Vehicle Safety Systems

BRIGADE®

You're safer with us

THE QUEEN'S AWARDS
FOR ENTERPRISE:
INTERNATIONAL TRADE
2019

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

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**
- **Our products comply with REACH and RoHS**

Contents

You're safer with us
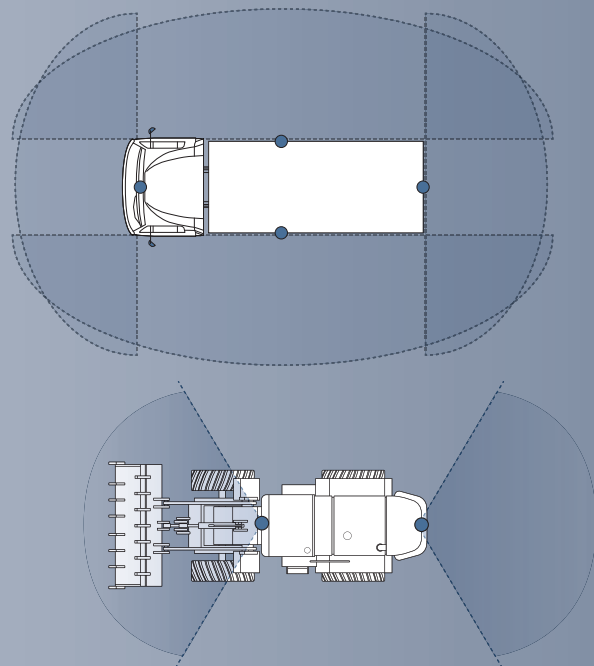
Camera Monitor Systems

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.

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. The range includes entry-level reversing cameras to full-vehicle camera system with AI. With single-to-multiple camera inputs and auto-triggers, Brigade cameras and monitors will work on any application in any industry and are fully compatible with MDR recorders.

Internet Protocol (IP) Cameras are high-definition digital cameras with their own IP address. Directly connected to an MDR, the IP camera transmits digital video over a data connection (ethernet cable) where the images are saved to the onboard storage.

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

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360° Camera Monitor Systems

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. A clear, real-time view is provided to the driver in a single image on the monitor.

360° with Artificial Intelligence

- Recognises and alerts the driver to people around the vehicle
- Detected people are shown in a coloured box overlayed on the 360° image on the driver's monitor
- Compatible with all Brigade HD monitors and MDR recorders
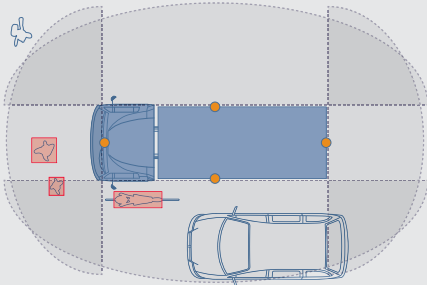
Model   **Part No:**

AI AHD 360° CAMERA SYSTEM	AI

VBV-360-1000 - High Definition Backeye®360 system with Artificial Intelligence   7524

- IP69K cameras
- 12-24Vdc
- Size (WxHxD) ECU
  140 x 122 x 40mm
- Size (WxHxD) Camera
  140 x 63 x 54mm
- 3 year warranty

AHD

Contents
- 1 x ECU
- 4 x VBV-2230-C-AI cameras
- 1 x Interface Harness
- 1 x Power harness
- 1 x Video input harness
- 1 x Video output harness
- 1 x Video output cable
- 1 x Remote control

Features
- AI technology
- Audible and visual alerts when a pedestrian or cyclist is detected
- Comprehensive view of surrounding area in a single image
- 1080p HD 360° image
- 5 view modes:
  - Choice of 2D or 3D
  - Landscape & portrait configuations
  - Front & rear crossing-traffic
- Customisable vehicle position
- Auto calibration via monitor
- 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) 190° x 130°
- 1/4" CMOS sensor
- Video output:
  AHD 1.0 and CVBS (PAL/NTSC)
- 360 view and individual channels recordable on Brigade MDR recorders

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

Durability & Standards
- Mechanical vibration: 2.8G
- Operating temperature:
  -20 to +75°C
- IP30 ECU
- CE marked
- E-Marked: UNECE R10 compliant
- FCC Approved
- IC Approved

NOTES:
- **Calibration mats are required for installation.**
- **Monitor and camera extension cables not included**

AI CAMERA CABLES	AI

VBV-AI801	- 1 metre AI Camera Extension Cable	7489
VBV-AI805	- 5 metre AI Camera Extension Cable	7490
VBV-AI810	- 10 metre AI Camera Extension Cable	7508
VBV-AI815	- 15 metre AI Camera Extension Cable	7509
VBV-AI820	- 20 metre AI Camera Extension Cable	7491

Model   **Part No:**

AHD 360° CAMERA SYSTEM	HD

BN360-300 - High Definition Backeye®360 system   5800

- IP69K cameras
- 12-24Vdc
- Size (WxHxD) ECU
  179 x 113 x 26mm
- Size (WxHxD) Camera
  55 x 45 x 41mm
- 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

- 360 view and individual channels recordable on Brigade MDR recorders

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**

BN360-300 360º CAMERA MONITOR SYSTEMS	HD

Complete 360 AHD camera monitor system for large rigid vehicles

SE-770HR-300 - 360 AHD camera system with VBV-770HM - 7" AHD monitor   7296
SE-7014HRF-300 - 360 AHD camera system with VBV-7104HFM - 10.4" AHD monitor   7297

VBV-7104HFM
10.4"

VBV-770HM
7"

- 1 x 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

Model		Part No:

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
AC-H305	HD Splitter cable for MDR (1 required per camera)	6648

BN360-300 MOUNTING BRACKETS

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

Model	Part No:

Camera Monitor System Ranges

AI — AI cameras are a new generation of active blind-spot detection. Using Artificial Intelligence, the cameras detect and recognise the human form within the pre-defined detection zone and reliably warn the driver visually and/ or audibly before a possible collision occurs.

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.

Camera Monitor Icon Key

Camera icons

LED	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
	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 IP connector
	Female IP connector

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Cameras with Artificial Intelligence

AI cameras are a new generation of active blind-spot detection.

Using Artificial Intelligence, the cameras detect and recognise the human form within the pre-defined detection zone and reliably warn the driver visually and/or audibly before a possible collision occurs.

- Recognises and alerts the driver to people in the front and rear blind-spot
- Detected people are shown in a coloured box overlayed on the HD camera image on the driver's monitor
- Image processing and detected-person-overlay directly from the camera unit
- Plug and play:
  AI camera connects directly to the Brigade monitor and/or optional buzzer
- Compatible with all Brigade HD monitors and MDR recorders

AI
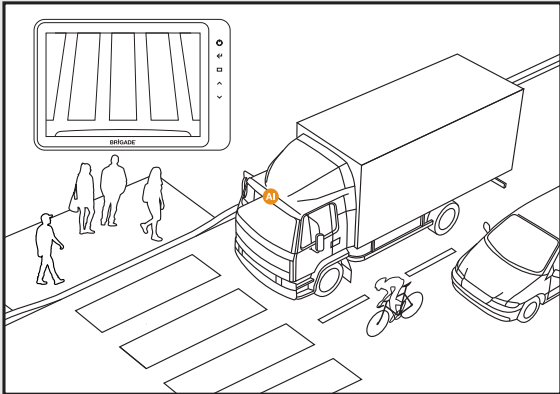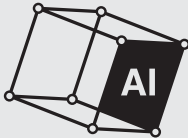
No pedestrians in the detection zone
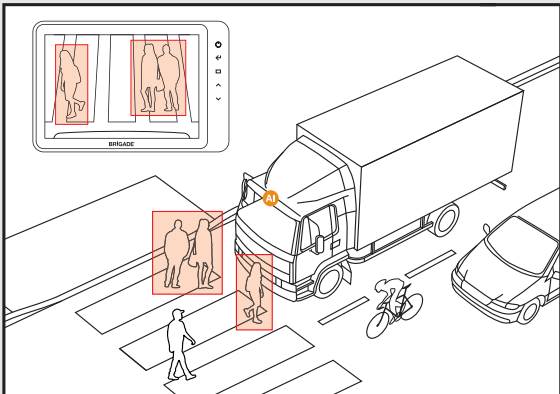
Detected pedestrians

Model   Part No:

CAMERA WITH ARTIFICIAL INTELLIGENCE		AI
VBV-2220C AI-D04	Front-facing AI camera - normal view	7321
VBV-2230C AI-D04	Rear AI camera - mirror view	7396

VBV AI connector

- 12-24Vdc
- Camera Viewing angles:
  Front : 52°
  Rear: 129°
- AI Detection range:
  Front: Covers Class 6 area
  Rear: Up to 11m (dependent on camera mounting height)
- IP69K
- Camera Size (WxHxD)
  97.5×75.3×72
- 2 years warranty

AHD

Features
- High Definition AHD 1080P
- Recognises and alerts the driver to people in the front and rear blind-spot
- Detected people are shown in coloured box overlayed onto the camera image
- Image processing and detected-person-overlay directly from the camera unit
- Plug and play:
  AI camera connects directly to the Brigade monitor and/or optional internal buzzer or external alarm
- Brigade Select range connectors
- Compatible with all Brigade HD monitors and MDR recorders
- Alarm trigger output: 12V

Specifications
- 260mA @12V, 140mA @24V Imaging

- Operating Voltage: 12-24V
- TV system: 25fps/30fps
- CMOS 1/2.9" 2M Pixel sensor

Durability & Standards
- Mechanical vibration: 5.9G
- Operating temperature:
  -20 to +70°C
- E-marked: UNECE R10 compliant
- CE marked
- FCC Approved
- UKCA Approved
- IC Approved

NOTE:
- VBV AI Camera extension cables only to be used

AI Intelligent Detection

AI CAMERA CABLES		AI
VBV-AI801	- 1 metre AI Camera Extension Cable	7489
VBV-AI805	- 5 metre AI Camera Extension Cable	7490
VBV-AI810	- 10 metre AI Camera Extension Cable	7508
VBV-AI815	- 15 metre AI Camera Extension Cable	7509
VBV-AI820	- 20 metre AI Camera Extension Cable	7491
AC-24-12(011)	- Power adapter for AI camera	5760

