



KIGIS™ SAFETY TECHNOLOGY



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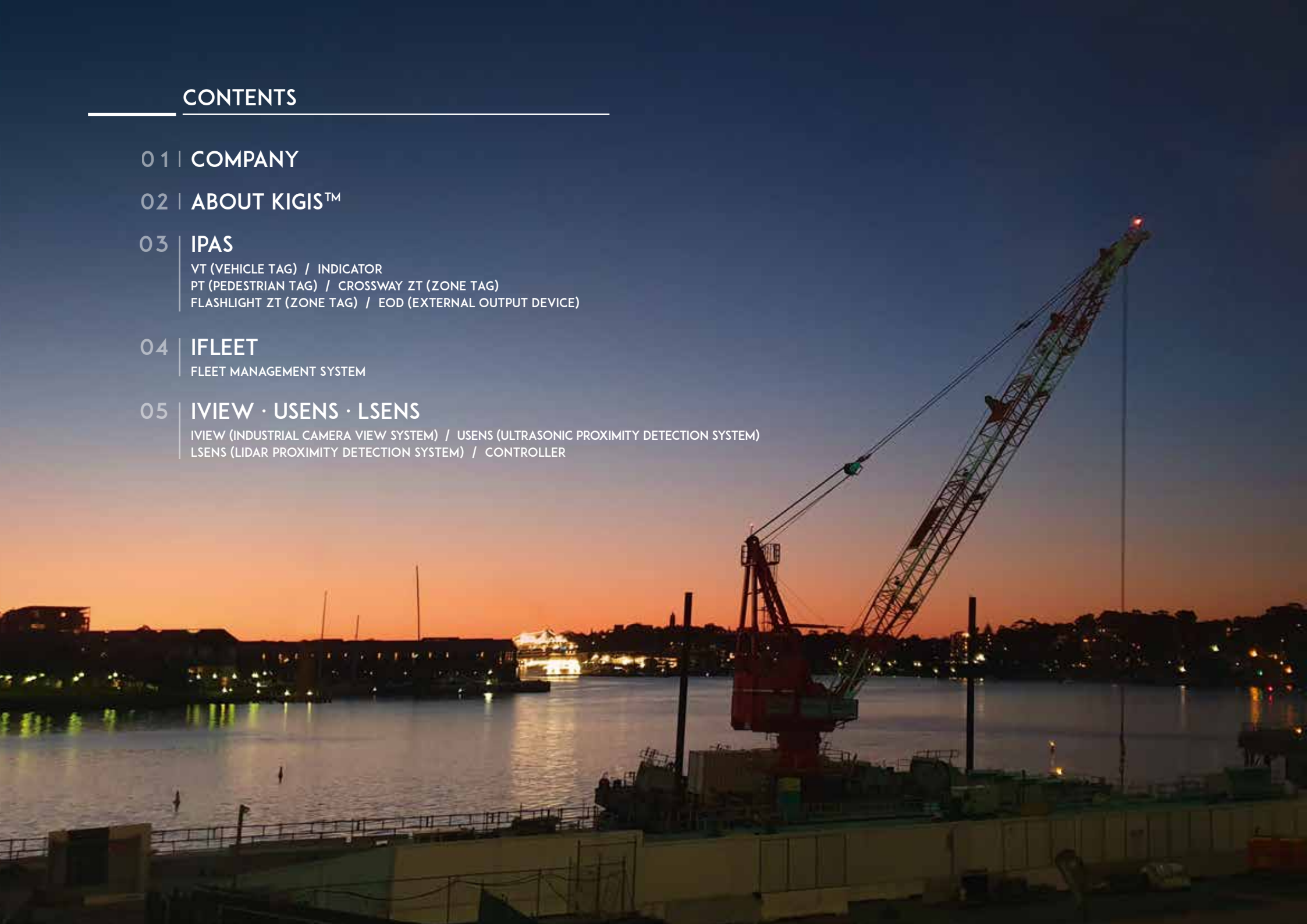
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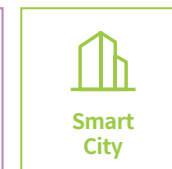
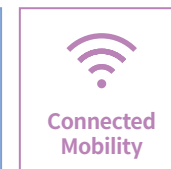
COMPANY

KYUNGWOO SYSTECH, INC.

