Data Sheet

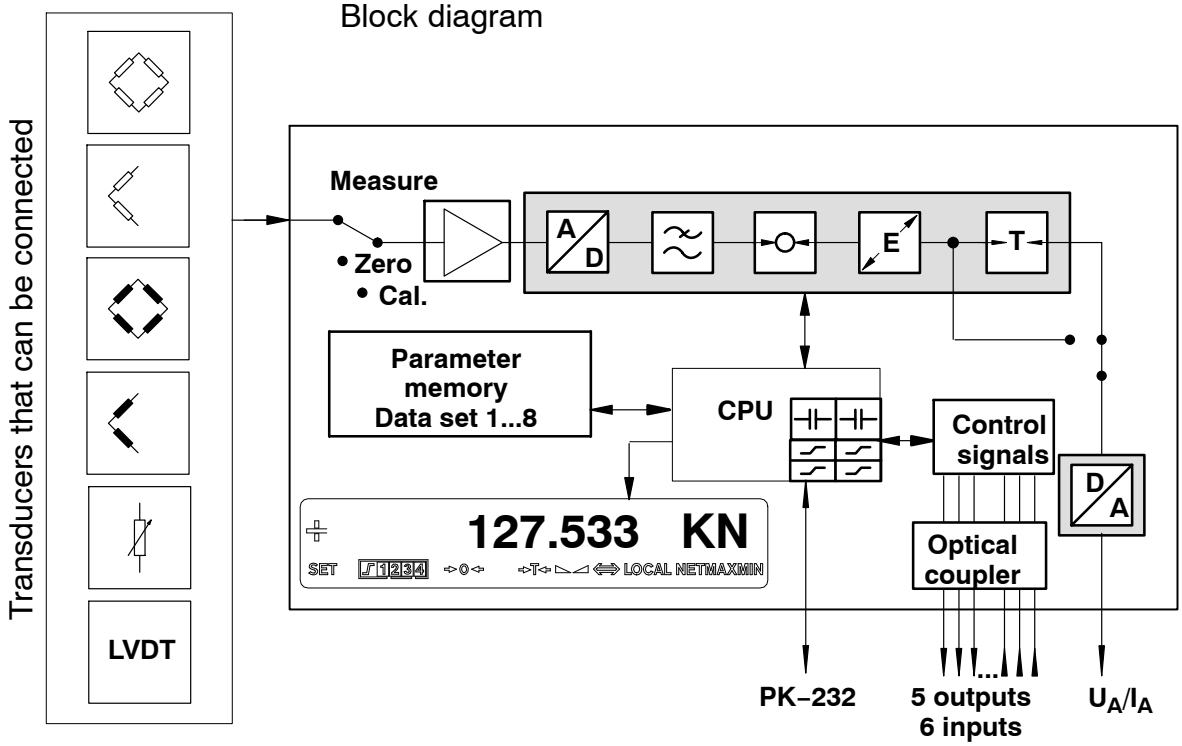
SCOUT55

Measuring Amplifier portabel in desktop housing

Special features

- 4.8 kHz carrier–frequency amplifier for S.G. half and full bridges, inductive half and full bridges, LVDT, piezoresistive and potentiometric transducers
- Complete control in operator dialogues over the LCD display
- Analog output (current / voltage)
- Four limit value switches
- Peak value stores (Min, Max, Peak-to-Peak) and envelope function, instantaneous values
- Manageable housing with mounting frame/carrying handle
- Serial interface for measurement output and for full parameterisation

Block diagram



Specifications

Type			SCOUT 55		
Accuracy class			**0.1**		
Mains connection / **Supply voltage** **Power consumption, max.** **Safety fuse** (slow blowing)		V Hz VA mA	115/230, +6 %; −14 %; 48...60 8 T 125 mA L (115 V) / T 63 mA L (230 V)		
Amplifier					
Carrier frequency		Hz	4800 ± 0.32		
Excitation voltage U_B (± 5 %)		V_{rms}	1 or 2.5		
Transducers that can be connected			**U_B = 1 V_{rms}**		
S.G. half and full bridge		Ω	40...5000		
Inductive half and full bridge, LVDT's		mH	6...19		
			U_B = 2.5 V_{rms}		
			80...5000		
			2.5...20		
Permissible cable length between transducer and amplifier		m	max. 500		
Measurement frequency range, adjustable (–1 dB)		Hz	0.05...500		
Input level			**low**	**medium**	**high**
Measuring range	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 10 K change in ambient temperature[1]					
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

