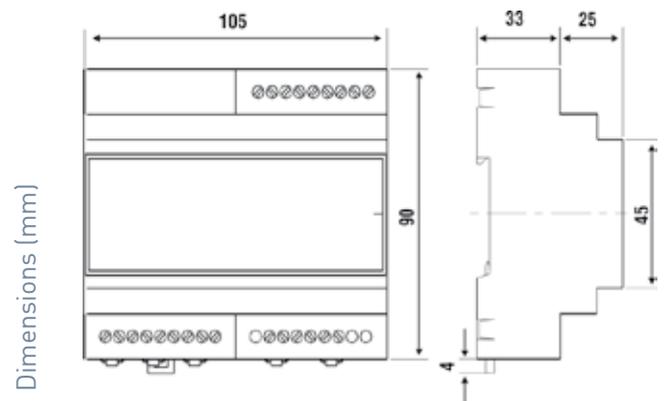
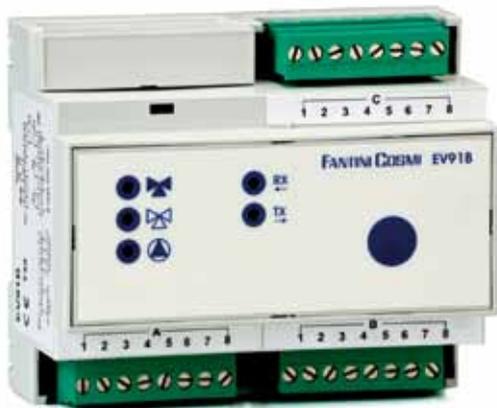


# EV91B

## Fixed point temperature compensator module for sanitary hot water - SLAVE

It is suitable for all types of centralized sanitary water heat regulation systems. EV91B is mostly used to regulate sanitary water temperature, but may be used for fixed point regulation of a generic ambient temperature, of a greenhouse, a swimming-pool, etc. The device also comes with a useful thermal disinfection program to prevent legionnaires' disease.

