Sincronización con servidor NTP/SNTP M250/GPS

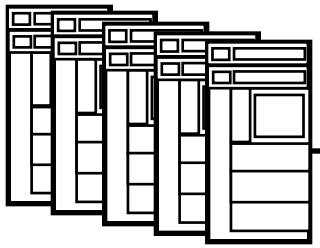
Antena GPS
exterior

Supresor de
sobretensiones

Puesta a tierra
de supresor

Protocolo NTP
sobre LAN

LANTIME M250/GPS
Servidor de tiempo NTP/SNTP
- STRATUM 1
1 x 10/100/1000 MBit con RJ-45



Sincronización de servidores
sobre red con NTP / SNTP

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MBG S-PRO: Surge Voltage Protector

Attachment plug with replaceable gas discharge tube for coaxial signal interfaces

Connection: N connector female/female. The MBG S-PRO set includes a surge voltage protector (Phoenix CN-UB-280DC-BB) and a mounting bracket.

The surge voltage protector for coaxial antenna lines has to be installed in the antenna line. The shield has to be connected to earth as short as possible. CN-UB-280DC-BB is equipped with two type-N female connectors. It has no dedicated input/output polarity or prefered mounting orientation.

Key Features

- Surge Voltage Protector for coaxial Lines
- Easy mounting
- For outdoor installations
- Replacable gas discharge tube, splash proofed

Characteristics

Antenna Connector	Connection Type: Type-N 50
Form Factor	Housing material - Nickel-plated brass, Color - nickel
Nominal discharge surge current	In (8/20) µs (Core-Earth) 20 kA In (8/20) µs (Core-Shield) 20 kA
Current Draw	Nominal current IN: 5 A (25 °C)
Response Time	tA (Core-Earth)
Total surge current	(8/20)µs 20 kA (10/350)µs 2,5 kA
Grounding	By ground bond conductor (not included) less than 3 ft (1 m) long and a cross sectional area of 4 - 6 mm2
Physical Dimensions	Height: 25 mm, Width: 25 mm, Depth: 67 mm
Protection	IP55
Supported Temperature	-40 °C ... 80 °C
Contents of Shipment	Surge voltage protector and mounting bracket
Warranty	Two-Year Warranty
RoHS Status of Product	This product is fully RoHS-compliant.
WEEE Status of Product	This product is handled as a B2B (Business to Business) category product. To ensure that the product is disposed of in a WEEE-compliant fashion, it can be returned to the manufacturer. Any transportation expenses for returning this product (at end-of-life) must be covered by the end user, while Meinberg will bear the costs for the waste disposal itself.

Manual

There is no online manual available for this product.: [1]Contact us

Links:

[1] mailto:info@meinberg.de

GPSANTv2 Antenna

High-Performance Antenna Engineered for Time, Frequency, and Phase Synchronization

The GPSANTv2 antenna is designed by Meinberg to provide superior GPS & Galileo reception performance. An evolution of Meinberg's distinctive and dependable GPSANT, the GPSANTv2 is also optimized for use with Meinberg's industry-leading time & frequency synchronization servers.

Product Highlights

- The next-generation GPS & Galileo antenna from Meinberg, specially designed for use with Meinberg time servers
- Functional dome housing made of injection-molded ABS for optimum performance in elevated outdoor environments
- Integrated frequency downscaler allows for over 1 km of transmission line using industry-standard coaxial cable
- New integrated surge protector to provide the best possible protection against lightning strikes
- Superior multipath rejection for mitigation of signal reflections, especially in built-up environments, enabling very high signal-to-noise ratio (approx. 50 dB)
- Improved radiation pattern reduces interference from incidental and deliberate transmissions from certain directions

Physical Specifications

Housing	ABS Plastic
Weight	1.4 kg (3.1 lbs), including mounting kit

Cable Requirements

Supported Cables	RG58 C/U (max. length 300 m) RG213 (max. length 700 m) H2010 Ultraflex (max. length 1100 m)

Connection

Connector Type	Type-N, female
Nominal Impedance	50 Ω
Voltage Standing Wave Ratio (VSWR)	≤ 1.5 : 1
Grounding	M8 threaded bolt and hex nut for use with corresponding ring lug

Clock Compatibility

The GPSANTv2 is compatible with all standard Meinberg GPS and GNS-UC clock technologies. If you intend to use the GPSANTv2 with a Meinberg GPS clock whose design predates the year 2000, please inquire with our Sales Team beforehand as to whether the GPSANTv2 is suitable for your device.

Electrical Specifications

Voltage Draw	15 V, ±3 V (via antenna cable)
Current Draw	Nominal: Approx. 100 mA @ 15 V (via antenna cable) Maximum: 115 mA

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Operating Conditions

Supported Operating Temperature Range	–60 °C to +80 °C (–76 °F to 176 °F)
IP Rating	IP 65

Signal Reception & Processing

Supported Services	GPS L1 C/A Galileo E1 B/C
Reception Frequency	1575.42 MHz (GPS L1/Galileo E1 band)
Bandwidth	9 MHz (3 dB loss at bandwidth limits)
Axial Ratio	≤ 3 dB at zenith
Gain	5.0 dBiC at zenith (typical)
Pre-Selection	1575.42 MHz +/- 20 MHz (-20 dB)
Mixing Frequency	10 MHz (from receiver)
Intermediate Frequency	35.4 MHz
Out-of-Band Rejection	≥ 70 dB @ 1555 MHz ≥ 55 dB @ 1595 MHz
Conversion Gain	59 dB ± 3 dB
Conversion Delay	Typically 170 ns, ± 5 ns
Reception Polarization	Right-handed circular polarization
Noise Figure	1.8 dB (typical), 3 dB (maximum) @ +25 °C

Immunity Specifications

ESD Immunity	Level 4 (as per IEC 61000-4-2) Contact Discharge: 8 kV Air Discharge: 15 kV
Surge Immunity	Level 4 (as per IEC 61000-4-5) Test Level: 4000 V Max. Peak Current @ 2 Ω: 2000 A

Support & Compliance

Estimated MTBF*	5365937 hours
Technical Support	Free lifetime support via telephone and email, including firmware updates
Warranty	Three-year warranty, extendable upon request
Conformity Declarations	CE, UKCA
RoHS Compliance	The product is fully RoHS-compliant.
WEEE Status	The purchase of this product is considered to be a “B2B” transaction (non-household product) for the purposes of the EU Waste of Electrical and Electronic Equipment Directive; the product falls under Category 6, “Small IT and Telecommunications Equipment”. For disposal, it can be returned to the manufacturer to ensure WEEE compliance. Any transportation expenses for returning this product (at end-of-life) must be covered by the end user, while Meinberg will cover the costs for the waste disposal itself.

