

X31L-X31SL

ALARMS / EVENTS DISPLAY - SIGNALING DEVICE



OPERATING INSTRUCTIONS

13/12 - Code: ISTR_M_X31L_E_02_--

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FOREWORD



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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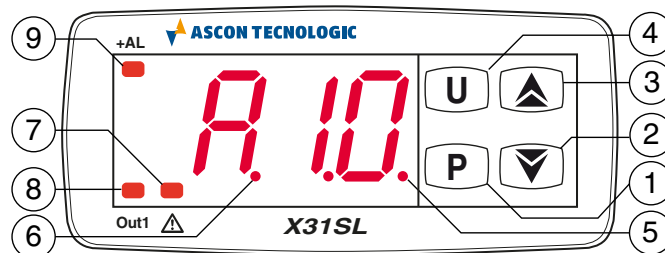
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1 - INSTRUMENT DESCRIPTION

1.1 - GENERAL DESCRIPTION

The model X31L is an Alarms/events signaling device. The Alarms / events are shown on the 3 digit display and can be detected by 10 digital inputs for voltage free contacts or voltage (24 VAC / VDC) whose operation is completely configurable. The instrument can also be equipped with an internal relay and a buzzer that is the sound system for alarms. The model X31SL have the "S-touch" capacitive sensor keyboard system.

1.2 - FRONT PANEL DESCRIPTION



1 - Key P : Used for programming the function parameters (hold pressed for 5 sec.)

In programming mode is used to enter in parameters edit mode and confirm the values. In programming mode it can be used together with the UP key to change the programming level of the parameters.

2 - Key DOWN : In programming mode is used for decreasing the values to be set and for selecting the parameters. In normal mode it can also be used for the acknowledgement/reset of memorized alarms.

3 - Key UP : 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 key P to change parameters level.

4 - Key U : In normal mode lets you can be used to scroll quickly alarms messages bypassing the time "t.td" In programming mode can be used to come back in normal mode (hold for 2 sec.).

5 - Led SET : In normal mode it serves to indicate when a key is pressed. In programming mode indicates the programming level of the parameters.

6 - Led OK : When "t.dS" = oF indicates that no Alarms/events are in progress

7 - Led ALARM : Indicates the Alarms/events status: active (on), silenced or memorized (flashing)

8 - Led Out : Indicates the output status

9 - + AL: Indicates more than one active Alarms/events

2 - PROGRAMMING

2.1 - STANDARD MODE PARAMETERS PROGRAMMING

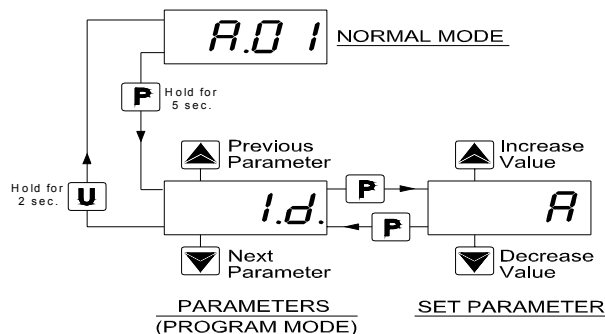
To access the instrument's function parameters when password protection is disable, press the key **P** and keep it pressed for about 5 seconds, after which the display will visualised the code that identifies the first parameter.

Using the UP and DOWN keys, the desired parameter can be selected and pressing the P key, the display will alternately show the parameter code and its setting that can be changed with the UP and DOWN keys.

Once the desired value has been set, press the key P again: the new value will be memorised and the display will show only the code of the selected parameter.

Pressing the UP and DOWN keys, it is possible to select another parameter and change it as described.

To exit the programming mode, do not press any key for about 30 seconds, or keep the U key pressed for 2 sec. until it exits the programming mode.