Kyungwoo Systech is an R&D-based ICT technology company in the field of industrial embedded systems.

We are an industry leader in industrial automotive electronics in Korea. We have been bringing innovative solutions for a wide variety of industrial vehicles including excavators, forklifts, loaders, tractors, and electric mobilities.

We are always striving to become a global leading enterprise for creating a safer and more convenient world.



COMPANY HISTORY



ORGANIZATIONS



CERTIFICATES · AWARDS





ABOUT KIGIS™

KIGIS™ SAFETY TECHNOLOGY

KIGIS™, Leading a safe and smart world

KIGIS is a safety solution brand by Kyungwoo Systech Inc. for worker and property. KIGIS offers technology that helps reduce cost from safety incident and maximizes work efficiency.

The dedicated KIGIS team has derived innovative and advanced solutions to protect as all valuable lives and assets as possible. KIGIS provides various safety solutions to customers with guaranteed performance, scalability, usability and cost effectiveness.

In everyday workplace, heavy equipment such as forklift and excavator are indispensable. Everyone wants to work in a safe environment expecting no accident, but in fact everyone is at risk.

According to United States Department of Labor, 5,120 fatal work injuries were recorded in 2017. Among those fatal work injuries, 54% was mainly due to transportation and contact with objects/equipment.

Safety is the first and foremost factor in every industry and our major goal is to provide more sustainable and safer workplace.



KIGIS SAFETY TECHNOLOGY

KIGIS Products are available for heavy machineries such as forklift, excavator, wheel loader, reach stacker and truck in a variety of industry.



