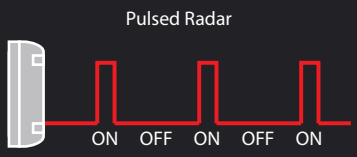
Backsense Radar

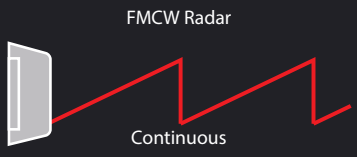
Backsense® radar systems use a patented Frequency Modulated Continuous Wave (FMCW) radar technology.

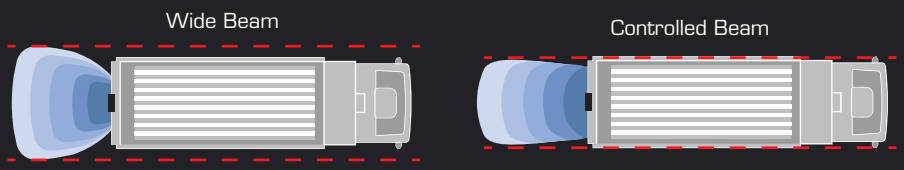
Backsense® radar transmits a continuously varying frequency signal which gives a unique time stamp to each instance of the wave. The returning wave is then referenced against this without having to stop transmitting unlike pulsed radar.

The advantages of FMCW over competitor pulsed radar are FMCW has better detection at long distance and greater resistance to electromagnetic noise.

Backsense® radar also controls the radar beam pattern, so the spread of the beam can be restricted to the width of the plant for the length of the detection area, to minimise false alerts on a busy site.







Ultrasonic

Ultrasonic sensors generate pulsed high frequency sound waves.

If there is an object in the path of these pulses, they will be reflected back to the sensor as an echo.

By measuring the time difference between the pulse being transmitted and the echo being received, it is possible to determine how far away the object is from the sensor.

Obstacle Detection

Obstacle Detection

Backsense Radar

- Detects multiple moving and stationary objects.
- High frequency continuous wave provides increased reliability & low false alarm rates.
- Effective through non-metallic surfaces e.g. plastic & fibreglass.
- BS-8000 model has adjustable detection range – 30m to 3m.
- Self-diagnostic function.
- Rugged cable system withstands harsh environmental conditions.
- In-cab 5 stage audible & visual alert.
- Auxiliary output to activate additional items, e.g. cameras, alarms etc.
- Transient, short circuit, overcharge & reverse polarity protection.
- Epoxy filled for maximum vibration resistance.
- Environmentally sealed sensor – IP69K.
- Sensor can be steam & pressure cleaned.
- Multi-voltage.
- 2 year warranty.

NLA

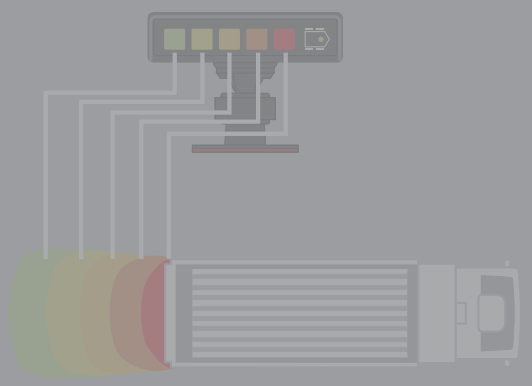
Voltage :		12–24V
Current Draw :		0.8A
Radar Frequency :		24.068GHz to 24.218GHz
Auxiliary Output :		0.5A
Weight :	Sensor	0.7kg
	Display	0.3kg
[illegible] :		8.3G
		100G
[illegible]:		CE & 'e' marked
A[illegible]vals :		ISO 16750/13766, EN13309 & FCC
[illegible]ting Temperature :		-40°C to 85°C
[illegible]ss Protection :	Sensor	IP69K

12V 24V · IP69K · 3Yrs · CE

In-Cab Audible & Visual Display

When an object is detected, the in-cab display LEDs illuminate and an audible alert will sound.

