

General Specifications

XS530 Pressure Measurement Module

Sushi Sensor

GS 01W06F01-01EN

■ GENERAL

This General Specifications (GS) describes the specifications for Pressure Measurement Module.

The XS530 Pressure Measurement Module has the function of measuring the gauge pressure of gases and liquids in a piping. This product acts as a wireless pressure sensor in combination with “XS110A Wireless Communication Module” and it is suitable for Industrial IoT (IIoT) applications. The electrical power of the XS530 Pressure Measurement Module is supplied through the XS110A.

Monitoring gauge pressure from a remote location reduces operator rounds.

Refer to General Specifications of “XS110A Wireless Communication Module” for details of wireless features.

■ FEATURES

● Pressure Sensors for Industrial IoT

In combination with XS110A Wireless Communication Modules, this module acts as battery-powered wireless pressure sensors with an environmental resistance for industrial use. This product designs to realize easy installation for a production site to support direct installation into a piping and wetted material has highly resistant to corrosion.

● Modular Structure

The module structure enables replacing the battery without removing the measurement module from the piping, and it makes smooth maintenance of the sensor.

● Supporting Hazardous Location Installation

The XS530 in combination with XS110A can be installed in Zone 1 areas, such as petrochemical plants, paint plants, steel plants, where flammable gas or vapor may exist.

● Configuration and Status Monitoring Using Smartphone

Using an Android-based smartphone with NFC (Near Field Communication) interface makes configuration and status monitoring of sensors simple and intuitive.



■ STANDARD SPECIFICATIONS

□ MEASUREMENT RANGE

Pressure:

| | Measurement Range | Maximum Pressure |
|------------------|---------------------------------------|--------------------|
| Gauge Pressure*1 | -0.1 to 5 MPa*2 (-14.5 to 720 psi) | 7.5 MPa (1080 psi) |

*1: Pressure measurement span cannot be changed

*2: Refer to Fig.1 if the pressure is below atmospheric pressure.

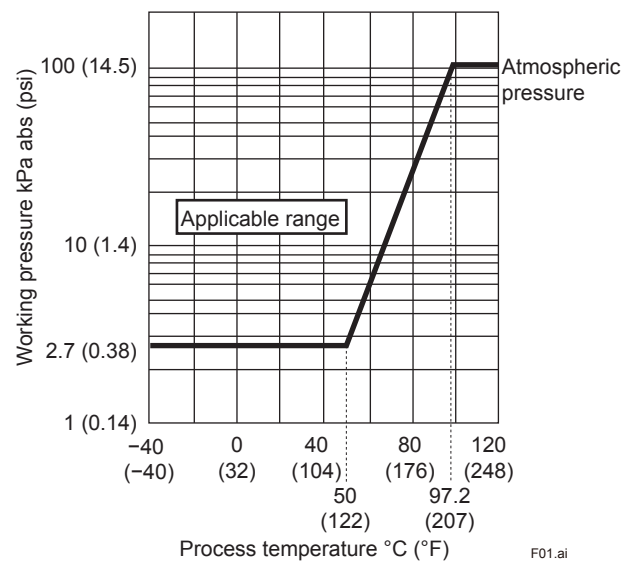


Fig.1 Working Pressure and Process Temperature

Temperature:

-40 to 85°C (-40 to 185°F)

□ PERFORMANCE SPECIFICATIONS

Measurement Accuracy:

Pressure*1: ± 0.25% of Full scale

Temperature: ± 5°C typ.

*1 Measurement Accuracy will be changed when electromagnetic noise applied.

Ambient Temperature Effects (Zero Shift):
± 0.02 (% of Full scale/°C)

Attitude Error:
About 300 Pa/90°
Rotation in diaphragm plane has no effect.

Atmospheric Pressure Fluctuation Error
0.02 (% of Full scale/1 kPa)

Temperature Measurement Unit:
internal sensor of the Pressure Measurement Module

Update Time:
1 minute to 3 days

Battery Characteristics:
Battery life is 10 years under the following conditions*
• Ambient temperature: 23 ± 2°C
• Update Time: 1 hour
* Environmental condition such as vibration may affect the battery life.

