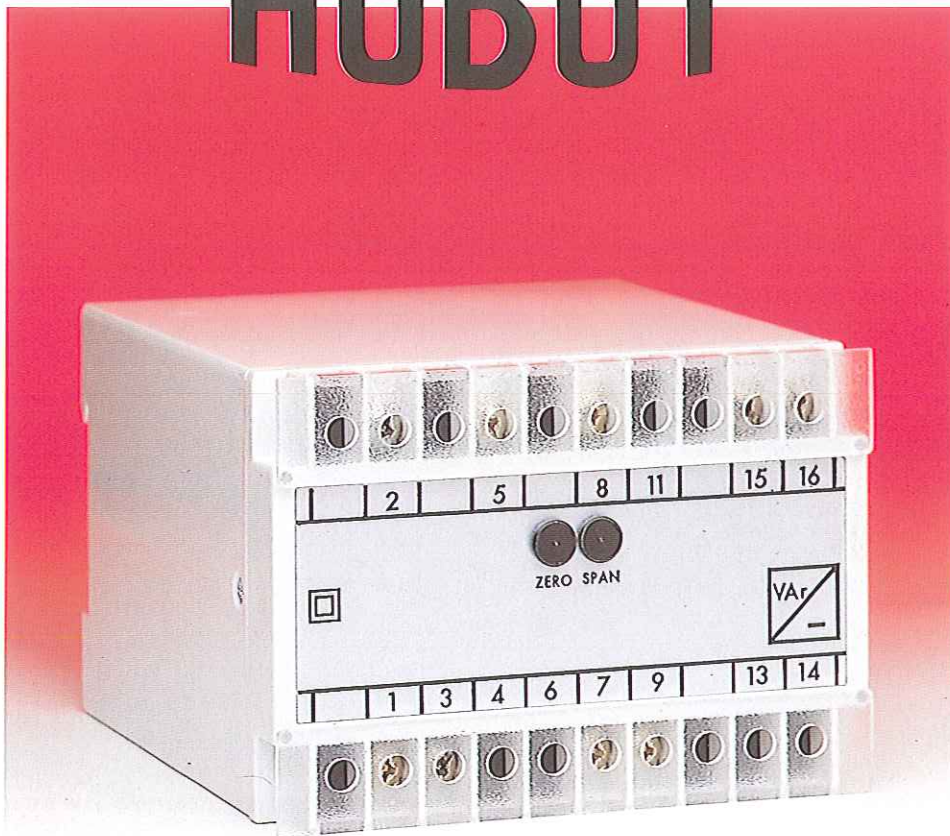
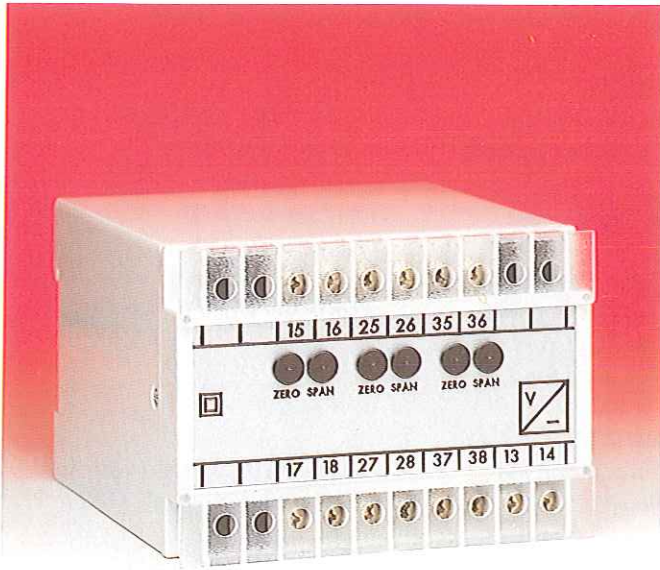


# HOBUT



## TRANSDUCERS

# 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	$\pm 2\%$ (VR1, VL1)
Span	$\pm 10\%$ (VA1, VA3, VR1, VL1, VL3)

### 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-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.

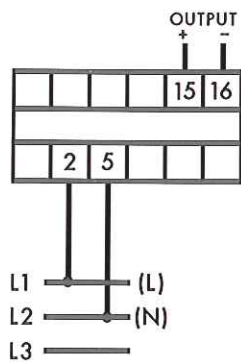
The M100-VA1 VA3 are self powered (i.e. no auxiliary required) average sensing RMS calibrated voltage transducers, mA and voltage outputs are available.

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.

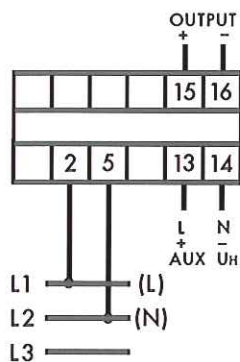
The M100-VR1 is true RMS sensing RMS calibrated allowing measurement of distorted waveforms of up to 9th harmonic with a crest factor of 5. The VR1 is typically used in voltage measurement where distorted waveform is common such as thyristor drives.

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.

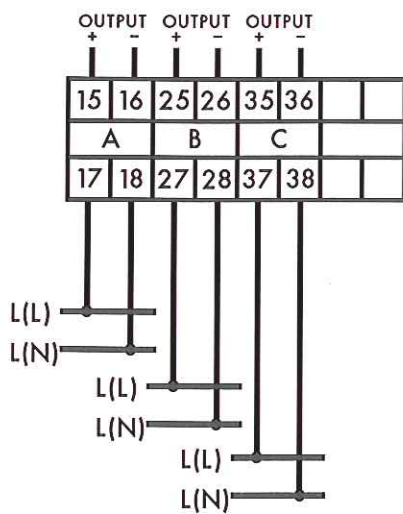
# AC VOLTAGE CONNECTION DIAGRAMS



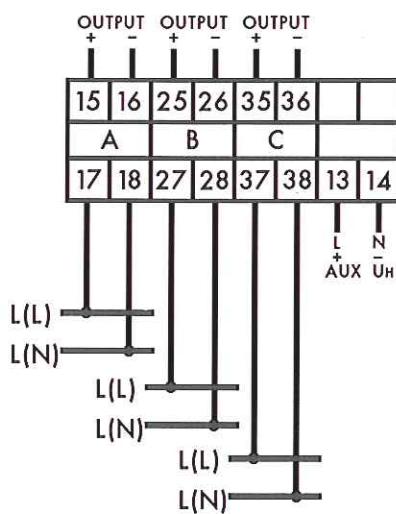
M100VA1/VS1



M100VL1/VR1/VX1



M100VA3



M100VL3/VX3

## 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	IEC 348 / BS 4753 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	1, 5 & 10 volts >1 kOhm	
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
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### CASE DIMENSIONS

All Dimensions in mm