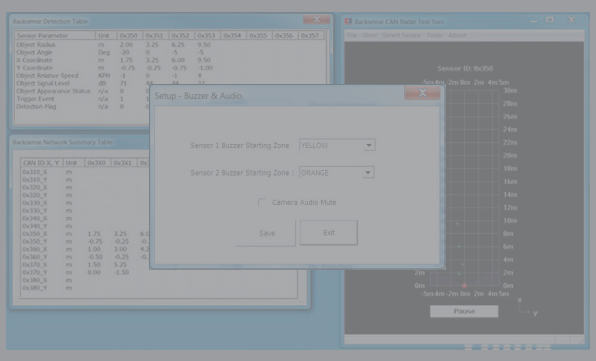
Each LED represents approximately 1/5 of the detection distance.

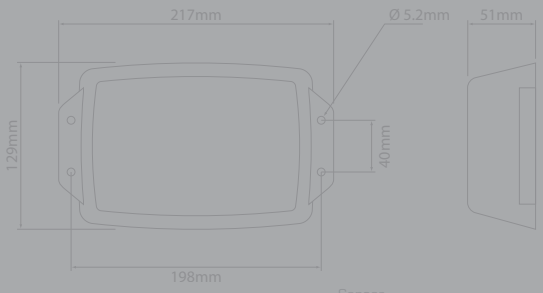


Configurable

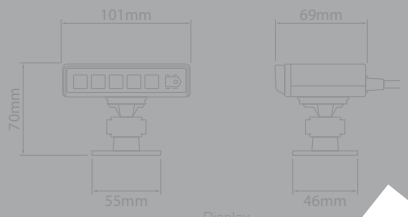
BS-8000 is supplied with easy to use PC software for setting the following parameters:

- Detection zone length & width
- Blind area mapping
- Buzzer starting zone
- Trigger output length





Sensor



Display

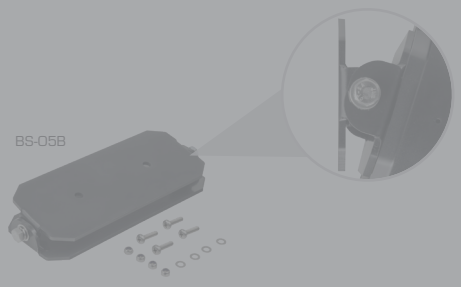
Watch video

NLA

Backsense Radar – Kits

Part No.	Type	Detection Di (m)	dth (	Detection Zones
BS-7030	Fixed Range	3	.5	5 x 0.6m
BS-7045	Fixed Range	4.5	3.5	5 x 0.9m
BS-7060	Fixed Range	6		5 x 1.2m
BS-8000	Configurable	3 – 30	2	Confi

Kit Contents:
1 x Sensor unit
1 x Audio/visual display
1 x 9m Cable (sensor to display)
Sensor & display mounting hardware
Installation & operation manual
BS-8000 kit contains Software CD and USB Cable


BS-05B


Extension Cable


Display


Sensor

Backsense Radar – Accessories & Spare Parts

Part No.	Description
BS-05**B**	Adjustable sensor bracket Supplied with bolts, washers and nylock nuts.
BS-05**DCX**	Extension Cable – 5m
BS-09**DCX**	Extension Cable – 9m
BS-25**DCSX**	Extension Cable – 25m
BS-7030**D**	Display – 3m range
BS-7045**D**	Display – 4.5m range
BS-7060**D**	Display – 6m range
BS-8000**D**	Display – Configurable range
BS-70*XX***S**	Sensor – Fixed range. Replace '*XX*' with 30, 45 or 60 corresponding to detection range of 3m, 4.5m and 6m
BS-8000**S**	Sensor – Configurable range

Backsense Network Radar

NEW

Monitor is not included in the kit

BS-9001-OSD

12V 24V · 3Yrs · IP69K · CE

NLA

- Overlay detection data for up to 2 radar sensors on a single monitor.
- Compiles with CAN 2.0A Base Frame Format.
- Detects multiple moving and stationary objects.
- High frequency continuous wave provides increased reliability & low false alarm rates.
- Adjustable detection range up to 30m.
- 3 trigger inputs used for activating components such as alarms and beacons.
- Environmentally sealed sensor – IP69K
- Sensor can be steam & pressure cleaned.
- Multi-voltage.
- 3 year warranty.

