



Manufacturer

TLV CO., LTD.

Kakogawa, Japan

is approved by LRQA Ltd. to ISO 9001/14001



Instruction Manual

(Information for use in hazardous locations)

iTrapSensor Monitoring System
Surface Temperature/Ultrasound Sensor
iT5-IS-SUN

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Introduction

Thank you for purchasing the TLV monitoring system, iT5.

When the product is delivered, before doing anything else, check the specifications and external appearance to make sure nothing is out of the ordinary. Also be sure to read this manual carefully before use and follow the instructions to be sure of using the product properly.

To ensure safe and correct use of this product, be sure to observe the safety precautions listed in this manual as they relate to installation, operation, maintenance and repair of the product. Please keep it in a safe place for future reference.

TLV accepts no responsibility for incorrect use of the product by the customer or any third-party, malfunction occurring during use, other defects and any damage caused by this product, excluding cases in which it is under obligation to pay reparations by law.

This product has undergone strict quality management and product inspection before being shipped from the factory. However, in the event of malfunction or defects, please contact your local TLV representative or the TLV customer service center.

This instruction manual and product are subject to modification without notice, for the purpose of improvement.

Unauthorized reprinting or reproduction, in whole or in part, of this instruction manual or contents of the hardware/software of the product is strictly prohibited.

Safety Considerations

- Read this section carefully before use and be sure to follow the instructions.
- Installation, inspection, maintenance, repairs, disassembly, adjustment and valve opening/closing should be carried out only by trained maintenance personnel.
- The precautions listed in this manual are designed to ensure safety and prevent equipment damage and personal injury. For situations that may occur as a result of erroneous handling, three different types of cautionary items are used to indicate the degree of urgency and the scale of potential damage and danger: DANGER, WARNING and CAUTION.
- The three types of cautionary items above are very important for safety: be sure to observe all of them as they relate to installation, use, maintenance, and repair. Furthermore, TLV accepts no responsibility for any accidents or damage occurring as a result of failure to observe these precautions.

Symbols

	Indicates a DANGER , WARNING or CAUTION item.
	Indicates an urgent situation which poses a threat of death or serious injury
	Indicates that there is a potential threat of death or serious injury
	Indicates that there is a possibility of injury or equipment / product damage

General Precautions

	Do not disassemble or modify. Failure to observe this precaution could result in personal injury, electrocution, ignition or fire.
	Do not use the battery pack other than that specified. Failure to observe this precaution could result in failure, ignition, or explosions.
	Do not wipe/rub the surfaces of this product with a dry cloth etc. There is the danger of electrostatically charging the unit, which may result in ignition or explosions, especially in hazardous locations.
	Do not use this product in hospitals or airplanes. Failure to observe this precaution could result in malfunction of medical equipment, instrumentation, etc.
	Ensure the specifications for the intrinsically safe structure of this product meet the requirements for installation in hazardous locations. Specifications for the intrinsically safe structure of this product are described in the "Specifications" section.
	Aluminum is used in this product. Do not expose the product to impact or friction. Exposure to impact or friction may result in ignition or accidental explosions.
	When installing or working at high elevations, take measures to ensure against dropping the product or parts. Failure to take such measures could result in personal injury if persons passing below are struck by a falling object, or other accidents.

Continued on the next page

 DANGER	Check to make sure that no wireless instrumentation other than the product is being used. Failure to observe this precaution could lead to interference of important transmissions or accidents.
	The equipment contains non-metallic materials and that the user should consider the performance of these materials with respect to chemicals which may be present in the hazardous area. If in doubt, please contact the manufacturer.
 WARNING	As this is an industrial product, it is not to be used on consumer applications nor in residential areas.
	Do not substitute components, as this may impair the intrinsic safety of the product.
	Do not install this product on objects exceeding maximum allowable operating temperature. Overheating could result in damage to internal parts, excessive heat generation, rupture or ignition.
	Do not subject the unit to strong shocks or throw it against anything. Failure to observe this precaution could result in damage to internal parts, excessive heat generation, rupture, ignition or personal injury.
	Do not place device in microwave ovens or high-pressure vessels, or in the vicinity of electromagnetic devices. Such handling could result in excessive heat generation, smoke, damage to circuitry, battery fluid leakage, rupture or ignition.
 CAUTION	Do not allow any foreign matter to enter the unit. In areas with small foreign matter such as metal dust, use the product after taking measures to prevent foreign matter entering the unit. Failure to observe this precaution could result in fire or malfunction.
	Do not let the unit become immersed in water. If liquid gets inside the unit, it may result in excessive heat generation, electrical shock or unit malfunction. Be mindful of the location of use and handling.

Battery Pack Precautions

 DANGER	Do not apply heat to the battery pack or throw it into a fire. Failure to observe this precaution could result in leakage of the battery fluid, excessive heat generation, rupture or ignition.
	Do not disassemble, modify or solder the battery pack. Failure to observe this precaution could result in leakage of the battery fluid, excessive heat generation, rupture or ignition.
	Do not cause the batteries to become wet by immersing in water, salt water or liquid chemicals. Failure to observe this precaution could result in leakage of the battery fluid, excessive heat generation, rupture or ignition.
	Do not leave unit where it will be exposed to direct sunlight or in areas that will become very hot, such as interiors of cars, near heating equipment, etc. Failure to observe this precaution could result in leakage of the battery fluid, excessive heat generation, rupture or ignition.
	If fluid leaks from the battery pack resulting in eye contact, flush eyes with clean water immediately. There is a danger of loss of vision. Do not rub the eyes, and seek medical care after flushing thoroughly with clean water.

 WARNING	Cease use of the battery pack immediately if the unit exhibits abnormal operation. If irregularities such as fluid leakage, an unusual smell, unusual heat generation, discoloration or deformation are noticed, cease use of the unit immediately. If use is continued under such conditions, excessive heat generation, ignition or rupture may result. If battery fluid leaks and comes into contact with the body, rinse immediately. There is danger of resultant damage to the skin. Immediately rinse any battery fluid off with clean water.
 CAUTION	When not intending to use for extended periods of time, remove the battery pack from the unit and store in a dry, cool, dark location. Failure to observe this precaution could result in fluid leakage, rust, deterioration in performance or a reduction in service life. Do not dispose of the battery pack with normal garbage. If at any time the battery pack becomes unusable, observe your company regulations for proper disposal in accordance with local laws. If proper disposal is impossible, insulate the contact terminals by covering them with tape and return them to a TLV office.

Règles de sécurité

- Lire attentivement cette section avant l'utilisation et respecter les instructions données.
- Toute installation, inspection, entretien, réparation, démontage, ajustement et ouverture/fermeture de vanne doit être fait uniquement par une personne formée à l'entretien.
- Les précautions reprises dans ce manuel ont pour but de garantir la sécurité et de prévenir tout dommage matériel et blessure humaine. Pour les situations potentiellement dangereuses qui pourraient survenir à la suite d'un maniement impropre, trois types de signaux sont utilisés pour indiquer le degré d'urgence et de dégât potentiel: DANGER, AVERTISSEMENT et ATTENTION.
- Les trois types de symboles énumérés ci-dessous sont très importants pour votre sécurité: n'oubliez pas de les respecter, car ils concernent aussi bien l'installation et l'utilisation que l'entretien et les réparations. D'autre part, TLV n'accepte aucune responsabilité pour tout accident ou dégât survenant à la suite d'un non-respect de ces précautions.

