MICROBUS
Electronic signs since 1983

Made in sweden

Electronic signs since 1983

Analogue Input
MPS-AN303

3ch Analogue Input Industrial Display

-368

MICROBUS

- [ ] Customized unit.

- [ ] No customization

Notes for customized unit:

This unit can be used as standalone but can also work as a part of a system of different units.
Please note that this manual covers the product series standard functionality mainly as a standalone unit. Any additional customization, hardware or software overrides this manual.

Analogue Inputs:
3ch 10bits AD. 0-20mA / 4-20mA.   (0-10V optional)

Average calculation:
10min, 5min, 1min, 30sec, 10sec, 1.5sec, 0.3sec or direct.

Decals:
Decal with units is free of charge when ordered. For example:
(st, kg, ton, %, °C, pcs)

Measurement range:
The range is normally set from factory with the information given by customer.
The range can be set easily at anytime.
Some standard ranges can be applied directly to fit standard sensor response.

Power supply:
12-24VAC. Microbus power supply provides galvanic separation.

Working temperature:
-40°C – +70°C.   If starting up from minus degrees, please let the unit heat up 15min first before use. A restart can be necessary.

IP-class:
Default IP51.
Higher class can be set from factory on request.

Serial Communication (optional):

This units is capable transmittings values on the RS485 output. This can be analyzed by a PC/PLC or visualized by an extra Microbus Slavedisplay. in for example a two-side configuration.
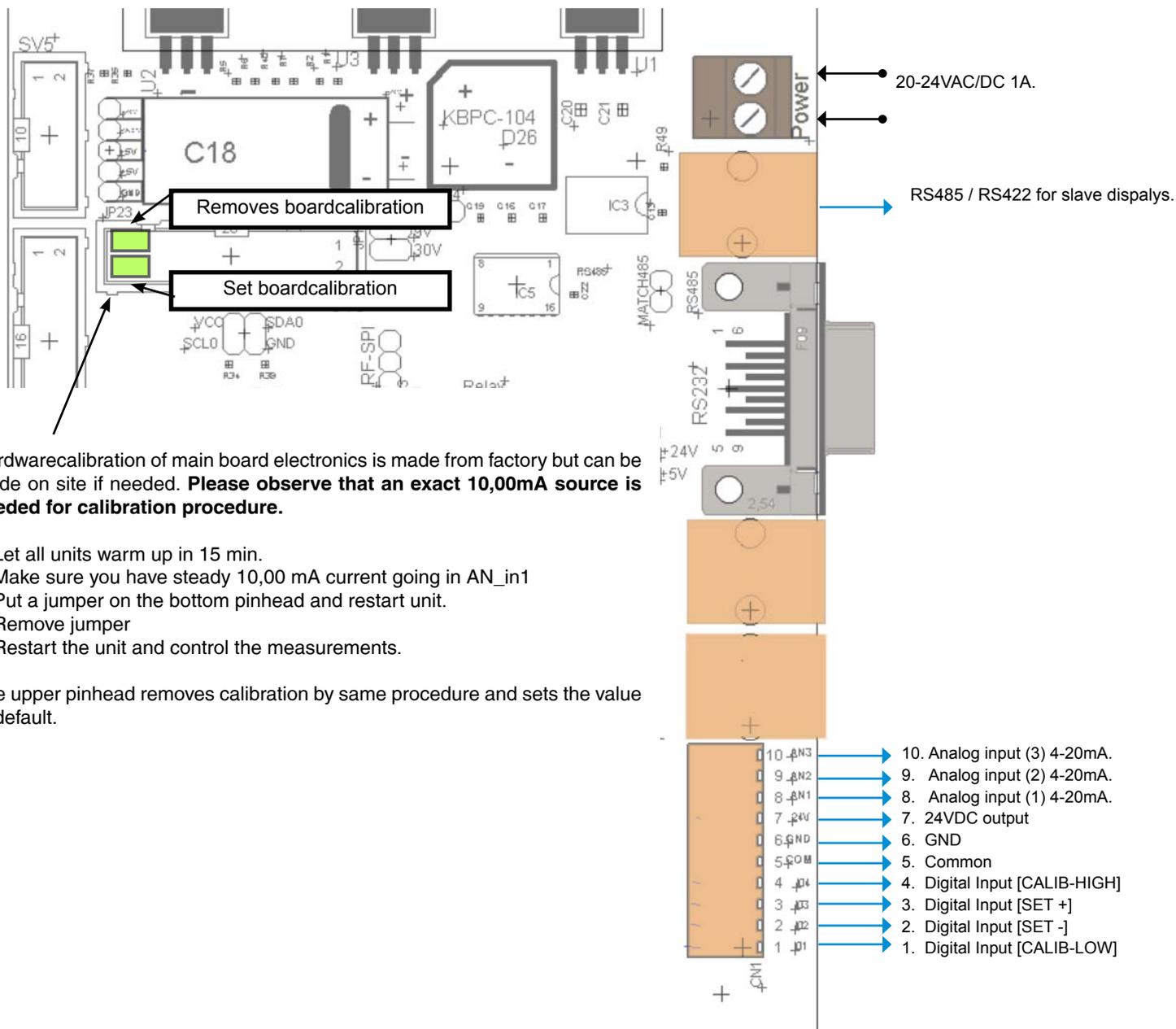
Contact Microbus for information or requests about additional customization or accessories.
Telephone +46 (0) 40 539680

