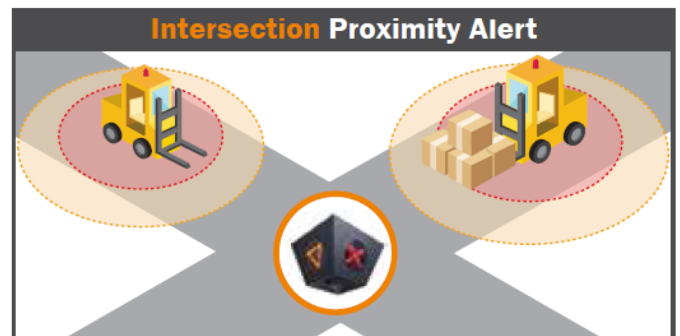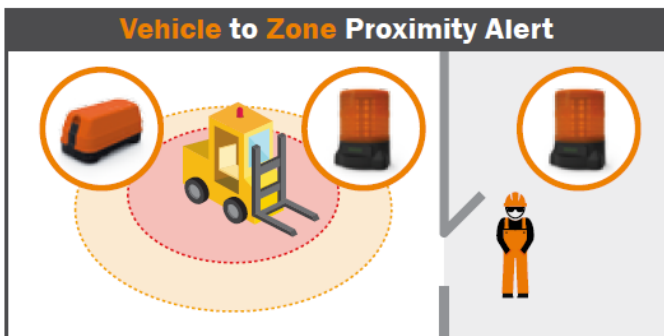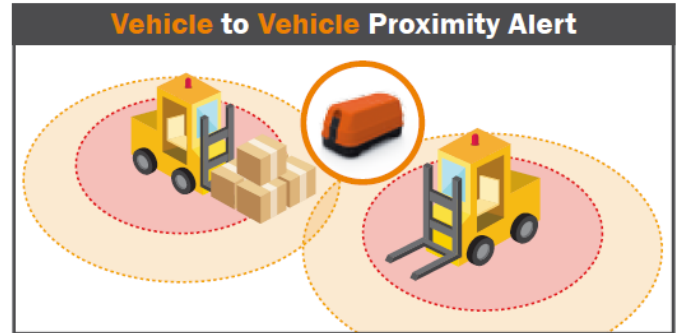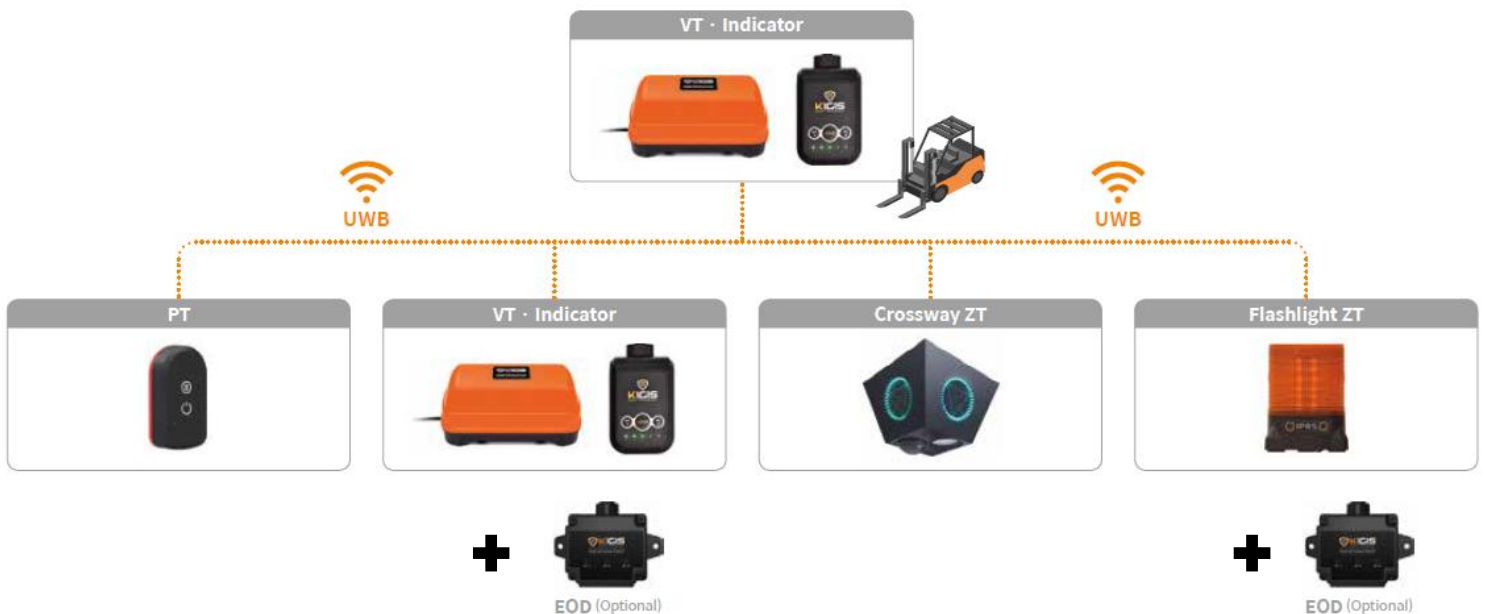# IPAS(Intelligent Proximity Alert System)