* Mean Time Between Failures. Calculated according to Telcordia Issue 3.

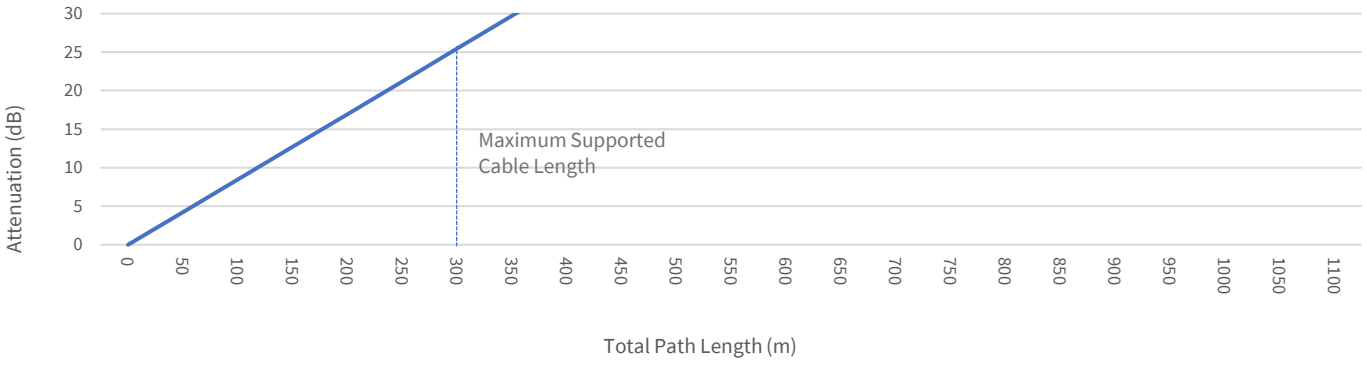
Accessories Included

- Antenna mounting kit for wall and pole mounting, comprising: mounting tube, pole clamp, 4x 8 mm drywall anchors, 4x M6x45 drywall screws, 4x spacer washers, 4x M6 nuts (wrench size 10 mm), 8x M4 nuts (wrench size 7 mm), 8x M4x12 screws, 2x pole grips, 2x U-bolts (for max. pole diameter 60 mm).

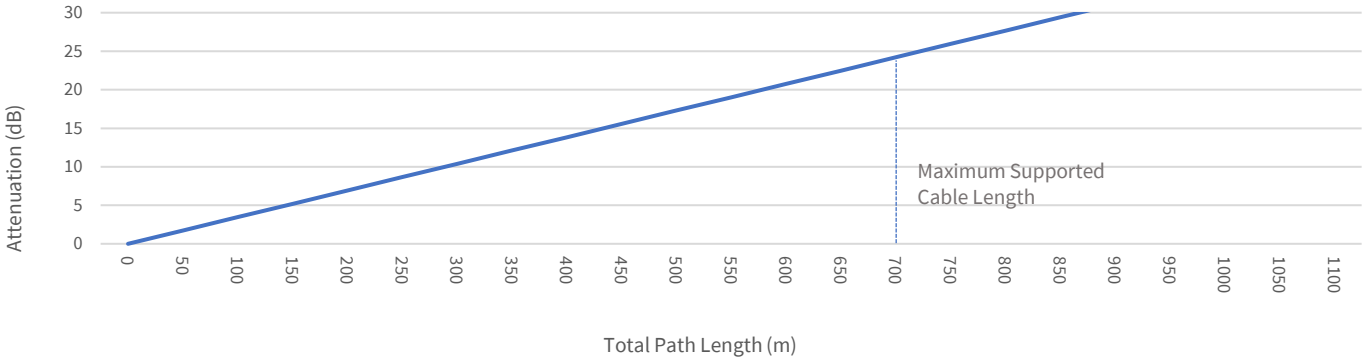
Signal Transmission Performance

The GPSANTv2 features an integrated frequency downscaler that converts the signal on the GPS L1/Galileo E1 1575.42 MHz band to a significantly lower frequency of 35 MHz. This allows for transmission of the signal over up to 1100 m of suitable standard coaxial cable without any amplification. Please note when planning your transmission route that amplifiers cannot be used due to the bidirectional exchange of signals.

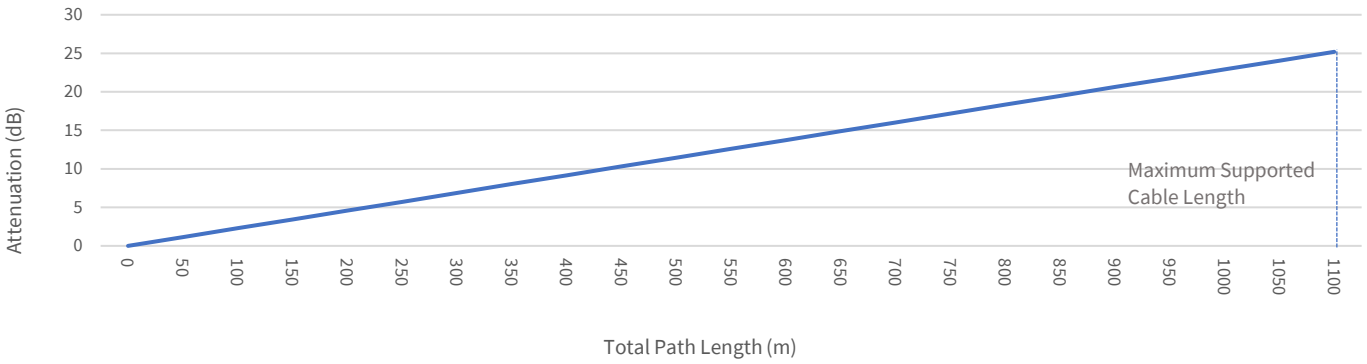
Signal Attenuation with RG58C/U Cable at 35 MHz (Intermediate Frequency)*



