



# iTrapSensor<sup>®</sup>

## MONITORING SENSOR

### MODEL iT5-IS-SUN

WIRELESS SURFACE TEMPERATURE AND ULTRASONIC MEASUREMENT BASED ON ISA 100.11A

### Features

**Sensor with wireless communication for high frequency monitoring of crucial steam-using equipment such as heat exchangers, presses and turbines, equipment in difficult to reach locations, or steam traps\*.**

1. High frequency monitoring: measurement cycles configurable between 1 second and 1 hour.
2. Line-of-sight communication distance of 400 m between sensor and repeater or between repeaters.
3. Powered by a long-life battery pack, replaceable in hazardous locations.
4. Surface temperature measurement up to 400 °C.
5. Intrinsically safe construction for use in hazardous and non-hazardous locations.
6. Optional extended antenna type for remote antenna mounting.

\* Steam trap diagnostic software required separately. Contact TLV for details.



### Specifications

| Model                                |                                 | iT5-IS-SUN                                                                                                                                 |                                                                                                      |
|--------------------------------------|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Type                                 |                                 | Low Temperature                                                                                                                            | High Temperature                                                                                     |
| Maximum Measurement Temperature (°C) |                                 | 250                                                                                                                                        | 400                                                                                                  |
| Measurable Temperature Range (°C)    |                                 | -40 to +250                                                                                                                                | -40 to +400                                                                                          |
| Minimum Ambient Temperature (°C)     |                                 | -40                                                                                                                                        |                                                                                                      |
| Maximum Ambient Temperature (°C)     | Maximum Measurement Temperature | -40 to < 135                                                                                                                               | 80 (vertical), 80 (parallel)                                                                         |
|                                      |                                 | 135 to < 200                                                                                                                               | 75 (vertical), 77 (parallel)                                                                         |
|                                      |                                 | 200 to < 250                                                                                                                               | 67 (vertical), 75 (parallel)                                                                         |
|                                      |                                 | 200 to < 300                                                                                                                               | —                                                                                                    |
|                                      |                                 | 300 to < 400                                                                                                                               | 67 (vertical), 75 (parallel)                                                                         |
| Wireless Frequency Band              |                                 | 2.4 GHz                                                                                                                                    |                                                                                                      |
| Maximum No. of Connections           |                                 | 500 devices per gateway <sup>1)</sup>                                                                                                      |                                                                                                      |
| Maximum No. of Hops                  |                                 | 4 (from access point to sensor)                                                                                                            |                                                                                                      |
| Measurement Cycle <sup>2)</sup>      |                                 | 1 second to 1 hour                                                                                                                         |                                                                                                      |
| Power Source                         | Type                            | Non-rechargeable lithium-thionyl chloride battery pack <sup>3)</sup>                                                                       |                                                                                                      |
|                                      | Rated Voltage                   | 3.6 V                                                                                                                                      |                                                                                                      |
|                                      | Rated Capacity                  | 38 Ah                                                                                                                                      |                                                                                                      |
| Battery Life <sup>4)</sup>           |                                 | 10 years for regular operation (60 s measurement cycle), or 5 years (15 s measurement cycle)                                               |                                                                                                      |
| Intrinsic Safety Specifications      |                                 | ATEX: Ex II 1G Ex ia IIC T4 Ga<br>IECEx: Ex ia IIC T4 Ga<br>UKEX: Ex ia IIC T4 Ga                                                          | UL/cUL: Class I, Division 1, Groups ABCD<br>Class I, Zone 0, AEx ia op is IIC T4, Ex ia op is IIC T4 |
| Connecting Pipe                      |                                 | Straight pipe                                                                                                                              |                                                                                                      |
| Wireless Module                      | Communication Protocol          | ISA 100.11a, based on IEEE 802.15.4                                                                                                        |                                                                                                      |
|                                      | Regulatory Compliance           | FCC, IC, CE compliant                                                                                                                      |                                                                                                      |
|                                      | Frequency Bandwidth             | 2.405 to 2.480 GHz                                                                                                                         |                                                                                                      |
|                                      | Transmitter Power Output        | 7.0 mW/MHz                                                                                                                                 |                                                                                                      |
|                                      | Communication Distance          | Approx. 400 m <sup>5)</sup> (with a clear line of sight)                                                                                   |                                                                                                      |
| Protection Class                     |                                 | IP66 and IP67 (evaluation for intrinsic safety is performed at IP20)                                                                       |                                                                                                      |
| Material                             | Body, Cover                     | Aluminium Alloy Die Castings (ADC3, SG100A)                                                                                                |                                                                                                      |
|                                      | Sensor Tip                      | Stainless Steel (SUS304)                                                                                                                   |                                                                                                      |
|                                      | Heat Shield Plate               | Polyetheretherketone (PEEK)                                                                                                                |                                                                                                      |
| Options                              |                                 | Extended antenna type: Sensor with 150 mm antenna and 3 m or 13 m cable (intrinsically safe)<br>Sensor mounting method: Clamp or band type |                                                                                                      |

