TURBISENS

Turbidity transmitter, Immersion Probe

According to ISO 7027

INSTRUCTION MANUAL

BAMO MESURES
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Turbidity transmitter,
Immersion Probe
TURBISENS
443 M1 01 B 04-03-2009

MES
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FUNCTIONS – DESCRIPTION

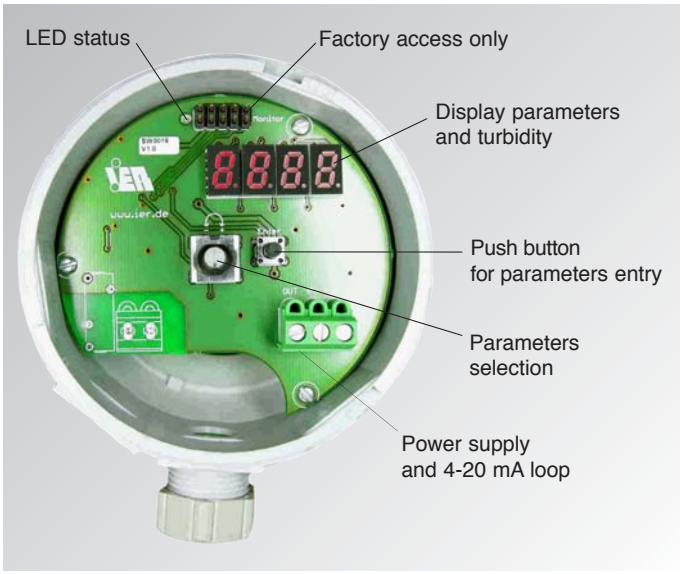
The turbidity-measuring device determines the turbidity of liquids using the light absorption and scattered light measuring method. The immersion probe includes two IR transmitters and one IR receiver in pulsating light mode (IR measuring method according ISO 7027). The interconnected BAMOPHOX TUR measuring amplifier (option) analyses the 4 to 20 mA signal generated by the sensor set. An automatic compensation is assured on external light and colour.

MOUNTING : The fixture must be installed vertically using the supplied bracket in order to let a free space from the tank or channel floor of 10 cm as a minimum. The cable sensor is connected with an IP67 protected connector.

RANGE SET UP

- Connect the power supply, at this moment the initializing sequence runs until the green LED blinks.
- Press the push button. Display: ***"OUT"***
- Press the push button once more. Display: **"range values"** (end of scales).
- Choose the right range with the selector.
- The instrument after 5 seconds saves your selected range and returns back to measuring mode.

See fig.1: Configuration menu



Switching the power on:

The initializing sequence begins.
The display indicates the software version.

Within 3 seconds:

The green LED blinks flashing: measuring mode is operating, the display indicates the measured turbidity value.

Compensation:

Colour compensation can be selected only for 0...50 and 0...100 FNU.

Status indicators:

Blinking green LED:	All in operation, measurement mode
OFF green LED:	Faulty power supply
ON red LED:	Dysfunction on 4-20 mA output

Error indications on the display:

"SUN"	too much external light
"dIrt"	dirty glass windows

Dysfunction diagnostics:

- No entry on colour compensation: this function is available only for two ranges 0...50 and 0...100 FNU.
  Choose an appropriate range to check this function.
- **No choice of range over 100 FNU: the colour compensation is working and does not allow any range over 0...100 FNU.**
  Set off the colour compensation and set up the right range.

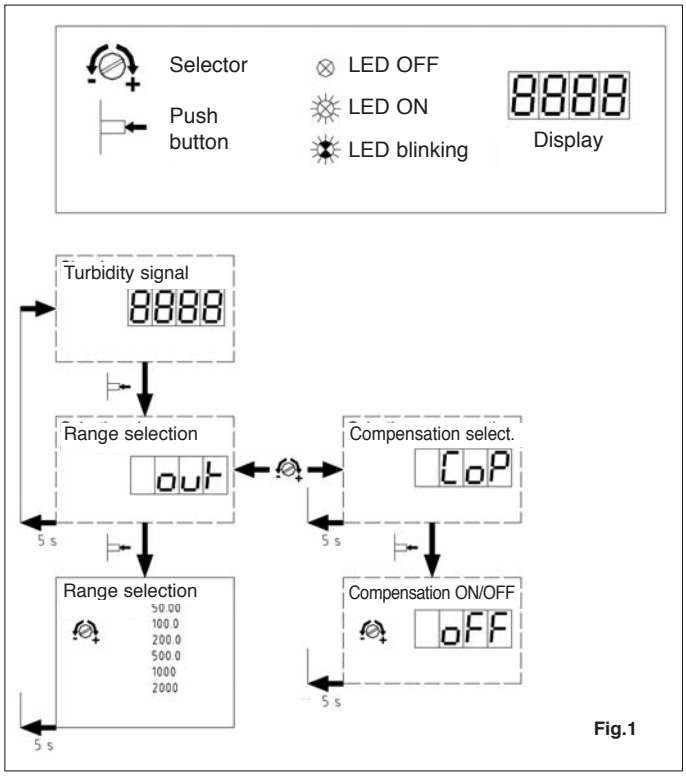
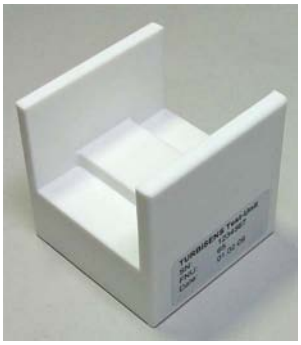


