

# AP-NAVIGATOR® 4x ANTENNA

APG100/85/18/24

## Complete AVL Solution and Enhanced Communications

### **Solves the Problem of How to do All 3 Wireless Technologies with embedded wireless inside Panasonic**

Now, you can embed the Cellular and WiFi in your ToughBook, and then utilize the AP-Navigator® 4x to provide the GPS and all of your external antennas.

### **Very Simple Install – only one unit for everything**

All three of your antennas and the GPS receiver are in our low profile housing. You will only need to drill one hole and feed the cable assembly once. If you ever need to move this to another vehicle, the take out and re-install will take minutes. Keep all your antennas and GPS system even after you upgrade your laptop or vehicle.

### **Mapping and Automatic Vehicle Location Technologies**

The AP-Navigator® 4x is a full 2 way communicating GPS receiver, able to provide 10 foot accuracy. GPS protocols include TSIP, TAIP, TRCM, and NMEA. This means that every AVL software and Internet Mapping solution will work with this GPS receiver.

### **Bigger Wireless Cellular & WiFi Footprint and Faster Data Speeds**

The AP-Navigator® 4x provides up to 25% more wireless coverage, depending on the geography you travel in. Better reception translates to faster speeds. The data gets through the first time, correctly.

### **Long Product Life – Low Profile Design**

The AP-Navigator® 4x has a low profile design. It withstands all of the natural elements, car washes, and being swept by tree branches.

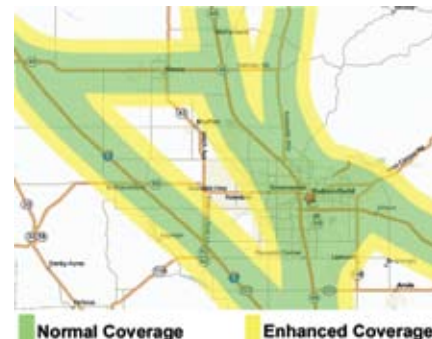
### **Connects to All Major Brands of Wireless Data Cards with external antenna ports.**



**Docking Stations:** Havis LEDCO, Gamber Johnston, Panasonic, PMT, Kodiak, First Mobile Technologies.

**Wireless Trunk and Mobile Access Routers from:** Sierra Wireless, AirLink, Sixnet, Utility Associates, Junxion, Cisco MAR, and many others

### **Extra coverage gained with the AP-Navigator® 4x Antenna**



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**ANTENNAPLUS**  
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## GPS Receiver

### Key Features

- 12-channel simultaneous operation
- Ultra-low power consumption: less than 90 mW (27 mA) @ 3.3 V
- Dual sensitivity modes with automatic switching
- Aided BPS through TSIP
- Trimble GPS Engine

### Performance Specifications

**General** L1 (1575.42 MHz) frequency, C/A code, 12 channel, continuous tracking receiver

**Update Rate** TSIP @ 1Hz; NMEA @ 1 Hz; TAIP @ 1 Hz

**Accuracy** Horizontal: < 5 meters (50%), < 8 meters (90%)  
Altitude: < 10 meters (50%), < 16 meters (90%)  
Velocity: 0.06 m/sec  
PPS(static): +/-50 nanoseconds

**Acquisition** (Autonomous Operation in Standard Sensitivity Mode)

Re acquisition: < 2 sec. (90%)  
Hot Start: < 10 sec. (50%), < 13 sec (90%)  
Warm Start: < 38 sec. (50%), < 42 sec (90%)  
Cold Start: < 50 sec. (50%). < 84 sec (90%)  
(Cold start requires no initialization, Warm start implies last position, time and almanac are saved by backup power.)  
(Hot start implies ephemeris is also saved.)

### Optional (COCOM) Limits

Altitude: 18,000 m  
Velocity: 515 m/s  
Either limit may be exceeded but not both

### Interface Characteristics

**Connector** USB  
**Protocols** TSIP, TAIP, NMEA 0183 v3.0, TRCM SC-104  
**NMEA Messages** GGA, VTG, GLL, ZDA, GSA, GSV and RMC  
Messages selectable by TSIP command  
Selection stored in flash memory

### Electrical Characteristics

**Prime Power** +3.0 VDC to 3.6 VDC (3.3 V typ.)  
**Power Consumption** less than 90 mW (27 mA) @ 3.3 V  
**Backup Power** +2.5 VDC to +3.6 VDC (3.0V typ.)  
**Ripple Noise** Max 60 mV, peak to peak from 1Hz to 1 MHz

### Environmental Specifications

**Operating Temperature** -40°C to +85°C  
**Storage Temperature** -55°C to + 105°C  
**Vibration** 0.008 g<sup>2</sup>/Hz 5 Hz to 20 Hz  
0.05 g<sup>2</sup>/Hz 20Hz to 100 Hz  
-3 dB/octave 100Hz to 900Hz  
**Operating Humidity** 5% to 95% R.H. Non-condensing, at +60°C

## Tri-Band Antenna

### Electrical Specifications

#### Frequencies:

F1=824-896 MHz  
F2=1850-1995 MHz  
F3= 2400-2484 MHz  
F4=1575.42 MHz

**VSWR:** 1.5:1 or less at resonant point

**Gain:** 3.0 dBi

#### Radiation Pattern:

OMNI Directional  
Hemispherical (GPS)

#### Polarization:

Vertical

### Mechanical Specifications

#### Radome:

Glass Filled Polypropylene

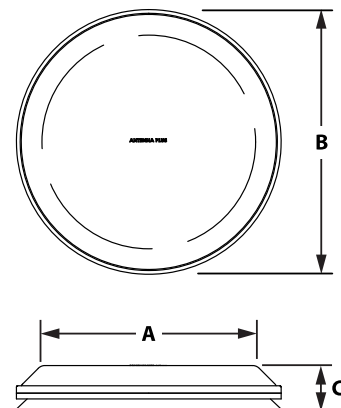
#### Cable Length:

15 feet (4.5 m) (Adhesive Mount)  
10 feet (3 m) (Magnetic Mount)

#### Connectors:

Contact factory for connector options.

### Dimensions



Mount	Adhesive or Bolt
A	5.5 in. (140mm)
B	6.9 in. (175mm)
C	1.3 in. (33mm)