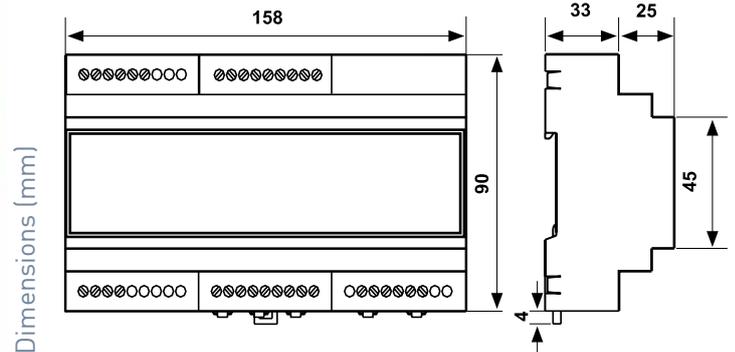
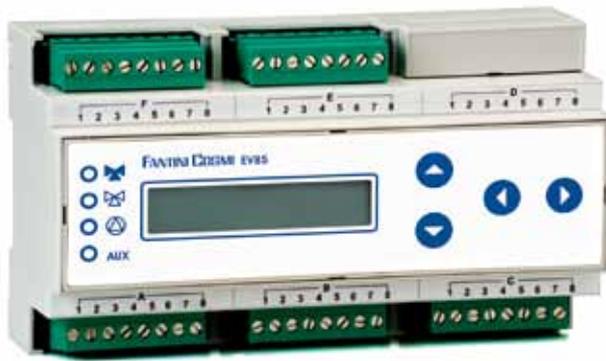


EV85

Digital controller for heating systems with remote control, DIN-rail mounting (9 modules)

The unit regulates water delivery temperature of the heating systems. It is suitable for all heating systems types of apartment buildings, factories, schools, cottages, etc.



	Contacts rating Vca	Power supply	Operation admissible temperature °C	Protection degree
EV85	5A - 250Vca	230Vca 50 Hz	0 ÷ 50	IP40 (back panel)

ELECTRICAL FEATURES

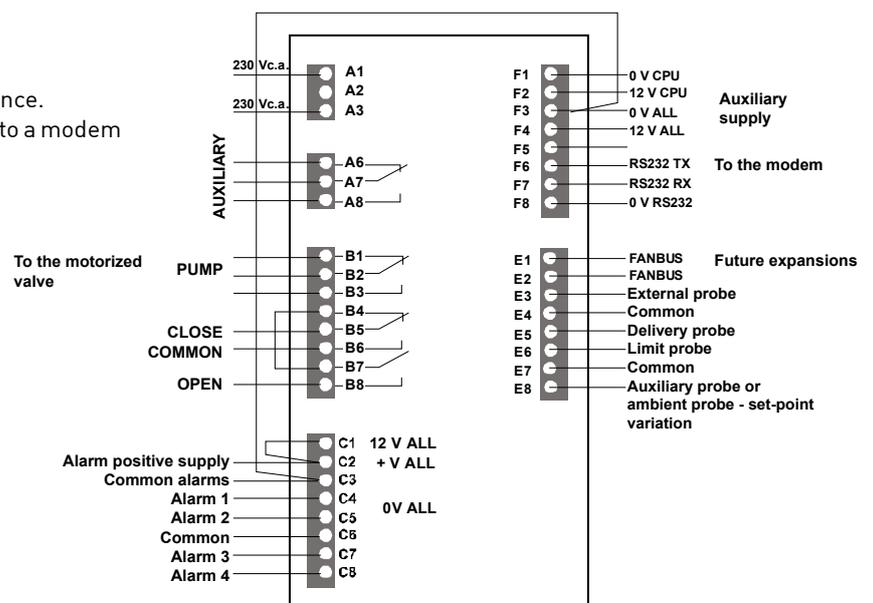
Power supply: 230Vca 50Hz.

Consumption: 7 VA.

Contacts rating: 5A- 230Vca (resistive load).

