

We touch your **electricity** everyday!

## CSM-A Smart Metering Solution



3P, 1R Class 1.0 Single function Meter



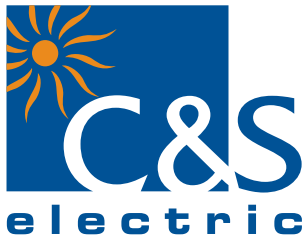
3P, 3R Class 1.0 Multi-function Meter

### Digital Meter Series

Catalogue

## Metering Solution

- Multifunction Meter
- Three Phase / Single Phase Meter
- Class 1.0 (7 Segment Meter)



PMD Division

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## Introduction

CSM-A Series is a powerful Micro-controller based digital panel meter series with built in intelligence that offer comprehensive 3 phase electrical instrumentation in a compact and rugged package.

## Application

- Electrical Panel : Industrial HT & LT Panel
- AMF Panel for DG Set
- Building Management System
- Motor Control System
- Switch Gear Panel
- PLC Panel

## Features

- Accuracy Class : 1.0 (As per IEC 62053-21) for LED display
- True RMS Measurement
- 1 Sec Display update rate
- 4 Quadrant Measurement
- Display : 4 Digit 7 Segment LED Display
- 3 Smart keys for easy access of parameters
- Programmable CT Primary & CT Secondary
- Programmable PT Primary & PT Secondary
- Wide Range of Aux. Supply
- Auto scrolling of parameter
- Low Back Depth
- Communication with PLCs, DCS through optically isolated RS-485
- Compact Size of 96 x 96 mm

## Measurement

- 3 Phase Voltage (VL-N/VL-L)/ 1 Phase Voltage (VL-N)
- 3 Phase current (A)/ 1 Phase current (A)
- Frequency (Hz)
- Active Power(kW), Reactive Power(kVAr), Apparent Power(kVA)
- Power Factor (Cos  $\phi$ )
- Active Energy Import/Export (kWh)
- Reactive Energy Import/Export (kVArh)
- Apparent Energy (kVAh)
- Run-Hour
- ON-Hour
- Auxiliary Interruption count

## Technical Specifications

<b>ELECTRICAL</b>	
System Network Connection	3 Phase,4 Wire / 3 Phase,3 Wire / 1 Phase, 2 Wire
Auxiliary Supply	190 - 450V AC / 90 - 290V AC
Voltage Measurement	20 - 300V AC (L-N) / 35- 520V AC (L-L)
Current Measurement	50mA - 6.5A (Rated current 5A)
Frequency Measurement	45 - 65 Hz
Over load	120% of rated, continuously
	4 times of rated for 1 sec
	1.5 times for 1 sec
CT Pri. & Sec. / PT Pri. & Sec.	Programmable
Power Factor (CosØ)	0.5 Lag ..... 1 ..... 0.8 Lead
Burden	<0.5 VA @240V (per Phase Voltage)
	<0.4 VA @5A (per Phase Current)
	<8VA (Aux Supply)
Accuracy	Class 1.0
Insulation	2.5kV
Compliance	Design as per IEC 62053-21
<b>COMMUNICATION</b>	
MODBUS (RS-485)	RTU
<b>INSULATION</b>	
Impulse Voltage Test	IEC-62053-22 (± 2kV)
<b>ENVIRONMENT</b>	
Operating Temperature Range	0°C to +60°C
Storage Temperature Range	-20°C to 75°C
Humidity Range	5% to 95% non condensing
Protection against dust & water	IP-54 (Front) (As per IEC 60529)
<b>MECHANICAL</b>	
Size	96 x 96 mm (Depth 56 mm)
Mounting	Flush mounting with 2 side lock
Panel cut out	90 x 90 mm
Terminal	Screwed terminals

## Mounting Arrangement

To fix the meter with the panel, slide it through the panel cut out. Place the clamp in the fixed area on the meter from the back side one by one, slide it inside so that meter will hold tightly with the panel. To remove the meter from the clamp, uplift the clamp with appropriate pressure else it will get damage and bring it out.

### Note :

Installations should include a disconnecting device, like a switch or circuit breaker, with clear ON/ OFF marking to Turn Off the Aux Supply (Control Power). The disconnecting device should be placed with in the reach of the equipment & the operator.

Uplift the clamp with appropriate pressure else it will damage the plastic clamp



## Types of Meters

### Multi Function Meter

Model No.	Description
CSM-A-E3-S3	3 Phase kWh Meter with/without communication
CSM-A-M3-S3	3 Phase V+I+F Meter with/without communication
CSM-A-M4-S3	3 Phase V+I+F+PF+kW+kWh Meter with/without communication
CSM-A-M5-S3	3 Phase V+I+F+PF+kW+kWh+kVAh+kVArh Meter with/without communication



CSM-A-M5-S3

### Three Phase / Single Function

Model No.	Description
CSM-A-V3-S1	3 Phase Volt Meter
CSM-A-I3-S1	3 Phase Ammeter
CSM-A-F3-S1	3 Phase Frequency Meter



