

DIMENSIONAL DATA

OVERALL DIMENSIONS AND PANEL CUTOUT

The dimensions are expressed in millimetres and inches (third-scale drawing).

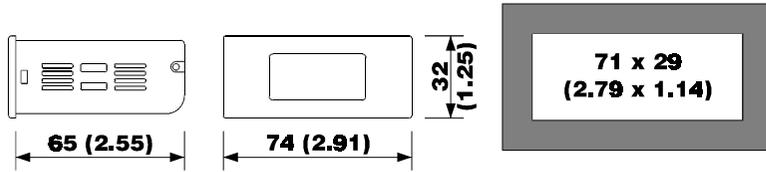


Fig. 3
ds3ve.wmf

INSTALLATION

WITH THE FIXING SYSTEMS SUGGESTED BY THE BUILDER

Panel mounting, with the equipped screw (Fig. 4) or spring brackets (Fig. 5) (third-scale drawing).

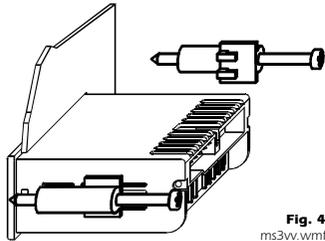


Fig. 4
ms3vv.wmf

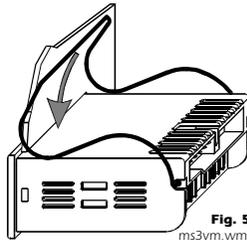


Fig. 5
ms3vm.wmf

ELECTRICAL CONNECTION

CONNECTIONS TO DERIVE

Instance of typical application.

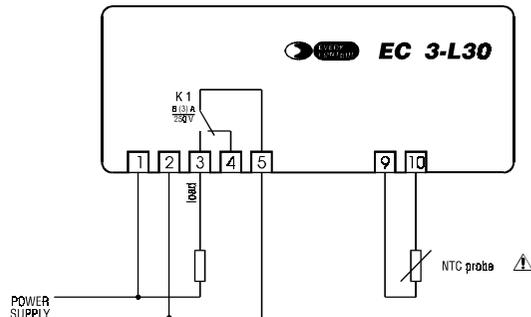


Fig. 6
c3430e.wmf

BUILDER DATA

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EC 3-L30

ON-OFF single output digital thermoregulator supplied from main voltage

Operating instructions

Release 1/00 of February the twenty-ninth 2000

Code EC 3-L30 DOC E001

File 3I30e.p65

IMPORTANT:

The use of this new instrument is easy; but for safety reasons, it is important read these instructions carefully before the installation or before the use and follow all additional informations.

It is very important keep these instructions with the instrument for future consultations.



Fig. 1
f3-l30.wmf

GENERAL INFORMATIONS

WHAT IS THE USE

EC 3-L30 is an ON-OFF single output digital thermoregulator able to cover a temperature range from -40 to +99 °C; the instrument can be supplied from main voltage (230 Vac).

In factory the instrument gets preset to accept at the measure input NTC probes used in this field of applications at the moment.

Some parameters permit to set the thermoregulator for "cooling" or "heating" functioning, to protect the connected load against overloads due to several starts repeated in a short time. EC 3-L30 is available in the 74 x 32 mm (2.91 x 1.25 in.) case and it is studied for panel mounting with the equipped screw or spring brackets.

GETTING STARTED

INSTALLATION

EC 3-L30 was studied for panel mounting, panel cutout 71 x 29 mm (2.79 x 1.14 in.), with the equipped screw or spring brackets (the overall dimensions and the panel cutout are related in Fig. 3, the fixing systems suggested by the builder are related respectively in Fig. 4 and in Fig. 5).

ADDITIONAL INFORMATIONS

- the panel thickness must be included from 1 to 5 mm (0.04 to 0.19 in.)
- verify if the using conditions (ambient temperature, humidity, etc.) are within the limits indicated by the builder (see the chapter TECHNICAL DATA)
- install the instrument in a location with a suitable ventilation, to avoid the internal overheating of the instrument
- do not install the instrument near surfaces that can obstruct the air-grating (carpets, covers, etc.), heating sources (radiators, hot air ducts, etc.), locations subject to direct sunlight, rain, humidity, excessive dust, mechanical vibrations or bumps, devices with strong magnetos (microwave ovens, big speakers, etc.)
- according with the safety norms, the protection against possible contacts with electrical parts and parts protected with functional insulation only must be ensured through a correct installation procedure of the instrument; all parts that ensure the protection must be fixed so that they can not be removed if not with a tool
- if not differently specified at the time of order, the instrument will be equipped with screw brackets.

