GeneSys

Sensor Systems, Service & Smiles

ADMA-G-Pro+ v35

GNSS/INS System with highest performance level

The ADMA-G-Pro+ with three closed-loop gyro sensors and three servo acceleration sensors class 1 mg provide high-precision data even in the case of strong GNSS interferences. Complies with all international test standards e.g. Euro NCAP & NHTSA.



0.01 m	0.03 km/h	0.015 °	0.01 °	< 1.0 mg	< 1 ms	1 kHz
Position accuracy (1σ)*2	Velocity accuracy (RMS)*3	True Heading accuracy (1σ)*2	Roll/Pitch accuracy (1σ)*2	Sensor class	Data latency	Data output rate*1

APPLICATIONS

Strap-down technology ensures that the ADMA is stable and resistant to unwanted vibration during use. This makes the ADMA ideal for evaluating vehicle dynamics and driver assistance systems in the automotive sector. The ADMA system is also successfully used in motorsport, driverless systems and construction machinery. It has a proven track record in road and railway measurements.

- Validation of simulation models
- Autonomous Vehicle (AV) validation
- Euro NCAP ADAS Evaluation e.g., ACC, FCW, AEB (VRU, Car2Car), LSS (LDW, LKA)
- NHTSA Evaluation
- Simultaneous Localization and Mapping (SLAM)
- Validation of predictive vehicle safety functions with e.g., Camera, Radar, Lidar sensors
- Driving and steering robot applications

ADMA ADD-ONS AND OPTIONS

Meet new measurement and testing requirements with Add-Ons and Options.

The new generation of ADMA 3.5 devices now allows our customers to meet their new and changing needs. Our focus is on straight-forward use and increased productivity. The Add-Ons and Options can be activated quickly and conveniently by entering a license key. This is possible at any time without modifications to the hardware. A high degree of flexibility is thus ensured.

Add-Ons



Add-On DELTA 1:5
Relative data calculation via WiFi in real-time for multi-vehicle operation



Add-On PTP
Time synchronization with generalized Precision Time Protocol (gPTP)



Add-On LATDEV
Real-time calculation of the lateral deviation



Add-On BRAKING
Real-time calculation of brake performance data according to international regulations



Add-On FILTER
Option for online signal filtering



Add-On Smoothing
Define maximum step size for the GNSS signal



Add-On NTRIP-Client
Integrierte NTRIP-Client-Funktion

Options



Option RTK2
High-precision position measurement using correction data



Option 1kHz
Data output rate of 1 kHz via CAN or Ethernet interface



Option Multi-GNSS
Multi-GNSS: Use of multiple satellite systems such as GPS, GLONASS, Galileo, BeiDou



Option Multi-CAN
Data output via several CAN channels simultaneously



Option Dual-Ant
Two GNSS antenna option



Option GNSS-Raw Data
Raw data output via Ethernet for post-processing



Option DGNSS Correction Data
Correction data reception via Ethernet



Option Internal Memory
Storing ADMA measurement data in internal memory

TECHNICAL DATA

System performance specification with GNSS	
GNSS constellations	GPS L1, L2 GLONASS L1, L2 BeiDou[*1] B1, B2 Galileo[*1] E1, E5
Dual antenna	Optional
Position accuracy (1σ)[*2]	Single point 1.20 m SBAS[*5] 0.60 m RTK 0.01 m
ITAR-free	Yes
Roll / Pitch accuracy (1 σ)	0.01 °
True Heading accuracy (1 σ)	0.015 °
Sideslip angle accuracy (RMS)	0.05 °
Angle resolution	0.005 °
Velocity accuracy (RMS)[*3]	0.03 km/h
Braking distance accuracy without RTK2 (RMS)[*3]	0.05 m
Data output rate	50 / 100 / 200 / 250 / 500 Hz / (1000 Hz)[*1]
Calculation latency	< 1 ms

System performance specification without GNSS (RMS)[*3]

True real-time performance: GNSS outage specifications represent the directly available ADMA real-time output without external velocity-aiding, DMI-input, or post-processing.

	10 s	30 s	60 s
Position (m)	0.10	0.50	1.30
Velocity (m/s)	0.01	0.03	0.06
Roll / Pitch angle (deg)	< 0.01	0.01	0.01
True Heading (deg)	< 0.01	0.01	0.01

Sensors - Gyros	
Sensor Technology	3 closed-loop gyros
Measurement range	± 327 °/s
Data output resolution	0.0001 °/s
Bias repeatability typ. (1 σ)	6 °/h (0.0017 °/s), optional 1 °/h (0.00028 °/s)
In-run-bias typ.	0.1 °/h
Noise (random walk) typ.	0.047 °/√h
Scale factor	0.05 %
Sensor bandwidth	3200 Hz

Sensors - Accelerometers	
Sensor Technology	3 servo accelerometers
Measurement range	± 5 g / (± 10 g)[*1]
Data output Resolution	0.0001 g
Bias repeatability typ.	< 1.0 mg
In-run-bias typ. (1 σ)	10 µg
Noise (random walk) typ.	< 50 µg /√Hz
Scale factor (1 σ)	0.015%
Sensor bandwidth	1500 Hz

Interfaces	
Ethernet	2x 1 GBit Data input/output, configuration and firmware update, driving robot data output, optional for relative data calculation and DGNSS routing. 1x 100 MBit GNSS Receiver; GNSS firmware update
CAN	1x CAN, 5x CAN[*1], 2b, 1 Mbit Data output, input[*1]
Serial	1x RS232 GNSS Receiver; DGNSS correction data input 1x RS232 GNSS Receiver; GPGGA Log output, IPS (Indoor Positioning System)
Digital/Analog Input	4x Digital / Analog (16 bit) e.g. Frequency, Brake trigger, ... 1x Digital / Analog (16 bit) external velocity X
Digital Output	4x Digital TTL e.g. PPS, Frequency, PPD Pulse per distance, ...
Connector type	Lemo
GNSS	2x TNC GNSS Antenna connectors

Hardware / Miscellaneous	
Ordering Variants	/
Internal Memory	up to 64 GB
Power supply	9 to 32 VDC typ. 30 W
Dimensions (W x L x H)	110 x 170 x 197 mm
Weight	3.6 kg
Operating temperature	-20 to +60 °C
Protection class	IP 65*6

*1 Optional

*2 Depending on GNSS conditions, correction data

*3 Typical values according to internal test standards with settled Kalman filter and Vehicle Model

*5 GPS-only

*6 The housing is protected against dust and water jets in accordance with IP65. Please note that not all plug connections and cables are fully sealed in accordance with the IP standard. The cable is therefore not intended for use in permanently wet or damp environments.

For any further questions: support@genesys-offenburg.de