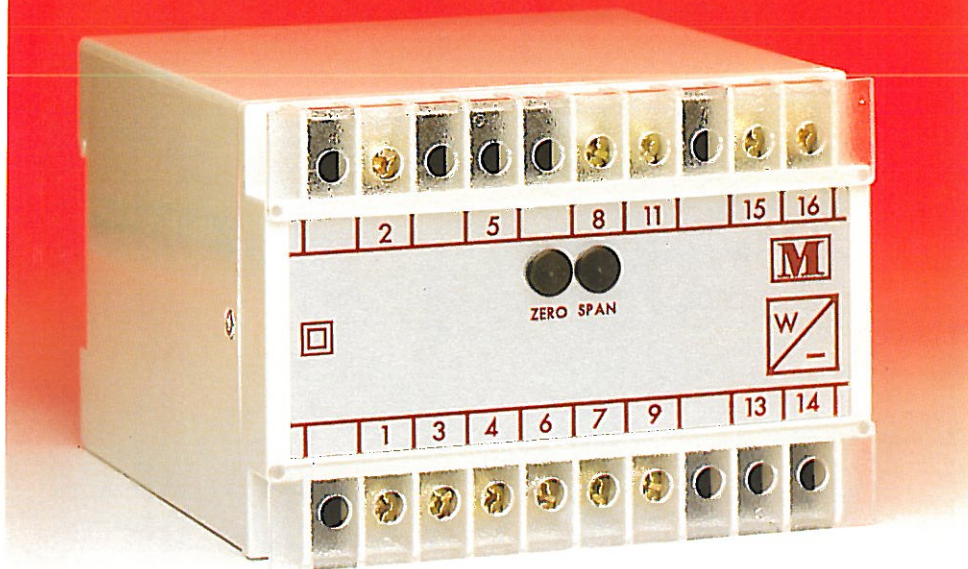


PC & S PANEL COMPONENTS & SYSTEMS

multitek



TRANSDUCERS

GENERAL SPECIFICATIONS

ENVIRONMENTAL

Working temperature	0 to +60 deg C
Functional temperature	-25 to +70 deg C
Storage temperature	-55 to +85 deg C
Temperature coefficient	0.02% per deg C (100 ppm / °C)
Relative humidity	95% non condensing
Class of climate	HSE complying with DIN 40040 -3 complying with VDE/VDI 3540

INSULATION

Test voltage	4kV RMS 50Hz 1min. between Input / Case / Auxiliary
Impulse test	EMC 5kV transient complying with IEC 801 / EN55020
HF interference test	EHF 2.5kV 1MHz complying with IEC 255-4
Protection class	II complying with IEC 348 BS 4753 / DIN 57411 / VDE 0411

APPLIED STANDARDS

General	IEC 688 / BS 6253 / VDE/ VDI 2192
Safety	BS EN61010 DIN 57411 / VDE 0411 ANSI C37
Surge withstand	IEC 801 / EN 55020 ANSI C37-90a
Radio screening	RFI degree N complies with VDE 0875

ACCURACY

Class	± 0.2 % complying with IEC 688
Calibration temperature	23°C
Temperature coefficient	0.01% / °C (100 ppm / °C)
Stability	0.05 % per annum non cumulative
Warm up time	<15 min

OUTPUT

Rated value	See individual product pages
Load resistance mA (Unless otherwise stated)	1mA <15 kOhm 5mA <3 kOhm 10mA <1.5 kOhm 20mA <0.75kOhm 4-20mA <0.75kOhm
Load resistance volts (M100-VA1, VA3 only)	1, 5 & 10 volts >1 kOhm 1, 5 & 10 volts > 50kOhm
Load influence	<0.1 %
Ripple	<0.5% peak-peak at full load
Response time	<200 msec for 0-99 % at full load
Overload	<2 x rated value at full load
No load voltage	<27 V

