

# LOCAL MOUNT TEMPERATURE SWITCH

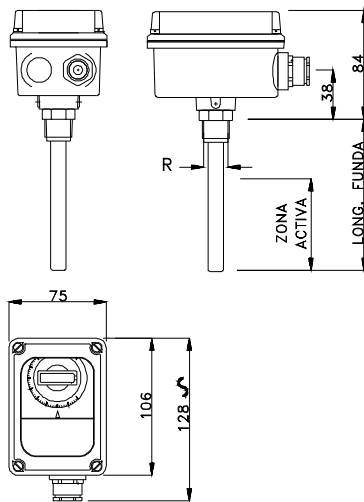
- Type TRP, level mount
- Type TRL, vertical mount

## Available Models

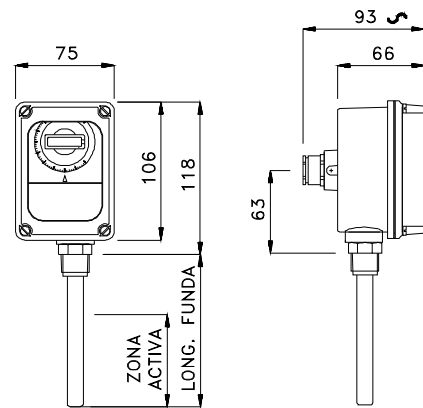
Table 1

TYPE	TRL 01	TRL 15	TRL 20	TRL 25	TRL 30	TRL 35
	TRP 01	TRP 15	TRP 20	TRP 25	TRP 30	TRP 35
Adjustable Scale °C	-30/+35	0/+40	0/+90	0/+120	+60/+210	+50/+300
Fixed Differential °K	1,5 ±1	2 ±1	4 ±1	4 ±1	5 ±2	10 ±2
Max. Temp Head °C	80	80	80	80	150	150
Max. Temp Sensor °C	65	120	150	150	260	330
Active Zone Length mm.	215	95	95	95	55	195
Min. Insertion Depth mm.	225	120	120	120	120	225
	Brass	8	8	8	8	N/A
Ø Inmersor	Inox.	10	10	10	10	6
	Teflon	ON DEMAND				
Process Connection	1/2" GAS					
Switch Type	Unipolar (SPDT)					
Electrical Rating	15(2,5)A 250 Vac / 10A 380 Vac					
Electrical Connection	Faston 6,3 x 0,8 (DIN 46244)					
Enclosure Rating	IP65 (DIN 40050)					
Cable Intake	Pg 13,5					

### Type TRP



### Type TRL



### Application

Suited for regulation and temperature control of liquids or gases in conducts, furnaces, transformers, immersion heaters, industrial baths, machinery and other equipment.

### Description

The enclosure is composed of a body and cover (both aluminum casted). These are coated with a furnace dried texturized lacqued.

The cover is supplied in two separate versions: Blind or Window

The enclosure, totally water-proof with an IP 65 (DIN 40 050 rating), holds the switch.

The sealing of the body-cover union is made by 4 captive screws plus an oil resistant joint. The joint is reinforced by design, including blind secure holes without exterior communication.

The body-sensor connection is sealed by a neoprene joint.

Electrical connections are protected by a cover that prevents accidental contact with the switch while manipulating the temperature control.

A high resolution scale, without parallel effect allows an easy temperature set point change.

Additional connection threads are available. Standard mounting is supplied with 1/2" GAS.  
 Heating sensor immersors are supplied in brass and stainless steel AISI304, and are supplied in four standard lengths.  
 Other lengths/materials are available on demand.

The switch is in accord with ROHS

Heating system of the temperature switch is remote bulb, liquid fill.

Heating measurement system is rated by the following organizations:



- Cycle rating: VDE class II (100.000 cycles)
- Electromagnetical Compability (EMC): 80/336/CEE y 93/68/CEE and VDE Class N
- Resistance to current leakage: PTI 250 (KB 250)
- Temperature response time: 1 k/minute

### Options and Accessories

STANDARD SUPPLY	
"Blind" Cover	
Connection thread 1/2" GAS	
Brass immersor length (120, 150, 225, 300mm.)	
OPTIONAL ACCESORIES	
CODE	DECRPTION
01	Window cover
03	Stainless steel immersor (AISI 304)
04	Connection thread M22x1,5
05	Connection thread 1" GAS
06	Other connection threads
07	Other immersor length (up to three meters)
09	Calibration Certificate
15	Teflon coated immersor
16	Immersor for air sensing
20	Special mountings
21	High temperature refrigeration mount

### Installation

- Enclosure:

Suited for mounting at wet or dry industrial sites, enclosure is rated at IP65 (DIN 40 050).

