MDS TRANSNEXT

Long-range, Ethernet, and Unlicensed Serial Communications

The new MDS TransNEXT™ is the successor to the MDS TransNET™ 900 MHz unlicensed radio. Setting the standard for reliable, long-range wireless serial data transmission utilizing proven Frequency Hopping Spread Spectrum (FHSS) technology, the next generation TransNEXT is backwards-compatible with its predecessor, TransNET. The TransNEXT's backwards compatibility enables the continued use of legacy serial networks while also adding new capabilities to migrate networks with secure Ethernet connectivity.

Key Benefits

- Backwards-compatibility with TransNET, with similar or better RF performance in real-world field installations.
- Additional functionality for forward migration of legacy networks, which include IP Ethernet data and capacity to support future roadmap development.
- Excellent performance across unlicensed 900 MHz spectrum in the face of interference or difficult signal paths.
- Time-saving and flexible network management and diagnostic tools, including support for MDS PulseNET, Field Network Manager, OTA reprogramming, optional e-ink display, and more.
- Low-power consumption/sleep mode for solar or battery power DSR (intelligent energy use) operations*.

Applications

Energy
- Remote control of IED and PLC at distribution substations
- Condition monitoring for pole-top circuit breakers and capacitor banks

Oil & Gas
- Remote monitoring of pipeline flow and status signals
- Monitor and transmit wellhead pressure and tank levels collected by RTUs

Heavy Industry
- Activation of perimeter gates based on detection of vehicle
- Monitor and control remote pumps and compressors

Water & Wastewater
- Monitor lift stations across multiple sites from control room

Flexible

- Backwards-compatible with MDS TransNET
- New Ethernet to serial conversion
- Over-the-air (OTA) reprogramming
- Low power consumption sleep mode for solar-powered applications*
- New always-on e-ink display for diagnostic information and more (optional)*
- Long-range wireless communications, up to 30 miles
- Compatible with nearly all SCADA, Telemetry, and EFM protocols including ModBus and DNP3
- Management via SSH, MDS PulseNET NMS, and other legacy software applications

Secure

- User access control including RBAC
- Device security including secure boot and digitally signed firmware
- Proprietary hopping algorithm among 128 channels including auto-correct and exclusions list for jammed frequencies

Reliable

- High receive sensitivity for noisy environments and long distances
- Robustness with forward error correction and CRC/ARQ multiple re-sends
- Repeater, multiple hop store and forward to extend network range cost-effectively
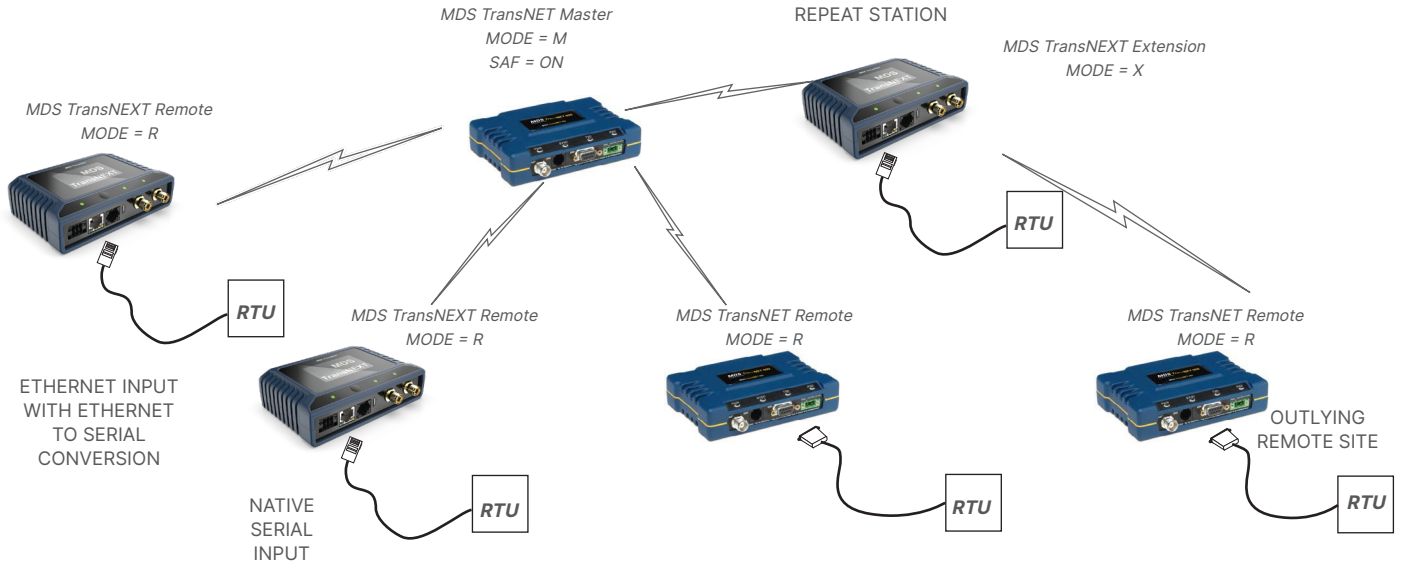
Industial-Hardened

