

INTIEL

THE ELECTRONICS ON YOUR SIDE

Programmable Temperature Regulator
TR-6.3 (0 – 250 °C)

User's Manual

1. Application

The device is designed for operation in heating systems in a temperature range of 0°-250°C. It is especially suitable for systems where an output “dosing” is required when the desired temperature is reached or as PWM regulator with adjustable periods for operation impulse and pause and as ON-OFF regulator with adjustable hysteresis.

2. Technical data

1. Power supply:	220V/50Hz/AC
2. Maximal current through the contact:	1A/250V/AC
3. Number of contacts:	one change over contact
4. Hysteresis	(1°) – (50°C)
5. Temperature sensor	Pt1000 (-50°C) – (+250°C)
6. Current through the temperature sensor	2,6mA
7. Range of measuring:	(0°C) – (+250°C)
8. Range of regulation:	(1°C) – (+249°C)
9. Time range (Treg)	0 – 600 seconds
10. Operation impulse	0-Treg(seconds)
11. Pause	0 – 20 seconds
12. Digital display	three positional digital
13. Measurement unit	1°C
14. Humidity	0 – 80%
15. Protection	IP 20

3. Operation

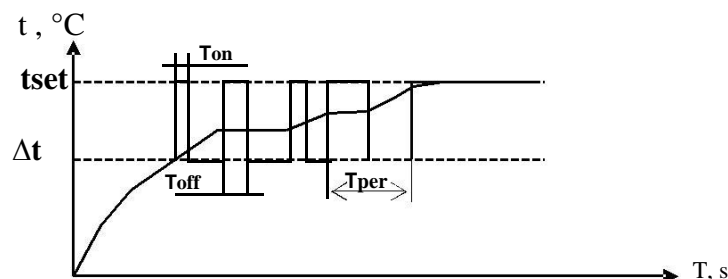
The Regulator is equipped with one temperature sensor, installed at a place where the temperature is to be observed. During its operation the Temperature regulator observes the following parameters:

- 3.1 t°_{set} – the assigned temperature, which is to be kept by the regulator. It can be fixed within the range from 1 up to 249°C. The default setting is **110°C**
- 3.2 Δt° (hysteresis) – it has meaning as a lower level, from which the PWM regulators starts its operation $t^{\circ}_{set} - \Delta t$. Δt can be fixed within the range from 1 up to 50°C. **The default setting is 10°C.**
- 3.3 **T(per)** – a period of PWM regulator operation. It can be fixed within the range of 1 – 600 seconds. **The default setting is 10 seconds.** It works as ON – OFF regulator when 0 is fixed.
- 3.4 **T(on)** – Operation impulse minimal time. It can be fixed within the range from 0 up to **T(per)** seconds. **The default setting is 1 second.**
- 3.5 **T(off)** Minimum delay time (pause). It can be fixed within the range of 0 – 20 seconds. **The default setting is 1 second.**

The Temperature Regulator operation is defined by means of the sensor and the assigned temperature as follows:

With a temperature bellow $t^{\circ}_{set} - \Delta t$, it is switched on constantly. With a temperature above t°_{set} it is switched off constantly.

With a temperature between $t^{\circ}_{set} - \Delta t$, it works as PWM regulator.



4. Front panel

On the front panel are located the elements for control and programming, which includes three positional digital display, 7 light indications and three buttons “▲”, “▼” and “Prog”. The drawing of the front panel can be seen at **Figure 1** below:

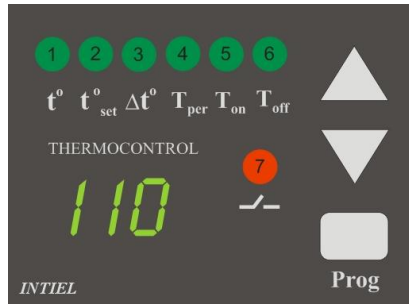


Figure 1

4.1 Light indication t° – it shows that current (real) temperature is being indicated on the digital display


4.2 Light indication t°_{set} – it shows that the assigned temperature level is being indicated on the digital display.

4.3 Light indication Δt° – it shows that the hysteresis is being indicated on the display.

4.4 Light indication **T(per)** – it shows that the assigned period is being indicated on the digital display.

4.5 Light indication **T(on)** – it shows that the minimal time of the operation impulse is being indicated.

4.6 Light indication **T(off)** – it shows that the pause minimal time is being indicated on the digital display.

4.7 Light indication  - it shows the switched on relay state.

The digital display indicates temperatures out of the measurement range as:

- It shows “Hi” when the temperature is above +250°C
- It shows “Lo” when the temperature is under 0°C

5. Programming

5.1 Temperatures and times review

When the Regulator is not in programming mode, by means of consecutively pressing of “▲” or “▼” button the indication between the parameters is being switched, which in the same time is attended by activation of the relevant light indication from 4.1 up to 4.6

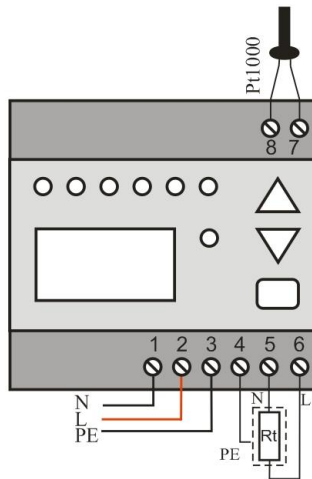
5.2 Programming the parameters 4.1 – 4.6

By means of pressing button “▼” or “▲” the desired parameter can be chosen. Press and hold button **Prog** until the indication of the desired parameter starts blinking. Use again “▲” or “▼” buttons to increase or decrease the parameter value while select the desired one. When the button is being kept for more than 3 seconds the value is being changed automatically. As soon the new value is selected the button is to be released and it is to be waited for until the light indication stop blinking, which shows the new value is successfully accepted.

6. Electrical connections

This includes connection of the sensor, power supply and controlled consumer according **Figure 2**. The sensor is Pt-1000, non-polar one.

The cable of the sensor can be prolonged as the total resistance of both cables is to be observed (indication sensibility of $1^{\circ}\text{C}/4\Omega$). The recommended length of the cable which does not take effect to the measurement precision is up to 100 m.



Terminals 7, 8 are inputs for the sensor Pt-1000.

To terminals 1, 2 and 3 are to be connected Neutral, Phase and Protection Earth from the power supply.

The consumer is to be connected to terminals 4, 5 and 6 where are respectively Protection Ground, Neutral and Phase.

Figure 2

7. 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	
Production number	
Production date	
Dealer confirmation	
Purchase date	
Invoice number	
Dealer's name, address and stamp	
Seller's name and signature	
Installation Date	
Date	
Company (address, stamp)	
Installer's name and signature	