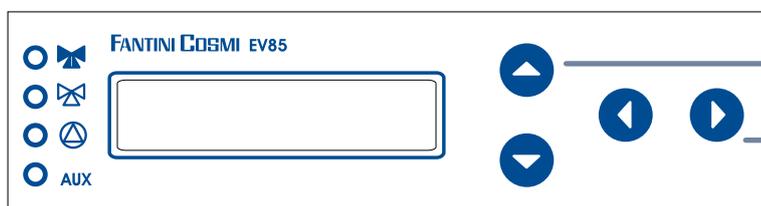
4 optoisolated alarm inputs to prevent interference.

1 communication channel RS232 for connection to a modem or directly to a computer.



Indicator led for following commands:

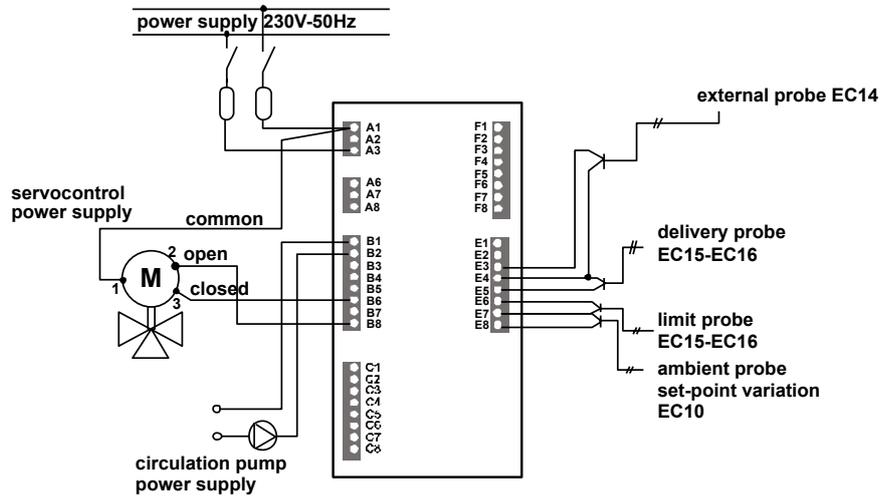
- valve opens
- valve closes
- circulation pump
- auxiliary relay



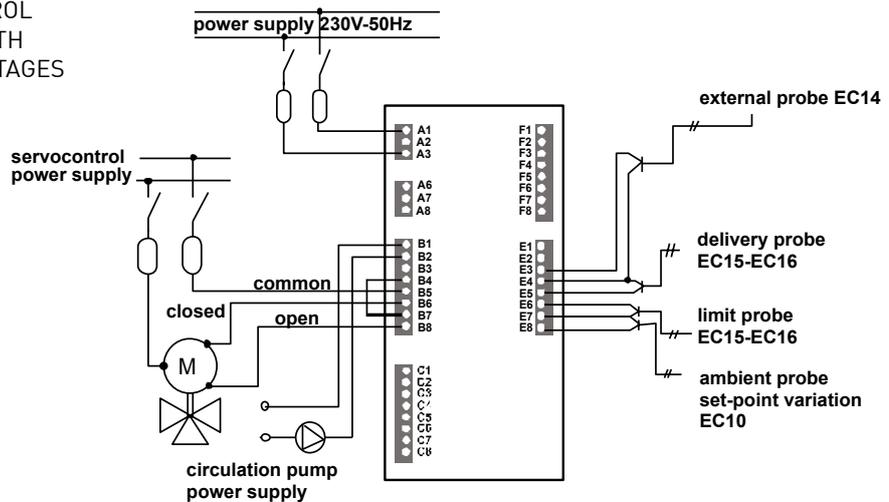
Using the 2 keys {~ and ~} can be scrolled various menus and can be modified the parameters.

The 2 keys {< and >} are used to enter in the menu and to pass from one page to another.

