multitek

TRANSDUCERS

CONTENTS PAGE

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 / Output*
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	*EN61010-1 DIN 57411 / VDE 0411 ANSI C37*
Surge withstand	*IEC 801 / EN 55020 ANSI C37-90a*
Radio screening	*RFI degree N complies with VDE 0875*
EMC	*Emissions EN61326-1 Immunity EN61326-2*

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	*1mA*	*<15 kOhm*
(Unless otherwise	*5mA*	*<3 kOhm*
stated)	*10mA*	*<1.5 kOhm*
	20mA	*< 0.75kOhm*
	4-20mA	*< 0.75kOhm*
Load resistance volts	*1, 5 & 10 volts >1 kOhm*	
(M100-VA1,VA3 only)	*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

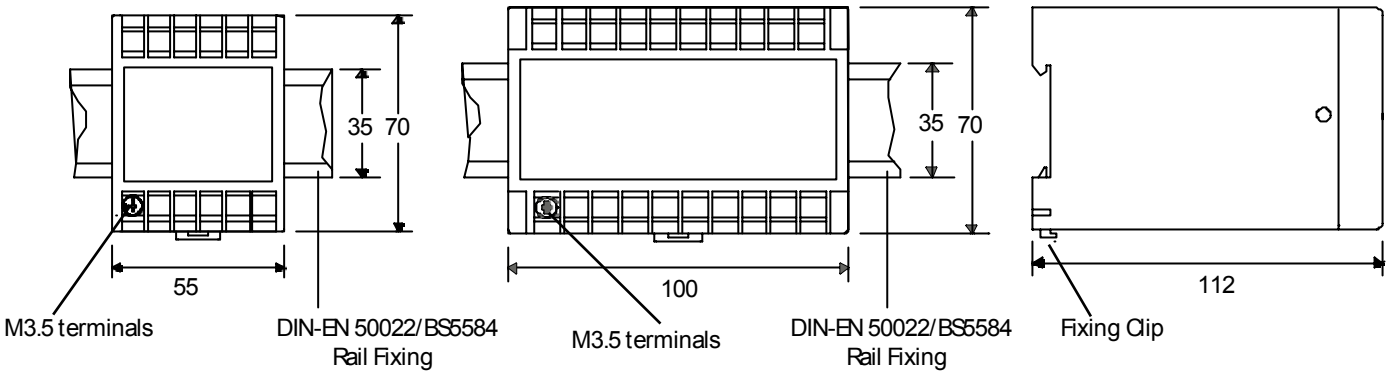
Fixing	*Snap on to DIN rail 35 x 7.5 mm complies with DIN-EN 50022 BS 5584*
Mounting	*Any position*
Enclosure Code	*Case IP 50 / terminals IP 30 Complies with IEC 529 BS 5490 DIN 40050*

APPROVALS

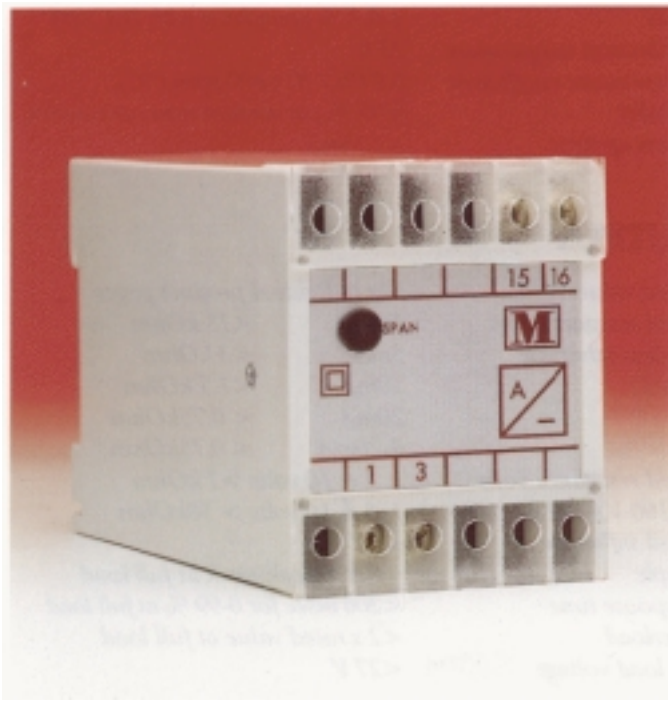
U.L. Approval	*File No E157034*

CASE DIMENSIONS

All Dimensions in mm



AC CURRENT



SELECTION GUIDE

M100-AA1	*1 ph. self powered ave. sensing RMS calibrated*
M100-AL1	*1 ph. aux. powered ave. sensing RMS calibrated*
M100-AR1	*1 ph. aux powered true RMS sensing RMS cal.*
M100-AA3	*3 ph. self powered ave. sensing RMS calibrated*
M100-AL3	*3 ph. aux powered ave. sensing RMS calibrated*

TYPICAL APPLICATIONS

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

The M100-AA1 AA3 are self powered (i.e. no auxiliary required) average sensing RMS calibrated current transducers, mA and voltage outputs are available.

The M100-AL1 AL3 are average sensing RMS calibrated, live zero current transducers. Auxiliary is required to provide power, so that 4mA output signal is present, when the input is zero.

The M100-AR1 is true RMS sensing RMS calibrated allowing measurement of distorted waveforms of up to 9th harmonic with a crest factor of 5. The AR1 is typically used in current measurement where distorted waveform is common, such as thyristor drives

The above units are used to measure current in energy management systems, switchboards, generator and telemetery 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.

TECHNICAL SPECIFICATION

INPUT	
Rated value In	*1 or 5 Amp C.T. connected*
	0.5-10 Amp direct connected
Power consumption	*<1 VA (AA1, AA3)*
	<0.2 VA (AL1, AL3, AR1)
Working range	*10-125% In (AA1, AA3)*
	0-125% In (AL1, AL3, AR1)
Rated Frequency	*50 / 60 / 400 Hz*
Frequency influence	*0.005 % / Hz*
Overload continuous	*4 x In*
Overload for 1 sec.	*50 x In*
OUTPUT	
Rated value mA	*0-1/5/10/20mA (AA1, AA3)*
Rated value mA	*0-1/5/10/20 & 4-20mA (AR1)*
Rated value mA	*4-20mA (AL1 AL3)*
Rated value volts	*0-5 / 10 V (AA1 AA3)*
Rated value volts	*0-5 / 10 & 1-5 V (AR1)*
Rated value volts	*1-5 V (AL1 AL3)*
ADJUSTMENT	
Zero	*No adjustment (AA1 AA3)*
Zero	*± 2% (AR1, AL1 AL3)*
Span	*± 10% (AA1, AR1, AL1 AA3 AL3)*
AUXILIARY	
A.C. Voltage	*115 / 230 / 400 V (± 25% / 45-65 Hz / < 2VA)*
D.C. Voltage	*24 / 48 / 110 V (± 20% / galvanically isolated / <3 W)*
	Note M100-AA1 AA3 are self powered
WEIGHT & CASE	
M100-AA1	*Approx. 0.3 kg. 55mm case*
M100-AL1,AR1	*Approx. 0.4 kg. 55mm case*
M100-AA3	*Approx. 0.6 kg. 100mm case*
M100-AL3	*Approx. 0.7 kg. 100mm case*

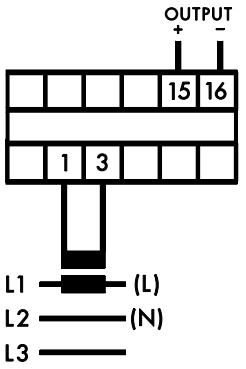
ORDERING INFORMATION

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

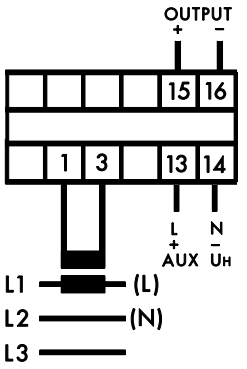
OPTIONS

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*

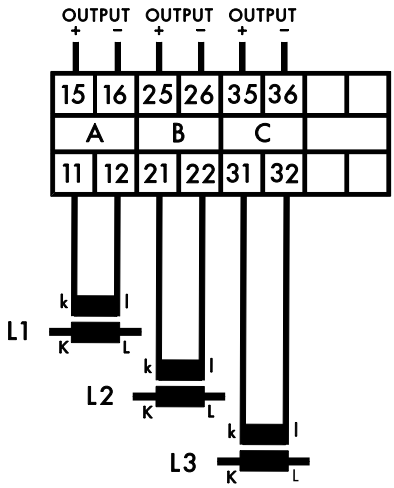
AC CURRENT CONNECTION DIAGRAMS



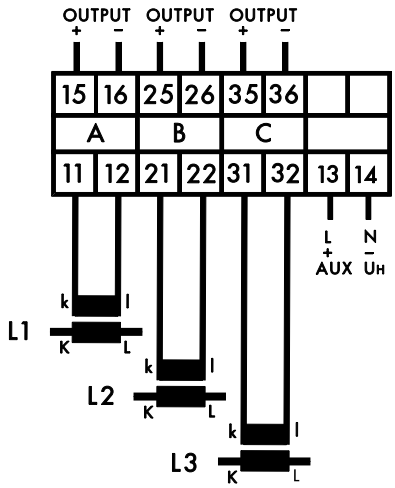
M100-AA1



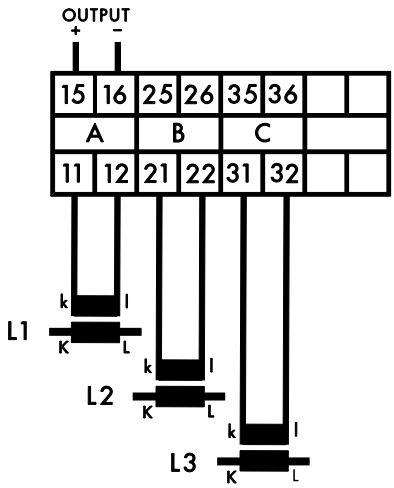
M100-AL1 / AX1 / AR1



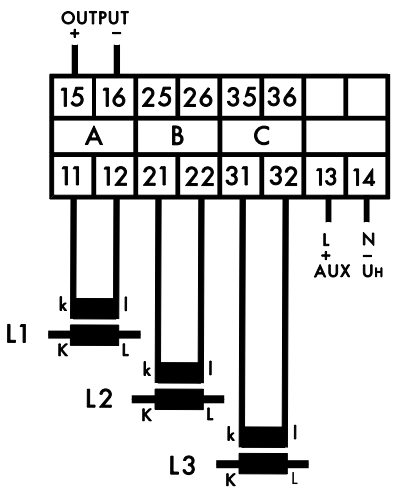
M100-AA3



M100-AL3 / AX3



M100-AAS



M100-ALS

SPECIAL AC CURRENT

SELECTION GUIDE

M100-AX1	*1 ph. aux. powered ave. sensing RMS calibrated*
M100-AX3	*3 ph. aux powered ave. sensing RMS calibrated*
M100-AAS	*3 ph. summation self powered*
M100-ALS	*3 ph. summation auxiliary powered*