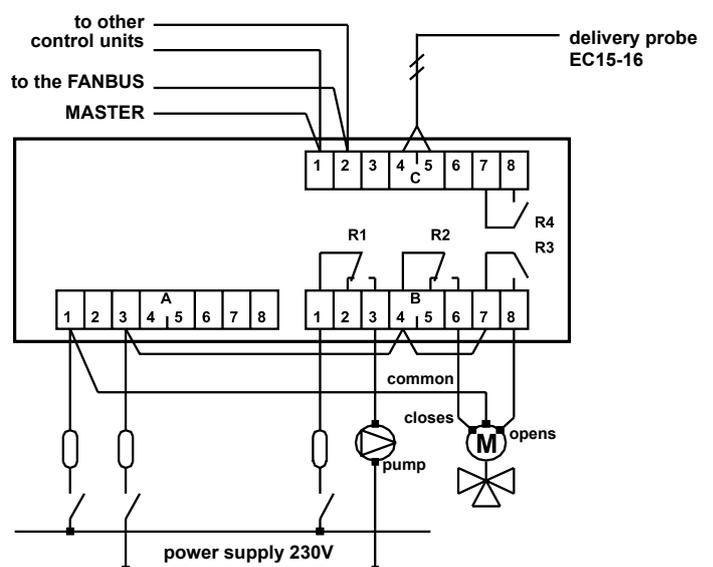


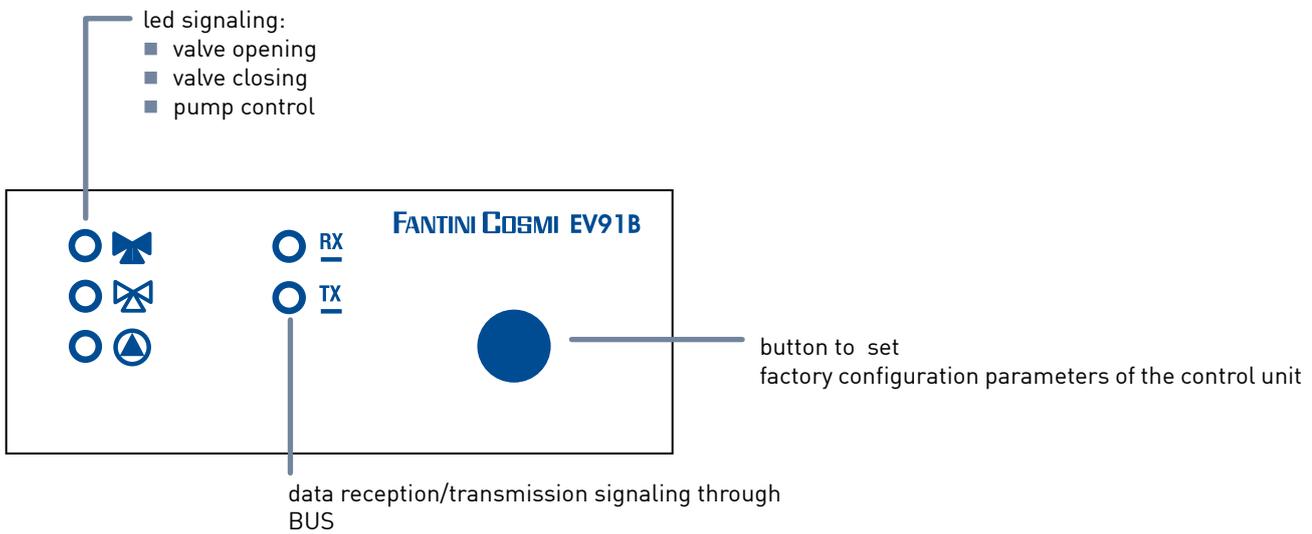
	Power supply	Contacts rating	Sanitary water temperature adjustment °C	Operating admissible temperature °C	Protection degree
EV91B	230V 50Hz	5A - 250Vca	0 ÷ 100	0 ÷ 50	IP40 (back panel)

## ELECTRICAL FEATURES

Power supply: 230V 50Hz.  
 Consumption: 5 VA.  
 3 output relays.  
 - 2 for mixing valve control.  
 - 1 for circulation pump control.  
 1 communication channel FANBUS.  
 1 analog input to measure collector temperature.  
 Voltage free contacts.  
 NTC measurement probe type EC15 or EC16.

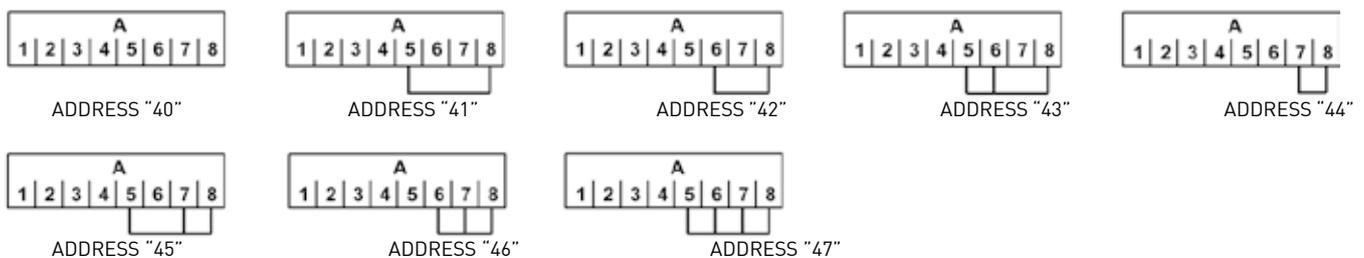
### ELECTRICAL WIRING EXAMPLE





## CONTROL UNIT ADDRESS

In order to work properly, the control units must be addressed through the terminal board. EV91B address is composed of a high part that corresponds to the number "4" and a low part that may assume a value from "0" to "7". The MASTER starts a progressive search of EV91B SLAVES from address 40 and stops when it gets a reply. It is therefore necessary that connected slaves have different consecutive addresses starting from address "40". The below diagrams show how to set the low part of the address by acting on terminal board 'A':



## OPERATION

EV91B is an electronic device that regulates the mixing valve opening and closing based on the desired temperature and the read temperature. The device works properly only when it's connected through a two-wire serial bus (FANBUS) to a Master device called EV90 or EV87.

The adjustment is made using a proportional-integrator controller. Its proportional and integral constants may be modified by the user according to the type of plant and user's habit.

