ELECTRONIC THERMOSTAT FOR FAN COIL UNITS

TPA 905 Eng.

- Power supply 220/240 Volt ac
- One On-Off SPDT output
- Manual Summer-Winter switch

APPLICATION

TPA 905 is designed to control room temperature in heating and cooling installations by On-Off control of Fan Coil units.

OPERATION

TPA 905 regulates the room temperature by means of the detector B positioned in the Fan Coil unit return air inlet and by On-Off control of the unit fan. The temperature differential ΔT is adjustable (0.3; 0.6; 1; 1.3 °C) by means of the programmer (fig. 4) situated on the rear of the printed circuit.
The position of the detector B causes monitoring errors when, on the desired temperature being reached, the fan is switched off, because, especially during summer operation, the detector is influenced by proximity to the battery. To obviate this inconvenience, every so often TPA 905 switches on the fan for a brief period so that air is brought into contact with the detector.
The switched-off periods (8; 16; 32 min.) and switched-on periods (15; 30; 60 seconds) can be adjusted by means of the programmer (fig. 4).
The Summer-Winter switch, situated on the right side of the thermostat (fig. 2.5), allows inverting the operation of the output relay.

CONSTRUCTION

TPA 905 consists of two parts:

- Base (fig. 3) in plastic material, suitable for wall mounting, comprising: terminal block for electrical connections, protected against accidental contacts (fig. 3.1); cable entry for wires from rear (fig. 3.3); standard screw holes for fixing in panel-mounted casing if required (fig. 3.4).
- Case (fig. 2.1) in plastic material which encloses the printed circuit ; on the facia is the knob for setting the desired temperature (fig. 2.4) and the for the output relay On LED (fig. 2.3); on the right hand side is the Summer-Winter switch (fig. 2.5).
  The case is secured to the base by means of four spring clips and the electrical contacts are made by pins which are pressed directly into the terminal sockets. The electronic circuit is powered by 220/240 Volt ac through a transformer so it is not connected directly with the mains supply.

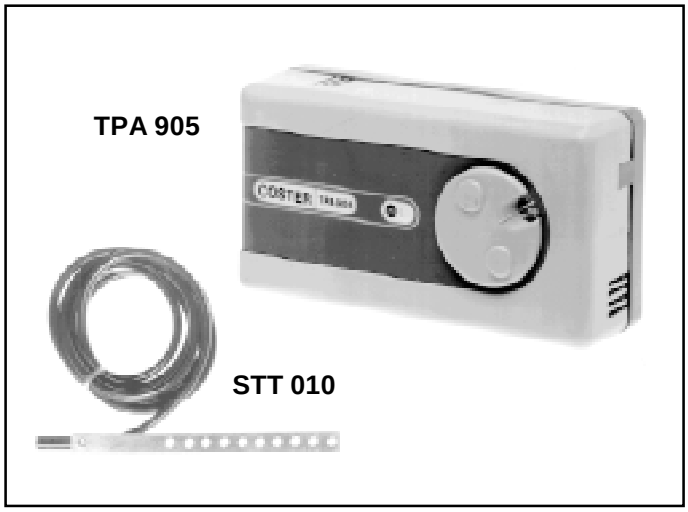
INSTALLATION

- STT 010 temperature detector:

This must be installed so that the sensing element is in direct contact with the ambient air drawn in by the fan. Utilise the predrilled bracket to secure the detector appropriately to the Fan Coil unit structure.

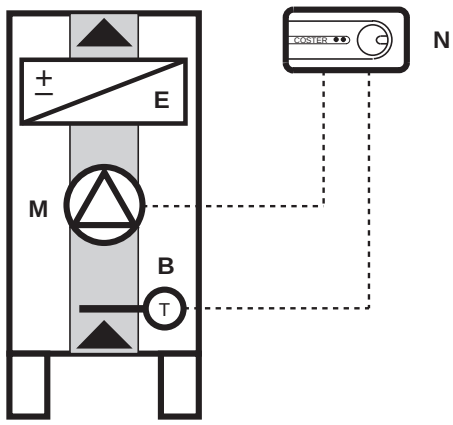
- TPA 905 :

– Remove the base from the case by pressing with the hands on the two longer sides of the latter.



OPERATIONAL DIAGRAM

fig. 1



B – STT 010 temperature detector
E – Fan Coil battery
M – Fan Coil fan
N – TPA 905 thermostat

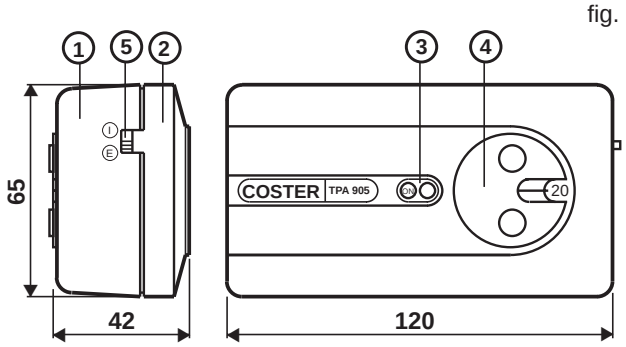
– Fix the base to the wall using the screw holes provided and taking care to pass the electric wires through the appropriate cable entry.
– Carry out the electrical connections according to the wiring diagrams (fig. 5) and in observance of the safety regulations in force.

