

# MATRICES MATRICES IP

SYSTEM INTEGRATION FOR TRANSPORTATION INFRASTRUCTURE



**MATRICES IP** is a fully integrated solution in which Video, Audio and Plant devices are interfaced using IP technology, to provide a unified control, monitoring and operating facility. MATRICES IP has been specifically developed for transportation infrastructure projects, including:

- Road Tunnels
- Airports
- Underground and Metro stations
- Regional Control Centres
- Local and National Road Networks
- Rail related Infrastructure

By taking a holistic approach to system implementation **MATRICES IP** can enable a substantial reduction in project timescale, cost and risk.

The ability to integrate and test the whole solution prior to installation on site also brings significant benefits.

***“Advanced functionality, proven reliability and cost effective solutions”***



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## MATRICES IP

**MATRICES IP** is a natural evolution of the PDS philosophy of integrating all forms of plant data into a cohesive, intuitive front end operating Control and Monitoring facility.

By combining Video (CCTV), Audio (PA and telephones), Plant (lighting, ventilation, electrical and pumping) and Traffic (VMS, MIDAS and Signs) using advanced IP technology enables all of this data to be analysed, managed and recorded in a common format.

The information is then acted upon by proven control algorithms and plans to provide co-ordinated plant operation for optimised automatic and effective emergency responses.

The use of an integrated solution like **MATRICES IP** provides a range of benefits for both new and refurbishment transportation infrastructure projects, including:

- Significant reduction in plant cabling, reducing cost and on-site timescales
- Ability to integrate and test the whole solution off-site, minimising commissioning effort and on-site interfacing problems
- Future expandability, using Plug & Play IP enabled devices and associated object based software
- In-built training facilities using video / audio / data roll-back, improving operator responses to real emergency situations
- Improved overall system integrity using fault tolerance and redundancy, increasing the reliability of data transmission and processing
- Co-ordinated data supports improved traffic analysis, emergency situation detection and fire & security responses
- Intuitive user interfaces using common principles for more effective and efficient operation of the infrastructure
- Open, modular software supporting client expandability and unlimited interface capability

**MATRICES IP** is suitable for all transportation infrastructure projects, with solutions available for fully Integrated, Hybrid and Legacy installations i.e. supporting new, existing, and old technology in any combination.

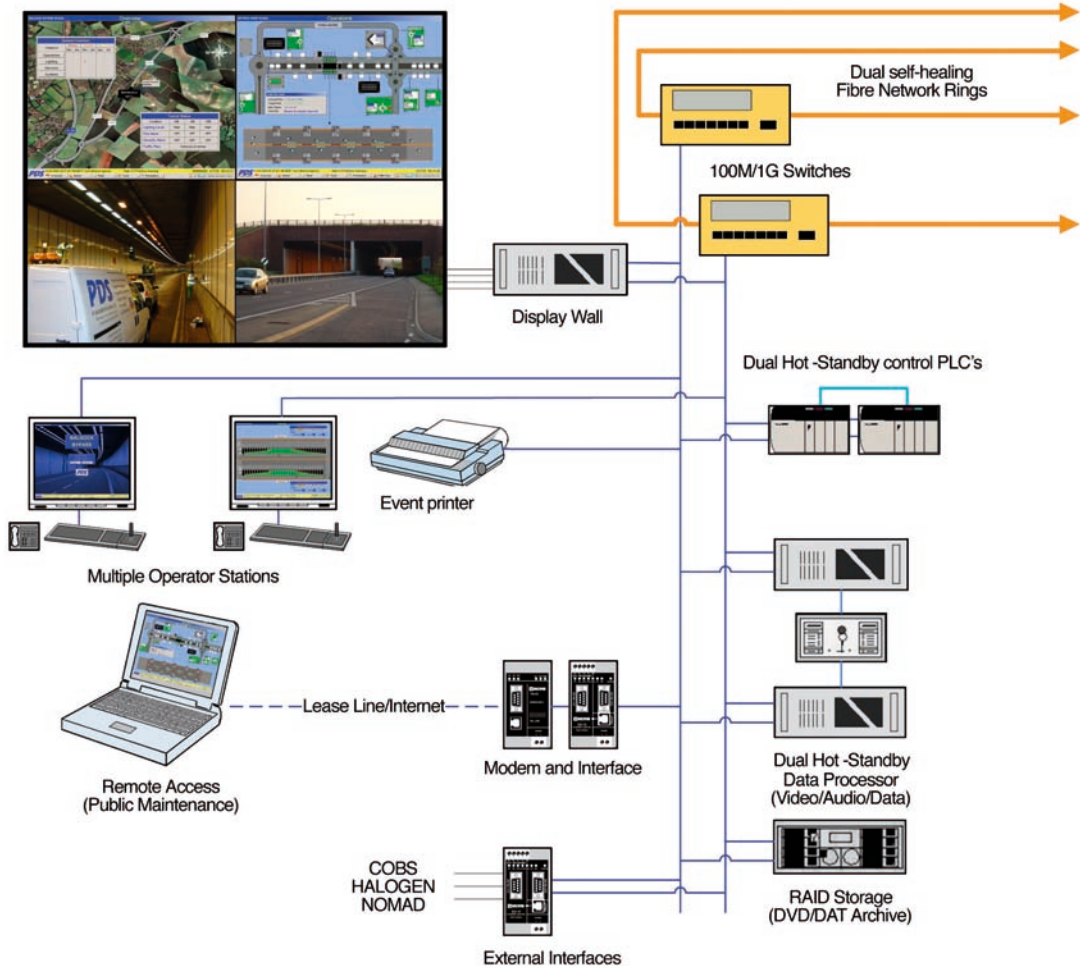
The implementation covers all System Interfaces and can integrate all Peripheral Devices including CCTV, Telephones, Fire, Traffic signs and signals, PA, Security, Access Centre, Traffic Monitoring and vehicle Toll systems.

