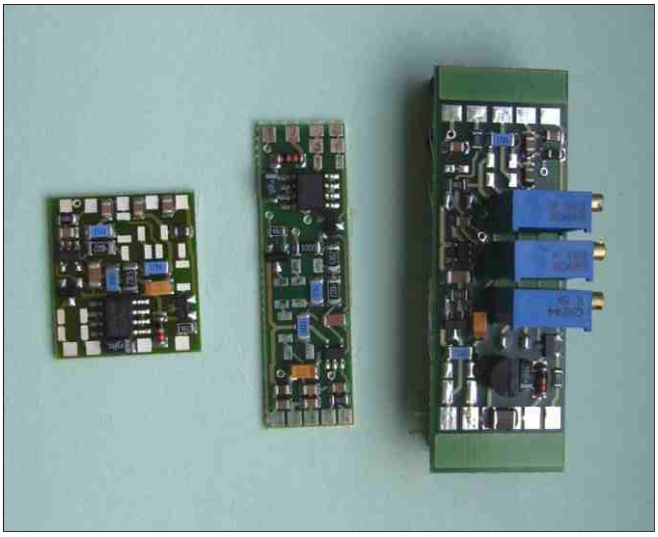
DMS-Measurement Amplifier
VMV-0001/2/3 basic version

VELOMAT MESSELEKTRONIK

functional description

- signal amplifier of strain gauge (DMS) sensors
- SMD amplifier on a printed board
- modular, space-saving device
- optional directly in the sensor or in the aluminium-diecast box placeable
- supply voltage in wide DC voltage area eligible
- execution for quasi-static procedures
- current output eligible



The application of the signal amplifier allows bigger distances between measuring place and measuring processing. Are linkable up all sensors which must use strain gauges (DMS) as a basis and be pursued with an reference voltage. Factory-made the sensor is adapted according to its sensitivity and at the same time the configuration of the analogous output is carried out as an current output. A reverse-connect protection as well as a calibrating test are integrated. The measuring amplifier must be calibrated together with the connected sensor.

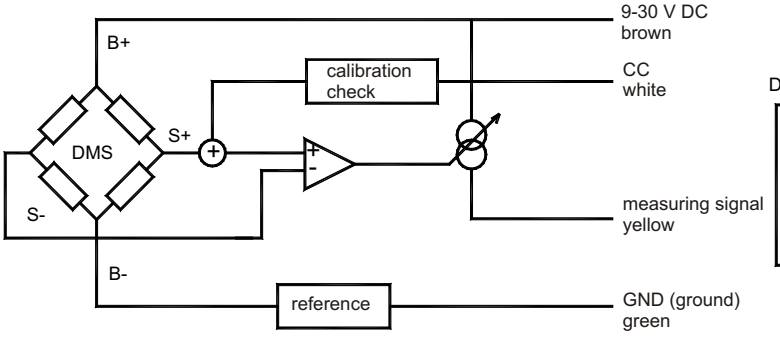
application:

For the operating of the sensor necessary reference voltage is extract from the irregular operating voltage (DC). The settings of amplification, zero shift and calibration check follow factory-made.

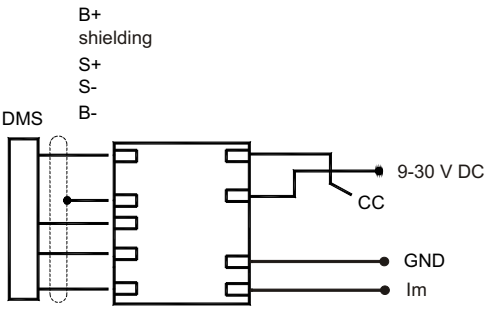
The measuring amplifier provide a measuring signal of 1...9 mA or 4...20 mA. The sensors (e.g., force transducer with DMS) are direct therefore in automatic control, controlling switch, data logger and the like linkable up.

technical data

principle circuit



amplifier



VELOMAT Messelektronik GmbH . Schwarzer Weg 23b . D-01917 Kamenz Telefon (03578) 3749-0 . Telefax (03578) 3749-14

technical data

amplifier		sensor	
operating voltage Ub	9...30 V DC	sensor resistance	≥ 120 Ohm
operating temperature	0...+60 °C		≤ 1000 Ohm
input resistance S+	> 1 MOhm	**execution**	
input resistance S-	> 1 kOhm	connection	soldered junction
current consumption	< 50 mA	dimensions (l x w):	
output	1 - 9 mA or 4 - 20 mA	VMV-0001	21,2 mm x 18,9 mm
	$R_{Load} \leq$ (Ub-3V) / 9 mA	VMV-0002	40,2 mm x 11,7 mm
	$R_{Load} \leq$ (Ub-3V) / 20 mA	installation height	3 mm
sensibility	1,0 / 1,5 / 2,0 mV / V	fine tuning	fixed resistor
	according to execution	VMV-0003	51,1 mm x 17,3 mm
linearity	< 0,1 %	installation height	15 mm
temperature coeff. for zero / amplification	< 100 ppm / K	fine tuning	adjustably resistor
critical frequency (-3 dB)	10 Hz	completely level underside, suitable for bonding	
		weight	approx. 20 g

With the strain gauge measuring amplifiers it concerns the products which are conceived for the integration in force transducers. They have been reduced to a circuit-technically necessary minimum.

The basic types of the measuring amplifiers VMV-0001, VMV-0002 and VMV-0003 are circuit-technically identical. The difference lies merely in the installation size. In addition, the possibility of the precise setting about adjustable resistor consists in VMV-0003.

The accessible exactness is determined by the choice of the comparison resistances. They should own all one tolerance of 1%.

Specifications of these basic versions are possible according to application situation.