Elite Range Camera/monitor compatibility

KEY		ELITE MONITORS	SELECT MONITORS	
✓	= Compatible	BE-970WFM BE-970WM BE-870LM BE-870FM	VBV-770HFM VBV-770HM VBV-7104HFM VBV-7104HM	VBV-770M VBV-750M
✓AC-007	= Compatible with adapter(s) shown			
ELITE BE-810C Shutter camera		✓	✓AC-007 & SC-1000-ECU	
All other ELITE cameras		✓	✓AC-007	

Model   Part No:

AHD CAMERA 1080p	ELITE

BE-8100C - PAL	6408
BE-8101C - NTSC	6410

- Viewing angle (HxVxD)
  126 x 69 x 144°
- IP69K / IP68
- Size (WxHxD)
  86 x 72 x 78mm
- 5 year warranty

R46 APPROVED* AHD

Features
- High definition picture quality with 1080p AHD 2.0 video signal output
- 4 Infrared LEDs for ultra-low light performance
- Day / Night sensor
- Microphone
- Mirror / Normal view
- Back Light Compensation
- Automatic white balance
- CMOS sensor
- TV lines: 800

Power
- Power consumption: 4.2 Watts
- Current: 0.35 Amps

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 13766:2018
- ISO 20653:2013
- EN61000-6-3:2021
- Camera monitor system R46 approved

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 Infrared 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

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Elite Range

Model	Part No:

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

LED · 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

Select Range Camera/monitor compatibility

KEY		ELITE MONITORS	SELECT MONITORS	
✓	= Compatible	BE-970WFM BE-970WM BE-870LM BE-870FM	VBV-770HFM VBV-770HM VBV-7104HFM VBV-7104HM	VBV-770M VBV-750M
✓AC-006	= Compatible with adapter(s) shown			
SELECT VBV-710C Shutter		✓ AC-006		✓
All other SELECT cameras		✓ AC-006		✓

Model	Part No:

AHD CAMERA 1080p	SELECT HD

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

SHUTTER CAMERA	SELECT

VBV-710C - Shutter camera — 2808

· Viewing angle (HxVxD)
98 x 73 x 108°

· IP68 / IP69K

· Size (WxHxD)
122 x 85 x 82mm

· 3 year warranty

LED

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

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Model	Part No:

AHD EYEBALL CAMERA — SELECT HD

VBV-3100C - High Definition flush-mount eyeball camera
              Mirror view - (1080p-PAL)   **7143**
VBV-3101C - High Definition Flush-mount eyeball camera
              Mirror view - (1080p-NTSC)   **7144**
VBV-3120C - High Definition Flush-mount eyeball camera
              Normal view - (1080p-PAL)   **7145**
VBV-3121C - High Definition Flush-mount eyeball camera
              Normal view - (1080p-NTSC)   **7146**

- **Viewing angle (HxVxD)**
  130 x 70 x 151°
- **IP69K**
- **Size (WxHxD)**
  57 x 42 x 70mm
- **3 year warranty**

LED ☀ 🔊 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" CMOS
- TV System: AHD 2.0 (1080p)
- TV lines: 900

Power
- Power consumption: 1.6 Watts
- Current consumption: 0.112 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
- IC approved

AHD DOME CAMERA — SELECT HD

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**

Model	Part No:

AHD MINI CAMERA — SELECT HD

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

- **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

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

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 Mobile Digital Recorder (MDR), the IP camera transmits digital video to an MDR over a data connection (ethernet cable) where the images are saved to the onboard storage.

Brigade Expansion Modules use Power Over Network (PON) Switch technology to expand the channel capability of the MDR by transmitting digital video images from up to 8 IP cameras over a single ethernet connection to the MDR. 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:

MDR-641	- 4 x Analogue channels plus 1 x IP channel	= 5 channels
MDR-508	- 8 x Analogue channels plus 1 x IP channel	= 9 channels
MDR-644	- 4 x Analogue channels plus 4 x IP channels	= 8 channels
MDR-644 and 4 x PON switch	- 4 x Analogue channels plus 8 x IP channels	= 12 channels
MDR-508 and 4 x PON switch	- 8 x Analogue channels plus 4 x IP channels	= 12 channels
MDR-508 and 8 x PON switch	- 8 x Analogue channels plus 8 x IP channels	= 16 channels

Model   **Part No:**

IP CAMERA

IP-1000C - Internal forward-facing camera   **5935**

- Viewing angle (HxVxD)
  87 x 51 x 98°
- IP20
- Size (WxHxD)
  75 x 122 x 42mm
- 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: 1050
- Latency: 250ms

Power
- Power consumption: 2.7 Watts
- Current: 0.23 Amps @ 12V

Durability & Standards
- Mechanical vibration: 6G
- 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

IP CAMERA

IP-1200C - Surface-mount dome camera   **5937**

- Viewing angle (HxVxD)
  110 x 60 x 136°
- IP65
- Size (WxHxD)
  101.5 x 57.4 x 96 mm
- 3 year warranty

Features
- High-definition picture quality
- Surface mount
- Heater
- Microphone
- 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: 900
- Latency: 250ms

Power
- Power consumption: 3.5 Watts
- 0.26 A @ 12V (IR off)
  0.31 A @ 12V (IR on)

Durability & Standards
- Mechanical vibration: 6G
- 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

Model   **Part No:**

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
- Latency: 800ms

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

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 4 channels to MDR-508
  IP-EM8 - adds 8 channels to MDR-508
  IP-EM4 - adds 4 channels to MDR-644

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

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**
Included with IP-EM4 and IP-EM8

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 MDR 500 without a PON switch . Not required for 644 and 641 series MDR.

WARNING: There is a latency (time lag) in all digital video transmission, including IP Cameras. Although this time lag is small (~800ms IP1100C ~250ms IP1000C & IP1200C), 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.

BRIGADE®

Elite Range Camera/monitor compatibility

| KEY		ELITE MONITORS	SELECT MONITORS	
✓	= Compatible	BE-970WFM BE-970WM BE-870LM BE-870FM	VBV-770HFM VBV-770HM VBV-7104HFM VBV-7104HM	VBV-770M VBV-750M
✓ AC-007	= Compatible with adapter(s) shown			
ELITE BE-810C Shutter camera		✓	✓ AC-007 & SC-1000-ECU	
All other ELITE cameras		✓	✓ AC-007	

Model
Part No:

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"

4 ⚙5 🔊 🔒
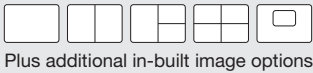
Plus additional in-built image options

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/m²
- 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

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"

2 ⚙2 🔊 🔒

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/m²
- 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

Model
Part No:

7" MONITOR — ELITE

BE-870HM - 7″ High Definition LCD monitor   6380

- 12-24Vdc
- Size (WxHxD)
  194 x 124 x 33mm
- 5 year warranty

7.0"

2 ⚙2 🔊 🔒

Features
- 2 Camera inputs
- Shutter camera compatible
- '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: 1024 x 600
- Contrast ratio: 800:1
- Brightness: 500cd/m²
- Viewing angles: Side 80° x Top 60° x Bottom 70°

Power
- Power consumption: 11.7 Watts
- Current: 0.975 Amp

Durability & Standards
- Mechanical vibration: 3G
- Mechanical shock: 51G
- Operating temperature: -40 to +70°C
- CE marked
- E-Marked: UNECE R10 compliant
- FCC approved
- IC approved

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"

4 ⚙5 🔊 🔒
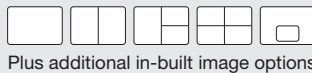
Plus additional in-built image options

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/m²
- 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"

2 ⚙2 🔊 🔒

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/m²
- 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

Select Range Camera/monitor compatibility

KEY		ELITE MONITORS	SELECT MONITORS	
✓	= Compatible	BE-970WFM BE-970WM BE-870LM BE-870FM	VBV-770HFM VBV-770HM VBV-7104HFM VBV-7104HM	VBV-770M VBV-750M
✓ AC-006	= Compatible with adapter(s) shown			
SELECT VBV-710C Shutter		✓ AC-006	✓	
All other SELECT cameras		✓ AC-006	✓	

Model   Part No:

AHD 10.4" QUAD MONITOR   SELECT HD

VBV-7104HFM - 10.4" High Definition LCD monitor   6057

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

10.4"

Plus additional in-built image options

Features
- AHD and CVBS compatible
- High-definition, high contrast, wide view angle
- Configurable view options
- 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 AHD 1.0 / AHD 2.0 / PAL / NTSCC

Picture Quality
- LED backlighting (gives 30,000 hours life)
- Anti-glare screen

- Resolution: 1024 x 768
- Contrast ratio: 900:1
- Brightness: 500cd/m²
- Viewing angles:
  Side 85° x Top 85° x Bottom 85°

Power
- Power consumption: 31.2 Watts
- Current: 2.6 Amps

Durability & Standards
- Mechanical vibration: 4G
- Mechanical shock: 51G
- Operating temperature: -20 to +70°C
- CE marked
- E-Marked: UNECE R10 compliant
- HALT tested
- FCC approved
- IC approved

AHD 7" MONITOR   SELECT HD

VBV-770HFM - 7" High Definition LCD monitor   7204

- 12-24Vdc
- Size (WxHxD)
  196 x 118 x 28mm
- 3 year warranty

7.0"

Plus additional in-built image options

Features
- AHD and CVBS compatible
- High-definition, high contrast, wide view angle
- Configurable views
- 4 camera inputs
- 5 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: 650cd/m²
- Viewing angles:
  Side 85° x Top 85° x Bottom 85°

Power
- Power consumption: 27.6 Watts
- Current: 2.3 Amps

Durability & Standards
- Mechanical vibration: 3G
- Mechanical shock: 51G
- Operating temperature: -20 to +70°C
- CE marked
- E-Marked: UNECE R10 compliant
- UKCA marked
- HALT tested
- FCC approved
- IC approved

Model   Part No:

AHD 7" MONITOR   SELECT HD

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

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

7.0"

