



STGMM 6 pro HS



Distributed strain gauge measurement

STGMM 6 pro HS is a robust and extremely compact CAN-based measurement module for strain gauge measurements and is excellently suited for distributed measurement applications. This provides opportunities to reduce the cabling efforts, to save space and to speed up the setup of measurement applications.

Ratiometric measuring principle and configurable software filter ensure a high resistance to interference. Furthermore, the **STGMM 6 pro HS** measurement module features an extremely low power consumption.

Shipping content

- ▶ Measurement module STGMM 6 pro HS
- ▶ Configuration software CSMconfig
- ▶ Documentation
- ▶ Calibration certificate

Key features



- ▶ Support of full and half bridge strain gauges with 6- and 4-wire connection
- ▶ Support of quarter bridges via special cable K356
- ▶ Simple configuration via CSMconfig using a universal measurement range
- ▶ Very good measurement accuracy under challenging temperature ranges and environmental conditions
- ▶ High resistance to interference due to ratiometric measuring principle and configurable software filter


Maintenance

- ▶ Calibration every 12 months recommended

Accessories

- ▶ See datasheet "CAN Accessories"

Technical data

Type designation	STGMM 6 pro HS
	
Measurement inputs	6 strain gauge inputs
Type of bridge	full and half bridges 120, 350, 700, 1000 Ω , quarter bridges 120 Ω and 350 Ω via special cable K356 with preconfigured TEDS
Bridge connection	4- and 6-wire
Measuring unit	mV/V, $\mu\text{m/m}$
Input voltage range	± 200 mV
Internal resolution	eff. 21 bit
Bridge balancing	via configuration software, up to 50 % of input voltage range
Time synchronization	better than 1 μs
Measurement data rate per ch.	1, 2, 5, 10, 20, 50, 100, 200, 500 Hz and 1, 2, 5 ¹⁾ , 10 ¹⁾ kHz
HW input filter	low-pass filter, 3rd order, approx. 2.5 kHz
SW input filter	low pass, 6th order Butterworth filter, range: 0.1 Hz to 2 kHz, switchable
Input protection ²⁾	± 20 V permanent, additional ESD protection
LED indicator per ch.	bridge excitation on (green) / short-circuit (red)
Measurement accuracy	
Gain error ³⁾ at 25 °C	max. ± 0.05 % of measured value
Offset and scaling error	depending on the measurement range
40 mV - 200 mV	max. ± 0.01 %
20 mV - 40 mV	max. ± 0.02 %
6 mV - 20 mV	max. ± 0.05 %
3 mV - 6 mV	max. ± 0.1 %
Gain drift ³⁾	± 10 ppm/K
Zero drift	0.5 $\mu\text{V/K}$
Noise	at 5 V excitation voltage (peak-to-peak)
$f_g \leq 10$ Hz	< 1 $\mu\text{V/V}$
10 Hz < $f_g \leq 100$ Hz	< 2 $\mu\text{V/V}$
100 Hz < $f_g \leq 1$ kHz	< 6 $\mu\text{V/V}$
Excitation voltage	from 1 to 5 V in 0.5 V steps (adjustable per channel, optionally switchable) max. 42 mA per channel
Galvanic isolation^{2), 4)}	no safety isolation in terms of high-voltage applications
Channel / channel	500 V
Channel / CAN	500 V
Channel / power supply	500 V
Power supply / bridge excitation voltage	500 V

Type designation	STGMM 6 pro HS
CAN interface	CAN 2.0B (active), High Speed (ISO 11898-2:2003), 125 kbit/s to 1 Mbit/s, up to 2 Mbit/s with CSMcan interface, data transfer rate is 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 ⁵⁾	50 V DC (+10 %)
Power consumption ⁶⁾	typ. 1.5 W (without sensor excitation), typ. 2 W (all channels with 350 Ω full bridges and 5 V bridge excitation voltage)
LED indicator	power (green), status (red)
Housing ⁷⁾	
Protection class	IP67
Weight	approx. 790 g
Dimensions (w × h × d)	approx. 200 × 35 × 50 mm / approx. 200 × 40 × 50 mm (Slide Case)
Connectors	
CAN / power supply	LEMO 0B, 5-pole, code G
Signal inputs	LEMO 1B, 8-pole, code G
Operating and storage conditions	
Operating temperature range	-40 °C to +85 °C
Relative humidity	5 % to 95 % (non-condensing)
Pollution degree	3
Storage temperature	-55 °C to +90 °C
Conformity	CE

¹ 5 kHz: 3 channels @ 1 Mbit/s, 6 channels @ 2 Mbit/s. 10 kHz: 2 channels @ 1 Mbit/s, 3 channels @ 2 Mbit/s.

² Observe information regarding the intended use. See CSM document "Safety Instructions MiniModule".

³ Referring to the units mV/V or μm/m measured by the module

⁴ These MiniModules are designed for measurements in vehicles with 12 V or 24 V on-board power supply systems. Not suitable to be directly connected to systems with higher operating voltages, e.g. high-voltage batteries of hybrid or electric vehicles.

⁵ Max. power supply 50 V DC (+10 %) as of hardware revision A011. Hardware revision < A011: 36 V DC (+10%)

⁶ Typ. 3.5 W at max. load (all channels with 120 Ω full bridge strain gauges and 5 V bridge excitation voltage)

⁷ Optionally available in other variants

additional products

ECAT STGMM 6

ECAT STGMM 6 is an EtherCAT®-based, robust and extremely compact measurement module with six time-synchronous inputs for strain gauge measurements and it is excellently suited for measurement tasks with numerous measurement channels and high measurement data rates.





CSM GmbH
Computer-Systeme-Messtechnik

Raiffeisenstraße 36 • 70794 Filderstadt • Germany
Phone: +49 711-7 79 64-20 • Fax: +49 711-7 79 64-40
info@csm.de • www.csm.de

