BAMOBUL

Air bubbling level transmitter

INSTRUCTIONS MANUAL

BAMO MESURES
22, Rue de la Voie des Bans - Z.I. de la Gare - 95100 ARGENTEUIL
Tél : (+33) 01 30 25 83 20 - Web : www.bamo.fr
Fax : (+33) 01 34 10 16 05 - E-mail : info@bamo.fr

Air bubbling level transmitter
BAMOBUL
07-01-2009 758 M1 02 A

DEB
758-02/1

1. TECHNICAL FEATURES

Level transmitter

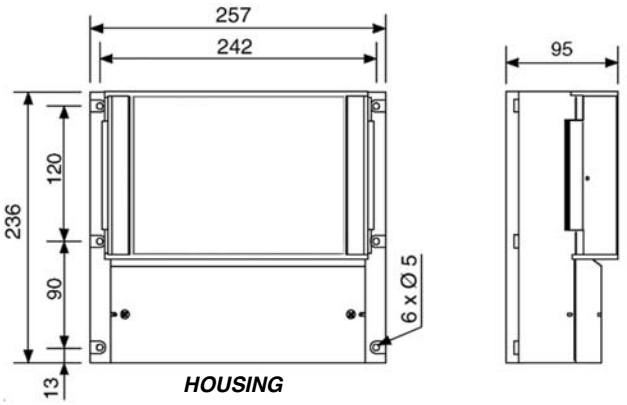
Scales:	0...30 / 0...50 / 0...100 / 0...300 / 0...500 mm WC *(others on request)* Please specify the desired scale when ordering
Temperature limits	0…50°C
Accuracy:	± 1% full scale
Response time:	<10 ms

Air generation

Flow rate:	Approximately 250 L/h (free outlet)
Maximal pressure:	200 mbar (approximately 2000 mm WC)
Pump body:	ABS
Air flow adjustment:	From 0 to maximal flow, regulated for a constant flow rate
Power supply:	230V – 50/60 Hz – 8 VA

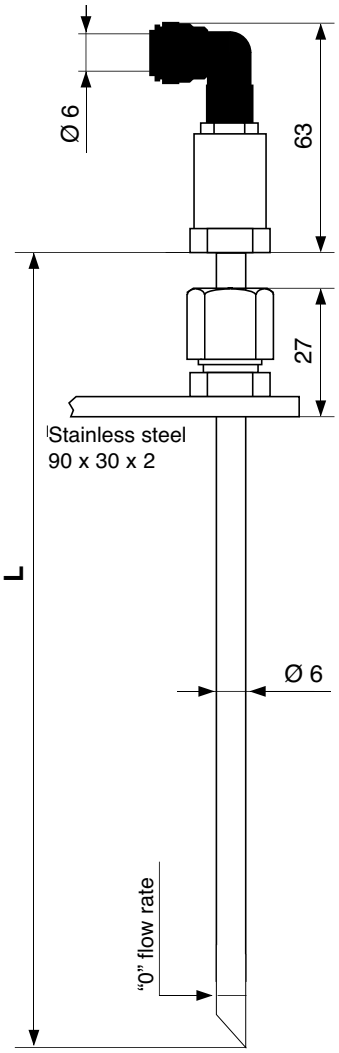
Transmitter

Adjustment:	Level 0 by push button
Default detection:	Tube breaking or chocked outlet 1 Volt free change over contact output, switching power 230V / 5A
Output:	4-20mA (power supply included) / max 600 Ohm / limit 23 mA
Presentation:	Wall mounting, IP55
Dimensions:	257 x 236 x 95 mm



HOUSING

AIR BUBBLING STEM



Bubbling air stem

Material:	Stainless steel 316L, PPh *(others on request)*
Process connection:	BSP 1/2" with counter nut
Height adjustment:	sliding connector with gland
Height:	According to each scale
Air tubing:	RILSAN tube 6 x 4 mm

The BAMOBUL must be connected to the air bubbling stem immersed in the liquid.

2. CAUTION

- The BAMOBUL must be installed on a stable, vibration free holder, with ambient T° between 0 and 50°C out of direct sun shining.
- Wiring, on screw terminal, must be done by a specialist.
- Any damage due to an error will cancel the warranty.
- Before to start it up, verify if wiring is correct and check the pneumatic connections between BAMOBUL and air bubbling stem.

