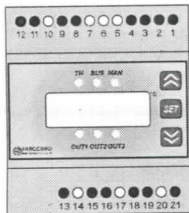


## Installation, operation and maintenance manual of the remote thermostat

### INSTALLATION AND USE OF THERMOSTAT MOD. 1096490

The thermostat mod. 1096490, is supplied by FRACCARO with probe or globeprobe included for inside temperature control.



- UP** key: increases display values during set-up phases;
- SET** key: set-point, if pressed for more than 5 seconds, it enables access to configuration menu;
- DOWN** key: decreases display values during set-up phases;
- CLOCK LED** indicates clock contact status:
  - led on, clock contact close
  - led off, clock contact open
  - led blinking, parameter set-up in progress
- BUS** = Led **BUS SERIALE** indicates the communication of remote thermostat status:
  - led on, data transmission on
  - led off, data transmission off
  - flashing light **BUS** parameter on, data transmission off
- MAN** = Led **MAN** indicates **MODE** parameters functions:
  - led on, manual
  - led off, automatic
  - flashing light off
- out1** = Led **out1** indicates K4 relay status. Burner consent:
  - led on, relay on
  - led off, relay off
- out2** = Led **out2** indicates K5 relay status. Burner maximum power:
  - led on, relay on
  - led off, relay off
- out3** = Led **out3** Led not used

#### DISPLAY AND CHANGE OF SET-POINT VALUE "SP1"

- As for value of "set-point" we mean the intervention temperature output K4 - K5 that is the internal temperature set-up for a room to be heated.
- Press **SET** key until letters "SP1".
- Release **SET** key. The display shows regulator intervention temperature and led **CLOCK** starts blinking.
- Operate on **UP** or **DOWN** keys to alter set-point.
- To exit procedure and save changes, press **SET** or wait for 25 seconds without operating on keyboard.

#### CHANGING INSTRUMENT PARAMETERS

- Press **SET** key until "PA" appears on display.
- Release **SET**. The display shows figure "00" and led **CLOCK** starts blinking.
- Type in the access number operating on **UP** or **DOWN** (ask for the access number to FRACCARO Service Center).
- Press briefly the **SET** key.
- Search the parameter to change operating on **UP** or **DOWN** keys.
- Press briefly the **SET** key to select the parameter to change.
- Press **UP** or **DOWN** keys to change value.
- Press briefly **SET** to visualize parameter value another time.
- Repeat the same procedure to change value of other parameters.
- To exit procedure and save changes wait for 10 seconds without operating on keyboard.

#### TIMER INPUT

Thermostat is equipped with an AC opto-insulated input that can be connected to the normally open contact of a timer. Thermostat action depends on input status: when led **TH** is on, it means that thermostat is working according to "St1" parameter setting-up (tab 1).

#### SETTING-UP INTERVENTION OF SECOND STAGE K2 OUTPUT

Parameter "dSP2" is the value to be subtracted to set-point "SP1" in order to activate second stage K5 output.

Example:

- Set up the set-point parameter at **SP1=18 °C** (internal temperature desired);
  - Set up the set-point parameter at **dSP2=-1,0 °C** (intervention of relay K5 second stage);
  - Set up the parameter of differential at **dIF=-0,1 °C**.
- Output status of thermostat:  
 Temperatures below 17 °C outputs **out1=on** and **out2=on**. (burner working at maximum power)  
 Temperatures between 17 °C and 18 °C outputs **out1=on** and **out2=off**. (burner working at minimum power)  
 Temperatures above 18 °C outputs **out1=off** and **out2=off**. (burner off).

#### DOUBLE IGNITION FUNCTION

In order to increase efficiency of heating system and reduce thermal inertia effects, parameter **iIS** has been added which regulates activity on second power level of burner. If this parameter is different from 0 "double ignition" function is activated, in this condition every time K4 output is activated K5 output is activated for as long as indicated by **iIS** parameter after which K5 output goes back to normal functioning.

#### ACTIVATION DELAY OF SECOND STAGE K2 OUTPUT

By operating on parameter **dTS**, it is possible to delay activation of second power level K5 relay. Delay will be inserted before every activation of K5 relay and before every resetting of the burner.

#### "MANUAL" OPERATING MODE MODE

- If there is a time switch, the thermostat is operated by the contact **TH** if the parameter "Mode" is set in "Man". If there is not time switch, jumper terminals 9 and 11.
- If the contact is closed **TH** is maintained the set-point main;
- If the contact is opened and the **TH** parameter **St1** (antifreeze) is set to 0, the thermostat is in **OFF**;
- If the contact is opened and the **TH** parameter **St1** (antifreeze) is different from 0 is kept the same set-point **St1**.

#### "OFF" OPERATING MODE

If the parameter "Mode" is set to **OFF** temperature is maintained antifreeze.

#### "AUTO" OPERATING MODE

If the parameter "Mode" is set to **AUTO** then the operation depends on the time set. The time sets are programmed from FRANET 3 but are stored on the thermostat. In this case, set both the Modbus address in each device (**Addr** parameter), and the parameter "BUS" ON. After the programming is not necessary to have active communication with FRANET 3. To set the daily and weekly time see in FRANET 3 handbook.