ELECTRICAL CONNECTION

EC 3-L30 is provided with two screw terminal blocks for cables up to 2.5 mm² (0.38 in.²), for the connection to the power supply, measure input and output), located on the instrument back panel (the connections to derive are related in Fig. 6 and they are checkable on the polyester label stuck on the instrument case).

ADDITIONAL INFORMATIONS

- if the instrument is brought from a cold to a warm location, the humidity may condense inside the instrument; wait about an hour before supply the instrument
- verify if the operating power supply voltage, electrical frequency and power of the instrument correspond to the local power supply (see the chapter TECHNICAL DATA)
- do not supply more instruments with the same transformer
- if the instrument is installed on a vehicle, its power supply must be derived directly from the battery of the vehicle
- give the instrument a protection able to limit the current absorbed in case of failure the instrument remains connected to the local power supply as long as the terminals 1 and 2 are derived to the local power supply, even if the instrument is apparently turned off
- the probe is connected to a main voltage terminal; use double insulation probes
- give the output a protection able to protect it against short circuit and overload
- do not try to repair the instrument; for the repairs apply to highly qualified staff
- if you have any questions or problems concerning the instrument please consult Every Control (see the chapter BUILDER DATA).

USE

PRELIMINARY INFORMATIONS

After derived the connections related in Fig. 6, during the normal functioning the instrument displays the temperature read by the probe.

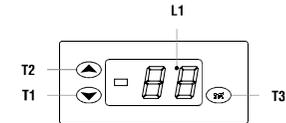


Fig. 2
iu3l30.wmf

If an alarm should be active the instrument displays the alarm code flashing as long as the cause that has given it does not disappear (see the chapter SIGNALS AND ALARMS).

EC 3-L30 is provided with one working setpoint and with some configuration parameters that get stored in a non volatile memory and that permit to set the instrument according with one's requirements (see the chapter CONFIGURABILITY).

The output K 1 is associated to the working setpoint, it remains activated continuously as long as the temperature read by the probe reaches the working setpoint and when it rises above (if the output was set for "cooling" functioning) or it falls below (if the output was set for "heating" functioning) the working setpoint of the hysteresis value (differential) the output gets reactivated.

WORKING SETPOINT SETTING (WORKING TEMPERATURE)

To modify the working setpoint value keep pushed the key T3 (the instrument displays the actual value) and at the same time push and release over and over the key T1 or T2 as long as the instrument displays the desired value (keeping pushed the key T1 or T2 the value gets decreased or increased more quickly); after the modification release the key T3 last; during the pressure of the key T3 the LED L1 flashes quickly to indicate that a working setpoint setting procedure is running (to the release of the key T3 the instrument automatically turns out from the working setpoint setting procedure).

ADDITIONAL INFORMATIONS

- for the whole period of a corrupted memory data alarm the access to the working setpoint setting procedure is refused
- the working setpoint is programmable within the limits established with the parameters r1 and r2
- the working setpoint value gets stored in a non volatile memory even if a lack of power supply happens.

CONFIGURATION PARAMETERS SETTING

Keep pushed at the same time for four seconds at least the keys T1 and T2 (passed four seconds the instrument displays the label #1).

To select a parameter push and release over and over the key T1 or T2 as long as the instrument displays the label of the desired parameter.

To modify the parameter value keep pushed the key T3 (the instrument displays the actual value) and at the same time push and release over and over the key T1 or T2 as long as the instrument displays the desired value (keeping pushed the key T1 or T2 the value gets decreased or increased more quickly); after the modification release the key T3 last (to the release of the key T3 the instrument displays the label of the parameter again).

To turn out from the configuration parameters setting procedure keep pushed at the same time for four seconds at least the keys T1 and T2 or do not operate with the keys for fifty seconds at least (time-out exit).

