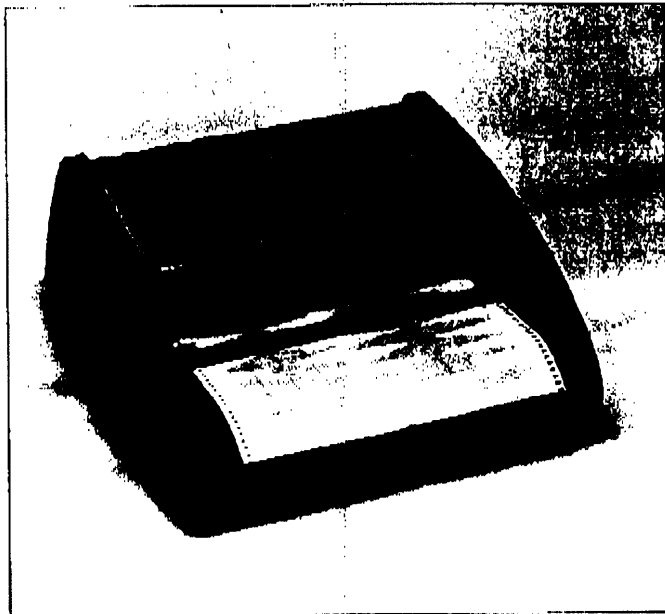


NGI Norma Goerz Instruments

SERVOGOR 102 High Quality Flatbed Recorder



Description

Compact, economic single and two-channel flatbed Recorder for direct recording of voltage values, specially low voltages, or physical, chemical, biological values, etc. with appropriate transducers.

The Recorder designed, with specially respect to high quality, easy operation and quick service.

- Extremely efficient size and small "footprint"
- Large rotary switches for easy, error free operation
- Yt operating mode
- Integrated Pen synchronisation
- 15 measuring ranges for voltages 1 mV to 50 V DC
- Wide range of accessories

Standards and regulations applied

IEC654-1 as per climatic cat. B3	Operating regulations for electrical equipment and system
IEC359	Store- and transport conditions
IEC68 2 6	Mechanical stress vibration, shock
IEC1010-1, UL1244, CSA C22 No.231	Safety regulations for electronic measuring instruments
VDE 0411 part 1	Protection class II
DIN/IEC86E	Overvoltage category II pollution degree II
DIN41662 / UL198G	Specifications and standards for fuse-links
IEC801 part 1-5, VDE 0871/6.78	Electromagnetic compatibility. Stipulation for radio interference suppression on electrical equipment and systems
FCC CLASS B	Radio interference suppression class B
Quality standard	developed, constructed and produced at DIN ISO 9001.

Technical Data

Instrument Yt-Mode

Form	Flatbed
Number of channels	1 or 2
Position of use	horizontal or inclination of up to $\pm 30^\circ$
Recording width	200 mm (standard) 210 mm (with recalibration of the instrument possible)
Recording paper-format	Roll, 230 mm wide, 25m long
Paper scaling	Y - division 0 ... 100, steps 0...100 t: divisions in centimetre
Recording Pens	Disposable pens, recording length approx. 1000m; Refillable ink-pen with changeable capillary or fiber writing tips refillable, recording length per filling approx. 1500m
Pen lift	mechanical
Dead zone	0.3 % of recording width
Linearity	0.2 % of recording width
Response time	<0.5s for 5% up to 95%
Damping	Accords with DIN43782; overshooting / rounded $\leq 1\%$ of recording width
Recording speed	40 cm/s (servo system)
Cut-off frequency	≥ 1.5 Hz (-3dB)

Time Unit

Chart advance	Quartz driven, step width 0.078 mm
Chart speeds	11 speeds for advance, with selector switch 1-2-6-12 30 cm/h and 1-2-6-12 30-60 cm/min
Paper positioning	progressive motordrive with switch for forward and reverse
Chart advance accuracy	0.01%
Temperature	0.01% / 10° Celsius

Measuring unit

Measurement ranges (calibrated)	voltage 1-2-5-10-20-50-100-200-500 mV and 1-2-5-10-20-50 V
Accuracy	0.5 % of range + 5 μ V
Outside field Interference	< 0.5 % (0.5 mT with 50/60 Hz)
Temperature Influence	0.2 % / 10°C or 10 μ V / 10°C
Zero point	progressive zero point adjustment; check ability with applied measuring signal
Input resistance	1 M Ω constant
Source resistance	100 Ω max. 1 k Ω
Measuring input	floating, asymmetric, Safety jacks 4 mm $\varnothing$
Potential	max. 50 V relative to earth
Overloading max.	250 V AC for all measuring ranges
Interference suppression	AC SMR ≥ 40 dB over 50 Hz, AC CMR ≥ 60 dB at 50/60 Hz, DC CMR ≥ 90 dB
Pen synchronisation	
Pen misalignment	2.5 mm

