IPETRONIK

M-CNT3 4

4 digital inputs for capturing digital signals for frequency, count, duration, PWM, and flow measurements

- Freely selectable operating modes per input: frequency, event counter, duty cycle (PWM), time delay, speed
- Up to 3 inputs per channel for quadrature encoders with frequency and direction detection, as well as an index signal
- Multipoint calibration for linearizing nonlinear sensor signals
- Additional virtual measurement channels
- Measurement Data Output via CAN-FD
- System Status Information (System, Devices, Channel)
- TEDS Class 2 Support
- Tool-free, magnetic connection technology
- Display of channel and device status in the software interface (e.g., monitoring of sensor power supply/undervoltage detection)
- Wireless system connection → No connection cable required
- IP 67 and extended temperature range
- Ultra-compact and rugged design
- Electrical isolation (channel, CAN, power supply, housing)
- Channel status LED for each measurement input, displaying the selected measurement mode

General channel properties	
Special functions	Selectable number of averaging values (1-100)
Internal sampling rate	100 MHz
Channel sampling rates	2 / 5 / 10 min - 1 / 2 / 5 / 10 / 100 / 200 / 500 / 1000 / 5000 Hz
Total sampling rate	20 kHz
Hardware filter types	Bessel
Hardware filter (switchable)	10 / 20 / 50 / 100 / 200 / 500 Hz / 1 / 2 / 5 / 10 / 20 / 50 / 100 kHz 4th order
Hardware filter (static)	4 MHz 2nd order (Bessel characteristic)
Filter attenuation at ambient temperature 25 °C	10 Hz ... 20 kHz: 0.75 dB 20 kHz ... 100kHz: 1.25 dB (at -3dB cutoff frequency)
Filter attenuation at ambient temperature -40 ... 125 °C	10 Hz ... 20 kHz: 0.75 dB 20 kHz ... 100kHz: 1.25 dB (at -3dB cutoff frequency)

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DC compensation	0.8 Hz (lower cut-off frequency -3 db)
Attenuation DC compensation at ambient temperature 25 °C	1 dB
Attenuation DC compensation at ambient temp. -40 ... 125 °C	3 dB
Channel LED	Channel-LED is activated for 10s after initialization in color of measurementmode Displays the color of the selected measurement mode In case of overcurrent of sensor supply Channel LED is flashing yellow during configuration The channel LED lights up when there is no measurement signal
TEDS	Class 2
Channel CNT	
Measurement mode: Frequency	0.025 Hz ... 400 kHz
Measurement mode: Duty cycle	0.01 ... 99.99 % 0.025 Hz (minimum frequency) 10 kHz (maximum frequency)
Resolution for Duty cycle	1.25 µs
Measurement modes: Period duration, pulse duration, pause duration	2.5 µs ... 42 s
Resolution for period duration, pulse duration, pause duration	1.25 µs
Measurement mode: Event counter	0 ... 65535 0 ... 4294967295 0 ... 281474976710655 Reset at clock Reset on overflow Reset on index signal
Measurement mode: Event counter with direction-of-rotation detection (encoder)	-32768 ... 32767 -2147483648 ... -2147483647 -140737488355328 ... 140737488355327
Accuracy at an ambient temperature of 23 °C	0.025 Hz ... 100 kHz: 0.05% 100 kHz ... 400 kHz: (0.0000005 * measured value f) % ±0.0025 % (internal time base) by design
Drift bei Umgebungstemperatur -40 … 125 °C	0.025 Hz ... 100 kHz: 0.055 % 100 kHz ... 400 kHz: (0.00000055 * measured value f) %
Adjustable trigger threshold	±50 V Resolution 0.20 V ±5 V Resolution 0.020 V Auxiliary input IN2 / IN3: On 3.5 V / Off 1.5 V (TTL)
Accuracy of trigger threshold at an ambient temperature of 23 °C	±3 %
Accuracy of trigger threshold at ambient temperatures of -40 to 125 °C	±8 %
Excitation	
Sensor supply voltage	Unipolar 2.5 / 5 / 7.5 / 10 / 12 / 15 / 24 V (Derating of maximum current at 85°C)
Accuracy supply at ambient temperature 25°C	±1 % (at 24V)
Drift at ambient temperature -40 ... 125 °C	±20 ppm/K

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Sensor supply Output current	70 ... 75 mA (depending on supply voltage combination)
Galvanic isolation	
Measurement input ↔ Module supply	±100 V (indefinitely), ±500 V (pulse voltage)
Measurement input ↔ CAN	±100 V (indefinitely), ±500 V (pulse voltage)
Measurement input ↔ Housing	±100 V (indefinitely), ±500 V (pulse voltage)
Measurement input ↔ Measurement input	±100 V (indefinitely), ±500 V (pulse voltage)
Measurement input ↔ Sensor supply	±100 V (indefinitely), ±500 V (pulse voltage)
Device	
Inputs	4
Power supply	6 ... 59 VDC For On-board power supply of 12 | 24 | 48 V
Switching thresholds of the operating voltage	On 9 ±0.3 VDC / Off 6 ±0.3 VDC
Power consumption, typical	3,3 W
Operating temperature range	-40 … 125 °C (-40 … 257 °F)
Storage temperature range	-55 … 150 °C (-67 … 302 °F)
IP protection class	IP 67 (ISO 20653 - 2013)
Relative humidity	5 ... 95 %
Operating altitude (above sea level)	max. 5000m
Dimensions	L165 mm x B33 mm x H58 mm (L6.50 in x B1.30 in x H2.28 in)
Weight	500 g (1.10 Ib)
Configuration interface	CAN FD (ISO 11898-2-2016)) 125kBit/s to 5MBit/s 64 data bytes
Data rate	Software adjustable up to 5Mbit/s (ISO11898-2-2016)
Input sockets	001 - Lemo HGG 1B 307 (7-Pin)
Status-LED	Yes Display of the operating status as well as warnings in case of undervoltage or expired calibration
Accessories	
Module	IPE-COV-M3-001 cover cap IPE-HWI-M3-001 mounting plate IPE-HWI-M3-002 mounting plate

System cable	623-500 M3-CAN/PWR cable, SubD9/S term, banana
	623-502 M3-CAN/PWR cable, LOG term
	623-503 M3-CAN/PWR cable
	623-504 M3-CAN/PWR cable, M-CAN/PWR
	623-506 M3-CAN cable, SUB-D/9S term
	623-507 M3-CAN/PWR cable, banana
	623-508 M3-CAN/PWR cable, CAN/PWR 0B-5p.
	623-509 M3-CAN/PWR cable, X-LINK/PWR
	623-510 M3-CAN/ cable, ETAS-CAN 1B-8p
	623-511 M3-CAN cable, M-CAN/noPWR M-feed
Input cable	600-857 600-857 CNT LEMO 1B7p cable BNC/P
	600-858 CNT LEMO 1B7p cable open