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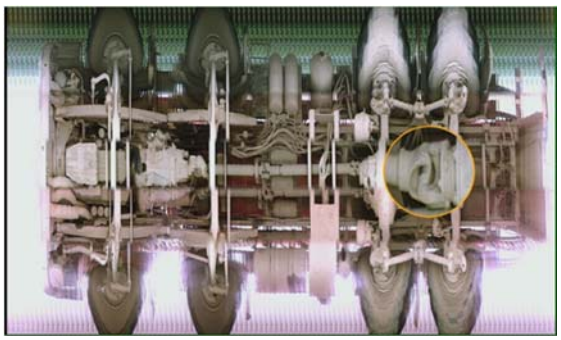
# WG Static Under Vehicle Imaging Surveillance System (UVIS)



The WG Static Under Vehicle Imaging Surveillance System (UVIS) has been optimised for fixed checkpoints, provides security, border control and law enforcement teams with the advanced, high performance, under vehicle imaging solution for this essential aspect of vehicle search at fixed checkpoints to help to protect facilities from threat items or people concealed under vehicles. The vehicles can range from cars to trucks including buses and trains.

The image capture survey unit (WSU) sits in the roadway, complete with 5 underside capture cameras and 1 front view camera.

The image processing and display sub-system (WCU) software acquires and processes the video from each of the cameras. It then generates and displays the composite single image for the operator.

The WG Static Under Vehicle Imaging Surveillance System can be either mounted on the surface of the road or in a shallow trench. It does not require excavation to make space for the imaging device, so there are no drainage requirements.

## GENERAL SPECIFICATION

**Environmental**

- The system can operate in the following environmental conditions:

WSU:

- Temperature - -20C to 55C
- Humidity - 90% non-condensing
- Dust/Liquid – IP67+

WCU:

- Temperature - -10C to 55C
- Humidity - 90% non-condensing
- Dust/Liquid – Indoor conditions

Note: when installed in location where the WSU will be exposed to direct sunlight for extended periods, it is recommended that it is shaded.

**Robustness**

The WG WSU is designed to withstand being driven over by vehicles with gross weights not exceeding 40 tonnes, i.e., a maximum of 10 tonnes per axle.

Compliant with all relevant CE requirements.

**Service and Support**

The system is modular and designed to allow speedy and inexpensive servicing in the field.

The systems are equipped to allow diagnostic analysis through remote access using the internet.

**Reliability**

MTBF of > 10,000 hours when used in accordance with the specification and operating instructions.

- Up to 12x zoom at full resolution
- Storage and recovery of all images
- LPR Assist which provides a built in basic licence plate read function
- Image comparison from stored images
- Frame by frame inspection
- Free flow and single vehicle modes
- Forward and reverse vehicle flow modes

## OPTIONS

- 24 vdc battery pack with charger
- Automatic License Plate Recognition [ALPR]
- Extension cables up to 70m long (copper) or 500m (fibre optic).
- Operation from 24 vdc supply
- Second display unit to show the Detail / Zoom view
- Traffic guidance lozenges to keep vehicles central over the WSU.
- Viewer software licence to allow examination of archived records on another PC

## STANDARD SOFTWARE

- A whole full colour under vehicle image is displayed in about a second after the rear edge of the vehicle has passed over the WSU.
- Detail / Zoom images – the user can inspect the image frame by frame, if required.
- Automatic trigger to start and stop scanning using image processing.
- LPR Assist which uses the front camera image to provide the operator with the assistance to read / recognise the Licence Plate for many countries.
- Single and Free flow modes of operation
- Vehicle speeds up to 20 km / hr.
- Archive and retrieval of images from the internal hard disk.
- Automatic retrieval of "verified" images for comparison.
- Storage of images and data onto removable storage media.
- Remote access for system analysis and upgrade.

**Optional**

- Full Automatic License Plate Recognition
- Transmission via local area network (copper wire or optical fibre) from the WCU.
- Second display unit to show the Detail / Zoom view.

