AQUALABO

Smart water solutions

DIGISENS

DIGITAL SENSORS

June 2018

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Ponsel's Brand

PONSEL BY AQUALABO

PONSEL brand develops and produces sensors for water quality analyses for more than **70** years.

↳Located in Lorient (North West France) – Made In France
Marketing, R&D, Production, Shipping, After sales support

↳ Competences :
Chemistry, Electrochemistry, optics, electronics, Computing, signal processing

↳ Applications :
Natural water, drinking water, wastewater, sewerage networks, Fisch farming, Industrial waste water, etc.

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DIGITAL SENSORS

Features

➢ **Intelligent sensor** :

- Modbus RS485 (adress 1 to 243) or SDI12 (0 to 9),
- Automatic recognition of the sensor (SCAN process on Modbus or SDI12 adress),
- Coefficient of calibration recording in the sensor (Modbus) -> Follow-up the sensor's status
- Better reliability of the measure (treatment of the measure in the sensor)

Modbus

Protocol

SDI12

Digital sensors

Digital technology for extremely reliable measurements without any interference.

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Features

- **Universal Probe** : A probe could be connected to differents terminals :

- communication with Modbus RS485 and SDI12 (**protocol Open**..)

- Possibility to connect sensors to datalogger, scada, .. Wich have a Modbus RS485 or SDI12 input.

Features

- **Ultra low consumption technologie** : Successful solution for autonomous applications.

- Standby mode -> from 25 µA to <50 µA according to the sensor
- For 1 meas/s in Modbus -> from 4,4 mA to 11,5 mA according to the sensor
- For 1 meas/min SDI12 -> from 4,2 mA to 12,5 mA according to the sensor

Possibility of developing **autonomous** solutions

Features

- **Robust** & **watertight** (IP 68) sensors : sensor has been designed also for handheld and in situ applications which have been the most difficult situations in term of sensor resistance, quick time response, minimal flow dependence and low power consumption.

- **Sensors requiring that few of consumable** :

Only cartdridge replacement (PHEHT & ORP sensors) and sensitive membrane for OPTOD sensor (Recommended every 2 years).

- **Mounting accessories** :

A complete range of accessories of assembly is available to optimize your installation in immersion and in-pipe mounting conditions.

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Sensors

OPTOD
Optical Luminescence
ISO 17289 & ASTM D888

Dissolved Oxygen + Temperature
OPTOD® Technology

0,00-20,00 mg/L (ppm)
0-200 % SAT

0-50 °C

Pressure, Temperature and Salinity compensations (Modbus)
Body Stainless Steel & Titanium

Power supply : 5 to 12 Volt
Consumption : Standby 25 µA
Average RS485 (1 measure/ seconde) : 4,4 mA
Average SDI12 (1 measure/ seconde) : 7,3 mA
Current pulse : 100 mA

Applications : Urban wastewater treatment, Industrial effluent treatment, Surface water monitoring, Sea water monitoring, fish farming, aquarium, Drinking water…

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Sensors

NTU
IR Nephelometric method
ISO 7027

Turbidity + SS +Temperature
IR Optical Fiber

0,0-50,0 /0,0-200,0
0-1000 /0-4000 NTU
Or AUTOMATIC range

0-4500 mg/L

0-50 °C

Power supply : 5 to 12 Volt
Consumption : Standby 40 µA
Average RS485 (1 measure/ seconde) : 820 µA
Average SDI12 (1 measure/ seconde) : 8,2 mA
Current pulse : 500 mA

Applications : Urban wastewater treatment, Industrial effluent treatment, Surface water monitoring, Sea water monitoring, Dredging site …

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Sensors

pHEHT
ISO 10523

pH/ORP + Temp
Plastogel® Technology

0,00-14,00 pH
-1000,0 to + 1000 mV
0.00 – 50.00 °C
-pH/ORP Cartridge

Sensor in 2 parts (electronic & cartdridge) to reduce electronic waste.

