



Product Range Vehicle Vision Systems



2017 / 04



Cameras:



Dual Sensor Crossfading Camera

type number 01208



True Day & Night WDR Vehicle Camera
with Lens Protection

type number 01257



True Day & Night Wide Angle WDR Vehicle Camera
with Lens Protection

type number 01258



True Day & Night Wide Angle WDR Vehicle Camera

type number 01295



B & W Wide Angle Ball Vehicle Camera

type number 01112



Color Wide Angle Ball Vehicle Camera

type number 01014



Low Light Full HD Vehicle Camera
with Lens Protection

type number 01299



Full HD Vehicle Camera
with Lens Protection

type number 01300



Full HD Wide Angle Vehicle Camera
with Lens Protection

type number 01302



Full HD Wide Angle Vehicle Camera

type number 01301



Full HD Wide Angle Ball Vehicle Camera

type number 01297

Illuminators:



Infrared Illuminator for Vehicles

type number 01255



Wide Angle Infrared Illuminator for Vehicles

type number 01256

Monitors:



7" Flip Down Video Monitor
for Overhead Mounting

type number 01111



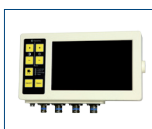
7" Video Monitor
for Dashboard Mounting

type number 01201



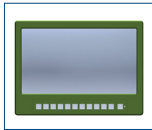
7" Native Full HD Flip-Down Monitor
for Overhead Mounting

type number 01304



7" Native Full HD Monitor
for Dashboard Mounting

type number 01303



10" WUXGA / Native Full HD Monitor
for Dashboard Mounting

type number 01284



12" Native Full HD Monitor
for Dashboard Mounting

type number 01288

Computer & Computer Monitors with Video Input:



12" Computer with Picture-in-Picture
Video Input

type number 01051



10" Multi Function Display
with Picture-in-Picture Video Input

type number 00407

Video Distribution:



Video Server and VGA Switch

type number 00975



Video Splitter

type number 00898



Video Crosspoint-Switch with Picture-in-Picture

type number 00899



Dual Sensor Crossfading Camera

type number 01208



Main Features:

- Joins the advantages of both, WDR CMOS color camera and infrared thermal imaging in one small ruggedized enclosure
- Equipped with our latest full digital crossfader technology
- Stepless overlay of the pictures from both sensors
- Two cleaning nozzles
- Integrated glass heater (option) for the visual sight sensor
- Completely controlled via CAN-Bus
- Integrated galvanically isolated power supply
- Thermal imager with full video speed
- ITAR-Free

Options:

- Video standard NTSC (60 Hz)
- Thermal imager Resolution 800 x 600 active pixels
- multiple lenses for another angles of view

Optional accessories:

- Various displays and video distribution units with integrated camera remote control
- Mounting adapters and wiring harnesses for various vehicles

Technical Data:

Color camera:	
Sensor:	1/3" SONY Exmor CMOS 1.3 Megapixel
Active pixels:	1305 x 1049 (H x V)
Dynamic range with WDR mode:	120 dB
Horizontal resolution:	more than 800 TVL
Exposure control:	Shutter iris Automatic gain control Motorized, remote controlled iris
Sensitivity:	Color: 0.08 Lux (50 IRE) at Sens up „OFF“
Standard lens:	f = 3.4 mm; F = 1.6 -16 C
Angle of view:	matched with thermal imager

Thermal Imager:	
Sensor:	FPA uncooled VOx detector
Active pixels:	640 x 480 (H x V)
Pixel size:	17 µm
Spectral range:	8 - 14 µm
Sensitivity:	≤ 50 mK
Video frame rate:	50 Hz (full speed)
Standard lens:	f = 8.8 mm
Angle of view:	70° H / 53° V ± 5 %
Startup-time:	< 5 s
Adjustable Calibration Time:	1 min - 90 min
Calibration Prewarning:	optional 1 s - 5 s



Dual Sensor Crossfading Camera

type number 01208

Video standard:	PAL (50 Hz)
Video output:	CVBS 1 V PP / 75 Ω
Remote control:	Full remote control and Built-In Test via CAN-Bus
CAN-Bus:	Version 2.0B (SAE J1939) protocol CAN-Open or CAN-CUP
Connector:	VG95234A20A48PN
Power supply:	24 V DC according to VG 96916-5
Power input:	< 25 W
Temperature:	-40 °C to +71 °C (operating)
Dimensions:	183 x 127x 221 (W x H x D) without connector
Weight:	< 3.5 kg
Color:	RAL 6031 bronze green or TBD
EMC / EMI:	VG 95373 (MIL-STD-461G on request)
Protection:	IP 68 (immersion depth up to 4 m)
Shock / Vibration:	MIL-STD-810G

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

True Day & Night WDR Vehicle Camera with Lens Protection

type number 01257



Main Features:

- Produces clear images 24 hours a day
- True color pictures during daylight
- Black and white pictures at twilight with excellent light sensitivity
- Ideally suited for use with covert infrared illuminators in total darkness
- No information loss due to very large differences in light intensity within a scene thanks to **Wide Dynamic Range**
e.g. driving in a tunnel (daylight outside, low light levels inside) or vehicle with strong headlights follows
- Well suited to improve the view of the driver and general situational awareness
- Waterproof and extremely robust camera enclosure withstand mud, shocks and vibrations
- For use in harsh environments such as armored military wheeled or tracked vehicles
- Remote controlled door protects the lens when the camera is currently not used.
- Durable brush on back side of protective door for objective lens window cleaning
- Lens window made from chemically hardened glass
- Basic remote control (camera on / off, lens cleaning and closing protective door) via discrete control input
- sophisticated remote control for all camera functions and Built-In Test via CAN-Bus

Technical Data:

Sensor type:	1/3" SONY Exmor CMOS 1.3 Megapixels
Active pixels:	1305 x 1049 (H x V)
Video standard:	PAL / NTSC
Video output:	CVBS 1 V PP / 75 Ω
Horizontal resolution:	more than 800 TVL
Exposure control:	Shutter iris Automatic gain control
Sensitivity (color):	0.4 Lux; 40 IRE (Sens-Up off)
Sensitivity (B&W):	0.04 Lux; 40 IRE (Sens-Up off)
Further improvement of sensitivity by Sens-Up:	2x ~ 30x for normal mode 2x ~ 6x for WDR mode
IR cut filter removal for day and night switching:	automatically depending on the illumination intensity or controlled by CAN-Bus
WDR:	Using frames of Long & Short Exposure
Dynamic Range with WDR mode:	120 dB
Noise suppression:	Enhanced 2D + 3D Dynamic Noise Reduction
Picture orientation:	Normal, Mirror, V-Flip, Rotate
Image processing:	Zoom, Pan, PIP
White Balance:	ATW, AWB, MANUAL
Standard lens:	f = 3.6 mm; F = 2
Angle of view:	72° H / 54° V (another angles of view on request)
CAN-Bus:	Version 2.0B (SAE J1939) with protocol CAN-Open or CAN-CUP
Integrated test patterns:	Grey scale, Multiburst



True Day & Night WDR Vehicle Camera with Lens Protection

type number 01257

Optional Accessories:

- Infrared illuminator type number 01255 with radiation characteristics matched to camera's angle of view can be directly controlled from the camera.
- Various displays and video distribution units with integrated camera remote controllers
- Mounting adapters and wiring harnesses for various vehicles

Infrared illuminator control interface:	Inputs & Outputs for dimming and function monitoring
Connector:	VG95234A20A48PN
Power supply:	24 V DC according to VG 96916-5
Power input:	< 25 W
Temperature:	-40 °C to +72 °C (operating) -40 °C to +90 °C (storage)
Dimensions:	160 x 90 x 141 mm (W x H x D) without connector
Weight:	approx. 2.2 kg
Color:	RAL 6031 bronze green or TBD
EMC / EMI:	VG 95373 (MIL-STD-461E on request)
Protection:	IP 67 (immersion depth up to 4 m)
Shock / Vibration:	MIL-STD-810E

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Picture of customized camera version published with permission of Rheinmetall Landsysteme GmbH



True Day & Night Wide Angle WDR Vehicle Camera with Lens Protection

type number 01258



Main Features:

- Produces clear images 24 hours a day
- True color pictures during daylight
- Black and white pictures at twilight with excellent light sensitivity
- Ideally suited for use with covert infrared illuminators in total darkness
- No information loss due to very large differences in light intensity within a scene thanks to **Wide Dynamic Range**
e.g. driving in a tunnel (daylight outside, low light levels inside) or vehicle with strong headlights follows
- Well suited to improve the view of the driver and general situational awareness
- Waterproof and extremely robust camera enclosure withstand mud, shocks and vibrations
- For use in harsh environments such as armored military wheeled or tracked vehicles
- Lens window made from chemically hardened glass
- Remote controlled door protects the lens when the camera is currently not used.
- Durable wiper blade on back side of protective door for objective lens window cleaning
- Basic remote control (camera on / off, lens cleaning and closing protective door) via discrete control input
- sophisticated remote control for all camera functions and Built-In Test via CAN-Bus

Technical Data:

Sensor type:	1/3" SONY Exmor CMOS 1.3 Megapixels
Active pixels:	1305 x 1049 (H x V)
Video standard:	PAL / NTSC
Video output:	CVBS 1 V PP / 75 Ω
Horizontal resolution:	more than 800 TVL
Exposure control:	Shutter iris Automatic gain control Motor driven iris
Sensitivity (color):	0.2 Lux; 40 IRE (Sens-Up off)
Sensitivity (B&W):	0.02 Lux; 40 IRE (Sens-Up off)
Further improvement of sensitivity by Sens-Up:	2x ~ 30x for normal mode 2x ~ 6x for WDR mode
IR cut filter removal for day and night switching:	automatically depending on the illumination intensity or controlled by CAN-Bus
WDR:	Using frames of Long & Short Exposure
Dynamic Range with WDR mode:	120 dB
Noise suppression:	Enhanced 2D + 3D Dynamic Noise Reduction
Picture orientation:	Normal, Mirror, V-Flip, Rotate
Image processing:	Zoom, Pan, PIP
White Balance:	ATW, AWB, MANUAL
Standard lens:	f = 2.3 mm; F = 1.4
Aperture control:	Remotely controlled Motor driven iris F-Stop can be set to 16, 8, 4 or 1.4 via CAN-Bus
Angle of view:	114° H / 86° V (another angles of view on request)
CAN-Bus:	Version 2.0B (SAE J1939) with protocol CAN-Open or CAN-CUP
Integrated test patterns:	Grey scale, Multiburst



True Day & Night Wide Angle WDR Vehicle Camera with Lens Protection

type number 01258

Optional Accessories:

- Infrared illuminator type number 01256 with radiation characteristics matched to cameras angle of view can be directly controlled from the camera.
- Various displays and video distribution units with integrated camera remote controllers
- Mounting adapters and wiring harnesses for various vehicles

Infrared illuminator control interface:	Inputs & Outputs for dimming and function monitoring
Connector:	VG95234A20A48PN
Power supply:	24 V DC according to VG 96916-5
Power input:	< 25 W
Temperature:	-40 °C to +72 °C (operating) -40 °C to +90 °C (storage)
Dimensions:	160 x 90 x 141 mm (W x H x D) without connector
Weight:	approx. 2.2 kg
Color:	RAL 6031 bronze green or TBD
EMC / EMI:	VG 95373 (MIL-STD-461E on request)
Protection:	IP 67 (immersion depth up to 4 m)
Shock / Vibration:	MIL-STD-810E

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Picture of customized camera version published with permission of Rheinmetall Landsysteme GmbH



True Day & Night Wide Angle WDR Vehicle Camera

type number 01295



Main Features:

- Produces clear images 24 hours a day
- True color pictures during daylight
- Black and white pictures at twilight with excellent light sensitivity
- Ideally suited for use with infrared covert illuminators in total darkness
- No information loss due to very large differences in light intensity within a scene thanks to **Wide Dynamic Range**
e.g. driving in a tunnel (daylight outside, low light levels inside) or vehicle with strong headlights follows
- Well suited to improve the view of the driver and general situational awareness
- Waterproof and extremely robust camera enclosure withstand mud, shocks and vibrations
- For use in harsh environments such as armored military wheeled or tracked vehicles
- Lens window made from chemically hardened glass
- sophisticated remote control for all camera functions and Built-In Test via CAN-Bus

Optional Accessories:

- Infrared illuminator type number 01256 with radiation characteristics matched to camera's angle of view can be directly controlled from the camera.
- Various displays and video distribution units with integrated camera remote controllers
- Mounting adapters and wiring harnesses for various vehicles

Technical Data:

Sensor type:	1/3" SONY Exmor CMOS 1.3 Megapixels
Active pixels:	1305 x 1049 (H x V)
Video standard:	PAL / NTSC
Video output:	CVBS 1 V PP / 75 Ω
Horizontal resolution:	more than 800 TVL
Exposure control:	Shutter iris Automatic gain control Motor driven iris
Sensitivity (color):	0.2 Lux; 40 IRE (Sens-Up off)
Sensitivity (B&W):	0.02 Lux; 40 IRE (Sens-Up off)
Further improvement of sensitivity by Sens-Up:	2x ~ 30x for normal mode 2x ~ 6x for WDR mode
IR cut filter removal for day and night switching:	automatically depending on the illumination intensity or controlled by CAN-Bus
WDR:	Using frames of Long & Short Exposure
Dynamic Range with WDR mode:	120 dB
Noise suppression:	Enhanced 2D + 3D Dynamic Noise Reduction
Picture orientation:	Normal, Mirror, V-Flip, Rotate
Image processing:	Zoom, Pan, PIP
White Balance:	ATW, AWB, MANUAL
Standard lens:	f = 2.3 mm; F = 1.4
Aperture control:	Remotely controlled Motor driven iris F-Stop can be set to 16, 8, 4 or 1.4 via CAN-Bus
Angle of view:	114° H / 86° V (another angles of view on request)
CAN-Bus:	Version 2.0B (SAE J1939) with protocol CAN-Open or CAN-CUP
Integrated test patterns:	Grey scale, Multiburst



True Day & Night Wide Angle WDR Vehicle Camera

type number 01295

Infrared illuminator control interface:	Inputs & Outputs for dimming and function monitoring
Connector:	VG95234A20A48PN
Power supply:	24 V DC according to VG 96916-5
Power input:	< 25 W
Temperature:	-40 °C to +72 °C (operating) -40 °C to +90 °C (storage)
Dimensions:	160 x 90 x 128.5 mm (W x H x D) without connector
Weight:	approx. 2.2 kg
Color:	RAL 6031 bronze green or TBD
EMC / EMI:	VG 95373 (MIL-STD-461E on request)
Protection:	IP 68 (immersion depth up to 4 m)
Shock / Vibration:	MIL-STD-810E

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Picture of customized camera version published with permission of Rheinmetall Landsysteme GmbH



B & W Wide Angle Ball Vehicle Camera

type number 01112



Main Features:

- Rugged monochrome high resolution compact camera for operating under harsh environmental conditions as in armoured wheeled or tracked military vehicles
- Applicable for drivers rear, front or side view
- Helps to keep blind spots in sight
- Extremely shock and vibration resistant waterproof housing
- Lens window made from chemically hardened glass
- Reinforced black plastic bracket allows flexible alignment of viewing direction
- For rear view, picture can be simply mirrored by reversing of the power supply polarity

- Heating for quick de-icing of the objective lens window with a variety of configuration possibilities:
 - automatic heating at low temperature
In this case, heating can be inhibited to make the camera invisible for enemys infrared cameras.
 - Heating switchable by display with time function
 - Heater connected in parallel to the heating of outside rear view mirror or windscreen switched by mirror / windscreen de-ice timer relay or temperature sensor.

