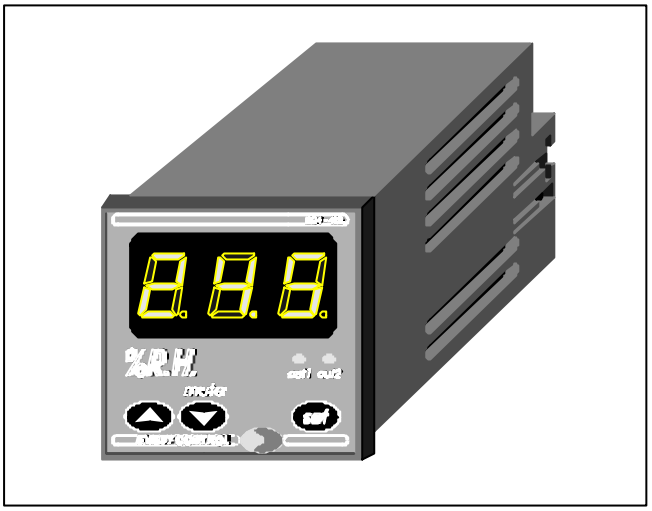


DIGITAL HUMIDITY CONTROLLER with two outputs

EC 4-432

GENERAL CHARACTERISTICS

*** Size: 48 x 48 mm.**

*** 230 Vac power-supply (standard)**

*** Custom configuration through keyboard or Personal Computer (on request)**

*** Configuration parameters accessible through Password**

*** Three digits display, height: 12,5mm.**

*** Indication of humidity with decimal point**

*** Configurable regulator with 2 absolute Setpoints, one absolute and one relative, dead zone**

*** Two relays output (8A at 230 Vac)**

*** Two widely configurable humidity-alarms**

*** Setpoints locking facility**

EC 4-432, a digital two outputs humidity controller, thanks to the technological solutions, offers an easy flexibility of use in a small size box.
The instrument has been designed to work with current output 0-20 mA or 4-20 mA 2 or 3 wires humidity transducers (for example EC UMD 00 and EC UMD 01 manufactured by Every Control) and can provide to the power-supply as long as they are abled to work inside a range of supply-voltage between 9 an 20 V.
The SPDT relays (output 1 and 2), can manage (up to) 8A loads to 230 Vac and are supplied in standard version; as option, it is possible to request the outputs with low-voltage signal, suitable to drive the SSR modules (solid state relay).
The regulator can be configured, trough a parameter modifiable by the user, in three different ways of working:
with **Setpoint 1 absolute, and Setpoint 2 relative** to the first;
with two **absolute indipendent Setpoints**;
in this two cases each output can be easily programmed for "humidify" functioning (reverse) or for "dehumidify" (direct);
with **"dead zone functioning"**; in this case the output 1 intervenes every time the relative humidity goes over the Setpoint plus the dead zone value; while output 2 does it every time the relative humidity goes under the Setpoint minus the dead zone value: this way of functioning finds wide application in conditioning systems.
Besides that, trough some parameters programming, it is possible to submit the outputs activation to a series of delays, in order to guarantee a proper use of the connected load.
Failure of functioning, defective probe, corrupted memory-data or probe-signal outside the limits are indicated by the flashing display, in order to catch user's attention.
The instrument is provided of **two humidity alarms**, that can be disabled, each of them is configurable in six different ways of working; the intervention of each alarm determines the displaying of the indication "AL 1" (or "AL 2") alternated with the measured relative humidity value.

MOUNTING

For a proper mounting, take note of the attached indications; be sure that the conditions of use (voltage of power-supply, environment temperature, humidity) are inside the instrument working limits.
Do not overload the relay-outputs, keep inside the indicated limits.
Voltage at terminal 15 is not stabilized. If the transducer is powered by the instrument, it should be verified that in all working conditions, especially for high humidity values, **the voltage on the transducer** does not drop below the minimum working value, in order to guarantee a correct measure.
WARNING : The instrument is not protected from overloads; so it is necessary to give the outputs the suitable protections; the power-supply is protected by an internal fusible.