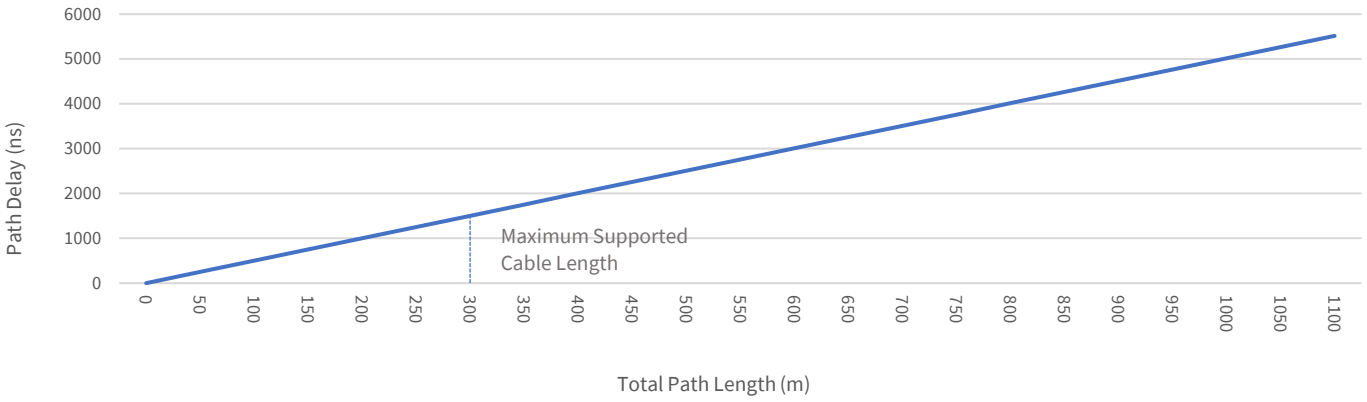
Signal Attenuation with RG213 Cable at 35 MHz (Intermediate Frequency)*



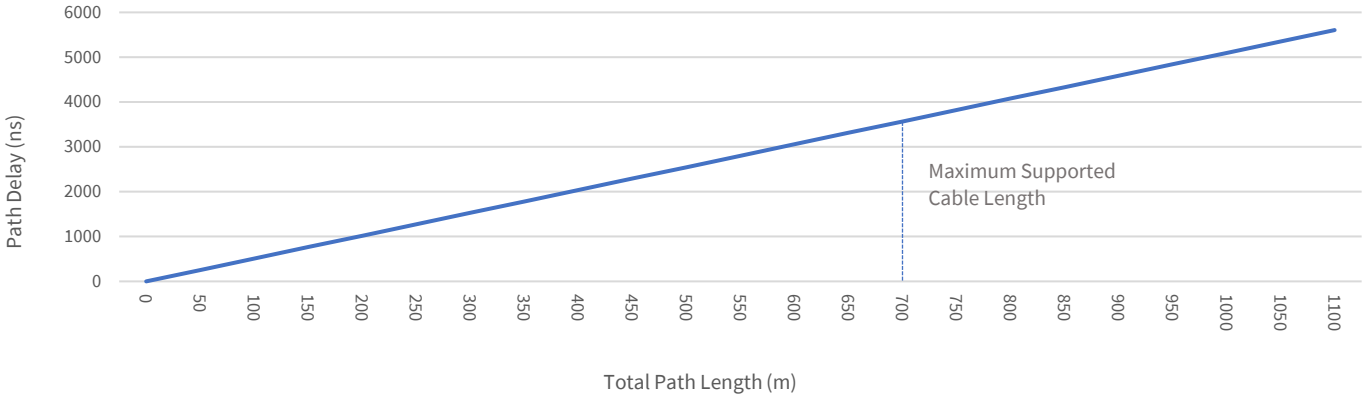
Signal Attenuation with H2010 Ultraflex Cable at 35 MHz (Intermediate Frequency)*



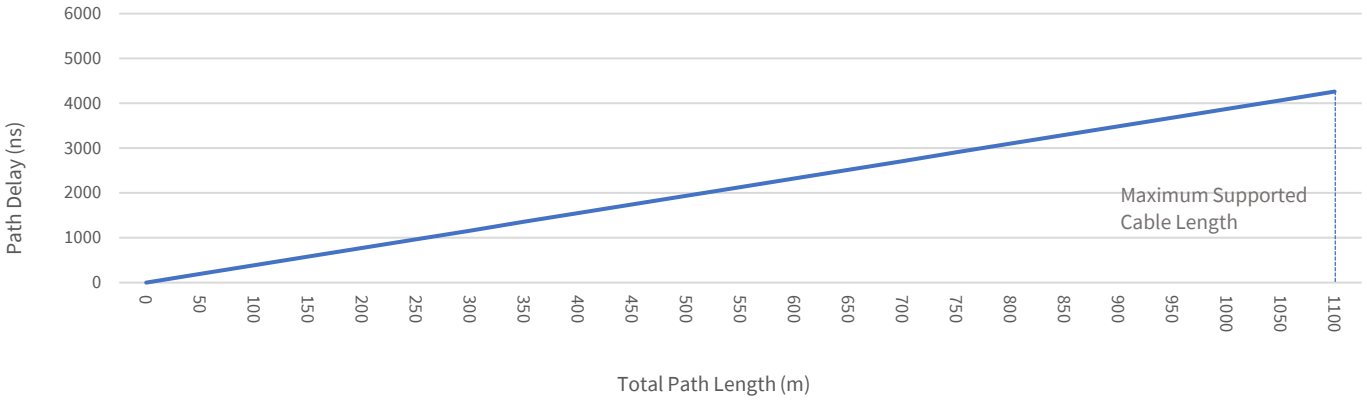
Signal Path Delay with RG58C/U Cable at 35 MHz (Intermediate Frequency)*