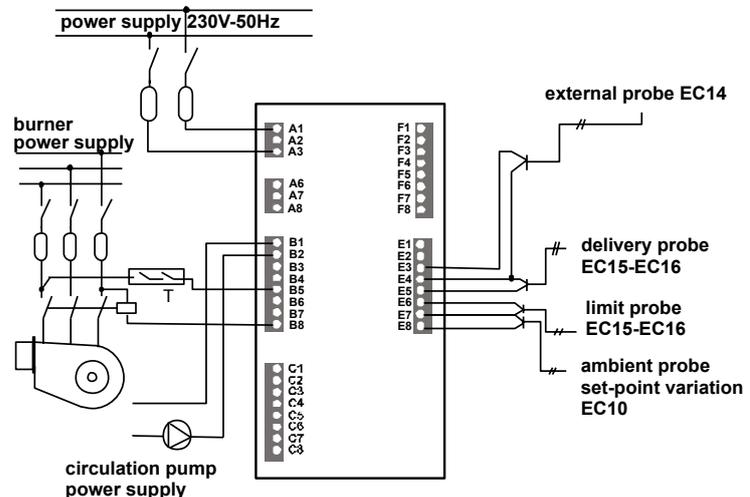
ELECTRICAL DIAGRAM FOR THE CONTROL OF THE MOTORIZED MIXING VALVES WITH SERVOCONTROLS SUPPLIED AT 230V 50HZ



ELECTRICAL DIAGRAM FOR THE CONTROL OF THE MOTORIZED MIXING VALVES WITH SERVOCONTROLS SUPPLIED WITH VOLTAGES DIFFERENT THAN 230V 50HZ



ELECTRICAL DIAGRAM FOR THE ON - OFF CONTROL OF THE BURNER



OPERATION

The controller calculates delivery temperature value as a function of the following parameters:

- desired ambient temperature (preset);
- external temperature (detected by the probe);
- regulation broken curve (preset);
- ambient temperature calculated by the controller (optional);
- ambient temperature detected by the ambient probe (optional).

By means of controller it is possible to choose the desired output type:

- mixing valve control (relay "opens" and "closes");
- 2-stage output (relay "opens"=stage 1 and "closes"=stage 2);
- 4-stage output (relay "opens"=stage 1, "closes"=stage 2, "pump"=stage 3 and "aux"=stage 4).

N.B. with 4-stage operation the two relays (pump control and auxiliary) cannot be used for another purposes.

It compares the theoretical (calculated) delivery temperature value with the real value, measured by the relative probe and acts on the regulation valve to obtain the desired temperature.

Programming can be made via GSM phone.

LANGUAGE SELECTION

During installation is possible to choose the language, used to view the menu.

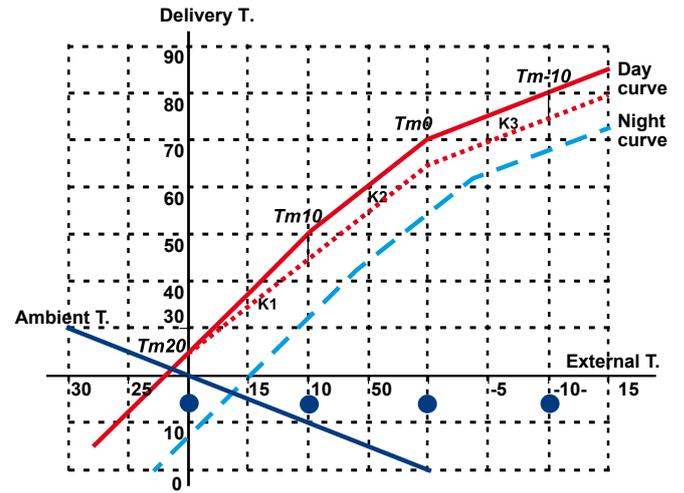
REGULATION BROKEN CURVE

The relation that establishes the delivery temperature value as a function of the external temperature depends of the thermal features of the building, and for optimum comfort, must be found experimentally.

The search is favored by the broken curve in 4 points, which may be corrected only in the desired point.

After each adjustment, while setting the regulation curve to obtain the desired ambient temperature for any external temperature value, it is advisable to wait at least 24 hours for giving to the system time for adapting to the new settings. To have a different ambient temperature, for example night temperature, the curve must be moved parallel to the day curve.

