Our

Products

BRIGADE®

You're safer with us

THE QUEEN'S AWARDS
FOR ENTERPRISE:
INTERNATIONAL TRADE
2019

APS
LIGHTING & SAFETY
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Wangara, WA 6065 Australia
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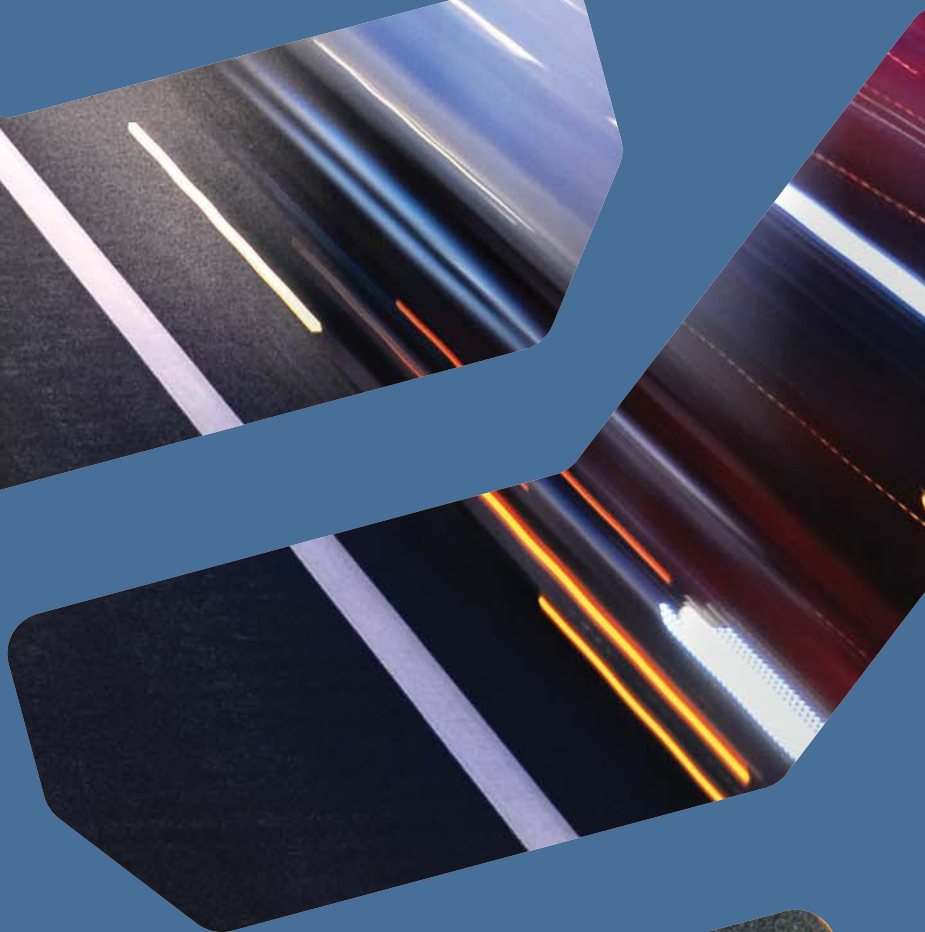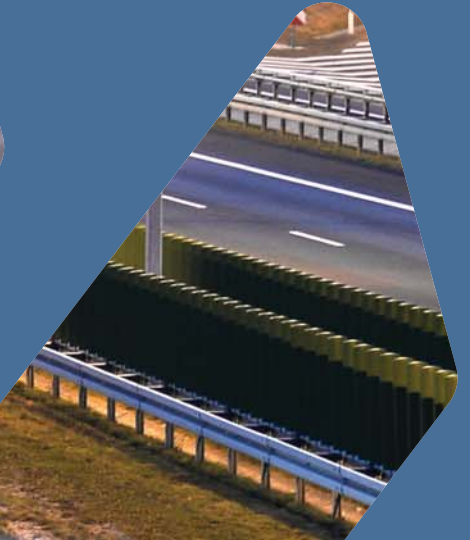Fax: 61 (8) 6305 0047

APS: **Singapore**
Mexico
Colombia
Chile
Perú

"Zero lives lost in collisions with commercial vehicles and mobile machinery"

It's a big challenge but we are on a mission to deliver this vision.

Brigade is at the pinnacle of commercial vehicle and mobile plant blind-spot safety. A founder and innovator of sensing and monitoring systems that have helped save lives for over forty years.

Whilst our portfolio may be emulated, our commitment to vehicle safety, our reliable, trusted products and our dedicated team of experts, cannot. We invest in people as well as technology. Everyone in the Brigade family understands the life-changing significance of the products and service we provide and the importance of outstanding systems that work in the most demanding of situations.

For the future: We will continue to inform and work with policy makers and industries to ensure blind-spot mitigation is effective. We will recruit the highest calibre people who are passionate about what we do. We will impart expert knowledge and advice to help customers with their challenges. We will always seek to innovate and bring new products to market that help prevent collisions and save lives. We will strive to achieve our vision of zero lives lost by constantly improving the safe operation of commercial vehicles and mobile plant around the world.

- **Brigade Electronics Group Plc management systems are certified to ISO9001:2015**
- **Our principal manufacturing facilities are certified to IATS16949:2016**
- **All applicable products have CE-marking in Europe and FCC/IC approval in North America**
- **The majority of our products comply with UN ECE Regulation 10 (EMC)**
- **Combinations of our camera monitor systems are certified to Regulation 46**
- **Cables are UNECE R118 compliant**
- **Our products comply with REACH and RoHS**

bsi. ISO 9001:2015 Quality Management

Contents

Compliance kits

Are you compliant?

Legislation, regulation and certification heavily influences the automotive industry at all levels.

We aim to provide high quality safety solutions that surpass requirements, because that is the best way to keep drivers and vulnerable road users safe.

For further information, please visit the **Regulations and Legislation** section at **brigade-electronics.com**

Model	Part No:

FLEET OPERATOR RECOGNITION SCHEME (UK)

The Fleet Operator Recognition Scheme (FORS) is a voluntary accreditation scheme in the UK for fleet operators which aims to raise the level of quality within the transport business, and demonstrate which operators are achieving exemplary levels of best practice in safety, efficiency and environmental protection.

For further information about FORS compliance, visit **brigade-electronics.com/FORS**

FORS SILVER COMPLIANCE KIT

Model	Part No:
FORS-SS-01 - FORS Silver for rigid vehicles	**6077**
1. **VBV-770-000 - Select 7" monitor / rear camera system**	**4692**
2. **VBV-300C - Select side view camera, flush-mount eyeball camera - mirror view PAL**	**5211**
3. **VBV-L405 - Select 5m camera cable**	**1499**
4. **SS-4100W - Sidescan® Side sensor system with mute funtion**	**5257**
5. **LS-60-A - Low speed trigger module**	**4851**
6. **TS-001ECU - Turn Indicator Trigger ECU**	**1362**
7. **SS-BC-08 - Left side-turn external warning alarm - 90dB**	**1334**
8. **TCO-47(01) - Latched Side-turn Alarm Cut-Out**	**4752**
9. **Blind spot take care vehicle sticker**	**LIT0402**

A reversing alarm is also required for FORS Silver compliance. If not already fitted, please see our full range of bbs-tek® White Sound® alarms.

Model	Part No:

DIRECT VISION STANDARD (Safe System)

Transport for London

The Direct Vision Standard (DVS) is the first legislation of its kind. From 26th October 2020, ALL goods vehicles over 12 tonnes will require a HGV safety permit to drive into Greater London, including vehicles from outside of the UK.

For comprehensive information about the DVS, visit **brigade-electronics.com/DVS**

DVS COMPLIANCE KIT

DVS-SS-01 - Direct Vision Standard for rigid vehicles	6076
1. VBV-770M - Select 7" digital LCD monitor	4288
2. VBV-300C - Select side view camera, flush-mount eyeball camera - mirror view PAL	5211
3. VBV-L405 - Select 5m camera cable	1499
4. SS-4100W - Sidescan® Side sensor system with mute funtion	5257
5. LS-60-A - Low speed trigger module	4851
6. TS-001ECU - Turn Indicator Trigger ECU	1362
7. SS-BC-08 - Left side-turn external warning alarm - 90dB	1334
8. TCO-47(01) - Latched Side-turn Alarm Cut-Out	4752
9. Blind spot take care vehicle sticker	LIT0402

DVS COMPLIANCE KIT

DVS-CS-01 - Direct Vision Standard for articulated vehicles	6078
1. VBV-770M - Select 7" digital LCD monitor	4288
2. VBV-300C - Select side view camera, flush-mount eyeball camera - mirror view PAL	5211
3. VBV-L405 - Select 5m camera cable	1499
4. CS-3100 - Cornerscan® Side sensor system with mute function	5261
5. LS-60-A - Low speed trigger module	4851
6. TS-001ECU - Turn Indicator Trigger ECU	1362
7. SS-BC-08 - Left side-turn external warning alarm - 90dB	1334
8. TCO-47(01) - Latched Side-turn Alarm Cut-Out	4752
9. Blind spot take care vehicle sticker	LIT0402

Backeye®eMirrors
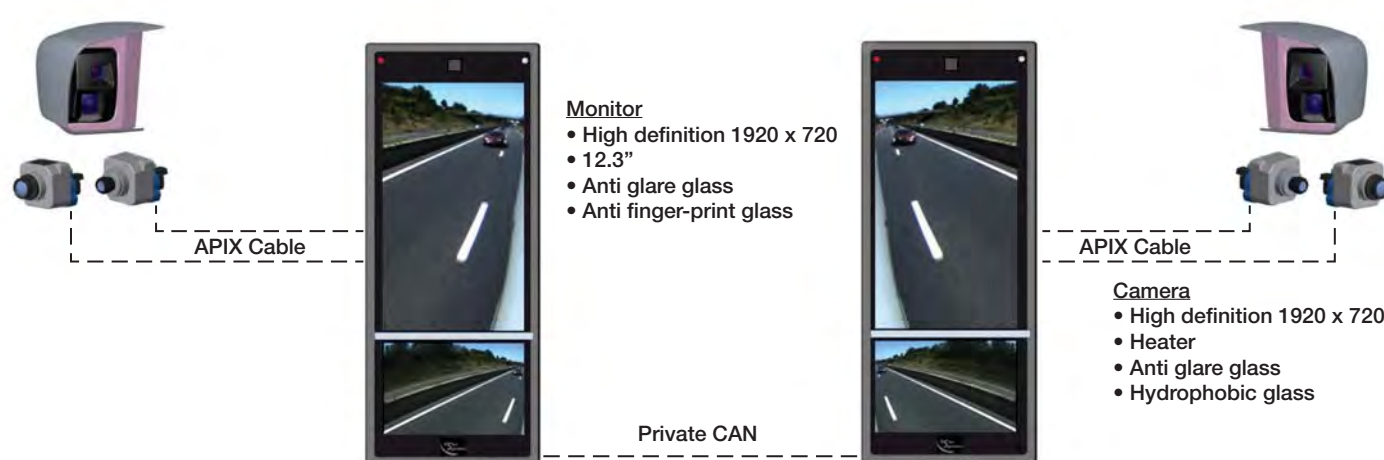## Mirror replacement system

For a driver, being able to see blind spots around the vehicle is a necessity. Using a camera monitor system for visibility instead of mirrors can offer many benefits.

Replace conventional Class II and Class IV mirrors with high-definition externally mounted side-view cameras and a pair of high definition (HD) monitors typically mounted on the A-frame inside the cab. Installation is best carried out at or by a vehicle manufacturer or bodybuilder as must be homologated, ensuring compliance with Regulation 46 (devices for indirect vision). Unique to each vehicle model which requires homologation by an approved test house in order to comply with the R46 and ISO specifications for indirect vision

Monitor
• High definition 1920 x 720
• 12.3"
• Anti glare glass
• Anti finger-print glass

APIX Cable

APIX Cable

Camera
• High definition 1920 x 720
• Heater
• Anti glare glass
• Hydrophobic glass

Private CAN

Monitor features:
• High Definition (HD)
• Screen layout can be configured to replicate the replaced mirror positions
• Built-in light sensor for automatic screen brightness
• Monitors are linked via a private CAN network for auto-screen balance/ brightness and system operating data
• Anti glare and fingerprint glass ensures the image is always clear
• Distance markers

Camera features:
• High Definition (HD)
• Two cameras per side/housing (Class II and Class IV or Class V)
• Cameras mounted in housing, behind heated, anti-glare, hydrophobic treated glass
• Optional integrated lens cleaning with pressurised air or water.

Reduced glare from headlights

Improved visibility at night

Certification:
• UN ECE Regulation No 46 (R46), regarding devices for indirect vision. Only camera monitor systems with R46 approval may be installed in place of a compulsory mirror..
• ISO 16505
• ISO 26262

Why install a camera monitor system in place of mirrors?

- **Wider viewing angle**
  A camera has a wide viewing angle which allows the driver to see more than the minimum required Field of View. A driver does not need to physically move to view a broader area as would be necessary with a conventional mirror.

- **No damage to mirrors and improved aerodynamics**
  Because of their size and the distance they protrude, mirrors are prone to being hit and broken. A smaller, flush-mounted camera reduces the risk of damage, lowering maintenance costs and vehicle downtime. Replacing mirrors with cameras also improves aerodynamics which contributes to lower fuel consumption.

- **No glare and reduced light reflection**
  Low sun and headlights can be dazzling for drivers, creating glare and making it difficult or impossible to define objects in mirrors. A camera system automatically adjusts to the lighting, significantly reducing glare and therefore improving driver visibility by displaying a clear image on the monitor.

- **Better visibility at night**
  Night time visibility is one of the key advantages a camera system has over a conventional mirror. Low-light (low lux) capability and auto-image enhancement mean greatly improved visibility in low light conditions and a clear image on the monitor, even in almost total darkness.

- **Better visibility in the rain**
  Mirrors are challenging to use in the rain. Not only does the driver need to see the vehicle and surroundings in the mirror, but through an equally wet and sometimes misted window. Water and dirt obscure the view, hugely reducing driver visibility. The camera aperture will focus through water on the lens, maintaining visibility in any type of environment or weather condition.
  A heated camera also helps to keep the lens free from moisture.

For more information, please contact us on **+44(0) 1322 420300** or **sales@brigade-electronics.com**

Backeye®360
360° Camera Monitor System

How it works

Backeye®360 is an intelligent camera monitor system designed to assist low-speed manoeuvring by providing the driver with a complete 'bird's-eye' surround view of the vehicle in real time.

360° technology works with four ultra wide-angle cameras, each covering one full side of the vehicle with a viewing angle of over 180°.

High-mounted on the front, rear and sides, the calibrated cameras capture all of the surrounding area including the blind spots of the vehicle or machine.

The four live images are simultaneously sent to an electronic control unit (ECU) where they are instantly processed, combined, blended and stitched. The distortion from the wide-angle camera lens is also corrected so that a clear, real-time view of all around the vehicle is provided to the driver in a single image on the monitor.

Backeye®360 will work on most vehicles and machines, large or small. Our expert team of Applications Engineers can advise on installation to everything from a van to a 200 tonne dump truck, including rigid and articulated trucks and buses, loading shovels, excavators, lift trucks, straddle carriers and many others.
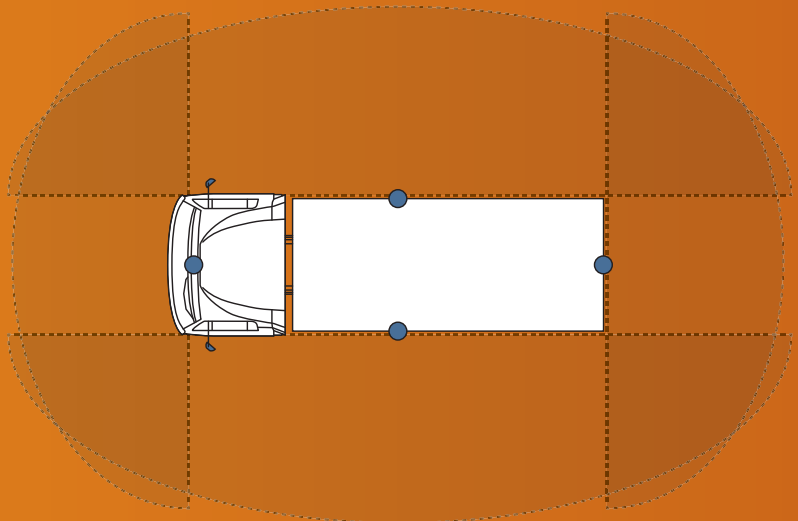
Backeye®360

Model	Part No:

AHD 360° CAMERA SYSTEM   HD

BN360-300 - High Definition Backeye®360 system   **5800**

- IP69K cameras
- 12-24Vdc
- Size (WxHxD) ECU 178 x 113 x 26mm
- Size (WxHxD) Camera 61 x 50 42mm
- 5 year warranty

AHD

Contents
- 1 x ECU
- 4 x BN360-1000C cameras
- 1 x Video output cable to connect to SELECT range monitor.
- 1 x set-up/view-select button
- 1 x ECU power harness
- 1 x ECU interface/video input harness

Features
- 720p HD 360° image
- 15 different view modes (10 x landscape & 5 x portrait configuations)
  - Front & rear crossing-traffic
  - Customisable vehicle position
- 2 pre-defined configuration groups
- Configure & customise set up via PC calibration software
- Left, right, reverse & speed signal triggers
- Configurable on-screen parking markers
- Customisable overlay guidelines per camera view
- 2 x video outputs
- Ultra-wide viewing angle cameras (HxV) 182° x 118°
- 1/4" CMOS sensor
- Video output: AHD 1.0 and NTSC

Power
- Power consumption: 15 Watts
- Current: 1.22 Amps

Durability & Standards
- Mechanical vibration: 8.5G
- Mechanical shock: 51G
- Operating temperature: -30 to +75°C
- IP30 ECU
- CE marked
- E-Marked: UNECE R10 compliant
- FCC Approved
- IC Approved
- ISO 20653:2006
- ISO 13766-1:2018

NOTES:
- **Calibration kit is required for installation.**
- **Monitor and camera extension cables not included**
- **Individual cameras not recordable on MDR - monitor output only.**

NEW **BN360-300 CABLES**   HD

BN360-H320	HD 20m camera cable	5809
BN360-H315	HD 15m camera cable	5810
BN360-H310	HD 10m camera cable	5811
BN360-H305	HD 5m camera cable	5812
BN360-H3025	HD 2.5m camera cable	5813

NEW **BN360-300 360º CAMERA MONITOR SYSTEMS**   HD

Complete 360 AHD camera monitor system for large rigid vehicles

SE-770H-300 - 360 AHD camera system with VBV-770HM - 7" AHD monitor   **6114**

- 1 x VBV-770HM AHD Monitor
- 1 x BN360-300 AHD 360 system
- 1 x BN360-H310 - 10m camera cable
- 2 x BN360-H315 - 15m camera cables
- 1 x BN360-H320 - 20m camera cable

See individual products for detailed specifications and warranties

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BN360-200/BN360-300 MOUNTING BRACKETS

BN360-100C-BKT01	Adaptable mounting bracket Can be shaped to allow installation on non-vertical surfaces	4649
BN360-100C-BKT02	Mounting bracket to adjust camera angle	4714
BE360-CD	Deflector to shield camera from knocks (To be used with BN360-100C-BKT02 Mounting bracket)	4701
BN360-100C-BKT03	Deflector to shield camera from knocks	4743

Model · Part No:

360° CAMERA SYSTEM

BN360-200 - Backeye®360 system · **5200**

- IP69K cameras
- 12-24Vdc
- Size (WxHxD) ECU
  174 x 101 x 30mm
- Size (WxHxD) Camera
  61 x 46 x 36mm
- 5 year warranty

MDR COMPATIBLE · R46 APPROVED*

Contents
- 1 x ECU
- 4 x BN360-100C cameras
- 1 x Video output cable to connect to SELECT range monitor.
- 1 x set-up/view-select button
- IR receiver & remote control
- 1 x ECU power harness
- 1 x ECU interface harness

Features
- 360° image
- 19 different view modes (max 10 views per chosen configuration group) including:
  - Landscape or portrait configuations
  - Front & rear crossing-traffic
  - Left & right lane changing assist
  - Customisable vehicle position
- 4 pre-defined configuration groups
- Configure & customise set up via monitor and IR remote control
- Left, right, reverse & speed signal triggers
- Configurable on-screen parking markers
- 3 x video outputs
- Ultra-wide viewing angle cameras (HxV) 185° x142°
- 1/3.7" CMOS sensor
- TV system: NTSC or PAL via switch on ECU (cameras NTSC only)

Power
- Power consumption: 8 Watts
- Current: 0.65 Amps

Durability & Standards
- Mechanical vibration: 8.5G
- Mechanical shock: 51G
- Operating temperature: -30 to +75°C
- IP30 ECU
- CE marked
- E-Marked: UNECE R10 compliant
- FCC Approved
- IC Approved
- ISO 20653:2006
- ISO 13766:2006
- EN 13309:2010
- *Camera monitor system R46 approved

NOTES:
- **calibration kit is required for installation.**
- **Monitor and camera extension cables not included**

BN360-200 CABLES AND ADAPTERS

Model	Description	Part No
BN360-L120	20m camera cable	4493
BN360-L115	15m camera cable	4495
BN360-L110	10m camera cable	4496
BN360-L105	5m camera cable	4498
BN360-L1025	2.5m camera cable	4499
AC-305	Splitter cable for MDR (1 required per camera)	4903

BN360-200 REQUIREMENTS FOR ARTICULATED VEHICLES

Model	Description	Part No
BN360-Enclosure	IP66 Enclosure kit to enable ECU to be installed on outside of vehicle	4723
SK-15-05	Articulated vehicle cable kit for BN360-200 (3-camera)	5066

BN360-200 360º CAMERA MONITOR SYSTEMS

Complete 360 camera monitor system for large rigid vehicles

SE-7104F-100 - 360 camera system with VBV-7104FM - 10.4" monitor · 5378
SE-770-100 - 360 camera system with VBV-770M - 7" monitor · 5379

VBV-7104FM 10.4"

VBV-770M 7"

- **1 x Monitor**
- **1 x BN360-200 360 system**
- **1 x BN360-L110 - 10m camera cable**
- **2 x BN360-L115 - 15m camera cables**
- **1 x BN360-L120 - 20m camera cable**

See individual products for detailed specifications and warranties

Backeye®
Camera Monitor
Systems

A Winning Range

Camera monitor systems are used in a wide range of on and off-road applications to meet a host of health and safety and legislative requirements.

