



Positioning Leadership



Euro-3M

NovAtel's Euro-3M™ features improved MEDLL performance and signal quality measurements in a Euro format card or a durable, lightweight enclosure with optional internal high precision clock.

Standard and MEDLL versions

Available in two software models, the standard Euro-3M includes 14 channels for tracking L1/L2 GPS signals with NovAtel's patented Narrow Correlator® technology and four channels for wide correlator tracking of L1 GEOs. The MEDLL version provides eight L1/L2 GPS channels and one L1 GEO channel and features a 50 percent improvement in MEDLL performance on a single card, compared to the previous multi-card 8 MHz MEDLL receiver, as shown in *Figure 1* (back).

Superior tracking ability

The Euro-3M includes the patent-pending SafeTrak™ algorithm, which detects and eliminates cross-correlation for added tracking reliability. In addition, the Euro-3M features bit synchronization verification, in-band digital pulse blanking on the L2 signal, and

includes RFI improvements developed for the U.S. WAAS network. A DO-228 compatible RF deck offers additional protection against out-of-band RF interference.

Raw data and signal quality monitoring

The Euro-3M provides raw GPS and SBAS frame data with parity information and Signal Quality Monitoring (SQM) measurements, which can be used to monitor the quality of the incoming signal and detect satellite failures. Automatic gain control (AGC) data for the L1 and L2 signals is also provided.

Choice of platform

Designed for system integrators, the Euro-3M is available as an OEM engine in the standard Eurocard format or housed in the rugged EuroPak-3M enclosure. Both include three high speed serial ports and auxiliary strobe signals, including a 1PPS output. Also available is the EuroPak-3MT, which provides these same features, as well as an internal high precision clock tightly matched to GPS time, making it an ideal solution for timing applications.

Features

50% improvement in MEDLL performance

Real-time Signal Quality Monitoring (SQM) measurements using multiple correlators

In-band digital pulse blanking on the L2 signal

Benefits

Reduces multipath effects for accurate range measurements

Offers the ability to detect satellite failures to ensure exceptional data integrity

Mitigates pulsed RF interference for increased tracking reliability

Performance¹

Tracking Channels

Standard Model	14 L1/L2 GPS + 4 L1 GEO
MEDLL Model	8 L1/L2 GPS + 1 L1 GEO

Position Accuracy

Single Point L1/L2	1.5 m CEP
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Measurement Precision²

C/A Code	10 cm RMS
P(Y) Code	50 cm RMS (AS on)
L1 Carrier Phase	3 mm RMS (differential channel)
L2 Carrier Phase	5 mm RMS (differential channel)

Data Rate

1 Hz

Time to First Fix

Cold Start ³	< 100 s
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Signal Reacquisition

C/A Code	< 5 s (typical)
P(Y) Code	< 60 s (typical)
SBAS	< 10 s (typical)

Altitude

3,000 m

¹ Typical values. Performance specifications subject to GPS system characteristics, US DOD operational degradation, ionospheric conditions, satellite geometry, baseline length, and multipath effects.

² Measurement precision at $C/N_0 = 44$ dB-Hz.

³ Typical value. No almanac or ephemeris and no approximate time or position.

⁴ Main data connector extends approximately 7 millimeters past edge of board.

⁵ Unless otherwise specified, all specifications apply to both the EuroPak-3M and EuroPak-3MT.

⁶ The EuroPak-3M provides an external oscillator input on this connector while the EuroPak-3MT provides an output from the internal clock.

Euro-3M Engine Physical & Electrical

Size⁴ 160 x 100 x 16 mm

Weight 150 g

Power

Input Voltage	+4.5 to +18 VDC
Power Consumption	6 W (typical)

Antenna LNA Power Output

Output Voltage	+5 VDC
Maximum Current	100 mA

External Oscillator Input

Input Frequency	5 or 10 MHz \pm 0.5 ppm
Signal Level	0 to +13 dBm

Communication Ports

- 3 RS-232 or RS-422 serial ports (user-configurable) capable of 9,600 to 230,400 bps

Input/Output Connectors

Main	160-pin five-row male header
Antenna Input	SMB male
External Oscillator Input	SMB male

Environmental

Temperature	
Operating	-40°C to +85°C
Storage	-45°C to +95°C
Humidity	95% non-condensing

EuroPak-3M/3MT Enclosure Physical & Electrical⁵

Size 235 x 154 x 71 mm

Weight 1.2 kg

Power

EuroPak-3M	
Input Voltage	+9 to +18 VDC
Power Consumption	6 W (typical)

EuroPak-3MT	
Input Voltage	+11 to +18 VDC
Power Consumption	13 W (typical)

Antenna LNA Power Output

Output Voltage	+5 VDC
Maximum Current	100 mA

External Oscillator Input (EuroPak-3M only)

Input Frequency	5 or 10 MHz \pm 0.5 ppm
Signal Level	0 to +13 dBm

Oscillator Output (EuroPak-3MT only)

Output Frequency	10 MHz
Signal Level	+10 dBm \pm 3 dB

Phase Noise			
0.1 Hz	-55 dBc/Hz	1 kHz	-165 dBc/Hz
1 Hz	-95 dBc/Hz	10 kHz	-165 dBc/Hz
10 Hz	-125 dBc/Hz	100 kHz	-165 dBc/Hz
100 Hz	-155 dBc/Hz		

Communication Ports

- 3 RS-232 serial ports capable of 9,600 to 230,400 bps

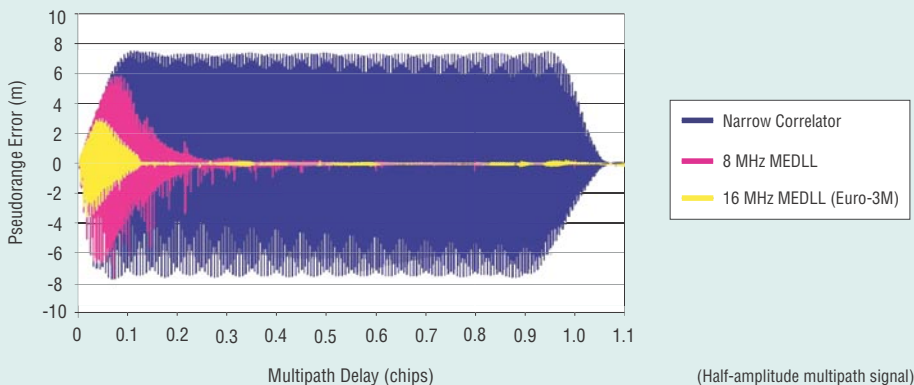
Input/Output Connectors

Power	4-pin LEMO
Antenna Input	TNC female
Oscillator ⁶	BNC female
COM1	DB-9 male
COM2	DB-9 male
COM3	DB-9 male
I/O	DB-9 female

Environmental

Temperature	
Operating	
EuroPak-3M	-40°C to +60°C
EuroPak-3MT	-20°C to +50°C
Storage	-45°C to +95°C
Humidity	95% non-condensing

Figure 1 - Simulation of Pseudorange Error Due to Multipath



For more information, visit our website.

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