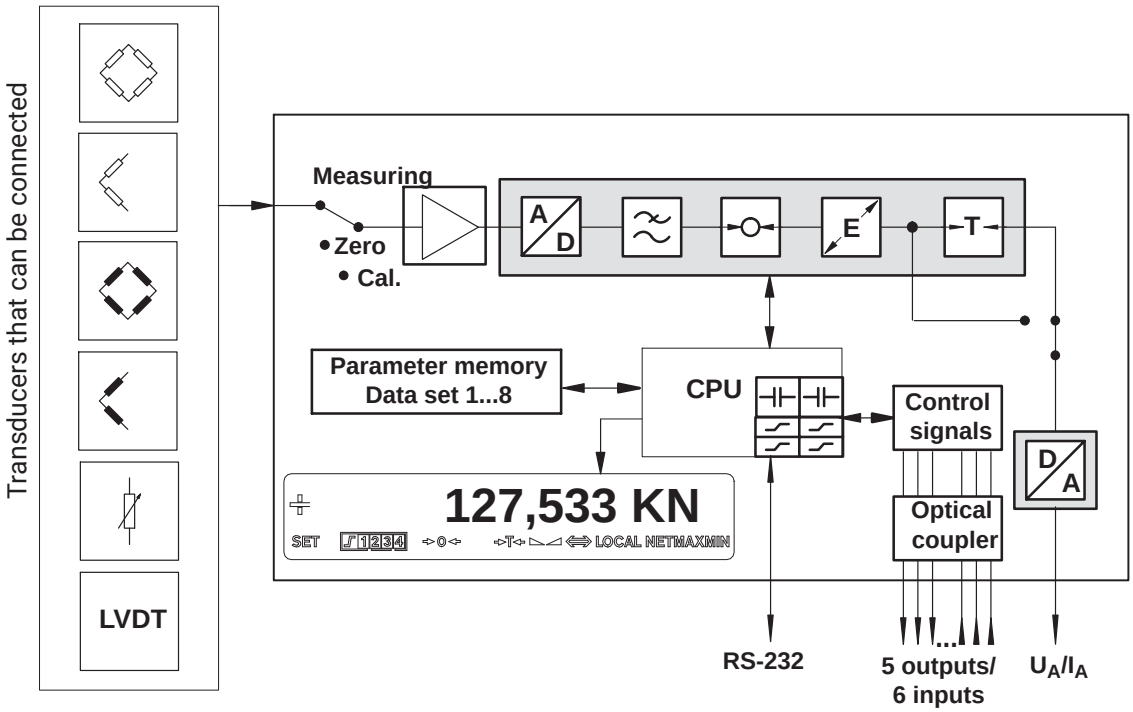
DATA SHEET

Scout55
Portable measuring amplifier in tabletop housing

SPECIAL FEATURES

- 4.8 kHz carrier frequency measuring amplifier for half and full bridge strain gage, inductive half and full bridge, LVDT, piezoresistive and potentiometric transducers
- Fully operated via user interface on LCD display
- Analog output (current/voltage)
- Four limit switches
- Peak-value memory (min., max., peak-to-peak)
- Serial interface for measurement output and complete parameterization

