

VDT45M

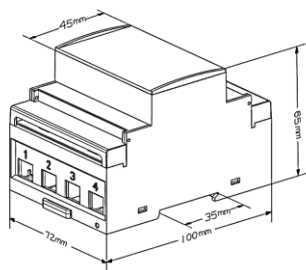
User Manual



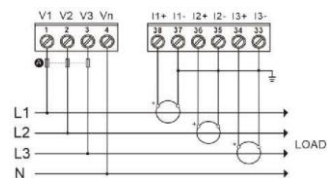
1. Specification

Meter Type	3P4W, 3P3W, 2P3W, 1P2W
Fitting Type	DIN Rail
MID Approved	Yes
Input Type	CT Operated
CT Range	Primary: 1 - 9,999A Secondary: 1 or 5A
Measured Range	0.003 - 6A
Tariffs	Single
Import / Export	Import & Export
Module Width	4
Reference Voltage	230VAC (L-N) 400VAC (L-L)
Frequency	50/60Hz
Accuracy (Active Energy)	C (Cl. 0.5)
Communication Protocol	Modbus RTU over RS485
Range of Modbus Add.	1 - 247
Baud Rate	1200, 2400, 4800, 9600, 19200, 38400
Pulse Output	Active or Reactive Energy (Sum, Import or Export)
Pulse Width (ms)	60, 100, 200
Pulse Constant (imp/kWh)	1, 10, 100, 400
IP Rating	IP51 Front Display
LCD Display	8 digit LCD backlit display
Key Programming	4 touch buttons

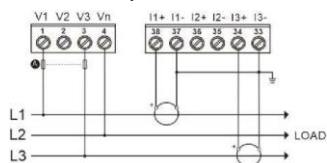
2. Dimensions



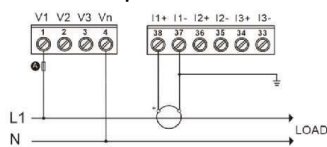
3. Wiring Diagrams



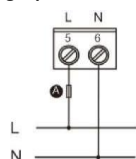
Three phase four wire



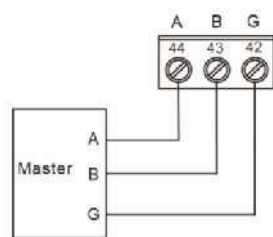
Three phase three wire



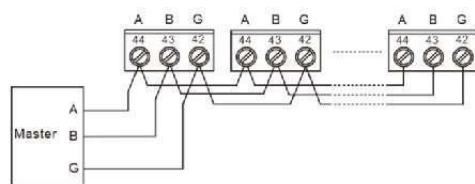
Single phase two wire



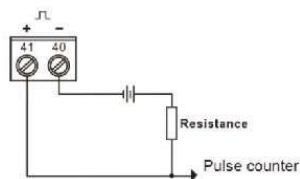
Auxiliary Supply (⚡: 500mA fast blow fuse)



Single Meter Communications

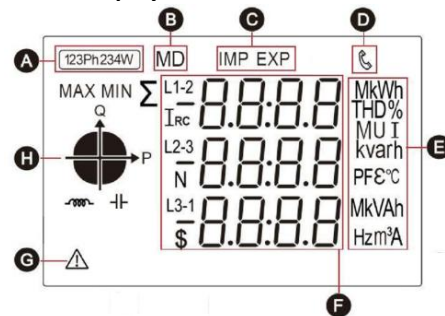


Multiple Meter Communications



Pulse Output Wiring

4. LCD Display



- A. Supply type icon.
- B. Maximum demand icon.
- C. Direction of measured value.
- D. Communication icon, (displays for 2 seconds upon successful communication).
- E. Unit of measurement.
- F. Measured values.
- G. Warning status icon, (indicates over voltage, over current or power exceeds the limit)
- H. Quadrant indicator, (= inductive | = capacitive).

5. Button Control

Button	Quick Press	3 Sec. Press
U/I Esc Voltage & Current Esc Key	Main display; scroll through parameters. Settings; exit or return to previous screen.	Enter auxiliary screen from Main display.
PF/HZ ▲ Power Factor, Freq. & Dem. Up Key	Main display; scroll through parameters. Settings; scroll up or increase value.	n/a
P ▼ Power Down Key	Main display; scroll through parameters. Settings; scroll down or decrease value.	n/a
E ↵ Energy Enter Key	Main display; scroll through parameters. Settings;	Enter settings from Main display. Enter setting or confirm setting.

6. Main Display Screen

6.1 Voltage & Current

"Quick Press" the button to scroll through the values.

LCD Display	Description
	Three-Phase L-N Voltage Example: L1-N voltage = 230.0V L2-N voltage = 230.0V L3-N voltage = 230.0V Note: In 3P3W mode, this screen is not displayed
	Three-Phase L-L Voltage. Example: L1-2 voltage = 400.0V L2-3 voltage = 400.0V L3-1 voltage = 400.0V Note: In 1P2W mode, this screen is not displayed
	Three Phase Current Example: L1 current = 5.001A L2 current = 5.002A L3 current = 5.000A
	Three-Phase L-N Voltage THD Example: L1 voltage THD = 3.06% L2 voltage THD = 2.78% L3 voltage THD = 4.35%
	Three-Phase L-L Voltage THD Example: L1-2 voltage THD = 2.74% L2-3 voltage THD = 3.80% L3-1 voltage THD = 0.00% Note: This screen is displayed only in 3P3W mode.
	Three-phase current THD. Example: L1 current THD = 3.56% L2 current THD = 2.45% L3 current THD = 1.87%

6.2 Power Factor, Frequency & Max. Demand

"Quick Press" the button to scroll through the values.