Measurement 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	typically 110
Max. differential voltage DC	V	± 10
Linearity deviation	%	typically 0.05
Long-term drift over 48 hours, Meas. range 2 mV/V		Autocalibration on / off
30 minutes after switching on (warm-up time)	µV/V	<0.2 / <0.4

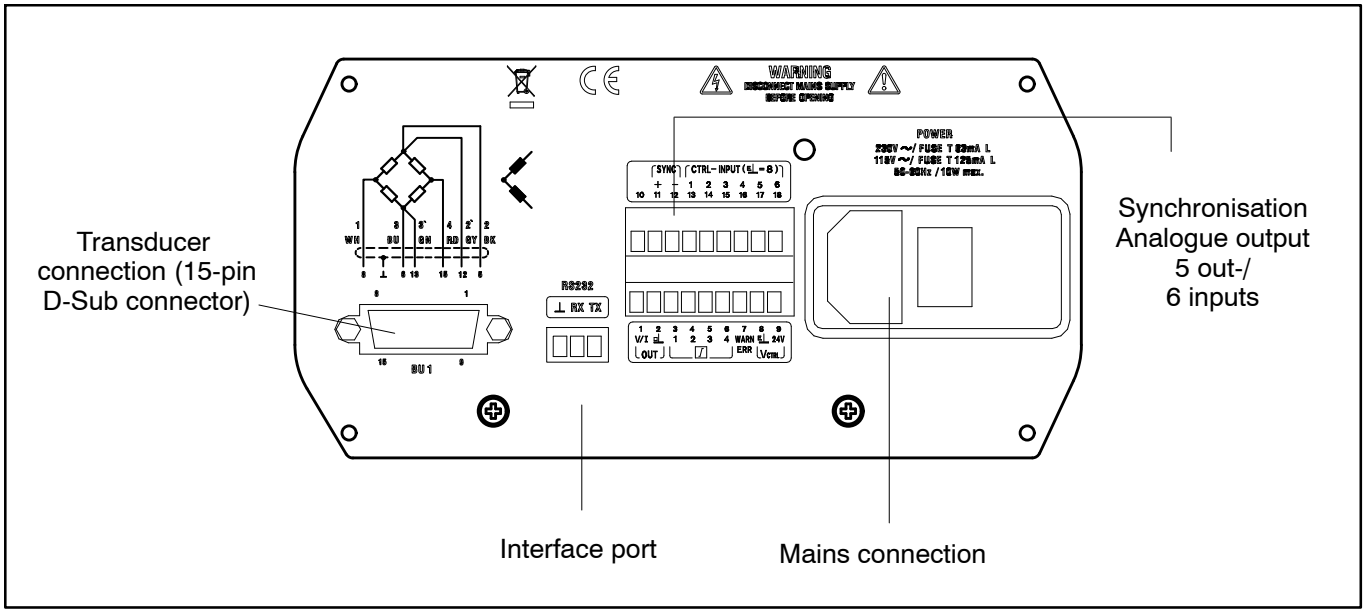
[1] For U_B=2.5 V, relative to the input

Analogue output		
Applied voltage	V	± 10 V (asymmetric)
Permissible load resistance, min.	kΩ	5
Internal resistance, max.	Ω	1.5
Applied current	mA	± 20; 4...20
Permissible load resistance, max.	Ω	400
Internal resistance, min.	kΩ	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, without transients	V_{rms}	< 60
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

Interface		
Measuring rate, ASCII output	MEAS/S	approx. 25
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)] and no
Stop bit		1[1)] ; 2
Parameter memory (EEPROM)		8 (parameter sets)
Display		
Number of digits		± 10 (16-segment, plus var. special characters)
Character height	mm	12.5
Type		LCD (inverse with LED background lighting)
Keyboard		Touch-sensitive keypad with 7 button elements on the printed circuit board
Dialogue languages		
Standard		German / English / French / Italian / Spanish
Effect of operating voltage in the case of changes in the specified range, relative to the full scale		
on zero point	%	0.01
on sensitivity	%	0.01
Nominal temperature range	°C	–20...+50
Operating temperature range	°C	–20...+50
Storage temperature range	°C	–20...+70
Degree of protection acc. to DIN IEC 60 529		IP40 (complete device) IP51 (front, touch-sensitive keypad)
Protection class		I
Dimensions, over all (W x H x D)	mm	176 x 98 x 211.6
Weight, approx.	kg	1.88

1) Factory settings

Back side of the device



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