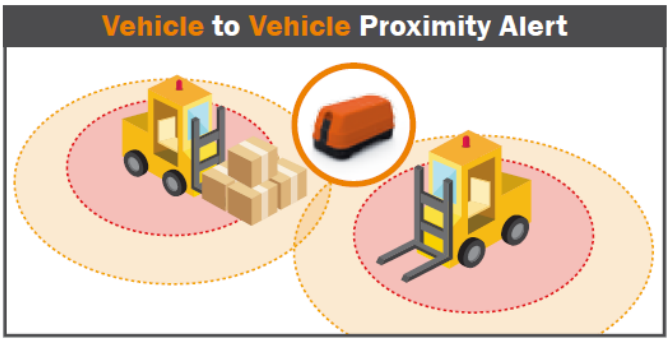
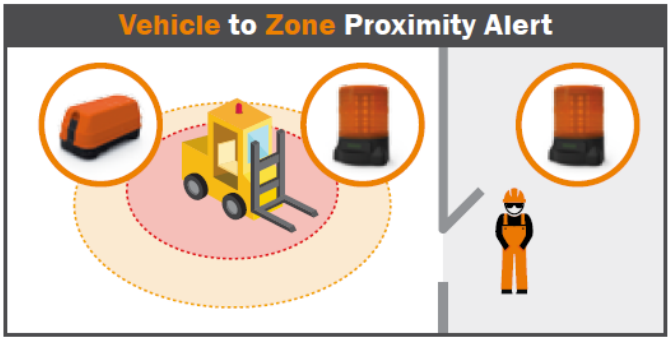
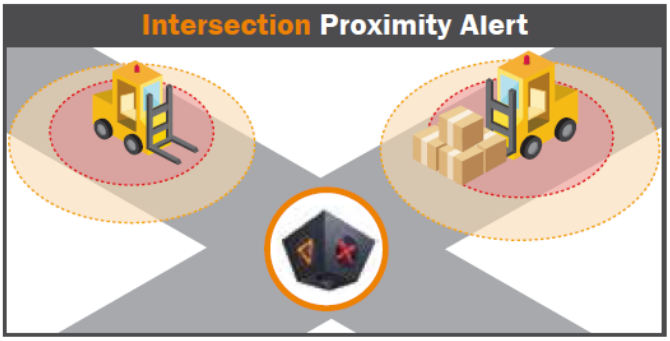
IPAS(Intelligent Proximity Alert System)

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.

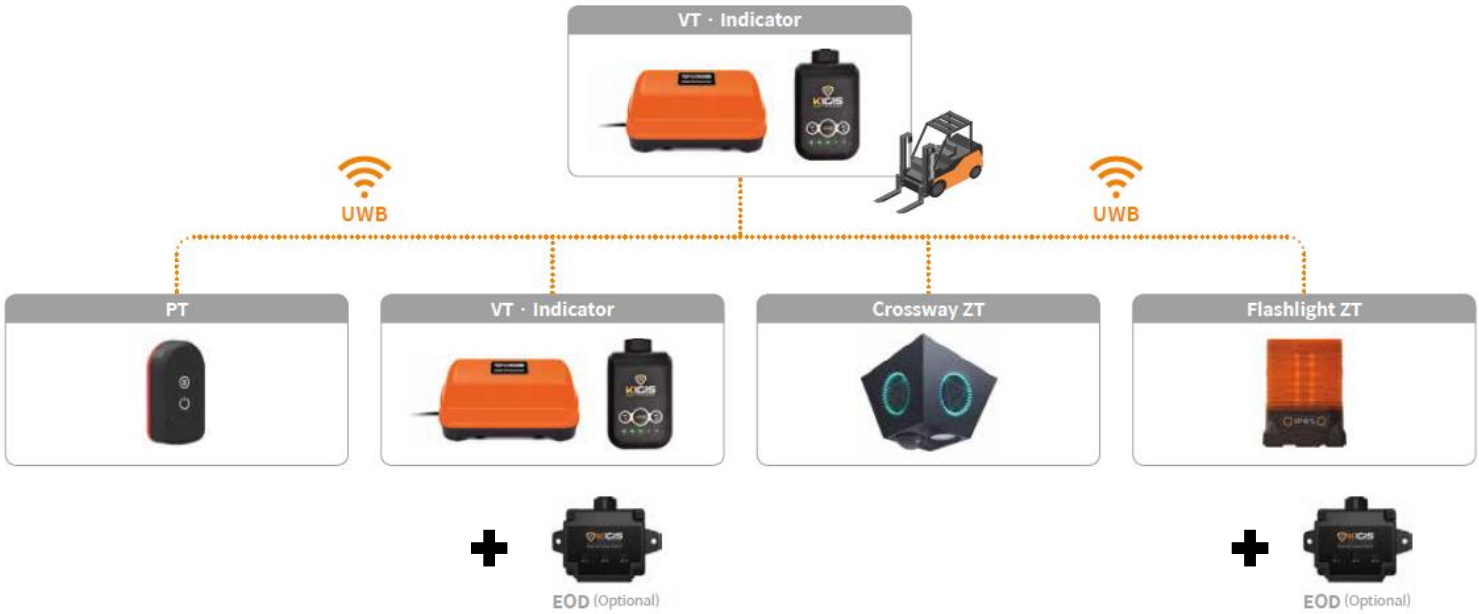
● Functionality







● Key Map for Operating and Sensing



Datasheet

Ultra wideband technology based zone tag detecting approaching vehicles and informing the sequence of vehicles.

