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GPS100

Gps100.Mini

TECHNICAL SPECIFICATION

The gps.100MINI is the smallest version within the award winning gps100 family.

In a compact package, the proven GPS performance of the gps.100 series, enhanced with outstanding fast GPS fix, stable GNSS signal and latest Assist-GPS technology for error correction and support.

The gps.100MINI is available with a 3-axis accelerometer, a 3-axis gyroscope and further sensor technology. These may be combined with GPS data in a specially developed sensor fusion algorithm, supplemented by an air pressure sensor and a digital compass.

As with all products within the gps.100 range, also the smallest member keeps noise levels to extremely low levels within the speed signal. In addition to this, a permanent plausibility check of the signal is carried out via a second HighEnd LowSpeed GPS receiver. This leads to less false information and a more stable signal.

All sensor values are output with a measurement frequency of up to 100Hz.

The gps100.MINI receiver supports all current GNSS systems (GPS, Glonass, Galileo, BeiDou). Of course, SBAS/EGNOS information is also received and included for correction.

Optionally, RTK correction values can be imported into the system via Ethernet / RS232 to achieve accuracies in the cm range.

A sophisticated standstill detection "PSD" (Precise Stop Detection) lowers the trigger threshold to almost 0.00 km/h without additional filters and thus also the latencies during start-up.

With the optional IMU fitted, the roll/pitch as well as the yaw angle (dynamic / static) can be measured directly via the internal sensors. Additionally, accelerations can also be measured and output directly, both with and without gravity correction.

Four analog inputs (optionally ICP compatible) and two digital inputs are available for further acquisition.

In addition, data can be imported via OBD-II (incl. WWH support). The speed signal can be output as an analog voltage or as a digital pulse sequence. Furthermore, all data can be output on the CAN bus or stored in the system (logging function).

Collected data can analysed with own or third-party software and tools as well as exported to Google Earth, for example.

The device software is optimised for processing with the lowest possible latency.

The device can be parameterised with an easy to use configuration software, where a configuration can be imported directly via a normal USB stick. Using the integrated ethernet port, RTCM data via NTRIP or RS232 and customer-specific interfaces can be created.

With the gps.100MINI measurements according to ECE R13H are possible.

Applications:
- Driving performance measurement
- Homologation
- Driving dynamics
- Consumption & exhaust gas measurement
- Real Driving Emission
- High Performance GPS Measurements

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GENERAL

GPS system
up to 100Hz
GPS L1, Also supports
Glonass, Galileo, BeiDou

Slave GPS
up to 20Hz
GPS L1/Glonass/Galileo/BeiDou
as Assist GPS

CPU/MCU
High-Performance
CPU with 1.0GHz
DualCore 512MB RAM,
4GB Flash

Interfaces
USB 2.0 Host
10/100MBit Ethernet (RJ45)

Display
LED status indicators

Housing
anodized aluminum case

Supply
9V to 70V, DC
max. 400mA
(Peak up to 2A) @ 12V

Temperature
Operating
-40°C to 85°C

Storage
-40°C to 85°C

INPUT

CAN
1 Channel (Shared)
CAN 2.0 A/B, up to
1MBaud, adjustable
Supports CAN FD up
to 8MBaud

OBD-II*
ISO15765 configurable CAN
Various signals can be
retrieved by the vehicle

*Vehicle dependent, option

Digital
2 Digital trigger inputs
>5V High level
<1V low level
latency <1uS

Analog
4 analog inputs
0-10V DC, 24Bit resolution
max. 10kHz sampling rate
(optional ICP input)

OUTPUT

CAN 2.0 classic, up to 1MBaud,
1 channel (shared)

adjustable, standard 11bit IDs
Supports CAN FD to
8MBaud

All values incl. time stamp

Digital
1 Digital TTL outputs 0V /
5V level, max. 50mA
Refresh rate: 100Hz

Analog
1 Analog output
0 - 5V, 10mV per km/h
Refresh rate: 100Hz

IMU (OPTIONAL)

With integrated IMU the
system works as INS and
supports the GPS signal.

GYRO

Range
+/- 2000 °/sec

Nonlinearity
0.1% FS

3dB bandwidth
250 Hz

Stability
0.0022 °/sec

ACCELEROMETER

Range
+/- 8g

Nonlinearity
0.1% FS

3dB bandwidth
250Hz

Stability
better than 0.015mg

MAGNETOMETER

Resolution
0.25mG

Full range
8 G

OTHER

Calibration
In-house calibration service
with GPS test stand
site service

Warranty
1 year limited factory warranty

GPS Performance / Accuracies

Speed	Accuracy: better than 0.1 km/h (RMS) 0.02 m/s (RMS) Resolution: up to 0.01 km/h Latency: 0ms (with time stamp) max. 500 km/h Refresh rate: 100Hz max.
Position accuracy	Horizontal (SBAS): <1.0m (CEP) without RTK <2cm (CEP) with RTK up to 1km to base Vertical (SBAS): 2m (CEP) <20cm (CEP) with RTK up to 5km to base Refresh rate: 100Hz max.
Heading	Accuracy: 0.1° (Static / Dynamic) Resolution: 0.01°
Roll / Pitch	Accuracy: 0.25° / Static and Dynamic (typical, standard IMU)
Yaw	Accuracy (without GPS): 1.0° (standard IMU)

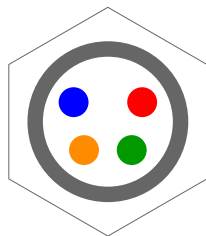With IMU installed, GPS and IMU work together as INS. The IMU supports GPS signals.

