

Multi - function power METER

ISO 9001



- UM-A** Multi - function Power Meter (Energy)
- UM-B** Multi - function Power Meter (Demand)
- UM-C** 3 phase V/A Meter
- UM-D** Multi - function Power Meter

Specifications

- **Display:** Red LED 0.56" high, 3 Display at 5 digs.
- **Over range Indication:** " o.L "
- **Conversion Rate:** 1/sec.
- **Isolation:** Input/Output/Power/Case
- **Operating Temp.:** 0~50°C/Below 95% R.H.
- **Storage Temp.:** -10~60°C/Below 95% R.H.
- **Temp. Coefficient:** $\pm 0.1\%$ F.S/°C
- **CT, PT ratio:** 1~9999
- **Interface:** RS-485 (Standard), or RS-232
- **Power Supply:** AC 90~260V, 50/60Hz
- **Power Consumption:** Approx. 7VA
- **Dielectric Strength:** DIN-IEC688, AC 2.3KV/1min, between terminal.
AC 2.8KV/1 min, between terminal and case.
- **Standards:** IEC 61036 class 1, 61268 class 2, ANSI/IEEE C37.90
- **Isolation Resistance:** DC 500V, 100M Ω at above terminals
- **Protection degree:** Front side IP 54- Case IP20
- **Dimensions:** 144(W) x 144(H) x 120(D)mm
- **Panel Cut - Out:** 136(W) x 136(H)mm

Features

- Display of all the electric parameters V, A, W, Var, VA, PF, Hz, WH, VarH etc.
- A powerful Acquisition Instrument for up 34 Measurements.
- True RMS conversion.
- Maximum function.
- Field programmable PT and CT ratio.
- Memory for all setup and energy data.
- DIN case 144 x144mm
- Password Protected
Prevents accidental adjustment
- Option:
Neutral current be can indicated.
2 channels digital input
2 channels analog (4~20mA) input.
2 channels relay output.
Total harmonic distortion

Input

- **Voltage:** V1, V2, V3, Neutral
(These are the 3phase Voltage and neutral)
Range: 208V_{L-L}/120V_{L-N}
416V_{L-L}/240V_{L-N}
600V_{L-L}/347V_{L-N}
(with isolation transformer)
- **Current:** 1S, 1L, 2S, 2L, 3S, 3L
(These are the 3phase currents)
Range: 0~1A, 0~5A
- **Over load:** Voltage...750V continuous
1.25 x rated continuous
Current...3 x rated continuous
10 x rated for 10sec.
- **Burden:** $\leq 0.2VA$ per Voltage circuit
 $\leq 0.2VA$ per Current circuit
- **Frequency:** 45~65Hz
- **DI input:** Digital input 2 x point

Output

RS-485 Interface

- **Address:** 1 ~ 255
- **Baudrate:** 19200, 9600, 4800, 2400, 1200
- **Protocol:** Modbus RTU Mode
- **Do output:** Contact Capacity:
AC 250V, 1A resistive load
DC 30V, 2A resistive load



Power Meter UM serials

Measurement	Items	UM-A	UM-B	UM-C	UM-D
V _{L-N}	V1,V2,V3, VE	●	●	●	●
V _{L-L}	V12,V23,V13,VE	●	●	●	●
A	A1, A2, A3	●	●	●	●
W	W1,W2,W3, Σ W	●	●		●
Var	Var1, Var2, Var3, Σ Var	●	●		●
VA	VA1, VA2, VA3, Σ VA	●	●		●
PF	PF1, PF2, PF3, Σ PF	●	●		●
Hz		●	●		●
WH	Σ WH	●	●		
VarH	Σ VarH	●	●		
Demand (Max.)	A, VA, W, Var (1~60min free setting)		●		
Total harmonic	A, V (Up to 31th harmonic)		●		
RS-485		●	●	●	

