CNT4 evo CAN MM Series

Product description

The measurement module **CNT4 evo** is a further development of the CNTMM series. Its functional range is identical to the former measurement module CNTMM 4 pro. In addition, the **CNT4 evo** is prepared for the use of TEDS-capable sensors. Moreover, CAN ID and measurement data rate can be set separately for each channel.

The **CNT4 evo** is a high-precision measurement module designed for the measurement of frequencies up to 300 kHz, duty cycles and PWM signals, cycle/pulse durations as well as for event and up and down countings. Speed (rpm) can be measured in the module directly and transferred to the CAN bus as measurement value. The time offset between neighboring channels can also be measured.

Scope of delivery

- MiniModule CNT4 evo
- Configuration software CSMconfig
- Documentation
- Calibration certificate

Maintenance

- Calibration every 12 months recommended

Key features

- 4 galvanically isolated inputs for
  - Up and down counter via pulse/direction or quadrature signals
  - Event counting up to 32 bit
  - Frequency measurement
  - Cycle/pulse duration
  - Duty cycle/PWM
  - RPM measurement (16 or 32 bit)
  - Time offset measurement
- On/off trigger thresholds, adjustable per input, switchable AC coupling
- Sensor linearization with axis points
- TEDS ready: Prepared for TEDS-capable sensors
- 8 logical channels
- Sensor excitation

Accessories

- See datasheet "CAN Accessories"

Technical data

Type designation	CNT4 evo
	
Inputs/logical channels	4/8
Input signal level	±60 V DC
On/off trigger thresholds	±5 V, in 10 mV steps or ±50 V, in 100 mV steps, each input separately adjustable, AC coupling switchable
Internal resolution	approx. 30 ns
Measurement data rate per channel	1, 2, 5, 10, 20, 50, 100, 200, 500 Hz and 1 kHz adjustable per module or per channel via configurable CAN identifier
Channel-specific comments	free text consisting of up to 100 characters per channel
Input protection [1] Operational safety Device safety	 ±60 V permanent ±100 V permanent, additional ESD protection
Input impedance	500 kΩ || 1 nF
TEDS support [2]	according to standard IEEE 1451.4 (Class 2)
Operating modes and measurement ranges	
Frequency measurement	0.1 Hz to 300 kHz
Cycle/pulse duration	1 µs to 50 s
Duty cycle/PWM	0 % to 100 %
Event counting	0 to 65535 (16 bit) or up to 32 bit
Up/down counting	via pulse/direction or quadrature signals
RPM measurement	0.01 rpm to 60,000 rpm (16 or 32 bit)
Time offset measurement	1 µs to 50 s
Measurement uncertainty	
at 25 °C	max. ±(0.01 % of measured value + 1 LSB)
Temperature drift	max. ±100 ppm over entire temperature range
Sensor excitation	switchable and adjustable per module
Voltage	5, 8, 10, 12, 15 V DC
Current	max. 120 mA (sum of all channels)
Galvanic isolation [3]	no safety isolation in terms of high-voltage applications
Channel/channel	500 V
CAN/channel	500 V
CAN/power supply	500 V

Type designation	**CNT4 evo**
CAN interface	CAN 2.0B (active), High Speed (ISO 11898-2:2016) 125 kbit/s to max. 1 Mbit/s, data transfer free running
Configuration	via CAN bus with CSMconfig or CSM INCA AddOn settings and configurations stored in the device
Power supply	
Minimum	6 V DC (-10 %)
Maximum	50 V DC (+10 %)
Power consumption	typ. 1 W (without sensor excitation)
LED indicator (CAN)	power/status
Housing	aluminum, gold anodized
Protection class	IP67
Weight	Case Extra Small approx. 230 g (Slide) Case Small approx. 300 g
Dimensions (w × h × d)	Case Extra Small approx. 93 × 30 × 46 mm Case Small approx. 120 × 32 × 50 mm Slide Case Small approx. 120 × 37 × 50 mm
Connectors [4]	
CAN/power supply	LEMO 0B, 5-pole, code G
Signal inputs	LEMO 0B, 6-pole, code A
Operating and storage conditions	
Operating temperature range	-40 °C to +125 °C
Relative humidity	5 % to 95 %
Pollution degree	3
Storage temperature	-55 °C to +150 °C
Conformity	CE

[1] Observe information regarding the intended use. See CSM document “Safety Instructions MiniModules”.

[2] Hardware prepared for TEDS support.

[3] These MiniModules are designed for measurements in vehicles with 12 V, 24 V, or 48 V on-board power supply systems. The maximum operating voltage at the measurement inputs is 60 V. Not suitable to be directly connected to systems with higher operating voltages, e.g. high-voltage batteries of hybrid or electric vehicles.

[4] Optionally available in other variants.

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