

# TLV<sup>®</sup>

## iTrapSensor<sup>®</sup>

### iT5 Series

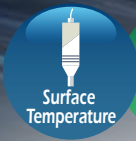
- Transmits surface temperature and ultrasonic, or temperature and pressure measurement information by wireless or wired communication
- Judges steam trap operation  
(Except temperature/pressure sensor)
- Intrinsically safe (ATEX, IECEx, UL/cUL)

**NEW**



Surface Temperature/  
Ultrasound Sensor

Temperature/  
Pressure Sensor



**Intrinsically safe**  
(ATEX, IECEx, UL/cUL) **iT5 Series**

# iTrapSensor®

**Performs surface temperature and ultrasound, or temperature and pressure measurement of steam traps simultaneously and transmits the measured data to monitoring systems, etc.**

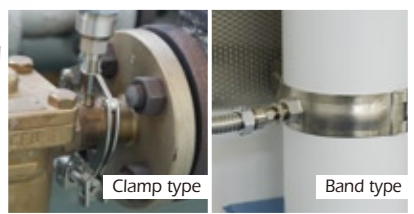
Continuous monitoring of the large number of valves, piping and equipment installed around plants enables the detection of abnormalities at an early stage, improving the reliability of the facility. In addition, it can also reduce the burden of patrol inspections for equipment installed in elevated, difficult-to-reach locations, in pits or high-temperature environments.

**Battery** **Approx. 10-year battery life enables long sensor service life**  
*(Varies depending on operating conditions)*

Wireless system sensors and repeaters utilize lithium-thionyl chloride battery packs. TLV's original power-saving technology maximizes product service life.

**Installation** **Simple sensor mounting or removal with dedicated mounting brackets**  
*(For surface temperature/ultrasound sensor)*

Easy installation. No additional machining is required and the bracket fits a wide variety of equipment and piping.



Sensor mounting bracket (option)

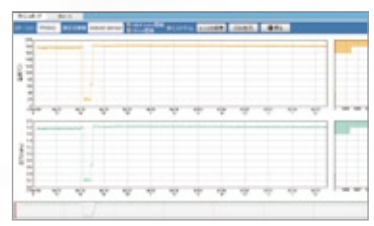
## Communication standards

- Surface Temperature/Ultrasound Sensor**
- TLV original wireless communication protocol (IEEE802.15.4-based)
  - ISA100.11a (Industrial wireless communication standard)
  - FOUNDATION™ Fieldbus (Industrial wired communication standard)

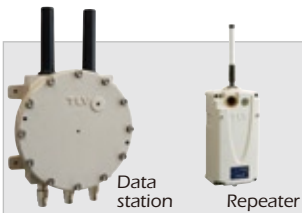
- Temperature/Pressure Sensor**
- ISA100.11a (Industrial wireless communication standard)

**Data** **Collected and stored data can be viewed remotely**

Data measured at the site is collected and stored on the server and can be viewed remotely. The server can also be connected to commercially available network equipment and existing systems.



Screen image (temperature and pressure measurement)



## Full range of peripheral products

Repeaters (intrinsically safe, explosion-proof), data station (explosion-proof structure) and other devices required to configure the monitoring system are also available. Specifications must be discussed in reference to customer facilities. Contact TLV for details.



## Surface Temperature/Ultrasound Sensor

Measurement of surface temperature up to 400 °C and ultrasound can be performed simultaneously.

### Features

System configuration example ..... Wireless —— Wired

Wireless communication

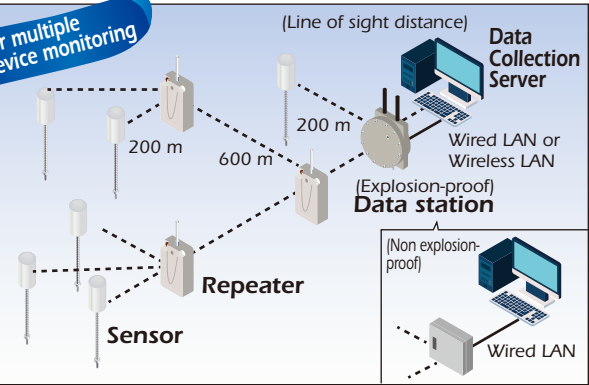


**TLV** original wireless communication protocol (IEEE802.15.4-based)

#### Model iT5-ZB Series

- Wireless frequency band: 2.4 GHz
- Measurement cycle: Configurable between 5 m and 24 h
- Maximum no. of connections: 8000 sensors per data station
- Maximum no. of hops: 20 (from sensor to data station)
- Sensor power source: Dedicated battery pack

