

MVD2555

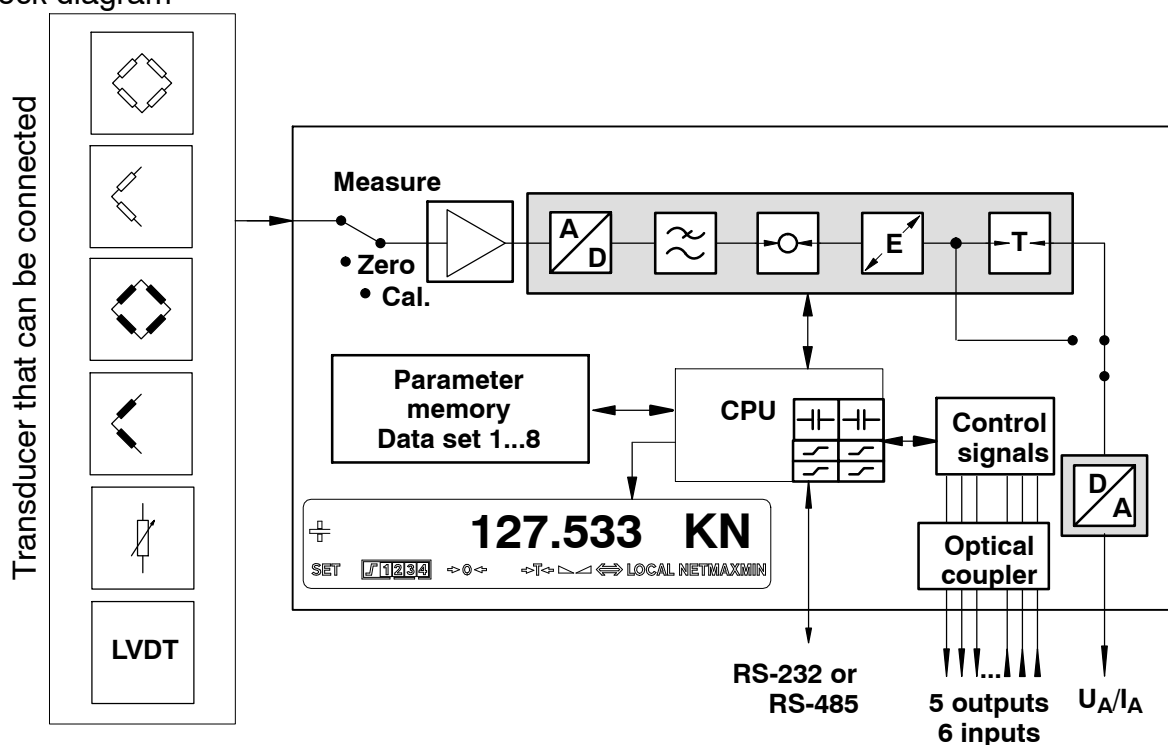
Measuring Amplifier for Panel Mounting



Special features

- For applications in process monitoring and industrial test bench engineering
- 4.8 kHz carrier frequency amplifier for strain-gauge half and full bridges, inductive half and full bridges, LVDTs, piezoresistive and potentiometric transducers,
- Complete control in operator dialogues over the LCD display
- Analog output (current / voltage)
- Four limit switches
- Peak value stores (min./max., peak-to-peak)