ENCLOSURE

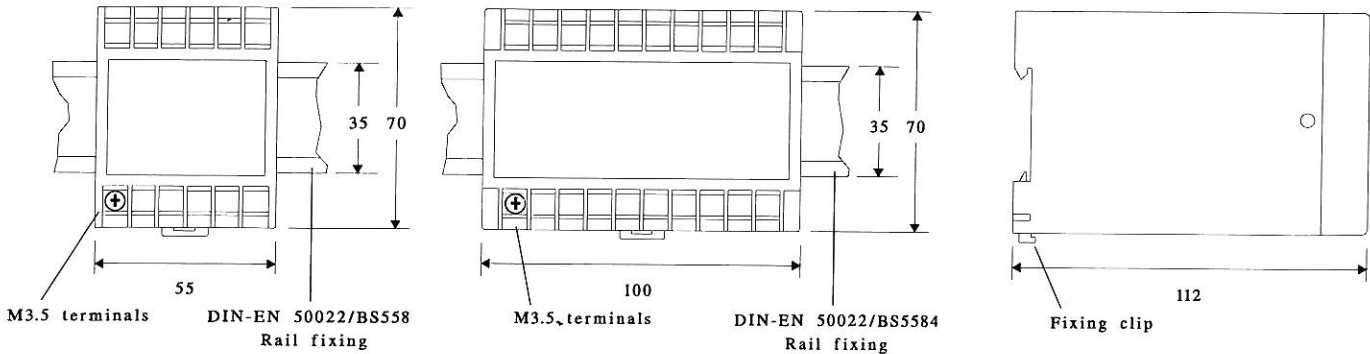
Fixing	Snap on to DIN rail 35 x 7.5 mm complies with DIN-EN 50022 BS 5584
Mounting	Any position
Enclosure Code	Case IP 50 / terminals IP 30 Complies with IEC 529 BS 5490 DIN 40050

APPROVALS

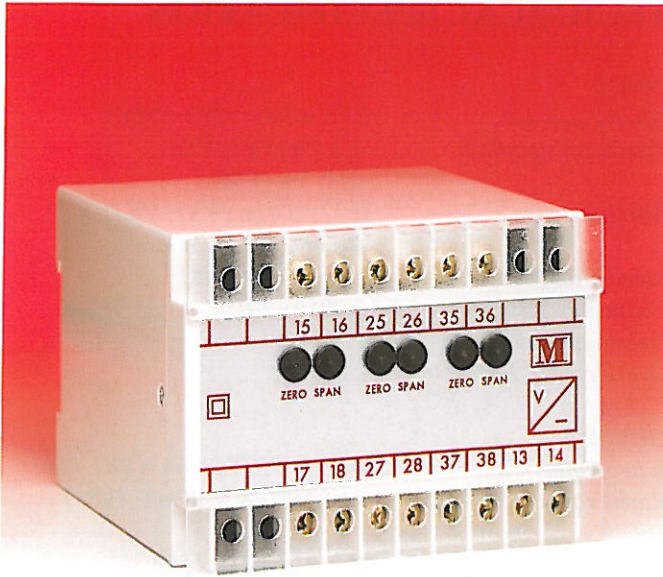
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CASE DIMENSIONS

All Dimensions in mm



AC VOLTAGE



TECHNICAL SPECIFICATION

INPUT

Rated value U_n	57.8 <100 / 110 <600 V
Power consumption	<1.5 VA (VA1, VA3) <1 VA (VL1, VL3, VR1)
Working range	15-125% U_n (VA1, VA3) 0-125% U_n (VL1, VL3, VR1)
Rated Frequency	50 / 60 / 400 Hz
Frequency influence	0.005 % / Hz
Overload continuous	1.5 x U_n
Overload for 1 sec.	4 x U_n (VL1 VL3 VR1) 2 x U_n (VA1 VA3)

OUTPUT

Rated value mA	0-1/5/10/20mA (VA1, VA3)
Rated value mA	1/5/10/20 & 4-20mA (VR1)
Rated value mA	4-20mA (VL1)

Rated Value volts	0-5 / 10 V (VA1, VA3)
Rated value volts	0-5 / 10 & 1-5 V (VR1)
Rated value volts	1-5 V (VL1 VL3)

ADJUSTMENT

Zero	No adjustment (VA1, VA3)
Zero	± 2% (VR1, VL1)
Span	± 10% (VA1, VA3, VR1, VL1, VL3)

AUXILIARY

A.C. Voltage	115 / 230 / 400 V (± 25% / 45-65Hz / <2 VA)
D.C. Voltage	24 / 48 / 110 V (± 20% / galvanically isolated / < 3 W) Note M100-VA1 & VA3 are self powered.