CSM-A-V3-S1

### Single Phase / Single Function

Model No.	Description
CSM-A-V1-S1	1 Phase Voltmeter
CSM-A-I1-S1	1 Phase Ammeter
CSM-A-F1-S1	1 phase Frequency Meter
CSM-A-P1-S1	1 Phase PF Meter
CSM-A-H1-S1	ON Hour Meter



CSM-A-V1-S1

## Human Machine Interface (HMI)

### CSM-A-M5-S3

THREE PHASE MULTI FUNCTION METER

VL-L ●

VL-N ●

A ●

PF ●

Hz ●

L1

L2

L3

● K

● M

● W

● Wh

● VA

● VAh

● VAr

● VArh

R345TK000663

### CSM-A-M4-S3

THREE PHASE MULTI FUNCTION METER

VL-L ●

VL-N ●

A ●

PF ●

Hz ●

L1

L2

L3

● K

● M

● W

● VA

● VAr

R345TK000664

### CSM-A-M3-S3

THREE PHASE MULTI FUNCTION METER

VL-L ●

VL-N ●

A ●

L1

L2

L3

● K

● M

● Hz

R345TK000665

### CSM-A-E3-S3

THREE PHASE ENERGY METER

L1

L2

L3

● K

● M

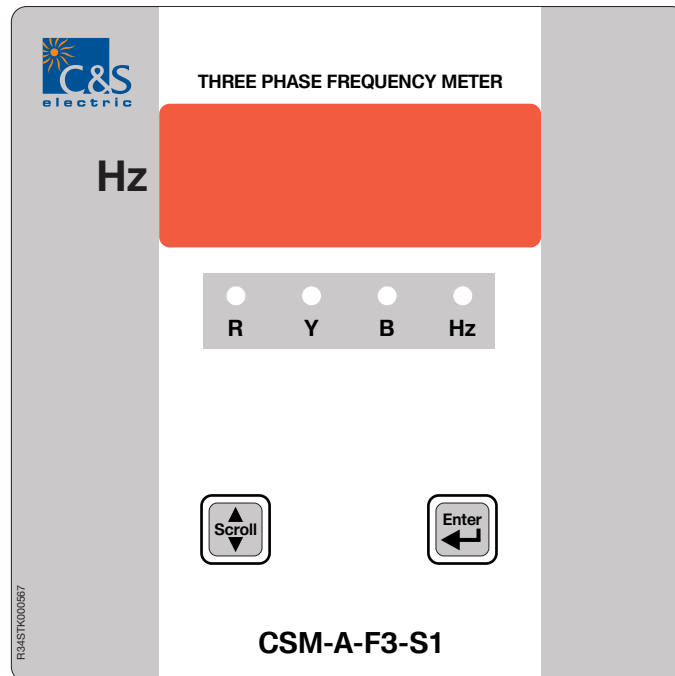
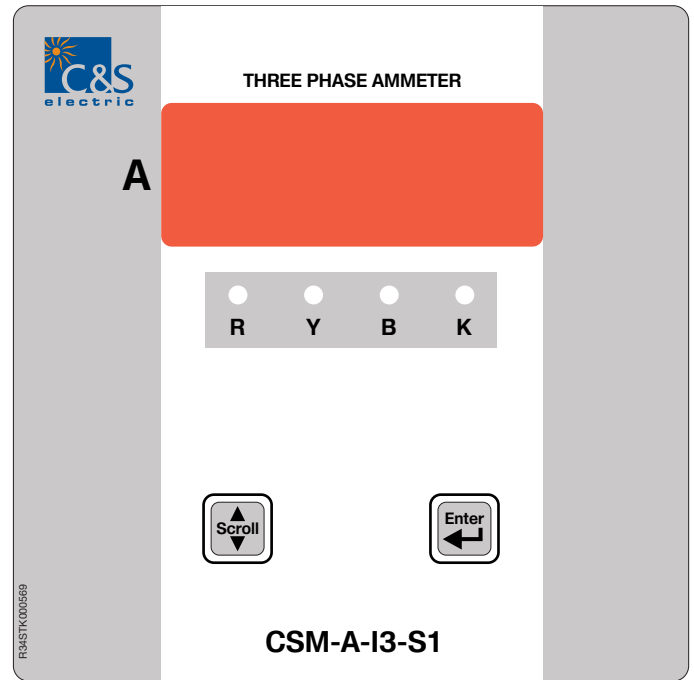
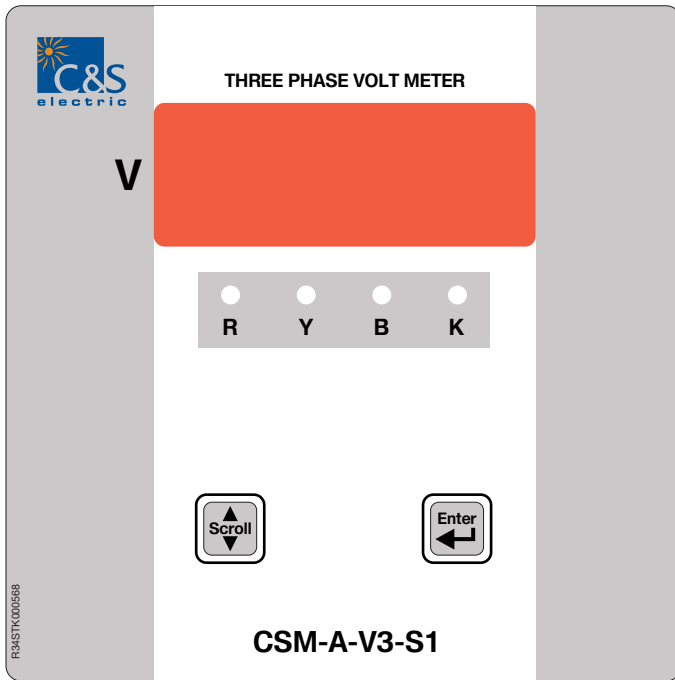
● Wh