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## Control Room Facilities



### Features

- Fully Redundant Processing (Control PLC, Dataservers, Communications etc)
- Integrated Operator Stations (SCADA, CCTV, Telephones, PA, Traffic etc)
- "Black Box" Video / audio / data storage facility
- Advanced Processing facility
- Extensive interface support
- Open, object based software

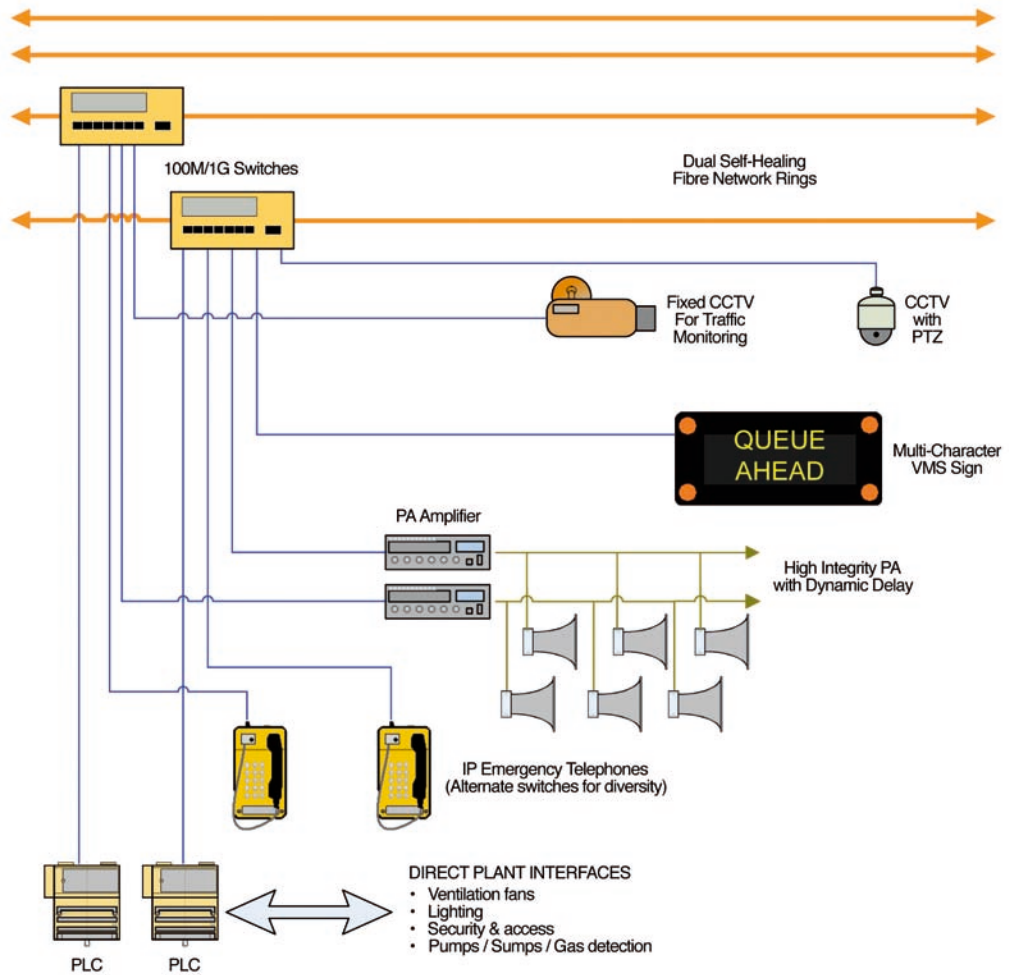
### Benefits

- High system integrity, fully fault tolerant
- Single point operations for intuitive emergency co-ordination
- True event examination & playback, in-built real event response training
- Visual traffic monitoring / smoke detection zone focused PA audio
- Connection to COBS, HALOGEN, NOMAD etc
- Plug & Play Configuration with client expansion capability

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## Fully Integrated Format



For situations where the plant peripherals are IP enabled, **MATRICES IP** offers direct connectivity, with the corresponding data processing interface drivers and user interface objects to provide seamless solutions for all transportation related environments.

### Features

- Direct IP Connectivity
- Open IP interface
- Plant device supplier independence
- Supports all types of plant