Symboles

	Indique un signal DANGER , AVERTISSEMENT ou ATTENTION .
	Indique une situation d'urgence avec risque de mort ou de blessure grave.
	Indique une situation pouvant entraîner la mort ou des blessures graves.
	Indique un risque de blessure ou de dégât matériel au produit et/ou aux installations.

Précautions générales

	Ne pas démonter ou modifier le produit. Le non-respect de cette règle peut entraîner des blessures, chocs électriques, brûlures, incendies.
	Ne pas utiliser d'autre bloc de batteries que celui indiqué. Cela pourrait entraîner une panne voir des blessures, inflammations ou explosions.
	Ne pas frotter/essuyer la surface du produit avec un chiffon sec. Il y a un risque de charger en électricité statique l'appareil. Cela peut provoquer un incendie ou une explosion, particulièrement dans des zones dangereuses.
	Ne pas utiliser ce produit dans un hôpital ou un avion. Le non-respect de cette règle pourrait provoquer le dysfonctionnement d'équipements médicaux, d'instrumentations, etc.
	Assurez-vous que les spécifications à sécurité intrinsèque de ce produit répondent aux exigences pour l'installation dans des zones dangereuses. Les spécifications à sécurité intrinsèque de ce produit sont décrites dans la section « Spécifications ».
	Ce produit contient de l'aluminium. Ne pas soumettre au choc ni au frottement. Cela pourrait provoquer un incendie ou une explosion.

Suite à la page suivante

 DANGER	Lors de l'installation ou de l'utilisation dans des lieux en hauteur, prenez des mesures pour éviter de laisser tomber le produit ou des pièces. Le non-respect de cette règle pourrait entraîner des blessures si des personnes passaient en dessous et étaient attentes par un objet tombant ou autres accidents. Veiller vérifier qu'il n'y a pas d'autres appareils sans-fils utilisés dans la zone. Le non-respect de cette règle pourrait provoquer des interférences ou des accidents. Cet appareil contient des matériaux non-métalliques. L'utilisateur doit prendre en considération les interactions possibles de ces matériaux avec des produits chimiques dans une zone dangereuse. Pour tous renseignements complémentaires, veuillez vous adresser au fabricant.
 AVERTISSEMENT	Comme il s'agit d'un produit industriel, il ne doit pas être utilisé pour des applications grand public ni dans les zones résidentielles. Ne pas remplacer les composants du produit, au risque de compromettre sa sécurité intrinsèque. Ne pas installer le produit sur des objets dépassant la température maximum admissible d'opération. Une surchauffe pourrait entraîner des dommages aux pièces internes, générer une chaleur excessive, une rupture ou une inflammation. Ne pas soumettre l'appareil à des chocs violents ni le projeter. Le non-respect de cette précaution pourrait entraîner des dommages aux pièces internes, provoquer une chaleur excessive, la rupture, l'inflammation ou des blessures. Ne pas placer l'appareil dans un four à micro-onde ou un récipient sous haute pression, ni à proximité de dispositifs électromagnétiques. Cela pourrait entraîner une génération excessive de chaleur, de la fumée, des dégâts aux circuits, des fuites de liquide de la batterie, une rupture ou une inflammation.
 ATTENTION	Faire en sorte qu'aucun corps étranger ne pénètre dans l'appareil. Dans les zones avec des particules fines telles que la poussière métallique, prendre des mesures pour éviter que les corps étrangers ne pénètrent dans l'appareil. Le non-respect de cette précaution pourrait entraîner un incendie ou un dysfonctionnement. Ne pas immerger l'équipement dans l'eau. Si un liquide pénètre dans l'appareil, cela peut entraîner une chaleur excessive, un choc électrique ou un dysfonctionnement. Prêter toujours attention au lieu où vous manipulez l'appareil.

Précautions concernant le bloc de batteries

 DANGER	Ne pas chauffer le bloc de batteries ou les jeter dans un feu. Le non-respect de cette précaution pourrait entraîner une fuite du liquide des batteries, provoquer une chaleur excessive, la rupture, l'inflammation. Ne pas démonter le bloc de batteries. Le non-respect de cette précaution peut faire fuir le liquide des batteries, générer une chaleur excessive, une rupture ou une inflammation. Ne pas mouiller l'appareil ou l'immerger dans de l'eau, de l'eau de mer ou des liquides chimiques. Le non-respect de cette consigne peut faire fuir le liquide des batteries, générer trop de chaleur, une rupture ou une inflammation. Ne pas laisser l'appareil dans la lumière du soleil ou des endroits chauffants comme l'intérieur de voitures ou près d'un chauffage. Le non-respect de cette précaution peut faire fuir le liquide des batteries, générer une chaleur excessive, une rupture ou une inflammation. Si du liquide s'échappe du bloc de batteries et entre en contact avec les yeux, rincez-les immédiatement à l'eau claire. Il y a un risque de perte de vision. Ne frottez pas les yeux et consultez un médecin après avoir rincé abondamment à l'eau claire.
 AVERTISSEMENT	Cessez immédiatement d'utiliser le bloc de batteries si l'appareil montre des signes de fonctionnement anormal. Si vous remarquez une fuite de liquide, une odeur inhabituelle, une chaleur anormale, une décoloration ou une déformation, cessez immédiatement d'utiliser l'appareil. Si vous continuez à l'utiliser, cela peut causer une chaleur excessive, une rupture ou une inflammation. Si du liquide fuit des batteries et entre en contact avec le corps, rincez immédiatement. Il existe un risque de dégât à la peau. Rincez immédiatement tout liquide issu des batteries avec de l'eau propre.
 ATTENTION	En cas de non utilisation prolongée, retirez le bloc de batteries et conservez-le dans un endroit sec, frais et à l'abri de la lumière. Le non-respect de cette précaution peut causer des fuites de liquide, de la rouille, une moindre performance ou une durée de vie réduite. Ne pas jeter le bloc de batteries avec les déchets normaux. Lorsque le bloc de batteries devient inutilisable, veillez à vous en débarrasser en suivant les règles de votre société et les lois locales. S'il est impossible de le jeter de façon appropriée, isolez les bornes de contact en les couvrant avec une bande et renvoyez-les à TLV.

