DISIBEINT
ELECTRONIC SL

User's manual

Programmable panel meter

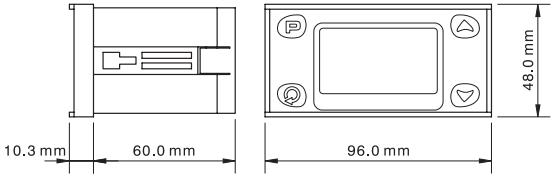
IPD

Assembly

Wall assembly:

Window of 46 x 91$^{+0,5}_{0}$ mm (2.5" x 3.5"$^{+0,8}_{-0}$)

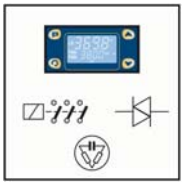
Made with ABS (UL94-HB)



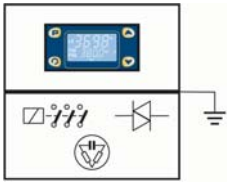
General cares in the installation

The equipments must not be placed in environments too near to power elements such us circuit breakers, triacs, rectifier bridges, high voltage transformers, etc. As far as possible, the equipments will be isolated from the emitters of electrical disturbances by means of, for instance, a shield connected to ground.

NO



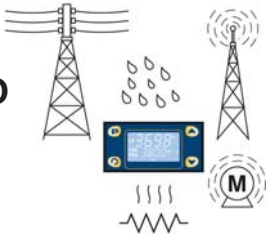
YES



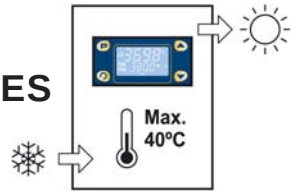
The equipments will not be exposed to extreme temperatures and humidities:

- Maximum room temperature for optimal operation: 40ºC
- Maximum room humidity without precipitation: 90%.

NO



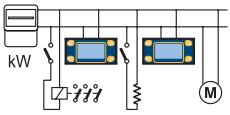
YES



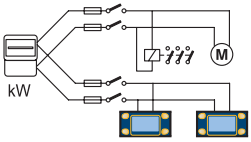
The connections must be done separating, phisically, the measurement signals from the control or power signals.

Do not use the same connection for the power supply of the equipment and for the control line of the circuit breakers, motors, etc.

NO



YES



In a general way, it is recommended to use an exclusive supply line for the equipments connected directly from the main and provided with the appropiate protections. If this is not possible, install an isolation transformer with the shield connected to ground.

Cautions with the connection

Before applying the supply voltage or the signals, be sure that the wiring is correct.

In the current analog inputs, check that the polarity is the right one and the shunt is present. If it is internal, by means of the proper jumper and if it is external, checking that the shunt resistance (3,74 ohm) is connected to the right terminals.

In the Pt 100 inputs, checking the third wire will avoid saturated indications.

In the inputs for mV and termopar, beside to the polarity is important to assure that the internal shunt of that channel is not selected.

Every voltage between terminals higher than 3 V, from the same channel or between different channels, may cause damages in the equipment.

It is always recommended to use twisted wire cable with shield for the signal lines and to use different pipelines than the ones for power or control.

For a right shielding, connect it to a good quality ground (instrumentation ground) in only one of the sides. **Do never connect to ground both sides of the shield.**

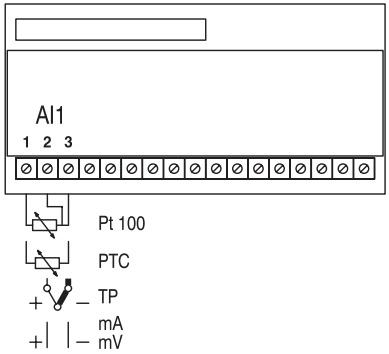
Avoid, as far as possible, the electrical ground where the circuit breakers, motors and power units are connected to. Usually, due to the deficient quality of these type of grounds, they are a source of electrical disturbances.

It is recommended to use 1 mm^2 cooper cable for the signals to be measured.

