Please follow these installation, connection, and adjustment instructions carefully.
Failure to comply with these instructions or misuse of this equipment will void the 12 month warranty coverage.

1 Description

This digital panel instrument is designed to monitor, measure and display process variables in industrial applications.
The instrument can measure the following standard input signals:

0 ... 5 V
0 ... 10 V
0 ... 20 mA
4 ... 20 mA

For signal processing, the following features are provided:

- A 3 1/2 digit display. The initial display value may be set between -1170 and +1170. Full scale range: 0 to 2000 digits.
- The input signal may be assigned a display range at the user's option. The input signal display range and the decimal point are internally set by means of jumpers.
- Physical isolation between instrument power and measuring input.
- Visual indication that the measuring range has been exceeded; should this occur the first digit of the display will be a "1" and the remainder of the display will not be illuminated.

2 Technical data

Measuring rate ..... 2.5 measurements/s
Setting time with 100% measuring value change ..... < 3 s
Input voltage ..... DC 12 ... 26 V
Power consumption ..... max. 3 W
Ambient temperature range ..... 0°C...+50°C (32°F...122°F)
Storage temperature range ..... -20°C...+70°C (-4°F...+158°F)
Relative humidity (without condensation) ..... 0...75 % average, 95 % max.
Warm-up time to full accuracy ..... ≥15 minutes
Environmental protection:
terminals ..... IP 20
front ..... IP 50

CAUTION:

▼ With a voltage supply of DC 12 ... 26 V the maximum admissible residual ripple is 10%, but not less than the minimum voltage or more than the maximum voltage.

5 Connection

CAUTION:

▼ Ensure that the supply voltage and the measuring ranges correspond with those shown on the instrument label.

▼ If the instrument has been stored at temperatures below 0°C (32°F) allow it to adjust to normal ambient for 12 hours to ensure the dissipation of condensation.

▼ If the storage temperature has exceeded 50°C (122°F) allow a sufficient cooling time before the power supply is connected.

▼ Operate the instrument for a minimum of 15 minutes under normal ambient conditions to allow it to warm up to full display accuracy.

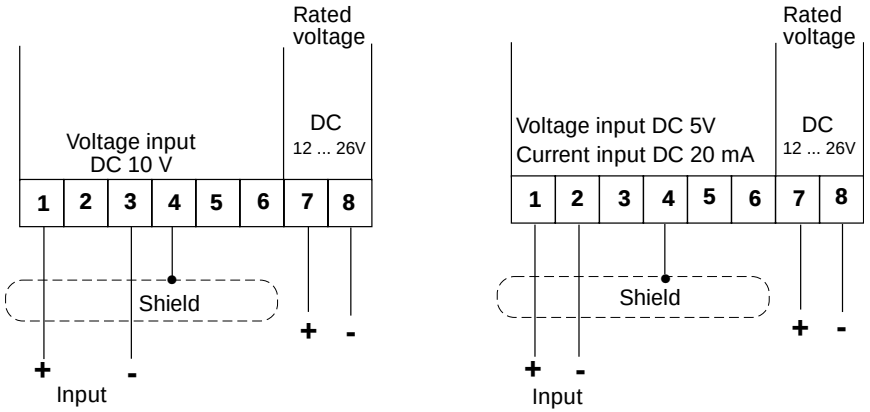
▼ To prevent interference when measuring small input signals use only shielded cable positioned away from the incoming cable.

▼ Maximum cable size is 1.5 mm² (AWG 14).

Connecting the Instrument:

1. The screw terminal strips may be removed to facilitate connection.
2. Connect the signal inputs (terminals 1 to 3) according to "Measuring Range" and "Terminal" as shown on the label.
3. Connect the supply (terminals 7 and 8) as shown on the label.

