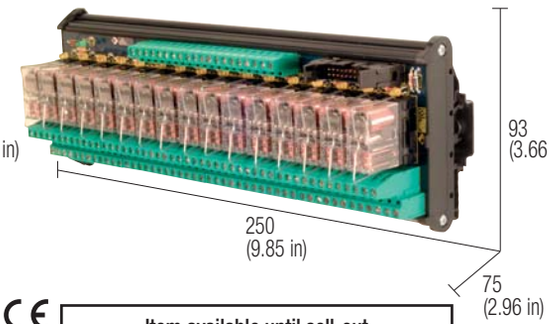
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35		PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32		PR/DIN/AC - PR/DIN/AS - PR/DIN/AL
Replacement relay (1)		Cat. No. 8904002
Screw type jumper	red	—
	white	—
	blue	—

Telemecanique PLC interface modules

- DC control voltage
- Negative control voltage
- Status LED display
- Pluggable relay
- Fast connection



Item available until sell-out
will be replaced by XR161E24

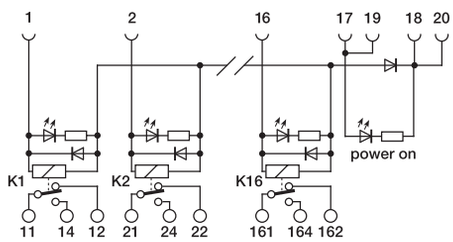


Item available until sell-out
will be replaced by XR162E24

NOTES

(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.

BLOCK DIAGRAM



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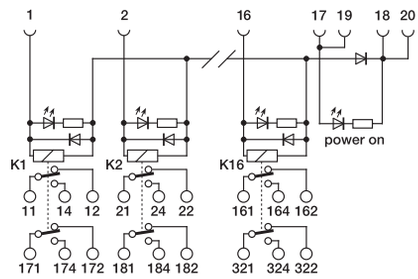


VERSIONS	Cat. No. XRFE16124		Cat. No. XRFE16224	
Pluggable relay	**RFE16124**		**RFE16224**	
Fixed relay		—		—

INPUT TECHNICAL DATA		
Rated voltage	24 Vdc ± 10%	24 Vdc ± 10%
Rated current (1 channel)	20 mA ± 10%	20 mA ± 10%
Turn ON time	15 ms	15 ms
Turn OFF time	5 ms	5 ms
Protection circuit	damping & polarity protection diode	damping & polarity protection diode

OUTPUT TECHNICAL DATA		
Type and number of contacts	SPDT AgNiO per 16 relé	DPDT AgNiO per 16 relé
Nominal load (resistive)	10 A / 250 Vac	5 A / 250 Vac
Current breaking power	10 A	5 A
Current of the fuse max.	—	—

GENERAL TECHNICAL DATA		
Operating temperature range	-10...+50°C	-10...+50°C
Coil/contact isolation	2.5 KVac / 60 s	2.5 KVac / 60 s
Isolation between output terminals	1 KVac / 60 s (between open contact)	1 KVac / 60 s (between open contact)
Protection degree	IP 00 IEC 529, EN60529	IP 00 IEC 529, EN60529
Overvoltage category / Pollution degree	III / 2	III / 2
Reference Standard	IEC 664-1, DIN VDE 0110.1	IEC 664-1, DIN VDE 0110.1
Status display	green LED / yellow LED	green LED / yellow LED
Connection terminal	flat cable 16 poles male and 2.5 mm² fixed screw type	flat cable 16 poles male and 2.5 mm² fixed screw type
Housing material	UL94V-0 plastic material	UL94V-0 plastic material
Approx. weight	657 g (23.19 oz)	811 g (28.63 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap

MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35		PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32		PR/DIN/AC - PR/DIN/AS - PR/DIN/AL	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL
Replacement relay (1)		Cat. No. 8904001	Cat. No. 8904002
Screw type jumper	red	—	—
	white	—	—
	blue	—	—

Solid state relay modules quick selection table

These tables allow you to quickly select only the items, then check if all product's technical data meet your application requirements.

Input modules

Number of channels	Input voltage	Applicable load		Notes	Type	Cat. No.	Page
		Voltage	Current				
1	5...24 Vdc	5…48 Vdc	3 A	(2)	0332060	XO332060	130
1	5…24 Vdc	5…48 Vdc	500 mA	(2)	CWOT 6-2082	X766082	136
1	12…24 Vdc	5…48 Vdc	500 mA	(2)	CWOT 6-2083	X766083	135
1	12…24 Vdc	5…48 Vdc	5 A	(1)	CM1S024E	XCM1S024E	131
1	24 Vdc	5…48 Vdc	2 A	(1)	CM1S024	XCM1S024	131
1	5…12 Vdc	5…24 Vdc	5 A	(2) (4)	CKS15NA	XCKS15NA	133
1	5…24 Vdc	5…24 Vdc	30 mA	(2)	CKS1S	XCKS1S	136
1	24 Vdc	5…24 Vdc	5 A	(2) (4)	CKS15NB	XCKS15NB	133
1	5...24 Vdc	5...24 Vdc	5 A	(2) (5)	CKS15E	XCKS15E	134
1	12…24 Vdc	12...240 Vac	3 A	(1)	CM1T024E	XCM1T024E	132
1	5...24 Vdc	24...240 Vac	4 A	(2)	0332240	XO332240	130
1	24 Vdc	48...240 Vac	2 A	(1)	CM1T024	XCM1T024	132
2	12…24 Vdc	12…24 Vdc	2 x 2.5 A	(2)	CKS22	XCKS22	134
4	24 Vdc	5…48 Vdc	2 A	(1) (3) (4)	R41S24F	XR041S24F	139
4	24 Vdc	5…48 Vdc	2 A	(1) (3)	R42S24	XR042S24	137
4	24 Vdc	48...240 Vac	2 A	(1) (3)	R42T24	XR042T24	138
8	24 Vdc	5…48 Vdc	2 A	(1) (3) (4)	R81S24F	XR081S24F	139
8	24 Vdc	5…48 Vdc	2 A	(1) (3)	R82S24	XR082S24	137
8	24 Vdc	48...240 Vac	2 A	(1) (3)	R82T24	XR082T24	138
8	5...24 Vdc	12...24 Vdc	8 x 2.5 A	(2) (5)	COP082	XCOP082	140
16	24 Vdc	5…48 Vdc	2 A	(1) (3) (4)	R161S24F	XR161S24F	139
16	24 Vdc	5…48 Vdc	2 A	(1) (3)	R162S24	XR162S24	137
16	24 Vdc	48...240 Vac	2 A	(1) (3)	R162T24	XR162T24	138

Notes

(1) version with pluggable relay

(2) version with fixed relay

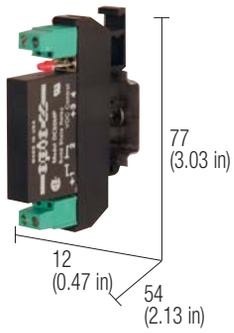
(3) universal control voltage, negative/positive DC command

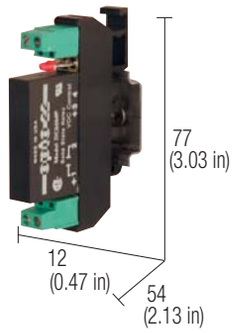
(4) output contact with protection fuse

(5) electronic output protection

Solid state 5...24 Vdc single relay

- Fixed relay
- Compact dimensions
- Status LED display

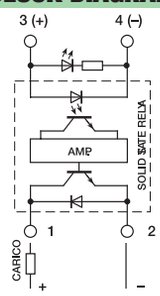




NOTES

(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.

BLOCK DIAGRAM



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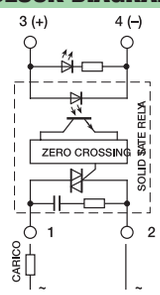
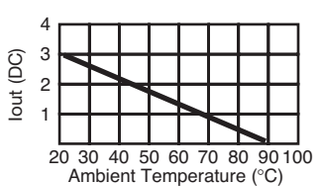
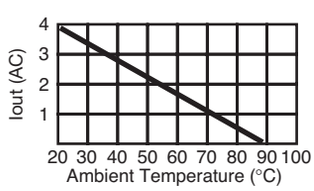


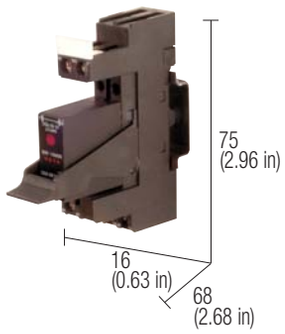
VERSIONS	Cat. No. X0332060	Cat. No. X0332240
Pluggable relay	—	—
Fixed relay	**0332060**	**0332240**
INPUT TECHNICAL DATA		
Input voltage	4…30 Vdc	4…30 Vdc
Level 1 (high) input signal	> 3 Vdc	> 3 Vdc
Level 0 (low) input signal	< 1 Vdc	< 1 Vdc
Rated current	< 35 mA	< 35 mA
Switching frequency	100 Hz max	100 Hz max
Connection terminals	2.5 mm² fixed screw type	2.5 mm² fixed screw type
OUTPUT TECHNICAL DATA		
Output voltage	5…60 Vdc	24…240 Vac (zero crossing)
Continuous load current	3 A a 20°C (see chart)	4 A a 20°C (see chart)
Max. current	4 A a 20°C (5 A / 5 s - 25 A / 10 ms)	5 A a 20°C (6 A / 5 s - 25 A / 10 ms)
Leakage current 0 signal	1 mA	5 mA
OFF/ON switching time	—	—
Protection circuit	—	10 ms max
Connection terminals	2.5 mm² fixed screw type	2.5 mm² fixed screw type
GENERAL TECHNICAL DATA		
Operating temperature	-20…-60°C (see chart)	-20…-60°C (see chart)
I/O isolation (coil/contact)	4 KVac / 60 s	4 KVac / 60 s
Protection degree	IP 00 IEC529, EN60529	IP 00 IEC529, EN60529
Reference Standard	IEC 664-1, DIN VDE 0110.1	IEC 664-1, DIN VDE 0110.1
Pollution degree	2	2
Overvoltage category	III	III
Modello del relé (1)	OPTO22	OPTO22
Status display	LED	LED
Housing material	Polyamide UL94V-0	Polyamide UL94V-0
Approx. weight	36 g (1.27 oz)	36 g (1.27 oz)
Mounting information	vertical on rail, allow 4 mm spacing between adjacent components	vertical on rail, allow 4 mm spacing between adjacent components
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35	**PR/3/AC, PR/3/AS**	**PR/3/AC, PR/3/AS**
Mounting rail type according to IEC60715/G32	**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**	**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Replacement relay (1)	—	—
Screw type jumper red	—	—
white	—	—
blue	—	—

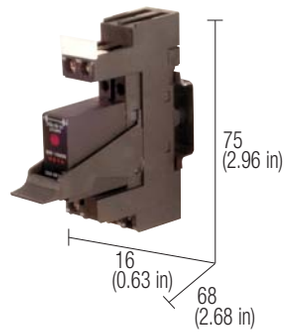




Solid state 12-24 Vdc single relay

- Low cost
- For DC load (S version)
- Pluggable relay
- Screw type jumper available
- Status LED display



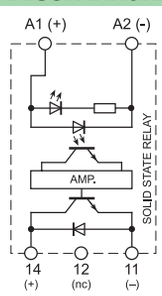


NOTES

(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.

This series can be mounted without any spacing between adjacent components.

