

OmniSTAR 5120VBS™ System



The OmniSTAR 5120VBS receiver

The OmniSTAR 5120VBS receiver is a low maintenance and cost efficient DGPS receiver for precise positioning.

The integrated display and function buttons provide an excellent way of configuring and reading out the receiver, without the need of a computer or PDA. LED's on the top panel indicate power-on, GPS and additional DGPS satellite lock-on. This makes the receiver very user-friendly.

This receiver also has a number of new features. The Coasting allows the receiver to work without VBS correction for 20 Minutes. The limit function allows to output only those positions that are guaranteed to be better than a specified value.

With an output of up to 10 Hz, coasting technology and limit filter it is a perfect device for automotive applications.

Its rugged housing protects the receiver from rain and dust and keeps the receiver working even under the most demanding circumstances.

Connections on the back panel

The receiver is equipped with 2 serial RS-232 ports and a USB port. PPS and event marker signals are available at the comports. The USB functionality provides an alternative communication tool for laptops that are no longer equipped with a serial port. Comport connectors are industry standard DB-9 sub-D connectors. Power is supplied via a separate power cable.

The OmniSTAR VBS service

OmniSTAR delivers commercial DGNSS services worldwide by satellite and is a leading party in the design and development of Differential GPS positioning technology. With the VBS service OmniSTAR delivers real-time submetre positioning information inside its network at mid-latitudes.

Why choose the 5120VBS receiver?

With its light, weatherproof, shock-resistant and dustproof casing, the user-friendly 5120VBS receiver is very suitable for a wide range of applications:

- For automotive: road mapping/surveying

The integrated coasting technology and advanced filtering feature provide excellent tools for all automotive applications. Also thanks to it's superb dynamic behavior the 5120VBS receiver, will prove to be a cornerstone for your precise mobile applications.

- For agriculture: manual guidance/precision farming

The 5120VBS receiver offers Land Managers & Farmers sub-meter level accuracy suitable for a broad range of precision farming and automated vehicle guidance applications, particularly in combination with compatible auto-steer, variable rate spray and fertilizer systems. Farmers will be able to improve their efficiency through increasing working widths and available man hours, whilst minimizing operator fatigue.

- For aviation: Real-time and large area coverage

Because the OmniSTAR 5120VBS does not require a local base station to operate, it allows the user to perform aerial surveys over large areas while obtaining real-time accurate positioning data that can be used there and then (i.e. post-processing is not required). Therefore an ideal tool for applications such as aircraft testing, flight inspection, photogrammetry, laser altimetry and the positioning of unmanned aerial vehicles (UAVs).

- GIS/Surveying: Low weight and high mobility

Other examples are cathodic protection and magnetometre survey of power lines, pipeline and UXO detection, the planning of trajectories for roads, pipelines and power lines. Its stand-alone character and low weight, makes the OmniSTAR 5120VBS very suitable for backpack use for cadastral surveys or for establishing control points in remote areas.



5120VBS Technical specifications

Signals

GPS: L1 12 Satellites
OmniSTAR L-Band: 1530 MHz to 1559 MHz

Environmental

Operating Temp.: -32° to +74°C
Storage Temp.: -40° to +85°C
Waterproof: IEC 60529 IPX7
Humidity: 95% non-condensing
Shock and Vibration: EP 455
EMC: FCC Part 15, Subpart B, Class B, CISPR 22

Data inputs & outputs

Serial Ports: 2 RS-232 ports
4800 – 115200 bps
USB: 1 USB 1.1 port capable of
5 MBps using USB to serial
driver
Position: 10 Hz*
1 Pulse per second: on DB9 connector pin 9
L1 raw measurements: Proprietary Binary
Outputs Message: NMEA 3.01 format (ALM, GGA,
GLL, GRS, GSA, GST, GSV,
RMB, RMC, VTG, ZDA)
RTCM SC-104 version 3.0

* 20 Hz is optional

Connectors

Power: 2 pin conxall micro
Antenna: TNC female, 50Ω 5V
Com 1, 2: DB 9 (male)
USB connector: Type B

Power

Power Supply: +8 to +36 VDC
Reverse Polarity Protection
Power Consumption: 2.5 W typical (3W max.)
LNA output: +5 VDC

Physical Characteristics

Weight:	540 gram
Display:	3 Lines 20 Characters
Size (L x W x H): Including mounting bracket	160 x 114 x 45 mm

Position Accuracy

VBS: 30 cm CEP¹ (50%)
Initialisation time: < 60 Seconds

Signal Reacquisition

VBS: 10 sec.
GPS L1: < 1 sec. (typical)

Dynamics

Velocity Accuracy: 10 cm/s RMS
Velocity: 180 km/h max
1800 km/h with AirSTAR License
Height: 18 km max
Shock and vibration: EP 455

Data Pin-out

Port A
Pin 2 Transmit Data A (Tx)
Pin 3 Receive Data A (Rx)
Pin 5 Signal Ground
Pin 6 Event Marker²
Pin 9 1 PPS Output³

Port B
Pin 2 Transmit Data B (Tx)
Pin 3 Receive Data B (Rx)
Pin 5 Signal Ground

The receiver menu is available in various languages.

Standard Accessories

- Mounting bracket
- Straight serial cable
- USB cable
- Power cable

Notes

Within OmniSTAR network at mid latitudes.

1. Accuracy and reliability may be subject to anomalies such as multipath, obstructions, satellite geometry and atmospheric conditions. Always follow recommended practices.

2. Event marker input: HCMOS, active low, falling edge sync, 10 K-ohm, 10 pF load

3. Pulse output: 1 PPS, HCMOS, active high, rising edge sync

Regulations

FCC Part15: Class B
EN55022: Class B
CISPR 22
RoHS & WEEE Compliant.

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