

# METROe

## *Smart GPS Signal Controller*

### Description

The METROe is a primary signal controller for GPS retransmission. It is an L1 or L1/L2 smart amplifier, designed for all applications that provides a calibrated 1dB incremental output power control. When used in conjunct with an active GPS receive antenna, it will retransmit GPS signals inside a building, hangar or any structure where GPS is not available. It can be used in an automated test environment or in a shielded room that needs L1 or L1/L2 signal.

A user can easily use a push-button control to precisely determine the output power of the METROe signal. This reduces the need for multiple antennas, and multiple antenna cable runs, while lowering maintenance and installation costs.

### Features

- 1dBm incremental control over output signal level
- Frequency selectivity - L1 or L1/L2 GPS frequencies
- Continuous Built-In-Testing (BIT)
- Diagnostic Capabilities (Displays Faults)
- Automatic Oscillation Detection
- Use for any L1 or L1/L2 GPS retransmission application
- CE Certified
- R&TTE Certified

### Options

- AC or DC Power
- Multiple RF Connector Types
- L1 or L1/L2



The METROe is available with multiple options and supporting equipment to meet specific needs. Please contact GPS Source via phone, email, or visit the website for further information on product options and specifications.

## 1 Basic Functions

### **AUTOMATIC SIGNAL LEVEL CONTROL**

The METROe employs an automatic gain control to maintain the user-selected output power level, regardless of the uncertain loss or gain in the receive antenna or cable losses. Derived from high performance systems for military applications, this device allows precise determination over effective radiated power (ERP) levels, regardless of external changes to the GPS input power. It will automatically condition the signal and prevent changes in the output power.

### **BUILT-IN TEST (TROUBLESHOOTING)**

The METROe performs a continuous built in test function. This monitors the status of coaxial cables and the external GPS antenna to and from the METROe input, as well as the GPS signal levels and signal quality within the device itself. Real-time status indicators/faults display are provided on the user input panel.

The METROe will identify and isolate the following:

- Oscillation condition
- Internal component failure
- High gain
- Less than four satellites
- Low gain
- No satellites with adequate signal (contact GPSS or refer to manual for complete list of conditions)
- Short/Open circuit

## 2.1 Amplifier Specifications

**Table 2-1. Operating Temperature -54°C to 71°C**

| Parameter                | Conditions           | Min  | Typ     | Max  | Units    |
|--------------------------|----------------------|------|---------|------|----------|
| Operating Frequencies    | L1                   | 1560 | 1575.42 | 1590 | MHz      |
|                          | L2                   | 1212 | 1227.60 | 1242 |          |
| Input / Output Impedance |                      |      | 50      | 0    | $\Omega$ |
| Operating Gain           |                      | 0    | 33      | 50   | dB       |
| Output SWR               | Output = 50 $\Omega$ |      |         | 2:1  | -        |
| Noise Figure             |                      |      |         | 3    | dB       |
| RF Power                 | Output = 50 $\Omega$ | -85  |         | -65  | dBm      |

## 2.2 Electrical Specifications

**Table 2-2.**

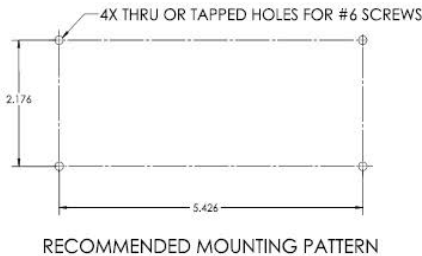
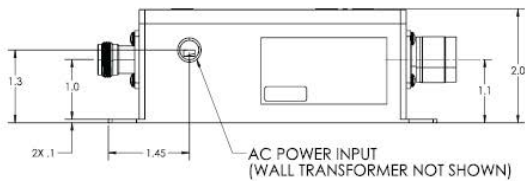
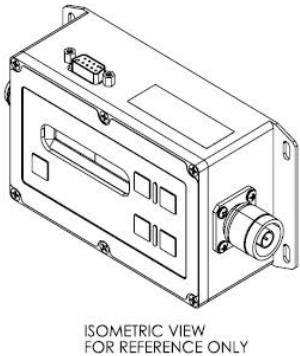
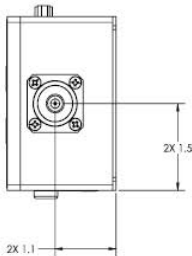
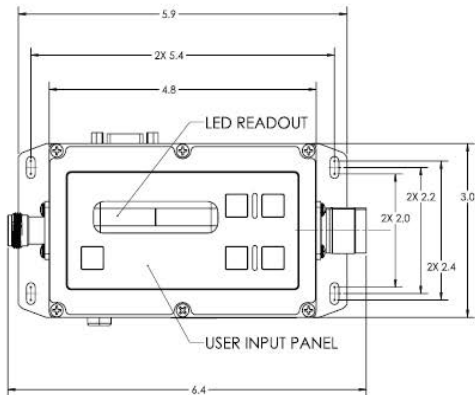
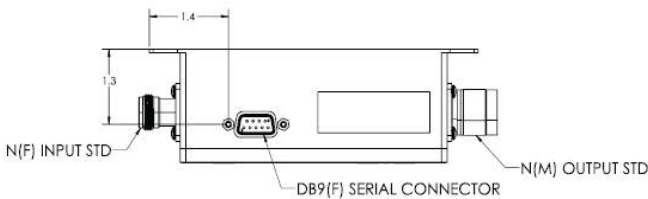
| Parameter               | Conditions                      | Min | Typ | Max | Units |
|-------------------------|---------------------------------|-----|-----|-----|-------|
| AC In                   | Wall Mount Transformer          | 100 |     | 240 | VAC   |
| DC In                   | Tinned leads                    | 16  |     | 30  | VDC   |
| Antenna Out             |                                 |     | 6.8 | 7.2 | V     |
| Antenna Current Thru J1 | Load Current Range              | 20  |     | 70  | mA    |
| Operating Current       | Excludes Antenna Current at 18V |     | 550 |     | mA    |
| RF Power                | Excludes Antenna Current at 28V | -85 |     | -65 | mA    |