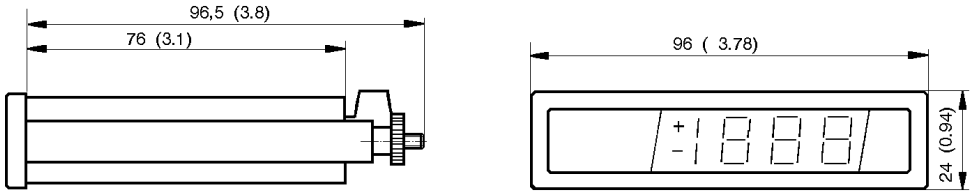
Selection of appropriate terminals (1 to 8)



4 Installation

The mounting attitude is unimportant.

Overall dimensions:
(in mm/inches)



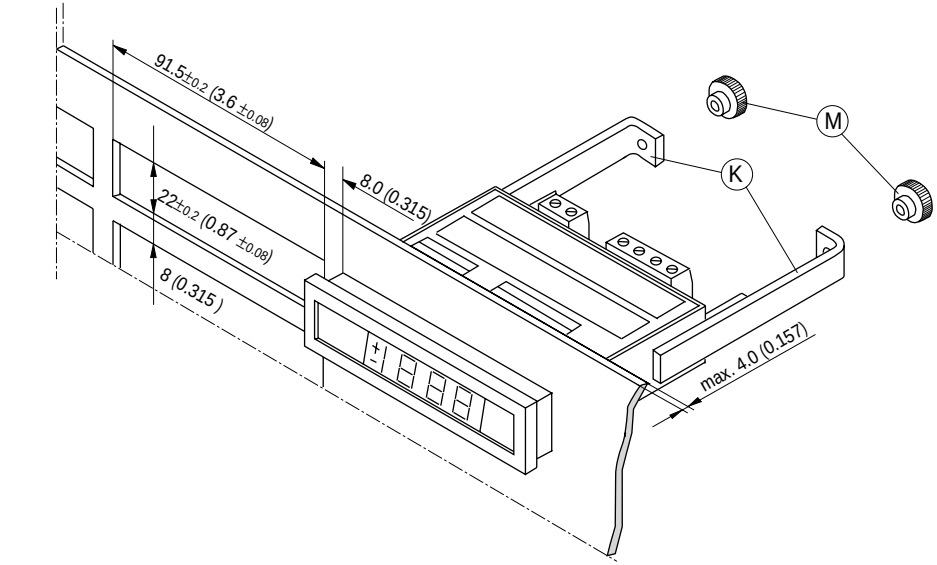
CAUTION:

- ▼ To ensure a correct fit, please allow the tolerances shown.
- ▼ If several instruments are to be fitted a minimum of 8 mm (0.31 inches) must be provided between each cut-out to allow correct removal of front glass.

Fitting:

1. Unscrew the two knurled nuts (M) and remove mounting brackets (K).
2. Slide the instrument through the cut-out (from the front side).
3. Re-install mounting brackets (K) and the two knurled nuts (M). Tighten the nuts only by hand; do not overtighten!
4. Reverse this procedure when replacing an existing instrument. However, in this case first remove the screw terminal strips by unplugging them.

Panel cut-out:
(in mm/inches)



3 Adjusting the Instrument

NOTE:
Please read through all of the instructions below before starting these adjustments.

- ▼ If the instrument has been stored at temperatures below 0°C (32°F) allow it to adjust to normal ambient for 12 hours to ensure the dissipation of condensation.

3.1 Selecting the input signal and display ranges (jumpers)

NOTE:
The Instrument is preset at the factory. If the standard setting is suitable for your application, proceed to section 4 "Installation".

3.1.1 Open the instrument as follows:

a) Unplug the screw-terminal strips from the rear.

b) Push the upper or lower bezel edges outward and remove the bezel (see figure on page 5).