#### LIST OF INSTRUMENT PARAMETERS

Parameter	Description	Min	Max	Unit	Default parameters
SP1	Main setpoint	SP1 + 1°C	HSP	°C	20.5
Mode	Operating mode		Manual/Off		Man
dIF	Setpoint SP1, St1 differential	-0.9	-0.1	°C	-0.2
dSP2	Setpoint output K5 referred to SP1 or St1, deducting "dSP2" from setpoint "SP1", we obtain setpoint output K5	-0.9	-0.1	°C	-0.2
dSP2	Setpoint output K5 referred to dSP2, deducting "dSP2" from setpoint "dSP2", we obtain setpoint output K5	-0.9	-0.1	°C	-0.2
HSP	Maximum setpoint	St1	25	°C	30
CAL	Probe signal correction	-0.9	0.9	°C	0.0
iIS	Duration "double ignition" function. Set 0 minutes to exclude "double ignition" function.	0	59	min	0
delo	Delay in activation of burners when thermostat is turned on	0	250	sec	0
dTS	Delay between first and second power level	0	250	sec	0
rs	Probe reading stability	0	9		0
St1	Night or anti-freeze temperature. Setpoint output K1 with timer input open. Set 0.0°C to maintain the burners off with timer contact open	0.0	SP1 - 1°C	°C	8
out1	Time off display	0	30	min	0
Addr	Number in modbus management	0	128		0
Bus	Franel 3 communication	0	On/Off		Off
Hour	Time display (Hr min)	0	59	Hour Min	-
DAYW	Day display				-
DAYM	Day of the month	1	31		-
Month	Month of the year	1	12		-
Year	Years display	2000	2099		-

Tab 1

### DISPLAY SIGNALS

Display	Displayed error	Output status
EE	Thermostat out of order (EError out of order)	OFF
E1	Thermostat probe in short-circuit	OFF
E2	Thermostat probe not connected	OFF
E3	Auto thermostat function without time set program	St1
E60	Low battery - time not set	Value St1
E7	Setpoint out of range	Display 60°
E8	Parameter out of range	Display 60°

Tab 2

#### TIMER INPUT

Thermostat is equipped with an AC opto-insulated input that can be connected to the normally open contact of a timer. Thermostat action depends on input status: when led **TH** is on, it means that thermostat is working according to "St1" parameter setting up.

#### ELECTRIC CONNECTIONS

By connecting to the thermostat keep to fig. 1 when there is no timer input, keep to fig. 2 when there is timer input and to table 3 as below. Take care of neutral and supply phase polarity. Avoid criss-crossing cables among them by separating connections (probe) from those concerning power supply. Remember that the thermostat is not protected against overcharge, equip outputs with the necessary safety devices, and verify also that the employment conditions are within the below indicated limits.

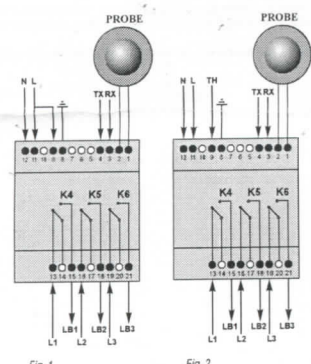


Fig. 1

Fig. 2

- Key:  
 N = Neutral  
 L = Thermostat supply phase  
 L1 = Thermostat supply phase  
 L2 = Thermostat supply phase  
 L3 = not used  
 LB1 = Output phase for burner command - on/off stage  
 LB2 = Output phase for burner command - max power II stage  
 LB3 = not used  
 LTI = (eventual) timer contact

Terminal	Description of services
1,2	Temperature internal probe "globeprobe"
2,4	Fr. Tx-Rx 485 serial BUS connections
8	Earth connection
11,9	Timer terminal. If timer is not present, connect the terminals as per fig. 72
11	Supply line 230Vac +/-10%
12	Neutral supply 230Vac +/-10%
13,14,15	Output K1, first stage burner control relay: 10A 250 Vac
16,17,18	Output K2, second stage burner control relay: 10A 250 Vac
19,20,21	Output K3 not used

Tab. 3

#### THERMOSTAT TECHNICAL FEATURES

- Power supply:** 250Vac +/- 10%
- Operation field:** -5°C a +50°C
- Unit consumption:** 5VA a 230 Vac
- Housing:** 4 DIN plastic modules
- Assembling:** OMEGA guide
- Isolating class:** II
- Input:** 1 250 Vac optoisolated clock contact input - 1 input preset for PTC probe
- Frontal protection:** IP42
- Precision:** 0.5% of the bottom scale
- Use conditions:** work temperature -5/+50°C - storage -20/+60°C
- Relative room humidity:** 30-90% without condensate
- Display:** display with 4 figures, 7 segments + led indicators
- Output:** 3 K4 - K5 - K6 SPDT - 250 Vac 10A max relays

### EXAMPLE OF CONNECTION BETWEEN THERMOSTAT AND TIME SWITCH

Protect the circuit upstream with adequate magnetothermic circuit breaker. Connection of probe with shielded cable connected one side to earth.

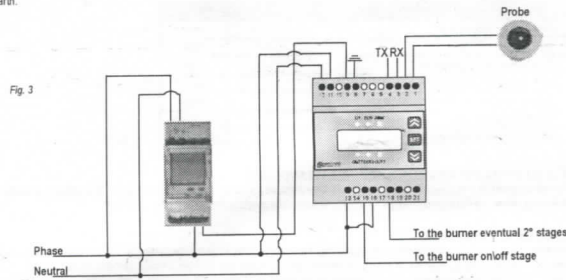


Fig. 3



#### SUPERVISION WITH FRANET 3 WEB SERVER OR GATEWAY

If the management is carried out by means of the Franel 3 supervision or the Gateway device and the system has more than one thermoregulator, these MUST BE SUPPLIED WITH THE SAME ELECTRIC PHASE and therefore supplied with the same electrical load. In case this rule is not respected, the programming of the time set and the synchronization of the devices will not be correct.



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