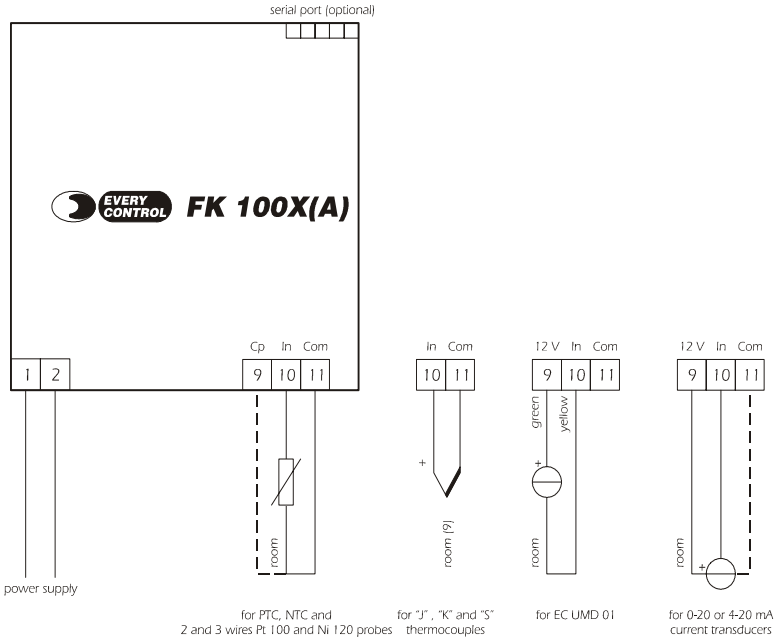
8 ELECTRICAL CONNECTION

8.1 Electrical connection



(9) provide the probe with a protection able to protect it against contacts with metal parts or use insulated probes.

FK 100X(A)

Configurable digital thermometer

smart guide

Version 1.00 of 2nd December 2003

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PT

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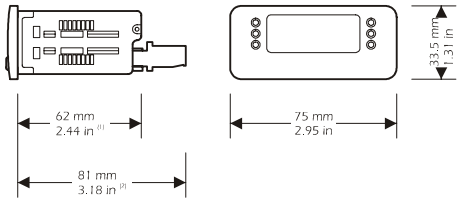
ENGLISH

1 PREPARATIONS

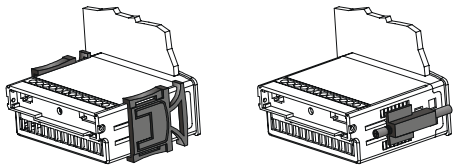
1.1 How to install the instrument

Panel mounting, panel cut out 71 x 29 mm (2.79 x 1.14 in), with click brackets (they are supplied by the builder) or screw brackets (by request).



(1) maximum depth with screw terminal blocks

(2) maximum depth with extractable terminal blocks.



installation with click brackets (on the left-hand side, they are supplied by the builder) and screw brackets (on the right-hand side, by request); if you are using screw brackets, you have to moderate the clamping torque, in order not to damage the box and screw brackets.

2 OPERATION

2.1 Preliminary information

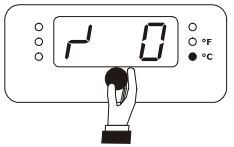
During the normal operation the instrument shows the room temperature.

3 CONFIGURATION PARAMETERS

3.1 How to set the configuration parameters

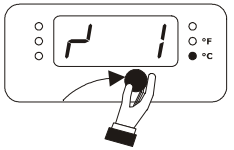
If you have to gain access the procedure:

- position the magnet (it is supplied by the builder) below the digit there is in the middle of the display for 4 s: the instrument will show r 0



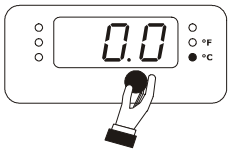
If you have to select a parameter:

- move the magnet from the left towards the digit there is in the middle of the display (keep the magnet below the display) as long as the instrument shows the parameter you prefer

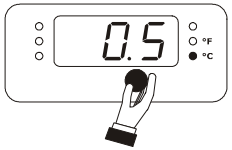


If you have to modify the value of the parameter:

- move the magnet from the left towards the digit there is in the middle of the display (keep the magnet below the display) in order to select the parameter and keep the position for 4 s



- keep the position as long as the instrument show the value you prefer



If you have to quit the procedure:

- move the magnet from the left towards the digit there is in the middle of the display (keep the magnet below the display) as long as the instrument shows the room temperature or do not operate for about 60 s.

