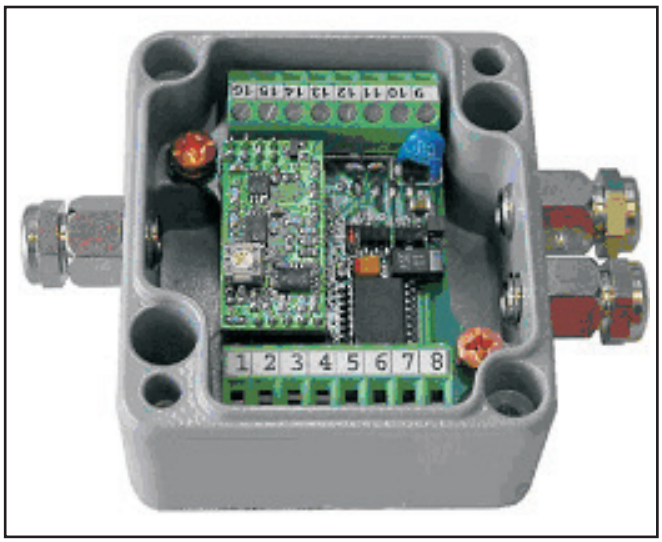
# DMS-Measurement Amplifier VMV-0024

VELOMAT
MESSELEKTRONIK

## functional description




The measurement amplifier VMV-0024 is used by the networking of sensors such as Force Transducers, Strain Link Transducers and Load Cells via the „ Controller Area Network“ (CAN).

The measurement amplifier edited the little analogous voltages of the strain gauges (dms) sensor near and you can be transferred without interference over large distances and in real time (e.g. central computers, data acquisition, data logger).

With dimensions of only 64 mm x 58 mm x 34 mm in the robust aluminium diecast box (IP66) the VMV-0024 offers excellent performance data for the strain gauge measuring technique such as:

- sampling rate of 10 kHz
- resolution of 16 Bit
- galvanic decoupling of network

at low installation size.

The measurement amplifier is a universal amplifier for the measuring data recording with its characteristics and adjustment possibilities. The measurements can in a decentralised system be "condensed" e.g. by the choice of FIR and median filters. The individual value query and sending with an adjustable, continuous data rate just are possibly as the external Triggerung or sending readings event-drivenly.

The voltage supply via 12 V or 24 V DC onboard power supplies is part as well to programm such as up to two threshold outputs and one analogous monitor output with 0 - 5 Volt of output voltage.

## technical data

| | |
|---|---|
| **precision grade** | 0,1 % |
| **measurement range** | 2 mV / V (optional 1,0 mV / V or 3,5 mV / V) |
| **connecting full bridge** | 4 x 350 Ω |
| **strap voltage** | 2,5 V (optional 5,0 V or 7,5 V) |
| **input impedance** | > 20 M Ω / 300 pF |
| **common mode rejection** | |
| **DC** | > 120 dB |
| **100 Hz** | > 80 % from final value |
| **linearity difference** | < 0,02 % from final value |
| **temperature influence on the zero point per 10 K** | < 0,1 % from set point |
| **temperature influence on the measurement sensitivity per 10 K related to measurement** | < 0,1 |





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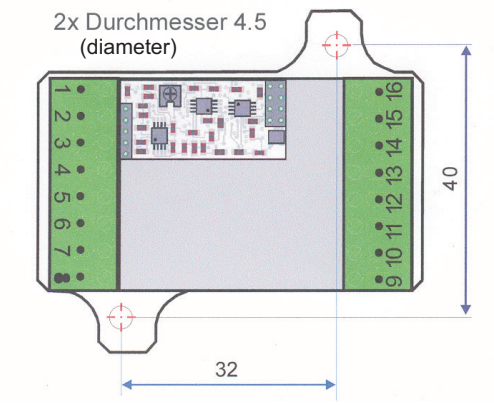
# technical data

| | |
|---|---|
| **output filter** | |
| **analogue output** | |
| 3 dB critical frequency analog | 1,250 kHz |
| Bessel, 2. order | (optional 0,250 kHz or 2,500 kHz or 10,000 kHz) |
| **output filter digital** | FIR-filter + configurable median filter |
| data rate | 0 - 1,220 kHz |
| measuring rate | 0,076 - 10,08 kHz |
| **resolution** | |
| **analogue output** | |
| nominal range | 2,5 V ±2,25 V |
| work range | 0,01 - 5,2 V |
| **output resistance** | 0 Ω |
| **zero comparison** | |
| tolerance | < 5 mV, typical < 2,5 mV |
| period | < 9 ms |
| tripping at falling edge after at least 4 ms high-level (3,5 V - 30 V or supply voltage) | |
| **switching output S1** | open collector |
| current carrying capacity | 22 mA / 25 V |
| **switching outputs/inputs** | TTL-level |
| **RBO, RB6** | active high |
| current carrying capacity | 5 mA |
| **interface** | CAN V2,0 A, B, ISO 11898 |
| isolation voltage | 1000 Vrms |
| max. baud rate | 1 MBaud |
| **supply voltage** | |
| nominal range | 14 - 30 V DC (optional 9 - 18 V DC) |
| **current consumption** | |
| at nominal operating voltage | < 80 mA |
| **parameter memory** | four complete parameter typesetting in the EEProm stored<br>1. last adjusting<br>2. manufacturer adjusting<br>3. user 1<br>4. user 2 |
| **nominal temperature range** | -10 °C to +65 °C |
| **store temperature range** | -40 °C to +85 °C |
| **dimension (L x W x H)** | |
| system-unit cover | 64 mm x 58 mm x 34 mm |
| **environmental protection of the system-unit cover version** | |
| (DIN 40 050) | IP66 |

# DMS-Measurement Amplifier
# VMV-0024

## terminal assignment

| clamp | | port |
|---|---|---|
| 1 | - $U_D$ | negative difference input |
| 2 | + $U_D$ | positive difference input |
| 3 | + $U_S$ | positive strap voltage |
| 4 | - $U_S$ | negative strap voltage |
| 5 | $U_{DS}$ | contact for quarter straps |
| 6 | $U_A$ | analogue output 0 - 5 V |
| 7 | $S_1$ | switching output 1 |
| 8 | T | control input for „zero comparison“ |
| 9 | $U_B$ | supply voltage 12 V, 24 V |
| 10 | GND | ground supply voltage |
| 11 | CAN_GND | ground CAN-Bus |
| 12 | CAN_L | dominant low |
| 13 | CAN_H | dominant high |
| 14 | | intern occupied |
| 15 | | intern occupied |
| 16 | | intern occupied |




## dimensions