

## RANGE DIGISENS

### NEPHELOMETRIC TURBIDITY

Optical technology for optimized measures

- IR optical sensor with optical fibre
- Range : 0 to 4000 NTU or 0-4500 mg/L
- Robust and waterproof (IP68)
- Ultra low-power consumption
- Digital output Modbus RS-485
- ISO 7027 compliance (Nephelometry)



#### **Application :**

- Urban wastewater treatment (inlet/ outlet controls)
- Sanitation network
- Industrial effluent treatment
- Surface water monitoring
- Drinking water

#### **Optical technology :**

The measure principle is based on IR nephelometry / 880 nm (ISO 7027). The sensor can be calibrated with a formazine standard solution.

The NTU sensor integrates a low-cost optical technology, with a very few maintenance and no consumables.

#### **Digital communication :**

The PONSEL sensor can be connected to any types of transmitters, display units, controllers or data loggers with Modbus RS-485 or SDI-12 inputs. The optical sensor saves its calibration data for better measures management.

#### **Integrated transmitter :**

All data concerning calibration, history, users and measures are directly treated within the NTU sensor and transmitted via RS-485 or SDI-12.

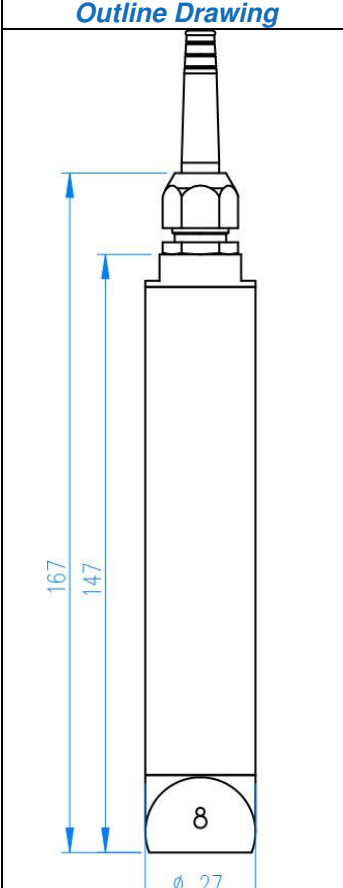
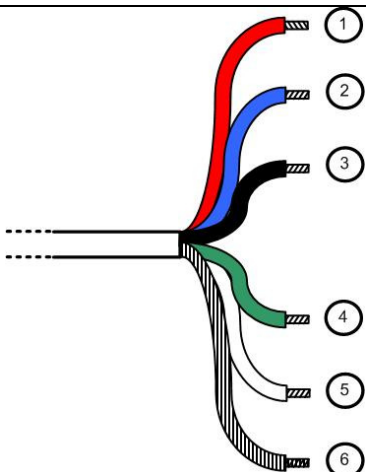
#### **Physical characteristics :**

**Compact, robust and light**, the PVC sensor allows a handheld or fixed unit application.

### Technical characteristics :

| Measures                 |   |
|--------------------------|---|
| Measure principle        | Diffusion IR at 90°   |
| Measure ranges           | 0 to 4000 NTU in 5 ranges: <ul style="list-style-type: none"> <li>▪ 0 – 50 NTU</li> <li>▪ 0 – 200 NTU</li> <li>▪ 0 – 1000 NTU</li> <li>▪ 0 – 4000 NTU</li> <li>▪ AUTOMATIC</li> </ul> 0 to 4500 mg/L<br><b>Calibration :</b><br>Range 0-500 mg/L according to NF EN 872<br>Range >500 mg/L according to NF T 90 105 2 |
| Resolution               | 0,01 to 1 NTU - mg/L  |
| Accuracy                 | < 5% of the reading   |
| Working temperature      | 0°C to + 50°C   |
| Temperature compensation | Via CTN   |
| Stocking temperature     | -10°C to + 60°C   |
| Signal interface         | Modbus RS-485 (standard) and SDI-12 (option)  |
| Maximum refreshing time  | < 1 second  |
| Sensor power-supply      | 5 to 12 volts   |
| Electric consumption     | Standby : 40 µA<br>Average RS485 (1 measure/seconde) : 820 µA<br>Average SDI12 (1 measure/seconde) : 4,2 mA<br>Current pulse : 500 mA   |

| Sensor               |   |
|----------------------|---|
| Dimensions           | Diameter : 27 mm; length : 170 mm   |
| Weight               | 300 g (sensor + cable 3 meters)   |
| Material             | PVC, Quartz, PMMA, Nickel-plated brass  |
| Maximum pressure     | 5 bars  |
| Connection           | 9 armoured connectors, polyurethane jacket, bare-wires or waterproof Fisher connector |
| Degree of protection | IP68  |

| Outline Drawing   | Wiring diagram  |     |                 |        |        |             |                 |        |              |                 |              |              |              |              |   |              |
|---|---|-----|-----------------|--------|--------|-------------|-----------------|--------|--------------|-----------------|--------------|--------------|--------------|--------------|---|--------------|
|  |  <p style="text-align: center;">Cable length up to 15m</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>1</td><td>Power supply V+</td></tr> <tr><td>2</td><td>SDI-12</td></tr> <tr><td>3</td><td>Power supply V-</td></tr> <tr><td>4</td><td>B " RS-485 "</td></tr> <tr><td>5</td><td>A " RS-485 "</td></tr> <tr><td>6</td><td>Cable shield</td></tr> </table>              | 1   | Power supply V+ | 2      | SDI-12 | 3           | Power supply V- | 4      | B " RS-485 " | 5               | A " RS-485 " | 6            | Cable shield |              |   |              |
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| 2   | SDI-12  |     |                 |        |        |             |                 |        |              |                 |              |              |              |              |   |              |
| 3   | Power supply V-   |     |                 |        |        |             |                 |        |              |                 |              |              |              |              |   |              |
| 4   | B " RS-485 "  |     |                 |        |        |             |                 |        |              |                 |              |              |              |              |   |              |
| 5   | A " RS-485 "  |     |                 |        |        |             |                 |        |              |                 |              |              |              |              |   |              |
| 6   | Cable shield  |     |                 |        |        |             |                 |        |              |                 |              |              |              |              |   |              |
|   | <p>Cable length 15 to 100 meters</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Red</td> <td rowspan="4">Power supply V+</td> </tr> <tr> <td>Purple</td> </tr> <tr> <td>Yellow</td> </tr> <tr> <td>Orange pink</td> </tr> <tr> <td>2</td> <td>SDI-12</td> </tr> <tr> <td>3</td> <td>Power supply V-</td> </tr> <tr> <td>4</td> <td>B " RS-485 "</td> </tr> <tr> <td>5</td> <td>A " RS-485 "</td> </tr> <tr> <td>6</td> <td>Cable shield</td> </tr> </table> | Red | Power supply V+ | Purple | Yellow | Orange pink | 2               | SDI-12 | 3            | Power supply V- | 4            | B " RS-485 " | 5            | A " RS-485 " | 6 | Cable shield |
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