



OUT MiniModul

- ▶ **Extremely compact CAN bus measurement output module with 8 completely electrically isolated channels**
- ▶ **8 individual configurable output channels (analog voltage 0 V to 10 V, current output 0 to 20 mA and 4 to 20 mA, frequency and PWM output, digital output)**
- ▶ **Operating temperature:**
-40°C to +110°C (Automotive Version)
-40°C to +85°C (Industrial Version)
- ▶ **Robust aluminium housing:**
IP67 (Automotive), IP50 (Industrial)
- ▶ **For versatile applications and with an excellent price-performance ratio**



OUTMM 8 Automotive (Slide Case Large)



OUTMM 8 Industrial

The measurement modules of the CSM MiniModule family solve extreme and combine competing demands on automotive measurement technology. Developed for use inside the engine compartment, they are designed for extreme temperature and environmental conditions and are very compact. All CSM MiniModules have excellent specifications and a very good price-performance ratio.

OUTMM 8

The OUTMM 8 was developed consequently for use inside the vehicle and at the engine test stand. Beside the CSM standard communication on the CAN bus, a CANopen version (CiA DS301, DS305 and DS404) is also available.

All 8 output channels are controlled by freely definable CAN bus messages and offers high accuracy in every operating mode.

Each channel can be configured individually. Operational modes are available as follows:

- ▷ **Analog** output 0 V to 10 V
- ▷ **Current** output 0 mA to 20 mA, 4 mA to 20 mA
- ▷ **Frequency** output in 4 ranges:
0 Hz to 100 Hz, 0 Hz to 1 kHz, 0 Hz to 10 kHz and 0 Hz to 100 kHz, each with adjustable duty cycle (1 % to 99 %) and output level (5 V, 8 V, 10 V, 12 V and 15 V)
- ▷ **Digital** output with adjustable output level (5 V, 8 V, 10 V, 12 V und 15 V)

- ▷ **PWM- respectively duty cycle** output with 0 % to 100 % duty cycle and adjustable fundamental frequency in 3 ranges: 1 Hz to 100 Hz, 1 Hz to 1 kHz, 1 Hz to 10 kHz, each with adjustable output level (5 V, 8 V, 10 V, 12 V, 15 V)

Software

There are two software tools available for configuration:

- ▷ **xx-Scan-Config (standard software)**
The module can either be configured directly by applying a signal from a CAN database or manually.
- ▷ **OUTMM Generator (option)**
With this software the output signals can be entered directly or set via slider. The changes will be transmitted instantly to the OUTMM.

Accessories

Cables for CAN and power supply, adapter cables CAN, signal cables for sensor plug, CAN termination plug and mechanical mounting parts please see data sheet "**MiniModul Accessories**".

Specifications OUT MiniModul

Technical Data	OUTMM 8	OUTMM 8 CANopen
Outputs	8 multifunction outputs	
Output operating mode	Individually adjustable for each channel: analog voltage, current output, frequency output, PWM respectively duty cycle output, digital output	
Analog voltage output	0 V to 10 V	
Output range	1 kHz	
Output repetition rate	approx. 14 bit	
Resolution	0.1 % of upper range value	
Accuracy	200 Hz	
3 dB threshold frequency	20 mA	
Output current	0 mA to 20 mA / 4 mA to 20 mA	
Current output	1 kHz	
Output ranges	approx. 14 bit	
Output repetition rate	0.1 % of upper range value	
Resolution	200 Hz	
Accuracy	0 Ohm to max. 500 Ohm	
3 dB threshold frequency	0 Hz - 100 Hz / 0 Hz - 1 kHz / 0 Hz - 10 kHz / 0 Hz - 100 kHz	
Valid working resistance	1 kHz	
Frequency output	Low = 0 V / High adjustable 5 V, 8 V, 10 V, 12 V, 15 V	
Output ranges	adjustable: 0 % < duty cycle $t_{\text{impulse}}/T < 100\%$ in 1 % steps	
Output repetition rate	0.1 Hz @ 100 Hz, 0.1 Hz @ 1 kHz, 1 Hz @ 10 kHz, 10 Hz @ 100 kHz	
Level	0 % - 100 %	
Duty cycle	1 kHz	
Resolution	Low = 0 V / High adjustable 5 V, 8 V, 10 V, 12 V, 15 V	
PWM-/duty cycle output	1 Hz to 100 Hz in 0.1 Hz steps	1 Hz to 10 kHz in 1 Hz steps
Output ranges	1 Hz to 1 kHz in 0.1 Hz steps	
Output repetition rate	1 Hz to 10 kHz in 1 Hz steps	
Level	0.002 % @ 100 Hz	0.1 %
Fundamental frequency	0.01 % @ 1 kHz	
Resolution	0.1 % @ 10 kHz	
Digital output	Low = 0 V / High adjustable 5 V, 8 V, 10 V, 12 V, 15 V	
Level	1 kHz	
Output repetition rate	max. 20 mA	
Output current	no safety insulation in terms of high-voltage applications	
Galvanic insulation⁽¹⁾	500 V	
Channel / channel	500 V	
CAN / channel	500 V	
CAN / power supply	500 V	
CAN interface	CAN2.0B (active), High Speed (ISO 11898)	
Configuration	125 kBit/s to max. 1 MBit/s, data transfer free running via CAN bus with CSM ConfigTool all settings and configuration data stored in the device alternatively: configuration and data transfer using CANopen protocol ⁽²⁾	
Power supply	7.5 V DC (-10 %)	
Minimum	50 V DC (+10 %)	
Maximum	max. 8 W ⁽³⁾	
Power consumption	power (green) / status (red)	
LED indicator	aluminium gold anodized (automotive version), blue anodized (industrial version)	
Housing	IP67 (automotive version), IP50 (industrial version)	
Protection class	approx. 500 g	
Weight	approx. 200 x 35 x 50 mm	
Dimensions (w x h x d)	approx. 200 x 40 x 50 mm (slide case)	
Connectors	LEMO 0B 5-pole	
CAN/voltage	LEMO 1B 2-pole	
Signal outputs / sensor excitation	-40 °C to +110 °C (automotive version), -40 °C to +85 °C (industrial version)	
Operating and storage conditions	5 % to 95 %	
Operating temperature	3 (automotive version), 1 (industrial version)	
Relative humidity	-55 °C to +150 °C	
Pollution degree		
Storage temperature		
Conformity	CE	

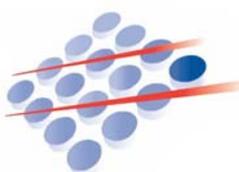
1) These MiniModul devices are designed for measurements in vehicles with 12 V-, 24 V-, or 42 V onboard power supply systems. The maximum operating voltage at the measuring inputs is 60 V. **Not suitable** to be used in systems with higher operating voltages, e.g. high-voltage batteries of hybrid- or electric cars.

2) CANopen according to CiA DS301, DS305 and DS404.

3) Power consumption greatly dependent on operating mode and load (see manual)



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