For multiple device monitoring



Wired communication

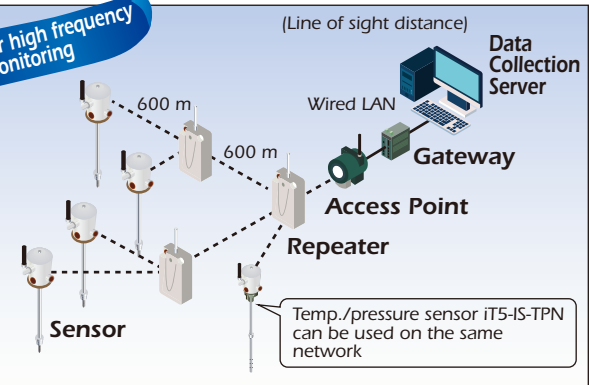


**ISA 100 WIRELESS** ISA100.11a Industrial wireless communication standard

#### Model iT5-IS Series

- Wireless frequency band: 2.4 GHz
- Measurement cycle: Configurable between 1 s and 1 h
- Maximum no. of connections: 500 devices per gateway  
When using TLV-recommended system (Yokogawa Electric Corporation: YFGW410)
- Maximum no. of hops: 4 (from access point to sensor)
- Sensor power source: Dedicated battery pack

For high frequency monitoring



Wireless communication

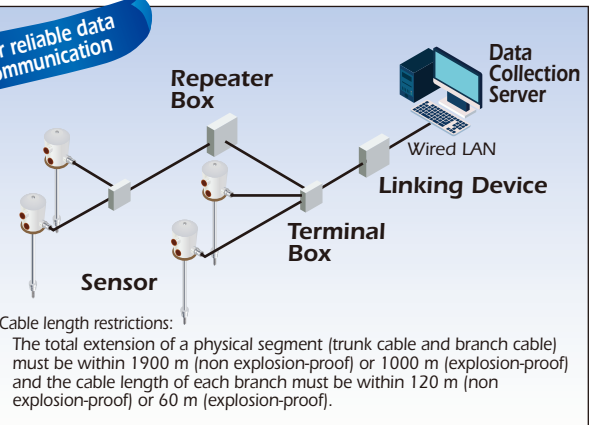


**FOUNDATION™** Fieldbus Industrial wired communication standard

#### Model iT5-FF Series

- Measurement cycle: Configurable between 1 s and 60 s
- Maximum no. of connections: 32 devices  
When using TLV-recommended linking device (Softing: FG-200 HSE/FF Modbus)
- Segment extension: Up to 4 repeaters can be arranged in series per segment
- Power source: Supplied by FOUNDATION™ Fieldbus

For reliable data communication



## Temperature/Pressure Sensor

Temperatures up to 400 °C and pressures up to 13 MPaG can be measured simultaneously.

