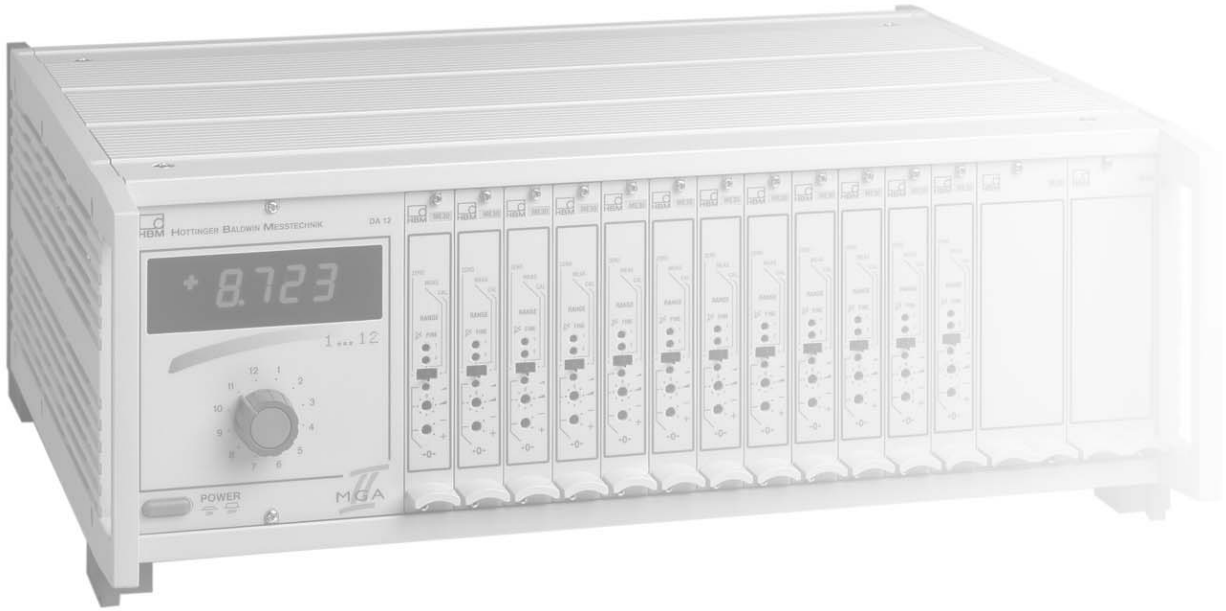
Specifications

MGAII

Amplifier system



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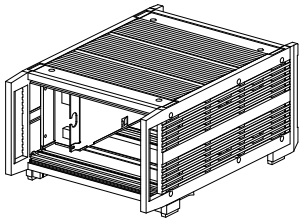
HBM

Technical Data, system unit

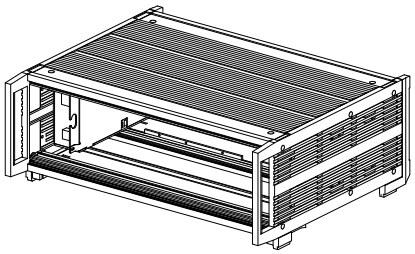
Mains power supply			
Nominal input voltage	V AC	115 V/230 V −25+15 %	
Max. nominal input current	A	2.2/1.3	
Starting current	A	< 20	
Max. power consumption	W	83	
Nominal temperature range	°C	−10...+60	
Service temperature range	°C	−20...+60	
Storage temperature range	°C	−25...+70	
Protection Class		Desktop housing IP20	19" module frame IP20

Housing dimensions (WxHxD in mm; 1 mm= 0.0397 inches)

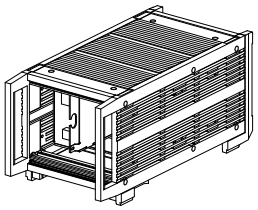
TG 005 desktop housing (255x171x367)