Power supply : 5 to 12 Volt
Consumption : Standby 10 µA
Average RS485 (1 measure/ seconde) option low consumption : 4 mA
Average RS485 (1 measure/ seconde) option continuous supply : 22 mA
Average SDI12 (1 measure/ seconde) option low consumption : 4,2 mA
Average SDI12 (1 measure/ seconde) option continuous supply : 22 mA

Applications : Urban wastewater treatment, Industrial effluent treatment, Regulation, Surface water monitoring, Sea water monitoring, …

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Sensors

ORP annular Redox
Permanent application

ORP + Temperature
Plastogel® Technology

1000,0 to + 1000 mV
0.00 – 50.00 °C
-ORP Cartridge

Sensor in 2 parts (electronic & cartdridge) to reduce electronic waste.

Power supply : 5 to 12 Volt
Consumption : Standby 25 µA
Average RS485 (1 measure/ seconde) option low consumption : 3,9 mA
Average RS485 (1 measure/ seconde) option continuous supply : 24 mA
Average SDI12 (1 measure/ seconde) option low consumption : 4,2 mA
Average SDI12 (1 measure/ seconde) option continuous supply : 24 mA

Applications : Treatment of urban wastewater (entrance, aeration basin, exit), Industrial effluent treatment (process optimization nitrification / denitrification), Chains of deodorization..

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Sensors

C4E
4 electrodes technology

Conductivity + Salinity + TDS + Temperature
4 electrodes Technology

0,0-200,0/0-2000 µs/cm
0,00-20,00/ 0,0-200,0 mS/cm
Or AUTOMATIC range

Salinity : 5-60 g/Kg

TDS : 0-133 000 ppm
Temperature : 0.00 – 50.00 °C

Power supply : 5 to 12 Volt
Consumption : Standby 25 µA
Average RS485 (1 measure/ seconde) : 6,3 mA
Average SDI12 (1 measure/ seconde) : 9,2 mA

Applications : Urban wastewater treatment, Industrial effluent treatment, Surface water monitoring, Sea water, Drinking water, ..

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Sensors

CTN
Inductive technology

Insensitive to dirtying medium

Conductivity + Salinity +Temperature
4 electrodes Technology

0,0-200,0/0-2000 µs/cm
0,00-20,00/ 0,0-200,0 mS/cm
Or AUTOMATIC range

Salinity : 5-60 g/Kg

TDS : 0-133 000 ppm
Temperature : 0.00 – 50.00 °C

Power supply : 5 to 12 Volt
Consumption : Standby < 50 µA

	Power supply 5V	Power supply 12V	Power supply 24V	Power supply 30V
1 Meas/sec Modbus	31 mA	15,5 mA	11,5 mA	10 mA
1 Meas/sec SDI12	26 mA	12,5 mA	10 mA	9,8 mA

Applications : Urban wastewater treatment, sewages water, Industrial effluent treatment, Surface water monitoring, Sea water, Drinking water, ..

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Sensors

VB5
Sludge blanket detection
IR technology

Sludge level detection + Temperature : VB5

Optical IR absorption

Sludge detection : 0-100 %
Temperature : 0.00 – 50.00 °C

Power supply : 5 to 12 Volt
Consumption : Standby < 50 µA
Average RS485 (1 measure/ seconde) : 4,5 mA
Average SDI12 (1 measure/ seconde) : 4,5 mA

Applications : Urban wastewater treatment (clarifier), Industrial effluent treatment (clarifier), Individual water treatment ..

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Sensors

MES5
IR technology

SS/Turbidity/Sludge detection/Temperature
Optical IR absorption

Suspended Solid : 0,00-50,00 g/L
Turbidity : 0-4000 FAU
Sludge detection : 0-100 %

Power supply : 5 to 12 Volt
Consumption : Standby < 50 µA
Average RS485 (1 measure/ seconde) : 4,5 mA
Average SDI12 (1 measure/ seconde) : 4,5 mA

Applications : Urban Waste water treatment (Inlet/ sewage water (SS, Turbidity), Aeration basin (SS), Outlet (Turbidity), Treatment of industrial effluents (Aeration basin (SS)), Clarifier (Sludge blanket), Outlet (Turbidity), Sludge treatment (Centrifugation), Dredging site (turbidity)

