

HADECS

Highways Agency Digital Enforcement Camera System.



Designed for use on motorway gantries, developed with the Highways Agency to support the application of mandatory variable speed limits on selected motorways.

System Overview

HADECS was developed with the Highways Agency to support the implementation of mandatory variable speed limits on selected motorways. It combines radar technology for speed detection, multiple cameras for image capture, and data encryption techniques to ensure safe and secure transmission of evidence files.

The system was granted Home Office Type Approval following a period of rigorous testing by the Home Office Scientific Development Branch (HOSDB) in conjunction with the Police, and has now been deployed in a number of Managed Motorways schemes.

When an offence occurs, images are captured by the cameras located on the motorway gantry without the use of photographic wet film; the images are collected digitally and automatically transmitted in a secure, encrypted format using Internet Protocol (IP) communications technology. These evidence files are collected on a server located at the operating police force control room, where the files are decrypted and the evidence processed.

Key Features

- Home Office Type Approved for use on UK motorways
- Automatically enforces variable mandatory speed limits, or 'red-ring' speeds as displayed on Advanced Motorway Indicators (AMI)
- Images are collected digitally and automatically transmitted to the instation in a secure encrypted format using Advanced Encryption Standard (AES)
- Deployed on a number of motorways in support of Managed Motorway schemes
- Capable of installation on a range of motorway gantries



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Outstation Equipment Summary

Each outstation comprises of a gantry mounted camera head and a flash unit facing the rear of the vehicles. A control unit and network interface unit are housed in a roadside cabinet close to the gantry.

Camera Head

Contains a radar which measures the speed of the receding vehicles and if the speed is greater than the (variable) speed limit photographs are taken. A black and white image is taken for identification of the license plate; two colour images are taken for identification of the vehicle and to enable a secondary speed check of the vehicle. The camera head also contains a GPS system so that each offence packet is stamped with an accurate time. The Flash Unit is triggered for each photograph to ensure the vehicle details are captured in all light conditions.

Control Unit

Encrypts the images from the camera head and provides a scheduled download of the evidence to the Instation. The control unit also controls the camera head with commands from the Instation. An interface unit provides a secure link between control unit and the system in the control room.

Instation Equipment Summary

Each instation comprises the following subsystems and can interface to all the outstations located on the selected motorway(s):

Remote Evidence Retrieval System (RERS)

The RERS is located at the HA Control Centre with access to the motorway communications network. It provides communication with the distributed outstations and it obtains and stores encrypted evidence and log files. It also sends operational commands to the outstations and provides operational log files to the Maintenance Monitoring System via an ISDN or secure VPN connection.

Evidence Retrieval and Control Unit (ERCU)

The RERS copies the secure files to the Evidential Retrieval and Control Unit (ERCU), located at the Police back office, via a secure interface. The ERCU writes the evidence to the WORM (write once read many) disk.

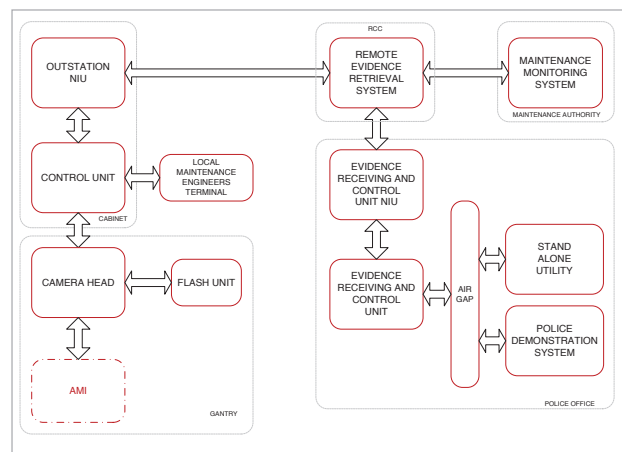
Police Demonstration System (PDS)

The PDS is located at the police back office but is not physically connected to the ERCU or the HA's communication network, which prevents any unauthorised access. It can be connected to the police communication network. The PDS imports the evidence from the WORM disk and decrypts it, at which point the operator can then view the photographic evidence and perform a secondary speed check, enabling the decision to process the evidence further. The PDS also controls the encryption keys used by the RERS and the outstation control unit.

Maintenance Monitoring System (MMS)

Remotely connects to the RERS and is used to download operational log files to enable the maintaining authority to remotely monitor the system performance and faults.

Overall Schematic



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Peek is a leading supplier of intelligent transport solutions. For more than 30 years, the firm has been providing advanced traffic control products and systems, management and maintenance services for both the urban and highways markets. Peek's established and proven portfolio includes traffic management systems incorporating SCOOT, highway congestion management and enforcement systems, vehicle detection systems, exterior lighting, as well as supervisory and communications systems. Peek is ISO 9001:2008 and ISO 14001:2004 certified.

With headquarters in Basingstoke, Hampshire, Peek employs more than 500 staff throughout the UK. Peek is part of the Traffic and Infra division of Imtech NV, a global technology services provider based in the Netherlands.

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