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# HYDRA Recorder 4.6

Mobile Digital Video Recorder (MDVR) for recording, securing and transmitting video and passenger counting data
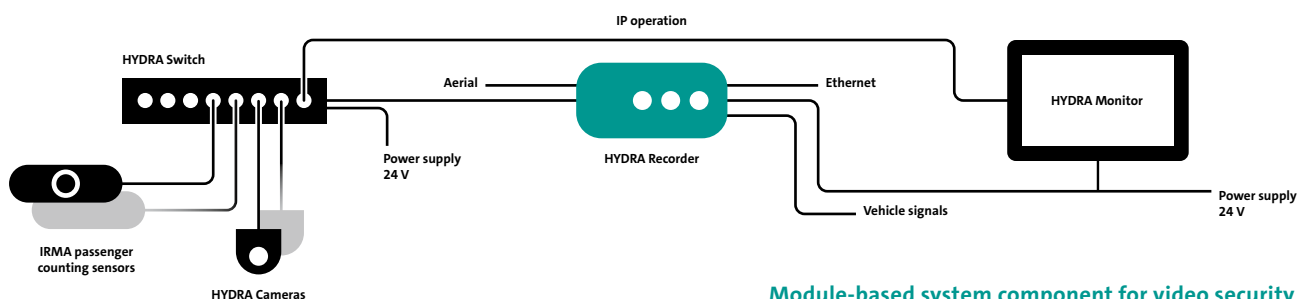
## APPLICATIONS

### Video security

- Tracking criminal offenses, insurance claims and vandalism
- Deterring crime
- Online live image and data transmission with optional communication module

### Passenger counting

- Revenue distribution in transport groups
- Optimising routes and timetables (frequency, vehicle size, etc.)
- Passenger load detection in real-time
- Effective passenger distribution

## KEY FEATURES

- Up to 20 IP video tracks / 6 analogue video tracks (IP-analogue combinations of up to 20 tracks possible)
- Certified for buses and trains
- Can be seamlessly integrated into existing vehicle infrastructures
- Compliant with IBIS VDV300, IBIS VDV301 (IBIS over IP) and ITxPT
- Robust housing, passive cooling
- Position detection in carriage groups

- Expandable with MR4610 S to 12 analogue video inputs
- Electronic key for data carrier removal (HYDRA SmartKey)
- Data is protected through multi-level security concept (HYDRA SmartLock)
- GPS receiver module (GNSS GPS-NAVSTAR)
- Recording additional data (audio, event data, IBIS)
- Optional communication module (LTE/4G/WLAN) and fleet management

HYDRA Switch

IP operation

Aerial

Ethernet

Power supply 24 V

HYDRA Recorder

HYDRA Monitor

IRMA passenger counting sensors

HYDRA Cameras

Vehicle signals

Power supply 24 V

**Module-based system component for video security**

## TECHNICAL DATA

### System

- Multiprocessor system with self-monitoring
- LINUX operating system and internal real-time clock (RTC)
- The power supply for the HDD is buffered using SuperCaps to prevent short-term voltage dips
- Integrated web interface for maintenance, diagnostics, configuration and updates
- Rapid configuration of large fleets using a USB stick
- Plug-in concept for the rapid implementation of special functions
- Analysis software – ImageFinderNX

### Recording

- Flexible definition of ring and alarm recordings
- Automatic deletion of data according to the FIFO principle
- Recording time up to 30 days

Analogue video: Up to 100 fps (4 CIF)
- Supported resolutions: CIF (352 × 288 px), 2CIF (720 × 288 px), 4CIF (704 × 576 px)
- Recording format: H.264

Digital video (IP): Recording format: H.264

Additional data:
Audio, IBIS VDV300, IBIS VDV 301, event data, GPS localisation data, bus FMS, acceleration data from the internal acceleration sensor

### Data protection & security

- The data carrier is locked electromechanically to prevent unauthorised or premature removal. Can only be removed with HYDRA SmartKey electronic key
- The data carrier is not unlocked until all read and write operations have been completed. This prevents data loss or damage due to it being removed too early
- The data carrier can also be removed when the power is switched off
- Data is protected through the HYDRA SmartLock multi-level security concept: The data can only be read out using a special evaluation station (USB-TTU3) and the ImageFinder NX analysis software.
- Recordings can be exported in a special file format or as AVI files
- AVI files can be checked for manipulation
- The transfer of data is encrypted using special player software (does not apply to AVI files)
- Four-eyes principle provides increased protection against data access

### Video output

- 1 × video out (CVBS, BNC)
- All camera signals can be viewed on an individual or multiple basis
- Freely configurable manual, automatic or event-controlled image switching

### Conformities & certifications

2014/30/EU (EMC), EN 50121-3-2, EN 55022, EN 55024, UN/ECE-R 10
2011/65/EU + 2015/863/EU (RoHS), 1907/2006/EC (REACH)
EN 50155, EN 61373, EN 60068-2-1, EN 60068-2-2, EN 60068-2-27,
EN 60068-2-30, EN 45545-2, UN/ECE-R 118

### Interfaces

- 6 × video in (CVBS, BNC)
- 1 × video out (CVBS, BNC)
- 1 × USB 2.0 service interface
- 1 × Ethernet (100 Mbit/s, M12 D-coded)
- 1 × GPS (FAKRA type C, blue) Phantom power 3.6 $V_{DC}$
- 4 × LED for signalling system statuses
- 2 × audio (5 kOhm, max. 2 Vpp)
- 9 × digital switching inputs (GPI) of which two have internal switching voltage
- 1 × digital switching inputs (GPO)
  (relay changer, contacts: max. 60 $V_{DC}$, 125 $V_{AC}$, 500 mA)
- 1 × stabilised power supply for external devices (12 $V_{DC}$ / 2 A)
- 1 × IBIS
- 1 × CAN BUS
- 1 × ignition signal (low: 0–3 $V_{DC}$, high: 6–34 $V_{DC}$)
- 1 × interface for external modules, mini I/O

### MR4610 4G Wi-Fi

- 1 × LTE/4G (FAKRA type D, bordeaux)
- 1 × WLAN (FAKRA type I, beige)

### MR4610 S

- Design without a slot for a removable storage device as a main-secondary system extension
- Additional video inputs and outputs
- Additional GPIs and GPOs

### Integration

- Compliant with IBIS VDV300, IBIS VDV301 (IBIS-IP)
- Compliant with ITxPT, INEO
- Active response to IBIS status requests
- Control via HYDRA System API
- Control via digital switching inputs (GPI)
- Signalling of system statuses via digital switching outputs (GPO)

### Power supply

- System voltage: 24 $V_{DC}$ (9 to 32 $V_{DC}$)
- Minimised power consumption to conserve the vehicle battery
- Operating modes: Sleep mode < 1 W, stand-by mode < 5 W, recording mode max. 12 W, with external devices max. 40 W

### Ambient conditions

- Operating temperature: -25 °C to +70 °C (EN 50155, T3)
- Storage: -40 °C to +85 °C
- Humidity: 95% (non-condensing)
- Active temperature management

### Housing

- Robust aluminium housing with cooling profile for passive cooling
- No fan, no ventilation slots and protection class: IP42
- Integrated DIN rail & screw channels
- Quick and easy installation thanks to mounting plate
- Dimensions (W × H × D): 100 × 84 × 208 mm
- Weight: approx. 1,200 g (without data carrier), approx. 1,400 g (with data carrier)

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