



e30V

DIGITAL ELECTRONIC THERMOMETER



OPERATING INSTRUCTIONS

22/12 - Code: ISTR_M_e30V_E_02_--

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PREFACE



This manual contains the information necessary for the product to be installed correctly and also instructions for its maintenance and use; we therefore recommend that the utmost attention is paid to the following instructions and to save it.

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Whenever a failure or a malfunction of the device may cause dangerous situations for persons, thing or animals, please remember that the plant has to be equipped with additional electromechanical devices which will guarantee safety.

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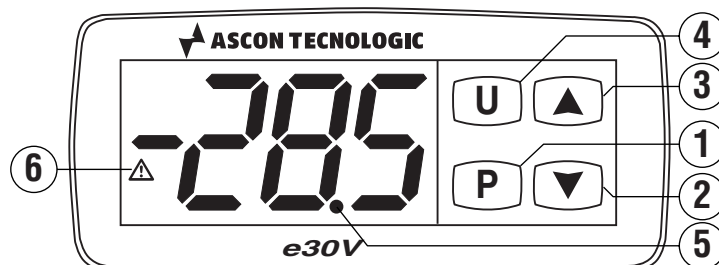
1. INSTRUMENT DESCRIPTION

1.1 General description

The **E30V** model is a digital microprocessor electronic thermometer with **NTC** input probes equipped with functions for **temperature alarms**.

The instrument is available with a keyboard or without a keyboard (in this case, any parameter programming can only take place via device **A01**).

1.2 Front panel pescription



1. **[P]**: Pressed for 5 s allows to access the parameters programming the functions. In programming mode is used to enter the parameter edit mode and confirm the values. In programming mode **[P]** can be used together with the **[▲]** key to change the programming level of the parameters.
2. **[▼]**: In programming mode is used for decreasing the values to be set and for selecting the parameters..

3. **▲**: In programming mode is used for increasing the values to be set and for selecting the parameters. In programming mode can be used together with **P** key to change parameters level.
4. **U**: Pressed and released displays the limit temperatures measured by the instrument (min: Lt and max.: Ht). In programming mode **U** is used to return to normal operation.
5. **LED dp**: During the normal operation is the decimal point. In programming mode, while the parameter code is displayed, the dot indicates the parameter protection level: **not protected** (lit up), **protected** (flashing) and **hidden** (turned OFF).
6. **LED ▲**: Indicates the **alarm status**: **ON** (lit), **OFF** (turned OFF) or **silenced** (flashing).

2. PROGRAMMING

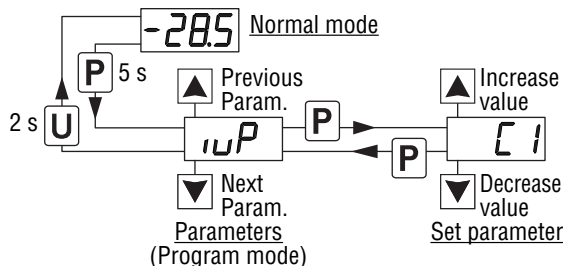
2.1 Standard mode parameters programming

To access the instrument function parameters when password protection is disabled, press the key **P** and keep it pressed for about 5 seconds, after which the display shows the code that identifies the first programmable parameter. The desired parameter can be selected using the **▲**/**▼** keys, then, pressing the **P** key, the display shows the parameter code alternated to its value that can be changed with the **▲** and **▼** keys.

Once the desired value has been set, press the key **P** again: the new value is stored and the display shows only the code of the selected parameter.

Pressing the **▲** and **▼** keys, it is possible to select another parameter and change it as described.

To exit the programming mode, press no keys for about 30 s or keep the **U** key pressed for 2 s.



2.2 Parameter protection using the password

The instrument has a parameter protection function using a password that can be personalised through the iPP parameter. To protect the parameters, set the desired password number at the parameter iPP .

