



# GP5001 GPS RECEIVER

When connected to the **AR2300/AR5001D** communication receiver, the **GP5001** GPS receiver increases the frequency stability from +/- 1ppm to +/- 0.01ppm, by using the GPS pulse signal for an accurate time base of the local oscillator circuit.

+/- 0.01ppm frequency stability of the 10MHz internal master oscillator is achieved when synchronized to a GPS signal.



The GP5001 GPS receiver system differs from typical “map based” positional systems. It feeds a highly accurate one-pulse-per-second (PPS) signal to the AR2300/AR5001D receiver. The rising edge of the signal is aligned to the start of each GPS second within 1µsec.

GP5001 is composed of an OEM GPS receiver (the round case element) made by GARMIN (U.S.A), to which we have added a DC-DC converter (the tube shaped case).

## Specifications:

Item number	GP5001
System	Simultaneous reception of up to twelve GPS 1 pps satellite signals.
Power requirements	DC 12V, 50mA (supplied by receiver's ACC connection)
Cable length	Approx.5 meters
Weight	200g
1 PPS accuracy	1 Hz pulse $\pm 1\mu\text{sec}$ .
Water resistance	GPS receiver (round case element): Waterproof to IPX7 level (immersion in 1m of water for 30 minutes) DC-DC converter (tube shaped case): Not water resistant

## Caution!

The GPS receiver (round case element) contains a strong magnet. Do therefore not approach it to devices sensible to magnetic fields such as floppy disks, hard disks, cellular phones, cathode-ray tubes, clocks or credit cards.

AOR Ltd. cannot be held responsible of any device damage or data loss resulting of incorrect use of GP5001.

## Setup instructions:

1. Connect the GPS receiver's 8-pin mini-DIN plug to the communication receiver's ACC socket, labeled as follows:  
AR5001D: ACC1 on front panel  
AR2300: ACC on back of receiver
2. Setup the GPS receiver near a window or best an unobstructed sky view.  
The magnetic base of the round case receiver allows fast and convenient setup.
3. When AR2300/AR5001D is powered up, the GPS connection is immediately detected. ※  
On AR5001D, a blinking GPS mark appears on the LCD screen.  
Between 10 to 30 seconds later, frequency accuracy reaches +/- 0.1ppm. ※※  
Approximately 1 hour later, once the GPS mark stops blinking (always on), the frequency stability will reach +/- 0.01ppm. ※※  
(The time necessary to reach this state depends on the quality and strength of the GPS signal reception.)  
  
※ AR2300 being a black box receiver without LCD screen, there is no visual GPS state indication, nevertheless the behavior and timings are equal to AR5001D.  
※※ If the AR5001D receiver is turned off and on again, or the GPS receiver is disconnected, the GPS synchronization will be lost. The synchronization process will start again as explained in step 3.

If the GPS device is having issues acquiring a clear signal from the satellites, the problem may be due to external elements preventing the GPS device from having a clear line of site to the satellites. Places where it will most likely not work are: Inside buildings, underground, under a bridge, close proximity of high buildings, large trees, high power lines, 1.5 GHz transmitter towers, or even indoors close to a window if the windows has some special coating.

Although the GPS receiver (round case) is waterproof to IPX7 level, when mounted outdoors it is always a good idea to protect it from bad weather by putting it inside a plastic bag or inside a box made of plastic.



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