

EV9411 Single output digital thermoregulator for general purposes

GB ENGLISH

1 GETTING STARTED

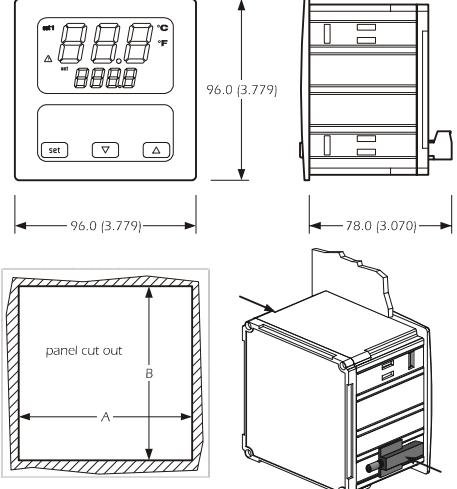
1.1 Important

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.

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

1.2 Installing the instrument

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



DIMENS.	MINIMUM	TYPICAL	MAXIMUM
A	92.0 (3.622)	92.0 (3.622)	92.8 (3.622)
B	92.0 (3.622)	92.0 (3.622)	92.8 (3.622)

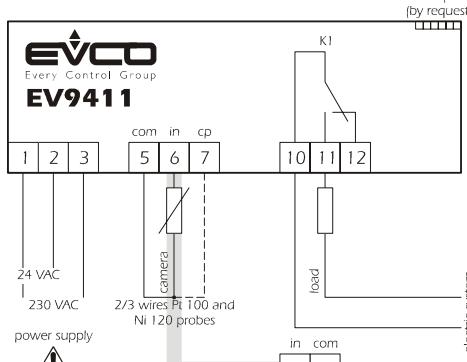
Additional information for installation:

- the panel thickness must not be higher than 4.0 mm (0.157 in)
- position the brackets as indicated in the drawing of this paragraph; moderate the coupling torque
- 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 using a tool.

1.3 Wiring diagram

With reference to the wiring diagram:

- if the instrument is supplied with 24 VAC, between terminals 1 and 3 there will be a potential difference of 230 VAC (analogously if the instrument is supplied with 230 VAC, between terminals 1 and 2 there will be a potential difference of 24 VAC not SELV); these voltages must not absolutely be used
- 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 screwdrivers
- 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
- provide the probe with a protection able to protect it against contacts with metal parts or use insulated probes
- do not use the instrument as safety device
- for repairs and information on the instrument please contact Evco sales network.

Z 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.

2.2 The display

If the instrument is turned on, during the normal operation:

- the upper part of the display will show the quantity you have set with parameter P5:
 - if P5 = 0, the display will show the room temperature
 - if P5 = 1, the display will show the working setpoint
 - if P5 = 2, the display will be out
- the lower part of the display will show the quantity you have set with parameter P6:
 - if P6 = 0, the display will show the room temperature
 - if P6 = 1, the display will show the working setpoint (in this case LED "set" will be lit)
 - if P6 = 2, the display will be out

2.3 Showing the room temperature

- make sure the keyboard is not locked and no procedure is running
- press **set** 2 s: the display will show "Pb1"
- press **set**

To quit the procedure:

- press **set** or do not operate 60 s
- press **Δ** or **▼** as long as the display shows the quantity you have set with parameter P5 or do not operate 60 s.

2.4 Locking/unlocking the keyboard

To lock the keyboard:

- make sure no procedure is running
- press **set** and **▼** 2 s: the display will show "Loc" 1 s.

If the keyboard is locked, you will not be allowed to modify the working setpoint with the procedures related in paragraphs 4.1 (you also can modify the working setpoint through parameters SP). This operation provokes the visualization of the label "Loc" 1 s.

To unlock the keyboard:

- press **set** and **▼** 2 s: the display will show "UnL" 1 s.

2.5 Silencing the buzzer

- make sure no procedure is running
- press a button (the first pressure of the button does not provoke its usual effect).

If parameter E9 has value 1, the buzzer will never be activated.

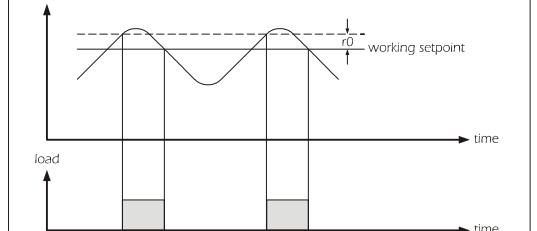
3 OPERATION

3.1 Preliminary information

The operation mainly depends on parameter r5.

