GEMAC



CAN-BUS TESTER GT3®

A powerful, portable diagnostic system for CAN and CAN FD networks, combining precise physical-layer measurements, node-specific signal analysis and comprehensive communication monitoring in one battery-powered, tablet-based instrument.

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Advanced diagnostics for CAN and CAN FD networks

The GEMAC CAN-Bus Tester GT3® is a battery-powered, tablet-based diagnostic system combining physical-layer measurements with CAN communication and protocol analysis. Its remote measurement head allows connection close to the bus, helping minimise additional stub length and its influence on measurement results at higher frequencies. Designed for commissioning, troubleshooting, maintenance and network qualification.

Key benefits

- Node-related physical-layer diagnostics for individually transmitting CAN nodes
- Combined signal, bus and communication analysis in one portable instrument
- CAN FD data-phase assessment including timing and noise margins
- Automatic evaluation against configurable limits, with project and segment management
- Integrated oscilloscope, logger/trigger and protocol monitoring

Core function | Node-related measurements

GT3 captures physical measurement values for individual actively transmitting nodes, allowing node-specific assessment and comparison. Depending on the view, results are shown as tiles, lists or bars. For each value, the device can show the current reading, minimum, maximum and variation during the measurement.

CAN Classic - node measurements *

- Signal quality value (0–100 %) derived from differential-signal characteristics
- Noise margin / interference-free differential-voltage range (0–3 V; 0.01 V resolution)
- Edge steepness for recessive-to-dominant and dominant-to-recessive transitions (0–50 %, bit-time related)
- Peak-to-peak differential voltage
- CAN_H/CAN_L level ratio (ideal balance 50 %/50 %)
- Node-specific common-mode voltage (requires a ground reference)
- Node contribution to bus load and node-related active/passive error-frame counters

Important: node-related error-frame counters refer to frames affected by errors that can be associated with a node; they do not identify the node that transmitted an error frame. Frames destroyed before the identifier is fully received cannot be assigned.

CAN FD - additional data-phase measurements *

- FD signal quality (0–100 %)
- Setup time and hold time relative to the receiver tolerance window
- Dominant and recessive noise margins (0–3 V; 0.01 V resolution)
- Arbitration-phase signal measurements and node-related measurements as applicable

Additional diagnostic functions

- Bus status, utilization trend (0–100 %) and error-frame monitoring
- Differential and absolute CAN signal levels, supply and shield voltage, common-mode voltage
- Oscilloscope with differential-signal decoding and CAN_H/CAN_L traces
- Online logger with selectable 10 ms, 100 ms, 1 s, 10 s, 30 s or 1 min resolution and configurable trigger
- Guided wiring test including termination and loop resistance checks
- CAN raw-data receive/transmit and protocol monitoring; CANopen and SAE J1939 decoding described in the manual
- Project, segment, node-list and measurement archive management; Windows PC software for data exchange

* Consult the manual for a complete list of measurement values.

Technical specifications

General paramters

Supported bus systems	CAN (ISO 11898-2), CAN FD (ISO 11898-1:2015); physical measurements for CAN-based systems incl. CANopen, DeviceNet, SAE J1939 / ISOBUS / NMEA 2000, CANopen FD
CAN nominal bit rates	10, 20, 50, 100, 125, 250, 500, 800, 1,000 kbit/s; automatic bit-rate scan
CAN FD data bit rate	up to 5 Mbit/s
Differential voltage range	0–5 V; 0.01 V resolution
Absolute / common-mode voltage	-5 to +10 V; 0.01 V resolution
Supply voltage measurement	-17 to +50 V; 0.1 V resolution
Shield voltage measurement	-10 to +1 V; 0.1 V resolution
Resistance measurement	0–1,000 Ω
Battery	Integrated rechargeable Li-ion, 7,000 mAh / 75.6 Wh
Operation / measurement runtime	up to 12 h use / up to 6 h measuring
Charging	USB-C port 1, USB Power Delivery; max. 20 V / 3.5 A
User-accessible internal storage	approx. 12 GB
Operating / charging temperature	0–40 °C / 0–45 °C
Storage temperature / humidity	-20 to +80 °C / 5–85 % RH, non-condensing

Electrical paramters

Connections	M12 A-coded CAN connector; USB-C PD/device port; USB-C host port
Degree of protection	IP20
Tablet dimensions / weight	approx. 336 × 236 × 46 mm / 2,000 g
Measurement head dimensions / weight	approx. 147 × 65 × 28 mm / 200 g
Case dimensions total kit / weight	approx. 484 × 366 × 176 mm / 7,800 g
Mounting	VESA 75 mm

Applications (typical)



Industrial automation | Construction machinery | Forestry machinery | Agricultural machinery | Lifting technology | Commercial vehicles | Marine

Physical-layer diagnostics apply across CAN-based applications; protocol-specific decoding depends on the functions implemented in the current software.

Safety and technical review notes

For trained personnel working on CAN installations according to ISO 11898. Connecting a test instrument or actively transmitting CAN frames can affect machine operation. Observe the GT3 safety manual and put the machine into a safe state before connection.

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