LCD Display	Description
	Total Power Factor & Frequency Example: Total power factor = 1.000 Frequency = 50.00Hz
	Three-Phase Power Factor Example: L1 power factor = 1.000 L2 power factor = 1.000 L3 power factor = 1.000
	Max. Demand per Phase Example: Max. Demand of L1 = 5.000A Max. Demand of L2 = 5.000A Max. Demand of L3 = 5.000A

	Max. Demand of Total Active, Reactive & Apparent Power Example: Max. Demand of Total Active Power = 3.680 kW Max. Demand of Total Reactive Power = 5.701 kVar Max. Demand of Total Apparent Power = 3.598 kVA
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6.3 Power

“Quick Press” the button to scroll through the values.

LCD Display	Description
	Active Power per Phase Example: L1 Active Power = 1.150 kW L2 Active Power = 1.150 kW L3 Active Power = 1.150 kW
	Reactive Power per Phase Example: L1 Reactive Power = 0 kVar L2 Reactive Power = 0 kVar L3 Reactive Power = 0 kVar
	Apparent Power per Phase Example: L1 Apparent Power = 1.150 kVA L2 Apparent Power = 1.150 kVA L3 Apparent Power = 1.150 kVA
	Total Active, Reactive & Apparent Power Example: Total Active Power = 3.450 kW Total Reactive Power = 0 kVar Tot. Apparent Power = 3.450 kVA

6.4 Energy

“Quick Press” the button to scroll through the values.

LCD Display	Description
	Total Active Energy Example: 30.10 kWh
	Import Active Energy Example: 15.05 kWh
	Export Active Energy Example: 15.05 kWh
	Total Reactive Energy Example: 2363.49 kVarh
	Import Reactive Energy Example: 2300.26 kVarh

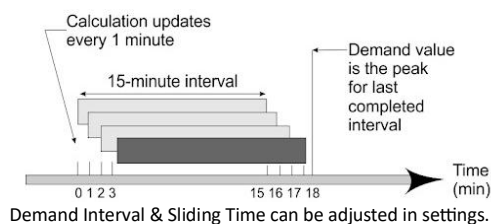
	Export Reactive Energy Example: 63.23 kVarh
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7. Auxiliary Display Screen

“3 Sec. Press” the button to enter.

LCD Display	Description
	Modbus Address Example: 1
	Baud Rate Example: 9600 bps
	Parity Bit Example: None
	CT Ratio Example: 1
	Voltage Ratio Example: 1
	Serial Number Example: 21000110.
	Software Version Number Example: 0101.00

8. Demand Calculation Method



9. Set up

To enter the set up menu, “3 Sec. Press” the button to enter the password screen, (default password is 0000).

“Quick Press” the button to move cursor between values and “Quick Press” the or buttons to change them up or down. “3 Sec. Press” the button confirm the password.

“Quick Press” the or buttons to scroll through the settings. “3 Sec. Press” the button to enter setting or sub-setting. “Quick Press” the button to move cursor between values and “Quick Press” the or buttons button to change them. “3 Sec. Press” the button when complete.

“Quick Press” the button to exit or return to previous menus.

Communication Menu -	
	Modbus Address Default: 001 Options: From 1- 247
	Baud Rate Default: 9600 Options: 1200, 2400, 4800, 9600, 19200, 38400
	Parity Bit Default: n (None) Options: n, e (Even), o (Odd)
	Stop Bit Default: 1 Options: 1, 2
System Menu -	
CT Configuration -	
	CT Primary Default: 5A Options: 1 – 9,999A
	CT Secondary Default: 5A Options: 1 or 5A
PT Configuration -	
	Voltage Primary Default: 230V Options: 30 – 500,000V
	Voltage Secondary Default: 230V Options: 30 – 500V
CT Direction -	
	L1 Current Direction Default: Forward Options: Forward or Reverse
	L3 Current Direction Default: Forward Options: Forward or Reverse

	L3 Current Direction Default: Forward Options: Forward or Reverse
	Supply Type Default: 3P4W Options: 1P2W, 2P3W, 3P3W, 3P4W
	User Password Default: 0000 Options: Four digit combination from 0-9.
	Reset Max. Demand
Pulse Output Menu -	
	Pulse Output Default: Active Energy (Sum) Options: Active Energy (Sum, Imp. or Exp.) or Reactive Energy (Sum, Imp. or Exp.)
	Pulse Constant Default: 400 imp/kWh or kVarh Options: 1, 10, 100, 400
	Pulse Width Default: 100ms Options: 60, 100, 200
Max. Demand Menu -	
	Demand Interval Period Default: 60 minutes Options: 0-60
	Sliding Time Default: 1 minute Options: 0 – Demand Interval Period
Time Menu -	
	Backlight Time Default: 60 minutes Options: On, Off, 5, 10, 30, 60, 120
	Auto Scroll Display Time Default: 0 seconds (Off) Options: 0-60

10. Modbus Protocol

To view or download, please use the following QR code:



Email – help@volaris.co.uk