ADDITIONAL INFORMATIONS

- for the whole period of a corrupted memory data alarm the access to the configuration parameters setting procedure is refused
- the modification of a parameter value which unit of measure is the hour or the minute or the second has not immediate effect; to obtain this effect it must not be executed during the course of the value

- the configuration parameters values get stored in a non volatile memory even if a lack of power supply happens.

CONFIGURABILITY

WORKING SETPOINT

LABEL	MIN.	MAX.	U.M.	ST.	WORKING SETPOINT
r1	r2	°C	0		working setpoint

It establishes the temperature associated to the output K 1.

CONFIGURATION PARAMETERS

LABEL	MIN.	MAX.	U.M.	ST.	MEASURE INPUT
/1	-15	+15	°C	0	calibration

It establishes a threshold to add algebraically to the signal coming from the measure input (for instance to correct the signal).

LABEL	MIN.	MAX.	U.M.	ST.	ON-OFF TEMPERATURE REGULATOR ASSOCIATED TO THE WORKING SETPOINT AND TO THE OUTPUT K 1
r0	+1	+15	°C	+2	hysteresis (differential)

It establishes the hysteresis (differential) relative to the working setpoint.

r1	-40	+99	°C	-40	minimum working setpoint programmable
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It establishes the minimum working setpoint programmable; the instrument automatically verifies if the value established with the parameter r1 is below the maximum working setpoint programmable established with the parameter r2.

r2	-40	+99	°C	+99	maximum working setpoint programmable
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It establishes the maximum working setpoint programmable; the instrument automatically verifies if the value established with the parameter r2 is above the minimum working setpoint programmable established with the parameter r1.

r3	0	1	---	0	"cooling" or "heating" functioning
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It establishes the output functioning, as indicated:

0 = "cooling" functioning

1 = "heating" functioning.

LABEL	MIN.	MAX.	U.M.	ST.	OUTPUT K 1 PROTECTION
C0	0	15	min.	0	disabling time to the output activation from the instrument start

It establishes the time that disables the output activation from the moment of the instrument start.

SIGNALS AND ALARMS

SIGNALS

If the LED L1 is turned ON it means that the output K 1 is activated.

ALARMS

If the instrument displays the indication "E2" flashing (**corrupted memory data alarm**) it means that there is a corruption of the configuration data in the memory (turn OFF and turn ON again the instrument: if to the turning ON again the alarm does not disappear the instrument must be replaced); during this alarm the access to the working setpoint setting and the configuration parameters setting procedures is refused and the output K 1 gets forced to the status OFF.

If the instrument displays the indication "E0" flashing (**probe failure alarm**) it means that: the kind of connected probe is not proper (verify the kind of connected probe), the probe is faulty (verify the probe integrity), there is a mistake in the instrument-probe connection (verify the instrument-probe connection integrity), the temperature read by the probe is outside the limits permitted by the probe in use (verify that the temperature near the probe be inside the limits permitted by the probe); during this alarm the output K 1 gets forced to the status OFF.

ADDITIONAL INFORMATIONS

- the alarm codes are related in order of precedence.

TECHNICAL DATA

TECHNICAL DATA

Case:	plastic black (PC-ABS), self-extinguishing.
Size:	74 x 32 x 65 mm (2.91 x 1.25 x 2.55 in.).
Installation:	panel mounting, panel cutout 71 x 29 mm (2.79 x 1.14 in.), with the equipped screw or spring brackets.
Type of protection:	IP 54.
Connections:	screw terminal blocks with pitch 5 mm (0.19 in., power supply, measure input and output) for cables up to 2.5 mm ² (0.38 in. ²).
Ambient temperature:	from 0 to +60 °C (+32 to +140 °F, 10 ... 90 % of not condensing relative humidity).
Power supply:	230 Vac, 50/60 Hz.
Measure inputs:	1 for NTC probes.
Working range:	from -40 to +99 °C.
Setting range:	from -40 to +99 °C.
Resolution:	1 °C.
Display:	2-digit display 12.5 mm (0.49 in.) high red LED display with automatic minus sign, output status indicator.
Outputs:	one change-over contact 8 (3) A @ 250 Vac relay for regulation load management.

HOW TO ORDER

CODING SYSTEM

Instrument name:	EC 3-L30.
Desired measure input:	N (for NTC probes).
Desired power supply:	220 (230 Vac).