

GE MDST™ Orbit Platform Data Sheet

Unless otherwise noted, specifications listed apply to all Orbit models

NETWORKING

- IPv4 Routing OSPF, EBGP, RIPv2 with performance-based route failover
- IPv6 Routing
- Full managed switch capability, IEEE 802.3, 802.1Q/VLANs, 64 VLANs, STP
- Concurrent Bridging & Routing
- GRE Tunneling with Layer 2 (Ethernet) and Layer 3 support
- Route/path failover between any two wireless/Ethernet interfaces based on link loss, latency degradation or packet loss thresholds
- Quality of Service 16 egress queues, Priority Queuing, Fair Queuing, Traffic Shaping, Classification based on DSCP, 802.1p and Layer 2-4 classifiers
- IP Protocols TCP, UDP, ARP, DHCP, ICMP, NTP, FTP, SFTP, TFTP, DNS, configurable HTTP and HTTPS, SSH
- Serial TCP server, Modbus/TCP, Modbus RTU, TCP client, UDP
- Unicast and Multicast, BSAP, and DNP3

SECURITY

- IPSec VPN Server (responder) and Client (initiator) with DMVPN
- Authentication Public Key, EAPTLS, Pre-Shared, lke 1-2
- Encryption: 3DES, AES 128/192/256, CBC, CTR, CCM, GCM, SHA 256/384/512 HMAC
- Firewalling: Stateful Layer 3-4 Firewall with MAC Filtering, NAT, Source NAT (Masquerading), Static NAT, Port Forwarding
- Device Security: Secure Boot, Secure Firmware, Digitally Signed Hardware and Software, Magnetometer Tamper Detection
- Certificate Management: X.509, SCEP, PEM, DER, RSA
- User Authentication: Local RBAC, AAA/RADIUS, 802.1x
- FIPS 140-2 (Level 2) certified*

LICENSED RADIO SUMMARY

- Narrowband Frequency Bands:
 - 150-174 MHz
 - 216-235 MHz
 - 330-406 MHz
 - 406.1-470 MHz
 - 450-520 MHz
 - 757-758, 787-788 MHz
 - 896-960 MHz
- Channel Size: 5, 6.25, 12.5, 25, and 50 kHz**
- Operation Modes: Access Point, Remote, Store & Forward
- Duplex Mode: Simplex, Half-Duplex
- Modulation: CPFSK, QPSK, 16QAM, 64QAM, Bi-Directional Adaptive Modulation
- Backward compatibility with MDS SD Series and x710 Master Stations using QPFSK
- Raw Data Rate: Up to 240 Kbps in 50kHz and 120 Kbps in 25kHz
- Compression: IP Header and Payload
- FEC: Dynamic, per packet
- Peak TX Power: up to +40 dBm

UNLICENSED RADIO SUMMARY

- Frequency Bands: 902-928 MHz FHSS
- Occupied Bandwidth 152 to 1320 kHz, up to 80 channels
- Modulation: 2, 4-level GFSK, Adaptive
- Raw Data Rates: 125Kbps, 250Kbps, 500 Kbps, 1000 Kbps, 1250 Kbps
- Latency of < 5 msec
- Operation Modes: Access Point, Remote, Store & Forward
- Duplex Mode: Half-Duplex
- Compression: IP Header and Payload
- TX Power: 1 watt, configurable

CELLULAR RADIO SUMMARY

- Available Cellular Options:
- 4G LTE North America with Dual SIM, GPS, and 3G fallback support. Verizon, AT&T, FCC, CE, PTCRB, GCF
 - 3G/4G LTE EMEA Dual SIM
 - LTE Private Bands available

WI-FI RADIO SUMMARY

- IEEE 802.11 b/g/n 2.4 GHz option:
- 1x1 SISO (single antenna/radio chain)
 - Scalability up to 2 SSIDs, up to 7 clients/stations
 - Max transmit power (adjustable): up to 20dBm
 - Operating modes: Access Point (AP), Station, Station bridging
 - Security: WPA/WPA2 PSK, Enterprise
 - Applications:
 - Local configuration and management using Wi-Fi devices
 - Station/client connecting to a 2.4GHz AP in outdoor LOS environment
 - Small-scale 2.4GHz AP operating in outdoor LOS environment