Brigade's camera monitor systems enable drivers and operators to manoeuvre and drive safely. Vehicle-mounted cameras can help the driver to see blind spots by delivering a live feed on the monitor of everything in the camera view, including people or obstacles.

Whether you need an entry-level reversing camera or full-vehicle camera system, we can help. With single-to-multiple camera inputs and auto-triggers, Brigade cameras and monitors will work on any application in any industry.

Brigade's camera monitor systems are compatible with its range of Mobile Digital Recorders (MDR).

ELITE

Top of the range systems that are the first choice for Original Equipment Manufacturers (OEMs) and Bodybuilders. Exceptional quality and consistent performance in the harshest conditions. Rigorously tested to higher standards, the superior components and build quality are reflected in the Elite series' 5 year warranty. Ideal for heavy duty applications including N2 and N3 Heavy Goods Vehicles (HGVs), on/off-highway vehicles, agricultural machinery and mobile plant used on Construction, Civil Engineering, Quarry and Mine sites.

SELECT

High quality, reliable, best-selling mid-range systems. First choice in the Aftermarket and popular also with OEMs and Bodybuilders. 3 year warranty. Ideal for medium to large on-highway vehicles and smaller off-highway mobile plant.

ESSENTIAL

Entry level reversing solution for cost-conscious Aftermarket customers. Ideally suited for on-highway applications.
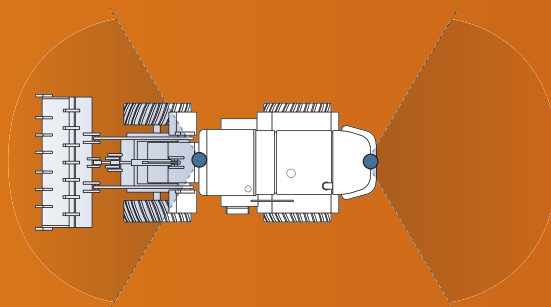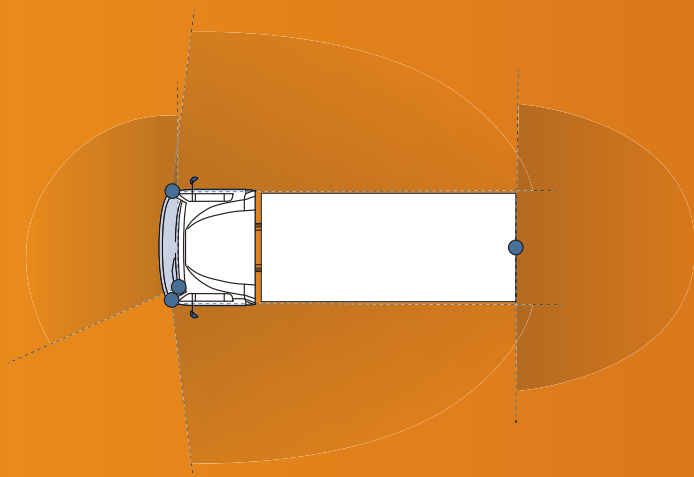
R46 for Indirect Vision

UNECE Regulation No 46 (R46) is a regulation which covers devices for indirect vision and their installation.
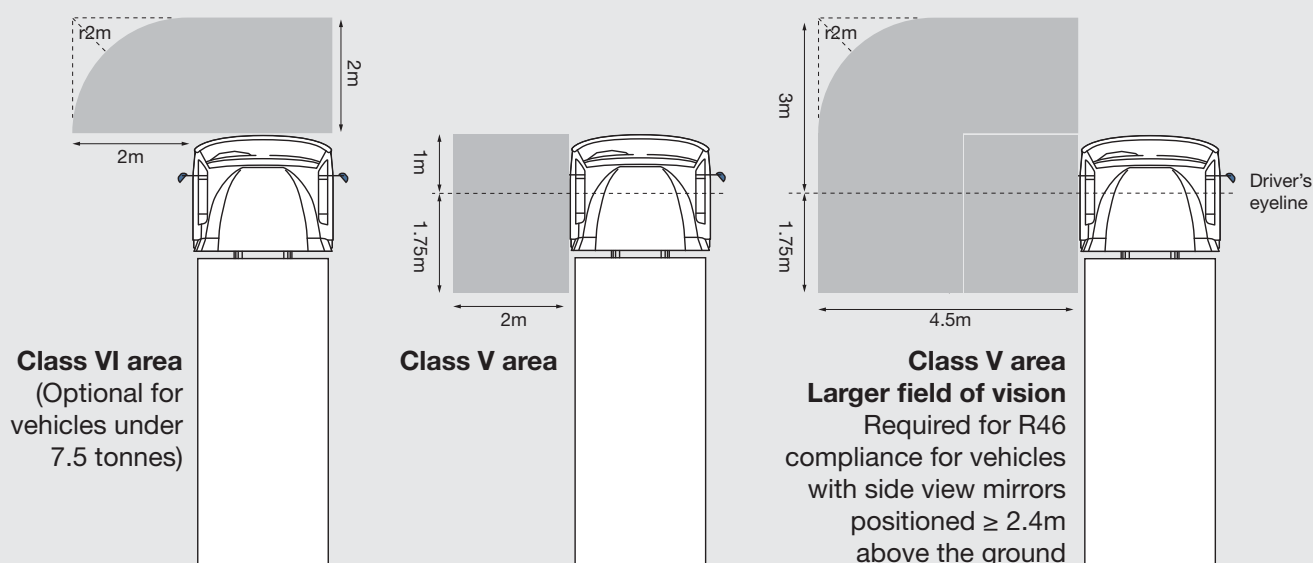
R46 is widely recognised as a mark of exceptional performance, reliability and quality. In order to comply with the R46 regulation, the components of a camera monitor system must reach specified performance standards and be installed within pre-defined guidelines.

The following Brigade camera/monitor combinations are approved to UNECE Regulation No 46 for areas Class V and Class VI. If correctly installed, an R46 approved camera monitor system can replace a conventional mirror.

See brigade-electronics.com/R46 for further information.

Camera/monitor combinations approved to R46			MONITORS		
			ELITE	SELECT	
			BE-870LM	VBV-770M	VBV-7104FM
CAMERAS	ELITE	BE-800C BE-890C BE-850C	✔ plus full and split screen using SS-002 screen splitter	✘	✘
	SELECT	VBV-300C VBV-320C	✔ plus full and split screen using SS-002 screen splitter	✔ plus full and split screen using SS-002 screen splitter	✔ Single, split and quad screen
		VBV-700C VBV-790C	✘	✔ plus full and split screen using SS-002 screen splitter	✔ Single, split and quad screen
	360	BN360-200	✘	✔ Full screen and standard split screen	✔ Standard 360 view in both landscape and portrait on single, split and quad screens. Full 360 view in portrait on single, split and quad screens.

European Directives 2003/97/EC and 2007/38/EC (Class areas V and VI) for vehicles over 3.5 tonnes to be retrofitted with devices in order to improve the driver's field of vision and increase vehicle safety.

r2m
2m
2m

Class VI area
(Optional for vehicles under 7.5 tonnes)

1m
1.75m
2m

Class V area

r2m
3m
1.75m
4.5m
Driver's eyeline

Class V area Larger field of vision
Required for R46 compliance for vehicles with side view mirrors positioned ≥ 2.4m above the ground

Camera/monitor compatibility

✓ = Compatible ✓AC-035 = Compatible with adapter(s) shown ✗ = Not compatible		MONITORS			
		ELITE		**SELECT**	
		BE-970WFM BE-970WM BE-865DDM BE-870LM BE-870FM	BE-856GM	VBV-7104FM VBV-770FM VBV-770M VBV-750M	VBV-770M-S VBV-750M-S
CAMERAS	**ELITE** BE-810C Shutter	✓	✓SC-1000-ECU	✓AC-007 & SC-1000-ECU	✗
	All other Elite cameras	✓	✓	✓AC-007	✓AC-007
	SELECT VBV-710C Shutter	✓AC-035 & AC-006	✓AC-035 & AC-006	✓AC-035	✓
	All other Select cameras	✓AC-006	✓AC-006	✓	✓

Camera icons

- Infrared LEDs for ultra-low-light performance
- Day/night sensor
- Audio
- Heater
- Normal/mirror view
- **WDR** Wide Dynamic Range
- **DWDR** Digital Wide Dynamic Range

Monitor icons

- **4** Number of camera inputs
- **5** Number of auto-triggers
- Audio
- 'Button-lock' anti-tamper feature
- On-screen distance and vertical line markers
- Normal/mirror view - switching from menu

Cable icons
(Black = solid/pins)

- Male connector Select
- Female connector Select
- Male screw fit connector Elite
- Female screw fit connector Elite
- Male push fit connector Elite
- Female push fit connector Elite
- Male shutter connector Select
- Female shutter connector Select
- Male Backeye®360 connector
- Female Backeye®360 connector

Elite Monitors

Model	Part No:

7" IP69K MONITOR — ELITE

BE-970WM - Waterproof 7″ Digital LCD monitor — **3351**

- 12-24Vdc
- IP69K
- Size (WxHxD)
  194 x 124 x 48mm
- 5 year warranty

7.0"

Features
- 2 Camera inputs
- Shutter camera compatible - both inputs
- Backlit touch screen button panel
- 'Button-lock' anti-tamper feature
- 2 Auto-triggers
- Mirror / Normal switching from menu
- On screen distance and vertical
  line markers
- Audio
- Sun shield
- Multi-lingual menus
- Auto-switching PAL / NTSC

Picture Quality
- LED backlighting
  (gives 20,000 hours life)
- Anti-glare screen
- Resolution: 800 x 480
- Contrast ratio: 500:1
- Brightness: 500cd/m^2
- Viewing angles:
  Side 65° x Top 50° x Bottom 60°

Power
- Power consumption: 11 Watts
- Current: 0.9 Amps

Durability & Standards
- Aluminium die-cast casing
- Mechanical vibration: 20G
- Mechanical shock: 100G
- Operating temperature: -40 to +70°C
- CE marked
- E-Marked: UNECE R10 compliant
- ISO 16750
- ISO 13766: 2006
- HALT tested

7" IP69K QUAD MONITOR — ELITE

BE-970WFM - Waterproof 7″ Quad digital LCD monitor — **3560**

- 12-24Vdc
- IP69K
- Size (WxHxD)
  194 x 124 x 48mm
- 5 year warranty

7.0"

Plus additional in-built image options

Features
- 4 camera inputs
- Shutter camera compatible (inputs 1&2)
- Backlit touch screen button panel
- 'Button-lock' anti-tamper feature
- 5 Auto-triggers
- Mirror / Normal switching from menu
- On screen distance and vertical
  line markers
- Audio
- Speed switch trigger to turn monitor
  on/off or trigger a split screen
- Sun shield
- Multi-lingual menus
- Auto-switching PAL / NTSC

Picture Quality
- LED backlighting
  (gives 20,000 hours life)
- Anti-glare screen
- Resolution: 800 x 480
- Contrast ratio: 500:1
- Brightness: 500cd/m^2
- Viewing angles:
  Side 65° x Top 50° x Bottom 60°

Power
- Power consumption: min 28 Watts
- Current: max 2.15 Amps

Durability & Standards
- Aluminium die-cast casing
- Mechanical vibration: 10G
- Mechanical shock: 100G
- Operating temperature: -40 to +75°C
- CE marked
- E-Marked: UNECE R10 compliant
- ISO 16750
- ISO 20653: 2006
- HALT tested

Model	**Part No:**

7" QUAD MONITOR ELITE

BE-870FM - 7″ Digital LCD monitor 2146

- 12-24Vdc
- Size (WxHxD)
  197 x 135 x 30mm
- 5 year warranty

7.0"

Plus additional in-built image options

Features
- 4 camera inputs
- 5 Auto-triggers
- Shutter camera compatible
- 'Button-lock' anti-tamper feature
- Mirror / Normal switching from menu
- On-screen distance & vertical line markers
- Audio
- Sun shield
- Auto-dimmer
- Multi-lingual menus
- Auto-switching PAL / NTSC

Picture Quality
- LED backlighting
  (gives 20,000 hours life)
- Anti-glare screen
- Resolution: 800 x 480
- Contrast ratio: 500:1
- Brightness: 4000cd/m^2
- Viewing angles:
  Side 70° x Top 50° x Bottom 70°

Power
- Power consumption: 21 Watts
- Current: 1.9 Amps

Durability & Standards
- Mechanical vibration: 6G
- Mechanical shock: 100G
- Operating temperature: -40 to +70°C
- CE marked
- E-Marked: UNECE R10 compliant
- HALT tested

7" MONITOR ELITE

BE-870LM - 7″ Digital LCD monitor 2705

- 12-24Vdc
- Size (WxHxD)
  197 x 128 x 34mm
- 5 year warranty

7.0"

R46 APPROVED*

Features
- 2 Camera inputs
- Shutter camera compatible - both inputs
- 'Button-lock' anti tamper feature
- 2 Auto-triggers with configurable trigger-off delays
- Mirror / Normal switching from menu
- On-screen distance and vertical line markers
- Audio
- Sun shield
- Auto-dimmer and keypad illumination
- Multi-lingual menus
- Auto-switching PAL / NTSC

Picture Quality
- LED backlighting
  (gives 20,000 hours life)

- Anti-glare screen
- Resolution: 800 x 480
- Contrast ratio: 500:1
- Brightness: 400cd/m^2
- Viewing angles:
  Side 70° x Top 50° x Bottom 70°

Power
- Power consumption: 12 Watts
- Current: 1 Amp

Durability & Standards
- Mechanical vibration: 2.5G
- Mechanical shock: 51G
- Operating temperature: -30 to +70°C
- CE marked
- E-Marked: UNECE R10 compliant
- *Camera monitor system R46 approved

5.6" MONITOR ELITE

BE-856GM - 5.6″ Digital LCD monitor 3756

- 12-24Vdc
- Size (WxHxD)
  172 x 115 x 32mm
- 5 year warranty

5.6"

Features
- 2 camera inputs
- 2 Auto-triggers
- Mirror / Normal switching from menu
- On-screen distance & vertical line markers
- Audio
- Sun shield
- Auto-dimmer
- Multi-lingual menus
- Auto-switching PAL / NTSC

Picture Quality
- LED backlighting
  (gives 20,000 hours life)
- Anti-glare screen
- Resolution: 640 x 480

- Contrast ratio: 500:1
- Brightness: 350cd/m^2
- Viewing angles:
  Side 70° x Top 50° x Bottom 70°

Power
- Power consumption: 11 Watts
- Current: 0.9 Amps

Durability & Standards
- Mechanical vibration: 10G
- Mechanical shock: 50G
- Operating temperature: -40 to +70°C
- CE marked
- E-Marked: UNECE R10 compliant
- ISO 13766: 2006
- ISO 16750
- HALT tested

What is WDR?

Wide Dynamic Range (WDR) automatically balances lighting in a camera image for improved detail in highlights and shadows.

This is particularly useful when working in environments where lighting quickly changes, for example; reversing into a dark loading bay on a sunny day. The transition from bright light to shadow will cause cameras that do not feature WDR to fail to pick up fine details. Areas of the picture will be bright and other areas extremely dark.

WDR Cameras balance lighting so no areas are under or over exposed, improving clarity and detail in the image.

Standard camera   WDR camera

Model   **Part No:**

CAMERA WITH DWDR   ELITE

BE-900C - Integrated fisheye correction - PAL	5277
BE-990C - Integrated fisheye correction - PAL - No audio	5279
BE-901C - Integrated fisheye correction - NTSC	5278
BE-991C - Integrated fisheye correction - NTSC - No audio	5280

- **Viewing angle (HxVxD)**
  96 X 64 X 110° PAL
  100 X 65 X 106° NTSC
- **IP69K/IP68**
- **Size (WxHxD)**
  86 x 72 x 80mm
- **5 year warranty**

DWDR

Features
- Intergrated image correction for wide viewing angle (fisheye) lens distortion
- Digital Wide Dynamic Range for improved detail in shadows and highlights
- 5 Infrared LEDs for ultra-low light performance
- Day / Night sensor
- Heater
- Microphone (BE-900C & BE-901C)
- Mirror / Normal view
- Automatic white balance
- Sony CMOS sensor
- TV lines: PAL: 400   NTSC: 350

Power
- Power consumption: 4.5 Watts
- Current: 0.36 Amps

Durability & Standards
- Mechanical vibration: 8.5G
- Mechanical shock: 51G
- Operating temperature: -40 to +70°C
- CE marked
- E-Marked: UNECE R10 compliant
- FCC Approved
- ISO 20653:2006
- ISO 16750-4

SHUTTER CAMERA WITH WDR   ELITE

BE-810C - Shutter camera	1242

- **Viewing angle (HxVxD)**
  103 x 71 x 134°
- **IP68 / IP69K**
- **Size (WxHxD)**
  123 x 86 x 80mm
- **5 year warranty**

WDR

Features
- Wide Dynamic Range for improved detail in shadows and highlights
- 5 Infrared LEDs for ultra-low light performance
- Day / Night sensor
- Automatic shutter
- Heater
- Microphone
- Mirror / Normal view
- Backlight compensation
- Automatic white balance
- Sony CMOS sensor
- TV System: PAL
- TV Lines: 450

Power
- Power consumption: 5.4 Watts
- Current: 0.45 Amps

Durability & Standards
- Mechanical vibration: 8.5G
- Mechanical shock: 51G
- Operating temperature: -40 to +70°C
- CE Marked
- E-Marked: UNECE R10 compliant
- FCC approved
- IC approved
- ISO 13766-1:2018

Model		Part No:

CAMERA WITH WDR — ELITE

BE-800C	- PAL	1623
BE-801C	- NTSC	1905
BE-800C(40)	- Narrow viewing angle: 32 x 24 x 41° PAL	1559
BE-801C(40)	- Narrow viewing angle: 33 x 25 x 42° NTSC	2085
BE-800C(78)	- Narrow viewing angle: 69 x 51 x 92° PAL	1426
BE-801C(78)	- Narrow viewing angle: 71 x 52 x 94° NTSC	2084
BE-890C	- Waterproof to IP69K, No microphone, PAL	2871
BE-891C	- Waterproof to IP69K, No microphone, NTSC	5426
BE-850C	- 12/24Vdc, waterproof to IP69K, PAL	4924
BE-800C-NIR	- No LEDs, PAL	4247

- **Viewing angle (HxVxD)**
  102 x 76 x 132° PAL
  108 x 80 x 136° NTSC
- **IP68**
- **Size (WxHxD)**
  86 x 72 x 80mm
- **5 year warranty**

R46 APPROVED*   WDR

Features
- Wide Dynamic Range for improved detail in shadows and highlights
- 5 Infrared LEDs for ultra-low light performance (except BE-800C-NIR)
- Day / Night sensor
- Heater
- Microphone
- Mirror / Normal view
- Automatic white balance
- Sony CMOS sensor
- TV lines: 600

Power
- Power consumption: 4.5 Watts
- Current: 0.33 Amps
  (0.37 - 2.63 Amps BE-850C)

Durability & Standards
- Mechanical vibration: 8.5G
- Mechanical shock: 51G
- Operating temperature: -40 to +85°C
- CE marked
- E-Marked: UNECE R10 compliant
- FCC Approved
- IC Approved
- ISO 13766:2006
- ISO 20653:2006
- EN13309:2010
- *Camera monitor system R46 approved BE-800C, BE-890C & BE-850C only

MINI CAMERA — ELITE

BE-820C - Mini camera (mirror image) PAL	1927
BE-821C - Mini camera (mirror image) NTSC	2002
BE-822C - Mini camera (normal image) PAL	2151
BE-823C - Mini camera (normal image) NTSC	5100

- **Viewing angle (HxVxD)**
  115 x 92 x 140° PAL
  113 x 90 x 136° NTSC
- **IP68**
- **Size (WxHxD)**
  47 x 40 x 50mm
- **5 year warrranty**

Features
- Backlight compensation
- Automatic white balance
- 1/4" Sony CCD
- TV System: PAL or NTSC
- TV Lines: 600

Power
- Power consumption: 0.9 Watts
- Current: 0.1 Amps

Durability & Standards
- Mechanical vibration: 10G
- Mechanical shock: 100G
- Operating temperature: -40 to +80°C
- CE marked
- E-Marked: UNECE R10 compliant
- FCC approved (NTSC models only)
- IC approved (NTSC models only)
- HALT tested
- ISO 20653:2006

Elite Cables

CAMERA TO MONITOR CABLES	ELITE
BE-L130 - 30 metre cable	0800
BE-L120 - 20 metre cable	0801
BE-L115 - 15 metre cable	0802
BE-L112 - 12 metre cable	3008
BE-L110 - 10 metre cable	0803
BE-L108 - 8 metre cable	3007
BE-L105 - 5 metre cable	0804
BE-L101 - 1 metre cable	5042
BE-L1003 - 0.3 metre cable	2797

ELITE CAMERA EXTENSION CABLES	ELITE
BE-X025 - 25 metre extension cable	1907
BE-X020 - 20 metre extension cable	1143
BE-X015 - 15 metre extension cable	2101
BE-X010 - 10 metre extension cable	2100
BE-X005 - 5 metre extension cable	2099
BE-X003 - 3 metre extension cable	0805

