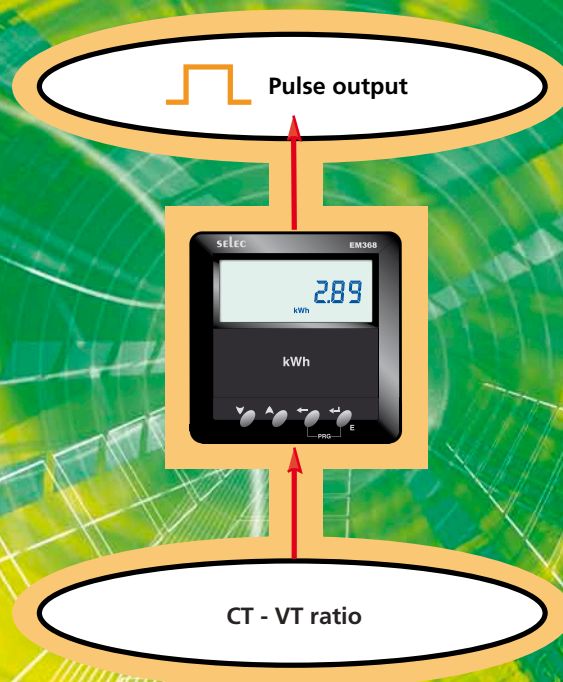


PANEL MOUNTED ENERGY METER WITH LCD DISPLAY

TYPE EM368



Features:

- 8 digit LCD with backlit display
- User programmable CT primary, CT secondary, PT primary and PT secondary
- User programmable network selection
- Memory retention
- Battery backup
- Password protected energy reset
- Potential free Pulse output for energy
- 85 to 270Vac auxiliary supply
- RS485 communication (MODBUS Protocol)
- Conforms to EN62053-21
- Class 1

Suitable for the following...

- 3 Phase 4 Wire Network.
- 3 Phase 3 Wire Network.
- 2 Phase 3 Wire Network
- Single Phase 2 Wire Network
- 5A and 1A Input
- 5A to 10,000A programmable primary CT ratio.
- 85 to 270Vac supply.



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EM368

**AC THREE PHASE, FOUR WIRE PANEL MOUNTED
STATIC KWH METER WITH LCD DISPLAY**

INSTALLATION & OPERATION INSTRUCTIONS

Panel Mounted Energy Meter with LCD Display

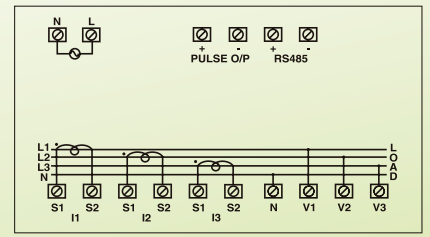
EM368 - Installation & Operation Instructions

EM368 Front Panel

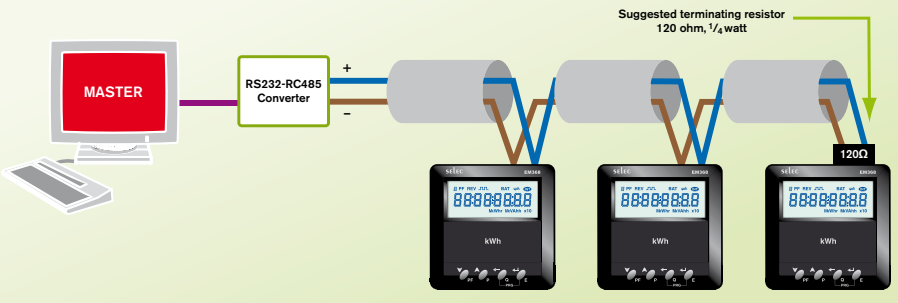
- 1 Parameter adjustment - down (in configuration mode)
 - 2 Parameter adjustment - up (in configuration mode)
 - 3 Go to previous parameter (in configuration mode)
 - 4 Go to next parameter (in configuration mode)
- View total active energy (in normal mode)



