

INTIEL

THE ELECTRONICS ON YOUR SIDE

**Programmable Thermoregulator TR-4.1.1 with a relay and
analogue output 0-10V, for temperatures -30°C up to +300°C,
equipped with Pt-1000**

User's Manual

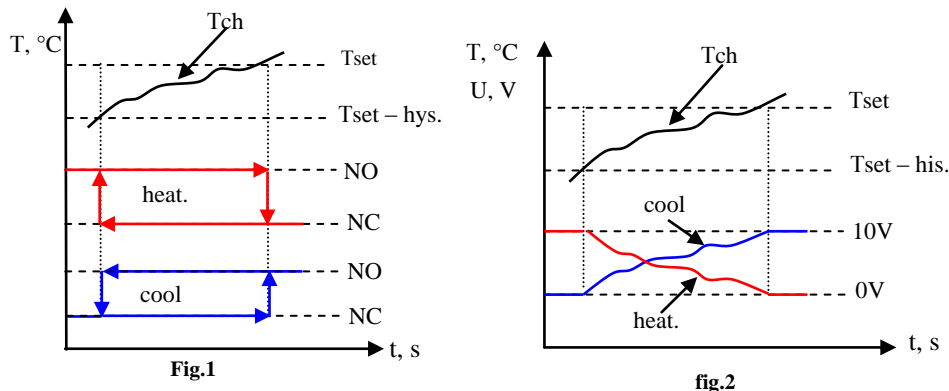
I. Application

The Thermoregulator is designed for an implementation in heating systems, etc., where the temperature is to be kept within certain range.

II. Functionality

By means of its sensor the device measures the observed temperature, as by means of the difference between the assigned and real measured temperature manage the operation of connected to itself consumers.

A) Relay output (Figure.1)



Heating mode:

In case the measured temperature is below the difference between the assigned temperature and the hysteresis, then contact (NO) between terminals 8 and 9 is being closed and contact between terminals 7 and 9 is being opened, indication „ —/— „, lights. This state is going on until the measured temperature reaches the assigned one.

In case the measured temperature is above the assigned one, then contact (NC) between terminals 7 and 9 is being closed and contact (NO) between terminals 8 and 9 is being opened, indication „ —/— „, is off. This state is going on until the measured temperature reaches the assigned one minus the hysteresis value.

Cooling mode:

In case the measured temperature is above the assigned temperature, then contact (NO) between terminals 8 and 9 is being closed and contact (NC) between terminals 7 and 9 is being opened, indication „ —/— „, lights. This state is going on until the measured temperature reaches the assigned one minus hysteresis value.

In case the measured temperature is below the difference between assigned temperature and the hysteresis, then contact (NC) between terminals 7 and 9 is being closed and contact (NO) between terminals 8 and 9 is being opened, indication „ —/— „, is off. This state is going on until the measured temperature reaches the assigned one.

III. Front panel

„THERMOCONTROL” – digital indication shows the real temperature or adjustable parameters in program mode.

„ —/— ” – indication for switched on relay.

„ \blacksquare ” – enter/escape button in program mode.

„ \blacktriangle ” – button for quick change in increasing direction of the assigned temperature or review and change in program mode.

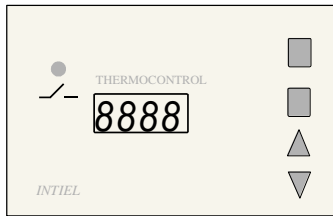


Fig.3

„▼” – button for quick change in decreasing direction of the assigned temperature or review and change in program mode.

The digital display shows the following indications, in case of malfunction of measured temperature input:

- “**ErrH**”, when the measured temperature is higher than the measurement range or when the temperature sensor is interrupted

- “**ErrL**” when the measured temperature is lower than the measurement range or in case of short circuit in the temperature sensor.

IV. Programming

Quick change of the assigned temperature – by means of buttons „▲”, and „▼”, the assigned temperature is being increased or decreased, as the indication shows symbol “t” and next to it the changing value. Every pressing of one of those two buttons changes the assignation with one, as keeping one of them pressed relates to automatic changing in direction relevant to the button direction.

Programming mode – by means of pressing „■” it can be entered in programming mode and the following parameters can be changed.