Voltage :		12-24V
Current Draw :		0.4A
Radar Frequency :		24.05GHz to 24.25GHz
Weight :	Radar Sensor	0.7kg
Vibration :		8.3G
Shock :		100G
EMC :		CE & 'e' marked
Approvals :		ISO 16750/13766, EN13309 & FCC
Operating Temperature :		-40°C to 85°C
Ingress Protection :		IP69K

Backsens[illegible]etwork Radar

Brigade's Backsense® Network Radar is the next generation of radar-based obstacle detection.
Due to the number of complex blind spots on a vehicle, a single radar cannot always provide the detection required. On top of this, multiple in-cab displays for multiple radars can be more of a distraction th[illegible] [illegible]ed at O[illegible] s[illegible]ist applications, Brigade's Network Radar [illegible] O[illegible]ows [illegible] connect and link 2 sensors to cover large, so[illegible] [illegible]d spot zones around a vehicle or machine.

Traditional

CAN Network

On-Screen Display

Multiple radars with individual in-cab displays can cause confusion and also be a challenge to install. Brigade's latest innovation, the Backsense® OSD (On-screen Display) ECU allows for the use of 2 Backsense® Network Radar units to be combined with any Brigade Backeye® camera system.

Radar detection data is overlaid transparently* along the edge of the monitor so as not to obscure the camera image with the audible warning via the monitor speakers.

*Transparency level can be adjusted via software.

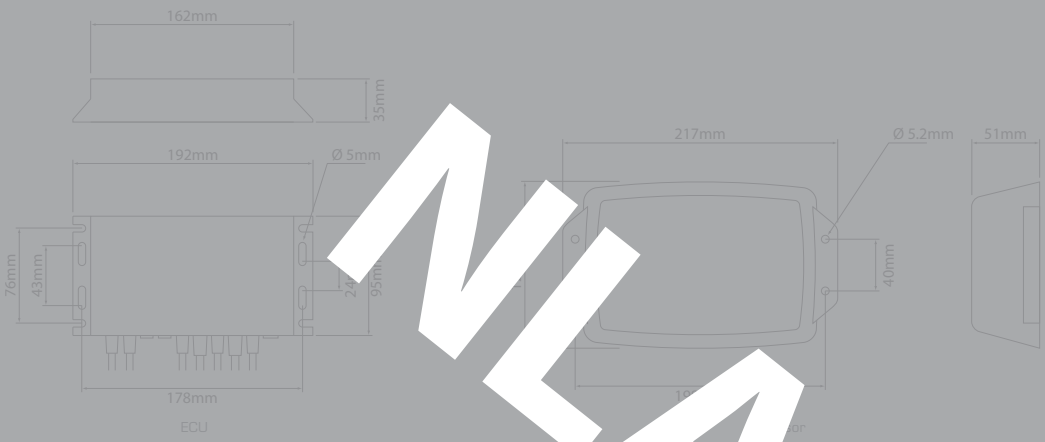
When an object is detected in the YELLOW zone, the associated on-screen indicator will turn yellow and a pulsed audible alert is played through the monitor's speaker.)))))))))

When object is detected in RED zone, the associated on-screen indicator will turn red and a constant audible alert is played through the the monitor's speaker.))))))))))))

Each radar sensors detection notification can be assigned to one of eight predefined positions overlaid around the edge of a monitor.

