

WxS Ext-044

NB-IoT Air pressure / water pressure sensor

Product Highlights

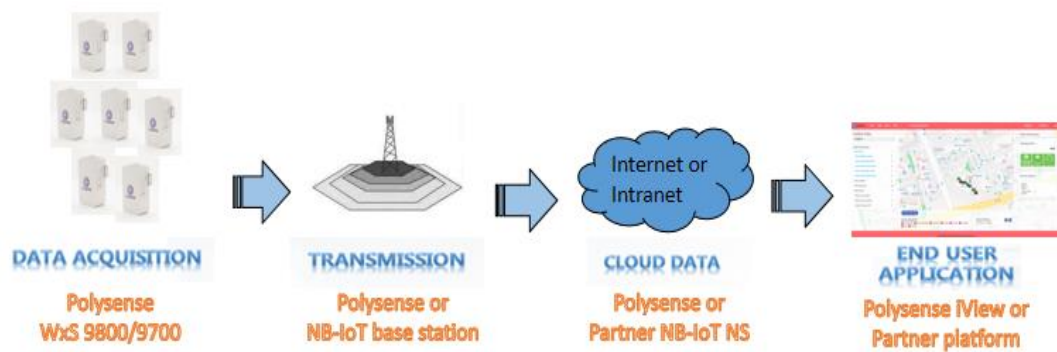
- ✓ All stainless steel structure, compact size, light weight, easy installation, simple wiring and strong practicability.
- ✓ The measured pressure ranges from vacuum to 60Mpa. The appropriate range can be selected according to actual needs: 0.5, 1, 2, 5, 10, 20, 30, 40, 50, 60Mpa.
- ✓ Extremely high detection accuracy, standard factory accuracy of 0.5% FS, up to factory custom 0.25% FS.
- ✓ Edge calculation and cloud data processing and analysis
- ✓ Deployed in a cellular topology, Support service providers, the municipal governments and the enterprises to deploy public and private IOT networks
- ✓ The sensitivity of NB-IoT module is 129 dBm±1 dB, excellent penetration, the network coverage is 20dB stronger than GSM, LTE and other networks.
- ✓ Support the communication protocol frequency band published by the international organization agreement 3GPP.
- ✓ Support two kinds of configuration for data transmission. Single-tone transmission, 15kHz/3.75kHz Subcarrier interval: 25.2kbps(Downlink), 15.625kbps(Uplink); Multi-tone transmission, 15kHz Subcarrier interval: 25.2kbps(Downlink), 54kbps(Uplink)
- ✓ Switch freely between Active/Idle/PSM modes, and ensure that the un-received data is retransmitted.
- ✓ Support IPv4/IPv6/UDP/CoAP/LwM2M/Non-IP/DTLS/TCP/MQTT protocol stack.
- ✓ Intelligent terminal provides multi-function interface (MPI), it can be connected with external analog and digital quantity sensors. (RS232/RS485 interface is optional.)
- ✓ Integrated internal antenna or optional external SMA/IPEX antenna.
- ✓ OTA (Over The Air) firmware upgrade, including to upgrade loader and application images
- ✓ Support wide voltage 5~12V DC input, 5 – 10 years of battery operational life with 2 x AA Li-SOCI2 Battery.



✓ IP67 enclosure rating.

Application Architecture and Sample Applications

- Air pressure, water pressure and oil pressure can be detected



Vacuum pressure / pressure / water pressure / oil pressure / large range hydraulic



