Data Sheet

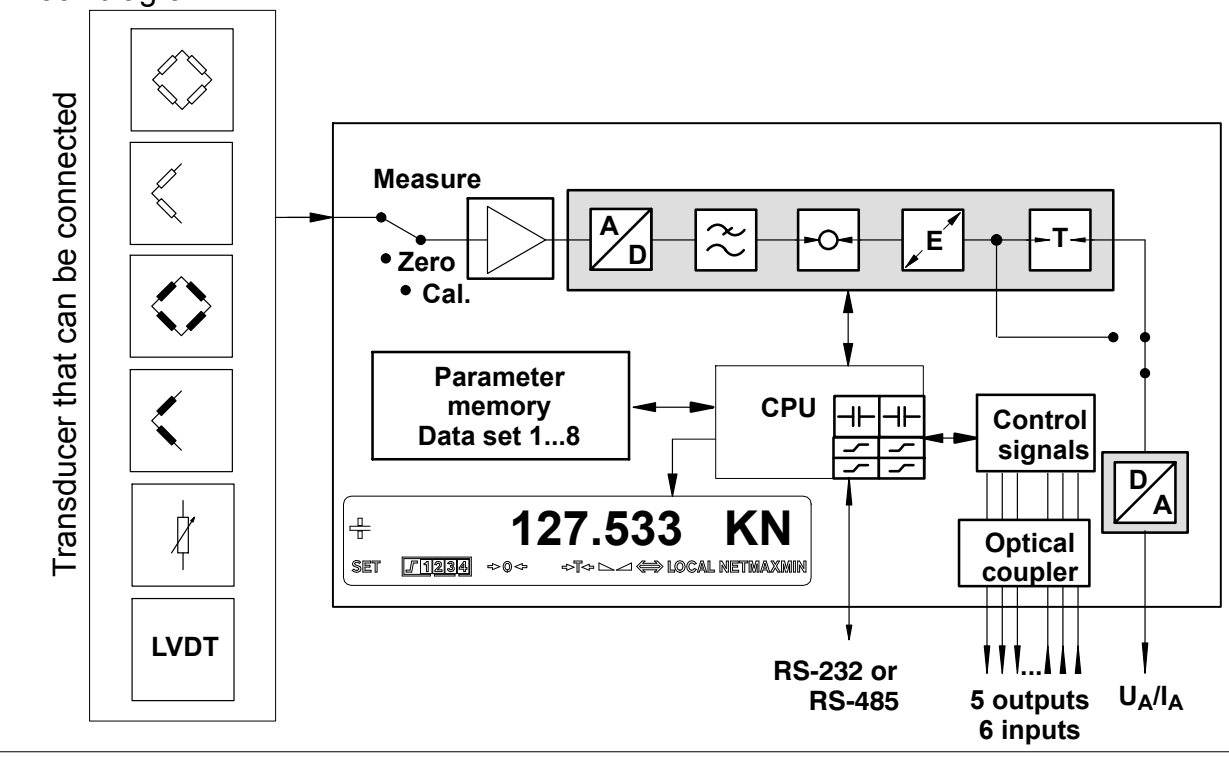
MVD2555

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 %;		
		Hz	48 … 60		
Power consumption, max.		VA	8		
Fusible link (slow-blow)		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 … 1000		
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		µV/V	0.2/2	2/20	20/200

Measuring frequency range

Butterworth low pass

Nom. val. fc (Hz)	**-1 dB** (Hz)	**-3 dB** (Hz)	**Phase del.** (ms)	**Rise time** (ms)	**Overshoot** (%)
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. fc (Hz)	**-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,		with autocalibration on/off
30 min. after power up (warm-up time)	µV/V	<0.2 / <0.4

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

Specifications (continued):