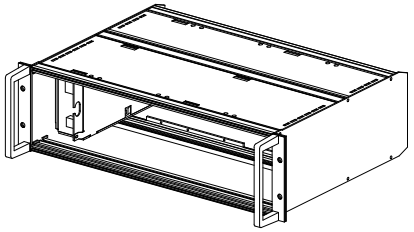
TG 007 desktop housing (458x171x367)



TG011 desktop housing (173x171x367)



ER 007 19" module frame (483x132.5x367)



Desktop housing	Module frame	Max. number of channels	Supply voltage
TG005	–	6	230 V (115 V)~
TG007	–	12	230 V (115 V)~
TG011	–	2	230 V (115 V)~
–	ER007	12	230 V (115 V)~

Technical Data, DA12 numeric display

Accuracy class		**0.05**
Numeric indication range		
Nominal value	d	± 10,000
Peak value	d	± 19,999
Input		
Measurement channels		12
Differential input voltage for nominal display value	V	± 10.000
Differential input voltage, maximum value	V	± 19.999
Input resistance	kΩ	> 100
Permissible common−mode rejection against zero operating voltage	V	± 1
Common−mode rejection	dB	> 50
Measurement display	mm	14
		Seven−segment display
Polarity indication		automatic
Decimal−point indication (can be enabled/disabled with St21)		10,000; fixed
Overload detector	V	> ± 10
Measurement time /conversion time)	s	0.4
Integration time	s	0.1
Linearity variance in the nominal range 10000d	d	± 1
Error of symmetry in the nominal range 10,000d	d	± 1
Effect of 10 K change in ambient temperature		
on zero point	%	0.005 of final value
on sensitivity	%	0.03

ME10 amplifier plug–in unit

Type		ME10		
Accuracy class		**0.1**		
Bridge supply voltage	V	2.5 ± 2 %	5 ± 2 %	10 ± 2 %
Attachable process–quantity transducer				
Strain–gauge transducer (full bridge)	Ω	60...4000	110...4000	220...4000
Maximum cable length	m		500	
Number of ranges			2	
Ranges, adjustable in 12 steps	mV/V	0.4...8	0.2...4	0.1...2
Continuous fine adjustment	%		35	
Factory setting: Range 1	mV/V		± 2	
Range 2	mV/V		± 0.2	
Calibration signal	mV/V		+ 1 ± 0.1 %	
Bridge balance range				
Coarse balance, adjustable in 16 steps (polarity adjustable)	mV/V		± 2	
Fine balance, using screwdriver potentiometer	mV/V		± 0.08	
Measurement frequency range		Butterworth low pass 3rd order		Without low–pass
at –1 dB	Hz	0...2	0...500	0...10,000
at –3 dB	Hz	2.5	675	20,000
Phase delay time	ms	135	0.55	0.01
Rise time	ms	170	0.5	0.015
Overshoot at sudden change in signal	%	<10	<10	<0.1
Input (symmetrical)				
Input impedance	MΩ par. pF		>20 200	
Permitted common–mode voltage	V		± 6 V	
		DC		0...500 Hz
Common–mode rejection	dB	>130		100
Output (asymmetrical)				
Nominal voltage	V		± 10	
Permissible load resistance	kΩ		>5	
Internal resistance	Ω		<5	
Noise, at U_B=5 V projected backwards to the input (peak–to–peak value)	µV/V	<0.1	<0.5	<2
Linearity variance relative to nominal voltage	%		<0.01	
Effect of temperature per 10 K in the nominal temperature range, relative				
to sensitivity	%		<0.1; typically 0.05	
to the zero point at the amplifier output				
in the range 2 mV/V at U_B=5 V (4x350 Ω)	mV		<10, or	
in the range 0.2 mV/V at U_B=5 V	mV		<100; also <0.05% of the bridge balance value	
Long–term drift over 48 hours (after 1h warm–up time)	µV/V		<0.1	

1) Maximum deviation of the accuracy class under the influence of strong electromagnetic fields per EN61326 in the frequency range of 80 MHz ... 1 GHz and in the frequency range of 150 kHz ... 80 MHz: 2 %.

