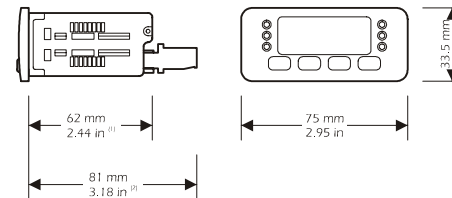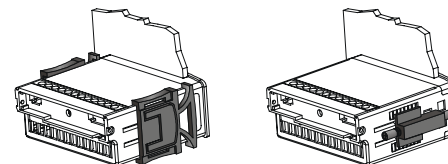## 1 PREPARATIONS

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).

62 mm
2.44 in [1]

81 mm
3.18 in [2]

75 mm
2.95 in

33.5 mm
1.31 in

(1)   maximum depth with screw terminal blocks
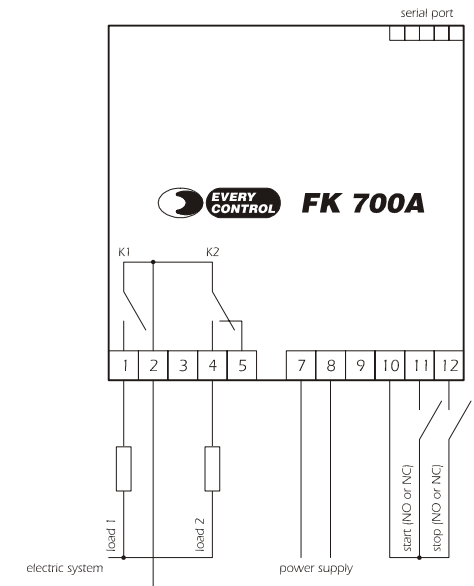
(2)   maximum depth with extractable terminal blocks.

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.

1.2 Electrical connection

serial port

FK 700A

K1   K2

1 2 3 4 5   7 8 9 10 11 12

load 1   load 2   start (NO or NC)   stop (NO or NC)

electric system   power supply

2 OPERATION

2.1 Preliminary information

A full count consists of four phases:

- delay action 1
- action 1 (the load 1 will be ON)
- delay action 2
- action 2 (the load 2 will be ON and the buzzer will utter the sound you have set with the parameter t3).

As soon as one phase will end, the instrument will automatically move to the following one.

2.2 How to start the count

If you have to start the count:

- press   **start**   (3)

(3)   if the parameter t4 has value 0000, you could activate the input for remote start as well; if the parameter t4 has value 0002, you will have to activate this input.

2.3 How to suspend/resume the count

If you have to suspend/resume the count:

- press   **start**   (4)

2.4 How to stop the count

If you have to stop the count:

- press (stop) [5]

3 COUNT PHASES

3.1 How to set the count phases length

Every phase is associated with a label:

- action 1   label $t\,0\,n\,1$ [6]
- delay action 2   label $PAUS$ [7]
- action 2   label $t\,0\,n\,2$ [8]
- delay action 1   label $tPrE$ [9]

If you have to modify the length of one of the phases:

- press and release (set) for selecting the label: the most significant part of the display will flash [10].

If you have to modify the value of the most significant part of the display:

- press (start) or (stop) within 2 s

If you have to modify the value of the least significant part of the display:

- press (set) during the modification of the most significant part, then …

- press (start) or (stop) within 2 s

If you have to quit the procedure:

- press (set)

(6) you can set the length of action 1 with the parameter tOn1 as well; the times base depends on the parameter t10

(7) you can set the length of delay action 2 with the parameter t20 as well; the times base depends on the parameter t0

(8) you can set the length of action 2 with the parameter t24 as well; the times base depends on the parameter t23

(9) you can set the length of delay action 1 with the parameter t11 as well; the times base depends on the parameter t0

(10) the labels the instrument has to show depend on the parameter t35.

