



Channelising Resources,
Promoting Growth.

Sensata
Technologies

PRECO[™]
ELECTRONICS

MINE SAFE WITH DAVESMEN



PROXIMITY SENSOR



Channelising Resources,
Promoting Growth.

Xtreme Range/ Sentry/ Side Defender

Robust long range sensor systems designed for harsh conditions. Inform driver of distance between vehicle and any obstacles, whether moving or stationary. Perfect for all machines working in construction, mobile plant and refuse.

XTREME OBSTACLE DETECTION

XPV4232
10 metre cable version
Xtreme sensor, AV display, cab harness, 10m cable

XPV4232
20 metre cable version
Xtreme sensor, AV display, cab harness, 20m cable

- 12-24 Volts
- Programmable detection range up to 10m
- Rugged design for harsh environmental conditions
- Size (WxHxD)
187 x 192 x 61mm
- 2 year warranty

- Features**
- Effectively detects stationary, moving and multiple objects
 - Programmable to calibrate out fixed objects, bodywork and attachments
 - Effective through non-metallic objects (i.e. plastic or glass fibre bodywork)
 - 2 output triggers to activate other safety devices
 - Multiple sensors can be networked together for maximum danger zone coverage
 - Self-diagnostic function
 - Graduated audible and visual distance warning display

- Power**
- Current: 0.2 Amps
- Durability & Standards**
- Operating temperature: -40 to +85°C
 - Resistant to water, moisture, dust, vibration, heat, cold, mud and glare
- Please note:**
Specialist fitting required if detection zone needs to be altered or programmed

SEPARATE XTREME COMPONENTS

- XPV41Y12 - 12m Y-Piece adapter cable
- XPV41Y6 - 6m Y-Piece adapter cable
- XPV41CA - Cab adapter cable
- XPV4165 - 20m extension cable
- XPV4132 - 10m extension cable
- XPV4116 - 5m extension cable
- XPV4103 - Front-rear audio-visual display
- XPV4104 - Left-right audio-visual display
- XPV41 PA - Power adapter cable
- Cd6102 - Audio-visual display
- XPV4232 -



In-cab display

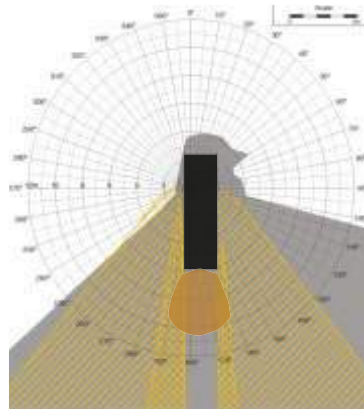
Xtreme Range

Xtreme Top of the range programmable system allowing bespoke detection areas up to 10 metres and ability to calibrate out fixed objects or bodywork. Multiple sensors can be networked around the machine to offer comprehensive blind spot coverage.



PreView® Has Your Blind Spot Covered

CONSTRUCTION DUMP TRUCK NIOSH BLIND SPOT CHART



- Vehicle
- Blind Spot
- PreView Coverage Area
- Convex Mirror Visibility
- Flat Mirror Visibility

Available Options: Replace in-cab display with the PreView Plus camera and monitor. The driver will receive an audible alert when an item is in the blind zone and indicators are imposed on the monitor giving the driver approximate distancing information.



DIMENSIONS

Sensor Unit: 9.25"(w) x 1.60"(d) x 4.36"(h)

In-Cab Display: 2.3" (w) x 2" (d) x 1"(h)

SUGGESTED CONFIGURATION

PreView SAS which includes:

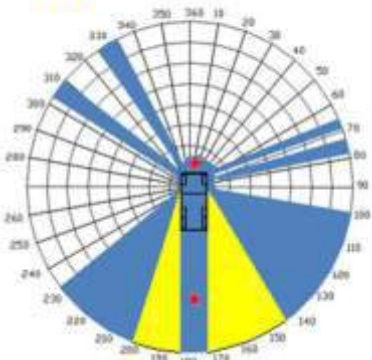
WorkZone PreView 15;/4.5m detection zone