BLOCK DIAGRAM



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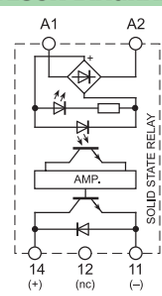
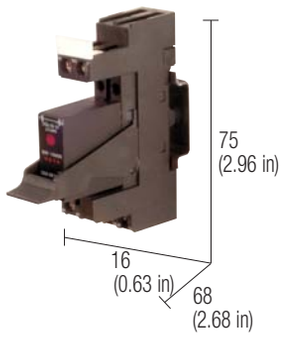
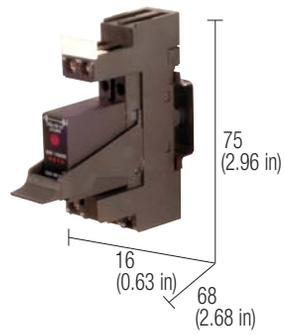


VERSIONS	Cat. No. XCM1S024		Cat. No. XCM1S024E	
Pluggable relay	**CM1S024**		**CM1S024E**	
Fixed relay		—		—
INPUT TECHNICAL DATA				
Input voltage	24 Vdc (19.2…28.8 Vdc)		12-24 Vdc (10…30 Vdc)	
Level 1 (high) input signal	> 19.2 Vdc		> 10 Vdc	
Level 0 (low) input signal	< 1 Vdc		< 6 Vdc	
Rated current (1 channel)	< 20 mA		< 26 mA	
Switching frequency	100 Hz max		100 Hz max	
Connection terminals	2.5 mm² fixed screw type		2.5 mm² fixed screw type	
OUTPUT TECHNICAL DATA				
Output voltage	3…50 Vdc		5…60 Vdc	
Continuous load current	2.5 A a 40°C		5 A a 50°C	
Max. current	4 A / 5 s - 20 A / 10 ms		-	
Leakage current 0 signal	0.1 mA		10 µA	
OFF/ON switching time	100 µs / 1 ms		100 µs / 1 ms	
Protection circuit	diodo		diodo	
Connection terminals	2.5 mm² fixed screw type		2.5 mm² fixed screw type	
GENERAL TECHNICAL DATA				
Operating temperature	-20...-60°C over 40°C apply a derating of 0.05A/°C		-20...-60°C over 40°C apply a derating of 0.1A/°C	
I/O isolation (coil/contact)	2.5 KVac / 60 s		4 KVac / 60 s	
Protection degree	IP 00 IEC529, EN60529		IP 00 IEC529, EN60529	
Reference Standard	IEC 664-1, DIN VDE 0110.1		IEC 664-1, DIN VDE 0110.1	
Pollution degree	3		3	
Overvoltage category	III		III	
Modello del relé (1)	HF JGX-40F		ELCO SSR91-60B	
Status display	LED		LED	
Housing material	Polyamide UL94V-0		Polyamide UL94V-0	
Approx. weight	—		—	
Mounting information	vertical on rail adjacent without gap		vertical on rail adjacent without gap	
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35	**PR/3/AC, PR/3/AS**		**PR/3/AC, PR/3/AS**	
Mounting rail type according to IEC60715/G32	—		—	
Replacement relay (1)	Cat. No. 8904404		Cat. No. 8904402	
Screw type jumper black	Cat. No. XCMB16B		Cat. No. XCMB16B	
white	—		—	
blue	—		—	

Solid state 12-24 Vdc single relay

- Low cost
- For AC load (T version)
- Pluggable relay
- Screw type jumper available
- Status LED display



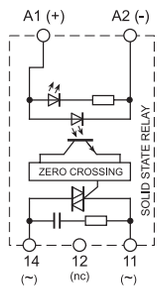


NOTES

(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.

This series can be mounted without any spacing between adjacent components.

BLOCK DIAGRAM



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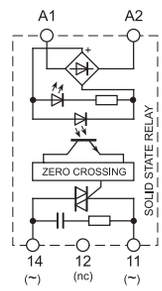
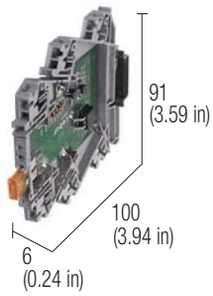
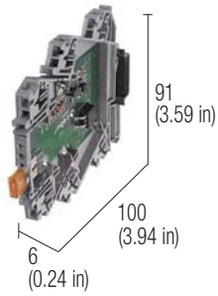


VERSIONS	Cat. No. XCM1T024		Cat. No. XCM1T024E	
Pluggable relay	**CM1T024**		**CM1T024E**	
Fixed relay		—		—
INPUT TECHNICAL DATA				
Input voltage	24 Vdc (19.2…28.8 Vdc)		12-24 Vdc (10…30 Vdc)	
Level 1 (high) input signal	> 19.2 Vdc		> 10 Vdc	
Level 0 (low) input signal	< 1 Vdc		< 6 Vdc	
Rated current (1 channel)	< 20 mA		< 26 mA	
Switching frequency	100 Hz max		100 Hz max	
Connection terminals	2.5 mm² fixed screw type		2.5 mm² fixed screw type	
OUTPUT TECHNICAL DATA				
Output voltage	48…240 Vac (zero crossing)		20…240 Vac (zero crossing)	
Continuous load current	2.5 A a 40°C		3 A a 50°C	
Max. current	4 A / 5 s - 20 A / 10 ms		-	
Leakage current 0 signal	1.5 mA		1 mA	
OFF/ON switching time	10 ms / 10 ms max.		10 ms / 10 ms max.	
Protection circuit	—		—	
Connection terminals	2.5 mm² fixed screw type		2.5 mm² fixed screw type	
GENERAL TECHNICAL DATA				
Operating temperature	-20...-60°C over 40°C apply a derating of 0.05A/°C		-20...-60°C over 40°C apply a derating of 0.1A/°C	
I/O isolation (coil/contact)	2.5 KVac / 60 s		4 KVac / 60 s	
Protection degree	IP 00 IEC529, EN60529		IP 00 IEC529, EN60529	
Reference Standard	IEC 664-1, DIN VDE 0110.1		IEC 664-1, DIN VDE 0110.1	
Pollution degree	3		3	
Overvoltage category	III		III	
Modello del relé (1)	HF JGX-40F		ELCO SSR91-60B	
Status display	LED		LED	
Housing material	Polyamide UL94V-0		Polyamide UL94V-0	
Approx. weight	—		—	
Mounting information	vertical on rail adjacent without gap		vertical on rail adjacent without gap	
MOUNTING ACCESSORIES				
Mounting rail type according to IEC60715/TH35	**PR/3/AC, PR/3/AS**		**PR/3/AC, PR/3/AS**	
Mounting rail type according to IEC60715/G32	—		—	
Replacement relay (1)	Cat. No. 8904405		Cat. No. 8904403	
Screw type jumper black	Cat. No. XCMB16B		Cat. No. XCMB16B	
white	—		—	
blue	—		—	

Solid state 12-24 Vdc single relay with fuse

- 5 A / 24 Vdc rated current
- Common negative or positive input
- Overload, short-circuit protected output with replaceable fuse
- Status LED display, reverse polarity protection
- 6 mm wide
- Plug-in jumper available

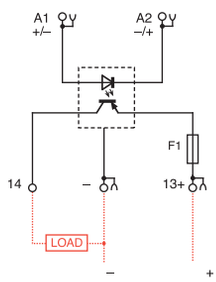




NOTES

(1) The fast blow-out fuse is calibrated to protect the output stage of the module and it is connected in series to the positive pole; it is possible to replace the fuse with lower rated current values, selected to protect also the load and its wires; a fuse having a current rating higher than 5 A does not protect the output against short circuit and overloads.
(2) In order to assure the IP20 protection degree, the last module must be protected and insulated using the CK/PT end section.

BLOCK DIAGRAM



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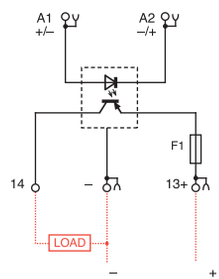


VERSIONS	Cat. No. XCKS15NA	Cat. No. XCKS15NB
Pluggable relay	—	—
Fixed relay	**CKS15NA**	**CKS15NB**

INPUT TECHNICAL DATA		
Input voltage	4.5…12 Vdc	19…30 Vdc
Level 1 (high) input signal	≥4.5 Vdc	≥ 20 Vdc
Level 0 (low) input signal	≤4 Vdc	≤18 Vdc
Rated current	≤5 mA @ 12 Vdc	≤ 5 mA @ 24 Vdc

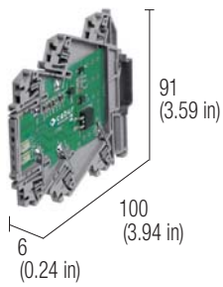
OUTPUT TECHNICAL DATA		
Output voltage	5.2…60 Vdc, max. 100 V (peak)	5.2…60 Vdc, max. 100 V (peak)
Continuous load current	5 A / 24 Vdc @ 25°C	5 A / 24 Vdc @ 25°C
Max. current	7.5 A / 1 s, 25 A / 50 ms	7.5 A / 1 s, 25 A / 50 ms
Min. applicable load	5.2 V / 10 mA	5.2 V / 10 mA
Leakage current 0 signal	25 µA @ 60 Vdc between 13 and 14	25 µA @ 60 Vdc between 13 and 14
Isolation between open contacts	3 KVac / 60 s	3 KVac / 60 s
Protection fuse (1)	F 5 A	F 5 A

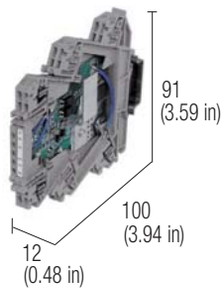
GENERAL TECHNICAL DATA		
Operating temperature	-20…+60°C	-20…+60°C
I/O isolation	3 KVac / 60 s	3 KVac / 60 s
Max. switching frequency	400 Hz max.	400 Hz max.
Protection degree	IP20 IEC529 EN60529	IP20 IEC529 EN60529
Reference Standard	IEC 664-1, EN50081-1	IEC 664-1, EN50081-1
Pollution degree	2	2
Overvoltage category	II	II
Connection terminals	2.5 mm² (AWG 14), AWG26-14 spring type	2.5 mm² (AWG 14), AWG26-14 spring type
Housing material	Polyamide UL94V-0	Polyamide UL94V-0
Approx. weight	32 g (1.13 oz)	32 g (1.13 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap

MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35-7,5		**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32		—	—
Replacement relay	(1)	—	—
Plug-in jumper	—	Cat. No. PTCCK42 (42 poles)	Cat. No. PTCCK42 (42 poles)
Marking tags	blank	Cat. No. NU0851	Cat. No. NU0851
End plate		Cat. No. XCKPT	Cat. No. XCKPT

Solid state 12-24 Vdc single relay with electronic

- Electronic protection from short circuit, overload, overtemperature
- Input and output status LED
- Output extravoltage suppressor diode
- Extralow current absorbing
- Plug-in jumper available



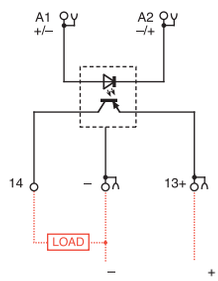


NOTES

(1) Maximum output current of each channel depends on surrounding air temperature, on the number of output contemporarily active and on the current flowing through them; the given value is measured with 4 active outputs and 4 not active

(2) All outputs are overcurrent and overtemperature; when ovd or ovt protections cuts off the output current, the output display led turns off or reduces its light depending on ovd degree; the output turns on automatically when the ovd or ovt are removed.

BLOCK DIAGRAM



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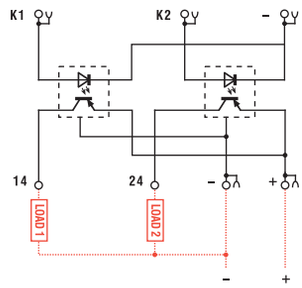


VERSIONS	Cat. No. XCKS15E	Cat. No. XCKS22
Pluggable relay	—	—
Fixed relay	**CKS15E**	**CKS22**

INPUT TECHNICAL DATA		
Input voltage	5...24 Vdc (4.2…32 Vdc)	12…24 Vdc (range 8…33 Vdc)
Level 1 (high) input signal	> 3.5 Vdc	≥ 12 Vdc
Level 0 (low) input signal	< 3.5 Vdc	≤ 11.7 Vdc
Rated current	≤ 5 mA @ 24 Vdc	≤ 5 mA @ 24 Vdc
Input channels	1	2 with common negative

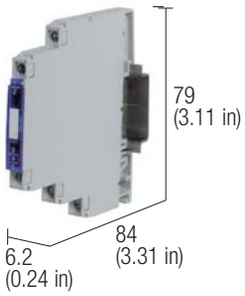
OUTPUT TECHNICAL DATA		
Output voltage	5...24 Vdc (5…32 Vdc)	12…24 Vdc (range 5…33 Vdc)
Continuous load current	5 A / 24 Vdc @ 45°C (1)	2 x 2.5 A / 24 Vdc @ 45°C
Max. current	7.5 A / 60 s, 2 5A / 50 ms peak (1)	4.4 A
Min. applicable load	5.2 V / 100 mA	10 mA
Max. switching frequency	200 Hz max.	—
Leakage current 0 signal	< 25 µA @ 24 Vdc	1 mA @ 24 Vdc
Isolation between open contacts	—	3 KVac / 60 s
Protection	electronic from overload, overtemperature (2)	—

GENERAL TECHNICAL DATA		
Operating temperature	-20 ... +60°C (with therml protection) (2)	-20 ... +60°C (with therml protection) (2)
I/O isolation	3 KVac / 60 s	3 KVac / 60 s
Max. switching frequency	—	1 kHz (Ton <500 ms / Toff <500 ms)
Protection degree	IP20 IEC529 EN60529	IP20 IEC529 EN60529
Reference Standard	IEC 664-1, EN50081-1	IEC 664-1, EN50081-1
Pollution degree	2	2
Overvoltage category	II	II
Connection terminals	2.5 mm² AWG26-14 fixed spring type	2.5 mm² AWG26-14 fixed spring type
Housing material	Polyamide UL94V-0	Polyamide UL94V-0
Approx. weight	30 g (1.06 oz)	32 g (1.13 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap

MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35-7,5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—	—
Replacement relay (1)	—	—
Plug-in jumper —	Cat. No. PTCCK42 (42 poles)	Cat. No. PTCCK42 (42 poles)
Marking tags blank	Cat. No. NU0851	Cat. No. NU0851
End plate	Cat. No. XCKPT	Cat. No. XCKPT

Solid state 12-24 Vdc single relay with electronic SPDT

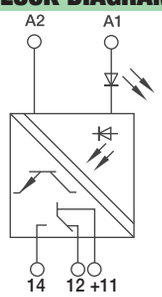
- 10...40 Vdc rated voltage
- Output with SPDT simulation
- Output voltage 5…48 Vdc 500 mA
- Max switching frequency 1 KHz
- I/O isolation 3.75 KV



NOTES

Compared with standard relays, solid state relays offers many advantages: much longer life, higher switching frequency, lower EMI emissions, higher vibrations withstand capability, wider input voltage range and 70% lower input corrent. The output of solid state relays is a N.O. type “contact” and up to now SPDT type was not available, forcing to use a standard relay when SPDT function was required. Thanks to a new technology, this new solid state relay offers all the advatages of solid state relays with a SPDT contact output type, making a step ahead possible.