AHD

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/m²
- 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

4.3" MIRROR MONITOR   ESSENTIAL

VBV-243M - 4.3" Digital Mirror monitor   5323

- 12-24Vdc
- Size (WxDxH)
  280 x 92 x 30.5mm
- 1 year warranty

4.3"

Features
- On screen milti-lingual display menu
- Digital LCD panel
- 2 Auto-trigger
- Auto dimmer
- Illuminated keypad
- On-screen distance markers
- TV system: PAL / NTSC

Picture Quality
- Resolution: 480 x 272
- Contrast ratio: 600:1
- Brightness: 1000cd/m²

- Viewing angles:
  Side 65° x Top 60° x Bottom 50°

Power
- Power consumption: 6.6 Watts
- Current: 0.53 Amps

Durability & Standards
- Vibration rating: 6G
- Operating temperature: -20 to +70°C
- CE marked
- FCC approved

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

BRIGADE®

Model — Part No:

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

AHD CAMERA MONITOR SYSTEMS — SELECT HD

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

• VBV-770HM - 7" AHD monitor	5611
• VBV-7100C - 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 — 7680

• VBV-770HM - 7" AHD monitor	5611
• VBV-3100C - AHD Camera	5454
• VBV-H410 - AHD 10m cable	5516

See individual products for detailed specifications and warranties

VBV-770H-3200 - Single AHD camera monitor system for rigid vehicles — 7681

• VBV-770HM - 7" AHD monitor	5611
• VBV-3100C - AHD Camera	5454
• VBV-H420 - AHD 20m cable	5513

See individual products for detailed specifications and warranties

Model — Part No:

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
• Camera 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/m²
• 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 Camera monitor system — 4765
VBV-650-000N - NTSC Camera monitor system — 4766

• Camera Viewing angle (HxVxD)
  81 x 59 x 106° PAL
  81 x 59 x 108° NTSC
• Camera IP67
• Camera Size (WxHxD)
  65 x 59 x55mm
• 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 input

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

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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-055(5M) - 5-pin to 4-pin Select cable, 5m long	4267
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
AC-H305 - Splitter cable connects 1 x BN360-300 camera to MDR & ECU	6648

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

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Model	Part No:

OEM CAMERA MONITOR ADAPTERS

Model	Part No:
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(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
AC-24-12(010) - In-line 24/12Vdc converter - Select camera to Mercedes Actros/Arocs 2019> with J9P prep'	5907

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

GENERAL CAMERA MONITOR ADAPTERS

Model	Part No:
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

BRIGADE®

Model	Part No:

AI CAMERA CABLES | AI

VBV-AI801	- 1 metre AI Camera Extension Cable	7489
VBV-AI805	- 5 metre AI Camera Extension Cable	7490
VBV-AI810	- 10 metre AI Camera Extension Cable	7508
VBV-AI815	- 15 metre AI Camera Extension Cable	7509
VBV-AI820	- 20 metre AI Camera Extension Cable	7491
AC-24-12(011)	- Power adapter for AI camera	5760

ELITE HD CAMERA CABLES | ELITE HD

BE-H030	- 30 metre extension cable	7376
BE-H025	- 25 metre extension cable	7375
BE-H020	- 20 metre extension cable	7374
BE-H015	- 15 metre extension cable	7373
BE-H012	- 12 metre extension cable	7372
BE-H010	- 10 metre extension cable	7371
BE-H008	- 8 metre extension cable	7370
BE-H005	- 5 metre extension cable	7369
BE-H003	- 3 metre extension cable	7368
BE-H001	- 1 metre extension cable	7367
BE-H0003	- 0.5 metre extension cable	7366

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

Model	Part No:

SELECT AHD CAMERA CABLES | SELECT HD

VBV-H430	- 30 metre cable	5511
VBV-H425	- 25 metre cable	5512
VBV-H420	- 20 metre cable	5513
VBV-H415	- 15 metre cable	5514
VBV-H412	- 12 metre cable	5515
VBV-H410	- 10 metre cable	5516
VBV-H407	- 7 metre cable	5517
VBV-H406	- 6 metre cable	5518
VBV-H405	- 5 metre cable	5519
VBV-H404	- 4 metre cable	5520
VBV-H403	- 3 metre cable	5521
VBV-H4025	- 2.5 metre cable	5522
VBV-H4005	- 0.5 metre cable	5523

Model   Part No:

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	7564	• 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 7565

SP-07C   SC-07   SP-07T

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

Model   Part No:

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) 7567
• CS-020 - Two way camera selector 1571	
• SP-7A - 7-pin bulkhead socket for trailer & trailer-end camera connector (unique pin layout) 7566	
• SC-7 - Coiled cable with 7-pin plugs (unique pin layout) 1829	

SP-7A   SC-7   SP-7B

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

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

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

VSK-50E-A - Truck only kit 2541	**VSK-30E-T - Trailer only kit** 2542
• **VBV-L420 - 20m cable for truck** 1380	• **VBV-L420 - 20m cable for trailer** 1380
• **VBV-L405 - 5m camera cable for truck camera** 1499	• **VSP-47B - 7-pin camera bulkhead socket for trailer** 1846
• **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	

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

TRUCK/DRAWBAR TRAILER CABLE KIT `SELECT`

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

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

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

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

	VSK-31E-T - Trailer only kit 2543
• **VBV-L410 - 10m cable for cab** 1386	• **VBV-L420 - 20m cable for trailer** 1380
• **SP-7A - 7-pin bulkhead socket for cab & cab-end camera connector (unique pin layout)** 1827	• **AC-006 - Adapter cable** 1983
• **AC-014 - Adapter cable** 2094	• **SP-7B - 7-pin bulkhead socket for trailer & trailer-end camera connector (unique pin layout)** 1828
• **SC-7 - Coiled cable with 7-pin plugs (unique pin layout)** 1829	

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

	VSK-30E-T - Trailer only kit 2542
• **VBV-L410 - 10m cable for cab** 1386	• **VBV-L420 - 20m extension cable for trailer** 1380
• **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
• **SC-07-24S - Coiled cable with type 24S 7-pin plugs** 1227	

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

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

BRIGADE®

Model	Part No:

DIGITAL WIRELESS CONNECTION SYSTEM

DW-2000-TX - Digital Wireless Transmitter   7088
DW-2000-RX - Digital Wireless Receiver   7089

- 12-24Vdc
- 1 camera input
- IP69K
- Size (WxHxD)
  105 x 106 x 25.2mm
- 3 year warranty

Features
- CVBS, AHD 720P and 1080P compatible
- Image Latency: 200 milliseconds
- No need for retractable coiled cables
- Reduces installation time
- Re-pair facility allows for interchangeable trailers
- Triggered by reverse gear
- Up to two transmitters can be paired to one receiver
- TV System AUTO
- Secure connection
- Easy 1-button pairing
- VBV Select range connectors

Power
- Power consumption:
  TX: 1.04 Watts   RX: 0.12 Watts

Durability & Standards
- Operating temperature:
  -20 to +70°C
- CE marked
- FCC approved

Adapter required to connnect Elite range camera and monitor.

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

Model	Part No:

CAMERA MONITOR SYSTEM ANCILLARIES   SELECT HD

SS-H002 -High Definition Twin camera screen splitter (Select range connectors)   7178
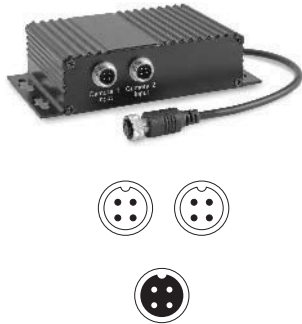
- 12-24Vdc
- 2 camera inputs
- Size (WxHxD)
  147 x 37 x 78mm
- 2 year warranty

Single	Split	In-built image options

Features
- AHD and CVBS compatible
- Offers split-screen option for monitors without in-built functionality
- 3 trigger inputs per camera
- Shutter camera compatible with adapters (Elite - TS-1000-ECU) (Select - AC-035)
- TV System: PAL / NTSC/AHD1/AHD2
- 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

Power
- Current: 0.8 Amps

Durability & Standards
- Mechanical vibration: 3G
- Mechanical shock: 51G
- Operating temperature: -30 to +80°C
- CE marked
- E-Marked: UNECE R10 compliant
- UKCA marked
- FCC approved
- IC approved

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

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

Mobile Digital Recording

Brigade's Mobile Digital Recording (MDR) systems are capable of capturing vehicle data and footage from up to 16 vehicle-mounted cameras.

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.

MDRs are compatible with all Brigade's Backeye® camera monitor systems, IP cameras and Backeye®360.

Dash Cams - compact, combined camera and recording systems that provide evidence in the case of vehicle incidents. The palm-sized devices are easily attached to the windscreen, enabling recording of the road ahead and in cab.

