Video**Sphere**
MOBILE

VideoSphere® Mobile Peripheral Devices from March Networks® offer transit authorities advanced functionality for enhanced situational awareness and security effectiveness.

Our GPS module, for example, integrates video and vehicle location, providing security staff at a central monitoring center with detailed situation analysis. In a single user interface, security staff can view video from a vehicle and simultaneously track the vehicle's progress on a map. GPS integration also captures the speed of the vehicle, equipping investigators with crucial information that may be needed in an investigation. Combined with March Networks' Mobile Digital Video Recorders (MDVRs), audio recording can be accommodated as well to further enhance the evidentiary record.

Fast and cost-efficient wireless connectivity through 802.11g hot spots at transit terminals

or depots accelerates and automates the collection of video from buses or trains. It also allows for the uploading of software updates and configuration changes, and the capture of equipment diagnostics.

A dashboard-mounted alarm module allows vehicle operators to tag video during an incident so it is automatically downloaded when the vehicle approaches a wireless hot spot, while an impact sensor is available to tag video in the event of a collision.

All March Networks mobile peripherals work seamlessly with our MDVR systems to augment transit security and operational efficiency.

FEATURES
- High accuracy GPS data
- Fast wireless data download
- Dual audio recording
- System status dashboard display
- Camera obstruction indication
- Operator alarm button
- 3D impact sensor

March Networks' exceptional video compression and wireless data management technology enables significantly faster download times than most comparable systems. A one-hour clip from six cameras recorded at 4 fps, CIF resolution, for example, takes less than five minutes to download.
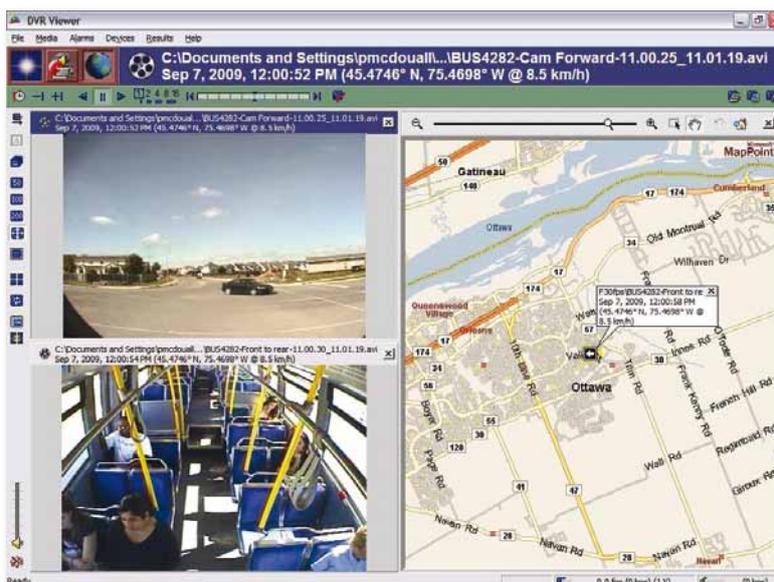
March Networks Mobile Software user interface with map and GPS data overlay

MARCH networks

VideoSphere Mobile Peripherals

GPS MODULE AND ANTENNA

March Networks supplies the industry-leading Garmin GPS 16 receiver, featuring an integrated antenna and rugged, waterproof design ideal for mobile applications. The 12-channel receiver continuously tracks satellites and reports precise vehicle positioning and speed. Location can typically be determined within three meters, even without an external differential GPS beacon receiver.

Specifications

Receiver	12-channel GPS receiver
GPS position accuracy	<3 m (10 ft) for WAAS-enabled Differential GPS; Typically 3 – 5 m (10 – 16 ft) 95% of the time; max < 15 m (50 ft) for Standard (non-differential) GPS
GPS velocity accuracy	0.1 knot RMS steady state (1 knot = 1.152 mph or 1.843 km/h)
Voltage	12 VDC
Power consumption	1.25 W (104 mA)
Connector	Molex 4 pin with housing and strain relief
Weight	0.5 lb; 0.2 kg
W x H x D	4.6 x 1.7 x 4.6 in / 11.7 x 4.3 x 11.7 cm

FEATURES

- High-performance GPS module and antenna
- Accurate location, speed and time data
- Direct connection to mobile DVRs
- Roof-mount ready

The GPS Module is equipped with a mounting plate designed for easy installation on the roof of a vehicle. The module receives GPS signals in NMEA 0183 format and transmits them to the MDVR via an RS-232 serial interface. Vehicle location and speed data are stored on the mobile MDVR hard drive. March Networks Mobile Software synchronizes the GPS data with mapping applications[1] and displays the vehicle location, speed, time and coordinates on the map display.