Signal Path Delay with RG213 Cable at 35 MHz (Intermediate Frequency)*

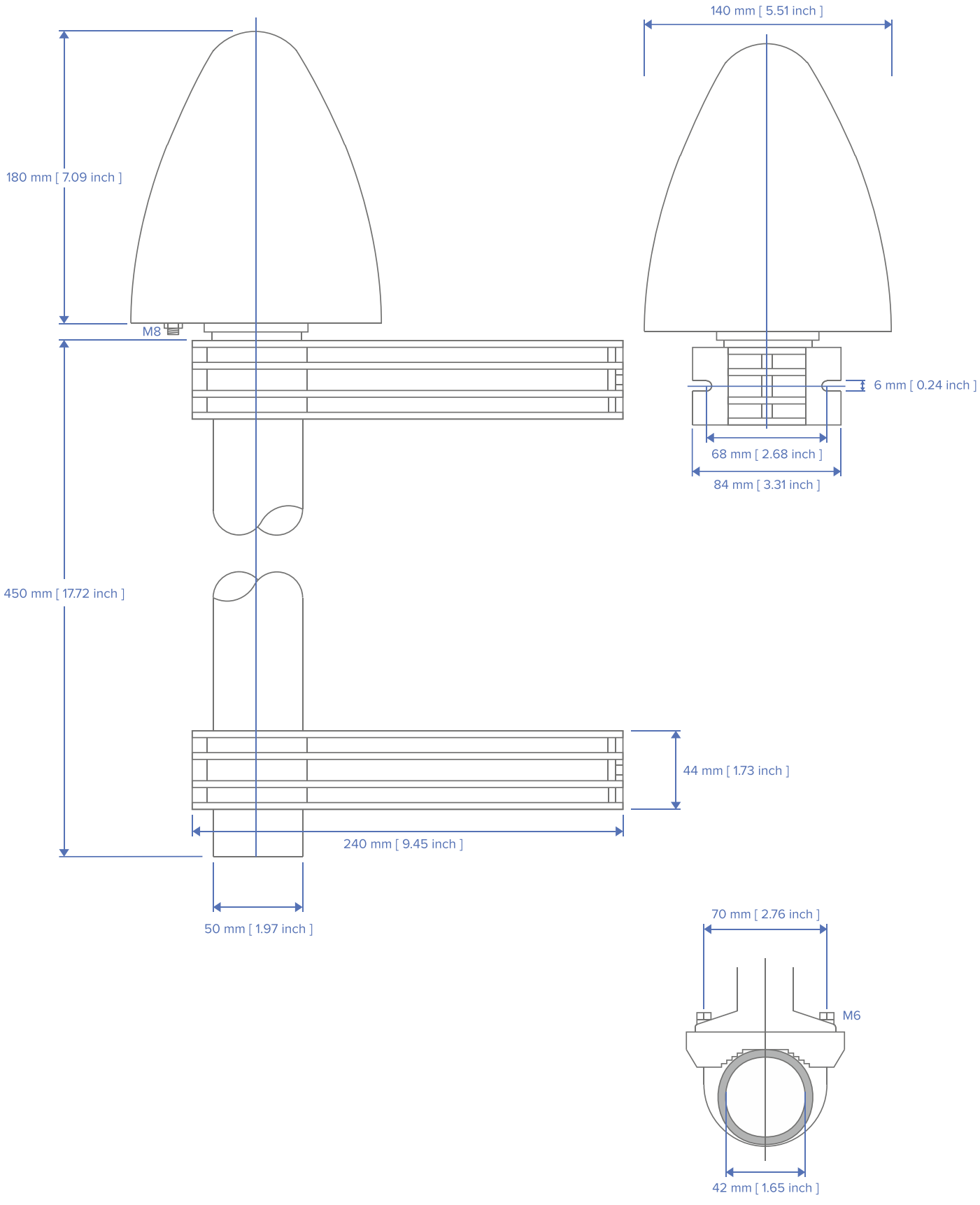


Signal Path Delay with H2010 Ultraflex Cable at 35 MHz (Intermediate Frequency)*



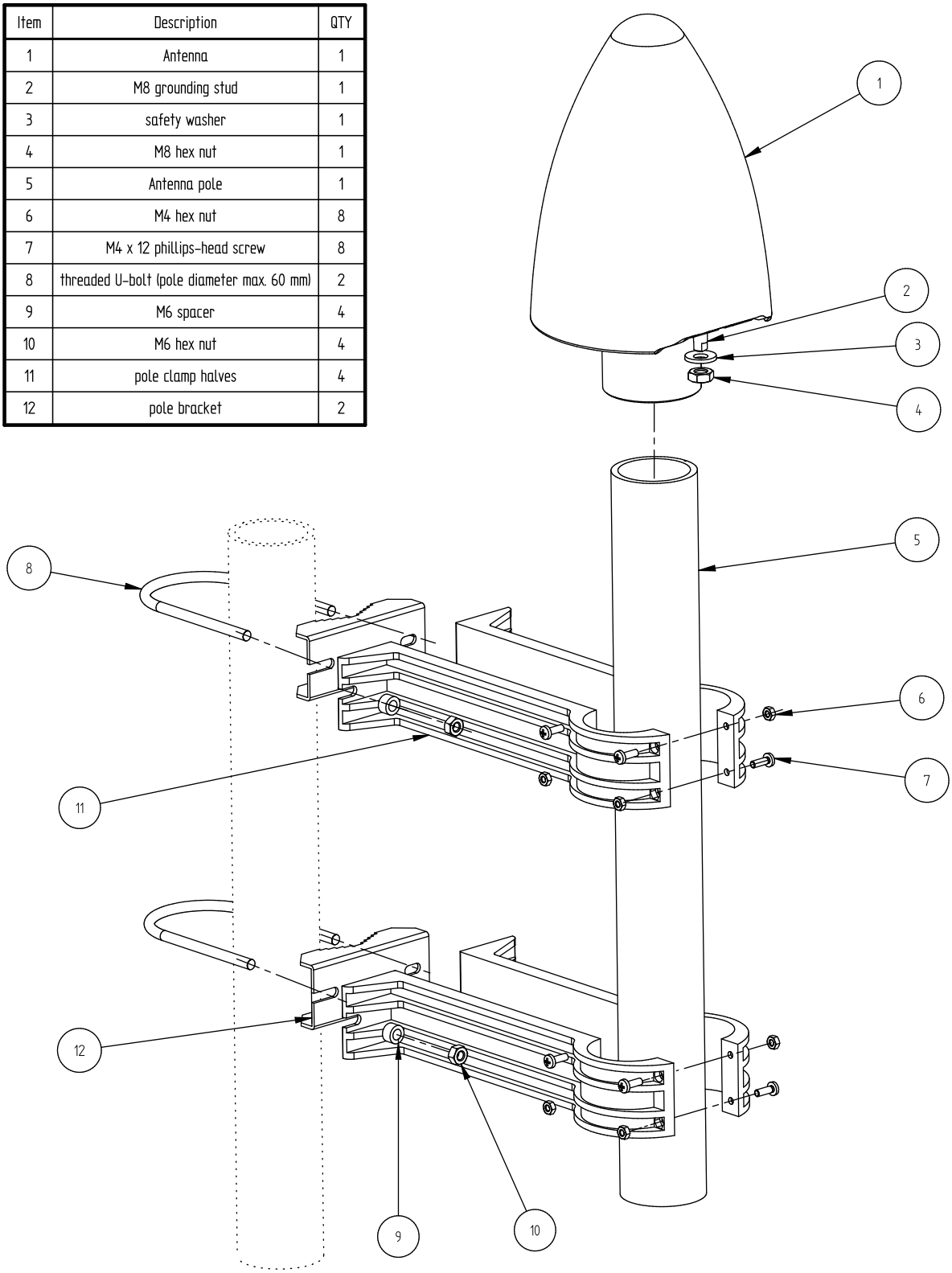
* **Test conditions:** Propagation time and signal attenuation measured on 100 m of continuous RG58C/U, RG213, and H2010 Ultraflex coaxial cable. Graph calculated based on the known assumption that, if cable specifications and frequency are constants, path attenuation (and, by extension, signal propagation delay) has a linear relationship to path length.