● VAh

● VArh

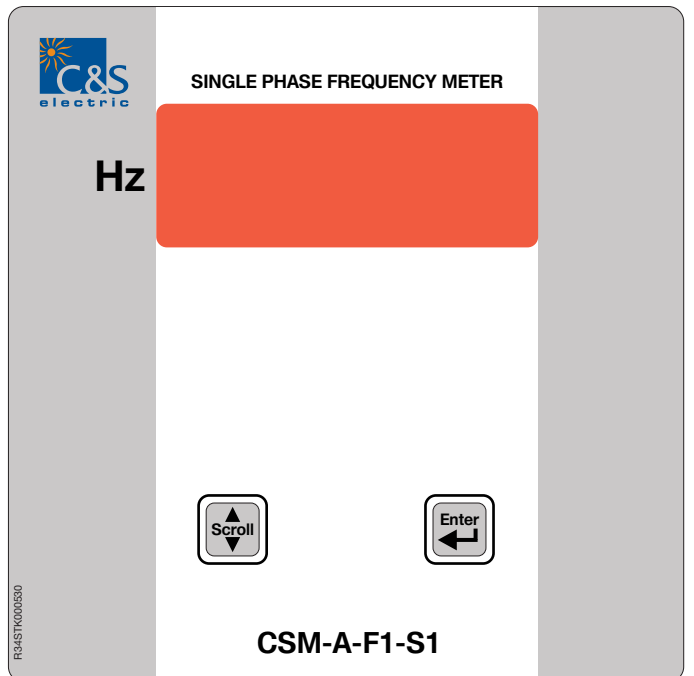
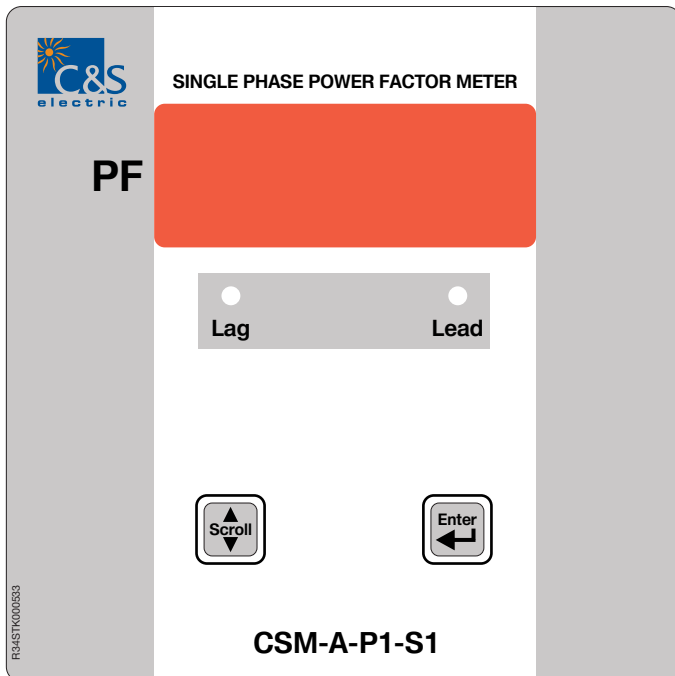
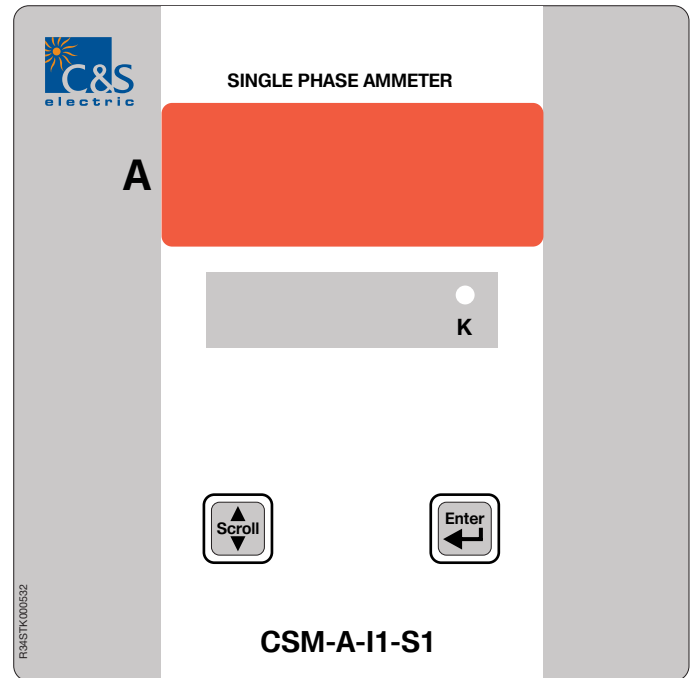
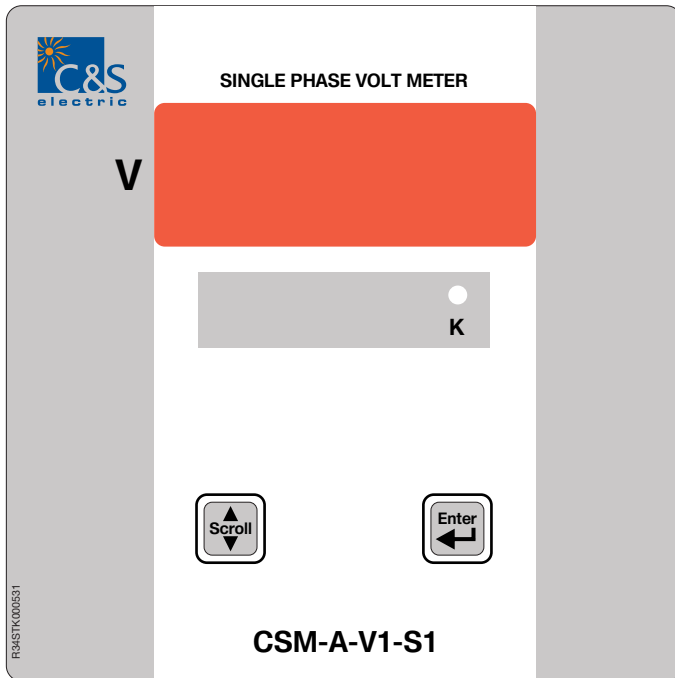
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## Human Machine Interface (HMI)

