

# FK 212T

**Milk controller (ON-OFF digital controller for refrigerating units dedicated to milk storing)**

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**EVERY CONTROL S.r.l.**

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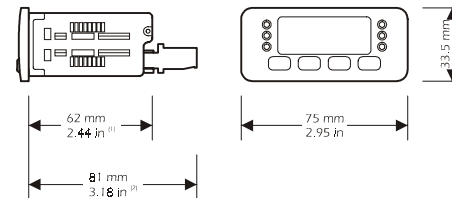
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**ENGLISH**

## 1 PREPARATIONS

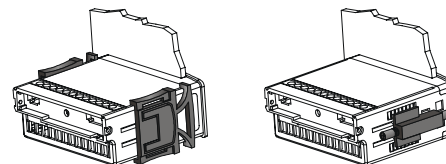
### 1.1 How to install the instrument

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 (by request)

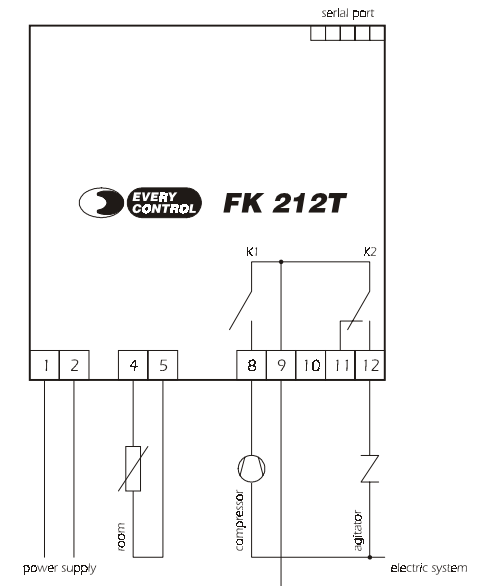
(2) maximum depth with extractable terminal blocks (standard model).



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.

## 1.2 Electrical connection



## 2 OPERATION

### 2.1 Preliminary information

During the normal operation the instrument shows the room temperature.

### 2.2 How to activate an agitation cycle by hand

If you have to activate an agitation cycle by hand:

- press for 4 s

During an agitation cycle the agitator will be ON for the time you have set with the parameter t1.

## 3 WORKING SETPOINT

### 3.1 How to set the working setpoint

If you have to modify the working setpoint value for the compressor:

- press
- press or within 4 s <sup>(3)</sup>
- do not operate for 4 s

If you have to modify the working setpoint value for the agitator:

- press during the modification of the working setpoint for the compressor
- press or within 4 s <sup>(4)</sup> <sup>(5)</sup>
- press

(3) you can set the working setpoint for the compressor between the limits you have set with the parameters rA1 and rA2

(4) if the parameter rb4 has value 0, the working setpoint for the agitator will not be important

(5) you can set the working setpoint for the agitator between the limits you have set with the parameters rb1 and rb2.

## 4 AGITATION CYCLE

### 4.1 How to set the time the agitator is ON

If you have to modify the time the agitator is ON:

- press during the modification of the working setpoint for the agitator
- press or within 4 s <sup>(6)</sup> <sup>(7)</sup> <sup>(8)</sup>
- press

(6) you can set the time the agitator is ON between 0 and 255 min

(7) the cycle time to turn the agitator ON depends on the parameter t0

(8) you can set the time the agitator is ON with the parameter t1 as well.

## 5 CONFIGURATION PARAMETERS

### 5.1 How to set the configuration parameters

Configuration parameters are arranged on two levels.

If you have to gain access the first level:

- press and for 4 s <sup>(9)</sup>: the instrument will show *PR*

If you have to select a parameter:

- press or

If you have to modify the value of the parameter:

- press
- press or within 4 s <sup>(10)</sup>
- press

If you have to gain access the second level:

- gain access the first level
- press or for selecting *PR*
- press

- press or within 4 s <sup>(11)</sup> for setting “-19”
- press
- press and for 4 s <sup>(12)</sup>: the instrument will show *PR*

If you have to quit the procedure:

- press and for 4 s <sup>(13)</sup> or do not operate for about 60 s.