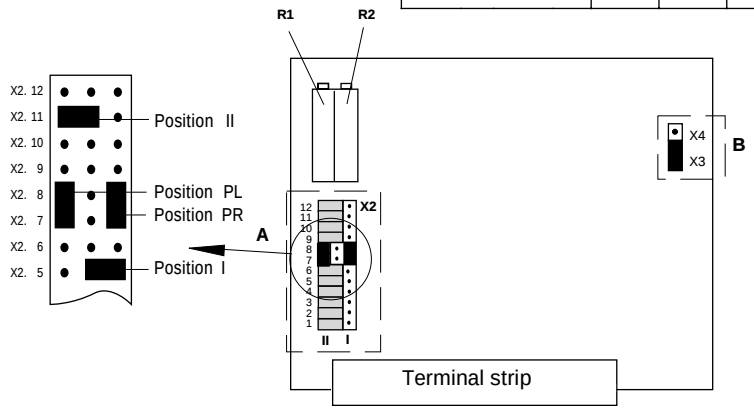
c) Using a small screwdriver, ease the front glass out of the lower recess.

d) Loosen the screw on the bottom of the housing.

e) Slide the instrument forward out of the housing.

Mother pcb with jumper groups A and B

I = jumper plugged in to the right-hand position
II = jumper plugged in to the left-hand position
PL, PR = available parking positions
(no other parking positions are available on the board)



3.1.2 Select the input and display ranges

Desired function	Jumper

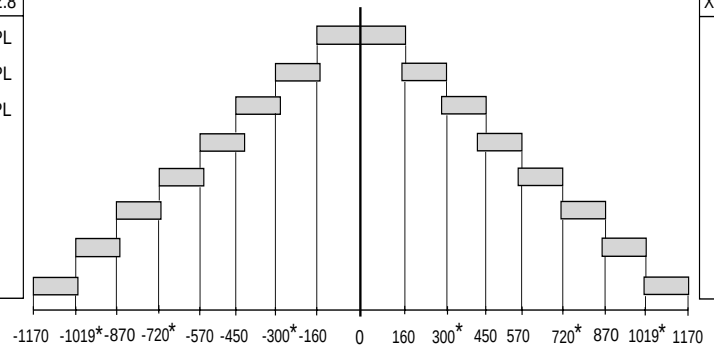
Input signal	Group A				
	X2.1	X2.2	X2.3	X2.4	X2.5
0 ... 5 V	II	II	II	II	II
0 ... 10 V	II	II	II	II	II
0 ... 20 mA	I	I	II	II	II
4 ... 20 mA	I	I	II	I	I

Full scale range in digits	Group A			
	X2.9	X2.10	X2.11	X2.12
0 ... 130	II	II	II	II
125 ... 255	I	II	II	II
250 ... 380	II	I	II	II
375 ... 505	I	I	II	II
500 ... 630	II	II	I	II
625 ... 755	I	II	I	II
750 ... 880	II	I	I	II
875 ... 1005	I	I	I	II
1000 ... 1130	II	II	II	I
1125 ... 1255	I	II	II	I
1250 ... 1380	II	I	II	I
1375 ... 1505	I	I	II	I
1500 ... 1630	II	II	I	I
1625 ... 1755	I	II	I	I
1750 ... 1880	II	I	I	I
1875 ... 2000	I	I	I	I

Initial value (offset range)

Jumpers		
X2.6	X2.7	X2.8
I	PR	PL
II	I	PL
I	I	PL
I	II	I
II	PL	I
I	PL	I
II	I	I
I	I	I

Jumpers		
X2.6	X2.7	X2.8
II	PR	PL
I	II	PR
II	II	PR
II	I	II
I	PR	II
II	PR	II
I	II	II
II	II	II



* With values near -1019, -720, -300, 300, 720, and 1019 the setting range of potentiometer (R1) may not be sufficient to make the fine adjustment. In this event, jumper X2.6 should be plugged into the position that is not occupied (e.g. from X2.6 II to X2.6 I) and the adjustment should be repeated.