3. DESCRIPTION

BAMOBUL is designed for Venturi channel water level measurement up to 500 mm.
This instrument is well known for its reliability and the accuracy of signal output even whit particles in the fluid or foam over the surface.
An air pump generator creates an adjustable pressure against the water column. This pressure difference from the atmospheric pressure is directly proportional to the water height.
The 4-20 mA is then useful for a calculator with a passive input.

5. BAMOBUL AND AIR BUBBLING STEM SETTING

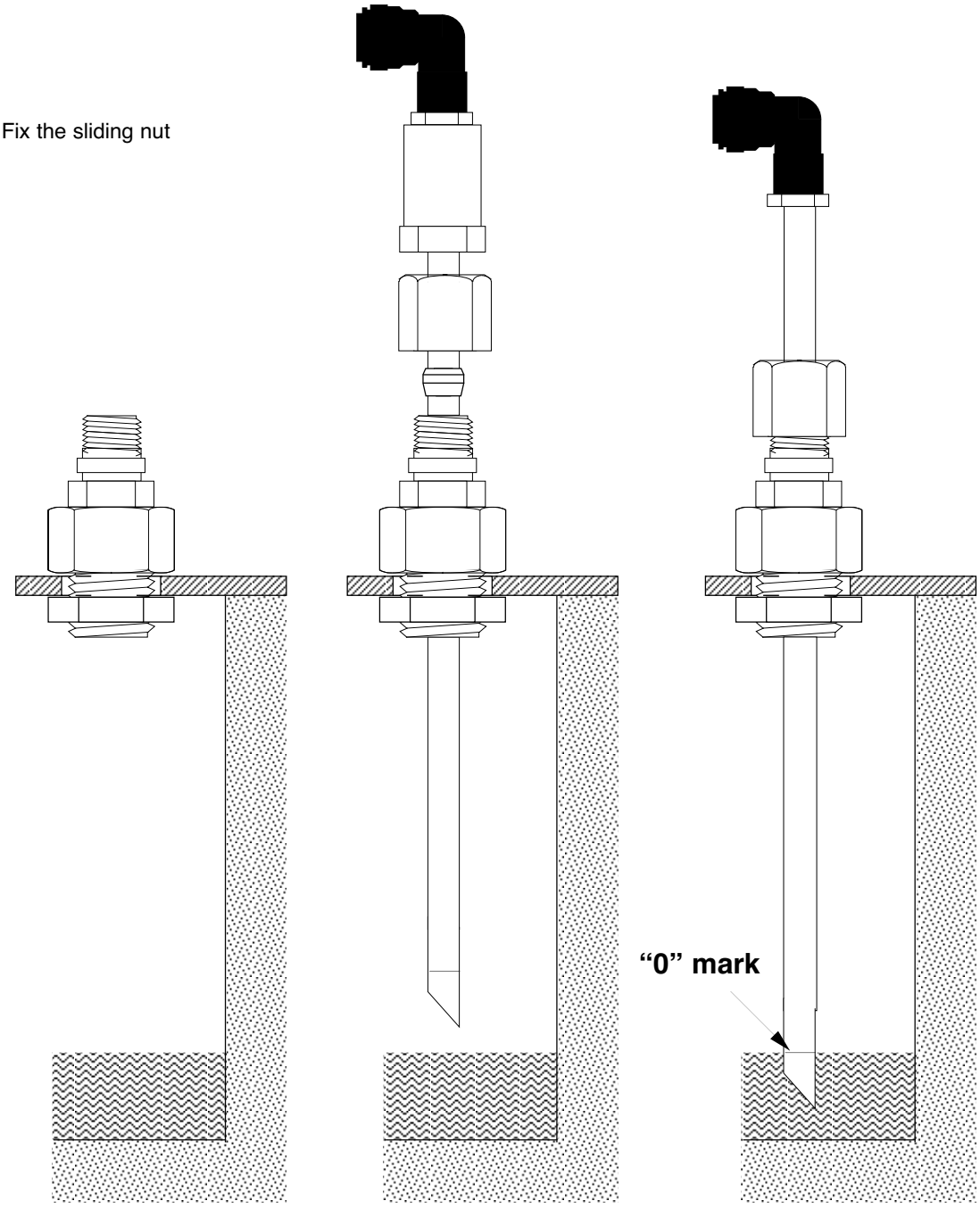
The BAMOBUL must be set on wall support as indicated on drawing. The stand must be vibrations free and not exposed to direct sun shining, with a maximal temperature of 50°C.
The tubing and cables must not be tensed or bent.
With a Venturi channel, the air bubbling stem is inserted in the sided measurement well. A special care is necessary to avoid any vibration of the stem due to the flowing liquid.
The stem should always be immersed in the liquid.