CONFIGURATION

There are two levels of configuration (LEVEL 2 is protected by PASSWORD):

Level 1

Push	▲	and	▼			at the same time, for 4 seconds at least : the symbol "PA" appear on the display
Push	▲	or	▼			to select the parameter to modify at LEVEL 1
Push	SET	and	▲	or	▼	to modify the selected parameter.

Level 2

From LEVEL 1 push			▲	or	▼	to selected the parameter "PA"
Push	SET	and	▲	or	▼	to set "-19"
Push	▲	and	▼			at the same time for 4 seconds at least : the first parameter of LEVEL 2 will appear on the display.
Push	▲	or	▼			to selected the parameter to modify at LEVEL 2
Push	SET	and	▲	or	▼	to modify the selected parameter.

How to leave "Configuration"

Push	▲	and	▼			at the same time for 4 seconds at least or wait for 50 seconds without operating on the keyboard, or stop and restart the instrument.

USE

When not working the instrument displays the value read by the probe. Push SET to the display the actual Setpoint value; the led "**out 1**" will flash; to change the first Setpoint value push SET and ▲ or ▼ .
If the parameter rA5 has value 1, the first Setpoint can not be modified. After changing, release the key SET as last. For the two seconds following the release of the key SET ,the led "**out 1**" flashes to indicate that pushing SET again we enter display and changing of the second Setpoint: if no key gets pushed within two seconds, the instrument returns to the basic status. To change the value of the second Setpoint, push SET again, within two seconds since the first release of the same key, afterwards operate like for the first Setpoint; the led "**out 2**" will flash.
If parameter rB5 has value 1, the second Setpoint can not be changed. If the parameter –**/**0 has value 3 the second Setpoint does not exist.

SIGNALS AND ALARMS

The led "**out 1**" (or "**out 2**"), when lighted, indicates that the **output 1** (or the **output 2**) is activated; if it is flashing it indicates that the instrument is in phase of delay-temporisation at the output.
"**E0**" flashing on the display means one of the following defects: defective probe or wrong connection (in case of not connected probe, the indication "**EO**" will appear if the parameter is /0=30 (4-20 mA) and "**0**" if the parameter is /0=31 (4-20 mA)).
"**E2**" flashing on the display : failure of memorised configuration-data; try to switch the power-supply off, and then, switch it on.
If the display indicates a proper value alternated to the signal "**AL 1**" (or "**AL 2**"), it means that the relative humidity read by the probe is off the limits previously set in parameters "**AA1**" and/or "**Ab1**".