SPECIFICATIONS

Op. Temps: -40° - +185°F / -40° - +85°C

Current Draw: < 1/2 AMP

- Not Visible to Operator
- Visible in mirrors only



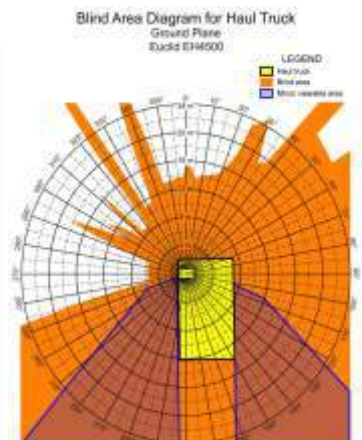
Front of truck is facing North

Blind spots or Areas

Example : this mapping diagram show the blind areas around a ford F-800 dump truck

8 ft in front and 16 ft in rear are the most hazardous areas.

the driver side door area is the only zone within 8 feet of the dump truck that is safely visible





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PREVIEW SENTRY™



PreView Sentry radar is the most flexible and reliable radar available for heavy-duty vehicle and equipment industries. Sentry accurately detects objects in equipment blind zones and notifies the operator with both audible and visual

alerts. These active alerts warn the operator of potential collisions and allows them to take the appropriate action. Sentry is built tough to withstand the harshest working conditions imaginable, so it works every time, all the time.

BUILT TOUGH FOR HEAVY DUTY INDUSTRIES

CONSTRUCTION

MINING

TRUCKING

FLEET

WASTE

UTILITY

DELIVERY

MUNICIPALITIES

Audible and Visual
In-Cab Alerts



PREVIEW SENTRY™



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Promoting Growth.

SENTRY - FLEXIBILITY AND RELIABILITY

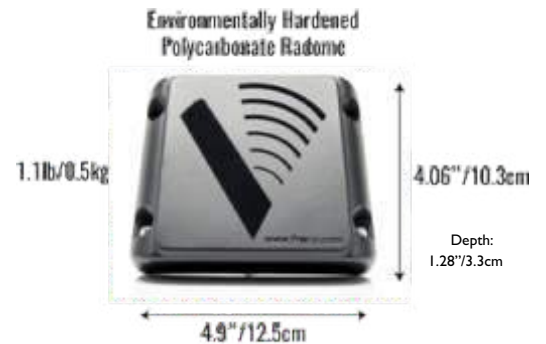
PreView Sentry is the world's most flexible object detection radar. With programmable detection zones, PreView Sentry can cover rear, side and front blind spots on any equipment or vehicle. Built tough for heavy-duty applications, Sentry will help companies reduce costs, decrease the incidents of collisions and most importantly, save lives.

- Rugged design, engineered to operate in all weather conditions
- Customizable detection zones-range and width
- Measures distance and angle to objects, providing object location
- Measures velocity of objects
- Provides in-cab audible and visual in-cab active alerts
- Integrates with PreView Plus camera/monitor system, or any existing vision system
- Built-in sensor failure alert
- CAN bus communication protocol - ability to report sensor data to a logging device or telematics applications
- Ability to track up to 16 objects simultaneously

SENTRY - TECHNICAL DATA

MEASURING PERFORMANCE	
Programmable Range:	0-30M (0-98')
Programmable Width:	2M-8M (6.5'-26')
Azimuth Field ofView:	±75 degrees
Elevation Field ofView:	±10 degrees

OPERATING CONDITIONS	
Frequency:	24.00 - 24.25 GHz (ISM Band)
Power Supply:	9 – 33VDC, Reverse polarity and over-voltage protected
Current:	<0.5A
Operating Temperature:	-40C to +85C (-40F to +185F)
Shock:	50G
Vibration:	25G, random, all three axis
Protection Rating:	IP69K