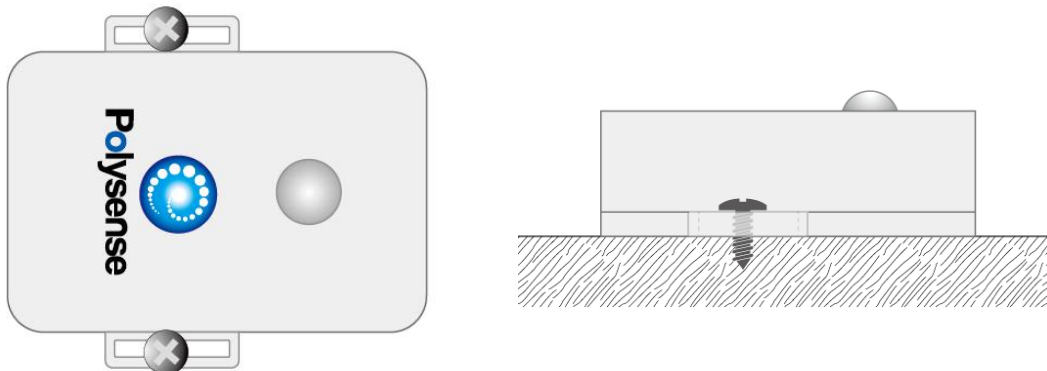
Specifications

Parameter	Value
Sensor	
Pressure range	-0.1~60MPa (optional)
Accuracy level	0.5% FS (standard), 0.25% FS (high precision)
Electrical connection	DIN Hessman, aviation plug, Granville waterproof
Compensation temperature	0-80 °C
Safety overload capability	150%
Ultimate overload capacity	200%
Temperature drift	0.02% FS / ° C
Long-term stability	0.2% FS / year
Operating Mode	Active The terminal is active, all functions are available and data can be sent and received. In this mode, the terminal can switch to Idle mode or PSM mode.
	Idle The terminal is in the state of light sleep and the network is connected. Paging messages are accepted and the terminal can switch to Active mode or PSM mode in this mode.
	PSM Only the RTC is working, the network is disconnected, and paging messages are not acceptable. When DTE (Data Terminal Equipment) actively sends Data or the timer T3412 (associated with periodic updates) times out, the terminal is awakened.
MPI	Analog input 0 - 3/5/10V;4-20mA;Digital interface:RS232/RS485/UART
Upgrade	The serial port or DFOTA
Data report	For any of the above sensor types, support for cross-threshold data reporting and periodic data reporting every 2 hours (both threshold and periodic reporting cycles can be configured by the user)
Wireless	
Sensitivity	- 129dBm± 1dB
Frequency band	B1 @H-FDD: 2100MHz B3 @H-FDD: 1800MHz B8 @H-FDD: 900MHz B5 @H-FDD: 850MHz B20 @H-FDD: 800MHz B28 @H-FDD: 700MHz
Protocol	IPv4 / IPv6 IP/UDP/CoAP/LwM2M/Non-IP/ DTLS/TCP/MQTT
Distance	NLOS (Non-line-of-sight) 2km;

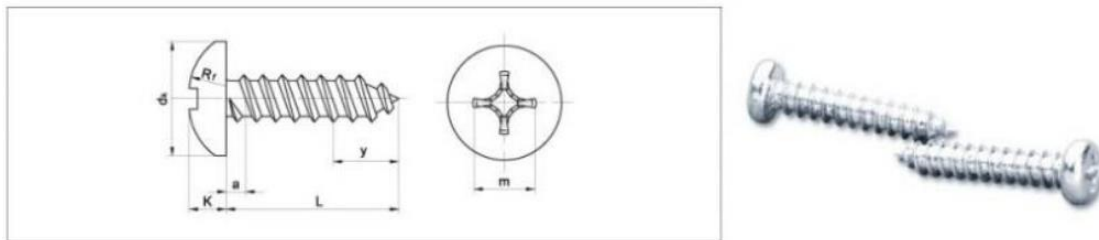
Antenna	Integrated internal antenna or external IPEX antenna (SMA)
Mechanical	
Dimension	114mm x 80mm x 38mm The overall height increases with the increase of sensors.
Shell IP rating	IP67
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +90°C
Total Weight	150g
Electrical	
Supply Voltage	Low power consumption, 3.1V~3.66V; 1or2 Li-SOCI2 Battery; 5VDC optional.