**REGULATION BROKEN CURVE
EXAMPLE OF THE CURVE FOR SYSTEM WITH RADIATORS**

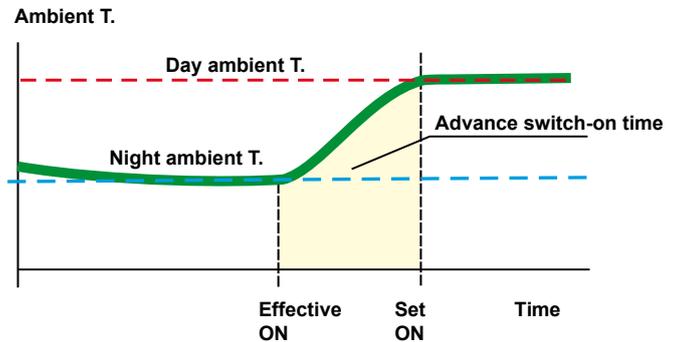


SWITCH-ON TIME OPTIMIZATION

Optimization is intended as automatic determination of the switch-on advance time required to obtain the desired ambient temperature at the preset time.

When this function is activated, instead of setting the switch-on time, is set the time at which the desired day ambient temperature is required; then the controller, as a function of the various parameters, calculates how much time earlier has to be activated the system.

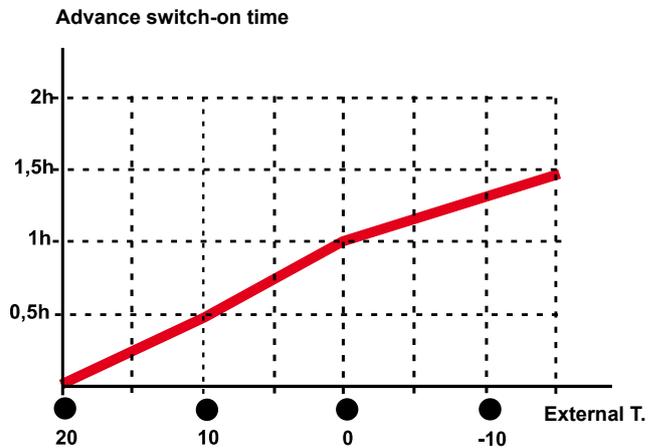
SWITCH-ON TIME OPTIMIZATION



OPTIMIZATION AS A FUNCTION OF THE EXTERNAL TEMPERATURE

After setting the relation that links the advance time to 4 external temperature values (20, 10, 0, -10°C), the controller automatically calculates the time for any intermediate value of the external temperature (for external temperature values of over 20°C the advance time is zero).

OPTIMIZATION AS A FUNCTION OF THE EXTERNAL TEMPERATURE



LIMIT PROBE

The limit probe can be used to limit the value of the delivery temperature.

When the temperature measured by the probe drops below a certain value (minimum limit used as anti-condensation) or rises above a preset value (maximum limit used, for example, in panel systems), the controller reduces the delivery temperature value proportionally.

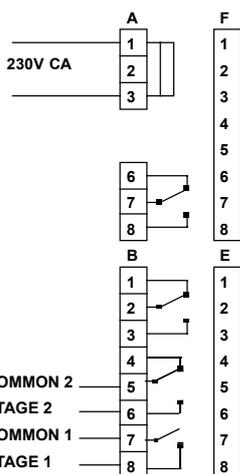
CIRCULATION PUMP CONTROL

The EV85 controller is designed to automatically control the circulation pump.

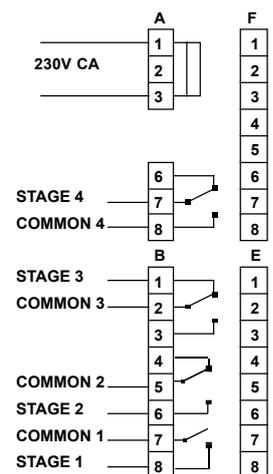
2- OR 4-STAGE OPERATION

The controller compares the value of delivery temperature, calculated according to the external temperature, with that measured by the probe and, if this temperature drops below the preset differential value, the first stage is turned on; if the deviation between the two temperatures is equal to double differential value, will be turned on even the second stage and so on to stages 3 and 4.