Technical Data:

Sensor type:	1/4" Sony B&W CCD
Active pixels:	752 x 582 (H x V)
Video standard:	CCIR / STANAG 3350B (EIA / STANAG 3350C version on request)
Video output:	VBS 1 V PP/ 75 Ω
Horizontal resolution:	520 TVL
Exposure control:	Shutter Iris and automatic gain control
Sensitivity:	0.5 Lux / 50 IRE
Standard lens:	f = 1.78 mm; F = 2
Angle of view:	113° H / 84° V (Another angles of view on request)
Connection:	Shielded cable with SJTG06RT08-35PN014 plug
Power supply:	12 V DC +/-10 % / 2 W
Temperature:	-40 °C to +71 °C (operating) -40 °C to +90 °C (storage)
Dimensions:	ball-diameter 55 mm center of sphere 40 mm about mounting surface
Weight:	approx. 500 g
Material / Surface:	anodized Aluminium
Color:	Black
EMC / EMI:	according to VG 95373 (MIL-STD-461E on request)
Protection:	IP 69k according to EN 60529
Shock / Vibration:	MIL-STD-810E



B & W Wide Angle Ball Vehicle Camera

type number 01112

Optional Accessories:

- Rain- and sun protection shed
- Tree deflector
- Cleaning nozzle
- Displays with integrated camera power supply and remote control for wash pump and camera de-icing
- Camera power supply for land vehicle 24 V DC Network conforming to standard VG96916-5
- Video distribution units
- covert IR lighting (invisible to the human eye)

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.



Color Wide Angle Ball Vehicle Camera

type number 01014



Main Features:

- Rugged color high resolution compact camera for operating under harsh environmental conditions as in armoured wheeled or tracked military vehicles
- Applicable for drivers rear, front or side view
- Helps to keep blind spots in sight
- Extremely shock and vibration resistant waterproof housing
- Lens window made from chemically hardened glass
- Reinforced black plastic bracket allows flexible alignment of viewing direction
- For rear view, picture can be simply mirrored by reversing of the power supply polarity
- Heating for quick de-icing of the objective lens window with a variety of configuration possibilities:
 - automatic heating at low temperature
In this case, heating can be inhibited to make the camera invisible for enemys infrared cameras.
 - Heating switchable by display with time function
 - Heater connected in parallel to the heating of outside rear view mirror or windscreen switched by mirror / windscreen de-ice timer relay or temperature sensor.

Technical Data:

Sensor type:	1/4" Sony Color CCD
Active pixels:	752 x 582 (H x V)
Video standard:	PAL (NTSC version on request)
Video output:	CVBS 1 V PP/ 75 Ω
Horizontal resolution:	460 TVL
Exposure control:	Shutter Iris and automatic gain control
Sensitivity:	1 Lux / 50 IRE
Standard lens:	f = 1.78 mm; F = 2
Angle of view:	113° H / 84° V (Another angles of view on request)
Connection:	Shielded cable with SJTG06RT08-35PN014 plug
Power supply:	12 V DC +/-10 % / 2 W
Temperature:	-40 °C to +71 °C (operating) -40 °C to +90 °C (storage)
Dimensions:	ball-diameter 55 mm center of sphere 40 mm about mounting surface
Weight:	approx. 500 g
Material / Surface:	anodized Aluminium
Color:	Black
EMC / EMI:	according to VG 95373 (MIL-STD-461E on request)
Protection:	IP 69k according to EN 60529
Shock / Vibration:	MIL-STD-810E



Color Wide Angle Ball Vehicle Camera

type number 01014

Optional Accessories:

- Rain- and sun protection shed
- Tree deflector
- Cleaning nozzle
- Displays with integrated camera power supply and remote control for wash pump and camera de-icing
- Camera power supply for land vehicle 24 V DC Network conforming to standard VG96916-5
- Video distribution units

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.



Low Light Full HD Vehicle Camera with Lens Protection

type number 01299



Main Features:

- Rugged camera for operating under harsh environmental conditions
- Well suited to improve driver's view and for general situational awareness
- SONY's 1/1.9" Exmor CMOS image sensor for excellent light sensitivity
- runs up to 1080p50/60 over 3G-SDI
- optimized for low latency
- No information loss due to very large differences in light intensity within a scene thanks to **Wide Dynamic Range**
- Waterproof and extremely robust camera enclosure withstand mud, shocks and vibrations
- For use in harsh environments such as armored military wheeled or tracked vehicles
- Remote controlled door protects the lens when the camera is not currently used
- Durable brush on back side of protective door for objective lens window cleaning
- Lens window made from chemically hardened glass
- Basic remote control (camera On / Off, lens cleaning and closing protective door) via discrete control input
- sophisticated remote control for all camera functions and Built-In Test via CAN-Bus
- Video outputs galvanically isolated from the vehicle power supply

Technical Data:

Sensor type:	1/1.9" Exmor Color CMOS
Active pixels:	1920 x 1080 (H x V) 2.1 Megapixel
Video standards:	1080p@25 / 30 / 50 / 60 720p@25 / 30 / 50 / 60 PAL / NTSC
Scanning System:	Progressive Scan (16:9)
Video output 1:	3G-SDI
Video output 2:	CVBS 1 V PP / 75 Ω
Horizontal resolution:	More than 1000TV Lines
Exposure control:	Shutter Iris 1/25(30)~1/30000s Automatic gain control
Exposure control modes:	WDR, HLC, BLC
Dynamic range with WDR mode (only video output 1):	120 dB
Day & Night Mode:	AUTO, COLOR, B/W, EXT
Sensitivity:	0.04 Lux (color) / 50 IRE @F = 1.4
Sensitivity (if Sens-Up On):	0.0006 Lux / 50 IRE @F = 1.4
White balance:	AWB, ATW
Noise suppression:	Enhanced 3D Dynamic Noise Reduction
Lenses:	M12 mount, fixed iris
Largest angle of view:	limited to maximal 72° H / 54° V
Effective angle of view:	Depends on selected lens
Picture orientation:	Normal, Mirror, V-Flip, Rotate
CAN-Bus:	Version 2.0 B (SAE J1939) with protocol CAN-Open or CAN-CUP
Connector:	D38999FD97D or triaxial
Power supply:	24 V DC according to VG 96916-5
Power input:	< 25 W



Low Light Full HD Vehicle Camera with Lens Protection

type number 01299

Options:

- Multiple lenses for different angles of view
- Video Output EX-SDI or Analog-HD instead of 3G-SDI
- ICR (Infrared Cutoff Removal) for better light sensitivity in monochrome mode and for use with covert infrared illuminators in total darkness
- Infrared illuminator control interface (for dimming and function monitoring)

Optional Accessories:

- Infrared illuminator type number 01255 with radiation angle matched to cameras angle of view can be directly controlled from the camera
- Various displays and video distribution units with integrated camera remote controller
- Mounting adapters and wiring harnesses for various vehicles

Temperature:	-40 °C to +72 °C (operating) -40 °C to +90 °C (storage)
Dimensions:	160 x 90 x 141 mm (W x H x D) without connector
Weight:	approx. 2.2 kg
Paint finish:	RAL 6031 bronze green
EMC / EMI:	VG 95373 (MIL-STD-461E on request)
Protection:	IP 67 (immersion depth up to 4 m)
Shock / vibration:	MIL-STD-810E

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.



