MDS Intrepid™ P2MP
High Capacity
Point-to-Multipoint Wireless

The MDS Intrepid P2MP high capacity point-to-multipoint backhaul solution is ideal for commercial-grade applications where longer distance and higher capacity with multiple sites is necessary. Intrepid P2MP provides highly secure, time sensitive and mission critical communications, and backhauls this information back to a central point.

The MDS Intrepid P2MP Series supports Ethernet communications, offering extended range (up to 25 miles) and aggregate throughput of up to 50 Mbps per subscriber. MDS Intrepid P2MP also enables scalable solutions by deploying sectored base station capabilities, 60, 90 and 120 degree sectors, with up to 16 subscribers and up to 200 Mbps aggregate throughput per sector.

Key Benefits
• Point-to-multi-point communications infrastructure with high base station capacity (up to 200 Mbps aggregate) and multiple subscribers (up to 16) within a coverage sector
• High performance and throughput under Non-Line-of-Sight / near-Line-of-Sight conditions using advanced OFDM and 2x2 MIMO technologies
• Flexibility in asymmetric traffic demand to optimize application efficiency
• Capable of guaranteed bandwidth for securing Service Level Agreement (SLA) performance
• Small base and subscriber units provide for improved ascetics and minimal visual appearance

Application Specific Solution

Energy
• High capacity, point-to-multipoint wireless network for AMI collectors, aggregation site locations, RTUs, voltage regulators, enclosures, cap banks and switch controllers
• Video surveillance of remote substations

Oil & Gas
• High capacity wireless network for SCADA and aggregation site locations
• Well-head monitoring and video surveillance

Transportation / Public Safety
• Traffic and intersection monitoring
• Transmit real-time, fast scan rate video surveillance

Mining / Water and Wastewater
• Video surveillance and monitoring of remote sites

System Solution
Flexibility
• 200 Mbps base stations deployed in 60, 90 or 120 degree sector with up to 16 subscribers per sector
• 50, 20 and 10 Mbps subscriber units
• NLOS and nLOS applications with OFDM and Multiple-In, Multiple-Out (MIMO) technology
• Ethernet traffic supplied with either indoor or outdoor rated PoE injector (ordered separately)
• Allows for asymmetric throughput demands for one-way high data rate applications, such as video

Ease-of-Use Network
• Out-of-the-box system installation
• Web-enabled configuration services
• Advanced network management capability via PulseNET™ and SNMP

Designed for Commercial Applications
• AES 128-bit encryption
• Quality of Service (QoS) – 4 queue traffic prioritization
• VLAN Support – 802.1, Q QinQ, Layer-2 VPN
• Time-Division Duplexing (TDD) synchronization
• -35° C to +60° C operating range
• IP67 Rated Outdoor Units
• ETSI/CE/FCC unlicensed frequencies
System Solution Flexibility

MDI Intrepid P2MP provides high capacity and scalable solutions for deployment within multipoint communication networks. By selection of the base station’s sector angle (60, 90 or 120 degrees) multiple subscriber systems can installed within a given area to optimize efficiency and maximize sector throughput up to 200 Mbps aggregate. Time-Division Duplexing (TDD) synchronizes Intrepid P2MP base stations to accommodate multiple co-location systems and coverage overlap without introducing self-inflicted interference. MDI Intrepid P2MP is optimized as an Ethernet bridge for IP traffic operating with 10/100/1000Base T at the base station and with 10/100Base T at subscriber units.

Advanced Security and Low-Latency Features

Secure and time-sensitive communications require special handling to meet customers’ needed. Intrepid P2MP products provide security and over-the-air protection via AES 128-bit encryption which prevents capture, deciphering, and unauthorized access. Superior processor speeds and algorithms accommodate high data processing rate within Intrepid P2MP minimizes typical end to end latency performance to 4-10 msec.

Ease-of-Use Network Management

Like other GE MDS products, Intrepid P2MP utilizes the MDS PulseNET comprehensive network management system for end-to-end management. MDS PulseNET provides pre-built workflows along with intuitive graphical representations of the communications network. It provides real-time availability, performance and configuration management of the MDS radios, allowing operations personnel to create customizable, proactive support processes.