Programmable Measurement & Indicating

Items	L1	L2	L3	N phase	Total	Average	Accuracy(F.S)	Display (Max.)
V _{L-N}	V1	V2	V3			V _E	$\pm 0.25\%(\pm 0.2\%)$	9999V/KV
V _{L-L}	V12	V23	V13					
A	A1	A2	A3			A _E	$\pm 0.25\%(\pm 0.2\%)$	9999A/KA
W	W1	W2	W3		Σ W		$\pm 0.5\%$	± 9999 W/KW/MW
Var	Var1	Var2	Var3		Σ Var		$\pm 0.5\%$	± 9999 Var/Kvar/Mvar
VA	VA1	VA2	VA3		Σ VA		$\pm 0.5\%$	9999VA/KVA/MVA
PF	PF1	PF2	PF3		Σ PF		$\pm 0.5\%$	± 0.999
WH					WH		$\pm 0.5\%$	9999999999WH/KWH/MWH
VarH					VarH		$\pm 0.5\%$	9999999999VarH/KvarH/MVarH
Hz							$\pm 0.1\%$	45.0~65.0Hz
Accuracy performance range				Measurement range				
V : 10~100% PF : 0.5~ ± 1.0				V : 0~120%				
A : 5~100% Hz : 45~65Hz				A : 0~120%				

$$V_E = (V_{12} + V_{23} + V_{13}) / 3$$

$$A_E = (A_1 + A_2 + A_3) / 3$$

$$\Sigma W = W_1 + W_2 + W_3$$

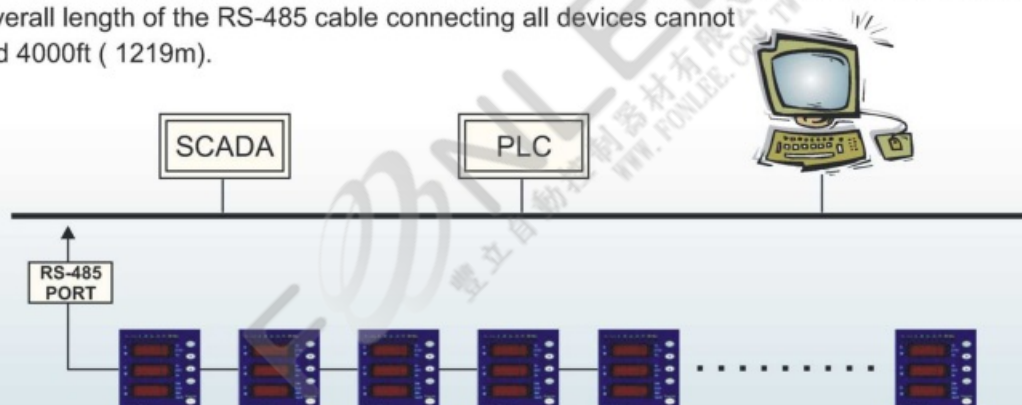
$$\Sigma PF = \Sigma W / [V_1 A_1 + V_2 A_2 + V_3 A_3]$$

$$\Sigma VAR = \sqrt{VA_1^2 - W_1^2} + \sqrt{VA_2^2 - W_2^2} + \sqrt{VA_3^2 - W_3^2}$$