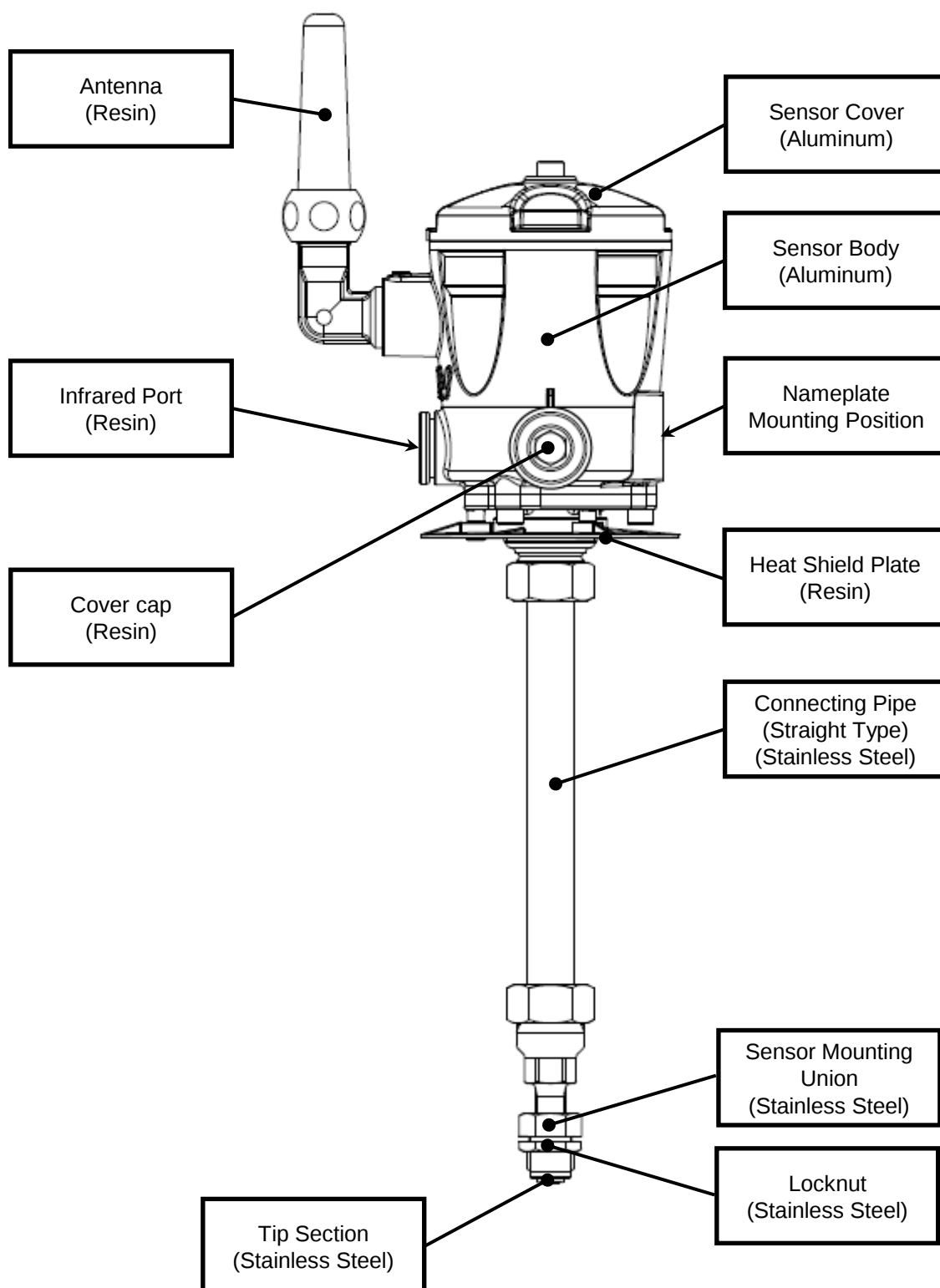
Conditions of safe use (Information for use in hazardous locations)

- Under certain extreme circumstances, the non-metallic parts incorporated in the enclosure of this equipment may generate an ignition-capable level of electrostatic charge. Therefore, the equipment shall not be installed in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. This is particularly important if the equipment is installed in a zone 0 or Division 1 location. In addition, the equipment shall only be cleaned with a damp cloth.
- The enclosure is manufactured from aluminum alloy. In rare cases, ignition sources due to impact and friction sparks could occur. This shall be considered during installation, particularly if the equipment is installed in a zone 0 or Division 1 location.
- Maximum ambient temperature is different depending on measuring surface temperature and model type. Read ambient temperature range in specification chart carefully before use.

Conditions d'utilisation sans danger (information pour l'utilisation du produit dans des zones dangereuses)

- Dans certaines situations extrêmes, les pièces non métalliques intégrées dans cet équipement peuvent générer un niveau de charge électrostatique capable de provoquer des inflammations. Par conséquent, l'équipement ne doit pas être installé dans un lieu où les conditions externes sont propices à l'accumulation de charges électrostatiques ; en particulier, si l'équipement est installé dans une zone 0 ou un espace classé division 1. De plus, l'équipement ne doit être nettoyé qu'avec un chiffon humide.
- Le boîtier de l'équipement est constitué d'alliage d'aluminium. Dans certains cas, des chocs et des frictions causant des étincelles peuvent provoquer des inflammations. Cela doit être pris en compte lors de l'installation, en particulier si l'équipement est installé dans une zone 0 ou un espace classé division 1.
- La température ambiante maximale dépend de la mesure de la température superficielle et du modèle. Lisez attentivement la plage de température ambiante utilisable dans le tableau de spécifications avant utilisation.

Part Names



Installation



Ensure the specifications for the intrinsically safe structure of this product meet the requirements for installation in hazardous locations. Specifications for the intrinsically safe structure of this product are described in the "Specifications" section.

Aluminum is used in this product, therefore do not expose the product to impact or friction. Exposure to impact or friction may result in ignition or accidental explosions.

Do not wipe/rub the surfaces of this product with a dry cloth etc. There is the danger of electrostatically charging the unit, which may result in ignition or explosions, especially in hazardous locations.

The equipment contains non-metallic materials and that the user should consider the performance of these materials with respect to chemicals which may be present in the hazardous area. If in doubt, please contact the manufacturer.



Assurez-vous que les spécifications à sécurité intrinsèque de ce produit répondent aux exigences pour l'installation dans des zones dangereuses. Les spécifications à sécurité intrinsèque de ce produit sont décrites dans la section « Spécifications ».

Ce produit contient de l'aluminium. Ne pas soumettre au choc ni au frottement.

Cela pourrait provoquer un incendie ou une explosion.

Ne pas frotter/essuyer la surface du produit avec un chiffon sec.

Il y a un risque de charger en électricité statique l'appareil. Cela peut provoquer un incendie ou une explosion, particulièrement dans des zones dangereuses.

Cet appareil contient des matériaux non-métalliques. L'utilisateur doit prendre en considération les interactions possibles de ces matériaux avec des produits chimiques dans une zone dangereuse. Pour tous renseignements complémentaires, veuillez vous adresser au fabricant.

NOTE: Install in accordance with National Electric Code, Canadian Electrical Code or other applicable Local Codes.

Installing the sensor on iTrap

1. Remove the plug from the sensor mounting seat on the iTrap body or sensor mounting socket.
2. Place the sensor mounting union into the sensor mounting seat and tighten it to the proper torque. (Torque: 20 N•m (15 lbf•ft))
 - Check the base of the sensor mounting seat, and remove any dirt or foreign matter if present.
 - Lift the locknut as far as possible while placing the sensor tip into the seat, then tighten the sensor mounting union. If the locknut is not lifted properly, the tip of the sensor (the sensing part) may not touch the base of the sensor mounting seat.
3. Tighten the locknut, making sure it is firmly secured.