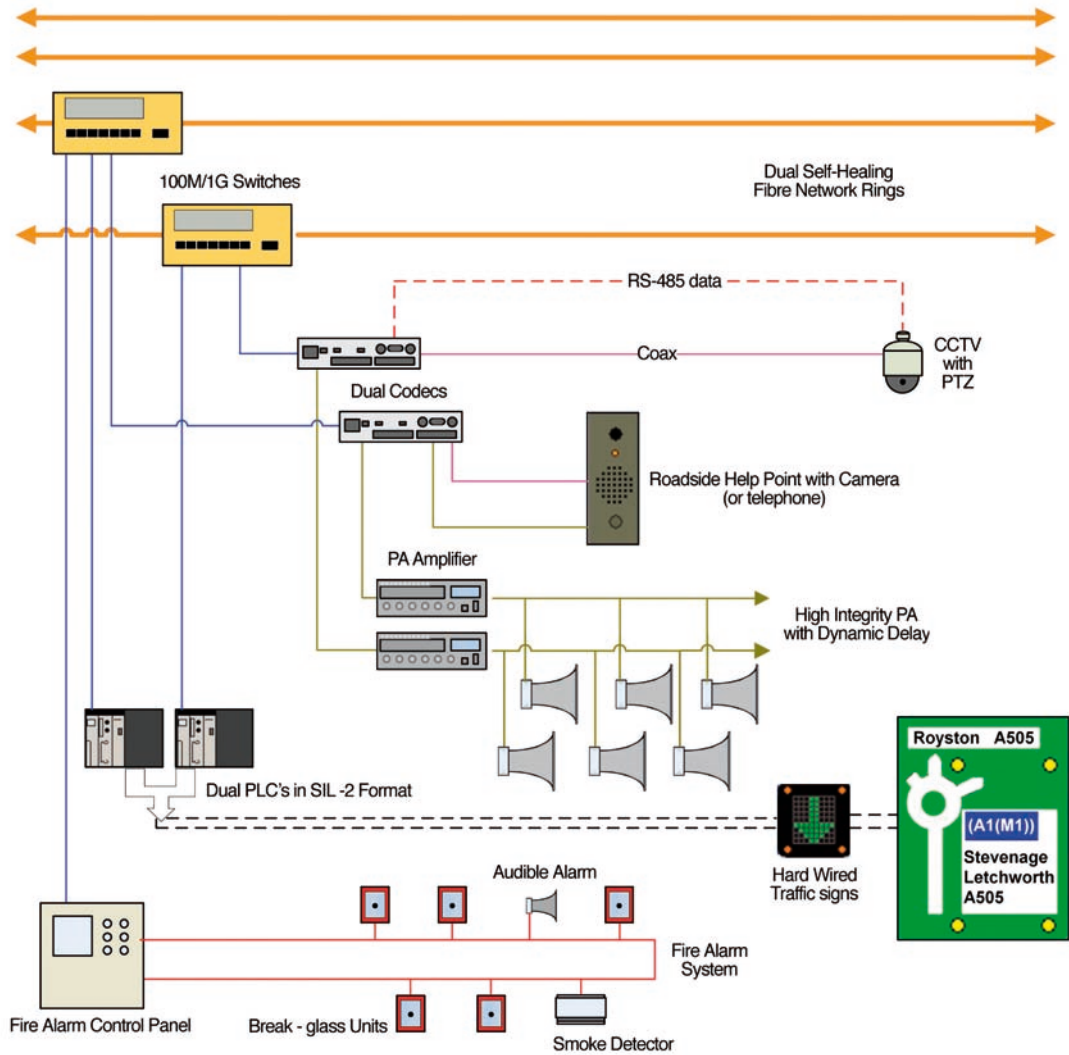
### Benefits

- Simple modular IP cabling
- Full integration of all IP devices
- Best price / performance fit
- Covers all types of plant device (PLC, Fixed/PTZ or IR CCTV, PA, Telephones, Traffic Signs, Traffic Monitoring etc)

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## Hybrid System Integration



Where refurbishment or a mix of technology best fits the project requirements, **MATRICES IP** fully supports a hybrid interface approach, enabling the optimum system solution.

### Features

- Wide range of equipment support
- Mix and Match format
- Ability to combine various systems (traffic, fire, data)