Warehouses



Factories



Construction Sites



Mining Sites



Ports

CUSTOMERS · PARTNERS





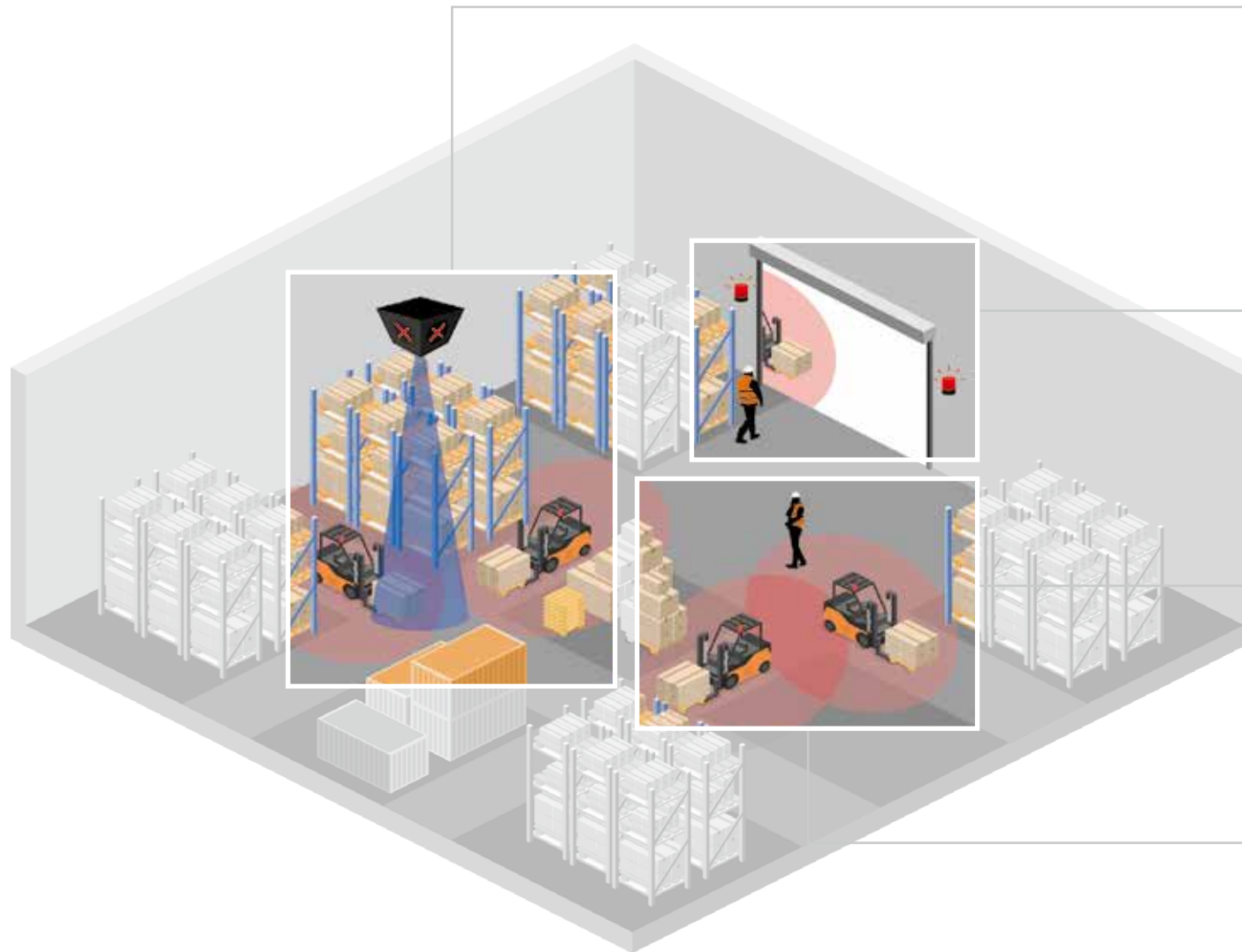
IPAS

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 vehicles and pedestrians and provides a highly reliable collision warning.

IPAS INSTALLATION · CONCEPT MAP



CROSSWAY ZT (ZONE TAG)

- Detects approaching vehicles
- Offers audible alarm and LED signs
- Projects spot light onto the floor
- Installed at multi-way intersection (Ceiling Mounted)



FLASHLIGHT ZT (ZONE TAG)

- Detects approaching vehicles
- Offers audible and visual alarm to surrounding workers
- Installed in various places



PT (PEDESTRIAN TAG)

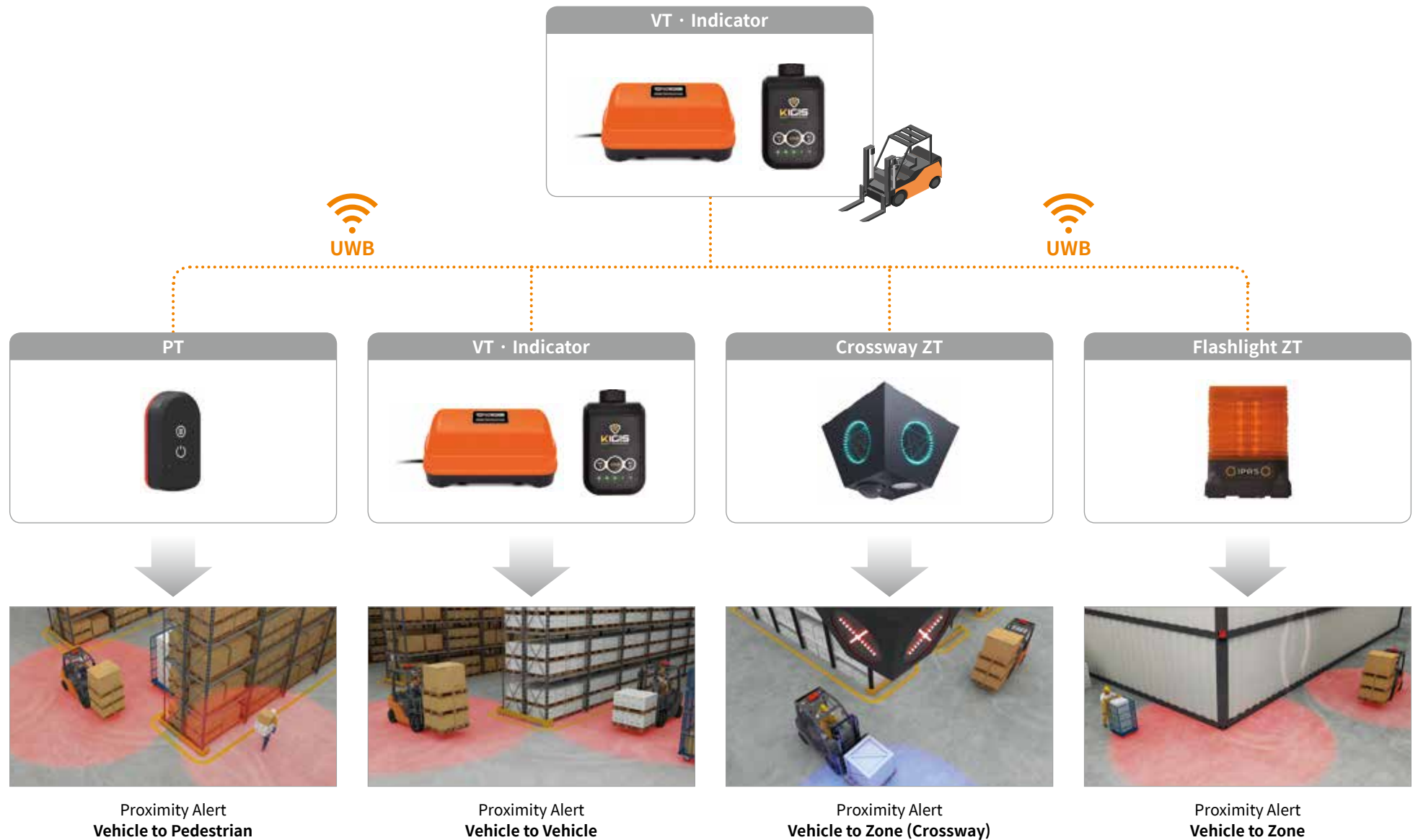
- Detects approaching vehicles and provides proximity alert to pedestrians
- Configurable and rechargeable