TYPICAL APPLICATIONS

The M100-AX1 and AX3 are essentially the same as the M100-AA1 and AA3, but they have auxiliaries which allows the working range to be 0-125% rather than 10-125%. Used where the average sensing of current is required from 0-125% of the nominal current.
The M100-AAS and M100-ALS are A.C. Current summation transducers. Both can have up to 3 inputs of either 1, 5 or 10 amps. These inputs are summed by the transducer and one D.C. Output is provided, which is proportional to the sum of the inputs.
The M100-AAS is self powered with a range of 10-125% , the M100-ALS is auxiliary powered and provides a 4-20mA output with a working range of 0-125%.
Typical application is to measure the total current in a 3 phase system and display it via one meter. For example, if a 3 phase system has 3 current transformers 2500/5 then a moving coil meter could be connected to a M100-AAS scaled 0-7500. Note the C.T.s must all have the same ratio or the output from the transducer will not be the sum of the total current in the system.

TECHNICAL SPECIFICATION

INPUT	
Rated value In	*1 or 5 Amp C.T. connected*
	0.5-10 Amp direct connected
Power consumption	*<0.2 VA (AX1, AX3 ALS)*
	<1 VA (AAS)
Working range	*0-125% In (AX1, AX3, ALS)*
	10-125% In (AAS)
Rated Frequency	*50 / 60 / 400 Hz*
Frequency influence	*0.005 % / Hz*
Overload continuous	*4 x In*
Overload for 1 sec.	*50 x In*
OUTPUT	
Rated value mA	*0-1/5/10/20mA (AX1,AX3,AAS)*
Rated value mA	*4-20mA (ALS)*
Rated Value Volts	*Not available on (AAS)*
Rated Value Volts	*1-5 V (ALS)*
Rated Value Volts	*0-5 / 10V (AX1,AX3)*
ADJUSTMENT	
Zero	*No adjustment (AX1, AX3, AAS)*
Zero	*± 2% (ALS)*
Span	*± 10% (AX1, AX3, ALS)*
AUXILIARY	
A.C. Voltage	*115 / 230 / 400 V (± 25% /*
	45-65 Hz / < 2VA)
D.C. Voltage	*24 / 48 / 110 V (± 20%*
	galvanically isolated / <3W)
	Note M100-AAS is self powered
WEIGHT & CASE SIZE	
M100-AX1	*Approx. 0.4 kg. 55mm case*
M100-AAS	*Approx. 0.6 kg. 100mm case*
M100-ALS,AX3	*Approx. 0.7 kg. 100mm case*

ORDERING INFORMATION

Product Code	*Input In*	*Output*	*Aux*	*Freq.*	*Options*
M100-ALS	*3 x 5A*	*0-20mA*	*115V*	*50Hz*	*Cal. 40°C*

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*

AC VOLTAGE

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 telemetery controls. Isolation of 4kV is provided between the input and output signal, allowing the ouput to be fed to conventional analogue meters, digital meters, PLC, and computer systems.

TECHNICAL SPECIFICATION

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

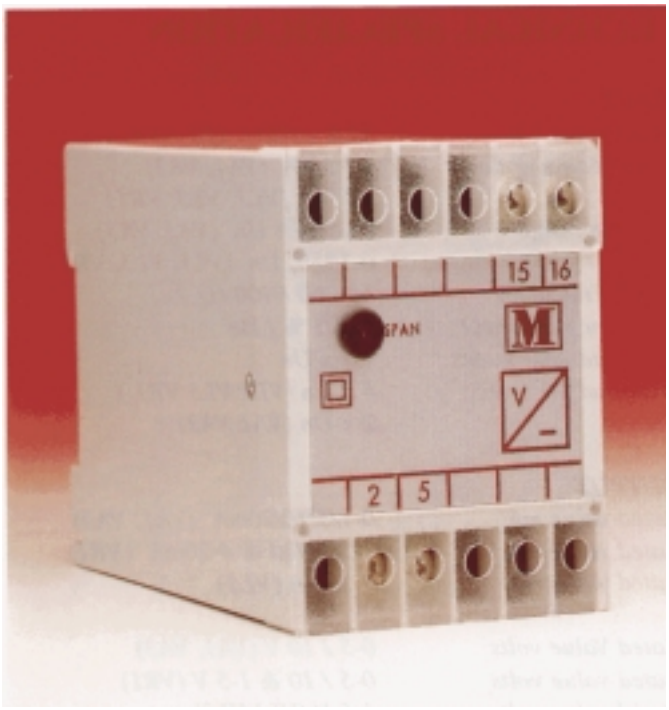
ORDERING INFORMATION

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*

SPECIAL AC VOLTAGE



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 system over a narrow band either side of a nominal voltage. The range can be between ± 10% to ± 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.

TECHNICAL SPECIFICATION

INPUT	
Rated value Un	*57.8 <100 / 110 <600 V*
Power consumption	*< 1 VA (VX1, VX3)*
	<1.5 VA (VS1)
Working range	*0-125% Un (VX1, VX3)*
	10-30% Un (VS1)
Rated Frequency	*50 / 60 / 400 Hz*
Frequency influence	*0.005 % / Hz*
Overload continuous	*1.5 x Un*
Overload for 1 sec.	*2 x Un*
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	*± 2% (VS1)*
Span	*± 10% (VX1, VX3, VS1)*
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-VS1 is self powered
WEIGHT & CASE SIZE	
M100-VS1,VX1	*Approx. 0.4 kg. 55mm case*
M100-VX3	*Approx. 0.7 kg. 100mm case*

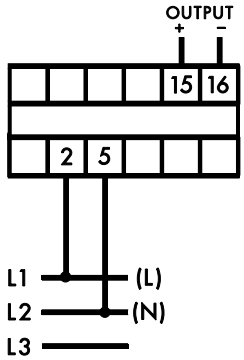
ORDERING INFORMATION

Product Code	*Input Un*	*Output*	*Aux*	*Freq. Option*
M100-VS1	*110V ± 15%*	*20mA*	*-*	*50Hz*

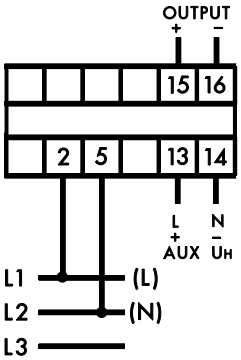
OPTIONS

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*

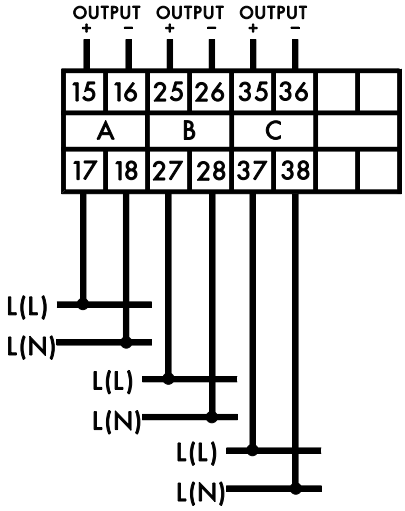
AC VOLTAGE CONNECTION DIAGRAMS



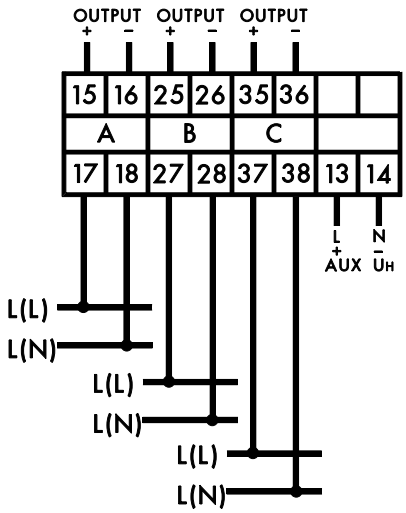
M100-VA1 / VS1



M100-VL1 / VR1 / VX1

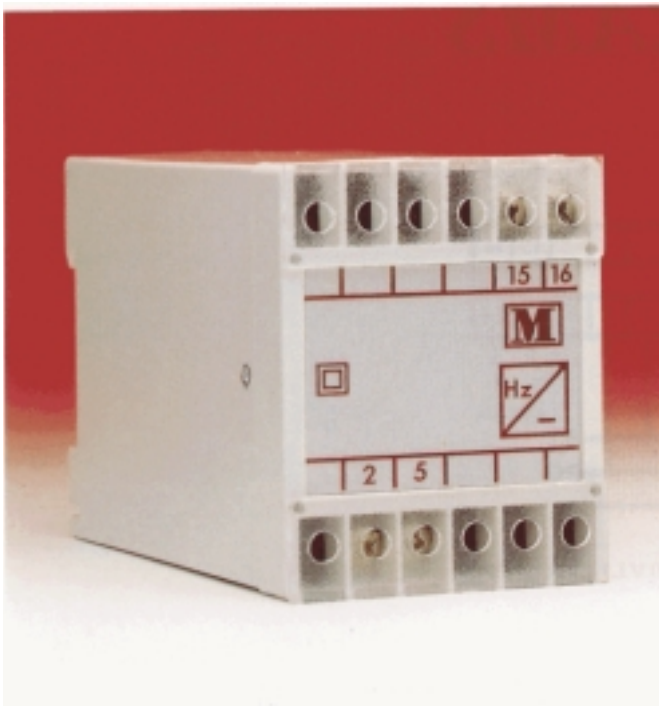


M100-VA3



M100-VL3 / VX3

FREQUENCY



SELECTION GUIDE

M100-FA1	*Self powered true zero outputs*
M100-FL1	*Auxiliary powered live zero outputs*
M100-FX1	*Auxiliary powered true zero outputs*