Dimensions

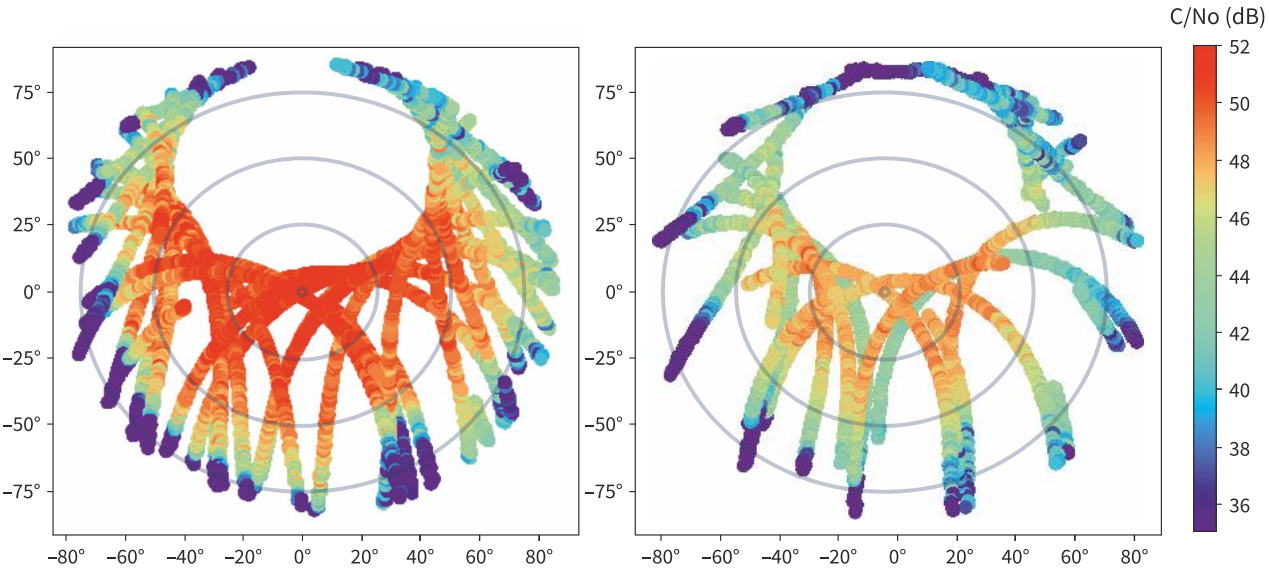

140 mm [5.51 inch]
180 mm [7.09 inch]
M8
6 mm [0.24 inch]
68 mm [2.68 inch]
84 mm [3.31 inch]
450 mm [17.72 inch]
44 mm [1.73 inch]
240 mm [9.45 inch]
50 mm [1.97 inch]
70 mm [2.76 inch]
M6
42 mm [1.65 inch]

Assembly

Item	Description	QTY
1	Antenna	1
2	M8 grounding stud	1
3	safety washer	1
4	M8 hex nut	1
5	Antenna pole	1
6	M4 hex nut	8
7	M4 x 12 phillips-head screw	8
8	threaded U-bolt (pole diameter max. 60 mm)	2
9	M6 spacer	4
10	M6 hex nut	4
11	pole clamp halves	4
12	pole bracket	2