802.11G WIRELESS ANTENNA

Advanced wireless technology stands out as a key differentiator for March Networks' mobile video surveillance system. Our MDVRs are equipped with built-in wireless cards that are fully optimized for high-speed data transmission, ensuring fast download times and efficient fleet management.

Specifications

Frequency response	2400-2500 MHz frequency range
Gain	3dB
Connector	N type female
Weight	0.45 lbs; 0.2 kg
W x H x D	4 x 3.1 x 4 in; 10 x 8 x 10 cm
Connector	Molex 4 pin with housing and strain relief
Weight	0.5 lb; 0.2 kg
W x H x D	4.0 x 3.1 x 4.0 in / 10.2 x 7.9 x 10.2 cm

FEATURES

- 2400 - 2500 MHz frequency range
- Gain 3dB
- N connector for direct mobile DVR transmission
- Integrated 802.11g receiver in mobile DVRs
- Roof-mount ready

The vehicle 802.11g antenna is fitted with an N-type connector for direct attachment via an RF cable to the MDVR. The antenna is equipped with a mounting plate that allows easy installation on the vehicle roof.

Video tagged by the vehicle operator or scheduled for downloading is automatically transmitted to the transit authority's corporate network as soon as the vehicle approaches a wireless hot spot. MDVRs may also be equipped with alternative, low-bandwidth cellular (CDMA or GPRS) connectivity to enable remote access to live or archived video from a transit vehicle while it is in service, which allows security personnel to observe an incident in progress and co-ordinate a response with law enforcement authorities.

MICROPHONE

The March Networks Vehicle Microphone records audio onboard a bus or train, providing transit authorities with valuable information that can be used in an investigation. The low-noise unit is designed for the transit environment. It can be mounted on the vehicle wall or ceiling using a supplied mounting plate.

Specifications

Frequency response	80 Hz to 20 kHz
Power sensitivity	+8 dBm/Pa
S/N ratio	68 dB at 94 dB SPL
Impedance	75 Ω, balanced
Voltage	12 VDC
Power consumption	1.44 W (120 mA)
Connector	Molex 6 pin with housing and strain relief
Weight	0.2 lb; 0.1 kg
W x H x D	4.5 x 1.5 x 2.8 in / 11.4 x 3.8 x 7.1 cm

FEATURES

• 20Hz – 20kHz frequency range

• Impedance 75Ω balanced

• Two microphone inputs per mobile DVR

• Ceiling or wall mount

March Networks MDVRs support two independent audio channels, allowing for the installation of two microphones per vehicle. Standard dual installations include one microphone at the driver's station and another over the rear door.

For two-channel audio operation, a Y audio cable is attached to the audio input connector that is part of the MDVR harness.

STATUS LED AND TAG MODULE

The Status LED/Tag Module is typically mounted on the driver's instrument panel to display the health of the video recording system. The driver can engage the tagging and alarm function by pressing the button on the unit anytime an incident occurs. A short-term flashing LED confirms an operator-tagged event, while an LED off indicates a camera obstruction or system fault.

Specifications

Pushbutton	Normally Closed (NC)
LED	Green
Voltage	12 VDC
Power	0.53 W (44 mA)
Connector	Molex 4-pin with housing and strain relief
Weight	0.2 lb; 0.1 kg
W x H x D	3.0 x 1.25 x 1.5 in / 7.6 x 3.2 x 3.8 cm

FEATURES

• Three models of status and tag/alarm button

• Continuous green LED indicates system recording status

• LED off indicates camera obstruction or system fault

• Tag/alarm button marks video segment for download

Tagged video is automatically downloaded when a vehicle approaches a wireless hot spot, and is marked for rapid search and review. The unit is available with the LED only as a Status Display Module, as a Tag Button Module only, or as a Status/Tag Module combination.