TRUCK/TRAILER CABLE KIT	ELITE
SK-31E - Truck and trailer cable kit - unique pin layout	1830

Inclusive of SK-31E-T - Trailer kit

• BE-L110 - 10m cable for cab	0803	**SK-31E-T - Trailer only kit 1886**
• SP-7A - 7-pin bulkhead socket for cab & cab-end camera connector (unique pin layout)	1827	• BE-X020 - 20m extension cable for trailer 1143
• SC-7 - Coiled cable with 7-pin plugs (unique pin layout)	1829	• SP-7B - 7-pin bulkhead socket for trailer & trailer-end camera connector (unique pin layout) 1828

SP-7A   SC-7   SP-7B

TRUCK/TRAILER CABLE KIT	ELITE
SK-30E - Truck and trailer cable kit	1144

Inclusive of SK-30E-T - Trailer kit

• BE-L110 - 10m cable for cab	0803	**SK-30E-T - Trailer only kit 1885**
• SP-07C - 7-pin bulkhead socket for cab & cab-end camera connector	1140	• BE-X020 - 20m extension cable for trailer 1143
• SC-07 - Coiled cable with 7-pin plugs	1046	• SP-07T - 7-pin bulkhead socket for trailer & trailer-end camera connector 1142

SP-07C   SC-07   SP-07T

Model _____ **Part No:**

TRUCK/TRAILER CABLE KIT | ELITE

SK-15-01 - Truck and trailer cable kit for three cameras   **3427**

• SP-15A-01 - 15-pin bulkhead socket for cab & 3 cab-end camera connectors **3423**	• SP-15B-01 - 15-pin bulkhead socket for trailer & 3 trailer-end camera connectors **3422**
	• SC-15-01 - Coiled shielded cable with 15-pin plugs **3268**

SP-15A-01   SC-15-01   SP-15B-01

TRUCK/TRAILER CABLE KIT | ELITE

SK-15-04 - Truck and trailer cable kit for single camera & single buzzer ultrasonic detection system   **3997**

• SP-15A-04 - 15-pin bulkhead socket for cab & cab-end camera connector plus stripped wires and display/buzzer connection for Ultrasonics **3955**	• SP-15B-04 - 15-pin bulkhead socket for trailer & trailer-end camera connector plus stripped wires and display/ buzzer connection for Ultrasonics **3956**
	• SC-15-01 - Coiled shielded cable with 15-pin plugs **3268**

SP-15A-04   SC-15-01   SP-15B-04

TRUCK/DRAWBAR TRAILER CABLE KIT | ELITE

SK-50E - Truck and drawbar trailer cable kit for two cameras - unique pin layout   **1570**
Inclusive of SK-50E-A Truck kit and SK-31E-T trailer kit

SK-50E-A - Truck only kit **1879**	**SK-31E-T - Trailer only kit** **1886**
• BE-L115 - 15m cable for truck **0802**	• BE-X020 - 20m extension cable for trailer camera **1143**
• BE-X005 - 5m extension cable for truck camera **2099**	• SP-7B - 7-pin bulkhead socket for cab & cab-end camera connector (unique pin layout) **1828**
• CS-020 - Two way camera selector **1571**	
• SP-7A - 7-pin bulkhead socket for trailer & trailer-end camera connector (unique pin layout) **1827**	
• SC-7 - Coiled cable with 7-pin plugs (unique pin layout) **1829**	

SP-7A   SC-7   SP-7B

Elite Kits

CAMERA MONITOR SYSTEMS   ELITE

BE-870L-000 - Single camera monitor system for rigid vehicles   3231

• BE-870LM - 7″ monitor	2705
• BE-800C Camera	1623
• BE-L120 - 20m cable	0801

See individual products for detailed specifications and warranties

R46 APPROVED

BE-870L-100 - Single shutter camera monitor system for rigid vehicles   4032

• BE-870LM - 7″ monitor	2705
• BE-810C Shutter camera	1242
• BE-L120 - 20m cable	0801

See individual products for detailed specifications and warranties

BE-856G-000 - Single camera monitor system for rigid vehicles   4012

• BE-856GM - 5.6″ monitor	3756
• BE-800C Camera	1623
• BE-L120 - 20m cable	0801

See individual products for detailed specifications and warranties

OPTIONAL EXTRA

Add VBV-300C (low mount) or VBV-320C (high mount) side view camera + BE-L105 (5m cable) + AC-006 Adapter to spot cyclists.

What is AHD?

An Analogue High Definition (AHD) camera monitor system is an analogue system that supports High Definition video resolutions. The resolution of HD & AHD systems is measured in pixels per square inch (p). AHD 1.0 supports 720p HD resolution and AHD 2.0 supports 1080p HD resolution.

What about PAL and NTSC formats?

HD cameras operating at 25Hz (25frames per second) are compatible with PAL format (so we call them PAL).
HD cameras operating at 30Hz (30 frames per second) are compatible with NTSC format (so we call them NTSC).

What should I consider when choosing between AHD and traditional CVBS systems?

There are many factors to consider when choosing between AHD and traditional CVBS, including compatibility with other systems and bandwidth/memory capacity if connecting to a mobile digital recorder. (AHD systems will use more bandwidth for transmission and will take up more memory for the same time period). For the best HD quality results, all parts of the system should be AHD.

AHD camera image

Traditional CVBS camera image

Compatibility with existing traditional CVBS systems:

- Brigade HD cables can be used instead of traditional CVBS cables for all Brigade SELECT camera monitor systems.
- Brigade HD cameras can be used with our MDR-500 series Mobile Digital Recorders (MDR),
- Brigade's traditional CVBS cameras can be used with our new HD monitors (camera image will not be HD).
- Brigade's traditional CVBS monitors are not compatible with HD cameras.

Model	Part No:

NEW	AHD 7" MONITOR	SELECT

VBV-770HM -   7" High Definition LCD monitor   **5611**

- 12-24Vdc
- Size (WxHxD)
  196 x 118 x 26mm
- 3 year warranty

7.0"

Features
- AHD and CVBS compatible
- High-definition, high contrast, wide view angle
- 3 camera inputs
- 3 Auto-triggers
- Mirror / Normal switching from menu
- 'Button lock' anti-tamper feature
- On-screen distance markers
- Audio
- Sun shield
- Auto-dimmer
- Multi-lingual menus
- Auto-switching AHD 1.0 / AHD 2.0 / PAL / NTSC

Picture Quality
- LED backlighting
  (gives 20,000 hours life)

- Anti-glare screen
- Resolution: 1024 x 600
- Contrast ratio: 700:1
- Brightness: 500cd/m^2
- Viewing angles:
  Side 85° x Top 85° x Bottom 85°

Power
- Power consumption: 10 Watts
- Current: 0.8 Amps

Durability & Standards
- Mechanical vibration: 4G
- Mechanical shock: 51G
- Operating temperature: -30 to +70°C
- CE marked
- E-Marked: UNECE R10 compliant
- HALT tested
- FCC approved
- IC approved

Select AHD

Model	Part No:

NEW — AHD CAMERA 1080p — SELECT

VBV-7100C	- High definition (1080p-PAL)	5466
VBV-7101C	- High definition (1080p-NTSC)	5467
VBV-7190C	- No audio. High definition (1080p-PAL)	5470
VBV-7191C	- No audio. High definition (1080p-NTSC)	5471

· **Viewing angle (HxVxD)**
 110° x 60° x 127°

· **IP69K**

· **Size (WxHxD)**
 81 x 77 x 70mm

· **3 year warranty**

LED AHD

Features
• 4 high-power Infrared LEDs for ultra-low
 light performance
• Day / Night sensor
• Microphone
• Mirror view
* Backlight compensation
• Automatic white balance
• Sony CMOS 1/3"& Nextchip ISP
• TV System: AHD 1.0 (1080p)
• TV Lines: 800

Power
• Power consumption: 3 Watts
• Current: 0.2 Amps

Durability & Standards
• Mechanical vibration: 8.5G
• Mechanical shock: 51G
• Operating temperature: -30 to +80°C
• CE marked
• E-Marked: UNECE R10 compliant
• FCC approved
• IC approved

NEW — AHD CAMERA 720p — SELECT

VBV-7000C	- High definition (720p-PAL)	5464
VBV-7001C	- High definition (720p-NTSC)	5465
VBV-7090C	- No audio. IP69K High definition (720p-PAL)	5468
VBV-7091C	- No audio. IP69K High definition (720p-NTSC)	5469

· **Viewing angle (HxVxD)**
 107° x 64° x 126°

· **IP67**

· **Size (WxHxD)**
 81 x 77 x 70mm

· **3 year warranty**

LED AHD

Features
• 4 high-power Infrared LEDs for ultra-low
 light performance
• Day / Night sensor
• Microphone
• Mirror view
* Backlight compensation
• Automatic white balance
• Sony CMOS 1/3"& Nextchip ISP
• TV System: AHD 1.0 (720p)
• TV Lines: 600

Power
• Power consumption: 3 Watts
• Current: 0.2 Amps

Durability & Standards
• Mechanical vibration: 8.5G
• Mechanical shock: 51G
• Operating temperature: -30 to +80°C
• CE marked
• E-Marked: UNECE R10 compliant
• FCC approved
• IC approved

NEW | AHD EYEBALL CAMERA | SELECT

VBV-3000C   - High Definition flush-mount eyeball camera
            Mirror view - (720p-PAL)   **5454**

VBV-3001C   - High Definition Flush-mount eyeball camera
            Mirror view - (720p-NTSC)   **5455**

VBV-3020C   - High Definition Flush-mount eyeball camera
            Normal view - (720p-PAL)   **5456**

VBV-3021C   - High Definition Flush-mount eyeball camera
            Normal view - (720p-NTSC)   **5457**

- **Viewing angle (HxVxD)**
  110 x 82 x 152° (25fps)
  111 x 80 x 153° (30fps)
- **IP69K**
- **Size (WxHxD)**
  57 x 42 x 70mm
- **3 year warranty**

AHD

Features
- 5 high power infrared LEDs for ultra-low light performance
- Day / Night sensor
- Lens swivel adjustment: 26° (Top) x 4° (Bottom) x 4° (Left) x 4° (Right)
- Lens rotation adjustment: ±180°
- Microphone
- Backlight compensation
- Automatic white balance
- 1/3" Sony CMOS
- TV System: AHD 1.0 (720p)
- TV lines: 600

Power
- Power consumption: 1.5 Watts
- Current consumption: 0.16 Amps

Durability & Standards
- Mechanical vibration: 8.5G
- Mechanical shock: 51G
- Operating temperature: -30 to +70°C
- CE marked
- E-Marked: UNECE R10 compliant
- FCC approved

OPTIONAL EXTRAS

SM-3XX-25 Surface mounting adapter (25mm deep)   **4596**

AHD MINI CAMERA | SELECT

DMC-1031 - High definition mini camera (internal use) (720p-PAL)   **5719**
DMC-1035 - High definition mini camera (internal use) (720p-NTSC)   **5721**

- **Viewing angle (HxVxD)**
  68 x 38 x 80°
- **IP30**
- **Size (WxHxD)**
  43 x 45 x 37.5mm
- **3 year warranty**

AHD

Features
- Mirror / Normal view
- Backlight compensation
- Automatic white balance
- CMOS - 1/3" ON-Semi ISP - Nextchip
- TV System: AHD 1.0 (720p)
- TV Lines: 900

Power
- Power consumption: 1.0 Watt
- Current: 0.55 Amps

Durability & Standards
- Mechanical vibration: 10G
- Mechanical shock: 51G
- Operating temperature: -30 to +85°C
- CE marked
- E-Marked: UNECE R10 compliant
- FCC approved
- IC approved

Model   **Part No:**

AHD DOME CAMERA   SELECT

MD-60	**- High definition dome camera (720p-PAL)**	**5737**
MD-61	**- High definition dome camera (720p-NTSC)**	**5738**
MD-60(SW)	**- High definition dome camera - Superwide view angle (720p-PAL)**	**5688**
MD-61(SW)	**- High definition dome camera - Superwide view angle (720p-NTSC)**	**5690**
MD-60(W)	**- High definition dome camera - Wide view angle (720p-PAL)**	**5696**
MD-61(W)	**- High definition dome camera - Wide view angle (720p-NTSC)**	**5698**

· **Viewing angle (HxVxD)**
  68° x 38° x 80°
  (SW) 150° x 85° x 180°
  (W) 93° x 51° x 110°

· **IP68**

· **Size (Diameter x H)**
  76 x 59.5 mm

· **3 year warranty**

☑ ⩗ **AHD**

Features
• Dome camera with 150° movement range in all directions
• Can be used internally or externally
• Mirror / Normal view
• Backlight compensation
• Automatic white balance
• CMOS - 1/3" ON-Semi ISP - Nextchip
• TV System: AHD 1.0 (720p)
• TV Lines: 900
• TV Lines: 600 (SW & W)

Power
• Power consumption: 1 Watt
• Current: 0.57 Amps

Durability & Standards
• Mechanical vibration: 10G
• Mechanical shock 51G
• Operating temperature: -30 to +85°C
• CE marked
• E-Marked: UNECE R10 compliant
• FCC Approved
• IC Approved

OPTIONAL EXTRAS

MD-50SM-30 - Surface mounting adapter (30mm deep)		**5003**
MD-50AM-15 - Angled surface mounting adapter (adds 15°)		**5004**
MD-50AM-25 - Angled surface mounting adapter (adds 25°)		**5005**

NEW   AHD CAMERA CABLES   SELECT

VBV-H420	**- 20 metre cable**	**5513**
VBV-H415	**- 15 metre cable**	**5514**
VBV-H410	**- 10 metre cable**	**5516**
VBV-H405	**- 5 metre cable**	**5519**
VBV-H4025	**- 2.5 metre cable**	**5522**

NEW   AHD CAMERA MONITOR SYSTEMS   SELECT

VBV-770H-3000 - Single AHD flush-mount camera monitor system for rigid vehicles   6112

	Part No:
• VBV-770HM - 7" AHD monitor	5611
• VBV-3000C AHD Camera	5454
• VBV-H420 - AHD 20m cable	5513

See individual products for detailed specifications and warranties

VBV-770H-7000 - Single AHD camera monitor system for rigid vehicles   6111

	Part No:
• VBV-770HM - 7" AHD monitor	5611
• VBV-7000C AHD Camera	5464
• VBV-H420 - AHD 20m cable	5513

See individual products for detailed specifications and warranties

VBV-770H-3100 - Single AHD camera monitor system for small rigid vehicles   6113

	Part No:
• VBV-770HM - 7" AHD monitor	5611
• VBV-3000C AHD Camera	5454
• VBV-H420 - AHD 10m cable	5516

See individual products for detailed specifications and warranties

OPTIONAL EXTRA

Add VBV-3000C (low mount) or VBV-3020C (high mount) side view camera + VBV-H405 (5m cable) to spot cyclists.

Select Monitors

Model   **Part No:**

10.4" QUAD MONITOR   SELECT

VBV-7104FM - 10.4″ Digital LCD Monitor   4474

- 12-24Vdc
- Size (WxHxD)
  267 x 193 x 30mm
- 3 year warranty

10.4"

Plus additional in-built image options

Features
- 4 camera inputs
- 'Button-lock' anti-tamper feature
- 5 Auto-triggers
- Configurable trigger delay
- Mirror / Normal switching from menu
- On-screen distance markers
- Built-in speaker
- Sun shield
- Multi-lingual menus
- Auto-switching PAL / NTSC

Picture Quality
- LED backlighting
  (gives 30,000 hours life)
- Anti-glare screen
- Resolution: 1024 x 768
- Contrast ratio: 500:1
- Brightness: 400cd/m²
- Viewing angles:
  Side 70° x Top 60° x Bottom 60°

Power
- Power consumption: 31 Watts
- Current: 2.8 Amps

Durability & Standards
- Mechanical vibration: 4G
- Mechanical shock: 50G
- Operating temperature: -20 to +70°C
- CE marked
- E-Marked: UNECE R10 compliant
- HALT tested
- *Camera monitor system R46 approved

7" MONITOR   SELECT

VBV-770M -   7″ Digital LCD monitor   4288
VBV-770M-S - 7″ Digital LCD monitor   4697
Includes 1 x 5-pin input for connection to VBV-710C shutter camera

Also available in High Definition model

- 12-24Vdc
- Size (WxHxD)
  196 x 118 x 26mm
- 3 year warranty

7.0"

Features
- 3 camera inputs
- 3 Auto-triggers
- Mirror / Normal switching from menu
- 'Button lock' anti-tamper feature
- On-screen distance markers
- Audio
- Sun shield
- Auto-dimmer
- Multi-lingual menus
- Auto-switching PAL / NTSC

Picture Quality
- LED backlighting
  (gives 20,000 hours life)
- Anti-glare screen
- Resolution: 800 x 480
- Contrast ratio: 500:1
- Brightness: 400cd/m²
- Viewing angles:
  Side 70° x Top 50° x Bottom 70°

Power
- Power consumption: 18 Watts
- Current: 1.5 Amps

Durability & Standards
- Mechanical vibration: 4G
- Mechanical shock: 100G
- Operating temperature: -30 to +70°C
- CE marked
- E-Marked: UNECE R10 compliant
- HALT tested
- *Camera monitor system R46 approved
  VBV-770M only

BRIGADE®

Model	Part No:

5" MONITOR · SELECT

VBV-750M -   5" Digital LCD monitor   **4287**
VBV-750M-S -   5" Digital LCD monitor   **4710**
Includes 1 x 5-pin input for connection to VBV-710C shutter camera

- 12-24Vdc
- Size (WxHxD)
  149.5 x 99 x 22mm
- 3 year warranty

5.0"

Features
- 3 camera inputs
- 3 Auto-triggers
- Mirror / Normal switching from menu
- On-screen distance markers
- 'Button lock' anti-tamper feature
- Audio
- Sun shield
- Auto-dimmer
- Multi-lingual menus
- Auto-switching PAL / NTSC

Picture Quality
- LED backlighting
  (gives 20,000 hours life)
- Anti-glare screen
- Resolution: 800 x 480
- Contrast ratio: 500:1
- Brightness: 350cd/m^2
- Viewing angles:
  Side 70° x Top 50° x Bottom 70°

Power
- Power consumption: 11.5 Watts
- Current: 0.95 Amps

Durability & Standards
- Mechanical vibration: 4G
- Mechanical shock: 100G
- Operating temperature: -30 to +70°C
- CE marked
- E-Marked: UNECE R10 compliant
- HALT tested

7" QUAD MONITOR · SELECT

VBV-770FM - 7" Digital LCD monitor   **4982**

- 12-24Vdc
- Size (WxHxD)
  182 x 122 x 27mm
- 3 year warranty

7.0"

Plus additional in-built image options

Features
- 4 camera inputs
- 'Button-lock' anti-tamper feature
- 5 Auto-triggers
- Mirror / Normal switching from menu
- On-screen distance markers
- Audio
- Sun shield
- Multi-lingual menus
- Auto-switching PAL / NTSC

Picture Quality
- LED backlighting
  (gives 20,000 hours life)
- Anti-glare screen
- Resolution: 800 x 480
- Contrast ratio: 500:1
- Brightness: 400cd/m^2
- Viewing angles:
  Side 70° x Top 50° x Bottom 70°

Power
- Power consumption: 27 watts
- Current: 2.2 Amps

Durability & Standards
- Mechanical vibration: 4G
- Mechanical shock: 50G
- Operating temperature: -30 to +70°C
- CE marked
- E-Marked: UNECE R10 compliant
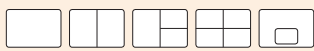
CAMERA MONITOR SYSTEM ANCILLARIES · SELECT

BMM-019-ARM - 68mm replacement arm (Select range)   **3348**

- 68mm mounting bracket arm
- Allows montor to be dash-mounted in portrait position

A further range of camera/monitor brackets and mounting adapters is available. Please contact us for details

Select Cameras

Model		Part No:

CAMERA · SELECT

VBV-700C	- PAL	1379
VBV-701C	- NTSC	2575
VBV-790C	- Waterproof to IP69K, no audio PAL	2724
VBV-791C	- Waterproof to IP69K, no audio NTSC	2842

Also available in High Definition (720p & 1080p) models

- **Viewing angle (HxVxD)**
  88 x 68 x 115° PAL
  86 x 72 x 122° NTSC

- **IP67**

- **Size (WxHxD)**
  81 x 77 x 70mm

- **3 year warranty**

R46 APPROVED*

Features
- 4 high-power Infrared LEDs for ultra-low light performance
- Day / Night sensor
- Microphone
- Mirror view
- * Backlight compensation
- Automatic white balance
- 1/3" Sharp CCD
- TV Lines: 620 PAL / 750 NTSC

Power
- Power consumption: 3 Watts
- Current: 0.2 Amps

Durability & Standards
- Mechanical vibration: 10G
- Mechanical shock: 51G
- Operating temperature: -30 to +70°C
- CE marked
- E-Marked: UNECE R10 compliant
- FCC approved
- HALT tested
- *Camera monitor system R46 approved VBV-700C & VBV-790C only

SHUTTER CAMERA · SELECT

VBV-710C - Shutter camera   2808
               Direct connection to VBV-770M-S and VBV-750M-S monitors via 5-pin 10m (VBV-L510) or 20m (VBV-L520) camera cable.

