



LEONARDO ELECTRONICS

# DNVIS 4 SITUATIONAL AWARENESS CAMERAS

Our driver and local situational awareness cameras provide a complete range of cameras for installation on to military vehicles to provide passive, wide-angle indirect view observation. Designed to enhance the operability of armoured vehicles, these cameras provide optimum vision and improved situational awareness for today's 24-hour all-weather battlefield environment.

DNVS 4 is the latest generation of the company's DNVS family. This addition is based on the successful DNVS 3 camera, which is combat proven and in-service with the UK and other armed forces on more than 14 different vehicle types, both wheeled and tracked.

Cameras can be used for the driver's forward or rear vision, or in a number of positions around the vehicle to facilitate safe navigation and transit in areas of danger. One or more of the cameras can be combined with one or more of the company's vehicle display screen units.

## DNVS 4

### DIGITAL DUAL CHANNEL THERMAL/COLOUR CAMERA

The DNVS 4 camera contains both a 640x480 high resolution thermal imaging camera and a colour day/night camera to provide optimum vision and situational awareness 24-hours a day, and in conditions of smoke and battlefield obscurants.

DNVS 4 provides both traditional analogue video outputs and digital video outputs (Def Stan 00-82 or GigE Vision). This enables full interchangeability between the current driver's night vision or local situational awareness systems, or future, fully digital, integrated vehicle electronics architectures (e.g. Def Stan 23-09 Generic Vehicle Architecture (GVA)).

### DNVS 4 OUTPUTS

Analogue video outputs from the two cameras are available either simultaneously as two separate video outputs or switchable on a single video output. The DNVS 4 cameras are fully backward compatible and interchangeable with the previous generation of DNVS cameras. Digital video outputs from the two cameras are available simultaneously from a single Ethernet connection.

### DNVS 4 INTEGRATION

DNVS 4 can be integrated with a single display to provide enhanced driver's vision, or as part of a full local situational awareness system, such as Road Marshall, to provide the vehicle with a full 360 degree field of regard. DNVS is a modular design concept providing maximum flexibility of installation across a wide range of vehicles, whilst the use of common line-replaceable units (LRUs) reduces the logistics burden and minimises fleet support costs.

Cameras can be fitted as an independent system to provide enhanced vision, or as part of an indirect vision system to provide the vehicle with a full 360 degree field of regard. All versions of the cameras are fully interchangeable, so that thermal imaging night vision, low light monochrome cameras, and colour day/light cameras can be chosen as required to meet operational requirements.

## KEY BENEFITS

- Affordable driver's and local situational awareness vision sensor
- 24-hour operating capability
- Directly interchangeable with other cameras in the company's product range
- Modular construction fits most vehicles
- Near instantaneous operation
- Optional wash/wipe and soft cover
- Low whole life costs

## KEY BENEFITS

- Dual channel thermal imaging and colour CCD cameras in a single unit provide optimised 24-hour all-weather indirect vision for under-armour operation
- High resolution 640x480 thermal imaging sensor
- Larger field of view than standard DVE units provides improved situational awareness and reduced blind area
- Simultaneous video outputs available from both cameras

## TECHNICAL SPECIFICATIONS

### QUALIFIED FOR MILITARY ARMoured FIGHTING VEHICLE USE AND PROTECTED MOBILITY

- Operating Temperature: -32 to +71°C (including Solar Loading)
- Weight: 2.5Kg, 6.6Kg (with Wash/Wipe Module)

### THERMAL IMAGER

- Spectral Band: 8 to 14µm
- Field of View: 52°Horizontal x 39°Vertical
- Detector Type: Uncooled Micro-Bolometer
- Detector Pixels: 640 x 480

### INTEGRAL CCD CAMERA

- Colour CCD, switching to Monochrome at low light.
- Sensitivity: 1 to 100,000 Lux
- Field of View: 62°Horizontal x 46.5°Vertical
- Detector Pixels: 752 x 582
- Detector Format: 1/3" CCD
- Resolution: >550 TV Lines in Daylight

### VIDEO OUTPUT STANDARDS

- Digital Video Format: Def Stan 00-82 or GigE Vision on 1000 BASE-T Ethernet
- Analogue Video Format: CCIR or RS 170

### OPERATIONAL STATUS

- In service with the British Army on wheeled and tracked vehicles.

## DIMENSIONS WIDTH X HEIGHT X DEPTH (MM) (INC. CONNECTOR)

- DNVS 4: 142 x 83 x 181
- With Wash/Wipe Module: 199 x 92 x 221

### CONFIGURATION OPTIONS

Default Camera - DNVS 4 Dual Channel Thermal/Colour Camera, (Canvas Cover - Optional)

Wash/Wipe Module (Optional), (Canvas Cover - Optional)



## DNVS 4C

### SINGLE CHANNEL COLOUR DAY/NIGHT SITUATIONAL AWARENESS CAMERA

The DNVS 4C colour day/night camera version provides the best full colour video performance at higher light levels, switching to monochrome operation once light levels fall below a threshold, providing an improved low-light picture. The monochrome night mode maintains excellent performance at scene illumination levels down to 0.1 lux.