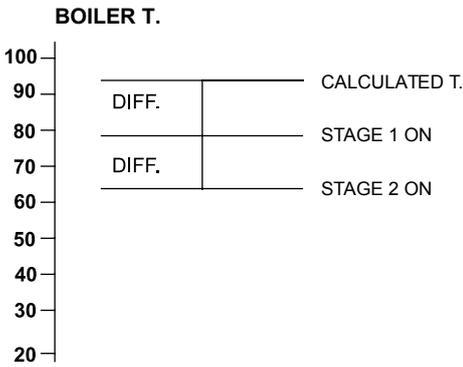
2-STAGE OUTPUT



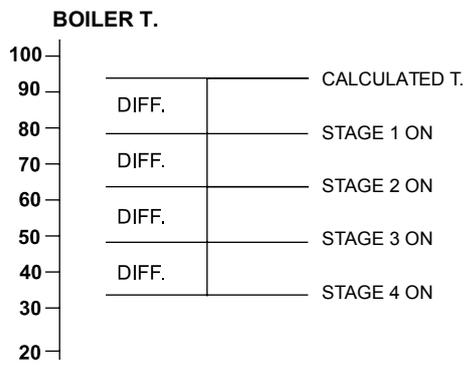
4-STAGE OUTPUT



2-STAGE OUTPUT



4-STAGE OUTPUT

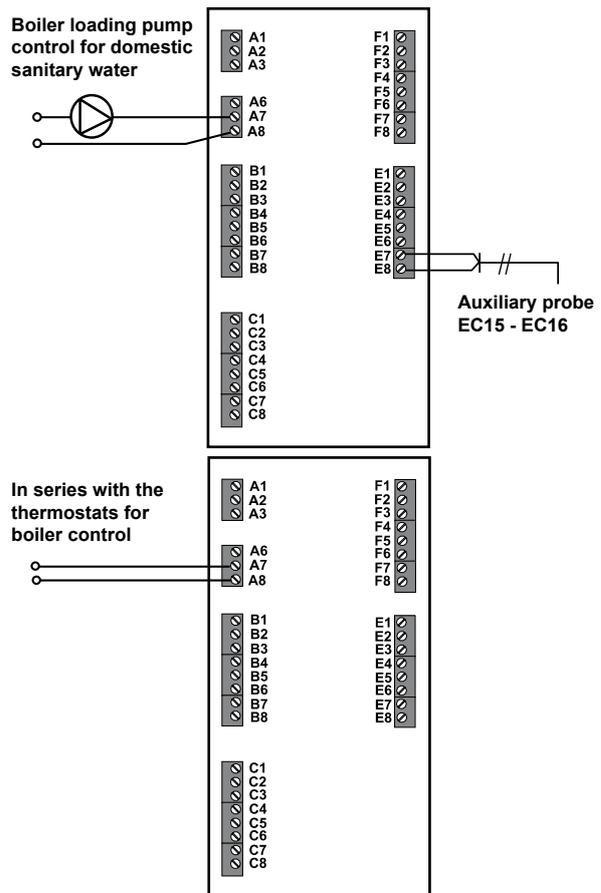


AUXILIARY REGULATION

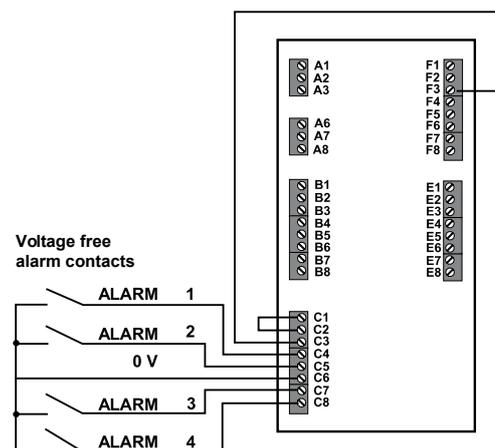
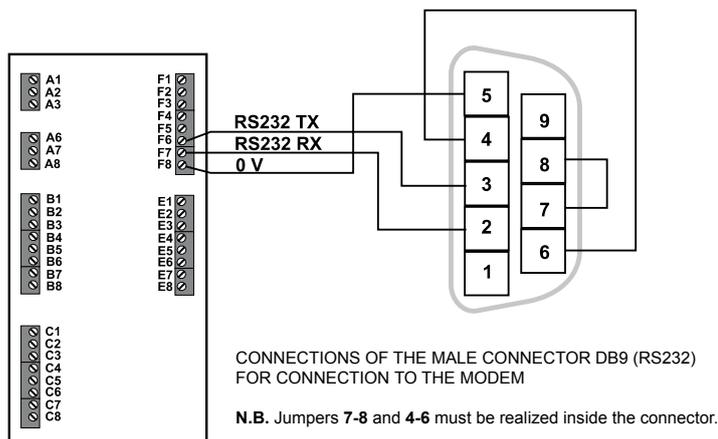
The auxiliary measurement probe and the control relay (terminals A6-A7-A8) are part of an auxiliary controller built into the EV85 remote heat controller which can be used in various ways:

