Technical data

Power supply:	**24VAC/DC switching**
Power consumption:	2VA / 1,8W max
Pressure range:	0-1000 mmH_2O (0-9,807KPa) 0-5000 mmH_2O (0-49,033KPa)
Accuracy:	0,5% f.s.
Analogue output:	0/4-20mA or 0/2-10V
Output impedance:	Max 750Ω (mA) or Min 1KΩ (V)
Relay output:	2 SPDT relays
Mechanical life:	min. 10^7 cycles
Electrical life:	N.O. @ 3A 250VAC : $5x10^4$ N.C. @ 2A 250VAC : $2x10^5$
Contact rating:	3A @ 30 VDC (resistive load) 3A @ 250 VAC (resistive load)
Programming:	2 push buttons
Protection:	IP20
Storage temperature:	from –30 to +80°C
Working temperature:	from –20 to +60°C
Relative humidity:	from 0 to 85%, no condensate
Installation:	35 mm DIN rail
Electrical connection:	Removable terminal board
Dimensions:	90(H) x 35(L) x 60(P) mm

CE mark according to *Directive 89/336/CEE,* complies with the following harmonised regulations: *EN50081-1*, *EN 50082-2*, *EN55022*, *EN61000-4-2*, *EN61000-4-3*, *EN61000-4-4*, *EN61000-4-5*, *EN61000-4-6*, *EN61000-4-11* and *Low Voltage Directive 73/23/CEE* and subsequent modifications.

Warranty

The warranty is valid for 12 months from purchase, and expires if instrument is improperly used or not correctly installed on system.

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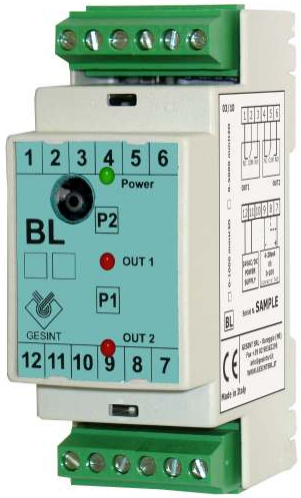
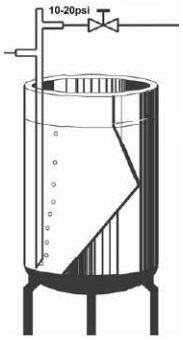
BL

Hydrostatic head level transmitter for liquids



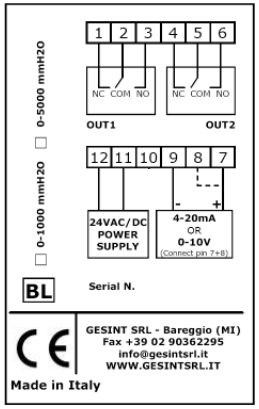
BL device, combined with our APS probe, is a level transmitter for liquids in open tanks. The APS probe is made with a Ø16mm pipe, open at the bottom end, with 2 pneumatic connections at the top. One connection goes to the BL transmitter and the other to an air flow regulator that keeps the input air pressure constant. The input pressure to the transmitter is converted in a 4-20mA or 0-10V signal representing the level of the liquid in the tank. The transmitter is supplied with 2 independent relay thresholds that can be adjusted using the onboard programming buttons.

Installation



Immerse the APS probe into the liquid, until it reaches a level quote equal or lower to the minimum level to be measured. Connect, using a 4x6mm pipe for compressed air, the flow regulator on the top to a pressure reducer so that input air has a pressure between 10 and 20psi, based on the length of the probe and specific weight of the liquid. The input air speed up and optimize the level probing and become a physical barrier between the liquid and the transmitter, protecting it from high temperature or steams. It is recommended to use a dedicated air supply pipe for every APS probe. Then connect, with another 4x6mm pipe, the second pneumatic connection of the APS probe to the front input of the BL transmitter.
It is recommended to install the transmitter higher than the maximum measured level and as near as possible to the probe. Set the level of the liquid to the maximum and adjust the screw on the flow regulator in order to obtain a continuous and regular air bubbling from the lower end of the APS probe. To avoid measure errors do not install the probe near the connection of suction pumps and, if a mixer is used, it is possible to reduce the turbulence protecting the lower end of the probe with an external pipe.