TYPICAL APPLICATIONS

The M100 series of frequency transducers are designed to measure frequency in single and 3 phase systems. The A.C. Input is converted to a D.C. Output, that is directly proportional to the change in input frequency within a specified span.
The M100-FA1 is self powered. (No auxiliary required) The working voltage range is 75-125% of the nominal voltage.
The M100-FL1 is auxiliary powered. The outputs are live zero either 4mA or 1 volt. The auxiliary enables the working voltage range to be 15-125%.
The M100-FX1 is essentially the same as the FA1 but an auxiliary is provided to enable the unit to have a working voltage range of 15-125%.
All types of the above frequency transducers are typically used to monitor and control frequency in such applications as 3 phase mains supplies, A.C. Generating sets and process control etc.

TECHNICAL SPECIFICATION

INPUT	
Rated value Un	*57.8 < 600V*
Power consumption	*<1.5 VA (FA1)*
	<1 VA (FL1 FX1)
Working range	*75-125% Un (FA1)*
	15-125% Un (FL1 FX1)
Measuring range	*45-55 / 45-65 / 55-65 / 360-440Hz*
Overload continuous	*1.5 x Un*
Overload for 1 sec.	*2 x Un*
OUTPUT	
Rated value mA	*0-1 / 5 / 10 / 20mA (FA1 FX1)*
Rated value mA	*4-20mA (FL1)*
Rated value volts	*0-5 / 10 V (FA1 FX1)*
Rated value volts	*1-5 V (FL1)*
ADJUSTMENT	
Zero	*No adjustment*
Span	*No adjustment*
AUXILIARY	
A.C. Voltage	*115 / 230 / 400 V (± 25% / 45-65 Hz / < 2 VA)*
D.C. Voltage	*24 / 48 / 110 V (±20% / galvanically isolated / <3W)*
	Note M100-FA1 is self powered
WEIGHT & CASE SIZE	*Approx. 0.4kg. 55mm case*

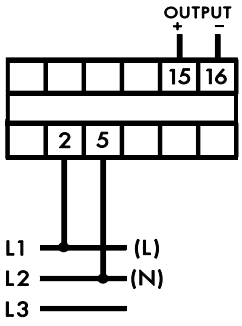
ORDERING INFORMATION

Product code	*Input Hz*	*Output*	*Aux*	*Freq. Options*
M100-FL1	*45-55Hz*	*4-20mA*	*230V*	*50Hz*

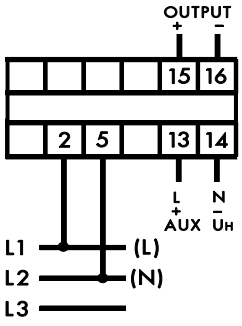
OPTIONS

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 temperature other than 23°C*

CONNECTION DIAGRAMS

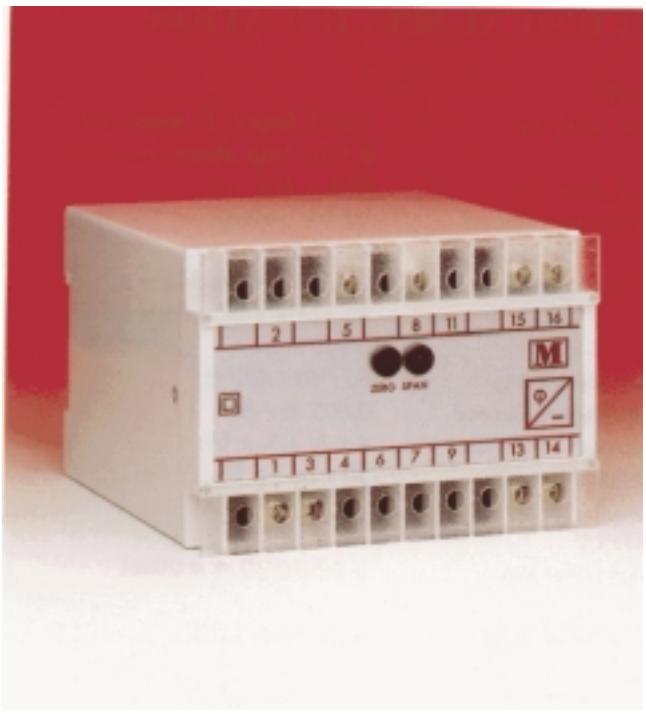


M100-FA1



M100-FL1 / FX1

PHASE ANGLE



SELECTION GUIDE

M100-PA1	*Single phase 4 quadrants*
M100-PA2	*3 phase 3 or 4 wire balanced 2 quadrants*
M100-PA3	*3 phase 3 or 4 wire balanced 4 quadrants*
M100-PV1	*Single phase 4 quadrants phase angle between two voltages*

TYPICAL APPLICATIONS

The M100-PA series of phase angle transducers measure the phase angle between current and voltage. They can be used on single and 3 phase 3 or 4 wire balanced systems. Ideal for optimising power factor correction.
The M100-PV2 measures the phase angle between two voltage supplies and provides a D.C. Output signal proportional to the phase angle between the voltages.

TECHNICAL SPECIFICATION

INPUT	
Rated value In	*1 or 5 Amp C.T. connected*
	0.5-10 Amp direct connected
Rated value Un	*57.8 < 600 volt*
Power consumption	*<1 VA voltage (aux powered)*
	<2.5 VA voltage (self powered)
	<0.2 VA current
Working range	*15-125% Un auxiliary powered*
	75-125% Un self powered
	10-150% In
Measuring range	*± 45 / 60 / 90 / 180° M100-PA1*
	± 45 / 60° M100-PA2
	± 90 / 180° M100-PA3
Rated Frequency	*50 / 60 / 400 Hz*
Frequency influence	*0.005 % / Hz*
Overload continuous	*4 x In 1.5 x Un*
Overload for 1 sec.	*50 x In 2 x Un*
ACCURACY	*± 1 Degree*
OUTPUT	
Rated value mA	*0-1/5/10/20 & 4-20mA*
Rated Value Volts	*0-5 / 10 & 1-5 V*
ADJUSTMENT	
Zero	*± 2%*
Span	*± 10%*
AUXILIARY	
A.C. Voltage	*115 / 230 / 400 V (± 25% / 45-65 Hz / < 2VA)*
D.C. Voltage	*24 / 48 / 110 V (± 20% galvanically isolated / <3W)*
WEIGHT & CASE SIZE	*Approx. 0.6 kg. 100mm case*

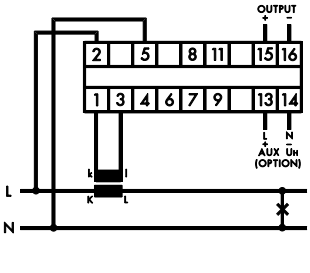
ORDERING INFORMATION

Product code	*I/P In Un*	*O/P Range*	*Aux.*	*Freq.Opt.*
M100-PA2	*5Amp 400V*	*± 45°*	*120V*	*60Hz*

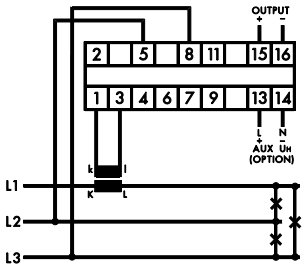
OPTIONS

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*

CONNECTION DIAGRAMS

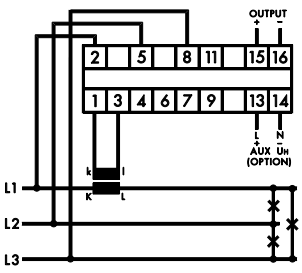


M100-PA1

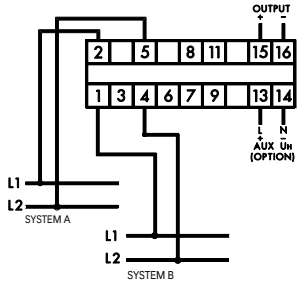


M100-PA2

CONNECTION DIAGRAMS



M100-PA3



M100-PV1

ACTIVE POWER

SELECTION GUIDE

M100-WA1	*Single phase*
M100-WA2	*3 phase 3 wire balanced load*
M100-WA3	*3 phase 4 wire balanced load*
M100-WA4	*3 phase 3 wire unbalanced load*
M100-WA5	*3 phase 4 wire unbalanced load*
M100-WA6	*3 phase 3 wire balanced load externally connected reverse C.T.s*
M100-WA7	*3 phase 3 wire balanced load internally reversed C.T.s*

TYPICAL APPLICATIONS

The M100-WA series measure active power in single, 3 phase 3 or 4 wire balanced and unbalanced systems. Using the time division multiplier circuit means that they can be used over a wide range of input waveforms. The D.C. Output signal is directly proportional to the instantaneous power being measured.

Typical applications include the measurement of power in switchboards, power stations, generating sets etc. The high isolation of 4kV as with all the M100 series, allows these watt transducers to be connected to a variety of measuring and control devices and systems, such as analogue meters, PLC, computers, data loggers, digital instruments and telemetry systems.

