

# MVD2510

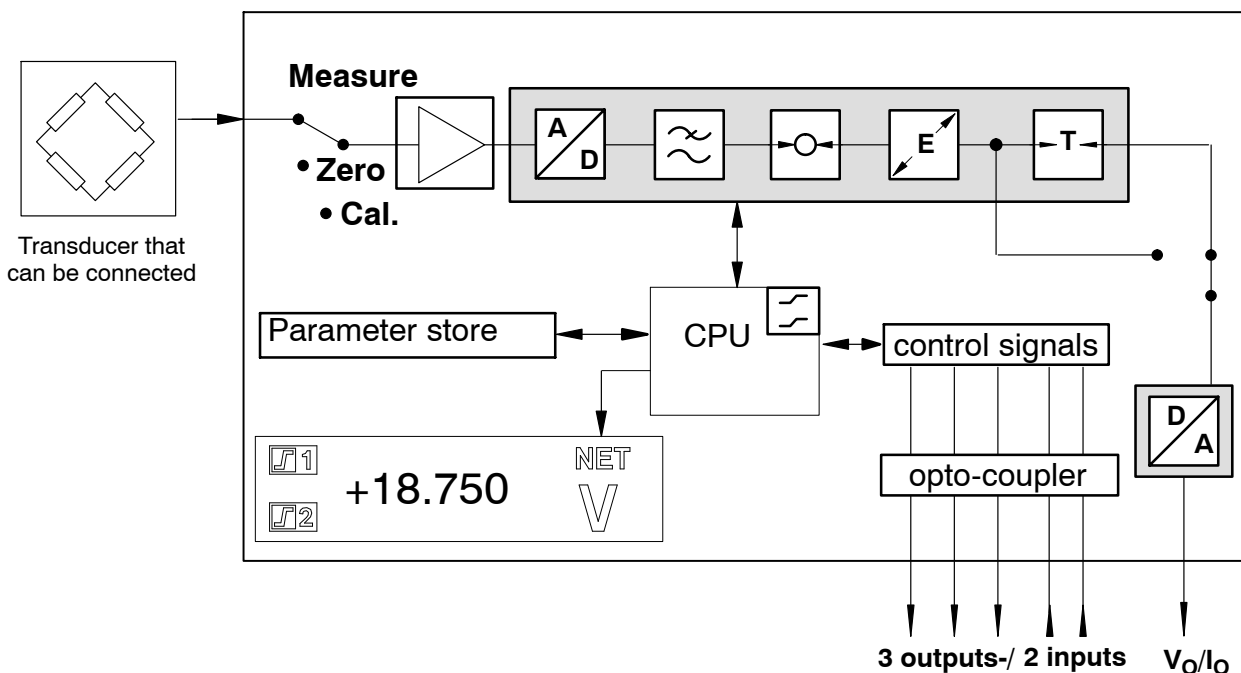
## Amplifiers for Panel Mounting



### Special features

- For process measurement applications
- DC amplifier for strain-gauge full bridges from 80...5000  $\Omega$
- Easy operation via rugged, industrial keyboard
- 4 1/2 figure LED display with various special characters
- Auto-tare function
- 2 limit switches
- Analogue output (current/voltage) ( $\pm 10$  V,  $\pm 20$  mA, 4...20 mA)