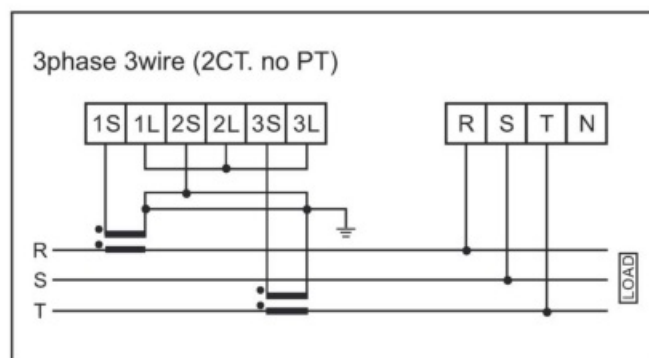
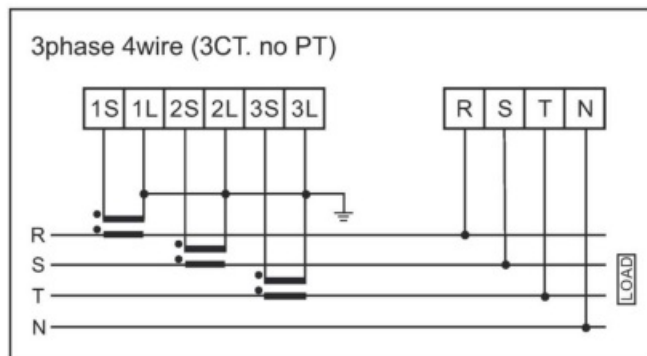
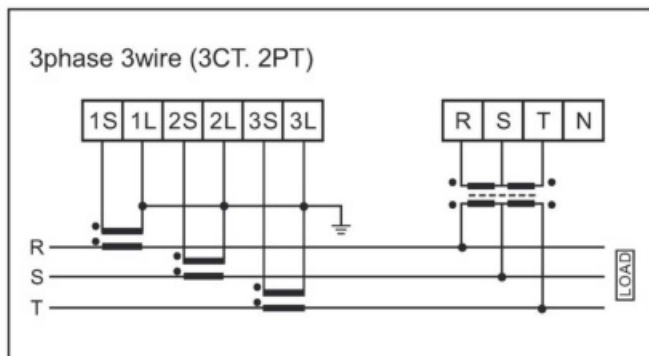
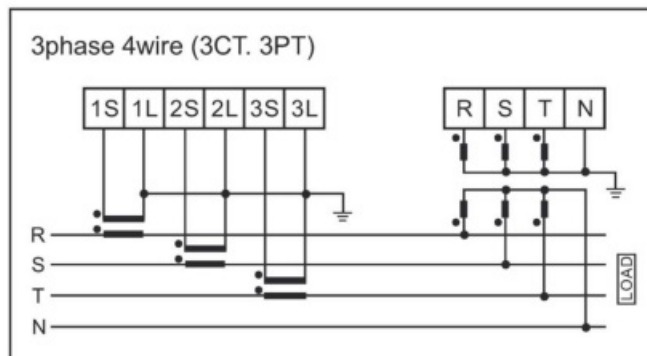
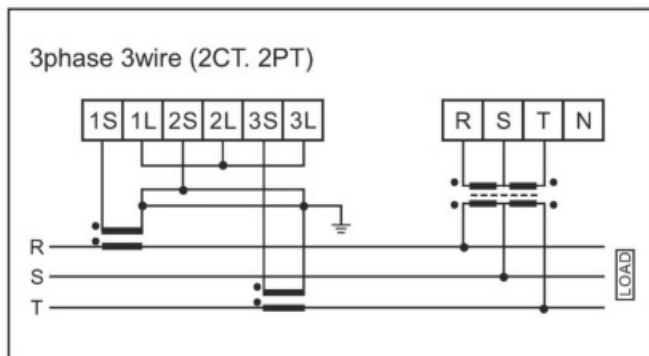
RS-485 Communications

We use the most convenient and the easiest RS-485 as our standard output port, besides, we adopt Modbus RTU mode, one of the most popular protocol in the world, as our standard protocol.

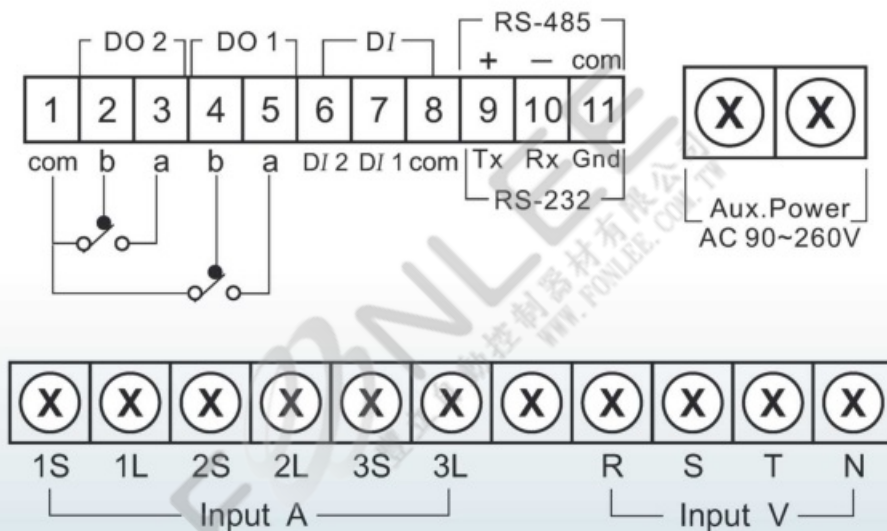
RS-485 communications allows multiple devices to be connected on the same bus. Up to 30 devices can be connected on a single RS-485 bus, which consists of a shield twisted pair cable. The overall length of the RS-485 cable connecting all devices cannot exceed 4000ft (1219m).