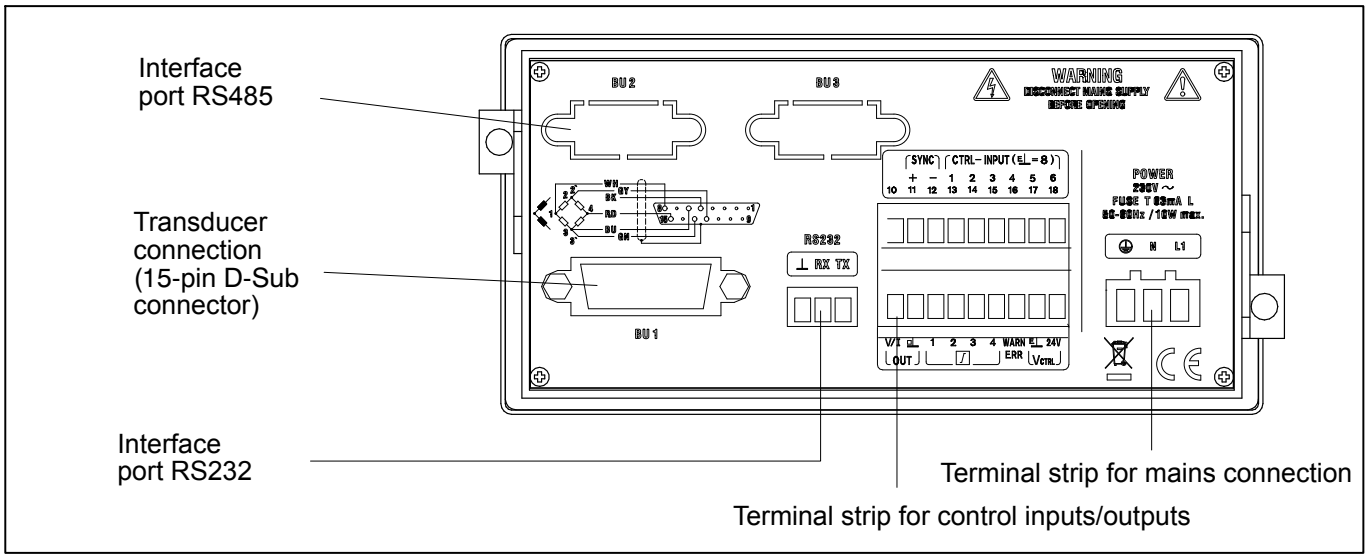
Analogue output		
Applied voltage	V	± 10 V (asymmetric)
Permissible load resistance, min.	kOhm	5
Internal resistance, max.	Ohm	1. 5
Applied current	mA	± 20; 4 … 20
Permissible load resistance, max.	Ohm	500
Internal resistance, min.	kOhm	100
The analogue output can show gross, net, positive and negative peaks and peak/peak values.		
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})		5
Nominal voltage, external power supply	V	24
Permissible supply voltage range	V	11 … 30
Output current, max.	A	0.5
Short-circuit current, typ.	A	0.8
Short-circuit period		unlimited
Isolation voltage, typ.	V_{rms}	350
Control inputs		6
Input voltage range, LOW	V	0 … 5
Input voltage range, HIGH	V	10 … 24
Input current, typ., HIGH level = 24 V	mA	12

Specifications (continued):

Serial Interface RS-232 (MVD2555)		
Measuring rate, ASCII output	Meas./s	approx. 10
binary output	Meas./s	approx. 50
Number of data bits	Bit	8
Baud rate	Baud	300, 600, 1200, 2400, 4800, 9600[1)]
Parity		odd, even[1)] no
Stop-Bit		1[1)] ; 2
Serial Interface RS-485, Four-wire (MVD2555-RS485)		
Device-address		0 … 31, set via keypad or from computer
Parameter store (EEPROM)		8 (data set 1 … 8)
Display		
Number of digits	mm	± 10 (16 digit, plus various special characters)
Digit height		12.5
Type		LCD (inverted with LED back lighting)
Keyboard		Foil keyboard with 7 key elements layed on the circuit board
Dialoque languages		
standard		German/English
on request		English/French English/Spanish English/Italian
Effect of the operating voltage in the case of changes within the stated range, rel. to full -scale	%	0.01
Zero point	%	0.01
Sensitivity	°C [°F]	-20 … +45 [-4 … 113]
Nominal temperature range	°C [°F]	-20 … .+45 [-4 … 113]
Service temperature range	°C [°F]	-20 … +70 [-4 … 158]
Storage temperature range		IP40 (whole instrument) IP51 (front, foil keyboard)
Protection, to IEC60 529		I
Protection class	mm	153 x 72 x 212 (220)
Dimensions, over all (w x h x d)	mm	144 x 72
Front panel	mm	138 x 68
Front panel cut-out (to DIN 43 700)	kg	1
Weight, app.		

[1)] Setup

Back of the device and dimensions



Modifications reserved.
All details describe our products in general form only. They are not to be understood as express warranty and do not constitute any liability whatsoever.

Hottinger Baldwin Messtechnik GmbH

Im Tiefen See 45 · 64293 Darmstadt · Germany
Tel. +49 6151 803-0 · Fax: +49 6151 803-9100
Email: info@hbm.com · www.hbm.com

measure and predict with confidence