- **Viewing angle (HxVxD)**
  98 x 73 x 108°

- **IP68 / IP69K**

- **Size (WxHxD)**
  122 x 85 x 82mm

- **3 year warranty**

Features
- 4 high power infrared LEDs for ultra-low light performance
- Day / Night sensor
- Automatic Shutter
- Heater
- Microphone
- Mirror / Normal view
- Backlight compensation
- Automatic white balance
- 1/3" Sharp CCD
- TV System: PAL
- TV Lines: 580

Power
- Max Power consumption: 6 Watts
- Max Current: 0.5 Amps

Durability & Standards
- Mechanical vibration: 10G
- Mechanical shock: 50G
- Operating temperature: -30 to +70°C
- CE Marked
- E-Marked: UNECE R10 compliant

BRIGADE®

Model	Part No:

EYEBALL CAMERA   `SELECT`

VBV-300C - Flush-mount eyeball camera - Mirror view - PAL	5211
VBV-301C - Flush-mount eyeball camera - Mirror view - NTSC	5213
VBV-320C - Flush-mount eyeball camera - Normal view - PAL	5215
VBV-321C - Flush-mount eyeball camera - Normal view - NTSC	5217

Also available in High Definition (720p) models

- **Viewing angle (HxVxD)**
  110 x 82 x 152° PAL
  111 x 80 x 153° NTSC
- **IP69K**
- **Size (WxHxD)**
  57 x 42 x 70mm
- **3 year warranty**

LED   R46 APPROVED*

Features
- 5 high power infrared LEDs for ultra-low light performance
- Day / Night sensor
- Lens swivel adjustment: 26° (Top) x 4° (Bottom) x 4° (Left) x 4° (Right)
- Lens rotation adjustment: ±180°
- Microphone
- Backlight compensation
- Automatic white balance
- 1/3" Sharp CCD
- TV System: PAL or NTSC
- TV lines: 780 PAL, 600 NTSC

Power
- Power consumption: 2.3 Watts
- Current consumption: 0.16 Amps

Durability & Standards
- Mechanical vibration: 8.5G
- Mechanical shock: 51G
- Operating temperature: -30 to +70°C
- CE marked
- E-Marked: UNECE R10 compliant
- FCC approved
- *Camera monitor system R46 approved VBV-300C & VBV-320C only

OPTIONAL EXTRAS

SM-3XX-25 Surface mounting adapter (25mm deep)   4596

CYLINDER CAMERA   `SELECT`

VBV-485C - Cylinder camera PAL	2199
VBV-481C - Cylinder camera NTSC	2843

- **Viewing angle (HxVxD)**
  91 x 77 x 123° PAL
  96 x 71 x 126° NTSC
- **IP69K/IP68**
- **Size (Diameter x Length)**
  35 x 50mm
- **3 year warranty**

LED

Features
- 9 LEDs for ultra-low light performance
- Day/night sensor
- Mirror view
- Backlight compensation
- Auto white balance
- 1/3" Sharp CCD
- TV Lines: 680 PAL, 800 NTSC

Power
- Power consumption: 1.9 Watts
- Current: 0.2 Amps

Durability & Standards
- Mechanical vibration: 10G
- Mechanical shock: 50G
- Operating Temperature: -30 to +70°C
- E-Marked: UNECE R10 compliant
- CE marked
- FCC approved VBV-481C only
- IC approved VBV-481C only

Select Cameras

Model	Part No:

DOME CAMERA   SELECT

MD-50 - Mini dome camera PAL	**5735**
MD-51 - Mini dome camera NTSC	**5736**
MD-50(SW) - Dome camera - Superwide view angle PAL	**5683**
MD-51(SW) - Dome camera - Superwide view angle NTSC	**5686**
MD-50(W)　- Dome camera PAL	**5692**
MD-51(W)　- Dome camera NTSC	**5694**

Also available in High Definition (720p) models

- **Viewing angle (HxVxD)**
  (SW) 150° x 85° x 180°
  (W)　93° x 51° x 110°
- **IP68**
- **Size (Diameter x H)**
  76 x 59.5　mm
- **3 year warranty**

Features
- Dome camera with 150° movement range in all directions
- Can be used internally or externally
- Mirror / Normal view
- Backlight compensation
- Automatic white balance
- CMOS - 1/3" ON-Semi ISP - Nextchip
- TV System: PALor NTSC
- TV Lines: 600

Power
- Power consumption: 1 Watt
- Current: 0.57 Amps

Durability & Standards
- Mechanical vibration: 10G
- Mechanical shock 51G
- Operating temperature: -30 to +85°C
- CE marked
- E-Marked: UNECE R10 compliant
- FCC Approved
- IC Approved

OPTIONAL EXTRAS

MD-50SM-30 - Surface mounting adapter (30mm deep)	**5003**
MD-50AM-15 - Angled surface mounting adapter (adds 15°)	**5004**
MD-50AM-25 - Angled surface mounting adapter (adds 25°)	**5005**

MINI CAMERA   SELECT

DMC-1025 - Mini camera (internal use) PAL	**5717**
DMC-1021 - Mini camera (internal use) NTSC	**5715**

Also available in High Definition (720p) models

- **Viewing angle (HxVxD)**
  68 x 38 x 80°
- **IP30**
- **Size (WxHxD)**
  43 x 45 x 37.5mm
- **3 year warranty**

Features
- Mirror / Normal view
- Backlight compensation
- Automatic white balance
- CMOS - 1/3" ON-Semi ISP - Nextchip
- TV System: PAL or NTSC
- TV Lines: 600

Power
- Power consumption: 1.0 Watt
- Current: 0.55 Amps

Durability & Standards
- Mechanical vibration: 10G
- Mechanical shock: 51G
- Operating temperature: -30 to +60°C
- CE marked
- E-Marked: UNECE R10 compliant
- FCC approved
- IC approved

Model	Part No:

SELECT CAMERA CABLES — SELECT

Model		Part No:
VBV-L430	- 30 metre cable	2108
VBV-L420	- 20 metre cable	1380
VBV-L415	- 15 metre cable	3150
VBV-L412	- 12 metre cable	3106
VBV-L410	- 10 metre cable	1386
VBV-L407	- 7 metre cable	3151
VBV-L406	- 6 metre cable	3152
VBV-L405	- 5 metre cable	1499
VBV-L403	- 3 metre cable	4977
VBV-L4025	- 2.5 metre cable	1554
VBV-L520	- 20 metre 5-pin shutter camera cable	3664
VBV-L510	- 10 metre 5-pin shutter camera cable	3663
VBV-L505	- 5 metre 5-pin shutter camera cable	4001

Select Cables

Model	Part No:

TRUCK/TRAILER CABLE KIT   SELECT

SK-15-05 - Truck and trailer cable kit for 3-camera Backeye®360   **5066**

SP-15A-05   SC-15-01   SP-15B-05

- SP-15A-05 - 15-pin bulkhead socket for cab & cab-end connector plus 3x connections for Backeye®360 Select 5064
- SP-15B-05 15-pin bulkhead socket for trailer & trailer-end connector plus 3x connections for Backeye®360 Select 5065
- SC-15-01 Coiled shielded cable with 15-pin plugs   3268

TRUCK/ DRAWBAR TRAILER CABLE KIT   SELECT

VSK-50E - Truck and drawbar trailer cable kit for two cameras   **2540**
Inclusive of VSK-50E-A Truck kit and VSK-30E-T Trailer kit

VSP-47A   SC-07-24S   VSP-47B

VSK-50E-A - Truck only kit   **2541**

- VBV-L420 - 20m cable for truck   1380
- VBV-L405 - 5m camera cable for truck camera   1499
- VCS-020 - Two-way camera selector 1844
- 1 x VSP-47A - 7-pin camera bulkhead socket for truck rear   1847
- SC-07-24S - Coiled cable with 7-pin sockets   1227

VSK-30E-T - Trailer only kit   **2542**

- VBV-L420 - 20m cable for trailer   1380
- VSP-47B - 7-pin camera bulkhead socket for trailer   1846

TRUCK/DRAWBAR TRAILER CABLE KIT   SELECT

VSK-505E - Truck and drawbar trailer cable kit for two Select shutter cameras   4005

VSP-57A   SC-07-24S   VSP-57B

- VBV-L420 - 20m cable for truck   1380
- VBV-L520 - 20m camera cable for truck camera   3664
- VBV-L505 - 5m camera cable for cab   4001
- VCS-020 - Two-way camera selector   1844
- 2 x AC-035 - 5-pin to 4-pin shutter camera adapter   3702
- VSP-57A 7-Pin bulkead socket for cab & cab-end camera connector   3869
- VSP-57B 7-pin bulkhead socket for trailer & trailer-end camera connector   3870
- SC-07-24S - Coiled cable with 7-pin plugs   1227

Model   **Part No:**

TRUCK/TRAILER CABLE KIT   SELECT

VSK-31E - Truck and trailer cable kit - unique pin layout   **2539**
Inclusive of VSK-31E-T - Trailer kit

- VBV-L410 - 10m cable for cab   1386
- SP-7A - 7-pin bulkhead socket for cab & cab-end camera connector (unique pin layout)   1827
- AC-014 - Adapter cable   2094
- SC-7 - Coiled cable with 7-pin plugs (unique pin layout)   1829

VSK-31E-T - Trailer only kit   **2543**

- VBV-L420 - 20m cable for trailer   1380
- AC-006 - Adapter cable   1983
- SP-7B - 7-pin bulkhead socket for trailer & trailer-end camera connector (unique pin layout)   1828

SP-7A   SC-7   SP-7B
(Select connecton via supplied adapter cables)

TRUCK/TRAILER CABLE KIT   SELECT

VSK-30E - Truck and trailer cable kit   **2538**
Inclusive of SK-30E-T - Trailer only kit

- VBV-L410 - 10m cable for cab   1386
- VSP-47A - 7-pin bulkhead socket for cab & cab-end camera connector   1847
- SC-07-24S - Coiled cable with type 24S 7-pin plugs   1227

VSK-30E-T - Trailer only kit   **2542**

- VBV-L420 - 20m extension cable for trailer   1380
- VSP-47B - 7-pin bulkhead socket for trailer & trailer-end camera connector   1846

VSP-47A   SC-07-24S   VSP-47B

TRUCK/TRAILER CABLE KIT   SELECT

VSK-305E - Truck and trailer cable kit for Select shutter camera   **3871**

- VBV-L510 10m cable for cab   3663
- VBV-L520 20m cable for trailer   3664
- VSP-57A 7-pin bulkhead socket for cab & cab-end camera connector   3869
- VSP-57B 7-pin bulkhead socket for trailer & trailer-end camera connector   3870
- SC-07-24S - Coiled cable with type 24S 7-pin plugs   1227

VSP-57A   SC-07-24S   VSP-57B

Select kits

Model   Part No:

CAMERA MONITOR SYSTEMS   SELECT

VBV-770-001DW - Single wireless camera monitor system for articulated vehicles   4843

• VBV-770M - 7" monitor	4288
• VBV-700C - camera	1379
• VBV-L420 - 20m cable	1380
• DW-1000-TX - digital wireless transmitter	4043
• DW-1000-RX - digital wireless receiver	4044
• AC-006 - camera adapter	1983
• AC-007 - monitor adapter	1984

See individual products for detailed specifications and warranties

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VBV-770-001 - Single camera monitor system for articulated vehicles   4767

• VBV-770M - 7" monitor	4288	• SC-07-24S - Coiled cable with type 24S 7-pin plugs	1227
• VBV-700C - camera	1379	• VBV-L420 - 20m extension cable for trailer	1380
• VBV-410 - 10m cable for cab	1386		
• VSP-47A - 7-pin bulkhead socket for cab & cab-end camera connector	1847	• VSP-47B - 7-pin bulkhead socket for trailer & trailer-end camera connector	1846

See individual products for detailed specifications and warranties

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VBV-770-101 - Single shutter camera monitor system for articulated vehicles   4772

• VBV-770M-S - 7" monitor	4697	• VSP-57B 7-pin bulkhead socket for trailer & trailer-end camera connector	3870
• VBV-710C - shutter camera	2808	• SC-07-24S - Coiled cable with 7-pin sockets	1227
• VBV-L510 - 10m cable for cab	3663		
• VBV-L520 - 20m cable for trailer	3664		
• VSP-57A 7-pin bulkhead socket for cab & cab-end camera connector	3869		

See individual products for detailed specifications and warranties

CAMERA MONITOR SYSTEMS   SELECT

VBV-770-300 - Single flush-mount camera monitor system for rigid vehicles   **4777**

• VBV-770M - 7" monitor	4288
• VBV-300C - flush-mount camera	5211
• VBV-L420 - 20m cable	1380

See individual products for detailed specifications and warranties

R46 APPROVED

VBV-770-000 - Single camera monitor system for rigid vehicles   **4692**

• VBV-770M - 7" monitor	4288
• VBV-700C - camera	1379
• VBV-L420 - 20m cable	1380

See individual products for detailed specifications and warranties

R46 APPROVED

VBV-770-100 - Single shutter camera monitor system for rigid vehicles   **4695**

• VBV-770M-S - 7" monitor	4697
• VBV-710C - shutter camera	2808
• VBV-L520 - 20m cable	3664

See individual products for detailed specifications and warranties

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VBV-750-000 - Single camera monitor system for rigid vehicles   **4705**

• VBV-750M - 5" monitor	4287
• VBV-700C - camera	1379
• VBV-L420 - 20m cable	1380

See individual products for detailed specifications and warranties

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OPTIONAL EXTRA

Add VBV-300C (low mount) or VBV-320C (high mount) side view camera + VBV-L405 (5m cable) to spot cyclists.

Select/Essential Kits

Model	Part No:

VBV-770-310 - Single flush-mount camera monitor system for small rigid vehicles 4781

	Part No:
· VBV-770M - 7" monitor	4288
· VBV-300C - flush-mount camera	5211
· VBV-L410 - 10m cable	1386

See individual products for detailed specifications and warranties

R46 APPROVED

VBV-750-310 - Single flush-mount camera monitor system for small rigid vehicles 4780

	Part No:
· VBV-750M - 5" monitor	4287
· VBV-300C - flush-mount camera	5211
· VBV-L410 - 10m cable	1386

See individual products for detailed specifications and warranties

Model   **Part No:**

NEW | **CAMERA MONITOR SYSTEM** | **ESSENTIAL**

VBV-670-000 - PAL Camera monitor system   **5774**
VBV-671-000 - NTSC Camera monitor system   **5816**

- **Camera Viewing angle (HxVxD)**
  89 x 65 x 115° PAL
  89 x 65 x 114° NTSC

- **IP67**

- **Camera Size (WxHxD)**
  76 x 59 x52mm

- **Monitor Size (WxHxD)**
  205 x 126 x 26mm

- **1 year warranty**

7.0"   2   ✓   ✓   ⬊

Contents
- 1 x VBV-670M monitor
- 1 x monitor sunshield
- 1 x monitor bracket
- 1 x VBV-63XC camera
- 1 x 20m VBV-L4020 extension cable
- Fitting kit

Camera Features
- Normal view
- 1/3" PixelPlus CMOS
- TV Lines: 425

Monitor Features
- 2 camera inputs
- 1 auto trigger
- Sun shield
- Multi-lingual menus
- Normal/Mirror via OSD menu

Picture Quality
- Monitor resolution: 800x400
- Contrast ratio: 500:1
- Brightness: 250 cd/m^2
- Monitor viewing angles:
  Side 70° x Top 45° Bottom 65°

Power
- Power consumption: 4.2 Watts
- Current: 0.4 Amps

Durability & Standards
- Mechanical vibration:
  Camera: 8.5G Monitor: 4G
- Operating temperature: -30 to +70°C
- CE marked
- FCC approved

TO CONNECT AN ADDITIONAL CAMERA

VBV-630C - Essential Camera - PAL   **5772**
VBV-631C - Essential Camera - NTSC   **5817**

VBV-L4020 - 20m Essential extension cable   **5773**

CAMERA MONITOR SYSTEM | **ESSENTIAL**

VBV-650-000 - PAL Single-camera monitor system   **4765**
VBV-650-000N - NTSC Single-camera monitor system   **4766**
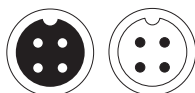
- **Camera Viewing angle (HxVxD)**
  81 x 59 x 106° PAL
  81 x 59 x 108° NTSC

- **IP67**

- **Camera Size (WxHxD)**
  65 x 59 x 55mm

- **Monitor Size (WxHxD)**
  150 x 99 x 31mm

- **1 year warranty**

5 .0"   1   ⬊

Contents
- 1 x VBV-650M monitor
- 1 x monitor bracket
- 1 x VBV-620C camera PAL
  or VBV-621C camera NTSC
- 1 x 20m VBV-L4020 extension cable
- Fitting kit

Camera Features
- Mirror view
- CMOS
- TV Lines: 420

Monitor Features
- 1 camera inputs

Picture Quality
- Monitor resolution: 640x480
- Monitor viewing angles:
  Side 70° x Top 50° Bottom 70°

Power
- Power consumption: 2 Watts

Durability & Standards
Operating temperature: -10 to +70°C

Adapter Cables

Model	Part No:

BRIGADE CAMERA MONITOR ADAPTERS

Model	Part No:
AC-006 - Connects Select camera (not shutter) to Elite cable	1983
AC-007 - Connects Select monitor to Elite cable	1984
AC-014 - Connects Elite camera to Select cable	2094
AC-014(5M) - Connects Elite camera to Select cable, 5m long	5049
AC-020 - Connects Elite monitor to Select cable	2590
AC-035 - 5-pin to 4-pin Select shutter camera adapter	3702
AC-055(5M) - 5-pin to 4-pin Select cable, 5m long	4267
AC-305 - Splitter cable connects 1 x BN360-200 camera to MDR & ECU	4903
AC-306 - Splitter cable connects 1 x (Non HD) Select camera to MDR & monitor	4904
AC-307 - Splitter cable connects 1 x Elite camera to MDR & Monitor	4905

MISCELLANEOUS CAMERA MONITOR ADAPTERS

Model	Part No:
AC-056 - Connects Select camera to Orlaco monitor	4401
AC-062 - Connects Elite camera to Orlaco monitor	4691
AC-063 - Connects Elite camera to Orlaco monitor, screw fit	4925
AC-066 - Connects Orlaco camera to Elite monitor	5027
AC-067 - Connects Orlaco camera to Select monitor	5028
AC-24-12(009) - In-line 24/12Vdc converter - Select camera to Mekra 507405 monitor	4926
AC-308 - Splitter cable to connect MDR to Mekra 507405 CMS	4949

OEM CAMERA MONITOR ADAPTERS

AC-041 - Connects Elite camera to John Deere 7-pin amp output		**4245**
AC-042 - Connects Select camera to John Deere 7-pin amp output		**4246**
AC-044 - Connects Select camera to Molex M12 (Fendt)		**4279**
AC-045 - Connects Elite camera to Molex M12 (Fendt)		**4280**
AC-068 - Connects Select camera to MAN Harman unit with camera prep		**5234**
AC-069 - Connects Select camera to MAN/Scania Harman unit without camera prep		**5318**
AC-24-12(002) - In-line 24/12Vdc converter - Elite camera to Mercedes monitor		**4266**
AC-24-12(004) - In-line 24/12Vdc converter - Select camera to MAN MMT HSD		**4281**
AC-24-12(006) - In-line 24/12Vdc converter - Select camera to Volvo FH(4) & FM(4)		**4719**
AC-24-12(007) - In-line 24/12Vdc converter - Select camera to Iveco connect system		**4762**
AC-24-12(008) - In-line 24/12Vdc converter - Select camera to Mercedes Sprinter		**4763**

A further range of OEM-specific adapters to connect Brigade cameras to factory-fit monitors is available

GENERAL CAMERA MONITOR ADAPTERS

AC-016 - Connects AV to Camera input of Elite monitor		**2150**
AC-019 - Connects Elite camera to male phono (video only)		**2589**
AC-021 - Connects BNC/FLIR PathFindIR camera to Elite cable		**2704**
AC-024 - Connects AV to Select monitor (video & audio input, 12Vdc output)		**3183**
AC-028 - Connects AV to Select cable		**3335**
AC-064 - Connects Elite camera to BNC adapter cable		**4948**

Ancillaries

Model	Part No:

DIGITAL WIRELESS CONNECTION SYSTEM
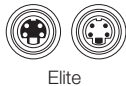
Elite

Select

DW-1000-TX - Digital Wireless Transmitter	4043
DW-1000-RX - Digital Wireless Receiver	4044

- **Digital technology**
- **12-24Vdc**
- **1 camera input**
- **IP69K (Transmitter)**
- **Size (WxHxD)**
  113 x 114 x 31mm
- **3 year warranty**

Features
- Image Latency: 200 milliseconds
- No need for retractable coiled cables
- Reduces installation time
- Re-pair facility allows for interchangeable trailers
- Triggered by reverse gear
- TV System PAL/NTSC
- Secure connection

Power
- Maximum Current Amps:
  TX: 0.85 RX: 0.17

- Power consumption:
  TX: 9.8 Watts   RX: 2.2 Watts

Durability & Standards
- Operating temperature:
  -40 to +70°C
- Mechanical vibration: 6G
- Mechanical shock: 20G
- CE marked
- E-Marked: UNECE R10 compliant

Includes connectors/adapters for both Elite and Select range cameras and monitors. Not AHD compatible

CAMERA MONITOR SYSTEM ANCILLARIES

Elite

Select

CS-020 - Two-way camera selector (Elite range connectors)	1571
VCS-020 - Two-way camera selector (Select range connectors)	1844

- **Allows a 2nd camera to be connected to a monitor**
- **2nd camera view selected by trigger wire**
- **Full screen view only**
- **2 year warranty**

Not AHD compatible

CAMERA MONITOR SYSTEM ANCILLARIES

LS-60-A - Speed switch	4851

- **12-24Vdc**
- **Auto-triggers safety equipment at the designated speed**
- **Size (WxHxD)**
  44 x 16 x 64mm
- **2 year warranty**

Features
- Normally closed - safety device on by default, turning off at designated speed
- 10 speed threshold settings
- Compact size
- Easy to install and set up
- Short circuit protection on camera inputs
- Reverse polarity protected

Power
- Power consumption: 21.6 Watts
- Max current: 1.8 Amps
- Switch Output max. current: 1.2 Amps

Durability & Standards
- Mechanical vibration: 10G
- Mechanical shock: 50G
- Operating temperature: -40 to +85°C
- CE marked
- E-Marked: UNECE R10 compliant

Notes:
- A relay is required if connected to a device that is higher than 1.2 Amps
- Not compatible with HD systems

CAMERA MONITOR SYSTEM ANCILLARIES   SELECT

SS-002 - Twin camera screen splitter (Select range connectors)   3044
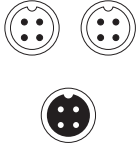
- 12-24Vdc
- 2 camera inputs
- Size (WxHxD)
  147 x 37 x 78mm
- 2 year warranty

Single	Split	In-built image options

Features
- Offers split-screen option for monitors without in-built functionality
- 3 trigger inputs per camera
- Shutter camera compatible with adapters (Elite - AC-035) (Select - TS-1000-ECU)
- TV System: PAL / NTSC
- Manual Mirror/Normal switching - choose from horizontal normal/mirror or vertical normal/flip
- Short circuit protection on camera inputs
- Reverse polarity protected

Adapter required for Elite range monitors
Not AHD compatible

Power
- Power Consumption: 8.4 Watts
- Current: 0.7 Amps

Durability & Standards
- Mechanical vibration: 10G
- Mechanical shock: 50G
- Operating temperature: -30 to +70°C
- CE marked
- E-Marked: UNECE R10 compliant
- FCC approved
- IC approved

CAMERA MONITOR SYSTEM ANCILLARIES   ELITE

EDM-50 - Multi-camera module and screen splitter (Elite range connectors)   2152

- 12-24Vdc
- 4 camera inputs
- Size (WxHxD)
  154 x 28 x 105mm
- 2 year warranty

Single	Split	Triple	Quad	Picture in picture

Plus additional in-built image options

Features
- Shutter camera compatible (inputs 1,2&3)
- AV input to accept DVD, sat nav or other add-ons
- 5 manual or auto-triggers for each camera
- On screen distance markers
- Mirror / Normal image switch for each camera
- Selectable camera audio
- Auto-scanning function
- Adapter required for Select range monitors

Power
- Power consumption: 20 Watts
- Current: 2A

Durability & Standards
- Mechanical vibration: 5G
- Operating temperature: -25 to +70°C
- CE marked
- E-Marked: UNECE R10 compliant

Not AHD compatible

CAMERA MONITOR SYSTEM ANCILLARIES   ELITE

SC-1000-ECU - Shutter camera module   3666

- **Allows BE-810C shutter camera to function on non-shutter enabled inputs on Elite range monitors (using Elite range cables)**
- **Adapter required for Select range monitors**

- **Current: 2A**
- **CE marked**
- **E-Marked: UNECE R10 compliant**
- **2 year warranty**

MDR
Mobile Digital Recording

Providing your witness

Brigade's Mobile Digital Recording (MDR) systems are now capable of capturing vehicle data and footage from up to 16 vehicle-mounted cameras. The MDR range includes models with 4G and WiFi connectivity capabilities, allowing data to be accessed from the recorder without having to physically go to the vehicle.