COMMUNICATIONS INTERFACE	
J1939/ISO 11898 CAN Bus:	250Kbits/sec, terminated, with 120 ohm resistor [default]. Supports up to 500Kbits/sec
	Supports up to 8 radars on a single J1939 bus (CAN-bus)
Alarm Output Interface	Switch to ground, sink up to 1 amp, over current protected



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HEAVY DUTY INDUSTRY COLLISION MITIGATION

We believe that those who work with heavy equipment have a responsibility and desire to keep themselves and the people around them safe and free from harm. We design, engineer, and manufacture collision mitigation products optimized for heavy equipment. Our safety products have survived the

industry's most rigorous quality testing to ensure unstoppable performance in the harshest working conditions imaginable, so that you can perform with greater confidence and peace-of-mind.

Providing Heavy Duty Safety Solutions Since 1947

Designed, Engineered & Manufactured by PRECO

Rigorous Product Testing

100% Heavy Duty Focus

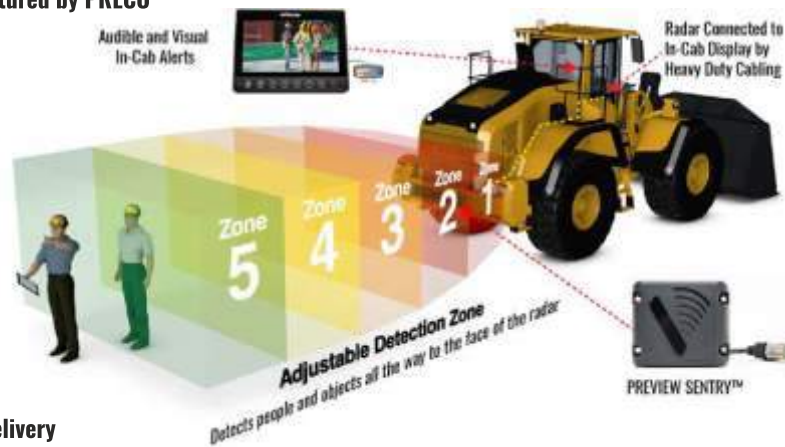
Active Safety Solutions

Rugged Design

Radar-Vision Fusion

Leader in Safety over 60 years

Quality Control – Inception to Delivery



CONSTRUCTION

MINING

WASTE

OTR

FLEET

UTILITY

MUNICIPALITIES

COLLISION MITIGATION - BASE SOLUTIONS*

1

ACTIVE ALERT



PreView Radar



PreView LED Display



SAS Alarm

2

VISION ENHANCED



PreView Radar



PreView Plus Camera/Monitor



SAS Alarm

3

VISION COMPATIBLE



PreView Radar



PreView VideoLink



Existing Camera/Monitor



SAS Alarm

4

WIRELESS



PreView Radar



PreView Wireless Display



SAS Alarm

5

SIDE OBJECT
DETECTION



PreView Radar



SOD Display

*Different applications require different solutions. PreView radar, vision systems, and external warning alarms combine to create a powerful active collision mitigation system. Our solutions integrate into all heavy duty vehicle industries to

assist operators and make roads and worksites more efficient. These base solutions provide a starting point from which complete systems can be built. Please consult with one of our safety specialists to configure the correct solution for your need.

PREVIEW SIDE DEFENDER®II



Add Vulnerable Road User (VRU) protection with PreView Side Defender®II. The Side Defender II radar is the most advanced side object detection and VRU protection radar available for on-road medium and heavy-duty trucks. Side Defender II is the next generation of side blind zone collision mitigation.

SIDE OBJECT DETECTION - BUILT TOUGH FOR HEAVY-DUTY INDUSTRIES



Intelligent Operating Modes

Urban VRU Warning: <30 km/h

- Designed for slow-speed urban environments and passenger side turns
- Alerts on moving bicycles, motorcycles, etc.
- Ignores stationary objects such as parked cars and street signs

Lane Change Assist: >30 km/h

- Designed for lane change maneuvers
- Alerts on moving cars, bicycles, motorcycles, etc.
- Ignores stationary guardrails and similar

Rugged. Reliable. Flexible.