FUNCTIONAL SPECIFICATION

Fluid to be Measured:
Gas, Liquid

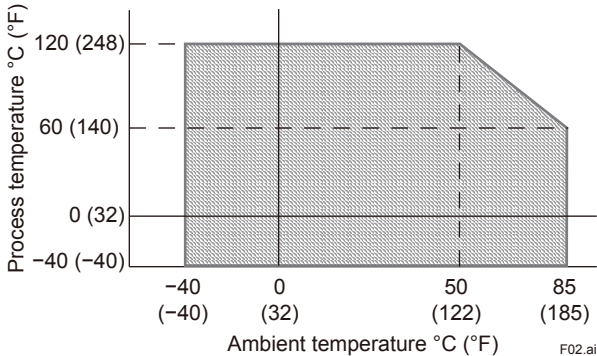
Zero-point Adjustment:
Conducted by Sushi Sensor App.

Diagnostic Function:
Memory failure, sensor failure, sensor
Measurement value error, input adjustment error

INSTALLATION ENVIRONMENT

Ambient Temperature Limits:
Operating: -40 to 85°C (-40 to 185°F)
Storage: -40 to 85°C (-40 to 185°F)

Process Temperature Limits:
-40 to 120°C (-40 to 248°F)



Ambient Humidity Limits:
0 to 100% RH (non-condensation)

Temperature Gradient:
Operating: Within ± 10°C/h
Storage: Within ± 20°C/h

Altitude:
Up to 3000 m

Vibration Resistance:
0.21 mmP-P (10 to 60 Hz),
3 G (60 to 2 kHz)

Shock Resistance:
50 G 11 ms

REGULATORY COMPLIANCE STATEMENTS

This device satisfies the following standards.
*: Please confirm that an installation region fulfills an applicable standard. If additional regulatory information and approvals are required, contact a Yokogawa representative.

CE Conformity:

RoHS Directive:
EN50581
Other Normative Standards:
Safety: EN61010-1 (Indoor/Outdoor use)
EMC Directive:
EN61326-1 Class A Table 2, EN61326-2-3,
EN55011 Class A
ATEX Intrinsic Safety:
Certificate number: DEKRA 20ATEX0024 X
Applicable standards: EN IEC 60079-0:2018,
EN 60079-11:2012
Ex marking: Ⓜ II 2 G Ex ib IIC T4 Gb
Ambient temperature: -40 to 60°C
(-40 to 140°F)
Process temperature: -40 to 100°C
(-40 to 212°F)
Electrical parameters:
Connector
Ui = 6.88 V, Ii = 1.54 A, Pi = 0.3 W, Ci = 3.9 µF, Li = 0 µH
Enclosure:
IP66/IP67 in accordance with only EN 60529
when combined with XS110A.

Canadian Safety Standards:

CAN/CSA-C22.2 No.61010-1
CSA-C22.2 No.94.2
IEC 60529
Pollution degree 2
Overvoltage category I

Degrees of Protection:

IP66/IP67, Type 4X
Apply when connected to the XS110A.

IECEx Intrinsic Safety:

Certificate number: IECEx DEK 19.0027X
Applicable standards: IEC 60079-0 Ed. 7.0 (2017),
IEC 60079-11 Ed. 6.0 (2011)
Ex marking: Ex ib IIC T4 Gb
Ambient temperature: -40 to 60°C (-40 to 140°F)
Process temperature: -40 to 100°C (-40 to 212°F)
Electrical parameters:
Connector
Ui = 6.88 V, Ii = 1.54 A, Pi = 0.3 W, Ci = 3.9 µF, Li = 0 µH
Enclosure:
IP66/IP67 in accordance with only IEC 60529 when
combined with XS110A.

PHYSICAL SPECIFICATION

Process Connection:
Refer to "MODEL AND SUFFIX CODES."

Housing Material:
Stainless Steel

Material of Process Connection:
Diaphragm: Hastelloy C-276*1
Process Connector: 316L SST*2
*1: Hastelloy C-276 or ASTM N 10276
(equivalent to Hastelloy C -276)
*2: 316L SST or ASTM grade 316L

Weight:
600 g (1.32 lb)

Mounting:
Refer to "MODEL AND SUFFIX CODES."

■ MODEL AND SUFFIX CODES

| Model | Suffix Codes | Description |
|----------------------------|--------------|---|
| XS530 | | Pressure Measurement Module |
| Inter-module communication | -A | Digital communication for XS-series |
| Area | 2 | Europe EU868 |
| | 3 | North America US915 |
| | 4 | Southeast Asia AS923 |
| Type | 00 | General purpose*1 |
| | K2 | ATEX intrinsic safety*2 |
| | S2 | IECEX intrinsic safety*3 |
| Range | -E | -0.1 to 5 MPa |
| Housing material | 6 | Stainless Steel |
| Process connection | 4 | 1/2 NPT female |
| | 7 | 1/2 NPT male |
| — | A | Always A |
| Mounting bracket | -J | 316 SST 2-inch Horizontal Pipe Mounting |
| | -K | 316 SST 2-inch Vertical Pipe Mounting |
| | -N | None |
| — | A | Always A |

*1: Applicable when Area Code is 3.

