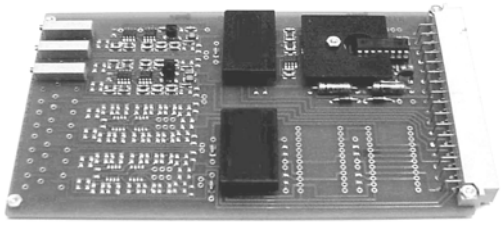
SCHREIBER MESSTECHNIK

Multi-channel measuring system

Series SM14



- **3, 5 or 7 channels**
- **with zero-point and sensitivity (gain) adjustment**
- **32-way connector strip IEC603 / DIN41612 / D**
- **Phoenix plug-in mounting frame as option**

Construction and operating principle

The SM14 multi-channel measuring system supplies up to 7 inductive displacement transducers. This system excitates our inductive Transducers with a 10kHz carrier frequency and demodulates the measuring signal proportional to the measuring stroke or angle of the transducer. The basic amplification is adjusted, fine adjusting will be done by using trimmers.

Standard version:

Type	output	supply voltage U_B *	mid
SM141	0 .. 20 mA	21,5 .. 32V	10 mA
SM143	4 .. 20 mA	21,5 .. 32V	12 mA
SM145	± 10 V	±12 .. ±16V	0 V
SM147	0 .. 10 V	21,5 .. 32V	5 V

* Pole reversal protection

Technical data:

Operating frequency	10 kHz
Amplitude	10 V_{p-p} sinus-wave
Zero-point	±10% adjustable
Sensitivity	adjustable by trimmer
Temperature drift	< 0,005% / °C
Measurement frequency	800 Hz
Temperature range	-20°C .. +85°C

Version	Basic amplification
.V1	single
.V2 *	double

* for all SM20/21/22/24 with 4mm and 5mm measuring stroke

Current output (SM141 / SM143):

Supply current I_B max. 7 channels	max. 450 mA
Load restistance R_L	0..500Ω
Residual ripple	< 0,005 mA_{p-p}
Dependence on V_S	< 0,05% at ΔU_B = 1V
Dependence on R_L	< 0,001% at ΔR_L = 100Ω

Voltage output (SM145 / SM147):

Supply current I_B max. 7 channels	max. 300 mA
Permissible load R_L	≥ 2 kΩ (short-circuit proof)
Residual ripple	< 5 mV_{p-p}
Dependence on V_S	< 0,05% at ΔU_B = 1V
Residual voltage SM147	max. 0,2 VDC

Fine adjustment trimmer „Gain“

Type	Amplification *
SM141	2,4 .. 7,6 mA/V
SM143	1,9 .. 6,0 mA/V
SM145	2,3 .. 7,5 V/V
SM147	1,2 .. 3,8 V/V

* basic amplification single

Example:

Transducer SM200.8; measuring stroke 8mm; sensitivity 440 mV/mm; connected to a 3-channel measurement system SM141.3.V1; basic amplification single; trimmer „Gain“ 2,4 .. 7,6 mA/V

⇒ Output current: 0,44 V/mm x (2,4 .. 7,6) mA/V = (1,05 .. 3,35) mA/mm

Basic adjustment Zero-point:

Adjusting the output signal to the mid without connecting a transducer to the electrical circuit (WM/MS/WP n.c.)

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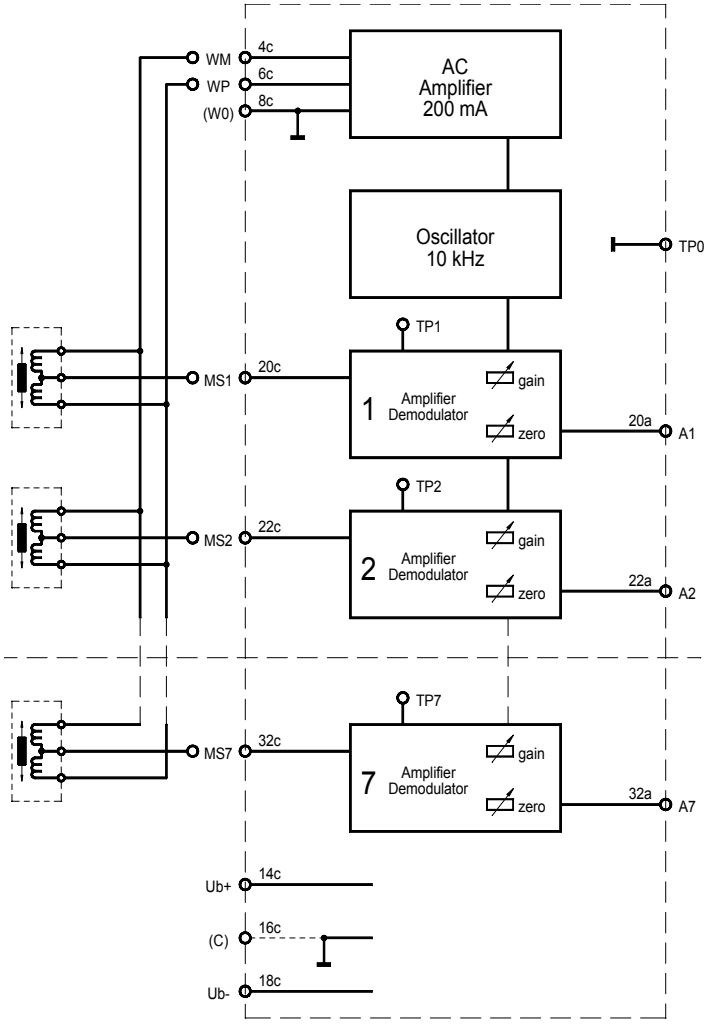
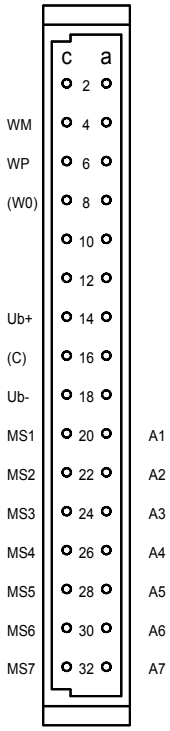
Block diagram:



Electrical connection:
32-way connector strip
DIN 41612 / D



MSx: Transducer-sensor signal
WM/WP: Transducer supply
Ax: Output signal
TPx: Test point
output demodulator
(Ref.: TP0)

ATTENTION: W0 (8c) not to be connected !
C (16c) on SM141/SM143/SM147 not covered !
at SM145 cover supply voltage 0V to C !

Order code:

SM141 . 3 . V1
- 1 — Basic amplification
- 3 — 3-channel
- V1 — Current output 0 .. 20mA