## 6 SIGNALS

### 6.1 Signals

LED	MEANING
	Compressor LED if it is lighted, the compressor will be ON if it flashes, a compressor delay will be running (look at the parameters CA0, CA1, CA2 and CA4)
	Agitator LED if it is lighted, the agitator will be ON if it flashes, an agitator delay will be running (look at the parameter Cb4)
°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

## 7 ALARMS

### 7.1 Alarms

CODE	REASONS	REMEDIES	EFFECTS
<i>E2</i>	there is the corruption of the configuration memory 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	<ul style="list-style-type: none"> <li>you can not gain access the setting procedures</li> <li>all outputs will be forced OFF</li> </ul>

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)

(9) the unit of measure depends on the parameter /8.

<b>ED</b>	<ul style="list-style-type: none"> <li>the kind of room</li> <li>room</li> <li>probe</li> <li>alarm</li> </ul>	<ul style="list-style-type: none"> <li>look at the parameter /0</li> <li>test the integrity of the probe</li> <li>test the instrument-probe connection</li> <li>test the temperature close to the probe (it has to be between the limits allowed by the working range of the instrument)</li> </ul>	<ul style="list-style-type: none"> <li>the compressor will be forced to the status you have set with the parameter CA3</li> <li>if the parameter rb4 has value 1, the agitator will be forced to the status you have set with the parameter Cb3</li> </ul>
<b>room</b>	the room temperature	test the temperature	no effect
<b>temperature alarm</b>	is outside the limit you have set with the parameter A1 or A2	close to the probe (look at the parameters A0, A1 and A2)	

The instrument shows the indications above flashing.

## 8 TECHNICAL DATA

### 8.1 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 (standard model), 75 x 33.5 x 62 mm (2.95 x 1.31 x 2.44 in) the model with screw terminal blocks (by request).

**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, standard model) for cables up to 2.5 mm<sup>2</sup> (0.38 sq in, power supply, input and outputs) or screw terminal blocks with pitch 5 mm (0.19 in, by request) for cables up to 2.5 mm<sup>2</sup> (0.38 sq in, power supply, input and outputs), 5 poles single line male connector with pitch 2.5 mm (0.09 in, serial port).

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

**Power supply:** 230 Vac, 50/60 Hz, 1.5 VA (standard model) or 115 Vac,

50/60 Hz, 1.5 VA (by request).

**Measure inputs:** 1 (room probe) for PTC or NTC probes.

**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.

**Setpoint range:** from -55 to 99.9 °C (-55 to 99 °F).

**Resolution:** 1 °F with unit of measure in Fahrenheit, 0.1 °C with unit of measure in Celsius.

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

**Outputs:** 2 relays: one 10 A @ 250 Vac relay for one ½ HP @ 230 Vac compressor control (NO contact) and one 8 A @ 250 Vac relay for agitator control (change-over contact).

**Serial port:** TTL with EVCOBUS communication protocol (for the configurator/cloner system CLONE and supervision system RICS).

## 9 WORKING SETPOINT AND CONFIGURATION PARAMETERS

### 9.1 Working setpoint

LABEL	MIN.	MAX.	U.M.	DEF.	WORKING SETPOINT
rA1	rA2	°C/°F <sup>(9)</sup>	0.0		working setpoint for the compressor
rb1	rb2	°C/°F <sup>(9)</sup>	0.0		working setpoint for the agitator (it is important if rb4 = 1)

### 9.2 First level parameters

LABEL	MIN.	MAX.	U.M.	DEF.	PASSWORD
PA	-55	99	—	0	password

LABEL	MIN.	MAX.	U.M.	DEF.	MEASURE INPUTS
/1	-55	99.9	°C/°F <sup>(9)</sup>	0.0	room probe calibration (you have to set ten points for adjusting one degree)

LABEL	MIN.	MAX.	U.M.	DEF.	REGULATOR FOR THE COMPRESSOR
rA0	0.1	15.0	°C/°F <sup>(9)</sup>	0.5	hysteresis (differential, it is relative to the working setpoint for the compressor)

LABEL	MIN.	MAX.	U.M.	DEF.	REGULATOR FOR THE AGITATOR
rb0	0.1	15.0	°C/°F <sup>(9)</sup>	0.2	hysteresis (differential, it is relative to the working setpoint for the agitator, it is important if rb4 = 1)

### 9.3 Second level parameters

LABEL	MIN.	MAX.	U.M.	DEF.	MEASURE INPUTS
/0	1	3	—	1	kind of probe (1 = PTC, 3 = NTC)
/1	-55	99.9	°C/°F <sup>(9)</sup>	0.0	room probe calibration (you have to set ten points for adjusting one degree)
/8	0	1	—	1	temperature unit of measure (0 = Fahrenheit degree, 1 = Celsius degree)