Installation Guide

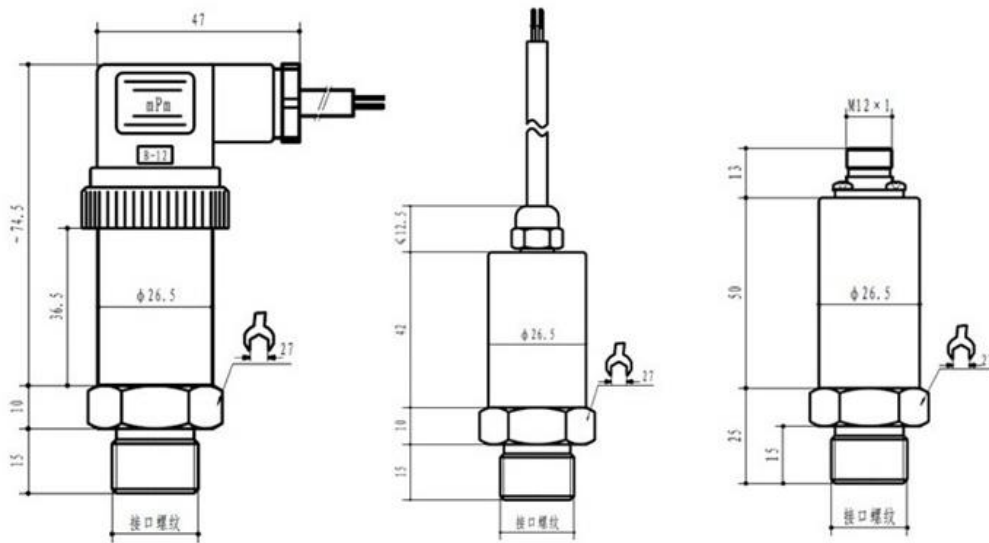
Below diagram shows the general installation guide for WxS9800, it can be installed on any flat and solid surface, the lid is contacted with the surface and fixed via 2 self-tapping screws:



Below is the recommendation of the self-tapping screw and its sizes:



螺纹规格		ST2.2	ST2.9	ST3.5	ST4.2	ST4.8	ST5.5	ST6.3
dk	min	3.7	5.3	6.64	7.64	9.14	10.57	11.57
K	min	1.4	2.15	2.35	2.8	3.4	3.7	4.3
m		1.9	3	3.9	4.4	4.9	6.4	6.9
L		4.5mm~100mm						



Product process description

Diffused silicon piezoresistive "pressure transmitter" is a high performance pressure transmitter. The advantages are: all stainless steel structure, convenient installation, anti-vibration and impact resistance, high precision and good stability.

It is widely used in the measurement of pressure, liquid level and process control in petroleum, chemical, metallurgy, water conservancy, electric power, food, medicine and other industries.

Structural decomposition





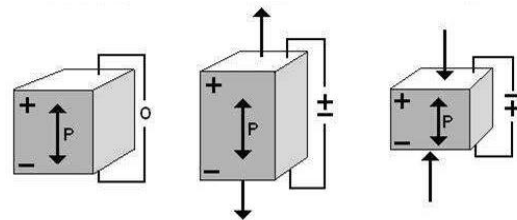
DIN Hessman

Grand waterproof connector

aviation plug

Sensor principle

Using the piezoresistive effect of single crystal silicon, the monolithic silicon is used as the matrix, the micromachining technology forms the elastic component, and four equivalent strain resistors are formed by the integrated circuit process at appropriate positions to form the Wheatstone bridge to make its output. The voltage signal amplifies the output with a voltage signal proportional to the applied pressure.





Polysense Technologies

About Polysense

Polysense Technologies Inc., Located in Santa Clara, California, with offices in St. Paul, Brazil, Beijing, Luo Yang ,Shanghai and Guangzhou, China, develops Universal Sensing and communicating Solutions with Distributed Data Analytic for IoT.

Polysense focuses on fiber and wireless IoT products, solutions, and engineering services for service providers, enterprises, government agencies, and consumers, including 3G/4G LTE based WxS 6x00, Wi-Fi/BLE based WxS 7x00, LoRa based WxS 8x00, and NB-IoT/eMTC based WxS 9x00, enabling a rich array of applications such as Smart City, Industrial Internet of Things, Smart Retail and SMB, Precision Agriculture, Water Treatment, Environmental Protection, Energy and Power. Polysense currently supports over 100 sensing parameter, iEdge edge computing turnkey software,iView data visualization cloud PaaS platform, and iServer scalable Network Server, with a goal to offer the industry's broadest portfolio of sensors over 140 sensing parameters, including temperature, humidity, light, pressure, acoustic, accelerometer, tilt, vibration, displacement, environmental and industrial gases, water quality, PIR/IR motion, ultrasonic, soil sensors, thermal imaging, and 18 types gases with flammable, explosive, poisonous, or bad odor attributes.

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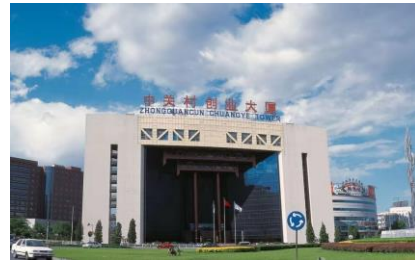




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