General

Reference temp. range	23 $\pm$ 2° C
Operating temp. range	0 up to +50°C
Transport temp. range	-20 up to +70°C
Rel. humidity	10 up to 95%
Abs. humidity	1 up to 15 g/m ³
Climate rating	B3 in accordance with IEC 654-1
Test voltage	750 V AC between measuring unit channel 1 and chassis 750 V AC between measuring units
Main supply	Power supply: main voltage and line-side plug according to country of destination
Power consumption	max. 15 VA
Fuse	thermal fuse
Extern Supply (alternate to main supply)	10 - 18 V DC
Power consumption	1 channel version: ca. 3.6 W 2 channel version: ca. 4.8 W
Fuse	inert fuse
Dimensions (H x W x D)	137 x 320 x 323 mm
Weight	1 channel version: 2440 gram 2 channel version: 2560 gram

Ordering Information

Please indicate the order code for each instrument and accessory.

Recorder SERVOGOR 102	Order code
SERVOGOR 102 1-channel	A 2510 11000 00
SERVOGOR 102 2-channel	A 2510 12000 00

Scope of delivery:

Power supply according to country of destination (alternate)

230V/CEE 7/SEV 1011 Europe (with the exception of the UK) and all countries not specifically listed	A 6403 92002 03
120V/NEMA 5-15 P (USA, Canada, Japan, Mexico, Taiwan, Latin America)	A 6403 92001 03
230V/BS 1363A (U.K., Commonwealth)	A 6403 94001 03
240V/AS C 112 (Australiari, New Zealand)	A 6403 94002 03

Operating Manual according to country of destination (alternate)

German	A 2510 01 GA 1D
English	A 2510 01 GA 1F
French	A 2510 01 GA 1F

1 roll of standard paper
1 disposable felt-pen per channel**Accessories**

Carrying case for single and 2-channel recorder	A 2510 99002 00
Carrying case for single and 2-channel recorder (water and dust proofed)	A 2510 99006 00
Dust cover	A 2510 96134 00
Powercord (12V supply)	on request

Recording Accessories

Disposable felt pen, channel 1, red	195 5360 74
Disposable felt pen, channel 2, blue	195 5360 75
Ink pen set, channel 1, red	195 7070 00
Ink pen set, channel 2, blue	195 7070 74
Recording paper (division 0...100, 200mm)	195 2710 00
Recording paper (division 0...100, 210mm)	195 2710 74

Measuring Accessories**Cable sets**

Safety test lead set with probe clip (PVC)	A 6003 14204
Safety test lead set with probe clip (Silicon)	A 6003 14205
Test leads with pin plug / safety plug incl. alligator clip	A 6045 10211

Shunts

1 - 10 A / 100 mV (max. 1.5 Jn)	999 2015 00
2 - 20 A / 200 mV; DC/AC; 0.2 %	A 6802 00501
10 - 20 mA / 100 mV (max. 1.5 Jn)	999 2016 00

Temperature-Probe and Sensors

Active temperature probe -60°C...+800°C; 1 mV/°C; ±1%; WITHOUT sensor	A 6899 06111
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**Attention: Temperature sensors only useable in combination with
Activetemperature-probe (A 8699 06111)!**

Surface Sensor (NiCr - Ni)

-50°C...+500°C, 150mm long, ø5mm with spring	A 6912 06211
up to +600°C; 150 mm long ; connection cable 1.5 m, 1/2 DIN	A 6912 40201
up to +600°C; 150 mm long ; connection cable 1.5 m, 1/3 DIN	A 6912 20210
up to +1100°C; 500 mm long ; connection cable 1.5 m, 1/3 DIN	A 6912 20211

Immersion Sensor (NiCr - Ni)

up to +600°C; 150 mm long ; connection cable 1.5 m, 1/3 DIN	A 6912 20310
up to +1100°C; 250 mm long ; connection cable 1.5 m, 1/2 DIN	A 6912 40301
up to +1100°C; 500 mm long ; connection cable 1.5 m, 1/3 DIN	A 6912 20311

Pierce Sensor (NiCr - Ni)

-50°C...+800°C, 150 mm long, ø 3 mm	A 6912 06411
up to +600°C; 100 mm long ; connection cable 1.5 m, 1/3 DIN	A 6912 20410

Gas- and Air Sensor (NiCr - Ni)

-50°C...+800°C, 150 mm long, ø 5 mm	A 6912 06611
up to +1000°C; 300 mm long ; connection cable 1.5 m, 1/2 DIN	A 6912 40602
up to +1000°C; 300 mm long, with CO ₂ -Taking connection cable 1.5 m, 1/2 DIN	A 6912 40601

Oil Sensor for cars (NiCr - Ni)

up to +180°C, 800 mm long, connection cable 1.5 m, 1/2 DIN	A 6912 40701
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Flexible Sensor (NiCr - Ni)

-50°C...1000°C, 1m long, ø 2mm	A 6912 06511
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Documentation**Operating manual SERVOGOR 102**

German	SE102	A 2510 01 GA 1D
English	SE102	A 2510 01 GA 1E
French	SE102	A 2510 01 GA 1F

Service manual SERVOGOR 102

German / English	SE102	on request
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