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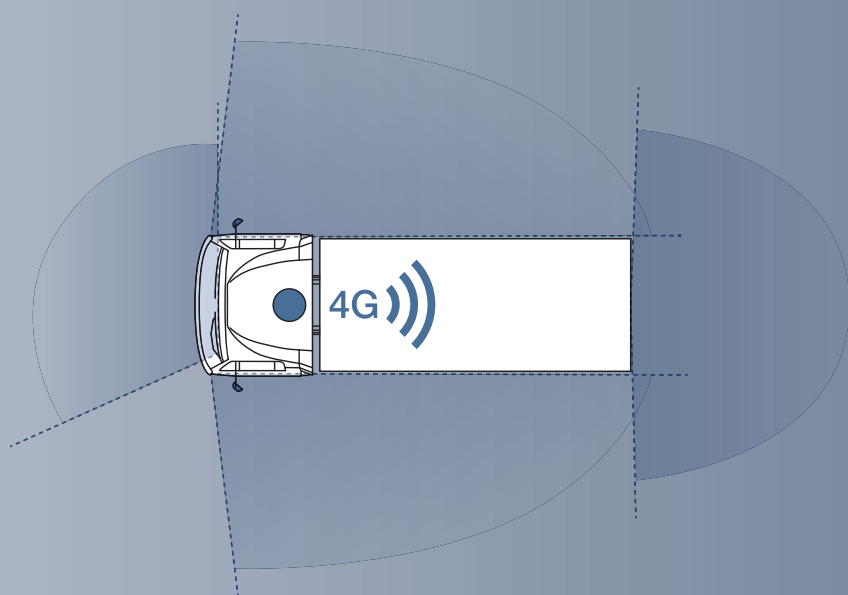
Model — Part No:

MOBILE DIGITAL RECORDER 600 SERIES

MDR-644-1-CMR	- 8 channel 1TB hard drive recorder	6570
MDR-644-2-SSD	- 8 channel 2TB solid-state drive recorder	6585

4G

MDR-644G-1-CMR	- 8 channel 1TB hard drive recorder with 4G	6571
MDR-644G-2-SSD	- 8 channel 2TB solid-state drive recorder with 4G	6586

4G

MDR-644GW-1-CMR	- 8 channel 1TB hard drive recorder with WiFi & 4G	6572
MDR-644GW-2-SSD	- 8 channel 2TB solid-state drive recorder with WiFi & 4G	6587

- 9-32Vdc
- 4 x Analogue & 4 x IP camera inputs
- Supports up to 12 cameras using external PON Switch
- Size 190 x 82 x 222mm (WxHxD)
- 8 trigger/alarm inputs
- Lockable and interchangeable storage unit
- Fast, easily downloadable recordings and data
- 3 year warranty

Contents
- 1 x MDR-644 Mobile Digital Recorder
- Wired Mouse
- Input / Output Cable
- Power Cable
- GPS Antenna
- 4G Network Antenna (G & GW models)
- Wi-Fi Antenna (GW models)
- USB A to B Cable
- Security Key
- Bracket & 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 (4G models only)
- Mobile Standards: 3G/4G
- Audio (cameras must have microphones)
- Robust aluminum housing
- Anti-vibration mounting for reliable recording
- 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 (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.265 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: SSD 3.1G
                          CMR 1.5G
- Mechanical shock: 51G
- Operating temperature:
  CMR -40 to +50°C
  SSD -40 to +70°C
- CE marked
- FCC approved
- E Mark
- IC approved

OPTIONAL EXTRA

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

IP-EM4 - PON Expansion Module adds 4 channels to MDR-644 = 12 channels   5860

Model — Part No:

MOBILE DIGITAL RECORDER 600 SERIES

MDR-641-1-CMR	- 5 channel 1TB hard drive recorder	7068
MDR-641-2-SSD	- 5 channel 2TB solid-state drive recorder	7078

4G

MDR-641G-1-CMR	- 5 channel 1TB hard drive recorder with 4G	7069
MDR-641G-2-SSD	- 5 channel 2TB solid-state drive recorder with 4G	7079

4G

MDR-641GW-1-CMR	- 5 channel 1TB hard drive recorder with WiFi & 4G	7070
MDR-641GW-2-SSD	- 5 channel 2TB solid-state drive recorder with WiFi & 4G	7080

- 9-32Vdc
- 4 x Analogue & 1 x IP camera inputs
- 8 trigger/alarm inputs
- Lockable and interchangeable storage unit
- Fast, easily downloadable recordings and data
- Size (WxHxD) 190 x 70 x 206mm
- 3 year warranty

Main Contents
- 1 x MDR-641 Mobile Digital Recorder
- Wired Mouse
- Input / Output Cable
- Power Cable
- GPS Antenna
- 4G Antenna (G and GW models)
- Wi-Fi Antenna (GW models)
- CMS adapter cable
- 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: 3G/4G
- Audio (cameras must have microphones)
- Robust housing
- GPS
- Internal G-sensor
- Recordings saved to hard disk or SSD (watermark protected)
- 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 (English only)
- Search by date, time or triggered events

- Multi-level password protected access
- 8 x trigger Inputs, 2x trigger outputs and 1x power output
- Built-in HDD heater
- MDR Control using USB Mouse
- 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.265 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: 22 Watts
- Current: 3.9 Amps

Durability & Standards
- Mechanical vibration: SSD 3.1G
                          CMR 1.5G
- Mechanical shock: 51G
- Operating temperature:
  CMR -40 to +50°C
  SSD -40 to +70°C
- CE marked
- FCC approved
- E Mark
- IC approved

RECOMMENDED EXTRA

MDR-MCU-R-01	MDR Reader and cable for PC	7053
	Required to download data from storage	

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Model   Part No:

MOBILE DIGITAL RECORDER 500 SERIES

| MDR-508-1-G2-CMR | - 8 channel 1TB hard drive recorder | 6244 |
| MDR-508-2-G2-SSD | - 8 channel 2TB solid-state drive recorder | 6437 |

4G

| MDR-508GW-1-G2-CMR | - 8 channel 1TB hard drive recordeR with 4G | 6246 |
| MDR-508GW-2-G2-SSD | - 8 channel 2TB solid-state drive recorder with 4G | 6439 |

(WiFi) 4G

| MDR-508G-1-G2-CMR | - 8 channel 1TB hard drive recorder with WiFi & 4G | 6245 |
| MDR-508G-2-G2-SSD | - 8 channel 2TB solid-state drive recorder with WiFi & 4G | 6438 |

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

Note:
G2 MDR-500 Series hard drives SSD and SD cards are NOT interchangeable with previous MDR-500 Series models unless a firmware and software update has been carried out. HDD SSD & SD cards also need formatting. See website for further details

Main Contents
- Mobile Digital Recorder with storage 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 aluminium housing
- Anti-vibration mounting for reliable recording
- Built-in GPS
- Internal G-sensor and built-in buzzer
- Recordings saved to hard disk or SSD (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 GDPR compliant password protected access
- Storage 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
- 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
- SSD vibration: 2.2G
- Operating temperature: CMR -40 to +50°C SSD -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	5860
IP-EM8 - Expansion Module adds 8 channels to MDR-508 = 16 channels	5861
IP-1XXX-PC - IP Camera - Power & Ethernet Cable	5985

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 onboard storage.

See pages 16-17 for the range of IP cameras

Brigade Expansion Modules use Power Over Network (PON) Switch technology to expand the channel capability of the MDR by transmitting digital video images from up to 8 IP cameras over a single ethernet cable to the MDR. 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:

MDR-641	- 4 x Analogue channels plus 1 x IP channel	= 5 channels
MDR-508	- 8 x Analogue channels plus 1 x IP channel	= 9 channels
MDR-644	- 4 x Analogue channels plus 4 x IP channels	= 8 channels
MDR-644 and 4 x PON switch	- 4 x Analogue channels plus 8 x IP channels	= 12 channels
MDR-508 and 4 x PON switch	- 8 x Analogue channels plus 4 x IP channels	= 12 channels
MDR-508 and 8 x PON switch	- 8 x Analogue channels plus 8 x IP channels	= 16 channels

Model   Part No:

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 4 channels to MDR-508
  IP-EM8 - adds 8 channels to MDR-508
  IP-EM4 - adds 4 channels to MDR-644

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

IP EXPANSION MODULE 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

Model	Part No:

MOBILE DIGITAL RECORDER ACCESSORIES

Model	Description	Part No:
AC-305	- Splitter cable connects 1 x Backeye®360 BN360-200 camera to MDR & ECU	4903
AC-H305	- AHD splitter cable connects 1 x Backeye®360 BN360-1000C camera to MDR & ECU	6648
AC-306	- Connects 1 x Select camera to MDR and monitor	4904
AC-307	- Connects 1 x Elite camera to MDR and monitor	4905
AC-075	- Select Range Adapter cable female to female	7020
MDR-USB-A-01	- USB 3.0 cable Type A to Type A connectors For MDR-641 models only	7056
MDR-RP02	- Remote status & interface panel with panic button	6016
MDR-04RPC	- 6m cable for Remote status & interface panel	6018
MDR-AC-ACC-01	- Adapter cable for remote panel For MDR-641 models only	7051
MDR-MCU-R-01	- MCU reader for PC For MDR-641 models only	7053
MDR-508GW-EXP-0	- Wi-Fi & 4G upgrade Expansion Module For MDR-508 models only. SD card not included	5309
MDR-508G-EXP-0	- 4G upgrade Expansion Module For MDR-508 models only. SD card not included	5310
MDR-508W-EXP-0	- Wi-Fi upgrade Expansion Module For MDR-508 models only. SD card not included	5311
MDR-500-1-MCU-G2-CMR	- Caddy unit with 1TB CMR For MDR-504 & MDR-508 models only	6243
MDR-500-0.5-MCU-G2-SSD	- Caddy unit with 500GB SSD For MDR-504 & MDR-508 models only	6201
MDR-500-1-MCU-G2-SSD	- Caddy unit with 1TB SSD For MDR-504 & MDR-508 models only	6202
MDR-500-2-MCU-G2-SSD	- Caddy unit with 2TG SSD For MDR-504 & MDR-508 models only	6203
MDR-644-1-MCU-CMR	- Caddy unit with 1TB CMR For MDR-644 models only	6615
MDR-644-1-MCU-SSD	- Caddy unit with 1TB SSD For MDR-644 models only	6617
MDR-644-2-MCU-SSD	- Caddy unit with 2TB SSD For MDR-644 models only	6618
MDR-641-1-MCU-CMR	- Caddy unit with 1TB CMR For MDR-641 models only	7060
MDR-641-1-MCU-SSD	- Caddy unit with 1TB SSD For MDR-641 models only	7061
MDR-641-2-MCU-SSD	- Caddy unit with 2TB SSD For MDR-641 models only	7062
SD-32GB-IND	- 32GB industrial grade Class 10 SD card	4875
SD-64GB-IND	- 64GB industrial grade Class 10 SD card	4876

Model	Part No:

DASH CAM RECORDER

DC-102-RVC - Dash Cam and rear-view camera - UK — **6395**
DC-102-RVC-002 - Dash Cam and rear-view camera - EU — **7025**

- 12-24Vdc
- In-built camera
- 1 external camera input
- Fast, easily downloadable recordings and data
- Dash Cam Size (WxHxD) 78 x 34.6 x 31.5mm
- Rear-view Camera size (WxHxD) 61 x 30.5 x 25mm
- 1 year warranty

