EVK721/EVK722 Single output/two outputs digital timers with Real Time Clock

GB ENGLISH

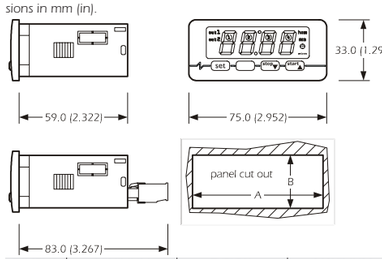
1 GETTING STARTED

1.1 Important

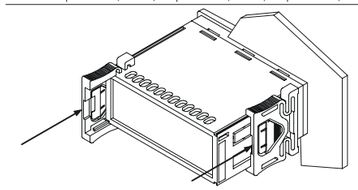
Read these instructions carefully before installing and using the instrument and follow all additional information for installation and electrical connection; keep these instructions close to the instrument for future consultations.

1.2 Installing the instrument

Panel mounting, with click brackets (supplied by the builder); dimensions in mm (in).



DIMENS.	MINIMUM	TYPICAL	MAXIMUM
A	71.0 (2.795)	71.0 (2.795)	71.8 (2.826)
B	29.0 (1.141)	29.0 (1.141)	29.8 (1.173)



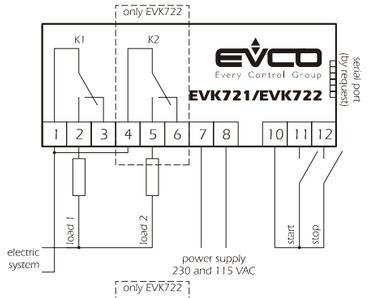
Additional information for installation:

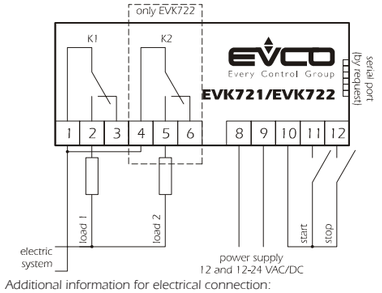
- *59.0 (2.322) is the maximum depth with screw terminal blocks*
- *83.0 (3.267) is the maximum depth with extractable terminal blocks*
- *the panel thickness must not be higher than 8.0 mm (0.314 in)*
- *working conditions (working temperature, humidity, etc.) must be between the limits indicated in the technical data*
- *do not install the instrument close to heating sources (heaters, hot air ducts, etc.), devices provided with big magnetos (big speakers, etc.), locations subject to direct sunlight, rain, humidity, dust, mechanical vibrations or bumps*
- *according to the safety legislation, the protection against electrical parts must be ensured by a correct installation of the instrument; the parts that ensure the protection must be installed so that you can not remove them if not by using a tool.*

1.3 Wiring diagram

With reference to the wiring diagrams:

- *the serial port (by request) is the port for the communication with the supervision system (through a serial interface, via TTL, with MODBUS communication protocol) or with the programming key; the port must not be used at the same time for the same purposes.*





Additional information for electrical connection:

- *do not operate on the terminal blocks with electrical or pneumatic screwers*
- *if the instrument has been moved from a cold location to a warm one, the humidity could condense on the inside; wait about an hour before supplying it*
- *test the working power supply voltage, working electrical frequency and working electrical power of the instrument; they must correspond with the local power supply*
- *disconnect the local power supply before servicing the instrument*
- *do not use the instrument as safety device*
- *for repairs and information on the instrument please contact Evco sales network.*

2 USER INTERFACE

2.1 Turning on/off the instrument

To turn on the instrument you have to supply it; to turn it off it is enough to cut off the power supply.

If a lack of power supply arises when the count is running, the operation of the instrument to the restoration of the power supply will depend on parameter t26.

2.2 Starting the count

- make sure no procedure is running
- provoke the effect you have set with parameter t11:
  - if t11 = 0, press start or activate input start
  - if t11 = 1, press start
  - if t11 = 2, activate input start.

2.3 Stopping the count

- make sure parameter t17 has value 0
- provoke the effect you have set with parameter t12:
  - if t12 = 0, press stop or activate input stop
  - if t12 = 1, press stop
  - if t12 = 2, activate input stop.

Otherwise:

- press stop 4 s.