- measurement probe not connected: the output relay follows the time programming of the clock and can be used for example to switch the boiler on or off; it is mandatory to set ---- on the desired value (menu 02).
- measurement probe connected (terminals E7-E8): this mode provides an ON-OFF thermostat with remote probe. From the menu 01 the fixed temperature option can be selected to control the pump of a domestic hot water storage tank at a constant temperature or, again from the menu 01, by selecting the sliding temperature option, a controller is obtained to control the boiler at a sliding temperature (in this case the set-point value represents the amount of degrees the boiler must be regulated above the delivery temperature calculated by the heat controller).

N.B. The control relay (terminals A7-A8) is placed in series to the users (pump or boiler).



ALARMS AND SERIAL COMMUNICATION



N.B. The 12Vdc power supply is taken from the controller by means of the jumpers C1-C2 and C3-F3.

REMOTE CONTROL

By connecting the EV85 controller to a GSM modem it is possible to receive SMS alarm messages after switching one of the two available alarm contacts.

To connect the controller to a GSM modem, follow the instructions relative to the wiring diagram, or use the TCEV80 cable.

N.B. The maximum length between the controller and the modem is 15 metres.

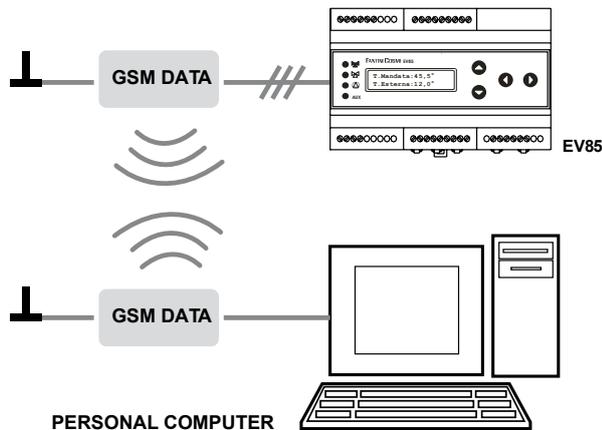
If the management takes place through a GSM modem is sufficient to use a cell phone.

If is used a GSM modem in data mode, it is necessary to use a Personal Computer with a control software available only in Italian language provided by Fantini Cosmi or downloaded via Internet.

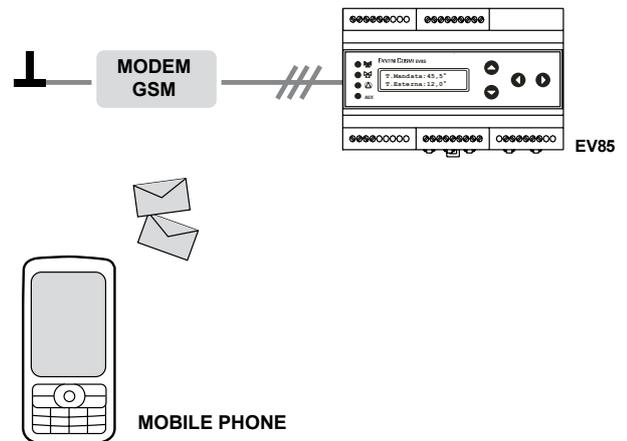
By sending appropriate SMS messages to the modem connected to the controller is possible to read and modify remotely the following parameters:

- times programming;
- day, night and antifreeze temperature settings;
- regulation broken curve values;
- auxiliary preset temperature;
- measured temperatures reading;
- alarm calls cancellation.

