

# MVD2555-RS485

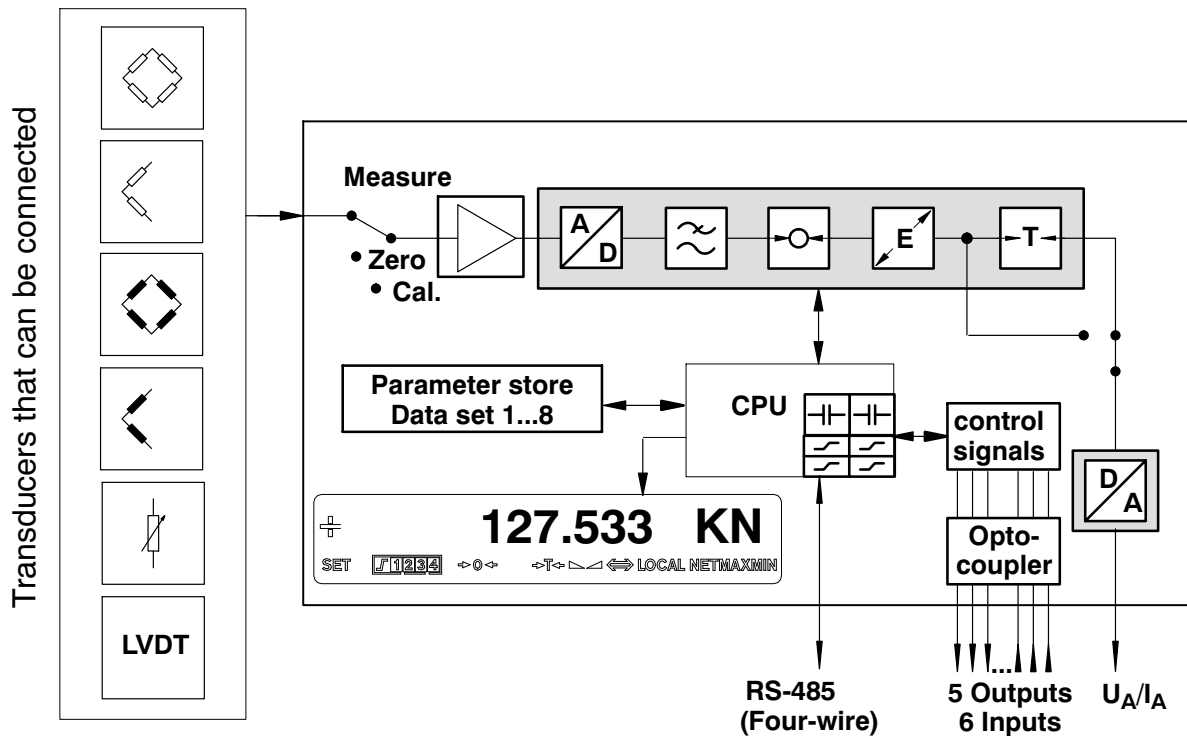
## Amplifier for Panel Mounting

### Special features



- 4.8 kHz carrier frequency amplifier for strain-gauge half and full bridges, inductive half and full bridges, LVDTs, piezoresistive transducers, potentiometers
- RS-485 serial bus interface for measurement output and complete parametrization
- For applications in process and test facilities
- Four limit switches
- Scalable analogue output
- Peak value stores (min./max., peak-to-peak) and instantaneous value, envelope curve

### Block diagram



# Specifications

Type		MVD2555-RS485					
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	$\Omega$	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					
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 <sup>1)</sup> 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 <sup>1)</sup> 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. (Hz)	fc -1 dB (Hz)	-3 dB (Hz)	Phase del. (ms)	Rise tm (ms)	Overshoot (%)
Butterworth low pass		1000	1010	1165	0.66	0.35	12
		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
Bessel low pass		Nom. val. (Hz)	fc -1 dB (Hz)	-3 dB (Hz)	Phase del. (ms)	Rise time (ms)	Overshoot (%)
		900	900	1550	0.49	0.28	4.1
		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
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					