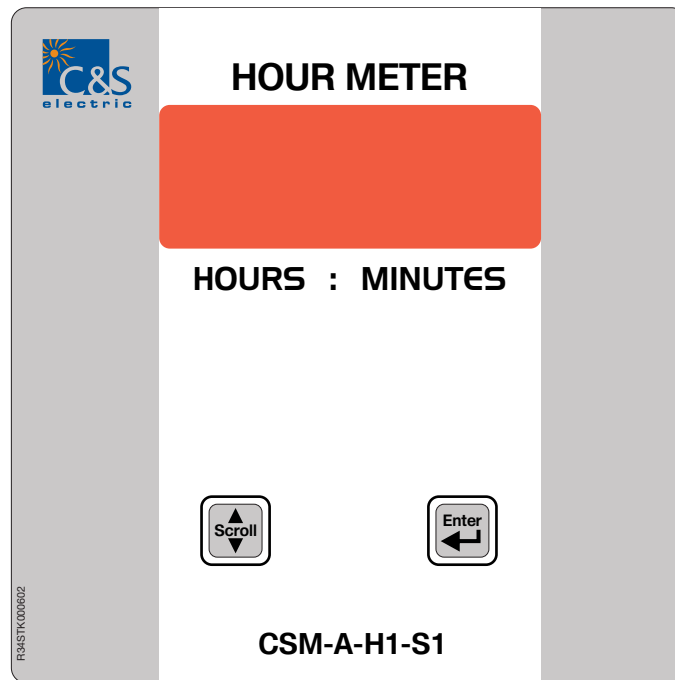








## Human Machine Interface (HMI)



## Human Machine Interface (HMI)

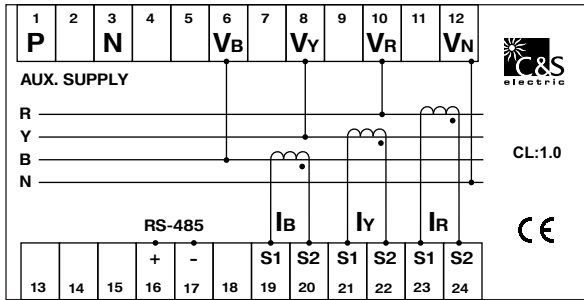


### Key Description

Key	Description
	Scroll Up Display / Increment key while editing parameters
	Scroll Down Display / Decrement key while editing parameters
	Short Press : ENTER
	LED indication for Voltage, Current, Frequency, Power, Power Factor etc. R, Y, B Phase & Killo (K) & Mega (M) indication