POWER SUPPLY REQUIREMENTS:
12-24V (AC/DC) for character height of 77mm
Minimum 24VAC or 30VDC for character height 230mm. Minimum 30VAC for character height 165mm displays
The minimum and maximum voltage of a unit will vary according to display size and external hardware. To minimize failure use Microbus original power supply.

Any unit deliverd with 8-pin cable preinstalled uses following colours:

8.	Analog Input 4-20mA.	Yellow
7.	Aux power out (24V)	Red
6.	GND	Green
5.	Common	Brown
4.	Digital input [CALIB-HIGH]	White
3.	Digital input [SET +]	Pink
2.	Digital input [SET -]	Grey
1.	Digital input [CALIB-LOW]	Blue

Removes boardcalibration

Set boardcalibration
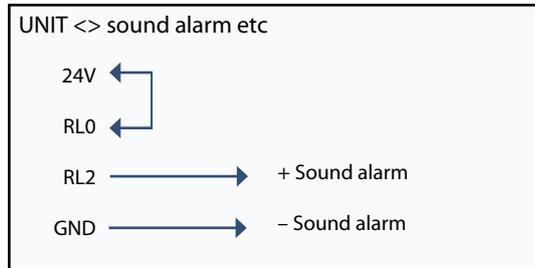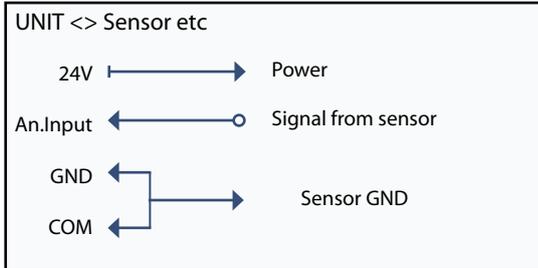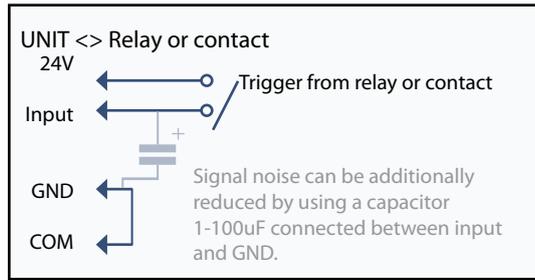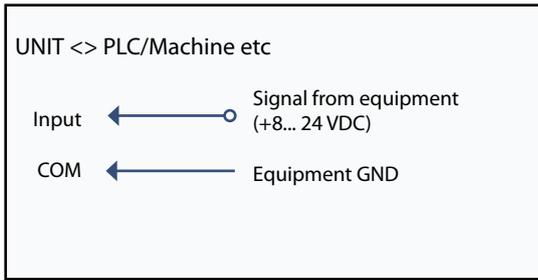
20-24VAC/DC 1A.

RS485 / RS422 for slave dispalys.

Hardwarecalibration of main board electronics is made from factory but can be made on site if needed. **Please observe that an exact 10,00mA source is needed for calibration procedure.**

1. Let all units warm up in 15 min.
2. Make sure you have steady 10,00 mA current going in AN_in1
3. Put a jumper on the bottom pinhead and restart unit.
4. Remove jumper
5. Restart the unit and control the measurements.