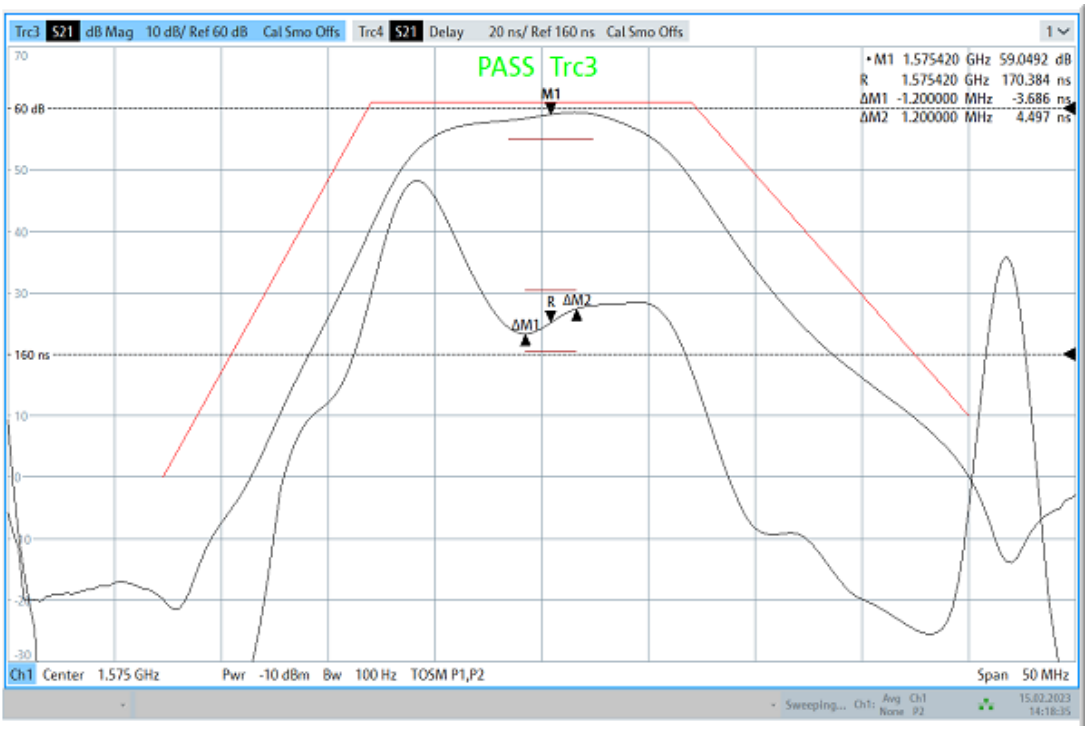


Carrier-to-Noise Skyplots



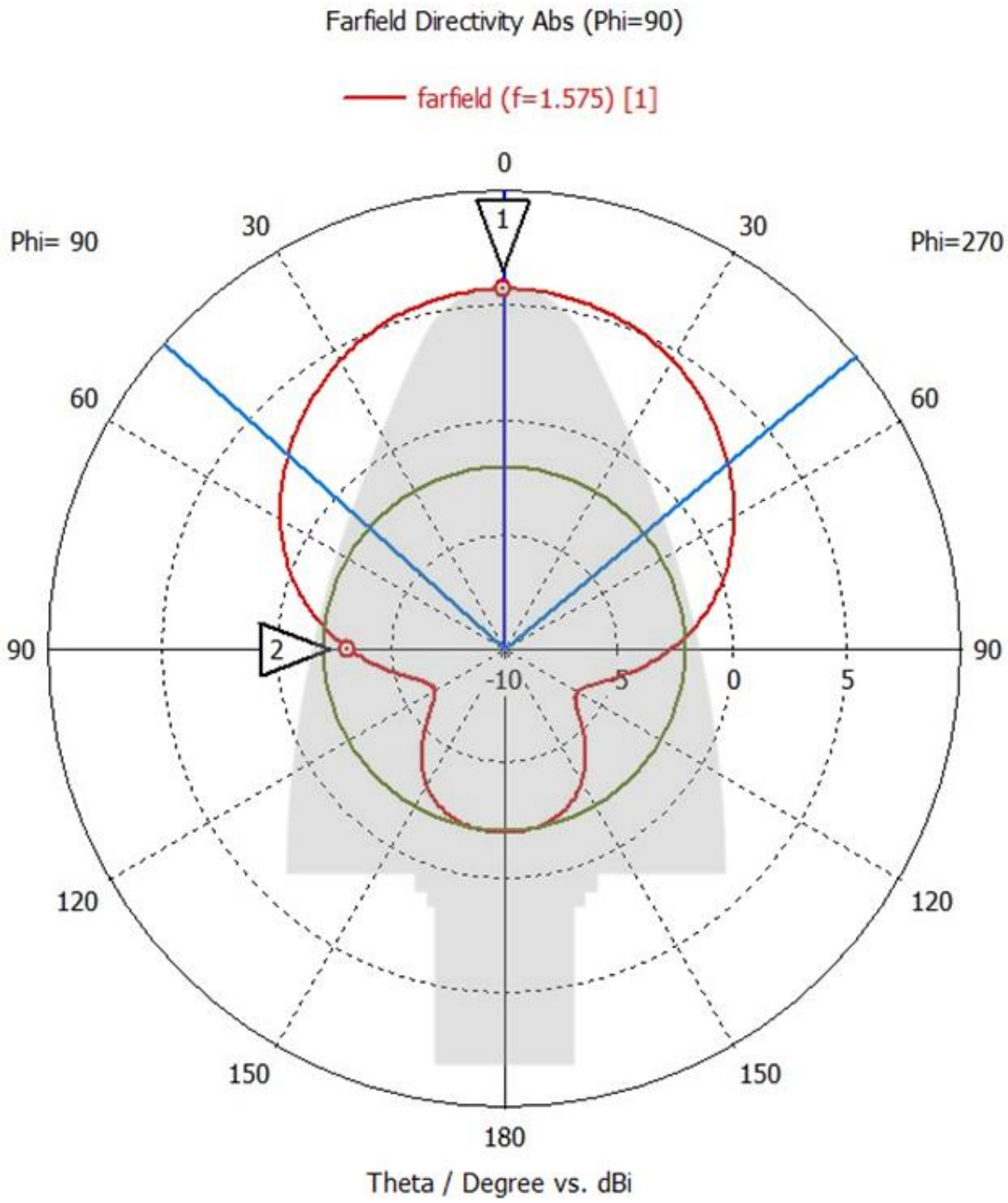
Sample skyplots of carrier-to-noise ratios in dB for reception of GPS *(left)* and Galileo *(right)* taken using Meinberg GNS-UC receiver under ideal conditions (no signal obstacles within 10 meters) at angles of up to approx. 85° in all directions from zenith to horizon.
Note: The reduced data sample available for Galileo is due to the lower number of satellites in service for the Galileo constellation.

Frequency Response Curve



Frequency-response curve illustrating the production benchmark (**red**), the gain curve with the center frequency of 1575.42 MHz (**M1**), and the delay curve (**R**) with delay variations between 1574.22 MHz (**ΔM1**) and 1576.62 MHz (**ΔM2**)

Farfield Directivity Pattern



1 (0.279786, 5.6963)
2 (89.7047, -3.13298)

Frequency = 1.575 GHz
Main lobe magnitude = 5.7 dBi
Main lobe direction = 0.0 deg.
Angular width (3 dB) = 98.6 deg.
Side lobe level = -7.7 dB

MEINBERG
The Synchronization Experts.

LANTIME M250

Product Highlights

- A powerful Stratum 1 NTP server capable of processing up to 25,000 requests per second
- Compact 1U chassis for desktop use, adaptable for rack installation (M2xx series rackmount kit required)
- Engineered to order with a selection of reference receiver module options (GNSS, DCF77, MSF)
- Available with an AC/DC or a “low DC” (20–60V) power supply unit to meet your specific needs

High-Performance NTP Time Server in a Compact Chassis

The LANTIME M250 is designed by Meinberg to offer superior NTP server performance in a network environment. Built to order with a selection of signal receivers to enable you to synchronize your server to the remote timing signal that you trust most, the LANTIME M250 servers can be built to support timing signals from any of the main satellite navigation systems in operation (GPS, Galileo, BeiDou, GLONASS) or from a long-wave timing signal radio service (DCF77, MSF).

Meinberg’s custom Linux-based LANTIME OS, a slim & secure operating system developed specially for the needs of a time server, powers the LANTIME M250 under the hood, providing access to all the security, network, and monitoring features that you could ever need from an enterprise-grade synchronization appliance.

The powerful Web UI enables you to quickly and easily configure and monitor your LANTIME device, while the CLI provides power users with unparalleled flexibility and efficiency. The comprehensive LANTIME OS REST API provides a complete toolset for your network orchestration and automation needs, and SNMP support allows you to integrate your Meinberg systems into your existing network management system.