When the flow rate is 0, the stem is immersed until the mark "0" reaches the liquid surface:

Fix the sliding nut

Pass the stem through the nut, the ring and the sliding support

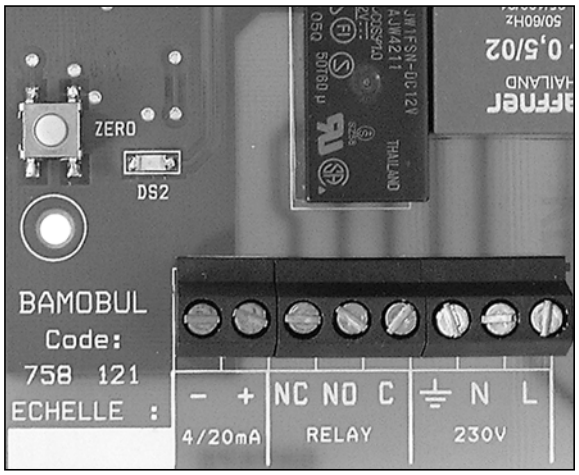
Lock the nut to crimp the ring to avoid any rotation.



The height of level "0 flow rate" is always the same, repositioning after cleaning is then easy.

6. WIRING

By unscrewing the lower cover, you have access to the screw terminals.



6.1 Power supply

Standard power supply is 230 V – 50/60 Hz – consumption 7 VA.
This is specified on the electronic board, please check.

6.2 Analogical output

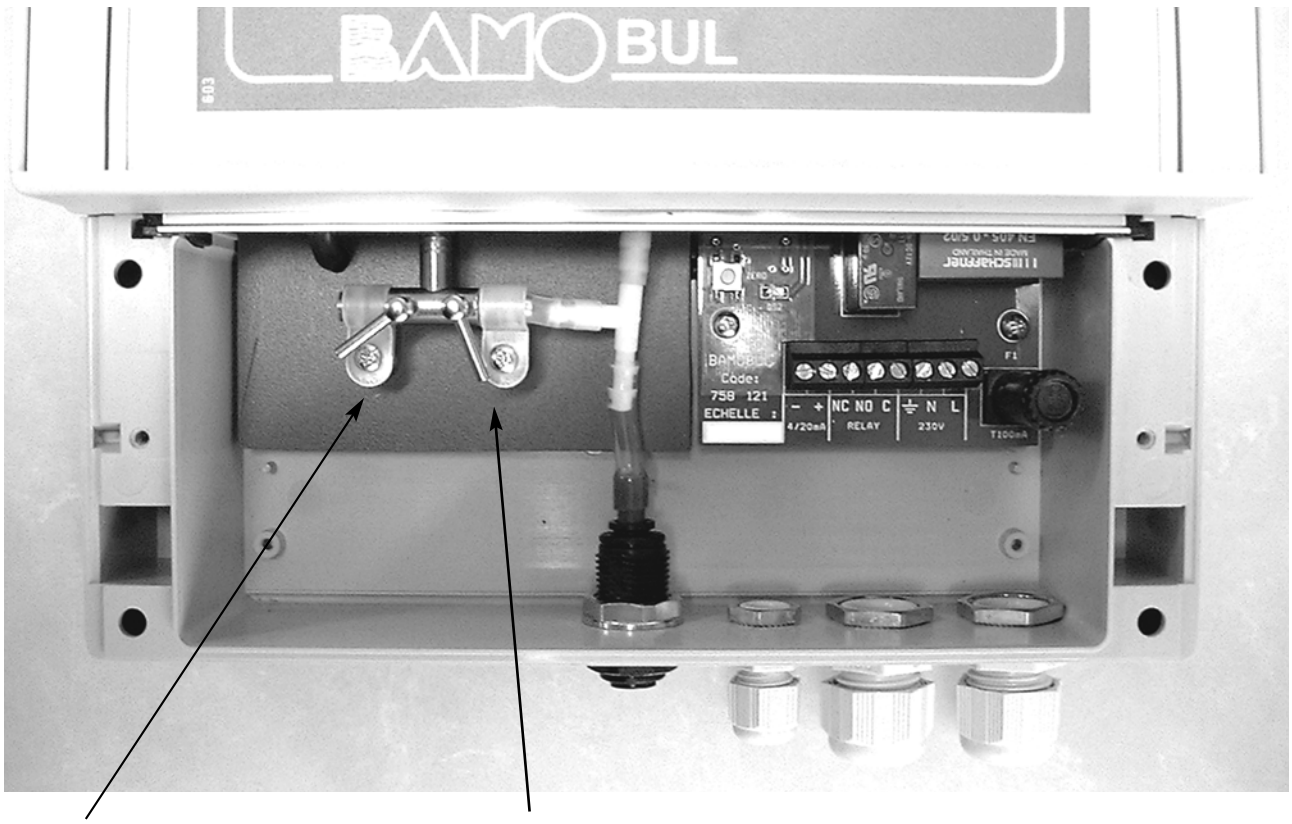
A dysfunction alarm relay is operated when the stem is chocked (dirt, signal > 20 mA), for a lack of airflow (open air circuit, breaking tube, signal >4 mA). This relay is factory calibrated and cannot be modify by the user.

