

# WxS 880-000/00

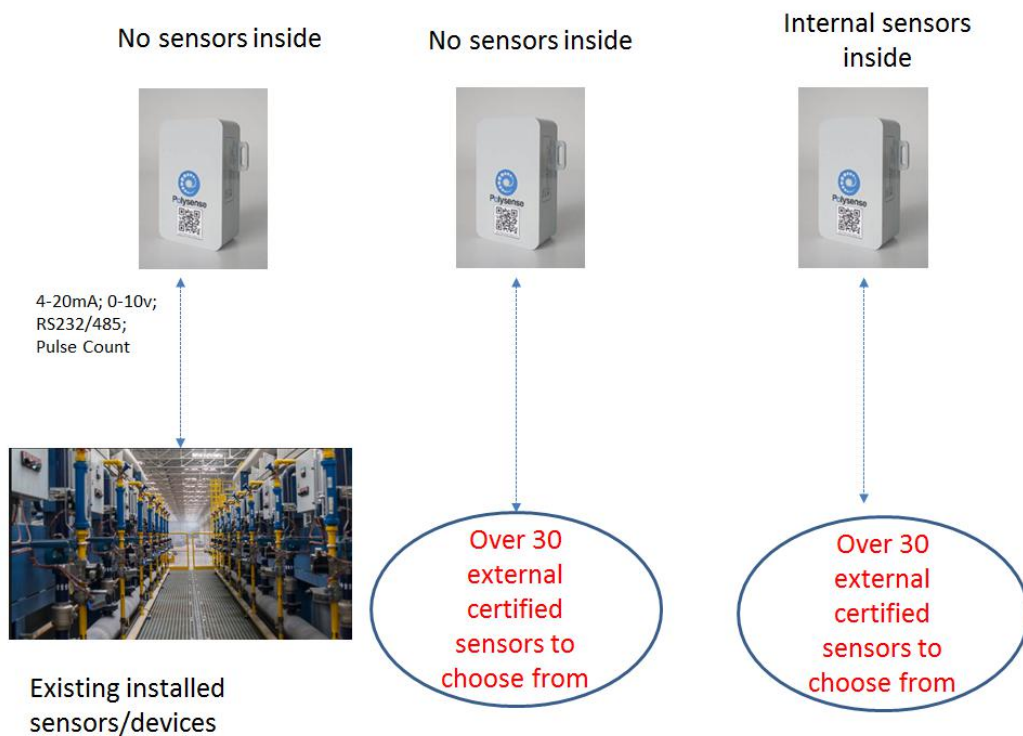
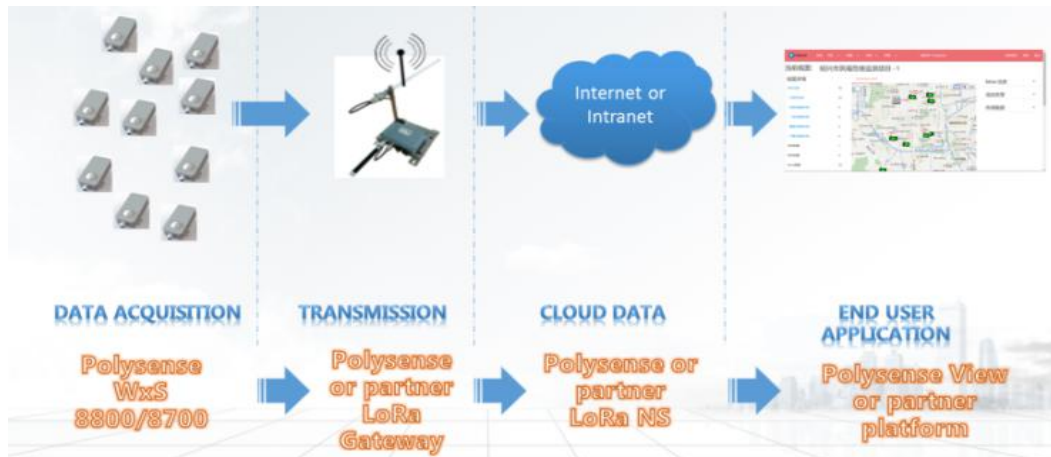
LoRaWAN Modem for wide external sensor connectivity