BLOCK DIAGRAM



VERSIONS	Cat. No. X766083
Pluggable relay	—
Fixed relay	**CWOT 6-2083**

INPUT TECHNICAL DATA	
Input signal	24 Vdc (range 10…40 Vdc)
Level 1 (high) input signal (ON)	>5 Vdc
Level 0 (low) input signal (OFF)	<5 Vdc
Rated current	6 mA
Protection device	suppressor diode

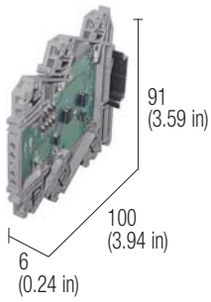
OUTPUT TECHNICAL DATA	
Output signal	5…48 Vdc
Continuous load current	10…500 mA
Switching delay	12 µs ON / 12 µs OFF
Protection device	suppressor diode
Output Type	NPN / PNP transistor, with changeover contact simulation

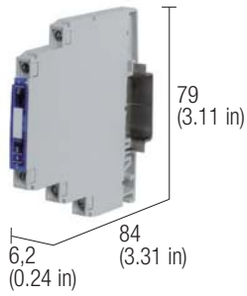
GENERAL TECHNICAL DATA	
Operating temperature	-25 …+60°C
I/O isolation	3.75 KVac / 60 s
Max. switching frequency	<1 KHz
Protection degree	IP 20 IEC529 EN60529
Reference Standard	IEC 664-1, DIN VDE
Pollution degree	2
Overvoltage category	III
Connection terminals	2.5 mm^2 fixed screw type
Housing material	PPE
Approx. weight	29 g (1.02 oz)
Mounting information	vertical on rail adjacent without gap

MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35		**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32		—
Replacement relay	(1)	—
Plug-in jumper	—	—
Marking tags	blank	—
	printed	—
	printed	—
End plate		—

Signal optoisolators

- Suitable for isolation and transmission of digital signal with high frequency
- Status LED display
- 5, 12 and 24 rated voltage
- I/O isolation



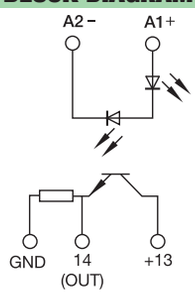


CE

NOTES

(1) Version available upon request.
CKS1S can isolate I/O high frequency signal circuits (encoders, counters etc.) to eliminate influence of different ground reference voltages and ground loops, thus reducing EMI noise influence on signal transmission of sensitive signals; it is always recommended to use balanced type shielded cables (two signal wires + shield); at transmission frequencies higher than 25 Hz the LED light appears constant, it is to be intended as "transmission ON" signal.

BLOCK DIAGRAM



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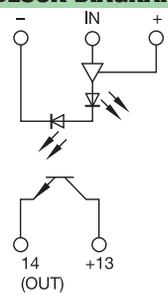
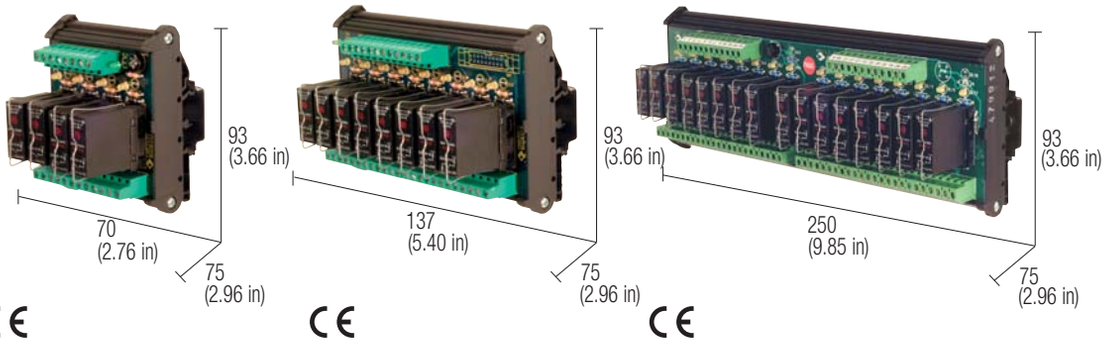


VERSIONS	Cat. No. XCKS1S CKS1S	Cat. No. X766082 CWOT 6-2082
INPUT TECHNICAL DATA		
Input signal	3…30 Vdc	4.5…28 Vdc
Level 1 (high) input signal (ON)	≥ 3 Vdc	>4.2 Vdc
Level 0 (low) input signal (OFF)	≤ 3 Vdc	<2.7 Vdc
Rated current	≤ 10 mA @ 24 Vdc	0.1 mA
OUTPUT TECHNICAL DATA		
Output signal	3…30 Vdc	5…48 Vdc
Continuous load current	80 mA / 30 Vdc @ 25°C	10…500 mA
Min. applicable load	10 mV / 2 mA	—
Switching delay	—	12 µs ON / 12 µs OFF
GENERAL TECHNICAL DATA		
Operating temperature	-20…+60°C	-25…+60°C
I/O isolation	3 KVac / 60 s	3.75 KVac / 60 s
Max. switching frequency	100 kHz max. duty cycle 50/50, 70/30 max	<20 KHz
Protection degree	IP 20 IEC529 EN60529	IP 20 IEC529 EN60529
Reference Standard	IEC 664-1, EN50081-1	IEC 664-1, DIN VDE
Pollution degree	2	2
Overvoltage category	II	III
Connection terminals	2.5 mm² (AWG 14), AWG26-14 spring type	2.5 mm², AWG26-14 a vite
Housing material	Polyamide UL94V-0	PPE
Approx. weight	32 g (1.13 oz)	29 g (1.02 oz)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—	—
Replacement relay (1)		—
Plug-in jumper —	Cat. No. PTCCK42 (42 poles)	—
Marking tags blank	Cat. No. NU0851	—
printed	—	—
printed	—	—
End plate	Cat. No. XCKPT	—

Solid state 24 Vdc relay modules

- For DC load
- Pluggable relay
- Status LED display



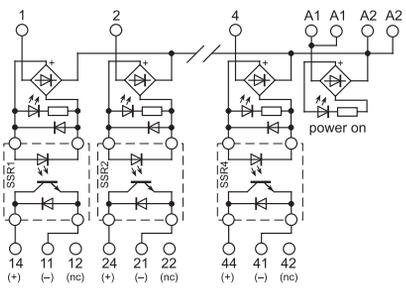
NOTES

(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.

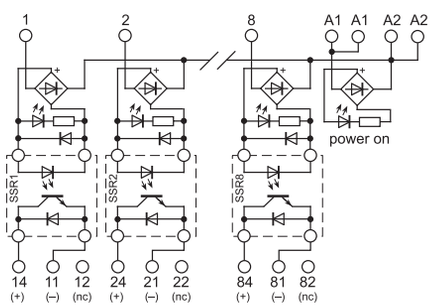
POWER SUPPLY

A1 = +	A2 = –	negative common
A1 = –	A2 = +	positive common

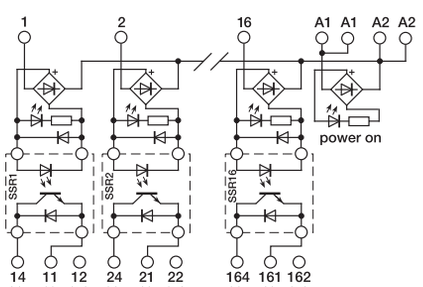
BLOCK DIAGRAM



4 relay module

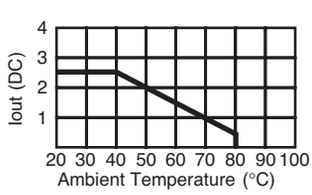


8 relay module



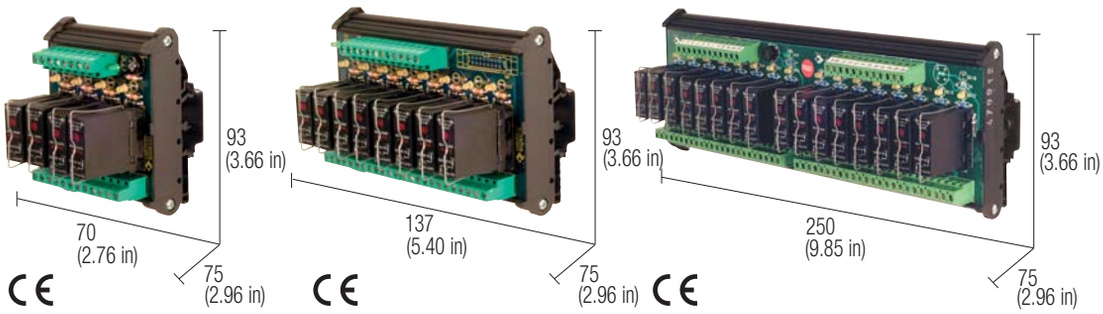
16 relay module

VERSIONS	Cat. No. XR042S24	Cat. No. XR082S24	Cat. No. XR162S24
4 relay module	**R42S24**		
8 relay module		**R82S24**	
16 relay module			**R162S24**
INPUT TECHNICAL DATA			
Input voltage	**24 Vdc** (19.2…28.8 Vdc)		
Level 1 (high) input signal	> 19.2 Vdc		
Level 0 (low) input signal	< 1 Vdc		
Rated current (1 channel)	< 20 mA		
Switching frequency	100 Hz max		
OUTPUT TECHNICAL DATA			
Output voltage	3…50 Vdc		
Continuous load current	2.5 A a 40°C (see chart)		
Max. current	4 A / 5 s - 20 A / 10 ms		
Leakage current 0 signal	0.1 mA		
OFF/ON switching time	100 µs / 1 ms		
Protection circuit	diodo		
Current of the fuse max.	—		
GENERAL TECHNICAL DATA			
Operating temperature range	-20...-60°C (see chart)		
I/O isolation	2.5 KVac / 60 s		
Isolation between output terminals	1 KVac / 60 s (between open contact)		
Protection degree	IP 00 IEC 529, EN60529		
Overvoltage category / Pollution degree	III / 2		
Reference Standard	IEC 664-1, DIN VDE 0110.1		
Status display	green LED / yellow LED		
Connection terminal	2.5 mm² fixed screw type		
Housing material	UL94V-0 plastic material		
Approx. weight	207 g (7.31 oz)	379 g (13.38 oz)	756 g (26.69 oz)
Mounting information	vertical on rail adjacent without gap		
MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB		
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL		
Replacement relay (1)	Cat. No. 8904404		
Screw type jumper	—		
	—		
	—		



Solid state 24 Vdc relay modules

- For AC load
- Pluggable relay
- Status LED display



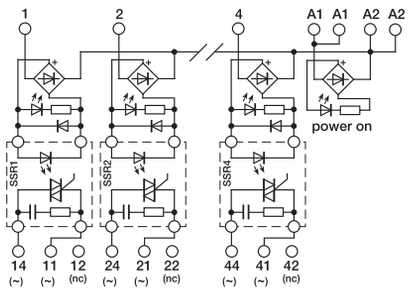
NOTES

(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.