Electrical connections



The transmitter must be power supplied with 24Vac/dc.

It is recommended to use a connection cable of at least 0,5mmq section and a maximum length of 100mt. Connection cables must have separate run from power cables.

It is recommended to check the maximum load, if used with current output, or the minimum load, if used with voltage output.

In order to use voltage output (0-10V) pin 7 and 8 must be connected together.

LED signalling

GREEN LED (Power):

- ON: transmitter is powered and working
- Fast blinking: programming mode
- Slow blinking: empty or invalid data in eeprom, transmitter need to be calibrated (both output and level)

RED LED (Out1 - Out2):

- ON: active level threshold
- Blinking: programming mode

0-100% level calibration

In order to access the 2 programming buttons, remove the front cover of the transmitter. Then connect a reference multimeter to the analogue output pins.

1) Press **P1** button for at least 3 seconds, until **GREEN** led start blinking, and **RED** leds blink alternatively.
2) Set fluid level at minimum and wait until value on multimeter is stabilized. Then press and release **P1** button.
3) Now only one of the two **RED** leds is blinking. Set fluid level at maximum and wait until value on multimeter is stabilized. Then press and release **P2** button.
4) **RED** leds are now blinking together. Press both **P1** and **P2** and release them so that transmitter writes in memory the data acquired.

It is possible to acquire only of the two level settings, by pressing **P1** button for minimum level or **P2** button for maximum level and then confirm by pressing both **P1** and **P2**.

For better performance, it is recommended to avoid calibration where the difference between minimum and maximum level is lower than 1/3 of transmitter range span.

Threshold calibration

In order to access the 2 programming buttons, remove the front cover of the transmitter. Then connect a reference multimeter to the analogue output pins.

1) Press **P2** button for at least 3 seconds, until **GREEN** led start blinking, and **RED** leds blink alternatively.
2) Set fluid at the desired level and wait until value on multimeter is stabilized. Then press and release **P2** for first threshold (*OUT1*) or **P1** for second threshold (*OUT2*).
3) Repeat step 2) if you need to acquire the other threshold. Please note that now is blinking the **RED** led corresponding to the threshold that is not acquired yet.
4) To store threshold(s) acquired press and release both **P1** and **P2**.

Is it possible to disable thresholds on the transmitter by executing only step 1) and 4).

4-20mA or 0-10V output calibration

During manufacturing and factory testing, the transmitter is calibrated for 4-20mA or 0-10V output using precise instruments. This calibration should be executed only if a different output type or range is needed.

In order to access the 2 programming buttons, remove the front cover of the transmitter. Then connect a reference multimeter to the analogue output pins.

During this calibration phase, relays output will be activated for diagnostic purpose. It is recommended to disconnect upper terminal board.

1) While transmitter is powered off, keep pressed both **P1** and **P2** buttons and then power on.
2) Keep both buttons pressed for at least 3 seconds, until **GREEN** led start blinking: now it's possible to release them.
3) **OUT2 RED** led is now on, indicating the output calibration corresponding to the minimum level.
4) Press **P2** for increase and **P1** for decrease the output value, until you read on multimeter the needed value (ex. 0,0Vdc or 4,0mA).
5) Now press both **P1** and **P2** and release them.
6) **OUT1 RED** led is now on, indicating the output calibration corresponding to the maximum level.
7) Press **P2** for increase and **P1** for decrease the output value, until you read on multimeter the needed value (ex. 10,0Vdc or 20,0mA).
8) Now press both **P1** and **P2** and release them.
9) Both **RED** led remain on for a few seconds while data are stored in the transmitter.
10) Transmitter reset itself and start working.