Rugged design, engineered to operate in all weather conditions

Provides the operator audible and visual in-cab active alerts

Ability to report sensor data to a logging device or telematics application





PREVIEW SIDE DEFENDER[®] II



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TECHNICAL SPECIFICATIONS SHEET



Designed to meet IP69K requirements

MEASURING PERFORMANCE

RANGE*	10' (3M) x 39' (12M)
RANGE ACCURACY	±1' (0.3M)
AZIMUTH F.O.V.	±75 degrees (10 dBsm target)
ELEVATION F.O.V.	±10 degrees (10 dBsm target)
ANGLE ACCURACY	±2° @ ±10° FOV, ±5° @ ±30° FOV, ±10° @ ±75° FOV
VELOCITY RANGE	±30 m/sec (± 69 mph)
VELOCITY ACCURACY	0.2 meter/sec (0.5 mph)
TARGET RESOLUTION	1.4m for static targets, approaching 0.3 meters for dynamic targets
DATA UPDATE RATE	120ms (A CAN bus target message is provided in every cycle.)
TARGET DETECTION TIME	300 ms
POWER ON TO ACTIVE	300 ms

SIDE DEFENDER[®] II DETECTION ZONE

*Dependent on target and conditions

COMMUNICATIONS INTERFACE

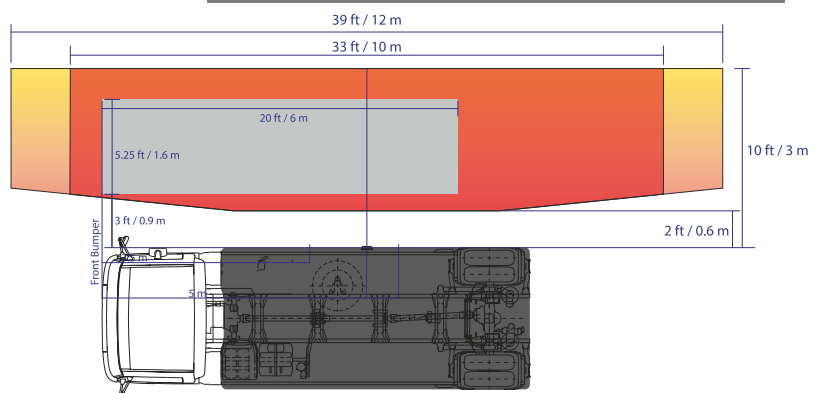
J1939 CAN BUS	250Kbits/sec, not terminated
AUXILIARY OUTPUT	Switch to ground, sink up to 1A, over current protected

OPERATING CONDITIONS

FREQUENCY	24.00 – 24.25 GHz
POWER SUPPLY	9 – 33 VDC,
CURRENT	<0.5 A
OPERATING TEMP.	-40°C to +85°C
STORAGE TEMP.	-55°C to +105°C
SHOCK	50G
VIBRATION	25G, random, all three axis

PHYSICAL CHARACTERISTICS

HOUSING MATERIAL	Polycarbonate radome
WEIGHT	1.0 lb (0.45 kg)
DIMENSIONS	4.90" W x 4.06" H x 1.28" D (12.4 x 10.3 x 3.25 cm)
MOUNTING	Unit supplied with mounting hardware and can be mounted directly on the equipment or by using an optional mounting bracket.



Radar Object Detection

Informs driver of distance between vehicle and objects, whether moving or stationary.

Which model is for you?

Programmable

Top of the range programmable system allowing bespoke detection areas up to 30m in length and 10m in width, with the ability to calibrate out fixed objects or bodywork.



Fixed

Fixed detection length and width. Ideal on machines where no calibration is required. Detection range of up to 6 metres.