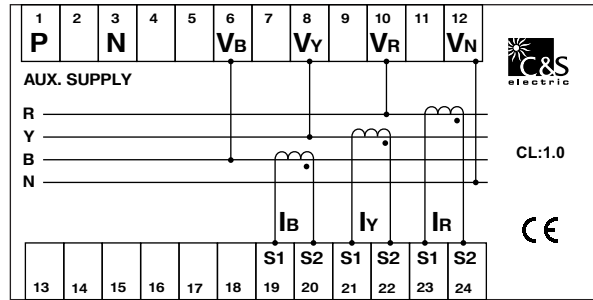
## Connection Diagram

CSM-A (3 Phase, 3 Row) Meter Conn. Diagram Sticker  
(CSM-A-M5-S3, M4-S3, M3-S3, E3-S3 with Communication)

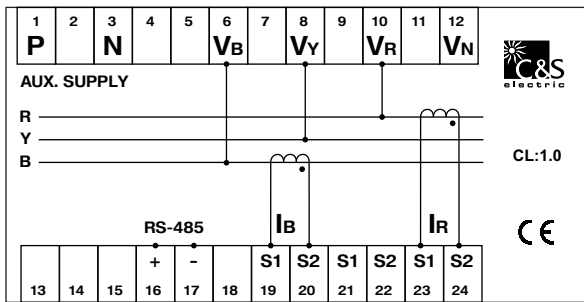


3 Phase 4 Wire connection

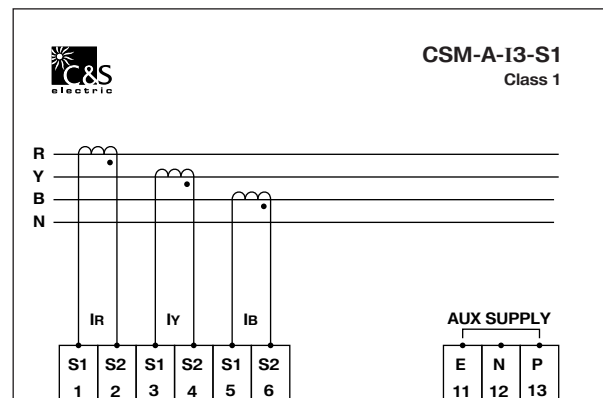
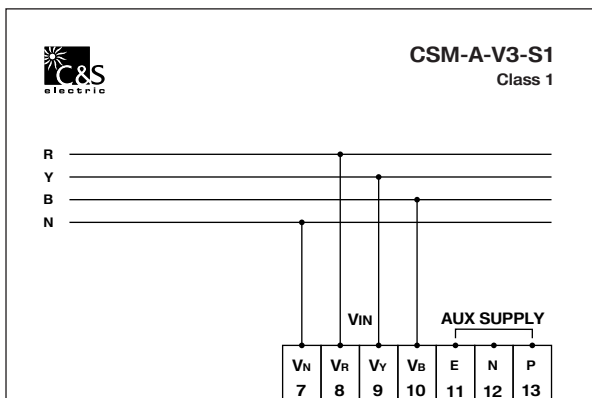
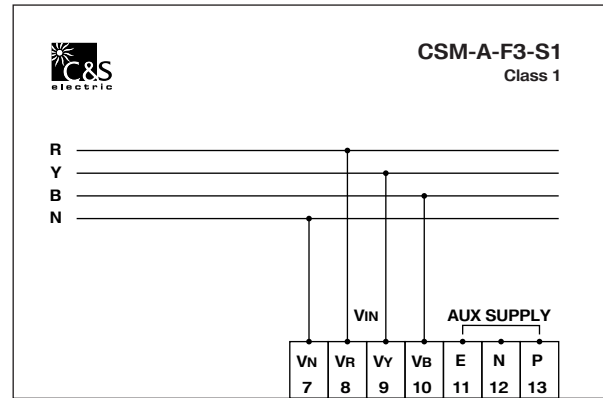
CSM-A (3 Phase, 3 Row) Meter Conn. Diagram Sticker  
(CSM-A-M5-S3, M4-S3, M3-S3, E3-S3 without Communication)