Fig.1

CALIBRATION KIT

The calibration kit allows the end-user to check the deviation between readings and a fixed known value of turbidity.



Factory Calibration

The sensor is already calibrated in factory and do not need to be calibrated on site.

Test of the instrument performance

If a monitoring of the drift is part of the quality policy, the calibration can be checked easily with the calibration kit.

A suitable test-unit can be delivered with each TURBISENS

The **TURBISENS** and the **calibration kit must have the same serial number**

Calibration test:

- With the sensor close to the transmitter and protected from rain and sun.
- Clean the 3 beam windows and wipe them dry
  !!! Do not use abrasive duster or rag paper !!!
- ***Before to begin be sure that all water droplets and water film are removed***
- **Choose the 200,0 FNU measuring range**
- Mount the test-unit onto the sensor as shown in the pictures
  (no preferred direction is needed)

- Wait approx. 10 – 15 sec.
- Compare the FNU-value on the Identification plate of the calibration kit and the value on the display.
- The drift is = identification Plate value / displayed value:

Less than 15% ⟶ measuring instrument is **OK**

More than 15 % ⟶ **the sensor should be adjusted by BAMO IER.**

TURBISENS Test-Unit

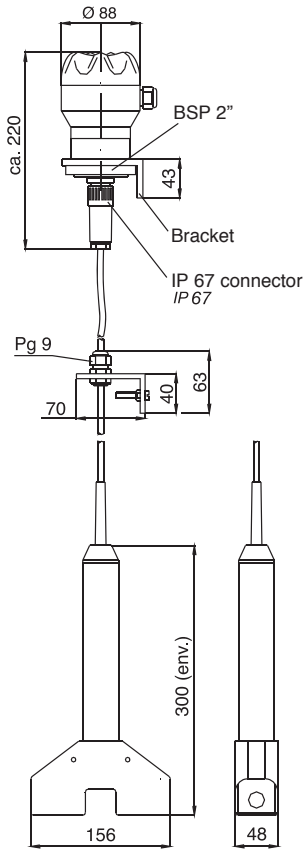
SN: 1234567
FNU: **65**
Date: 01.02.09

Identification plate on the calibration kit

TECHNICAL FEATURES

Output	4-20 mA to connect a BAMOPHOX 436
Power supply:	10 ... 30 V DC
Consumption:	1.2 W
CAUTION:	If a connection is done with another instrument than BAMOPHOX 436, a separated power supply is necesary. The TURBISENS consumption is then 0.7 W *(measuring loop powered separately)*.
Ambient temperature:	Maximal 45°C
Maximal immersion:	10 m – maximal pressure 1 bar
Sensor protection:	IP 68 (EN 60 529)
Sensor:	PVC immersion probe
Media temperature:	Maximal 60°C
Selectable Ranges:	1 = 0 – 50 FNU *) 2 = 0 – 100 FNU 3 = 0 – 200 FNU 4 = 0 – 500 FNU 5 = 0 – 1000 FNU 6 = 0 – 2000 FNU
Accuracy:	±5 % of reading and ±1 % full scale of actual range in use
Resolution:	0.01 – 1.0 NTU *(depending on scaled range)*
Housing:	PBT Head, protection IP 65 (EN 60 529) Fitting connection BSP 2" / bracket and PG
Display:	4 digits for actual value, programming and settings LED status on alarms and function
Configuration:	Rotating potentiometer and push button
Cable:	TPK, length 6 m *(other on request)*, housing connection PG IP 67
CE label:	According to **2006/95/EG** and **89/336/CE**

**) FNU = Formazin Nephelometric Units*



WIRING

Safety precaution : Only qualified person should operate, install and assure the maintenance. All International and European recommendations on electrical installation should be applied.

- *The device may only be connected to supply power, which complies with the specifications included 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.*