### Block diagram



# Specifications

Type		MVD2510					
<b>Accuracy class<sup>1)</sup></b>		<b>0.1</b>					
<b>Mains/supply voltage<sup>2)</sup></b>	V	230; +6 %; -10 % (optional 115 V)					
	Hz	48...60					
<b>Power consumption, max.</b>	VA	8					
<b>Fusible-link fuse (slow blow)</b>	mA	T 125 mA L (115 V) / T 63 mA L (230 V)					
<b>DC amplifier</b>							
<b>Bridge excitation voltage (±5 %)</b>	V <sub>B</sub>	±2.5 V					
<b>Transducers that can be connected</b>							
Strain-gauge full bridges	Ω	80...5000					
<b>Permissible cable length between transducer and amplifier</b>	m	500					
<b>Measuring ranges, adjust. (-1 dB)</b>	Hz	0.05...5					
<b>Measuring range</b>	mV/V	0.2...3.8					
<b>Bridge balance range</b>	mV/V	±3.8					
<b>Measuring frequency range</b>		<b>Nom. val.</b>	<b>-1 dB</b>	<b>-3 dB</b>	<b>Phase del</b>	<b>Rise time</b>	<b>Overshoot</b>
Butterworth low pass (2nd order)		f <sub>c</sub>	(Hz)	(Hz)	·		(%)
		(Hz)	4.9	6.9	(ms)	(ms)	5
		5	2.0	3.6	100	54	-
		2	1.0	1.8	140	100	-
		1	0.48	0.86	200	196	-
		0.5	0.21	0.39	290	406	-
		0.2	0.105	0.195	580	900	-
		0.1	0.050	0.099	1070	1800	-
		0.05			2140	3600	-
<b>Noise voltage (typical)</b>							
without filter	μV/V <sub>pp</sub>	<0.4					
with filter	μV/V <sub>pp</sub>	<0.2					
<b>Max. permissible comm. mode volt.</b>	V	±2					
<b>Common-mode rejection</b>	dB	>120					
<b>Max. permissible voltage on input</b>	V	±5					
<b>Linearity deviation</b>	%	<0.02					
<b>Long-term drift over 48 hours</b>							
After 15 minutes warm-up	μV/V	<0.3					
<b>Effect of 10 K ambient temperature change</b>							
Zero point	μV/V	< 0.4					
Sensitivity	%	< 0.05					
<b>Analogue output</b>							
Impressed voltage	V	±10 V					
Permissible load resistance, min.	kΩ	5					
Internal resistance, max.	Ω	1.5					
Impressed current	mA	±20; 4...20					
Permissible load resistance, max.	Ω	400					
Internal resistance, min.	kΩ	100					
Analogue output can represent gross and net values							
<b>Noise voltage</b>	mV <sub>SS</sub>	10, typ.					
<b>Residual carrier (300 Hz)</b>	mV <sub>SS</sub>	5					
<b>Long-term drift over 48 hours</b>							
(After 30 minutes warm-up)	mV	< 3					

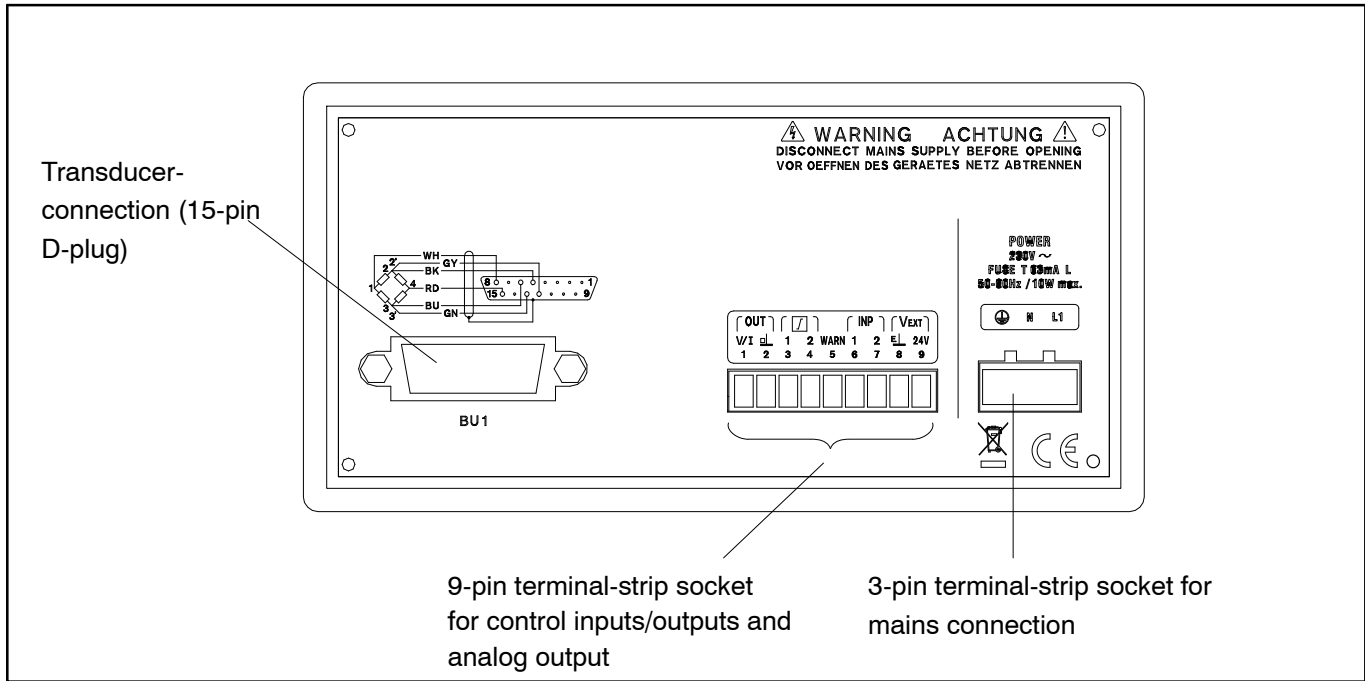
<sup>1)</sup> Exposure of the front panel to RF fields ranging from 3 V/m to 10 V/m could result in a deviation of 0.2 % from the full scale value. Exposure of unshielded digital IO cables to RF fields ranging from 3 V/m to 10 V/m could result in a deviation of 0.3 % from the full scale value. When shielded cable is used, there will be no deviation.

