GeneSys
Sensor Systems, Service & Smiles

ADMA-G-Pro+ v35

GNSS/INS System with highest performance level

The fiber optic gyro system ADMA-G-Pro+ with three fiber optic 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]	Heading accuracy (1σ)[2]	Roll/Pitch accuracy (1σ)[2]	Sensor	Data latency	Data output rate

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APPLICATIONS

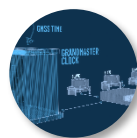
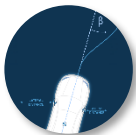
Strap-down technology ensures that the ADMA is stable and resistant to unwanted vibration during use. This makes the ADMA ideal for evaluating vehicle dynamics and driver assistance systems in the automotive sector. The ADMA system is also successfully used in motorsport, driverless systems and construction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

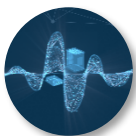
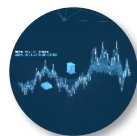
- Validation of simulation models
- Autonomous Vehicle (AV) validation
- Euro NCAP ADAS Evaluation e.g., ACC, FCW, AEB (VRU, Car2Car), LSS (LDW, LKA)
- NHTSA Evaluation
- Simultaneous Localization and Mapping (SLAM)
- Validation of predictive vehicle safety functions with e.g., Camera, Radar, Lidar sensors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

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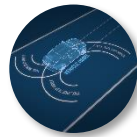
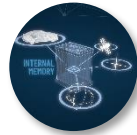
Option RTK2
High-precision position measurement using correction data

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 Vehicle Model
2D vehicle model predicts vehicle behavior, supports IMU & adapts to conditions

Option DGNSS Correction Data
Correction data reception via Ethernet

Option Internal Memory
Storing ADMA measurement data in internal memory

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

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TECHNICAL DATA

Complete system[*1]

GNSS constellations	GPS L1, L2 GLONASS L1, L2 BeiDou[*4] B1, B2 Galileo[*4] E1, E5
Dual antenna	Optional
Position accuracy (1σ)[*2]	0.01 / 0.20 / 0.60 / 1.20 / 1.50 m
Angle Measurement range roll / pitch / yaw	± 60 ° / ± 60 ° / 180 °
Angle Measurement accuracy roll & pitch (1 σ) / yaw (1 σ) / sideslip (RMS)	0.01 / 0.015 / 0.05 °
Angle resolution	0.005 °
Velocity accuracy (RMS)[*3]	0.03 km/h
Position error after 10 / 30 / 60 sec GNSS outage (RMS)[*3]	0.1 / 0.6 / 2.0 m
Velocity error after 10 / 30 / 60 sec GNSS outage (RMS)[*3]	0.01 / 0.03 / 0.06 m/sec
Roll / Pitch angle error after 10 / 30 / 60 sec GNSS outage (RMS)[*3]	< 0.01 / 0.01 / 0.01 °
Heading angle error after 10 / 30 / 60 sec GNSS outage (RMS)[*3]	< 0.01 / 0.01 / 0.01 °
Data output rate	50 / 100 / 200 / 250 / 500 Hz / (1000 Hz)[*4]
Calculation latency	1 msec

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Sensors - Gyros

Sensor Technology	3 closed-loop fiber optic 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)[*4]
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

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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*4, 2b, 1 Mbit Data output, input*4
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

*1   Open sky conditions.
*2   With RTK2 corrections at <10 km from the GNSS Base Station
*3   Typical values according to internal test standards with settled Kalman filter.
*4   Optional
*5   Depending on GNSS correction data and license model

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

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