2.2 - PARAMETER PROTECTION USING THE PASSWORD

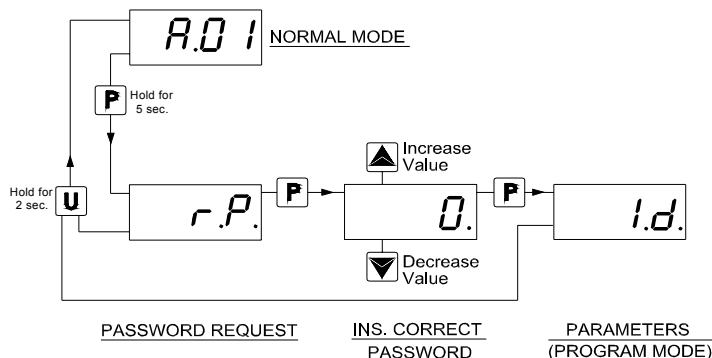
The instrument has a parameter protection function using a password that can be personalised, through the "t.PP" parameter. If one wishes to have this protection, set the password number desired in the parameter "t.PP".

When the protection is activate, press the P key to access the parameters and keep it press for about 5 seconds, after which the display will show "r.P".

At this point press P, the display show "0", using the UP and DOWN keys, set the password number programmed and press the key P.

If the password is correct, the display will visualise the code that identifies the first parameter and it will be possible to program the instrument in the same ways described in the previous section.

Protection using a password can be disabled by setting the parameter "t.PP" = oF.



Note: If the Password gets lost, just swith off and on the instrument supply, push P key during the initial test and keeping the key pressed for 5 seconds.

In this way it's possible to have access to all the parameters, verify and modify the par. "t.PP".

2.3 - CUSTOMIZED MODE PARAMETER PROGRAMMING (PARAMETERS PROGRAMMING LEVEL)

The password protection hides all the configuration parameters behind a factory set password to avoid unwanted changes being made to the programming of the controller.

To make a parameter accessible without having to enter the password when "t.PP" password protection is activate follows this procedure.

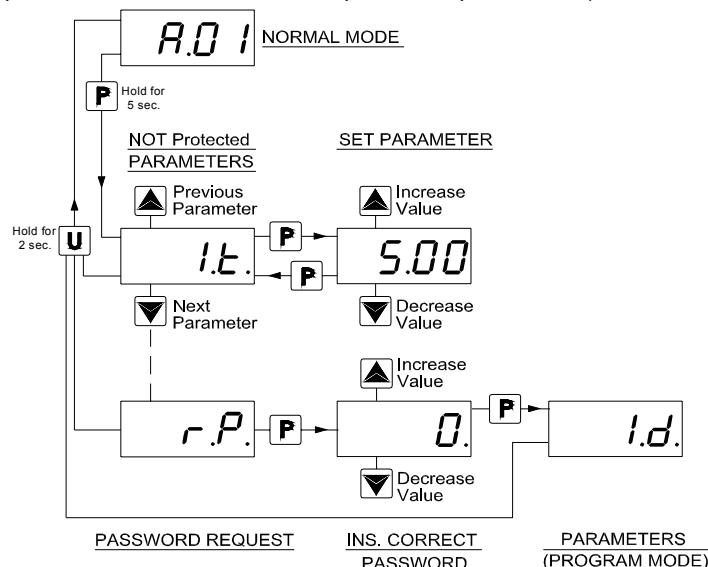
Enter the programming using the Password "t.PP" and select the parameter which is desired to be accessible with no password protection.

Once the parameter has been selected, if the SET led is blinking, this means that the parameter is programmable by entering the password (it's then "protected") if it's instead on, this means the parameter is programmable without password (not protected).

If you want to change the accessibility of the parameter push P key, keep it pressed and press together also the key UP.

The led SET will change its state indicating the new access level of the parameter (on = not protected; blinking = protected by password).

In case some parameters are not protected, when one tries to have access at the programming, the display will show all the parameters not protected and the par. "r.P" (through which will be possible to have access to the "protected" parameters.)



2.4 - 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.

3 - INFORMATION ON INSTALLATION AND USE



3.1 - PERMITTED USE

The instrument has been projected and manufactured as a 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 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.

