



FAR CONTROL UNIT Art. 9612-9613

SEMPLIFIED USER MANUAL



FAR control unit is suitable for heating systems with 3-point mixing valve and it is preset for fix point operation or with temperature compensation depending on the external one. Every control unit can control one 3-point mixing valve and can be connected to one flow sensor and/or one outside sensor.

1. Front panel:

1 - Display :

shows the value measured by the connected sensor. In the event of alarm condition the sensor value will be displayed alternately with the codes of the active alarms. When programming the instrument, the display shows the parameter codes being introduced and their values.

2 - Decimal point LED :

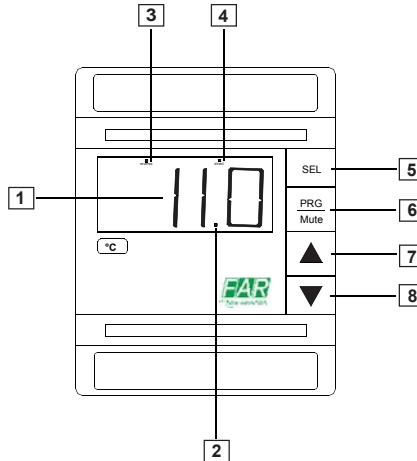
lights up when the controlled parameter is displayed.

3 - Reverse LED :

flashes when at least one relay working in the 'Reverse' mode is active. The Led flashes as many times as the number of active 'reverse' relays. There is a two seconds pause between a flashing stage and the next one.

4 - Direct LED :

flashes when at least one relay working in the 'Direct' mode is active. Its working logic is the same as the 'Reverse' LED.



5 - SEL button :

displays and/or allows you to select the Set-point. If pressed for 5 seconds together with PRG/MUTE it allows you to enter the password and the configuration parameters (having a 'Cxx' type code).

6 - PRG/mute button :

if pressed for 5 seconds it allows you to access the menu of the more frequently used parameters (having a 'Pxx' type code). In the event of alarm condition, it silences the buzzer and, if pressed after the cause has ended, it resets any other alarm. It completes the programming procedure storing all the values of the modified parameters.

7 - ▲ button :

increases the value of the set-point or that of any other selected parameter.

8 - ▼ button :

decreases the value of the set-point or that of any other selected parameter. In NTC input versions it can display the value of the second sensor (holding 'Down' pressed while the display shows the value of the main sensor).

2. Operating mode:

FAR control unit, once connected and programmed, is able to adjust the position of the 3-point mixing valve so as to maintain the flow temperature value to the preset value. For fix point operation you have to install the FAR flow temperature probe on the delivery connection, while for compensation depending on the external temperature you have to install both FAR flow temperature probe and outside temperature sensor on the delivery connection.

3. Installation:

In order to install the controller you have to:

- **Connect sensors and power supply:** sensors can be located up to 100 meters distant from the controller provided that you use cables with min. 1mm², better if shielded. To improve immunity against noises we recommend using sensors with shielded cables (connect just one end of the shielding to the earth of the electrical panel). See schema here below.
- **Program the instrument:** see instruction here below
- **Connect the devices:** connect the devices after you have programmed the controller.

Avoid installation of control units in following condition:

- Relative humidity higher than 90% or condensing
- Heavy vibrations or shocks
- Exposure to continuous jet of water
- Exposure to aggressive and polluting environments (for example: sulphurous and ammoniacal gases, saline mist, smoke) to avoid corrosion and/or oxidation
- High magnetic and/or radio interferences
- Exposure of controllers to direct solar radiation and to atmospheric agents in general.

When connecting control units you have to:

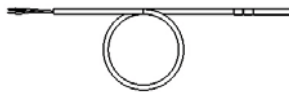
- Use appropriate cable-terminals suitable to the terminals used
- Slacken each screw and insert the wire terminals, then tighten the screws again and check
- Keep separate the cables of the sensors and digital inputs from the inductive and power cables, to avoid any interference;

Important: the uncorrect connection to the power source could damage the system. It is necessary to preset all electric and electromechanical devices to guarantee the safety of the system.

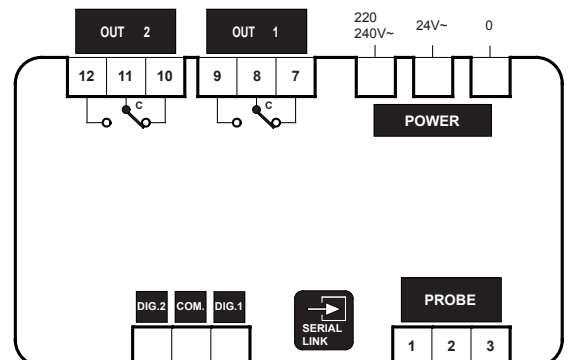
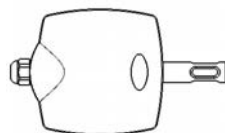
4. Electric connections:

FAR control unit can be feeded with two different voltage levels: for 24V connection use terminals marked **0** or **24V**, while for 230V connection use the ones marked **0** and **220/240V**.

