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: AirCard 881, USB Connect Mercury, Option GT Ultra,

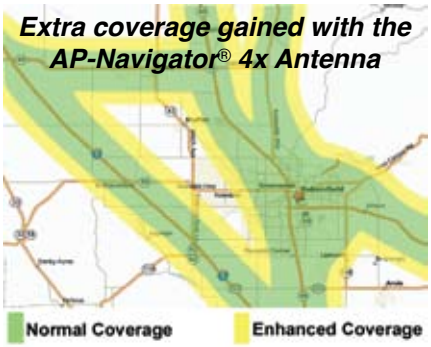
Adhesive mount shown.
Available colors: Black or White

GT Ultra Express, USB760, UM175 USB, PC5750*, PC770 Express, UMW190, AD3700 Global USB, USB100, AirCard 402, AirCard 597E, AirCard 598U, Ovation U760, Merlin C777, EC360, KPC680 and all older wireless data cards with external antenna ports
(With adapter cable from Verizon)*

Docking Stations: Havis LEDCO, Gamber Johnston, Panasonic, PMT, Kodiak

Wireless Trunk and Mobile Access Routers from: Sierra Wireless, AirLink, BlueTree Wireless, 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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AP-NAVIGATOR® 4x (APG100/85/18/24)

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 g²/HZ 5 Hz to 20 Hz
0.05 g²/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

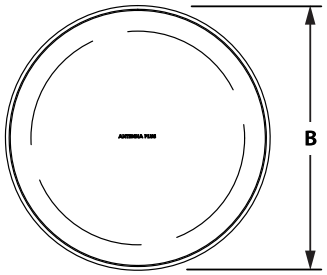
Mechanical Specifications

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)

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