### Features

System configuration example ..... Wireless —— Wired

Wireless communication

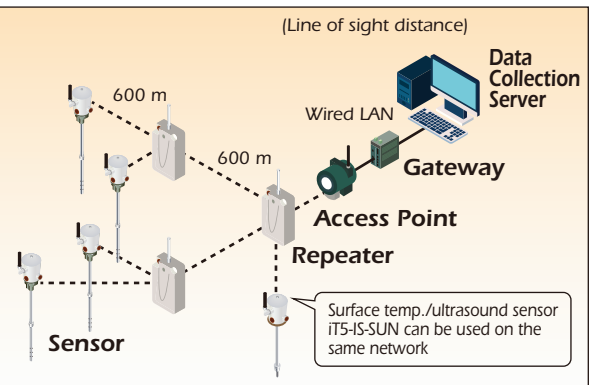


**ISA 100 WIRELESS** ISA100.11a Industrial wireless communication standard

#### Model iT5-IS-TP Series

- Wireless frequency band: 2.4 GHz
- Measurement cycle: Configurable between 1 s and 1 h
- Maximum no. of connections: 500 devices per gateway  
When using TLV-recommended system (Yokogawa Electric Corporation: YFGW410)
- Maximum no. of hops: 4 (from access point to sensor)
- Sensor power source: Dedicated battery pack

For high frequency monitoring



# Main Specifications

|                                       | iT5-ZB Series   | iT5-IS Series                                | iT5-IS-TP Series                                   |                                   | iT5-FF Series  |
|---------------------------------------|---|--|--|-----------------------------------|--|
| Model                                 | iT5-ZB-SUN  | iT5-IS-SUN                                   | iT5-IS-TPN<br>Without thermowell   With thermowell |                                   | iT5-FF-SUN   |
| Measurable properties                 | Surface temperature, ultrasound                             |  | Temperature, pressure                              |                                   | Surface temperature, ultrasound  |
| Measurement cycle                     | Configurable between 5 m and 24 h                           | Configurable between 1 s and 1 h             |  | Configurable between 1 s and 60 s |  |
| Communication standards               | Wireless communication                                      |  |  |                                   | Wired communication  |
|                                       | TLV original wireless communication protocol                | ISA100.11a                                   |  |                                   | FOUNDATION™ Fieldbus   |
| Location for use                      | Hazardous and non-hazardous locations                       |  |  |                                   | Hazardous and non-hazardous locations  |
| Explosion-proof specifications        | Intrinsically safe (ATEX, IECEx, UL/cUL) Temp. class: T4    |  |  |                                   | Intrinsically safe (ATEX, IECEx, UL/cUL) Temp. class: T4 (FISCO/ENTITY models) |
| Communication distance                | Approx. 200 m (with a clear line of sight)                  | Approx. 600 m (with a clear line of sight)   |  |                                   | —  |
| Wireless module                       | Frequency bandwidth: 2.405 to 2.480 GHz                     |  |  |                                   | —  |
| Power source                          | Non-rechargeable lithium-thionyl chloride battery pack      |  |  |                                   | Supplied by FOUNDATION™ Fieldbus   |
| Battery life <sup>1)</sup>            | Approx. 10 years with 30 m measurement cycle                | Approx. 10 years with 60 s measurement cycle |  |                                   | —  |
| Max. ambient temp. [°C] <sup>2)</sup> | 80, 75, 67, 62  |  | 80, 75, 68, 64                                     |                                   | 80, 75, 67, 62   |
| Measurable temp. range [°C]           | -40 to 250 or -40 to 400 (surface temp.)                    |  | -40 to 400 (internal temp.)                        |                                   | -40 to 250 or -40 to 400 (surface temp.)                                       |
| Measurable pressure range             | —   |  | 0.07 to 1 MPa (abs), 0 to 2, 5, 13 MPaG            |                                   | —  |
| Protection class                      | IP67 (dust tight and protected against temporary immersion) |  |  |                                   | IP67 (dust tight and protected against temporary immersion)                    |
| Dimensions (mm)                       | W 63 x H 380 x D 69   | W 151 x H 450 x D 94                         | W 151 x H 582 to 732 x D 94                        | W 151 x H 634 to 784 x D 94       | W 118 x H 390 x D 94   |
| Weight                                | Approx. 560 g <sup>3)</sup>                                 | Approx. 1.1 kg <sup>3)</sup>                 | Approx. 1.8 kg <sup>3)</sup>                       | Approx. 5 to 12 kg <sup>3)</sup>  | Approx. 900 g  |

