

# DIN 96x48mm DC MILTI DISPLAY POWER METER WITH RELAY OUTPUTS, ANALOGUE SIGNAL OUTPUTS, RS485

## TYPE: VAW

PRODUCT  
GROUP  
DD

### FEATURES

- Multi display DC energy meter
- Displays DCV, DCA, KW, KWh, Hours Run
- High accuracy, stability & resolution
- Choice of multi relay, pulse, analogue signal or RS485 outputs
- Digital inputs for hold & de-latch functions
- Ideal for solar & wind energy systems
- CE marked

### DESCRIPTION

A Din 96x48mm multi display DC power meter. Measuring, displaying and communicating DC voltage, current, instantaneous power (Watts/KW), import and export Wh/KWh along with hours run. The voltage, current and power parameters also have max and min value recording during power on. The meter has the possibility for specifying up to 4 relay outputs including pulse outputs. The relays can be determined as set points for any of the parameters either low or high. In addition an analogue output also can be requested which can be assigned to any of the instantaneous measured parameters. Lastly, along with all the above mentioned outputs, RS485 MODBUS RTU communications can also be specified. The VAW meter is particularly suitable for solar energy and wind energy systems, along with electroplating, battery and transport applications. A particular feature of this meter which is especially relevant in "green energy" applications, is that after a certain time of no operator interaction with the meter, the meter enters a "switch down" mode and reduces the power to the LED's, thus saving money.

### SPECIFICATIONS

#### GENERAL

Sampling rate:	15 cycles/Sec
Response time:	≤100mSec
Display:	7.1mm high LED's Top row 10 red digits Bottom row 6 green digits
Status LED's:	10 square LED's to indicate inputs and outputs
Display pages:	Page 1: Voltage (4 digits), Current (5 digits), Power Page 2: Voltage (5 digits), Current (4 digits), Power Page 3: Power and Import Energy Page 4: Power and Export Energy Page 5: Power and Hours Run
Over-range indication:	"ovFL" displayed when input is over 120% of input range
Under-range indication:	"-ovFL" displayed when input is under -20% of input range
Max voltage withstand:	x2 continuous x4 for 2 seconds
Max current withstand:	x3 continuous x10 for 10 seconds
Power consumption:	5VA / 5W and in switch down mode 2VA / 2W
Operating temperature:	0-60 °C
Operating relative humidity:	20-95% RH
Temperature coefficient:	≤50 PM/ °C
Storage temperature:	-10 °C to +70 °C
Dielectric strength:	AC 2.0KV for 1 min between input, output/s, power & case
Protection:	IP54



#### OPTIONAL RELAY OUTPUT

Relay programmable:	Low or High
Latching:	Optional please specify
Number of setpoints:	Up to 4
Energisation functions:	Start delay / Energisation & de-energisation delay / Energisation latching / Hysteresis
Time delay programmable:	0-9 mins 59.9 secs
Hysteresis programmable:	0-5000 counts
Relay contacts:	Relays 1 & 4: 2xNO 1A/230VAC, A/115VAC Relays 2 & 3: 2xC0 1A/230VAC, 3A/115VAC

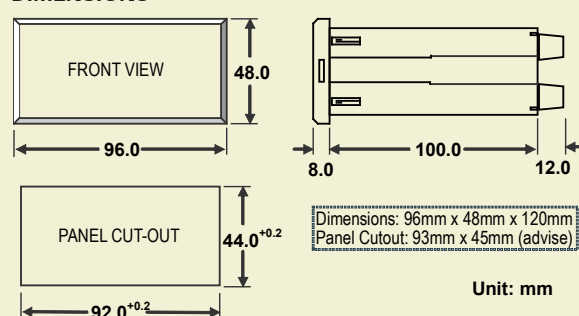
#### OPTIONAL ANALOGUE OUTPUT

Accuracy:	≤ ±0.1% of FS
Ripple:	≤ ±0.1% of FS
Response time:	100mSec (10-90% of input)
Output capability:	Voltage 1000 Ohm Current into 600 Ohm max

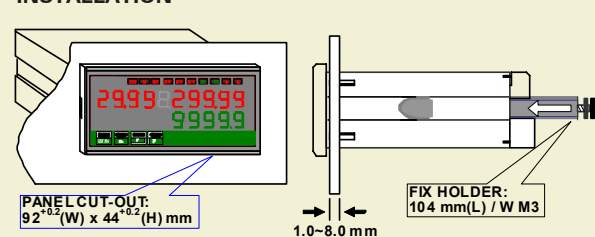
#### OPTIONAL RS485 COMMUNICATIONS:

Protocol:	MODBUS RTU
Baud rate programmable:	1200 / 2400 / 4800 / 9600 / 19200 / 38400
Data bits:	7 or 8 bit programmable
Parity programmable:	Even, odd or none (with 1 or 2 stop bit)
Address programmable:	1-255 programmable
Distance:	1200 Metres
Terminal resistor:	150 Ohm at last unit

