General Specifications

XS110A
Wireless Communication Module

Sushi Sensor

GS 01W06D01-01EN

■ GENERAL

This General Specifications (GS) describes the specifications for Wireless Communication Module. The XS110A Wireless Communication Module has battery-powered, and long-range wireless communication features. This product acts as a pressure sensor in combination with "XS530 Pressure Measurement Module" and acts as a temperature sensor in combination with "XS550 Temperature Measurement Module" and thermocouples. This product supplies power from a replaceable built-in battery to a measurement module.

LPWA (Low Power Wide Area) enables a long-range reachability for low power devices, to realize wide area coverage and easy installation.

For more details, refer to the General Specifications of the related products.

■ FEATURES

- **Long-Distance Communication on License-free Bands**

The XS110A has a long-distance communication feature and it enables easy installation for all over a plant. This module improves efficiency of plant maintenance by gathering various data in combination with a measurement module. The data can be utilized for early anomaly detection and prediction of equipment failure.

- **Excellent Environmental Resistance with Battery Powered**

The XS110A supplies power to a measurement module from a built-in battery. In combination with a measurement module, it acts as a battery-powered wireless sensor with the environmental resistance which is required for plant installation. Without any power cabling works, it can be installed everywhere in a plant.

- **Supporting Hazardous Location Installation**

The XS110A in combination with a measurement module 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

☐ WIRELESS SPECIFICATIONS

Communication Protocol:
LoRaWAN Class A
EU868, AS923, US915

Modulation Method:
LoRa modulation

Data Rate:
250 to 11000 bps*
*: Available data rate vary depending on the country.

Frequency:
[Area code 2] 863 to 870 MHz*1
[Area code 3] 902 to 928 MHz*2
[Area code 4] 919 to 925 MHz*2
*1: This wireless frequency can be used throughout, Europe, although there are some restrictions in Sweden and Greece.
*2: Available frequency bands vary depending on the country.

Radio Security:
AES 128-bit encryption

RF Transmitter Power:
Max. 7 dBm

Antenna:
Built-in Omni-directional antenna

☐ POWER SUPPLY SPECIFICATIONS

Battery:
Lithium thionyl chloride battery (size D): 1 unit
Rated voltage: 3.6 V
Rated capacity: 19 Ah

☐ PERFORMANCE SPECIFICATION

Battery Characteristics:
The battery life of XS110A depends on connected Measurement Module.
Refer to the General Specifications of each Measurement Module.

Update Time:
1 minute to 3 days

☐ FUNCTIONAL SPECIFICATION

Output Signal:
LoRaWAN
(EU868; EU, AS923; Southeast Asia, US915; North America)

NFC Interface:
NFC Forum Type 2 Tag

Diagnostics Function:
Battery alarm, internal temperature, wireless communication failures, memory failures, Measurement Module connection failure

Software Download Features:
Allows the user to update the software of the sensor via the NFC interface.

Power Supply to the Measurement Module:
Supply voltage: 3.3 V
Supply current: 50 mA

☐ INSTALLATION ENVIRONMENT

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

Ambient Humidity:
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 mm P-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.

Telecommunication Compliance:
RE Directive (EEA and EFTA Countries),
FCC Approval (United States),
ISED Approval (Canada)

CE Conformity:
RoHS Directive:
EN50581
RE Directive:
Safety: EN61010-1 (Indoor/Outdoor use), EN62479
EMC: EN 301 489-1, EN 301 489-3,
EN61326-1 Class A Table 2, EN61326-2-3,
EN55011 Class A
Radio Spectrum: EN 300 220-2 (Band h1.3 in the table 1 of CEPT ERC Rec. 70-03), EN 300 330
ATEX Intrinsic Safety:
Certificate number: DEKRA 20ATEX0024 X
Applicable standards: EN IEC 60079-0:2018, EN 60079-11:2012
Ex marking: Ⓔx II 2 G Ex ib IIC T4 Gb
Ambient temperature: –40 to 75°C* (–40 to 167°F)
*: Additionally, limited by the ambient temperature range of the equipment connected to XS110A.
Electrical parameters:
Connector
Uo = 6.88 V, Io = 1.54 A, Po = 0.3 W,
Co = 10 µF, Lo = 3 µH
Enclosure: IP66/IP67 when accordance with EN 60529 when combined with certified equipment.

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 and Type 4X
Apply when connected to the Measurement Module.