BLOCK DIAGRAM



SPECIFICATIONS

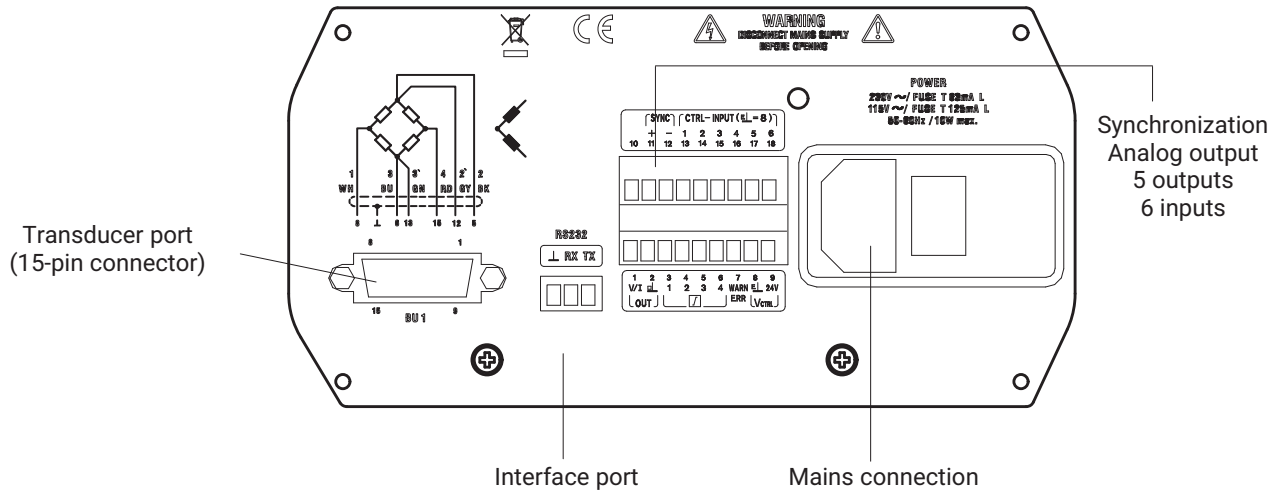
Type		SCOUT55		
Accuracy class		**0.1**		
Mains connection/supply voltage	V	115/230, +6%; -14%;		
	Hz	48 … 60		
Power consumption, max.	VA	8		
Safety fuse (delayed-action)	mA	T 125 mA L (115 V) / T 63 mA L (230 V)		
Carrier frequency	Hz	4800 ± 0.32		
Bridge excitation voltage U_B (± 5%)	V_{rms}	1 or 2.5		
Transducers that can be connected		**U_B = 1 V_{rms}**	**U_B = 2.5 V_{rms}**	
SG half and full bridge	Ω	40 … 5000	80 … 5000	
Inductive half and full bridge, LVDTs	mH	6 … 19	2.5 … 20	
Permissible cable length between transducer and amplifier	m	max. 500	max. 500	
Measurement frequency range, adjustable (-1 dB)	Hz	0.05 … 1000		
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	$\mu V/V_{SS}$	0.5	1	10
0...1.25 Hz	$\mu V/V_{SS}$	0.025	0.1	1
Effect of 10 K change in ambient temperature[1)] (with/without autocalibration)				
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 Low pass with Butterworth characteristic		**Nominal value fc (Hz)** / **-1 dB (Hz)** / **-3 dB (Hz)** / **Runtime (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		
Low pass with Bessel characteristic		**Nominal value fc (Hz)** / **-1 dB (Hz)** / **-3 dB (Hz)** / **Runtime (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		
Maximum differential voltage DC	V	± 10		
Non-linearity	%	typ. 0.05		
Long-term drift over 48 hours, measuring range 2 mV/V		with/without autocalibration		
30 minutes after start-up (warm-up time)	µV/V	<0.2 / <0.4		

Type		SCOUT55
Analog output		
Applied voltage	V	±10 V (unbalanced)
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 analog output can illustrate gross, net, positive and negative peaks, and peak/peak values.		
Interference voltage at output, typical	mV_{SS}	4
Residual carrier voltage 38.4 kHz	mV_{SS}	3
Residual carrier voltage 4800 Hz	mV_{SS}	2
Long-term drift over 48 hours		
(30 minutes after start-up)	mV	< 3
Effect of 10 K change in ambient temperature (additional effect to digital value)		
Zero point	mV	< 3
Sensitivity	%	< 0.05
Limit switches		
Number		4
Reference level	V	Gross, net, peak values
Reference voltage (independently adjustable)	V	-10 … +10
Hysteresis factory setting	V	0.1
Adjustment accuracy	mV	0.33
Response time	ms	0.83 (all of the Butterworth filter frequencies and the Bessel filter >1.25 Hz. The values each double for the next lowest measurement frequency)
Peak-value memory		
Number		2
Function		positive, negative, peak-to-peak
Update time	ms	0.03 (with Butterworth filter and Bessel filter > 100 Hz)
Clearing peak-value memory	ms	3.3 (control inputs)
Retaining the current measured value/peak value	ms	3.3 (control inputs)
Time constant for envelope curves	ms	100 … 60,000 (±6%)
Control outputs (limit value of 1...4, warning V_{CTRL})		5
Nominal (rated) 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

Type			SCOUT55
Interface			
Sample 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[2]
Parity			uneven, straight[2] and none
Stop bit			1[2] ; 2
Parameter memory (EEPROM)			8 (parameter sets)
Display			
Number of digits			±10 (16 segments, plus various special characters)
Character height		mm	12.5
Type			LCD (inverse with LED background lighting)
Keyboard			Membrane keypad with 7 saved key elements on the printed circuit board
Dialog language			
Standard			German/English/French/Italian/Spanish
Effect of supply voltage when there are changes in the specified range, relating to the full scale value			
On zero point		%	0.01
On measurement sensitivity		%	0.01
Nominal (rated) temperature range		°C	-20 … +50
Operating temperature range		°C	-20 … +50
Storage temperature range		°C	-20 … +70
Degree of protection as per DIN IEC 60 529			IP40 (complete device) IP51 (front, membrane keypad)
Protection class			I
Dimensions, overall (W x H x D)		mm	176 x 98 x 211.6
Weight, approx.		kg	1.88

1) When U_B= 2.5 V, in relation to the input
2) Factory settings

REAR OF THE DEVICE AND CONNECTIONS



ACCESSORIES

15-pin Sub-D connector for transducers Order no.: 1-CON-P1024

SOFTWARE

The free "MVD-Scout-Assistant" software can be downloaded from the Scout website. https://www.hbm.com/en/2314/scout55-mobile-amplifier-in-desktop-housing/?product_type_no=SCOUT55

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