

RESET PARAMETERS TO DEFAULT VALUE/LEVEL - The instrument allows the reset of the parameters to values programmed in factory as default. To restore to the values of default the parameters set the value **48** to "r.P" password request. Once confirmed the password with the key **P** the display it shows "----" for 2 sec. therefore the instrument effects the parameters reset

KEYBOARD LOCK FUNCTION - On the instrument it's possible to lock completely the keyboard. To activate the keyboard lock it's enough program the par. "t.Lo" to a different value to oF. Insofar not pressing any key for the "t.Lo" the instrument automatically disable the normal functions of the keys. When the keyboard is lock, if any of the key is pushed, on the display will appear "Ln" to indicate the active lock. To unlock the keyboard it's enough to contemporarily push key **P** and **UP** and keep them pushed for 5 sec., after which the label "LF" will appear on the display and all the keys functions will be available again.

INFORMATION ON INSTALLATION AND USE

PERMITTED USE - The instrument has been projected and manufactured as a measuring and control device to be used according to EN60730-1 for the altitudes operation until 2000 ms. The use of the instrument for applications not expressly permitted by the above mentioned rule must adopt all the necessary protective measures. The instrument CANNOT be used in dangerous environments (flammable or explosive) without adequate protection.

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 checks and verify the thermometers in compliance with standard EN 13486. The installer must ensure that EMC rules are respected, also after the instrument installation, if necessary using proper filters. 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 devices which will guarantee safety.

MECHANICAL MOUNTING - The instrument, in case 78 x 35 mm, is designed for flush-in panel mounting. Make a hole 71 x 29 mm 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.

ELECTRICAL CONNECTION - 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 overload of current: 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 with only one side. Whether the instrument is F or G (12 / 24 V) supply version it's recommended to use an external transformer TCTR, or with equivalent features (Class II insulation), and to use only one transformer for each instrument because there is no insulation between supply and input. We recommend that a check should be made that the parameters are those desired and that the application functions correctly before connecting the outputs to the actuators so as to avoid malfunctioning that may cause irregularities in the plant that could cause damage to people, things or animals.

PROGRAMMABLE PARAMETERS TABLE

Here below is a description of all the parameters available on the instrument. Some of them may not be present because depend on the model/type of instrument.

Par.	Description	Range	Def.	Note
S. - parameters relative to Set Point				
1	S.LS Minimum Set Point	-99.9 ÷ HS	-50.0	(#V)
2	S.HS Maximum Set Point	LS ÷ 999	99.9	(#V)
3	SP Set Point	LS ÷ HS	0.0	(#V)
I. - parameters relative to inputs				
4	I.SE Probes Type	Pt / nt	nt	
5	I.uP Unit of measurement and resolution (decimal point) C0 = °C with 1 °res. F0 = °F with 1 °res. C1 = °C with 0,1 °res. F1 = °F with 0,1 °res.	C0 / F0 / C1 / F1	C1	
6	I.Ft Measurement filter	oF ÷ 20.0 sec	2.0	
7	I.C1 Probe Calibration	-30.0 ÷ 30.0 °C/°F	0.0	
r. - parameters relative to temperature control				
8	r.d Differential (Hysteresis)	0.0 ÷ 30.0 °C/°F	2.0	(#V)
9	r.t1 Output activation time for probe error	oF/ 0.01 ÷ 9.59 (min.sec) ÷ 99.5 (min.sec.x10)	oF	(#V)
10	r.t2 Output deactivation time for probe error	oF/ 0.01 ÷ 9.59 (min.sec) ÷ 99.5 (min.sec.x10)	oF	(#V)
11	r.HC Output operating mode H= Heating C= Cooling	H - C	C	(#V)
d. - parameters relative to defrosting control				
12	d.di Defrosting interval	oF/ 0.01 ÷ 9.59 (hrs.min.) ÷ 99.5 (hrs.min.x10)	oF	(#A) (#V)
13	d.Sd Delay first defrost after power-on (oF = Defrost at power-on)	oF/ 0.01 ÷ 9.59 (min.sec) ÷ 99.5 (min.sec.x10)	oF	(#A) (#V)
14	d.dE Length of defrost cycle	oF/ 0.01 ÷ 9.59 (min.sec) ÷ 99.5 (min.sec.x10)	oF	(#A) (#V)
15	d.dL Defrost display Lock oF= display free on= Lock on temperature Pr1 before defrost Lb= Lock on label "dEF" (during defrosting) and "PdF" (during post-defrosting)	oF - on - Lb	oF	(#A) (#V)
P. parameters relative to compressor protection and power on delay				
16	P.P1 Out delay at switch on	oF/ 0.01 ÷ 9.59 (min.sec) ÷ 99.5 (min.sec.x10)	oF	(#V)
17	P.P2 Out delay after switch off	oF/ 0.01 ÷ 9.59 (min.sec) ÷ 99.5 (min.sec.x10)	oF	(#V)
18	P.P3 Out delay between switching-on	oF/ 0.01 ÷ 9.59 (min.sec) ÷ 99.5 (min.sec.x10)	oF	(#V)
19	P.od Delay at power on	oF/ 0.01 ÷ 9.59 (min.sec)	oF	(#V)