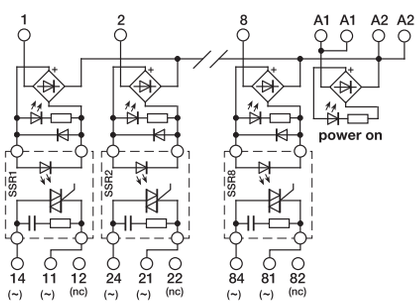
POWER SUPPLY

A1 = +	A2 = –	negative common
A1 = –	A2 = +	positive common

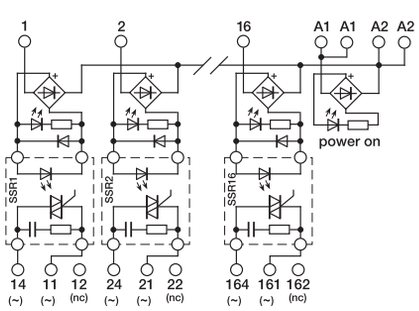
BLOCK DIAGRAM



4 relay module

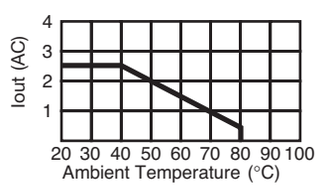


8 relay module



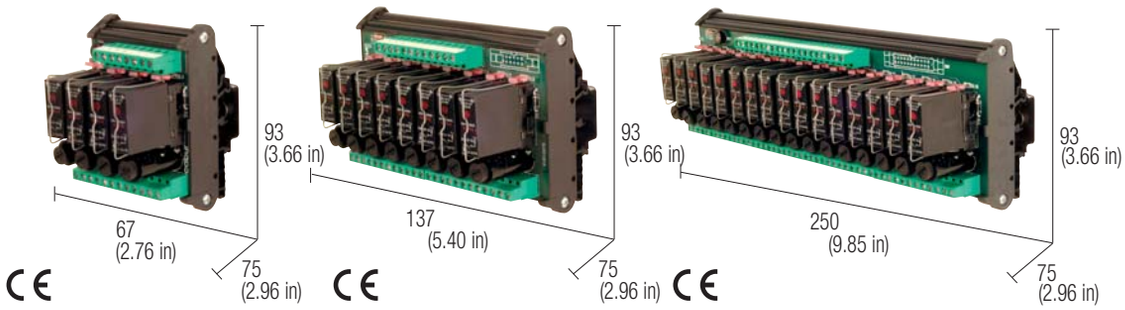
16 relay module

VERSIONS	Cat. No. XR042T24	Cat. No. XR082T24	Cat. No. XR162T24
4 relay module	**R42T24**		
8 relay module		**R82T24**	
16 relay module			**R162T24**
INPUT TECHNICAL DATA			
Input voltage	**24 Vdc** (19.2…28.8 Vdc)		
Level 1 (high) input signal	> 19.2 Vdc		
Level 0 (low) input signal	< 1 Vdc		
Rated current (1 channel)	< 20 mA		
Switching frequency	100 Hz max		
OUTPUT TECHNICAL DATA			
Output voltage	48…240 Vac (zero crossing)		
Continuous load current	2.5 A a 40°C (see chart)		
Max. current	4 A / 5 s - 20 A / 10 ms		
Leakage current 0 signal	1.5 mA		
OFF/ON switching time	10 ms / 10 ms max.		
Protection circuit	—		
Current of the fuse max.	—		
GENERAL TECHNICAL DATA			
Operating temperature range	-20...-60°C (see chart)		
I/O isolation	2.5 KVac / 60 s		
Protection degree	1 KVac / 60 s (between open contact)		
Reference Standard	IP 00 IEC 529, EN60529		
Pollution degree	III / 2		
Overvoltage category	IEC 664-1, DIN VDE 0110.1		
Modello del relé (1)	green LED / yellow LED		
Status display	2.5 mm² fixed screw type		
Housing material	UL94V-0 plastic material		
Approx. weight (4/8/16 relé)	207 g (7.31 oz)	379 g (13.38 oz)	756 g (26.69 oz)
Mounting information	vertical on rail adjacent without gap		
MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB		
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL		
Replacement relay (1)	Cat. No. 8904405		
Screw type jumper	—		



Solid state 24 Vdc relay modules with fuse

- For DC load
- Protection fuse on output
- Pluggable relay
- Status LED display



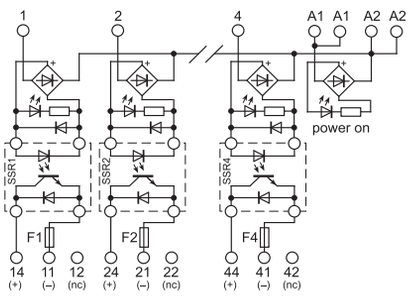
NOTES

(1) Relay model is not binding, they may be modified without prior warning. The technical data shown here is to be considered typical.
(2) The fuse must be dimensioned according to load. The max. value of 6.3 A is referred to EN60127-complying fuses and the homologation rated current of the fuse-holder. Fuses of a higher value may damage the fuse-holder and module.

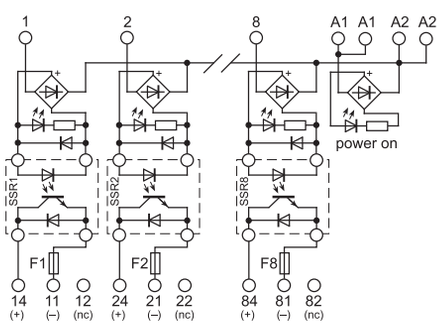
POWER SUPPLY

A1 = +	A2 = –	negative common
A1 = –	A2 = +	positive common

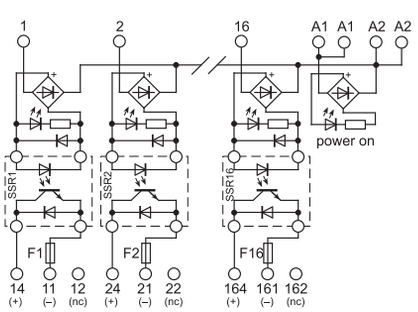
BLOCK DIAGRAM



4 relay module

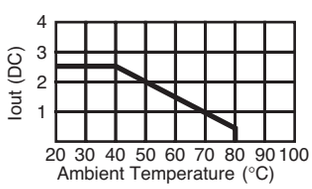


8 relay module



16 relay module

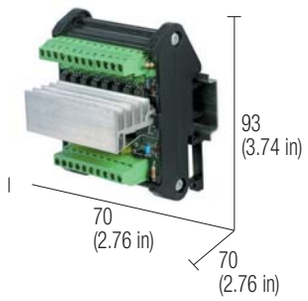
VERSIONS	Cat. No. XR041S24F	Cat. No. XR081S24F	Cat. No. XR161S24F
4 relay module	**R41S24F**		
8 relay module		**R81S24F**	
16 relay module			**R161S24F**
INPUT TECHNICAL DATA			
Input voltage	**24 Vdc** (19.2…28.8 Vdc)		
Level 1 (high) input signal	> 19.2 Vdc		
Level 0 (low) input signal	< 1 Vdc		
Rated current (1 channel)	< 20 mA		
Switching frequency	100 Hz max		
OUTPUT TECHNICAL DATA			
Output voltage	3…50 Vdc		
Continuous load current	2.5 A a 40°C (see chart)		
Max. current	4 A / 5 s - 20 A / 10 ms		
Leakage current 0 signal	0.1 mA		
OFF/ON switching time	100 µs / 1 ms		
Protection circuit	diodo		
Current of the fuse max.	—		
GENERAL TECHNICAL DATA			
Operating temperature range	-20...-60°C (see chart)		
I/O isolation	2.5 KVac / 60 s		
Isolation between output terminals	1 KVac / 60 s (between open contact)		
Protection degree	IP 00 IEC 529, EN60529		
Overvoltage category / Pollution degree	III / 2		
Reference Standard	IEC 664-1, DIN VDE 0110.1		
Status display	green LED / yellow LED		
Connection terminal	2.5 mm² fixed screw type		
Housing material	UL94V-0 plastic material		
Approx. weight	207 g (7.31 oz)	379 g (13.38 oz)	756 g (26.69 oz)
Mounting information	vertical on rail adjacent without gap		
MOUNTING ACCESSORIES			
Mounting rail type according to IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB		
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL		
Replacement relay (1)	Cat. No. 8904404		
Screw type jumper	—		



Solid state 24 Vdc relay modules with electronic protection

- Rated current output 8 x 2.5 A / 5 - 33 Vdc
- Short circuit, overload, over temperature, overvoltage output protection
- 12-24 Vdc negative common input, 8 status LED K1 and K8
- 8 output status LED, input/output anti polarity inversion diodes
- 70 mm wide

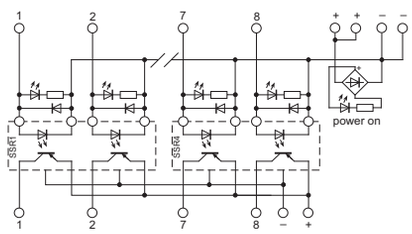
CE



NOTES

(1) Maximum output current of each channel depends on surrounding air temperature, on the number of output contemporarily active and on the current flowing through them; the given value is measured with 4 active outputs and 4 not active.

(2) All outputs are overcurrent and overtemperature; when ovd or ovt protections cuts off the output current, the output display led turns off or reduce its light depending on ovd degree; the output turns on automatically when the ovd or ovt are removed.



BLOCK DIAGRAM

VERSIONS	Cat. No. XCOP082
4 relay module	
8 relay module	**COP082**
16 relay module	
INPUT TECHNICAL DATA	
Input voltage	**5-24 Vdc** (range 4.2…32 Vdc) negative common
Level 1 (high) input signal	> 3.5 Vdc
Level 0 (low) input signal	< 3.5 Vdc
Rated current (1 channel)	5 mA ±10%.
Switching frequency	500 Hz
OUTPUT TECHNICAL DATA	
Output voltage	12-24 Vdc, (range 5…32 Vdc) negative common
Continuous load current	8 x 2.5 A @ 25°C (1)
Max. current	4.4 A
Leakage current 0 signal	25 µA max @ 24Vdc
OFF/ON switching time	200 Hz (Ton < 500 µs / Toff < 500 µs)
Protection circuit	electronic against short circuit / overload / overtemperature (2)
Min. applicable load	5.2 Vdc/ 100 mA
GENERAL TECHNICAL DATA	
Operating temperature range	-20...-60°C (with therml protection) (2)
I/O isolation	2.5 KVac / 60 s
Isolation between output terminals	1 KVac / 60 s (between open contact)
Protection degree	IP 00 IEC 529, EN60529
Overvoltage category / Pollution degree	III / 2
Reference Standard	IEC 664-1, DIN VDE 0110.1
Status display	green LED (DC OK) / yellow LED (output OK)
Connection terminal	2.5 mm^2 fixed screw type
Housing material	UL94V-0 plastic material
Approx. weight	
Mounting information	vertical on rail adjacent without gap

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35	PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB
Mounting rail type according to IEC60715/G32	PR/DIN/AC - PR/DIN/AS - PR/DIN/AL
Replacement relay (1)	—
Screw type jumper	—

Passive interface modules selection table

These tables allow you to quickly select only the items, then check if all product's technical data meet your application requirements.

Sub-D / Terminal modules

Version	Dimensions AxBxC	Tipology	Type	Cat. No.	Page
9 poles	37x66x93	(6)	ISD09FM	XISD09FM	142
	37x66x93	(5)	ISD09PF	XISD09PF	142
	37x66x93	(8)	ISD09PM	XISD09PM	142
15 poles	47x66x93	(6)	ISD15FM	XISD15FM	142
	47x66x93	(5)	ISD15PF	XISD15PF	142
	47x66x93	(8)	ISD15PM	XISD15PM	142
25 poles	70x66x93	(6)	ISD25FM	XISD25FM	142
	70x66x93	(5)	ISD25PF	XISD25PF	142
	70x66x93	(8)	ISD25PM	XISD25PM	142
	57x80x93	(5) (11)	CPD25F	XCPD25F	144
	57x80x93	(8) (11)	CPD25M	XCPD25M	144
37 poles	107x66x93	(6)	ISD37FM	XISD37FM	142
	107x66x93	(5)	ISD37PF	XISD37PF	142
	107x66x93	(8)	ISD37PM	XISD37PM	142
	77x80x93	(5) (11)	CPD37F	XCPD37F	144
	77x80x93	(8) (11)	CPD37M	XCPD37M	144
50 poles	92x80x93	(5) (11)	CPD50F	XCPD50F	144
	92x80x93	(8) (11)	CPD50M	XCPD50M	144

Diode-holder modules

Version	Dimensions AxBxC	Tipology	Type	Cat. No.	Page
8 diodes	25x60x76	(4)	CDM08CS	XCDM08CS	159
	45x65x93	(1)	CDM08AC	XCDM08AC	160
	45x65x93	(2)	CDM08CC	XCDM08CC	160
16 diodes	50x65x93	(4)	CDM16CS	XCDM16CS	159
	92x65x93	(1)	CDM16AC	XCDM16AC	160
	92x65x93	(2)	CDM16CC	XCDM16CC	160
24 diodes	71x65x93	(4)	CDM24CS	XCDM24CS	159
	137x65x93	(1)	CDM24AC	XCDM24AC	160
	137x65x93	(2)	CDM24CC	XCDM24CC	160
	137x65x93	(2)	CDM24CC	XCDM24CC	160

Lamp testing modules

Version	Dimensions AxBxC	Tipology	Type	Cat. No.	Page
8 diodes	45x65x93	(1)	CLT08AC	XCLT08AC	150
	45x65x93	(2)	CLT08CC	XCLT08CC	150
	45x65x93		CLP08CC	XCLP08CC	151
16 diodes	92x65x93	(1)	CLT16AC	XCLT16AC	150
	92x65x93	(2)	CLT16CC	XCLT16CC	150
	92x65x93		CLP16CC	XCLP16CC	151