4 CONFIGURATION PARAMETERS

4.1 How to set the configuration parameters

If you have to gain access the procedure:

- press (start) and (stop) for 4 s : the instrument will show $t\quad0$

If you have to select a parameter:

- press (start) or (stop)

If you have to modify the value of the parameter [11]:

- press (set)
- press (start) or (stop) within 2 s
- press (set)

If you have to quit the procedure:

- press (start) and (stop) for 4 s or do not operate for about 60 s.

5 SIGNALS

5.1 Signals

LED	MEANING
out 1	Load 1 LED
	if it is lighted, action 1 will be running
out 2	Load 2 LED
	if it is lighted, action 2 will be running

6 ALARMS

6.1 Alarms

CODE	REASONS	REMEDIES	EFFECTS
EP 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 - all outputs will be forced OFF
indication count interrupted	there has been a lack of power supply during the count	- test the instrument-power supply connection (look at the parameter t36) - interrupt the count	the instrument will interrupt the count

indica-tion count interrupted	there has been a lack of power supply during the count	▪ test the instrument-power supply connection (look at the parameter t36) ▪ interrupt the count	the instrument will resume the count since the beginning of the phase during which the lack of power supply has taken place or since the lack of power supply has taken place with a maximum error of 60 s

The instrument shows the indications above flashing and the buzzer utters the sound you have set with the parameter t3.

7 TECHNICAL DATA

7.1 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, inputs and outputs) or screw terminal blocks with pitch 5 mm (0.19 in) for cables up to 2.5 mm² (0.38 sq in, power supply, inputs 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: 12 Vac/dc, 50/60 Hz, 1.5 VA (standard model) or 12-24 Vac/dc, 50/60 Hz, 1.5 VA (by request).

Alarm buzzer: included.

Digital inputs: 2 inputs: one for remote start and one for remote stop (NO or NC contact), without voltage (they work with 5 mA).

Working range: from 1 ds to 99 h and 59 min.

Display: one red LED 4-digit display 10 mm (0.39 in) high, instrument status indicators.

Outputs: 2 relays: one 10 A @ 250 Vac relay for load 1 control (NO contact) and one 8 A @ 250 Vac relay for load 2 control (change-over contact).

Serial port: TTL with EVCOBUS communication protocol.

