

Adaptor Boards for M12 and M12+ Oncore Receivers

Introduction: Synergy Systems, LLC has developed a series of M12/M12+, 12 channel adaptor Boards, which are plug-compatible with Motorola's previous 8 channel VP, GT, GT+, UT and UT+ ONCORE OEM boards. The new Adaptor Boards are designed to provide 12 channel performance in existing OEM products using 8 channel Motorola receivers without making any hardware modifications.

Description: Although the M12 and new M12+ are miniaturized products, when mounted on the Adaptor Board they provide the same overall dimensions, connector types and connector locations as the VP, GT, GT+, UT and UT+ products to assure 100% hardware compatibility. In addition to OEM product upgrades, the new Adaptor Boards can also be used to upgrade existing Motorola Evaluation Kits (shipped since 1996) and all existing Synergy Systems, LLC XTS Series GPS Sensor products.



Figure 1: Adaptor Board shown with Receiver

In general, for products designed to produce NMEA output messages, no software changes to the products will be needed. When the Adaptor Board will be replacing a VP, GT, GT+, UT and UT+, using the Motorola binary message format, interface software in the OEM product must be changed to recognize the new 12 channel binary messages.

Two important technical documents are available for reference. The M12 Technical Supplement at: http://www.synergy-gps.com/M12%20_Supplement.pdf contains general features and specifications of the M12 ONCORE and includes a complete listing of command and reply messages. The "M12 SnapShot" document available from the Technical Support, ShopTalk section at <http://www.synergy-gps.com>, explains the differences between the older 8 channel binary message structure and the expanded M12 binary messages.

Previous ONCORE products used for tracking applications (VP, GT, GT+, UT, UT+) are 5VDC devices. The M12 and the new M12+ operate from 3VDC (2.8V - 3.2V) so the Adaptor Board contains an on-board 5 VDC to 3 VDC regulator circuit. A jumper block allows the Adaptor Board to operate with either an existing 5 VDC GPS antenna or a new 3 VDC antenna. An LNA option is available for applications requiring a passive antenna.

The M12/M12+ keep-alive battery is smaller than provided on previous ONCORE GPS receivers. For optimum results, the M12/M12+ should be operated for 36 hours to fully charged its on-board Lithium battery. This provides Almanac and other data to be available from RAM, for faster Time To First Fix (TTFF). The battery remains charged for approximately 3-4 weeks (depending on temperature and other variables). If external back-up power is used with the part numbers 10001472, 10001473 or 10001474 assemblies, back-up voltage should be in the range of 1.8 to 3.2 VDC.

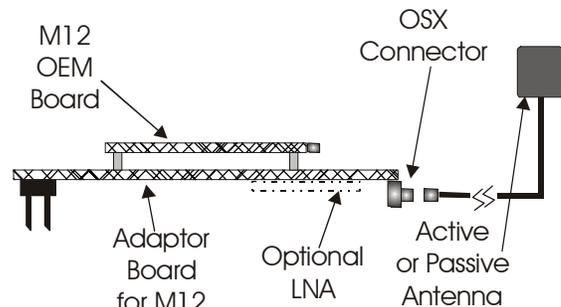


Figure 2: Antenna or extension cable connected directly to adaptor board via MCX (OSX) connector

Adaptor Card Ordering Information:

- P/N 10001460 - M12+ w/bat & R/A MCX Conn
- P/N 10001461 - M12+ w/bat & Straight MCX Conn
- P/N 10001462 - M12+ w/bat, R/A MCX Conn & LNA
- P/N 10001463 - M12+ w/bat, MMCX Conn
- P/N 10001464 - M12+ w/bat, & R/A SMA Conn
- P/N 10001466 - M12+ Timer w/bat, R/A MCX Conn
- P/N 10001472 - M12+ Timer w/R/A MCX (w/o bat)
- P/N 10001473 - M12+ w/R/A MCX (w/o bat)
- P/N 10001474 - M12+ Timer w/ST MCX (w/o bat)
- P/N 10001450-3 - Adaptor Board Only,
(Ant or ext cable connects to MMCX on M12)

Note: All Adaptor Boards include a straight, 10 pin Power/Data connector identical to those on the VP, GT, GT+, UT and UT+ ONCORE OEM boards.

For configuration assistance, order placement and technical support call:

SYNERGY SYSTEMS, LLC

Time proven products and support

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