*2: Applicable when Area Code is 2 or 4.

*3: Applicable when Area Code is 4.

■ OPTIONAL ACCESSORIES

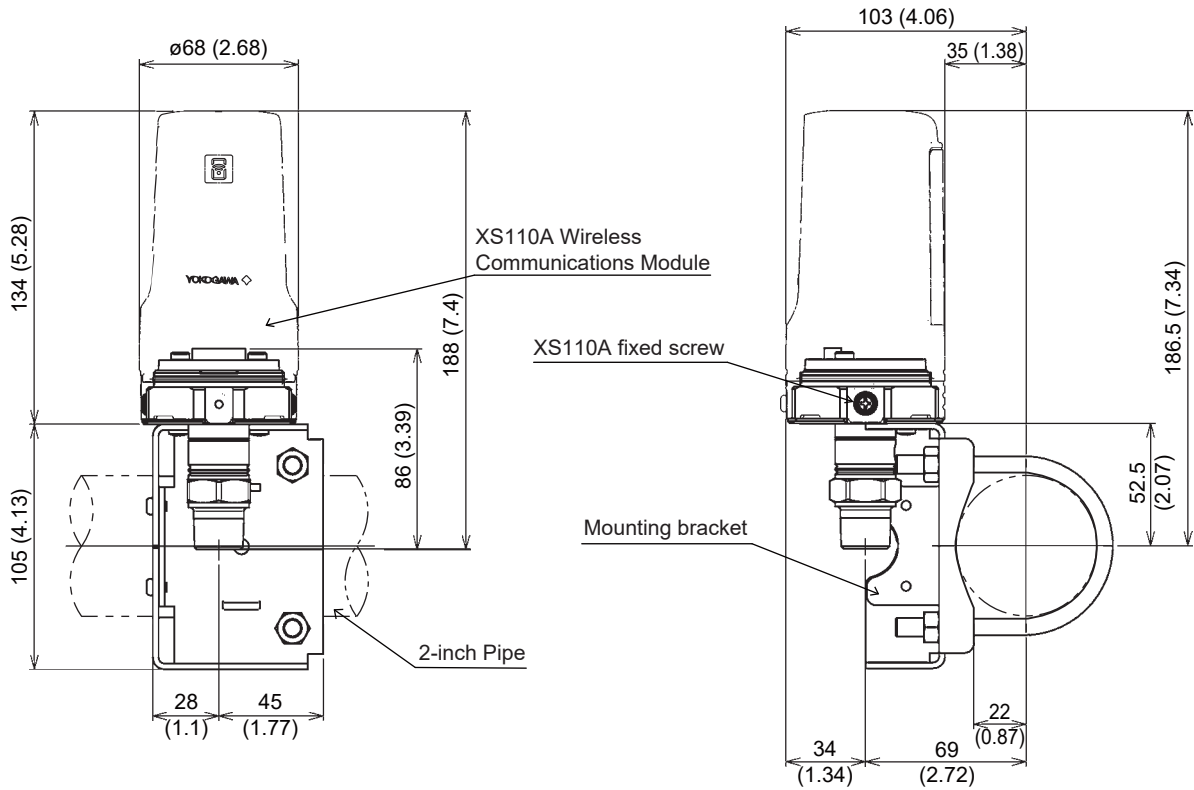
| Item | Parts Number | Description |
|----------------|--------------|------------------------|
| Protection Cap | F9097ND | Rubber protection cap* |

* The protective cap is used to temporarily protect the connector of the product when the XS110A is removed from XS530 for battery replacement, etc. When the XS110A is removed from the product, waterproof and dustproof performance cannot be guaranteed.