Modbus Integration

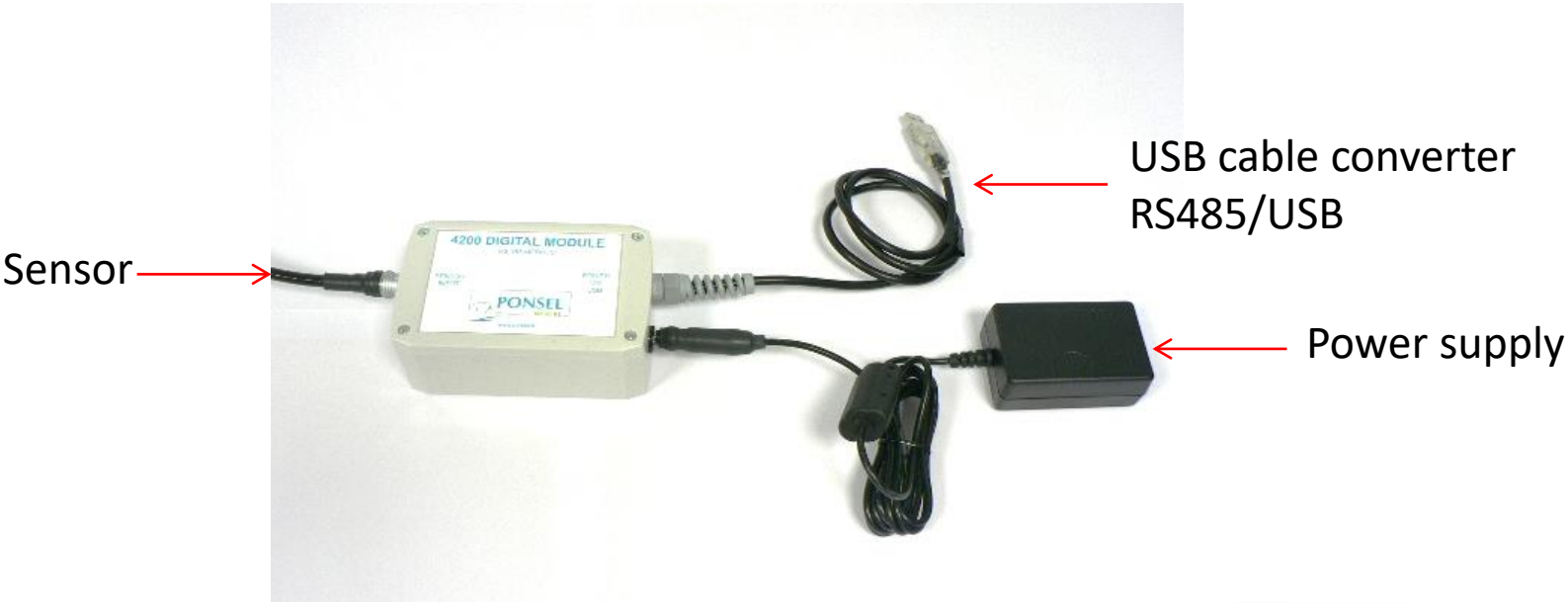
How to do ?

- **Sensors :**

Datasheet on the sensor : contains all informations concerning the power supply, consumption, the cabling…

- **Module 4200 :**

Module 4200 (includ a converter RS485 to USB /solution to supply with 12V)



Documentation

- **Sensors :**

Datasheet on the sensor : contains all informations concerning the power supply, consumption, the cabling…

- **Modbus communication :**

« Modbus specification.pdf » and « POD_trames_COM_UK.xls » : for integration of Modbus communication

- **CALSENS's Software**

-For an integrator : allow to follow the Modbus communication between the computer and the sensor,

-Possibility to calibrate Digital sensors (on Modbus protocol),

-…

SD12 Integration

How to do ?

Documentation

- **Sensors :**

Datasheet on the sensor : contains all informations concerning the power supply, consumption, the cabling…

- **SDI12 communication :**

« PSDI12_communication_00X_UK.xls » : for integration of SDI12communication

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Modbus – SDI12

Functions	Modbus	SDI12
Measures of all the parameters	Yes	Yes
Measure of selected parameters	Yes	Yes
Deadlines to get back a measure	Yes	No
Choice of the range of measure	Yes	Yes
Compensations with external parameters	Yes	No
Information status of the measure (with errors messages)	Yes	No
Calibration configuration	Yes	No
Return to the manufacturing coefficients	Yes	No
Configuration of the measure averaging	Yes	No