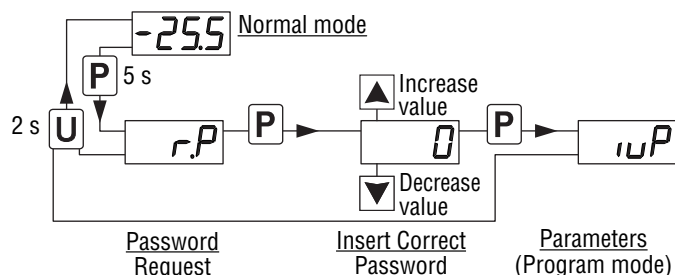
When the protection is active, press the **P** key to access the parameters and keep it pressed for about 5 s, after which the display shows rP .

Press the **P** key, the display shows \square .

Using the **▲**/**▼** keys, insert the programmed password number and press the **P** key again.

If the password is correct the instrument displays the code of the first parameter at this point it is possible to program the instrument in the same way previously described.

The password protection can be disabled by setting $iPP = \text{off}$.



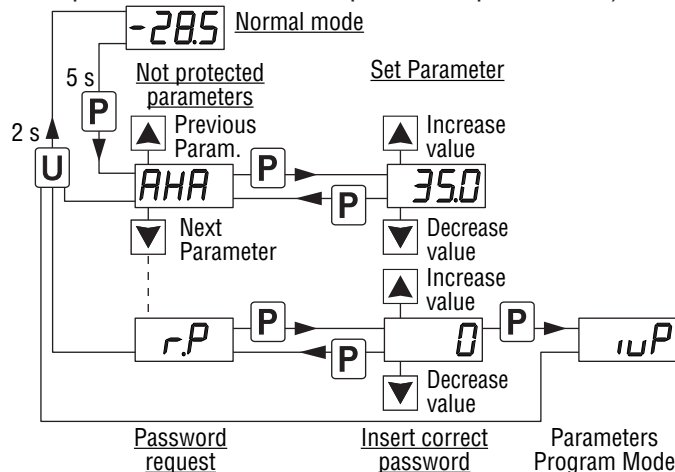
Note: If the Password gets lost, just switch **OFF** then **ON** the instrument, push **P** key during the initial test keeping it pressed for 5 s. In this way it is possible to access all the parameters, verify and modify the parameter iPP .

2.3 Customized mode parameter programming (parameters programming level)

By the instrument factory setting the password protection function affects all parameters. To make a parameter accessible without having to enter the password when iPP password protection is activate, use the procedure that follows:

- Enter the program mode using the iPP Password;
- Select the parameter that must be accessible (no password protection);
- Once a parameter is selected, if the **dp LED flashes**, the parameter is programmable by entering the password (is “**protected**”). If the **dp LED is steady ON** the parameter is programmable without password (is “**unprotected**”).
- To change the parameter visibility, press the **P** key and keeping it pressed also press the **▲** button. The **dp LED** changes its state indicating the new level of parameter accessibility (**ON** = not protected; **flashing** = password protected).

In case some parameters are not protected, accessing the the programming mode the display first shows the not protected parameters, then the rP parameter (through which will be possible to access the “protected” parameters).



2.4 Reset parameters to default value

The instrument allows the reset of the parameters to values programmed in factory as default

To restore the default parameters value set value -48 at rP password request. Therefore, to make the reset to the default parameters, enable the Password using the iPP parameter so that the rP setting is requested, at this point insert **-48** instead of the programmed access password.

Once confirmed the password with the **P** key the display shows “---” for 2 s therefore the instrument resets all the parameters to factory default setting.

3. USAGE WARNINGS

3.1 Admitted use



The instrument has been projected and manufactured as a measuring and control device to be used according to EN60730-1 at altitudes operation below 2000 m.

Using the instrument for applications not expressly permitted by the above mentioned rule must adopt all the necessary protective measures.

The instrument **MUST NOT BE USED** in dangerous environments (flammable or explosive) without adequate protections. The instrument used with NTC 103AT11 probe (identifiable by the printed code "103AT-11" visible on the sensor part) is compliant with standard EN 13485 ("Thermometers for measuring the air and product temperature for the transport, storage and distribution of chilled, frozen, deep-frozen/quick-frozen food and ice cream") with the following classification: [EN13485 air, S, A, 2, -50°C +90°C]

Remember that the end user must periodically check and verify the thermometers in compliance with standard EN 13486.

The installer must ensure that the EMC rules are respected, also after the instrument installation, if necessary using proper filters.