Both auxiliary powered and self powered versions of each type are available, it is recommended to use an auxiliary powered version if the system being measured has voltage variations in excess of ± 20%.

TECHNICAL SPECIFICATION

INPUT	
Rated value In	*1 or 5 Amp C.T. connected*
	0.5-10 Amp direct connected
Rated value Un	*57.8 < 600 volt*
Power consumption	*<1 VA voltage*
	<0.2 VA current
Working range	*0-125% Un auxiliary powered*
	75-125% Un self powered
	0-150% In
Rated Frequency	*50 / 60 / 400 Hz*
Frequency influence	*0.005 % / Hz*
Overload continuous	*4 x In 1.5 x Un*
Overload for 1 sec.	*50 x In 2 x Un*
OUTPUT	
Rated value mA	*0-1/5/10/20 & 4-20mA*
Rated Value Volts	*0-5 / 10 & 1-5 V*
ADJUSTMENT	
Zero	*± 2%*
Span	*± 10%*
AUXILIARY	
A.C. Voltage	*115 / 230 / 400 V (± 25% / 45-65 Hz / < 2VA)*
D.C. Voltage	*24 / 48 / 110 V (± 20% / galvanically isolated / <3 W)*
WEIGHT & CASE SIZE	
M100-WA1,2,3,6,7	*Approx. 0.6kg. 100mm case*
M100-WA4,5	*Approx. 0.8kg. 100mm case*

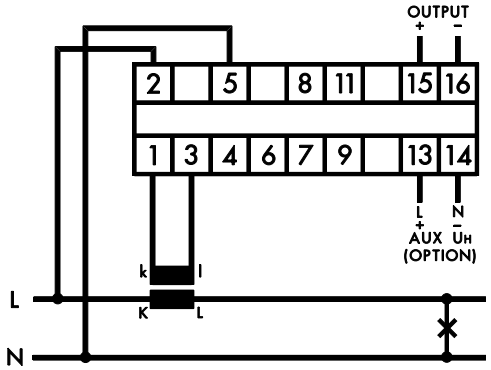
ORDERING INFORMATION

Product Code	*I/P In*	*Un*	*O/P*	*Range*	*Aux*	*Freq*	*Opt.*
M100-WA5	*800/5A*	*230v*	*0-20mA*	*600kW*	*230v*	*50Hz*	

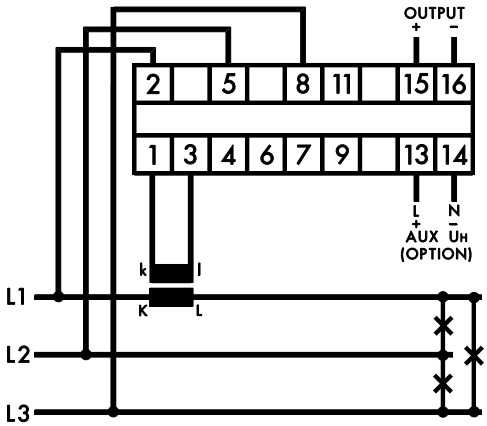
OPTIONS

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*

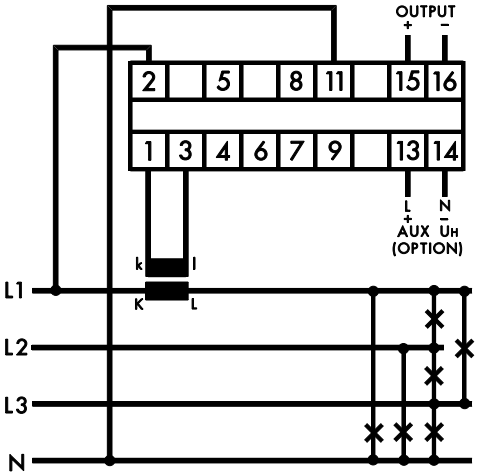
ACTIVE POWER CONNECTION DIAGRAMS



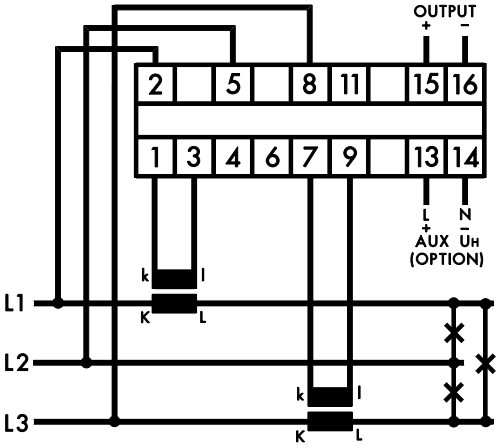
M100-WA1



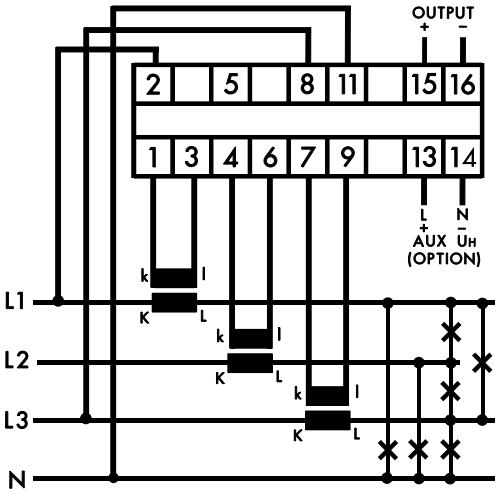
M100-WA2



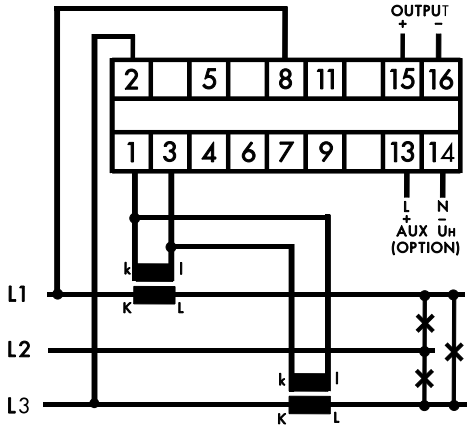
M100-WA3



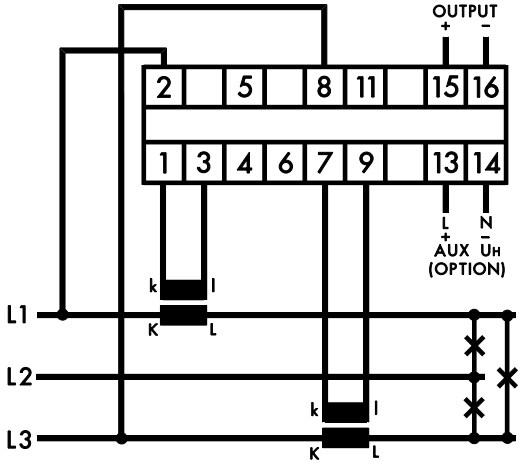
M100-WA4



M100-WA5

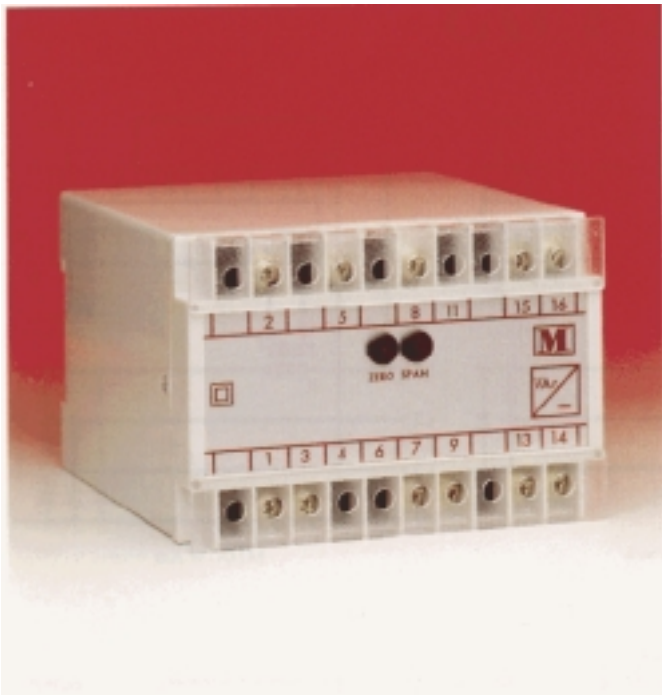


M100-WA6



M100-WA7

REACTIVE POWER



SELECTION GUIDE

M100-XA1	*Single phase*
M100-XA2	*3 phase 3 wire balanced load*
M100-XA3	*3 phase 4 wire balanced load*
M100-XA4	*3 phase 3 wire unbalanced load*
M100-XA5	*3 phase 4 wire unbalanced load*
M100-XA6	*3 phase 3 wire unbalanced load*
M100-XA7	*3 phase 3 wire balanced load internally reversed C.T.s*

TYPICAL APPLICATIONS

The M100-XA series measure reactive power in single, 3 phase 3 or 4 wire balanced and unbalanced systems. Using the time division multiplier circuit means that they can be used over a wide range of input waveforms. The D.C. Output signal is directly proportional to the instantaneous reactive power being measured.

Typical applications include the measurement of reactive power in switchboards, power stations and generating sets etc. The high isolation of 4kV as with all the M100 series, allows these VAr transducers to be connected to a variety of measuring and control devices and systems, such as analogue meters, PLC, computers, data loggers, digital instruments and telemetry systems.

Both auxiliary powered and self powered versions of each type are available, it is recommended to use an auxiliary powered version if the system being measured has voltage variations in excess of ± 20%.

