

# DIGITAL SENSOR

## C4E : CONDUCTIVITY/SALINITY

Digital Technology for optimized measures

- 4 electrodes (2 graphic, 2 platinum)
- Range 0 to 200 mS/cm
- Digital sensor / **Modbus** RS-485
- Robust and Watertight



### *Applications :*

- Urban wastewater treatment
- Industrial effluent treatment
- Surface water monitoring
- Sea water
- Drinking water

### *Mounting at 4 electrodes:*

The electrode works with a technology in 4 electrodes: an alternating current of constant-voltage is established between a primary's pair of electrodes in graphite. The secondary's electrodes in platinum allow of regulate the voltage imposed to primary's electrodes to reflect of the fouling. The voltage measured between the primary's electrodes is in function of the resistance of place and so, of the conductivity.

### *Digital Technology :*

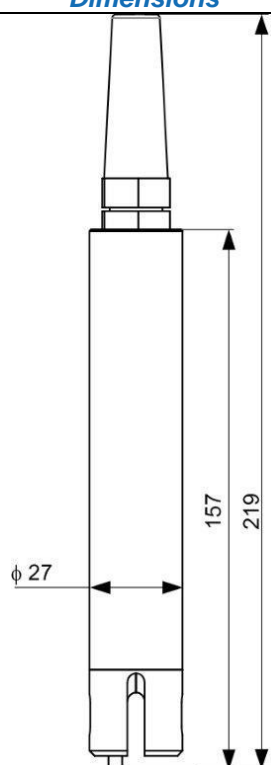
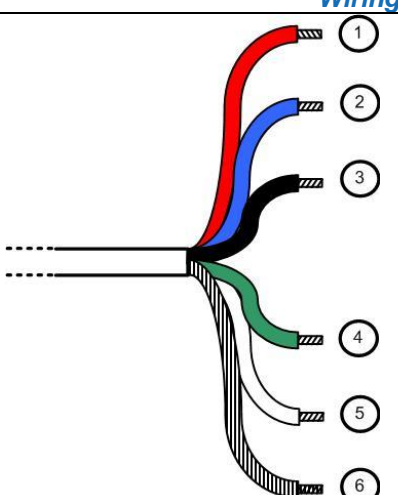
The "smart" Digital C4E sensor stores calibration and history data within the sensor. This allows you a "plug and play" system without re-calibration.

Thanks to the Universal Modbus RS485 protocol, the PONSEL Digital C4E can be connected to all devices commonly used (Datalogger, Controller, Automat, Remote System...).

### C4E Specifications

Measures	
Measure principle	Conductivity sensor with 4 electrodes (2 graphic, 2 platinum).
Measure ranges conductivity	0-200,0 µS/cm 0 –2000 µS/cm 0,00 –20,00 mS/cm 0,0 –200,0 mS/cm
Resolution Conductivity	0,01 to 1 according the range
Accuracy Conductivity	+/- 1 % of the full range Beyond 100 mS/cm use appropriate buffer solution
Measure range salinity	5-60 g/Kg
Measure range TDS -KCl	0-133 000 ppm
Measure range Temperature	0,00 °C to + 50,00°C
Resolution Temperature	0,01 °C
Accuracy temperature	± 0,5 °C
Response time	< 5 s
Working temperature	0°C to 50°C
Temperature compensation	NTC
Stocking temperature	- 10°C to + 60°C
Signal interface	Modbus RS-485 (option SDI-12)
Maximum refreshing time	Max < 1 s
Sensor power-supply	5 to 12 volts
Electric consumption	Standby : 25 µA Average RS485 (1 mesure/seconde) : 6,3 mA Average SDI12 (1 mesure/seconde) : 9,2 mA Current pulse : 500 mA

Sensor	
Dimensions	Diameter : 27 mm ; Lenght : 157 mm
Weight	350g (sensor + 3 m cable)
Material	PVC, DELRIN, stainless steel
Maximum pressure	5 bars
Connection	9 armoured connectors, polyurethane jacket, bare-wires or waterproof Fisher connector
Protection	IP68

Dimensions	Wiring diagram																												
	 <p><b>Cable length up to 15m</b></p> <table border="1"> <tr><td>1 - Red</td><td>Power supply V+</td></tr> <tr><td>2 - Blue</td><td>SDI-12</td></tr> <tr><td>3 - Black</td><td>Power supply V-</td></tr> <tr><td>4 - Green</td><td>B " RS-485 "</td></tr> <tr><td>5 - White</td><td>A " RS-485 "</td></tr> <tr><td>6 - Green/yellow</td><td>Cable shield</td></tr> </table> <p><b>Cable length 15 to 100 meters</b></p> <table border="1"> <tr><td>Red</td><td rowspan="5">Power supply V+</td></tr> <tr><td>Purple</td></tr> <tr><td>Yellow</td></tr> <tr><td>Orange</td></tr> <tr><td>pink</td></tr> <tr><td>2 - Blue</td><td>SDI-12</td></tr> <tr><td>3 - Black</td><td>Power supply V-</td></tr> <tr><td>4 - Green</td><td>B " RS-485 "</td></tr> <tr><td>5 - White</td><td>A " RS-485 "</td></tr> <tr><td>6 - Green/yellow</td><td>Cable shield</td></tr> </table>	1 - Red	Power supply V+	2 - Blue	SDI-12	3 - Black	Power supply V-	4 - Green	B " RS-485 "	5 - White	A " RS-485 "	6 - Green/yellow	Cable shield	Red	Power supply V+	Purple	Yellow	Orange	pink	2 - Blue	SDI-12	3 - Black	Power supply V-	4 - Green	B " RS-485 "	5 - White	A " RS-485 "	6 - Green/yellow	Cable shield
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**Note:**

**Never exceed a voltage of 10VDC (absolute maximum rating) on communication lines RS485, A or B, under penalty of irreversible destruction of the transceiver component RS 485.**

**SDI-12: respect the voltage value described in the associated standard (nominal: 5 VDC)**

**Always connect ground + shield first.**