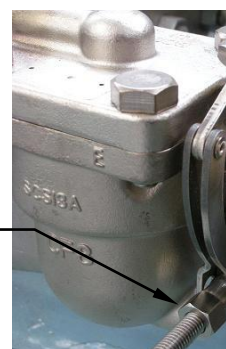


Installing the sensor on non-iTraps

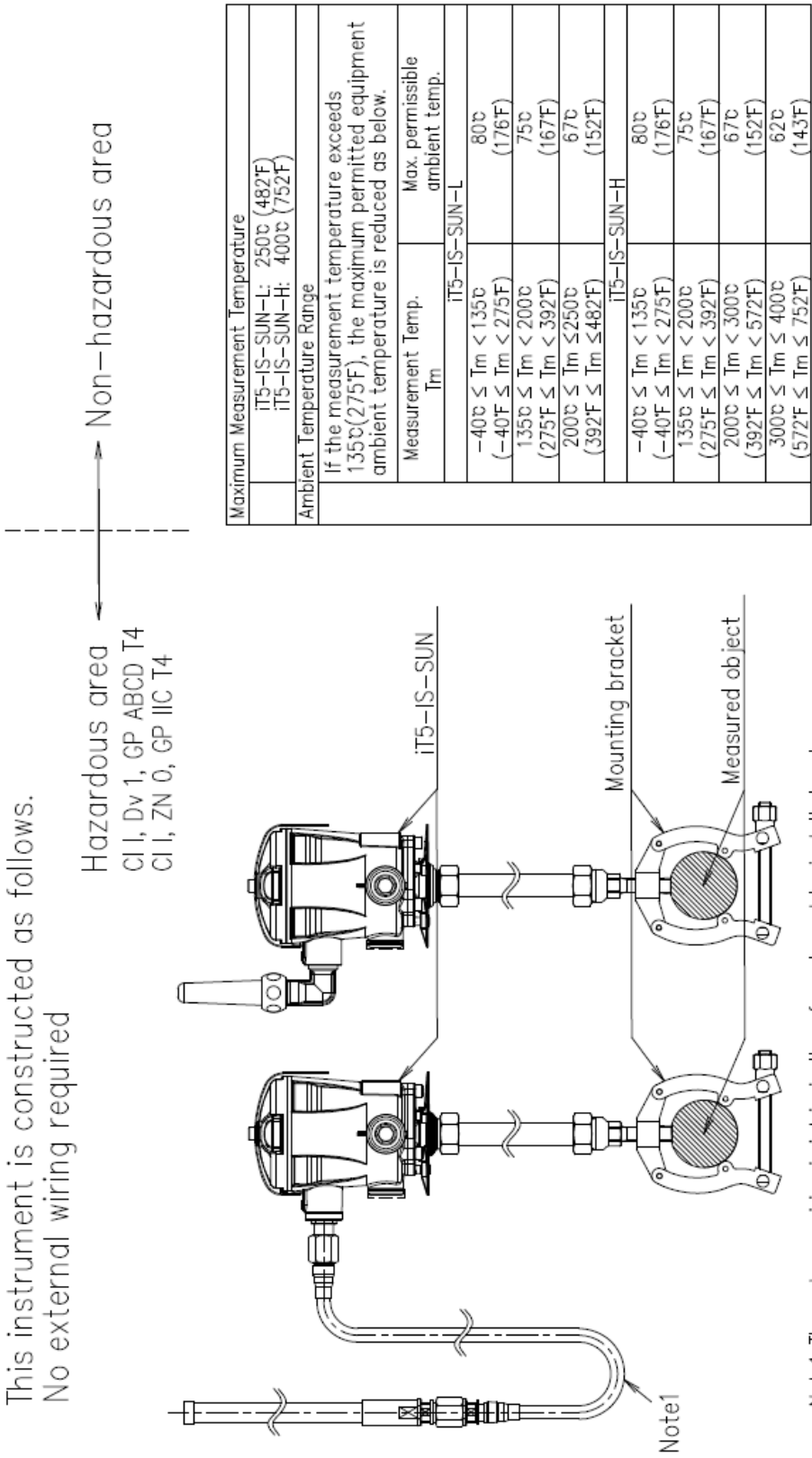
1. Temporarily secure the mounting bracket to the inlet side of the trap.
2. Screw the sensor tip into the threaded portion of the mounting bracket and adjust the installation height.
3. Secure the mounting bracket by tightening the clamp nut on the lower part of the mounting bracket. (Torque: 8 N•m (6 lbf•ft))



Clamp Nut



Control Drawing (UL/cUL)



E-E545-SYS(01)-UL

Mounting Position



Specifications for the intrinsically safe structure of this product vary depending on the mounting position of the product. Ensure the specifications of this product meet the requirements for installation in hazardous locations. Specifications for the intrinsically safe structure of this product are described in the "Specifications" section.



Installation of the sensor body below the measured device is prohibited. Due to the characteristics of the battery, doing so may significantly reduce the battery life of the sensor. Make sure the sensor body is above or level with the measured device.

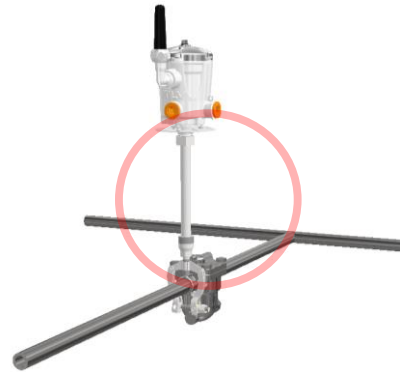
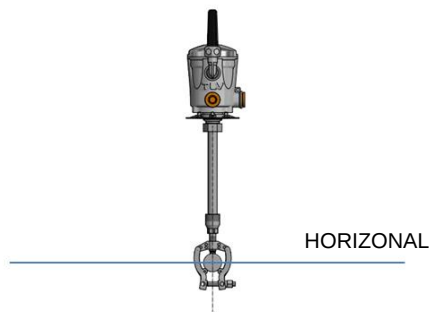


Les spécifications à sécurité intrinsèque de ce produit varient en fonction de la position dans laquelle il est installé. Assurez-vous que les spécifications à sécurité intrinsèque de ce produit répondent aux exigences pour l'installation dans des zones dangereuses. Les spécifications à sécurité intrinsèque de ce produit sont décrites dans la section « Spécifications ».

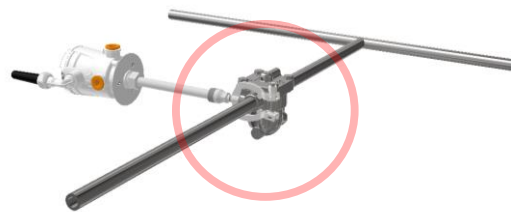
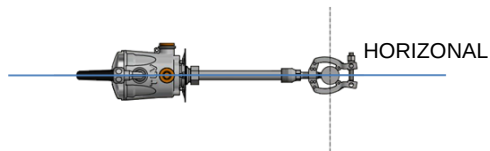


L'installation du corps de la sonde en dessous de l'élément de mesure est interdite. Etant donné les caractéristiques de la batterie, réaliser cette installation réduit significativement la durée de vie de la batterie de la sonde. Assurer-vous que le corps de la sonde est au-dessus ou au même niveau que l'élément de mesure.