The flow temperature probe has to be connected to terminals marked **probe No. 2 and 3**.



The outside temperature sensor has to be connected to terminals marked **probe No. 1 and 2**.



Before connecting the mixing valve actuator it is necessary to program the control unit.

5. FIX POINT operation:

In order to program you have to:

- Press at the same time buttons PRG and SEL for 5 seconds
- Display shows 0
- Insert password 77 using ▲▼ buttons
- Press SEL to confirm
- Display shows C0
- Press SEL to see parameter value
- Select the parameter value using ▲▼ buttons
- Press SEL to confirm the preset value
- Go to the next parameter using ▲▼ buttons

List of parameters to be included:

- C0 = 1
- P1 = 20
- C12 = 10
- C33 = 1
- C34 = 1
- C35 = 1
- C36 = -100
- C37 = 95
- C38 = 1
- C39 = 1
- C40 = 100
- C41 = -95

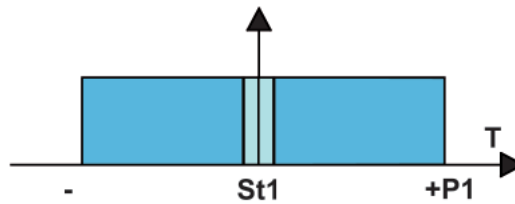
- Once you have included alla parameters, press **PRG** to end programming.

To set the desired temperature value St1 you have to:

- Press SEL
- Display shows St1
- Releasing SEL, the St1 value flashes on display
- Select the desired temperature value using ▲▼ buttons
- Press three times SEL to confirm preset value

Now the control unit is ready. After some initial oscillation due to system inactivity, temperature will stabilize around the preset value. Regulation is carried out with a string of pulses proportional to temperature change detected by flow probe.

- St1 [°C] Desired temperature value.
- P1 [°C] regulation range. 95% of P1 value is regulate to pulses while the remaining 5% is neutral zone.
- C12 [s] cycle time for a single pulse.



The preset P1 and C12 values are suitable for most systems. Varying the values of these parameters it is possible to adjust regulation to particular systems needs.

6. Operation in OFFSET Mode, depending on external temperature:

In order to program you have to:

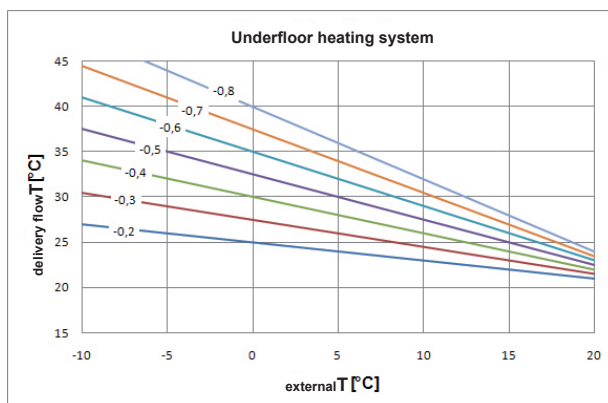
- Press at the same time buttons PRG and SEL for 5 seconds
- Display shows 0
- Insert password 77 using ▲▼ buttons
- Press SEL to confirm

In this way you can enter the list of parameters to be included:

- Display shows C0
- Press SEL to see parameter value
- Select the parameter value using ▲▼ buttons
- Press SEL to confirm the preset value
- Go to the next parameter using ▲▼ buttons

Underfloor heating system:

- C0 = 1
- P1 = 20
- C04 = -0,5
- C12 = 5
- C19 = 3
- C21 = 20
- C22 = 45
- C33 = 1
- C34 = 1
- C35 = 1
- C36 = -100
- C37 = 95
- C38 = 1
- C39 = 1
- C40 = 100
- C41 = -95