Contents:
- 1x Dash Cam Recorder
- 1x Rear-view camera & 6m camera cable
- 1x GPS Antenna
- 1x 3m Hardwire cable
- 1x Mounting Bracket, adhesive pads and clips
- 1 x 32Gb Micro SD card
- 1x Micro SD to SD adapter
- 1x Quick start guide

Features
- 1080p High definition video capture
- Wide-angle camera lens 140°
- Wide dynamic range for improved detail in shadow and highlights
- Up to 4 hours recording on supplied micro SD card (supports up to 64Gb)
- Continuous recording with automatic overwriting of oldest data
- Audio
- External GPS receiver
- FAT (File Allocation Table) system eliminates the need for manual formatting of video files

- 4 recording modes:
  - Continuous - Records in 1min segments
  - Incident - Records 10 seconds before and after an incident
  - Manual - Records 10 seconds before and 50 seconds after manually starting recording
  - Parking mode - Requires hard wiring
- Infrared LEDs for ultra-low light performance (Infrared camera only)
- Adjustable camera angle (rear-view camera only)

Picture Quality
- Sensor: 2.1 M Pixel 1/2.7" CMOS
- Dash Cam video resolution: FHD 1920 x 1080
- Rear-view camera video resolution: HD 1280x720
- MP4 image compression
- Fast frame rate, 30 frames per second

Durability & Standards
- Operating temperature: -10 to +60°C
- CE marked

DASH CAM RECORDER

DC-102-IRC - Dash Cam and internal Infrared LED camera - UK — **6396**
DC-102-IRC-002 - Dash Cam and internal Infrared LED camera - EU — **7028**

- 12-24Vdc
- In-built camera
- 1 external camera input
- Fast, easily downloadable recordings and data
- Dash Cam Size (WxHxD) 78 x 34.6 x 31.5mm
- Infrared Camera size (WxHxD) 61 x 30.5 x 25mm
- 1 year warranty

Contents:
- 1x Dash Cam Recorder
- 1x Infrared LED Camera & 0.6m camera cable
- 1x GPS Antenna
- 1x 3m Hardwire cable
- 1x Mounting Bracket, adhesive pads and clips
- 1 x 32Gb Micro SD card
- 1x Micro SD to SD adapter
- 1x Quick start guide

Features
- 1080p High definition video capture
- Wide-angle camera lens 140°
- Wide dynamic range for improved detail in shadow and highlights
- Up to 4 hours recording on supplied micro SD card (supports up to 64Gb)
- Continuous recording with automatic overwriting of oldest data
- Audio
- External GPS receiver
- FAT (File Allocation Table) system eliminates the need for manual formatting of video files

- 4 recording modes:
  - Continuous - Records in 1min segments
  - Incident - Records 10 seconds before and after an incident
  - Manual - Records 10 seconds before and 50 seconds after manually starting recording
  - Parking mode - Requires hard wiring
- Infrared LEDs for ultra-low light performance (Infrared camera only)
- Adjustable camera angle (Infrared camera only)

Picture Quality
- Sensor: 2.1 M Pixel 1/2.7" CMOS
- Dash Cam video resolution: FHD 1920 x 1080
- Infrared camera video resolution: HD 1280x720
- MP4 image compression
- Fast frame rate, 30 frames per second

Durability & Standards
- Operating temperature: -10 to +60°C
- CE marked

BRIGADE®

Model | Part No:

DASH CAM RECORDER

DC-101 - Dash Cam - UK | **6290**
DC-101-001 - Dash Cam - EU | **6558**

- • **12-24Vdc**
- • **In-built camera**
- • **1 video output**
- • **Fast, easily downloadable recordings and data**
- • **Size (WxHxD) 78 x 34.6 x 31.5mm**
- • **1 year warranty**

Contents:
- • 1x Dash Cam Recorder
- • 1x GPS Antenna
- • 1x 3m Hardwire cable
- • 1x Mounting Bracket, adhesive pads and clips
- • 1x 16Gb Micro SD card
- • 1x Micro SD to SD adapter
- • 1x Quick start guide

Features
- • 1080p High definition video capture
- • Wide-angle camera lens 140°
- • Wide dynamic range for improved detail in shadow and highlights
- • Up to 4 hours recording on supplied micro SD card (supports up to 64Gb)
- • Continuous recording with automatic overwriting of oldest data
- • Audio
- • External GPS receiver
- • FAT (File Allocation Table) system eliminates the need for manual formatting of video files
- • Front Vehicle departure warning

- • 4 recording modes:
  - • Continuous - Records in 1min segments
  - • Incident - Records 10 seconds before and after an incident
  - • Manual - Records 10 seconds before and 50 seconds after manually starting recording
  - • Parking mode - Requires hard wiring

Picture Quality
- • Sensor: 2.1 M Pixel 1/2.7" CMOS
- • Video resolution: FHD 1920 x 1080
- • MP4 image compression
- • Fast frame rate, 30 frames per second

Durability & Standards
- • Operating temperature: -10 to +60°C
- • CE marked

DASH CAM ACCESSORIES

Part	Description	Part No
DC-1XX-LOCK	**- Dashcam Locking Box**	**6296**
DC-1XX-DPC7	**- Power Cable (7m)**	**6323**
DC-REAR-CAM	**- Additional 1080p rear camera** Included with DC-102-RVC	**6292**
DC-IR-CAM	**- Additional 1080p Infrared camera** Included with DC-102-IRC	**6293**
DC-1XX-32SD	**- 32GB Micro SD card with adapter**	**6541**
DC-1XX-64SD	**- 64GB Micro SD card with adapter**	**6542**

AI Connected dashcam

The AI Connected Dashcam is a compact, windscreen-mounted dual camera system that uses AI technology to provide event warnings, high-definition incident recording and monitor driver behaviour.

The forward-facing camera will identify and audibly alert a driver to a hazardous situation, such as a risk of colliding with the vehicle ahead or an unsignalled lane departure.

The driver-facing camera will identify issues such as mobile use, smoking and inattention.

- ● **1920P forward facing and 1080P driver facing cameras for clearer identification of registrations, faces and incident detail**
- ● **Supports up to 1TB storage capacity (256GB supplied)**
- ● **Built-in 4G allows operators to monitor fleets on the move (Subscription required) via a Dashboard or mobile app, and to remotely live stream or download recorded footage**
- ● **Simple installation and calibration**
- ● **Enhanced G sensor detects harsh braking, cornering and acceleration events**
- ● **Event notifications sent to the dashboard or app to alert fleet managers to high risk incidents**

Model | Part No:

AI CONNECTED DASHCAM

DC-204-AI - Connected Dashcam with AI | **7477**

- • **12-24Vdc**
- • **In-built dual cameras: front and driver facing**
- • **Built-in ADAS and driver safety alerts**
- • **4G Connection via Brigade's Telematics services**
- • **Fast, easily downloadable recordings and data**
- • **Supports 2 additional cameras - additional cable required**
- • **Size (WxHxD) 113 x 88 x 68mm**
- • **1 year warranty**

Contents:
- • 1x Dash Cam Recorder
- • 2x 128Gb Micro SD card
- • 1x Power lead
- • 1x Mounting Bracket
- • 1x Power box with cable
- • 1 x Torx driver

Features
- • 170° driver facing camera lens
- • 140° forward facing camera lens
- • Wide dynamic range for improved detail in shadow and highlights
- • Built-in WiFi and 4G communication module
- • Built in ADAS function:
  - - Lane Departure Warning (LDW)
  - - Forward Collision Warning (FCW)
  - - Headway Monitoring Warning (HMW)
  - - Digital Cockpit Safety (DCS) to detect unsafe driving behaviour
- • Built in 6-axis G-Sensor for harsh acceleration, deceleration, cornering and incident detection
- • Built-in GPS receiver
- • 3 recording modes:
  - - Continuous: Records in 1min segments
  - - Timer: Records to schedule accurate to the second
  - - Alarm:
    - - Pre-alarm from 1-to 60 minutes
    - - Post-alarm from 1-30 minutes
- • Individual channel configurations for recording resolution, frame rate and quality
- • Supports up to 1TB storage capacity

- • Audio
- • Continuous recording with automatic overwriting of oldest data
- • Supports CBVS monitors (additional cable required)

Picture Quality
- • 5 M Pixel 1/2.7" CMOS sensor forward facing camera
- • 2 M pixel 12.9 CMOS sensor Driver facing camera
- • 1080p driver facing HD video capture
- • 1920p forward facing HD video capture
- • Fast frame rate, 30 frames per second

Power
- • Power consumption: 12.66 Watts

Durability & Standards
- • Operating temperature: -40 to +70°C
- • CE marked
- • FCC approved
- • IC approved
- • E-marked: UNECE R10 compliant

NOTES:

Available in the UK only.

In order to provide full functionality and maximum fleet manager benefit, the AI connected dashcam is only sold with a monthly subscription. Contact us for further details.

Object Detection Systems

Object detection systems detect stationary and moving objects, providing in-cab visual and audible warnings, alerting the operator or driver whose attention cannot be focused on all danger areas.

Backsense® heavy-duty radar sensor systems designed for heavy-duty machines to detect people and objects in blind spots. Available with fixed and programmable detection ranges.

Ultrasonic detection sensors To 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. An optional external speaking alarm can be added to alert cyclists and pedestrians that the vehicle is turning.

Detection systems with AI are algorithm-based systems that predict if a collision is likely to occur and alert the driver depending on the severity of the calculation.

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.