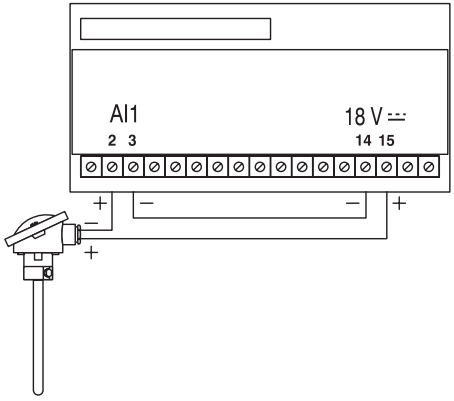
The connection of the communications must be exclusively done with twisted and shielded cable.

Inputs connection

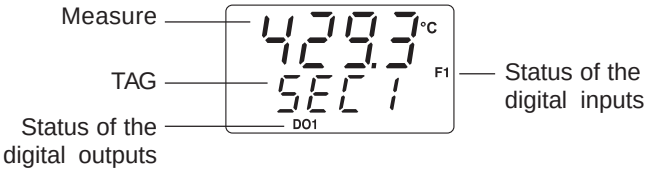
Internal jumper S1 in position 2-3 (page. 7)



Internal jumper S1 en posición 1-2 (page 7)



Descripcion of the front screen



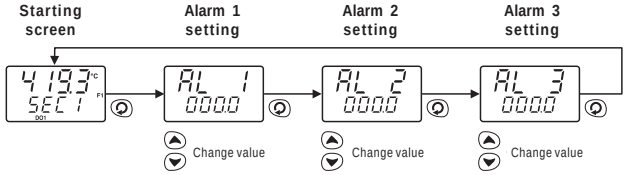
Keyboard

- At any place, returns to the preceeding menu.
- Advance to the next step. Data validation.
- Increases value
- Decreases value

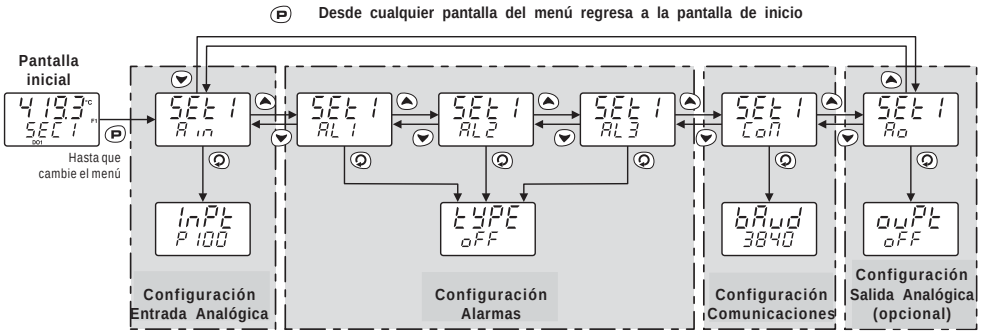
Error messages

Erro	Check probe and connections
OuEr	Measure is over the high limit or 9999
UndE	Measure is over then low limit or -1999