A comparison of the delivery temperature and the required reference temperature determines an error that according to the proportional band and the integration time, assigns the position of the valve. This position is expressed in percentages, where 0% indicates that the valve must take the totally closed position, and 100% indicates that it must move to the totally opened position.

The valve takes the time shown on the valve plate to move from the fully closed to fully opened position.

### CIRCULATION PUMP

The circulation pump is switched on when the selected program is ALWAYS ON or Automatic and it's within the programming period.

### PROGRAMMING

In the automatic operation, set by the user, it's possible to program three daily periods during which the control unit is operating.

### THERMAL DISINFECTION

It's possible to enable the disinfection function to prevent the infectious disease known as legionellosis. This function allows you to program:

- a disinfection temperature (70° and definitely higher than that of the normal regulation);
- the turn on day;
- the disinfection duration with the possibility to set the start time and end time.

This function may be excluded by canceling either of the two periods, or both.

We recommend that you schedule disinfection during the night when there's less frequent hot water use in order to avoid burns due to the high water temperature.

N.B. If you decide to use this program, is mandatory to use special heat protection for sanitary users that can interrupt water flow over a certain temperature or can automatically mix the water of various users to protect them from possible scorches. Water with a temperature of over 50°C can cause burns in a few seconds.

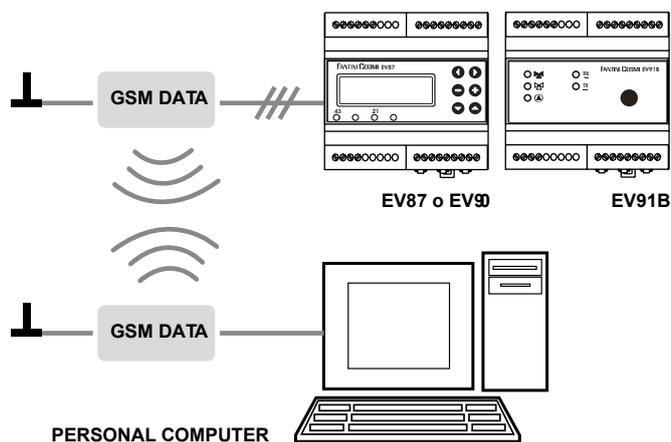
#### REGULATION

The output of the control unit that varies from 0% to 100% is compared with valve position (also expressed in percentages). The valve is triggered to open when the comparison is positive; otherwise it is commanded to close. If the percentage error is between a certain programmable value the valve remains stopped.

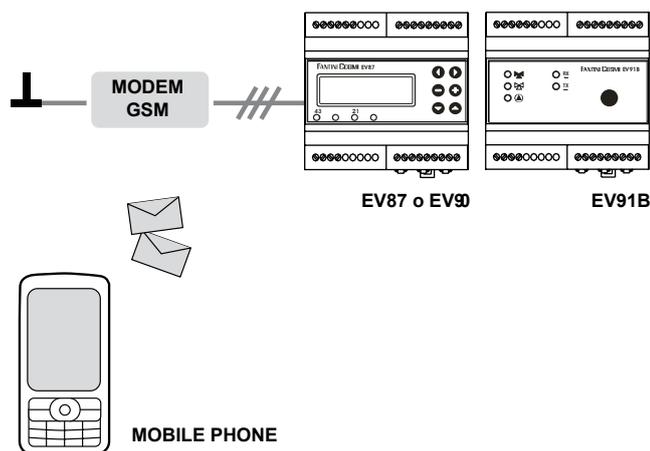
#### REMOTE CONTROL

Like with all SLAVE devices connected to the MASTER EV90 or EV87, some parameters of EV91B may be modified remotely by using an analogue or GSM modem connected to the Master.

#### 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 (6 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

Daily programming with 6 ON and OFF schedules.

Sanitary water temperature adjustment from 0 to 100°C.

Programming for circuit thermal disinfection against legionellosis.

Parameters visualization and modification by means of FANBUS from EV90 or EV87 MASTER.

Local programming or via SMS messages (with GSM modem) or via remote computer (with analog PSTN modem) via the communication bus (FANBUS) and the MASTER EV90 or EV87.

Addressing through jumpers on the external terminal board.

TX and RX signaling LED for connection with FANBUS, valve and circulation pump control.