VT (VEHICLE TAG) / INDICATOR

- Provides proximity detection among pedestrians and vehicles
- [Indicator]**
- Offers audible and visual alarm
- Provides distance/volume setting
- Installed on dashboard inside the driver's cabin

IPAS OPERATION DIAGRAM



IPAS VT (VEHICLE TAG)



Installed on top of vehicle, Vehicle Tag detects Pedestrian Tag and Zone Tag based on UWB (Ultra Wide Band) Technology.

- **Installation** : Exterior
- **Interaction** : PT, ZT, VT
- **Alarm** : Voice Alert via Indicator



Specification	VT (Vehicle Tag)
Power	12/24Vdc Input (9/32Vdc)
Current Consumption	300mA
Interface	CAN Bus 2.0
Dimension / Weight	177.8×84.1×86mm / 444g
Mount Type	Magnet Mount
Frequency	3993.6MHz
Bandwidth	499.2MHz
Operation Temp / Storage Temp	-30 ~ 85°C / -40 ~ 85°C
Enclosure	IP65



Order NO. PAS-K01-1100

IPAS INDICATOR



Installed inside the cabin, Indicator provides voice alert when Vehicle Tag detects other tags. This device is applicable for configuration of warning range and volume level.

- **Installation** : Interior (Connected with VT)
- **Range** : Configurable up to 10m (Caution/Danger Area of Vehicle Tag)
- **Alarm** : Pedestrian Caution Range - Repeating "Watch Out"
Pedestrian Danger Range - Repeating "Danger"
Vehicle Caution Range - Repeating "Watch Out"
Vehicle Danger Range - Repeating "Danger"



Specification	Indicator
Power	12/24Vdc Input (9/32Vdc)
Current Consumption	500mA
Interface	CAN Bus 2.0
Sound Level / @	92dB / 0.1m
Dimension / Weight	93×130.5×47.5mm (Bracket Include) / 207g
Mount Type	Screw Fix (or Adhesive Tape)
Operation Temp / Storage Temp	-30 ~ 85°C / -40 ~ 85°C
Enclosure	IP65



Order NO. PAS-K01-3001 (English) / PAS-K01-3002 (Spanish)

IPAS PT (PEDESTRIAN TAG)



When people enter Caution/Danger Range, Pedestrian Tag makes vibration and sound alarm. This device is configurable and rechargeable.

