

Precise. Rugged. Universal.

TTL-Freq MiniModul

- ▶ Extremely compact CAN bus measurement module
- ▶ 4 electrically isolated inputs for
 - ▶ frequency measurement
 - ▶ cycle / pulse duration
 - ▶ duty cycle / PWM
 - ▶ event counter and
 - ▶ speed
- ▶ For input signals up to 60V DC and TTL switching threshold
- ▶ Sensor excitation
- ▶ Constantly good accuracy over the whole measurement range
- ▶ Operating temperature:
 - 40°C to +125°C (Automotive Version)
 - 40°C to +85°C (Industrial Version)
- ▶ Robust aluminum housing: IP67 (Automotive Version)
- ▶ Good price-performance ratio



TTL-Freq MiniModul

The **TTL-Freq MiniModul** is a high-precision measurement module for frequencies up to 300 kHz for measurement of duty cycles / PWM signals, measurement of cycle / pulse duration as well as event counting. Speed is captured directly in the module and displayed as value on the CAN bus.

The inputs are completely electrically isolated and connected sensors can be powered directly from the module.

TTL-Freq MiniModul is designed for input signal levels up to a maximum of 60V DC and TTL switching thresholds. Each measurement mode needs only one signal input.

The user does not have to think over which measuring procedures should be used. High as well as low frequencies are automatically captured with **constant high accuracy**. This applies also to short and long periods and pulses.

Depending on the selected measurement mode many useful configuration options are available:

- ▷ Selection of measurements between rising or falling edges, and/or whether a "active high" or "active low" signal is measured. This allows measurement of unusual signal forms.

- ▷ Configurable timeout value, e.g. for setting the measurable minimum frequency.
- ▷ For event counting additional counting mode (overflow/saturation), resetting properties and overflow/saturation values are configurable.
- ▷ For direct speed measurement the number of counting pulses and missing teeth are configurable.

Accessories

Cables for CAN and power supply, CAN adapter cable, signal cables for sensor connection, CAN bus termination and mounting angles. For further details please consult the data sheet: „**Accessories for CSM MiniModules**“.

Part numbers:

TTL-Freq MiniModul 4 Automotive: 201037
TTL-Freq MiniModul 4 Industrial: 201038

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Specifications TTL-Freq MiniModul

Technical Data	TTL-Freq MiniModul Automotive	TTL-Freq MiniModul Industrial
Inputs Input signal level Operating modes and measurement ranges Internal resolution Measurement data rate per channel Input protection Sensor excitation	4 Maximum 60V DC, TTL switching thresholds frequency measurement: 0.1Hz to 300kHz cycle / pulse duration: 1 µs to 100 s duty cycle / PWM: 0% to 100% event counter: 0 to 65536 (16bit) speed: 0.01 rpm to 60000 rpm	
	approx. 60 ns 1, 2, 5, 10, 20, 50, 100 Hz ±100V permanent, additional ESD protection 5V, 8V, 10V, 12V, 15V DC, max. 30mA each channel, switchable by software	
Isolation voltages Channel / Channel CAN / Channel CAN / Power supply	500V DC 500V DC 500V DC	
CAN interface Configuration	CAN2.0B (active) High-Speed CAN (ISO11898) 125kBit/s to max. 1MBit/s via CAN bus with CSM Config Tool or CSM INCA AddOn compatible with all other xx-Scan CAN Modules from CSM settings and configuration data are stored within device alternative: Configuration and data transfer via CANopen protocol ¹⁾	
Light emitting diode	Power (green) / Status (red)	
Power supply Power consumption (without sensor excitation)	approx. 5V to 60V DC typ. 1,2 W	
Dimensions (W x H x D) Weight	approx. 93 x 28 x 46 mm (approx. 3.66 x 1.10 x 1.81 inch) approx. 230 g (approx. 8.11 oz)	
Operating temperature Storage temperature IP rate Relative humidity	-40 °C to +125 °C (-40 °F to +257 °F) -55 °C to +150 °C (-67 °F to +302 °F) IP67	-40 °C to +85 °C (-40 °F to +185 °F) -50 °C to +90 °C (-58 °F to +194 °F) IP50 5% to 95%
Connector CAN / Voltage Connector signal inputs	LEMO 0B 5-pole LEMO 0B 6-pole or LEMO 1B 6-pole ²⁾	
Conformity		

1) CANopen see separate data sheet

2) TTL-Freq with LEMO 1B connector as signal inputs: dimensions (W x H x D) approx. 120 x 30 x 50 mm (approx. 4.72 x 1.18 x 1.97 inch)

Shipping content: CAN bus MiniModul, CSM ConfigTool, documentation, calibration certificate

Part No.: 201037 (Automotive) / 201038 (Industrial)

We recommend a calibration interval of 1 year. For further technical information and references please ask our technical sales and distribution.

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