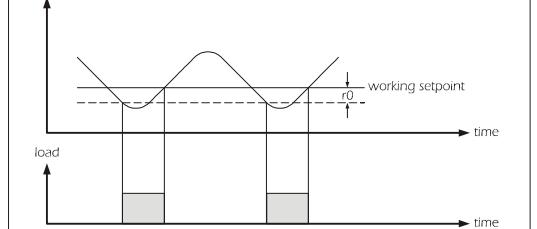
3.2 Operation with parameter r5 = 0 (cooling action)

temp.



3.3 Operation with parameter r5 = 1 (heating action)

temp.



4 SETTINGS

4.1 Setting the working setpoint

- make sure the keyboard is not locked and no procedure is running
- press **set** LED **out 1** will flash
- press **Δ** or **▼** in 15 s; also look at parameters r1, r2 and r3
- press **set** or do not operate 15 s.

You also can modify the working setpoint through parameter SP.

8 TECHNICAL DATA

8.1 Technical data

Box: self-extinguishing grey.

Frontal protection: IP 54.

Connections: screw terminal blocks (power supply, input and output), 6 poles connector (serial port; by request).

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

Power supply: 230 VAC/24 VAC (230 VAC terminals 1 and 3, 24 VAC terminals 1 and 2), 50/60 Hz, 5 VA.

Alarm buzzer: incorporated.

Measure inputs: 1 (room probe) for J/K thermocouples or 2/3 wires Pt 100 and Ni 120 probes (according to the model).

Working range: from -99 to 800 °C (-99 to 999 °F) for J thermocouple, from -99 to 650 °C (-99 to 999 °F) for 2/3 wires Pt 100 probe, from -80 to 300 °C (-99 to 570 °F) for 2/3 wires Ni 120 probe.

Resolution: 1 °C/1 °F the model for J/K thermocouples; 0.1 °C/1 °C/1 °F the model for 2/3 wires Pt 100 and Ni 120 probes.

Digital outputs: I relay:

- load relay:** 8 res. A @ 250 VAC (change-over contact).
- press **set** and **▼** pendant 2 s: the display visualiser "Loc" pendant 1 s.

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.

Digital outputs: I relay:

- load relay:** 8 res. A @ 250 VAC (change-over contact).
- press **set** and **▼** pendant 2 s: the display visualiser "Loc" pendant 1 s.

Si le clavier est bloqué, il ne sera pas permis de modifier le point de consigne avec la procédure indiquée dans le paragraphe 4.1 (le point de consigne est programmable aussi à travers le paramètre SP).

Ces opérations provoquent la visualisation du sigle "Loc" pendant 1 s.

Pour débloquer le clavier:

- press **set** et **▼** pendant 2 s: le display visualiser "UnL" pendant 1 s.

L'appareil doit être écouté selon les législations locales au sujet de collection des équipements électriques et électroniques.

Si le paramètre E1 est programmé à 1, le buzzer ne sera jamais activé.

F FRANÇAIS

1 PRÉPARATIFS

1.1 Important

Lire attentivement cette notice avant l'installation et avant l'utilisation et suivre tous les avertissements pour l'installation et pour le raccordement électrique; conserver cette notice avec l'appareil pour des consultations futures.

Voir le dessin du paragraphe 1.2 de la section en Anglais.

Avertissements pour l'installation:

- l'épaisseur du panneau ne doit pas être supérieur à 4,0 mm (0,157 in)
- positionner les étriers comme indiqué dans le dessin de ce paragraphe; modérer le couple de serrage
- vérifier que les conditions d'emploi (température ambiante, humidité, etc.) soient entre les limites indiquées dans les données techniques
- ne pas installer l'appareil à proximité de sources de chaleur (résistances, conduits d'air chaud, etc.), d'appareils avec forts magnétos (grosses diffusives, etc.), de lieux exposés directement au soleil, pluie, humidité, poussière excessive, vibrations mécaniques ou décharges
- conforme aux législations de sécurité, la protection contre d'éventuels contacts avec les parties électriques doit être assurée par un parfait emboîtement de l'appareil; toutes les parties qui assurent la protection doivent être fixées de manière à ne pas pouvoir les enlever sans outil.

Il est possible en outre de programmer le point de consigne à travers le paramètre SP.

1.2 Fonctionnement et installation

Le fonctionnement dépend principalement du paramètre r5.

3.2 Fonctionnement avec paramètre r5 = 0 (fonctionnement pour froid)

Voir le dessin du paragraphe 3.2 de la section en Anglais.

3.3 Fonctionnement avec paramètre r5 = 1 (fonctionnement pour chaud)

Voir le dessin du paragraphe 3.3 de la section en Anglais.