IPAS is designed to reduce the risk of collision between pedestrians and moving vehicles in your workplace. The system uses the cutting-edge RF technology to precisely measure the distance between the vehicles and pedestrians providing highly reliable collision warning.

● Functionality

● Key Map for Operating and Sensing

Datasheet

Ultra wideband technology based pedestrian tag for detecting moving vehicles.

- Ultra Wideband based intelligent proximity alert system
- Standard deviation of distance measurement 10cm
- Easy use without a setup
- Simple installation and detachment using a helmet or a clipper holder
- Tag operates in warehouse, factory, port and construction/mining site as a safety device
- Living waterproof

● **Technical Data**

General Specifications

Communication Method	Max. Detectable Distance	Standard Deviation of Detecting Distance	Weight
UWB	30m	2.9cm (400ms, 30m)	58.5g

Ultra Wideband RF Parameter

Wireless Communication Method
UWB compliant IEEE802.15.4-2011 STD

Electrical Characteristic

Power	Charge Method
950mAh 3.7V Li-Polymer	Micro USB Type-B (5V/1A)

Operating Specifications

Operating Temperature	Storage Temperature	Usable Time	Connector
-20~55℃	-20~55℃	Typical 40Hr (In condition of operating 10 times vibration)	I.P Connector PLUG 6P (M10xP0.5)

● **Overview**

IPAS Pedestrian Tag is a safety-assisting device which prevents collisions between pedestrians and vehicles by signaling dangers in 2 way communication to pedestrians in industrial working site.
Signal processing tag determines the distance from the vehicle tag to the object based on the time delay of the return signal. The tag can be configured to a caution and a warning zone.
When the pedestrian enters into the caution and danger areas of Vehicle tag, the tag makes vibration and sound alarm.
The sensitivity was pre-calibrated at the factory, assuming that the detecting field will be clear of obstacles. The sensitivity cannot be adjusted by user's handling.
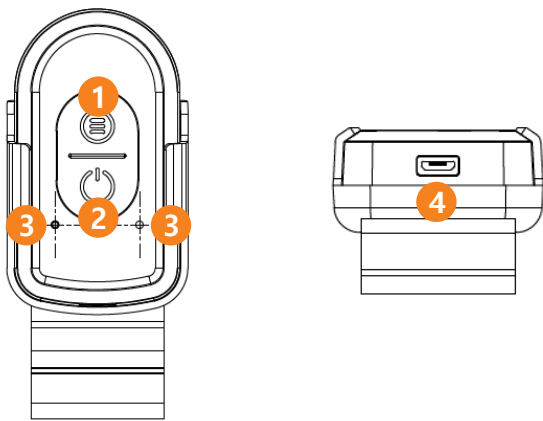

Figure 1. IPAS Pedestrian Tag Features

① Menu Button: Power On, Alarm Type Setting, Finalizing Setting, Alert Pause(10s)
② Power Button: Volume Setting, Alert Pause(10s)
③ LED Lamp
 ・Power On: Green Light ON
 ・Warning: Green & Red Light ON
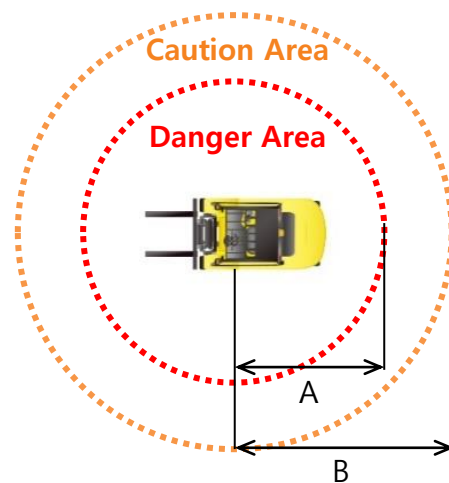 ・Low Battery: Red Light ON
④ Charging Port

