

## DIMENSIONAL DATA

### OVERALL DIMENSIONS AND PANEL CUTOUT

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

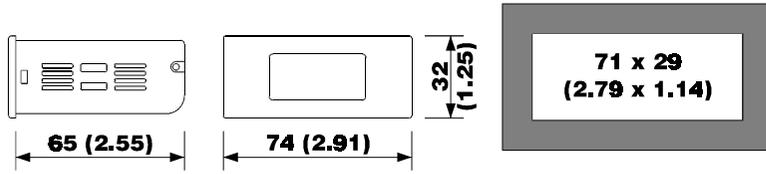


Fig. 3  
ds3ve.wmf

## 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).

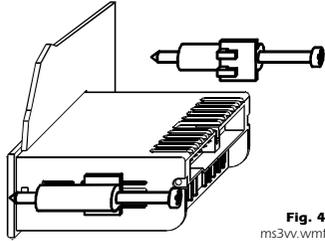


Fig. 4  
ms3vv.wmf

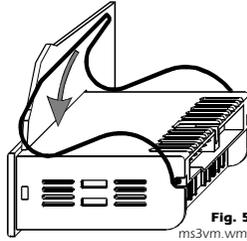


Fig. 5  
ms3vm.wmf

## ELECTRICAL CONNECTION

### CONNECTIONS TO DERIVE

Instance of typical application.

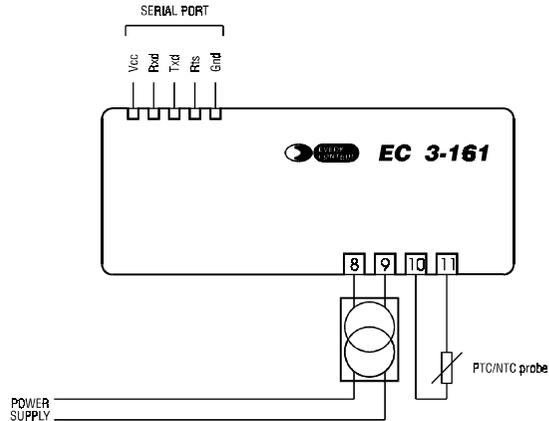


Fig. 6  
c3-161e.wmf

## BUILDER DATA

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# EC 3-161

## Configurable digital thermometer

Operating instructions

Release 1/00 of September the sixth 2000

Code EC 3-161 DOC E001

File 3161e.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  
f3-161n.wmf

## GENERAL INFORMATIONS

### WHAT IS THE USE

EC 3-161 is a configurable digital thermometer able to cover a temperature range from -50 to +150 °C (-58 to +302 °F).

In factory the instrument gets preset to accept at the measure input PTC/NTC probes used in this field of applications at the moment; adjustments of the displayed value can be done through the suitable parameter.

EC 3-161 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 3-161 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 to 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 magnets (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 3-161 is provided with one screw terminal block for cables up to 2.5 mm<sup>2</sup> (0.38 in.<sup>2</sup>, for the connection to the power supply and measure input) and it is provided with one five poles single line male connector (for the connection to the CLONE configurer/cloner and RICS supervision systems), 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 8 and 9 are derived to the local power supply, even if the instrument is apparently turned off
- give the probe a protection able to insulate it against possible contacts with metal parts or use insulated probes
- 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.

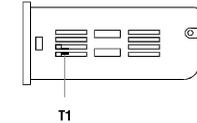


Fig. 2  
adj3163.wmf

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 ALARMS).

EC 3-161 is provided 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).

### CONFIGURATION PARAMETERS SETTING

Configuration parameters are arranged in families that can be recognized through the initial letter of the label.

Keep pushed for four seconds at least the key **T1** (passed four seconds the instrument displays the label **PA**).

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

To modify the parameter value keep pushed for four seconds at least the key **T1** (passed four seconds the value gets automatically increased); after the modification release the key **T1** (to the release of the key **T1** the instrument displays the label of the parameter again).

To turn out from the configuration parameters setting procedure push and release over and over the key **T1** as long as the instrument displays the temperature read by the probe or do not operate with the key 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 configuration parameters values get stored in a non volatile memory even if a lack of power supply happens.