BR**I**GADE®
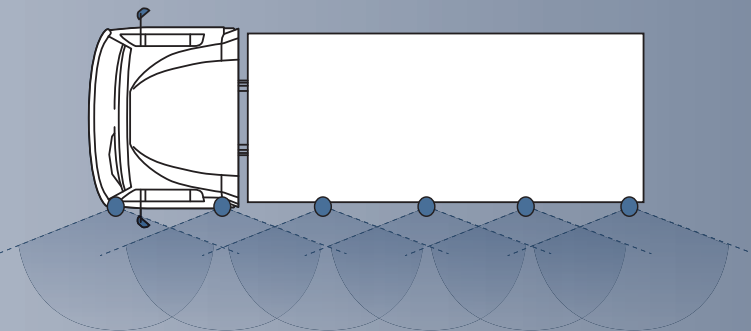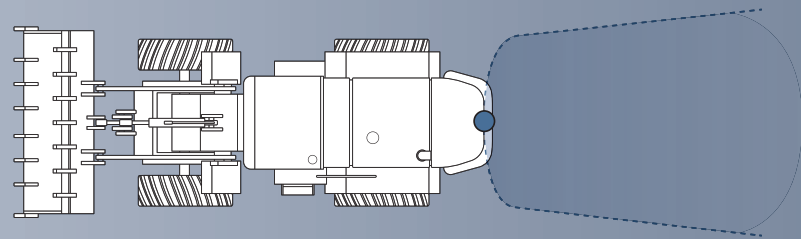
CAREYE® Turn Assist
Artificial Intelligence blind spot detection

Developed by Eyyes

EYYES

CAREYE® is a new Artificial Intelligence (AI) blind-spot turn assistant for large commercial vehicles, comprising of a camera-based sensor mounted high on the side of the cab, an ECU and a driver display in the cab.

Vulnerable road users are detected and classified, and their future course of movement is calculated using artificial intelligence. Depending on the risk of collision, the driver will receive a visual and/or audible warning in real time. Only if a collision is predicted will an audible warning be given, thus minimising false warnings and the likelihood of the driver becoming habituated by the alarm.

- **Alerts the driver using Artificial Intelligence**
- **Differentiates between vehicles and vulnerable road users (VRU)**
- **Calculates the direction of VRUs**
- **The driver receives a progressive alert according to the predicted risk of collision**
- **The system is active up to 30km/h with or without indicators being activated**
- **Effective in low light and poor weather conditions**
- **Detection area: 10m length and 4m width from side of vehicle**
- **Information signal according to UNECE R151 (Blind spot monitoring system)**
- **Developed and produced in the European Union**

1. An approaching object has been detected

2. A moving object has been detected beside the vehicle

3. A moving object has been detected in the danger zone but not on course for a collision

4. Collision predicted
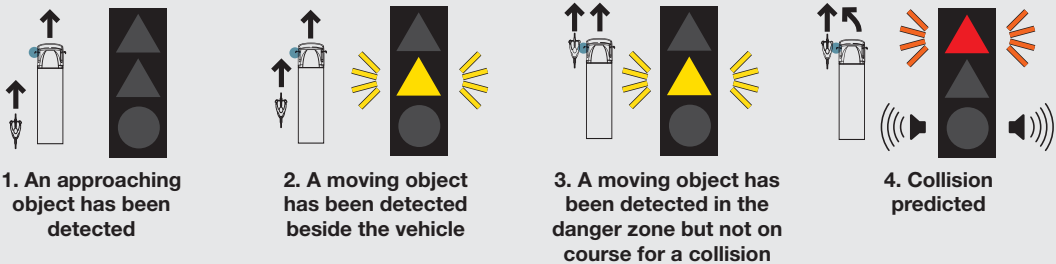
Model   Part No:

CAREYE® AI BLIND SPOT DETECTION SYSTEM

CAREYE® Turn assist with AI - Left side (for right-hand drive vehicles)	**CS-SET-00400**
CAREYE® Turn assist with AI - Right side (for left hand-drive vehicles)	**CS-SET-00610**

- **Side camera sensor system**
- **12-24Vdc**
- **Detection zone - 10m length and 4m width**
- **Dimensions: W x D x H Camera: 111 x 80 x 140mm ECU: 140 x 115 x 40mm**
- **IP66/67 Camera**
- **2 year warranty**

NOTE
Must be fitted by a Brigade-trained installer.
Contact us for details.

Contents
- 1 x HD camera sensor
- in-cab audio/visual display
- ECU
- CAN inductive cable connector

Features
- Side camera system with Artificial Intelligence
- Differentiates between vehicles and vulnerable road users (VRU)
- Calculates the direction of VRU's
- The driver receives a progressive alert according to the predicted risk of collision
- The system is active up to 30km/h with or without indicators being activated

- Effective in low light and poor weather conditions
- Information signal according to UNECE R151 (Blind spot monitoring system)
- Heated camera
- Speed signal from CAN connection
- Developed and produced in the European Union

Durability & Standards
- Operating temperature: -40° to +70°C
- CE marked
- E-Marked: UNECE R10 compliant

Power
- Power consumption: Max 100 Watts
- Current: 25mA in idle mode

OPTIONAL EXTRAS

CarEYE Digital 7" 16:9 monitor	**CS-SET-00380**
CarEYE Turning Angle Sensor	**CS-SET-00091**
CarEYE Wing extension	**CS-SET-00530**

Radar Predict
Artificial Intelligence blind spot detection

Brigade's Radar Predict is the latest innovation in side-detection safety, specifically designed to protect cyclists from collisions with HGVs. The advanced radar system uses AI technology to detect a potential collision by analysing data such as speed and direction of both the vehicle and cyclist. By differentiating between static and moving objects, the Radar Predict algorithm alerts the driver only when an impact with a cyclist is likely.

The single dual-radar unit is fitted to the nearside of the truck and gives complete coverage to the side of the vehicle, including the trailer unit. The driver is alerted if a cyclist enters a detection zone and receives a second warning if a collision is predicted.

- **180° Cyclist side detection**
- **Detection area of 4.5m x up to 37m**
- **Calculates if a collision is likely in the nearside blind spot**
- **Suitable for Rigid AND articulated vehicles**
- **Quick and easy installation**
- **Available for left and right side applications**
- **Meets Reg151 requirements**
- **Complies with PSS DVS – Independently tested**

4.5m   zone 2   zone 1   zone 3

7m   2m 0m   9m   30m
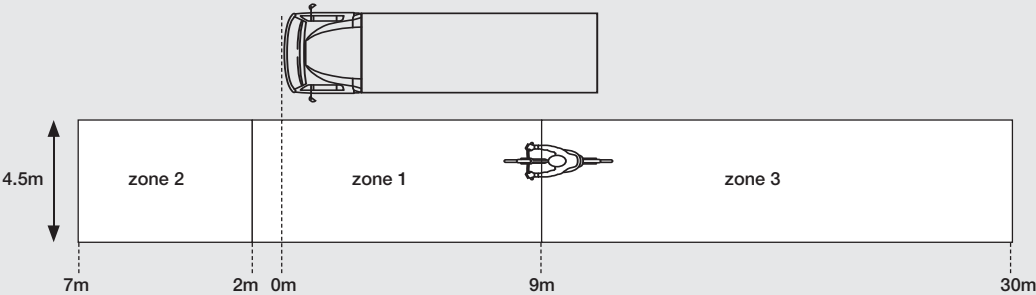
Model   Part No:

RADAR PREDICT AI SENSOR SYSTEM

RP-001 - 77GHz Radar Predict sensor system with AI - Left side (for right-hand drive vehicles)	**7500**
RP-010 - 77GHz Radar Predict sensor system with AI - Right side (for left-hand drive vehicles)	**7625**

- **9-32Vdc**
- **Detection length: 46m**
- **Detection width: 4.5m**
- **Sensor size (WxHxD) 115 x 95 x 41mm**
- **Sensor size with bracket (WxHxD) 200 x 110 x 43.5mm**
- **Display size with bracket (WxHxD) 131 x 63 x 42mm**
- **IP69K sensor**
- **3 year warranty**

Contents
- 1x dual radar sensor unit
- 1 x Inertial measurement unit module
- 1 x display
- 1 x radar bracket
- Radar cable

Features
- 180° cyclist side detection
- Calculates if a collision is likely in the nearside blindspot
- Covers nearside of a vehicle
- 3 stage Visual alert when a cyclist is detected
- Audible and visual alert when collision s predicted
- Differentiates between cyclists and vehicles/other road users
- Designed for rigid and articulated vehicles
- System active under 30Km/h

- Quick and easy installation
- Compact and rugged design for harsh environments
- Automatic trailer recognition
- Operating frequency: 76-77GHz
- Adjustable display volume

Power
- Power consumption: 6.5 Watts

Durability & Standards
- Operating temperature: -40 to +85°C
- CE marked
- FCC approved
- IC approved
- E-Marked: UNECE R10 compliant
- Complies with UNECE reg151 requirements
- Meets 2024 Direct Vision Standard BSIS requirements

BRIGADE®

Sidescan®Predict
Artificial Intelligence blind spot detection

Designed for rigid-bodied vehicles, the system comprises of six ultrasonic sensors fitted along the side of the vehicle to increase safety when turning or low speed manoeuvring. Each sensor has a maximum detection radius of 2.5 metres.

Sidescan®Predict constantly gathers object detection data such as the distance of an object, cyclist or other VRU from the vehicle, whether moving or stationary, plus additional information such as the speed, direction, acceleration, and turning rate. The data feeds an algorithm to calculate the risk of a collision, which is delivered to the driver as a visual warning, audible warning or both, depending on the severity of the calculation.

Examples of scenarios (not limited to)

A static object has been detected

A moving object has been detected

A moving object has been detected close to the vehicle

Danger of Collision

Collision Predicted
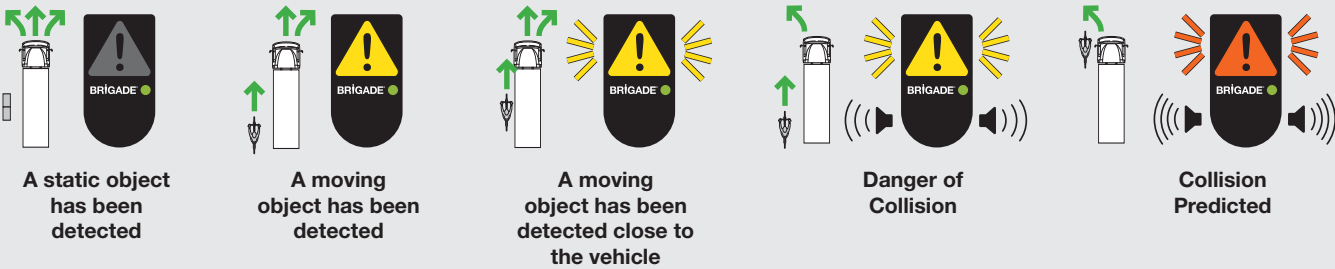
- Differentiates between static objects like road furniture and moving objects
- Calculates the direction and speed of VRUs
- The driver receives a progressive alert according to the predicted risk of collision
- The system is active up to 30km/h with or without indicators being activated
- Effective in low light and poor weather conditions
- Detection area: Up to 2.5m from side of vehicle
- For rigid vehicles only
- Independently tested - 2024 DVS/BSIS compliant

Model   **Part No:**

SIDESCAN®PREDICT AI DETECTION SYSTEM

SSP-6000W - Sidescan®Predict sensor system with AI   **6153**

- **6 sensor system**
- **12-24Vdc**
- **Detection zones - 0 - 2.5m**
- **Underslung and flush-mount fixings included**
- **Display dimensions: 52 x 92 x 21mm (WxHxD)**
- **IP69K sensors**
- **3 year warranty**

NOTE
Must be fitted by a Brigade-trained installer.
Contact us for details.