## Product Highlights

- ✓ **This product supports a rich set of interfaces for external sensor/device connectivity**
- ✓ **0-10v; 4-20mA; RS232/485; Pulse Counting; PWM actuator output**
- ✓ **Target to connect existing installed sensors, control devices, instrumental devices or to connect new sensors/devices**
- ✓ Low power consumption, long distance reach, long-term stability for indoor or outdoor use cases
- ✓ Immediate cross-threshold report, plus periodical report (the threshold and the periodic report cycle are both user-configurable)
- ✓ OTA (Over The Air) firmware upgrade, including to upgrade loader and application images
- ✓ Low power consumption, 5 – 10 years of battery operational life with 2 x AA Li-SOCl<sub>2</sub> Battery
- ✓ Optional DC 5V power source
- ✓ Integrated internal antenna, or optional external SMA/IPEX antenna
- ✓ Up to 5km reach in NLoS (Non-Line-of-Sight) and up to 18km LoS (Line-of-Sight) environments
- ✓ IP67 enclosure rating








## Application Architecture and Sample Applications



## Specifications

Parameter	Value
<b>Sensor</b>	
Interfaces (to connect to external sensors/devices)	<p>Dual MPI interfaces:</p> <ul style="list-style-type: none"> <li>✓ 0-10V voltage signal input</li> <li>✓ 4-20mA current signal input</li> <li>✓ Pulse Count Signal input</li> <li>✓ PWM (16 level) actuator signal output</li> </ul> <p>Single interface:</p> <ul style="list-style-type: none"> <li>✓ RS232/RS485 (user can select either mode)</li> </ul>
Internal	No internal sensors
External	User choices to connect on interfaces
Data Report	Cross-threshold report, plus periodic report every 2 hours (the threshold and the periodic report cycle are both user-configurable)
<b>Wireless</b>	
ISM Band	<p>EU/RU 863 – 870MHz; US 902 – 928MHz</p> <p>China 779 – 787MHz; EU 433MHz</p> <p>AS 923MHz; CN 470 – 510MHz</p>
Maximum Link Budget	168dB
Distance	Up to 5km NLOS; up to 18km LOS
Antenna	Integrated internal antenna or external 1/2 wavelength whip antenna (SMA)
<b>Mechanical</b>	
Dimension	60mm x 100mm x 30mm (WxS8800) – iPhone 4 size
IP rating	IP67 (WxS8800)
Operating Temperature	-40C to +85C (WxS8800);
Cable length	0.5 meters
Total Weight	120 g
<b>Electrical</b>	
Supply Voltage	3.0 – 3.8 VDC
Power Type	Replaceable 1 or 2 AA 3.6V Li-SOCI2 Battery; DC 4.5V – 12V optional
Battery Life	5 – 10 years (assume one motion event one day)
<b>Compliance/Certification</b>	

 <b>LoRa Alliance</b>	LoRaWAN 1.0.2
   	FCC(America): 2A07W-WXS8000, IC(Canada): 23701-WXS8000 CE(European Union): B1810246 ROHS(European Union): R2BJ180927F0664E

## Product description

Polysense WxS supports three mechanisms for deployment scenarios:

- 1) Use WxS as a “modem only”. In this mode, WxS node is used to connect external sensors/devices, with no internal sensors. The external sensor/devices can be existing installed already, new additions to be installed, or instrument devices.

The following interfaces are available on WxS for such external connectivity:

Dual interfaces (3 wire interfaces for input signal, power output and actuator control out)

- ✓ 0-10voltage signal input
- ✓ 4-20mA current signal input
- ✓ Pulse Count Signal input
- ✓ PWM (16 level) actuator signal output (such as to turn off a valve or dim the lighting level)

Single interface:

- ✓ RS232/RS485 (user can select either mode)

In particular, the power output can provide power to certain external sensors from WxS such as no separate powering is needed for the external sensors.

- 2) Use only the internal sensors inside the WxS enclosure. There are nine integrated internal sensors:

- ✓ Temperature
- ✓ Humidity



- ✓ Light
  - ✓ Ambient air pressure
  - ✓ PIR
  - ✓ CO or CO2
  - ✓ Acoustic/noise
  - ✓ 3 Axis accelerometer
  - ✓ 2 Axis high performance industrial grade accelerometer  
(accurate vibration or inclination/tilt)
  - ✓ GPS/Beidou/GNSS
- 3) Use a combination of internal sensors and external sensors. For example, an user can use the following combinations for his/her specific use case:
- ✓ Internal temp/humidity/light, plus external temp probes (up to 8)
  - ✓ Internal temp/humidity/CO, plus external PM2.5/10
  - ✓ Internal vibration sensor for machine condition, plus temp probe to monitor the machine's overheating condition



# Polysense Technologies

## About Polysense

Polysense develops products and solutions for Industrial IoT and smart homes, including distributed fiber sensing, LPWAN LoRa and NB-IoT based wireless IoT sensors, Passive Optical Network (PONs) and cloud based data management and analytic platform.

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