2.4 Suspending/resuming the count

To suspend the count:

- make sure parameter t17 has value 2
- provoke the effect you have set with parameter t12:
  - if t12 = 0, press stop or activate input stop
  - if t12 = 1, press stop
  - if t12 = 2, activate input stop.

If the count is suspended when load 1 (or load 2) is turned on, the load status during the suspension will depend on parameter t24 (or t25):

- *if t24 (or t25) = 0, the load will be turned off*
- *if t24 (or t25) = 1, the load will remain turned on.*

To resume the count:

- provoke the effect you have set with parameter t11:
  - if t11 = 0, press start or activate input start
  - if t11 = 1, press start
  - if t11 = 2, activate input start.

2.5 The display

If the count is running, the display will show the kind of count you have set with parameter t15:

- *if t15 = 0, the display will show the remaining time (count down)*
- *if t15 = 0, the display will show the elapsed time (count up).*

If the count is suspended, the display will flash.

2.6 Silencing the buzzer in alarm

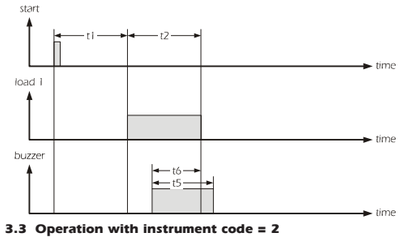
- *press a button (the first pressure of the button does not provoke its usual effect).*

3 OPERATION

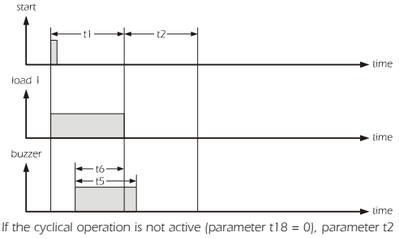
3.1 Preliminary information

The operation mainly depends on the instrument code.

3.2 Operation with instrument code = 1

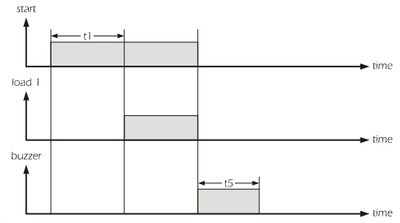


3.3 Operation with instrument code = 2



If the cyclical operation is not active (parameter t18 = 0), parameter t2 will not be visible.

3.4 Operation with instrument code = 3



To start the count:

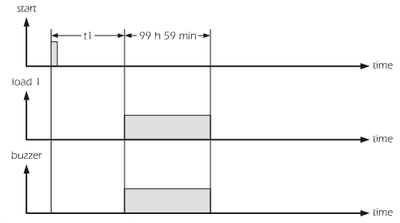
- *make sure parameter t11 has value 0 or 2*
- activate input start.

To stop the count:

- press stop 4 s.

If the duration of the activation of input start is shorter than the time you have set with parameter t1, load 1 and the buzzer will not be turned on.

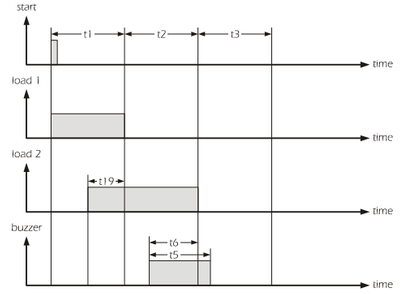
3.5 Operation with instrument code = 4



During the activation of load 1:

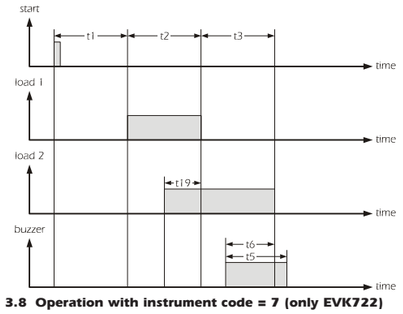
- *the display shows "**00:00**" flashing*
- *if you try to suspend the count, you will stop it.*

3.6 Operation with instrument code = 5 (only EVK722)

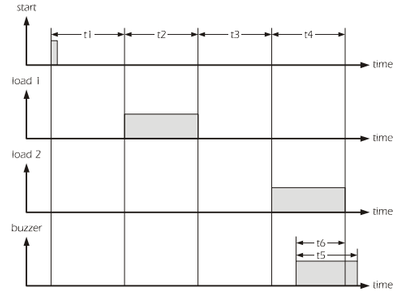


If the cyclical operation is not active (parameter t18 = 0), parameter t3 will not be visible.