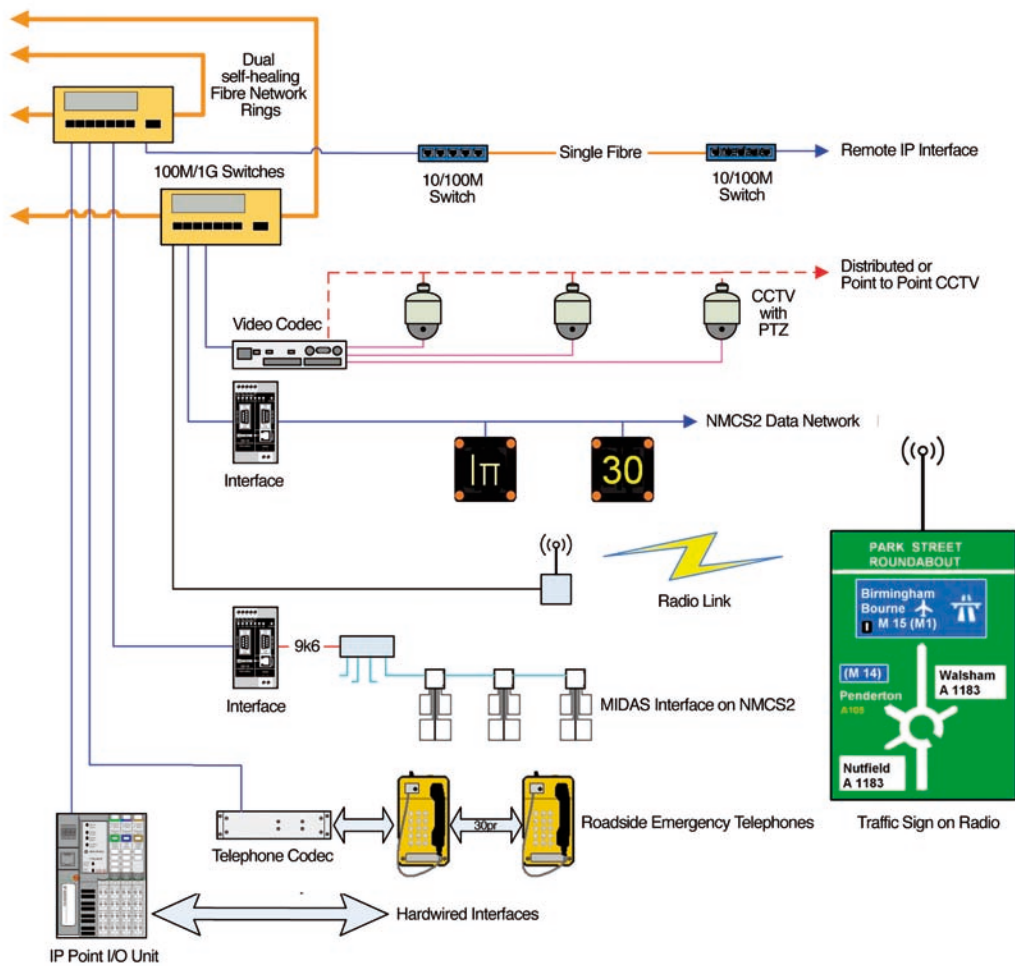
### Benefits

- Ability to use new and existing approved equipment
- Ability to use existing cable structures onto latest IP based backbones
- Commonalised data handling over significantly reduced cabling structure

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## Legacy/ Remote Support



**MATRICES IP** has been developed specifically to ensure support for the integration of data from existing devices in many connection and interface formats.

### Features

- Extensive interface capability (NMCSII, RS-485, 30 pair telephone)
- Wide range of network layouts (bus, star, point to point)
- Support for all current equipment

### Benefits

- Integration of existing equipment and cable structures
- System based on plant / road topology
- Minimal cost / maximum flexibility for achieving maximum reliability

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## Project Considerations

**MATRICES IP** configuration includes the evaluation of the overall project requirements in many areas, including:

### Field Devices

- Range and types of devices (e.g. CCTV, Signs, Telephone, PA etc)
- Native interface / connection method (IP, Analogue, Digital etc)
- Data / Information formats and content

### Network

- Overall Topology (linear, star, tree, combined)
- Connection media (fibre, copper, wireless, radio)
- Integrity (switch diversity, redundancy, environmental)
- Performance (bandwidth, prioritisation, multicasting)

### Operation

- Control Algorithms (lighting, ventilation, traffic, emergency plans)
- Monitoring Algorithms (visual traffic / smoke detection, speed analysis)
- Remote co-ordination (COBS, HALOGEN, NOMAD)
- Data storage and retrieval (RAID, Black-Box etc)