TECHNICAL SPECIFICATION

INPUT	
Rated value In	*1 or 5 Amp C.T. connected*
	0.5-10 Amp direct connected
Rated value Un	*57.8 < 600 volt*
Power consumption	*<1 VA voltage*
	<0.2 VA current
Working range	*0-125% Un auxiliary powered*
	75-125% Un self powered
	0-150% In
Rated Frequency	*50 / 60 / 400 Hz*
Overload continuous	*4 x In 1.5 x Un*
Overload for 1 sec.	*50 x In 2 x Un*
OUTPUT	
Rated value mA	*0-1/5/10/20 & 4-20mA*
Rated Value Volts	*0-5 / 10 & 1-5 V*
ADJUSTMENT	
Zero	*± 2%*
Span	*± 10%*
AUXILIARY	
A.C. Voltage	*115 / 230 / 400 V (± 25% / 45-65 Hz / < 2VA)*
D.C. Voltage	*24 / 48 / 110 V (± 20% / galvanically isolated / <3W)*
WEIGHT & CASE SIZE	
M100-XA1,2,3,6,7	*Approx. 0.6kg. 100mm case*
M100-XA4,5	*Approx. 0.8kg 100mm case*

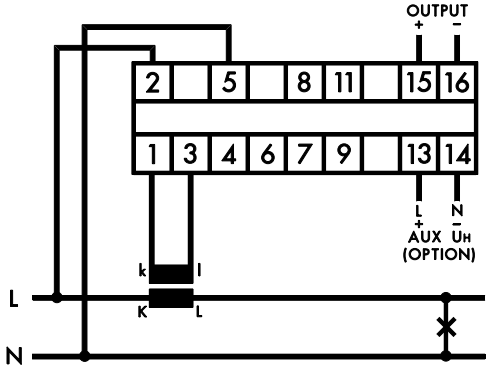
ORDERING INFORMATION

Product code	*I/P In*	*Un*	*O/P*	*Range*	*Aux.*	*Freq. Opt.*
M100-XA4	*400/5*	*400*	*0-20mA*	*300kVAr*	*120*	*60Hz*

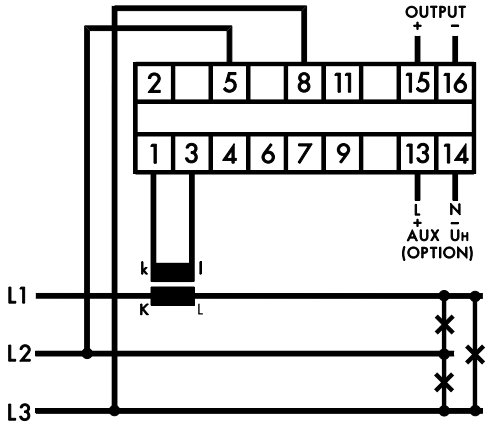
OPTIONS

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

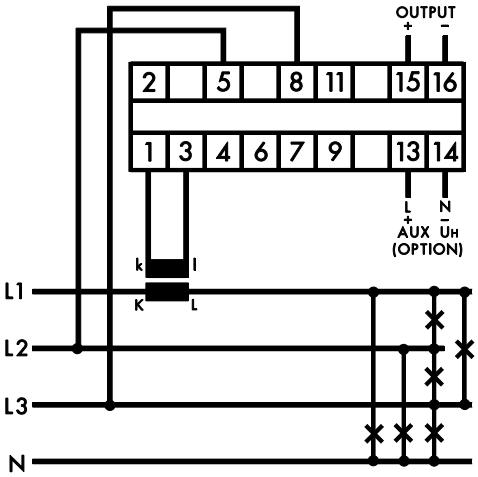
REACTIVE POWER CONNECTION DIAGRAMS



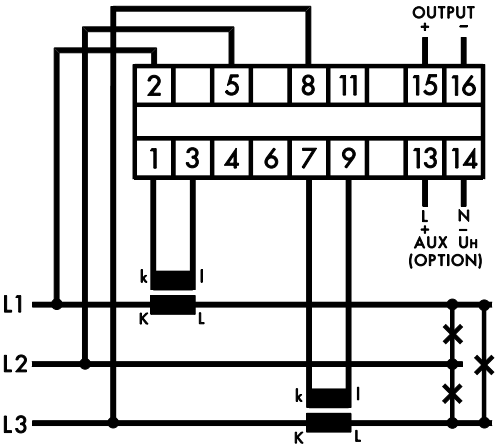
M100-XA1



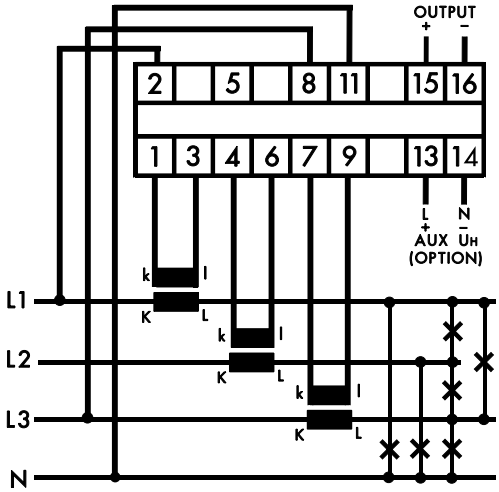
M100-XA2



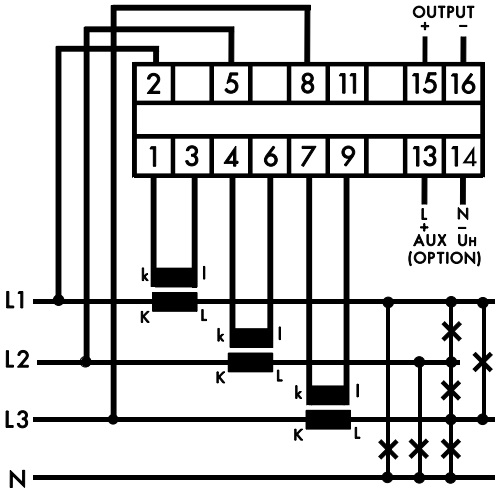
M100-XA3



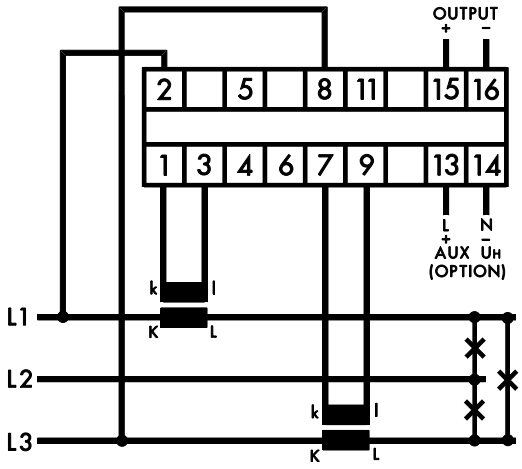
M100-XA4



M100-XA5



M100-XA6



M100-XA7

DC LINEAR INTEGRATOR

SELECTION GUIDE

M100-DI1	*Single relay output*
M100-DI2	*Double relay output*

TYPICAL APPLICATIONS

The M100-DI1 is a linear integrator which accepts D.C. Inputs, and integrates the input with respect to time. An ouput is provided via a relay which gives a pulsed output, the frequency of which is directly proportional to the amplitude of the input signal.
One of the main uses of the M100-DI1 is the measurement of Watt and Kilowatt hour. This is achieved by feeding the output of a watt transducer (M100-WA series) into the M100-DI1. The input signal is integrated against time and the resulting output pulses from the relay are proportional to the kW.h being consumed. These pulses then can be fed to an electromechanical counter, digital counter or a computer, where the kW.h consumed can be stored. Another use is the measurement of Ampere hours.
The M100- DI2 is the same as M100-DI1 with the additional feature of having 2 relay outputs, this allows the user to feed one set of pulses to a counter on a switchboard whilst feeding the other set of pulses to a remote computer in a control room.

TECHNICAL SPECIFICATION

INPUT	
Rated value In	*0-1 / 5 / 10 / 20 & 4-20 mA*
Voltage drop	*20mV*
Rated value Un	*0-20mV.....10V*
Impedance	*100 kOhm / V*
Working range	*0-125%*
Overload continuous	*1.5 x Un 4 x In*
OUTPUT	
Contact	*volt free closure*
Pulse rate	*100.....5000 pulse/hr*
Pulse width	*250 msec*
RELAY	
Voltage	*50 V DC / 250 V AC*
Rating	*10W*
Contact material	*Ruthonium*
Initial resistance	*200 mOhm*
Initial capacitance	*0.4 pF*
Electrical life	*5 x 10^6 (250 V DC / 10mA / resistance load)*
Test voltage	*coil to contacts 4kV*
ADJUSTMENT	
Zero	*± 2%*
Span	*± 10%*
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)*
WEIGHT & CASE SIZE	*Approx. 0.4 kg. 55mm case*

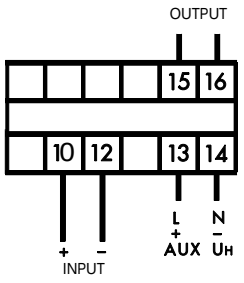
ORDERING INFORMATION

Product Code	*Input In*	*Pulse Rate*	*Aux. Freq.*	*Opt.*
M100-DI1	*10mA*	*100/hour*	*230V 50Hz*	

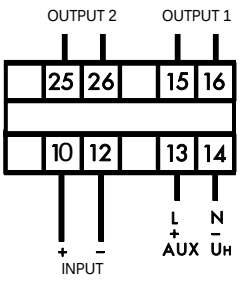
OPTIONS

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 temperature other than 23°C*