Network

Aimed at OEM and specialist application markets, Brigade's Network Radar allows you to connect and link up to 8 sensors to cover large, sometimes complex blind spot zones around the vehicle or machine. The system provides object detection in CAN (Controller Area Network) message format which may be processed to display data on control panels/displays on the vehicle or used to control aspects of the machine.



Backsense® Radar On-Screen Display



- Integration of Brigade's Backsense® radar detection and Backeye® camera monitor systems
- Up to 2 Radar detection warnings overlaid onto camera image on in-cab monitor
- Reduced driver stress and distractions as all information is in one place



Radar sensor data and camera image combined

Brigade's Radar sensors minimise both vehicle damage and collisions by informing the driver of the distance between vehicle and obstacles, whether moving or stationary. Ideal for vehicles and machines manoeuvring at low speed.

Working in conjunction with a Backeye® camera monitor system and up to two Backsense® Network radar detection systems, the on-screen display module warns the driver of obstacles in the danger zone by overlaying 5-stage audible and visual radar data onto the camera image on the monitor.

NEW BACKSENSE® RADAR ON-SCREEN DISPLAY KIT

BS-9001-OSD - Radar sensor & On-screen display module

5658



- Allows 5-stage audible and visual radar data to be overlaid onto camera images on in-cab monitor

- 12-24Vdc

- Detection length: up to 30m (minimum programmable distance 3m)

- Detection width: 2 to 10m

- Sensor size (WxHxD) 217 x 129 x 50mm

- OSD ECU size (WxHxD) 195 x 120 x 35mm

- 2 camera inputs

- 2 BS-9000 Backsense® inputs

- 3 trigger inputs

- 3 trigger outputs

- 3 year warranty

Contents

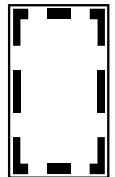
- 1 x OSD Radar ECU
- 1 x BS-9000 Backsense® radar sensor
- 1 x Power cable
- 1 x Extension cable 9m
- 3 x Network Y-cable
- 2 x CANBUS terminator

Features

- Overlay on monitor of detection data from up to 2 BS-9000 radar sensors
- Each radar can be shown in one of 8 positions around the monitor/vehicle
- Compatible with Backsense® BS-9000 Network radar sensors only
- Programmable:
 - Detection area
 - Blind zones - system ignores fixed objects
 - Overlay transparency level
- Radar system fault displayed on monitor
- USB connection for configuration via PC
- Compatible with MDR, Backeye@360 & Elite range camera monitor systems (Select range via adapters)
- Audible warning via monitor or optional internal buzzer
- Supports external warning alarm

Durability & Standards

- Operating temperature: -40 to +85°C
- OSD: IP30
- CE marked
- E-Marked: UNECE R10 compliant
- FCC Approved
- IC Approved



To not obstruct camera views, each radar can be shown in one of eight positions around the edge of the monitor

Camera monitor system not included

TO ADD AN ADDITIONAL RADAR SENSOR

1 x BS-9000 - Network Radar sensor

5266

1 x BS-00NYC - Network Y Cable

5270

1 x Extension cable:

BS-05DCX - 5m extension cable

4550

BS-09DCX - 9m extension cable

4551

BS-25DCSX - 25m extension cable (Female end connector supplied loose)

4975



FIXED BACKSENSE® OBJECT DETECTION SYSTEMS



BS-7030 - 3m detection range, 2.5m width Sensor, AV display, 9m cable	4527
BS-7045 - 4.5m detection range, 3.5m width Sensor, AV display, 9m cable	4528
BS-7060 - 6m detection range, 4.5m width Sensor, AV display, 9m cable	4529

- 12-24Vdc
- **Maximum detection range of 6m**
- **Rugged design for harsh environmental conditions**
- **Sensor size (WxHxD) 217 x 129 x 50mm**
- **IP69K sensor**
- **3 year warranty**