3.2 - MECHANICAL MOUNTING

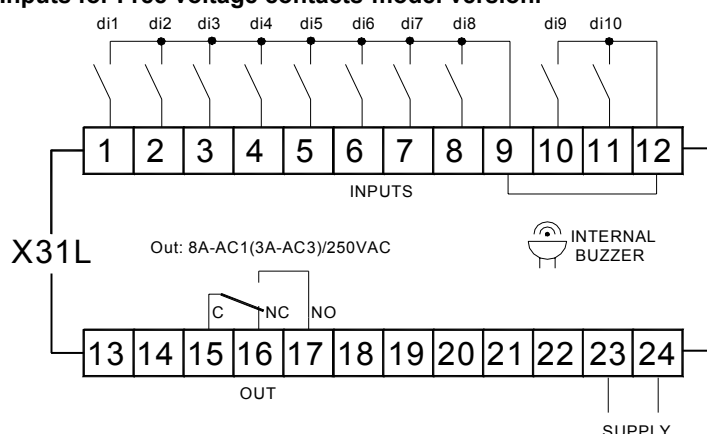
The instrument, in case 78 x 35 mm, is designed for flush-in panel mounting. Make a hole 71 x 29 mm and insert the instrument, fixing it with the provided special brackets. We recommend that the gasket is mounted in order to obtain the front protection degree as declared. Avoid placing the instrument 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.

3.3 - ELECTRICAL CONNECTION

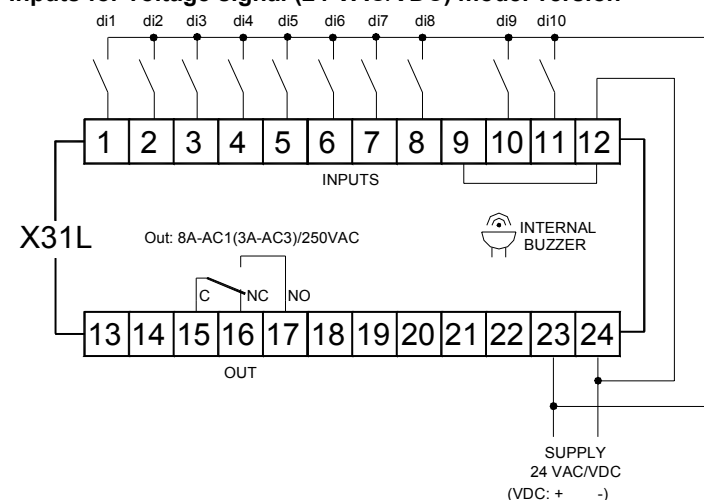
Carry out the electrical wiring by connecting only one wire to each terminal, according to the following diagram, checking that the power supply is the same as that indicated on the instrument and that the load current absorption is no higher than the maximum electricity current permitted. As the instrument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

3.4 - ELECTRICAL WIRING DIAGRAM

Inputs for Free voltage contacts model version.



Inputs for voltage signal (24 VAC/VDC) model version



4 - FUNCTIONS

4.1 - INPUTS CONFIGURATION

Each signal is detected by the status change of an input that can be configured to work through the following parameters:

"1.d", **"2.d"**, **"3.d"** etc: determine the letter preceding the number for that inputs must be reported as active signal. These parameters are used to distinguish messages of some inputs like report alarms (eg. A.01, A.02) from others that may signal errors (eg E.03, "" E.04) or others who may signal functions in progress (eg F.05 "", F.06)

"1.L", **"2.L"**, **"3.L"** etc: determine the logic operating of the digital inputs. If the input signal the event should contact closure connected to the parameter should be programmed = no, vice versa if you must report it to the opening of the contact connected to the parameter should be programmed = nc.

"1.t", **"2.t"**, **"3.t"** etc: allow to delay (up to a maximum of 99min and 50sec.) the action of each inputs

"1.o", **"2.o"**, **"3.o"** etc: Can establish whether the event should turn on the internal buzzer or other alerts through output relay. These parameters allow the buzzer to tie the activation and / or relay output to some reports only considered serious (eg. alarms or errors) that do not require other reports (eg. reports of functioning or minor anomalies).

Parameters can be programmed:

= 0 - no signal

= 1 - signal only by buzzer

= 2 - signal only by output

= 3 - signal by buzzer and by output

"1.A", **"2.A"**, **"3.A"** etc: Can establish whether the reporting on the event should be memorized and therefore remain active even when the digital input is deactivated. When an event is memorized the label signal is flashing to indicate the condition of memorized event.

4.2 - DISPLAY OPERATION

Through par. **"t.ds"** it's possible to set the standard display visualization with no Alarms/events signal.