CONNECTION DIAGRAMS

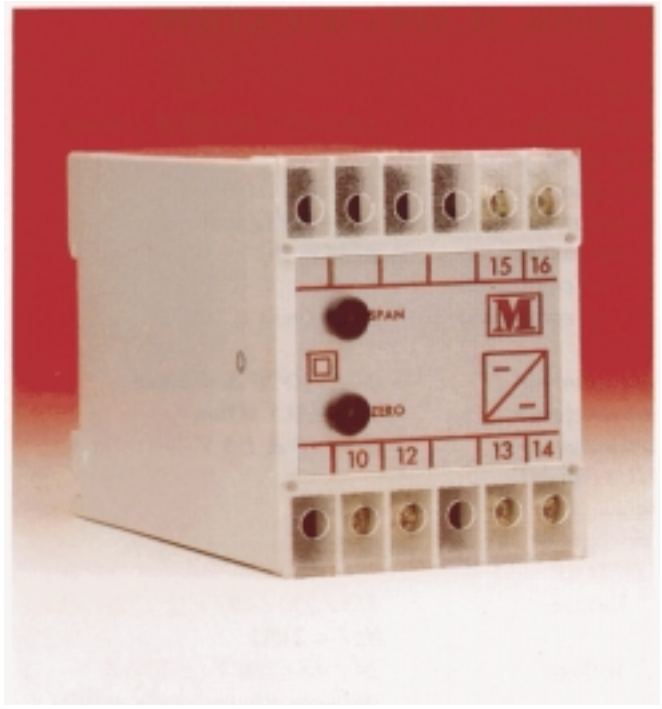


M100-DI1



M100-DI2

DC CURRENT OR VOLTAGE 4kV OR 1.5kV ISOLATION



SELECTION GUIDE

M100-DA1	*DC current input 4kV isolation*
M100-DV1	*DC voltage 20 mV...11.9V input 4kV isolation*
M100-DV2	*DC voltage 12 V....600 V input 4kV isolation*
M100-DA1I	*DC current input 1.5kV isolation*
M100-DV1I	*DC voltage 20mV...11.9V input 1.5kV isolation*
M100-DV2I	*DC voltage 12 V...600V input 1.5kV isolation*

TYPICAL APPLICATIONS

These isolators isolate the DC input signal from the DC Output signal, which is directly proportional to the input signal. There are two levels of isolation offered, the M100-DA1 / DV1 / DV2 have 4kV isolation and the M100-DA1I / DV1I / DV2I have 1.5kV isolation.
A wide range of both D.C. Current and voltage inputs are offered.
Typically these isolators can be used to prevent earth loops, which occur when a measuring source, that is earthed, is connected to a computer or data logger that is also earthed. Another common use is to provide isolation on the inputs to a PLC.
All of the above isolators have either A.C. or D.C. Auxiliaries which means they have an advantage over loop powered units, in that if for any reason the output lead should become disconnected, the input will not be saturated.

TECHNICAL INFORMATION

INPUT	
Rated value In	*± 0-1mA...10A M100-DA1 / DA1I*
Voltage drop	*20mV*
Rated value Un	*± 20mV.....11.9V M100-DV1 / DV1I*
Impedance	*100 kOhm / volt*
Rated value Un	*± 12 V.....600 V M100-DV2 / DV2I*
Impedance	*10 kOhm / volt*
Working range	*± 125% In*
Overload continuous	*4 x In M100-DA1 (upto 20A max)*
Overload continuous	*1.5 x Un M100-DV1 / DV2*
OUTPUT	
Rated value mA	*0-1/5/10/20 & 4-20mA*
Load resistance	*12/2.4/1.2/0.6 kOhm*
Rated value volts	*0-5 / 10 & 1-5 V*
ADJUSTMENT	
Zero	*± 2%*
Span	*± 10%*
AUXILIARY	
A.C. Voltage	*115 / 230 / 400 V (± 25% / 45-65 Hz / < 2VA)*
D.C. Voltage	*24 / 48 / 110 V (± 20% / galvanically isolated / <3W)*
WEIGHT & CASE SIZE	*Approx. 0.4 kg. 55mm case*
INSULATION	
M100-DA1/DV1/DV2	*4kV As shown in general specification see page 3.*
M100-DA1I/DV1I/DV2I	*Test voltage 1.5kV RMS 50Hz 1 min between input / case / output, rest of specification as shown in general specification see page 3*

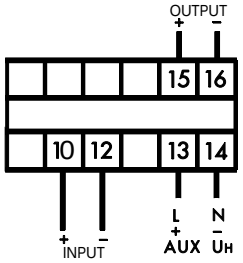
ORDERING INFORMATION

Product code	*Input In*	*Output*	*Aux*	*Freq.*	*Options*
M100-DA1I	*1mA*	*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 temperature other than 23°C*

CONNECTION DIAGRAM



M100-DA1/DV1/DV2
M100-DA1I/DV1I/DV2I

DC CURRENT OR VOLTAGE 1 INPUT 3 OUTPUTS

SELECTION GUIDE

M100-DM3 One input three outputs

TYPICAL APPLICATIONS

The M100-DM3 takes 1 DC Input and provides 3 isolated outputs all directly proportional to the input. The outputs can all be of the same D.C. Value or can be different. Typically this product is used to prevent earth loops between measuring devices. For example the M100-DM3 could have its input signal provided by a M100-WA4 watt transducer with 4-20mA output. The 3 outputs from the M100-DM3 could be as follows.
Output A = 4-20mA fed to a PLC.
Output B = 0-20mA fed to a analogue meter scaled in kW.
Output C = 1-5 volt fed to a chart recorder.
The isolation between the Input / Output / Case is 1.5kV and the isolation between each output is 500 volts.

TECHNICAL SPECIFICATION

INPUT	
Rated value In	*± 0-1 / 5 / 10 / 20 & 4-20mA*
Voltage drop	*20mV*
Rated value Un	*±20mV.....10V*
Impedance	*100 kOhm / volt*
Working range	*±125% In*
Overload continuous	*4 x In*
Overload continuous	*1.5 x Un*
OUTPUT	
Rated value mA	*0-1/5/10/20 & 4-20mA*
Load resistance	*10/2/1/0.5 kOhm*
Rated value volts	*0-5 / 10 & 1-5 V*
ADJUSTMENT	
Zero	*± 2%*
Span	*± 10%*
AUXILIARY	
A.C. Voltage	*115 / 230 / 400 V (± 25% / 45-65 Hz / < 2VA)*
D.C. Voltage	*24 / 48 / 110 V (± 20% / galvanically isolated / <3W)*
WEIGHT & CASE SIZE	*Approx. 0.4 kg. 100mm case*
INSULATION	
Test voltage	*1.5 kV between Input/ Output/Case 500 volt between each output*

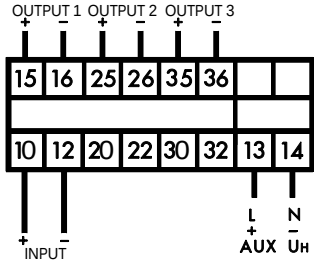
ORDERING INFORMATION

Product Code	*Input In*	*Output*	*Aux.*	*Freq.*	*Options*
M100-DM3	*1mA*	*A= 1mA*	*230V*	*50Hz*	
		B=4-20mA			
		C=10V			

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 temperature other than 23°C*

CONNECTION DIAGRAMS



M100-DM3

DC CURRENT SUMMATION

SELECTION GUIDE

M100-DS1	*DC current 1 input*
M100-DS2	*DC current 2 inputs*
M100-DS3	*DC current 3 inputs*
M100-DS4	*DC current 4 inputs*

TYPICAL APPLICATIONS

The M100-DS series of summation transducer take up to four inputs and provide an output signal directly proportional to the sum of the inputs.
A typical application is the summation of total kW of four separate generating sets e.g. the four individual kW readings are provided by M100-WA4 transducers with 0-1mA output signals. The M100-DS4 summates the four 0-1mA signals and provides a single output signal that is directly proportional the sum of the total kW of all four generators.
It is important to note the following when using summation transducers, to ensure the correct reading is obtained :-
The current and voltage ratios must be identical otherwise the subsequent summation will be meaningless.

TECHNICAL SPECIFICATIONS

INPUT	
Rated value In	*± 0-1mA...20mA*
Voltage drop	*20mV*
Working range	*±125%*
Overload continuous	*4 x In*
Overload continuous	*1.5 x Un*
OUTPUT	
Rated value mA	*0-1/5/10/20 & 4-20mA*
Load resistance	*12/2.4/1.2/0.6 kOhm*
Rated value volts	*0-5 / 10 & 1-5 V*
ADJUSTMENT	
Zero	*± 2%*
Span	*± 10%*
AUXILIARY	
A.C. Voltage	*115 / 230 / 400 V (± 25% / 45-65 Hz / < 2VA)*
D.C. Voltage	*24 / 48 / 110 V (± 20% / galvanically isolated / <3W)*
WEIGHT & CASE SIZE	*Approx. 0.4 kg. 55mm case*

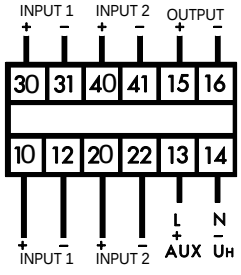
ORDERING INFORMATION

Product Code	*Input In*	*Output*	*Aux.*	*Freq.*	*Options*
M100-DS1	*1mA*	*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 temperature other than 23°C*

CONNECTION DIAGRAMS



M100-DS2 / DS3 / DS4

REMOTE RESISTANCE

SELECTION GUIDE

M100-RPN Resistance measurement

TYPICAL APPLICATIONS

The M100-RPN is designed to measure the resistance of 3 wire potentiometers, where the resistance value is proportional to the position of the wiper of the potentiometer. The output value from the M100-RPN is directly proportional to the resistance value at the wiper.
A typical application is monitoring remote resistance of potentiometer used in manual valve control.