Basic System Specifications

Processor	Intel Atom E3805 dual-core SoM (1.33GHz, 1 MB L2 cache, 3 W TDP)
Operating System	Custom LANTIME OS based on Linux 4.x LTS kernel
Main Memory	2GB DDR3L onboard
Flash Disk	4 GB eMMC Flash

Monitoring & Alarms

Supported Protocols	SNMP v1, SNMP v2, SNMP v3
Notification Channels	Email (SMTP), syslog
Log Access	Logs can be viewed and downloaded in the Web Interface, downloaded via the FTP service, or accessed via the command line interface

NTP Support

NTP Protocols	NTP v2 (RFC 1119), NTP v3 (RFC 1305), NTP v4 (RFC 5905), SNTP v3 (RFC 1769), SNTP v4 (RFC 2030)
Security Features	Symmetric key-based authentication using MD5, SHA-1, or AES-128-CMAC hashes NTP v4 Autokey (private/public key pairs) NTS encryption (RFC 8915) for NTP v4 in unicast client mode
Performance	Up to 25,000 NTP requests per second

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Management Interfaces

Network	Web Interface (HTTP/HTTPS TLS v1.3) SSH v2 (command line interface) Telnet (command line interface) REST API (HTTP/HTTPS TLS v1.3)
Serial Console	8P8C (“RJ45-like”) connector for serial terminal access
Local	Front display & function keys

Oscillator Options

The LANTIME M250 is shipped as standard with a “**TCXO**” (temperature-controlled crystal oscillator), which provides excellent holdover performance if your server loses synchronization with its upstream reference for any reason. The LANTIME M250 may also be shipped on request with a more powerful holdover solution; the options available and their performance metrics are listed below:

Type	Holdover Performance (1 Day)*	Holdover Performance (1 Year)*
TCXO	± 4.3 ms	± 16 s
OCXO LQ	± 865 µs	± 6.3 s
OCXO SQ	± 65 µs	± 4.7 s
OCXO HQ	± 10 µs	± 788 ms
OCXO DHQ	± 4.5 µs	± 158 ms

* Full holdover performance requires the system to have been synchronized for 24 hours previously.

Available Receiver Types

GPS Receiver*	12-channel L1 C/A code receiver for reception of signals from the GPS satellite constellation
GNS Receiver	72-channel receiver for reception of signals from the GPS (L1), Galileo (E1 B/C), BeiDou (B1I), and GLONASS (L1OF) satellite constellations
GNS-UC Receiver*	72-channel receiver for reception of signals from the GPS (L1 C/A code) and Galileo (E1 B/C) satellite constellations
PZF Receiver	Receiver with quadrature demodulator for reception of signals from the DCF77 long-wave transmitter in Mainflingen, Germany

* These receivers require a Meinberg IF antenna (included with the system as standard).

Operational Specifications

Acoustic Noise Emissions	0 dB(A)
Supported Operating Temp.	0 to 50 °C (32 to 122 °F)
Supported Storage Temp.	-20 to 70 °C (-4 to 158 °F)
Supported Relative Humidity	Max. 95 % at 40 °C (104 °F), non-condensing
Supported Altitude	Max. 4000 m / 13123 ft (above sea level)

Chassis Specifications

Form Factor	1U / 66 HP
Dimensions	337 mm x 43.3 mm x 248 mm (13.28 in x 1.70 in x 9.74 in) [W x H x D]
Material	Sheet steel
IP Rating	IP30

Accessories Included

- Two-part power cable (5-pin MSTB to IEC 60320 C14 cable, IEC 60320 C13 cable to local mains plug) **or** 5-pin MSTB connector for assembly of a suitable power cable for DC power sources.
- Printed setup guide explaining the basic setup process and antenna installation.
- Models with a GPS or GNS-UC clock receiver include a Meinberg GPSANTv2 antenna for outdoor installation, a mounting kit containing all the accessories required to mount the antenna on a pole or wall, and a 20 m (65.6 ft) RG 58 coaxial cable with pre-fitted connectors as standard*.
- Models with a GNS clock receiver include a multi-GNSS antenna for outdoor installation, a mounting kit containing all the accessories required to mount the antenna on a pole or wall, and a 20 m (65.6 ft) Belden H155 coaxial cable with pre-fitted connectors as standard*.
- Models with a PZF clock receiver include a long-wave antenna, a mounting kit for outdoor installation, and a 10 m (32.8 ft) RG58 coaxial cable with pre-fitted connectors as standard*.
- A rackmount kit for installation of the M250 in a standard 19” rack.

* Meinberg also offers customized antenna cables to accommodate your specific installation requirements. Please reach out to your Meinberg Sales Representative for more information.

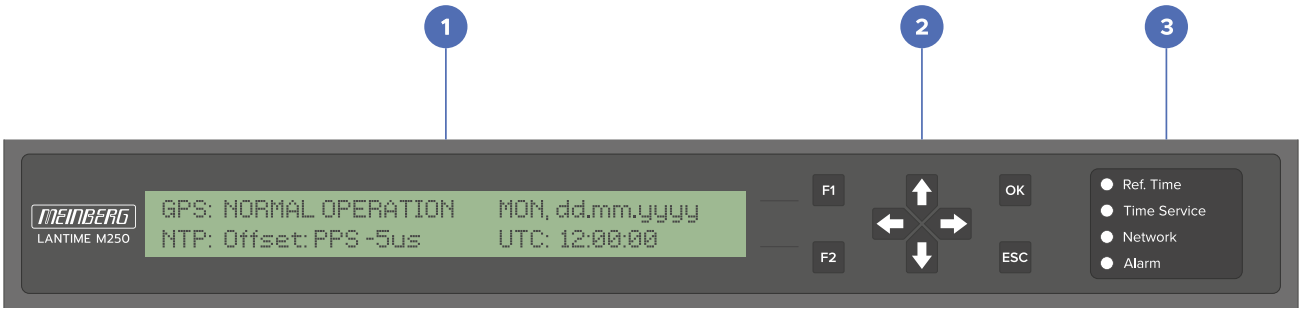
Support & Compliance

Technical Support	Free lifetime support via telephone and email, including firmware updates
Warranty	Three-year warranty, extendable upon request
Firmware Updates	Firmware is field-upgradable; updates can be installed from a connected USB storage medium, via the Web UI (upload via a web browser), or via the CLI (download from a server). LANTIME OS allows you to install multiple firmware versions onto the device concurrently and select which one should be used when the system starts.
Conformity Declarations	CE, UKCA

RoHS Compliance	The product is fully RoHS-compliant.
WEEE Status	The purchase of this product is considered to be a “B2B” transaction (non-household product) for the purposes of the European Union Waste of Electrical and Electronic Equipment Directive; the product falls under Category 6, “Small IT and Telecommunications Equipment”. For disposal, it can be returned to the manufacturer to ensure WEEE compliance. Any transportation expenses for returning this product (at end-of-life) must be covered by the end user, while Meinberg will cover the costs for the waste disposal itself.

