

Adjustment Control Units

FIXED-POINT OR WEATHER COMPENSATION FOR HIGH/MEDIUM TEMPERATURE
WITH 0-10V SETPOINT PROPORTIONAL INLET WITH RTU MODBUS REMOTE MANAGEMENT

USE

- Hot and cold fluid temperature control
- High/medium temperature heating systems (radiators, fan coils, etc.) with weather compensation
- Civil and industrial plants
- Interface with Building Management Systems (BMS)

FUNCTIONS

- Fixed-point temperature control
- Weather compensation with external probe reading for high/medium temperature systems.
- Remote setting of the temperature setpoint with 0-10V signal
- Remote control with Modbus-RTU protocol

APPLICATIONS

- The control unit can be combined with all Comparato's motorised valves with **3-POINT CONTROL**



 **Modbus** Adjustment Control Unit

TECHNICAL FEATURES	code CPSMB0
Power supply (110V on request)	230V 50/60 Hz
Input power	9 VA
Motorised valve control output	2 x triac protected by varistor 275 Vac
Motorised valve control	3-point
Motorised valve maximum consumption	0.5 A
Box material	Polycarbonate + ABS
Protection degree	IP40
Operational room temperature	-10°C ÷ 50°C, RH max 85%
Flow temperature probe	contact-type NTC 10kΩ, 80 cm length
Electronic adjuster	PID
Temperature adjustment range	-15°C ÷ +90°C
Precision	± 1°C
Serial interface	RS485
Communication protocol	Modbus RTU
System pump relay flow rate	1 A
Signal input impedance 0-10V	20 kΩ
Digital inlets	Room thermostat • Hot forcing • Cold forcing
Certification	CE
Maintenance	None



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OPERATION

SELECTABLE TYPES OF OPERATION

● FIXED-POINT REGULATION

By means of a temperature probe, the control unit detects the fluid temperature and generates opening or closing commands for the motorised valve (not included), suitably calculated by the regulator with PID algorithm. This allows the system to maintain a constant temperature according to the setpoint value.

Adjustment range
-15°C to +90°C



In case of power interruption, the actuator remains in the position it was when the interruption occurred. When the power is restored, the actuator resumes its normal operation keeping the programmed settings.

● WEATHER COMPENSATION FUNCTION FOR HIGH AND MEDIUM TEMPERATURE HEATING SYSTEMS

The flow temperature to the heating system is automatically calculated according to the external temperature detected by the relevant probe (optional) following programmable climatic curves. The setpoint value is calculated by means of the following equation:

$$T_{\text{setpoint}} = - (\text{Texternal} * C1) + C2$$

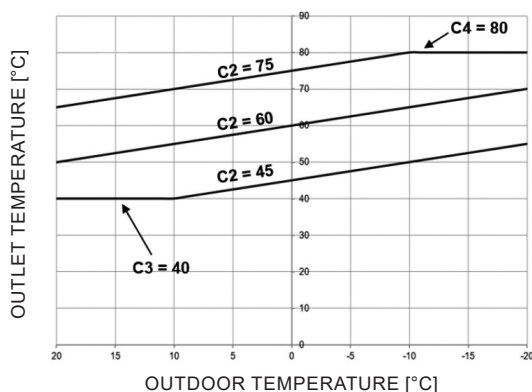
Where:

Texternal = temperature measured by the external probe.

C1 = slope of the climatic curve.

C2 = flow temperature to the system when the outside temperature is 0°C.

EXAMPLE WITH C1 = 0,5



Two parameters, C3 and C4, limit the curves to a minimum and maximum temperature value respectively.

The digital control from the room thermostat activates the system pump and starts the weather compensation.

● ANALOGUE SETPOINT SETTING

This function allows to vary the temperature setpoint using the 0-10V proportional input. You can set the limits of the setpoint change interval. When the function is active, the display shows the temperature detected by the mixed outlet probe, with a dot at the bottom right.

The setpoint temperature set via the 0-10V proportional input can be viewed on the display.



