CONFIGURATION HANDBOOK

THL36

LOREME 12, rue des Potiers d'Etain Actipole BORNY - B.P. 35014 - 57071 METZ CEDEX 3
Phone 03.87.76.32.51 - Telefax 03.87.76.32.52
Contact : Commercial@Loreme.fr - Technique@Loreme.fr
Download manual at : www.loreme.fr

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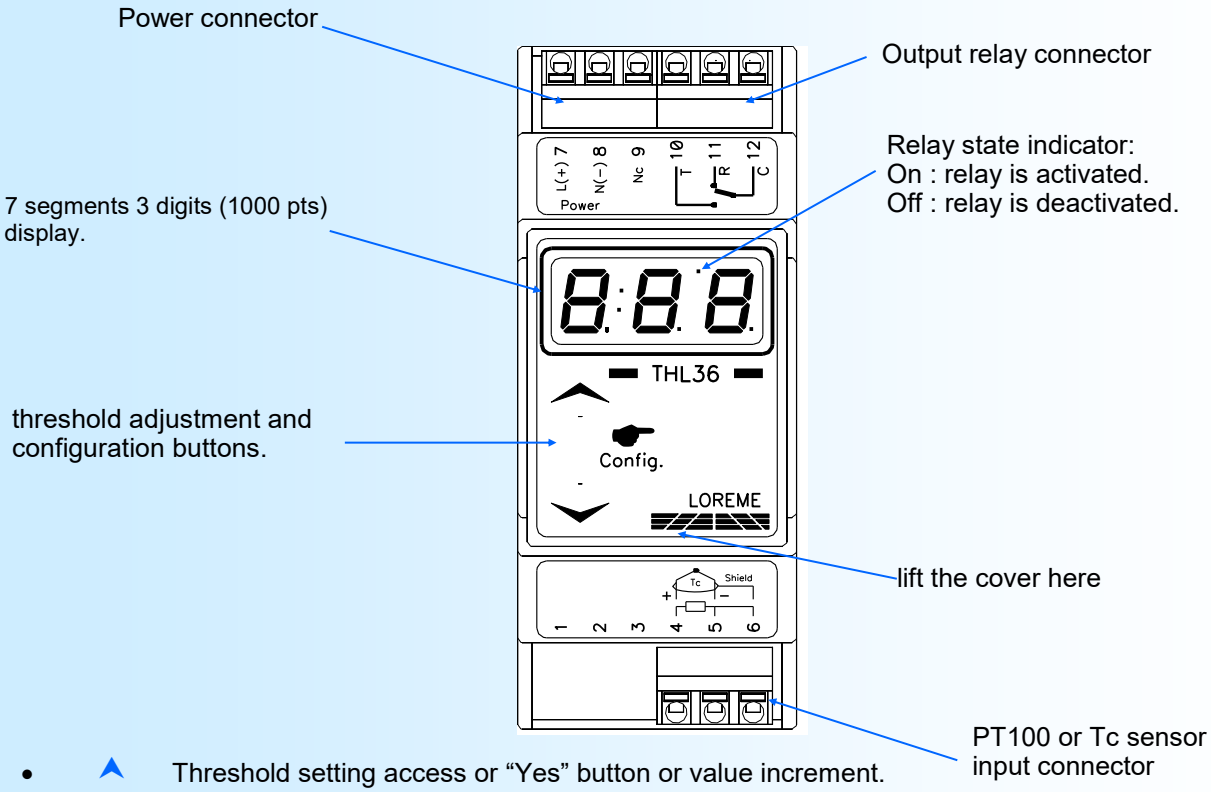
LOREME 12, rue des Potiers d'Etain - 57071 Metz ☎ 03.87.76.32.51 - Fax 03.87.76.32.52 - Email: Commercial@Loreme.fr - Technique@Loreme.fr

Device Presentation

THL36 is a digital thermostat usable for simple temperature regulation (heating or cooling). It is fully programmable from the front side. The device can be used with 2 or 3 wires PT100 sensors or with J, K, T thermocouple, temperature compensated. It has a 3 digit display for temperature reading, 2 pushbuttons for setting the alarm threshold and configuration, and an output relay inverter with 10 A breaking capacity for regulation.

Technical specifications can be downloaded at: http://www.loreme.fr/fichtech/THL36_eng.pdf

USER INTERFACE



- ▲ Threshold setting access or “Yes” button or value increment.
- ▼ Threshold setting access or “No” button or value decrement.
- ▲+▼ Configuration access.