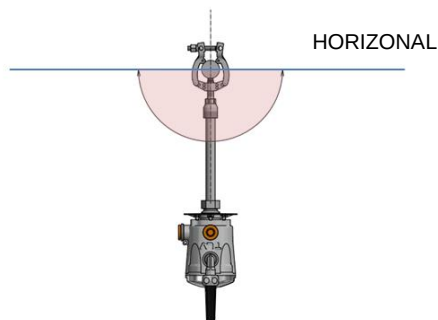
Vertical
Position



Horizontal
Position



Prohibited
Position



Replacing the Battery Pack



Do not disassemble the battery pack.

Failure to observe this precaution could result in leakage of the battery fluid, excessive heat generation, rupture or ignition.

Aluminum is used in this product, therefore do not expose the product to impact or friction.

Exposure to impact or friction may result in ignition or accidental explosions.

Do not wipe/rub the surfaces of this product with a dry cloth etc.

There is the danger of electrostatically charging the unit, which may result in ignition or explosions, especially in hazardous locations.

The battery pack can be replaced in hazardous locations, but the battery (cell) cannot be replaced regardless of the location.



- Make sure to use a new battery pack when replacing the battery pack. (If replaced with a partially used battery, erroneous results may be returned when calculating the remaining battery life.)
- When replacing the battery pack, please use the IS-SU battery replacement kit.
- Make sure to use the special tool (sold separately) to open/close the IS sensor cover.
- Select a belt wrench with a belt width of 20 mm ($\frac{13}{16}$ in) or less, including 90 mm ($\frac{39}{16}$ in) in the range of use.



Ne pas démonter le bloc de batteries.

Le non-respect de cette précaution peut faire fuir le liquide des batteries, générer une chaleur excessive, une rupture ou une inflammation.

Ce produit contient de l'aluminium. Ne pas soumettre au choc ni au frottement. Cela pourrait provoquer un incendie ou une explosion.

Ne pas frotter/essuyer la surface du produit avec un chiffon sec.

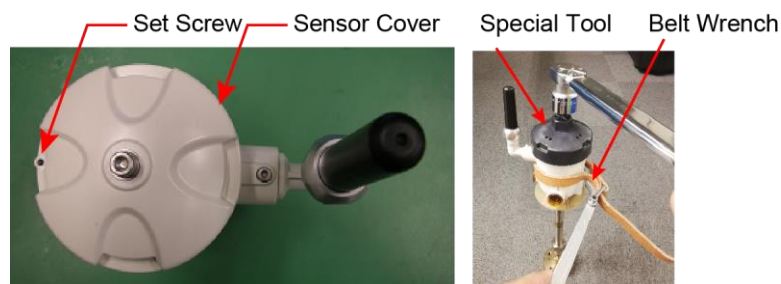
Il y a un risque de charger en électricité statique l'appareil. Cela peut provoquer un incendie ou une explosion, particulièrement dans des zones dangereuses.

Le bloc de batteries peut être remplacé dans des zones dangereuses, mais la batterie (cellule) ne peut pas être remplacée, quel que soit l'endroit.

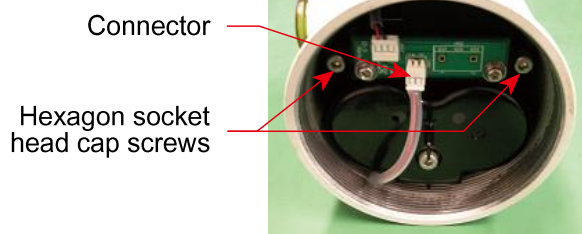


- **Veillez à utiliser une batterie neuve lorsque vous remplacez le bloc de batteries.**
(En cas de remplacement par une batterie partiellement usagée, des résultats erronés peuvent être renvoyés lors du calcul de l'autonomie restante de la batterie.)
- **Lors du remplacement du bloc de batteries, veuillez utiliser le kit de remplacement de batteries IS-SU.**
- **Veillez à utiliser l'outil spécial pour ouvrir/fermer le couvercle du sondeur IS.**
- **Choisissez une clé à courroie dont la largeur est inférieure ou égale à 20 mm, y compris 90 mm dans la plage d'utilisation.**

1. Loosen the set screw and remove the sensor cover with a special tool (sold separately). When the sun shade is attached to the cover, remove it beforehand.



2. Disconnect the connector.



3. Remove 2 hexagon socket head cap screws and pull the battery pack out.



4. Insert a new battery pack and secure it with 2 screws.
5. Re-connect the connector.

6. Replace the packing and coat surfaces with grease.

Packing



7. Firmly secure the sensor cover with a special tool shown in Step 1.
Reattach the sun shade if necessary.

Refer to the iT5-IS Battery Replacement Procedure for detailed information including battery disposal methods. Follow local regulations when disposing of used battery packs.

Installing the Sun Shade



Ensure the specifications for the intrinsically safe structure of this product meet the requirements for installation in hazardous locations.

Specifications for the intrinsically safe structure of this product are described in the "Specifications" section.

Aluminum is used in this product, therefore do not expose the product to impact or friction.

Exposure to impact or friction may result in ignition or accidental explosions.

Do not wipe/rub the surfaces of this product with a dry cloth etc.

There is the danger of electrostatically charging the unit, which may result in ignition or explosions, especially in hazardous locations.



Assurez-vous que les spécifications à sécurité intrinsèque de ce produit répondent aux exigences pour l'installation dans des zones dangereuses.

Les spécifications à sécurité intrinsèque de ce produit sont décrites dans la section « Spécifications ».

Ce produit contient de l'aluminium. Ne pas soumettre au choc ni au frottement. Cela pourrait provoquer un incendie ou une explosion.

Ne pas frotter/essuyer la surface du produit avec un chiffon sec.

Il y a un risque de charger en électricité statique l'appareil. Cela peut provoquer un incendie ou une explosion, particulièrement dans des zones dangereuses.

1. Remove the screw on the top of the sensor cover (M6 × 10, 1 pc) and heat-shield fixing screw (M4 × 8, 3 pcs).
2. Temporarily fix the heat shield to the sensor with the included heat-shield fixing screws (M4 × 12, 3 pcs).
3. Place the sun shade as shown in the following figure (at an angle of 30°, see A in the following figure) and tighten all the screws.