<sup>1)</sup> When using TLV-recommended system (Yokogawa Electric Corporation: YFGW410)

<sup>2)</sup> Measurement cycle can be configured per sensor. Configurable cycle varies depending on gateway used.

<sup>3)</sup> Battery pack can be replaced in hazardous locations.

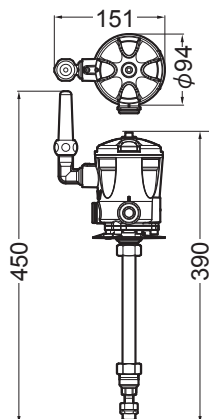
<sup>4)</sup> Battery life is given for an ambient temperature of 25 °C and may vary depending on environmental conditions such as gateway used, transmission status and ambient temperature. <sup>5)</sup> Depends on environmental conditions and installation location.



To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

## Dimensions

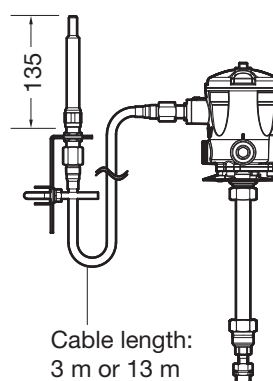
### • iT5-IS-SUN Straight Pipe



Units: mm  
Weight: 1.1 kg  
(incl. battery pack)

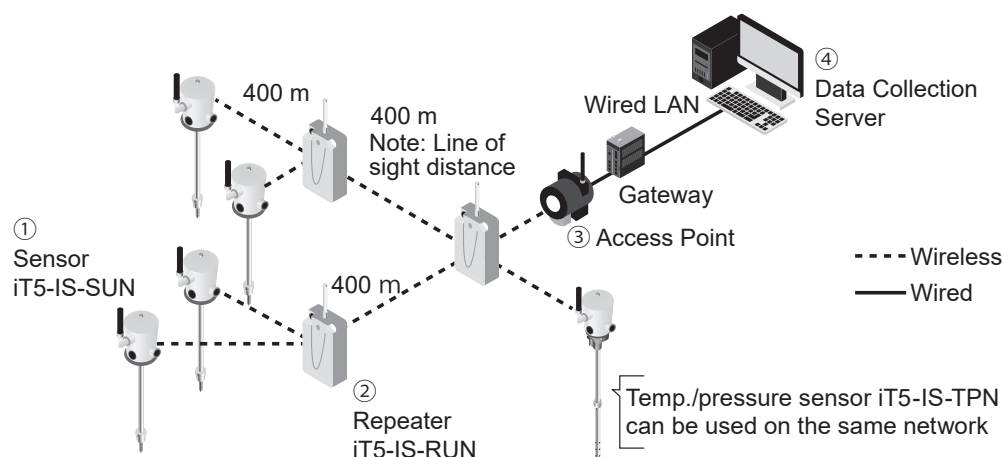
## Options

### Antenna Extension



Units: mm

## System Configuration Example



| No. | Model                  | Function                                                                                |
|-----|------------------------|-----------------------------------------------------------------------------------------|
| ①   | Sensor: iT5-IS-SUN     | Measurement of ultrasound and surface temperature, wireless transmission of information |
| ②   | Repeater: iT5-IS-RUN   | Wireless relay of information                                                           |
| ③   | Access Point/Gateway   | Relay of information via intranet                                                       |
| ④   | Data Collection Server | Importing collected data                                                                |

Refer to individual specification data sheets (SDS) for full details.

Manufacturer  
**TLV® CO., LTD.**  
Kakogawa, Japan  
is approved by LRQA Ltd. to ISO 9001/14001

ISO 9001  
ISO 14001