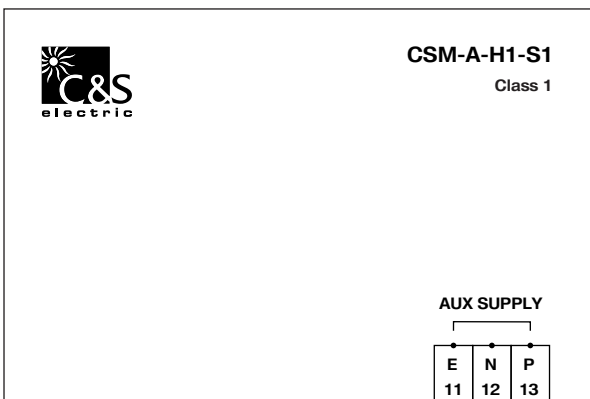
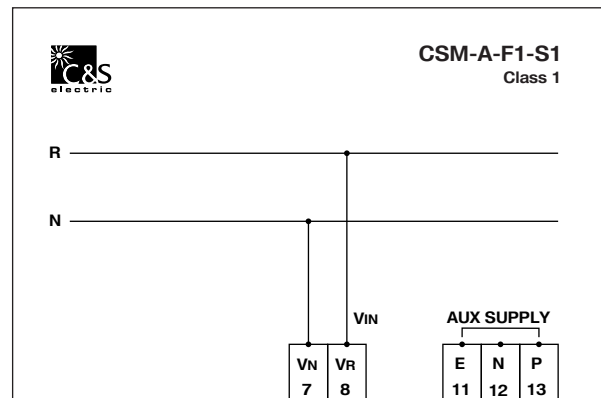
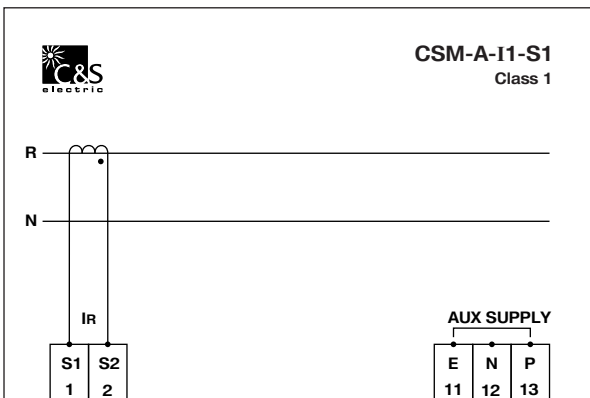
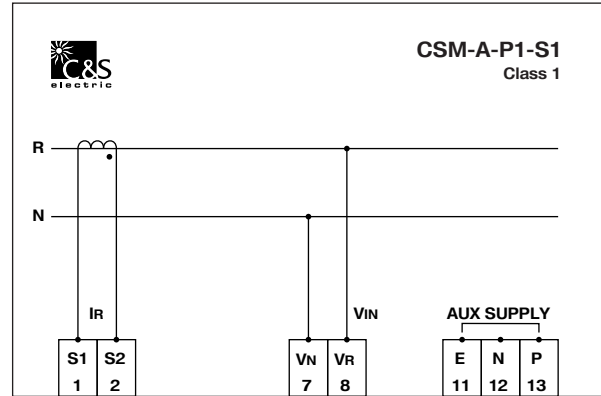
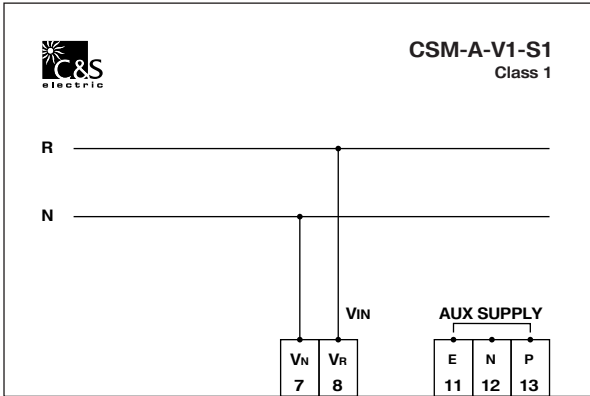
CSM-A (3 Phase, 3 Row) Meter Conn. Diagram Sticker  
(CSM-A-M5-S3, M4-S3, M3-S3, E3-S3 with Communication)