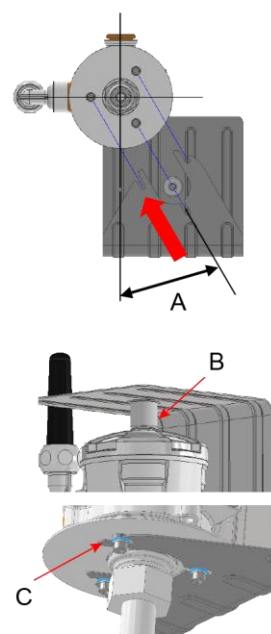
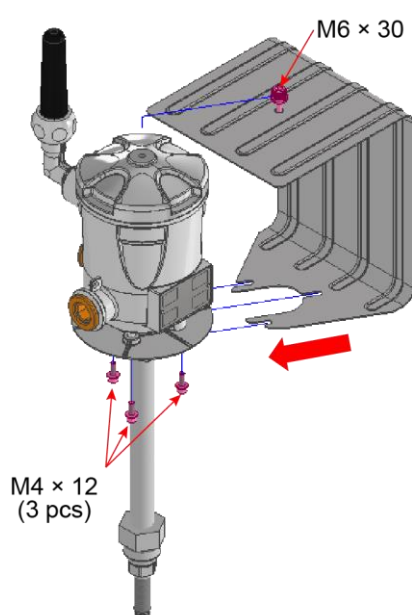
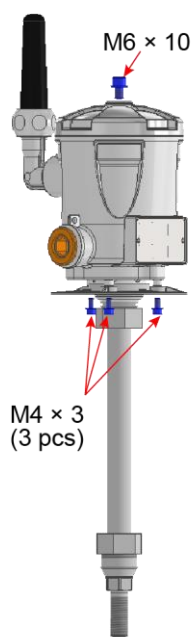
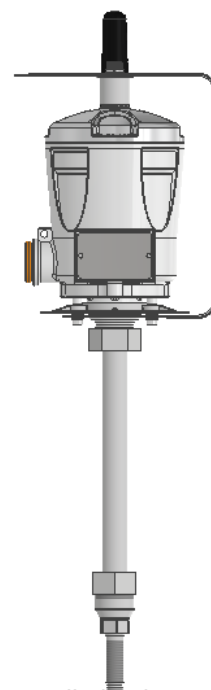
Notes for sun shade installation:

- Do not remove the spacer installed between the sun shade (see B in the following figure) and the sensor.
- The sun shade should be inserted between the heat-shield fixing screw washers and the heat-shield (see C in the following figure).

Tightening torques

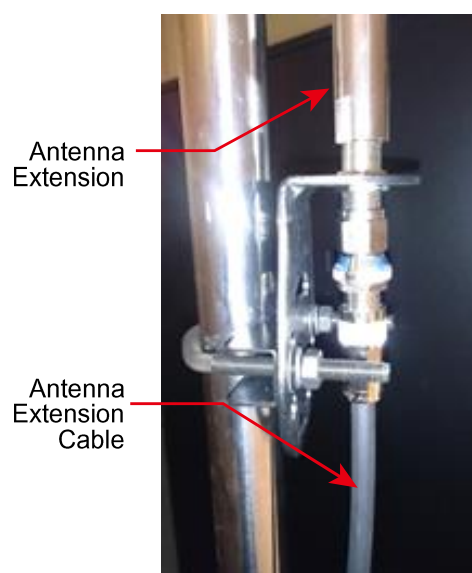
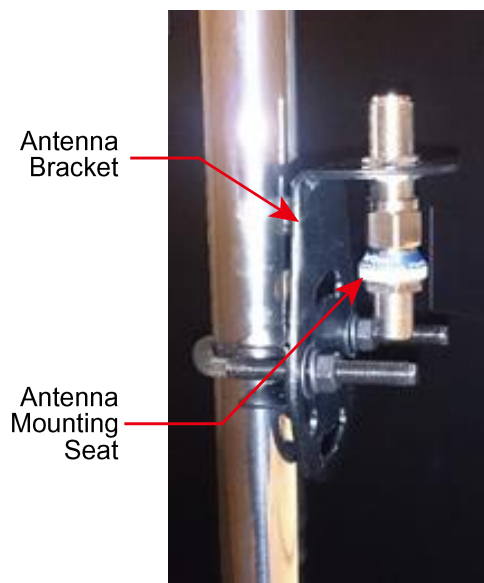
- Sun shade cover screw (M6 × 30, 1 pc): 5.2 N·m (3.8 lbf·ft)
- Heat-shield fixing screw (M4 × 12, 3 pcs): 0.75 N·m (0.55 lbf·ft)

Confirm the direction of sunlight at the installation site, and install the sun shade so that the sensor unit is covered.



Installing the Antenna Extension

1. Fix the antenna bracket packaged with the product to the structure with a U bolt. The bracket can be installed on either vertical, horizontal or diagonal structures.
2. Connect the antenna extension and the antenna extension cable packaged with the product.



Calibration

Although this product is thoroughly inspected before shipping, periodic calibration is recommended according to the installation environment to ensure the quality of measurement.

Frequency: Annual inspection is recommended. However, requirements may vary depending on the installation environment, therefore inspection guidelines should be set by the purchaser

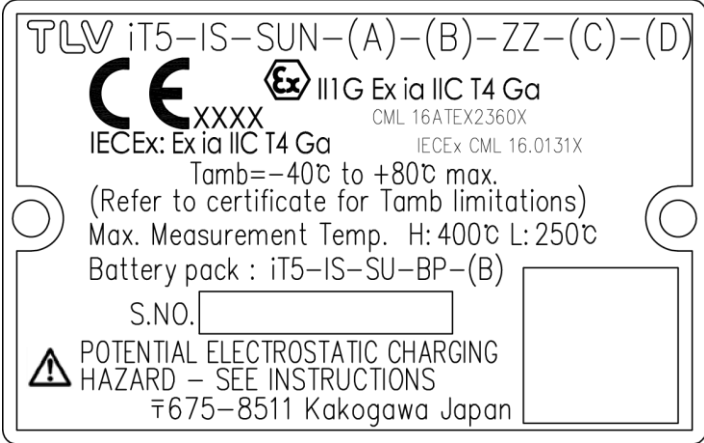
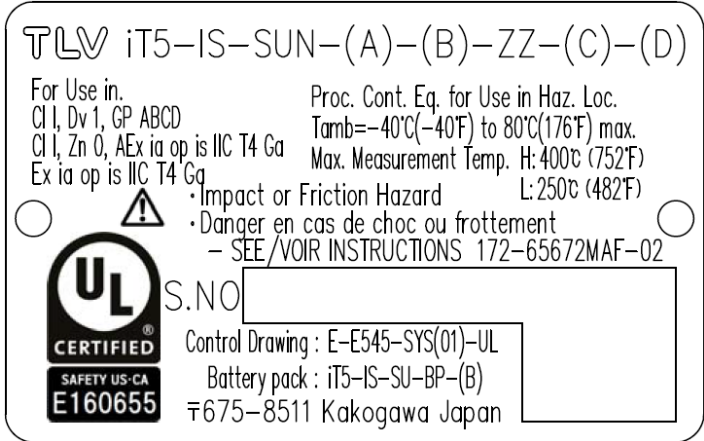
Calibration can only be performed with special equipment at TLV's factory.

Contact your local TLV representative or your regional TLV office for details.