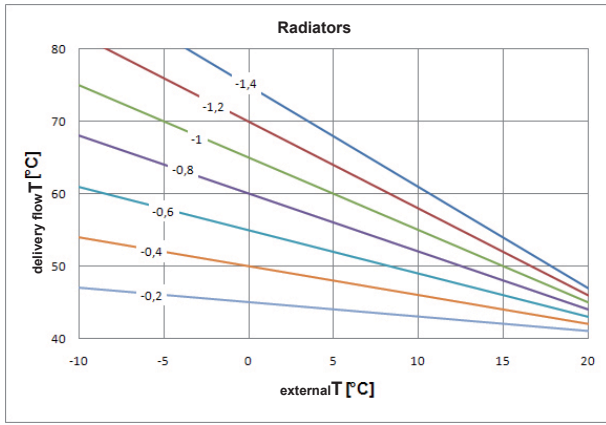


- C04 Regulating curve gradient (possible values -0,2 -0,3 -0,4 -0,5 -0,6 -0,7 -0,8)
- C21 MIN flow temperature
- C22 MAX flow temperature
- St1 flow temperature corresponding to an external one equal to St2
- St2 external temperature corresponding to a flow one equal to St1

- St1 = 20
- St2 = 25

7. RADIATORS systems:

- C0 = 1
- P1 = 20
- C04 = -1
- C12 = 5
- C19 = 3
- C21 = 40
- C22 = 80
- C33 = 1
- C34 = 1
- C35 = 1
- C36 = -100
- C37 = 95
- C38 = 1
- C39 = 1
- C40 = 100
- C41 = -95



- C04 Regulating curve gradient (possible values -0,2 -0,4 -0,6 -0,8 -1 -1,2 -1,4)
- C21 MIN flow temperatur
- C22 MAX flow temperatur
- St1 flow temperature corresponding to an external one equal to St2
- St2 external temperature corresponding to a flow one equal to St1

- St1 = 40
- St2 = 25

After having inserted the parameters press **PRG** in order to terminate the programming procedure.

In order to set the **St1** and **St2** values proceed as follows:

- Hold down **SEL** for a few seconds, display shows St1
- Release **SEL**, the factory-set value St1 flashes on display
- Use the buttons **▲ ▼** to set the desired St1 temperature value
- Press **SEL** to confirm the preset value and pass on the St2 value
- Use the buttons **▲ ▼** to set the desired St2 temperature value
- Press **SEL** to confirm

After having inserted the parameters press **PRG** in order to terminate the programming procedure.

IMPORTANT: In offset mode operation - depending on the external temperature - it is possible to vary the regulating curve gradient modifying the value of parameter C04. The value chosen by FAR (C04=-0,5 for underfloor heating systems and C04=-1 for radiators systems) allows an optimal solution according to variation of external temperature. In any case the value can be modified in order to meet different requirements. Consulting the previous diagrams it is possible to visualize the relation between the external temperature and the delivery temperature depending on variation of parameter C04.

In case of failures or wrong connection of delivery sensor ,display shows Er0 and starts an alarm. Press **PRG/mute** and check the sensor.

In case of failures or wrong connection of external sensor ,display shows Er1 and starts an alarm. Press **PRG/mute** and check the sensor.

In case of any problems arisen during the programming procedures it is recommended to effect the Reset of the control unit.

In order to execute the **RESET** of the control unit:

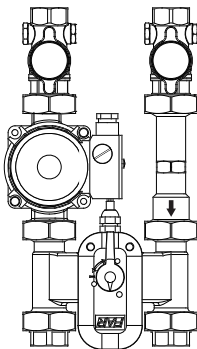
- Cut off power;
- Supply the instrument again while holding down **PRG** button;
- Release the button and start again programming.

8. Electrical connections of actuator:

For the connection of the actuator of the FAR booster unit art. 2170 proceed as follows:

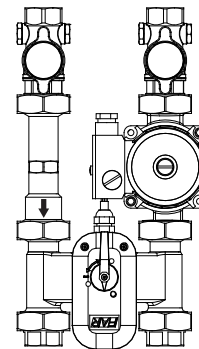
Booster unit with delivery on the left (standard FAR)

- Connect the phase on terminals **c** , marked by numbers **8 and 11**
- Connect the brown wire of actuator to the terminal **OUT1**,marked by **no 9**
- Connect the black wire of actuator to the terminal **OUT2** , marked by **no 12**

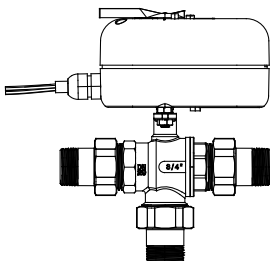


Booster unit with delivery on the right

- Connect the phase on terminals **c** , marked by numbers **8 and 11**
- Connect the black wire of actuator to the terminal **OUT1** , marked by **no 9**
- Connect the brown wire of actuator to the terminal **OUT2** , marked by **no 12**