8   CONFIGURATION PARAMETERS

8.1   Configuration parameters

LABEL	MIN.	MAX.	U.M.	DEF.	TIMER
t0	0000	0002	—	0000	times base for delay action 1 and delay action 2 (it is important if t11 and/or t20 ≠ 00:00; 0000 = seconds and tenths of second, 0001 = minutes and seconds, 0002 = hours and minutes)
t1	0000	0001	—	0000	kind of contact of the remote start input (it is important if t4 ≠ 0001; 0000 = NO, 0001 = NC)
t2	0000	0001	—	0000	kind of contact of the remote stop input (it is important if t5 ≠ 0001; 0000 = NO, 0001 = NC)
t3	0000	0002	—	0000	sound of the buzzer during action 2 (it set the sound of the buzzer during the alarm count interrupted as well, it is important if t24 ≠ 00:00 and/or t36 ≠ 0000; 0000 = it will never be activated, 0001 = continuous sound, 0002 = intermittent beep)
t4	0000	0002	—	0000	event giving the count start (0000 = by pressing the start key or activating the remote start input, 0001 = by pressing the start key, 0002 = by activating the remote start input)
t5	0000	0002	—	0000	event giving the count stop (0000 = by pressing the stop key or activating the remote stop input, 0001 = by pressing the stop key, 0002 = by activating the remote stop input)
t6	0000	0001	—	0000	kind of count the instrument has to show (it is important if t31, t32, t33 and/or t34 ≠ 0000; 0000 = count down, 0001 = count up)
t7	0000	0001	—	0000	authorization to operate cyclically (it is important if t22 = 0002; 0001 = YES, as soon as one count will end, the instrument will automatically start another one)
t8	0000	0002	—	0000	event giving the suspension/resumption of the count (0000 = no events, 0001 = in accordance with t4, 0002 = by deactivating the remote start input)
t10	0000	0002	—	0000	times base for action 1 (it is important if tOn1 ≠ 00:00; 0000 = seconds and tenths of second, 0001 = minutes and seconds, 0002 = hours and minutes)
t11	00:00 [12]	[12]		00:00	delay action 1 length
t12	0000	0001	—	0000	load 1 operation (0000 = it will be ON during action 1 and OFF otherwise, 0001 = it will be OFF during action 1 and ON otherwise)
t20	00:00 [12]	[12]		00:00	delay action 2 length
t21	0000	0001	—	0000	load 2 operation (0000 = it will be ON during action 2 and OFF otherwise, 0001 = it will be OFF during action 2 and ON otherwise)
t22	0000	0002	—	0000	event ending action 2 (0000 = in accordance with t5, 0001 = in accordance with t4 or t5, 0002 = in accordance with t5 or as soon as action 2 length will be passed)
t23	0000	0002	—	0000	times base for action 2 (it is important if t24 ≠ 00:00; 0000 = seconds and tenths of second, 0001 = minutes and seconds, 0002 = hours and minutes)
t24	00:00 [13]	[13]		00:00	action 2 length
t25	0000	0002	—	0000	connection between loads (0000 = no connections, 0001 = the load 2 will work in accordance with load 1, 0002 = the load 1 will work in accordance with load 2) [14]
t31	0000	0001	—	0000	count showing during delay action 1 (it is important if t11 ≠ 00:00; 0001 = YES)
t32	0000	0001	—	0001	count showing during action 1 (it is important if tOn1 ≠ 00:00; 0001 = YES)
t33	0000	0001	—	0000	count showing during delay action 2 (it is important if t20 ≠ 00:00; 0001 = YES)
t34	0000	0001	—	0000	count showing during action 2 (it is important if t24 ≠ 00:00; 0001 = YES)
t35	0000	0006	—	0002	labels the instrument has to show during the procedure indicated at chapter 3 (0000 = no labels, 0001 = tOn1, 0002 = tOn1 and tOn2, 0003 = tOn1, PAUS and tOn2, 0004 = tOn1 and tPrE, 0005 = tOn1, tOn2 and tPrE, 0006 = tOn1, PAUS, tOn2 and tPrE) [15]
t36	0000	0003	—	0000	operation after a lack of power supply during the count (0000 = the instrument will interrupt the count, 0001 = the instrument will interrupt the count, the indication will flash and the buzzer will utters the sound you have set with the parameter t3, 0002 = the instrument will resume the count since the beginning of the phase during which the lack of power supply has taken place, the indication will flash and the buzzer will utters the sound you have set with the parameter t3, 0003 = it is important if t0, t10 and/or t23 ≠ 0000, the instrument will resume the count since the lack of power supply has taken place with a maximum error of 60 s, the indication will flash and the buzzer will utters the sound you have set with the parameter t3)

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)

LABEL	MIN.	MAX.	U.M.	DEF.	ACTION 1 LENGTH
tOn1	00:00 [16]	[16]		00:00	action 1 length

[12]   the unit of measure depends on the parameter t0: if the parameter t0 has value 0000, the maximum value of the parameter will be 99 s and 90 ds; if the parameter t0 has value 0001, the maximum value of the parameter will be 99 min and 59 s; if the parameter t0 has value 0002, the maximum value of the parameter will be 99 h and 59 min

[13]   the unit of measure depends on the parameter t23: if the parameter t23 has value 0000, the maximum value of the parameter will be 99 s and 90 ds; if the parameter t23 has value 0001, the maximum value of the parameter will be 99 min and 59 s; if the parameter t23 has value 0002, the maximum value of the parameter will be 99 h and 59 min

[14]   except what you have set with the parameters t12 and t21

[15]   if the parameter has value 0000, the value you can set by using the procedure indicated at chapter 3 is action 1 length

[16]   the unit of measure depends on the parameter t10: if the parameter t10 has value 0000, the maximum value of the parameter will be 99 s and 90 ds; if the parameter t10 has value 0001, the maximum value of the parameter will be 99 min and 59 s; if the parameter t10 has value 0002, the maximum value of the parameter will be 99 h and 59 min.