

INSTALLATION MANUAL

TIS ENERGY METER 1 PHASE


Model: MET-EN-1PH



i PRODUCT INFORMATION

This module is a single-phase power meter that calculates how much KW/H is consumed in your location. Other electricity parameters, such as current amps, voltage, and active power, are also measured. It also shows electricity expenses based on this data.

PRODUCT SPECIFICATIONS

	Specifications	Voltage AC (Un)	176-276V / 80-140V (optional)
		Base Current (Ib)	10 A
		Max. Current (Imax)	100 A
		Mini Current (Imin)	0.5 A
		Power consumption	<2W/10VA
		Frequency	50/60Hz(±10%)
			Protection
	Display		
		Max. Reading	99999.99kWh
	Dimensions	Length × Width × Height	46mm × 62mm × 90mm
			Housing
Casing color	Black		
IP rating	IP 51 indoor		



BARCODE (UPC-A)





Read Instructions

We recommend that you read this Instruction Manual before installation.



Data Cable

Use screened stranded RS485 data cable with four twisted pairs. Configure devices in a "Daisy Chain."

Do not cut or terminate live data cables.



Safety instructions

Electrical equipment should only be installed and fitted by electrically skilled persons.

Failure to observe the instructions may cause damage to the device and other hazards.

These instructions are an integral part of the product and must remain with the end customer.



Electrical Wires

The recommended wire size is 4...6mm² for the Line, Neutral, and Output wires. The installer should consider the total current consumption when selecting the wires.



Programming

Advanced programming requires TIS Device Search software. Advanced software programming knowledge should be obtained in the advanced training courses.



Warranty

There is a two-years warranty provided by law. The hologram warranty seal and product serial number are available on each device.



Simple Installation

You can use either the DIN rail or fixing points to install this module.



Mounting Location

Install in a dry, well-ventilated location. Controllers may emit some mechanical noises. Consider this when deciding on a mounting location.

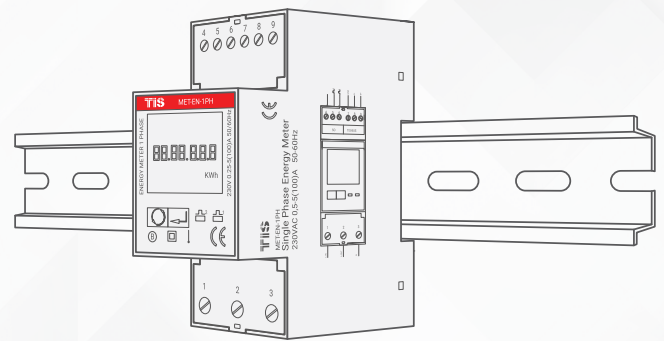


INSTALLATION STEPS

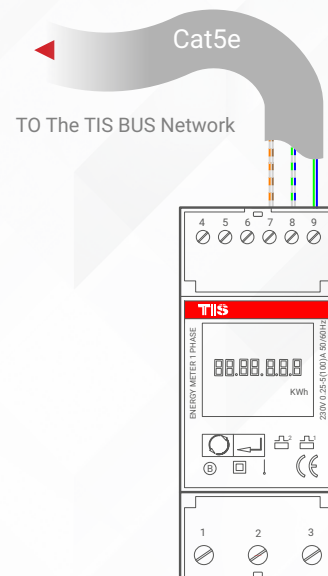
1 Turn off the main electrical source before installation.

WARNING! HIGH VOLTAGE

2 Mount the device on DIN rails inside an approved enclosure.

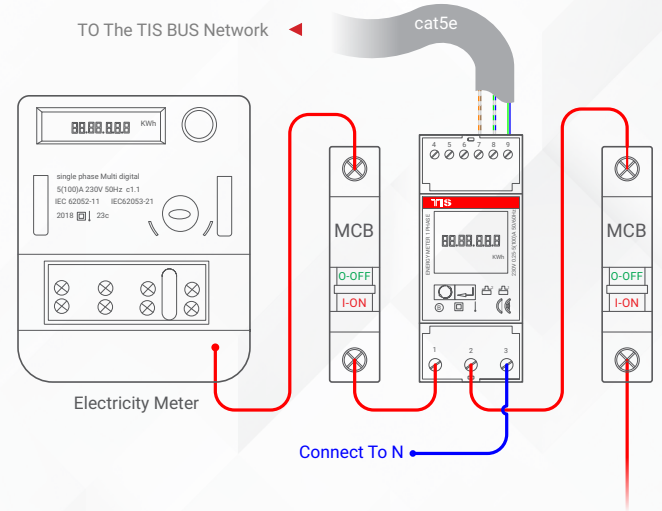


3 Connect the RS485 data cable to the TIS-BUS port following the product connection diagrams.

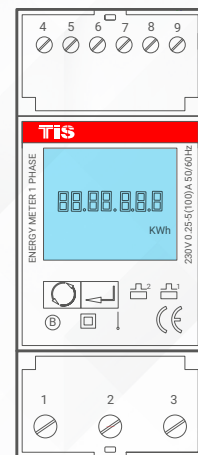


INSTALLATION STEPS

4 Connect the Lin, N, and Lout to Live, Neutral, and load cables, respectively. The device input must have an appropriate MCB to protect the module.