Sign	Group B	
	X 3	X 4
permanently set to "-" according to the value measured	- x	x -

x = jumper set
- = no jumper

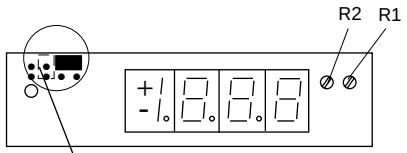
3.1.3 Reassemble the Instrument

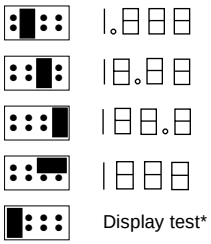
a) Slide the instrument into the housing from the front, with the label on the housing facing up. The signs on the display must be on the left.

b) Replace and tighten the mounting screw.

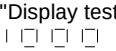
c) Replace the screw-terminal strips.

Jumper position of the front panel for decimal point setting (see para. 3.2)





* Plug the jumper as shown under "Display test" and



will be shown. After the test please put the jumper in the required position.

3.2 Adjusting the display

Required Instruments:

- A precision voltage generator (0...10 V DC)
  OR
- A precision current generator (0/4 ... 20 mA)

are required to perform this adjustment.

CAUTION:

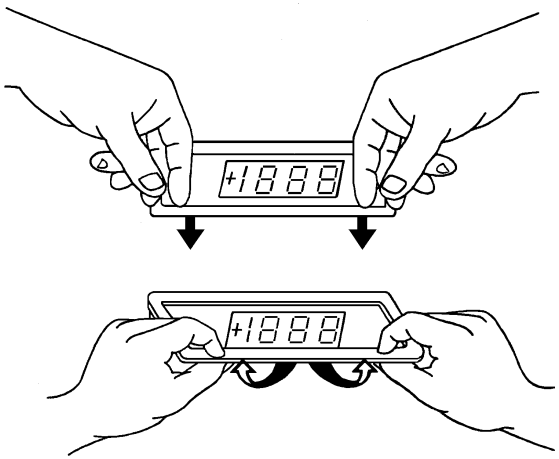
▼ If the instrument has been stored at temperatures below 0°C (32°F) allow it to adjust to normal ambient for 12 hours to ensure the dissipation of condensation.

▼ If the storage temperature has exceeded 50°C (122°F) allow a sufficient cooling time before the power supply is connected.

▼ Check if supply voltage and measuring ranges correspond to the values on the label.

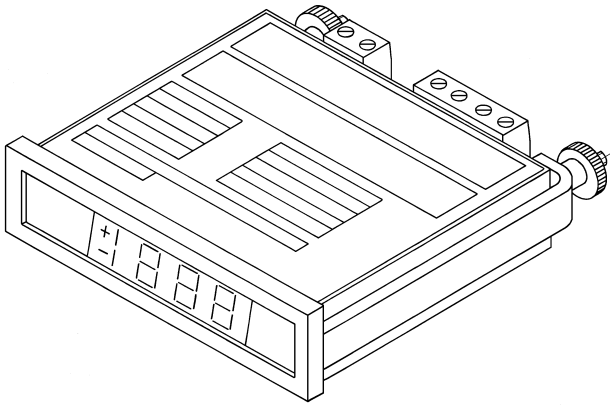
▼ Operate the instrument for a minimum of 15 minutes under normal ambient conditions to allow it to warm up to full display accuracy before proceeding with adjustments.

1. Push the upper or lower bezel edges outward and remove the bezel.
2. Using a small screwdriver, ease the front glass out of the lower recess.
3. Connect the precision voltage generator
   OR
   the precision current generator to the input terminals.
4. Connect the supply voltage.
5. Set the zero point by means of potentiometer (R1).
6. Set the final value by means of potentiometer (R2).
7. Verify the zero point and final value and correct, if necessary.
8. Re-install the front glass and snap on the bezel.



Instructions for Installation and Adjustment

Digital Panel Instrument
96 mm x 24 mm (1/16 DIN case)
Process signals



Supplier/
after-sales
service