4. INSTALLATION WARNINGS

4.1 Mechanical mounting

The instrument, in case 78 x 35 mm, is designed for flush-in panel mounting. Make a 71 x 29 mm hole and insert the instrument, fixing it with the provided special brackets.

We recommend that the gasket is mounted in order to obtain the front protection degree as declared.

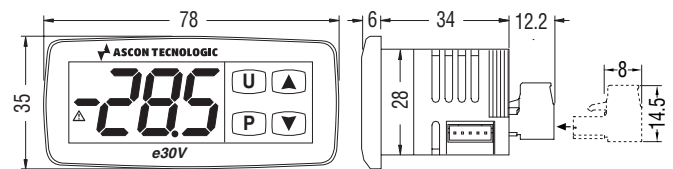
Avoid placing the instrument in environments with very high humidity levels or dirt that may create condensation or introduction of conductive substances into the instrument

Ensure adequate ventilation to the instrument and avoid installation in containers that house devices which may overheat or which may cause the instrument to function at a higher temperature than the one permitted and declared.

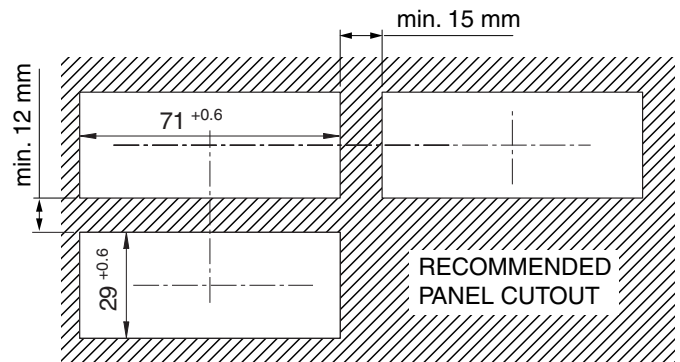
Connect the instrument as far away as possible from sources of electromagnetic disturbances such as motors, power relays, relays, solenoid valves, etc..

4.2 Dimensions [mm]

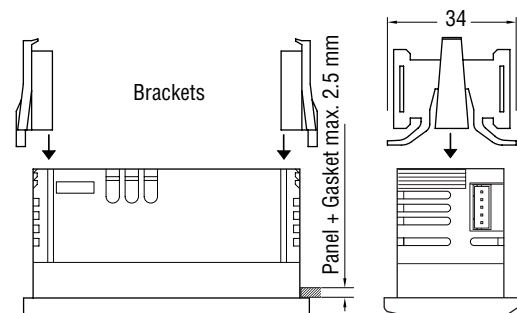
4.2.1 Mechanical dimensions



4.2.2 Panel cut-out



4.2.3 Mounting



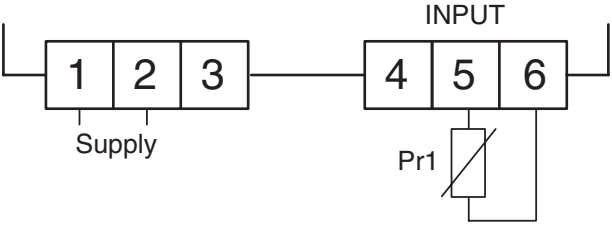
4.3 Electrical connections

Carry out the electrical wiring by connecting only one wire to each terminal, according to the following diagram, checking that the power supply is the same as that indicated on the instrument and that the load current absorption is no higher than the maximum electricity current permitted.

As the instrument is built-in equipment with permanent connection inside housing, it is not equipped with either switches or internal devices to protect against current overloads: the installation will include an overload protection and a two-phase circuit-breaker, placed as near as possible to the instrument and located in a position that can easily be reached by the user and marked as instrument disconnecting device which interrupts the power supply to the equipment

It is also recommended that the supply of all the electrical circuits connected to the instrument must be protect properly, using devices (ex. fuses) proportionate to the circulating currents. It is strongly recommended that cables with proper insulation, according to the working voltages and temperatures, be used. Furthermore, the input cable of the probe has to be kept separate from line voltage wiring. If the input cable of the probe is screened, it has to be connected to the ground at only one side.