4 PROGRAMMATIONS

4.1 Programmation du point de consigne

vérifier que quelque procédure ne soit pas en cours

- presser **set** la LED **out 1** clignote
- presser **Δ** ou **▼** d'ici 15 s; voir aussi les paramètres r1, r2 et r3
- presser **set** ou ne pas opérer pendant 15 s.

Il est possible en outre de programmer le point de consigne à travers le paramètre SP.

4.2 Programmation des paramètres de configuration

Pour accéder à la procédure:

- vérifier que le clavier ne soit pas bloqué et que quelque procédure ne soit pas en cours

presser **set** et **▼** pendant 4 s: le display visualisera "PA"

presser **set**

presser **Δ** ou **▼** d'ici 15 s pour programmer "19"

presser **set** ou ne pas opérer pendant 15 s

presser **Δ** et **▼** pendant 4 s: le display visualisera "SP".

Pour sélectionner un paramètre:

- presser **Δ** ou **▼**

Pour modifier un paramètre:

- presser **set**
- presser **Δ** ou **▼** d'ici 15 s
- presser **set** ou ne pas opérer pendant 15 s.

Pour sortir de la procédure:

- presser **Δ** et **▼** pendant 4 s ou ne pas opérer pendant 60 s.

4.3 Restauration des valeurs d'usine des paramètres de configuration

vérifier que quelque procédure ne soit pas en cours

- presser **set** et **▼** pendant 4 s: le display visualisera "PA"

presser **set**

presser **Δ** ou **▼** d'ici 15 s pour programmer "743"

presser **set** ou ne pas opérer pendant 15 s

presser **Δ** et **▼** pendant 4 s: le display visualisera "DEF"

presser **set**

presser **Δ** ou **▼** d'ici 15 s pour programmer "149"

presser **set** ou ne pas opérer

9.1 Working setpoints					
	MIN.	MAX.	U.M.	DEF.	
	r1	r2	°C/F (I)	0.0	working setpoint
9.2 Configuration parameters					
PARAM.	MIN.	MAX.	U.M.	DEF.	
SP	r1	r2	°C/F (I)	0.0	working setpoint
PARAM.	MIN.	MAX.	U.M.	DEF.	
CA1	-25	25.0	°C/F (I)	0.0	room probe offset
P0	(2)	(2)	---	(2)	<p>kind of probe 2 = J (only visible in the model for J/K thermocouples) 3 = K (only visible in the model for J/K thermocouples) 4 = 3 wires Pt 100 (only visible in the model for 2/3 wires Pt 100 and Ni 120 probes) 5 = 2 wires Pt 100 (only visible in the model for 2/3 wires Pt 100 and Ni 120 probes) 12 = 3 wires Ni 120 (only visible in the model for 2/3 wires Pt 100 and Ni 120 probes) 13 = 2 wires Ni 120 (only visible in the model for 2/3 wires Pt 100 and Ni 120 probes)</p>
P1	0	1	---	1	<p>decimal point Celsius degree (only visible in the model for 2/3 wires Pt 100 and Ni 120 probes) 1 = YES</p>
P2	0	1	---	0	<p>unit of measure temperature (3) 0 = °C 1 = °F</p>
P5	0	2	---	0	<p>quantity to show by the upper part of the display during the normal operation 0 = room temperature 1 = working setpoint 2 = the display will be out</p>
P6	0	2	---	1	<p>quantity to show by the lower part of the display during the normal operation 0 = room temperature 1 = working setpoint 2 = the display will be out</p>
PARAM.	MIN.	MAX.	U.M.	DEF.	
				REGULATOR	
r0	0.1	99.0	°C/F (I)	2.0	working setpoint differential
r1	-99	r2	°C/F (I)	0.0	minimum working setpoint
r2	r1	999	°C/F (I)	350	maximum working setpoint
r3	0	1	---	0	locking the working setpoint modification [with the procedure related in paragraph 4.1] 1 = YES
r5	0	1	---	(4)	cooling or heating action 0 = cooling
PARAM.	MIN.	MAX.	U.M.	DEF.	
				LOAD PROTECTIONS	
C1	0	240	min	0	minimum time between two activations in succession of the load; also load delay since the end of the room probe error (5)
C2	0	240	min	0	minimum time the load remains turned off; also load delay since you turn on the instrument
C3	0	240	s	0	minimum time the load remains turned on
C4	0	240	min	10	time the load remains turned off during the room probe error; also look at C5
C5	0	240	min	0	time the load remains turned on during the room probe error; also look at C4
PARAM.	MIN.	MAX.	U.M.	DEF.	
				TEMPERATURE ALARMS	
A0	0.1	999	°C/F (I)	2.0	differential of parameters A1 and A5
A1	-99	999	°C/F (I)	0.0	temperature the first temperature alarm is activated; also look at A0 and A3
A2	0	240	min	0	first temperature alarm delay
A3	0	4	---	0	<p>kind of first temperature alarm 0 = alarm not enabled 1 = absolute lower alarm (or A1) 2 = absolute upper alarm (or A1) 3 = lower alarm relative to the first working setpoint (or "first working setpoint - A1"; consider A1 without sign) 4 = upper alarm relative to the first working setpoint (or "first working setpoint + A1"; consider A1 without sign)</p>
A4	0	240	min	0	temperature alarms delay since the working setpoint modification
A5	-99	999	°C/F (I)	0.0	temperature the second temperature alarm is activated; also look at A0 and A7
A6	0	240	min	0	second temperature alarm delay
A7	0	4	---	0	<p>kind of second temperature alarm 0 = alarm not enabled 1 = absolute lower alarm (or A5) 2 = absolute upper alarm (or A5) 3 = lower alarm relative to the second working setpoint (or "second working setpoint - A5"; consider A5 without sign) 4 = upper alarm relative to the second working setpoint (or "second working setpoint + A5"; consider A5 without sign)</p>