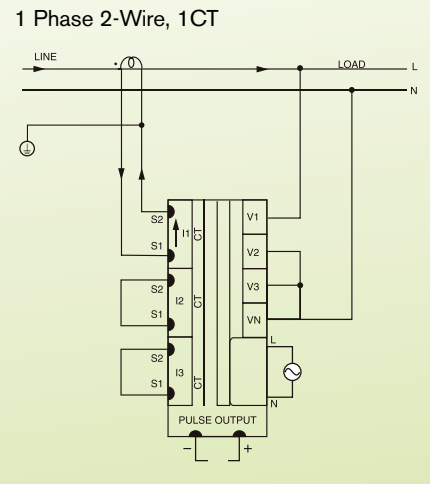
Terminal Connections



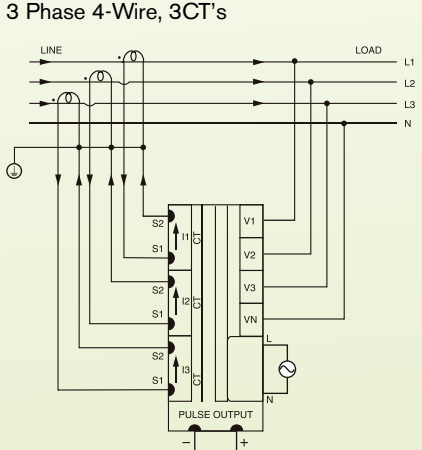
Communication Connection Diagram



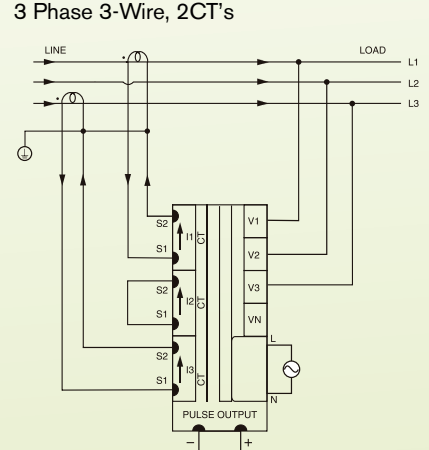
Wiring Diagrams - 1 Phase 2-Wire



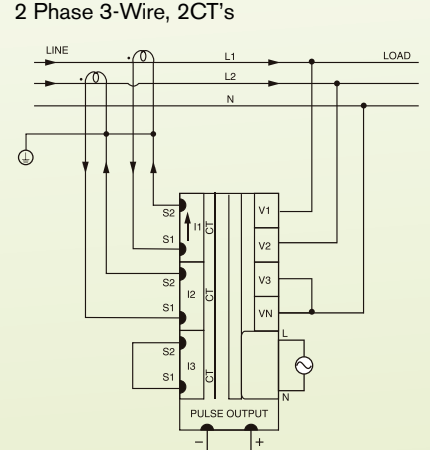
Wiring Diagrams - 3 Phase 4-Wire



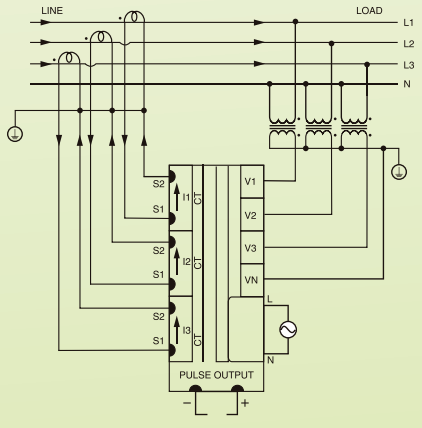
Wiring Diagrams - 3 Phase 3-Wire



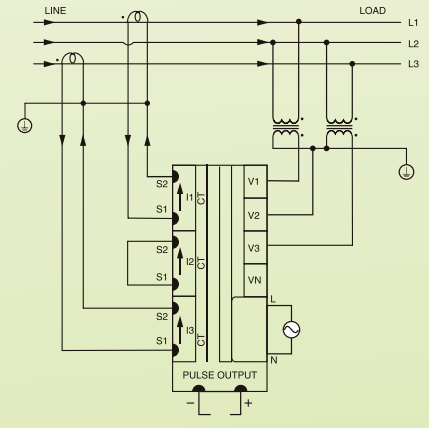
Wiring Diagrams - 2 Phase 3-Wire



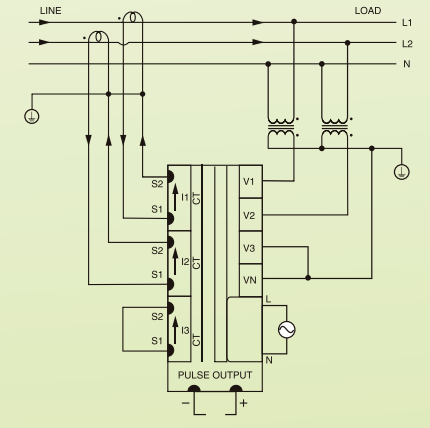
3 Phase 4-Wire, 3CT's and 3PT's



3 Phase 3-Wire, 2CT's and 2PT's



2 Phase 3-Wire, 2CT's and 2PT's



Configuring the device parameters

No	Function	Key Press
1	To enter into configuration mode	press both keys and hold for 3 seconds
2	To scroll through the pages in a forwards direction while in configuration mode.	go to next page
3	To scroll through the pages in a reverse direction while in configuration mode.	go to previous page
4	To increase and decrease all parameter values	Increase Decrease

Notes

- By default total active energy (kWh) will be displayed at all times.
- Pressing key will save the value of the current parameter and move to the next parameter.
- Continuous operation of or keys makes the parameter values update faster in 3 stages after 7 seconds.
- In configuration menu repeated pressing of key will allow toggling between all the configuration parameters.

1. Password (Factory Set: 10)

Display **PASSY0ND**

Press **11** Range: 1 to 9999

Press for next parameter

Press for previous parameter

2. Change Password (Factory Set: No)

Display **CHGPNASyD**

Press **NO** Range: No / Yes

Press for next parameter