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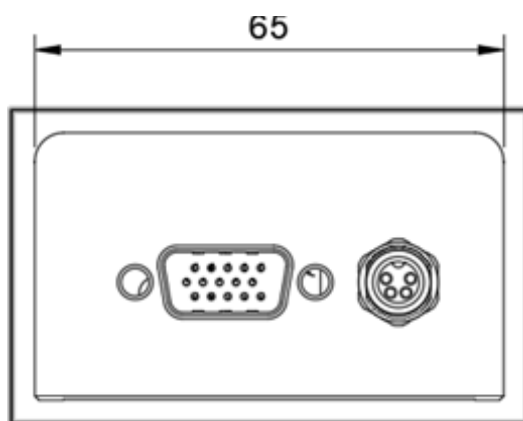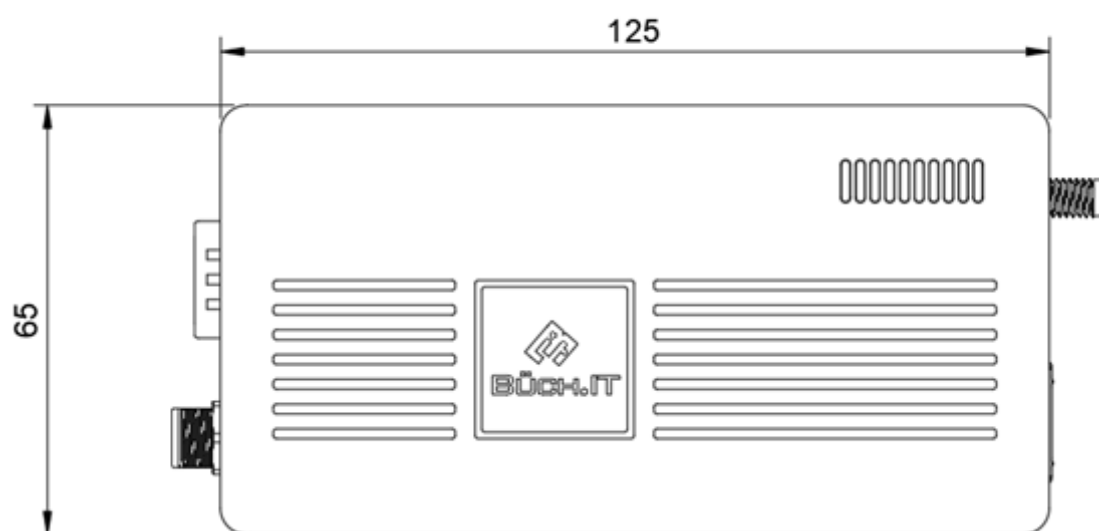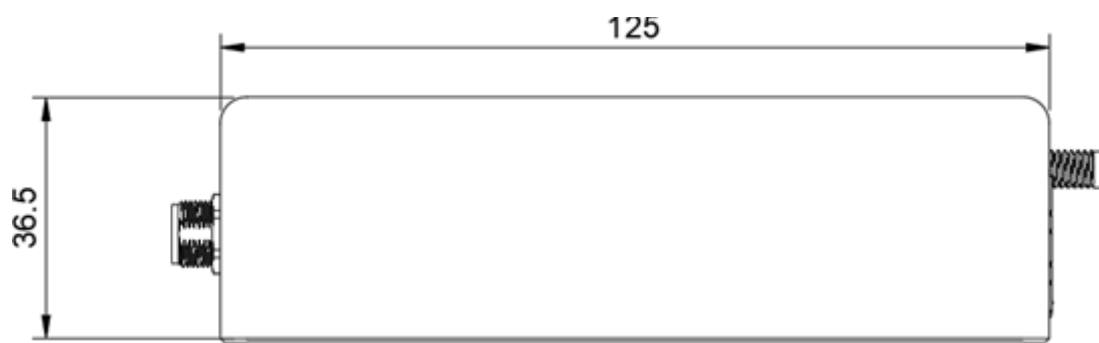
OBD-II / Power # D-Sub 9 Pin # Female
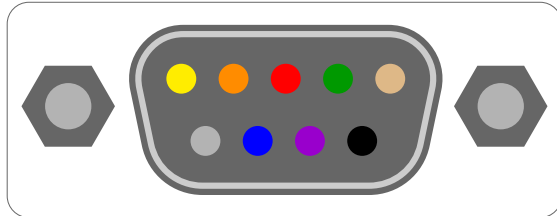
1 ●	CAN-L (OBD)-Optional
2 ●	-
3 ●	CAN-H (OBD)-Optional
4 ●	GND
5 ●	GND
6 ●	VCC
7 ●	-
8 ●	-
9 ●	-

CAN / AUX # D-Sub 9 Pin # Male
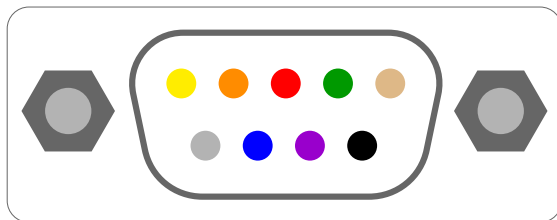
1 ●	-
2 ●	CAN1-Low
3 ●	GND
4 ●	-
5 ●	RS232-RX
6 ●	-
7 ●	CAN1-High
8 ●	-
9 ●	RS232-TX

Analog / TTL 4 Pin

1 ●	VCC-Input
2 ●	Analog-Out
3 ●	GND
4 ●	TTL-Out

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Steinenbrück 18
57642 Alpenrod
Germany

https://www.buech-it.de
info@buech-it.de

+49-2662-500477-0