Contents
- 6 x sensors
- Display
- Algorithm ECU
- 6 x 4 types flush mount fixings
- 6 x underslung fixings
- Waterproof control box
- 10m buzzer cable
- 4 x 4.5m sensor cables
- 2 x 2.5m extension cables

Features
- Detects objects in the nearside blindspot
- Differentiates between static objects and moving objects
- Calculates the risk of collision by evaluating speed, position and direction of the vehicle and detected VRU
- Driver audio and visual alerts
- Vehicle motion monitoring to remove unnecessary alarms
- Extra-wide sensor detection pattern for full side blind-spot coverage
- ECU configuration and diagnostics via USB
- Indicator-activated external turn alarms can be connected without additional hardware
- Built-in indicator and vehicle speed acquisition

- System automatically shuts off above 18.6 mph / 30 kph
- Auto brightness display. Manual alarm volume adjustment.
- Can be retrofitted by a trained installer.
- System can not be activated/deactivated by the driver.
- Environment Learning mode to eliminate false alarms from bodywork that intrudes in the first 100cm of the detection zone.
- Speed signal from Tachograph

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

Power
- Power consumption: 3 Watts
- Current: 230mA

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.
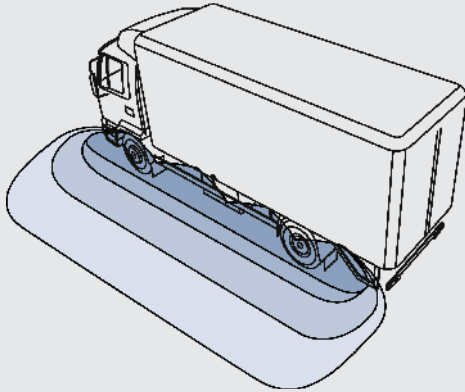
Detection distance		Config 1	Config 2	Config 3	Config 4
0 - 0.6m	Beeps per second	Constant	Constant	Constant	Constant
	Flashes per second	8	8	8	8
0.6 - 0.9m	Beeps per second	Constant	4	4	4
	Flashes per second	8	8	8	8
0.9 - 1.5m	Beeps per second	4	-	-	1
	Flashes per second	4	4	4	4
1.5 - 2.5m	Beeps per second	1	-	-	-
	Flashes per second	1	1	-	-

Model   **Part No:**

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 +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

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 output trigger

Model		Part No:

SIDESCAN® ULTRASONIC DETECTION SYSTEM

| 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

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

LS-60-A	Low speed trigger module	4851
	Enables sensors below designated speed	
TS-001ECU	Turn indicator trigger for system activation	1362

SIDESCAN®/SIDESCAN®FLEX OPTIONAL EXTRA

SS-BC-08	Backchat speaking alarm with side turn warning for cyclists/pedestrians	1334
	Note: TS-001ECU Turn indicator trigger is required	
TCO-47-01	Latched auto-reset Backalarm cut-out (dash mount)	4752

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 output trigger	

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 output 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   5345
low speed trigger module
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 +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

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

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.
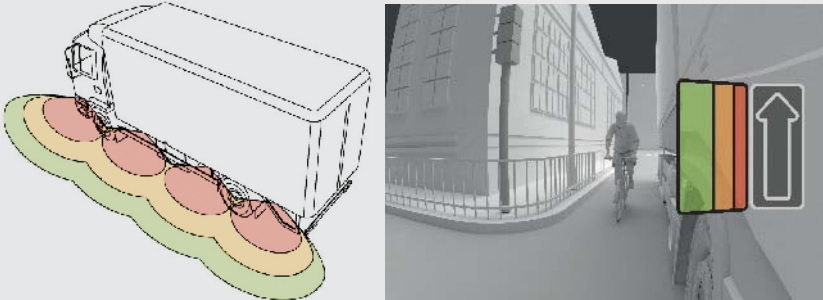
Model	Part No:
ULTRASONIC ON-SCREEN DISPLAY MODULE	
UDS-OSD20-ECU - On-screen display module PAL	5099
UDS-OSD21-ECU - On-screen display module NTSC	5347

· **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

DVS Front Radar

Specifically designed to meet the 2024 DVS requirements, Brigade's DVS Front Radar is an advanced dual-radar collision prediction system with a 180° detection angle to the front of the vehicle. The driver is alerted through visual and audible signals if a vulnerable road user is detected in close proximity.

● **Meets 2024 PSS Direct Vision Standard MOIS requirements**

● **Enhanced dual radar technology to detect pedestrians and cyclists in the front blind spot**

● **3-stage system to alert drivers through visual and audible signals if a vulnerable road user is detected in close proximity to the front of the vehicle when stationary as well as moving off**

● **Real-time Feedback: Providing real-time warnings to the drivers for immediate reaction to prevent collisions**

● **Plug and Play System: Only requires power from the vehicle**
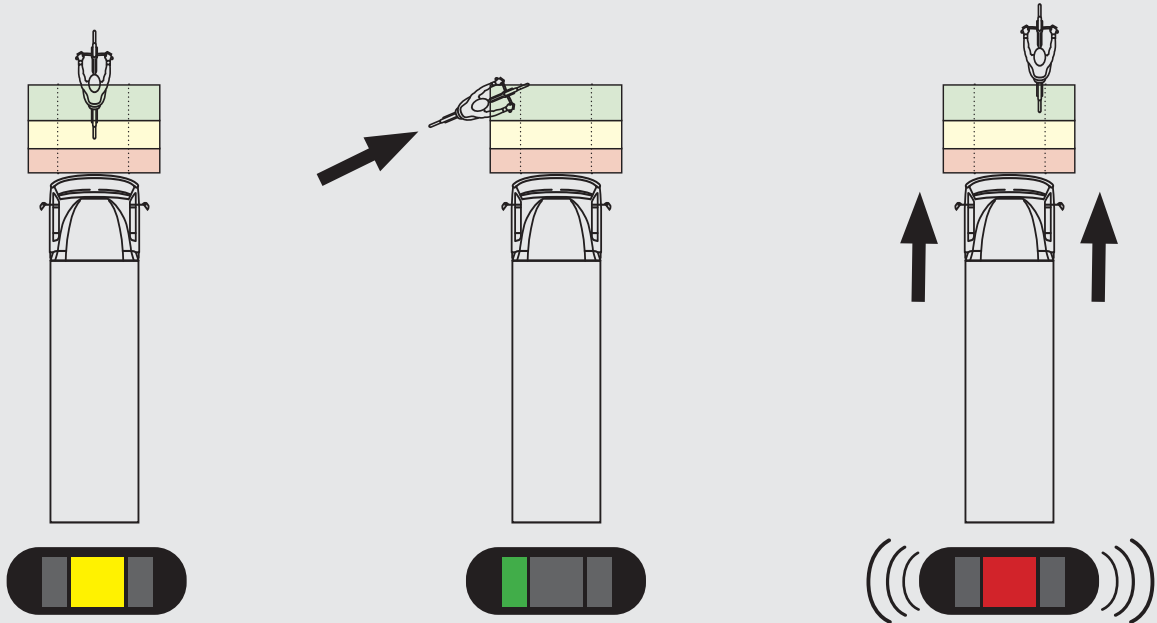
Model	Part No:
FRONT RADAR SENSOR SYSTEM	
FR-001DVS - DVS Front Radar sensor system For front centre installation	7673
FR-30LDVS - DVS Offset Front Radar sensor system For front 30cm-offset left-of-centre installation	8000

· **9-32Vdc**
· **Detection length: 2.5m**
· **Detection width: 3.6m**
· **Sensor size (WxHxD) 115 x 95 x 41mm**
· **Sensor size with bracket (WxHxD) 200 x 110 x 43.5mm**
· **Display size (WxHxD) 80 x 40 x 20mm**
· **IP69K sensor**
· **3 year warranty**

Contents
• 1x dual radar sensor unit
• 1 x display & bracket
• 1 x radar bracket
• 1 x radar cable 5m
• 1 x IMU module & bracket

Features
• 180° detection angle
• Detects VRUs in the front blind spot when vehicle is stationary or moving off
• Detects static and moving objects
• 3-stage visual driver alert dependent on detection distance from vehicle
• Audible and visual driver alert when object is detected and vehicle is moving forward
• Designed for rigid and articulated vehicles

• System active under 5Km/h
• Quick and easy installation
• Compact and rugged design for harsh environments
• Operating frequency: 76-77GHz
• Adjustable display volume
• Self-adjusting brightness display

Power
• Power consumption: 6.5 Watts

Durability & Standards
• Operating temperature: -40 to +85°C
• CE marked
• E-Marked: UNECE R10 compliant
• Meets 2024 PSS Direct Vision Standard MOIS requirements

BRIGADE®

Model **Part No:**

PROGRAMMABLE BACKSENSE® OBJECT DETECTION SYSTEM

BS-8100 - 77GHz Programmable detection range **7135**

- 9-32Vdc
- Detection length: up to 60m (minimum programmable distance 0-3m)
- Detection width: 2 to 16m
- Rugged design for harsh environmental conditions
- Sensor size (WxHxD) 160 x 100 x 40mm
- 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