LABEL	MIN.	MAX.	U.M.	DEF.	REGULATOR FOR THE COMPRESSOR
rA0	0.1	15.0	°C/°F <sup>(9)</sup>	0.5	hysteresis (differential, it is relative to the working setpoint for the compressor)
rA1	-55	rA2	°C/°F <sup>(9)</sup>	-50	minimum value you can assign to the working setpoint for the compressor
rA2	rA1	99	°C/°F <sup>(9)</sup>	50	maximum value you can assign to the working setpoint for the compressor
rA3	0	1	—	0	cooling or heating action (0 = cooling action)

LABEL	MIN.	MAX.	U.M.	DEF.	COMPRESSOR PROTECTION
CA0	0	240	min	1	minimum delay between you turn the instrument ON and the first compressor activation
CA1	0	240	min	0	minimum delay between two compressor activation in succession
CA2	0	240	min	3	minimum delay between the compressor gets OFF and the following activation
CA3	0	1	—	0	compressor status during the room probe alarm (0 = it will be forced OFF, 1 = it will be forced ON)
CA4	0	1	—	0	fixed delay since the compressor gets ON and OFF (1 = YES, for 3 s)

LABEL	MIN.	MAX.	U.M.	DEF.	REGULATOR FOR THE AGITATOR
rb0	0.1	15.0	°C/°F <sup>(9)</sup>	0.2	hysteresis (differential, it is relative to the working setpoint for the agitator, it is important if rb4 = 1)
rb1	-55	rb2	°C/°F <sup>(9)</sup>	-50	minimum value you can assign to the working setpoint for the agitator (it is important if rb4 = 1)
rb2	rb1	99	°C/°F <sup>(9)</sup>	50	maximum value you can assign to the working setpoint for the agitator (it is important if rb4 = 1)
rb3	0	1	—	0	agitator operation (0 = the agitation cycles will be activated if the room temperature is above the working setpoint for the agitator, 1 = the agitation cycles will be activated if the room temperature is below the working setpoint for the agitator, it is important if rb4 = 1)
rb4	0	1	—	0	agitator action (0 = it will work in accordance with t0 and t1, 1 = it will work in accordance with the working setpoint for the agitator, with rb0, rb3, t0 and t1); look at rb5 and rb6 as well
rb5	0	2	—	0	connection with the compressor (0 = no connection, 1 = the agitator will be forced ON if the compressor is ON, 2 = the agitator will be forced ON if the compressor is OFF)
rb6	0	1	—	0	delay between the compressor gets ON/OFF and the agitator gets OFF because of rb5 (1 = YES, for t1, it is important if rb5 ≠ 0)

LABEL	MIN.	MAX.	U.M.	DEF.	AGITATOR PROTECTION
Cb3	0	1	—	0	agitator status during the room probe alarm (0 = it will be forced OFF, 1 = it will work in accordance with t0 and t1, it is important if rb4 = 1)
Cb4	0	120	s	10	minimum delay between the agitator gets OFF and the following activation (it sets the minimum time the agitator is ON as well)

LABEL	MIN.	MAX.	U.M.	DEF.	AGITATION CYCLE
t0	t1	255	min	255	cycle time to turn the agitator ON
t1	0	255	min	255	time the agitator is ON

LABEL	MIN.	MAX.	U.M.	DEF.	ALARMS
A0	0.1	15.0	°C/°F <sup>(9)</sup>	0.5	hysteresis (differential, it is relative to A1 and A2, it is important if A1 and/or A2 ≠ 0.0)
A1	-55	0.0	°C/°F <sup>(9)</sup>	0.0	lower temperature alarm threshold (it is relative to the working setpoint for the compressor, 0.0 = it will never be activated)
A2	0.0	99.9	°C/°F <sup>(9)</sup>	0.0	upper temperature alarm threshold (it is relative to the working setpoint for the compressor, 0.0 = it will never be activated)
A3	0	240	min	120	temperature alarm exclusion time since you turn the instrument ON (it is important if A1 and/or A2 ≠ 0.0)
A6	0	240	min	5	temperature alarm exclusion time (it is important if A1 and/or A2 ≠ 0.0)