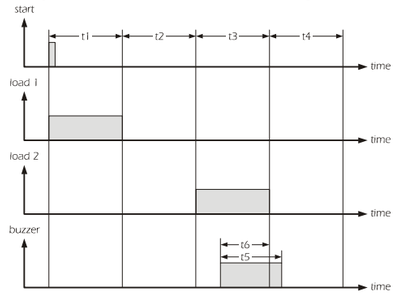
3.7 Operation with instrument code = 6 (only EVK722)



3.8 Operation with instrument code = 7 (only EVK722)

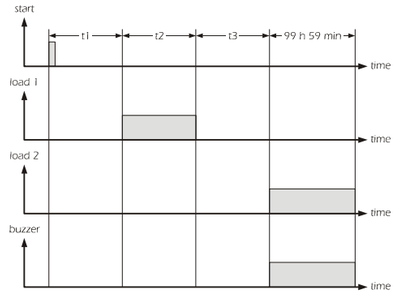


3.9 Operation with instrument code = 8 (only EVK722)



If the cyclical operation is not active (parameter t18 = 0), parameter t4 will not be visible.

3.10 Operation with instrument code = 9 (only EVK722)



During the activation of load 2:

- *the display shows "**00:00**" flashing*
- *if you try to suspend the count, you will stop it.*

4 REAL TIME

4.1 Setting the real time

To gain access the procedure:

- make sure no count is running and no procedure is running
- press set 4 s: the display will show "**dEL**" and LED will light
- press start or stop : the display will show "**rtc**"

To modify the real time:

- press set : the display will show the real time (hours:minutes)
- press start or stop in 15 s.
- press set or do not operate 15 s: the instrument will quit the procedure.

To quit the procedure early:

- do not operate 15 s.

5 PROGRAMMED START OF THE COUNT

5.1 Setting the time and the day of start of the count

To gain access the procedure:

- make sure no count is running and no procedure is running
- press set 4 s: the display will show "**dEL**" and LED will light

To modify the time of start:

- press set : the display will sow the time of start (hours:minutes)
- press start or stop in 15 s.

To modify the number of days for which put back the start:

- press set in 15 s: the display will show "**Int**"
- press set : the display will show the number of days
- press start or stop in 15 s (the number of days can be set between 0 and 6)
- press set : the instrument will quit the procedure.

To quit the procedure early:

- do not operate 15 s.

Additional information on the function:

- *setting the number of days for which put back the start (examples): if it is 08:00, set 0 as number of days to start the count at 20:00 of the same day; if it is 20:00, set 1 as number of days to start the count at 08:00 of the following day.*
- *the function allows to start a count at a time*
- *if to the time for which the start of the count is programmed another count is running, the programmed one will not be started*
- *if to the time for which the start of the count is programmed the power supply is absent, the count will be started as soon as the power supply will be restored, except if to the restoration of the power supply a clock error (code "**rtc**") arises*
- *if a clock error (code "**rtc**") is running, the function cannot be activated*
- *if a clock error (code "**rtc**") arises when the function is active, it will be interrupted.*

5.2 Activating the function

- make sure no count is running and no procedure is running
- press set and stop 1 s: LED will flash.

5.3 Interrupting the function

- make sure no count is running and no procedure is running
- press set and start 1 s.

6 OTHER SETTINGS

6.1 Setting the instrument code

To gain access the procedure:

- make sure no count is running and no procedure is running
- press start and stop 4 s: the display will show "**PA**"
- press set
- press start or stop in 15 s to set "**743**"
- press set or do not operate 15 s
- press start and stop 4 s: the display will show "**dEF**"
- press set
- press start or stop in 15 s to set "**149**"
- press set or do not operate 15 s: the display will show "**CFG**".

To modify the instrument code:

- press set
- press start or stop in 15 s
- press set or do not operate 15 s: the display will show "**CFG**" flashing 4 s, after which the instrument will quit the procedure
- switch off/on the power supply of the instrument.

To quit the procedure early:

- press start and stop 4 s or do not operate 60 s.

The modification of the instrument code provokes the restoration of the default value of configuration parameters; to modify the instrument code provoking only the cancellation of the value of parameters t1, t2, t3, t4 and t19, modify parameter CFG with the procedure related in paragraph 6.2.