The upper pinhead removes calibration by same procedure and sets the value to default.

10. Analog input (3) 4-20mA.
9. Analog input (2) 4-20mA.
8. Analog input (1) 4-20mA.
7. 24VDC output
6. GND
5. Common
4. Digital Input [CALIB-HIGH]
3. Digital Input [SET +]
2. Digital Input [SET -]
1. Digital Input [CALIB-LOW]

INPUTS SCHEMATICS

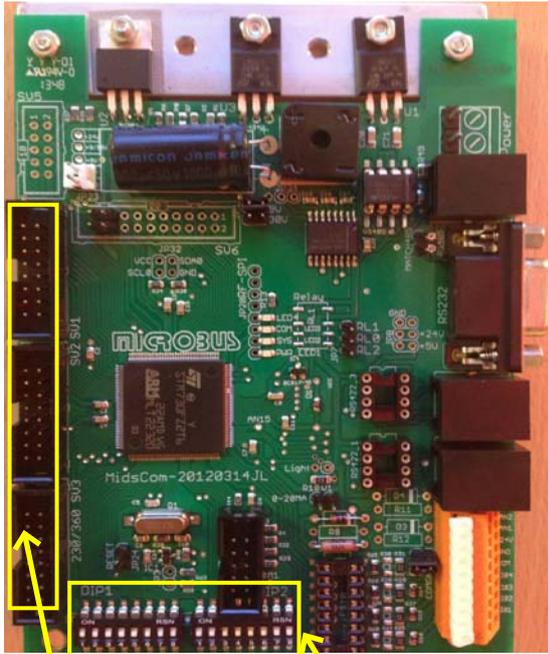## UNIT <> PLC/Machine etc

Input ←———————○ Signal from equipment (+8... 24 VDC)

COM ←——————— Equipment GND

UNIT <> Relay or contact

24V ←———————○ Trigger from relay or contact

Input ←———————○

GND ←———

COM ←———

Signal noise can be additionally reduced by using a capacitor 1-100uF connected between input and GND.

UNIT <> Sensor etc

24V ⊢———————→ Power

An.Input ←——————○ Signal from sensor

GND ←———

COM ←———

Sensor GND

UNIT <> sound alarm etc

24V ←———

RL0 ←———

RL2 ———————→ + Sound alarm

GND ———————→ – Sound alarm

Analogue input - Active loop (4-wire)

- 8. Input 0-20mA
- (7. Ut 24V)
- 6. Input GND
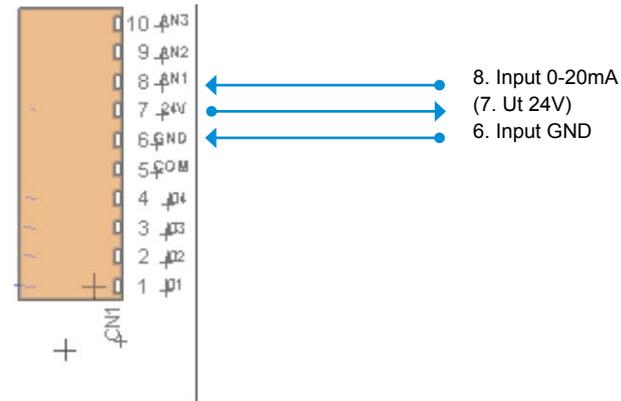
Analogue input - Passive loop (2wire)

- 8. Input 0-20mA Output
- 7. 24V
- 6. GND COM
- 5. COM GND
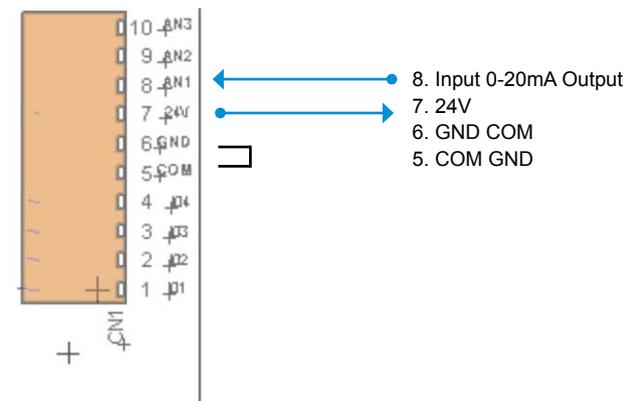
Configuration DIP-switches is located on the mainboard.
A total of 16 switches divided over DIP1 and DIP2.