Assigned temperature – by means of buttons „▲”, and „▼”, the indication is being reviewed until symbol “t” appears, next to it is the current value. The indication starts blinking after pressing again „■” button. By means of pressing buttons „▲”, and „▼”, the assigned temperature is being increased or decreased. Every pressing of one of those two buttons changes the assignation with one, as keeping one of them pressed relates to automatic changing in direction relevant to the button direction. After the desired value is being selected the button is to be released, as the indication starts blinking. To save the changes and to escape programming mode it is necessary button „■” to be pressed while the indications still blinking. If the previous mentioned would not be done then after 10 blinks the indication will show the measured temperature and the change would not take effect.

Hysteresis - by means of buttons „▲”, and „▼”, the indication is being reviewed until symbol “H” appears, next to it is the current value. The indication starts blinking after pressing again „■” button. By means of pressing buttons „▲”, and „▼”, the hysteresis is being increased or decreased within **1 - 40 °C**. After the desired value is being selected the button is to be released, as the indication starts blinking. To save the changes and to escape programming mode it is necessary button „■” to be pressed while the indication still blinking. If the previous mentioned would not be done then after 10 blinks the indication will show the measured temperature and the change would not take effect.

Operation mode changing – change the outputs characteristics. By means of buttons „▲”, and „▼”, the indication is being reviewed until symbol „reG” appears. Button „■” is to be pressed again, as on the indication appears the current state of the heating output, as it starts blinking. By means of pressing buttons „▲”, and „▼”, can be selected between „HEAT” or “Cool”. After fixing the desired characteristic the button is to be released and the indication starts blinking. To save the value and to escape the programming mode, it is necessary button „■” to be pressed, while the indication still blinking. If the previous mentioned would not be done then after 10 blinks the indication will show the measured temperature and the change would not take effect.

Choice of temperature assignation range – the device is to be switched off, the button „■” is to be pressed and kept and the device switched on. In 10 sec. time symbol “U” /upper assignation value/ appears on the indication and next to it the current value starts blinking. By means of buttons „▲”, and „▼”, it can be made changes within (+50°C) (+300°C). After the desired value is being selected button „■” is to be pressed.

To adjust the lower assignation value the menu is to be reviewed by means of buttons „▲”, and „▼”, until on the indication symbol “L” appears and next to it current value. Button „■” is to be pressed and the value starts blinking, again by means of pressing „▲”, and „▼”, buttons. The changes can be made within (-30°C)- (0 °C). After the desired value is being selected button „■” is to be pressed.

To escape the previous mentioned settings the device power supply is to be switched off and then switched on.

V. Electrical connections and technical data

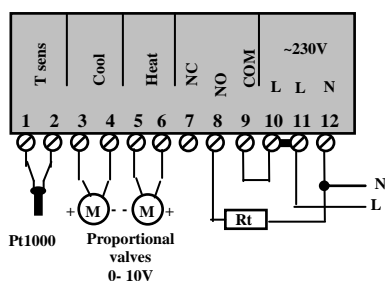


Fig.4

Power supply:	~230V/50Hz
Nominal commutative current:	7A/~250V
Switches:	one, switching
Analogue output:	0 -10V/20mA
Hysteresis:	1° – 40°C
Sensor:	Pt1000 (-50° до +250°C)
Sensor current:	0.833 mA
Measurement range:	(-35°C)-(+350°C)
Reglation range:	(-30°C)-(+300°C)
Indication:	4 sectional, digital
Measurement unit:	1°C
Humidity:	0 - 80%
Protection:	IP 20

VI. Warranty

The warranty period is 24 months following the purchase date of the unit or its installation by an authorized Engineering Company, but not exceeding 28 months after the production date. The warranty is extended to the malfunctions that occur during the warranty period and are result of the production reasons or defective used parts.

The warranty does not relate to malfunctions corresponding to not-qualified installation, activities directed to the product body interference, not regular storage or transport.

The repairs during the warranty period can be done after correct filling of the manufacturer warranty card

Warranty Card

Manufacturer: INTIEL	
Product type	Programmable Thermoregulator TR-4.1.1 with a relay and analogue output 0-10V, for temperatures -30°C up to +300°C, equipped with Pt-1000
Production number	
Production date	
Dealer confirmation	
Purchase date	
Invoice number	
Dealer's name, address and stamp	
Seller's name and signature	