If programmed = oF, the display visualization with no Alarms/events signal is off except the separation between letter and number.

If programmed = no.A display in the absence of Alarms/events signal showing the label "no.A".

If one event is active, the display always shows only the message scheduled to report.

If more events are active led +AL is lit to indicate that there are more alerts the operator and the display shows either all labels with interval programmed at par. **"t.td"**.

By pressing and releasing key U it's possible to skip time "t.td" and and quickly view all active alerts.

4.3 - OUTPUTS AND BUZZER CONFIGURATION

The instrument output can be configured to activate via the parameters "1.o", "2.o", "3.o" etc.. = 2 or 3.

The output can be configured by par. "t.tA" for the following functions:

= **At** - to control a silenceable alarm device through a contact that is normally open, and then closed when the alarm sounds

= **AL** - to control an alarm that cannot be silenced through a contact that is normally open and closed when the alarm sounds.

= **An** - to control an alarm with a memory function through a contact that is normally open and closed when the alarm sounds (see alarm memory by par. 1.A", "2.A", "3.A" etc.).

= **-At** - to control a silenceable alarm device through a contact that is normally closed, and then open when the alarm sounds.

= **-AL** - control an alarm that cannot be silenced through a contact that is normally closed and open when the alarm sounds.

= **-An** - to control an alarm with a memory function through a contact that is normally closed and open when the alarm sounds
The buzzer can be configured to activate via the parameters "1.o", "2.o", "3.o" etc.. = 1 or 3.

The reporting of the Alarm/event through the buzzer and output can be delayed the time set in par. "t.to".

This allows using the display message (which is delayed by the par. "1.t", "2.t", "3.t" etc..) As a pre-alarm signal and the buzzer/output signal as a delayed alarm signal.

4.4 - SILENCE ALARMS AND ACKNOWLEDGEMENT MEMORIZED ALARMS

The buzzer (if enable) is activated in alarm and can be disabled (alarm silencing) manually by pressing any key of the instrument.

If the output is configured as alarm silenced (t.tA "= At) when activated it's also can switched off by pressing any key

The action of silencing the buzzer and the output is common to all alarms.

Any condition of alarm/event active it is expected to signal (buzzer and / or output) is indicated with the ALARM led on while the alarm silenced condition is indicated by the ALARM led flashing.

The instrument offers the possibility of arranging the alarm memory function via the parameters "1.A", "2.A", "3.A" etc = y.

If ,par. "1.A", "2.A", "3.A" etc = n the instrument cancels the alarm signal when the alarm status ends, if instead it is programmed =y , the instrument maintains the alarm/event label flashing when the alarm/event status ends.

To cancel the alarm memory signal, press and release key DOWN when the label of alarm/event memorized is on the display.

Deletion of memorized alarms must be performed for each alarm.

If the output is configured to operate as an memorized alarm (t.tA "= An) it will be activated at the first alarm/event and will be disabled when all the memorized alarms/events have been deleted.

5 - 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
1	1.d Input 1 letter label message	A / E / C / F	A	
2	1.L Function logic of input 1 no = norm. opened nc = norm. closed	no / nc	no	
3	1.t Delay input 1	oF/ 0.01 ÷ 9.59 (min.sec) ÷ 99.5 (min.sec.x10)	oF	
4	1.o Output/Buzzer activation by input 1 0 = no act. 1 = buzzer only 2 = output only 3 = buzzer + output	0 / 1 / 2 / 3	0	