Most configuration pins will be read when pressing the restartbutton.
However the unit must be restarted to read all of the configuration.

DIP1   DIP1
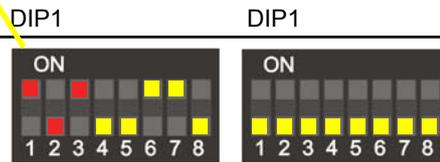
Default settings for this model.
However the settings is often preconfigured according to customer application.

Displaydriver (Normally set from factory)

JP1:Group1 = 4-digit 77/165
JP1:Group2+1 = 8-digit 77/165
JP1:Group3,4 = special combo 5,6,7 digit 77/165
JP2:Group5 = special combo 5,6,7, digit 77/165

JP3:Group1, digit1-8 = 230mm
JP3:Group2, digit1-8 = AlfaNum 77mm
JP3: Group4, LED-BAR

Config: Multiplicator

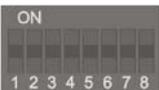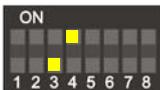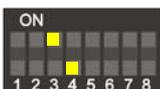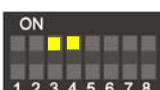DIP-Block 1   DIP-Block 2   :

 x1

 x10

 x100

 /10
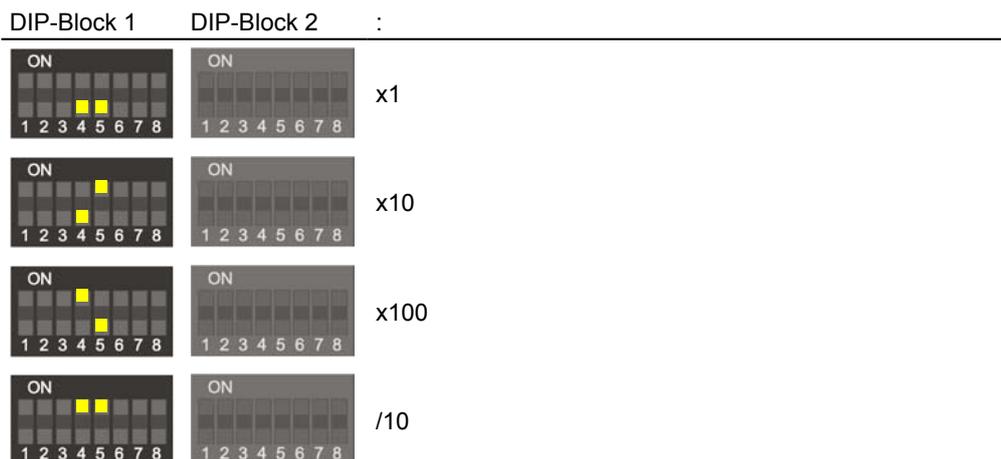
Config: Average calculation / filter

DIP-Block 1   DIP-Block 2
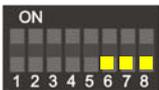
10 min. Slow response. Applicable for outdoor temperature etc.
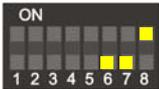
5 min
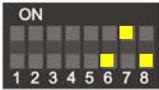
1 min
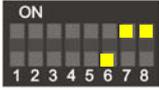
30 sec
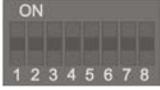
10 sec
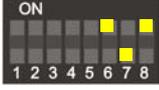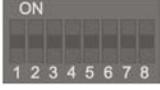
~1 sec (Medium filter)
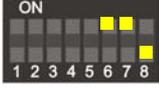
~0,5 sec (fast filter)
Standard setting
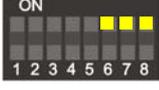
Direct view

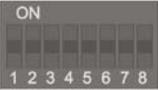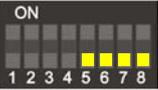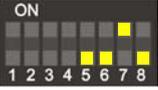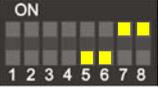# Config: Minimum number of digits

DIP-Block 1   DIP-Block 2
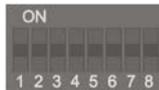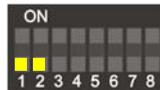
"   1"
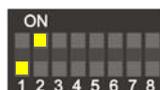
"   0,1"

"   0,01"