4.3.1 Electrical wiring diagram



5. FUNCTIONS

5.1 Measure and display configuration

With the μP it is possible to select the temperature engineering unit and the desired measure resolution (**C0** = °C/1°; **C1** = °C/0.1°; **F0** = °F/1°; **F1** = °F/0.1°).

The instrument allows the measure calibration, which can be used to recalibrate the instrument according to application needs, The calibration is made by using parameters ϵI (input Pr1).

5.2 Alarm functions

The alarm conditions of the instrument are:

- Probe errors $E I$, $-E I$;
- Temperature alarms $H I$ and $L O$;

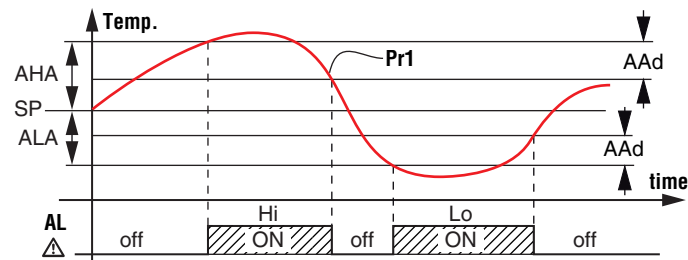
The alarm functions act on the LED Δ .

Any active alarm condition is signaled lighting up the LED Δ , while the acknowledged alarm status is shown by flashing the LED Δ .

5.2.1 Temperature alarms

The temperature alarm works according to **Pr1** probe measurement, the alarm thresholds set at parameters AHA (maximum alarm) and ALA (minimum alarm) and the relative differential $AAAd$.

The alarm intervention can be delayed by the time set at parameter $AAAd$.



The maximum and minimum temperature alarms can be disabled by setting the related parameters AHA and ALA = **oF**.

6. ACCESSORIES

The instrument is equipped with a 5-pole connector which can be used to link some external accessories that allow to perform some functions in “off-line” mode.

6.1 Parameters configuration by “A01”

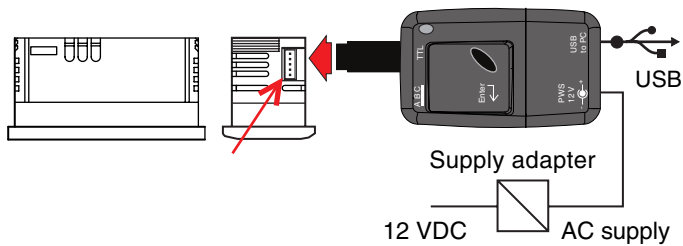
The A01 device can be linked to the 5 poles connector to transfer from and toward the instrument the functioning parameters.



This device is mainly usable for the serial programming of some instruments which need to have the same parameters configuration or to keep a copy of the parameters setting of an instrument and allow its rapid retransmission.

The same device allows to connect a PC via USB with which, through the appropriate configuration software for “AT UniversalConf tools”, the operating parameters can be configured.

To use the A01 device with the e30V instrument, the A01 must be correctly supplied.



For additional info, please have a look at the “A01 instruction manual”.

7. PROGRAMMABLE PARAMETERS TABLE

Here below is a description of all the parameters available on the instrument. Some of them may not be present, either due to the fact they depend on the type of instrument or because they are automatically disabled as unnecessary.

Parameter	Description	Range	Def.	Note
1	iuP Unit of measurement and resolution (decimal point)	C0 °C, resolution 1°; F0 °F, resolution 1°; C1 °C, resolution 0.1°; F1 °F, resolution 0.1°.	C1	
2	iFt Measurement filter	oF ÷ 20.0 s	2.0	
3	iC1 Pr1 Probe Calibration	-30.0 ÷ +30.0°C/°F	0.0	
4	AHA High temperature Alarm threshold	oF Disabled; -99.9 ÷ +999°C/°F.	oF	
5	ALA Low temperature Alarm threshold	oF Disabled; -99.9 ÷ +999°C/°F	oF	
6	AAAd Temperature Alarms Differential	0.0 ÷ 30.0°C/°F	1.0	
7	AAAt Temperature Alarms Delay	oF Disabled; 0.01 ÷ 9.59 (min.s) ÷ 99.5 (min.s x 10).	oF	
8	tPP Password to Access Parameter functions	oF Disabled; 001 ÷ 999.	oF	