## CONFIGURABILITY

### CONFIGURATION PARAMETERS

LABEL	MIN.	MAX.	U.M.	ST.	RESERVED
PA	---	---	---	---	reserved

LABEL	MIN.	MAX.	U.M.	ST.	MEASURE INPUT
/0	1	3	---	1	kind of probe

It establishes the kind of probe that the instrument must recognize to its measure input, as indicated:

1 = PTC probe      3 = NTC probe.

/1 -55 +99 (\*)8 0 calibration

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

/2 0 6 --- 3 digital filter

It establishes a time constant to apply to the signal coming from the measure input, as indicated:

0 =	0 sec.	1 =	0.4 sec.
2 =	1.2 sec.	3 =	3.0 sec.
4 =	8.0 sec.	5 =	19.8 sec.

6 =	48.0 sec.
/8	0 1 --- 1 unit of measure

It establishes the unit of measure with which the temperature gets displayed, as indicated:  
0 = the unit of measure is the Fahrenheit degree  
1 = the unit of measure is the Celsius degree.

LABEL	MIN.	MAX.	U.M.	ST.	CONNECTION IN A SERIAL NETWORK WITH EVCOBUS PROTOCOL COMMUNICATION
-------	------	------	------	-----	--

L1	1	15	---	1	instrument address
----	---	----	-----	---	--------------------

It establishes the address to which the instrument (slave) answers when it is connected to a serial network with EVCOBUS protocol communication managed from a master (for instance a Personal Computer).

L2	0	7	---	0	instrument group
----	---	---	-----	---	------------------

It establishes the group to which the instrument (slave) answers when it is connected to a serial network with EVCOBUS protocol communication managed from a master (for instance a Personal Computer).

**ADDITIONAL INFORMATIONS**  
- the symbol (\*) indicates that the unit of measure depends from the parameter /B.

## ALARMS

### 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 configuration parameters setting procedure is refused.

If the instrument displays the indication "E0" flashing (**probe failure alarm**) it means that: the kind of connected probe is not proper (see the parameter /O), 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); inactive.

**ADDITIONAL INFORMATIONS**  
- the alarm codes are related in order of precedence.

## TECHNICAL DATA

TECHNICAL DATA	
<b>Case:</b>	plastic black (PC-ABS), self-extinguishing.
<b>Size:</b>	74 x 32 x 65 mm (2.91 x 1.25 x 2.55 in.).
<b>Installation:</b>	panel mounting, panel cutout 71 x 29 mm (2.79 x 1.14 in.), with the equipped screw or spring brackets.
<b>Type of protection:</b>	IP 54.
<b>Connections:</b>	screw terminal blocks with pitch 5 mm (0.19 in., power supply and measure input) for cables up to 2.5 mm <sup>2</sup> (0.38 in. <sup>2</sup> ), five poles single line male connector with pitch 5.08 mm (0.2 in., serial port).
<b>Ambient temperature:</b>	from 0 to +60 °C (+32 to +140 °F, 10 ... 90 % of not condensing relative humidity).
<b>Power supply:</b>	12 Vac/dc or 12-24 Vac/dc, 50/60 Hz, 1.5 VA.
<b>Insulation class:</b>	II.
<b>Measure inputs:</b>	1 configurable for PTC/NTC probes.
<b>Working range:</b>	from -50 to +150 °C (-58 to +302 °F) for PTC probe, from -40 to +110 °C (-40 to +230 °F) for NTC probe.
<b>Resolution:</b>	1 °F with unit of measure in Fahrenheit, 1 °C with unit of measure in Celsius.
<b>Display:</b>	3-digit display 12.5 mm (0.49 in.) high red LED display with automatic minus sign.
<b>Serial port:</b>	TTL with EVCOBUS protocol communication, for the connection to the CLONE configurator/cloner and RICS supervision systems.

## HOW TO ORDER

CODING SYSTEM	
<b>Instrument name:</b>	EC 3-161.
<b>Desired measure input:</b>	P (for PTC/NTC probes).
<b>Desired power supply:</b>	012 (12 Vac/dc), 024 (12-24 Vac/dc).
<b>Options:</b>	custom configuration.