### User Interface

- Terminal format (integrated video / audio / data presentation)
- Control room layout (ergonomics, HR factors, overall integration)
- Devices (consoles, wall maps, printers, audio alarms)

## Project Realisation

PDS have been successfully implementing complex integrated transportation infrastructure projects for more than 18 years, introducing many new concepts to the marketplace.

**MATRICES IP** has been developed by PDS to encapsulate our engineering driven ethos to provide high level project functionality in a cost effective and expedient format. It also incorporates our experience in providing through life infrastructure operation and maintenance support on many such projects over the last 18 years, focussing on reliability, operability and overall best value.

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# MATRICES MATRICES IP

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## Fully Functioning Demonstration Facility

Contact us to discuss your requirements. Solutions can be reviewed in our purpose built demonstration facility



## Quality Service

PDS are accredited to ISO 9001:2000, founded in 1988 with an engineering driven ethos, working closely with our clients to form long term relationships in a framework of honesty, trust and dedication.

## Other Solutions available from PDS:

**MATRICES IP** is one of a range of solutions and services offered by PDS for the Transportation Infrastructure and associated markets, these include:

- MATRICES Tunnel Control System
- MATRICES Traffic Management System
- MATRICES Automated Toll System
- SCANLIGHT Lighting Control System
- PDS System Support
- PDS Engineering Services
- PDS Software Development
- PDS Specialist Airport Services

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