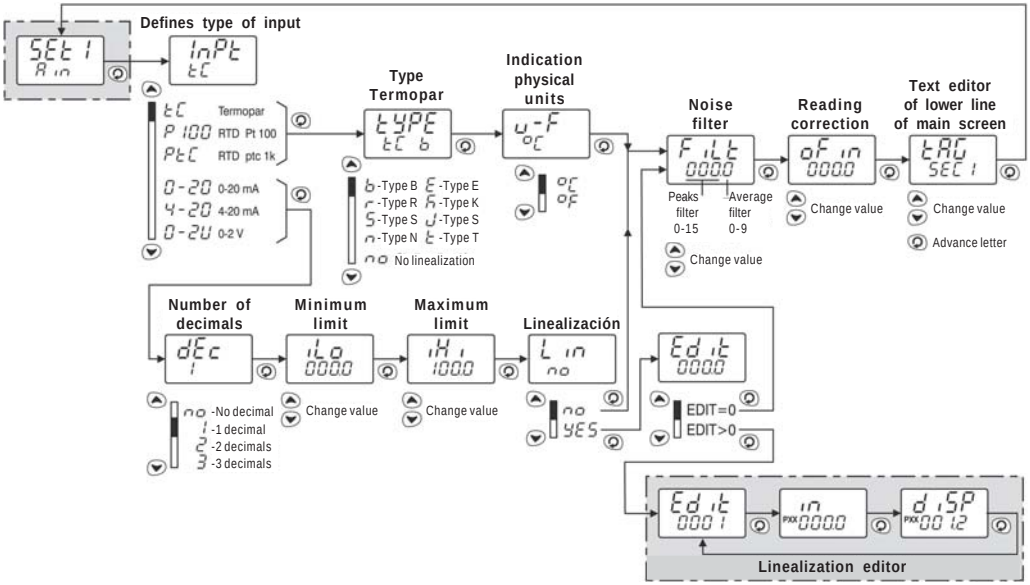
Main menu



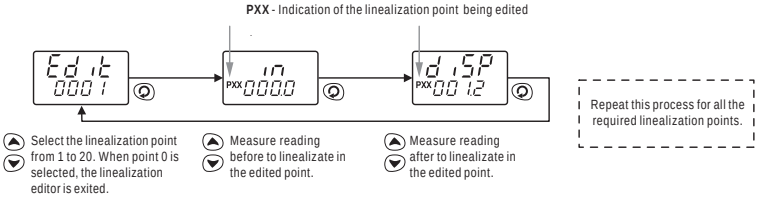
Menú configuración



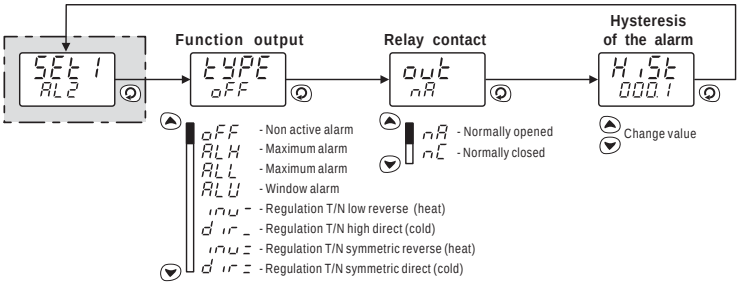
Configuration of the analog input



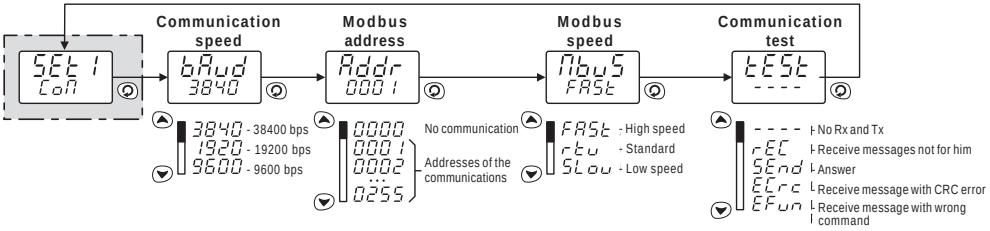
Linealization editor



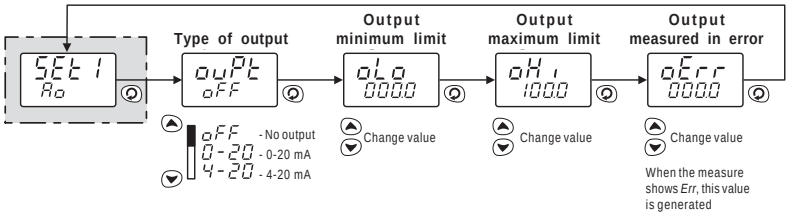
Configuration of the alarms (AL1, Al 2, AL3)



Configuration of the communications



Configuration of the analog output (optional)