Separate amplifier ME10				
Stabilized Voltage				
for the operation of additional units	V	±15		
max. power consumption	mA	< 50		
Supply current		standard; stab.	KM001	DC-DC converter
Supply voltage	V	±14.5... ±15.5	±15.6... ±25	+9...+35
max. current consumption (without additional units)	mA	±65	< ±75	340...140
influence of supply voltage for changes in the relevant range				
the measuring sensitivity	%	< 0.06	< 0.02	< 0.02
the zero point	µV/V	< 0.1	< 0.1	< 0.1
Output current, with option **EM002**	mA	±20 acc. +4...+20		
permissible connection resistance	W	0...500		
internal resistance	kΩ	> 100		
current consumption				
with standard and KM001 add.	mA	< ± 30		
with DC-DC converter	mA	75...25		
linearity deviation related to nominal current	%	< 0.05		

ME30/ME30S8[1)] amplifier plug–in unit

Type		ME30/ME30S8	
Accuracy class		**0.1**	
Carrier frequency	Hz	600 ± 0.5 %	
Bridge supply voltage	V	2.5 ± 2 %	5 ± 2 %
Attachable process–quantity transducer			
Strain–gauge transducer (full bridge)	Ω	60...4000	110...4000
Maximum cable length	m	500	
Number of ranges		2	
Ranges, adjustable in 12 steps	mV/V	0.4...8	0.2...4
Continuous fine adjustment	%	35	
Factory setting: Range 1	mV/V	± 2	
Range 2	mV/V	± 0.2	
Calibration signal	mV/V	+1 ± 0.1 %	
Bridge balance range			
Coarse balance, adjustable in 16 steps (polarity adjustable)	mV/V	± 2	
Fine balance, using screwdriver potentiometer	mV/V	± 0.08	
Measurement frequency range		Butterworth low–pass 3rd order, switchable	
at –1 dB	Hz	0...2	0...60
at –3 dB	Hz	2.5	80
Phase delay time	ms	135	4.8
Rise time	ms	170	7
Overshoot at sudden change in signal	%	<10	
Residual carrier voltage	%	<0.1	<0.2; typically 0.1
Input (symmetrical)			
Input impedance	MΩ par. pF	>10 470	
Permitted common–mode voltage	V	± 6 V	
Common–mode rejection	dB	0...600 Hz: >50	
Output (asymmetrical)			
Nominal voltage	V	± 10	
Permissible load resistance	kΩ	>5	
Internal resistance	W	<5	
Noise, projected backwards to the input	µV/V	<0.2 (peak–to–peak); typically 0.1	
Linearity variance relative to nominal voltage	%	<0.02; typically 0.01	
Effect of temperature per 10 K in the nominal temperature range relative			
to sensitivity	%	<0.1; typically 0.05	
to the zero point at the amplifier output			
in the range 2 mV/V at U_B=5 V (4x350 Ω)	mV	<4, or	
in the range 0.2 mV/V at U_B=5 V	mV	<13; also <0.05 % of the bridge balance value	
Long–term drift over 48 hours (after 1 h warm–up time)	µV/V	<0.05	

1) The ME30S8 Eurocard is an ME30 card with integrated DC/DC-converter (2–9278.0317) and 1–EM002 output stage module.

Einzelbetrieb amplifier ME30/ME30S8				
Stabilized Voltage				
for the operation of additional units	V	±15		
max. power consumption	mA	< 50		
Supply current		standard; stab.	KM001	DC-DC converter
Supply voltage	V	±14.5... ±15.5	±15.6... ±25	+9...+35
max. current consumption (without additional units)	mA	+ 70 / −65	< + 80 / < −70	340...140
influence of supply voltage for changes in the relevant range				
the measuring sensitivity	%	< 0.8	< 0.02	< 0.02
the zero point	μV/V	< 0.1	< 0.1	< 0.1
Output current, with option **EM002**	mA	±20 acc. +4...+20		
permissible connection resistance	W	0...500		
internal resistance	kΩ	> 100		
current consumption				
with standard and KM001 add.	mA	< ± 30		
with DC-DC converter	mA	75...25		
linearity deviation related to nominal current	%	< 0.05		

