

# 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, 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, 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, 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, CR10X, CR1000, CR3000, CR5000, and CR9000X dataloggers.

## 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*  |

### Accuracy:

- Position (95% typical): <15 m with GPS Standard Positioning Service (SPS); 3 to 5 m with DGPS (USCG/RTCM) correction; <3 meters 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)

|                    |   |
|--------------------|---|
| 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   |

*\*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)).*

