

MEMPRO S6

Hydrostatic level controller



INSTRUCTIONS MANUAL

BAMO MESURES

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SAFETY PRECAUTIONS

- Installation, initial start-up and maintenance may only be performed by trained personnel.
- All applicable European and national regulations regarding installation of electrical equipment must be adhered to.
- The device may only be connected to supply power, which is rated as specified in the technical data.
- The device must be disconnected from all sources of power during installation and maintenance work.
- The device may only be operated under the conditions specified in the operating instructions.

FUNCTIONS DESCRIPTION

The MEMPRO® S6 back pressure sensor functions in accordance with the Pitot-static principle, i.e. current fill-level is derived on the basis of hydrostatic pressure measured in a tube submerged in the liquid.

The device is adapted to tank dimensions on-site in just a matter of seconds by means of an automatic calibration function.

Four limit value-switching points can be assigned to the fill-level range via the setup menu.

All switching points feature adjustable delay time, adjustable hysteresis and selectable NC/NO function.

The MEMPRO S6 should be connected to an optionally available vent for tank contents with widely varying temperatures, or for adhesive or out gassing media. Clock generator control is integrated into the measuring electronics.

TECHNICAL FEATURES

Power supply:	24 V DC (20 to 30 V DC is possible)
Connected load:	Approx. 2 VA
Ambient temperature:	-20 to +60° C
Output relays:	3+1 floating limit value contacts 3 with common root 1 floating contact can be selected as a limit value contact, or as a clock generator output (<i>can be switched back and forth between NC and NO function</i>).
Switching capacity:	250 V AC, 2.0 A / 30 V DC, 1.0 A Caution, Contacts are not protected against overload – use external protective device!
Terminal housing:	PBT, fibre-glass reinforced, IP 65 per EN 60 529
Terminals:	Screw terminals, max. 1.5 mm ²
Measuring cell:	Ceramic diaphragm, with EPDM-sealing
Measuring accuracy:	0.5% ± 0.5 digits
Display resolution:	1%
Reset hysteresis:	Adjustable from 0 to 99%
Indicators:	2 digit of 7 segments LED display, 4 LED = relays status
Settings:	Rotary switch and pushbutton
CE Mark:	In accordance with low-voltage directive (73/23/ECC), EMC directive (89/336/ECC)

MAINTENANCE

The MEMPRO® S6 backpressure sensor is maintenance-free if used for its intended purpose. If used in highly adhesive liquids (e.g. calcium suspensions), the measuring tube or hose must be inspected at regular intervals and cleaned if necessary.

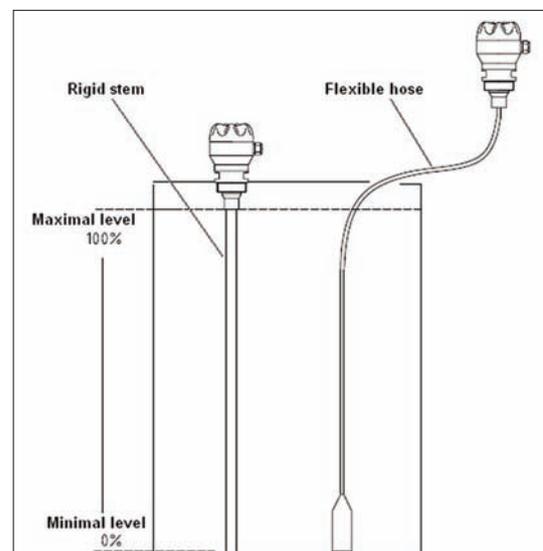
MECHANICAL INSTALLATION

The MEMPRO® S6 backpressure sensor can be attached to containers and tanks in two different ways:

- With the measuring tube immersed into the tank from above.
- With the measuring hose immersed into the tank from above, and with the transducer mounted in close proximity to the tank.

Please observe the following points:

- The bottom end of the measuring tube or measuring hose corresponds to the 0% fill-level measuring point.
- The measuring tube may not make contact with the floor of the tank, nor may it be immersed into bottom sludge.



Controls

± Rotary switch: The desired relay (1 through 4), is selected in menu level 1. The desired values are selected in menu levels 2 through 6.
Pushbutton: For selecting the submenus

Output Relays A1 through A4

LED lights up = relay pulled in = contact closed

Limit Value Switching Points

Setting range: 0 to 100% Relative to the selected 100% fill-level
Default settings: A1 = 80%, A2 = 60%, A3 = 40%, A4* = 20%

Delay Time

Adjustable from 0.1 to 10 seconds

After the selected limit value is violated, delay time is allowed to elapse and the relay is then switched.

Default setting: 0.1 seconds

Hysteresis

Setting range: 0 to 99%

The output relay is not switched back until the measured value is fallen short of by the selected percentage value.

Default setting: 1%

NC-NO Selection

NO = normally open = contact is open as long as the actual fill-level is less than the selected limit value.

NC = normally closed = contact is closed as long as the actual fill-level is less than the selected limit value.