5 Turn on the power source. The module's LCD should turn on.



LCD DISPLAY

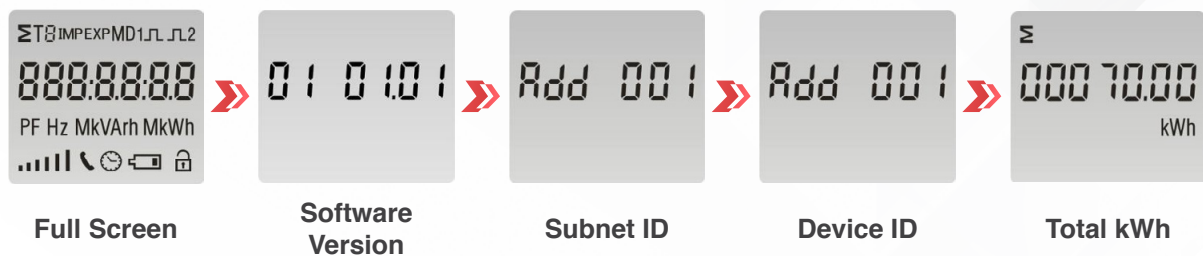
The information shown in the module's display are described in the table below:



ITEM	DESCRIPTION
1»	7 digits used to display measured values or RTC
2»	Total value
3»	Tariff information
4»	Import information, Export information
5»	Max. Demand for Power or Current
6»	Pulse output 1 and Pulse output 2
7»	Measurement units
8»	PF= power factor, Hz= frequency
9»	Bar display of Power
10»	Communication indicator
11»	Time information
12»	Low battery warning
13»	Lock symbol

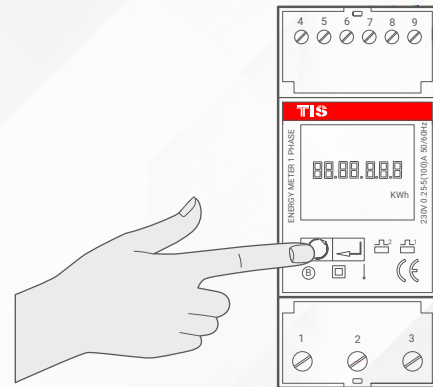
OPERATION

When it is powered on, the meter initializes and performs a self-check by displaying information in the following order:



DISPLAY MODE

➤ In order to check for more information, the user needs to press the scroll button on the front panel.



➤ The content displayed on each page would be as follows:

PAGE	DISPLAY	DESCRIPTION
1»		Total active energy Example: 70.00kWh
2»		Import(input) active energy Example: 50.00kWh
3»		Export(output) active energy Example: 20.00kWh
4»		T1 active energy Example: 0.00kwh
5»		T2 active energy Example: 0.00kwh

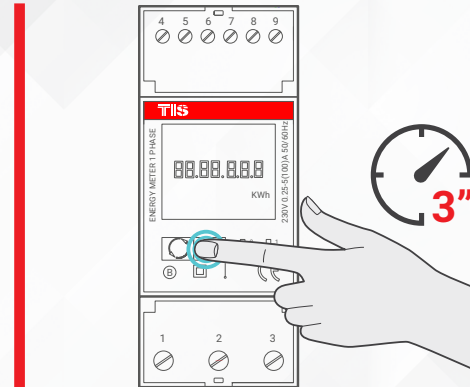
PAGE	DISPLAY	DESCRIPTION
6»		T3 active energy Example: 0.00kwh
7»		T4 active energy Example: 0.00kwh
8»		Total reactive energy Example: 10.00kVarh
9»		Import(input) reactive energy Example: 5.00kVarh
10»		Export(output) reactive energy Example: 5.00kVarh

PAGE	DISPLAY	DESCRIPTION	PAGE	DISPLAY	DESCRIPTION
11»		T1 reactive energy Example: 0.00kVarh	19»		T4 Max. Power Demand Example: 0 W
12»		T2 reactive energy Example: 0.00kVarh	20»		Voltage Example: 229.8V
13»		T3 reactive energy Example: 0.00kVarh	21»		Current Example: 30.156A
14»		T4 reactive energy Example: 0.00kVarh	22»		Active Power Example: 4700W
15»		Max Power Demand Example: 6930W	23»		Reactive Power Example: 1030Var
16»		T1 Max. Power Demand Example: 0 W	24»		Apparent power Example: 4811VA
17»		T2 Max. Power Demand Example: 0 W	25»		Power factor Example: 1.000
18»		T3 Max. Power Demand Example: 0 W	26»		Frequency Example: 49.99Hz