6.2 Setting configuration parameters

Configuration parameters are arranged on two levels.

To gain access the first level:

- make sure no count is running and no procedure is running
- press start and stop 4 s: the display will show "**PA**"

To select a parameter:

- press start or stop

To modify a parameter:

- press set
- press start or stop in 15
- press set or do not operate 15 s.

To gain access the second level:

- gain access the first level
- press start or stop to select "**PA**"
- press set
- press start or stop in 15 s to set "**-19**"
- press set or do not operate 15 s
- press start and stop 4 s: the display will show "**t1**".

To quit the procedure:

- press start and stop 4 s or do not operate 60 s.

Switch off/on the power supply of the instrument after the modification of the parameters.

6.3 Setting parameters t1, t2, t3 and t4 quickly

To modify parameter t1:

- make sure no count is running and no procedure is running
- press set : LED 1 will flash
- press start or stop in 15 s; *also look at parameter t20.*

To modify parameter t2 (if provided):

- press set in 15 s: LED 2 will flash
- press start or stop in 15 s; *also look at parameter t21.*

To modify parameter t3 (if provided):

- press set in 15 s: LED 3 will flash
- press start or stop in 15 s; *also look at parameter t22.*

To modify parameter t4 (if provided):

- press set in 15 s: LED 4 will flash
- press start or stop in 15 s; *also look at parameter t23*
- press set or do not operate 15 s: the instrument will quit the procedure.

To quit the procedure early:

- do not operate 15 s.

7 SIGNALS

7.1 Signals

LED	MEANING
out 1	LED load 1 if it is lit, load 1 will be turned on
out 2	LED load 2 (only EVK722) if it is lit, load 2 will be turned on
1	LED time t1 if it is lit, the count of the time you have set with parameter t1 will be running if it flashes, the modification of parameter t1 will be running (with the procedure indicated in paragraph 6.3)
2	LED time t2 if it is lit, the count of the time you have set with parameter t2 will be running if it flashes, the modification of parameter t2 will be running (with the procedure indicated in paragraph 6.3)
3	LED time t3 if it is lit, the count of the time you have set with parameter t3 will be running if it flashes, the modification of parameter t3 will be running (with the procedure indicated in paragraph 6.3)
4	LED time t4 if it is lit, the count of the time you have set with parameter t4 will be running if it flashes, the modification of parameter t4 will be running (with the procedure indicated in paragraph 6.3)
h:m	LED hours:minutes if it is lit, the times base of the count that will be running will be hours:minutes
m:s	LED minutes:seconds if it is lit, the times base of the count that will be running will be minutes:seconds
	LED clock if it is lit, the modification of the real time or the modification of the time and the day of start of the count will be running if it flashes, the function of programmed start of the count will be active

8 ALARMS

8.1 Alarms

CODE	MEANING
display flashing	Lack of power supply during the count Remedies: ▪ check the reasons that have provoked the lack of power supply Effects: ▪ the effect you have set with parameter t26

9 INTERNAL DIAGNOSTICS

9.1 Internal diagnostics

CODE	MEANING
rtc	Clock error Remedies: ▪ set the real time again Effects: ▪ the function of programmed start of the count cannot be activated ▪ if the function of programmed start of the count is active, it will be interrupted

10 TECHNICAL DATA

10.1 Technical data

Box: self-extinguishing grey.

Frontal protection: IP 65.

Connections (use copper conductors only): screw terminal blocks (power supply, inputs and outputs), 6 poles connector (serial port; by request); extractable terminal blocks (power supply, inputs and outputs) by request.

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

Power supply: 230 VAC, 50/60 Hz, 3 VA (approximate); 115 VAC or 12-24 VAC/DC or 12 VAC/DC by request.

Clase de aislamiento: 2.

Real time maintenance in absence of power supply: 24 h, on condition that the instrument has remained turned on 2 min at least.

Alarm buzzer: incorporated.

Digital inputs: 2 (start and stop) for NO/NC contact (free of voltage, 5 V 1 mA).

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

Digital outputs EVK721: 1 relay:

- **load 1 relay:** 8 res. A @ 250 VAC, 2 FLA, 12 LRA (change-over contact).