To take full advantage of the benefits of 4G connectivity, Brigade provide Bridge, a fully managed service for 4G enabled systems so that operators do not have to set up and maintain their own servers and manage SIMs and mobile data.

New IP Cameras and Network Expansion Modules mean that up to 6 cameras can be connected to our 4-channel MDR and up to 16 cameras can be connected to our 8-channel MDR.

MDRs are compatible with all Brigade Backeye® camera monitor systems, including Backeye®360.

MDRs are compatible with Brigade's Backeye® camera monitor systems, IP cameras and Backeye®360 - BN360-200.
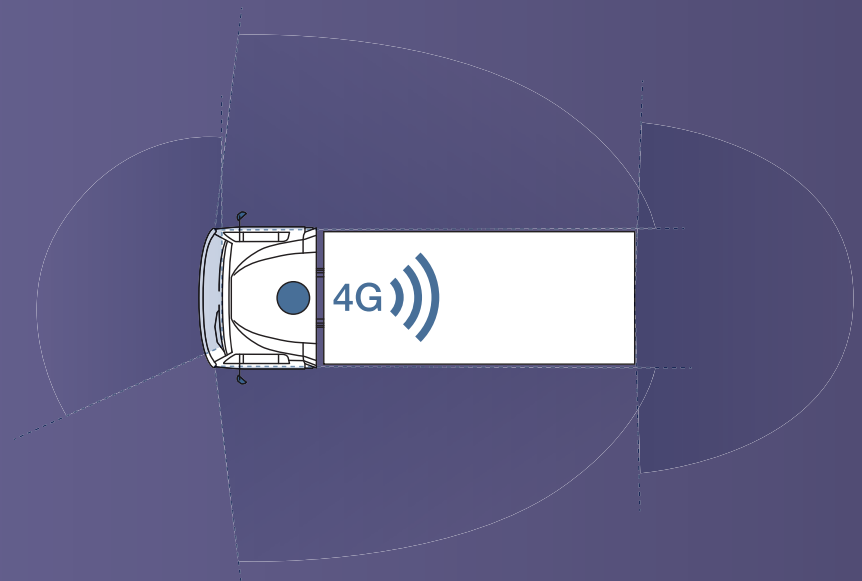
BRIDGE
MDR 4G Hosted Service

The MDR range includes models with 4G connectivity capabilities, allowing data to be accessed from the recorder without having to physically go to the vehicle.

In order to take full advantage of the benefits of 4G connectivity, Brigade now provide Bridge, a fully managed service for 4G enabled systems so that operators do not have to set up and maintain their own servers and manage SIMs and mobile data.

BRIDGE
Cloud Service from Brigade

Benefits of having remote access to the MDR can include:

● **Playback of historical footage and metadata from MDR or server** - Metadata includes: GPS location, speed, G-force, events and alarms.

● **Vehicle tracking** - Includes: GPS location, speed and alarms. Dual-screen support with dedicated location map.

● **Live view of vehicle cameras and metadata** - Metadata includes: GPS location, speed and alarms. Up to 64 cameras can be viewed from multiple MDRs on one screen.

● **Download footage**
   - **Scheduled:** one-off download to the server that will commence once vehicle is online.
   - **Automatic:** Pre-alarm and post-alarm footage (e.g. 30 seconds) will automatically save to the server.
   - **Manual:** Download historical footage from the MDR to local storage.

● **Geo-fencing** - Easily set up geographical boundaries to know when your vehicle enters and/or leaves areas.
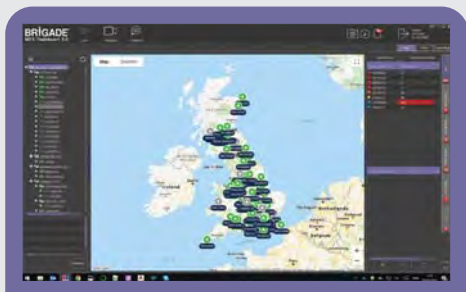
Vehicle Tracking on MDR Dashboard
PC software and MDR App

Example of 4-channel playback
MDR Dashboard PC software

All Bridge packages include

- 4G connection
- Competitively-priced 12 month contract, rolling thereafter
- SIM card
- Remote access to MDR via secure cloud server

- Technical helpline and online tutorials
- Access to data via MDR Apps for iOS and Android systems
- Access to data via MDR Dashboard PC software: Windows OS required (minimum Windows 7)

For further information, visit brigade-electronics.com/bridge

At the time of print, 4G Hosted Services only available in selected countries.

![BRIGADE®]

Model		Part No:

MOBILE DIGITAL RECORDER

MDR-508-2000	- 8 channel 2TB hard disk recorder	5577
MDR-508-1000	- 8 channel 1TB hard disk recorder	5126
MDR-508GW-2000	- 8 channel 2TB hard disk recorder with WiFi and 4G	5585
MDR-508GW-1000	- 8 channel 1TB hard disk recorder with WiFi and 4G	5127
MDR-508G-2000	- 8 channel 2TB hard disk recorder with 4G	5583
MDR-508G-1000	- 8 channel 1TB hard disk recorder with 4G	5128
MDR-508W-2000	- 8 channel 2TB hard disk recorder with WiFi	5579
MDR-508W-1000	- 8 channel 1TB hard disk recorder with WiFi	5129

- 9-32Vdc
- 8 camera inputs - Supports AHD High definition cameras
- 8 trigger/alarm inputs
- Lockable and interchangeable Hard Drive Unit
- Fast, easily downloadable recordings and data
- Size (WxHxD) 224 x 85 x 221mm
- 3 year warranty

Main Contents
- Mobile Digital Recorder with 2.5" SATA HDD caddy unit
- Wired Mouse
- 64Gb industrial grade Class 10 SD card
- Input / Output Cable
- Power Cable
- GPS Antenna
- 4G Antenna (G and GW models)
- Wi-Fi Antenna (W and GW models)
- USB A to B Cable (3.0)
- Security Key
- Bracket and Fixings

Features
- Remotely access MDR units using wireless (WiFi models only) and/or Mobile network (4G models only)
- Mobile apps for remote view (WiFi/4G models only)
- Geo-fencing (WiFi/4G models only)
- Mobile Standards: 2G/3G/4G
- Audio (cameras must have microphones)
- Robust aluminum housing
- Anti-vibration mounting allows for installation at any angle
- Built-in GPS
- Internal G-sensor and built-in buzzer
- Recordings saved to hard disk (protected by non-visible digital watermark) and in-built Mirror recording onto 64Gb SD card
- Recording modes: normal, alarm and timer (all watermarked)
- Configurable alarm trigger settings (speed, G-force, motion detection, video loss, voltage)
- Record images prior to alarm activation and after vehicle switched off

- MDR-Dashboard (full player) and MDR-Player (portable) with Google and MS Bing maps (English only)
- Search by date, time or triggered events
- Multi-level password protected access
- Hard drive unit directly pluggable to PC via USB port
- 8 x trigger Inputs, 2x trigger outputs and 1x12V power output
- Built-in HDD heater
- MDR Control using USB Mouse or optional IR remote control
- USB 3.0 connection
- TV System: PAL/NTSC/AHD
- Compatible with Brigade's vehicle CCTV camera monitor systems, IP cameras and Backeye®360 systems

Image and Audio Quality
- High quality H.264 image compression
- ADPCM - audio compression
- Choice of 8 low to high resolution settings
- Record at between 1 and 25 frames per second, per channel

Power
- Max power consumption: 80 Watts
- Current: 6.6 Amps

Durability & Standards
- Mechanical vibration: 1G
- Mechanical shock: 51G
- Operating temperature: -40 to +70°C
- E-Marked: UNECE R10 compliant
- CE marked
- FCC approved
- IC approved
- RoHS2 Compliant

OPTIONAL EXTRA

Expand the channel capability of the MDR with the addition of an Expansion Module and IP cameras:

IP-EM4 - Expansion Module adds 4 channels to MDR-508 = 12 channels

IP-EM8 - Expansion Module adds 8 channels to MDR-508 = 16 channels

Mobile Digital Recorders

Model		Part No:

MOBILE DIGITAL RECORDER

MDR-504-2000	- 4 channel 2TB hard disk recorder	5563
MDR-504-1000	- 4 channel 1TB hard disk recorder	5561
MDR-504GW-2000	- 4 channel 2TB hard disk recorder with WiFi and 4G	5575
MDR-504GW-1000	- 4 channel 1TB hard disk recorder with WiFi and 4G	5573
MDR-504G-2000	- 4 channel 2TB hard disk recorder with 4G	5571
MDR-504G-1000	- 4 channel 1TB hard disk recorder with 4G	5569
MDR-504W-2000	- 4 channel 2TB hard disk recorder with WiFi	5567
MDR-504W-1000	- 4 channel 1TB hard disk recorder with WiFi	5565

- 9-32Vdc
- 4 camera inputs - Supports AHD High definition cameras
- 8 trigger/alarm inputs
- Lockable and interchangeable Hard Drive Unit
- Fast, easily downloadable recordings and data
- Size (WxHxD) 190 x 75 x 222mm
- 3 year warranty

Main Contents
- Mobile Digital Recorder with 2.5" SATA HDD caddy unit
- Wired Mouse
- 32Gb industrial grade Class 10 SD card
- Input / Output Cable
- Power Cable
- GPS Antenna
- 4G Antenna (G and GW models)
- Wi-Fi Antenna (W and GW models)
- USB A to B Cable (3.0)
- Security Key
- Bracket and Fixings

Features
- Remotely access MDR units using wireless (WiFi models only) and/or Mobile network (4G models only)
- Mobile apps for remote view (WiFi/4G models only)
- Geo-fencing (WiFi/4G models only)
- Mobile Standards: 2G/3G/4G
- Audio (cameras must have microphones)
- Robust aluminum housing
- Anti-vibration mounting allows for installation at any angle
- Built-in GPS
- Internal G-sensor and built-in buzzer
- Recordings saved to hard disk (protected by non-visible digital watermark) and in-built Mirror recording onto SD card
- Recording modes: normal, alarm and timer (all watermarked)
- Configurable alarm trigger settings (speed, G-force, motion detection, video loss, voltage)
- Record images prior to alarm activation and after vehicle switched off

- MDR-Dashboard (full player) and MDR-Player (portable) with Google and MS Bing maps (English only)
- Search by date, time or triggered events
- Multi-level password protected access
- Hard drive unit directly pluggable to PC via USB port
- 8 x trigger Inputs, 2x trigger outputs and 1x12V power output
- Built-in HDD heater
- MDR Control using USB Mouse or optional IR remote control
- USB 3.0 connection
- TV System: PAL/NTSC/AHD
- Compatible with Brigade's vehicle CCTV camera monitor systems, IP cameras and Backeye®360 systems

Image and Audio Quality
- High quality H.264 image compression
- ADPCM - audio compression
- Choice of 8 low to high resolution settings
- Record at between 1 and 25 frames per second, per channel

Power
- Max power consumption: 60 Watts
- Current: 5 Amps

Durability & Standards
- Mechanical vibration: 1G
- Mechanical shock: 51G
- Operating temperature: -40 to +70°C
- E-Marked: UNECE R10 compliant
- CE marked
- FCC approved
- IC approved
- RoHS2 Compliant

OPTIONAL EXTRA

Expand the channel capability of the MDR with the addition of an Expansion Module and IP cameras:
See pages 52-53

IP-EM4 - Expansion Module adds 2 channels to MDR-504 = 6 channels

Model   **Part No:**

500 SERIES MOBILE DIGITAL RECORDER ACCESSORIES

**AC-305 - Splitter cable connects 1 x Backeye®360 BN360-200 camera
to MDR & ECU**   4903

AC-306- Connects 1 x Select camera to MDR and monitor   4904

AC-307- Connects 1 x Elite camera to MDR and monitor   4905

MDR-RP01- Remote status & interface panel with panic button   4872

MDR-06RPC- 6m cable for Remote status & interface panel   4873

MDR-GS-02- External G-sensor   4988

MDR-03GSC- 3m G-sensor cable   4874

MDR-508GW-EXP-0   - Wi-Fi & 4G upgrade Expansion Module   5309
For MDR-508 models only. SD card not included

MDR-508G-EXP-0   - 4G upgrade Expansion Module   5310
For MDR-508 models only. SD card not included

MDR-508W-EXP-0   - Wi-Fi upgrade Expansion Module   5311
For MDR-508 models only. SD card not included

MDR-500-500-MCU   - Caddy unit with 500GB HDD   5132

MDR-500-1000-MCU   - Caddy unit with 1TB HDD   5157

MDR-500-2000-MCU   - Caddy unit with 2TB HDD   5330

SD-32GB-IND   - 32GB industrial grade Class 10 SD card   4875

SD-64GB-IND   - 64GB industrial grade Class 10 SD card   4876

MDR-FPB32-01   - External SD Mirror-recorder in fireproof housing   4896
with 32GB industrial grade Class 10 SD card

What are IP cameras & Expansion Modules?

An Internet Protocol (IP) camera is a high-definition digital camera with its own IP address. Instead of transmitting video over a video cable to a monitor or MDR, the IP camera transmits digital video to the MDR over a data connection (ethernet cable) where the images are saved to the HDD memory.

Brigade Expansion Modules use Power Over Network (PON) Switch technology to expand the channel capability of the MDR by transmitting digital video images from IP cameras over the top of existing analogue video cables/signals. The MDR on-screen display allows easy camera set up without need for specific IP camera knowledge

Benefit: Connecting IP cameras increases the number of channels available on the MDR:

Model		
MDR-504	- 4 x Analogue channels plus 1 x IP channel	= 5 channels
MDR-504 and PON switch	- 4 x Analogue channels plus 2 x IP channels	= 6 channels
MDR-508	- 8 x Analogue channels plus 1 x IP channel	= 9 channels
MDR-508 and PON switch	- 8 x Analogue channels plus up to 8 x IP channels	= 16 channels

Model   **Part No:**

NEW | **IP CAMERA**

IP-1000C - Internal forward-facing camera   5935

- **Viewing angle (HxVxD)**
  87 x 48 x 95°
- **IP20**
- **Size (WxHxD)**
  75 x 122 x 40mm
- **3 year warranty**

Features
- High-definition picture quality
- Windscreen flush-mounted to avoid reflections
- Microphone
- Normal view - mirror view via OSD settings or IP web interface
- Backlight compensation
- Automatic white balance
- Supports web browser access
- Fast setup feature in MDR 500 series to auto-assign camera IP address
- Picture Elements: 1920(H) x 1080(V)
- Imaging device: CMOS
- TV Lines: 800

Power
- Power consumption: 2.5 Watts
- Current: 0.2 Amps

Durability & Standards
- Mechanical vibration: 4.7G
- Mechanical shock: 51G
- Operating temperature: -40 to +70°C
- Video output signal: H264 or H.265
- Network protocol: MDR5, ONVIF, TCP/IP, HTTP, DHCP, NTP, FTP
- CE marked
- E-Marked: UNECE R10 compliant
- FCC approved
- IC approved

Note: For use with MDR only

NEW | **IP CAMERA**

IP-1200C - Surface-mount dome camera   5937

- **Viewing angle (HxVxD)**
  94 x 53 x 95°
- **IP65**
- **Size (WxHxD)**
  102 x 55 x 96 mm
- **3 year warranty**

Features
- High-definition picture quality
- Surface mount
- Heater
- Normal view
- Backlight compensation
- Automatic white balance
- Supports web browser access
- Fast setup feature in MDR 500 series to auto-assign camera IP address
- Picture Elements: 1920(H) x 1080(V)
- Imaging device: CMOS
- TV Lines: 700

Power
- Power consumption: 3.5 Watts
- Current: 0.3 Amps

Durability & Standards
- Mechanical vibration: 4.7G
- Mechanical shock: 51G
- Operating temperature: -40 to +70°C
- Video output signal: H264 or H.265
- Network protocol: MDR5, ONVIF, TCP/IP, HTTP, DHCP, NTP, FTP
- CE marked
- E-Marked: UNECE R10 compliant
- FCC approved
- IC approved

Note: For use with MDR only

Model   Part No:

NEW | IP CAMERA

IP-1100C - Surface-mount camera   **5936**

- Viewing angle (HxVxD)
  84 x 46 x 103°
- IP67
- Size (WxHxD)
  96 x 52 x 58mm
- 3 year warranty

Features
- High-definition picture quality
- Surface mount
- Built-in G-sensor for automatic image orientation
- High power infrared LED for low-light performance
- Day/night sensor
- Normal view
- Backlight compensation
- Automatic white balance
- Supports web browser access
- Fast setup feature in MDR 500 series to auto-assign camera IP address
- Imaging device: CMOS
- Picture elements: 1920 x 1080
- TV Lines: 800

Power
- Power consumption: 5 Watts
- Current: 0.2 Amps

Durability & Standards
- Mechanical vibration: 8.5G
- Mechanical shock: 51G
- Operating temperature: -40 to +70°C
- Video output signal: H264 or H.265
- Network protocol: MDR5, ONVIF, TCP/IP, HTTP, DHCP, NTP, FTP
- CE marked
- E-Marked: UNECE R10 compliant
- FCC approved
- IC approved

Note: For use with MDR only

NEW | IP EXPANSION MODULES

IP-EM4 - PON 4-channel switch   **5860**
IP-EM8 - PON 8-channel switch   **5861**

- 12-24Vdc
- 4 or 8 IP camera inputs
- Size (WxHxD)
  IP-EM4: 149 x 44 x 127mm
  IP-EM8: 174 x 54 x 129.5mm
- 3 year warranty

Features
- Expands the channel capability of the MDR by enabling the addition of IP cameras:
  IP-EM4 - adds 2 channels to MDR-504
  IP-EM4 - adds 4 channels to MDR-508
  IP-EM8 - adds 8 channels to MDR-508
  IP-EM8 not compatible with MDR-504

Power
- Power consumption: 3 Watts

Durability & Standards
- Mechanical vibration: 2.3G
- Mechanical shock: 150G
- Operating temperature: -40 to +70°C
- CE marked
- E-Marked: UNECE R10 compliant
- FCC approved
- IC approved

NEW | IP CAMERA ACCESSORIES

IP-EC-1 - CAT5E Ethernet cable 1 metre   **5865**
IP-EC-5 - CAT5E Ethernet cable 5 metre   **5866**

IP-EM-PC - MDR-PON Power cable   **5864**

IP-L601 - IP Camera extension cable 1 metre   **5867**
IP-L603 - IP Camera extension cable 3 metre   **5902**
IP-L605 - IP Camera extension cable 5 metre   **5903**
IP-L610 - IP Camera extension cable 10 metre   **5982**
IP-L615 - IP Camera extension cable 15 metre   **5904**
IP-L620 - IP Camera extension cable 20 metre   **5983**
IP-L630 - IP Camera extension cable 30 metre   **5984**

IP-1XXX-PC - IP Power and Ethernet cable -   **5985**
To connect a single camera to an MDR without the PON Switch

WARNING: There is a latency (time lag) in all digital video transmission, including IP Cameras. Although this time lag is small (~800ms), it is unacceptable for a camera that a driver is using as a safety and manoeuvring aid. Brigade IP cameras are an excellent choice for general monitoring (eg bus interior, doors, luggage compartment) and recording purposes, but should not be used as a driver aid for manoeuvring or blind-spot monitoring. Analogue cameras are still the best choice for safety critical manoeuvring and blind spot monitoring applications

Ultrasonic Object Detection Systems

Sensor Systems

Reducing blind spots and improving driver visibility are important issues for operators of road-going vehicles. Brigade's ultrasonic detection sensors minimise both vehicle damage and collisions with pedestrians, cyclists or objects. Perfect for road-going commercial vehicles operating in confined spaces or manoeuvring at low speed.