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Adjustment Control Units

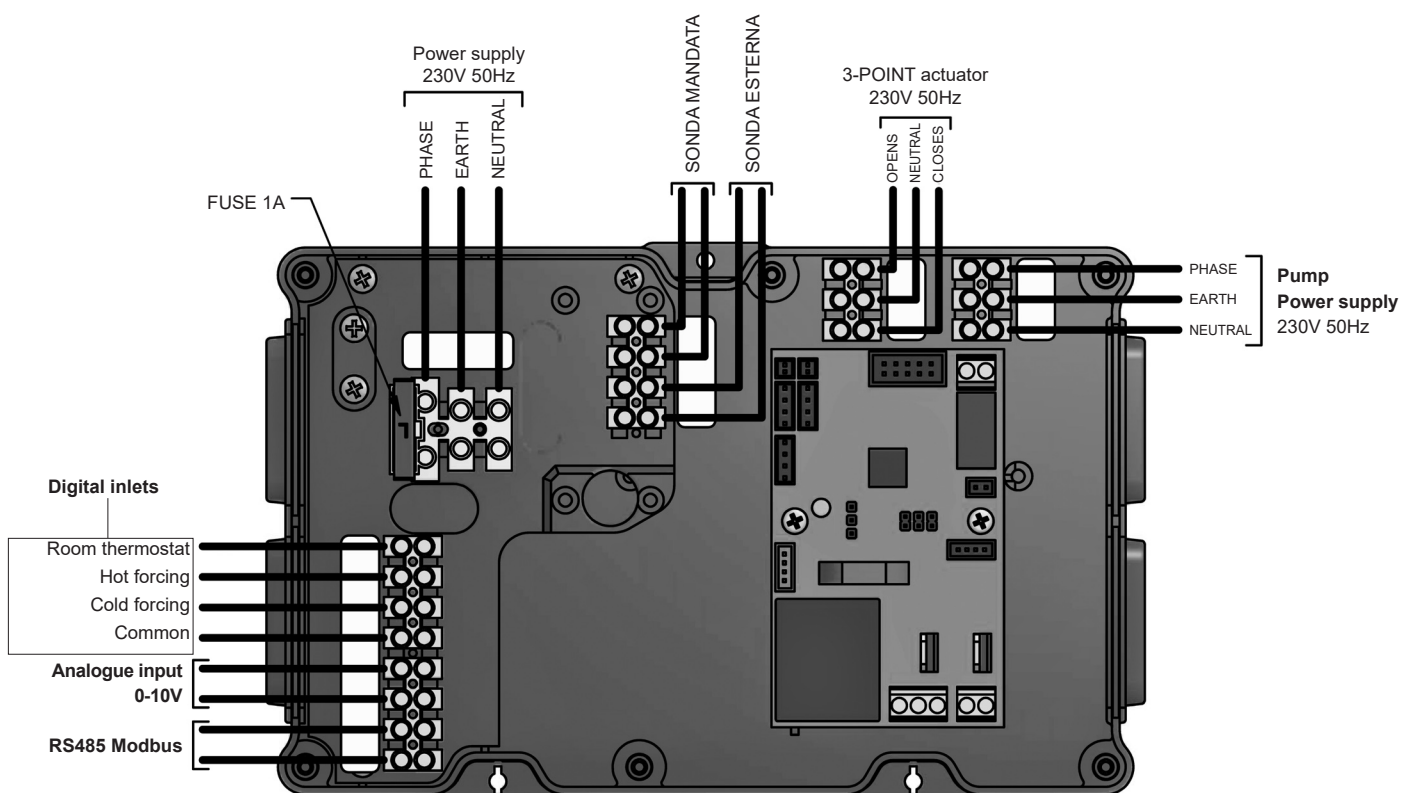
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REMOTE MANAGEMENT - Modbus RTU

MODBUS RTU

The control unit is equipped with a MODBUS RTU interface; using the RS485 serial connection, it is possible to modify all the operating parameters, send commands to the valve and receive information on the operating status. The control units can be connected to the modern Building Management Systems (BMS). The Modbus address table can be downloaded from www.comparato.com.

ELECTRICAL CONNECTIONS



OVERALL SIZE



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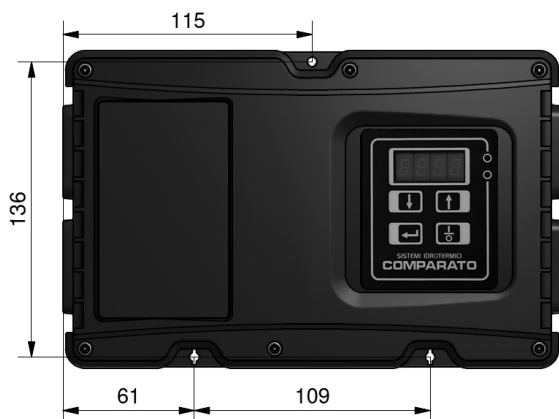
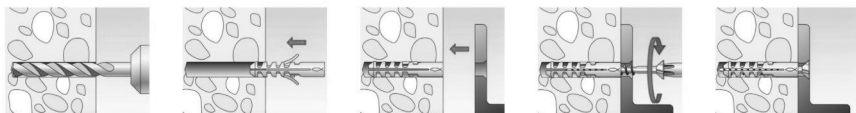
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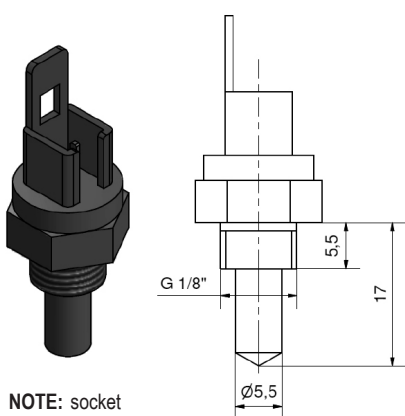
ASSEMBLY

The installer must arrange the installation wall according to the sizes shown on page 3. Three Ø5 mm plugs (not included) must be used to secure the control unit; they must be suitable for the type of wall chosen for installation.



ACCESSORIES

BRASS IMMERSION PROBE WITH CONNECTOR • Add "K" to the end of the code



NOTE: socket
not included

EXTERNAL TEMPERATURE PROBE • Code RFSONDAE



Case material: plastic
Thermal well material: stainless steel
Operating environmental conditions
-40°C ÷ 100°C, relative humidity: 0 ÷ 100%
Sensor: NTC
Minimum insulation resistance: 100Ω to 100Vdc
Degree of protection: IP65

EXAMPLE OF SPECIFICATIONS

MULTIFUNCTION FIXED-POINT, WEATHER COMPENSATION CONTROL UNIT FOR HIGH/MEDIUM TEMPERATURE • 0-10V PROPORTIONAL input of the setpoint and MODBUS-RTU remote management, 3-point motorised valve control output, with flow temperature contact probe; 230V 50/60 Hz power supply, regulation range -15°C ÷ 90°C, protection degree IP40.

Brand: **COMPARATO**
Code: **CPSMB0**

UPDATED DATA SHEETS AVAILABLE AT www.comparato.com

In order to provide an up-to-date service, Comparato Nello S.r.l. reserves the right to modify technical data, drawings, graphs and photos of this data sheet at any time, without prior notice.

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