WEIGHT & CASE SIZE

M100-VA1	Approx. 0.3 kg. 55mm case
M100-VL1, VR1	Approx. 0.4 kg. 55mm case
M100-VA3	Approx. 0.6 kg. 100mm case
M100-VL3	Approx. 0.7 kg. 100mm case

ORDERING INFORMATION

Product Code	Input	In	Output	Aux	Freq.	Options
M100-AL1	5A		4-20mA	230V	50Hz	

OPTIONS

1. Non standard inputs / outputs only as far as technically acceptable.
2. A.C. Auxiliary in range 57.7 to 450 volts
3. Calibration at nominal Hz 35.....450Hz
4. Calibration at temperature other than 23°C

SELECTION GUIDE

M100-VA1	1 ph. self powered ave. sensing RMS calibrated
M100-VL1	1 ph. aux powered ave. sensing RMS calibrated
M100-VR1	1 ph. aux powered true RMS sensing RMS cal.
M100-VA3	3 ph. self powered ave. sensing RMS calibrated
M100-VL3	3 ph. aux powered ave. sensing RMS calibrated

TYPICAL APPLICATIONS

The M100 series voltage transducers are designed to measure A.C. Voltage in single and 3 phase system. They convert the A.C. Signal to a D.C. Output that is directly proportional to the input signal.

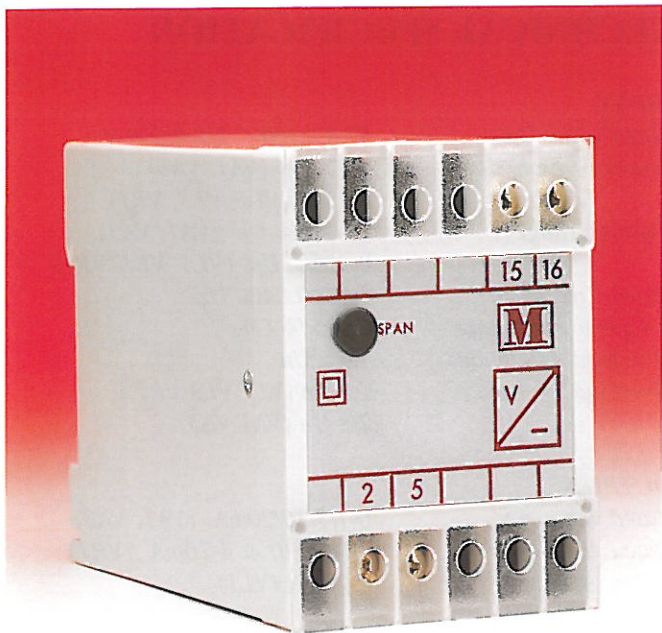
The M100-VA1 VA3 are self powered (i.e. no auxiliary required) average sensing RMS calibrated voltage transducers, mA and voltage outputs are available.

The M100-VL1 VL3 are average sensing RMS calibrated, live zero voltage transducers. Auxiliary is required to provide power so that 4mA output signal is present when the input is zero.

The M100-VR1 is true RMS sensing RMS calibrated allowing measurement of distorted waveforms of up to 9th harmonic with a crest factor of 5. The VR1 is typically used in voltage measurement where distorted waveform is common such as thyristor drives.

The above units are used to measure voltage in energy management systems, switchboards, generator and telemetry controls. Isolation of 4kV is provided between the input and output signal, allowing the output to be fed to conventional analogue meters, digital meters, PLC, and computer systems.

SPECIAL AC VOLTAGE



TECHNICAL SPECIFICATION

INPUT

Rated value U_n	57.8 <100 / 110 <600 V
Power consumption	< 1 VA (VX1, VX3) <1.5 VA (VS1)
Working range	0-125% U_n (VX1, VX3) 10-30% U_n (VS1)
Rated Frequency	50 / 60 / 400 Hz
Frequency influence	0.005 % / Hz
Overload continuous	1.5 x U_n
Overload for 1 sec.	2 x U_n

OUTPUT

Rated value mA	0-1 / 5 / 10 / 20mA (VX1, VX3)
Rated value mA	1/5/10/20 & 4-20mA (VS1)
Rated value volts	0-5 / 10 V (VX1, VX3)
Rated value volts	0-5 / 10 V & 1-5 V (VS1)

ADJUSTMENT

Zero	No adjustment (VX1, VX3)
Zero	$\pm 2\%$ (VS1)
Span	$\pm 10\%$ (VX1, VX3, VS1)

AUXILIARY

A.C. Voltage	115 / 230 / 400 V ($\pm 25\%$ / 45-65Hz / <2 VA)
D.C. Voltage	24 / 48 / 110 V ($\pm 20\%$ galvanically isolated / < 3 W) Note M100-VS1 is self powered