Visualization

The device can display the measured temperature over a range of -99 °C to +999 °C with 1 digit after the decimal point. Besides measured temperature, different messages can be displayed:

- "**Hi** " for a measure overflow.
- "**Lo** " for a measure underflow.
- "**Err**" for a sensor breaking.
- "**- - -**" for a measuring circuit default.
- "**Ert**" for a default of the integrated temperature sensor (thermocouple cold junction compensation).

The relay activation is indicated by the top right point of the display.
Note : In case of "sensor breaking" or "internal default", the relay is deactivated.

Threshold setting

Press ▲ or ▼ button to access the setting mode. The device displays the threshold value and the buttons ▲ or ▼ permits to increment or decrement the value. the display blinks during the setting. The adjusted value is automatically validated after 4 seconds if no button is pressed. The threshold value is then stored in internal non volatile memory and the message '**End**' appears briefly indicating success of memorizing.

Configuration

Press ▲+▼ buttons for more than five seconds to access configuration mode.

1) Input configuration

The device displays the current input type. Pressing ▲ button validates the choice and move to the relay configuration. Press ▼ button to display the next input type.

The displayed input type choices are:

- '**rtd**' for a platinum PT100 sensor.
- '**tcJ**' for à **J** thermocouple sensor.
- '**tcH**' for à **K** thermocouple sensor.
- '**tct**' for à **T** thermocouple sensor.

2) Relay configuration

The device displays '**rEL**'. Pressing ▲ button provides access to the relay configuration. Pressing ▼ button leaves the configuration mode and returns to measure mode.

The relay parameters are:

- Threshold,
- Hysteresis,
- The type of detection, high or low.

2.1) Threshold configuration

The device displays the message '**thr**'. Pressing ▲ button provides access to the threshold setting and pressing ▼ button to switches to the next topic. The device displays the threshold value and the buttons ▲ or ▼ permits to increment or decrement the value. the display blinks during the setting. The adjusted value is automatically validated after 4 seconds if no button is pressed.

2.2) Hysteresis (dead band) configuration

The device displays the message ' **db**'. Pressing ▲ button provides access to the hysteresis setting and pressing ▼ button to switches to the next topic. The device displays the hysteresis value and the buttons ▲ or ▼ permits to increment or decrement the value. the display blinks during the setting. The adjusted value is automatically validated after 4 seconds if no button is pressed.

2.3) Type of detection

The user can, with this setting, set the direction of the threshold detection.
It works in this manner:

- High threshold detection (cooling):

.alarm is activated when temperature goes above threshold,
.alarm is removed when temperature goes below threshold minus hysteresis.

- low threshold detection (heating):

.alarm is activated when temperature goes below threshold,
.alarm is removed when temperature goes above threshold plus hysteresis.

The relay is systematically deactivated in case of "sensor breaking" or "internal default"

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The configuration possibilities are:

- High detection (cooling) with the display '**AHi**'.
- Low detection (heating) with the display '**ALo**'.

The actual configuration is displayed on topic access.
Pressing ⮝ button validates the displayed choice and ends the configuration. Press ⮟ button to display next choice.

3) End of configuration

The new parameters are saved in non volatile memory and the message **'End'** is displayed briefly, indicating that the parameters have been successfully saved. Then, device returns to measure mode.

EMC Consideration

1) Introduction

To meet its policy concerning EMC, based on the Community directives **2014/30/EU** & **2014/35/EU**, the LOREME company takes into account the standards relative to this directives from the very start of the conception of each product.
The set of tests performed on the devices, designed to work in an industrial environment, are made in accordance with **IEC 61000-6-4** and **IEC 61000-6-2** standards in order to establish the EU declaration of conformity. The devices being in certain typical configurations during the tests, it is impossible to guarantee the results in every possible configurations. To ensure optimum operation of each device, it would be judicious to comply with several recommendations of use.

2) Recommendations of use

2.1) General remarks

- Comply with the recommendations of assembly indicated in the technical sheet (direction of assembly, spacing between the devices, ...).
- Comply with the recommendations of use indicated in the technical sheet (temperature range, protection index).
- Avoid dust and excessive humidity, corrosive gas, considerable sources of heat.
- Avoid disturbed environments and disruptive phenomena or elements.
- If possible, group together the instrumentation devices in a zone separated from the power and relay circuits.
- Avoid the direct proximity with considerable power distance switches, contactors, relays, thyristor power groups, ...
- Do not get closer within fifty centimeters of a device with a transmitter (walkie-talkie) of a power of 5 W, because the latter can create a field with an intensity higher than 10 V/M for a distance fewer than 50 cm.