Application Example: Video Security – Transportation and Public Safety

Transportation and Public Safety are using more and more high-definition video security system. Below is an example of a secure wireless backhaul system for a high capacity video security system requiring software adjustable asymmetric upload traffic assignment and loading.
Application Example: Oil & Gas Facilities

Below is an example of an oil well-head application utilizing the MDS Mercury™, Intrepid P2MP and Intrepid Ultra as a complete and universal solution for SCADA and video traffic at well-head sites.

Legend:
- Intrepid P2MP coverage region
- Intrepid point to point communication
- Mercury communication

Application Example: Water & Wastewater Facilities

Below is an example of a wireless network utilizing Intrepid P2MP and Intrepid Ultra to aggregate data from devices that monitor vital flow, pressure and temperature measurements, and video surveillance.

Legend:
- Intrepid P2MP coverage region
- Intrepid point to point communication
Technical Specifications

RADIO

Frequency bands
5.4 and 5.8 Unlicensed ETSI, IC, and FCC Bands

Capacity
Base Stations
Up to 200 Mbps Aggregate/sector

Subscriber Units (three versions)
Up to 50 Mbps Aggregate
Up to 20 Mbps Aggregate
Up to 10 Mbps Aggregate

Available Base Sectors
60, 90 and 120 degrees

Number of Subscribers per Base Station/Sector
Up to 16 subscribers per base station/sector

Range
Up to 40 km / 25 miles

Max Tx Power
25 dBm Max (limited by FCC/ETSI regulations)

Channel Bandwidth
Configurable: 5, 10, 20, 40 MHz

Modulation
2x2 MIMO-OFDM (BPSK/QPSK/16QAM/64QAM)

Adaptive Modulation & Coding
Supported

Sector Bandwidth allocation
Configurable: Symmetric or Asymmetric

DFS (FCC & ETSI)
Supported

End to End Latency
Typical: 4msec to 10msec

Diversity
Supported at both base and subscriber units

Spectrum Viewer
Supported at both base and subscriber units

Duplex Technology
TDD

TDD Synchronization
Inter and intra site synchronization

Encryption
AES 128

INTERFACES

Ethernet Interface
Base Unit 10/100BaseT, 1000BaseT
Subscriber 10/100BaseT

NETWORKING

Sub - Layer
Layer 2

QoS
Supported packet classification to 4 queues according to 802.1p and Diffserv

VLAN
Supported 802.1Q, 802.1P, QinQ

MANAGEMENT

Management
PulseNET or Web based management

Application
Protocol
SNMP and Telnet

NMS Application
PulseNET

MECHANICAL

ODU Dimensions
Base Station 19.5(w) x 27.0(h) x 8.0(d) cm (10.6”x7.6”x3.1”)
Subscriber - Connectorized 19.5(w) x 27.0(h) x 8.0 (d) cm (10.6”x7.6”x3.1”)
Subscriber with high gain antenna 37.1(w) x 37.1(h) x 11.0(d) cm (14.6”x14.6”x4.3”)

ODU Weight
Base Station 1.8 kg/3.6 lbs
Subscriber - Connectorized 1.8 kg/3.6 lbs
Subscriber with high gain antenna 3.5 kg/7 lbs

POWER

Power Feeding
Power provided over PoE interface (PoE device ordered separately)

Power Consumption
Base <25W, Subscriber < 20W

ENVIRONMENTAL

Enclosure
IP67 all weather

Operating Temperatures
-35°C to 60°C / -31°F to 140°F

Humidity
100% condensing

RADIO REGULATIONS

FCC

IC
IC RSS-210 issue 7, IC RSS-111 issue 3, IC RSS-192 issue 3, IC RSS-197 issue 1-Restricted Mode

ETSI
ETSI EN 302 502, ETSI EN 301 893, EN 302 326-2 V1.2.2

WPC
WPC GSR-38

MII
MII for 5.8 GHz

SAFETY

FCC/IC (cTUVus)
UL 60950-1, UL 60950-22, CAN/CSA C22.2 60950-1, CAN/CSA C22.2 60950-22

ETSI
EN 60950-1, EN/IEC 60950-22

EMC

FCC
47 CFR Class B, Part15, Subpart B

ETSI
EN 300 386, EN 301 489-1, EN 301 489-4

CAN/CSA-CEI/IEC
CISPR 22-04 Class B

AS/NZS
CISPR 22-2004 Class B

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