Full HD Vehicle Camera with Lens Protection

type number 01300



Main Features:

- Rugged camera for operating under harsh environmental conditions as in armoured wheeled or tracked military vehicles
- Well suited to improve driver's view and for general situational awareness
- runs up to 1080p50/60 over 3G-SDI
- optimized for low latency
- No information loss due to very large differences in light intensity within a scene thanks to **Wide Dynamic Range**
- Waterproof and extremely robust camera enclosure withstand mud, shocks and vibrations
- For use in harsh environments such as armored military wheeled or tracked vehicles
- Remote controlled door protects the lens when the camera is not currently used
- Durable brush on back side of protective door for objective lens window cleaning
- Lens window made from chemically hardened glass
- Basic remote control (camera On / Off, lens cleaning and closing protective door) via discrete control input
- sophisticated remote control for all camera functions and Built-In Test via CAN-Bus
- Video outputs galvanically isolated from the vehicle power supply

Technical Data:

Sensor type:	1/3" Color CMOS
Active pixels:	1920 x 1080 (H x V) 2.1 Megapixel
Video standards:	1080p@50 / 60 1080i@50 / 60 1080p@25 / 30 720p@50 / 60 PAL / NTSC
Scanning System:	Progressive Scan (16:9)
Video output 1:	3G-SDI
Video output 2:	CVBS 1 V PP / 75 Ω
Horizontal resolution:	More than 1000TV Lines
Exposure control:	Shutter Iris 1/25(30)~1/30000s Automatic gain control
Exposure control modes:	WDR, HLC, BLC
Dynamic range with WDR mode (only video output 1):	120 dB
Day & Night Mode:	AUTO, COLOR, B/W, EXT
Sensitivity:	0.2 Lux (color) / 50 IRE
Sensitivity (if Sens-Up On):	0.002 Lux / 50 IRE
White balance:	AWB, ATW
Noise suppression:	Enhanced 3D Dynamic Noise Reduction
Lenses:	M12 mount, fixed iris
Largest angle of view:	limited to maximal 72° H / 54° V
Effective angle of view:	Depends on selected lens
Picture orientation:	Normal, Mirror, V-Flip, Rotate
CAN-Bus:	Version 2.0 B (SAE J1939) with protocol CAN-Open or CAN-CUP
Connector:	D38999FD97D or triaxial



Full HD Vehicle Camera with Lens Protection

type number 01300

Options:

- Multiple lenses for different angles of view
- Video Output EX-SDI or Analog-HD instead of 3G-SDI
- ICR (Infrared Cutoff Removal) for better light sensitivity in monochrome mode and for use with covert infrared illuminators in total darkness
- Infrared illuminator control interface (for dimming and function monitoring)

Optional Accessories:

- Infrared illuminator type number 01255 with radiation angle matched to cameras angle of view can be directly controlled from the camera.
- Various displays and video distribution units with integrated camera remote controller
- Mounting adapters and wiring harnesses for various vehicles

Power supply:	24 V DC according to VG 96916-5
Power input:	< 25 W
Temperature:	-40 °C to +72 °C (operating) -40 °C to +90 °C (storage)
Dimensions:	160 x 90 x 141 mm (W x H x D) without connector
Weight:	approx. 2.2 kg
Paint finish:	RAL 6031 bronze green
EMC / EMI:	VG 95373 (MIL-STD-461E on request)
Protection:	IP 67 (immersion depth up to 4 m)
Shock / vibration:	MIL-STD-810E

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.



Full HD Wide Angle Vehicle Camera with Lens Protection

type number 01302



Main Features:

- Rugged camera for operating under harsh environmental conditions as in armoured wheeled or tracked military vehicles
- Well suited to improve driver's view and for general situational awareness
- runs up to 1080p50/60 over 3G-SDI
- optimized for low latency
- No information loss due to very large differences in light intensity within a scene thanks to **Wide Dynamic Range**
- Waterproof and extremely robust camera enclosure withstand mud, shocks and vibrations
- For use in harsh environments such as armored military wheeled or tracked vehicles
- Remote controlled door protects the lens when the camera is not currently used
- Durable wiper blade on back side of protective door for objective lens window cleaning
- Lens window made from chemically hardened glass
- Basic remote control (camera On / Off, lens cleaning and closing protective door) via discrete control input
- sophisticated remote control for all camera functions and Built-In Test via CAN-Bus
- Video outputs galvanically isolated from the vehicle power supply

Technical Data:

Sensor type:	1/3" Color CMOS
Active pixels:	1920 x 1080 (H x V) 2.1 Megapixel
Video standards:	1080p@50 / 60 1080i@50 / 60 1080p@25 / 30 720p@50 / 60 PAL / NTSC
Scanning System:	Progressive Scan (16:9)
Video output 1:	3G-SDI
Video output 2:	CVBS 1 V PP / 75 Ω
Horizontal resolution:	More than 1000TV Lines
Exposure control:	Shutter Iris 1/25(30)~1/30000s Automatic gain control Motor driven iris
Exposure control modes:	WDR, HLC, BLC
Dynamic range with WDR mode (only video output 1):	120 dB
Day & Night Mode:	AUTO, COLOR, B/W, EXT
Sensitivity:	0.2 Lux (color) / 50 IRE
Sensitivity (if Sens-Up On):	0.002 Lux / 50 IRE
White balance:	AWB, ATW
Noise suppression:	Enhanced 3D Dynamic Noise Reduction
Standard lens:	F = 1.78 mm; F = 2
Angle of view:	132° H / 98° V
Picture orientation:	Normal, Mirror, V-Flip, Rotate
CAN-Bus:	Version 2.0 B (SAE J1939) with protocol CAN-Open or CAN-CUP
Connector:	D38999FD97D or triaxial



Full HD Wide Angle Vehicle Camera with Lens Protection

type number 01302

Options:

- Multiple lenses for smaller angles of view
- Video Output EX-SDI or Analog-HD instead of 3G-SDI
- ICR (Infrared Cutoff Removal) for better light sensitivity in monochrome mode and for use with covert infrared illuminators in total darkness
- Infrared illuminator control interface (for dimming and function monitoring)

Optional Accessories:

- Infrared illuminator type number 01256 with radiation angle matched to cameras angle of view can be directly controlled from the camera
- Various displays and video distribution units with integrated camera remote controller
- Mounting adapters and wiring harnesses for various vehicles

Power supply:	24 VDC according to VG 96916-5
Power input:	< 25 W
Temperature:	-40 °C to +72 °C (operating) -40 °C to +90 °C (storage)
Dimensions:	160 x 90 x 141 mm (W x H x D) without connector
Weight:	approx. 2.2 kg
Paint finish:	RAL 6031 bronze green
EMC / EMI:	VG 95373 (MIL-STD-461E on request)
Protection:	IP 67 (immersion depth up to 4 m)
Shock / vibration:	MIL-STD-810E

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.



Full HD Wide Angle Vehicle Camera

type number 01301



Main Features:

- Rugged camera for operating under harsh environmental conditions as in armoured wheeled or tracked military vehicles
- Well suited to improve driver's view and for general situational awareness
- runs up to 1080p50/60 over 3G-SDI
- optimized for low latency
- No information loss due to very large differences in light intensity within a scene thanks to **Wide Dynamic Range**
- Waterproof and extremely robust camera enclosure withstand mud, shocks and vibrations
- For use in harsh environments such as armored military wheeled or tracked vehicles
- Lens window made from chemically hardened glass
- sophisticated remote control for all camera functions and Built-In Test via CAN-Bus
- Video outputs galvanically isolated from the vehicle power supply

Technical Data:

Sensor type:	1/3" Color CMOS
Active pixels:	1920 x 1080 (H x V) 2.1 Megapixel
Video standards:	1080p@50 / 60 1080i@50 / 60 1080p@25 / 30 720p@50 / 60 PAL / NTSC
Scanning System:	Progressive Scan (16:9)
Video output 1:	3G-SDI
Video output 2:	CVBS 1 V PP / 75 Ω
Horizontal resolution:	More than 1000TV Lines
Exposure control:	Shutter Iris 1/25(30)~1/30000s Automatic gain control Motor driven iris
Exposure control modes:	WDR, HLC, BLC
dynamic range with WDR mode (only video output 1):	120 dB
Day & Night Mode:	AUTO, COLOR, B/W, EXT
Sensitivity (if Sens-Up On):	0.2 Lux (color) / 50 IRE
Sensitivity (if DSS On):	0.002 Lux / 50 IRE
White balance:	AWB, ATW
Noise suppression:	Enhanced 3D Dynamic Noise Reduction
Standard lens:	f = 1.78 mm; F = 2
Angle of view:	132° H / 98° V
Picture orientation:	Normal, Mirror, V-Flip, Rotate
CAN-Bus:	Version 2.0 B (SAE J1939) with protocol CAN-Open or CAN-CUP
Connector:	D38999FD97D or triaxial
Power supply:	24 V DC according to VG 96916-5



Full HD Wide Angle Vehicle Camera

type number 01301

Options:

- Multiple lenses for smaller angles of view
- Video Output EX-SDI or Analog-HD instead of 3G-SDI
- ICR (Infrared Cutoff Removal) for better light sensitivity in monochrome mode and for use with covert infrared illuminators in total darkness
- Infrared illuminator control interface (for dimming and function monitoring)
- 6 Watt-Heating for quick de-icing of the objective lens window

Optional Accessories:

- Infrared illuminator type number 01256 with radiation angle matched to cameras angle of view can be directly controlled from the camera
- Tree deflector
- Cleaning nozzle
- Various displays and video distribution units with integrated camera remote controller
- Mounting adapters and wiring harnesses for various vehicles

Power input:	< 25 W
Temperature:	-40 °C to +72 °C (operating) -40 °C to +90 °C (storage)
Dimensions:	160 x 90 x 128.5 mm (W x H x D) without connector
Weight:	approx. 2.2 kg
Paint finish:	RAL 6031 bronze green or TBD
EMC / EMI:	VG 95373 (MIL-STD-461E on request)
Protection:	IP 68 (immersion depth up to 4 m)
Shock / vibration:	MIL-STD-810E

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.



