SATRAD MATRIX mSeries

Network Innovation's SATRAD MATRIX mSeries is a flexible and powerful enhancement to the SATRAD G2 service.

Designed for in-vehicle integration the MATRIX provides many benefits including; NI Smart Messaging, providing radio like responsiveness and the ability to interface with a mobile radio to provide a local communications "hot spot". The compact MATRIX form factor lends itself well for integration into emergency responders' "go kits".

Mobile "Hot Spot"

The MATRIX may be combined with a SATRAD G2 and a mobile radio to provide a mobile communications "hot spot". The benefits of ubiquitous satellite coverage are combined with the ability of a terrestrial radio to operate inside buildings and other infrastructure. Typically the equipment would be installed in a first responder's vehicle. In this configuration a dispatcher operating on the satellite network can remain in communication with, for example, a first responder attending an emergency in a remote building in proximity to their vehicle.

Backup Communications

The SATRAD MATRIX enables push to talk radio traffic to be routed via satellite in the event a trunked radio network becomes inoperative or if the mobile radio is not within range of a terrestrial repeater. Upon restoration of the trunked radio network service or when the mobile radio moves back into range of a repeater tower, the SATRAD-MTX will automatically re-route voice traffic back to the trunked radio network.

To prevent unnecessary switching between networks, when the mobile radio is on the edge of coverage or the trunked radio network has become unstable, the SATRAD-MATRIX monitors the terrestrial connection for a configurable time interval to ensure it is stable, prior to switching traffic to the terrestrial network.

NI Smart Messaging

The SATRAD MATRIX mSeries is designed to be reliable and easy to use. It incorporates NI Smart Messaging to ensure your outgoing PTT communications are captured and delivered, even in the face of temporary interruptions to satellite connectivity. For example, if a mobile user is sending a PTT message and their vehicle enters a tunnel that cuts off connection to the satellite, the SATRAD MATRIX mSeries will detect the loss of signal and automatically suspend the transmission. When the vehicle exits the tunnel and connectivity is restored, the SATRAD MATRIX mSeries automatically re-transmits the entire message from the beginning, so that listeners maintain context.

Reliable and Responsive

The SATRAD MATRIX mSeries tight integration with the SATRAD G2 provides a key differentiator for customers requiring mission critical communications. In situations where lives are at risk, reliable communications are essential. Users can be confident their messages are being delivered with NI Smart Messaging. NI Smart Messaging ensures reliable delivery of the complete message even when there is channel contention, that is when another user is on the communications channel. Should the system response be delayed, NI Smart Messaging will queue the entire message until the system becomes available. There is no risk of a message being truncated, for example when a system does not respond as quickly as expected "Don't Shoot" could be truncated to "shoot" with disastrous consequences.

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Users in high pressure situations may push and talk immediately without needing to wait for the communications technology to provide "go ahead" tones. System responsiveness will not have an impact on a first responder's ability to communicate.

Radio communications are half-duplex: when the enduser is talking into their handheld radio, there is no way for them to know if their PTT message is actually being forwarded to dispatch over the satellite network. In fact, there is no way for a user to know if they even obtained a satellite channel— as they cannot hear the "go-ahead" tone from the satellite network.

SATRAD MATRIX mSeries cross-banding solutions are ideal for first-responders, law enforcement, utility workers, remote oilfield crews, and anyone requiring compact, directionally insensitive, highly portable mobile communications in remote locations.

H2 Handset

The SATRAD MATRIX mSeries supports the slim SATRAD H2 handset, as well as legacy handsets. The H2 handset, designed to maximise privacy, provides end-users with information such as signal strength, talk-group status and GPS position. It allows end-users to select a talk-group and change preferences.

SATRAD Control Head Network Bridge

The SATRAD MATRIX mSeries supports the SATRAD Control Head Network Bridge (CHNB), which incorporates an audio power amplifier with external speaker, a cross-band on/off switch, and a system power switch. The built-in 15 watt RMS audio power amplifier ensures received audio is reproduced loud and clear on the external speaker— ideal for noisy environments and off-road vehicles. The cross-band switch allows you to disconnect your

LMR radio from the SATRAD MATRIX iSeries and use both systems independently.

Installation

The SATRAD MATRIX mSeries features a rugged, compact powder-coated steel enclosure. The MATRIX is powered by the vehicle's DC power. A built-in DC-to- DC power converter cleans up vehicle power to ensure proper operation through vehicle voltage spikes and dips.

Electrical interfaces feature either screw-on or snaplock connections to enhance system reliability.

Satellite Network

SATRAD MATRIX mSeries provides North American coverage via the SATRAD G2.

Specifications

Dimensions (MIS)	205 X 222 X 55 mm
Weight (MIS)	2 Kg
Power	Input 12 V - 5 Amp Output 12V conditioned
Cooling	Convection
Analogue Inputs / Outputs	Console, Auxiliary, Microphone, Handset
Analogue I/O Configuration	Balanced 600 ohm
Total Harmonic Distortion	< 0.1%
Frequency Response	40 - 5,000 Hz +/- 3 db
Signal to Noise	> 50 db
Level	-24 dBm - +12 dBm
Relay	240 VAC 5 Ampswitching 2 Amp continuous
Communications	RS-232, RS-485
Speaker Amplifier	15 Watt