4 SIGNALS

4.1 Signals

LED	MEANING
°F	Fahrenheit degree LED if it is lighted, the unit of measure of the temperature showed by the instrument is Fahrenheit degree
°C	Celsius degree LED if it is lighted, the unit of measure of the temperature showed by the instrument is Celsius degree

5 ALARMS

5.1 Alarms

CODE	REASONS	REMEDIES	EFFECTS
E2 corrupted memory data	there is the corruption of the configuration data of the memory of the instrument	switch off the power supply of the instrument: unless the alarm disappears, you will have to change the instrument	you can not gain access the setting procedures
E0 room probe alarm	▪ the kind of room probe you have connected is not right ▪ the room probe plays up ▪ the connection instrument-room probe is wrong ▪ the room temperature is outside the limits allowed by the working range of the instrument	▪ look at the parameter /0 ▪ test the integrity of the probe ▪ test the instrument-probe connection ▪ test the temperature close to the probe (it has to be between the limits allowed by the working range)	the instrument will not show the room temperature
E0C cold joint/ third wire alarm	▪ if the instrument has been preset for working with "J" , "K" or "S" thermocouples, there will be a defect in the cold joint compensation circuit ▪ if the instrument has been preset for working with 2 or 3 wires Pt 100 or Ni 120 probes, the third wire of the probe will not be connected	▪ in the first case, switch off the power supply of the instrument: unless the alarm disappears, you will have to change the instrument ▪ in the second case, test the instrument-probe connection	the instrument will not show the room temperature

The instrument shows the indications above flashing.

6 TECHNICAL DATA

6.1 Technical data

Box: self-extinguishing grey.

Size: 75 x 33.5 x 81 mm (2.95 x 1.31 x 3.18 in) the model with extractable terminal blocks, 75 x 33.5 x 62 mm (2.95 x 1.31 x 2.44 in) the model with screw terminal blocks.

Installation: panel mounting, panel cut out 71 x 29 mm (2.79 x 1.14 in), with click brackets (they are supplied by the builder) or screw brackets (by request).

Frontal protection: IP 65.

Connections: extractable terminal blocks with pitch 5 mm (0.19 in) for cables up to 2.5 mm² (0.38 sq in, power supply and input) or screw terminal blocks with pitch 5 mm (0.19 in) for cables up to 2.5 mm² (0.38 sq in, power supply and input), 5 poles single line male connector with pitch 2.5 mm (0.09 in, serial port, optional).

Ambient temperature: from 0 to 55 °C (32 to 131 °F, 10 ... 90% of relative humidity without condensate).

Power supply: 12-24 Vac/dc, 50/60 Hz, 1.5 VA (standard model) or 12 Vac/dc, 50/60 Hz, 1.5 VA (by request).

Measure inputs: 1 (room probe), depending on the model, for PTC or NTC probes, "J" , "K" or "S" thermocouples, 2 or 3 wires Pt 100 or Ni 120 probes, 0-20 or 4-20 mA current transducers.

At terminal 9 there are 12 V you can use in order to supply the transducer.

Working range: from -50 to 150 °C (-58 to 302 °F) for PTC probe, from -40 to 110 °C (-40 to 230 °F) for NTC probe, from 0 to 700 °C (32 to 999 °F) for "J" thermocouple, from 0 to 999 °C (32 to 999 °F) for "K" thermocouple, from 0 to 999 °C (32 to 999 °F) for "S" thermocouple, from -50 to 600 °C (-58 to 999 °F) for 2 or 3 wires Pt 100 probe, from -80 to 260 °C (-99 to 500 °F) for 2 or 3 wires Ni 120 probe.

Resolution: 1 °F with unit of measure in Fahrenheit, 0.1 °C (except the instruments preset for working with "J" , "K" or "S" thermocouples) or 1 °C with unit of measure in Celsius.

Display: one red LED 3-digit display 13.2 mm (0.51 in) high, temperature unit of measure indicators.

Serial port: TTL with EVCOBUS communication protocol (optional).

7 CONFIGURATION PARAMETERS

7.1 Configuration parameters

LABEL	MIN.	MAX.	U.M.	DEF.	MEASURE INPUTS
/0	01	41	—	(3)	kind of probe (01 = PTC, 03 = NTC, 10 = "J" Tc, 11 = "K" Tc, 12 = "S" Tc, 20 = 3 wires Pt 100, 21 = 2 wires Pt 100, 30 = 4-20 mA, 31 = 0-20 mA, 40 = 3 wires Ni 120, 41 = 2 wires Ni 120)
/1	-25	25.0	°C/°F (4)	0.0	room probe calibration
/5	0	1	—	1	temperature resolution (0 = 1 degree, 1 = 0.1 degrees) (5) (6)
/6	-99	999	points	-20	minimum value of the range of the transducer (7)
/7	-99	999	points	80	maximum value of the range of the transducer (7)
/8	0	1	—	1	temperature unit of measure (0 = Fahrenheit degree, 1 = Celsius degree) (8)

LABEL	MIN.	MAX.	U.M.	DEF.	SERIAL NETWORK (EVCOBUS)
L1	1	15	—	1	instrument address
L2	0	7	—	0	instrument group
L4	0	3	—	1	baud rate (0 = 1,200 baud, 1 = 2,400 baud, 2 = 4,800 baud, 3 = 9,600 baud)

(3) the value depends on the kind of measure input the instrument has been preset

(4) the unit of measure depends on the parameter /8

(5) if the instrument has been preset for working with "J" , "K" or "S" thermocouples, the parameter will not be showed

(6) unless the parameter /8 has value 1, the parameter will not be showed

(7) unless the instrument has been preset for working with 0-20 or 4-20 mA current transducers, the parameter will not be showed

(8) if the instrument has been preset for working with 0-20 or 4-20 mA current transducers, the parameter will not be showed.