Full HD Wide Angle Ball Vehicle Camera

type number 01297



Main Features:

- Rugged compact camera for operating under harsh environmental conditions as in armoured wheeled or tracked military vehicles
- Well suited to improve driver's view and for general situational awareness
- runs up to 1080p50/60 over 3G-SDI
- optimized for low latency
- No information loss due to very large differences in light intensity within a scene thanks to **Wide Dynamic Range**
- Extremely shock and vibration resistant waterproof housing
- Reinforced black plastic bracket allows flexible alignment of viewing direction
- Picture can be mirrored for rear view
- Heating for quick de-icing of the objective lens window with a variety of configuration possibilities as:
 - automatic heating at low temperature

In this case, heating can be inhibited to make the camera invisible for enemy's infrared cameras.

 - Heating switchable by display control key (with time function)
 - Heater connected in parallel to the heating of outside rear view mirror or windscreen switched by mirror / windscreen de-ice timer relay or temperature sensor

Technical Data:

Sensor type:	1/3" Color CMOS
Active pixels:	1920 x 1080 (H x V) 2.1 Megapixel
Video standards:	1080p@50 / 60 1080i@50 / 60 1080p@25 / 30 720p@50 / 60
Scanning System:	Progressive Scan (16:9)
Video output:	3G-SDI
Horizontal resolution:	More than 1000TV Lines
Exposure control:	Shutter Iris 1/25(30)~1/30000s Automatic gain control
Exposure control modes:	WDR, HLC, BLC
Dynamic range with WDR mode:	120 dB
Day & Night Mode:	AUTO
Sensitivity:	0.1 Lux (color) / 50 IRE
Sensitivity (if Sens-Up On):	0.001 Lux / 50 IRE
White balance:	AWB
Noise suppression:	Enhanced 3D Dynamic Noise Reduction
Lenses:	M12 mount, fixed iris
Largest angle of view:	limited to maximal 113° H / 84° V
Effective angle of view:	Depends on selected lens
Picture orientation:	Normal, Mirror, V-Flip, Rotate
Camera Power supply:	12 V DC +/-10 % / 2 W
De-icing:	12 V DC / 2.5 W
Temperature:	-40 °C to +71 °C (operating) -40 °C to +90 °C (storage)



Full HD Wide Angle Ball Vehicle Camera

type number 01297

Options:

- Multiple lenses for different angles of view
- Video Output EX-SDI or Analog HD instead of 3G-SDI

Optional Accessories:

- Rain- and sun protection shed
- Tree deflector
- Cleaning nozzle
- Displays with integrated camera power supply and remote control for wash pump and camera de-icing
- Camera power supply for land vehicles (24 V DC) conforming to standard VG96916-5
- Video distribution units

Dimensions:	ball-diameter 55 mm (centre of sphere 40 mm about mounting surface)
Weight:	approx. 500 g
Material / Surface:	Black anodized Aluminium
EMC / EMI:	according to VG 95373 (MIL-STD-461E on request)
Protection:	IP 69k according to EN 60529
Shock / vibration:	MIL-STD-810E

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.



Infrared Illuminator for Vehicles

type number 01255



Main Features:

- Allows cameras to provide crystal clear, high signal images during the hours of darkness.
- Infrared semi - covert very homogenous illumination
- Well suited for IR- sensitive cameras (e.g. Aschenbrenner's type 01257)
- Long life LED's
- Remote control of light output
- Build-in test
- Developed for extrem harsh environmental conditions
- Ideal for armored wheeled vehicles and tracked vehicles
- Robust, waterproof and extremely shock- and vibration-resistant
- Milled aluminium housing with tree deflector

Options:

- Wavelength 940 nm for covert illumination
- CAN-Bus control interface
Version 2.0 B (SAE J1939) with protocol CAN-Open or CAN-CUP

Optional Accessories:

- Day & night WDR Camera type 01257 with Infrared Illuminator interface
- Cleaning nozzle
- Mounting adapters and wiring harnesses for various vehicles

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

Centroid Wavelength:	850 nm
Spectral bandwidth at 50%:	30 nm
Radiation angle:	80° H / 50° V
Distance:	depending on camera's sensitivity, 30 m with our camera 01257
power output control:	5 % ~ 100 % and OFF by discrete PWM-input
build-in test status:	by discrete output
Power supply:	24 V DC according to VG 96916-5 Function from 16 V
Power input:	< 15 W
Connector:	VG95234A14S-6PN
Dimensions:	170 x 119 x 93 (W x H x D) without connector
Weight:	approx. 1.9 kg
Enclosure:	milled Aluminium alloy
Paint finish:	RAL 6031 bronze green or TBD
Temperature:	-40 °C to +72 °C (operating) -40 °C to +90 °C (storage)
EMC / EMI:	VG 95373 (MIL-STD-461E on request)
Protection:	IP 67 (immersion depth up to 4 m)
Shock / vibration:	MIL-STD-810E



Wide Angle Infrared Illuminator for Vehicles

type number 01256



Main Features:

- Allows cameras to provide crystal clear, high signal images during the hours of darkness.
- Infrared semi - covert very homogenous illumination
- Well suited for IR- sensitive cameras (e.g. Aschenbrenner's types 01258 and 01295)
- long life LED's
- remote control of light output
- build-in test
- developed for extrem harsh environmental conditions
- ideal for armored wheeled vehicles and tracked vehicles
- Robust, waterproof and extremely shock- and vibration-resistant
- Milled aluminium housing with tree deflector

Options:

- Wavelength 940 nm for covert illumination
- CAN-Bus control interface

Version 2.0 B (SAE J1939) with protocol CAN-Open or CAN-CUP

Optional Accessories:

- Day & night WDR Cameras type 01259 and 01295 with Infrared Illuminator interface
- Cleaning nozzle
- Mounting adapters and wiring harnesses for various vehicles

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

Centroid Wavelength:	850 nm
Spectral bandwidth at 50 %:	30 nm
Radiation angle:	120° H / 120° V
Distance:	depending on camera's sensitivity, 25 m with our cameras 01258 and 01295
power output control:	5 % ~ 100 % and OFF by discrete PWM-input
build-in test status:	by discrete output
Power supply:	24 V DC according to VG 96916-5 Function from 16 V
Power input:	< 25 W
Connector:	VG95234A14S-6PN
Dimensions:	109 x 154 x 76 (W x H x D) without connector
Weight:	approx. 1.4 kg
Enclosure:	milled Aluminium alloy
Paint finish:	RAL 6031 bronze green or TBD
Temperature:	-40 °C to +72 °C (operating) -40 °C to +90 °C (storage)
EMC / EMI:	VG 95373 (MIL-STD-461E on request)
Protection:	IP 67 (immersion depth up to 4 m)
Shock / vibration:	MIL-STD-810E



Rugged 7" Flip Down Video Monitor for Overhead Mounting

type number 01111



Main Features:

- Rugged LCD-TFT color video monitor for use under harsh environmental conditions as in wheeled or tracked armoured military vehicles
- Mirrored or normal display for situational awareness imagers, driver vision enhancement imagers, gunner imagers
- Two video inputs useable for color- and monochrome cameras or thermal imaging cameras
- Milled aluminium housing

Options:

- Video overlay marking for approximate vehicle width at distances of 1 m, 2 m, 3 m and 4 m
- Display brightness and intensity of control element illumination switchable for day or night ambient light
- Night vision goggles compatibility
- CAN-Bus version 2.0B (SAE J1939), protocols CAN-Open or CAN-CUP for advanced camera control and build in test
- Version for 12 V DC board voltage available on request

Optional accessories:

- Various ruggedized cameras, thermal imagers
- driver vision enhancement imagers
- Wiring harnesses for various vehicles

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

Display type:	7" TFT LCD with LED Backlight
Resolution:	800 x 480 pixels (H x V)
Colors:	16.7 M (8 bit / color)
Active display:	152 x 91 mm
Contrast ratio typ:	1000:1
Brightness typ:	350 cd / m ²
Viewing angle:	±70° horizontal / ±70° vertical
Display windows:	Hardened, scratch resistant acrylic glass with anti-reflective and anti-fingerprint coating
Video inputs:	2 x CVBS according to PAL and NTSC
Power inputs:	24 V DC / 20 W ref. to VG96916 24 V DC / 12 W loop through for camera heating
Power outputs:	12 V DC / 5 W for camera power supply
Control inputs:	reverse gear video overlay marking enable display & illumination enable day / night switch
Control outputs:	relay drive signal for camera washer pump and camera windows cleaning
Control buttons:	contrast, brightness, backlight camera selection, camera cleaning
Connectors:	VG 96912
EMC / EMI:	VG 95373 (MIL-STD-461G on request)
Protection:	IP 54
Temperature:	-30 °C to +75 °C (operating) -30 °C to +80 °C (storage)
Dimensions:	280 x 55 (160 if open) x 162 mm (W x H x D) w/o connectors
Weight:	approx. 2 kg
Color:	titan silver



Rugged 7" Video Monitor for Dashboard Mounting

type number 01201



Main Features:

- Rugged LCD-TFT color video monitor for use under harsh environmental conditions as in wheeled or tracked armoured military vehicles
- Mirrored or normal display for situational awareness imagers, driver vision enhancement imagers, gunner imagers
- Two video inputs useable for color- and monochrome cameras or thermal imaging cameras
- CAN-Bus version 2.0B (SAE J1939), protocols CAN-Open or CAN-CUP for advanced camera control and build in test
- Milled aluminium housing

Options:

- Video overlay marking for approximate vehicle width at distances of 1 m, 2 m, 3 m and 4 m
- Display brightness and intensity of control element illumination switchable for day or night ambient light
- Night vision goggles compatibility
- Version for 12 V DC board voltage available on request

Optional accessories:

- Various ruggedized cameras and thermal imagers
- driver vision enhancement imagers
- Mounting adapters and wiring harnesses for various vehicles

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

Display type:	7" TFT LCD with LED backlight
Resolution:	800 x 480 pixels (H x V)
Colors	16.7 M (8 bit / color)
Active display:	152 x 91 mm
Contrast ratio typ:	1000:1
Brightness typ:	350 cd / m ²
Viewing angle:	± 70° horizontal / ± 70° vertical
Display windows:	Hardened, scratch resistant acrylic glass with anti-reflective and anti-fingerprint coating
Video inputs:	2 x CVBS according to PAL and NTSC
Power inputs:	24 V DC / 20 W ref. to VG96916 24 V DC / 12 W loop through for camera heating)
Power outputs:	12 V DC / 5 W for camera power supply
Control inputs:	reverse gear video overlay marking enable display & illumination enable day / night switch
Control outputs:	relay drive signal for camera washer pump and camera windows cleaning
Control buttons:	contrast, brightness, backlight, camera selection, camera cleaning
Connectors:	VG 96912
EMC / EMI:	VG 95373 (MIL-STD-461G on request)
Protection:	IP 65
Temperature:	-30 °C to +75 °C (operating) -30 °C to +80 °C (storage)
Dimensions:	236 x 135 x 50 mm (W x H x D) w/o connectors
Weight:	approx. 2 kg
Color:	RAL 1013 oyster white or TBD



Rugged 7" Native Full HD Flip-Down Monitor for Overhead Mounting

type number 01304



Main Features:

- Rugged LCD-TFT video monitor for use under harsh environmental conditions as in wheeled or tracked armoured military vehicles
- Mirrored or normal display for situational awareness imagers, driver vision enhancement imagers, gunner imagers
- 3G-SDI and CVBS video inputs useable for color- and monochrome cameras or thermal imaging cameras
- Video inputs galvanically isolated from the vehicle power supply
- Milled aluminium housing

Options:

- Video overlay marking for approximate vehicle width at distances of 1 m, 2 m, 3 m and 4 m
- Display brightness and intensity of control element illumination switchable for day or night ambient light
- additional SDI or CVBS inputs
- HDMI or DVI video inputs
- LCD-Glass heater
- Night vision goggles compatibility
- CAN-Bus version 2.0B (SAE J1939), protocols CAN-Open or CAN-CUP for advanced camera control and build in test
- Version for 12 V DC board voltage available on request

Technical Data:

Display type:	7" TFT LCD with LED Backlight
Resolution:	1920 x 1080 native pixels (H x V)
Aspect ratio:	16 : 9
Colors:	16.7 M (8 bit / color)
Supported resolutions:	SD 525i, 625i HD 720p 25, 30, 50 and 60 Hz HD 1080i 50, 60 Hz HD 1080p 25, 30, 50 and 60 Hz
Video inputs:	1 x 3G-SDI 1 x CVBS (PAL and NTSC)
Active display:	155 x 87 mm
Contrast ratio typ:	800 : 1
Brightness typ:	500 cd / m ²
Viewing angle:	±85° horizontal / ±85° vertical
Display window:	Hardened, scratch resistant acrylic glass with anti-reflective and anti-fingerprint coating
Power inputs:	24 V DC / 20 W ref. to VG96916 24 V DC / 12 W loop through for camera heating
Power outputs:	12 V DC / 5 W for camera power supply
Control buttons:	contrast, brightness, backlight, camera selection, camera cleaning (all buttons illuminated)
Control inputs:	reverse gear video overlay marking enable display & illumination enable day / night switch
Control outputs:	relay drive signals for camera washer pump and camera windows cleaning
Connectors:	VG 96912 and triaxial



Rugged 7" Native Full HD Flip-Down Monitor for Overhead Mounting

type number 01304

Optional Accessories:

- Various ruggedized cameras and thermal imagers
- driver vision enhancement imagers
- Wiring harnesses for various vehicles

EMC / EMI:	VG 95373 (MIL-STD-461G on request)
Protection:	IP 54
Temperature:	-20 °C to +70 °C (operating) -30 °C to +80 °C (storage)
Dimensions:	280 x 55 (160 if open) x 162 mm (W x H x D) w/o connectors
Weight:	approx. 2 kg
Paint finish:	titan silver

Ask for further technical information!
Functional or interface modifications can be realized on
request. Each configuration change causes a new type
number.



Rugged 7" Native Full HD Monitor for Dashboard Mounting

type number 01303



Main Features:

- Rugged LCD-TFT video monitor for use under harsh environmental conditions as in wheeled or tracked armoured military vehicles
- Mirrored or normal display for situational awareness imagers, driver vision enhancement imagers, gunner imagers
- 3G-SDI and CVBS video inputs useable for color- and monochrome cameras or thermal imaging cameras
- Video inputs galvanically isolated from the vehicle power supply
- Milled aluminium housing

Options:

- Video overlay marking for approximate vehicle width at distances of 1 m, 2 m, 3 m and 4 m
- Display brightness and intensity of control element illumination switchable for day or night ambient light
- additional SDI or CVBS inputs
- HDMI or DVI video inputs
- LCD-Glass heater
- Night vision goggles compatibility
- CAN-Bus version 2.0B (SAE J1939), protocols CAN-Open or CAN-CUP for advanced camera control and build in test
- Version for 12 V DC board voltage available on request

Technical Data:

Display type:	7" TFT LCD with LED Backlight
Resolution:	1920 x 1080 native pixels (H x V)
Aspect ratio:	16 : 9
Colors:	16.7 M (8 bit / color)
Supported resolutions:	SD 525i and 625i HD 720p 25, 30, 50 and 60 Hz HD 1080i 50, 60 Hz HD 1080p 25, 30, 50 and 60 Hz
Video inputs:	1 x 3G-SDI 1 x CVBS (PAL and NTSC)
Active display:	155 x 87 mm
Contrast ratio typ:	800 : 1
Brightness typ:	500 cd / m ²
Viewing angle:	±85° horizontal / ±85° vertical
Display window:	Hardened, scratch resistant acrylic glass with anti-reflective and anti-fingerprint coating
Power inputs:	24 V DC / 20 W ref. to VG96916 24 V DC / 12 W loop through for camera heating
Power outputs:	12 V DC / 5 W for camera power supply
Control buttons:	contrast, brightness, backlight, camera selection, camera cleaning (all buttons illuminated)
Control inputs:	reverse gear video overlay marking enable display & illumination enable day / night switch
Control outputs:	relay drive signals for camera washer pump and camera windows cleaning
Connectors:	VG 96912 and triaxial
EMC / EMI:	VG 95373 (MIL-STD-461G on request)



Rugged 7" Native Full HD Monitor for Dashboard Mounting

type number 01303

Optional Accessories:

- Various ruggedized cameras and thermal imagers
- driver vision enhancement imagers
- Wiring harnesses for various vehicles

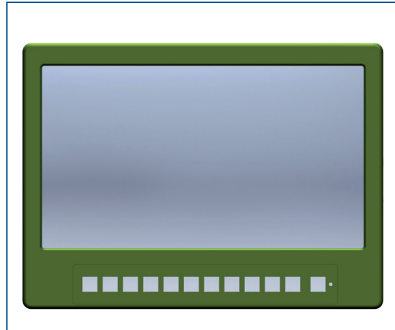
Protection:	IP 65
Temperature:	-20 °C to +70 °C (operating) -30 °C to +80 °C (storage)
Dimensions:	236 x 135 x 50 mm (W x H x D) w/o connectors
Weight:	approx. 2 kg
Paint finish:	RAL 1013 oyster white or TBD

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.



Rugged 10" WUXGA / Native Full HD Monitor for Dashboard Mounting

type number 01284



Main Features:

- Rugged LCD-TFT video monitor for use under harsh environmental conditions as in wheeled or tracked armoured military vehicles
- Mirrored or normal display for situational awareness imagers, driver vision enhancement imagers, gunner imagers
- 3G-SDI and CVBS video inputs useable for color- and monochrome cameras or thermal imaging cameras
- Video inputs galvanically isolated from the vehicle power supply
- Milled aluminium housing

Options:

- Video overlay marking for approximate vehicle width at distances of 1 m, 2 m, 3 m and 4 m
- Display brightness and intensity of control element illumination switchable for day or night ambient light
- Additional SDI or CVBS inputs
- HDMI or DVI video inputs
- LCD-Glass heater
- Night vision goggles compatibility
- CAN-Bus version 2.0B (SAE J1939), protocols CAN-Open or CAN-CUP for advanced camera control and build in test
- Version for 12 V DC board voltage available on request

Technical Data:

Display type:	10" TFT LCD with LED Backlight
Resolution:	1920 x 1200 native pixels (H x V)
Aspect ratio:	16 : 10
Colors:	16.7 M (8 bit / color)
Supported resolutions:	SD 525i and 625i HD 720p 25, 30, 50 and 60 Hz HD 1080i 50, 60 Hz HD 1080p 25, 30, 50 and 60 Hz
Video inputs:	1 x 3G-SDI 1 x CVBS (PAL and NTSC)
Active display:	217 x 136 mm
Contrast ratio typ:	800 : 1
Brightness typ:	700 cd / m ²
Viewing angle:	±85° horizontal / ±85° vertical
Display window:	Hardened, scratch resistant acrylic glass with anti-reflective and anti-fingerprint coating
Power inputs:	24 V DC / 20 W ref. to VG96916 24 V DC / 12 W loop through for camera heating
Power outputs:	12 V DC / 5 W for camera power supply
Control buttons:	contrast, brightness, backlight, camera selection, camera cleaning (all buttons illuminated)
Control inputs:	reverse gear video overlay marking enable display & illumination enable day / night switch
Control outputs:	relay drive signals for camera washer pump and camera windows cleaning
Connectors:	VG 96912 and triaxial



Rugged 10" WUXGA / Native Full HD Monitor for Dashboard Mounting

type number 01284

Optional Accessories:

- Various ruggedized cameras and thermal imagers
- driver vision enhancement imagers
- Wiring harnesses for various vehicles

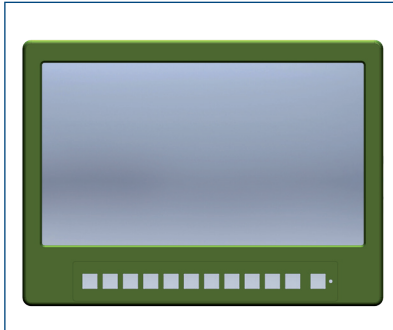
EMC / EMI:	VG 95373 (MIL-STD-461G on request)
Protection:	IP 65
Temperature:	-30 °C to +80 °C (operating) -30 °C to +80 °C (storage)
Dimensions:	270 x 200 x 50 mm (W x H x D) w/o connectors
Weight:	approx. 3 kg
Paint finish:	RAL 1013 oyster white or TBD

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.



Rugged 12" Native Full HD Monitor for Dashboard Mounting

type number 01288



Main Features:

- Rugged LCD-TFT video monitor for use under harsh environmental conditions as in wheeled or tracked armoured military vehicles
- Mirrored or normal display for situational awareness imagers, driver vision enhancement imagers, gunner imagers
- 3G-SDI and CVBS video inputs useable for color- and monochrome cameras or thermal imaging cameras
- Video inputs galvanically isolated from the vehicle power supply
- Milled aluminium housing

Options:

- Video overlay marking for approximate vehicle width at distances of 1 m, 2 m, 3 m and 4 m
- Display brightness and intensity of control element illumination switchable for day or night ambient light
- Additional SDI or CVBS inputs
- HDMI or DVI video inputs
- Touchscreen
- LCD-Glass heater
- Night vision goggles compatibility
- CAN-Bus version 2.0B (SAE J1939), protocols CAN-Open or CAN-CUP for advanced camera control and build in test
- Version for 12 V DC board voltage available on request

Technical Data:

Display type:	12" TFT LCD with LED Backlight
Resolution:	1920 x 1080 native pixels (H x V)
Aspect ratio:	16 : 9
Colors:	16.7 M (8 bit / color)
Supported resolutions:	SD 525i and 625i HD 720p 25, 30, 50 and 60 Hz HD 1080i 50, 60 Hz HD 1080p 25, 30, 50 and 60 Hz
Video inputs:	1 x 3G-SDI 1 x CVBS (PAL and NTSC)
Active display:	256 x 144 mm
Contrast ratio typ:	1000 : 1
Brightness typ:	400 cd / m ²
Viewing angle:	±85° horizontal / ±85° vertical
Display window:	Hardened, scratch resistant acrylic glass with anti-reflective and anti-fingerprint coating
Power inputs:	24 V DC / 20 W ref. to VG96916 24 V DC / 12 W loop through for camera heating
Power outputs:	12 V DC / 5 W for camera power supply
Control buttons:	contrast, brightness, backlight, camera selection, camera cleaning (all buttons illuminated)
Control inputs:	reverse gear video overlay marking enable display & illumination enable day / night switch
Control outputs:	relay drive signals for camera washer pump and camera windows cleaning
Connectors:	VG 96912 and triaxial



Rugged 12" Native Full HD Monitor for Dashboard Mounting

type number 01288

Optional Accessories:

- Various ruggedized cameras and thermal imagers
- driver vision enhancement imagers
- Wiring harnesses for various vehicles

EMC / EMI:	VG 95373 (MIL-STD-461G on request)
Protection:	IP 65
Temperature:	-30 °C to +80 °C (operating) -30 °C to +80 °C (storage)
Dimensions:	346 x 270 x 50 mm (W x H x D) w/o connectors
Weight:	approx. 3 kg
Paint finish:	RAL 1013 oyster white or TBD

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.