DATA CONNECTION



SMS CONNECTION



STANDARDS AND HOMOLOGATIONS

Complies with the law 373, law n.10 dated 9 of January 1991 and D.P.R.412 dated 26 of August 1993.
In conformity with EN 60730-2-9; EN 60730-2-7 standards.

INSTALLATION

DIN-rail mounting (9 modules).

To ensure an adequate protection install the device on the DIN-rail within a framework.
The removable terminals facilitate the wiring and a possible replacement.

FEATURES

Control of 1 modulating mixing valve.

Control of the circulation pump (with shut-down delay).

Control of one ON-OFF auxiliary user (domestic water).

1 RS232 communication channel for connection to a modem or directly to a PC.

Weekly programming with 3 time bands per day.

Automatic switching from summer time to winter time and vice versa.

Recorder of the temperatures and events of the last 48 hours (datalogger).

Visualization of all preset temperatures and parameters.

LED to indicate relays status.

Clock charge reserve: over 5 years.

Alphanumeric display with 2 lines each with 16 characters with timed backlighting.

All functions are executed through the menu.

Removable terminal board for easy wiring.

ACCESSORIES



EM70S
GSM-modem with power supply unit and antenna.



EC14
External probe



N70A
Power supply unit and battery charger.



EC15
Contact delivery probe with clamp for fixing on the pipe.



1590029
Rechargeable battery 12V-1,2Ah.



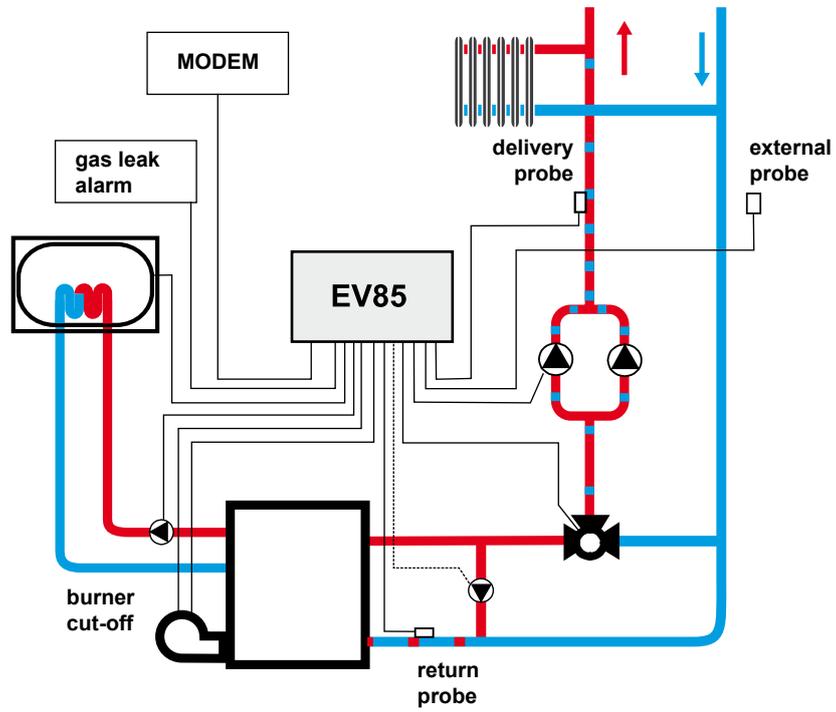
EC16
Immersion delivery probe with protection casing and conic thread connection G 1/2.