## 3 Product Options

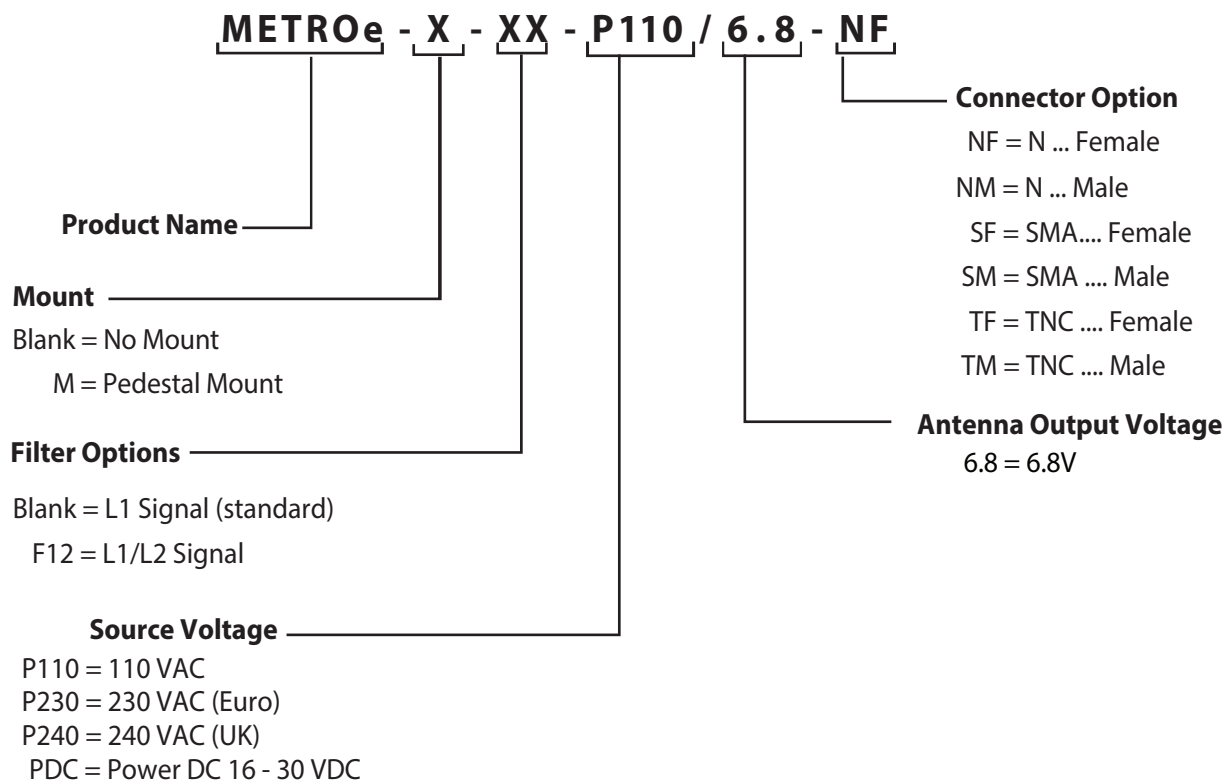
**Table 3-1. Available Options**

| Type         | Options | Description                              |
|--------------|---------|------------------------------------------|
| RF Connector | Type N  | Female and Male                          |
|              | SMA     | Female and Male                          |
|              | TNC     | Female and Male                          |
| AC Power     | P110    | 110VAC<br>Wall Mount Transformer         |
|              | P230    | 230VAC (Euro)<br>Wall Mount Transformer  |
|              | P240    | 240VAC (UK)<br>Wall Mount Transformer    |
| DC Power     | PDC     | 16-30VDC<br>Tinned Leads- 16-30VDC input |

**4 Mechanical Drawing METROe**



## 5 Product Decoder



Note: To have product/part codes customized to meet exact needs, contact GPS Source at [GPSS-Sales@gd-ms.com](mailto:GPSS-Sales@gd-ms.com) or visit the website at [www.gpssource.com](http://www.gpssource.com)

**GENERAL DYNAMICS**

Mission Systems

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