The detection system alerts the driver of objects close to the vehicle, whether moving or stationary. An in-cab warning informs of distance whilst an optional external speaking alarm can be added to alert cyclists and pedestrians that the vehicle is turning.

On-Screen Display

Working in conjunction with a camera monitor system and up to two ultrasonic detection systems, the on-screen display module warns the driver of obstacles close to the vehicle by overlaying 3-stage audible and visual ultrasonic data onto the camera image on the vehicle's monitor.

- **Integration of Brigade's ultrasonic obstacle detection systems and camera monitor systems**
- **Ultrasonic detection warnings overlaid onto camera image on in-cab monitor**
- **Reduced driver stress and distractions as all information is in one view**
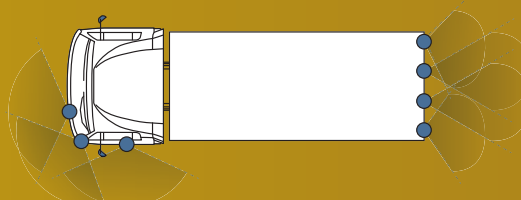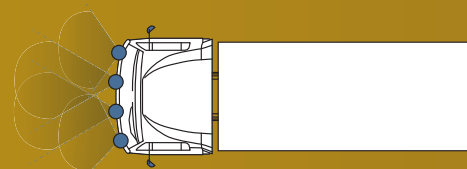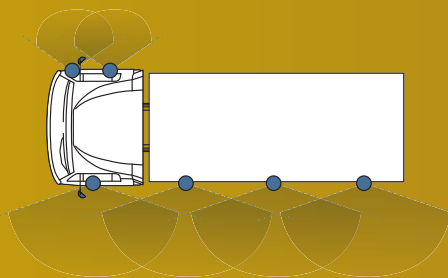
Ultrasonic Detection On-Screen Display Module

- Integration of Brigade's ultrasonic obstacle detection systems and Backeye® camera monitor systems

- Ultrasonic detection warnings overlaid onto camera image on in-cab monitor

- Reduced driver stress and distractions as all information is in one view

Sensor data and camera image combined

Brigade's ultrasonic proximity sensors minimise both vehicle damage and collisions with pedestrians, cyclists or objects. Perfect for road-going commercial vehicles operating in confined spaces or manoeuvring at low speed.

Working in conjunction with a Backeye® camera monitor system and up to two ultrasonic detection systems, the on-screen display module warns the driver of obstacles close to the vehicle by overlaying 3-stage audible and visual ultrasonic data onto the camera image on the monitor.
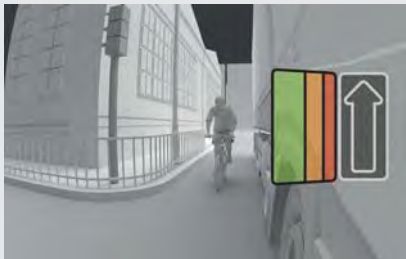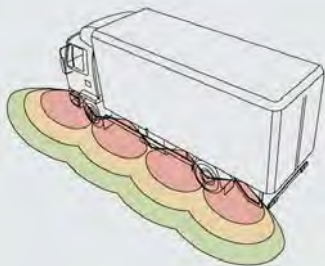
Model	Part No:

ULTRASONIC ON-SCREEN DISPLAY MODULE

UDS-OSD20-ECU -	On-screen display module PAL	5099
UDS-OSD21-ECU -	On-screen display module NTSC	5347

- Allows 3-stage audible and visual Ultrasonic data to be overlayed onto camera image on vehicle monitor
- 12-24Vdc
- 2 camera inputs
- 2 trigger inputs
- 2 UDS inputs
- 2 UDS outputs
- 2 year warranty

Contents
- OSD ECU
- Power cable
- Splitter cable
- Trigger cable

Features
- Overlay on monitor of vehicle icon and detection data from up to 2 x ultrasonic detection systems
- Compatible with 1x Sidescan® Frontscan® and Backscan®
- UDS overlay will appear on a black background if no cameras installed
- Graphics can be overlayed left or right on the monitor
- Audible warning via monitor
- Ultrasonic system fault displayed on monitor
- Compatible with MDR

Durability & Standards
- Mechanical vibration: 5G
- Mechanical shock: 10G
- Operating temperature: -30 to +70ºC +22 to +158°F
- IP30
- Dimensions: 74 x 118 x 28 mm (WxDxH) 2.9 x 4.6 x 1.1"
- CE marked
- E-Marked: UNECE R10 compliant
- FCC Approved
- IC Approved

Power
- Power consumption: 1.7 Watts
- Current: 140mA

Note: Not compatible with HD camera monitor systems

Model   **Part No:**

BACKSCAN® ULTRASONIC DETECTION SYSTEM

BS-4000W - Backscan® Rear reversing sensor system   **3744**

- **4 sensor system**
- **12-24Vdc**
- **2.5m detection range - outer sensors 2.5m/0.6m (selectable via dip switch)**
- **Graduated visual and audible distance warning display**
- **Underslung and flush-mount fixings included**
- **50cm compensation range for sensors fitted inboard of vehicle rear (selectable via dip switch)**
- **3 year warranty**

Contents
- 4 x sensors
- Visual and audible display
- 4 x 0° flush mount fixings
- 4 x 11° flush mount fixings
- 4 x underslung fixings
- Waterproof control box
- 15m display cable
- 4 x 2.5m sensor cables

Features
- Obstacles detected in under 200 milliseconds
- Environment Learning Mode prevents false alarms from tow-hooks and other ancillary equipment that intrudes in the first 100cm of the detection zone
- Self-diagnostic function
- 1 x Trigger output

Durability & Standards
- Mechanical vibration: 5G
- Mechanical shock: 10G
- Operating temperature: -30 to +80ºC
- Waterproof sensors to IP68
- Waterproof control box to IP69K
- CE marked
- E-Marked: UNECE R10 compliant
- FCC approved

Power
- Power consumption: 2.4 Watts
- Current: 200mA

ADDITIONS FOR ARTICULATED VEHICLES

SK-15-04	**Truck/trailer camera/sensor cable kit**	**3997**
SK-UDS-05	**Truck/trailer sensor only cable kit**	**4219**
UDS-10BC	**10m Buzzer/display cable**	**3716**

OPTIONAL EXTRA

UDS-RELAY-24	**Trigger-out diode protected relay 24Vdc**	**4215**
UDS-RELAY-12	**Trigger-out diode protected relay 12Vdc**	**4216**

To power a device switched by the ouptput trigger

Ultrasonic Object Detection

Sidescan®Flex

Flexible side detection

Sidescan®Flex is a four-sensor system fitted to the side of a vehicle to detect objects in the nearside blind spot, where cyclists or pedestrians can otherwise go undetected.

An advancement to the standard Sidescan® system, Sidescan®Flex allows the operator to choose from four detection configurations, each with different detection distances and audible and visual alerts (see table).

Sidescan® Flex has an increased maximum detection range of 2.5 metres.
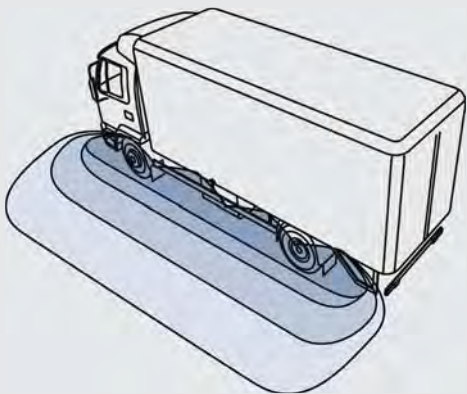
Detection distance		Config 1	Config 2	Config 3	Config 4
0 - 0.6m	Beeps per second	Constant	Constant	Constant	Constant
	Flashes per second	8	8	8	8
0.6 - 0.9m	Beeps per second	Constant	4	4	4
	Flashes per second	8	8	8	8
0.9 - 1.5m	Beeps per second	4	-	-	1
	Flashes per second	4	4	4	4
1.5 - 2.5m	Beeps per second	1	-	-	-
	Flashes per second	1	1	-	-

Model   **Part No:**

NEW | **SIDESCAN®FLEX ULTRASONIC DETECTION SYSTEM**

SS-4200W -   Sidescan®Flex sensor system with mute function   **5916**
SS-4200W-000 - Sidescan®Flex sensor system with mute function,   **6075**
            low speed trigger module and turn indicator sensor kit
            Includes LS-60-A low speed trigger module and TS-001ECU turn indicator sensor

- **4 sensor system**
- **12-24Vdc**
- **Detection zones - 0 - 2.5m (4 audible/visual configuarions, selectable via dip switches)**
- **Underslung and flush-mount fixings included**
- **1 Output trigger**
- **3 year warranty**

Contents
- 4 x sensors
- Buzzer
- 4 x 0° flush mount fixings
- 4 x 11° flush mount fixings
- 4 x underslung fixings
- Waterproof control box
- 10m buzzer cable
- 4 x 4.5m sensor cables
- 2 x 2.5m extension cables

Features
- Obstacles detected in under 200 milliseconds
- Buzzer with audible distance warning, LED & adjustable volume control
- Buzzer will silence after 4 seconds if there is no movement from detected object or vehicle
- Self-diagnostic function

- Environment Learning Mode prevents false alarms from ancillary equipment that intrudes in the first 100cm of the detection zone

Durability & Standards
- Mechanical vibration: 5G
- Mechanical shock: 10G
- Operating temperature: -30 to +80°C
- Waterproof sensors to IP68
- Waterproof control box to IP69K
- CE marked
- E-Marked: UNECE R10 compliant
- FCC approved

Power
- Power consumption: 2.4 Watts
- Current: 200mA

OPTIONAL EXTRA

UDS-RELAY-24   **Trigger-out diode protected relay 24Vdc**   **4215**

UDS-RELAY-12   **Trigger-out diode protected relay 12Vdc**   **4216**
            To power a device switched by the ouptput trigger

Model   **Part No:**

SIDESCAN® ULTRASONIC DETECTION SYSTEM

Model	Description	Part No:
SS-4100W -	**Sidescan® Side sensor system with mute function**	**5257**
SS-4100W-000 -	**Sidescan® Side sensor system with mute function, low speed trigger module and turn indicator sensor kit**	**5344**
	Includes LS-60-A low speed trigger module and TS-001ECU turn indicator sensor	

- • 4 sensor system
- • 12-24Vdc
- • 1.0/1.5m detection range - (selectable via dip switch)
- • Audible distance warning
- • Underslung and flush-mount fixings included
- • 2 levels of sensitivity - (selectable via dip switch)
- • 3 year warranty

Contents
- • 4 x sensors
- • Buzzer
- • 4 x 0° flush mount fixings
- • 4 x 11° flush mount fixings
- • 4 x underslung fixings
- • Waterproof control box
- •10m buzzer cable
- • 4 x 4.5m sensor cables
- • 2 x 2.5m extension cables

Features
- • Obstacles detected in under 200 milliseconds
- • Buzzer with audible distance warning, LED & adjustable volume control
- • Buzzer will silence after 4 seconds if there is no movement from detected object or vehicle
- • Environment Learning Mode prevents false alarms from ancillary equipment that intrudes in the first 100cm of the detection zone
- • Self-diagnostic function

Durability & Standards
- • Mechanical vibration: 5G
- • Mechanical shock: 10G
- • Operating temperature: -30 to +80ºC
- • Waterproof sensors to IP68
- • Waterproof control box to IP69K
- • CE marked
- • E-Marked: UNECE R10 compliant
- • FCC approved

Power
- • Power consumption: 2.4 Watts
- • Current: 200mA

SIDESCAN®/SIDESCAN®FLEX ADDITIONS FOR ARTICULATED VEHICLES

Part	Description	Part No:
SK-15-04	**Truck/trailer camera/sensor cable kit**	**3997**
SK-UDS-05	**Truck/trailer sensor only cable kit (required)**	**4219**
UDS-10BC	**10m display cable (required)**	**3716**
SS-4100W	**Additional Sidescan sensor system for cab (optional)**	**5257**

SIDESCAN®/SIDESCAN®FLEX RECOMMENDED EXTRAS

Part	Description	Part No:
LS-60-A	**Low speed trigger module** Enables sensors below designated speed	**4851**
TS-001ECU	**Turn indicator trigger for system activation**	**1362**

SIDESCAN®/SIDESCAN®FLEX OPTIONAL EXTRA

Part	Description	Part No:
SS-BC-08	**Backchat speaking alarm with side turn warning for cyclists/pedestrians** Note: TS-001ECU Turn indicator trigger is required	**1334**
TCO-47-01	**Latched auto-reset Backalarm cut-out (dash mount)**	**4752**

Ultrasonic Object Detection

Model	Part No:

FRONTSCAN® ULTRASONIC DETECTION SYSTEM

FS-4000W - Frontscan® Front sensor system — **3747**

- **4 sensor system**
- **12-24Vdc**
- **2.0m/1.0m detection range - outer sensors can be reduced to 0.6m (selectable via dip switches)**
- **Audible distance warning**
- **Flush-mount**
- **3 year warranty**

Contents
- 4 x sensors
- Buzzer
- 4 x 11° flush mount fixings
- 4 x 18° flush mount fixings
- 4 x 26° flush mount fixings
- Waterproof control box
- 2.5m buzzer cable
- 4 x 2.5m sensor cables

Features
- Obstacles detected in under 200 milliseconds
- Environment Learning Mode prevents false alarms from tow-hooks and other ancillary equipment that intrudes in the first 100cm of the detection zone
- Self-diagnostic function
- 1 x Trigger output

Durability & Standards
- Operating temperature: -30 to +80ºC
- Waterproof sensors to IP68
- Waterproof control box to IP69K
- CE marked
- E-Marked: UNECE R10 compliant

Power
- Power consumption: 2.4 Watts
- Current: 200mA

RECOMMENDED EXTRA

LS-60-A — **Low speed trigger module** — **4851**
Enables sensors below designated speed

OPTIONAL EXTRA

UDS-RELAY-24 — **Trigger-out diode protected relay 24Vdc** — **4215**

UDS-RELAY-12 — **Trigger-out diode protected relay 12Vdc** — **4216**
To power a device switched by the ouptput trigger

CORNERSCAN® ULTRASONIC DETECTION SYSTEM

CS-3100 - Cornerscan® Corner sensor system with mute function — **5261**

- **3 sensor system**
- **12-24Vdc**
- **0.6/1.0m detection range - (selectable via dip switch)**
- **Audible distance warning**
- **Flush-mount**
- **2 levels of sensitivity - (selectable via dip switch)**
- **3 year warranty**

Contents
- 3 x sensors
- Buzzer
- 3 x 11° flush mount fixings
- 3 x 18° flush mount fixings
- 3 x 26° flush mount fixings
- Waterproof control box
- 2.5m buzzer cable
- 3 x 2.5m sensor cables

Features
- Obstacles detected in under 200 milliseconds
- Buzzer with audible distance warning, LED & adjustable volume control
- Buzzer will silence after 4 seconds if there is no movement from detected object or vehicle
- Environment Learning Mode prevents false alarms from ancillary equipment within the first 100cm of the detection zone
- Self-diagnostic function

Durability & Standards
- Mechanical vibration: 5G
- Mechanical shock: 10G
- Operating temperature: -30 to +80ºC
- Waterproof sensors to IP68
- Waterproof control box to IP69K
- CE marked
- E-Marked: UNECE R10 compliant
- FCC approved

Power
- Power consumption: 2.4 Watts
- Current: 2 Amps

RECOMMENDED EXTRA

LS-60-A — **Low speed trigger module** — **4851**
Enables sensors below designated speed

Model   **Part No:**

STEPSCAN™ ULTRASONIC DETECTION SYSTEM

ST-2100 -	Stepscan™ Step sensor system with mute function	5262
ST-2100-60-A -	Stepscan™ Step sensor system with mute function and low speed trigger module	5345
	Includes UDS-4.5SC 4.5m extension cable	

• 2 sensor system

• 12-24Vdc

• 0.6/1.0m detection range - (selectable via dip switch)

• Audible distance warning

• Flush-mount

• 2 levels of sensitivity - (selectable via dip switch)

• 3 year warranty

Contents
• 2 x sensors
• Buzzer
• 2 x 11° flush mount fixings
• 2 x 18° flush mount fixings
• 2 x 26° flush mount fixings
• Waterproof control box
• 2.5m buzzer cable
• 2 x 2.5m sensor cables

Features
• Obstacles detected in under 200 milliseconds
• Buzzer with audible distance warning, LED & adjustable volume control
• Buzzer will silence after 4 seconds if there is no movement from detected object or vehicle
• Environment Learning Mode prevents false alarms from ancillary equipment that intrudes in the first 100cm of the detection zone
• Self-diagnostic function

Durability & Standards
• Mechanical vibration: 5G
• Mechanical shock: 10G
• Operating temperature: -30 to +80°C
• Waterproof sensors to IP68
• Waterproof control box to IP69K
• CE marked
• E-Marked: UNECE R10 compliant
• FCC approved

Power
• Power consumption: 2.4 Watts
• Current: 200mA

RECOMMENDED EXTRA

LS-60-A	Low speed trigger module	4851
	Enables sensors below designated speed	

EXTENSION CABLES

UDS-2.5BC - Buzzer/display extension cable 2.5m	3717
UDS-10BC - Buzzer/display extension cable 10m	3716
UDS-15BC - Buzzer/display extension cable 15m	3746
UDS-2.5SC - Sensor extension cable 2.5m	3719
UDS-4.5SC - Sensor extension cable 4.5m	3720
UDS-7.0SC - Sensor extension cable 7.0m	5623

Backsense®
Radar Object Detection Systems

FMCW technology

Backsense® heavy-duty radar sensor systems are designed for heavy-duty machines to detect people and objects in blind spots. They detect stationary and moving objects, providing the driver with in-cab visual and audible warnings – alerting the operator whose attention cannot be focused on all danger areas.

Backsense® radar uses Frequency Modulated Continuous Wave (FMCW) technology, transmitting a continuously varying radar frequency signal with unique time stamps to each instance of the wave. The time of the returning wave is referenced to the stamp without the radar needing to pause transmitting. This gives more accurate detection than alternative radar products using Pulsed Radar technology that transmit a burst of radar and listen for the returning wave.

Radar Models

- **Backsense®** systems are available with fixed and programmable detection ranges and a programmable model with an IP69K in-cab display. Bespoke detection areas can be programmed to calibrate-out fixed objects or bodywork.

- **Backsense® Network radar** allows you to link up to eight radar sensors. The system provides object detection in CAN 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® on-screen display** works in conjunction with Backeye® camera monitor systems and up to two radar sensors. It warns the driver of objects in the danger zone by overlaying 5-stage audible and visual radar data onto the camera image on the monitor.
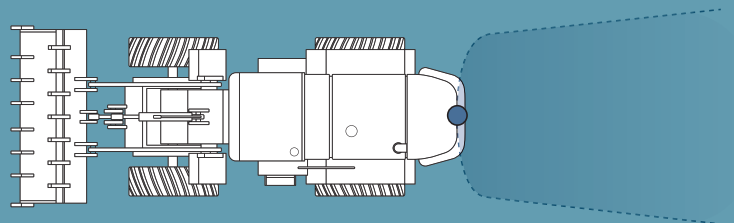
Backsense® Radar Object Detection

NEW | IP69K PROGRAMMABLE BACKSENSE® OBJECT DETECTION SYSTEM

BS-9000-WD - Waterproof display - Programmable detection range   5713

- 9-32Vdc
- Detection length: up to 30m (minimum programmable distance 0-3m)
- Detection width: 2m to 10m
- Rugged design for harsh environmental conditions
- Sensor size (WxHxD) 217 x 129 x 50mm
- Display size without bracket (WxHxD) 118 x 97 x 55 mm
- IP69K sensor
- IP69K display
- 3 year warranty

Contents
- 1 x BS-9000 Radar sensor
- 1 x IP69K audible and visual display with mounting bracket
- 1 x 9m extension cable
- 1 x Network Y Cable
- 1 x Network terminator
- 1 x Mini USB cable

Features
- Frequency modulated continuous wave (FMCW) radar technology
- Effectively detects stationary, moving and multiple objects
- 1 activation input
- 1 trigger output
- 2nd trigger output for optional external alarm
- Programmable:
    Detection area
    Blind zones - system ignores fixed objects
    Trigger activation
    Buzzer
- 5 stage audible and visual distance warning display

- 3 set volume levels (maximum 95dB) with volume lock
- AMPS hole pattern for alternative mounting with industry-standard bracket
- Resistant to water, moisture, dust, vibration, heat, cold, mud and glare

Power
- Current: 0.9 Amps
- Power consumption: 8 Watts

Durability & Standards
- Mechanical shock- sensor: 100G
- Mechanical shock- display: 50G
- Mechanical vibration: 8.3G
- Operating temperature: -40 to +85°C
- CE marked
- E-Marked: UNECE R10 compliant
- BS EN 13309: 2010
- ISO13766: 2006

Configuration Software
- *Available via Brigade website or USB (purchased separately)

OPTIONAL EXTRAS

CT-470   - Constant tone external alarm - 102dB   1346
*BS-WD-USB - USB -programming software, port driver and operating guide   5637

PROGRAMMABLE BACKSENSE® OBJECT DETECTION SYSTEM

BS-8000 - Standard display - Programmable detection range   4530

- 9-32Vdc
- Detection length: up to 30m (minimum programmable distance 0-3m)
- Detection width: 2 to 10m
- Rugged design for harsh environmental conditions
- Sensor size (WxHxD) 217 x 129 x 50mm
- Display size with bracket 101 x 71 x 70mm (WxHxD)
- IP69K sensor
- 3 year warranty

Contents
- 1 x Configurable radar sensor
- 1 x Audible and visual display with USB socket and mounting bracket
- 1 x 9m extension cable
- 1 x Mini USB cable
- 1 x Software CD

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 adjustable audible and visual distance warning display
- Sensor 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

Model	Part No:

FIXED BACKSENSE® OBJECT DETECTION SYSTEMS

BS-7030 - Standard display - 3m length x 2.5m width detection range	4527
BS-7045 - Standard display - 4.5m length x 3.5m width detection range	4528
BS-7060 - Standard display - 6m length x 4.5m width detection range	4529

- 9-32Vdc
- **Maximum detection range of either 3m, 4.5m or 6m**
- **Rugged design for harsh environmental conditions**
- **Sensor size (WxHxD) 217 x 129 x 50mm**
- **Display size with bracket 101 x 71 x 70mm (WxHxD)**
- **IP69K sensor**
- **3 year warranty**

Contents
- 1 x Non-configurable radar sensor
- 1 x Standard audible and visual display with mounting bracket
- 1 x 9m extension cable

Features
- Frequency modulated continuous wave (FMCW) radar technology
- Effectively detects stationary, moving and multiple objects
- 1 activation input
- 1 trigger output
- 5 stage adjustable audible and visual distance warning display
- Sensor 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

BACKSENSE® RADAR OBJECT DETECTION ACCESSORIES

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
BS-00NYC - Network Y Cable for 9000 series radar	5270
BS-02PIC - Network power input cable for 9000 series radar	5271
BS-00NT - 120 Ohms Network Terminator for 9000 series radar	5291
BKT-017 - Adjustable radar bracket with 105mm depth bracket mounting arms	4676
BKT-018 - Low-profile adjustable radar bracket	4758

Backsense® Radar Object Detection

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

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.