ACCESSORIES SUPPLIED

Nº	Description	Model	Sensing element	Data sheet
1	Cable-type temperature detector for Fan Coil units	**STT 010**	NTC 1O kΩ	N 155

OVERALL DIMENSIONS

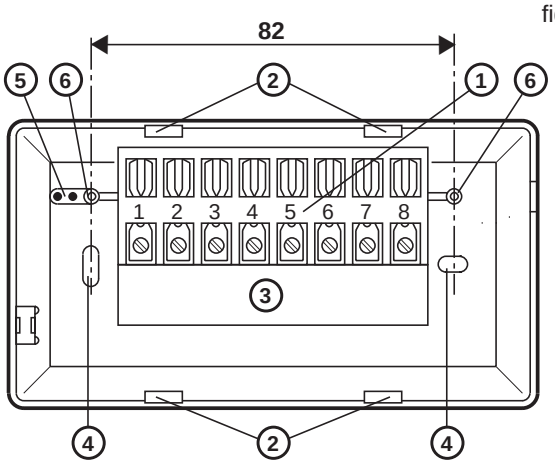
fig. 2



1 – Case
2 – Base
3 – On LED
4 – Desired temperature
5 – Summer(E)-Winter(I) switch

BASE

fig. 3



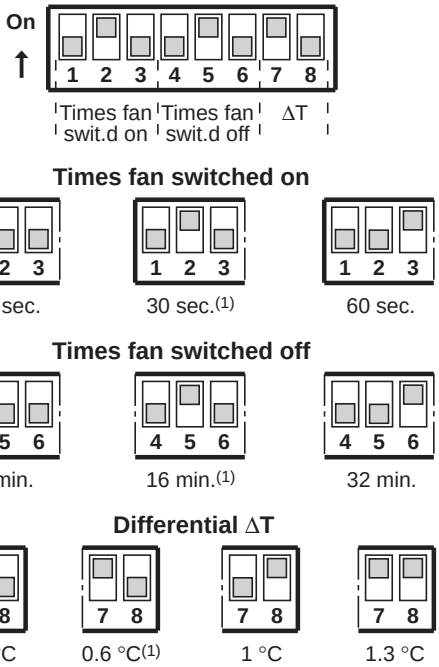
1 – Terminal block
2 – Housings for spring clips
3 – Cable entry for wires from rear
4 – Screw holes for wall mounting
5 – Setting range limiting pins
6 – Guide pins for electronic circuit

TECHNICAL DATA

Power supply	220/240 Volt. ac
Frequency	50/60 Hz
Power absorbed	1 VA
Voltage-free output contact:	
– type	On-Off SPDT
– voltage rating	250 Volt
– capacity rating	5(3) Amp
Temperature setting range	5 to 30 °C
Room temperature:	
– operating	0 to 45°C
– storage	–20 to +60 °C
Room humidity	G (DIN 40040)
Protection	IP 30
Weight	0.25 Kg.

PROGRAMMER

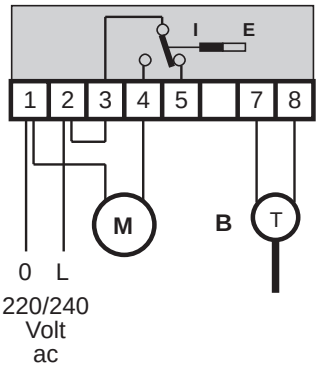
fig. 4



(1) – Factory settings

WIRING DIAGRAM

fig. 5



B – Extract air temperature detector
M – Fan Coil fan

TESTING

- Winter operation :

– Seasonal switch (fig. 2.5) on I.
– Turn desired value (fig. 2.4) to maximum: the plant should switch on and the LED (fig. 2.3) should light.
– Turn desired value (fig. 2.4) to minimum: the plant should switch off and the LED (fig. 2.3) should go out.

- Summer operation :

– Seasonal switch (fig. 2.5) on E.
– Turn desired value (fig. 2.4) to mimimum: the plant should switch on and the LED (fig. 2.3) should light.
– Turn desired value (fig. 2.4) to maximum: the plant should switch off and the LED (fig. 2.3) should go out.

COSTER
CONTROLLI TEMPERATURA ENERGIA

20132 Milan	Head Office & Sales
Via San G.B. De La Salle, 4/a	Tel. +39.02.2722121 (TI) Tel. +39.02.45476193 (FW) Fax +39.02.2593645
00146 Rome	Reg. Off. Central & Southern
Viale G. Marconi, 437	Tel. +39.06.5573330 Fax +39.06.5566517
25048 Edolo (BS)	Orders and Shipping
Via Gen. Treboldi 190/192	Tel. +39.0364.7732.00/02 Fax +39.0364.770016
Web: www.coster.info	E-mail: info@coster.info

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