Caution Area
Danger Area

Figure 2. IPAS Vehicle Tag Detecting Distances

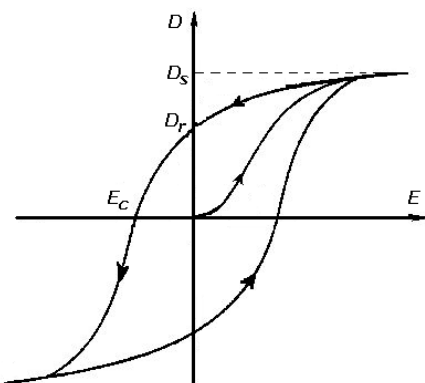|	Minimum Distance	Maximum Distance
A	1m	30m
B	1m	30m

※ A must be set-up lower than B (A < B)

Figure 3. Hysteresis

Hysteresis, applies to IPAS, is a dynamic lag between an input and an output that disappears if the input is varied more slowly; this is known as rate-dependent hysteresis. However, phenomena such as the magnetic hysteresis loops are mainly rate-independent, which makes a durable memory possible.

Systems with hysteresis are nonlinear, and can be mathematically challenging to model. Some models such as the Preisach model (originally applied to ferromagnetism) and the Bouc-Wen model attempt to capture general features of hysteresis; and there are also phenomenological models for particular phenomena such as the Jiles-Atherton model for ferromagnetism.

● Specifications

The alarm type and volume level configuration can be selected via the menu button on the pedestrian tag.

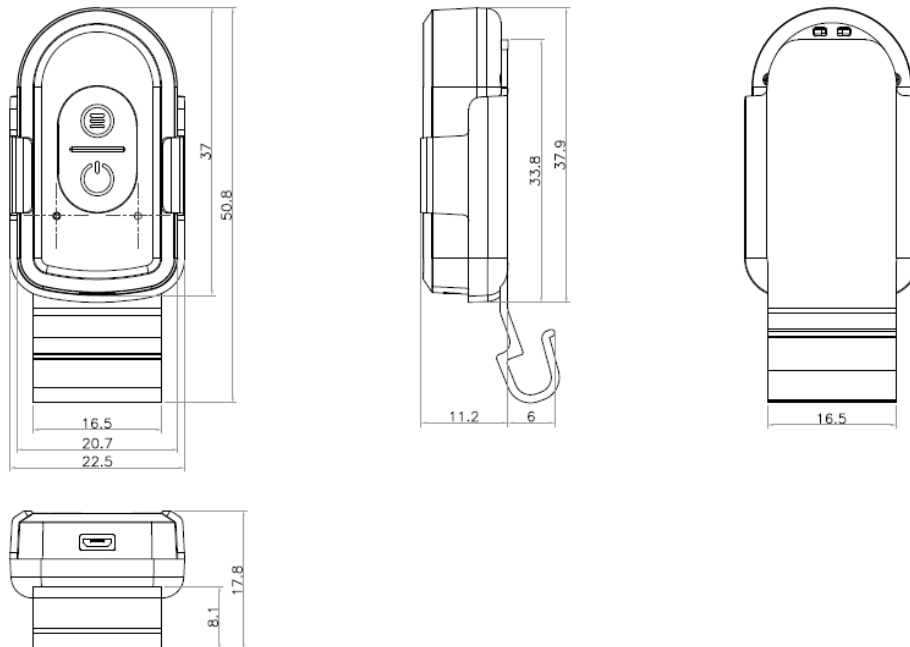| Button	Alarm Type	Volume Level
⊜	Enter the menu / Complete the set-up	Enter the menu / Complete the set-up Change the volume level
⏻	Change the alarm types (Sound only / Vibration only / Sound + Vibration)	-

● Specifications

Dimension

Figure 4. IPAS Vehicle Tag Dimension

● Products Assembly

Pedestrian Tag(PT)

Vehicle Tag (VT)

Indicator

Cable Harness (6m)