- **Installation** : Carried by people (Helmet Holder / Armband)
- **Interaction** : VT
- **Alarm** : Caution Range - "Beep-Beep" sound, Vibration
 Danger Range - "Weeoo Weeoo", Vibration
 Low Battery - "Beebeep Beebeep" 5 times every 10 minutes



Specification	PT (Pedestrian Tag)
Sound Level / @	87dB / 0.1m
Battery	Li-Polymer 950mA
Operation Voltage	3.7V
Charge Interface	Micro USB Type-B (5V/1A)
Charging Current	0.85mA
Charging Time / Operatoin Hour	About 1h 30m / 6 days (8 hours/day)
Dimension / Weight	40×72×19.5mm / 58.5g
Mount Type	Helmet Clip, Arm Band
Frequency	3993.6MHz
Bandwidth	499.2MHz
Operation Temp / Storage Temp	-20 ~ 55°C / -20 ~ 55°C
Enclosure	Waterproof



Order NO. PAS-K01-0100

IPAS CROSSWAY ZT (ZONE TAG)



When multiple vehicles are entering intersection simultaneously, Crossway Zone Tag makes voice alert and projects spot light onto the floor by detecting Vehicle Tag.

- **Installation** : Attached on the ceiling of the intersection
- **Interaction** : VT
- **Alarm** : No Vehicle - ○ Sign Marked
 1 Vehicle - ▽ Sign Marked, LED Spot(Flashing), "A vehicle is approaching. Watch Out"
 +2 Vehicles - ✕ Sign Marked, LED Spot(Flashing), "Another vehicle is approaching. Watch Out"



Specification	Crossway ZT (Zone Tag)
Power	110/220VAc (90~264VAc)
Dimension / Weight	380×380×281.5mm / 5,500g
LED Spot Color	● Red / ● Blue
Mount Type	Wire (Indoor Only)
Frequency	3993.6MHz
Bandwidth	499.2MHz
Operation Temp / Storage Temp	-30 ~ 85°C / -40 ~ 85°C



Order NO. PAS-K01-5001 (● English) / PAS-K01-5002 (● Spanish)
 PAS-K01-5101 (● English) / PAS-K01-5102 (● Spanish)

IPAS FLASHLIGHT ZT (ZONE TAG)



Installed at vulnerable area to collision, Flashlight Zone Tag provides audible and visual alert to adjacent workers.

- Installation : Vulnerable Area
- Interaction : VT
- Range : 5 ~ 30m (5m Span)
- Alarm : Default - "Beeeeeep—", Flash
Speaker (Optional) - Repeating "Watch Out"



Specification	ZT (Zone Tag)
Power	110/220Vac (90~264Vac)
Current Consumption	500mA
Interface	CAN Bus 2.0
Sound Level / @	88dB / 1m
Dimension / Weight	122.7×140.6×111.5mm / 483.5g
Color	● Red / ● Amber
Mount Type	Magnet Mount
Frequency	3993.6MHz
Bandwidth	499.2MHz
Operation Temp / Storage Temp	-30 ~ 85°C / -40 ~ 85°C
Enclosure	IP65



Order NO. PAS-K01-4201 (● English) / PAS-K01-4202 (● Spanish)
PAS-K01-4301 (● English) / PAS-K01-4302 (● Spanish)

IPAS EOD (EXTERNAL OUTPUT DEVICE)



EOD (External Output Device) is an intermediate device which allows additional devices to operate according to IPAS warning signal.

EOD can be used with various devices such as speed controller, lamp, alarm and etc.

Connection Example



Specification	EOD (External Output Device)
Power	12/24Vdc Input
Current Consumption	100mA
Interface	CAN Bus 2.0
Maximum Load Voltage	32V
Maximum Load Current	5A
Dimension / Weight	131×95.6×38mm / 203g
Mount Type	Screw Fix
Operation Temp / Storage Temp	-30 ~ 85°C / -40 ~ 85°C



Order NO. PAS-K01-7400



IFLEET

FLEET MANAGEMENT SYSTEM

IFLEET collects, stores and provides comprehensive information about the current status of the industrial vehicles, locations, the route histories, the expected events, as well as the driver activities for the vehicle maintenance and operator companies.

IFLEET also collects the proximity events by interacting with IPAS for enhanced safety management in the worksite.