Flat / Terminal modules

Version	Dimensions AxBxC	Tipology	Type	Cat. No.	Page
10 poles	42x66x93	(8)	IF10PMS	XIF10PMS	145
	42x66x93	(8) (7)	IF10PML	XIF10PML	145
14 poles	48x66x93	(8)	IF14PMS	XIF14PMS	145
	48x66x93	(8) (7)	IF14PML	XIF14PML	145
16 poles	58x66x93	(8)	IF16PMS	XIF16PMS	145
	58x66x93	(8) (7)	IF16PML	XIF16PML	145
20 poles	70x66x93	(8)	IF20PMS	XIF20PMS	145
	70x66x93	(8) (7)	IF20PML	XIF20PML	145
	47x80x93	(8) (11)	CPC20M	XCPC20M	146
26 poles	86x66x93	(8)	IF26PMS	XIF26PMS	145
	86x66x93	(8) (7)	IF26PML	XIF26PML	145
	57x80x93	(8) (11)	CPC26M	XCPC26M	146
34 poles	107x66x93	(8)	IF34PMS	XIF34PMS	145
	107x66x93	(8) (7)	IF34PML	XIF34PML	145
	70x80x93	(8) (11)	CPC34M	XCPC34M	146
40 poles	122x66x93	(8)	IF40PMS	XIF40PMS	145
	122x66x93	(8) (7)	IF40PML	XIF40PML	145
	77x80x93	(8) (11)	CPC40M	XCPC40M	146
50 poles	92x80x93	(8) (11)	CPC50M	XCPC50M	146
60 poles	107x80x93	(8) (11)	CPC60M	XCPC60M	146
64 poli	117x80x93	(8) (11)	CPC64M	XCPC64M	146

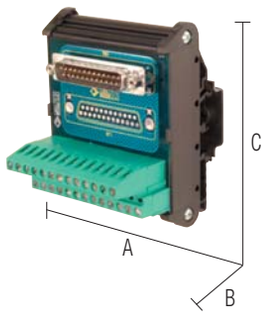
Component-holder modules

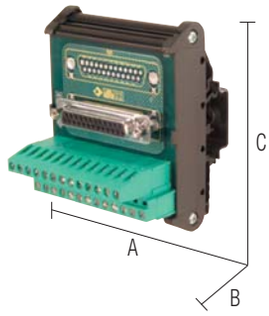
Version	Dimensions AxBxC	Tipology	Type	Cat. No.	Page
4 components	25x66x93	(9)	CCM04SF	XCCM04SF	147
8 components	25x66x93	(10)	CCM08SV	XCCM08SV	147
8 components	47x66x93	(9)	CCM08SF	XCCM08SF	147
8 components	38x66x93	(3)	CCM08CV	XCCM08CV	147
12 components	70x66x93	(9)	CCM12SV	XCCM12SV	147
16 components	47x66x93	(10)	CCM16SV	XCCM16SV	147
24 components	70x66x93	(10)	CCM24SV	XCCM24SV	147

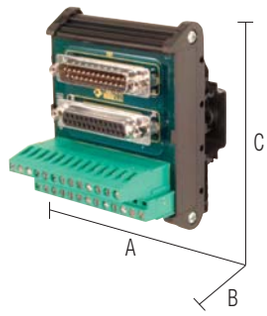
Legenda

(1) common anode
(2) common cathode
(3) with common terminal
(4) single diode
(5) female connector
(6) female + male connector
(7) with LED
(8) male connector
(9) single component with Faston terminals
(10) single component with terminal blocks
(11) compact dimensions

Passive interfaces (D-Sub/Terminals modules) ISD series



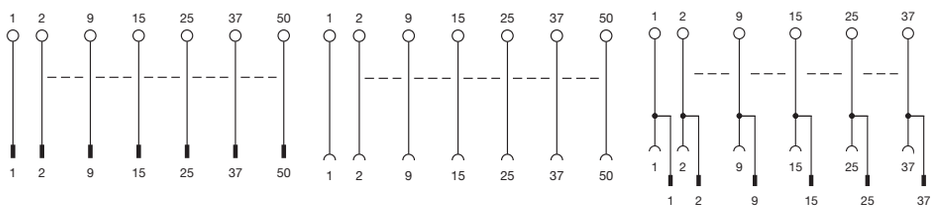




NOTES

These modules allow the transferimg to the terminals of the deriving signals on a cable with D-Sub connector type
The numeration is “pin-to-pin”.

BLOCK DIAGRAM



VERSIONS	DIMENSIONS (A x B x C)	male		female		male + female	
		Item	Cat. No.	Item	Cat. No.	Item	Cat. No.
9 poles	37x66x93 (1.46x2.60x3.66 in)	**ISD09PM**	**XISD09PM**	**ISD09PF**	**XISD09PF**	**ISD09FM**	**XISD09FM**
15 poles	47x66x93 (1.85x2.60x3.66 in)	**ISD15PM**	**XISD15PM**	**ISD15PF**	**XISD15PF**	**ISD15FM**	**XISD15FM**
25 poles	70x66x93 (2.76x2.60x3.66 in)	**ISD25PM**	**XISD25PM**	**ISD25PF**	**XISD25PF**	**ISD25FM**	**XISD25FM**
37 poles	107x66x93 (4.21x2.60x3.66 in)	**ISD37PM**	**XISD37PM**	**ISD37PF**	**XISD37PF**	**ISD37FM**	**XISD37FM**

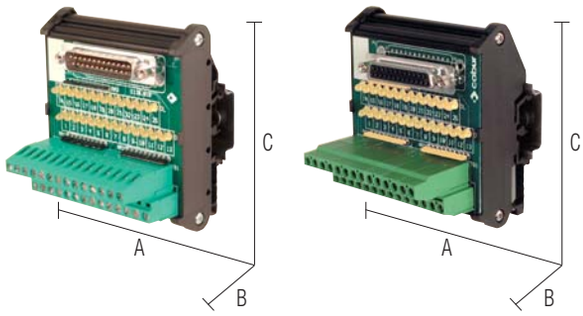
GENERAL TECHNICAL DATA			
Rated voltage	0...50 Vac / 0...75 Vdc	0...50 Vac / 0...75 Vdc	0...50 Vac / 0...75 Vdc
Rated current	2 A max.	2 A max.	2 A max.
Operating temperature	-20…+60°C	-20…+60°C	-20…+60°C
Protection degree	IP00 IEC529; EN60529	IP00 IEC529; EN60529	IP00 IEC529; EN60529
Reference Standard	IEC 664-1; DIN VDE 0110.1	IEC 664-1; DIN VDE 0110.1	IEC 664-1; DIN VDE 0110.1
Pollution degree	2	2	2
Overvoltage category	II	II	II
Housing material	polyamide UL94V-0	polyamide UL94V-0	polyamide UL94V-0
Connection terminal blocks	2.5 mm^2 fixed screw type (AWG 14)	2.5 mm^2 fixed screw type (AWG 14)	2.5 mm^2 fixed screw type (AWG 14)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap	vertical on rail adjacent without gap

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35	**PR/3/AC - PR/3/AS**
Mounting rail type according to IEC60715/G32	**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Jumper bridge black	—

Passive interfaces (D-Sub/Terminals modules) ISD series

• With LED to display the status

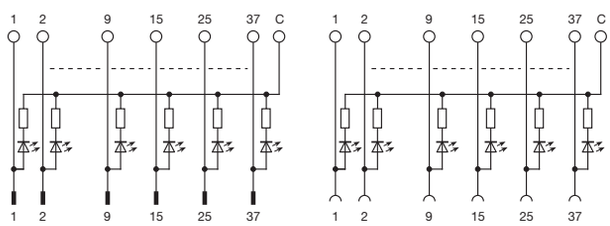
Item available till sell-out



NOTES

These modules allow the transferimg to the terminals of the deriving signals on a cable with D-Sub connector type
The numeration is "pin-to-pin"
(1) The LEDs are predisposed for a nominal voltage of 24 Vdc and negative common.

BLOCK DIAGRAM



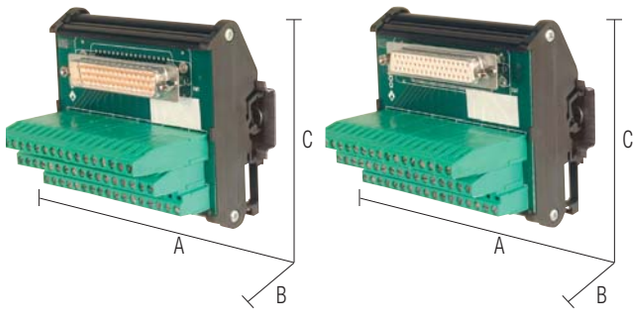
VERSIONS	DIMENSIONS (A x B x C)	male Item	male Cat. No.	female Item	female Cat. No.
25 poles	80x66x93 (3.15x2.60x3.66 in)	**ISD25PML**	**XISD25PML**	**ISD25PFL**	**XISD25PFL**
37 poles	109x66x93 (4.30x2.60x3.66 in)	**ISD37PML**	**XISD37PML**	**ISD37PFL**	**XISD37PFL**

GENERAL TECHNICAL DATA	
Rated voltage	12...24 Vdc ±10% (1)
Rated current	2 A max.
Operating temperature	-20…+60°C
Protection degree	IP00 IEC529; EN60529
Reference Standard	IEC 664-1; DIN VDE 0110.1
Pollution degree	2
Overvoltage category	II
Housing material	polyamide UL94V-0
Connection terminal blocks	2.5 mm^2 fixed screw type (AWG 14)
Mounting information	vertical on rail adjacent without gap

MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35		**PR/3/AC - PR/3/AS**
Mounting rail type according to IEC60715/G32		**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Jumper bridge	black	—

Passive interfaces (D-Sub/Terminals modules) CPD series

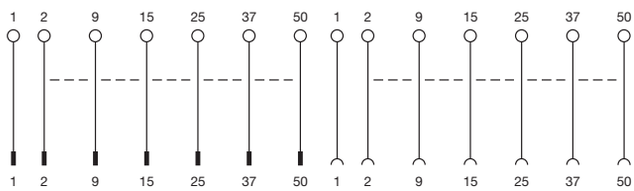
• Compact dimensions



NOTES

These modules allow the transferimg to the terminals of the deriving signals on a cable with D-Sub connector type.
The numeration is “pin-to-pin”.
(1) Version available upon request

BLOCK DIAGRAM



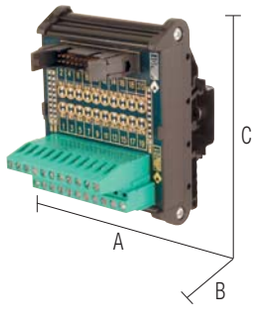
VERSIONS	DIMENSIONS (A x B x C)	male Item	male Cat. No.	female Item	female Cat. No.
25 poles	57x80x93 (2.24x3.15x3.66 in)	**CPD25M**	**XCPD25M**	**CPD25F**	**XCPD25F**
37 poles	77x80x93 (3.03x3.15x3.66 in)	**CPD37M**	**XCPD37M**	**CPD37F**	**XCPD37F**
50 poles	92x80x93 (3.62x3.15x3.66 in)	**CPD50M**	**XCPD50M**	**CPD50F**	**XCPD50F**

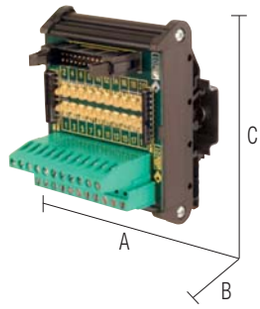
GENERAL TECHNICAL DATA	
Rated voltage	0...50 Vac / 0...75 Vdc
Rated current	2 A max.
Operating temperature	-20…+60°C
Protection degree	IP00 IEC529; EN60529
Reference Standard	IEC 664-1; DIN VDE 0110.1
Pollution degree	2
Overvoltage category	II
Housing material	polyamide UL94V-0
Connection terminal blocks	2.5 mm^2 fixed screw type (AWG 14)
Mounting information	vertical on rail adjacent without gap

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35	**PR/3/AC - PR/3/AS**
Mounting rail type according to IEC60715/G32	**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Jumper bridge black	—

Passive interfaces (I.D.C./Terminal blocks) IF series

• Available with LED to display the status

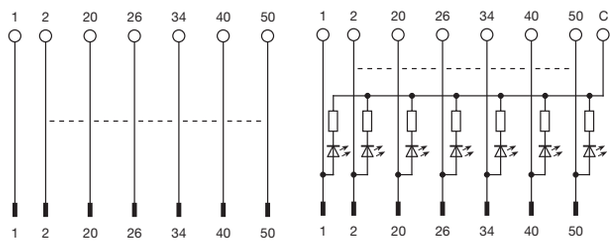




NOTES

The modules allow the transfering to the terminals the deriving signals on Flat-cable through the employment of IDC ribbon cable connectors (with insulation displacement).
The numeration is "pin-to-pin".
(1) Version available upon request
(2) The LEDs are predisposed for a nominal voltage of 24 Vdc and negative common

BLOCK DIAGRAM



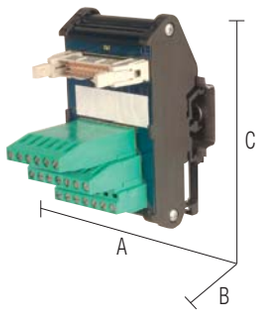
VERSIONS	DIMENSIONS (A x B x C)	Without LED Item	Without LED Cat. No.	With LED Item	With LED Cat. No.
10 poles	42x66x93 (1.65x2.60x3.66 in)	**IF10PMS (1)**	**XIF10PMS**	**IF10PML (1)**	**XIF10PML**
14 poles	48x66x93 (1.89x2.60x3.66 in)	**IF14PMS (1)**	**XIF14PMS**	**IF14PML (1)**	**XIF14PML**
16 poles	58x66x93 (2.28x2.60x3.66 in)	**IF16PMS**	**XIF16PMS**	**IF16PML**	**XIF16PML**
20 poles	70x66x93 (2.76x2.60x3.66 in)	**IF20PMS**	**XIF20PMS**	**IF20PML**	**XIF20PML**
26 poles	86x66x93 (3.39x2.60x3.66 in)	**IF26PMS**	**XIF26PMS**	**IF26PML**	**XIF26PML**
34 poles	107x66x93 (4.21x2.60x3.66 in)	**IF34PMS**	**XIF34PMS**	**IF34PML**	**XIF34PML**
40 poles	122x66x93 (4.80x2.60x3.66 in)	**IF40PMS**	**XIF40PMS**	**IF40PML**	**XIF40PML**

