UNI EN ISO 9001:2008
CERT. N. 9115 BCEL

OPERATOR'S MANUAL

091.181

TURBIDITY OPTION FOR SA 806x.x0x PROBES

Rev. A
Scale: 0.0/4000.0 NTU

Software: R2.6x

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NOTE

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1 DESCRIPTION

The option 091.181 will add the turbidity measuring to the multiparameter probes SA8060.x0x and SA8065.x0x series.

Level, temperature, electric conductivity, pH, ORP and dissolved oxygen measuring will remain the same.

This manual is an integration of the regular Manual of the probe.

5 MEASURING METHOD

5.1 TURBIDITY

Turbidity is the term used to describe the reduction in water clarity as perceived by the eye caused by the scattering of the light due to the suspended matter in solution.

The sensor is a nephelometric type, as described in the standard UNI EN 27027, and responds to the average volume of scattering of particulate matter over a defined angular range.

An IR light from a LED is sent into the liquid surrounding the sensor.
The 90° scattered light is detected by a sensor and transformed in a current depending of the turbidity of the liquid.

The sensor does not measure in absolute terms but relative to a formazine standard.
A comparison is made of the intensity of the scattered light by a sample and the intensity of scattered light by a standard reference.

Zero adjustment

```
|CAL TURB. ZERO          xx.x%    |
```

xx.x%: zero value in %

Active Commands: **M** **I** **R**

I the command adjusts the zero to zero value
R the command resets the zero to factory value

Sensitivity visualization

```
|CAL TURB.          SENS:100.0%   |
```

Active commands: **M** **C** **I**

C the command activates the sensitivity adjustment

Sensitivity adjustment

```
|CAL TU                  2000.0NTU  |
```

Active commands: **M** **U/D** **I** **R**

In order to adjust the sensitivity, immerse the probe into the standard solution after a cleaning check of the optical lens of the turbidity sensor.

If the adjustment is done by means of the automatically recognized standard solutions (200.0 NTU or 2000.0 NTU), the probe will send the following values:

```
|CAL TU                  2000.0STD  |
```

2000.0 (200.00)STD: standard solution value

I The command enters the new calibration value

If the standard solution value is not same as the recognized value, the operator may adjusts as follow:

U/D The commands adjust the calibration value

I The command enters the new calibration value

2 SPECIFICATIONS

The DEFAULT values correspond to the factory setting.
Parameters marked by " *" can be modified in the configuration procedures.

1) TURBIDITY	
Scale: 0.0/4000.0 NTU	
Zero: 0.0/10.0 % of scale	0.0%
Sensitivity: 80.0/120.0 %	100.0%
Standard solutions automatically recognized:	
200 NTU/2000 NTU	
2) POWER SUPPLY	
Probe type: SA8060.X0X	
Internal rechargeable batteries	
Type of batteries: 3 x Ni/Cd 1800 mAh	
Recharge Current/time: I=180mA / 16 h	
LOW BAT signal: at 20% of residual energy	
Battery life at 20°C:	
- In stand by: > 6 months	
Probe type: SA8065.X0X	
External power supply	
Voltage: 9/14 Volt	
Data Logger not installed	
3) DATA LOGGER	
Number of acquisitions:	
- Memory Ram 32 Kbyte: 1016	
4) SENSOR	
SA9180 Turbidity sensor for SA806x.x0x	

3 OPERATION

This chapter has the same contents of the corresponding chapter of the probe manual with the exception of the record format sent after the receiving of the command **A**.

Record Format:

```
SA8000- 01 4.5 09/11/99 16:35:25 ±300.00m      ±20.00°C    ±40.000mS    ±
....+....|....+....|....+....|....+....|....+....|....+....|....+....|....+....|
12.000pH      ±1000.0mV   ±100.00%air  ±4000.0NTU  09/11/99xx
```

SA8000: P/N of the probe
01: ID of the probe
4.5: voltage of the power supply
09/11/99: date (only for models SA8060.x0x with data logger)
16:35:25: time (only for models SA8060.x0x with data logger)

4 CALIBRATION

4.1 TURBIDITY

It is possible to perform the following calibrations:

- Zero adjustment.
- Sensitivity adjustment.

The zero adjustment consists of the compensation of the residual turbidity value of the clean water.

In general it is suggested to maintain the zero factory calibration.
The maximum possible adjustment is equal to 10% of full scale.

The sensitivity adjustment consists of the calibration by means of standard solutions.

The probe is factory calibrated and it needs just periodical calibration check in the field.

It is suggested to calibrate by using the automatically recognized standard solutions at 200 NTU or 2000 NTU.

The adjustment limits of sensitivity are equal to 80% and 120% of the full scale.

M send the command to get the following answer:

```
|TURB. 1000.0NTU*Z:  0.0%  S:100%|
```

1000.0NTU: actual turbidity value
*: the instrument is effecting the measuring
Z: 0,0%: actual value of zero
S: 100%: actual value of sensitivity

Active commands: **M** **C** **I**

C The command activates the calibration sequence

Zero visualization

```
|CAL TURB.        ZERO:  0.0%    |
```

0.0%: actual zero memorized

Active commands: **M** **C** **I**

C the command activates the zero adjustment
I the command turns to the sensitivity visualization