Features

- Frequency modulated continuous wave (FMCW) radar technology
- Effectively detects stationary, moving and multiple objects
- 1 activation input
- 1 trigger output
- 5 stage audible and visual distance warning display
- Resistant to water, moisture, dust, vibration, heat, cold, mud and glare

Power

- Current: 0.8 Amps
- Power consumption: 8 Watts

Durability & Standards

- Mechanical shock: 100G
- Mechanical vibration: 8.3G
- Operating temperature: -40 to +85°C
- CE marked
- E-Marked: UNECE R10 compliant
- BS EN 13309: 2010
- ISO13766: 2006

EXTENSION CABLES



BS-05DCX - 5m extension cable	4550
BS-09DCX - 9m extension cable	4551
BS-25DCSX - 25m extension cable (Female end connector supplied loose)	4975

OPTIONAL EXTRAS



BKT-017 - Adjustable radar bracket with 105mm depth bracket mounting arms	4676
BKT-018 - Low-profile adjustable radar bracket	4758



NEW NETWORK BACKSENSE® OBJECT DETECTION



BS-9000 - Backsense® CAN object detection radar

5266

- 12-24 Vdc
- Detection length: up to 30m
- Detection width: up to 10m
- Sensor size (WxHxD) 217 x 129 x 50mm
- IP69K sensor
- 3 year warranty

Contents

- 1 x Network radar
- Fixings

Features

- Frequency modulated continuous wave (FMCW) radar technology
- Network up to 8 sensors
- Extremely rugged design for severe weather conditions and all terrains
- Communication via CAN Gateway
- Configurable CAN ID
- Complies with CAN2.0A Base Frame Format
- Separate CAN message & ID for each object detected (up to 8 closest objects per sensor)

Power

- Current: 0.4 Amps
- Power consumption; 4 Watts

Durability & Standards

- Mechanical shock: 100G
- Operating temperature: -40 to +85°C
- CE marked
- E-Marked: UNECE R10 compliant
- BS EN 13309: 2010
- ISO13766: 2006

EXTENSION CABLES

BS-02DCX - 2m extension cable

5272

BS-05DCX - 5m extension cable

4550

BS-09DCX - 9m extension cable

4551

BS-25DCSX - 25m extension cable (Female end connector supplied loose)

4975

NETWORK ACCESSORIES

BS-00NYC - Network Y Cable

5270

BS-02PIC - Network power input cable

5271

BS-00NT - 120 Ohms Network Terminator

5291

OPTIONAL EXTRAS

BKT-017 - Adjustable radar bracket

4676

with 105mm depth bracket mounting arms

BKT-018 - Low-profile adjustable radar bracket

4758

PROGRAMMABLE BACKSENSE® OBJECT DETECTION SYSTEM

BS-8000 - Programmable detection range

4530

Sensor, AV display, 9m cable, Programming software

- 12-24Vdc
- Detection length: up to 30m (minimum programmable distance 3m)
- Detection width: 2 to 10m
- Rugged design for harsh environmental conditions
- Sensor size (WxHxD) 217 x 129 x 50mm
- IP69K sensor
- 3 year warranty

Features

- Frequency modulated continuous wave (FMCW) radar technology
- Effectively detects stationary, moving and multiple objects
- 1 activation input
- 1 trigger output
- Programmable:
 - Detection area
 - Blind zones - system ignores fixed objects
 - Trigger activation
 - Buzzer
- 5 stage audible and visual distance warning display
- Resistant to water, moisture, dust, vibration, heat, cold, mud and glare

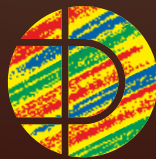
Power

- Current: 0.8 Amps
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Durability & Standards

- Mechanical shock: 100G
- Mechanical vibration: 8.3G
- Operating temperature: -40 to +85°C
- CE marked
- E-Marked: UNECE R10 compliant
- BS EN 13309: 2010
- ISO13766: 2006





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Promoting Growth.

DAVESMEN INDIA PVT. LTD.



NORDICLIGHTS



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