GENERAL TECHNICAL DATA		
Rated voltage	0...50 Vac / 0...75 Vdc	12...24 Vdc ±10% (2)
Rated current	750 mA max.	750 mA max.
Operating temperature	-20…+60°C	-20…+60°C
Protection degree	IP00 IEC529; EN60529	IP00 IEC529; EN60529
Reference Standard	IEC 664-1; DIN VDE 0110.1	IEC 664-1; DIN VDE 0110.1
Pollution degree	2	2
Overvoltage category	II	II
Housing material	polyamide UL94V-0	polyamide UL94V-0
Connection terminal blocks	2.5 mm^2 fixed screw type (AWG 14)	2.5 mm^2 fixed screw type (AWG 14)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35	**PR/3/AC - PR/3/AS**
Mounting rail type according to IEC60715/G32	**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Jumper bridge black	—

Passive interfaces (I.D.C./Terminal blocks) CPC series

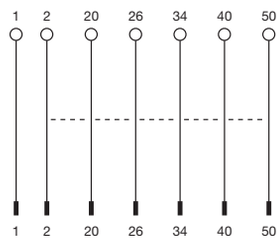
• Compact dimensions



NOTES

The modules allow the transferring to the terminals of the deriving signals on Flat-cable through the employment of IDC ribbon cable connectors (with insulation displacement).
The numeration is “pin-to-pin”.

BLOCK DIAGRAM



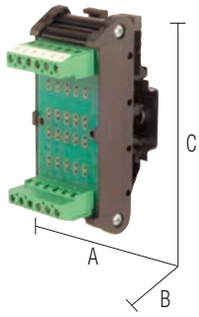
VERSIONS	DIMENSIONS (A x B x C)	without LED Item	without LED Cat. No.
20 poles	47x80x93 (1.85x3.15x3.66 in)	**CPC20M**	**XCPC20M**
26 poles	57x80x93 (2.24x3.15x3.66 in)	**CPC26M**	**XCPC26M**
34 poles	70x80x93 (2.76x3.15x3.66 in)	**CPC34M**	**XCPC34M**
40 poles	77x80x93 (3.03x3.15x3.66 in)	**CPC40M**	**XCPC40M**
50 poles	92x80x93 (3.62x3.15x3.66 in)	**CPC50M**	**XCPC50M**
60 poles	107x80x93 (4.21x3.15x3.66 in)	**CPC60M**	**XCPC60M**
64 poles	117x80x93 (4.61x3.15x3.66 in)	**CPC64M**	**XCPC64M**

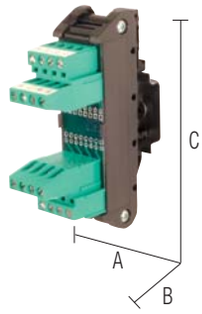
GENERAL TECHNICAL DATA	
Rated voltage	0...50 Vac / 0...75 Vdc
Rated current	750 mA max.
Operating temperature	-20…+60°C
Protection degree	IP00 IEC529; EN60529
Reference Standard	IEC 664-1; DIN VDE 0110.1
Pollution degree	2
Overvoltage category	II
Housing material	polyamide UL94V-0
Connection terminal blocks	2.5 mm^2 fixed screw type (AWG 14)
Mounting information	vertical on rail adjacent without gap

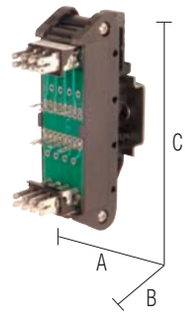
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35		**PR/3/AC - PR/3/AS**
Mounting rail type according to IEC60715/G32		**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Jumper bridge	black	—

Component-holders modules CCM series

- Compact dimensions
- Available with fast-on connection



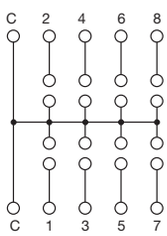


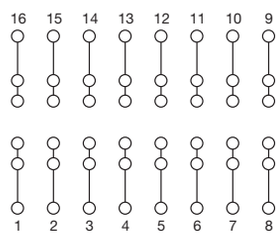


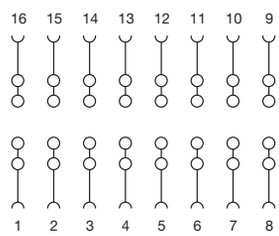
NOTES

The component-holders modules allow the montage of electronic components (diodes, resistors, capacitors etc.) according to customer needs.
They are available with connections with terminal blocks or Faston, and with holes of different diameters for the terminals of the components.
(1) Version available upon request; for info call our sales dept., local agent or representative

BLOCK DIAGRAM







VERSIONS	DIMENSIONS (A x B x C)	with common terminal Item	with common terminal Cat. No.	single with terminals Item	single with terminals Cat. No.	single with Faston Item	single with Faston Cat. No.
4 components	25x66x93 (0.98x2.60x3.66 in)	—		—		**CCM04SF**	**XCCM04SF**
8 components	25x66x93 (0.98x2.60x3.66 in)	—		**CCM08SV**	**XCCM08SV**	—	
8 components	47x66x93 (1.85x2.60x3.66 in)	—		—		**CCM08SF**	**XCCM08SF**
8 components	25x55x93 (0.98x2.17x3.66 in)	**CCM08CV**	**XCCM08CV**	—		—	
12 components	70x66x93 (2.76x2.60x3.66 in)	—		—		**CCM12SF (1)**	**XCCM12SF**
16 components	47x66x93 (1.85x2.60x3.66 in)	**CCM16CV**	**XCCM16CV**	**CCM16SV**	**XCCM16SV**	—	
24 components	70x66x93 (2.76x2.60x3.66 in)	—		**CCM24SV (1)**	**XCCM24SV**	—	

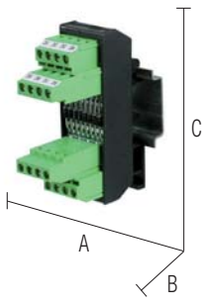
GENERAL TECHNICAL DATA			
Rated voltage	0...220 V ±10%	0...100 V ±10%	0...100 V ±10%
Rated current	5 A (chanel) / 15 A (common)	2 A max. (on the common)	2 A max. (on the common)
Operating temperature	-20…+60°C	-20…+60°C	-20…+60°C
Protection degree	IP00 IEC529; EN60529	IP00 IEC529; EN60529	IP00 IEC529; EN60529
Reference Standard	IEC 664-1; DIN VDE 0110.1	IEC 664-1; DIN VDE 0110.1	IEC 664-1; DIN VDE 0110.1
Pollution degree	2	2	2
Overvoltage category	II	II	II
Housing material	polyamide UL94V-0	polyamide UL94V-0	polyamide UL94V-0
Connection terminal blocks	2.5 mm^2 fixed screw type (AWG 14)	2.5 mm^2 fixed screw type (AWG 14)	2.5 mm^2 fixed screw type (AWG 14)
Mounting information	vertical on rail adjacent without gap	vertical on rail adjacent without gap	vertical on rail adjacent without gap

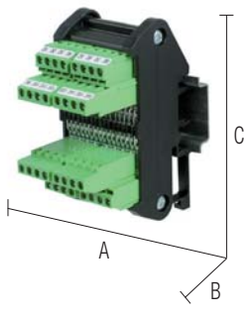
MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35	**PR/3/AC - PR/3/AS**
Mounting rail type according to IEC60715/G32	**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Jumper bridge black	—

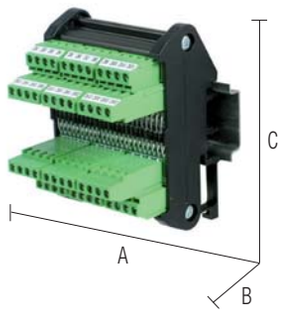
The PMC series has changed its Cat. No. into CCM series, these are the cross reference list.

Old item	New item
PMC0001	**CCM08CV**
PMC0002	**CCM08SV**
PMC0003	**CCM16SV**
PMC0004	**CCM24SV**
PMC0005	**CCM04SF**
PMC0006	**CCM08SF**
PMC0007	**CCM12SF**

Diode-holder modules with single diodes CDM series

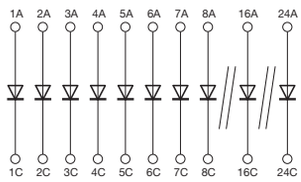






NOTES

BLOCK DIAGRAM



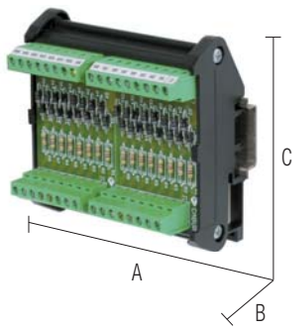
VERSIONS	DIMENSIONS (A x B x C)
8 diodes	25x60x76 (0.98x2.36x3.66 in)
16 diodes	50x65x93 (1.97x2.56x3.66 in)
24 diodes	71x65x93 (2.80x2.56x3.66 in)

single diode	
Item	**Cat. No.**
CDM08CS	**XCDM08CS**
CDM16CS	**XCDM16CS**
CDM24CS	**XCDM24CS**

GENERAL TECHNICAL DATA	
Rated voltage	0…100 V ±10%
Rated current	1 A max.
Diode type	1N4007
Repetitive peak reverse voltage	1000 V
Operating temperature	-20…+60°C
Protection degree	IP00 IEC529; EN60529
Reference Standard	IEC 664-1; DIN VDE 0110.1
Pollution degree	2
Overvoltage category	II
Housing material	polyamide UL94V-0
Connection terminal blocks	2.5 mm^2 fixed screw type (AWG 14)
Mounting information	vertical on rail adjacent without gap

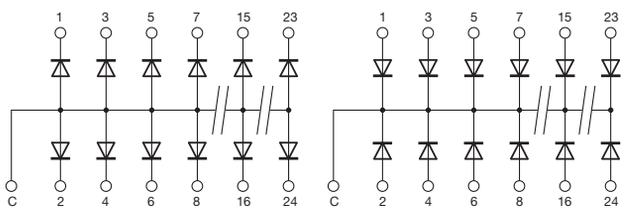
MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35		**PR/3/AC - PR/3/AS**
Mounting rail type according to IEC60715/G32		**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Jumper bridge	black	—

Diode-holder modules with common terminal CDM series



NOTES

BLOCK DIAGRAM



VERSIONS	DIMENSIONS (A x B x C)
8 diodes	45x65x93 (1.77x2.56x3.66 in)
16 diodes	92x65x93 (3.62x2.56x3.66 in)
24 diodes	137x65x93 (5.39x2.56x3.66 in)

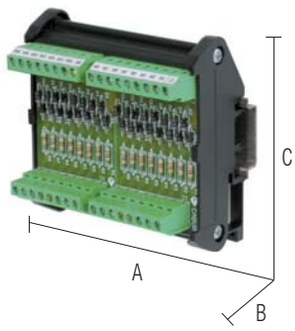
common anode		common cathode	
Item	**Cat. No.**	**Item**	**Cat. No.**
CDM08AC	**XCDM08AC**	**CDM08CC**	**XCDM08CC**
CDM16AC	**XCDM16AC**	**CDM16CC**	**XCDM16CC**
CDM24AC	**XCDM24AC**	**CDM24CC**	**XCDM24CC**

GENERAL TECHNICAL DATA	
Rated voltage	0…230 V ±10%
Rated current	1 A (channel) / 15 A (common).
Operating temperature	1N4007
Diode type	1000 V
Repetitive peak reverse voltage	-20…+60°C
Protection degree	IP00 IEC529; EN60529
Reference Standard	IEC 664-1; DIN VDE 0110.1
Pollution degree	2
Overvoltage category	II
Housing material	polyamide UL94V-0
Connection terminal blocks	2.5 mm² fixed screw type (AWG 14)
Mounting information	vertical on rail adjacent without gap

MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35		**PR/3/AC - PR/3/AS**
Mounting rail type according to IEC60715/G32		**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Jumper bridge	black	—

LED testing modules
CLT series

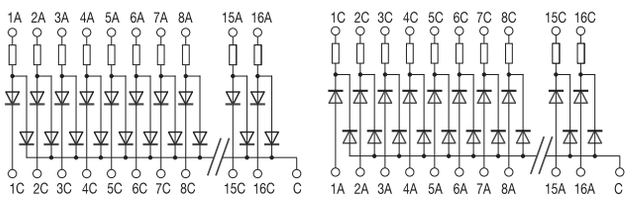
- Compact dimensions
- Integrated limitation resistence
- Suitable only for LED without resistance limiter
- Not suitable for LED lamp with internal limiter circuit