TECHNICAL SPECIFICATION

INPUT	
Rated range	*min. 100 ohms.... max. 50 kOhms*
Sensor current	*min. 20uA.... max. 10mA*
Sensor voltage	*1 Volt*
Working range	*0-100% R_N*
OUTPUT	
Rated value mA	*1/5/10/20 & 4-20mA*
Rated value volts	*0-5 / 10 & 1-5 V*
ADJUSTMENT	
Zero	*0-35%*
Span	*65-100%*
AUXILIARY	
A.C. Voltage	*115 / 230 / 400 V (± 25% / 45-65 Hz / < 2VA)*
D.C. Voltage	*24 / 48 / 110 V (± 20% / galvanically isolated / <3W)*
WEIGHT & CASE SIZE	*Approx. 0.4 kg. 55mm case*

NOTE
No isolation is provided between input and output

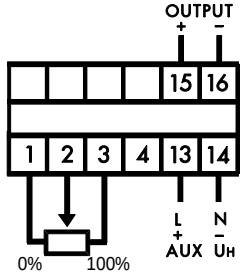
ORDERING INFORMATION

Product Code	*Input*	*Output*	*Aux.*	*Freq.*	*Options*
M100-RPN	*2 kOhm*	*0-20mA*	*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 temperature other than 23°C

CONNECTION DIAGRAM



M100-RPN

TAP POSITION

SELECTION GUIDE

M100-TAP Resistance measurement

TYPICAL APPLICATIONS

The M100-TAP measures the value of resistance on tap position changers, typically used on high voltage transformers. Each position on the selector has an equal value of resistance so that as the tap position is increased or decreased the value of resistance increases or decrease respectively. The M100-TAP measure the value of this resistance and provides an output proportional to the value of the number of taps selected.
The M100-TAP can also be used to measure variable resistance 2 or 3 wire systems.

TECHNICAL SPECIFICATION

INPUT	
Rated range	*min. 100 ohms.... max. 20 kOhms*
Sensor current	*min. 50uA.... max. 10mA*
Sensor voltage	*<1 Volt*
Working range	*0-125% Rn*
OUTPUT	
Rated value mA	*0-1/5/10/20 & 4-20mA*
Rated value volts	*0-5 / 10 & 1-5 V*
ADJUSTMENT	
Zero	*±2%*
Span	*±10%*
AUXILIARY	
A.C. Voltage	*115 / 230 / 400 V (± 25% / 45-65 Hz / < 2VA)*
D.C. Voltage	*24 / 48 / 110 V (± 20% / galvanically isolated / <3W)*
WEIGHT & CASE SIZE	*Approx. 0.4 kg. 55 mm case*

NOTE
No isolation is provided between input and output

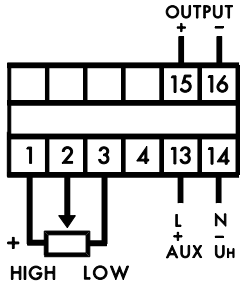
ORDERING INFORMATION

Product Code	*No Taps*	*Output*	*Aux.*	*Freq.*	*Options*
M100-TAP	*10*	*5 mA*	*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 temperature other than 23°C

CONNECTION DIAGRAM



M100-TAP

RTD TEMPERATURE

SELECTION GUIDE

M100-RTD RTD temperature measurement

TYPICAL APPLICATIONS

The M100-RTD monitors the resistance of either 100 Ohm Platinum, or 120 Ohm Nickel. The RTDs resistance increase as the temperature rises, this resistance change is detected by the M100-RTD, which provides an output corresponding to the temperature being measured.
The temperature versus resistance values, are provided by the supplier of the RTD used.
RTD measurement of temperature is used in large transformers and large motors, to ensure winding temperatures do not rise to a level that would damage the winding.

TECHNICAL SPECIFICATION

INPUT
2 or 3 wire input

Platinum Pt 100 Ohm RTD	*min. span 20 Ohms ...max. span 200 Ohms*
Nickel Ni 120 Ohm RTD	*min. span 24 Ohms....max. span 240 Ohms*

OUTPUT

Rated value mA	*0-1/5/10/20 & 4-20mA*
Rated value volts	*0-5 / 10 & 1-5 V*
ACCURACY	*Class ± 0.5%*

ADJUSTMENT

Zero	*± 2%*
Span	*± 10%*

AUXILIARY

A.C. Voltage	*115 / 230 / 400 V (± 25% / 45-65 Hz / < 2VA)*
D.C. Voltage	*24 / 48 / 110 V (± 20% / galvanically isolated / <3W)*
WEIGHT & CASE SIZE	*Approx. 0.3 kg. 55mm case*

NOTE
No isolation is provided between input and output

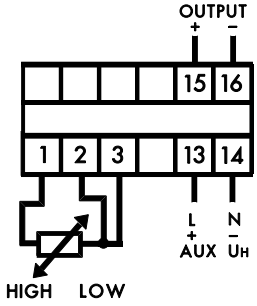
ORDERING INFORMATION

Product Code	*RTD*	*Temp*	*O/p*	*Aux*	*Freq Options*
M100-RTD	*Pt 100*	*0-250°C*	*5 mA*	*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 temperature other than 23°C*

CONNECTION DIAGRAM



M100-RTD

THERMOCOUPLE TEMPERATURE

SELECTION GUIDE

M100-TJ1	*Type J thermocouple*
M100-TK1	*Type K thermocouple*

TYPICAL APPLICATIONS

The M100-TJ1 and TK1 measure the millivolt drop of J and K type thermocouples respectively.
Thermocouples are made from two dissimilar metals and as the temperature rises, the mV across the thermocouple increases. The millivolts developed corresponds to the change in temperature, thermocouple manufacturers provide tables showing temperature versus voltage drop.
The M100 TJ1 / TK1 measures this voltage change and converts it to an output signal that corresponds to the temperature being monitored. The output from the M100-TJ1/ TK1 is not linearised
Thermocouple temperature measurement is used in a variety of applications, including monitoring of temperature of furnaces etc.
The M100 thermocouple transducer is provided with automatic cold junction temperature compensation over the range 0-50 °C. Also provided is thermocouple break protection should the thermocouple leads break, the output from the transducer will go to its maximum or minimum output value, depending on which option is chosen at time of ordering.

TECHNICAL SPECIFICATION

INPUT	
Type J Fe/Const.	*Min. range 0-185°C (min. span 10mV)*
	Max range 0-870 °C (max. span 50mV)
Type K NiCr/NiAl	*Min. range 0-245 °C (min. span 10mV)*
	Max. range 0-1230 °C (max. span 50mV)
Impedance	*>10kOhm*
Thermocouple Break protection	*Upscale or down scale optional*
Cold junction compensation	*Automatic over the range 0-50 °C*
Overload	*10 x input continuous*
OUTPUT	
Rated value mA	*0-1/5/10/20 & 4-20mA*
Load resistance	*12/2.4/1.2/0.6 kOhm*
Rated value volts	*0-5 / 10 & 1-5 V*
ADJUSTMENT	
Zero	*±2%*
Span	*±10%*
AUXILIARY	
A.C. Voltage	*115 / 230 / 400 V (± 25% / 45-65 Hz / < 2VA)*
D.C. Voltage	*24 / 48 / 110 V (± 20% / galvanically isolated / <3W)*
WEIGHT & CASE SIZE	*Approx. 0.4 kg. case 55mm*

NOTE
No isolation is provided between input and output

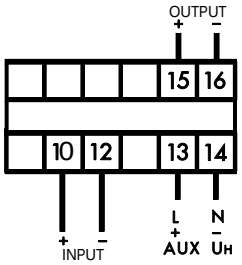
ORDERING INFORMATION

Product Code	*Temp.*	*O/p.*	*Aux.*	*Freq.*	*Options*
M100-TK1	*0-500°C*	*1 mA*	*120V*	*60Hz*	*Up scale*

OPTIONS

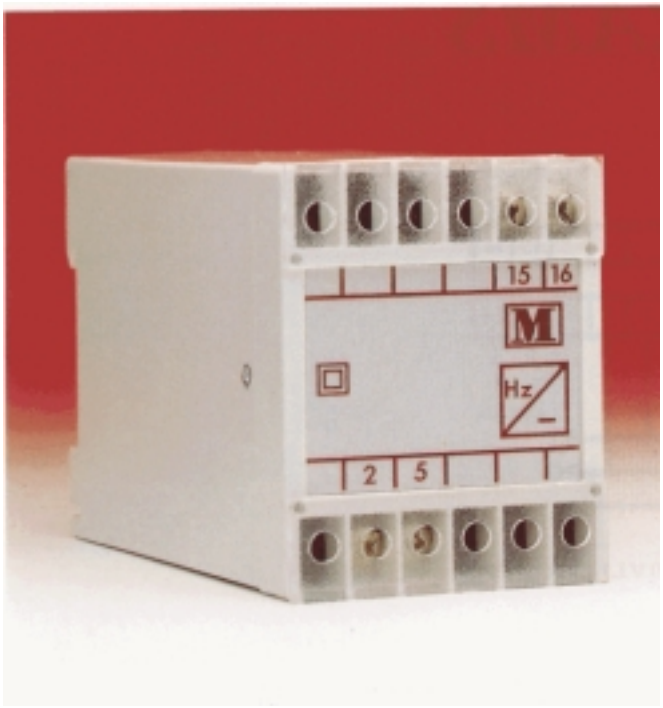
1. *Non standard inputs / outputs only as far as technically acceptable.*
2. *A.C. Auxiliary in range 57.7 to 450 volts*
3. *Calibration at temperature other than 23°C*
4. *Up or down scale break protection*

CONNECTION DIAGRAMS



M100-TJ1 / TK1

FREQUENCY TRANSDUCER



TECHNICAL INFORMATION

INPUT	
Input range Hz	*0-100Hz minimum span*
voltage range	*0- volts*
Input range Hz	*0-10kHz maximum span*
Voltage range	*0- volts*
Working range	*± 125% Hz*
Overload continuous	*1.5 x Un*
OUTPUT	
Rated value mA	*0-1/5/10/20 & 4-20mA*
Load resistance	*12/2.4/1.2/0.6 kOhm*
Rated value volts	*0-5 / 10 & 1-5 V*
ADJUSTMENT	
Zero	*± 2%*
Span	*± 10%*
AUXILIARY	
A.C. Voltage	*115 / 230 / 400 V (± 25% / 45-65 Hz / < 2VA)*
D.C. Voltage	*24 / 48 / 110 V (± 20% / galvanically isolated / <3W)*
WEIGHT & CASE SIZE	*Approx. 0.4 kg. 55mm case*

SELECTION GUIDE

M100-FE1 Frequency range 0-10kHz

TYPICAL APPLICATIONS

The M100-FE1 measure the frequency of the input signal and provides a DC output that is directly proportional to the input frequency.
The FE1 can accept frequency or pulse inputs over a wide range.
The frequency range is 0-10kHz, with the minimum span being 100Hz and maximum span 10kHz.
The M100-FE1 can be used in a wide variety of application such as speed measurement taking its input signal from a proximity sensor, flow measurement etc.
Isolation of 1.5kV is provided between the input and the output signal allowing the output to be fed to conventional analogue meters, digital meters, PLC and computer systems.