PAGE	DISPLAY	DESCRIPTION	PAGE	DISPLAY	DESCRIPTION
27»		Pulse Constant Example: 1000	35»		Time segment 4 Format: Hour:Minute,Tariff Example: 05:00 Tariff 4
28»		Subnet ID Address Example: 01	36»		Time segment 5 Format: Hour:Minute,Tariff Example: 07:25 Tariff 1
29»		Device ID address Example: 01	37»		Time segment 6 Format: Hour:Minute,Tariff Example: 08:11 Tariff 2
30»		Date Format: Day,Month,Year Example: 1st,Jan,2014	38»		Time segment 7 Format: Hour:Minute,Tariff Example: 15:40 Tariff 3
31»		Time Format: Hour,Minute,Second Example: 00:02:39	39»		Time segment 8 Format: Hour:Minute,Tariff Example: 17:00 Tariff 4
32»		Time segment 1 Format: Hour:Minute,Tariff Example: 00:00, Tariff 1	40»		Time segment 9 Format: Hour:Minute,Tariff Example: 10:00 Tariff 1
33»		Time segment 2 Format: Hour:Minute,Tariff Example: 02:00 Tariff 2	41»		Time segment 10 Format: Hour:Minute,Tariff Example: 23:00 Tariff 2
34»		Time segment 3 Format: Hour:Minute,Tariff Example: 04:00 Tariff 3			

SETUP MODE

➤ To get into Set-up Mode, the user needs to press and hold the “Enter” button for 3 seconds.

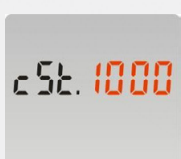


➤ The content displayed on each page would be as follows:

PAGE	DISPLAY	DESCRIPTION
		The setting is done correctly.
		The information entered is wrong. The operation has failed.
1		PASSWORD To get into Setup Mode, you must confirm the password. Default password: 1000
2		SUBNET ID ADDRESS ID Default ID is 01 Range: 001~254



SETUP MODE

PAGE	DISPLAY	DESCRIPTION
2-1		Press the “Enter” button, and the first digit will flash. Press the “Scroll” button to change the value. After choosing the new address value, press the “Enter” button to confirm the setting.
3		DEVICE ID ADDRESS ID Default ID is 01 Range: 001~254
3-1		Press the “Enter” button, and the red part will flash. Press the “Scroll” button to change the pulse output option. After choosing the new pulse output option, press the “Enter” button to confirm the setting.
4		PULSE OUTPUT Default: kWh Option: kWh / KVarh / Imp. kWh / Exp.kWh / Imp.kVarh / Exp. kVarh
4-1		Press the “Enter” button, and the red part will flash. Press the “Scroll” button to change the pulse constant option. After choosing the new pulse constant option, press the “Enter” button to confirm the setting.
5		PULSE CONSTANT Default: 1000 Option: 1000 / 100 / 10 / 1
5-1		Press the “Enter” button, and the red part will flash. Press the “Scroll” button to change the pulse duration option. After choosing the new pulse duration option, press the “Enter” button to confirm the setting.


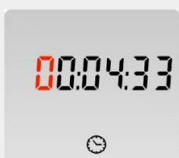


SETUP MODE

PAGE	DISPLAY	DESCRIPTION
6		PULSE DURATION Default: 200mS Option: 200 / 100 / 60ms
6-1		Press the “Enter” button, and the red part flash. Press the “Scroll” button to change the demand integration time option. After choosing the new DIT option, press the “Enter” button to confirm the setting.
7		DEMAND INTEGRATION TIME Default: 15 minutes Option: 0 / 5 / 10 / 15 / 20 / 30 / 60
7-1		Press the “Enter” button, and the red part flash. Press the “Scroll” button to change the interval option. After choosing the new “Scrl” option, press the “Enter” button to confirm the setting.
8		AUTOMATIC SCROLL TIME INTERVAL Default: 0 S Option: 0 ~ 60S
8-1		Press the “Enter” button, the red part flash. Press the “Scroll” button to change the option. After choose the new “Scrl” option, the user need pressing the “Enter” button to confirm the setting.
9		Password setup Default: 1000



SETUP MODE

PAGE	DISPLAY	DESCRIPTION
9-1		Press the “Enter” button, and the red part flash. Press the “Scroll” button to change the value. After choosing the new password, press the “Enter” button to confirm the setting.
10		Date setup Press the “Enter” button to enter the date setup page.
10-1		Press the “Scroll” button to change the value. After choosing the new value, press the “Enter” button to confirm the setting. Date format: Day.Month.Year
11		Time setup Press the “Enter” button to enter the time setup page.
11-1		Press the “Scroll” button to change the value. After choosing the new value, press the “Enter” button to confirm the setting. Time format: Hour:Minute:Second

TROUBLESHOOTING



The module's LCD does not turn on

Reason: There is no connection to the L/N input.



The LCD is showing a negative consumption total (KW/H)

Reason 1: The Lin and Lout connection is opposite. Please connect the Load to Lout and the Live wire to Lin.

Reason 2: If a solar or other type of electricity generator exists, it will pass the power back.



Device search software cannot scan the module

Reason: There is an address conflict. Follow the setup on the LCD to change the address to a new one.



The device setting has reset to default randomly

Reason 1: The TIS-BUS connection has a problem, or the wire has a short.

Reason 2: The programming address is faulty.

Reason 3: At least one tier should be saved in the software's Energy Module.

Reason 4: There is a time conflict in network. More than one module's broadcast time is enabled in the software.