6.3 Relay output

A dysfunction alarm relay is operated when the stem is chocked (dirt, signal > 20 mA), for a lack of airflow (open air circuit, breaking tube, signal >4 mA). This relay is factory calibrated and cannot be modify by the user.

7. PNEUMATIC CONNECTION

- Connection between the BAMOBUL and the air bubbling stem is a 6 x 4 mm RILSAN tube. Insert the tube in the BAMOBUL and the stem connectors. Take care not to pierce or bend the tube.
- The tube should be installed to avoid elbows and tapping condensate.
- On this outlet connection type, tube must be perfectly cut and with a straight length of several centimetres to keep a good air tightness.



8. CALIBRATIONS

This instrument is factory calibrated, however it is possible to modify it; proceed as follow.

8-1 Air flow adjustment

Removing the protection cover, you access to two needle valves on air circuit.
The first one is to adjust the bubbling flow rate, and the second one is to adjust compensation with exhausting air.

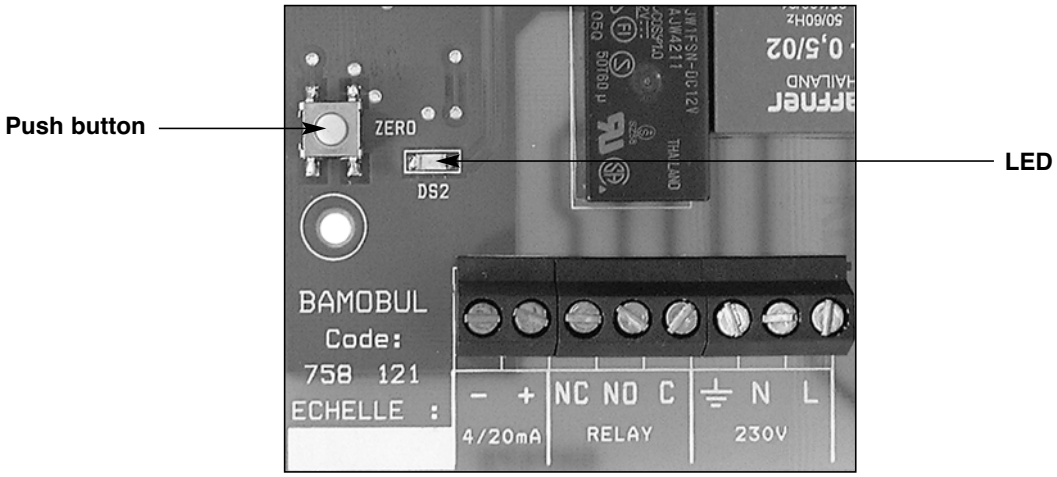
Adjust the exhausted flow until you get bubbles with the full scale. Then adjust the bubbles quantity with the bubbling flow rate valve.
The bubble frequency must be close to two bubbles per second.
This calibration can be done at the “0” point or at the full scale.

When the liquids are highly polluted with particles, it is possible to raise the airflow in order to avoid too frequent tapping and cleaning operation.

8-2 Analogical output adjustment

BAMOBUL is delivered calibrated depending of the Venturi in use (or Weir plate). It might be necessary to re-adjust the “0” hydrostatic level (4 mA), so proceed as follow.

When the water level corresponds to a flow rate of “0”, press the push button until the LED *(DS2)* is lighting *(Green).*



9. CLEANING

It is better to use the dysfunction relay to detect and clear air problems.

Air bubbling stem must be clean regularly to avoid measurement errors. You may determine the frequency necessary for cleaning the stem.