"   1*" (with degree sign on matrix displays)

Config: Number of channels

DIP-Block 1   DIP-Block 2
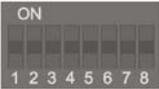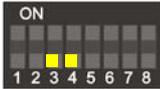
1 channel.
Default

2 channels

3 channels

3 channels

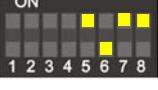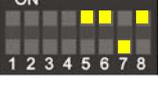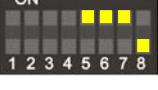| DIP-Block 1	DIP-Block 2	4-20mA	0-20mA / 0-10V
ON 1 2 3 4 5 6 7 8	ON 1 2 3 4 5 6 7 8	-50 till +50	-75 till +50
ON 1 2 3 4 5 6 7 8	ON 1 2 3 4 5 6 7 8	0 till +50 (This should be used for LED-BAR)	-12,5 till +50
ON 1 2 3 4 5 6 7 8	ON 1 2 3 4 5 6 7 8	0 till +100	-25 till +100
ON 1 2 3 4 5 6 7 8	ON 1 2 3 4 5 6 7 8	-10 till +120	-42,5 till +120
ON 1 2 3 4 5 6 7 8	ON 1 2 3 4 5 6 7 8	0 till +160	-40 till +160
ON 1 2 3 4 5 6 7 8	ON 1 2 3 4 5 6 7 8	-35 till +105	-70 till +105
ON 1 2 3 4 5 6 7 8	ON 1 2 3 4 5 6 7 8	-35 till +150	-81,25 till +150
ON 1 2 3 4 5 6 7 8	ON 1 2 3 4 5 6 7 8	-35 till +260	-108,75 till +260
ON 1 2 3 4 5 6 7 8	ON 1 2 3 4 5 6 7 8	-30 till +50	-50 till +50
ON 1 2 3 4 5 6 7 8	ON 1 2 3 4 5 6 7 8	-26 till +70	-50 till +70
ON 1 2 3 4 5 6 7 8	ON 1 2 3 4 5 6 7 8	-20 till +100	-50 till +100
ON 1 2 3 4 5 6 7 8	ON 1 2 3 4 5 6 7 8	+10 till +50	0 till +50
ON 1 2 3 4 5 6 7 8	ON 1 2 3 4 5 6 7 8	+20 till +100	0 till +100
ON 1 2 3 4 5 6 7 8	ON 1 2 3 4 5 6 7 8	-60 till +100	-100 till +100
ON 1 2 3 4 5 6 7 8	ON 1 2 3 4 5 6 7 8	....	Other settings from factory
ON 1 2 3 4 5 6 7 8	ON 1 2 3 4 5 6 7 8	....	Custom range. See next page for setting custom measurement range.
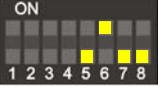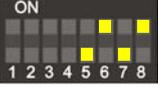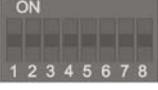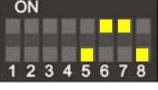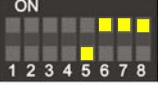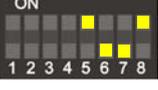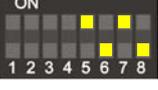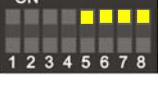
1. Choose the most applicable range on dip 5,6,7,8 to use as template.

2. Press [CALIB-HIGH] *(20mA / 10V)* or [CALIB-LOW] *(4mA, 2V)* to enter setmode
Display starts flashing confirming its setmode-status.

3. Adjust the values with [SET+] och [SET-]. *

4. Change between adjusting lower value (for 4mA) or upper value (for 20mA) by pressing quickly on [CALIB-HIGH] or [CALIB-LOW]