- Ultra Wideband based intelligent proximity alert system
- Standard deviation of distance measurement 10cm
- CAN bus interface with 12/24V external power
- Easy use without a setup
- Simple installation and detachment using wires or a fixture bracket
- Tag operates in warehouse, factory etc.

● Technical Data

General Specifications

Communication Method	Interface	Max. Detectable Distance	Standard Deviation of Detecting Distance	Weight
UWB	CAN Bus 2.0	30m	2.9cm (400ms, 30m)	5,500g

Ultra Wideband RF Parameter

Method	Conducted Rx Sensitivity	Conducted Tx Power Density	Data Rate
UWB compliant IEEE802.15.4-2011 STD	-93dBm /500MHz (6.8Mbps, PER 1%)	Max -41.3dBm/MHz	6.8Mbps

Electrical Characteristic

Power	Operating Voltage	Power Consumption	LED Light Output
110/220VAC (90 – 264VAC)	DC 9~32V	Below 4W	20W

Operating Specifications

Operating Temperature	Storage Temperature
-30~85℃	-40~85℃

Overview

IPAS Crossway Zone Tag is a safety-assisting device which prevents collisions between vehicles by signaling to drivers in 2 way communication.
Signal processing tag determines the distance from the vehicle tag to the object based on the time delay of the return signal.
When vehicles enter into the detecting area of the crossway zone, LED signal changes O to △ or X, and the tag sounds the alarm. Spot light (red/blue) flashes to the floor at the same time.
The warning area is factory pre-set to default distances; they can be reconfigured for different distances by a remote control.
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.

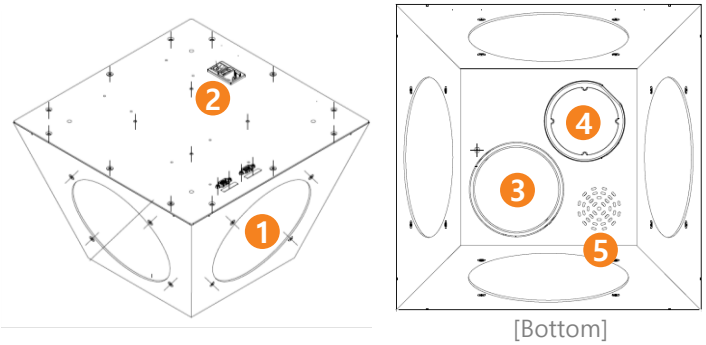


Figure 1. IPAS Crossway Zone Tag Features

① LED Screen
- Power ON: Green "O"
- Warning: 1st Vehicle - Orange "▽" / 2nd, 3rd Vehicles: Red "X"

② Power Switch, Fuse Holder, AC Power Cable Connector
③ LED Spot Light Beam
④ Proximity Sensor(UWB)
⑤ Speaker Hole

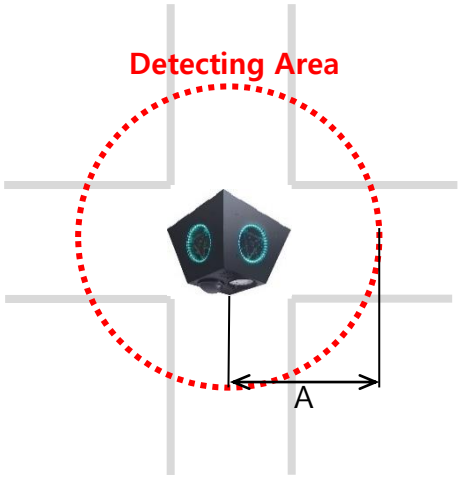


Figure 2. Detecting Distance

	Minimum Distance	Maximum Distance
A	1m	30m

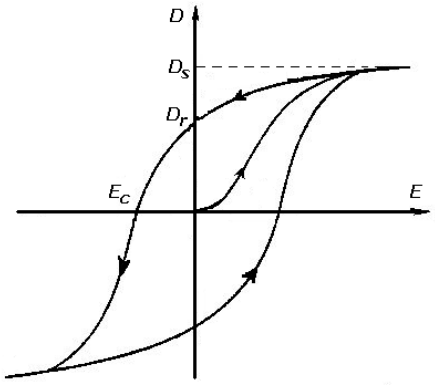


Figure 3. Hysteresis

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.