3 Phase 3 Wire connection

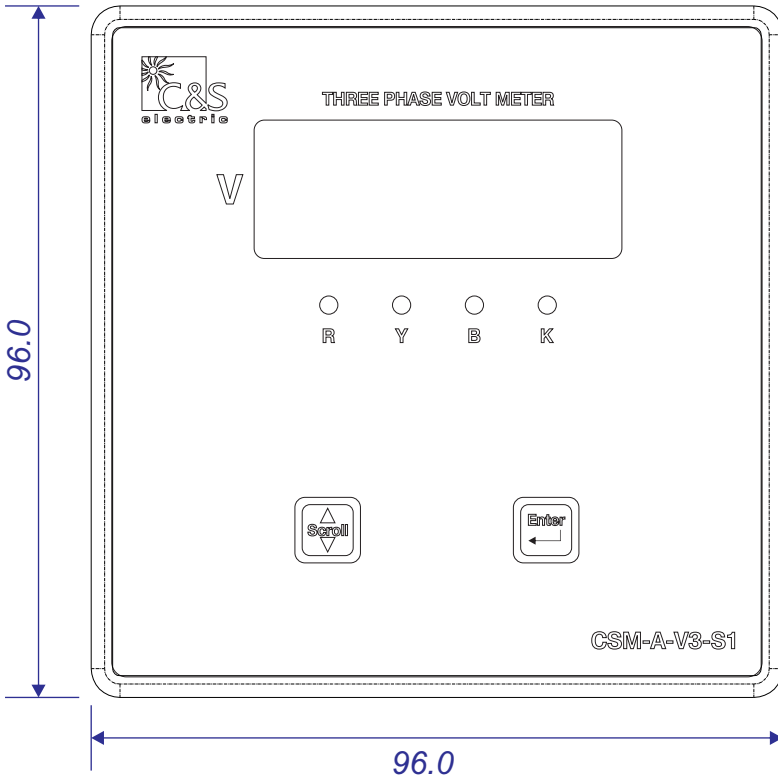


## Connection Diagram



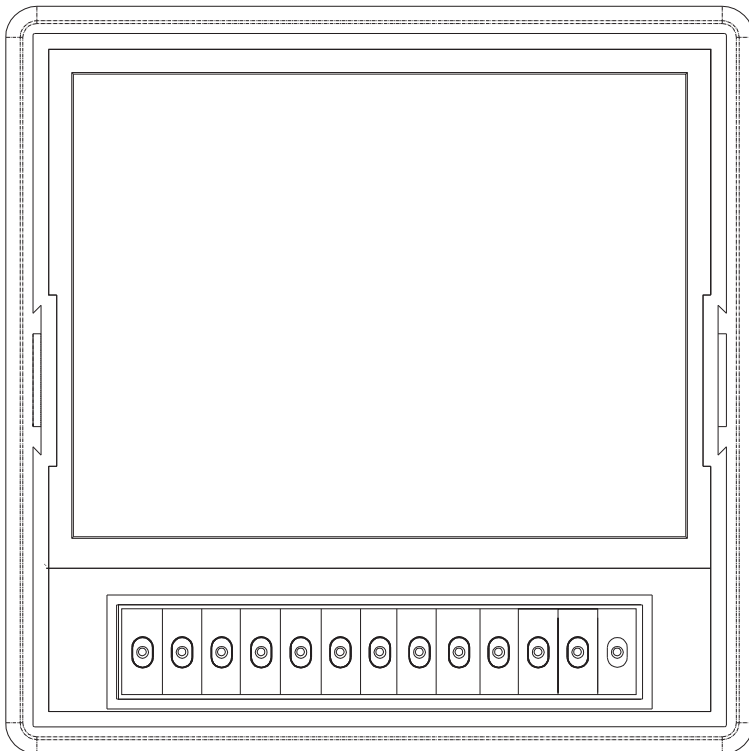
**Dimensional Details** (All the dimensions are in mm) 3 Phase 1 Row Meter Enclosure, Panel cut out : 90 x 90 mm

**Front View**

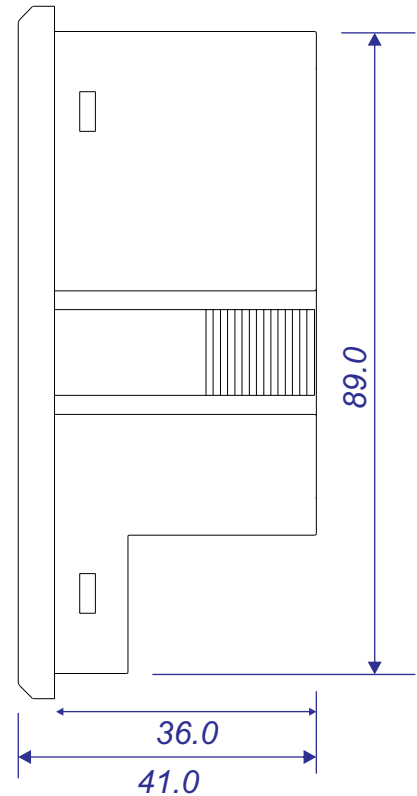


Dimension Details	
Mounting	Flush on Panel
Dimensions	96 x 96 mm
	Panel cut out : 90 x 90 mm
	Depth : 36 mm behind bezel
Terminal connector	Fixed Rigid Screw Type
Weight	0.3 Kg