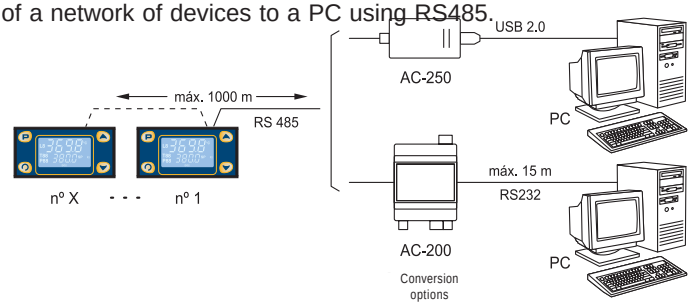


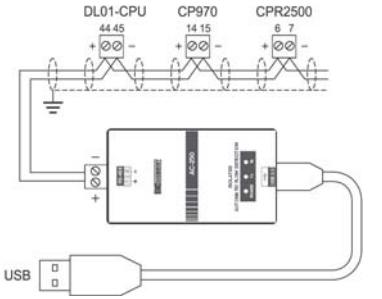
Communications

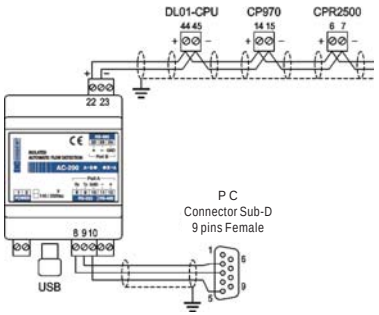
The communications channel operates with RS485 wiring. Protocol is ModBus RTU.

Example of connection

Connection of a network of devices to a PC using RS485.





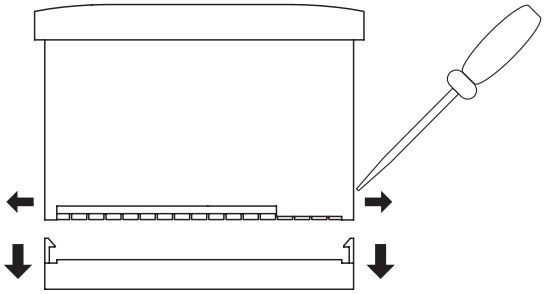


Modification of internal jumpers

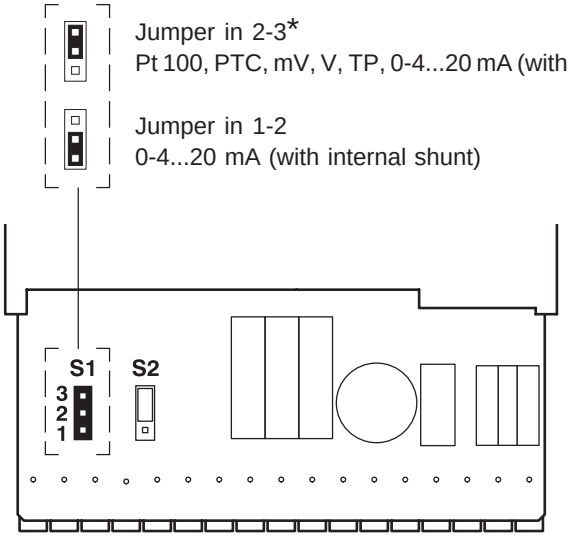
The housing must be opened in the case that the jumpers' default setting wants to be changed.

By pressing the two nails at each side of the housing, the cover can be removed.

EVERY TIME THAT THE HOUSING MUST BE OPENED, BE SURE THAT THE EQUIPMENT BE WITHOUT VOLTAGE IN ALL THE TERMINALS.



Each analog input has a two positions jumper that allows to choose between the general input and the input of mA with internal shunt. Once the jumper is set in the desired position, use the configuration program to select the input type.



* Default position is 2-3

Technical characteristics

- Number of inputs: ..... 1 input
- Types: ..... PTC, TP, RTD, mV, V, mA
- Impedance: ..... >1 MΩ (mV) & internal shunt 3,75 Ω 1% 25 ppm (mA)
- Range CJC: .... 0 a 50 °C (internal sensor)
- Standards for signals: ..... IEC584 (TP) and IEC751 (Pt 100)
- Termopar ..... J, K, R, S, T, E, N, B
- Pt 100 ..... -200/600 °C
- PTC ..... -50/150 °C
- Voltage: ..... ±75 mV & ± 2 VDC
- Current: ..... 0..4-20 mA
- Linealización: ..... 20 steps
- Precision at 25 °C: ..... ± 0,1%
- Sampling time: ..... 125 ms (1 ch.) 250 ms (2 ch.)

Logical inputs (option):
- Logical inputs ..... 3 x 220 VAC/DC (24 VAC/DC in option)
- Current consumption: ..... 2 mA máx.