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9 POINTS DE CONSIGNE ET PARAMÈTRES DE CONFIGURATION

9.1 Points de consigne

POINTS DE CONSIGNE

point de consigne

9.2 Paramètres de configuration

POINTS DE CONSIGNE

point de consigne

ENTRÉES DE MESURE

offset sonde ambiance

PARAM.

MIN.

MAX.

U.M.

DEF.

WORKING SETPOINT

working setpoint

PARAM.	MIN.	MAX.	U.M.	DEF.	SERIAL NETWORK (MODBUS)										
IA	1	247	---	247	instrument address										
Lb	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.	RESEAU SERIE (MODBUS)										
E1	0	1	---	1	activation du buzzer 1 = OUI										
					(1) l'unité de mesure dépend du paramètre P2										
					(2) la valeur minimum, la valeur maximum et la valeur d'usine du paramètre P0 dépendent du type de modèle (respectivement 2, 3 et 2 dans les modèles pour thermocouples J/K et 4, 13 et 4 dans les modèles pour sondes Pt 100 et Ni 120/2/3 fils)										
					(3) set the parameters related to the regulators appropriately after the modification of the parameter P2										
					(4) la valeur dépend du code de l'appareil, de la manière indiquée:										
					<table border="1"> <thead> <tr> <th>CODE</th> <th>VALUE</th> </tr> </thead> <tbody> <tr> <td>EV9411???</td> <td>r5 = 0 (for cooling)</td> </tr> <tr> <td>EV9411???</td> <td>r5 = 1 (for heating)</td> </tr> <tr> <td>EV9411???</td> <td>r5 = 1 (for heating)</td> </tr> <tr> <td>EV9411???</td> <td>r5 = 1 (for heating)</td> </tr> </tbody> </table>	CODE	VALUE	EV9411???	r5 = 0 (for cooling)	EV9411???	r5 = 1 (for heating)	EV9411???	r5 = 1 (for heating)	EV9411???	r5 = 1 (for heating)
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					(5) The question mark (?) replaces one field, the asterisk (*) replaces one or more fields (or no-one): le champ C means cooling, the field H means heating										
					if parameter C1 has value 0, the delay since the end of the room probe error will however be 2 min.										
					(6) Le point d'interrogation (?) remplace un champ, l'astérisque remplace un ou plus champs (ou aucun): le champ C signifie cooling (pour froid), le champ H signifie heating (pour chaud)										
					(7) si le paramètre C1 est programmé à 0, le retard après la fin de l'erreur sonde ambiance sera de 2 min de toute façon.										

PARAM.	MIN.	MAX.	U.M.	DEF.	ACTIVATIONS										
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					1 = OUI										
					(1) l'unité de mesure dépend du paramètre P2										
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					(3) programmer opportunément les paramètres des régulateurs après la modification du paramètre P2										
					(4) la valeur dépend du code de l'appareil, de la manière indiquée:										
					<table border="1"> <thead> <tr> <th>CODE</th> <th>VALEUR</th> </tr> </thead> <tbody> <tr> <td>EVK411???</td> <td>r5 = 0 (pour froid)</td> </tr> <tr> <td>EVK411???</td> <td>r5 = 1 (pour chaud)</td> </tr> <tr> <td>EVK411???</td> <td>r5 = 1 (pour chaud)</td> </tr> <tr> <td>EVK411???</td> <td>r5 = 1 (pour chaud)</td> </tr> </tbody> </table>	CODE	VALEUR	EVK411???	r5 = 0 (pour froid)	EVK411???	r5 = 1 (pour chaud)	EVK411???	r5 = 1 (pour chaud)	EVK411???	r5 = 1 (pour chaud)
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