<sup>2)</sup> Please specify when ordering.

## Specifications (continued):

<b>Effect of 10 K ambient temperature change</b> (effect additional to digital value)		
Zero point	mV	< 5
Sensitivity	%	< 0.1
<b>Limit switches</b>		
Quantity		2
Comparison level		Gross, net value
Reference voltage (independently adjust.)	V	-10 ...+10
Factory setup, hysteresis	V	0.1
Setting accuracy	mV	0.33
Response time	ms	25
<b>Control outputs</b> (Limits 1 & 2, Warning)		3
Nom. voltage, ext. supply voltage	V	24
Permissible supply voltage range	V	6...30
Output current, max.	A	0.5
Short-circuit current, typ.	A	0.8
Short-circuit duration		unlimited
Insulation voltage, without transients	V <sub>eff</sub>	< 60
<b>Control inputs</b>		2
Input voltage range, LOW	V	0...5
Input voltage range, HIGH	V	10...24
Input current, typ., HIGH level=24 V	mA	12
<b>Taring response time</b>	ms	25
<b>Parameter store (EEPROM)</b>		1 set of data
<b>Display</b>		
No. of digits	mV	4 1/2 figure 7-segment display and various special characters
Digit height	mm	14.7
Type		LED display
<b>Keyboard</b>		Membrane keyboard covering 7 key elements on the circuit board
<b>Effect of operating voltage with changes in the stated range, ref. to full scale</b>		
Zero point	%	0.01
Sensitivity	%	0.01
<b>Nominal temperature range</b>	°C [°F]	-20...+60 [-4...140]
<b>Service temperature range</b>	°C [°F]	-20...+60 [-4...140]
<b>Storage temperature range</b>	°C [°F]	-20...+70 [-4...158]
<b>Protection to IEC60 529</b>		IP40 (whole instrument IP51 (front membrane keyboard))
<b>Protection class</b> (height up to 2000 m)		I
<b>Rel. humidity</b>	%	5 to 95 (non-condensing)
<b>Dimensions, overall (WxHxD)</b>	mm	153 x 72 x 212
<b>Front panel dimensions</b>	mm	144 x 72
<b>Front panel cut-out (to DIN 43 700)</b>	mm	138 x 68
<b>Weight, approx.</b>	kg	1

# Back panel



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## 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

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