5m

3m

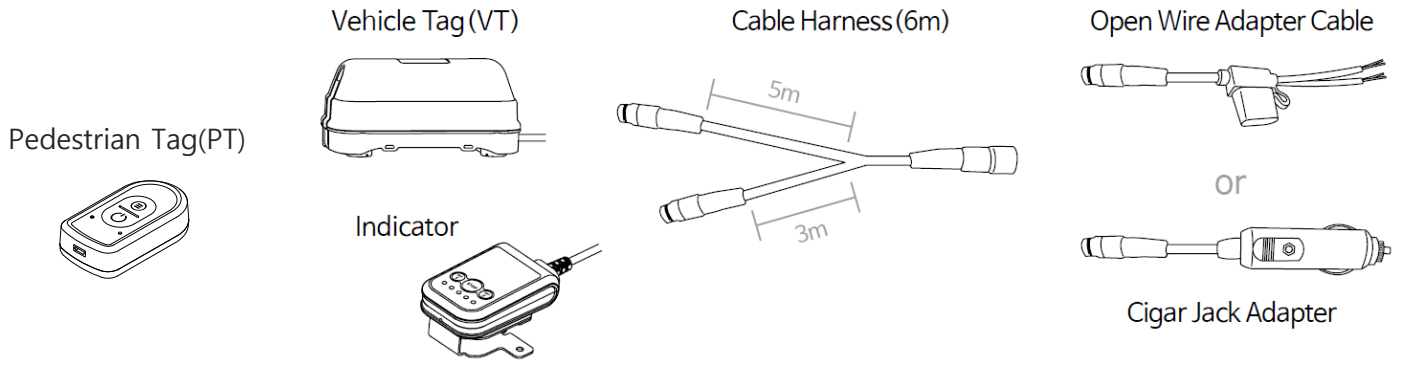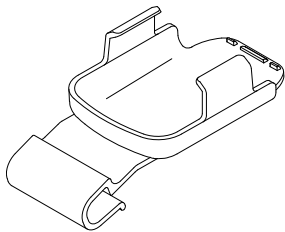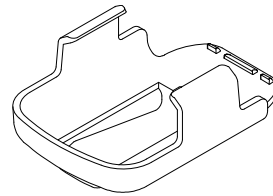Open Wire Adapter Cable

or

Cigar Jack Adapter

Figure 5. Vehicle Tag – Pedestrian Tag Assembly

● Accessory

Products

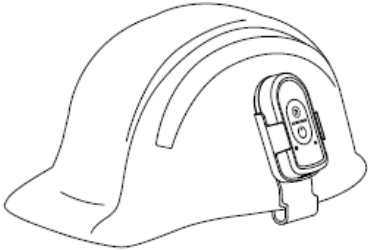IPAS PT/A1 Helmet Holder
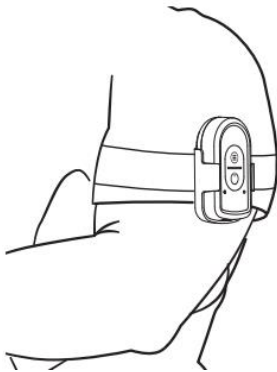(Red / Amber)

IPAS PT/A1 Clipper Holder
(Red / Amber)

IPAS PT Charging Cable

Mounting Tools

It can be attached easily using a helmet holder on the helmet.

It can be also attached using a clipper holder on an arm or an epaulet band.
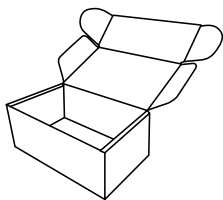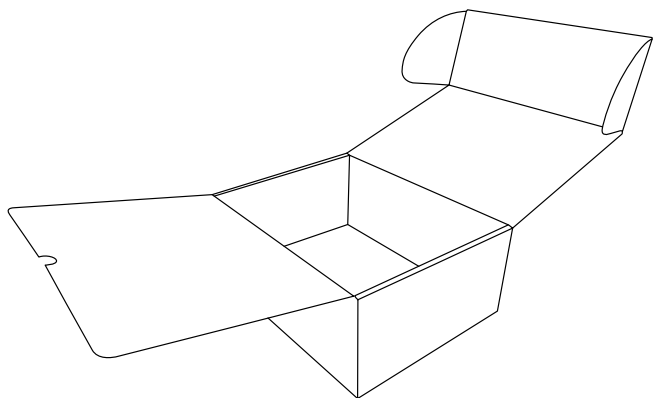
Packing

Figure 6. 1. Inner Box

Figure 6. 2. Gift Box

● Order Number (Product Code)

Product Name	Product Code
IPAS Pedestrian Tag: A1 Type / Amber Color	PAS-K01-0100
IPAS PT/A1 Helmet Holder / Amber Color	1-7020-10003
IPAS PT/A1 Armband / Amber Color	1-6606-00001

● Certifications

CE FC KC

CE: ETSI EN 302 065-1 V2.1.1 (2016-11)
FCC: ZE8-PAS-K01-00
KC: MSIP-CRM-KWO-PAS-K01-00