3D ACCELEROMETER MODULE

The Accelerometer Module, which is activated by acceleration associated with sharp left and right turns, hard braking, aggressive driving and impacts, tags the associated video segment for rapid downloading when the vehicle approaches a wireless hot spot.

Specifications

Specifications	Normally Closed (NC)
Acceleration threshold	≥ 0.45 G (hard brake) / 0.3 G (left/right turn)
Voltage	12 VDC
Power consumption	1.2 W (100 mA)
Weight	0.5 lbs; 0.2 kg
W x H x D	4.4 x 1.0 x 2.5 in / 11 x 2.5 x 6.4 cm

The Accelerometer Module ensures the transmission and capture of video and related vehicle data to aid in the investigation of collisions, accidents and aggressive driving.

FEATURES

- Left and right turning, hard braking, aggressive driving and impact sensor
- Direct alarm input to mobile DVR
- Alarm tags video segment upon incident

Typical Camera and Peripheral Deployment

A typical eight-camera[2] bus configuration, providing external forward and rear-facing coverage, curbside and roadside views, as well as interior views of passengers and front and rear doors.

1	Status LED and tag module	**8**	GPS antenna
2	System interface[3]	**9**	Wireless antenna
3	Rear door camera	**10**	Forward camera
4	Rear to front camera	**11**	Microphone
5	Front to rear camera	**12**	Curbside camera
6	Video monitor and in-vehicle advertising	**13**	Roadside camera
7	Front door camera	**14**	Rear camera
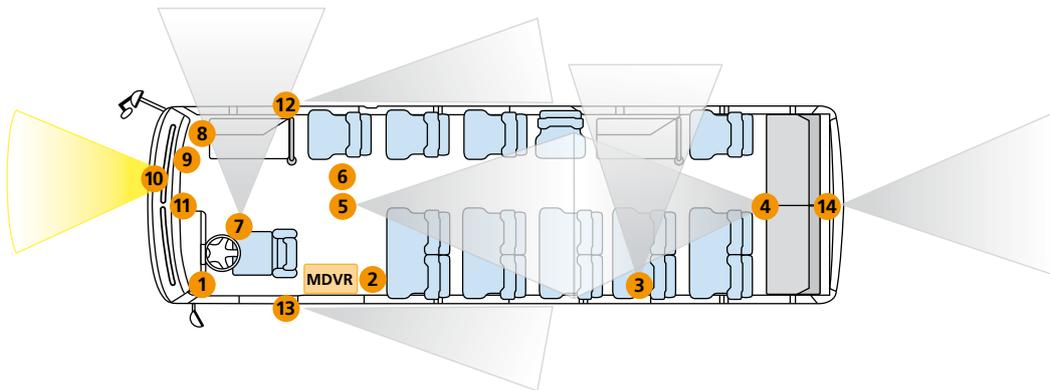
NOTES:
[1] Compatible mapping applications include Microsoft MapPoint and Open Street Map.
[2] Refer to March Networks Mobile Cameras datasheet.
[3] March Networks' mobile video surveillance equipment integrates with other onboard vehicle systems through a J1708 interface. Vehicle data on brakes, turn signals, speed and door open/close status, are commonly recorded. Computer Aided Dispatch (CAD), Automatic Vehicle Location (AVL) and Automatic Vehicle Monitoring (AVM) systems enable integration via J1708.

PN 060-3069-A4-A

North America ————————————	1 800 563 5564
Latin America ————————————	+1 613 591 8181
Europe, Middle East and Africa ————————	+39 0362 17935
Asia Pacific ————————————	+61 1300 089 419

www.marchnetworks.com

March Networks EMEA
Via Lavoratori Autobianchi, 1
Edificio 23
20033 Desio - Milano - ITALY
Phone: +39 0362 17935
Fax: +39 0362 1793590

March Networks
Corporate Headquarters
303 Terry Fox Drive
Ottawa, Ontario - CANADA K2K 3J1
Phone: +1 613 591 8181
Fax: +1 613 591 7337

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