Class 222 CCTV and DCO Integration

Lumo Fleet Case Study



Petards Rail was selected to equip five Class 222 units for Lumo's WCML fleet with an integrated onboard camera, recording and monitoring solution. The scope connects live DCO viewing, CCTV recording and remote fleet access across the trainborne system.

The project combines DCO cameras; forward-facing, rear-facing and saloon CCTV; onboard recorders; displays in both driving cabs and the guard area; and eyeBOS connectivity.

The Challenge

The project had to bring several video functions together while integrating with a third-party onboard communications and power backbone. DCO is safety critical, so the requirements included responsive live viewing, system feedback and redundancy, and monitoring of latency and line replaceable unit (LRU) health to support continued function.

The system also had to provide monitors in both driving cabs and the guard area, retain recorded footage for at least 31 days, and support remote access for fleet monitoring, video retrieval and diagnostics.

The Integrated Solution

Petards developed and integrated an established onboard solution around the fleet's camera, recording and display requirements. Network video recorders capture the required camera streams, while the onboard displays provide staff with live camera views.

The third-party backbone connects the onboard equipment with remote services.

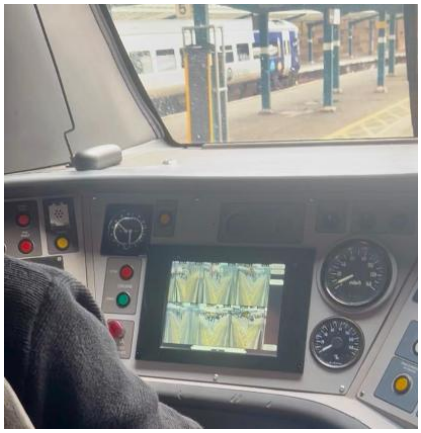
- DCO cameras and forward-facing, rear-facing and internal saloon CCTV across five units.
- Displays in both driving cabs and the guard area for live onboard and platform views.
- Onboard recording specified to retain at least 31 days of footage.
- Integration with the train's third-party communications and power backbone.

Performance and Fleet Access

When commanded for dispatch, the ICM receives simultaneous streams from all 12 DCO cameras on the relevant side. This provides the camera views needed to support safe train dispatch. Live DCO video is displayed on the ICMs with latency below 100 ms. Critical camera streams are recorded at 60 frames per second, and the onboard recorders are specified to retain at least 31 days of footage.

DCO CAMERAS	LIVE DCO DISPLAY	CRITICAL CAMERA RECORDING	RECORDED FOOTAGE
12 per side, streaming simultaneously to the ICM on command	**Below 100 ms latency on the ICMs**	**60 frames per second**	**At least 31 days**

eyeBOS Remote Fleet Tools



Petards' eyeBOS back-office platform gives authorised users a central interface for fleet information and video access. The available functions include live streaming from connected cameras, remote footage download, map-based fleet viewing, unit status monitoring and over-the-air retrieval of system logs for diagnostics.

These tools give fleet and support teams a remote route to review footage and investigate system issues, reducing the need for a physical visit when the task can be completed through the back office. (Ref 602 DEMO, below).

Delivery and Operational Value

The project scope brings together DCO live display, CCTV, recording and remote support functions across the five-unit fleet, connected through the project backbone. Petards' Newcastle-developed software supports the bespoke integration and performance requirements. Petards' in-service support team also supported commissioning and service preparation.

Services Delivered

Onboard camera and DCO equipment • Network video recording • Cab and guard-area displays • Third-party backbone integration • eyeBOS remote fleet access and diagnostics.

eyeBOS.

Fleet Footage Logs Audit Administration

602 - DEMU

Status:
ASDO:
OTCM:
Last Check-in: [redacted]
Configuration: [redacted]
Firmware: [redacted]



Device Status

- 162
- 242
- 346
- 544
- 562
- 622

Events

- NVR Event