5. Press [CALIB-HIGH] or [CALIB-LOW] to save the values.

6. Set DIP 5,6,7,8 in dipblock2 in on-mode ("Custom range")

7. Restart display. Finished!
Display now uses new settings.

7. Styrspänning
6. GND
5. Common
4. Digital Input [CALIB-HIGH]
3. Digital Input [SET +]
2. Digital Input [SET -]
1. Digital Input [CALIB-LOW]
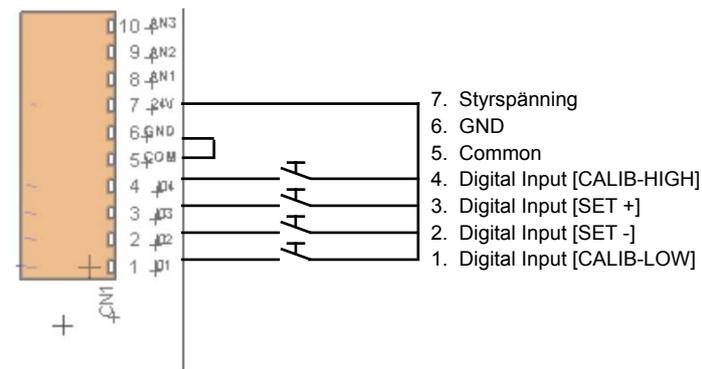
* NOTE. Calculation of lower (4mA) range value if only 0mA (0V) is known:

[20mA-värde] - (([20mA-värde] - [0mA-värde]) x 0,8)

Outdoor sensor serie AGS54
Closed allround outdoor sensor with external sensory.
To be mounted outdoor in the shadow, in freezing storages, etc

MPS-AGS54-TRA1 Range: -50°C till +50°C
MPS-AGS54-TRA2 Range: -10°C till +120°C
MPS-AGS54-TRA3 Range: 0°C till +50°C
MPS-AGS54-TRA4 Range: 0°C till +160°C
MPS-KT-AF25-TRA5 Range: 0°C till +250°C

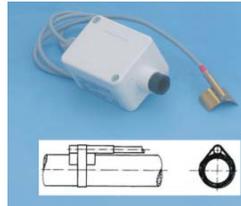**Strap on sensors serie AF25**
With heatplate for mount on pipes etc.

MPS-AF25-TRA1 Range: -50°C till +50°C
MPS-AF25-TRA2 Range: -10°C till +120°C
MPS-AF25-TRA3 Range: 0°C till +50°C
MPS-AF25-TRA4 Range: 0°C till +160°C
MPS-AF25-TRA5 Range: 0°C till +250°C

Cablesensors serie TF25
For measurement of gases or fluids.

MPS-TF25-TRA1 Range: -50°C till +50°C
MPS-TF25-TRA2 Range: -10°C till +120°C
MPS-TF25-TRA3 Range: 0°C till +50°C
MPS-TF25-TRA4 Range: 0°C till +160°C
MPS-TF25-TRA4 Range: 0°C till +250°C

Wireless etc

Other types of sensories are available on request.

Decals and logos.

Please notify when ordering if special logos or decals is needed.

**Logos
&
Decals**

Transformator 24VAC
80-300-11
For 230VAC.

To be mounted on walls etc

Buttonbox
MPS-AN4P
For manual setup of measurement range

Slavedisplays

For connection as doublesided systems or for distance visualisations.

Connection of slavedisplays.
Both TCP/IP and RS485 up to 1000m can be used.

WATERPROOFING ENCLOSURE

If the unit will be used outside or in any other rough environment the enclosure can be changed into IP65 by sealing the front cover glass with silicon or silicon free multiseal.

Sealing the front cover glass in not particularly hard but should be carefully so no leakage will occur. Please note that a unit that has leaked in causing water damage will only be covered by warranty if the sealing was made from factory.
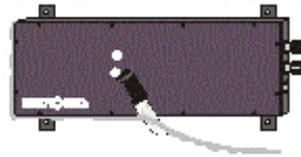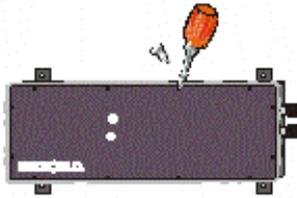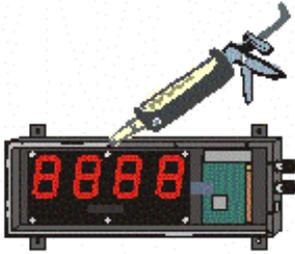
Before sealing the front cover glass please look over all connections, cables and configurations. Also check that all of the LED-diodes is standing straight. Make sure you have all screws and cover glass close by.

Place the display flat on a even surface with the cover glass off.
Put a continous string of silicon on the edge of the displayfront.

When holding the cover make sure you have the gloss-side down and the frosty side up.
Put the cover down as straight as possible.

Screw all screws gently. Some silicon will be spilled out from the display. This is easy to remove when the silicon has dried.