

# Adaptor Boards for Motorola M12/M12+/M12M GPS Receivers

## Introduction:

Synergy Systems has developed an adaptor board that allows the user to install an M12 series receiver into a product that was originally designed using one of the older 5V Motorola receivers such as the VP, UT, or GT series.

## Characteristics:

Adaptor board dimensions are identical to the older receivers: mounting hole patterns and connector positions the same as on the older receivers, allowing the user to simply plug the M12/adaptor board assembly into existing hardware without any hardware changes being necessary. Electrical Characteristics:

The M12/adaptor board assembly appears to the external electronics as a standard 5V Motorola receiver as all power and signal pinouts are the same. The adaptor board has +3V regulators for both the main supply and battery back-up to enable the M12 to function properly with +5V applied to the adaptor transformed into 3V logic for use by the M12, and 3V outputs from the M12 are buffered to 5V before being sent to the host. Message Formats:

If the host application is using the Motorola binary protocol for communications, some of the user's operating code may need to be changed in order to communicate with the M12. A summary of the message differences between the M12 receiver series and older Motorola receivers may be found at:

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## M12M/M12 Comparison

If the NMEA protocol is being used, code changes should be unnecessary. Configurations:

In an effort to make the M12/Adaptor Board product useful for most previous users of the older 5V receivers, Synergy Systems currently builds over 25 configurations of the M12/Adaptor Board. Shown in the photo above are two typical examples. In the foreground is an M12/ Adaptor assembly using a r/a MCX jack for the RF interface. In the background is a shielded M12/Adaptor Board assembly. Note that there is no MCX connector used on this assembly. The RF is connected directly to the MMCX jack on the M12 receiver itself. Standard options include:

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## M12M series Positioning or Timing receiver

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## Receiver with or without onboard back-up battery

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## R/A MCX, straight MCX, or MMCX jack RF input

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## With or without RF shield can

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## Bare Adaptor Board without RF connectors

(Data Sheet)