|                                | iT5-ZB-RUN  | iT5-IS-RUN                                   |
|--------------------------------|---|--|
| Model                          | iT5-ZB-RUN  | iT5-IS-RUN                                   |
| Communication standards        | TLV original wireless communication protocol  | ISA100.11a                                   |
| Location for use               | Hazardous and non-hazardous locations   |  |
| Explosion-proof specifications | Intrinsically safe (ATEX, IECEx, UL/cUL) Temp. class: T4  |  |
| Communication distance         | Approx. 600 m (with a clear line of sight)  |  |
| Wireless module                | Frequency bandwidth: 2.405 to 2.480 GHz   |  |
| Power source                   | Non-rechargeable lithium-thionyl chloride battery pack or external power source 13 V DC / 0.2 A |  |
| Battery life <sup>1)</sup>     | Approx. 10 years with 30 m measurement cycle  | Approx. 10 years with 60 s measurement cycle |
| Max. ambient temp. [°C]        | Battery-powered type: 80 External power source type: 70   |  |
| Protection class               | IP67 (dust tight and protected against temporary immersion)                                     |  |
| Dimensions (mm)                | W 130 x H 425 x D 95  |  |
| Weight                         | Battery-powered type: Approx. 3 kg <sup>3)</sup> External power source type: Approx. 2.6 kg     |  |

<sup>1)</sup> Varies depending on operating conditions  
<sup>2)</sup> Varies depending on the temperature of the measured object  
<sup>3)</sup> Including battery pack

Contact TLV for information regarding access point, gateway, repeater box, linking device or terminal box.

|                                | iT5-ZB-DSN  |                       |
|--------------------------------|---|-----------------------|
| Model                          | iT5-ZB-DSN  |                       |
| Communication standards        | TLV original wireless communication protocol          |                       |
| Location for use               | Hazardous and non-hazardous locations                 |                       |
| Explosion-proof specifications | Explosion-proof (ATEX, IECEx, UL/cUL) Temp. class: T4 | Non explosion-proof   |
| Wireless communication         | TLV original wireless communication protocol and LAN  |                       |
| Communication port             | LAN (Ethernet) RJ45 x 1 (100BASE-TX/10BASE-T)         |                       |
| Power source                   | External power source AC (100 to 240 V AC 5 W)        |                       |
| Max. ambient temp. [°C]        | 60  |                       |
| Protection class               | IP54 (dust and splash-proof type)                     |                       |
| Installation location          | Indoors/outdoors                                      | Indoors               |
| Dimensions (mm)                | W 330 x H 537 x D 120                                 | W 280 x H 300 x D 160 |
| Weight                         | Approx. 16.3 kg                                       | Approx. 7 kg          |

## Applications

### Continuous monitoring

- Important steam-using equipment for production
  - Heat exchangers • Presses • Turbines, etc.
- Equipment installed in difficult-to-reach locations
  - Elevated locations • In pits • High temperature environments, etc.
- Steam traps, etc.\*

\* Steam trap diagnostic software required separately. Contact TLV for details. Temperature/pressure sensor not included.



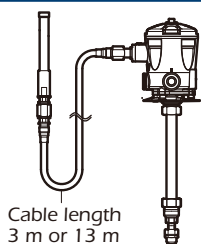
To avoid abnormal operation, accidents or serious injury, DO NOT use this product outside of the specification range. Local regulations may restrict the use of this product to below the conditions quoted.

For more information, visit our website at <http://www.tlv.com>.

## Options

### Antenna extension

Communication stability is secured by installing antenna remotely. (iT5-IS Series and iT5-IS-TP Series)



Cable length 3 m or 13 m

### Flexible pipe connection

Can be selected depending on where the sensor is installed. (iT5-IS Series and iT5-FF Series)



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# TLV INTERNATIONAL, INC.

881 Nagasuna, Noguchi, Kakogawa, Hyogo 675-8511, JAPAN

Tel: [81]-(0)79-427-1818 Fax: [81]-(0)79-425-1167

E-mail: [tlv-japan@tlv.co.jp](mailto:tlv-japan@tlv.co.jp) <http://www.tlv.com>

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