LANTIME M250 Display View

Actual display may vary depending on installed clock-receiver.



1 LCD Panel

- 2 x 40 character backlit display for clarity even in low-light conditions.
- Status display (as shown above) indicates the status of the clock receiver, the current date and time of the clock, and the current offset of the NTP server.
- Provides status readouts and allows basic configuration processes to be performed using the front-panel function keys.
- Shows alarms and alerts requiring user intervention.

2 Function Keys

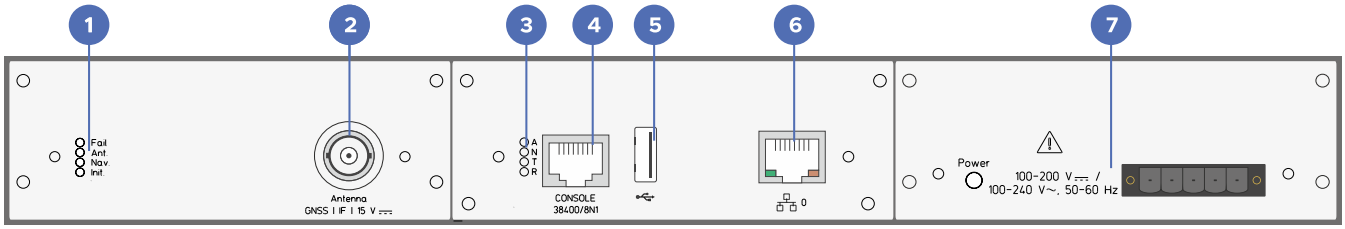
“**F1**”, “**F2**”, “**OK**”, “**ESC**”, and arrow keys allow for local navigation of configuration menus and status readouts to enable many configuration processes to be performed directly from the device during installation.

3 Status LEDs

Ref. Time	Indicates whether the reference clock is providing a valid timebase.
Time Service	If lit, the internal NTP service of the server is synchronized with the reference clock.
Network	Shows whether there is a valid link-up on the network interface.
Alarm	Advises of a general system fault that requires attention.

LANTIME M250 Connector View

Actual appearance may vary depending on installed clock-receiver.



1 Receiver Clock Status LEDs

The specific LEDs will depend on whether the LANTIME M250 is equipped with a GNSS satellite receiver or a PZF long-wave receiver. The illustration represents a LANTIME M250 fitted with a GPS receiver and may differ with other models.

GNSS Satellite Receiver (Type GPS, GNS, GNS-UC)	
“Fail” LED	When lit, this reveals if that clock is having problems with synchronization.
“Ant.” LED	Indicates no functional connection to the antenna or that there is a short-circuit in the connection with the antenna.
“Nav.” LED	Shows the state of the geolocation process.
“Init.” LED	Provides an indication of initialization state of the clock and onboard oscillator.

DCF77 Long-Wave Receiver (Type PZF)	
“Init” LED	Indicates the initialization state of the clock and onboard oscillator.
“Field” LED	Indicates the detection of adequate DCF reception.
“Ant Fail” LED	Indicates problems with the antenna connection.
“Fail” LED	Indicates problems with clock synchronization.

2 Antenna Connector

The specifications of the antenna and its connector are dependent on the selected clock receiver. The illustration represents a LANTIME M250 fitted with a GPS receiver and may differ with other models.

GPS Receiver	- Connector: BNC female or Type-N female - Termination impedance: 50 Ω - Recommended cable: RG58 (max. 300 m), RG213 (max. 700 m) - 15 V output (for powering Meinberg GPS IF antenna system)
GNS-UC Receiver:	- Connector: BNC female or Type-N female - Termination impedance: 50 Ω - Recommended cable: RG58 (max. 300 m), RG213 (max. 700 m) - 15 V output (for powering Meinberg GPS IF antenna system)
GNS Receiver	- Connector: SMA female - Termination impedance: 50 Ω - Recommended cable: Belden H155 (max. 70 m) - 5 V output (for powering antenna)
PZF Receiver	- Connector: BNC female - Reception frequency: 77.5 kHz - Termination impedance: 50 Ω - Recommended cable: RG58 (max. 300 m) - 5 V output (for powering Meinberg PZF antenna system)

3 System Status LEDs

The status readouts provided by these LEDs are also provided by the corresponding LEDs on the display side of the device.

“A” LED	“Alarm” LED for indicating general system faults.
“N” LED	“Network” LED for indicating proper function or fault of network connections (“link-up state”).
“T” LED	“Time Service” LED for indicating synchronization status of NTP with reference clock.
“R” LED	“Reference Clock” LED for indicating proper function or fault state of reference clock.

4 Serial Console Port (Terminal Access)

The serial console port is a standard RS-232 interface with an 8P8C (“RJ45-like”) female connector that can be used to establish a direct serial connection (38400 baud, 8N1 framing) between the LANTIME M250 and any device running suitable terminal software (e.g., a laptop) for direct command line access. The connection can be established using any suitable RS-232 cable or adapter (e.g., RJ45 to D-Sub 9, Yost wiring standard).

5 USB Interface

This USB interface can be used for:

- saving a backup of the LANTIME OS configuration to an external storage medium (such as a USB flash drive) and restoring this backup (or copying a standard configuration between multiple LANTIME servers)
- creating a backup of log files (such as SyncMon logs)
- loading and saving cryptographic certificates
- creating a physical USB “security key” that can be used to enable and disable the local function keys on the device

6 Network Interface

Network Interface	1x RJ45 10/100/1000-BASE-T interface (Gigabit Ethernet) with link status LEDs
Network IP Addressing	IPv4 (with DHCP support), IPv6 (with DHCPv6 and Autoconf support)
Network Services (Supported Protocols)	HTTP(S) for web interface and REST API access FTP for access to log files and uploading firmware updates Telnet and SSH for command line access SNMP for monitoring

7 Power Supply

Connector Type	5-pin MSTB female connector Power supply cable provided for AC mains power supply 5-pin MSTB male connector supplied for assembly of cable for DC power supply
Voltage Range	AC/DC power supply unit: 100–240 V AC (50–60 Hz), 100–200 V DC “Low DC” power supply unit: 20–60 V DC (rated), 48 V DC (nominal)
Power Consumption	20 W typical