BRIGADE

Watch video

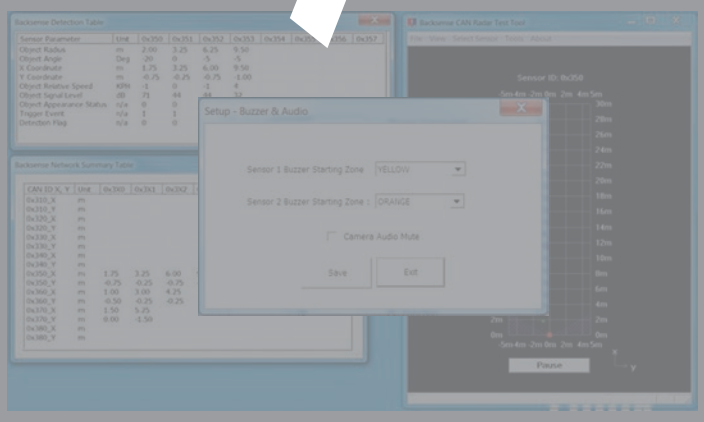


NLA

Configurable

Backsense® Network Radar with OSD kit is supplied with easy to use PC software for setting the following parameters :

- Detection zone length & width.
- Blind area mapping.
- Buzzer starting zone.
- Trigger output length.



Backsense Network Radar – OSD Kit NEW

Part No.	Detection Distance (m)	Detection Width (m)	Camera Inputs	Trigger Inputs	Outputs*
BS-9001-**OSD**	3 – 30	2 – 10	2	3	3 x 0.5A

Supports up to 2 Backsense® Network Radars.

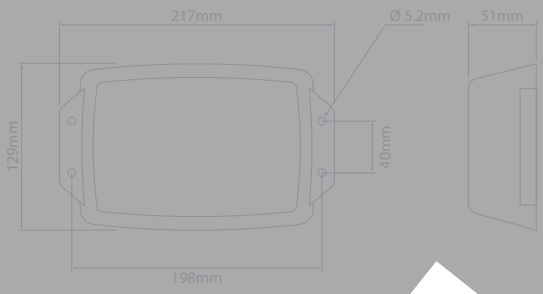
Compatible with Brigade Backeye systems, including Backeye 360 and Brigade Digital Mobile Recorders.

*1 x output for alarm use only.

Kit contents:
1 x BS-9000 Sensor Unit
1 x OSD ECU
3 x Network Y Cable
2 x CAN Bus Terminator
1 x 9m Extension Cable
1 x Network Power Input Cable
Sensor Mounting Hardware

Manual & software available on IONNIC website

Obstacle Detection



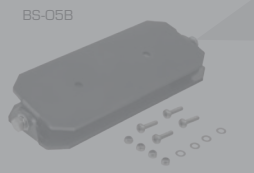
BS-9000 CAN Integration

The Backsense® Network Radar Sensor (BS-9000) can be integrated into a Controller Area Network (CAN) and configured to interact and display sensor data on existing components and screens.

NLA

Backsense Network Radar – Sensor

Part No.	Description	CAN	Baud Rate	Detection Distance (m)	Detection Width (m)
BS-9000	Single network radar sensor unit	J1939	500K	3 – 30	2 – 10