5	1.A Memory input 1	y / n	n	
6	2.d Input 2 letter label message	A / E / C / F	A	
7	2.L Function logic of input 2 no = norm. opened nc = norm. closed	no / nc	no	
8	2.t Delay input 2	oF/ 0.01 ÷ 9.59 (min.sec) ÷ 99.5 (min.sec.x10)	oF	
9	2.o Output/Buzzer activation by input 2 0 = no act. 1 = buzzer only 2 = output only 3 = buzzer + output	0 / 1 / 2 / 3	0	
10	2.A Memory input 2	y / n	n	
11	3.d Input 3 letter label message	A / E / C / F	A	
12	3.L Function logic of input 3 no = norm. opened nc = norm. closed	no / nc	no	
13	3.t Delay input 3	oF/ 0.01 ÷ 9.59 (min.sec) ÷ 99.5 (min.sec.x10)	oF	
14	3.o Output/Buzzer activation by input 3 0 = no act. 1 = buzzer only 2 = output only 3 = buzzer + output	0 / 1 / 2 / 3	0	
15	3.A Memory input 3	y / n	n	
16	4.d Input 4 letter label message	A / E / C / F	A	
17	4.L Function logic of input 4 no = norm. opened nc = norm. closed	no / nc	no	
18	4.t Delay input 4	oF/ 0.01 ÷ 9.59 (min.sec) ÷ 99.5 (min.sec.x10)	oF	
19	4.o Output/Buzzer activation by input 4 0 = no act. 1 = buzzer only 2 = output only 3 = buzzer + output	0 / 1 / 2 / 3	0	
20	4.A Memory input 4	y / n	n	
21	5.d Input 5 letter label message	A / E / C / F	A	
22	5.L Function logic of input 5 no = norm. opened nc = norm. closed	no / nc	no	
23	5.t Delay input 5	oF/ 0.01 ÷ 9.59 (min.sec) ÷ 99.5 (min.sec.x10)	oF	
24	5.o Output/Buzzer activation by input 5 0 = no act. 1 = buzzer only 2 = output only 3 = buzzer + output	0 / 1 / 2 / 3	0	
25	5.A Memory input 5	y / n	n	
26	6.d Input 6 letter label message	A / E / C / F	A	
27	6.L Function logic of input 6	no / nc	no	

		no = norm. opened nc = norm. closed			
28	6.t	Delay input 6	oF/ 0.01 ÷ 9.59 (min.sec) ÷ 99.5 (min.sec.x10)	oF	
29	6.o	Output/Buzzer activation by input 6 0 = no act. 1 = buzzer only 2 = output only 3 = buzzer + output	0 / 1 / 2 / 3	0	
30	6.A	Memory input 6	y / n	n	
31	7.d	Input 7 letter label message	A / E / C / F	A	
32	7.L	Function logic of input 7 no = norm. opened nc = norm. closed	no / nc	no	
33	7.t	Delay input 7	oF/ 0.01 ÷ 9.59 (min.sec) ÷ 99.5 (min.sec.x10)	oF	
34	7.o	Output/Buzzer activation by input 7 0 = no act. 1 = buzzer only 2 = output only 3 = buzzer + output	0 / 1 / 2 / 3	0	
35	7.A	Memory input 7	y / n	n	
36	8.d	Input 8 letter label message	A / E / C / F	A	
37	8.L	Function logic of input 8 no = norm. opened nc = norm. closed	no / nc	no	
38	8.t	Delay input 8	oF/ 0.01 ÷ 9.59 (min.sec) ÷ 99.5 (min.sec.x10)	oF	
39	8.o	Output/Buzzer activation by input 8 0 = no act. 1 = buzzer only 2 = output only 3 = buzzer + output	0 / 1 / 2 / 3	0	
40	8.A	Memory input 8	y / n	n	
41	9.d	Input 9 letter label message	A / E / C / F	A	
42	9.L	Function logic of input 9 no = norm. opened nc = norm. closed	no / nc	no	
43	9.t	Delay input 9	oF/ 0.01 ÷ 9.59 (min.sec) ÷ 99.5 (min.sec.x10)	oF	
44	9.o	Output/Buzzer activation by input 9 0 = no act. 1 = buzzer only 2 = output only 3 = buzzer + output	0 / 1 / 2 / 3	0	
45	9.A	Memory input 9	y / n	n	
46	10.d	Input 10 letter label message	A / E / C / F	A	
47	10.L	Function logic of input 10 no = norm. opened nc = norm. closed	no / nc	no	
48	10.t	Delay input 10	oF/ 0.01 ÷ 9.59 (min.sec) ÷	oF	