Note: If 'NO' then after pressing the menu will go to network selection

3. New Password (Factory Set: 0)

Display **NEYPASyD**

Press **0** Range: 0 to 9998

Press for next parameter

Press for previous parameter

4. Network Selection (Factory Set: 3P-4W)

Display **NY SEL**

Press **3P-4W** Range: 3 Ø - 4 wire
3 Ø - 3 wire

Press for next parameter

Note: For 2 Ø 3 wire and 1 Ø 2 wire select 3 Ø 4 wire

5. CT Secondary (Factory Set: 5)

Display **CT SEC**

Press **5** Range: 5A or 1A

Press for next parameter

Press for previous parameter

6. CT Primary (Factory Set: 5)

Display **CT PR1n**

Press **5** Range: 5 to 10,000A or 1 to 10,000A

Press for next parameter

Press for previous parameter

Note: 1 to 10,000A if CT secondary is 1 else CT primary is 5 to 10,000A

7. PT Secondary (Factory Set: 350)

Display **PT SEC**

Press **350** Range: 100V to 500V AC_{RLD}

Press for next parameter

Press for previous parameter

8. PT Primary (Factory Set: 350)

Display **PT PR1n**

Press **350** Range: 100V to 500kV

Press for next parameter

Press for previous parameter

10. Slave ID (Factory Set: 1)

Display **SLAVE ID**

Press **1** Range: 1 to 255

Press for next parameter

Press for previous parameter

(Optional - available in EM36822)

11. Baud Rate (Factory Set: 9600)

Display **bd RATE**

Press **9600** Range: 300, 600, 1200, 2400, 4800, 9600 & 19200

Press for next parameter

Press for previous parameter

(Optional - available in EM36822)

12. Parity (Factory Set: None)

Display **PAR ITy**

Press **NONE** Range: Even, Odd, None

Press for next parameter

Press for previous parameter

(Optional - available in EM36822)

