MCR 560

Multi Channel Recorder

- **1, 2, 3 or 4 recording channels**

- **simple operation with direct selector switches**

- **complies with VDE 411**

- **electrically insulated recording channels**

- **rugged design with steel case**

- **various different input modules (voltage, current, DC, AC)**

- **optional DC operation for field use (12/24 Volts)**

- **remote control functions**

The newly designed MCR 560 multi channel recorder series is based on the well known series 300 recorders, which have proven its reliability many thousand times worldwide. It is the ideal recorder for users who like a recorder which is reliable, easy to operate, who do not require pen offset compensation or RS232 interface for connecting to a computer, but still want high accuracy curve plots.

It contains the proven W+W paper drive mechanism for roll or z-fold paper. The long-term stability of the low-wear servo writing system is already legendary.
The chart speed can be selected in the range from 2 cm/h to 90 cm/min. with a convenient rotary switch.
The electric pen lift is standard. A paper roll-up and a TTL remote control interface are available as an option.
The use of modern components eliminated the need of a fan.

Therefore, the recorder is extremely quiet in operation and consumes low current.
As an option the recorder can also be operated by 12 or 24 Volts DC.
The chart paper and the pen cartridges are the same like of the proven series 300. This makes life easier for W+W recorder users.

The MCR 560 multi channel recorder is ruggedized and absolutely reliable even under harsh conditions.

Specifications MCR 560

writing system	fibre pen cartridges	**paper speeds**	16 switchable speeds
servo system	automatic balancing		2, 3, 6, 10, 20, 30, 60,
	with potentiometer		90 cm/min and cm/h
recording paper	roll or z-fold paper	**remote control**	by external TTL pulse
writing width	250mm	**measuring potentiometer**	linearity < 0.1%
writing direction	left or right	**ambient temperature**	+5...+45°C
paper drive	stepper motor with	**mains supply**	110/220 V 50/60Hz
	0.1mm steps	**power consumption**	60VA - 80VA
eff. setting time	0.25s fsd	**dimensions**	188x436x370mm
deadband	none	**weight**	14 - 19kg
overshoot	none		

measuring modules

multimeter measuring module – model DMM
The multimeter measuring module has 45 measuring ranges. It is designed for voltage and current measurements: DC voltage from 0.5 mV to 250 V, AC voltage between 0.5 V and 250 V as well as DC and AC currents between 5 mA and 2500 mA.

DC Volt-/Amperemeter measuring module – model VMA
The Volt/Amperemeter module serves for DC voltage in 12 different ranges between 5 mV and 20 V as well as DC current in 4 different ranges between 10 mA and 100 mA.

DC Voltmeter measuring module – model VM
The Voltmeter module is ideal for DC voltage measurements with 16 ranges between 2 mV and 250 V full scale.

DC voltage and current fix range measuring modules – model FX
DC voltage fix range modules are available in 8 different versions to cover the input ranges between 100mV and 250 Volts. A 0-20 mA resp. 4-20 mA DC current module is also available.

modules	Voltmeter	Multimeter	Volt- /Ampere-meter	Fix Range
ranges	2, 4, 10, 20, 50, 100, 250, 500mV 1, 2, 5, 10, 25, 50, 125, 250V	0.5, 1, 2.5, 5, 10, 25, 50, 100, 250mV/V=,V~ 5, 10, 25, 50, 100, 250, 500,1000,2500mA=,mA~	5, 10, 25, 50, 100, 250, 500mV 1, 2, 4, 10, 20V 10, 20, 50, 100mA	fix Range 100, 250, 500mV 1, fix 20mA 0..20mA / 4..20mA
zero shift	across the total recording range	across the total recording range	across the total recording range	fix 20 mA; up to 4 mA
range expansion	factor 1 to 2.5	factor 1 to 2.5	factor 1 to 2.5	fix 20 mA; 1 bis 1.25
shift adjustment	-200%...+100% fsd	-200%...+100% fsd	-200%...+100% fsd	(fix 20mA) bis 4mA
input impedance	1 MOhm	(mV and V) 1Mohm	(mV and V) 1MOhm	(fix range) 1MOhm
shunt		(mA and A) 0.1Ohm	(mA and A) 10 Ohm	(fix 20mA) 10 Ohm
frequency response	7 Hz sinus (-3dB)	(DC) 2.5Hz sinus (-3dB) (AC) 30Hz-30kHz (-3dB)	7 Hz sinus -3dB	7 Hz sinus (-3dB)
common mode rejection	>110 dB (mV) >90 dB (V)	>120 dB	>110 dB (mV) >90 dB (V/mA)	>110 dB (mV/mA) >90 dB (V)
Input offset	10µV max. (5 µV typ) oder 0.1%	V~ <1mV or 0.2% A~ <50µA or 0.2% V= <10µA or 0.1% A= <100µA or 0.1%	voltage <10µV or 0.1% current <100µA or 0.1%	fix range: 10µV max. (5µV typ) or 0.1% fix 20mA: 0.1%
offset drift max.	50 ppm / K	V/A~ 200 ppm / K	50 ppm / K	50 ppm / K
accuracy	typ 0.1 % max 0.2%	voltage typ max V~ 0.3% 0.8% V= 0.1% 0.2% current typ max A~ 0.35% 1% A 0.15% 0.3%	typ 0.1% max 0.2%	typ 0.1% max 0.2%
amplifier drift max.	110 ppm / K	V~ 150 ppm / K A~ 180 ppm / K	100 ppm / K	100 ppm / K
maximum voltage at signal input	250 V eff	250 V eff	250 V eff	250 V eff max. 100mA