Specifications

Type	iTrapSensor Monitoring System – Sensor Unit		
Model	IT5-IS-SUN		
Classification Markings of Hazardous Locations	ATEX: C  2776  II 1 G Ex ia IIC T4 Ga (Certificate No.: CML 16ATEX2360X)		
	UL/cUL: Class I, Division 1, Groups A, B, C and D Class I, Zone 0, Group IIC T4, AEx ia op is IIC T4 Ex ia op is IIC T4 (File No.: E160655)		
	IECEx: Ex ia IIC T4 Ga (Certificate No.: IECEX CML 16.0131X)		
	Mark for Certified Electrical Equipment	Ex	—
	Type of Protection	ia	Intrinsically safe structure (can be used in especially hazardous locations)
	Optical Radiation	Op is	Inherently safe optical radiation (IEC/EN 60079-28:2015)
	Applicable Gas Groups	IIC	Applicable to gases (Hydrogen, Acetylene, etc.) with minimum ignition current ratio is less than 0.45.
	Temperature Class	T4	Applicable when maximum surface temperature of the unit is 130 °C (266 °F) and gas ignition temperature is 135 °C (275 °F) or more.
EPL (Equipment Protection Level)	Ga	This equipment can be used in Zone 0.	
Applicable Standards	ATEX: • EN 60079-0:2018 • EN 60079-11:2012 • EN 60079-28:2015 UL/cUL: • UL 913 STANDARD FOR INTRINSICALLY SAFE APPARATUS AND ASSOCIATED APPARATUS FOR USE IN CLASS I, II, III, DIVISION 1, HAZARDOUS (CLASSIFIED) LOCATIONS – Edition 8 • UL 60079-0 EXPLOSIVE ATMOSPHERES – PART 0: EQUIPMENT – GENERAL REQUIREMENTS – Edition 6 • UL 60079-11 EXPLOSIVE ATMOSPHERES – PART 11: EQUIPMENT PROTECTION BY INTRINSIC SAFETY 'I' – Edition 6 • UL 61010-1 SAFETY REQUIREMENTS FOR ELECTRICAL EQUIPMENT FOR MEASUREMENT, CONTROL, AND LABORATORY USE – PART 1: GENERAL REQUIREMENTS – Edition 3 • ISA 60079-28 EXPLOSIVE ATMOSPHERES – PART 28: PROTECTION OF EQUIPMENT AND TRANSMISSION SYSTEMS USING OPTICAL RADIATION • CSA C22.2 NO. 60079-0 EXPLOSIVE ATMOSPHERES – PART 0: EQUIPMENT – GENERAL REQUIREMENTS – Edition 3 • CSA C22.2 NO. 60079-11:14 EXPLOSIVE ATMOSPHERES – PART 11: EQUIPMENT PROTECTION BY INTRINSIC SAFETY 'I' – Edition 2 • CSA C22.2 NO. 61010-1 SAFETY REQUIREMENTS FOR ELECTRICAL EQUIPMENT FOR MEASUREMENT, CONTROL, AND LABORATORY USE - PART 1: GENERAL REQUIREMENTS – Edition 3 • CSA C22.2 NO.60079-28 EXPLOSIVE ATMOSPHERES – PART 28: PROTECTION OF EQUIPMENT AND TRANSMISSION SYSTEMS USING OPTICAL RADIATION IECEx: • IEC 60079-0:2011, Edition 6 • IEC 60079-11:2011, Edition 6 • IEC 60079-28:2015, Edition 2		

Continued on the next page

Nameplate	ATEX/IECEx:  TLV iT5-IS-SUN-(A)-(B)-ZZ-(C)-(D) CE XXXX Ex IIIG Ex ia IIC T4 Ga CML 16ATEX2360X IECEx CML 16.0131X IECEx: Ex ia IIC T4 Ga Tamb = -40°C to +80°C max. (Refer to certificate for Tamb limitations) Max. Measurement Temp. H: 400°C L: 250°C Battery pack : iT5-IS-SU-BP-(B) S.NO.  POTENTIAL ELECTROSTATIC CHARGING HAZARD - SEE INSTRUCTIONS 〒675-8511 Kakogawa Japan UL/cUL:  TLV iT5-IS-SUN-(A)-(B)-ZZ-(C)-(D) For Use in. Proc. Cont. Eq. for Use in Haz. Loc. CI I, Dv 1, GP ABCD Tamb = -40°C (-40°F) to 80°C (176°F) max. CI I, Zn 0, AEx ia op is IIC T4 Ga Max. Measurement Temp. H: 400°C (752°F) Ex ia op is IIC T4 Ga L: 250°C (482°F)  • Impact or Friction Hazard • Danger en cas de choc ou frottement - SEE/VOIR INSTRUCTIONS 172-65672MAF-02  S.NO. Control Drawing : E-E545-SYS(01)-UL Battery pack : iT5-IS-SU-BP-(B) 〒675-8511 Kakogawa Japan
Power Source	Battery Pack Lithium thionyl chloride battery Rated Voltage: 3.6 V Rated Capacity: 38 Ah
Enclosures	IP67 (Evaluation for intrinsic safety rating is carried out under IP20)
Maximum Measurement Temperature	iT5-IS-SUN-L-**-**-**.: 250 °C (482 °F) iT5-IS-SUN-H-**-**-**.: 400 °C (752 °F)

Continued on the next page

Ambient Temperature Range	If the measurement temperature exceeds 135 °C (275 °F), the maximum permissible equipment ambient temperature is reduced as follows.		
	Measurement Temp. Tm	Max. permissible ambient temp.	
		Vertical Mounting	Horizontal Mounting
	iT5-IS-SUN-L-**-**-*-**		
	-40 °C ≤ Tm < 135 °C (-40 °F ≤ Tm < 275 °F)	80 °C (176 °F)	80 °C (176 °F)
	135 °C ≤ Tm < 200 °C (275 °F ≤ Tm < 392 °F)	75 °C (167 °F)	77 °C (170 °F)
	200 °C ≤ Tm ≤ 250 °C (392 °F ≤ Tm ≤ 482 °F)	67 °C (152 °F)	75 °C (167 °F)
	iT5-IS-SUN-H-**-**-*-**		
	-40 °C ≤ Tm < 135 °C (-40 °F ≤ Tm < 275 °F)	80 °C (176 °F)	80 °C (176 °F)
	135 °C ≤ Tm < 200 °C (275 °F ≤ Tm < 392 °F)	75 °C (167 °F)	77 °C (170 °F)
	200 °C ≤ Tm < 300 °C (392 °F ≤ Tm < 572 °F)	67 °C (152 °F)	75 °C (167 °F)
	300 °C ≤ Tm ≤ 400 °C (572 °F ≤ Tm ≤ 752 °F)	62 °C (143 °F)	72 °C (161 °F)
Wireless Module	TELEC:  018-160089 FCC ID: H3RTISS1001 IC: 7221A-TISS1001		
	Frequency Band: 2.405 GHz to 2.480 GHz RF Power Output: 7 mW/MHz Transmitting Range: Approximately 600 m (656 yd) (line of sight)		
Material	Sensor body/Sensor cover: Aluminum alloy die castings (ADC3, SG100A) Tip Section: Stainless Steel (SUS304) Heat Shield Plate: Heat-resistant Resin (Polyetheretherketone (PEEK))		
Dimensions	(Unit: mm (in))		
Weight	Approx. 1,450 g (3.2 lb) (including battery pack)		

Option

Connecting Pipe	iT5-IS-SUN-**-**-F-**-**	Flexible Type (Stainless Steel)
Antenna Extension	iT5-IS-SUN-**-**-AS	3 m (9.8 ft) Cable Type
	iT5-IS-SUN-**-**-AL	13 m (42.7 ft) Cable Type
(Unit: mm (in))		
With sun shade (Unit: mm (in))		
Weight	Approx. 1,850 g (4.1 lb) (including sun shade)	

FCC and IC Statement

This device complies with Part 15 of the Federal Communications Commission (FCC) rules and Industry Canada (IC) RSS-210. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Ce dispositif est conforme à la norme RSS 210 d'Industrie Canada. L'utilisation de ce dispositif est autorisée seulement aux conditions suivantes :

- (1) il ne doit pas produire de brouillage et
- (2) l'utilisateur du dispositif doit être prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.