#### DIMENSIONS



#### INSTALLATION



## SPECIFICATIONS CONT/...

### ACCURACY & RESOLUTION

Parameter	Accuracy	Display Range	Resolution	Decimal Point
Voltage:	0.04% $\pm$ 1 digit	-19999 to +99999	0.01mV to 1V	With regard to current & voltage a decimal point can be requested at any point or not at all. Regarding power (KW) this is auto ranging only, depending on the multiplication between current and voltage.
Current:	0.04% $\pm$ 1 digit	-19999 to +99999	0.01uA to 1A	
Power:	0.1% $\pm$ 1 digit	0 to $\pm$ 99999	Auto ranges KW	
Import Energy:	0.1% $\pm$ 1 digit	0 to 9999999999	0.0001 KWh	
Export Energy:	0.1% $\pm$ 1 digit	-1999999999 to 0	0.0001 KWh	
Hours Run:	0.04% $\pm$ 1 digit	0 to 99999999	1 Hour	

### INPUT SIGNAL

Voltage Input	Impedance	Current Input	Impedance
0-50mV	$\geq$ 5M Ohm	0-199.99uA	1K Ohm
0-60mV	$\geq$ 5M Ohm	0-1.9999mA	100 Ohm
0-100mV	$\geq$ 5M Ohm	0-19.999mA	10 Ohm
0-199.99mV	$\geq$ 1M Ohm	0-199.99mA	1 Ohm
0-1.9999V	$\geq$ 1M Ohm	0-1A	0.25 Ohm
0-19.999V	$\geq$ 1M Ohm	0-5A	0.2 Ohm
0-199.99V	$\geq$ 1M Ohm	Above 5 Amps	
shunt required			



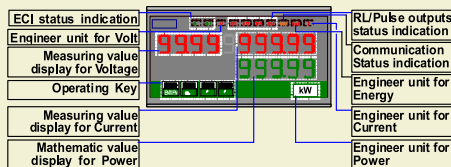
## ORDERING INFORMATION (The meter will be scaled and set exactly to your requirements)

	CURRENT INPUT	VOLTAGE INPUT	OUTPUT 1	OUTPUT 2	OUTPUT 3	AUX. POWER
<b>VAW</b>	0-199.99uA 0-1.9999mA 0-19.99mA 0-199.99mA 0-1.9999A 0-5A xxx/50mV shunt xxx/60mV shunt xxx/100mV shunt Input from transducer (Specify)	0-199.9mV 0-1.999V 0-19.99V 0-199.9V Specify	None 2 Relays* 4 Relays* 3 Relays + 1 Pulse*	None 0-5VDC** 1-5VDC** 0-10VDC** 0-10mA** 0-20mA** 4-20mA** Specify**	None RS485	115/230V AC 4.5-15V DC 20-56V AC/DC 85-264V AC/DC

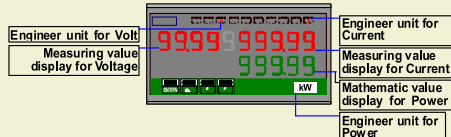
\* Regarding the relays, specify the parameters they refer to, along with is it a "Low" or "High" trip, latched or non latched, any delay times or hysteresis required per relay. If a pulse output is requested specify pulse length required (100mSec typical) and pulse rate to the counts.

\*\* Specify to which measured parameter the analogue output is to be assigned to.

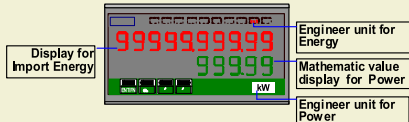
### FRONT PANEL



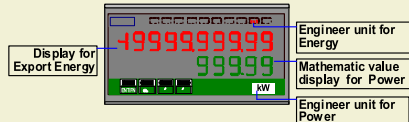
Page 1 for Voltage(4 digits), Current(5 digits) and Power(kW)



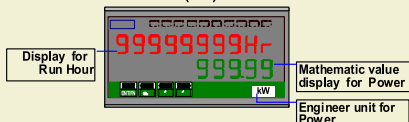
Page 2 for Import Energy and Power(kW)



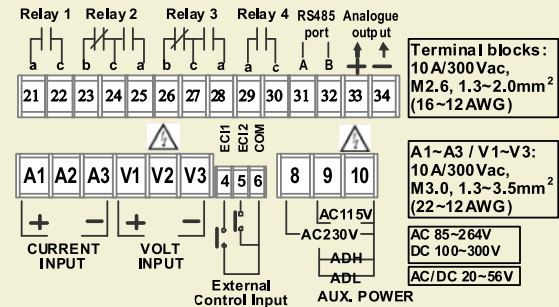
Page 3 for Export Energy and Power(kW)



Page 4 for Run Hour and Power(kW)

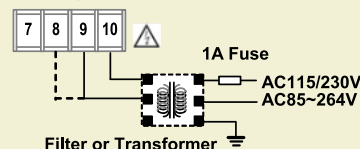


### CONNECTION DIAGRAM

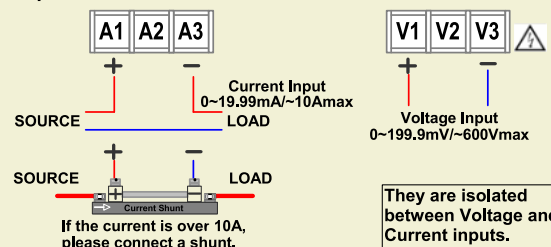


Please check the voltage of power supplied first, and then connect to the specified terminals. It is recommended that power supplied to the meter be protected by a fuse or circuit breaker.

### Power Supply



### Input connection



They are isolated between Voltage and Current inputs.