NOTES

(1) Led test can be performed through a negative signal on the common output
(2) Led test can be performed hrough a positive signal on the common input

BLOCK DIAGRAM



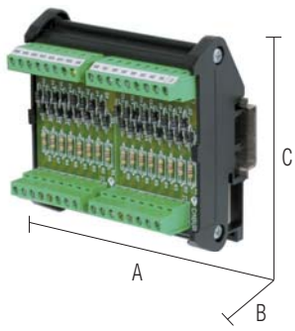
VERSIONS	DIMENSIONS (A x B x C)	common negative (1) Item	common negative (1) Cat. No.	common positive (2) Item	common positive (2) Cat. No.
8 channels	45x65x93 (1.77x2.56x3.66 in)	**CLT08AC**	**XCLT08AC**	**CLT08CC**	**XCLT08CC**
16 channels	92x65x93 (3.62x2.56x3.66 in)	**CLT16AC**	**XCLT16AC**	**CLT16CC**	**XCLT16CC**

GENERAL TECHNICAL DATA	
Rated voltage	24 Vdc max. 30 Vdc
Rated current (1 channel)	5 mA @ 24 Vdc
Diode type	1N4007
Limitation resistence	4,7 KΩ 1/4 W ±5%
Repetitive peak reverse voltage	1000 V
Operating temperature	-20…+45°C
Housing material	polyamide UL94V-0
Protection degree	IP 00 IEC529, EN60529
Connection terminal blocks	2.5 mm^2 fixed screw type
Mounting information	vertical on rail adjacent without gap

MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35		**PR/3/AC – PR/3/AC/ZB – PR/3/AS – PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32		**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Jumper bridge	black	—

Lamp testing modules
CLP series

- Compact dimensions
- Suitable also for LED lamp with resistance limiter



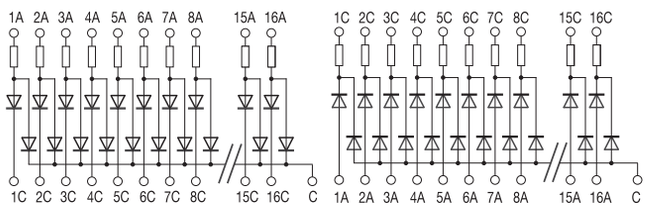
NOTES

With AC input, the diodes rectify the current and the power will be halved.

(1) Led test can be performed through a negative signal on the common output

(2) Led test can be performed hrough a positive signal on the common input

BLOCK DIAGRAM



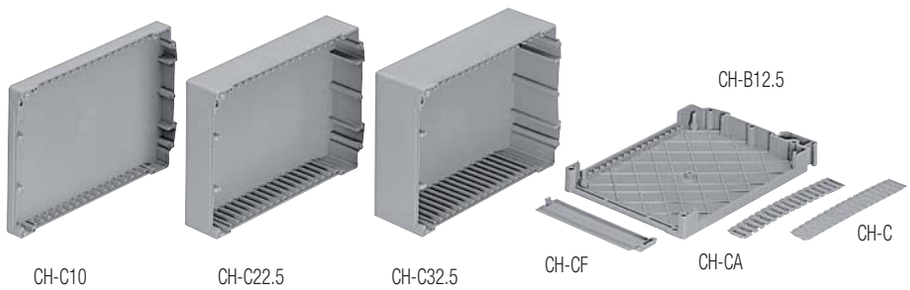
VERSIONS	DIMENSIONS (A x B x C)	common negative (1) Item	common negative (1) Cat. No.	common positive (2) Item	common positive (2) Cat. No.
8 channels	45x65x93 (1.77x2.56x3.66 in)			**CLP08CC**	**XCLP08CC**
16 channels	92x65x93 (3.62x2.56x3.66 in)			**CLP16CC**	**XCLP16CC**

GENERAL TECHNICAL DATA	
Rated voltage	230 Vac/dc
Rated current (1 channel)	100 mA @ 120 Vac/dc; 50 mA @ 230 Vac/dc
Diode type	1N4007
Limitation resistence	0
Repetitive peak reverse voltage	700 V
Operating temperature	-20…+45°C
Housing material	polyamide UL94V-0
Protection degree	IP 00 IEC529, EN60529
Connection terminal blocks	2.5 mm^2 fixed screw type
Mounting information	vertical on rail adjacent without gap

MOUNTING ACCESSORIES		
Mounting rail type according to IEC60715/TH35		**PR/3/AC – PR/3/AC/ZB – PR/3/AS – PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32		**PR/DIN/AC - PR/DIN/AS - PR/DIN/AL**
Jumper bridge	black	—

Housing for custom applications CH series

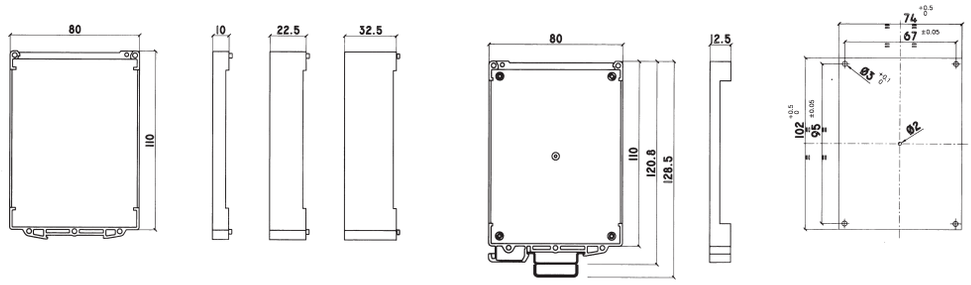
• Available on 3 measures



NOTES

(1) Maximum height of the components measured between the circuit and the cover

BLOCK DIAGRAM



VERSIONS

	Item	Cat. No.
Right side with hook for DIN rail, 12.5 mm	**CH-B12.5**	**XBB125**
Left side housing, 10 mm	**CH-C10**	**XBC010**
Left side housing, 22.5 mm	**CH-C22.5**	**XBC225**
Left side housing, 32.5 mm	**CH-C32.5**	**XBC325**
Openable hinged cover	**CH-S**	**XBS000**
Vented cover	**CH-CA**	**XBCA00**
Enclosed cover	**CH-C**	**XBC000**
fixed hinged cover	**CH-CF**	**XBCF00**

GENERAL TECHNICAL DATA

Material	Poliammide UL94V-0
Colour	RAL 5014
Temperature	max 80 °C
Dissipated power	max 7 W
Protection degree	fino a IP30
Number of poles for every side	16 +16 (5.08)
Number of poles on the top	10 (5.08)
Mounting information	

MOUNTING ACCESSORIES

Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AS**
Mounting rail type according to IEC60715/G32	—
Jumper bridge red	—
white	—
blue	—

APPLICATIONS

CH electronic housings

With the CH (Cabur Housing) series containers, Cabur proposes a modular system which allows you to obtain boxes with 3 width sizes 22.5 mm - 35 mm - 45 mm - composed by 8 easy-to-assemble parts.
The circuit can have a maximum size of 102 x 74 mm and can be inserted on 4 small columns formed in the base which holds it in position.
Additional anchorage of the circuit is possible with a 2.2 x 4.5 mm self-threading screw to be screwed into the central column, also allowing small circuit to be mounted.
The conductors are connected with 2.5 mm pluggable terminals, which are readily available.
16 connection poles which can be used with pitch of 5.08 on each side and 10 on the front side.
The CH-S front closure, with panel opening, provides access to the internal circuit for work on the potentiometers, jumpers and micro-switches.
The side covers are availbale with ventilating holes or closed, and are pre-cutted with 5.08 mm pitch, to make possible an easy cut into necessary lenght with a pair of scissors, for an easy fit to final dimensions.
The following are required for a composition of a housing::

• 1 CH-B12.5 base 12.5 mm wide
• 1 cover (3 sizes available)

CH-C10	10 mm wide
CH-C22.5	22.5 mm wide
CH-C32.5	32.5 mm wide

(by adding together the width of the base 12.5 mm with the width of the cover chosen from the 4 available, the total width of the housing is obtained)

• 1 front closure in two versions:

CH-S	with panel opening
CH-CF	fixed

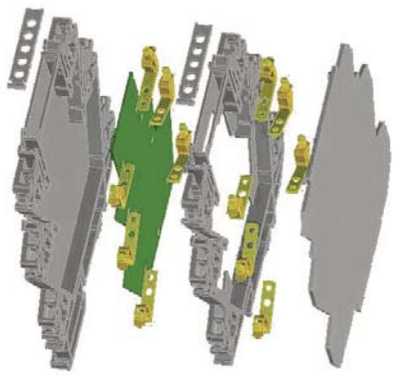
• 2 side closures in two versions:

CH-C	without vents
CH-CA	with vents

Interior height max (1)	CH-B12.5	CH-C10	CH-C22.5	CH-C32.5	CH-S	CH-CA CH-C
19.1 mm	1	1			1	2
31.6 mm	1		1		1	2
41.6 mm	1			1	1	2

Housing for custom applications CK series

- 6 mm wide, expandable modules
- 6 spring-clamp 2,5 mm² / AWG 26 ÷ 14 terminal blocks
- Jumper insertion possibility on each of the 4 levels
- Hinged front cover access to the printed circuit board



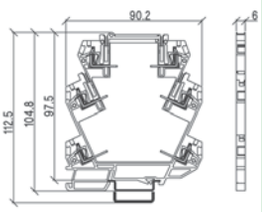
NOTES

(1) 6 spring-clamp terminal blocks included with solder contact

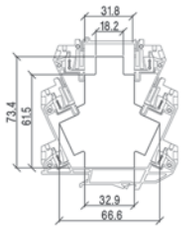
(2) In order to assure the IP20 protection degree, the last module must be protected and insulated using the CK/PT end section

BLOCK DIAGRAM

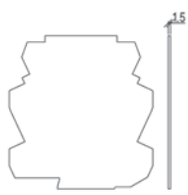
CKB e CKBG



CKBX2

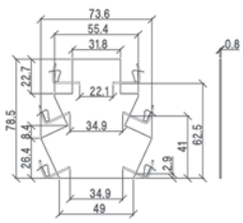


CKPT



CKS

CKPCB



VERSIONS	Item	Cat. No.
Standard base	**CKB** (1)	**XCKB**
Base element with ground contact	**CKBG** (1)	**XCKBG**
Expansion module	**CKBX2** (1)	**XCKX2**
End section	**CK/PT**	**XCKPT**
Front hinge cover	**CK/S**	**XCKS**
Printed circuit board	**CK/PCB**	**8901028**

GENERAL TECHNICAL DATA		
Rated voltage of each terminal block		230 Vac/dc ± 10%
Rated current of each terminal block		≤ 24 A
Operating temperature		-40...+ 100°C
Protection degree (2)		IP20 IEC529 EN60529
Connection terminals		2.5 mm², AWG26-14 spring type
Housing material		polyamide UL 94V0
Approx. weight		20 g (CKB, CKBG), 15 g (CKX2, CK/PT) 20 g (CK/PT), 1 g (CK/S), 5 g (CK/PCB)
Parallel bridge	**PTC/CK/42**	Cat. No. PTCCK42 (42 poli)
Marking tags blank	**CNU/8/030**	Cat. No. NU0851
Mounting information		on rail

MOUNTING ACCESSORIES	
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—
Jumper bridge red	—
white	—
blue	—

APPLICATIONS

With the CK series modular housings, Cabur offers a modular system that provides housings with increasing dimensions in width for simple components as diodes, resistors or more complex circuits with or without the support of a printed circuit board. For the composition of an housing the following items are necessary:

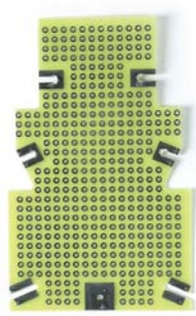
- a base support element, available in two versions: CKB and CKBG; the latter is provided with an electric metal contact on the DIN rail that allows to connect the internal circuit to the ground. Ground contact towards the DIN rail can carry an impulsive current value of 5 KA (8/20 peak). Both models have an external width of 6 mm and internal width of 5 mm; they are also equipped with 6 springclamp terminal blocks and 4 slots for the insertion of a jumper;
- one or more CKBX2 type expansion modules similar to the base support element, having therefore an external width of 6 mm and a central slot that allows the housing of the bulky components with a height exceeding the overall height of the base support element; the expansion module is also equipped with 6 spring-clamp terminal blocks and 4 slots for the insertion of a jumper;
- the CK/S front cover, granting access to the interior of the product, is also available. Once in open position it has such a dimension in order to guarantee a IPXXB degree of protection, even when it is not employed;
- in order to assure the IPXXB protection degree, the last module must be protected and insulated using the CK/PT end section;
- the CK/PCB printed circuit board is also available; it is useful in low volume custom applications where a special pcb is not designed and also where one requires a prototype without tooling a special printed circuit board.