BS-00NYC


BS-00NT


BS-02PIC

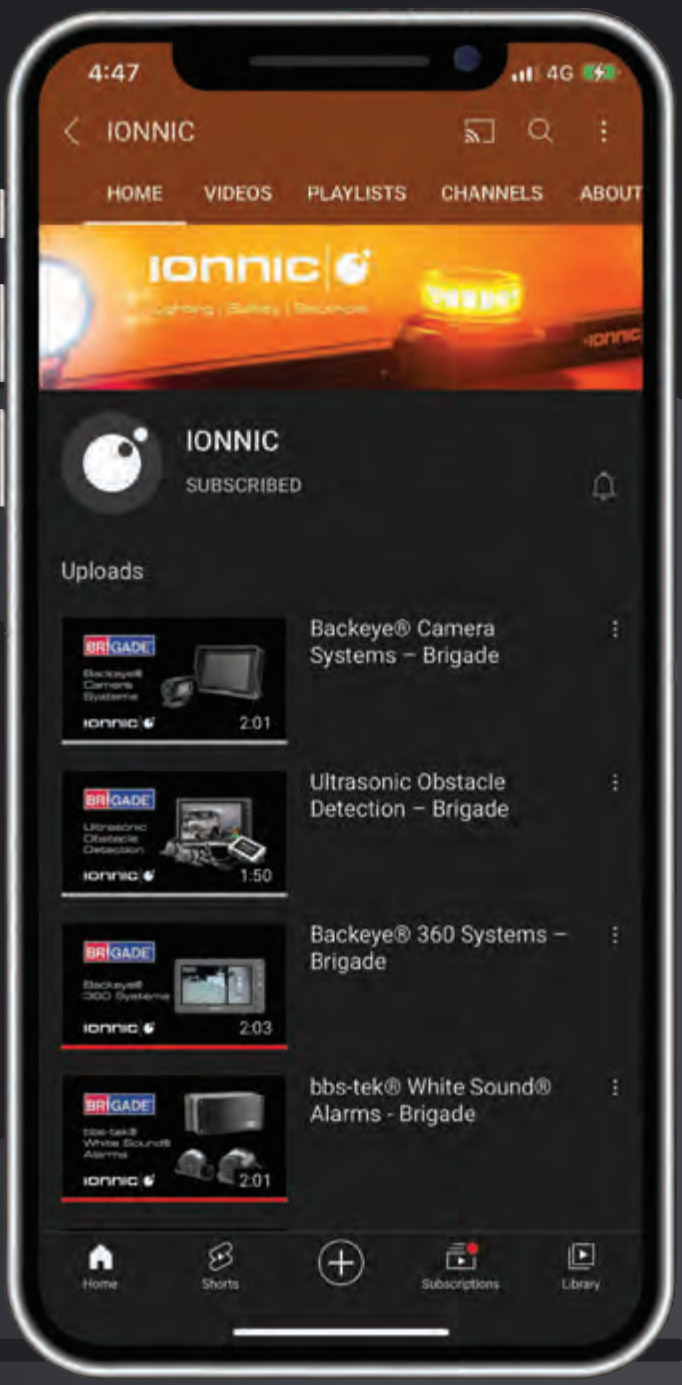
Backsense Network Radar – Accessories

Part No.	Description
BS-05B	Adjustable sensor bracket Supplied with bolts, washers and nylock nuts.
BS-05**DCX**	Extension cable – 5m
BS-09**DCX**	Extension cable – 9m
BS-25**DCSX**	Extension cable – 25m
BS-00NYC	Network 'Y' cable
BS-00NT	120 Ohm CAN bus terminator
BS-02PIC	Network power input cable – 2m

IONNIC YouTube Channel

Product videos, configuration tutorials and more

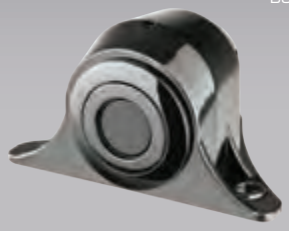
SUBSCRIBE



Obstacle Detection

Ultrasonic

BS-4000W

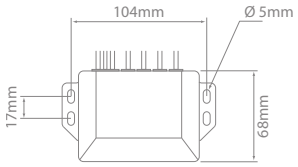


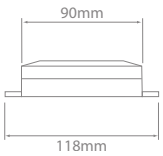
12V 24V · 3Yrs · CE · RoHS COMPLIANT

Watch video

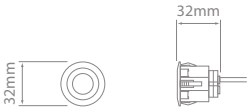
- Obstacle detection rate under 200 milliseconds.
- Adjustable max. detection distance via dip switch.
- Backscan includes in-cab visual display.
- OSD module overlays detection data for up to 2 Ultrasonic sensors on a single monitor.
- 3 stage warning zones.
- Environment Learning Mode prevents false alarms.
- Multiple sensor mount types included.
- Backscan incorporates 50cm compensation range for inboard mounted sensors (selectable via dip switch).
- One trigger output.
- Self diagnostic function.
- Sensors & ECU environmentally sealed.
- Multi-voltage.
- 3 year warranty.