8. PROBLEMS AND MAINTENANCE

8.1 Notifications

8.1.1 Error messages

Error	Reason	Action
$E I - E I$	The probe may be interrupted (E) or in short circuit (-E) or may measure a value outside the range allowed	Check the probe connection with the instrument and check that the probe works correctly
$E P r$	Internal EEPROM memory error	Press [P] key
$E r r$	Fatal memory error	Replace the instrument or ship to factory for repair

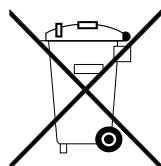
8.1.2 Other messages

Message	Reason
$H i$	Maximum temperature alarm in progress
$L o$	Minimum temperature alarm in progress

8.2 Cleaning

We recommend cleaning of the instrument only with a slightly wet cloth using water and not abrasive cleaners or solvents.

8.3 Disposal



The appliance (or the product) must be disposed of separately in compliance with the local standards in force on waste disposal.

9. WARRANTY AND REPAIRS

The instrument is under warranty against manufacturing flaws or faulty material, that are found within 18 months from delivery date. The warranty is limited to repairs or to the replacement of the instrument.

The eventual opening of the housing, the violation of the instrument or the improper use and installation of the product will bring about the immediate withdrawal of the warranty effects. In the event of a faulty instrument, either within the period of warranty, or further to its expiry, please contact our sales department to obtain authorisation for sending the instrument to our company.

The faulty product must be shipped to Ascon Tecnologic with a detailed description of the faults found, without any fees or charge for Ascon Tecnologic, except in the event of alternative agreements.

10. TECHNICAL DATA

10.1 Electrical characteristics

Power supply: 230 VAC, 115 VAC, 24 VAC/VDC, 12 VAC/VDC $\pm 10\%$;

AC frequency: 50/60 Hz;

Power consumption: about 2 VA;

Inputs: 1 input for NTC temperature probes (103AT-2, 10 k Ω @ 25°C);

Overvoltage category: II;

Protection class: Class II;

Isolation: Reinforced insulation between the low voltage parts (type C or D power supply) and front panel; Reinforced insulation between the low voltage parts (type C or D power supply) and the extra low voltage section (inputs); No isolation between power supply (type F or L power supply) and input.

10.2 Mechanical characteristics

Housing: Self-extinguishing plastic, UL 94 V0;

Ball Pressure Test as described in EN60730: accessible parts 75°C; support live parts 125°C;

Heat and fire resistance category: D;

Dimensions: 78 x 35 mm, depth 34 mm;

Weight: About 90 g;

Mounting: Incorporated flush in panel (thickness max. 2.5 mm) in a 71 x 29 mm hole;

Connections:

Inputs: Fixed or removable screw terminal block for 0.14 \div 1.5 mm²/AWG 28 \div 16 cables;

Power supply: Fixed or removable screw terminal block for 0.2 \div 2.5 mm²/AWG 24 \div 14 cables;

Protection degree: IP65 mounted with gasket;

Pollution degree: 2;

Operating temperature: 0 \div 50°C;

Operating humidity: < 95 RH% with no condensation;

Storage temperature: -25 \div +60°C.

10.3 Functional features

Measurement range: NTC: -50 \div +109°C/-58 \div +228°F;

Display resolution: 1° or 0.1° (range -99.9 \div +99.9°);

Overall accuracy: $\pm(0.5\% \text{ fs} + 1 \text{ digit})$;

Sampling rate: 130 ms;

Display: 3 Digit Red (Blue optional), height 17.7 mm;

Software class and structure: Class A;

Compliance: Directive 2004/108/CE (EN55022: class B; EN61000-4-2: 8kV air, 4kV cont.; EN61000-4-3: 10V/m; EN61000-4-4: 2kV supply and relay outputs, 1kV inputs; EN61000-4-5: supply 2kV com. mode, 1 kVdiff. mode; EN61000-4-6: 3V),

Directive 2006/95/CE (EN 60730-1, EN 60730-2-9), Regulation 37/2005/CE (EN13485 air, S, A, 2, -50°C +90°C with probe NTC 103AT11).

11. HOW TO ORDER

