

INTIEL

THE ELECTRONICS ON YOUR SIDE

Thermo Regulator for a Motor Actuator Control INT0092A

User's Manual



1. Application

The Thermo Regulator INT0092A is designed to control the movement speed and direction of two positional motor actuators in accordance with the temperature of the thermo sensitive element. It is applicable for a control of mixed valves or air-flow dampers.

2. Technical data

- | | |
|---|--|
| 1. Power supply: | 220V/50Hz/AC |
| 2. Electronic board capacity without the servo-actuator: | 4.5W |
| 3. Servo-actuator output: | 24V/50Hz/AC, 2VA
220V/50Hz/AC, 50VA |
| 4. Range of the measured temperature: | (-25°C) – (+110°C) |
| 5. Range of the assigned temperature: | (0°C) – (+110°C) |
| 6. Input for outer assignment: | 0-20mA/50 Ω
0-10V/22 kΩ |
| 7. Temperature variation for reaching a maximum actuator speed: | +/- 10°C |
| 8. Adjusting a maximal reaching actuator speed: | 30%-100% |

3. Elements location

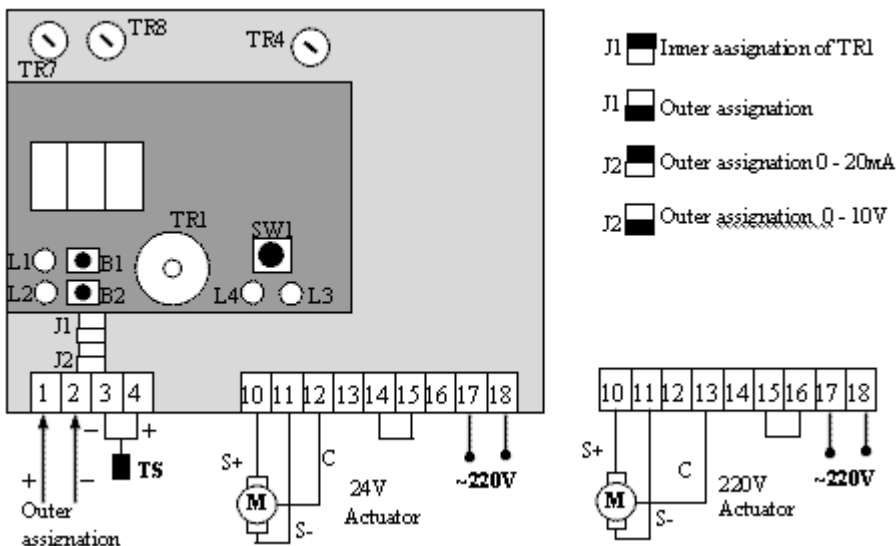


Figure 1

- J1** – Jumper for switching between the inner and the outer assignment of the temperature
- J2** – Jumper for choosing the type of the signal of the outer assignment
- TR4** – Element for a limitation the maximum speed level of the motor actuator
- TR7** – Element for a limitation of the assigned lower temperature level
- TR8** – Element for a limitation of the assigned upper temperature level
- TR1** – Element for adjusting the inner assignment
- SW1** – Button for switching the digital indication meaning
- L3** – Indication for the current temperature level
- L4** – Indication for the assigned temperature level
- L1, L2** – Indication for the actuator movement direction
- B1, B2** – Button for moving the actuator by force with a maximal speed in the desired direction
- TS** – Thermo sensitive element (temperature sensor)

4. Operation

The Thermo Regulator compares the assigned temperature level with the current temperature of the thermo sensor TS and changes the movement of the actuator in relation to the polarity difference. As a result of the movement the Regulator decreases that temperature difference. The difference size defines proportionally the movement speed of the actuator. If the difference is 10°C the actuator movement speed is at its maximal level. As much as the real (current) temperature is getting closer to the assigned one the movement speed decreases until it reaches its minimal level. The actuator is moved by an impulse in a step mode with intervals of 5 seconds each. In fact the regulation is provided by changing the duration of the operation impulse and the pause of the each step.

The most possible movement speed of the actuator during the regulation can be adjusted between 30% and 100% of its own possible speed. Turning the element TR4 clockwise increases the movement speed.

The assigned and the current temperature level can be shown on the Regulator digital display by selecting one of them by means of element SW1. When the red light indication L4 is active it means that on the display is shown the assigned temperature level and if the green indication L3 appears the Regulator shows the current temperature of the thermo sensor TS.

The assigned temperature level can be defined manually by means of element TR1 or by an electrical signal to terminals 1 and 2. The choice between those two ways can be done by jumper J1 (see Figure 1). The electrical signal can be a current between 0 and 20mA or a voltage between 0 and 10V. The type of the electrical signal can be fixed by jumper J2 (see Figure1).

By elements TR7 and TR8 the lower and upper level of the assigned temperature in the system is to be defined. It can be done when the electrical signal for the assigned temperature level is changing in the range of 0-100% or element TR1 is turned from the beginning to the end. Firstly the lower level temperature is to be settled by switching the button SW1 until L4 indication appears, jumper J1 is to be placed for an internal assignation and TR1 is turned clockwise to the end. Now by means of element TR7 a lower assigned temperature level is to be defined, indicating its level on the digital display. After that TR1 is turned counterclockwise to the end and by TR8 the upper temperature level is to be fixed.

In order to obtain a correct installation the actuator is to be separated of the mixed valve. When the real temperature is lower than the assigned one, the green light indication L1 starts and a necessary voltage to the actuator appears at Regulator terminal 10. By continues pressing of the button B1, the green light indication L1 is compelled to light constantly. The actuator run direction is to be checked whether it leads to the real temperature increasing of. If the actuator moves in a direction opposite to the expected one, the cables connected to terminals is to be replaced. After setting-up the correct actuator run direction, the buttons B1 or B2 is to be kept pushed until the complete motion of the actuator will be done, reaching the switch in the end. The regulation element of the mixed valve is to be turned manually to the relevant end position and the actuator is to be fitted towards it.

A quick test of correct actuator connection during operating installation can be provided by switching SW1 until the light indication L3 appears (showing the current temperature level). After continues pushing of B1 button the current temperature level of the installation is to be increased and after pushing button B2 it has to decrease its level.

5. Wiring (see Figure 1)

- The power supply is to be connected to terminals 17 and 18.
- An outer control signal for fixing the assigned temperature level is to be connected to terminals 1(+) and 2(-).

- A temperature sensor type LM335 is to be connected to terminals 3(-) and 4(+). It is provided by INTIEL.

Connection of the actuator

- A version of 24V. Terminals 10 and 11 are to be connected to the cables providing the run direction, to terminal 12 is to be connected the common actuator cable and there has to be placed a bridge between terminals 14 and 15.
- A version of 220V. Terminals 10 and 11 are to be connected to the cables providing the run direction, to terminal 13 is to be connected the common actuator cable and it has to be placed a bridge between terminals 15 and 16.

6. Warranty period

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	