

# Geographic Position Receiver

## Model GPS16-HVS

The GPS16-HVS sensor, manufactured by Garmin® International Inc., consists of a receiver and an integrated antenna. This sensor receives signals from orbiting Geographic Positioning System (GPS) satellites then uses the signals to calculate position and velocity. The GPS16-HVS can also provide a highly accurate one-pulse-per-second (PPS) output for precise timing measurements.

The GPS16-HVS sensor is compatible with our CR10X, CR800, CR850, CR1000, CR3000, CR5000, and CR9000X dataloggers. Connecting the sensor to a datalogger requires either an RJ45 Interface Cable or an RJ45 to RS-232 Adapter used in conjunction with a 18663 null modem cable or an SDM-SIO4 module (see photos). The GPS16-HVS is not compatible with our CR200-series or CR510 dataloggers.

### Features

- Processes data from up to 12 satellites depending on the number of satellites viewable above the horizon
- Supports real-time WAAS or RTCM corrections that provide a 3 to 5 m position accuracy
- Allows the datalogger clock to be set to the highly accurate GPS time
- Provides a timing pulse (PPS) at one second intervals. The timing pulses are extremely accurate and can be used to synchronize time between the datalogger and other instruments

### Ordering Information

GPS16-HVS	GPS Receiver with antenna and 15 ft cable. Requires either the 17217 Interface Cable or 17218 adapter to connect the sensor's RJ45 connector to the datalogger.
17217	RJ45 Interface Cable with an 8" lead. The cable terminates in a pigtail that connects to the datalogger's control ports (see top right photo and caption).
17218	RJ45 to RS-232 Adapter interfaces the datalogger with the sensor via a 18663 null modem cable or SDM-SIO4 Serial Input/Output Module. This adapter is also required to change the sensor's default settings using a computer.
17212	Magnetic Mount that allows the sensor to be attached to a magnetically susceptible metallic surface, typically the CM235 Magnetic Stand.
CM235	Magnetic Mounting Stand for attaching the GPS16-HVS to a crossarm such as the CM202, CM204, or CM206, or a tripod or tower mast.
18663	Male-to-Male null modem cable used to read the sensor via the 17218 adapter and the datalogger's RS-232 port (see middle right photo and caption).
SDM-SIO4	Serial Input/Output Module used to measure the GPS16-HVS via the 17218 adapter (see bottom right photo and caption).



An RJ45 Interface Cable connects the sensor to the datalogger's control ports. This interface option is compatible with our CR800, CR850, CR10X, CR1000, and CR3000 dataloggers.



An RJ45 to RS-232 Adapter and a null modem cable are used to connect the sensor to the datalogger's RS-232 port. This interface option is compatible with our CR800, CR850, CR1000, and CR3000 dataloggers.



The sensor interfaces with the datalogger via the RJ45 to RS-232 Adapter and an SDM-SIO4 module. This interface option is compatible with our CR800, CR850, CR10X, CR1000, CR3000, CR5000, and CR9000X dataloggers.

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## Specifications

Receiver:	WAAS enabled; 12 parallel channel GPS receiver continuously tracks and uses up to 12 satellites (up to 11 with PPS active) to compute and update your position.
Update Rate:	Factory set to 1 second between updates; programmable from 1 to 900 seconds*
PPS Output:	1 Hz pulse, 1 microsecond accuracy, width factory set to 80 milliseconds; pulse width is programmable*
Reacquisition:	<2 seconds
Baud Rate:	Factory set to 1200 bps; 300, 600, 2400, 4800, 9600, and 19200 baud rates also available*
Temperature Range:	-30° to 80°C operating, -40° to 80°C storage
Operating Voltage:	6 to 40 Vdc
Current Drain:	65 mA active @ 12 Vdc
Dimensions:	3.4" (8.6 cm) diameter, 1.7" (4.2 cm) height
Weight:	12 oz. (332 g) with 15' (5 m) cable

### Accuracy:

Position (95% typical):	<15 m with GPS Standard Positioning Service (SPS); 3 to 5 m with DGPS (USCG/RTCM) correction; <3 m with DGPS (WAAS) correction
Velocity:	0.1 knot RMS steady state

### Acquisition Times:

Cold:	~45 seconds (initial position, time and almanac known, ephemeris unknown)
Warm:	~15 seconds (all data known)
SkySearch:	~5 minutes (no data known)
AutoLocate™:	~5 minutes (almanac known, initial position and time unknown)

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*\*Changing the default settings or options requires the 17218 RJ45 to RS-232 Adapter and a PC running GPS16 software. The software can be downloaded, at no charge, from the Garmin web site ([www.garmin.com](http://www.garmin.com)).*