If operation is required at very low light levels or complete darkness, a high performance near IR illuminator option is available. Matching the IR illuminator with the camera provides a flat, uniform illumination for the camera field of view that is invisible to the naked eye. This can offer a more cost effective solution to imaging at very low light levels when compared to thermal imaging solutions.

The near IR illuminators are supplemented by a power supply/switching unit which allows the illuminators to be easily controlled from our range of vehicle display units. An optional digital module providing digital video outputs (Def Stan 00-82 or GigE Vision) is available for internal installation.

Alternatively, the DNVS 4 product provides both analogue and digital video outputs and combines both thermal and visual wavebands into a single camera unit.

This range of cameras provides both traditional analogue video outputs, and digital video outputs, allowing the cameras full interchangeability between the current driver's night vision or local situational awareness systems, or future, fully digital, integrated vehicle electronics architectures.

### CONFIGURATION OPTIONS

Default Camera - DNVS 4 Single Channel Thermal/Colour Camera (Canvas Cover - Optional)

Wash/Wipe Module with or without Grille (Optional) (Canvas Cover - Optional)



## TECHNICAL SPECIFICATIONS

### QUALIFIED FOR MILITARY ARMoured FIGHTING VEHICLE USE AND PROTECTED MOBILITY

- Operating Temperature: -32 to +71°C (including Solar Loading)
- Weight: 2.2Kg, 6.3Kg (with Wash/Wipe Module)

### COLOUR DAY/NIGHT CAMERA

- Sensitivity: 1 to 100,000 Lux (Colour), 0.1 to 100,000 Lux (Monochrome)
- Nominal Fields of View: Option 1 - 90°Horizontal x 68°Vertical, Option 2 - 64°Horizontal x 48°Vertical
- Detector Pixels: 752 x 582
- Detector Format: 1/3" CCD
- Horizontal Resolution: 480 TV Lines
- Range with/without Illuminator: Data on request
- Digital Video Output over Ethernet: Def Stan 00-82 or GigE Vision (optional)

### OPERATIONAL STATUS

- In service with the British Army on wheeled and tracked vehicles.

## DIMENSIONS - WIDTH X HEIGHT X DEPTH (MM) (INC. CONNECTOR)

- DNVS 4C: 142 x 83 x 181
- With Wash/Wipe Module: 199 x 92 x 221

### IR ILLUMINATOR

- Nominal IR Frequency: Near IR
- Input Power (Max): 45W



Typical Camera and IR Illuminator installation

### IR Illuminator (Optional)



## DNVS 4M

### SINGLE CHANNEL LOW LIGHT MONOCHROME SITUATIONAL AWARENESS CAMERA

The DNVS 4M monochrome low light camera provides the best performance at/in near darkness levels, maintaining excellent performance at scene illumination levels down to 0.01 lux. If operation is required at very low light levels or total darkness, then a high performance IR illuminator option is available.

Matching the IR Illuminator with the camera provides a flat, uniform illumination for the camera field of view that is invisible to the naked eye. This can provide a more cost effective solution to imaging at very low light levels compared to thermal imaging solutions. The IR illuminators are supplemented by a power supply/switching unit which allows the illuminators to be easily controlled from our range of vehicle displays.

An optional digital module, providing digital video outputs (Def Stan 00-82 or GigE Vision) is available for internal installation. Alternatively, the DNVS 4 product provides both analogue and digital video outputs and combines both thermal and visual wavebands into a single camera unit.

This range of cameras provides both traditional analogue video outputs, and digital video outputs, allowing the cameras full interchangeability between the current driver's night vision or local situational awareness systems, or future, fully digital, integrated vehicle electronics architectures.

#### CONFIGURATION OPTIONS

DNVS 4M Single Channel Low Light Monochrome Situational Awareness Camera

Wash/Wipe Module with or without Grille (Optional)  
(Canvas Cover -Optional)



IR Illuminator (Optional)



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## TECHNICAL SPECIFICATIONS

### QUALIFIED FOR MILITARY ARMoured FIGHTING VEHICLE USE AND PROTECTED MOBILITY

- Operating Temperature: -32 to +71°C (including Solar Loading)
- Weight: 2.2Kg, 6.3Kg (with Wash/Wipe Module)

### COLOUR DAY/NIGHT CAMERA

- Sensitivity: 0.01 to 100,000 Lux
- Nominal Fields of View: Option 1 -90°Horizontal x 68°Vertical, Option 2 -64°Horizontal x 48°Vertical
- Detector Pixels: 752 x 582
- Detector Format: 1/3" Monochrome CCD
- Horizontal Resolution: >500 TV Lines
- Range with/without Illuminator: Data on request
- Digital Video Output over Ethernet: DEFSTAN 00-82 or GigE Vision (Optional)

### OPERATIONAL STATUS

- In service with the British Army on wheeled and tracked vehicles.

### DIMENSIONS - WIDTH X HEIGHT X DEPTH (MM) (INC. CONNECTOR)

- DNVS 4M: 142 x 83 x 181
- With Wash/Wipe Module: 199 x 92 x 221

### IR ILLUMINATOR

- Nominal IR Frequency: Near IR
- Input Power (Max): 45W



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