2.2) Power supply

- Comply with the features indicated in the technical sheet (power supply voltage, frequency, allowance of the values, stability, variations ...).
- It is better that the power supply should come from a system with section switches equipped with fuses for the instrumentation element and that the power supply line be the most direct possible from the section switch.
- Avoid using this power supply for the control of relays, of contactors, of electrogates, ...
- If the switching of thyristor statical groups, of engines, of speed variator, ... causes strong interferences on the power supply circuit, it would be necessary to put an insulation transformer especially intended for instrumentation linking the screen to earth.
- It is also important that the installation should have a good earth system and it is better that the voltage in relation to the neutral should not exceed 1V, and the resistance be inferior to 6 ohms.
- If the installation is near high frequency generators or installations of arc welding, it is better to put suitable section filters.

2.3) Inputs / Outputs

- In harsh conditions, it is advisable to use sheathed and twisted cables whose ground braid will be linked to the earth at a single point.
- It is advisable to separate the input / output lines from the power supply lines in order to avoid the coupling phenomena.
- It is also advisable to limit the lengths of data cables as much as possible.

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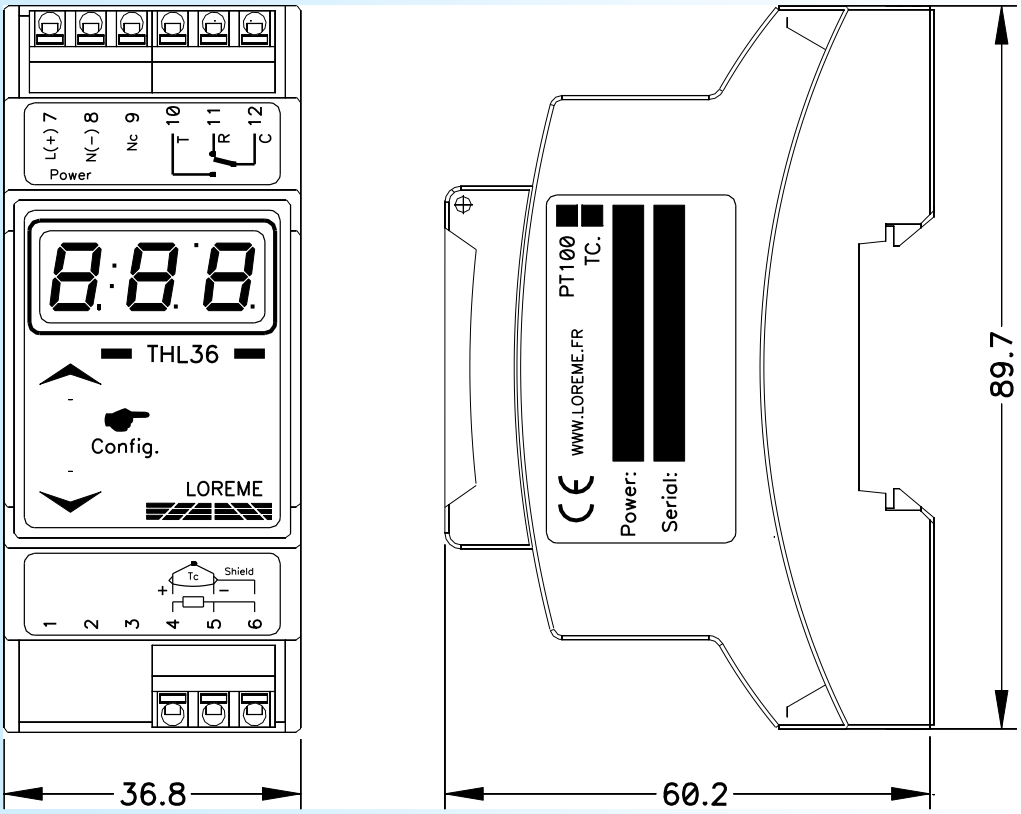
Wirings / Outline dimensions



Power supply	terminals 7 & 8.
Relay	terminals Work (10), Rest (11), Common (12).
PT100 input	terminals 4(+), 5(-), 6(line).
Thermocouple input	terminals 4(+), 5(-).