Model	Part No:

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 overlayed 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 ouputs
- 3 year warranty

Contents
- 1 x OSD Radar ECU
- 1 x BS-9000 Radar sensor
- 1 x Network power cable
- 1 x Extension cable 9m
- 3 x Network Y-cable
- 2 x Network terminator

Features
- Frequency modulated continuous wave (FMCW) radar technology
- 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, non-HD 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 +85ºC
- OSD: IP30
- CE marked
- E-Marked: UNECE R10 compliant
- FCC Approved
- IC Approved

Configuration Software
- *Available via Brigade website or USB (purchased separately)
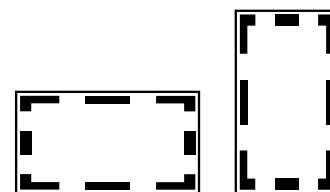
To not obstruct camera views, each radar can be shown in one of eight positions around the edge of the monitor

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	

OPTIONAL EXTRAS

*BS-9001-USB - USB -programming software, port driver and operating guide	5656
AC-007 - Adapter cable to connect a Select range monitor	1984
AC-020 - Adapter cable to connect a Select range camera	2590

Model _____ **Part No:**

Backsense® CAN Radar

For 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 a 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 interact with aspects of the machine.

Each connected radar sensor is allocated a unique ID and will transmit data for up to 8 closest objects. With a detection range of up to 30m length and 10m width, it provides a flexible system to meet customer specific requirements.

● **Provides object detection in CAN message format**

● **Independent CAN Bus may communicate with existing CAN network via CAN Gateway**

● **Separate CAN message & ID for each object detected (up to 8 per sensor)**

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 BS-9000 Radar sensor

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

Note: For CAN message format, refer to user manual at brigade-electronics.com

Warning Alarms & Quiet Vehicle Sounder

Warning and Reversing Alarms

Vital safety devices needed to warn workers and pedestrians that a vehicle is manoeuvring.

bbs-tek® white sound® are the safest alarms in the world due to their instant locatability and directional sound. The multi-frequency alarms are only heard in the danger zone, thus eliminating noise nuisance for local residents. bbs-tek® alarms are endorsed by PIEK and the Noise Abatement Society and have been awarded the Quiet Mark.

bbs-tek® white sound® Smart alarms auto-adjust to 5-10dB above ambient.

Heavy duty
For plant, quarry and construction machines or environments with high ambient noise.

Medium duty
Ideal for commercial road going vehicles and environments with mid-level ambient noise.

Quiet Vehicle Sounder

Designed for electric and hybrid-electric vehicles of all types, the QVS Electric Vehicle Sounder warns pedestrians and other vulnerable road users that a quiet vehicle is approaching.

Front speaker system incorporating bbs-tek® patented technology for instantly locatable and directional sound. Pitch and volume increase with vehicle speed in a similar way as an internal combustion engine. Sound cuts out above a pre-set speed threshold.
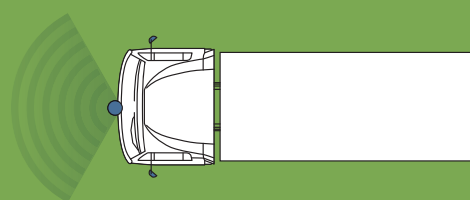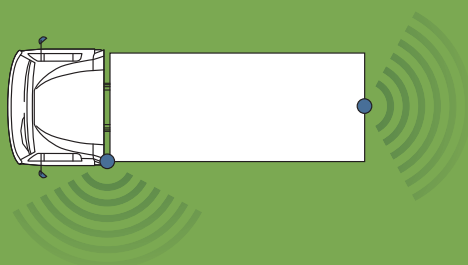
bbs-tek® White Sound® Alarms

Model	Part No:

WHITE SOUND® SMART REVERSING ALARM

SA-BBS-107 - Self-adjusting heavy-duty - 87-107 Decibels   **1400**

- 12-24Vdc
- IP68
- Size (WxHxD)
  172 x 79 x 95mm
- Lifetime warranty

Features
- Alarm continually adjusts to 5-10dB above ambient
- Multi-frequency broadband sound
- Instantly locatable
- Sound confined to danger area
- Eliminates noise nuisance
- Sounder unit: Driver
- Hole centres (mm): 153

Power
- Current: Max 1 Amp

Durability & standards
- Mechanical vibration: 10G
- Operating temperature: -40 to +85°C
- CE marked
- E-Marked: UNECE R10 compliant
- SAE J994

WHITE SOUND® SMART REVERSING ALARM

SA-BBS-97 - Self adjusting - medium duty - 77-97 Decibels   **1399**
SA-BBS-97HV - Self adjusting - electric forklift - 77-97 Decibels   **1398**

- 12-24Vdc
- 36-80Vdc (HV)
- IP68
- Size (WxHxD)
  127 x 76 x 65mm
- Lifetime warranty

Features
- Alarm continually adjusts to 5-10dB above ambient
- Multi-frequency white sound alarm
- Instantly locatable
- Sound confined to danger area
- Eliminates noise nuisance
- Sounder unit: Driver
- Hole centres (mm): 98-108

Power
- Current: Max 1 Amp

Durability & standards
- Mechanical vibration: 10G
- Operating temperature: -40 to +85°C
- CE marked
- E-Marked: UNECE R10 compliant
- SAE J994
- NAS/PIEK approved for night-time delivery

noise abatement society

WHITE SOUND® REVERSING ALARM

BBS-107 - Heavy duty - 107 Decibels   **0899**
BBS-102 - Heavy duty - 102 Decibels   **0898**

- 12-24Vdc
- IP68
- Size (WxHxD)
  172 x 79 x 95mm
- Lifetime warranty

Features
- Multi-frequency broadband sound
- Instantly locatable
- Sound confined to danger area
- Eliminates noise nuisance
- Sounder unit: Driver
- Hole centres (mm): 153

Power
- Current: Max 1 Amps

Durability & standards
- Mechanical vibration: 10G
- Operating temperature: -40 to +85°C
- CE marked
- E-Marked: UNECE R10 compliant
- SAE J994

WHITE SOUND® REVERSING ALARM

BBS-82HV - Electric forklift - 82 Decibels   **1322**
BBS-92ADR - Petrol tanker - 92 Decibels   **2165**

- 12-24Vdc
- 36-80Vdc (HV)
- IP68
- Size (WxHxD)
  127 x 76 x 65mm
- Lifetime warranty

Features
- Multi-frequency broadband sound
- Instantly locatable
- Sound confined to danger area
- Eliminates noise nuisance
- Sounder unit: Speaker
- Hole centres (mm): 98-108

Power
- Current: Max 0.3 Amps

Durability & standards
- Mechanical vibration: 10G
- Operating temperature: -40 to +85°C
- CE marked
- E-Marked: UNECE R10 compliant
- SAE J994

ADR version

Model	**Part No:**

WHITE SOUND® REVERSING ALARM

BBS-97 - Medium duty - 97 Decibels	0935
BBS-92 - Medium duty - 92 Decibels	0934
BBS-87 - Medium duty - 87 Decibels	0897
BBS-82 - Medium duty - 82 Decibels	0896

- **12-24Vdc**
- **IP68**
- **Size (WxHxD)**
  105x65x37mm (BBS-97/92)
  105x65x32mm
  (BBS-87/82/77)
- **Lifetime warranty**

noise abatement society

bbs tek®

Features
- Multi-frequency broadband sound
- Instantly locatable
- Sound confined to danger area
- Eliminates noise nuisance
- Sounder unit: Speaker
- Hole centres (mm): 76

Power
- Current: Max 0.5 Amps

Durability & standards
- Mechanical vibration: 10G
- Operating temperature: -40 to +85°C
- CE marked
- E-Marked: UNECE R10 compliant
- SAE J994
- NAS/PIEK approved for night-time delivery (BBS-82 only)

QVS QUIET VEHICLE SOUNDER (AVAS)

QVS-001-75 - Quiet Vehicle Sounder	5385

- **12-24Vdc**
- **IP68 Speaker**
- **IP30 ECU**
- **Size Speaker (WxHxD)**
  120 x 135 x 120mm
- **Size ECU (WxHxD)**
  93 x 26 x 185mm
- **2 year warranty**

bbs tek®
technology

Contents
- 1 x Speaker
- 1 x ECU

Features
- Warns pedestrians and other VRU's that a quiet vehicle is approaching
- Combined multi-frequency bbs-tek® technology and tonal sounds
  - Multi-frequency sound
  - Directional and locatable - The sound is only heard in the hazard zone.
- Front speaker system
- Pitch and volume increase with vehicle speed to mimic an internal combustion engine
- Operational below speeds of 20MPH
- Front sounder operational when ignition activated (silenced when parking brake applied)
- Uses Tachograph speed signal**
- Sounder unit: Speaker

Power
- Current: Max 0.1 Amps

Durability & standards
- Mechanical vibration: 10G
- Operating temperature: -30 to +70°C
- CE marked
- E-Marked: UNECE R10 compliant
- FCC approved
- IC Marked
- UNECE R138 compliant*
- 49 CFR Part 571 and 585 Federal Motor Vehicle Safety Standards compliant*

* QVS helps achieve compliance for the vehicle.

** If your vehicle is not equipped with a Tachograph, please contact us for alternative installation methods

QVS Quiet Vehicle Sounder (AVAS)

- **Warns pedestrians and other vulnerable road users that a quiet vehicle is approaching.**
- **Incorporating bbs-tek® technology - Multi-frequency, directional and instantly locatable sound which is only heard in the hazard zone.**
- **Front speaker system.**
- **Pitch and volume increase with vehicle speed in a similar way as an internal combustion engine.**
- **Sound fades out above a pre-set speed threshold.**
- **Designed for electric and hybrid-electric vehicles of all types.**

Speaking Alarms

Model	Part No:

NIGHTSHIFT® SPEAKING ALARM

BC-01(NS) - Single reversing message - Nightshift - 90 or 0 Decibels   0378
BC-01(NS-B) - Bespoke single message - Nightshift - 90 or 0 Decibels   1198

- 12-24Vdc
- IP68
- Size (WxHxD)
  122 x 84 x 50mm
- 2 year warranty

Features
- Real speech alarm
* BC-01(NS) message "Ssh! Stand well clear, vehicle reversing..."
- Bespoke message up to 8 seconds, under 4 seconds for best speech quality
- Double engage reverse to cut-out or reduce sound
- Sounder unit: Speaker
- Hole centres (mm): 102

Power
- Current: 0.5 Amps

Durability & standards
- CE marked
- E-Marked: UNECE R10 compliant

SPEAKING ALARM

BC-01 - Single reversing message - 90 Decibels   0077
BC-01(B) - Bespoke single message - 90 Decibels   0079
BC-02(B) - Bespoke dual message - 90 Decibels   0083

- 12-24Vdc
- IP68
- Size (WxHxD)
  122 x 84 x 50mm
- 2 year warranty

Features
- Real speech alarm
* BC-01 message "Ssh! Stand well clear, vehicle reversing..."
- Bespoke message up to 8 seconds, under 4 seconds for best speech quality
- Sounder unit: Speaker
- Hole centres (mm): 102

Power
- Current: 0.5 Amps

Durability & standards
- CE marked
- E-Marked: UNECE R10 compliant

SPEAKING HANDBRAKE WARNING ALARM

BC-01(H/Brake) - Single message - 2 wire - 90 Decibels   0849
BC-01(4W)(H/Brake) - Single message 4 wire - 90 Decibels   1715

2 wire version

- 12-24Vdc
- IP68
- Size (WxHxD)
  122 x 84 x 50mm
- 2 year warranty

Features
- Real speech alarm
* Message "Bleep! Handbrake not applied..."
- Sounder unit: Speaker
- Hole centres (mm): 102

Power
- Current: 0.5 Amps

Durability & standards
- CE marked
- E-Marked: UNECE R10 compliant

SPEAKING SIDE TURN WARNING ALARM

SS-BC-08 - Single side-turn message - 90 Decibels   1334

- 12-24Vdc
- IP68
- Size (WxHxD)
  122 x 84 x 50mm
- 2 year warranty

Features
- Real speech alarm
* Message "Ssh! Caution. Truck turning left..."
- Sounder unit: Speaker
- Hole centres (mm): 102

Power
- Current: 0.5 Amps

Durability & standards
- CE marked
- E-Marked: UNECE R10 compliant

Note: TS-001ECU Turn indicator trigger is required   1362

Model   **Part No:**

VEHICLE INTERCOM

BC-VI - Normally open channel rear to cab; button press cab to rear   **0815**
BC-VI-2 - Normally closed channel; button press communication   **0875**

- **12-24Vdc**
- **IP68**
- **Size (WxHxD)**
  122 x 84 x 50mm
- **2 year warranty**

Features
- Two-way communication system
- Master unit volume control: 80-95dB
- Includes master unit, slave unit and 25m cable
- Sounder unit: Speaker
- Hole centres (mm): 102

Power
- Current: 0.5 Amps

Durability & standards
- CE marked
- E-Marked: UNECE R10 compliant
- FCC Approved
- IC Approved

ALARM ANCILLARIES

TCO-47 - Timed auto-reset reversing alarm cut-out (dash mount)   **0663**

- **12-24Vdc**
- **2 year warranty**

Features
- Single touch timed relay
- Allows driver to cut-out alarm if reversing between the hours of 11.30pm-7.00am
- Auto-resets after 3-4 mins delay

Durability and Standards
- CE marked
- EMC approved

ALARM ANCILLARIES

TCO-47-01 - Latched side-turn alarm cut-out (dash mount)   **4752**

- **12-24Vdc**
- **2 year warranty**

Features
- Single touch timed relay
- Allows driver to cut-out alarm between the hours of 11.30pm-7.00am
- Resets by switch or ignition

Durability and Standards
- CE marked
- EMC approved

ALARM ANCILLARIES

NS-2 - Nightshift reversing alarm cut-out switch   **0334**
NS-3 - Nightshift reversing alarm cut-out switch (auto gearbox)   **0974**

- **12-24Vdc**
- **IP68**
- **2 year warranty**

Features
- Double engage reverse to cut-out alarm
- Resets when reverse gear disengaged
- No wiring necessary to cab

Durability and Standards
- CE marked
- EMC approved

ZoneSafe®
RFID Tag Detection System

Keeping Workers Safe

ZoneSafe uses Radio Frequency Identification (RFID) technology to create detection zones around vehicles and mobile plant.

Vehicle-mounted antennas detect RFID tags which can be worn by workers, placed on objects or property, or set up around restricted areas. When a ZoneSafe tag enters a detection zone, the vehicle operator will automatically receive a visual and audible alert via the in-cab control unit which will enable them to take action as necessary. A vibrating tag will also warn a detected worker of an approaching vehicle.

ZoneSafe RFID technology does not require line-of-sight and tags will be detected regardless of obstructions, blind spots, adverse weather or poor visibility.

The ZoneSafe Smart Gateway can be set up to trigger alarms, open shutters or barriers etc. upon the detection of a ZoneSafe-equipped vehicle.

ZoneSafe RFID provides fast, reliable and accurate data exchange without any limitation on the number of tags or antennas in operation.
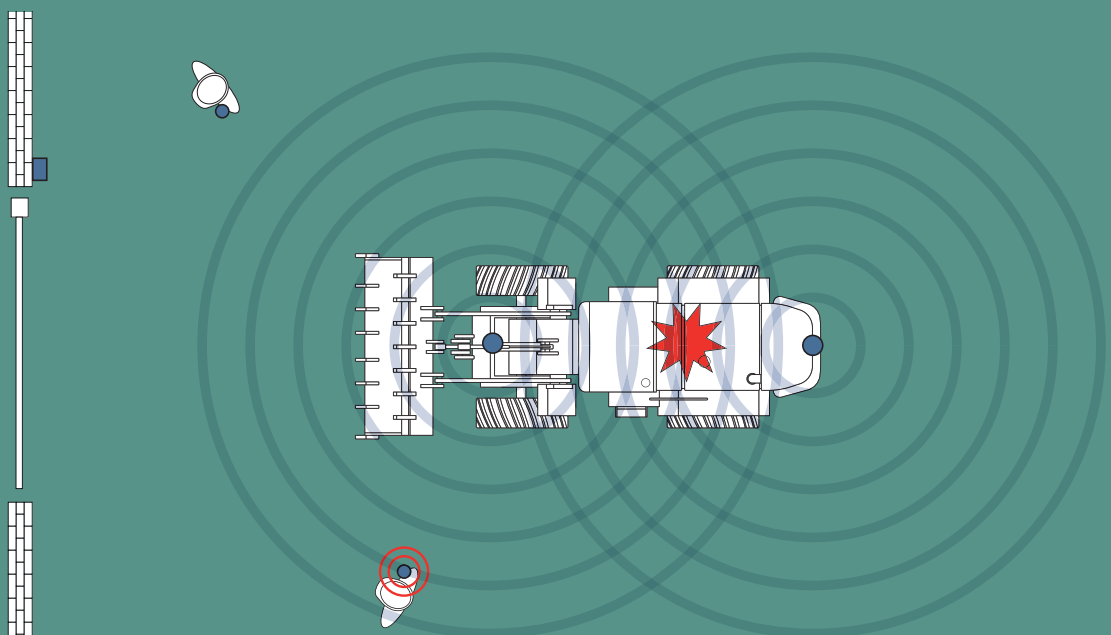
Zonesafe® RFID Detection

ZoneSafe Control Unit

The ZoneSafe Control Unit is installed in the cab so it is clearly visible to the driver. ZoneSafe is activated when a VibraTag Driver Tag is inserted into the Control Unit prior to operating the vehicle. Audible and visual alerts indicate various alarm states including a two-stage alert for the detection of one or more tags, system errors and the non-insertion of a driver tag. A mute button can override a detection alert once a tag has been acknowledged.

The Control Unit provides overall functionality of the system and acts as the driver interface. The unit contains an internal memory to store up to 4000 detected events and a WiFi interface for remote monitoring and downloads. Relays can be used for the addition of external sounders or beacons.

ZoneSafe Antenna

A ZoneSafe Antenna creates a detection zone around a vehicle. Up to six antennas can be installed and linked in sequence to a control unit. The detection zone for each antenna can be programmed from smallest 3m up to largest 10m.

Model	Part No:

NEW — ZONESAFE® RFID TAG DETECTION SYSTEM

ZS-1000-ECU - ZoneSafe® Control Unit   **5881**

- 12-24Vdc
- Size (WxHxD) 102 x 180 x 58mm
- IP65
- WIFI configuration interface for remote monitoring and downloads
- 2 Year Warranty

Features
- Installed in the cab of vehicle
- Two stage audible and visual warnings to the machine operator when a tag or tags are detected by connected antennas (available separately)
- Connect up to 6 antennas
- Internal memory to store up to 4,000 events
- System activation by inserting driver tag
- Alarm if driver tag is left in vehicle
- Central mute button to acknowledge the detection of one or more tags (configurable)

- Multi-colour status panel
- 3 selectable detection levels
- AMPS hole pattern mounting
- 1 x Trigger input
- 1 x Trigger output
- TX Frequency: 125kHz
- RX Frequency: 868.3MHz

Power
- Current: 0.5 Amps

Durability & Standards
- Operating temperature: -40 to +85C
- CE marked

OPTIONAL EXTRA

ZS-ECU-MP   Mounting Plate for Control Unit   **5900**

NEW — ZONESAFE® RFID TAG DETECTION SYSTEM

ZS-1000-AP - ZoneSafe Vehicle-to-Pedestrian Antenna   **5882**

- 12-24Vdc
- Detection radius range: 0 - 10m (Configurable between 3 & 10m)
- Size (WxHxD) 122 x 250 x 90mm
- IP67
- 2 Year Warranty

Features
- Creates a detection zone around a vehicle
- Detects tags through walls and obstructions and around blind corners
- Detection zone radius programmable manually or via WIFI
- Connects to Control Unit on vehicle (antenna cable available separately)
- Daisy-chain wiring to connect multiple antennas to the same vehicle
- TX Frequency: 125kHz
- RX Frequency: 868.3MHz

Power
- Current: 1 Amp

Durability & Standards
- Operating temperature: -40 to +85C
- CE marked

Note: Antenna cable required for installation

OPTIONAL EXTRA

Model	Description	Part No:
ZS-C130	Antenna Cable, 30m	5899
ZS-AP-MP	Mounting Plate for Pedestrian Antenna	5898
ZS-1000-BKT	Adjustable-Angle Mounting Bracket	6079

Zonesafe® RFID Tags

ZoneSafe RFID tags can be used to detect people, protect assets and to create exclusion zones. Each tag can be uniquely identified and linked to individual people. Driver tags have the same functionality as pedestrian tags and are also compatible with the control unit.