			99.5 (min.sec.x10)		
49	10.o	Output/Buzzer activation by input 10 0 = no act. 1 = buzzer only 2 = output only 3 = buzzer + output	0 / 1 / 2 / 3	0	
50	10.A	Memory input 10	y / n	n	
51	t.dS	Variable visualized Display normally operation without alarms/events active oF = display off (except central dp led) no.A = message no.A	oF / no.A	oF	
52	t.td	Time alternating messages if more than one	1 ÷ 30 sec.	2	
53	t.to	Output/Buzzer delay	oF/ 0.01 ÷ 9.59 (min.sec) ÷ 99.5 (min.sec.x10)	oF	
54	t.tA	Output function: At= Silenceable alarm (no) AL= Not silenceable alarm (no) An= Memorised alarm (no) -At= Silenceable alarm (nc) -AL= Not silenceable alarm (nc) -An= Memorised alarm (nc)	At / AL / An / -At / -AL / - An	AL	
55	t.PP	Access Password to parameter functions	oF ÷ 999	oF	

6 - PROBLEMS, MAINTENANCE AND GUARANTEE

6.1 - SIGNALLING

Message	Reason
.	No active Alarms/events signal with "t.dS"=oF
no.A	No active Alarms/events signal with "t.dS"=no.A

6.2 - CLEANING

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

6.3 - 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 TECNOLOGIC with a detailed description of the faults found, without any fees or charge for Tecnologic, except in the event of alternative agreements.

7 - TECHNICAL DATA

7.1 - ELECTRICAL DATA

Power supply: 24 VAC/VDC, 100...240 VAC +/- 10%
Frequency AC: 50/60 Hz

Power consumption: 4 VA approx.

Input/s: 10 digital input for free voltage contacts or voltage inputs (24 VAC/VDC).

Output/s: 1 relay output SPDT (8A-AC1, 3A-AC3 250 VAC, 1/2 HP 250 VAC, 1/3 HP 125 VAC)

Electrical life for relay outputs: 100000 op.(om. VDE)

Action type: type 1.B (EN 60730-1)

Overvoltage category: II

Protection class: Class II

Insulation: Reinforced insulation between the low voltage part (supply and relay outputs) and front panel; Reinforced insulation between the low voltage section (supply and relay outputs) and the extra low voltage section (inputs); Reinforced between supply and relay outputs.

7.2 - MECHANICAL DATA

Housing: Self-extinguishing plastic, UL 94 V0

Heat and fire resistance category: D

Dimensions: 78 x 35 mm, depth 64 mm

Weight: 130 g approx.