If the mounting site is in a vibrating zone, is recommended to select a remote mounting (TRRK) temperature switch.

Temperature switch can be mounted in any position.

The ambient temperature allowed by the switch is from -25° C a +80° C. (T80). (See Table 1)

- Location of the sensing element:

The sensing element should be located in a representative zone of the temperature to be measured, thus isolated from zones affected by exterior elements (like strange air currents, proximity of heating elements...), that could affect the measurement.

A good circulation of the element to be controlled should be guaranteed at the measuring point.

The maximum sensor temperature should not be exceeded.

**IMPORTANT:** Be sure to check the immersor's depth is equal or greater than the "Min. Insertion Depth mm." as set in the Table no 1.

Fig. 1 shows an exaggerated incorrect mounting where the sensing element does not monitor the temperature correctly.

The mounting should be made using a monkey wrench at the hexagonal screw nut, never using the enclosure as the torque transmitter.

If needed, a hydraulic sealing liquid can be used to seal the union.

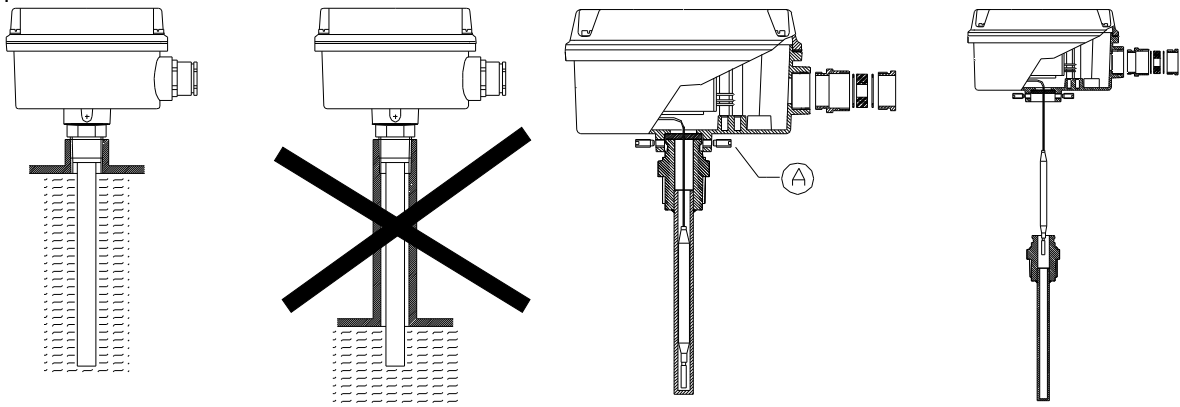


Fig. 1

Fig. 2

- Immensor (fig. 2):

Our temperature switches are supplied with an immensor that allows the dismounting of the switch without the need of emptying or lowering the pressure of the tank. To proceed, follow the next steps:

- Unscrew two allen screws "A", with a 3mm Allen key.
- Extract the enclosure and sensing element carefully

- Note:

If the electrical connection don't allow the dismounting, previously follow these steps:

- Dismount the enclosure cover.
- Dismount the cover of the electrical connection.
- Disconnect the electrical cable.

To mount a new temperature switch in the immensor, follow the steps in inverse order, taking special care in pressing the enclosure while tightening the two allen screws "A" to ensure a correct mounting of the joint.

- Additional protection wells (Fig. 3):

Sometimes by protection or design needs, additional thermowells are added to the immensor.

From the point of view of heat transmission, we are incorporating additional barriers that add delays on temperature sensor.

To minimize those delays, heating fluids are added to fill out the empty spaces.

