

# VOLTAGE INDICATORS

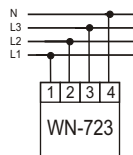
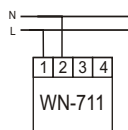
## PURPOSE

Voltage indicators are devised to continually measure the value of the voltage in a single-phase or three-phase network.

## LED LINE TYPE

**WN-711** One phase indicator.

**WN-723** Three phase indicator.

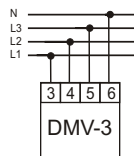
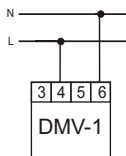


supply	WN-711	230V AC
	WN-723	3×400V+N
voltage indicator	WN-711	11×LED
	WN-723	3×(11×LED)
indication range		205÷245V
scale		5V
indication precision		2,5V
power consumption		0,8W
connection		screw terminals 2,5mm <sup>2</sup>
working temperature		-25÷50°C
dimensions	WN-711	1 moduly (17,5mm)
	WN-723	2 moduly (35mm)
fixing		on rail TH-35

## DIGITAL

**DMV-1 DMV-1 TrueRMS** One phase indicator.

**DMV-3 DMV-3 TrueRMS** Three phase indicator.



supply		100÷300V AC
frequency		45÷55Hz
indication range		100÷300V
indication precision		
	DMV-1; DMV-3	1%
	DMV-1 True RMS; DMV-3 True RMS	0,5%
display for one phase		3×segment LED 10×6mm
power consumption		4W
connection		screw terminals 2,5mm <sup>2</sup>
working temperature		-25÷50°C
dimensions		3 moduly (52,5mm)
fixing		on rail TH-35

\* phase voltage measurement

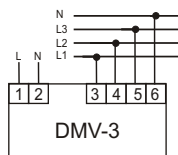
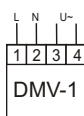
\* measuring circuit is also a device supplying circuit

\* indicators with True RMS marking, equipped with RMS value converter, give proper voltage value for deflected runs

## DIGITAL

**DMV-1T DMV-1T** One phase indicator.

**DMV-3T DMV-3T** Three phase indicator.



supply		230V AC
indication range	DMV-1T	12÷600V
	DMV-3T	3×0÷400V
indication precision		1%
display		
	DMV-1T	4×segment LED 14×8mm
	DMV-3T	3×(4×segment LED 14×8mm)
power consumption		3VA
connection		screw terminals 2,5mm <sup>2</sup>
working temperature		-5÷50°C
dimensions		
	DMV-1T	72×72×92mm
	DMV-3T	96×96×92mm
fixing hole		
	DMV-1T	66×66mm
	DMV-3T	92×92mm

# CURRENT INTENSITY INDICATORS

## PURPOSE

Current intensity indicators are devised to continually measure the value of the current in a circuits of single-phase or three-phase network.

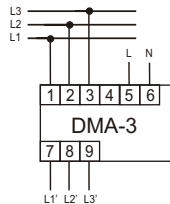
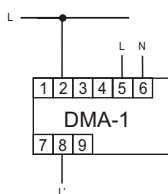
## DIGITAL

**DMA-1** **DMA-1 True RMS** One phase indicator.

**DMA-3** **DMA-3 True RMS** Three phase indicator.

\* independent current measurement for each phase

\* indicators with True RMS marking, equipped with RMS value converter, give proper voltage value for deflected runs



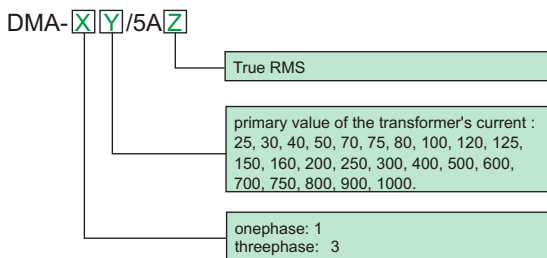
supply	100÷300V AC
frequency	45÷55Hz
max. measured current	20A
max. temporary overloading of current	40A (<1sec)
indication precision	
DMV-1; DMV-3	1%
DMV-1 True RMS; DMV-3 True RMS	0,5%
display for one phase	3×segment LED 10×6mm
power consumption	4W
connection	screw terminals 2,5mm <sup>2</sup>
working temperature	-25÷50°C
dimensions	3 moduły (52,5mm)
fixing	on rail TH-35

DMA indicators are intended for current transformers with a rated secondary current of 5A. The current range for these transformers is from 25 to 1000/5A. The primary value of the transformer's current specifies the maximum measured current and the actual current value displayed by the indicator.

The DMA-20A and DMA-3 20A are intended for direct measurements (without transformers applied) within the range of 0÷20A.

Order labelling method:

INDIRECT MEASUREMENT (with transformers applied)

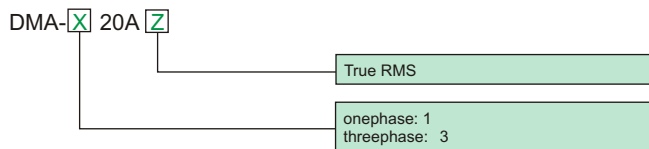


Example:

\* DMA-150/5A a one-phase device for 50/5A transformer, measurement range at 0÷50A, no TrueRMS;

\* DMA-3150/5 A TrueRMS a three-phase for 3×150/5A transformers, measurement range at 3×0÷150A, incl. TrueRMS.