WEIGHT & CASE SIZE

M100-VS1, VX1	Approx. 0.4 kg. 55mm case
M100-VX3	Approx. 0.7 kg. 100mm case

ORDERING INFORMATION

Product Code	Input U_n	Output	Aux	Freq.	Option
M100-VS1	110V $\pm 15\%$	20mA	-	50Hz	

OPTIONS

1. Non standard inputs / outputs only as far as technically acceptable.
2. A.C. Auxiliary in range 57.7 to 450 volts
3. Calibration at nominal Hz 35.....450Hz
4. Calibration at temperature other than 23°C

SELECTION GUIDE

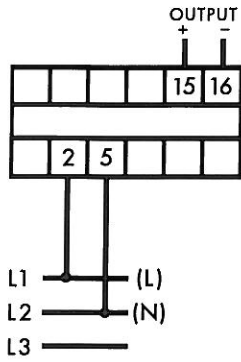
M100-VS1	Suppressed zero voltage auxiliary powered
M100-VX1	1 ph. aux. powered ave. sensing RMS calibrated
M100-VX3	3 ph. aux. powered ave. sensing RMS calibrated

TYPICAL APPLICATIONS

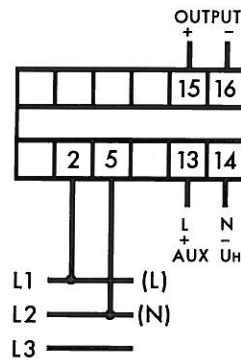
The M100-VS1 is a self powered voltage transducer. The suppression allows the transducer to accurately measure a voltage sensing over a narrow band either side of a nominal voltage. The range can be between $\pm 10\%$ to $\pm 30\%$ which can be specified when ordering. Typical application is to display the voltage on an analogue meter with an expanded scale. This allows the user to read small changes in the voltage in a single or 3 phase system. The output could also be fed to a computer that could then control the voltage of the system, to ensure that it stays within the narrow band.

The M100-VX1 and VX3 are essentially the same as the M100-VA1 and VA3, but they have auxiliaries which allow the working range to be 0-125% rather than 10-125%. Used where the average sensing of voltage is required from 0 to 125% of the nominal voltage.

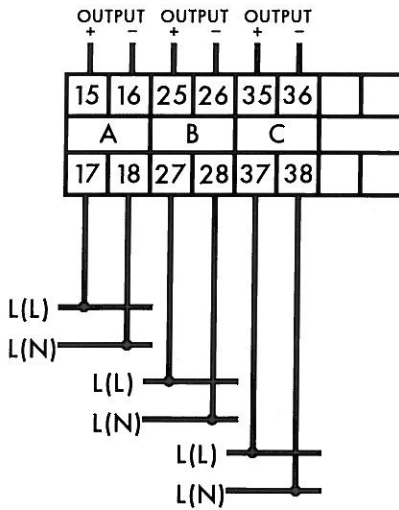
AC VOLTAGE CONNECTION DIAGRAMS



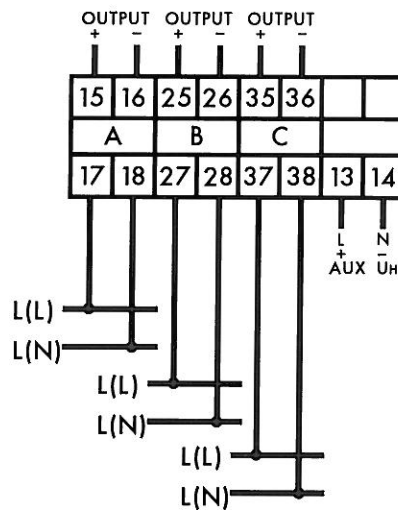
M100VA1/VS1



M100VL1/VR1/VX1



M100VA3



M100VL3/VX3



Why Make PC&S your Source for Power Equipment?

PC&S has 20 plus years of experience in manufacturing and product distribution.

We supply quality instruments and components for the measurement and control of AC and DC power and transit systems. With over 25 direct employees and a distribution and representation network of over 40 individuals dedicated to the sales and support of our products. We are ISO 9001 certified and a certified DBE/WBE with many state and federal approvals. A customer-service oriented company that strives to meet customer requirements and exceeds expectations.

Our objective is to continuously improve on providing the electrical industry quality products for measurement, protection and control. We offer solutions not just products, and strive to offer our customer / partners the best value.



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