Digital outputs EVK722: 2 relays:

- **load 1 relay:** 8 res. A @ 250 VAC, 2 FLA, 12 LRA (change-over contact)
- **load 2 relay:** 8 res. A @ 250 VAC, 2 FLA, 12 LRA (change-over contact).

The maximum current allowed on load 1 is 10 A

Serial port: port for the communication with the supervision system (through a serial interface, via TTL, with MODBUS communication protocol) or with the programming key; by request.

11 CONFIGURATION PARAMETERS

11.1 First level configuration parameters

PARAM.	MIN.	MAX.	U.M.	DEF.	TIMER
t1	00:00	(1)	(2)	00:00	duration time t1
t2	00:00	(1)	(3)	00:00	duration time t2 (not visible if instrument code = 3 or 4)
t3	00:00	(1)	(4)	00:00	duration time t3 (not visible if instrument code = 1, 2, 3 or 4)
t4	00:00	(1)	(5)	00:00	duration time t4 (visible if instrument code = 7 or 8)
t5	00:00	99:59	min:s	00:05	duration of the activation of the buzzer (not visible if instrument code = 4 or 9)
t6	00:00	99:59	min:s	00:00	time between the activation of the buzzer and the shutdown of the last load (not visible if instrument code = 3, 4 or 9)
t7	0	2	---	1	times base time t1 (6) 0 = s:ds 1 = min:s 2 = h:min
t8	0	2	---	1	times base time t2 (not visible if instrument code = 3 or 4) (6) 0 = s:ds 1 = min:s 2 = h:min
t9	0	2	---	1	times base time t3 (not visible if instrument code = 1, 2, 3 or 4) (6) 0 = s:ds 1 = min:s 2 = h:min
t10	0	2	---	1	times base time t4 (visible if instrument code = 7 or 8) (6) 0 = s:ds 1 = min:s 2 = h:min
t19	00:00	(1)	(7)	00:00	time between the activation of load 2 and the shutdown of load 1 (visible if instrument code = 5 or 6)