- IEEE 802.11 a/b/g/n Dual-Band 2.4/5 GHz option:
- 2x2 MIMO (dual antenna/radio chain)
 - Scalability up to 2 SSIDs, up to 32+ clients/stations
 - Max transmit power (adjustable): up to 26dBm (23dBm per antenna/chain) for 2.4GHz and 23dBm (20dBm per antenna/chain) for 5GHz
 - 5GHz (U-NII-1 and U-NII-3 bands supported)
 - Operating modes: Access Point, Station, Station bridging, Access-Point-Station (simultaneous AP and Station operation)
 - Security: WPA/WPA2 PSK, Enterprise
 - Applications:
 - Local configuration and management using Wi-Fi devices
 - Station/client connecting to a 2.4GHz/5GHz AP in indoor/outdoor LOS/NLOS environment
 - Large-scale AP

MANAGEMENT

- GE MDS PulseNET NMS Support with device management and auto-provisioning
- GUI configuration Wizards to simplify operation
- Secure device management via an intuitive web-based GUI and/or CLI
- Event logging, Syslog-over-TSL, SSH, Console
- Iperf throughput diagnostic, NETCONF
- SNMPv1/v2c/v3, MIB-II, Enterprise MIB

ORBIT MODEL INTERFACES

- MCR Standard Option A
 - (2) 10/100 Ethernet, RJ45
 - (1) RS232/485 Serial, RJ45
 - (1) mini USB 2.0
- MCR Standard Option B
 - (1) 10/100 Ethernet, RJ45
 - (2) RS232/485 Serial, RJ45
 - (1) mini USB 2.0
- MCR High Density Option
 - (4) 10/100 Ethernet, RJ45
 - (2) RS232/485 Serial, RJ45
 - (1) mini USB 2.0
- ECR
 - (1) 10/100 Ethernet, RJ45
 - (1) RS232/485 Serial, RJ45
 - (1) mini USB 2.0
- Antenna Connectors
 - Licensed NB:TNC
 - 900MHz Unlic: TNC
 - Wi-Fi: RP-SMA
 - Cellular: SMA
 - GPS: SMA female

MECHANICAL

- Case - Rugged die-cast aluminum
- Dimensions MCR - 1.75 H x 8.0 W x 4.8 D in., 4.45 H x 20.32 W x 12.19 D cm
- Weight MCR - 2 lbs, 0.91 kg
- Dimensions ECR - 2.1 H x 4.3 W x 4.6 D in., 5.33 H x 10.92 W x 11.68 D cm
- Weight ECR - 1.45 lbs, 0.65 kg
- Mounting Options Integrated DIN Rail mount and Standard Mounting bracket
- No Fans, No Moving Parts
- HALT& HASS Testing
- Case Die Cast Aluminum

ENVIRONMENTAL

- Operating Temp -40° to +70° C (-40° 158°F)
- Storage Temp -40° to +85° C (-40° 185°F)
- Humidity 95% at 60° C (140° F) non-condensing

ELECTRICAL & POWER CONSUMPTION

- Input Voltage 10 to 60 VDC
- Power Consumption Calculations with nominal 25C at 13.8V

WITH 4G LTE	POWER	13.8V
Connected (Idle)	4.0W	292mA
Typical download	4.3W	310mA
WITH 4G LTE + WI-FI	POWER	13.8V
Connected (Idle)	4.8W	350mA
Typical download	5.5W	400mA
WITH 900MHZ ISM	POWER	13.8V
Typical	3.2W	232mA
Maximum	5.3W	385mA
WITH LICENSED NB	AP	REMOTE
Idle	910mA	350mA
50% Duty Cycle	950mA	780mA

AGENCY APPROVALS / STANDARDS

- FCC Part 15 and IC
- ETSI / CE
- PTCRB, GCF
- IEEE 1613*
- CSA Class 1, Div. 2
- CSA C22.2 No. 142-M1987 & 213-M1987
- ANSI/ISA - 12.12.01 - 2013, UL 916, 5th Ed.
- ATEX approval for EU on MCR
- EN 60079-0:2012, EN60079-15:2010
- Shock: MIL-STD-810F Method 516.5
- Vibration: MIL-STD-810F Method 514.5
- Shock and Vibration: EIA RS374A
- Storage Temp: Mil-Std 810F Section 501.4 with 1 week soak test
- IP 40/41 per IEC 60529 for Vertical Falling Water and Pollution 3 for Dust

† Requires an external DC to DC converter having floating DC inputs (neither side grounded)

WARRANTY

5-year standard manufacturer warranty on all Orbit MCR/ ECR models

* Check with local sales representative for availability

** 200, 700, and 900 MHz Orbit band options support 12.5, 25, and 50 kHz. 200 MHz 5 kHz option also available. Other band options support 6.25, 12.5, and 25 kHz

GE Grid Solutions

175 Science Parkway
Rochester, NY 14620
+1 877-605-6777 (toll free in North America)
+1 678-844-6777 (direct number)

GEGridSolutions.com

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