13. Stop Bit (Factory Set: 1)

Display **STOPb IT**

Press **1** Range: 1 or 2

Press for next parameter

Press for previous parameter

(Optional - available in EM36822)

14. Reset Energy (Factory Set: No)

Display **RSE ENRG**

Press **NO** Range: No / Yes

Press for next parameter

Press for previous parameter

Note: If 'NO' then after pressing the menu will go to network selection

15. Password (Factory Set: 11)

Display **PASSY0ND**

Press **11** Range: 1 to 9999

Press for next parameter

Press for previous parameter

16. Reset Active Energy (Factory Set: No)

Display **RSE EYH**

Press **NO** Range: No / Yes

Press for next parameter

Press for previous parameter

Note: User should note the reading before resetting

Exiting Configuration Mode

Function	Key Press	
To exit configuration mode		press both keys and hold for 3 seconds
or		do not press any key for 30 seconds in configuration mode
or		power OFF and power ON the unit

Panel Mounted Energy Meter with LCD Display

EM368 - Installation & Operation Instructions

Application Note

Class 1.0 for Active energy

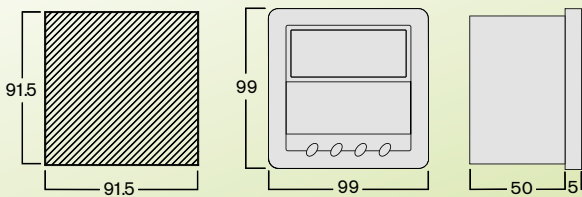
LCD Indications

- REV** Indication of reversal of one or more CT connections / Phase. In such cases the meter may not indicate the correct energy consumption. The CT should be connected to the meter with correct polarities.
- PULSE** Indicates pulse output is available.
- BAT** Indicates that the unit is working in absence of auxiliary supply. The display will turn off after 48 hours when operated in battery backup mode continuously. No measurement or output will take place in this mode.
- COMM** Indicates that communication is in progress.
- INT** Indicates energy integration. The symbol will blink once every 5 seconds when voltage & current are present in any of the three phases.
- x10** Indicates resolution is 10. When showing the indicated reading should be multiplied by 10 to give the actual kWh.

Resolution Table

PT Ratio x CT Ratio	kWh	Pulse
<15	0.01K	0.01K
<150	0.1K	0.1K
<1500	1K	1K
<15000	0.01M	0.01M
<150000	0.1M	0.1M
<1500000	1M	1M
≥1500000	10M	10M

Dimensions Diagram (mm)



Technical Specification

Display	10.5mm high, 8 Digit LCD
Wiring input	3Ø - 4 wire, 3Ø - 3 wire, 2Ø - 3 wire and 1Ø - 2 wire
Rated input voltage	11...300Vac(L-N) : 19...519Vac (L-L)
Frequency range	50/60Hz
Rated input current	Nominal 5A (Min 11mA, Max 6A)
CT primary	1A...10,000A if CT secondary is 1 else 5A to 10,000A
CT secondary	1A or 5A (programmable)
PT primary	100V to 500kV (programmable for any value)
PT secondary	100 to 500Vac (L-L) (programmable for any value)
Burden	0.5Va @ 5A per phase
Auxiliary supply range	85...270Vac, 50/60Hz
Pulse output	Voltage range - 24Vdc Current capacity - 100mA max Pulse width - 100ms ±50ms
Temperature	Operating : 0...50°C Storage : -20...75°C
Humidity	85% non condensing
Mounting	Panel mounting
Weight	310g

Serial Communication

Interface standard	RS485
Protocol	MODBUS RTU
Communication address	1 to 255
Transmission mode	Half duplex
Data types	Float and Integer
Transmission distance	500m maximum
Transmission speed	300, 600, 1200, 2400, 4800, 9600, 19200 (in bps)
Parity	None, Odd, Even
Stop Bits	1 or 2
Response time	100ms (independent of baud rate)

How to Order / Model Reference

	eg EM36822
	□□□□□□□□
Model	
Standard model with pulse output	EM36821
With RS485 Modbus RTU output	EM36822