Default setting: NO

Note: All relays are open in the event of power failure.

Over ranging Display

Measuring signal > mA max. value __ digital display = __

Measuring signal < mA min. value __ digital display = uu

Clock Generator (* for air supply control)

The aerator hose could be connected to the connection with is under the silver label.

The hose connection is suitable for a PVC-hose Ø 4x1 mm.

Purge air pressure should not exceed a level of 2.5 bar.



Aerator connection

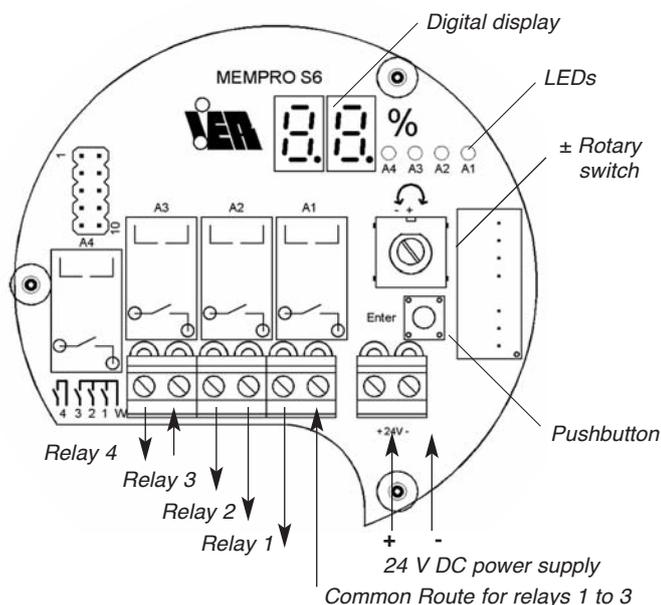
The clock controls are integrated into the electronics, and relay 4 is used to connect, for example, a solenoid valve.

Setting the clock generator: Set pump-time (on-time) such that air bubbles are discharged from the bottom end of the measuring tube for 3 to 5 seconds (depending upon the length of the measuring tube and the air supply tube) during each pumping operation)

Off-time: In the case of liquids, which may plug the tube with sediment, pumping should be activated as required. Measured value drift is reduced by means of frequent pumping if the liquid is subject to temperature fluctuations. Pumping for duration of approximately 30 seconds once or twice a day is adequate for most applications. The clock generator is switched on as soon as on and off-time is set to a value of greater than 0.

Setting values for limit value relay A4 are rendered inactive as a result.

WIRING



On-Time

The contact at relay 4 remains closed as long as the selected on-time has not yet elapsed. Setting range: 1 second to 24 hours Available setting values: 0*, 1, 2, 5, 10, 30 s = no decimal point is illuminated 1, 2, 5, 10, 30 min. = the right decimal point is illuminated 1, 2, 3, 6, 12, 24 hours = the left decimal point is illuminated

Default setting: 0

Off-Time

The contact at relay 4 remains open as long as the selected off-time has not yet elapsed.
Setting values same as above. Default setting: 0

Note: After power failure, the device is rebooted and the program starts with on-time.
If on or off-time is changed during operation, the new on or off-time becomes immediately effective.

Initial Start-Up

Automatic setting of the 100% fill-level:

This 100% level can be adapted to on-site conditions with the help of the setup menu.

1) Install the MEMPRO S6 to the tank.

The measuring tube may not make contact with the floor of the tank, nor may it be immersed into bottom sludge!

2) Fill the tank to a level of between 50 and 100% (it is better to fill the tank to the 100% level).

3) Switch supply power on.

4) Wait approximately 10 seconds until the device is ready for operation.

5) Press and hold the pushbutton for 3 seconds until the digital display starts blinking.

6) Select the actual fill-level percentage with the \pm rotary switch.

7) Press the pushbutton once again, or wait for 10 seconds until the digital display stops blinking.

The device calculates the 100% fill-level and save it to memory.

Caution: The measuring tube or hose may not be shortened indiscriminately! It may not be any shorter than 20% of the maximum measuring range.

Model	Scale	Minimal hose/stem length
1	1000 mm WC	200 mm
2	2500 mm WC	500 mm
4	4000 mm WC	800 mm

Measuring cell type: see serial plate

EXAMPLE:



MEMPRO S6 R 1 2 X L = 1800 mm

Setting Limit Value Switching Points A1 through A4

- 1) Press the pushbutton once until A1 is displayed. LED A1 blinks.
- 2) Press the pushbutton once again.
- 3) Set limit value switching point 1 with the rotary switch (0 to 100%, default setting 80%).
- 4) Press the pushbutton once again.
- 5) Set delay time.
- 6) Press the pushbutton once again.
- 7) Set hysteresis.
- 8) Press the pushbutton once again.
- 9) Select NC or NO function.
- 10) Press the pushbutton once again.
- 11) Return to menu level 1.

All other values can be selected and adjusted in the same way (see "Setup Menu" graphic).