11.2 Second level configuration parameters

PARAM.	MIN.	MAX.	U.M.	DEF.	TIMER
t1	00:00	(1)	(2)	00:00	duration time t1
t2	00:00	(1)	(3)	00:00	duration time t2 (not visible if instrument code = 3 or 4)
t3	00:00	(1)	(4)	00:00	duration time t3 (not visible if instrument code = 1, 2, 3 or 4)
t4	00:00	(1)	(5)	00:00	duration time t4 (visible if instrument code = 7 or 8)
t5	00:00	99:59	min:s	00:05	duration of the activation of the buzzer (not visible if instrument code = 4 or 9)
t6	00:00	99:59	min:s	00:00	time between the activation of the buzzer and the shutdown of the last load (not visible if instrument code = 3, 4 or 9)
t7	0	2	---	1	times base time t1 (6) 0 = s:ds 1 = min:s 2 = h:min
t8	0	2	---	1	times base time t2 (not visible if instrument code = 3 or 4) (6) 0 = s:ds 1 = min:s 2 = h:min
t9	0	2	---	1	times base time t3 (not visible if instrument code = 1, 2, 3 or 4) (6) 0 = s:ds 1 = min:s 2 = h:min
t10	0	2	---	1	times base time t4 (visible if instrument code = 7 or 8) (6) 0 = s:ds 1 = min:s 2 = h:min
t11	0	2	---	0	event provoking the start of the count (not visible if instrument code = 3) 0 = pressure of button Start or activation of input start 1 = pressure of button Start 2 = activation of input start
t12	0	2	---	0	event provoking the stop of the count (not visible if instrument code = 3) (8) 0 = pressure of button Stop or activation of input stop 1 = pressure of button Stop 2 = activation of input stop
t13	0	1	---	0	kind of contact input start 0 = NO (the input will be active if you close the contact) 1 = NC (the input will be active if you open the contact)
t14	0	1	---	0	kind of contact input stop (not visible if instrument code = 3) 0 = NO (the input will be active if you close the contact) 1 = NC (the input will be active if you open the contact)
t15	0	1	---	0	kind of count 0 = remaining time (count down) 1 = elapsed time (count up)
t16	0	3	---	0	display colour 0 = green 1 = red 2 = green when the loads will be turned off and red when the loads will be turned on 3 = red when the loads will be turned off and green when the loads will be turned on
t17	0	2	---	0	action provoked by the events you have set with parameters t11 and t12 when the count is running (not visible if instrument code = 3) 0 = the event you have set with parameter t12 will stop the count and the event you have set with parameter t11 will start it again from the beginning 1 = the event you have set with parameter t12 will suspend the count and the event you have set with parameter t11 will start it again from the beginning 2 = the event you have set with parameter t12 will suspend the count and the event you have set with parameter t11 will resume it
t18	0	1	---	0	cyclical operation (visible if instrument code = 2, 5 or 8) 1 = YES
t19	00:00	(1)	(7)	00:00	time between the activation of load 2 and the shutdown of load 1 (visible if instrument code = 5 or 6)
t20	0	1	---	0	locking the modification of parameter t1 (with the procedure related in paragraph 6.3) 1 = YES
t21	0	1	---	0	locking the modification of parameter t2 (with the procedure related in paragraph 6.3; not visible if instrument code = 3 or 4) 1 = YES
t22	0	1	---	0	locking the modification of parameter t3 (with the procedure related in paragraph 6.3; not visible if instrument code = 1, 2, 3 or 4) 1 = YES
t23	0	1	---	0	locking the modification of parameter t4 (with the procedure related in paragraph 6.3; visible if instrument code = 7 or 8) 1 = YES
t24	0	1	---	1	load 1 status during a suspension of the count that happens when the load is turned on (not visible if instrument code = 3 or 4) 0 = turned off 1 = tuned on
t25	0	1	---	1	load 2 status during a suspension of the count that happens when the load is turned on (not visible if instrument code = 1, 2, 3, 4 or 9) 0 = turned off 1 = tuned on
t26	0	3	---	0	operation of the instrument to the restoration of the power supply after a lack that arises when the count is running 0 = the count will be stopped 1 = the count will be stopped, the display will flash and the buzzer will be activated intermittent (this last the time t27) 2 = the count will be started again since the beginning of the time during which the lack of power supply will have arisen, the display will flash and the buzzer will be activated intermittent (this last the time t27) (9) 3 = the count will be resumed since the moment in which the lack of power supply will have arisen (with a maximum error of 60 s), the display will flash and the buzzer will be activated intermittent (this last the time t27) (9) (10)
t27	00:00	15:00	min:s	--:--	time the buzzer is activated (intermittent) to the restoration of the power supply after a lack that arises when the count is running --:-- = as long as it is silenced by hand
PARAM.	MIN.	MAX.	U.M.	DEF.	SERIAL NETWORK (MODBUS)
tA	1	247	---	247	instrument address
tb	0	3	---	2	baud rate 0 = 2,400 baud 1 = 4,800 baud 2 = 9,600 baud 3 = 19,200 baud
LP	0	2	---	2	parity 0 = none 1 = odd 2 = even
PARAM.	MIN.	MAX.	U.M.	DEF.	RESERVED
E9	0	1	---	1	reserved
PARAM.	MIN.	MAX.	U.M.	DEF.	INSTRUMENT CODE
CFG	1	(11)	---	(12)	instrument code (13)

(1) the value depends on the times base (parameters t7, t8, t9 and t10):

TIMES BASE	VALUE
s:ds	99:90
min:s	99:59
h:min	99:59

(2) the unit of measure depends on parameter t7
(3) the unit of measure depends on parameter t8
(4) the unit of measure depends on parameter t9
(5) the unit of measure depends on parameter t10
(6) the modification of the parameter provokes the cancellation of the value of the corresponding time
(7) if the instrument code has value 5, the unit of measure will depend on parameter t7; if the instrument code has value 6, the unit of measure will depend on parameter t8
(8) pressure of button Stop 4 s provokes however the stop of the count
(9) if the lack arises during a suspension of the count, to the restoration of the power supply the count will be suspended to the moment in which the lack of power supply will have arisen
(10) only if the times base of the time during which the lack of power supply has arisen is mn:s or h:min, otherwise the instrument will work as if parameter t26 had value 2
(11) the value depends on the kind of instrument (4 for EVK721 and 9 for EVK722)
(12) the value depends on the kind of instrument (1 for EVK721 and 5 for EVK722)
(13) the modification of the parameter provokes the cancellation of the value of parameters t1, t2, t3, t4 and t19; to restore the default value of the parameters, look at paragraph 6.1.

The instrument must be disposed according to the local legislation about the collection for electrical and electronic equipment.

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