- **VibraTag Pedestrian Tag & VibraTag Driver Tag**
  Carried by personnel. VibraTags provide short bursts of vibration when detected. The robust tag is hermetically sealed and the high-capacity battery can be wirelessly charged within two hours and can last up to three months between charges.

- **AssetTag**
  AssetTags fit into safety cones to create exclusion zones. The robust tags are shockproof and weatherproof. The replaceable batteries last up to three years under normal use. AssetTags fit into safety cones with a 39 - 44mm diameter neck opening.

Model	Part No:

NEW — ZONESAFE® RFID TAG DETECTION SYSTEM

Pedestrian VibraTag

Driver VibraTag

Clip for Pedestrian VibraTag

Model		Part No:
ZS-1000-PVT -	ZoneSafe® Pedestrian VibraTag, rechargeable	5889
ZS-1000-DVT -	ZoneSafe® Driver VibraTag, rechargeable	5888
ZS-1000-TC -	ZoneSafe® Clip for Pedestrian VibraTag (with fixings)	5892

- **12-24 Vdc**
- **Size (WxHxD)**
  84 x 53 x12mm
- **IP67**
- **1 Year Warranty**

Features
- Carried by workers and machine operators
- Each tag can be uniquely identified and linked to individual people
- Driver tags have the same detection functionality as pedestrian tags and are also compatible with the control unit
- Driver tag is masked from detection when inserted into the control unit
- Tag Immediately vibrates upon entering a vehicle detection perimeter
- High-capacity rechargeable battery

- 2 hour inductive charging time using wireless charger (available separately)
- Hermetically sealed to provide best long term protection
- Can be worn on a lanyard, into pockets or armbands
- RX Frequency: 125kHz
- TX Frequency: 868.3MHz

Durability & Standards
- Operating temperature: -10 to +55C
- CE marked

OPTIONAL EXTRA

ZS-1000-TWC	ZoneSafe® Wireless VibraTag charger	5893

NEW — ZONESAFE® RFID TAG DETECTION SYSTEM

	Part No:
ZS-1000-AT - ZoneSafe® AssetTag	5894

- **Size (HxDia)**
  63 x 48mm
- **IP67**
- **1 Year Warranty**

Features
- High-capacity (non-rechargeable) replaceable power cell providing long operational life (included)
- Protects vehicle from collisions with property or hazards
- Immediately warns the driver when tag is detetected within the vehicle's detection zone
- Robust and waterproof enclosure

- Can be attached onto assets or mounted on top of a safety cone with neck opening diameter of 39-44mm
- RX Frequency: 125kHz
- TX Frequency: 868.3MHz

Durability & Standards
- Operating temperature: -10 to +55C
- CE marked

OPTIONAL EXTRA

ZS-BAT-AT - Replacement battery for Asset Tag	5896

Zonesafe® RFID Detection

Model   **Part No:**

NEW   ZONESAFE® RFID TAG DETECTION SYSTEM

ZS-1000-TT - ZoneSafe® Tag Tester   5883

- 24 Vdc
  (external 24V DC supplied)
- Size (WxHxD)
  110 x 90 x 55mm
- IP67
- 1 Year Warranty

Features
- Checks pedestrian and driver tag battery status (green for good and red for low)
- Includes 2 relays which can be used to trigger alarms, locks or shutters
- Adjustable Tag detection range from 0.1 to 4m
- TX Frequency: 125kHz
- RX Frequency: 868.3MHz

Power
- Current: 0.5 Amp

Durability & Standards
- Operating temperature: -10 to +55C
- CE marked

NEW   ZONESAFE® RFID TAG DETECTION SYSTEM

ZS-1000-MZ - ZoneSafe® Masking Zone Antenna   5885

- 24 Vdc
  (external 24V DC supplied)
- Size (WxHxD)
  250 x 122 x 90mm
- IP67
- 1 Year Warranty

Features
- Fitted to walls or other permanent structures
- Makes all tags within the masked area undetectable
- Adjustable masking zone from 3 to 10m
- Tags will be detected as normal once outside the masked area
- TX Frequency: 125kHz

Power
- Current: 1 Amp

Durability & Standards
- Operating temperature: -40 to +85C
- CE marked

OPTIONAL EXTRA

ZS-AP-MP	Mounting Plate for Pedestrian Antenna	5898
ZS-1000-BKT	Adjustable-Angle Mounting Bracket	6079

NEW   ZONESAFE® RFID TAG DETECTION SYSTEM

ZS-1000-SG - ZoneSafe® Smart Gateway   5886

- 24 Vdc
  (external 24V DC supplied)
- Size (WxHxD)
  110 x 90x 55mm
- IP67
- 1 Year Warranty

Features
- Fitted to walls or other permanent structures
- 2 x relays which can be used to trigger alarms or open shutters, barriers etc
- Detects approaching vehicles equipped with ZoneSafe systems
- Adjustable detection range from 3 to 9m
- RX Frequency: 125kHz
- TX Frequency: 868.3MHz

Power
- Current: 0.5 Amp

Durability & Standards
- Operating temperature: -10 to +55C
- CE marked

NEW   ZONESAFE® RFID TAG DETECTION SYSTEM

ZS-1000-DR - ZoneSafe® Desktop Reader   5887

- Size (HxDia)
  160 x80 x 45mm
- 5V USB connection
- 1 Year Warranty

Features
- Checks VibraTag battery status (green for good and red for low)
- Can be powered from any computer via USB
- TX Frequency: 125kHz
- RX Frequency: 868.3MHz

Durability & Standards
- Operating temperature: -10 to +55C

Warranties

LIFETIME

Lifetime New-For-Old Warranty (covers product for the life of vehicle)

bbs-tek® White sound® reversing alarms
Self-adjusting backalarms

5 YEARS

5 Year New-For-Old Warranty

Backeye®360 camera system
ELITE range camera monitor systems

3 YEARS

3 Year New-For-Old Warranty

SELECT range camera monitor systems
MDR mobile digital recorders, IP cameras and accessories
Ultrasonic object detection systems
Backsense® radar object detection systems
Digital wireless camera monitor connection

2 YEARS

2 Year New-For-Old Warranty

Camera monitor system ancillaries
Ultrasonic object detection on-screen display
Ultrasonic object detection ancillaries and extras
Alarm ancillaries
Backchat® Speaking alarms
Vehicle intercom
QVS Quiet vehicle sounder

1 YEAR

1 Year New-For-Old Warranty*

ESSENTIAL camera monitor systems
ZoneSafe® RFID systems
All products aside those specifically listed

Warranty Terms and Conditions

Brigade warrants all goods to be free from defect in material and workmanship in normal use provided that they have been installed and operated in accordance with the instructions supplied. Normal wear-and-tear excluded. The commencement date of all warranties is the date of delivery to the purchaser unless otherwise agreed in writing by Brigade. The period during which the warranty applies is stated above. Brigade make no other warranty, express or implied, with respect to the goods, their marketability, quality or fitness for any particular use or purpose. In particular, but without prejudice to the general provisions of the conditions of sale, no responsibility is assumed for incidental or consequential loss by reason of any warranty express or implied. Full details of Brigade's Terms and Conditions can be found at brigade-electronics.com.

Glossary

ADPCM
An audio file format, optimized for storing digitised data at a low sampling rate.

AHD
Analogue high definition video standard that uses standard cable to transmit HD video from cameras to Monitor/DVR

Amp
Unit of electric current.

Auto-trigger
Enables automatic triggering of an action e.g. display of rear camera view when reverse gear engaged.

AVAS
Acoustic Vehicle Alert System (AVAS) automatically emits an external synthesized sound to enable pedestrians to be audibly aware of the vehicle's presence.

A/V input/output
Communication connection between electronic devices.
  - **Input**
    Receives audio/visual signals such as from DVD or satellite navigation
  - **Output**
    Sends audio/visual signals to other devices such as to mobile digital recorder.

Brightness
Brightness of the picture displayed on a monitor, measured in candelas per square metre (cd/m^2). Higher the measure the brighter the picture.

CAN bus
Controller Area Network is a robust vehicle standard designed to allow microcontrollers and devices to communicate with each other without a host computer.

A Controller Area Network (CAN bus) is a robust vehicle bus standard designed to allow microcontrollers and devices to communicate with each others' applications without a host computer.

CCD (Charged-Coupled Device)
A tiny photocell used in cameras to convert light into a digital signal.

Contrast
Light intensity ratio of a display device between darkest and lightest colour produced.

CE mark
Confirmation that a product is in conformity with the essential requirements of any applicable directives e.g. 2004/108/EC (relating to Electromagnetic Compatibility).

CVBS
Composite Video Blanking and Sync. An analogue video signal format that carries standard-definition video as a single channel.

Decibel (dB)
Unit of measure of the pressure (intensity) of sound. The higher the rating the more intense the sound.

DWDR (Digital Wide Dynamic Range)
Digitally Produces a greater dynamic range of luminosity for improved detail in highlights and shadows.

EMC (Electro-magnetic compatibility)
Regulation concerning the type-approval tests for European automotive electronics.
  - **E**
    United Nations mark for approved vehicle components sold into the EU. And in some other countries under UN-ECE Regulation 10

EN 13309:2010
Construction machinery. Electromagnetic compatibility of machines with internal power supply

FCC mark
Certification for electromagnetic interference on products manufactured or sold in the United States which comply with the Federal Communications Commission.

FMCW
Frequency-Modulated Continuous Wave radar. A known stable frequency continuous wave is transmitted and then received from any reflecting objects.

Frequency
Number of times a sound source vibrates per unit of time, measured in hertz (Hz). The higher the rating the higher the pitch.

GPS (Global Positioning System)
Global satellite system providing positioning and timing services to worldwide users on a continuous basis.

HALT (Highly Accelerated Life Test)
A comprehensive stress test applied to electronic equipment to identify design weakness.

IC (Industry Canada)
Certification for electromagnetic interference on products manufactured or sold in Canada which comply with the Bureau of Innovation, Science & Economic Development

Illumination distance (camera)
Distance a camera with infrared LEDs can see in ultra-low light conditions, measured in metres.

IP## (Ingress Protection)
An international classification for the sealing of electrical equipment against the intrusion of solid objects (digit 1) and liquids (digit 2). Higher the rating the better protection in each case.

ISO 13766
Specific standard for earthmoving equipment, includes requirements for some additional tests that are not covered in the tests for 'E' or 'e' under EMC.

ISO 16750
Standard providing guidance regarding environmental conditions commonly encountered by electrical and electronic systems installed in vehicles.

ISO 20653: 2006
Road vehicles — Degrees of protection (IP-Code) of electrical equipment against foreign objects, water and access

LCD (Liquid Crystal Display)
Thin, flat display device made up of any number of colour or monochrome pixels i.e. monitor screen.

LED (Light Emitting Diode (camera))
Emits infrared light for high efficiency and performance in ultra-low light.

LED (Light Emitting Diode (monitor))
Used to back light the monitor display for crisp images and superior image quality.

Mechanical shock
Level of sudden acceleration or deceleration, such as impact or being dropped, to which product will still perform. Measured in gravitational force (G).

Mechanical vibration
Level of continuous or repetitive motion, such as engine vibration, to which product will still perform. Measured in gravitational force (G).

NAS-PIEK
The standard for quiet delivery vehicles in the UK, certified by the Noise Abatement Society.

NTSC (National Television Systems Committee)
TV colour encoding standard.

PAL (Phase Alternating Line)
TV colour encoding standard.

Quiet Mark
An international approval associated with the UK Noise Abatement Society. It encourages companies worldwide to prioritise noise reduction.

R46
UN ECE Regulation No 46 covers devices for indirect vision and their installation.

R118
UN ECE Regulation No 118 determines the burning behaviour (ignitibility, burning rate and melting behaviour) of materials.

R138
UN ECE Regulation concerning the approval of Quiet Road Transport Vehicles with regard to their reduced audibility.

Resolution (RGB)
Number of pixels used to display an image. Measured in Width x 3 channels (Red, Green, Blue) x Height.

RoHS 2
The restriction of the use of certain hazardous substances in electrical and electronic equipment

SAE J994
Performance testing for electrically operated reversing alarms primarily intended for use on off-road, self-propelled construction and industrial machines.

Sounder unit
Unit which produces the sound of an alarm.

TV Lines
Number of horizontal lines used to create an image.

Viewing angles (camera)
The maximum angle of vision.

Viewing angles (monitor)
The maximum angle at which an image can be successfully viewed. Measured from the centre point on the monitor.

Vulnerable road user
Road users most at risk in traffic – such as pedestrians, cyclists and public transport passengers. Children, older people and disabled people may also be included in this category.

Watt
A measure of the electrical power needed to drive a product.

WDR (Wide Dynamic Range)
Produces a greater dynamic range of luminosity for improved detail in highlights and shadows.

WiFi
A facility allowing devices to communicate wirelessly. A wireless network creates a small, localised area within which your devices can receive signal.

4G
A cellular data service available from mobile network providers.

You're safer with us

Brigade is committed to making roads and worksites safer for all. From our humble beginnings in the UK, we now have a network of overseas subsidiaries and partnerships with international distributors, all chosen for their high level of service and expertise in vehicle safety.

Whether you operate an international, multi-vehicle fleet or a small business in a remote corner of the globe, We have a local specialist to help with your safety requirements. We can provide a solution for a specific problem or offer friendly advice and support if you are new to vehicle safety systems.

Wherever you are in the world, large road-going vehicles and mobile plant continue to be a danger. Thankfully, Health & Safety culture is gradually improving to help combat these dangers, but whatever the local obligation, there is no excuse for compromising on safety.
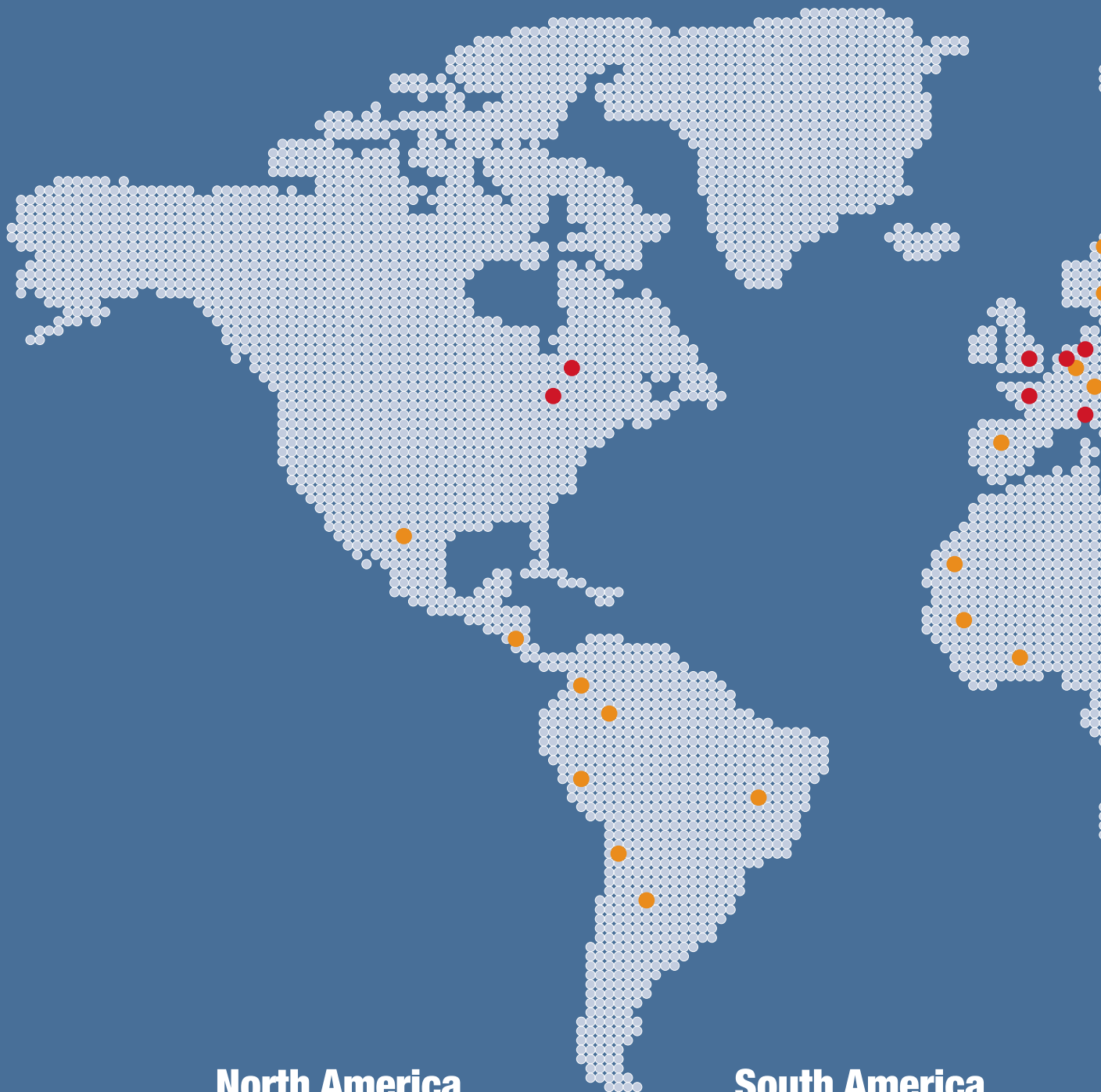
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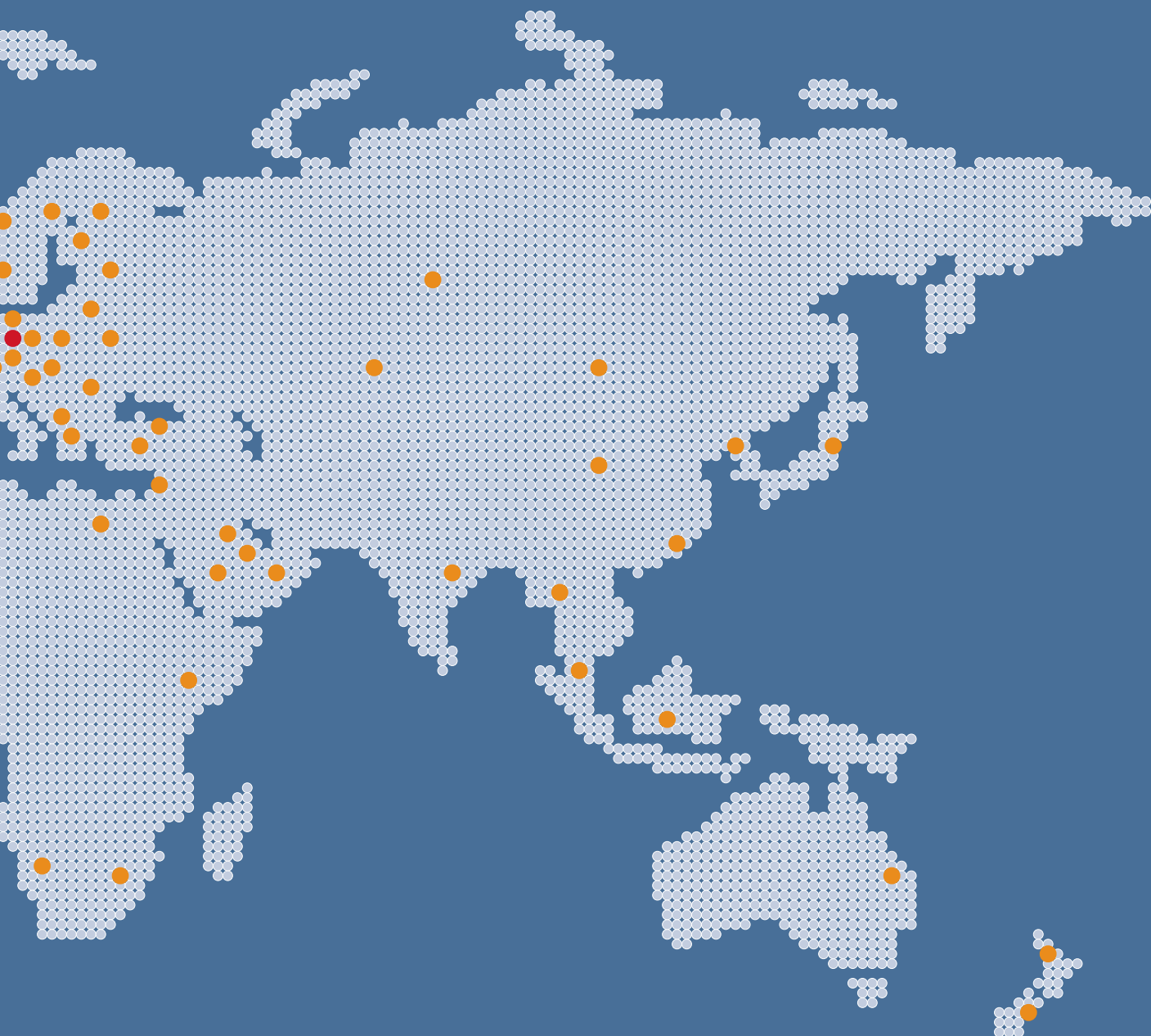- ● National Distributor in Mexico

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- National Distributors in South Africa, Egypt, UAE, Oman, Israel

Asia
- National Distributors in India, Pakistan, Mongolia, Hong Kong/China, Indonesia

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