CONFIGURATION PARAMETERS

	CODE	PARAMETER	DESCRIPTION	MIN	MAX	U.M.	ST
	–/0	REGULATOR SELECTION	1=1 absolute and 1 relative setpoint; 2=2 absolute setpoint; 3=dead zone.	0	3	----	2
(1)	PA	PASSWORD		-55	+99	----	
	/	**PROBE**					
	/0	kind of probe	30 = 4-20 mA ; 31 = 0-20 mA	30	31	----	30
(1)	/1	calibration (measure offset)		-9.0	+10	%rH	0
	/2	digital filter (speed response) 0=0s; 1=0.4s; 2=1.2s; 3=3.0s; 4=8.0s; 5=19.8s; 6=48.0s		0	6	----	3
	/4	without leading zeros	0=NO; 1=YES	0	1	----	0
	/5	with decimal point	0=NO; 1=YES	0	1	----	0
	/6	start of scale for input 0-20 mA or 4-20 mA	corrispondent to input's minimum value	-99	999	%rH	0
	/7	end of scale for input 0-20 mA or 4-20 mA	corrispondent to input's maximum value	-99	999	%rH	100
	rA/rB	**HUMIDITY REGULATOR**	**rA=refered to setpoint 1; rB=refered to setpoint 2**				
	(1),(2)	rA/rB0 regulator hysteresis (differential)		-99	+999	%rH	0
	rA/rB1	minimum setpoint admitted		-99	+999	%rH	0
	rA/rB2	maximum setpoint admitted		-99	+999	%rH	100
	rA/rB3	output action 0=direct (dehumidify); 1=reverse (humidify)		0	1	----	1
	rA/rB4	hysteresis selection	0=asymmetric; 1=symmetric	0	1	----	0
	rA/rB5	setpoint adjustement locking	0=unlocked; 1=locked 0	1	----	0	
	CA/CB	**OUTPUTS ACTIVATION DELAY**	**CA=refered to output 1; CB=refered to output 2**				
	CA/CB0	output activation delay since instrument power-on		0	999	sec	0
	CA/CB1	after start delay		0	999	sec	0
	CA/CB2	after stop delay		0	999	sec	0
	CA/CB3	relay output status in case of probe failure	0=OFF; 1=ON	0	1	----	0
	CA/CB4	ON and OFF delay	0=no delay; 1=3sec	0	1	----	0
	AA/Ab	**ALARM**	**AA=refered to alarm 1; Ab=refered to alarm 2**				
	AA/Ab0	alarm hysteresis (differential)		1	+99	%rH	0
	AA/Ab1	alarm setpoint		-99	+999	%rH	0
	AA/Ab3	alarm disabling time since instrument power-on		0	999	min	0
	AA/Ab4	alarm mode		see table 1			1
	L	**NETWORK CONNECTION**					
	L1	instrument address		1	15	----	1
	L2	instrument group		0	7	----	0

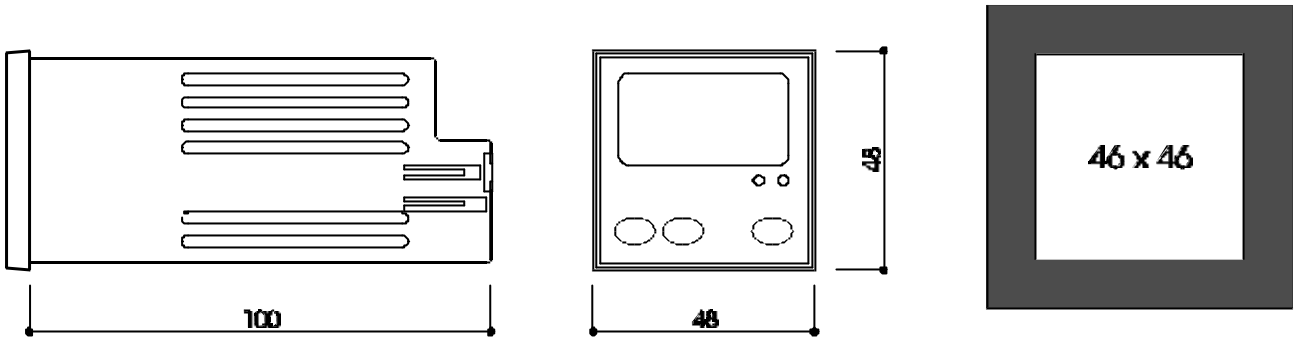
notes

(1) = configuration parameter on LEVEL 1
(2) = represents dead zone value if parameter –/0=3.