IFLEET helps an operator to reduce the operational cost, manage a valuable property and increase the safety level.

IFLEET FLEET MANAGEMENT SYSTEM



IFLEET provides a management service to analyze data including vehicle status, driver violations and proximity alert information.

- Driver Control : Authorized driver access by RFID card or PIN number
- Vehicle Control : Shock level, operating hour and other vehicle information
- Operator Mode : Analysis based on collected data from IPAS devices



Device Screen (FMS-K00)



Management Web Server

Specification	IFLEET (FMS-K00)	IFLEET (FMS-K02)
Power	12/24Vdc	12/24Vdc
LCD	3.5" TFT LCD(QVGA) with Capacitive Touch Screen	-
Interface	CAN2.0B, 250kbps	CAN 2.0B, 250kbps
Connectivity	WCDMA (B1, B2, B4, B5, B6, B8), GSM (850/900/1800/1900), WIFI, GPS	FDD-LTE (B1, B3, B5, B7, B8)
RFID Card	13.5Mhz, ISO 14443 Type A	13.5Mhz, ISO 14443 Type A
Dimension / Weight	132×130×70mm / 500g	132×130×70mm / 500g
Mount Type	Bracket	Bracket
Operation Temp	-30 ~ 85°C (LCD : -20 ~ 70°C)	-30 ~ 85°C
Enclosure	IP65	IP65





IVIEW

INDUSTRIAL CAMERA VIEW SYSTEM

USENS

ULTRASONIC PROXIMITY DETECTION SYSTEM

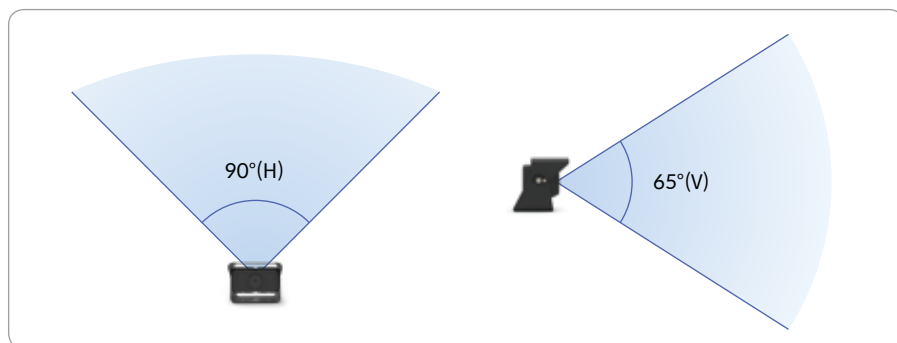
LSENS

LIDAR PROXIMITY DETECTION SYSTEM

IVIEW INDUSTRIAL CAMERA VIEW SYSTEM



IVIEW provides a view around the vehicle in order to help avoiding collisions against objects in blind area.



Specification	IVIEW (Camera)	IVIEW (Monitor)
Effective Image Pixels	520K Color CCD	-
Night Vision	9 IR-LEDs built in with Ambient Light Sensor	-
Screen / Resolution	-	7" TFT LCD 16 : 9 Wide / 800×480
Camera Input	-	Upto 3 Channel
Nominal Voltage	12/24Vdc	12/24Vdc
Operating Voltage	7 ~ 36Vdc	9 ~ 32Vdc
Power Consumption	1.5W	-
Dimension / Weight	79×44×44mm (Body) / 450g	225×140×70mm (Body) / 850g
Mount Type	Bracket Type	Bracket Type
View Angle	120.3°(D), 65°(V), 90°(H)	-
Operation Temp / Storage Temp	-30 ~ 85°C / -40 ~ 85°C	-30 ~ 85°C / -40 ~ 85°C
Enclosure	IP69K	IP67

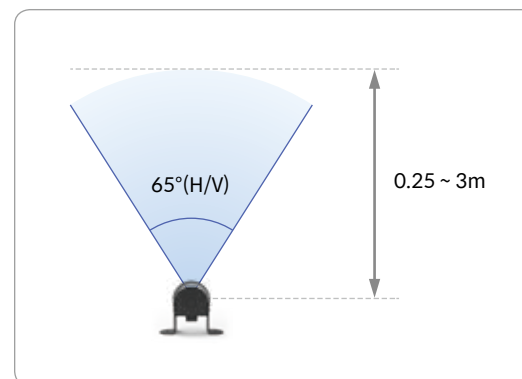


Order NO. Camera : RVM-K01-1000 / Monitor : RVM-K01-2300

USENS ULTRASONIC PROXIMITY DETECTION SYSTEM



USENS provides audible and visual alarm by detecting obstacles around the vehicle.