Example Connections

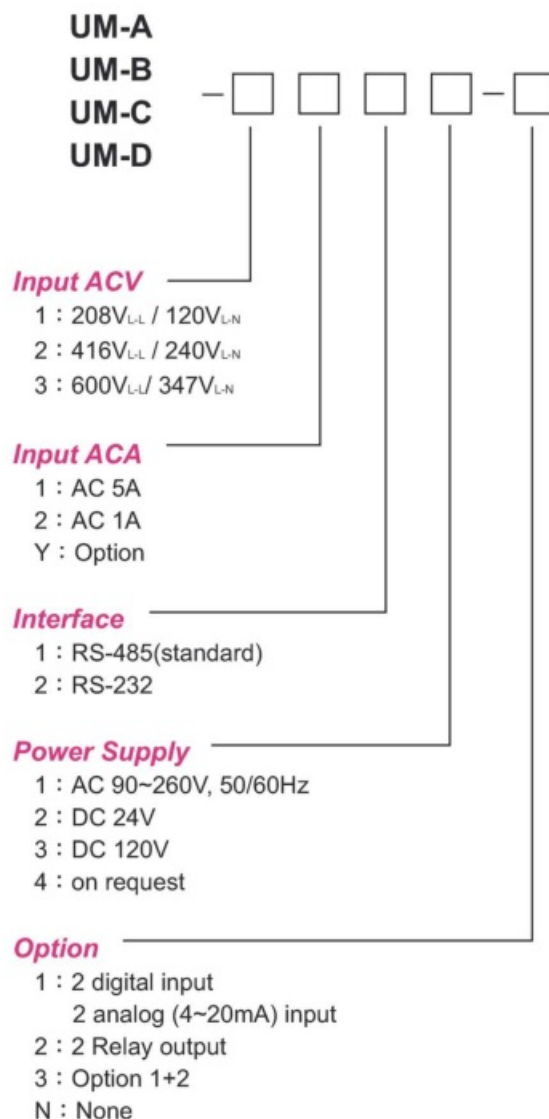


Connection terminals



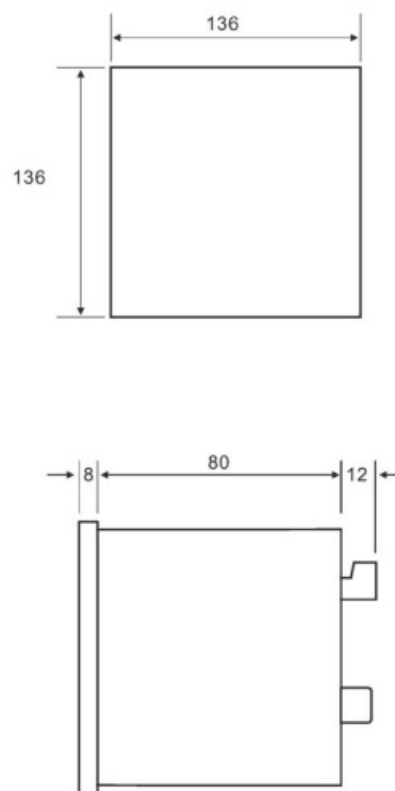
Multi - function power METER

Order Code



Dimensions (mm)

Panel Cut out



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