) ÷ 99.5 (min.sec.x10)				
A. - parameters relative to alarms				
20	A.Ay Temperature alarms	1 / 2 Type: 1 = Absolute 2 = Relative to Set use)	1	
21	A.HA High temperature Alarm threshold	oF / -99.9 ÷ 999 °C/°F	oF	
22	A.LA Low temperature Alarm threshold	oF / -99.9 ÷ 999 °C/°F	oF	
23	A.Ad Temperature Alarms Differential	0.0 ÷ 30.0 °C/°F	1.0	
24	A.At Temperature Alarms delay	oF/ 0.01 ÷ 9.59 (min.sec) ÷ 99.5 (min.sec.x10)	oF	
25	A.PA Temperature Alarms delay at power on	oF/ 0.01 ÷ 9.59 (hrs.min.) ÷ 99.5 (hrs.min.x10)	2.00 (0.00 mod.V)	
26	A.dA Temperature Alarms delay and unlock display delay after defrost	oF/ 0.01 ÷ 9.59 (hrs.min.) ÷ 99.5 (hrs.min.x10)	1.00	(#A) (#V)
o. - parameters relative to buzzer				
27	o.bu Buzzer function mode oF = disable 1 = active alarms only 2 = key pressed only 3 = active alarms and key pressed	oF / 1 / 2 / 3	3	
t. - parameters relative to configuration of the keyboard				
28	t.UF Function mode key U oF= No function 4= Switch on/Switch off (Stand-by)	oF / 4 (1 / 2 / 3 = don't use)	oF	(#V)
29	t.Lo Keyboard lock function delay	oF/ 0.01 ÷ 9.59 (min.sec) ÷ 30.0 (min.sec.x10)	oF	
30	t.PP Access Password to parameter functions	oF ÷ 999	oF	
31	t.AS MODBUS Station address (for serial communication)	0 ÷ 255	1	

NOTES:
(#A): Not available in Z31A model
(#V): Not available in Z31V model

PROBLEMS, MAINTENANCE AND GUARANTEE

Error Signalling:

Error	Reason	Action
E1 -E1	The probe may be interrupted (E) or in short circuit (-E), or may measure a value outside the range allowed	Check the correct connection of the probe with the instrument and check the probe works correctly
EPr	Internal EEPROM memory error	Press key P
Err	Fatal memory error	Replace the instrument or ship to factory for repair

Other Signalling:

Message	Reason
od	Delay at power-on in progress
Ln	Keyboard lock
dEF	Defrosting in progress with "d.dL"=Lb
PdF	Post-defrosting in progress with "d.dL"=Lb
Hi	Maximum temperature alarm in progress
Lo	Minimum temperature alarm in progress

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

GUARANTEE AND REPAIRS - The instrument is under warranty against manufacturing flaws or faulty material, that are found within 12 months from delivery date. The guarantee 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's 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.