Visual Alarm on Monitor

※ Half circle is displayed with additional monitor.

Specification	USENS (Ultrasonic Sensor)
Nominal Voltage	10.5Vdc (Supplied by Controller)
LIN	LIN 2.1 Slave
Dimension / Weight	118×89.5×78mm / 200g
Detecting Distance	0.25 ~ 3m
Detecting Angle	65°(H) / 65°(V)
Operation Temp / Storage Temp	-30 ~ 85°C / -40 ~ 85°C
Enclosure	IP65

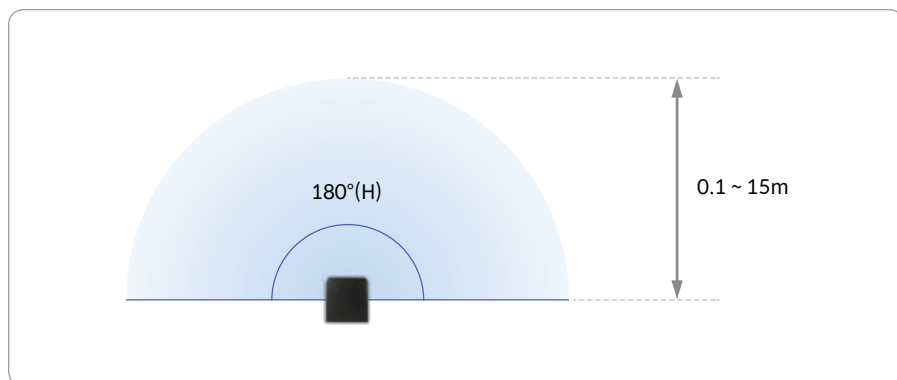


Order NO. UPD-K01-0100

LSENS LIDAR PROXIMITY DETECTION SYSTEM



With a speed of light, LSENS provides audible and visual alarm by detecting unspecified obstacles around the vehicle by firing rapid pulses of laser light.



Specification	LSENS (LiDAR Sensor)
Nominal Voltage	12/24Vdc
Detection Range	0.1 ~ 15m
Angular Resolution	0.3°
Distance Accuracy	± 2.5cm
Measurement Speed (Scan Frequency)	15 ~ 20Hz
View Angle	180°
Communication Interface	Ethernet, CAN, RS232
Operation Temp	-40 ~ 85°C
Enclosure	IP67

CONTROLLER



Installed with Ultrasonic Sensor / LiDAR Sensor, Controller provides audible and visual alarm when sensors detects obstacles.

Alarm	USENS	LSENS
"Beeeeeep— Beeeeeep—" (Slow)	2 ~ 3m	10 ~ 15m
"Beep- Beep-" (Slow)	1 ~ 2m	5 ~ 10m
"Beepbeepbeepbeep" (Quick)	0 ~ 1m	0 ~ 5m



Horn Speaker (Optional) voice alarm device : "Watch Out! Danger!"

Specification	Controller	Horn Speaker (Optional)
Nominal Voltage	12/24Vdc	-
Operating Voltage	9 ~ 32Vdc	-
LIN	LIN 2.1 MASTER	-
Speaker Output	-	20W
Impedance	-	8ohm
Dimension / Weight	160×95×32mm / 300g	122×127×122mm / -
Operation Temp / Storage Temp	-30 ~ 85°C / -40 ~ 85°C	-30 ~ 75°C / -
Enclosure	IP65	Waterproof



Order NO. Controller : UPD-K01-1100 / Horn Speaker (Optional) : 1-3202-00003



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※ Specifications can be changed for product improvement.





THINK SAFE

WORK SAFE

HOME SAFE

KIGIS™ SAFETY TECHNOLOGY



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