- Note:

When filling out those spaces, there should be an empty space left, to ensure that the volume increase when the process maximum temperature is reached do not bend the immensor-sensor element, deformatting the sensing element and damaging, even disabling, the switch. The same result could be obtained if the temperature switch receives shocks.

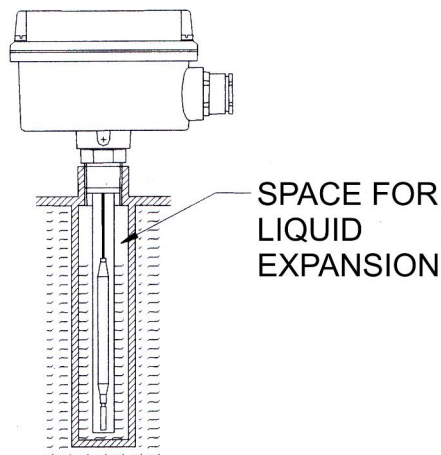


Fig. 3

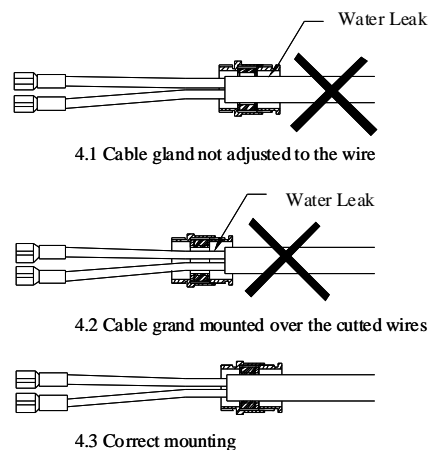


Fig. 4

## **Electrical wire connection:**

### Wire orientation:

- When mounting the temperature switch, if rotation of the wire exit is needed, follow the next steps:
- Unscrew two allen screws "A", with a 3mm Allen key.
- Rotate the enclosure until the desired position is obtained.
- Press the enclosure while tightening the two allen screws "A" to ensure a correct mounting of the joint.

### Electrical wire connection:

The threaded union between the cable gland and the enclosure is sealed at factory to ensure the IP 65 rating. If the cable gland is dismantled or changed, a hydraulic sealer should be applied.

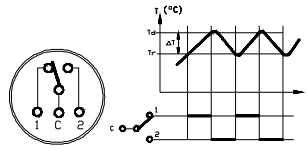
To connect the electrical wire follow the next steps:

- Dismount the enclosure cover, and the electrical connection cover.
- **WARNING: Check carefully that the wires are not connected with power.**
- Cut off the wire hose (70 mm aprox.), avoiding cuts in the wire isolation, and then insert the bare wire into the faston (6,3 x 0,8 DIN 46 244) with an appropriate tool.  
There should be enough gap to allow wire extension and avoid an accidental cable release.
- Adapt the rubber joint pre-stamped of 6 mm wide, to the wire hose diameter.
- Mount the wire hose plus washer into the cable gland, verifying that the seal is made over the exterior of the washer, and not over the wired hose. (See fig. 4.2.)
- Connect the faston following the diagram located on the interior of the electrical cover, and then tighten the screw nut while pulling the wire softly.
- Mount the electrical wire cover, and the enclosure cover taking precaution with the correct mounting of the cover-enclosure joint.

## **Electrical Diagram**

The temperature switch uses Single Pole Double Throw Relays (SPDT) with silver contacts 1000 x 1000. AC Ratings:

- 15 (2,5)A 250 Vac.
- 10 A 380 Vac.



**ELECTRICAL DIAGRAM**

## **Operation**

Select the desired switching temperatures by turning the graduated scales.

If the actual temperature is inferior to the set point, the circuit will be closed thru the C-1 terminals. As the temperature raises, and when the temperature reaches the set point, then commutator will switch, closing the circuit thru the C-2 terminals, and opening the C-1 circuit.

When the temperature drops a value equal of differential of the switch ( $\Delta T$ ), the commutator will switch again, closing the circuit thru the C-1 terminals and opening the C-2 terminals.

The temperature switch is factory calibrated with raising temperatures.

If the temperature switch is going to work with lowering temperatures, the switch point will be the set point minus the differential value.

Special calibrations can be provided equalize the value of the set point and switching point.