Block diagram



Specifications

Type		MVD2555			
Accuracy class		0.1			
Mains connection/supply voltage	V	115/230, +6 %; -14 %;			
Power consumption, max.	Hz	48...60			
Fusible link (slow-blow)	VA	8			
	mA	T 125 mA L (115 V) / T 63 mA L (230 V)			
Amplifier					
Carrier frequency	Hz	4800 ± 0.32			
Bridge excitation voltage U_B (± 5 %)	V_{rms}	1 or 2.5			
Measuring transducer		$U_B = 1 V_{rms}$	$U_B = 2.5 V_{rms}$		
Strain-gauge half and full bridge	Ω	40...5000	80...5000		
Inductive half and full bridge, LVDT	mH	6...19	2.5...20		
Perm. cable length between transducer and amplifier	m	max. 500	max. 500		
Measuring ranges, adjustable (-1 dB)	Hz	0.05...500			
Measuring range (Hardware)		low	medium	high	
Measuring ranges $U_B=2.5 V$	mV/V	0.2...4	2...40	20...400	
$U_B=1 V$	mV/V	0.5...10	5...100	50...1000	
Bridge balance range $U_B=2.5 V$	mV/V	± 4	± 40	± 400	
$U_B=1 V$	mV/V	± 10	± 100	± 1000	
Noise voltage ¹⁾ 0...200 Hz	$\mu V/V_{pp}$	0.5	1	10	
0...1.25 Hz	$\mu V/V_{pp}$	0.025	0.1	1	
Effect of a 10 K change of the ambient temperature ¹⁾ on the digital signal (with autocalibration on/off)					
Sensitivity	%	0.04/0.1	0.04/0.1	0.04/0,1	
Zero point	$\mu V/V$	0.2/2	2/20	20/200	
Measuring frequency range		Nom. val. fc -1 dB -3 dB Phase del. Rise time Overshoot (Hz) (Hz) (Hz) (ms) (ms) ap- prox. 10 % 500 485 580 1.1 0.7 12 200 245 290 1.7 1.3 11 80 78 98 4.3 3.8 10 40 38 50 7.1 7.3 8 20 19 26 12 14 7 10 9.1 12.5 22 28 6 5 4.6 6.3 41 56 5			
Butterworth low pass		Nom. val. fc -1 dB -3 dB Phase del. Rise time Overshoot (Hz) (Hz) (Hz) (ms) (ms) ap- prox. 10 % 400 400 750 0.8 0.6 2 200 215 395 1.3 1.0 2 100 111 190 2.5 2.1 2.5 40 39 68 5 5.5 1.1 20 21 37 8.1 10 1 10 11 19 14 19 0.7 5 5.3 9.7 25 38 0.3 2.5 2.7 4.9 48 75 0 1.25 1.4 2.4 90 150 0 0.5 0.7 1.2 180 300 0 0.2 0.17 0.3 700 1200 0 0.1 0.09 0.16 1400 2300 0 0.05 0.044 0.075 2900 4700 0			
Bessel low pass					
Max. permissible common-mode voltage	V	± 5 V			
Common-mode rejection	dB	typ. 110			
Max. differential voltage DC	V	± 10			
Linearity deviation	%	typ. 0.05			
Long term drift over 48 hours, measuring range 2 mV/V, 30 min. after power up (warm-up time)	$\mu V/V$	with autocalibration on/off <0.2 / <0.4			

¹⁾ for $U_B=2.5 V$, referred to input signal

Specifications (continued):