DIRECT MEASUREMENT (without transformers)



Przykład:

\* DMA-1 20A - jednofazowy do 20A, zakres mierzony 0÷20A, bez TrueRMS

\* DMA-3 20A TrueRMS - trójfazowy do 20A, zakres mierzony 3×0÷20A, z TrueRMS

**DMA-1T** One phase indicator.

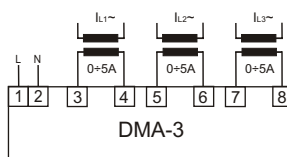
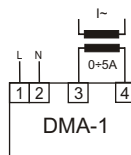
**DMA-3T** Three phase indicator.

\* direct measurement 0÷5A

\* indirect measurement using current transformers

\* setting indicator to proper current transformer values using three buttons on the indicator's front

\* indirect measurement using current transformers in standard current work with 1÷9000/5A range.



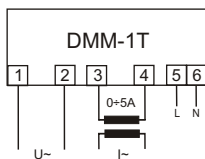
supply	230V AC
max. current of direct measure for single phase	5A
max. current of indirect measure	depended on applied current transformer
possible type of current transformer to connect	1÷9000/5A
indication precision	1%
display	
DMA-1T	4×segment LED 14×8mm
DMA-3T	3×(4×segment LED 14×8mm)
power consumption	3VA
connection	screw terminals 2,5mm <sup>2</sup>
working temperature	-5÷50°C
dimensions	
DMA-1T	72×72×92mm
DMA-3T	96×96×92mm
fixing hole	
DMV-1T	66×66mm
DMV-3T	92×92mm

# MULTIMETERS

## PURPOSE

Multimeters are intended for monitoring parameters of three-phase electrical network.

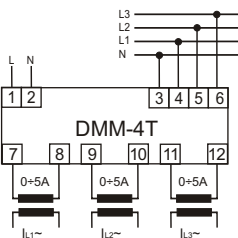
## DMM-1T ONE-PHASE TYPE



- \* independent current measurement for each phase
- \* direct measurement 0+5A
- \* indirect measurement using current transformers in standard current work with 1+9000/5A range
- \* setting indicator to proper current transformer values using three buttons on the indicator's front
- \* phase voltage and phase to phase voltage measurement
- \* phase frequency measurement

supply	230V AC
max. current of direct measure for single phase	5A
max. current of indirect measure	depended on applied current transformer
possible type of current transformer to connect	1+9000/5A
measured frequency range	10+100Hz
measured voltage range	0+400V
indication precision	1%±1 digit
display	4×segment LED 5×9mm
power consumption	3VA
connection	screw terminals 2,5mm <sup>2</sup>
working temperature	-5+50°C
dimensions	96×96×92mm
fixing hole	92×92mm

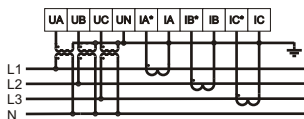
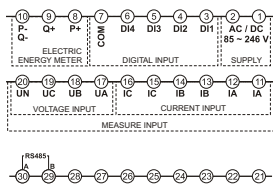
## DMM-4T THREE-PHASE TYPE



- \* independent current measurement for each phase
- \* direct measurement 0+5A
- \* indirect measurement using current transformers in standard current work with 1+9000/5A range
- \* setting indicator to proper current transformer values using three buttons on the indicator's front
- \* phase voltage and phase to phase voltage measurement
- \* phase frequency measurement
- \* selection of indicated voltage and frequency values for a single phase using button on indicator's front

supply	230V AC
max. current of direct measure for single phase	5A
max. current of indirect measure	depended on applied current transformer
possible type of current transformer to connect	1+9000/5A
measured frequency range	10+100Hz
measured voltage range	0+400V
indication precision	1%±1 digit
display	4×segment LED 5×9mm
power consumption	3VA
connection	screw terminals 2,5mm <sup>2</sup>
working temperature	-5+50°C
dimensions	96×96×92mm
fixing hole	92×92mm

## DMM-3T THREE-PHASE TYPE



- \* direct or indirect (using current transformer) measurement of phase currents.
- \* direct or indirect (using current transformer) measurement of phase voltage and phase to phase voltage.
- \* frequency measurement
- \* active, wattless and apparent power measurement
- \* power factor measurement
- \* four-quadrant measurement of input and output energy
- \* constant or periodical display of one of eight measured values, automatic switching between the displayed values
- \* digital inputs
- \* OC type pulse output (open collector)
- \* communication with peripheral devices using RS485 interface and MODBUS RTU protocol (up to 32 devices)

supply	85+264V AC/DC
power consumption	<5VA
frequency	45+65Hz
operation temperature	-10+50°C
humidity (free of wet and gascorruption)	≤85%
elevation	≤3000m n.p.m.
dimension	96×96×105mm
fix hole	92×92mm
network	three phase three-wire or four-wire
measuring accuracy	
voltage/current	±(0,5%FS + 1 digit)
power	±(0,5%FS + 1 digit)
frequency	±0,1Hz
power factor	±0,01
active electric energy	±0,5%
reactive electric energy	±2%
digital output	
ways	4
signal	non current type
electric energy meter	
output mode	two-channel open collector optical pulse output
puls constant - active	10000imp/kWh
- reactive	10000imp/kVARh
communication	
output mode	RS 485
protocol	MODBUS RTU
baud rate	4880bps
connection	screw terminals 2,5mm <sup>2</sup>
working temperature	-5+50°C
dimensions	96×96×92mm
fixing hole	92×92mm