## SYSTEM OPTIONS

**All systems**

- Easy to use
- Software
- Robust construction
- 19″ rack Control Unit
- Voltage supplies from 90 to 260 volts ac or 24 volts dc

**Portable**

- Suitable for all road vehicle types
- 2 people can deploy a unit in less than 5 minutes
- Can be transported in a car – it does NOT need a trailer
- 19″ high brightness LCD display for daylight viewing
- Moulded, wheeled cases for the Control and Camera Units

**Static**

- Suitable for all road vehicle types
- No vault required in the roadway
- 19″ desktop LCD display

**Compact**

- Suitable for cars and light vans
- Compact camera unit
- Models for temporary and permanent checkpoints

**Rail**

- Suitable for Rail vehicles
- Supplementary lighting module
- Models for temporary and permanent installations

## WG SURVEY UNIT (WSU)

- WG Survey Unit (WSU) comprises the main (camera and lighting) unit, forward looking camera and the optional Automatic Licence Plate Recognition (ALPR) module.

**Dimensions**

- The overall dimensions of both the WSU are:
- Length (between the wheels) - 90 cm
- Width (direction of motion of the vehicle) - 25 cm
- Height - 8 cm

**Weight (Unpacked)**

- VSU - 22kg

**Electrical**

- Lighting - Low energy LED lighting ensures adequate and uniform illumination of the underside of vehicles up to 1.2 m from ground level.
- Power - Power to the WSU is low voltage.

**Cabling**

- The standard inter-connection cable between the WSU and WCU is 20m long.
- Optional - extensions provide up to 70m with [conventional data connection] or 500m [optical fibre data connection.

**Construction**

- The WSU is made from powder coated aluminium
- The WSU has an extended baseplate with 20mm holes to facilitate bolting to the road surface. Application Note WS1 provides guidance about installation
- The WSU is built to IP67+ standard
- The WSU will withstand a drive-over by a 40T vehicle with a maximum 10 tonne axle weight

**Imaging**

- The WSU has 5 cameras to image the underside of vehicles and, with the optional ANPR, a camera which images the front face of oncoming vehicles to allow the number plate to be recorded. Vehicles to be scanned can range from small cars to articulated trucks
- The underside vertical range (height) is from 12 cm to 120 cm. For an underside 120 cm from the ground the WSU will provide a complete underside image of a vehicle 2.5m wide

**Connectors**

- A single connector is used for power and data. External connectors are compatible with IP67 and are easy to use by an operator

**Electrical**

- Power (input) - 110 to 240 vac 50 / 60 Hz maximum
- Connectors - Connection to WSU Inter-connection cable is compatible with IP67

## CONTROL UNIT (WCU)

**Mechanical**

- Control unit is built into a 19″ rack and is housed in a sheet metal case. The 19″ rack Control Unit can be supplied either installed into a sheet metal case or open for mounting directly into an existing 19″ rack structure in your control room or control vehicle.
- Volt-free contacts are available to control external hardware such as barriers, blockers, traffic lights etc.
- Construction - Sheet metal case
- Depth (cm) – 36 Width (cm) – 54 Height (cm) - 19
- Weight (kg) - 21
- Environmental - Compatible with indoor operation
- Main front panel - Power On/Off
- Functions - System start
- 20m interconnection cable

**Camera & Software**

- Resolution: 320 x 240 pixels minimum
- Sensor: Sony 2/5″ CCD, colour
- Data: up to 1000 Mbps, GigE
- Frame rate: 30 fps
- Lens: 2.1 mm focal length
- Software: Image management software has been developed to ensure the highest quality images. The image software preserves the data of each frame from each camera. Each frame can be examined at full resolution.
- Unlike other systems, the displayed image is not limited to a fixed number of pixels. Typically, the WG image size for a car is 25 million pixels; unlike other systems where the image size is compressed to a fixed number of pixels, often as few as 2 million with a consequent loss of resolution.

**Operational Over Extended Distances**

- To allow operation over extended distances, extension cables are available as an option.
- Conventional copper cable extensions of up to 70m can be specified as an option.
- For data transmission distances of more than 70m and up to 500m, the optional fibre optic link should be specified.

**The WCU Unit is housed in a sheet metal 19″ rack case and comprises:**

- The system computer
- 24″ diagonal desktop style LCD display
- Keyboard
- Mouse
- System power controls
- Connector for the WSU connection cable