TECHNICAL DATA

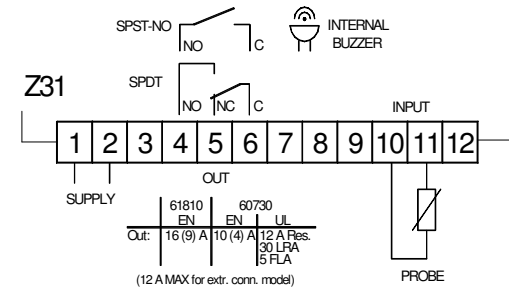
Power supply: 12 VAC/VDC, 12...24 VAC/VDC, 100...240 VAC +/- 10%
Frequency AC: 50/60 Hz
Power consumption: 3 VA approx.
Inputs: 1 input for temperature probes: PTC (KTY 81-121, 990 Ω @ 25 °C) or NTC (103AT-2, 10KΩ @ 25 °C).
Output/s: 1 relay output SPST-NO or SPDT

	EN 61810	EN 60730	UL 60730
Out - 16A - 1HP 250V, 1/2HP VAC	16 (9) A	10 (4) A	12 A Res., 30 LRA, 5 FLA

12 A Max. for extractable terminal block model
Electrical life for relay outputs: 100000 op. (EN60730)
Action type: type 1.B (EN 60730-1)
Overvoltage category: II
Protection class: Class II
Insulation: Reinforced insulation between the low voltage part (supply H type and relay output) and front panel; Reinforced insulation between the low voltage section (supply H type and relay output) and the extra low voltage section (inputs); Reinforced between supply and relay output; No insulation between supply F or G type and inputs.
Housing: Self-extinguishing plastic, UL 94 V0
Heat and fire resistance category: D
Ball Pressure Test secondo EN60730: accessible parts 75 °C; support live parts 125 °C
Dimensions: 78 x 35 mm, depth 64 mm
Weight: 120 g approx.
Mounting: Incorporated Flush in panel (thickness max. 12 mm) in 71 x 29 mm hole
Connections: 2.5 mm² screw terminals block or 2.5 mm² extractable screw terminals block for 0,2...2,5 mm² / AWG 24...14 cables.
Degree of front panel protection: IP 65 (NEMA 3S) mounted in panel with gasket
Pollution situation: 2
Operating temperature: 0 T 50 °C
Operating humidity: < 95 RH% without condensation
Storage temperature: -25 T +60 °C
Temperature Control: ON/OFF mode
Defrost control: interval cycles by stopping compressor
Measurement range: NTC: -50...109 °C / -58...228 °F; PTC: -50...150 °C / -58...302 °F
Display resolution: 1 ° or 0,1 ° (range -99.9...99.9 °)
Overall accuracy: +/- (0,5 % fs + 1 digit)
Sampling rate: 130 ms.
Display: 3 Digit Red (or Blue as option) h 15,5 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 KV diff. 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).

INSTRUMENT ORDERING CODE
Z31-, Z31A, Z31V (instrument with mechanical keyboard)
Z31S, Z31SA, Z31SV (instrument with Sensitive Touch keyboard)
a b c d e f g h i j
a: POWER SUPPLY
H = 100...240 VAC; G = 12...24 VAC/VDC; F = 12 VAC/VDC
b: OUT
R = Relay SPST-NO 16A-AC1; S = Relay SPDT 16A-AC1
c: BUZZER
- = (No); B = Buzzer
d: TERMINAL BLOCK
- = (Standard); E = Extractable
e: DISPLAY

**SCHEMA ELETTRICO DI COLLEGAMENTO
ELECTRICAL WIRING DIAGRAM**



**DIMENSIONI MECCANICHE, FORATURE E FISSAGGIO[mm]
MECHANICAL DIMENSIONS, PANEL CUT-OUT AND MOUNTING [mm]**