- Operational temperature range from −40°C to 70°C
- CSA Class I, Div. 2 for hazardous locations
- Electromagnetic pulse (EMP) hardened

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Mixed MDS TransNEXT & TransNET Repeater Network Example

Technical Specifications

GENERAL

Frequency bands	902-928 MHz ISM band
Dimensions	3.6 D x 5.3 W x 1.5 H in., 9.14 D x 13.46 W x 3.81 H cm
Input power	6 to 36 Vdc

Current drain for AP and remote

MODEL	30 VDC	13.8 VDC	6 VDC
Transmit	236 mA	510 mA	1.18 A
Receive	51 mA	100 mA	155 mA

Sleep mode*	4 mA typical @ 13.8 Vdc, 75 mS wake, RTU/line controlled
Temperature	−40°C to 70°C
	*Models with displays have slightly lower high temperature rating
Range	Up to 30 miles
Humidity	< 95% RH (Non-condensing)

TRANSMITTER

Power output	1 Watt (30 dBm) at 6 Vdc to 30 Vdc, user selectable down to 100 mw (+20 dBm)
Modulation	CPFSK

RECEIVER

Sensitivit	-105 dBm (1× 10-6 BER) typical
Error detection	CRC16; Resend on error

Interference Avoidance

- 64,000 hop patterns selected automatically via network address FEC, CRC/ARQ and/or Multiple packet transmits
- Excellent, strong signal (interference) characteristics
- Band segmentation for friendly coexistence with other services such as LMS

SECURITY

Device security	Secure boot, secure firmware, digitally signed hardware and software
User authentication	Local RBAC

DATA

Interference	RS-232/RS-485 (user selectable)
Usable throughput	115.2 kbps
Port speeds	1.2 to 115.2 kbps

CONNECTORS

User	Serial (RJ-45) / USB 2.0 (USB-C)
WebUI	Ethernet 10/100 (RJ-45)
Power/IO	6-pin Phoenix
RF	TNC x 2 *

OPERATING MODES

Serial and Ethernet to serial conversion (terminal server built-in)

Point-to-multipoint
- Master
- Remote
- Repeater extension (store and forward) – unlimited repeaters, self healing networks

NETWORK MANAGEMENT

- Diagnostics
- Centralized network control eliminates site visits
- Create store and forward configurations
- Compatible with other MDS products
- Event/alarm logging and alarm output (on serial port)
- Local management via Ethernet (SSH)
- Local serial and Web-based reprogramming
- Legacy DLINK diagnostics (local interface and OTA)
- Support for MDS PulseNET, MDS InSite, Element Manager, and Field Network Manager (FNM) - master and remote*
- OTA reprogramming

AGENCY APPROVALS

- FCC Part 15
- IC
- UL/CSA Class 1 Div. 2 (UL 508, UL 1604)

Planned for release in 2024. Please contact the sales team for updated availability information.

For more information, visit
gevernova.com/grid-solutions

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