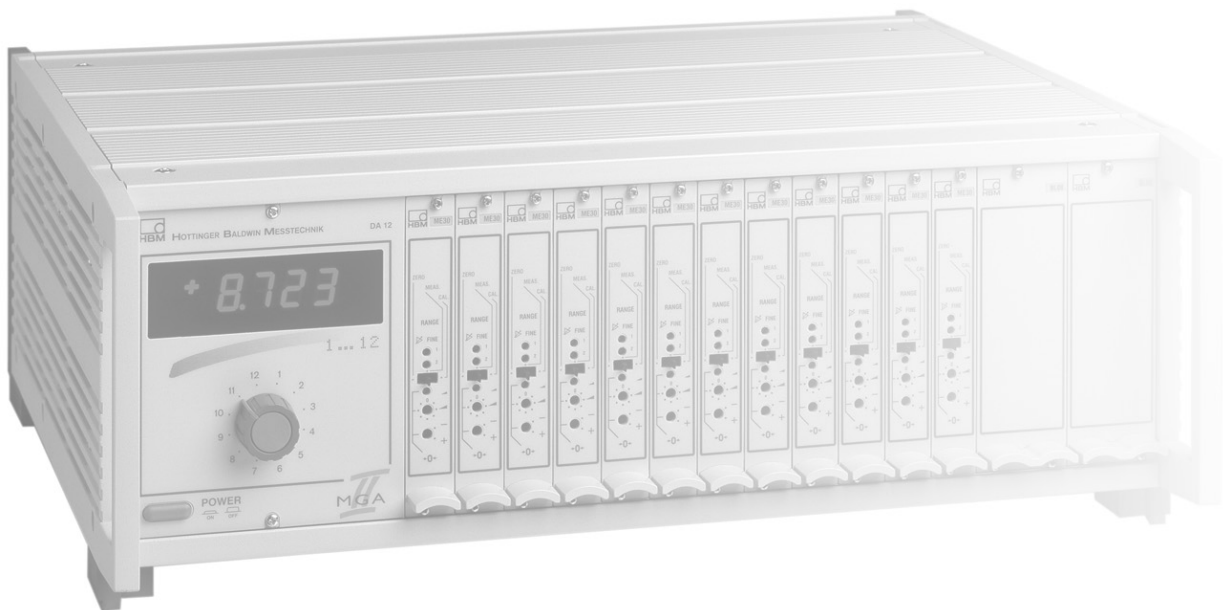


MGAII

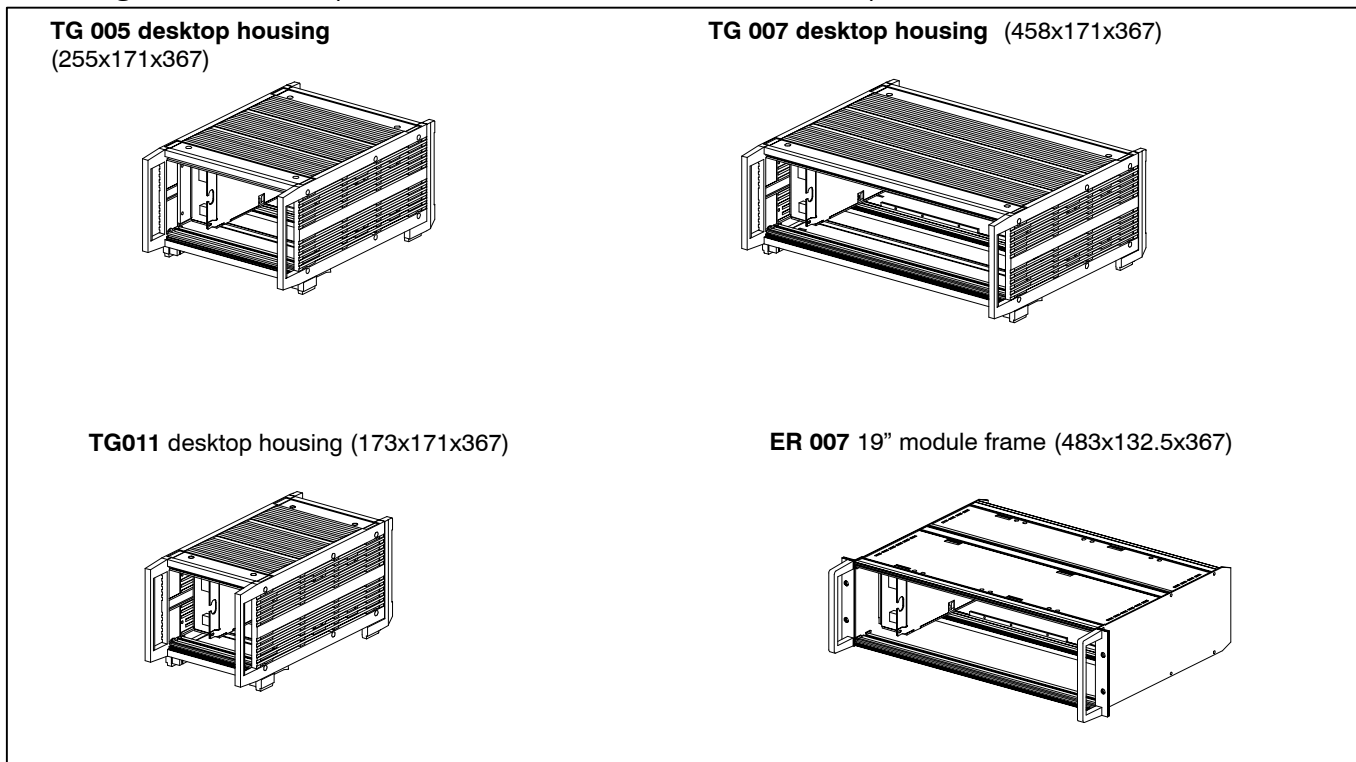
Amplifier system



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)



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	$\pm 10,000$
Peak value	d	$\pm 19,999$
Input		
Measurement channels		12
Differential input voltage for nominal display value	V	$\pm 10,000$
Differential input voltage, maximum value	V	$\pm 19,999$
Input resistance	k Ω	> 100
Permissible common-mode rejection against zero operating voltage	V	± 1
Common-mode rejection	dB	> 50
Measurement display	mm	14 Seven-segment display automatic 10,000; fixed
Polarity indication		
Decimal-point indication (can be enabled/disabled with St21)		
Overload detector	V	$> \pm 10$
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	
Common-mode rejection	dB	DC >130		0...500 Hz 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 amplifier plug-in unit

Type		ME30	
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			
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			
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	

Einzelbetrieb amplifier ME30				
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			
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			
Bridge balance range	mV/V	+8 ± 0.1 %	
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		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		

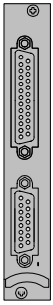
ME50S6 amplifier plug-in unit

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	

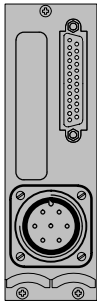
Einzelbetrieb amplifier ME50S6				
Stabilized Voltage				
for the operation of additional units	V		± 15	
max. power consumption	mA		< 50	
Supply current		standard; stab.	KM001	DC-DC converter
Supply voltage	V	± 14.5... ± 15.5	± 15.6... ± 25	+9...+35
max. current consumption (without additional units)	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

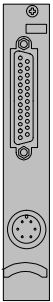
AP01



AP03



AP11



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 (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; 2x RM001 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

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