Features
- Frequency modulated continuous wave (FMCW) radar technology
- Quick reaction time
- Effectively detects stationary, moving and multiple objects
- 1 activation input
- 1 trigger output
- Programmable:
  Detection area
  Blind zones - system ignores fixed objects
  Buzzer (70 to 90 dB(A) at 1m)
- Horizontal detection angle: 140°

- 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
- Operating temperature: -40 to +85°C
- CE marked
- UKCA marked
- FCC approved
- IC approved
- E-Marked: UNECE R10 compliant

Note: Configuration software available at brigade-electronics.com

SELECTABLE BACKSENSE® OBJECT DETECTION SYSTEMS

BS-7100 - 77GHz Selectable detection range **7248**

- 9-32Vdc
- 3 x selectable preset detection ranges: (LxW)
  3m x 2.5m
  4.5m x 3.5m
  6m x 4.5m
- Rugged design for harsh environmental conditions
- Sensor size (WxHxD) 160 x 100 x 40mm
- Display size with bracket 101 x 71 x 70mm (WxHxD)
- IP69K sensor
- 3 year warranty

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

Features
- Frequency modulated continuous wave (FMCW) radar technology
- Quick reaction time
- Effectively detects stationary, moving and multiple objects
- 1 activation input
- 1 trigger output
- 5 stage adjustable audible and visual distance warning display
- Adjustable buzzer volume: (70-90dBA)
- 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
- UKCA marked
- FCC approved
- IC approved
- E-Marked: UNECE R10 compliant

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 60m length and 16m 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)**

Model **Part No:**

NETWORK BACKSENSE® OBJECT DETECTION

BS-9100 - Backsense® 77GHz CAN object detection radar **6351**

- 12-24 Vdc
- Detection length: up to 60m
- Detection width: 2m to 16m
- Sensor size (WxHxD) 160 x 100 x 40mm
- IP69K sensor
- 3 year warranty

Contents
- 1 x BS-9100 Radar sensor

Features
- Frequency modulated continuous wave (FMCW) radar technology
- Quick reaction time
- 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: 0.8 Amps
- Power consumption; 8 Watts

Durability & Standards
- Mechanical shock: 100G
- Operating temperature: -40 to +85°C
- CE marked
- UKCA marked
- E-Marked: UNECE R10 compliant

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

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
CT-470	- Constant tone external alarm - 102dB	1346
BS-WD-USB	- USB -programming software, port driver and operating guide	5637
BKT-023	- Adjustable Bracket for BS-9100, BS-8100 & BS-7100	7190

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.

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.

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.

Model	Part No:

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**

Model	Part No:

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

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 TAG DETECTION SYSTEM

ZS-1000-PVT -	ZoneSafe® Pedestrian VibraTag, rechargeable	5889
ZS-1000-DVT -	ZoneSafe® Driver VibraTag, rechargeable	5888
ZS-1000-TC -	ZoneSafe® Pedestrian VibraTag, rechargeable, with clip	5892

Pedestrian VibraTag

Driver VibraTag

Pedestrian VibraTag with clip

- 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**

BRIGADE®

Model	Part No:

ZONESAFE® RFID TAG DETECTION SYSTEM

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

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

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

Model	Part No:

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

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

Warning 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® white sound® Smart alarms auto-adjust to 5dB above ambient.

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

Single Tone Alarms meet the basic needs of reversing safety by warning pedestrians and workers that a vehicle is reversing.

BRIGADE®

BRIGADE®
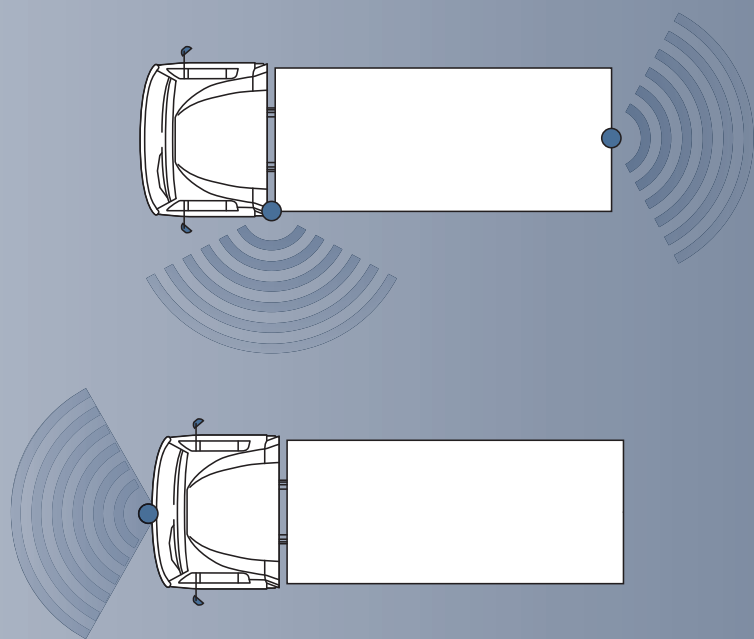
Model	Part No:

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
- UKCA marked
- 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
- UKCA marked
- SAE J994
- NAS/PIEK approved for night-time delivery

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
- UKCA marked
- 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
- UKCA marked
- 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**

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
- UKCA marked
- SAE J994
- NAS/PIEK approved for night-time delivery (BBS-82 only)

SIDE TURN WARNING ALARM

BBS-TI - Turn Indicator Warning Alarm - 90 Decibels   6317

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

Features
- Multi-frequency broadband sound
- Activates on side turn indication
- Sound synchronises with vehicle indicator flash
- Built-in turn indicator trigger
- Built-in timed and latched alarm cut out functions
- Sounder unit: Speaker
- Hole centres (mm): 102

Power
- Current: 0.5 Amps

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

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**

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
- UKCA marked
- 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

BRIGADE®

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
- UKCA marked

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
- UKCA marked

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

- 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
- UKCA marked

2 wire version

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
- UKCA marked

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

Model	Part No:

SMART TONAL REVERSING ALARM

SA-800 - Self adjusting heavy duty - 87-112 Decibels   1315

- 12-24 Volts
- IP68
- Size (WxHxD)
  156 x 85 x 108mm
- 2 year warranty

Features
- Alarm continually adjusts to 5-10dB above ambient
- Frequency (KHz): 1.9
- Sounder unit: Dome speaker
- Hole centres (mm): 111-114

Power
- Current: Max 0.3 Amps

Durability & standards
- Mechanical vibration: 10G
- Operating temperature: -40 to +85°C
- CE marked
- EMC approved: e
- SAE J994

SMART TONAL REVERSING ALARM

SA-400 - Self adjusting medium duty - 82-102 Decibels   1310

- 12-24 Volts
- IP68
- Size (WxHxD)
  100 x 72 x 32mm
- 2 year warranty

Features
- Alarm continually adjusts to 5-10dB above ambient
- Frequency (KHz): 1.4
- Sounder unit: Speaker
- Hole centres (mm): 76-82

Power
- Current: Max 0.2 Amps

Durability & standards
- Mechanical vibration: 10G
- Operating temperature: -40 to +85°C
- CE marked
- EMC approved: e
- SAE J994

TONAL REVERSING ALARM

BA-890 - Heavy duty - 112 Decibels   1246

- 12-24 Volts
- IP68
- Size (WxHxD)
  156 x 85 x 108mm
- 2 year warranty

Features
- Frequency (KHz): 1.9
- Sounder unit: Dome speaker
- Hole centres (mm): 111-114

Power
- Current: Max 0.5 Amps

Durability & standards
- Mechanical vibration: 10G
- Operating temperature: -40 to +85°C
- CE marked
- EMC approved: e
- SAE J994

Model	Part No:

TONAL REVERSING ALARM

BA-570 - Medium duty - 102 Decibels   2885
BA-560 - Medium duty - 97 Decibels   2742

- 12-24Vdc
- IP68
- Size (WxHxD)
  105 x 62 x 32mm
- 2 year warranty

Features
- 2 metre cable (BA-530TCA-2)
- Frequency (KHz): 1.6
- Sounder unit: Speaker
- Hole centres (mm): 75-85

Power
- Current: Max 0.3 Amps

Durability & standards
- Mechanical vibration: 10G
- Operating temperature: -40 to +85°C
- CE marked
- EMC approved: e
- SAE J994

NIGHT SILENT TONAL REVERSING ALARM

BA-57 - Light duty - 90 Decibels   0027

- 12-24Vdc
- IP66
- Size (WxHxD)
  48 x 60 x 48mm
- 2 year warranty

Features
- Blue wire connection mutes alarm when vehicle lights are on
  - Frequency (KHz): 2.4
- Sounder unit: Piezo
- Single bolt fitting

Power
- Current: Max 0.03 Amps

Durability & standards
- Mechanical vibration: 10G
- Operating temperature: -20 to +60°C
- CE marked

TONAL REVERSING ALARM

BA-13 - Medium duty - 90 Decibels   0015

- 12-24Vdc
- IP68
- Size (WxHxD)
  66 x 74 x 96mm
- 2 year warranty

Features
- Frequency (KHz): 1.3
- Sounder unit: Speaker
- Single bolt fitting

Power
- Current: Max 0.3 Amps

Durability & standards
- Mechanical vibration: 10G
- Operating temperature: -40 to +85°C
- CE marked

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
- UKCA marked
- 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

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 644 & 508 series mobile digital recorders, IP cameras and accessories
Ultrasonic object detection systems
Backsense® radar object detection systems & on-screen display

2 YEARS

2 Year New-For-Old Warranty

AI Cameras
Careye® Turn Assist
Camera monitor system ancillaries
MDR 641 series mobile digital recorders
Ultrasonic object detection on-screen display
Ultrasonic object detection ancillaries and extras
Alarm ancillaries
Backchat® Speaking alarms
Vehicle intercom
QVS Quiet vehicle sounder
Zonesafe® Antenna & Control unit

1 YEAR

1 Year New-For-Old Warranty*

ESSENTIAL camera monitor systems
ZoneSafe® RFID Tags and ancillaries
Dashcams
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.

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