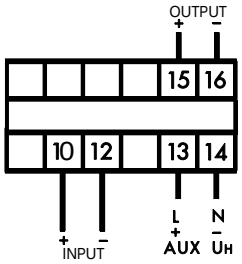
ORDERING INFORMATION

Product code	*I/P Hz*	*I/P Un*	*Output*	*Aux*	*Freq. Options*
M100-FE1	*600Hz*	*10V*	*4-20mA*	*230V*	*50Hz*

OPTIONS

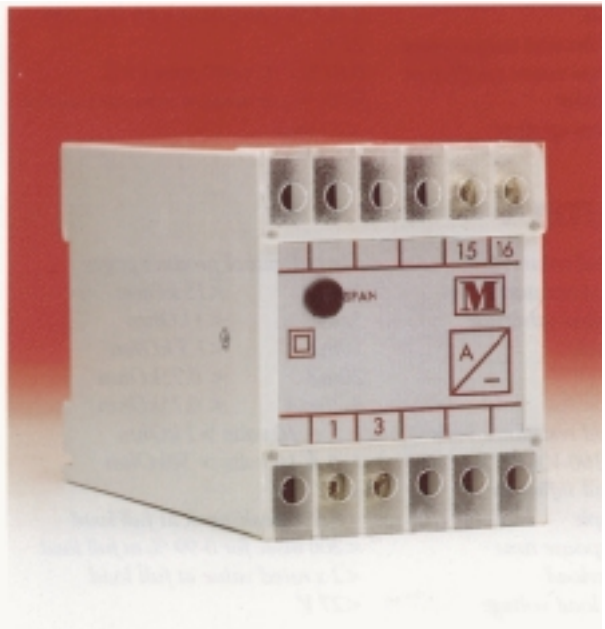
1. Non standard inputs / outputs only as far as technically acceptable.
2. A.C. Auxiliary in range 57.7 to 450 volts
3. Calibration at temperature other than 23°C

CONNECTION DIAGRAM



M100-FE1

2 WIRE TRANSMITTERS AC CURRENT



SELECTION GUIDE

M700-AL1 2 Wire transmitter, ave. sensing, RMS calibrated.

TYPICAL APPLICATIONS

The M700 series are 2 wire transmitters.
The M700-AL1 converts the A.C. Input current signal to a 4-20mA D.C. Output. The output is directly proportional to the input signal.
2 Wire transmitters like the M700-AL1, obtain the power to operate from the 4-20mA output circuit to which they are connected, and therefore require no separate auxiliary supply.
The M700-AL1 is average sensing RMS calibrated current transmitter.
2 Wire transmitters have an advantage over conventional auxiliary powered transducer, because no separate auxiliary is required, savings in the cost of providing a separate auxiliary supply and wiring are made.
The above units are used to measure current in energy management systems, switchboards, generator and telemetery 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.

ORDERING INFORMATION

Product Code	*Input In*	*Output*	*Options*
M700-AL1	*5A*	*4-20mA*	

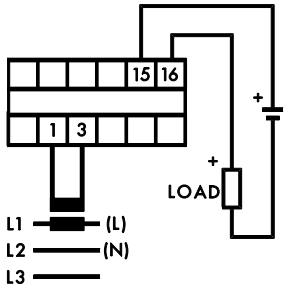
OPTIONS

1. Calibration at temperature other than 23°C

TECHNICAL SPECIFICATION

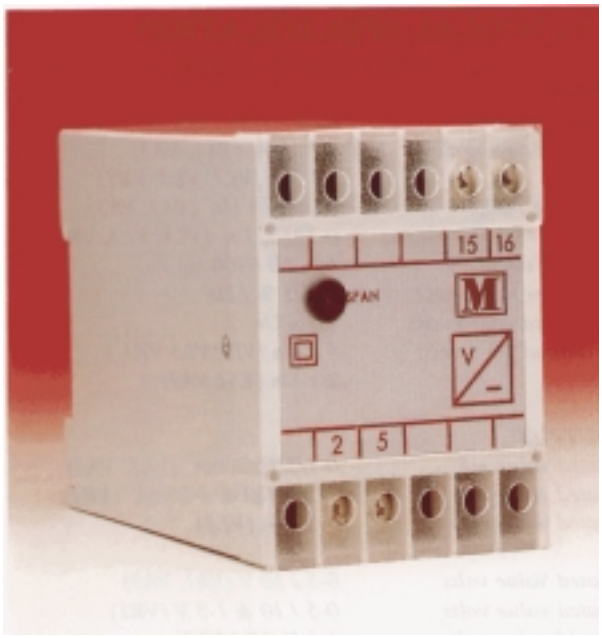
INPUT	
Rated value In	*1 or 5 Amp C.T. connected*
	0.5-10 Amp direct connected
Working range	*10-125% In*
Rated Frequency	*40- 400 Hz*
Frequency influence	*0.005 % / Hz*
Overload continuous	*4 x In*
Overload for 1 sec.	*50 x In*
Accuracy	*0.2%*
Linearity	*<0.1%*
Repeatability	*± 0.05% of span*
Common mode rejection	*130dB*
Input impedance	*0.1 Ohm*
Response time	*<250mSec 0-90% at full load*
OUTPUT	
DC current	*4-20mA*
Drive voltage	*24 volts (max. 35 volts)*
DC volt drop	*12 volts dc max.*
Output load change effect	*0.1% up to RL max.*
Max. loop load (Ohms)	*V supply - 12V* / *0.02*
ADJUSTMENT	
Zero	*± 1%*
Span	*± 10%*
ISOLATION	
Between input & output	*4kV RMS 50Hz for 1 minute*
ENVIRONMENTAL	
Working temperature	*0 to +60 deg C*
Functional temperature	*-25 to +70 deg C*
Storage temperature	*-55 to +85 deg c (100 ppm / °C)*
Relative humidity	*95% non condensing*
Class of climate	*HSE complying with DIN 40040*
	-3 complying with VDE/VDI 3540
WEIGHT & CASE	
M700-AL1	*Approx. 0.2 kg. 55mm case*

CONNECTION DIAGRAM



M700AL1

2 WIRE TRANSMITTERS
AC VOLTAGE



SELECTION GUIDE

M700-VL1 2 Wire transmitter, ave. sensing, RMS calibrated.

TYPICAL APPLICATIONS

The M700 series are 2 wire transmitters.
The M700-VL1 converts the a.c. input voltage signal to a 4-20mA d.c. Output. The output is directly proportional to the input signal.
2 Wire transmitters like the M700-VL1, obtain the power to operate from the 4-20mA output circuit to which they are connected, and therefore require no separate auxiliary supply.
The M700-VL1 is average sensing RMS calibrated current transmitter.
2 Wire transmitters have an advantage over conventional auxiliary powered transducer, because no separate auxiliary is required, savings in the cost of providing a separate auxiliary supply and wiring are made.
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.

ORDERING INFORMATION

Product Code	*Input In*	*Output*	*Options*
M700-VL1	*110V*	*4-20mA*	

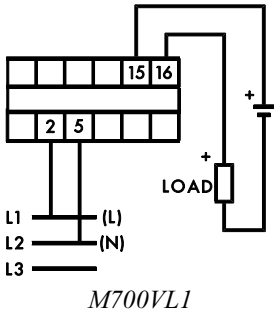
OPTIONS

1. Calibration at temperature other than 23°C

TECHNICAL SPECIFICATION

INPUT	
Rated value Un	*0-600 Volts AC*
Working range	*10-125% In*
Rated Frequency	*40- 400 Hz*
Frequency influence	*0.005 % / Hz*
Overload continuous	*1.5 x Un*
Overload for 1 sec.	*2 x Un*
Accuracy	*0.2%*
Linearity	*<0.1%*
Repeatability	*± 0.05% of span*
Common mode rejection	*130dB*
Input impedance	*0.1 Ohm*
Response time	*<250mSec 0-90% at full load*
OUTPUT	
DC current	*4-20mA*
Drive voltage	*24 volts (max. 35 volts)*
DC volt drop	*12 volts dc max.*
Output load change effect	*0.1% up to RL max.*
Max. loop load (Ohms)	*V supply - 12V / 0.02*
ADJUSTMENT	
Zero	*± 1%*
Span	*± 10%*
ISOLATION	
Between input & output	*4kV RMS 50Hz for 1 minute*
ENVIRONMENTAL	
Working temperature	*0 to +60 deg C*
Functional temperature	*-25 to +70 deg C*
Storage temperature	*-55 to +85 deg c (100 ppm / °C)*
Relative humidity	*95% non condensing*
Class of climate	*HSE complying with DIN 40040 -3 complying with VDE/VDI 3540*
WEIGHT & CASE	
M700-VL1	*Approx. 0.2 kg. 55mm case*

CONNECTION DIAGRAM



M700VL1

THE MULTITEK RANGE

TRANSDUCERS, MONITORING RELAYS, DIGITAL PANEL METERS, PANEL MOUNT EARTH LEAKAGE RELAYS, PANEL MOUNT 3 PHASE CURRENT RELAYS

multitek®

Multitek Ltd. Lancaster Way, Earls Colne Ind. Park, Earls Colne, Colchester, Essex. CO6 2NS. England. Tel. +44(0)1787223228 Fax. +44(0)1787223607
E-MAIL: Sales@multitek-ltd.com WEB SITE: www.multitek-ltd.com