TABLE 1

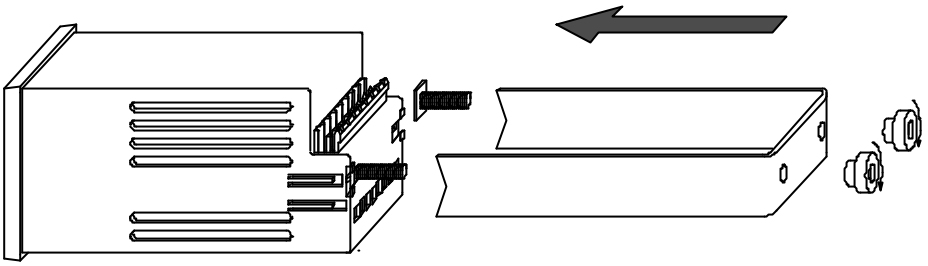
parameter AA/Ab4	alarm mode
1	disabled
2	absolute minimum alarm
3	absolute maximum alarm
4	minimum alarm relative to setpoint 1
5	maximum alarm relative to setpoint1
6	minimum alarm relative to setpoint 1 with automatic enabling and recompute
7	maximum allarm relative to setpoint 1 with automatic enabling and recompute

SIZE AND PIERCING TEMPLATE

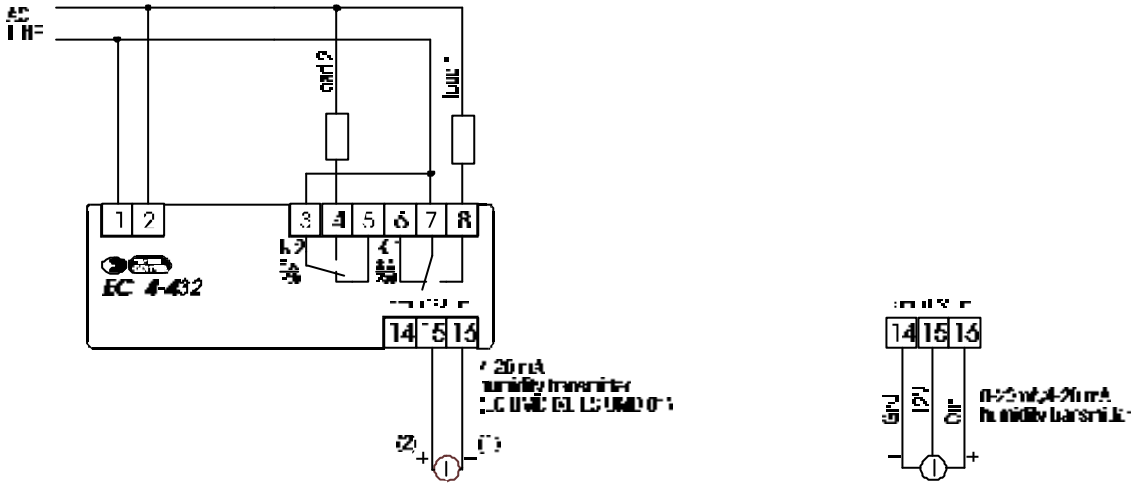


MOUNTING

- With U-bracket .
The panel thickness will be between 1 and 5 mm.



ELECTRICAL CONNECTIONS Example of typical application



ELECTRO-MECHANICAL CHARACTERISTICS

Box: Self-extinguishing plastic (PPO) according to UL94 V-0.
Size: 48 x 48 x 100 mm.
Mounting : Panel-mounting through U-bracket.
Environment temperature: from 0 to + 60°C.
Humidity : 10...90% not condensing.
Connections : extractable screw connectors.
Insulation-class : II (only with ac power-supply).
Power-supply : 230 Vac (standard); on request 115 Vac 50/60 Hz 2VA; 12-24Vac/dc 1,5 W.
Inputs for measure: 1 configurable for transducers with current output (4-20 mA or 0-20 mA).
Input resistance: 56 ohm.
Transducer power-supply : available at terminal 15 (voltage 12V +30%, -20%).
Range of measure: from zero to 100% of relative humidity.
Resolution: 0.1%rH.
Setpoint adjustement: possible in the entire range of measure.
Display: 3 digits display, outputs-status indicator.
Outputs: 2 SPDT 8A/250V (K1 and K2) relays.

EC 4-432E 3/95

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