**Back View**

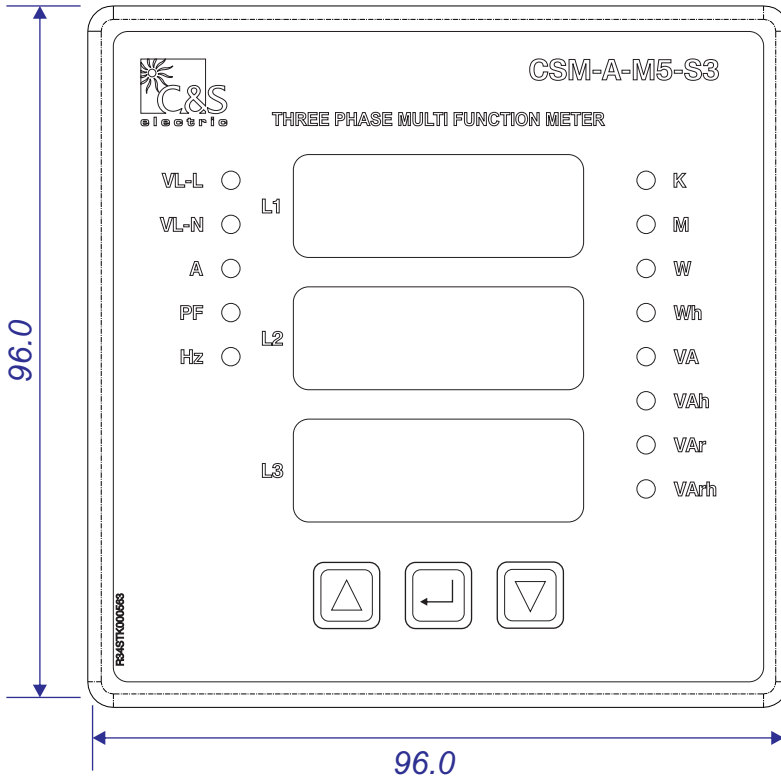


**Side View**



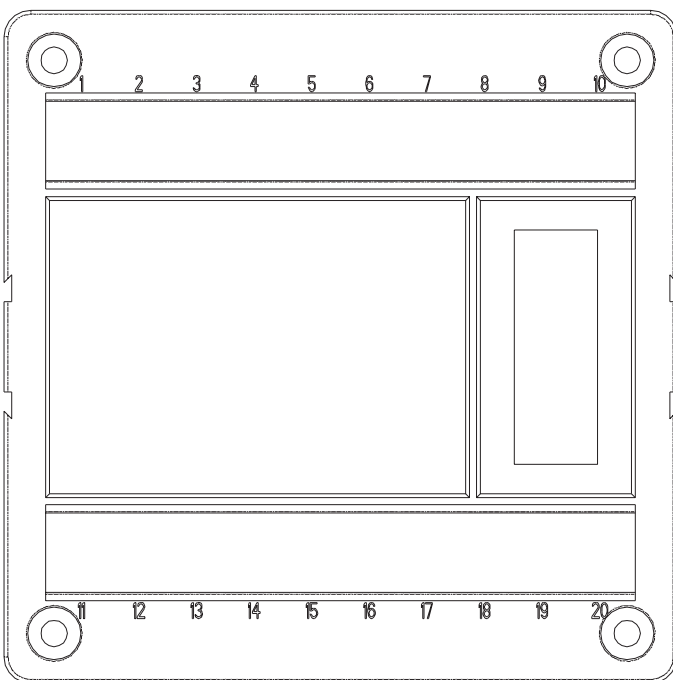
**Dimensional Details** (All the dimensions are in mm) 3 Phase 3 Row Meter Enclosure, Panel cut out : 90 x 90 mm

**Front View**

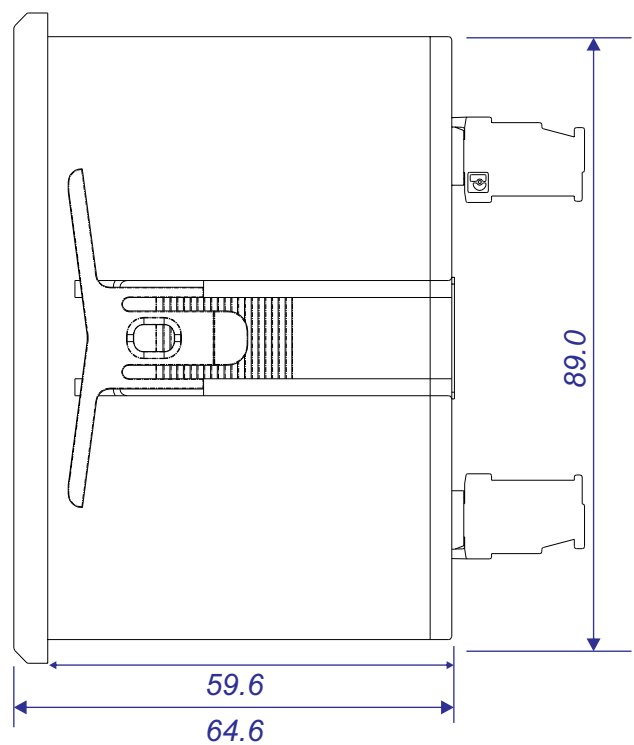


Dimension Details	
Mounting	Flush on Panel
Dimensions	96 x 96 mm
	Panel cut out : 90 x 90 mm
	Depth : 79.6 mm behind bezel
Terminal connector	Fixed Rigid Screw Type
Weight	0.3 Kg

**Back View**



**Side View**



## Model Selection

Model			Basic Parameters				Power			Energy			Hour		Direction		Comm.	
	Rows	Digits per Row	V	A	F	PF	KW	KVA	KVAr	kWh	kVAh	kVArh	Run Hour	ON Hour	Aux Sup Interrupt.	Energy Import	Energy Export	RS-485 MODBUS
V1-S1	1	4	1P											✓	✓			
I1-S1	1	4		1P									✓	✓	✓			
F1-S1	1	4			✓									✓	✓			
P1-S1	1	4				✓							✓	✓	✓			
V3-S1	1	4	3P											✓	✓			
I3-S1	1	4		3P									✓	✓	✓			
F3-S1	1	4			✓									✓	✓			
H1-S1	1	4												✓				
M3-S3	3	4	3P	3P	✓								✓	✓	✓			✓
M4-S3	3	4	3P	3P	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓
M5-S3	3	4	3P	3P	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
E3-S3	3	4								✓	✓	✓	✓			✓	✓	✓

S1 = Four Digit Single Row Display / Single Function model

S3 = Four Digit Three Row Display / Multi Function model

## Ordering Information