<sup>1)</sup> for  $U_B=2.5 V$ , referred to input signal

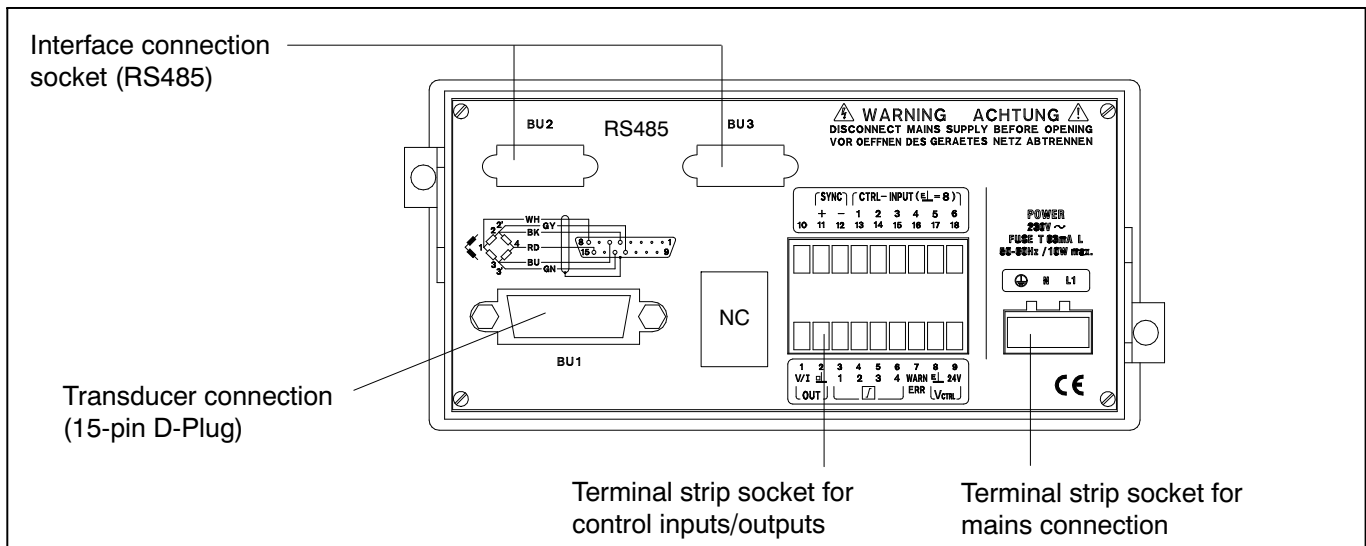
<b>Analogue output</b> Impressed voltage Perm. load resistance, min. Internal resistance, max. Impressed current Internal resistance, max. Perm. load resistance, min. The analogue output can be used to display net signal or gross signal, positive, negative peak value store or peak-peak value store	V k $\Omega$ $\Omega$ mA $\Omega$ k $\Omega$	$\pm 10$ V (asymmetrical) 5 1.5 $\pm 20$ ; 4...20 500 100
<b>Noise voltage at the output, typ.</b> Residual carrier voltage 38.4 kHz Residual carrier voltage 4800 Hz <b>Long-term drift over 48 hours</b> (30 min after power-up) <b>Effect of a 10 K change of the ambient temperature</b> (effect added to the digital value) Zero point Sensitivity	mV <sub>pp</sub> mV <sub>pp</sub> mV <sub>pp</sub> mV mV %	4 3 2 < 3 < 3 < 0.05
<b>Limit switches</b> Number Reference Level Reference voltage (freely adjustable) Factory setup, hysteresis Adjustment accuracy Response time	V V V mV ms	4 gross, net, peak values -10 ...+10 0.1 0.33 3.4 (all Butterworth filter frequencies; Bessel filter frequencies >1.25 Hz. With values doubling every time a lower measuring frequency is used)
<b>Peak value store</b> Number Function Update time <b>Clear the peak value store (switching to current value)</b> <b>Hold the current value / peak value</b> <b>Time constant for envelope curve function</b>	ms ms ms ms	2 gross; net; peak values 0.84 (all Butterworth filters, Bessel filters >1.25 Hz) 3.3 (via control inputs) 3.3 (via control inputs) 100 ... 60 000 ( $\pm 6$ %)
<b>Control outputs (limit value 1...4, error V<sub>CTRL</sub>)</b> Nominal voltage, external supply Permissible supply-voltage range Output current, max. Short-circuit current, typ. Duration of short circuit Isolation voltage, typ. <b>Control inputs</b> Input voltage range, LOW Input voltage range, HIGH Input current, typ., HIGH-level = 24 V	V V A A V <sub>rms</sub> V V mA	5 24 6...30 0.5 0.8 unlimited 350 6 0...5 10...24 12

# Specifications

<b>Serial Interface RS-232 (MVD2555)</b> Measuring rate, ASCII output binary output Number of data bits Baud rate Parity Stop-Bit <b>Serial Interface RS-485, Four-wire (MVD2555-RS485)</b> Device-address	Meas./s Meas./s Bit Baud	approx. 10 approx. 50 8 300, 600, 1200, 2400, 4800, 9600 <sup>1)</sup> odd, even <sup>1)</sup> no <sup>1)</sup> ; 2  0...31, set via keypad or from computer
<b>Parameter store (EEPROM)</b>		8 (data set 1 ... 8)
<b>Display</b> Number of digits Digit height Type <b>Keyboard</b> <b>Dialogue languages</b> 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
<b>Effect of the operating voltage in the case of changes within the stated range, rel. to full -scale</b> Zero point Sensitivity <b>Nominal temperature range</b> <b>Service temperature range</b> <b>Storage temperature range</b> <b>Protection, to IEC60 529</b> <b>Protection class</b> <b>Dimensions, over all (w x h x d)</b> <b>Front panel</b> <b>Front panel cut-out (to DIN 43 700)</b> <b>Weight, app.</b>	% % °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

<sup>1)</sup> Setup

## Device rear



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