Ground contact on CKBG

CKBX2

CKB

CK/PCB



Plug-in jumper for CK series

Notes:

(1) Example of a pre-cut 9 position jumper

(2) CK/PT end section must be mounted on last module to assure IP20 protection degree

(3) 32 A is the maximum current; however this value is limited by the rated current of the spring-clamp terminal blocks down to 24 A; for instance, having a jumper of 11 poles (1 for common and 10 for distribution) a current of 2.4 A can be distributed on every poles

(1)

VERSIONS	Item	Cat. No.
	PTC/CK/42	PTCCK42

GENERAL TECHNICAL DATA	
Protection degree (2)	IP20 IEC529; EN60529
Number of poles	42
Pitch	6 mm (0.24 in)
Rated current carrying capacity of jumper (3)	32 A
Insulation color	—
Material	tin copper alloy
Approx. weight	27 g (0.95 oz) (42 poles)

Plug-in jumper for CW..7 series

VERSIONS	Item	Cat. No.	Item	Cat. No.	Item	Cat. No.
	CWBK 7-0802	X766802	CWBK 7-0803	X766803	CWBK 7-0804	X766804

GENERAL TECHNICAL DATA			
Protection degree	IP20 IEC529; EN60529	IP20 IEC529; EN60529	IP20 IEC529; EN60529
Number of poles	16	16	16
Pitch	6.2 mm (2.44 in)	6.2 mm (2.44 in)	6.2 mm (2.44 in)
Rated current carrying capacity of jumper	16 A	16 A	16 A
Insulation color	red	white	blue
Material	—	—	—
Approx. weight	4 g (0.14 oz)	4 g (0.14 oz)	4 g (0.14 oz)

Plug-in jumper for CWRE series

VERSIONS	Item	Cat. No.
	CWBK 7-0813	X766813

GENERAL TECHNICAL DATA	
Protection degree	IP20 IEC529; EN60529
Number of poles	20
Pitch	6.2 mm (2.44 in)
Rated current carrying capacity of jumper	16 A
Insulation color	blue
Material	—
Approx. weight	6 g (0.21 oz)

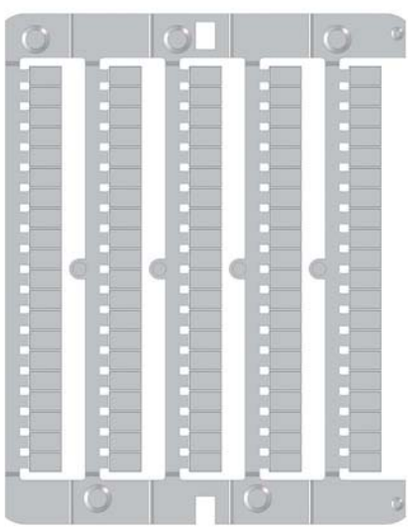
Screw type jumper for CM series

VERSIONS	Item	Cat. No.	Item	Cat. No.
	CMB16B	**XCMB16B**	**CMB27B**	**XCMB27B**

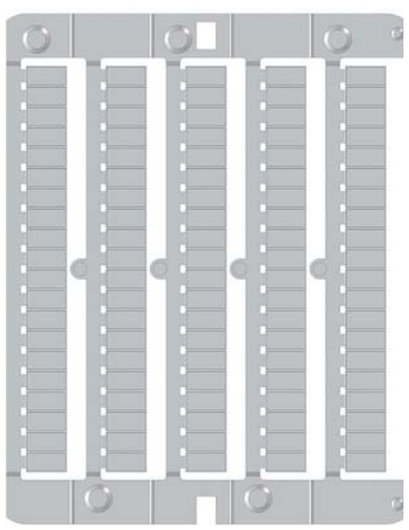
GENERAL TECHNICAL DATA		
Protection degree	IP20 IEC529; EN60529	IP20 IEC529; EN60529
Number of poles	8	8
Pitch	16 mm (0.63 in)	27 mm (1.06 in)
Rated current carrying capacity of jumper	16 A	16 A
Insulation color	black	black
Material	—	—
Approx. weight	3 g (0.10 oz)	3 g (0.10 oz)

Marking systems

Note:
White polycarbonate marking tags to number the terminal blocks of the CK Series modules and CWRE Series converters. To be directly inserted in dedicated holders before or after terminal board preparation.
They come in packages of 15 modules of 100 marking tags each, for a total of 1,500 marking tags.
The table shows only blank marking tags, available in packages of 1,500 pieces each, which can be written on manually using special pens or printed using an industrial marking system. In particular, **the marking tags shown here can be printed using the innovative CaburJet system and with the CaburPlot plotte**r.
In addition to blank marking tags, CNU/8/51 preprinted marking tags are also available with alpha-numeric characters and with the most common electrical symbols.
For more information, please consult the Industrial Marking Systems catalogue.



Type **CNU/8/51** code NU0851

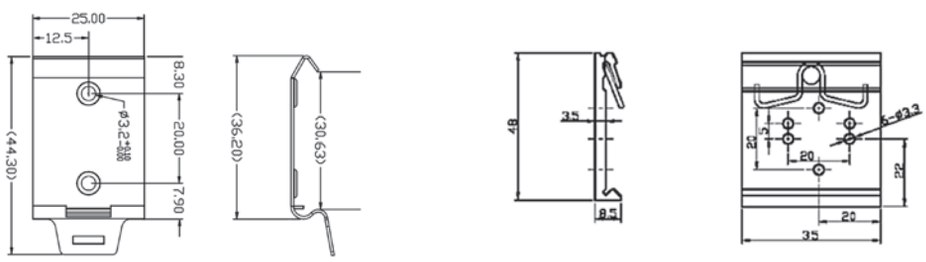


Type **NUPUTUK50** code NUPUTUK50

Description	Sigle	Code
Marking tags for marking CK Series modules	**CNU/8/51**	NU0851
Marking tags for marking CWRE Series converters	**NUPUTUK50**	NUPUTUK50

DIN rail clamp

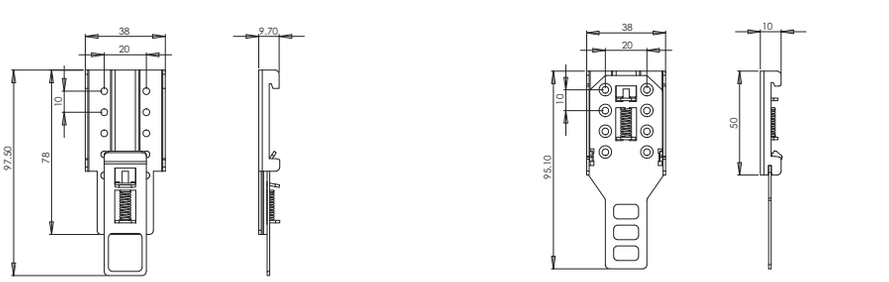
DIMENSION



VERSIONS	Item	Cat. No.	Item	Cat. No.
	CDIN-2	XCDIN2	CDIN-4	XCDIN4

GENERAL TECHNICAL DATA		
Type of material	P13-FE00	aluminium
Treatment	black passivated	—
Mounting information	screws or rivets	screws or rivets
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—	—

DIMENSION

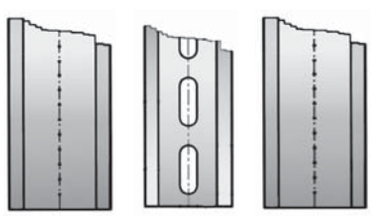
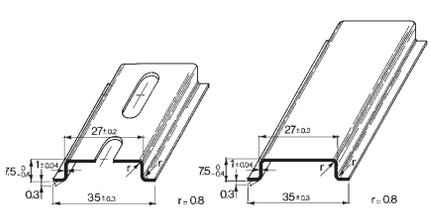
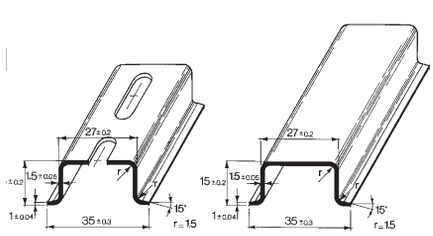
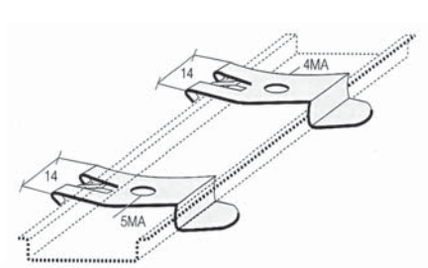


VERSIONS	Item	Cat. No.	Item	Cat. No.
	CDIN-5	XCDIN5	CDIN-M	XCDINM45

GENERAL TECHNICAL DATA		
Type of material	P13-FE00	P13-FE00
Treatment	white zinc-plated	zinc-plated
Mounting information	screws or rivets	screws
Mounting rail type according to IEC60715/TH35-7.5	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**	**PR/3/AC, PR/3/AC/ZB, PR/3/AS, PR/3/AS/ZB**
Mounting rail type according to IEC60715/G32	—	—

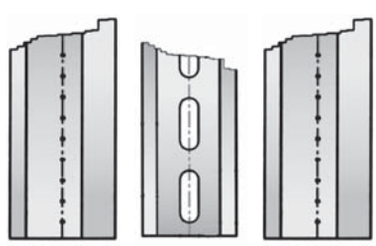
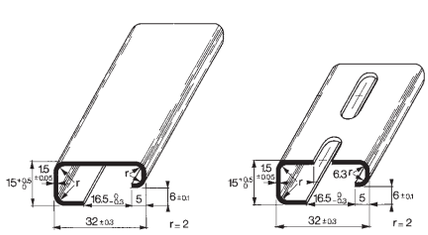
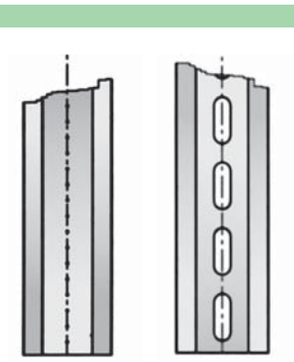
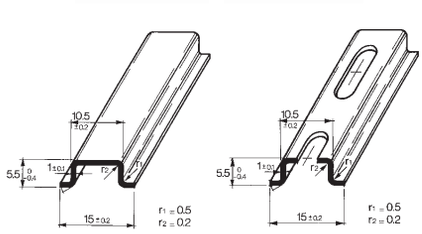
Mounting rails

- according to IEC 60715/TH35 - 7,5
- according to IEC 60715/TH35 - 15
- **supports for TH/35 type rail**

DESCRIPTION	TYPE / CAT. NO.	BLOCK DIAGRAMS
IEC 60715/TH35 - 7.5 rail of passivated steel	**PR/3/AC** Cat. No. PR003	
IEC 60715/TH35 - 7.5 rail of white zinc-plated steel "SENDZMIR" system	**PR/3/AC/ZB** Cat. No. PR903	
IEC 60715/TH35 - 7.5 rail of passivated steel with slots	**PR/3/AS** Cat. No. PR005	
IEC 60715/TH35 - 7.5 rail of white zinc-plated steel "SENDZMIR" system with slots	**PR/3/AS/ZB** Cat. No. PR905	
IEC 60715/TH35 - 15 rail of passivated steel	**PR/3/PP** Cat. No. PR007	
IEC 60715/TH35 - 15 rail of white zinc-plated steel "SENDZMIR" system	**PR/3/PP/ZB** Cat. No. PR907	
IEC 60715/TH35 - 15 rail of passivated steel with slots	**PR/3/PA** Cat. No. PR006	
IEC 60715/TH35 - 15 rail of white zinc-plated steel "SENDZMIR" system with slots	**PR/3/PA/ZB** Cat. No. PR906	
Support for IEC 60715/TH35 rail of nickel plated steel and with rapid mounting system 4 MA	**ACI121017** Cat. No. Z121017	
Support for IEC 60715/TH35 rail of nickel plated steel and with rapid mounting system 5 MA	**ACI121019** Cat. No. Z121019	

Mounting rails

- according to IEC 60715 “G32” type rail
- according to IEC 60715/TH15 - 5.5

DESCRIPTION	TYPE / CAT. NO.	IMAGES
IEC 60715 “G32” type rail of passivated steel	**PR/DIN/AC** Cat. No. PR001	
IEC 60715 “G32” type rail of white zinc-plated steel “SENDZMIR” system	**PR/DIN/AC/ZB** Cat. No. PR901	
IEC 60715 “G32” type rail of passivated steel with slots	**PR/DIN/AS** Cat. No. PR004	
IEC 60715 “G32” type rail of white zinc-plated steel “SENDZMIR” system with slots	**PR/DIN/AS/ZB** Cat. No. PR904	
IEC 60715 “G32” type rail of aluminium	**PR/DIN/AL** Cat. No. PR002	
IEC 60715/TH15 – 5.5 rail of passivated steel	**PR/2/AC** Cat. No. PR009	
IEC 60715/TH15 – 5.5 rail of white zinc-plated steel “SENDZMIR” system	**PR/2/AC/ZB** Cat. No. PR909	
IEC 60715/TH15 – 5.5 rail of passivated steel with slots	**PR/2/AS** Cat. No. PR010	
IEC 60715/TH15 – 5.5 rail of white zinc-plated steel “SENDZMIR” system with slots	**PR/2/AS/ZB** Cat. No. PR910	

Alphabetical index

Index by Catalogue number