Mounting: 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

Degree of front panel protection: IP 65 mounted in panel with gasket

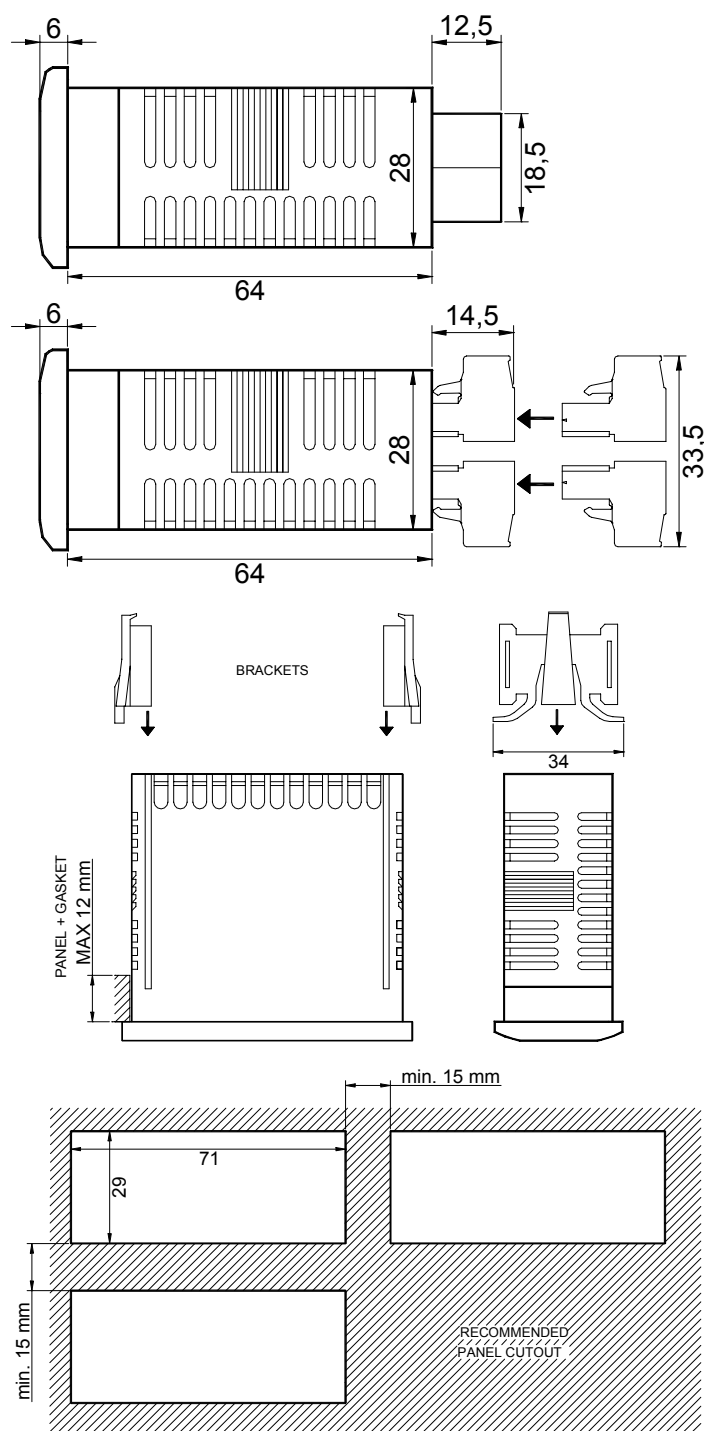
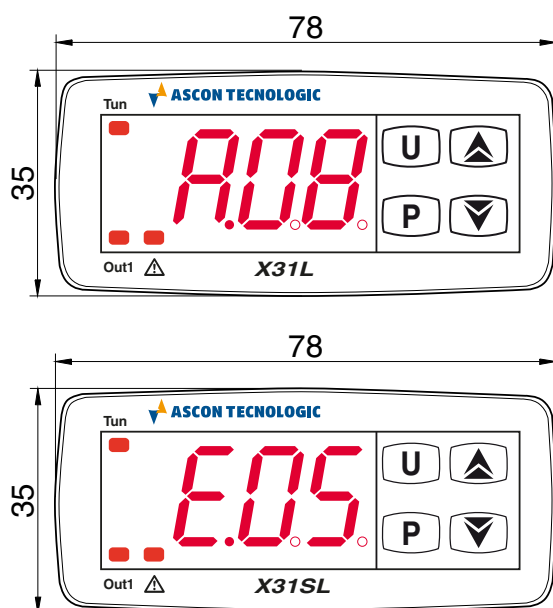
Pollution situation: 2

Operating temperature: 0 T 50 °C

Operating humidity: < 95 RH% without condensation

Storage temperature: -25 T 60 °C

7.3 - MECHANICAL DIMENSIONS, PANEL CUT-OUT AND MOUNTING [mm]



7.4 - FUNCTIONAL FEATURES

Display: 3 Digit Red (Blue optional) h 15,5 mm

Software class and structure: Class A

Compliance: ECC directive EMC 2004/108/CE (EN55022: class B; EN61000-4-2: 8KV air, 4KV cont.; EN61000-4-3: 10V/m; EN61000-4-4: 2KV supply, inputs, outputs; EN61000-4-5: supply 2KV com. mode, 1 KV diff. mode; EN61000-4-6: 3V), LV 2006/95/CE (EN 60730-1, EN 60730-2-7, EN 60730-2-9)

7.5 - INSTRUMENT ORDERING CODE

X31L (instrument with mechanical keyboard)

X31SL (instrument with Sensitive Touch keyboard)

a b c d e f g h i j j k k

a : POWER SUPPLY

H = Supply 100..240 VAC

L = Supply 24 VAC/VDC

b : INPUTS

L = Free Voltage Contacts

U = Voltage signal 24 VAC/VDC (only for 24 V supply)

c : OUT

R = Out Relay SPDT 8A-AC1

- = (No)

d: BUZZER

B = Buzzer

- = (No)

e : TERMINAL BLOCK

- = (Standard)

E = Extractable

g : DISPLAY

- = Red

U = Blue

g, h, i: INTERNAL CODES

jj, kk : SPECIAL CODES