

## M-CNT2

### 4-channel universal counter module with sensor excitation

- 4 sensor excitations (unipolar 15 V, up to  $\pm 60$  mA)
- Measurement data output to CAN
- Galvanic isolation (inputs, CAN, supply, enclosure)
- Designed for engine compartment applications
- Toolless module to module connection
- Ruggedized and compact modules for harsh environments



<b>Device</b>	
Maximum input protection voltage (channel)	$\pm 100$ V (indefinitely), $\pm 200$ V (short-time, $t < 2$ ms)
Channel sampling rates	1/ 2/ 5/ 10/ 50/ 100/ 200/ 500/ 1000/ 2000/ 5000 Hz
Aggregate sample rate	20 kHz
Voltage supply	9 ... 36 VDC
Supply voltage thresholds	Switch-on $9 \pm 0.3$ VDC / Switch-off $6 \pm 0.3$ VDC
Power consumption, typical	2.0 W (all excitations off)
Working temperature range	$-40 \dots 125$ °C ( $-40 \dots 257$ °F)
Storage temperature range	$-55 \dots 150$ °C ( $-67 \dots 302$ °F)
IP-Code	IP 67 (ISO 20653 - 2013)
Relative humidity	5 ... 95 %
Dimensions	W106 mm x H43 mm x D60 mm (4.17 in x 1.69 in x 2.36 in)
Weight	420 g (0.93 lb)
Configuration interface	CAN high speed
Data transfer rate	Software selectable up to 1 Mbit/s (ISO11898-2)
Input sockets	Lemo EGG 1B 307 (7-Pin)
Input sockets	ODU series F, size 1 (5-pin)
<b>Galvanic isolation</b>	
Input module power supply	$\pm 100$ V (indefinitely), $\pm 500$ V (pulse voltage)
Input CAN	$\pm 100$ V (indefinitely), $\pm 500$ V (pulse voltage)
Input enclosure	$\pm 100$ V (indefinitely), $\pm 500$ V (pulse voltage)
Input input	$\pm 100$ V (indefinitely), $\pm 500$ V (pulse voltage)
<b>General channel properties</b>	
Special functions	Averaging
Channel LED	Available
Flashing mode of channel LED	During configuration - blinking
Hardware filter types	Bessel (5-Pol)

Hardware filter (selectable)	1 ... 30 kHz
Hardware filter (selectable)	Accuracy 10 %
Filter damping at ambient temperature 25 °C	±1.0 dB
Filter damping at ambient temperature -40 ... 125 °C	±3.0 dB
DC compensation	0.8 Hz (lower cut-off frequency -3 db)
DC compensation damping at ambient temperature 25 °C	±1 dB (variance)
DC compensation damping at ambient temperatur -40 ... 125 °C	±3 dB (variance)
<b>Channel CNT</b>	
Mode: frequency	0.03 ... 200 kHz
Mode: duty cycle	0.01 ... 99.99 %
Mode: duty cycle	0.03 Hz (minimum frequency)
Mode: duty cycle	10 kHz (maximum frequency)
Resolution of duty cycle	1 µ or 1/100 fc filter (higher value)
Mode: period duraton, pulse duration, pause duration	1 µs (minimum duration)
Mode: period duraton, pulse duration, pause duration	200 s (maximum duration)
Resolution Period duraton, pulse duration, pause duration	1 µ or 1/100 fc filter (higher value)
Mode: event counter reset modes	Without reset
Mode: event counter reset modes	Reset by time
Mode: event counter reset modes	Reset by overflow (max. 32 bit)
Mode: event counter with direction (Encoder)	up / down counting
<b>Channel CNT</b>	
Acuracy at ambient temperture 25 °C	±0.01 % (internal time base)
Drift at ambient temperture -40 ... 85 °C	±1.5 ppm/K
Drift at ambient temperture 85 ... 105°C	±2.5 ppm/K
Drift at ambient temperture 105 ... 125°C	±5.0 ppm/K
Adjustable trigger threshold	±4 V resolution 0.025V
Adjustable trigger threshold	±40 V resolution 0.20 V
Acuracy of trigger threshold at ambient temperature 25 °C	±3 %
Acuracy of trigger threshold at ambient temperature -40 ... 125 °C	±8 %
<b>Excitation</b>	
Sensor excitation ranges	Unipolar 2.5/ 5/ 7.5/ 10/ 12.5/ 15V
Accuracy excitation at ambient temperature 25 °C	±5.0 %
Accuracy excitation at ambient temperature 85 °C	±6.0 %
Accuracy excitation at ambient temperature 120 °C	±7.0 %
Sensor excitation current	60 mA (for V output ±2.5 / ±15.0 V)
<b>Accessories</b>	
System cable	620-561.pdf
System cable	620-502.pdf
System cable	620-560.pdf
System cable	620-567.pdf

System cable	620-509.pdf
Input cable	600-858.pdf
Input cable	600-857.pdf
System cable	M-CAN-ABS.pdf
System cable	M-DEF-200.pdf