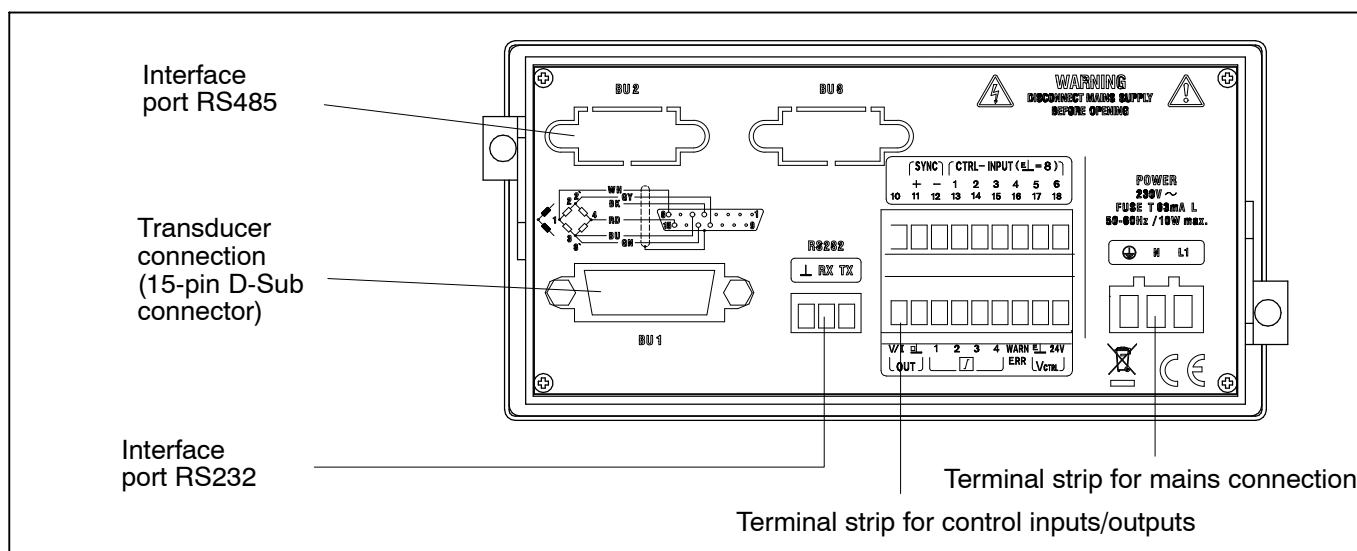
Analogue output Applied voltage Permissible load resistance, min. Internal resistance, max. Applied current Permissible load resistance, max. Internal resistance, min. The analogue output can show gross, net, positive and negative peaks and peak/peak values.	V	± 10 V (asymmetric)
	kOhm	5
	Ohm	1.5
	mA	± 20 ; 4...20
	Ohm	500
	kOhm	100
Interference voltage at the output, typ.	mV _{PP}	4
Residual carrier voltage 38.4 kHz	mV _{PP}	3
Residual carrier voltage 4800 Hz	mV _{PP}	2
Long-term drift (over 48 h) (30 minutes after switching on)	mV	< 3
Effect of 10 K change in ambient temperature (additional effect to digital value)		
Zero point	mV	< 3
Sensitivity	%	< 0.05
Limit value switch		
Number		4
Reference level	V	Gross, Net, Peak value
Reference voltage (independently adjustable)	V	-10 ... +10
Factory settings, hysteresis	V	0.1
Adjustment accuracy	mV	0.33
Response time	ms	0.83
		(all Butterworth filter frequencies and Bessel filters >1.25 Hz. The values double each time for the next lower measurement frequency)
Peak value stores		
Number		2
Function		positive; negative; peak-to-peak
Update rate	ms	0.03 (with Butterworth filter and Bessel filter ≥ 100 Hz)
Clearing the peak value store	ms	3.3 (control inputs)
Recording of the current value/peak value	ms	3.3 (control inputs)
Time constant for envelopes	ms	100 ... 60 000 (± 6 %)
Control outputs (limit value 1...4, Warning V_{CTRL})		
Nominal voltage, external power supply	V	5
Permissible supply voltage range	V	24
Output current, max.	A	11...30
Short-circuit current, typ.	A	0.5
Short-circuit period		0.8
Isolation voltage, typ.	V _{rms}	unlimited
Control inputs		
Input voltage range, LOW	V	350
Input voltage range, HIGH	V	6
Input current, typ., HIGH level = 24 V	mA	0...5
		10...24
		12

Specifications (continued):

Serial Interface RS-232 (MVD2555) Measuring rate, ASCII output binary output Number of data bits Baud rate Parity Stop-Bit Serial Interface RS-485, Four-wire (MVD2555-RS485) Device-address	Meas./s Meas./s Bit Baud	approx. 10 approx. 50 8 300, 600, 1200, 2400, 4800, 9600 ¹⁾ odd, even ¹⁾ no 1 ¹⁾ ; 2
Parameter store (EEPROM)		8 (data set 1 ... 8)
Display Number of digits Digit height Type Keyboard Dialogue languages standard on request	mm	± 10 (16 digit, plus various special characters) 12.5 LCD (inverted with LED back lighting) Foil keyboard with 7 key elements layed on the circuit board German/English English/French English/Spanish English/Italian
Effect of the operating voltage in the case of changes within the stated range, rel. to full -scale Zero point Sensitivity Nominal temperature range Service temperature range Storage temperature range Protection, to IEC60 529 Protection class Dimensions, over all (w x h x d) Front panel Front panel cut-out (to DIN 43 700) Weight, app.	% % °C [°F] °C [°F] °C [°F] mm mm mm kg	0.01 0.01 -20...+45 [-4...113] -20...+45 [-4...113] -20...+70 [-4...158] IP40 (whole instrument) IP51 (front, foil keyboard) I 153 x 72 x 212 (220) 144 x 72 138 x 68 1

1) Setup

Back of the device and dimensions



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