12" Computer with Picture-in-Picture Video Input

type number 01051



Main Features:

- Ruggedized computer system for use under harsh environmental conditions as in wheeled or tracked armoured military vehicles
- Front panel controls are backlit foil keys. Keydimming depends on display brightness.
- Eight-wire resistive touch system
- Keyboard with 6 function keys
- The CCIR-camera picture can be displayed as an overlay within the computer graphics.

Options:

- Flash Disk S-ATA instead of HDD
- WLAN, bluetooth, UMTS, modem, fiberoptical-LAN
- Joystick
- FDD and CD / DVD external
- Display with filter for use with night vision equipment
- Heating system for -30° C operating
- Camera module
- GPS module UBlox-5H
- SDIP 27 Level B
- MIL-STD 461E navy mobile & army
- 1 or 2 additional COM-Ports with DB9 or MIL connectors
- CAN-Bus
- Customised versions with other interfaces or connector types available on request

Ask for further technical information!
Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

Display:	12.1" XGA LED LCD with touchscreen Optional sunlight readable
CPU:	Intel Core 2 Duo ULV 1.06 GHz L2 cache 2 MB
Chipset:	North Bridge: Mobile Intel 945GM / GME Express South Bridge: Intel 82801GHM ICH7
Graphics:	224 MB SMA (max.) Intel Graphics Media Accelerator 950 (GMA 950), integrated 256 Bit, 400 MHz core 3D / 2D, Dynamic Video Memory Technology (DVMT)
RAM:	1 GB up to 4 GB DDRII-RAM (The maximum RAM size availability depends on type & version of the installed operating system.)
Storage:	Removable 2.5" S-ATA HDD 120 GB
Interfaces:	2x USB 2.0, 1x serial, 2x 10 / 100 MBit LAN, 1x DC-In, 1x Docking Connector, 1x PCMCIA Type II, 1x Express Card
Sound:	AC97 Sound and integrated speakers
Controls:	On / Off, LCD brightness, up / down, 6 free programmable function keys
Power supply:	External vehicle converter type no: 01070 required 24 V DC (18 V DC - 32 V DC) according to VG 96916-5 without interruptions
Environment:	IP 54, MIL-STD 810F, MIL-STD 461E, Navy Fixed & Air Force
Dimensions:	353 x 260 x 84 mm (W x H x D)
Weight:	approx. 4 kg
Color:	RAL6031 HR bronze green or TBD

By courtesy of our customer



10" Multi Function Display with Picture-in-Picture Video Input

type number 00407



Main Features:

- Rugged MFD for use under harsh environmental conditions as in wheeled or tracked armoured military vehicles
- Integrated heating for temperatures below 0 °C
- Front panel controls are backlit foil keys. Keydimming depends on display brightness.
- Resistive touch system with daylight readable circular polarizer
- USB-Keyboard function keys F1 - F13
- Two port USB hub for external keyboard / mouse
- RS232 interface for initialising size and position of the camera picture
- User programmable brightness for night-vision backlight

The CCIR-camera picture can be displayed as an overlay within the DVI or RGB-analogue screen.

Options:

- RS232 feature via USB upstream

Optional accessories:

- Mounting adapters and wiring harnesses for various vehicles
- Video distribution box
- Digital video recorder

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Technical Data:

Display type:	10.4" XGA LED LCD
Resolution:	1024 x 768 pixels (H x V) 16.7 Mio. colors
Display standards:	VGA, SVGA, XGA max. 60 Hz
Contrast ratio:	400:1 (typ.)
Brightness:	300 cd / m ² (typ.) at LCD-screen
Viewing angle:	±85° horizontal / ±85° vertical
Response Time:	25 ms (typ.) ton+toff
Power supply:	24 V DC (18 V DC - 32 V DC) according to VG 96916-5 without interruptions
Inputs:	<ul style="list-style-type: none"> ■ RGB analogue on 75 Ω ■ CVBS on 75 Ω ■ DVI 1.0 (cable length ≤ 4.5 m) ■ 2 x USB downstream port
Consumption:	< 30 W (< 80 W heated)
Controls:	<ul style="list-style-type: none"> ■ On / Off button ■ Brightness up / down ■ Backlight On / Off ■ Two Speaker Volume keys ■ Four On-screen Display keys
Connectors:	according to VG 96912
Shock:	25 g / 6 ms 100 g / 0.5 ms
EMI:	MIL-STD-461E
Protection:	IP 65 according to EN 60529
Temperature:	-32 °C to +55 °C (operating) -25 °C to +60 °C (storage)
Dimensions:	293 x 235 x 62 mm (W x H x D)
Weight:	approx. 3 kg
Color:	RAL6031 HR bronze green or TBD

By courtesy of our customer



Video Server and VGA Switch

type number 00975



Main Feature:

This device consists of two independent parts, mounted in one box:

- video server

The video server part is a full motion video encoder, that uses the standard MPEG / MPEG4 algorithm. The video server digitizes an NTSC / PAL analogue video source and distributes these digital images over an IP network. The distributed video stream is up to 30 frames / sec at a resolution of 720 x 480.

- 4 port VGA switch.

The VGA switch can feed one of four independent analogue VGA video input signals (up to UXGA) to one monitor output. The active input port is selected manually by push bottoms and indicated by LED.

Technical Data:

Power supply:	24 V DC according to VG 96916-5
Housing:	Aluminium, color RAL 1013 HR white
Protection:	IP 65 according to EN 60529
EMC / EMI:	according to MIL-STD-461E
Temperature:	-40 °C to +63 °C (operation) -46 °C to +85 °C (storage) (Method 501.4 and 502.4)
Humidity:	95 % rel. (Method 507.4)
Salt Fog:	5 % NaCl (Method 509.4)
Vibration:	Wheeled Vehicles Fig 514.5C-3 (Method 514.5)
Shock:	10 g, 6 ms (Method 516.5)
Dimensions:	210 x 88 x 220 mm (W x H x D)

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.



Video Splitter

type number 00898



Main Feature:

- Drives two displays from one camera
- Designed to drive long cables
- Excellent video specifications
- Low power
- High speed and fast settling
- Low signal distortion
- High output drive

Technical Data:

according to MIL-STD-810 F for wheeled vehicles:

Video standard:	CCIR / STANAG 3350B (EIA / STANAG 3350C version on request)
Video output:	VBS 1 V PP/ 75 Ω
Power supply:	24 V DC according to VG 96916-5
Temperature:	-46 °C to +63 °C operating
Humidity:	95 % rel.
Salt fog:	5 % NaCl at 35 °C
Shock:	10g, 6 ms
Dimensions:	210 x 88 x 220 mm (W x H x D)
Weight:	2 kg
Protection:	IP 65
Material:	Aluminium

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.

Video Crosspoint-Switch with Picture-in-Picture

type number 00899



Main Features:

- Enables up to six cameras with self-cleaning functions and up to four displays (CCIR) to be remotely monitored and controlled by CAN-Bus
- Designed to drive long cables
- Excellent video specification
- Low power
- High speed and fast settling
- Low signal distortion
- High output drive
- Picture-in-Picture function
- On-screen display

Technical Data:

according to MIL-STD-810 F for wheeled vehicles:

Video standard:	CCIR / STANAG 3350B (EIA / STANAG 3350C version on request)
Video output:	VBS 1 V PP/ 75 Ω
CAN-Bus:	Version 2.0 B (SAE J1939) protocol CAN-Open or CAN-CUP
Power supply:	24 V DC according to VG 96916-5
Temperature:	-46 °C to +63 °C (operating) -46 °C to +85 °C (storage) (Method 501.4 and 502.4)
Humidity:	95 % rel. (Method 507.4)
Salt fog:	5 % NaCl (Method 509.4)
Shock:	10 g, 6 ms (Method 516.5)
Vibration:	Wheeled Vehicles Fig 514.5C-3 (Method 514.5):
Dimensions:	235 x 88 x 220 mm (W x H x D) over all
Weight:	2.5 kg
Protection:	IP 65 according to EN 60529
Material:	Aluminium, color RAL 1013 HR white

Ask for further technical information!

Functional or interface modifications can be realized on request. Each configuration change causes a new type number.