ME50 amplifier plug−in unit

Type		**ME50**	
Accuracy class		**0.1**	
Carrier frequency	Hz	4800 ± 0.5 %	
Bridge supply voltage	V	1 ± 3 %	2.5 ± 2 %
Attachable process−quantity transducer			
Inductive transducer (half bridge)	mH	2.5...20	
Maximum cable length	m	100	
Number of ranges		2	
Ranges, adjustable in 12 steps	mV/V	20...400	8...160
Continuous fine adjustment	%	35	
Factory setting: Range 1	mV/V	± 80	
Range 2	mV/V	± 8	
Calibration signal	mV/V	+8 ± 0.1 %	
Bridge balance range			
Coarse balance, adjustable in 16 steps (polarity adjustable)	mV/V	± 80	
Fine balance, using screwdriver potentiometer	mV/V	± 3.2	
Measurement frequency range		Butterworth low−pass 3rd order, switchable	
at −1 dB	Hz	0...2	0...500
at −3 dB	Hz	2.5	675
Phase delay time	ms	135	0.55
Rise time	ms	170	0.5
Overshoot at sudden change in signal	%	<10	<10
Residual carrier voltage	%	<0.02	<0.2; typically 0.1
Input (symmetrical)			
Input impedance	MΩ par. pF	>0.2 100	
Permitted common−mode voltage	V	± 6 V	
Common−mode rejection	dB	0...4800 Hz: > 50	
Output (asymmetrical)			
Nominal voltage	V	± 10	
Permissible load resistance	kΩ	>5	
Internal resistance	Ω	<5	
Noise, projected backwards to the input	µV/V	500 Hz:<8 (peak-to-peak) 2 Hz:<0.08 (peak-to-peak)	500 Hz:<8 (peak-to-peak) 2 Hz:<0.08 (peak-to-peak)
Linearity variance relative to nominal voltage	%	<0.05; typically 0.02	
Effect of temperature per 10 K in the nominal temperature range relative			
to sensitivity	%	<0.15; typically 0.1	
to the zero point at the amplifier output	µV/V	<8; typically 4 also <0.05% of the bridge balance value	
Long−term drift over 48 hours (after 1 h warm−up time)	µV/V	<0.8	

Einzelbetrieb amplifier ME50				
Stabilized Voltage				
for the operation of additional units	V	±15		
max. power consumption	mA	< 50		
Supply current		standard; stab.	KM001	DC-DC converter
Supply voltage	V	±14.5... ±15.5	±15.6... ±25	+9...+35
max. current consumption (without additional units)	mA	+ 45 / −40	< + 50 / < −45	230...75
influence of supply voltage for changes in the relevant range				
the measuring sensitivity	%	< 0.8	< 0.02	< 0.02
the zero point	µV/V	< 0.8	< 1.6	< 4
Output current, with option **EM002**	mA	±20 acc. +4...+20		
permissible connection resistance	W	0...500		
internal resistance	kΩ	> 100		
current consumption				
with standard and KM001 add.	mA	< ± 30		
with DC-DC converter	mA	75...25		
linearity deviation related to nominal current	%	< 0.05		