Analog outputs (option):
- Quantity: ..... 1 or 2, common ground
- Type: ..... mA (V with external shunt)
- Resolution: ..... 13 bits
- Output ranges: ..... 0..4-20 mA
- Precision at 25 °C: ..... ± 0,2 %
- Refresh time: ..... 250 ms
- Isolation: ..... 500 V
- Maximum load: ..... 500 Ω

Digitals outputs:
- Relays SPST NA ..... 3 x a 250 VAC/1A
- Isolation ..... 500 V

Output auxiliary voltage:
- Output 1: ..... 18 VDC no stabilised
- Maximum output current: ..... 50 mA
- Isolation ..... 500 V
- Output 2 (opt.): .... 5 VDC stabilised (opt.)
- Maximum output current: ..... 20 mA
- Isolation ..... 500 V (except with analog output)

Communications:
- Type: RS-485
- Protocol: ..... Modbus RTU
- Speed: ..... 9600, 19200, 38400 bauds

Operation limits:
- Ambient temperature: ..... 0 a 50 °C
- Storage temperature: ..... -20 a 70 °C
- Relative humidity: ..... máx. 85 HR% (without condensation)

Directive CE:
- Emmision/Inmunity: EN 50081/EN 61000

Supply and consumption:
- Voltage: ..... 60..250 VAC & 22..250 VDC 20..60 VAC (option)
- Frequency: ..... 50..60 Hz
- Consumption: ..... 2 VA

Basic Modbus addresses

CONCEPT	DATA TYPE	MODBUS REGISTER	LIMITS	MODE
MEASURE (AI1)	Word with sign	30011		Only Read
ALARM SET 1 (AL 1)	Word with sign	40035	-32767/32768	Read/Write
HYSTERESIS ALARM 1 (AL 1)	Word with sign	40036	-32767/32768	Read/Write
ALARM SET 2 (AL 2)	Word with sign	40038	-32767/32768	Read/Write
HYSTERESIS ALARM 2 (AL 2)	Word with sign	40039	-32767/32768	Read/Write
ALARM SET 3 (AL 3)	Word with sign	40041	-32767/32768	Read/Write
HYSTERESIS ALARM 3 (AL 3)	Word with sign	40042	-32767/32768	Read/Write
READ STATUS ALARM 1 (AL 1)	Bit	30001 BIT 9 (30001.9)	0 OFF/1 ON	Only Read
READ STATUS ALARM 2 (AL 2)	Bit	30001 BIT 10 (30001.10)	0 OFF/1 ON	Only Read
READ STATUS ALARM 3 (AL 3)	Bit	30001 BIT 11 (30001.11)	0 OFF/1 ON	Only Read
READ STATUS OUTPUT 1 (DO 1)	Bit	30002 BIT 2 (30002.2)	0 OFF/1 ON	Only Read
READ STATUS OUTPUT 2 (DO 2)	Bit	30002 BIT 3 (30002.3)	0 OFF/1 ON	Only Read
READ STATUS OUTPUT 3 (DO 3)	Bit	30002 BIT 4 (30002.4)	0 OFF/1 ON	Only Read
WRITE STATUS OUTPUT 1 (DO 1) remote mode	Bit	40095 BIT 0 (40095.0)	0 OFF/1 ON	Read/Write
WRITE STATUS OUTPUT 2 (DO 2) remote mode	Bit	40095 BIT 1 (40095.1)	0 OFF/1 ON	Read/Write
WRITE STATUS OUTPUT 3 (DO 2) remote mode	Bit	40095 BIT 2 (40095.2)	0 OFF/1 ON	Read/Write
STATUS DIGITAL INPUT 1 (DI 1)	Bit	30001 BIT 5 (30001.5)	0 OFF/1 ON	Only Read
STATUS DIGITAL INPUT 2 (DI 2)	Bit	30001 BIT 6 (30001.6)	0 OFF/1 ON	Only Read
STATUS DIGITAL INPUT 3 (DI 3)	Bit	30001 BIT 7 (30001.7)	0 OFF/1 ON	Only Read

The Modbus registers with format 300xx are reading adresses. They belong the the command 3 Modbus which allow a reading up to a maximum of 9 Modbusregisters per reading.
The Modbus registers with format 400xx are reading/writing adresses. They belong the the command 16 Modbus which allow a reading up to a maximum of 3 Modbus registers per reading.
The Modbus registers are showed in decimal.

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