DIMENSIONS

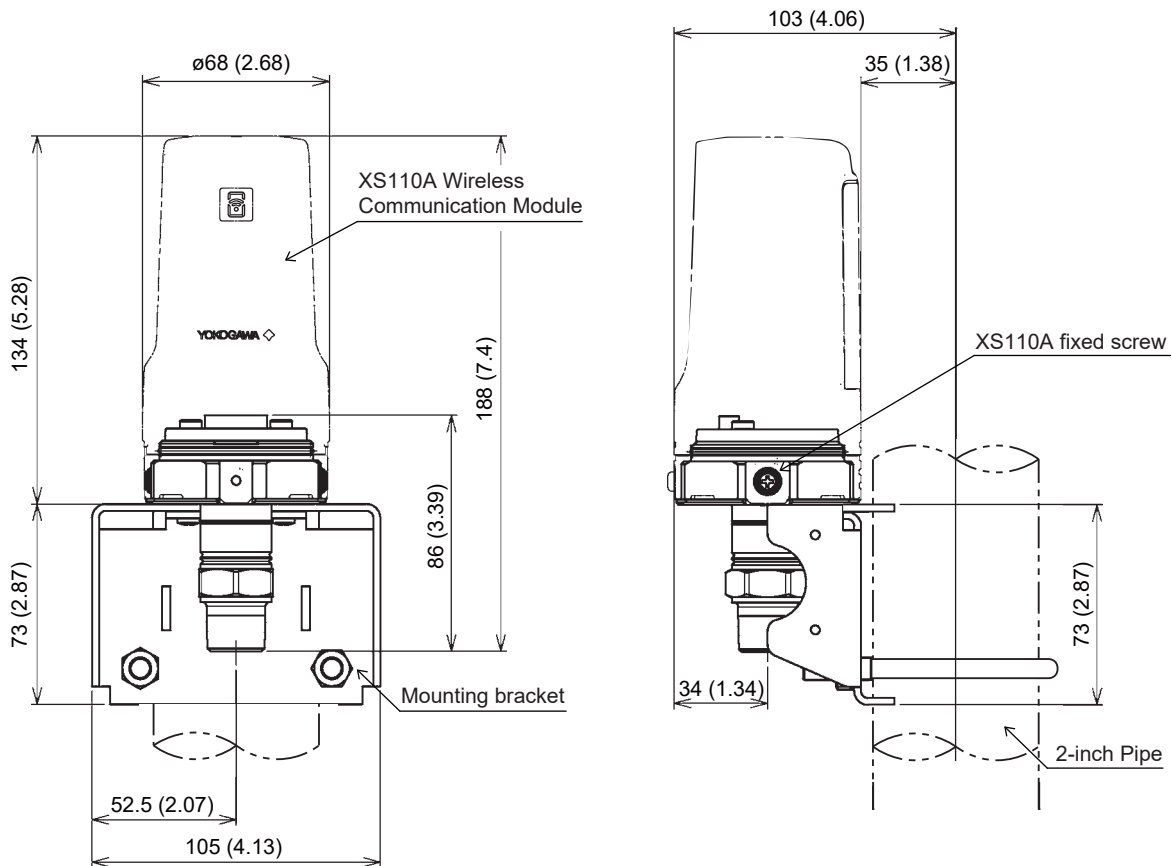
● 2-inch Horizontal Pipe Mounting

Unit: mm (approx. inch)



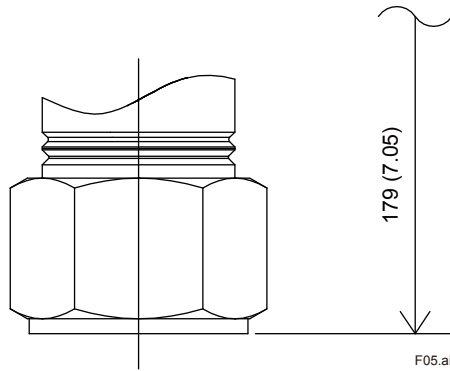
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● 2-inch Vertical Pipe Mounting

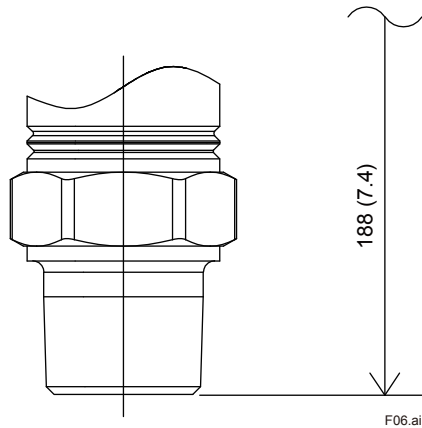


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● **Process Connections: 1/2 NPT female (Process Connection Code 4)**



● **Process Connections: 1/2 NPT male (Process Connection Code 7)**



<Ordering Information>

1. Model, suffix codes, and option code

<Related Products General Specifications>

XS110 Wireless Communication Module

Refer to GS 01W06D01-01EN

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