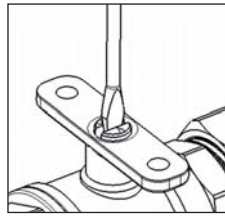
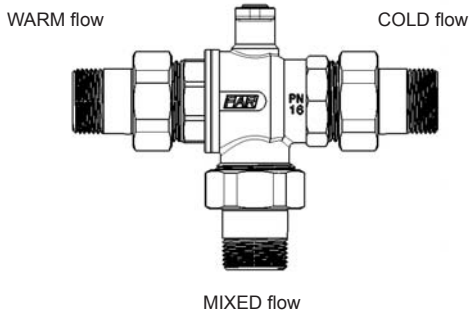


For the connection of the actuator of a FAR mixing ball zone valve art. 301020 proceed as follows:

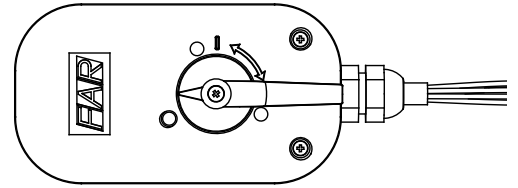


- Connect the phase on terminals **c** , marked by numbers 8 and 11
- The terminal OUT1 marked by no 9 corresponds to the warm water demand
- The terminal OUT2 marked by no 12 corresponds to the cold water demand

Connection overview 1

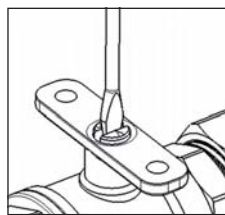
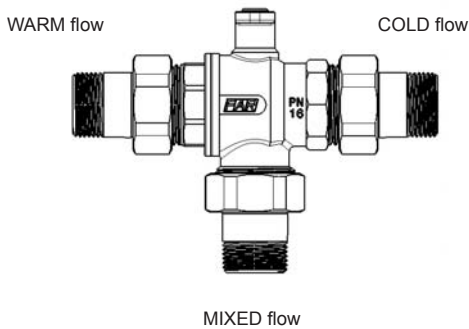


Position of valve pin

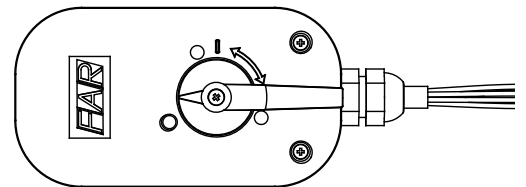


Connect the BLUE wire to the Neutral one,
Connect the BROWN wire to the terminal OUT1 no 9
Connect the BLACK wire to the terminal OUT2 no 12

Connection overview 2



Position of valve pin

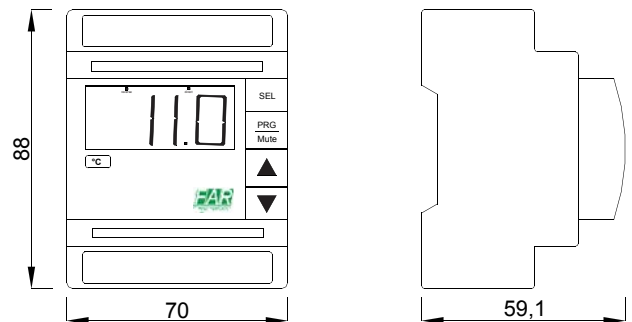


Connect the BLUE wire to the Neutral one,
Connect the BLACK wire to the terminal OUT1 no 9
Connect the BROWN wire to the terminal OUT2 no 12

9. Technical features:

- Feed:
 - Voltage: 24Vac ± 10% e 230Vac ± 10%
 - Power consumption: 3VA
- Operating conditions:
 - Working temperature: 0÷50°C
 - Storage temperature: -10÷70 °C
 - Ambient relative humidity: lower than 90% rH, non-condensing
 - Ambient pollution: normal
- Inputs:
 - n°2 inputs for NTC sensor
 - Optional serial connection
 - I.R. sensor
- Outputs:
 - n°2 relay SPDT
 - Max voltage: 250 Vac
 - Max power: 2000 VA
 - Max inrush current: 10Vdc
 - Disconnection type: 1C, according to EEC EN 60730-1 standards
- Insulation:
 - Low voltage sections have a main insulation in comparison with the very low voltage ones and a double insulation in comparison with the front panel of the instrument.
- Mechanical features:
 - The control unit is suitable to be mounted on DIN rail
 - Cases: plastic, autoextinguishing according to UL94-VO standards
 - Connections: through screw terminals max. sect. 1,5 mm²
 - Protection degree: IP40 with panel mounted instrument

Dimensions:



Important: cables should resist to the maximum ambient temperature, keeping in mind that the control units are subject to self heating up to 20°C when all outputs are energized.

10. Technical Assistance

For any kind of problems related to the FAR control unit art. 9600 avoid to act on instrument and contact:

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28024 GOZZANO (NO)
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