Voltage :		12–24V
Current Draw :		0.2A
Approvals :		RoHS, CE & 'e' marked
Operating Temp :		-30°C to 80°C
Ingress Protection :	Sensors	IP68
	ECU	IP69K

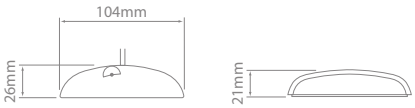




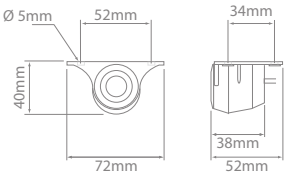
ECU



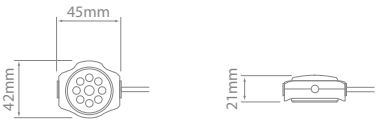
Sensor
Mounting Ø 28mm



Display
(Supplied with Ultrasonic – Backscan only)



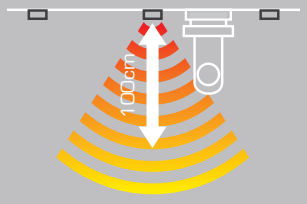
Sensor
Pendant Mount Housing



Buzzer

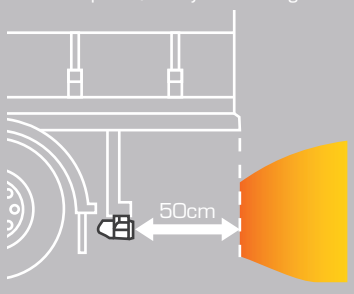
Environment Learning

Environment Learning Mode prevents false alarms from tow-hooks and other ancillary fixed equipment that intrudes into the first 100cm of the detection zone.



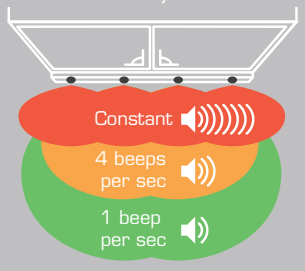
50cm Compensation

50 centimetre compensation for installation to vehicles with in-board bumpers / tray over hang.



Warning Zone

The frequency of the signal changes according to the distance from sensors to the object.



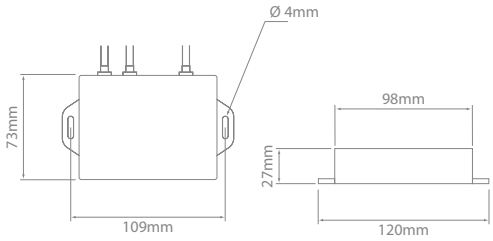
BRIGADE

On-Screen Display

Ultrasonic OSD (On-Screen Display) Module allows for the use of up to 2 Ultrasonic Obstacle Detection systems to be combined with any Brigade Backeye® camera system.

Detection data is overlaid transparently along the edges of the monitor, with its 3-stage audible and visual warning ensuring the driver is aware if any obstacle is in the danger zone.

NEW

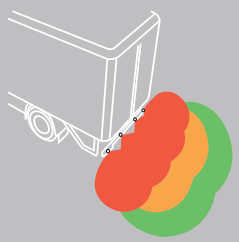


Ultrasonic – On-Screen Display Module NEW

Part No.	Camera Input	Trigger Input	Ultrasonic Detection System Input	Ultrasonic Detection System Output
UDS-OSD20-**ECU**	2	2	2	2

2 year warranty.

4 sensor system fitted to rear of vehicle as an invaluable aid to safe reversing. Gives greater protection to pedestrians and workers, whilst minimising damage to vehicle and other objects.



Ultrasonic – Backscan supplied with a graduated visual and audible warning display.

Ultrasonic – Backscan

Part No.	Max. Detection Distance (m) Outer	Inner
BS-4000**W**	2.5/0.6*	2.5

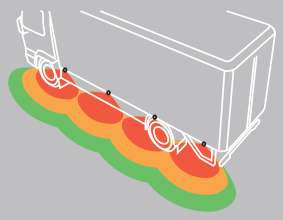
*Outer sensors only, detection range adjustable via dip switch.

Kit contents:
4 x Sensor
1 x Display
1 x ECU
4 x 0° Sensor Bracket
4 x 11° Sensor Bracket
4 x Pendant Mount Housing
4 x Sensor Harness – 2.5m
1 x Display Harness – 15m

Obstacle Detection

4 sensor system fitted to side of vehicle increasing safety when turning or low speed manoeuvring. Particularly relevant for near side blind spot where cyclists or pedestrians can otherwise go undetected.