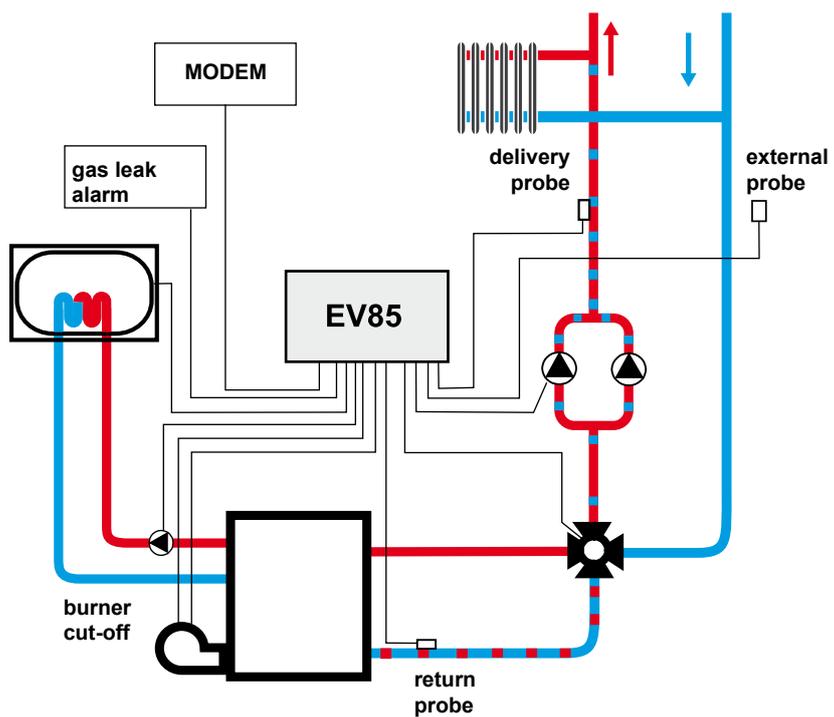
EC10
Ambient probe

SYSTEM EXAMPLES

SYSTEM WITH 3-WAY ROTOR MOTORIZED VALVE

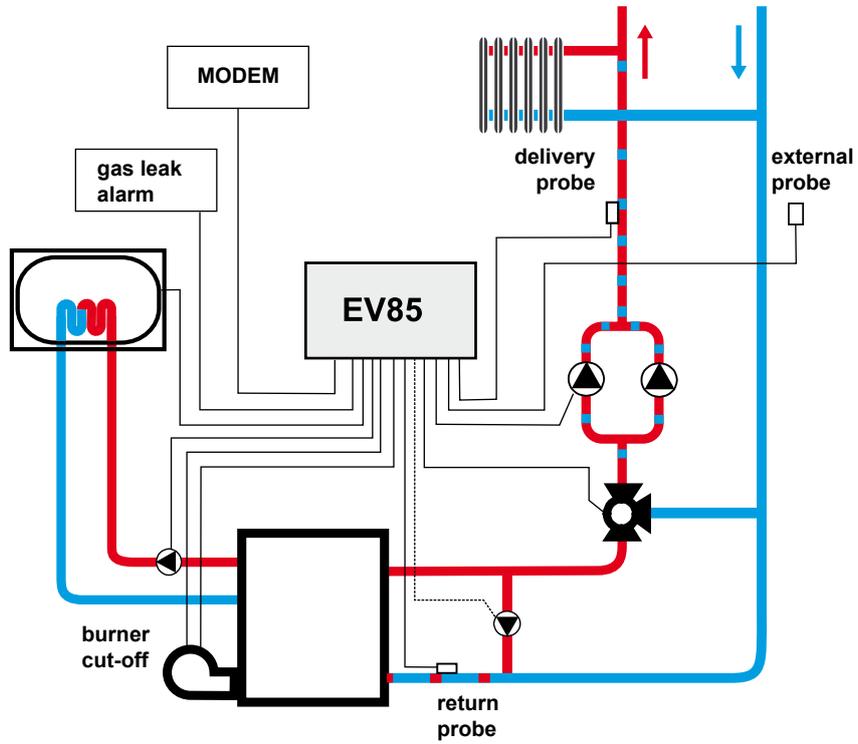


SYSTEM WITH 4-WAY ROTOR MOTORIZED VALVE



SYSTEM EXAMPLES

SYSTEM WITH 3-WAY SECTOR MOTORIZED VALVE



SYSTEM WITH BURNER CONTROL