IECEx Intrinsic Safety:
Certificate number: IECEx DEK 19.0027X
Application Standard: 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 75°C (–40 to 167°F)
*: Additionally, limited by the ambient temperature range of the equipment connected to XS110A.
Electrical parameters:
Connector
Uo = 6.88 V, Io = 1.54 A, Po = 0.3 W, Co = 10 µF, Lo = 3 µH
Enclosure: IP66/IP67 when accordance with IEC 60529 when combined with certified equipment.

☐ PHYSICAL SPECIFICATIONS

Housing Material:
Plastic (PC)

Weight:
300 g (0.66 lb)*
*: Without battery

■ SOFTWARE SPECIFICATIONS

☐ SUSHI SENSOR APP

This software is used to perform the setting and status check of this product via the NFC interface.

Operating Environment:

Item	Recommended System Requirements
OS	Android 5.1.1 or higher
CPU	Snapdragon 800 or better
Resolution	1280 x 720 dots or more
NFC	Readers, Writer
GPS	Optional

Note of Available Android Device:
When using Sushi Sensor APP to the Android device must comply with the following.

- When using an NFC link in a non-hazardous area, the maximum magnetic field strength generated by the Android device is 18 A/m (r.m.s.) or less (Compliant with ISO / IEC 14443).
- When using an NFC link in a hazardous area, only an Android device confirmed by Yokogawa Electric Corporation can be used.
- If additional information and approvals for Android devices are required, contact a Yokogawa representative.

■ MODEL AND SUFFIX CODES

Model	Suffix Codes	Description
XS110A		Wireless Communication 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
—	-A	Always A
Housing material	5	Plastic (PC)
Power source	D	Battery powered (Battery not included)
—	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

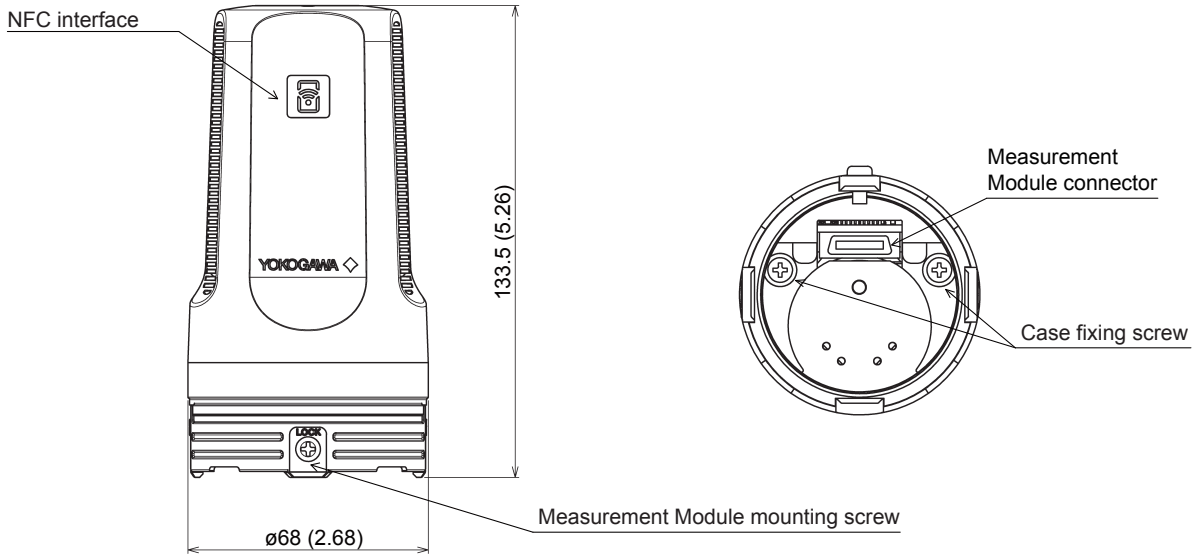
Item	Parts Number	Description
Batteries*1	F9915NR	Lithium-thionyl chloride batteries*2, 2 pieces*3

*1: Alternatively, Tadiran TL-5930/S, SL-2780/S or VITZROCELL SB-D02 batteries can be purchased from your local distributor.
*2: Tadiran TL-5930/S
*3: This product works with one size D battery, but the accessory is a set of two.

■ DIMENSIONS

● **Main body**

Units: mm (approx. inch)



<Ordering Information>

1. Model, suffix codes, and option code

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<Related Products General Specifications>

XS530 Pressure Measurement Module:

Refer to GS 01W06F01-01EN

XS550 Temperature Measurement Module:

Refer to GS 01W06F02-01EN