TLV EXPRESS LIMITED WARRANTY

Subject to the limitations set forth below, TLV CO., LTD., a Japanese corporation (“**TLV**”), warrants that products which are sold by it, TLV International Inc. (“**TII**”) or one of its group companies excluding TLV Corporation (a corporation of the United States of America), (hereinafter the “**Products**”) are designed and manufactured by TLV, conform to the specifications published by TLV for the corresponding part numbers (the “**Specifications**”) and are free from defective workmanship and materials. The party from whom the Products were purchased shall be known hereinafter as the “**Seller**”. With regard to products or components manufactured by unrelated third parties (the “**Components**”), TLV provides no warranty other than the warranty from the third party manufacturer(s), if any.

Exceptions to Warranty

This warranty does not cover defects or failures caused by:

1. improper shipping, installation, use, handling, etc., by persons other than TLV, TII or TLV group company personnel, or service representatives authorized by TLV; or
2. dirt, scale or rust, etc.; or
3. improper disassembly and reassembly, or inadequate inspection and maintenance by persons other than TLV or TLV group company personnel, or service representatives authorized by TLV; or
4. disasters or forces of nature or Acts of God; or
5. abuse, abnormal use, accidents or any other cause beyond the control of TLV, TII or TLV group companies; or
6. improper storage, maintenance or repair; or
7. operation of the Products not in accordance with instructions issued with the Products or with accepted industry practices; or
8. use for a purpose or in a manner for which the Products were not intended; or
9. use of the Products in a manner inconsistent with the Specifications; or
10. use of the Products with Hazardous Fluids (fluids other than steam, air, water, nitrogen, carbon dioxide and inert gases (helium, neon, argon, krypton, xenon and radon)); or
11. failure to follow the instructions contained in the TLV Instruction Manual for the Product.

Duration of Warranty

This warranty is effective for a period of one (1) year after delivery of Products to the first end user. Notwithstanding the foregoing, asserting a claim under this warranty must be brought within three (3) years after the date of delivery to the initial buyer if not sold initially to the first end user.

ANY IMPLIED WARRANTIES NOT NEGATED HEREBY WHICH MAY ARISE BY OPERATION OF LAW, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ANY EXPRESS WARRANTIES NOT NEGATED HEREBY, ARE GIVEN SOLELY TO THE INITIAL BUYER AND ARE LIMITED IN DURATION TO ONE (1) YEAR FROM THE DATE OF SHIPMENT BY THE SELLER.

Exclusive Remedy

THE EXCLUSIVE REMEDY UNDER THIS WARRANTY, UNDER ANY EXPRESS WARRANTY OR UNDER ANY IMPLIED WARRANTIES NOT NEGATED HEREBY (INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE), IS **REPLACEMENT**; PROVIDED: (a) THE CLAIMED DEFECT IS REPORTED TO THE SELLER IN WRITING WITHIN THE WARRANTY PERIOD, INCLUDING A DETAILED WRITTEN DESCRIPTION OF THE CLAIMED DEFECT AND

HOW AND WHEN THE CLAIMED DEFECTIVE PRODUCT WAS USED; AND (b) THE CLAIMED DEFECTIVE PRODUCT AND A COPY OF THE PURCHASE INVOICE IS RETURNED TO THE SELLER, FREIGHT AND TRANSPORTATION COSTS PREPAID, UNDER A RETURN MATERIAL AUTHORIZATION AND TRACKING NUMBER ISSUED BY THE SELLER. ALL LABOR COSTS, SHIPPING COSTS, AND TRANSPORTATION COSTS ASSOCIATED WITH THE RETURN OR REPLACEMENT OF THE CLAIMED DEFECTIVE PRODUCT ARE SOLELY THE RESPONSIBILITY OF BUYER OR THE FIRST END USER. THE SELLER RESERVES THE RIGHT TO INSPECT ON THE FIRST END USER'S SITE ANY PRODUCTS CLAIMED TO BE DEFECTIVE BEFORE ISSUING A RETURN MATERIAL AUTHORIZATION. SHOULD SUCH INSPECTION REVEAL, IN THE SELLER'S REASONABLE DISCRETION, THAT THE CLAIMED DEFECT IS NOT COVERED BY THIS WARRANTY, THE PARTY ASSERTING THIS WARRANTY SHALL PAY THE SELLER FOR THE TIME AND EXPENSES RELATED TO SUCH ON-SITE INSPECTION.

Exclusion of Consequential and Incidental Damages

IT IS SPECIFICALLY ACKNOWLEDGED THAT THIS WARRANTY, ANY OTHER EXPRESS WARRANTY NOT NEGATED HEREBY, AND ANY IMPLIED WARRANTY NOT NEGATED HEREBY, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, DO NOT COVER, AND NEITHER TLV, TII NOR ITS TLV GROUP COMPANIES WILL IN ANY EVENT BE LIABLE FOR, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO LOST PROFITS, THE COST OF DISASSEMBLY AND SHIPMENT OF THE DEFECTIVE PRODUCT, INJURY TO OTHER PROPERTY, DAMAGE TO BUYER'S OR THE FIRST END USER'S PRODUCT, DAMAGE TO BUYER'S OR THE FIRST END USER'S PROCESSES, LOSS OF USE, OR OTHER COMMERCIAL LOSSES. WHERE, DUE TO OPERATION OF LAW, CONSEQUENTIAL AND INCIDENTAL DAMAGES UNDER THIS WARRANTY, UNDER ANY OTHER EXPRESS WARRANTY NOT NEGATED HEREBY OR UNDER ANY IMPLIED WARRANTY NOT NEGATED HEREBY (INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) CANNOT BE EXCLUDED, SUCH DAMAGES ARE EXPRESSLY LIMITED IN AMOUNT TO THE PURCHASE PRICE OF THE DEFECTIVE PRODUCT. THIS EXCLUSION OF CONSEQUENTIAL AND INCIDENTAL DAMAGES, AND THE PROVISION OF THIS WARRANTY LIMITING REMEDIES HEREUNDER TO REPLACEMENT, ARE INDEPENDENT PROVISIONS, AND ANY DETERMINATION THAT THE LIMITATION OF REMEDIES FAILS OF ITS ESSENTIAL PURPOSE OR ANY OTHER DETERMINATION THAT EITHER OF THE ABOVE REMEDIES IS UNENFORCEABLE, SHALL NOT BE CONSTRUED TO MAKE THE OTHER PROVISIONS UNENFORCEABLE.

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THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, AND ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSLY DISCLAIMED.

Severability

Any provision of this warranty which is invalid, prohibited or unenforceable in any jurisdiction shall, as to such jurisdiction, be ineffective to the extent of such invalidity, prohibition or unenforceability without invalidating the remaining provisions hereof, and any such invalidity, prohibition or unenforceability in any such jurisdiction shall not invalidate or render unenforceable such provision in any other jurisdiction.

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