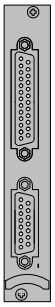
ME50S6 amplifier plug–in unit

Type		**ME50S6**	
Accuracy class		**0.1**	
Carrier frequency	Hz	4800 ± 0.5 %	
Bridge supply voltage	V	1 ± 2 %	5 ± 2 %
Attachable process–quantity transducer			
Strain–gauge transducer (full bridge)	Ω	60...4000	110...4000
Maximum cable length	m	300 (from 100 – 500 m cable length: typical measurement error of the accuracy class: ± 1,7 %)	
Number of ranges		2	
Ranges, adjustable in 12 steps	mV/V	1...20	0.2...4
Continuous fine adjustment	%	35	
factory setting: Range 1	mV/V	± 1	
Range 2	mV/V	± 0.2	
Calibration signal	mV/V	+1 ± 0.1 %	
Bridge balance range			
Coarse balance, adjustable in 16 steps (polarity adjustable)	mV/V	± 2	
Fine balance, using screwdriver potentiometer	mV/V	± 0.08	
Measurement frequency range		Butterworth low–pass 3rd order, switchable	
at –1 dB	Hz	0...40	0...250
at –3 dB	Hz	50	300
Phase delay time	ms	7	1.1
Rise time	ms	10	1.6
Overshoot at sudden change in signal	%	<10	<10
Residual carrier voltage	%	<0.02	<0.2; typically 0.1
Input (symmetrical)			
Input impedance	MΩ par. pF	>10 470	
Permitted common–mode voltage	V	± 6 V	
Common–mode rejection	dB	0...600 Hz: >50	
Output (asymmetrical)			
Nominal voltage	V	± 10	
Permissible load resistance	kΩ	>5	
Internal resistance	Ω	<5	
Noise, projected backwards to the input	µV/V	<0.2 (peak–to–peak); typically 0.1	<0.2 (peak–to–peak); typically 0.1
Linearity variance relative to nominal voltage	%	<0.02; typically 0.01	
Effect of temperature per 10 K in the nominal temperature range relative			
to sensitivity	%	<0.1; typically 0.05	
to the zero point at the amplifier output in the range 2 mV/V at U_B=5 V (4x350 Ω) in the range 0.2 mV/V at U_B=5 V	 mV mV	 <4, or <13; also <0.05 % of the bridge balance value	
Long–term drift over 48 hours (after 1 h warm–up time)	µV/V	<0.05	

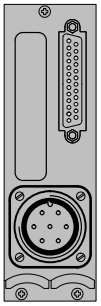
Einzelbetrieb amplifier ME50S6				
Stabilized Voltage				
for the operation of additional units	V	±15		
max. power consumption	mA	< 50		
Supply current		standard; stab.	KM001	DC-DC converter
Supply voltage	V	±14.5... ±15.5	±15.6... ±25	+9...+35
max. current consumption (without additional units)	mA	< + 70 / < −65	< + 80 / < −70	340...140
influence of supply voltage for changes in the relevant range				
the measuring sensitivity	%	< 0.8	< 0.02	< 0.02
the zero point	µV/V	< 0.1	< 0.1	< 0.1
Output current, with option **EM002**	mA	±20 acc. +4...+20		
permissible connection resistance	W	0...500		
internal resistance	kΩ	> 100		
current consumption				
with standard and KM001 add.	mA	< ± 30		
with DC-DC converter	mA	75...25		
linearity deviation related to nominal current	%	< 0.05		

Connection boards

AP01



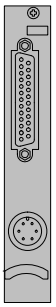
AP03



AP01 (connection board with D−connector)		
Width	mm	20.3 (4 divs)
Transducer port		D−plug, 15−pin, DA-15P [1]
Port for output signal		D-plug, 25−pin, DB-25P [2]
Option		2x EM001; 2x RM001 with AP02

AP03 (AP08 connection board with MS−connector)		
Width	mm	40.6 (8 divs)
Transducer port		MS−cable plug, 7−pin, MS3106A 16S-1P [3]
Port for output signal		D-plug, 25−pin, DB-25P [2]
Option		2x EM001, 2x RM001 with AP02

AP11



AP11 (connection board with LEMO socket)		
Width	mm	20.3 (4 divs)
Transducer port		LEMO FGG . 1B.306 6−pin [4]
Port for output signal		D-plug, 25−pin, DB-25P [2]
Option		2x EM001; 2xRM001 with AP02

1) HBM order number 2-9278.0321
2) HBM order number 2-9278.0293
3) HBM order number 1−MS3106PEMV
4) HBM order number 3-3312.0126

End phase module EM001

Input		
Input voltage	V	−10 ... +10
Input resistance	kOhm	12.5
Output		
Impressed voltage	V	−10 ... +10
Impressed current	mA	± 20 / 4 ... 20
Load resistance	Ohm	max. 500, min. 0
Measurement frequency range	kHz	0...10
Operating voltage	V	+16; −16
Current consumption	mA	35

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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