Limit value switching points A1 through A4 and the clock generator are selected in menu level 1 (press the pushbutton once) with the \pm rotary switch. If none of the controls are activated for more than approximately 10 seconds, the display is returned to the current fill-level and the setting values are saved to memory.

Reset to Default Settings

Switch supply power on.

Within 3 seconds (i.e. during the test routine), press and hold the pushbutton for approximately 5 seconds:

The display counts up: 1, 2, 3, 4 ... 99, St...

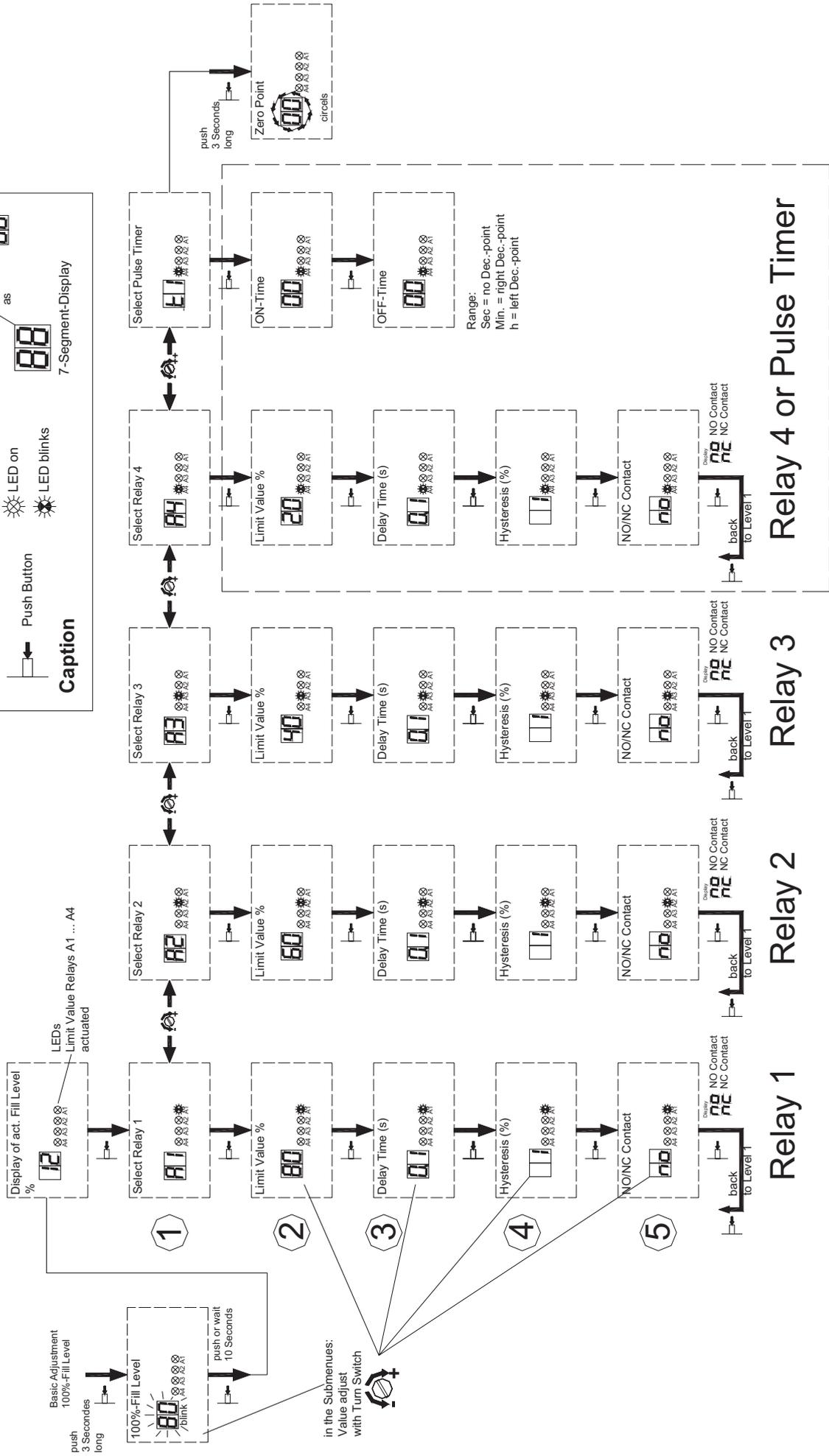
All settings are returned to their default values.

Note: The pressure sensor's zero point must be set first after a reset. Remove the MEMPRO S6 or empty the tank entirely. Press and hold the pushbutton for approximately 3 seconds while in menu "t1" until the LED display "rotates".

Turn Switch
 Push Button
Caption

LED off
 LED on
 LED blinks

Note: the 100%-Value is displayed as as
 7-Segment-Display



Basic Adjustment
 100%-Fill Level
 push 3 Seconds long

100%-Fill Level
 push or wait 10 Seconds

in the Submenues:
 Value adjust
 with Turn Switch