SS-4100W features mute function that silences the buzzer after 4 seconds if there is no movement from a detected object or vehicle.



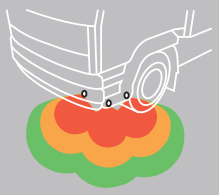
Ultrasonic – Sidescan

Part No.	Max. Detection Distance (m)
SS-4100W	1.0/1.5

Kit contents:
4 x Sensor
1 x Buzzer
1 x ECU
4 x 0° Sensor Bracket
4 x 11° Sensor Bracket
4 x Pendant Mount Housing
4 x Sensor Harness – 4.5m
1 x Buzzer Harness – 10m
2 x Extension Cable – 2.5m

3 sensor system fitted to near side corner of vehicle cab detects objects in front near side blind spot. Minimises the risk of damage to the vehicle cab whilst manoeuvring at low speed.

CS-3100 features mute function that silences the buzzer after 4 seconds if there is no movement from a detected object or vehicle.



Ultrasonic – Cornerscan

Part No.	Max. Detection Distance (m)
CS-3100	0.6/1.0

Kit contents:
3 x Sensor
1 x Buzzer
1 x ECU
3 x 11° Sensor Bracket
3 x 18° Sensor Bracket
3 x 26° Sensor Bracket
3 x Sensor Harness – 2.5m
1 x Buzzer Harness – 2.5m

4 sensor system fitted to front of vehicle improving safety when manoeuvring at low speed. Particularly relevant for front blind spot on high cabs where low objects or pedestrians can be hidden.

Ultrasonic – Frontscan

Part No.	Max. Detection Distance (m) Outer	Inner
FS-4000W	2.5/0.6	2.1/1.0

Kit contents:
4 x Sensor
1 x Buzzer
1 x ECU
4 x 11° Sensor Bracket
4 x 18° Sensor Bracket
4 x 26° Sensor Bracket
4 x Sensor Harness – 2.5m
1 x Buzzer Harness – 2.5m

Obstacle Detection

2 sensor system fitted to near side cab step giving awareness to the driver of objects to the side when turning and reversing.
Minimises the risk of damage to the vehicle cab from otherwise unseen objects.

ST-2100 features mute function that silences the buzzer after 4 seconds if there is no movement from a detected object or vehicle.

Ultrasonic – Stepscan

Part No.	Max. Detection Distance (m)
ST-2100	0.6/1.0

Kit contents:
2 x Sensor
1 x Buzzer
1 x ECU
2 x 11° Sensor Bracket
2 x 18° Sensor Bracket
2 x 26° Sensor Bracket
2 x Sensor Harness – 2.5m
1 x Buzzer Harness – 2.5m

UDS-000HSS

UDS-00SM

0° Sensor Bracket

5° Sensor Bracket

11° Sensor Bracket

18° Sensor Bracket

26° Sensor Bracket

UDS-4.5SC

Buzzer Extension Cable

Ultrasonic – Spare Parts NEW

Part No.	Description	
UDS-000**HSS**	Sensor – suits Backscan & Frontscan	
UDS-00**SM**	Pendant Mount Housing, use in conjunction with Sensor Bracket	
UDS-00**SSK**	Sensor Bracket Kit	Kit contents: 4 x 0° & 4 x 11° bracket
UDS-05**SS**	Sensor Bracket Kit	Kit contents: 2 x 5° bracket
UDS-11**SS**	Sensor Bracket Kit	Kit contents: 2 x 11° bracket
UDS-18**SS**	Sensor Bracket Kit	Kit contents: 2 x 18° bracket
UDS-26**SS**	Sensor Bracket Kit	Kit contents: 2 x 26° bracket
UDS-4.5**SC**	Sensor Extension Cable – 4.5m	
UDS-2.5**BC**	Buzzer Extension Cable – 2.5m	
UDS-10**BC**	Buzzer Extension Cable – 10m	
UDS-15**BC**	Buzzer Extension Cable – 15m	