

# PRODUCT SELECTION GUIDE

# selec®

## ELECTRICAL MEASUREMENT



- Multifunction Meters
- Energy Meters
- Digital Panel Meters
- Current Transformers

## ELECTRICAL PROTECTION & CONTROL RELAYS



- Line Monitoring
- Current Monitoring
- Motor & Pump Protection
- Time Switch
- Analog Timer
- Automatic Power Factor Controller

## ELECTRICAL MEASUREMENT

3

- Multifunction Meters
- Energy Meters
- Digital Panel Meters (VAF Meter, Volt Amp meter, Multifunction DPM, Voltmeter, Ammeter)
- Current Transformers

## PROTECTION RELAY

11

- Line Monitoring Relay
- Auto Switch
- Voltage Monitoring Relay
- Current Monitoring Relay
- Earth Fault Relay / Earth Fault Current Transformer
- Earth Leakage Relay / Core Balance Current Transformer
- Motor Protection Relay
- Pump Protection Relay / Motor Protection Current Transformer
- Liquid Level Controllers / Liquid Level Sensor
- Thermistor Protection Relay / Annunciator

## TIME RELAY

19

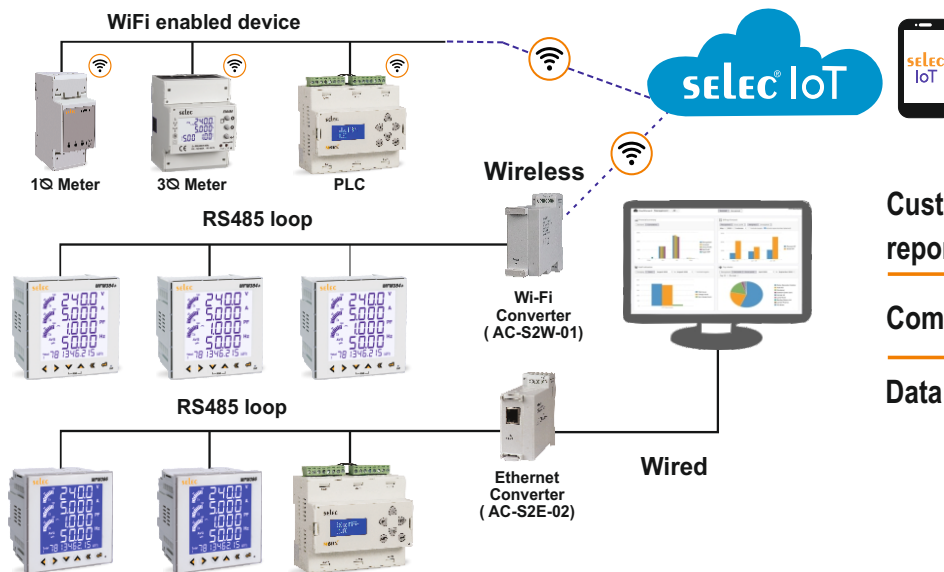
- Astronomical Time Switch
- Daily / Weekly Time Switch
- Analog Timer

## AUTOMATIC POWER FACTOR CONTROLLER

23

# ENERGY MANAGEMENT

## SELEC IoT - CLOUD



Customized widget based dashboard & reports

Compatibility with third-party devices

Data monitoring & real time control

Also available in local PC based (SELCOM)



**MFM384+**  
96(H) x 96(W) x 50(D)mm



**MFM384**  
96(H) x 96(W) x 50(D)mm



**MFM384-R-C**  
90(H) x 70(W) x 66.3(D)mm



**MFM383A**  
96(H) x 96(W) x 50(D)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>MFM with accuracy class 0.5S and built in RTC (Year / Date / Hour)</li> <li>DG sensing</li> <li>%THD up to 31<sup>st</sup> level</li> <li>%Unbalance for voltage and current</li> </ul>	<ul style="list-style-type: none"> <li>MFM with accuracy class 0.5S / class 1 and %THD up to 31<sup>st</sup> level</li> <li>Max. demand</li> <li>Demand measurement</li> </ul>	<ul style="list-style-type: none"> <li>MFM with accuracy class 1 and %THD up to 31<sup>st</sup> level</li> <li>Demand measurement</li> </ul>	<ul style="list-style-type: none"> <li>MFM with accuracy class 1 and Pulse output</li> </ul>
<b>DISPLAY</b>	LCD with backlight			
<b>DIGITS</b>	4 rows of 4 digits, Bar graph representation for current, 1 row of 9 digits for energy display	4 rows of 4 digits, Bar graph representation for current, 1 row of 8 digits for energy display	1 row of 4 digits, 2 rows of 7 digits	3 rows of 4 digits, 7½ digits for energy display
<b>ELECTRICAL CONNECTION</b>	1Ø-2W, 2Ø-3W, 3Ø-3W, 3Ø-4W			
<b>RATED INPUT VOLTAGE</b>	35 to 347V AC (L-N), 35 to 600V AC (L-L)	11 to 300V AC (L - N), 19 to 519V AC (L - L)		
<b>RATED INPUT CURRENT</b>	Nominal 5AAC (Min-5mA; Max-6A)	Nominal 5A AC (Min - 11mA ; Max - 6A)		
<b>RESOLUTION</b>	For Energy: 0.001k (auto resolution) For Power, Voltage, Current: Auto resolution For Power factor: 0.001, Frequency: 0.1 Hz	For Energy: 0.01k, 0.1k, 1k, 0.01M, 0.1M, 1M (depending upon CT ratio x PT ratio), For Power, Voltage, Current : Auto resolution, For Power factor: 0.01, Frequency: 0.1 Hz		For energy: 0.1k, 1k (depending upon CT ratio x PT ratio) For Power, Voltage & Current: Auto resolution, For Power factor: 0.001
<b>CT PRIMARY</b>	1/5A to 32.76kA (programmable for any value)	1/5A to 10kA (programmable for any value)		
<b>CT SECONDARY</b>	1/5A (programmable)			
<b>PT PRIMARY</b>	100V to 999kV (programmable for any value)	100V to 500kV (programmable for any value)		100V to 10kV (programmable for any value)
<b>PT SECONDARY</b>	100, 110, 115, 120V AC (programmable)	100 to 500V AC (L - L) (programmable for any value)		
<b>COMMUNICATION</b>	RS485 MODBUS RTU protocol			RS485 MODBUS RTU protocol (optional)
<b>MEASURING PARAMETERS</b>	Voltage (L-L/L-N) (Individual / Average), Current (Individual / Average), Frequency, Power factor (Individual / Total), Active, Reactive & Apparent power (Individual / Total), Active, Reactive & Apparent energy (total)			
<b>ADDITIONAL FUNCTIONS</b>	Cybersecurity, Neutral current, RPM (monitors generator speed), DG sensing, Displacement PF, Demand measurement, Import / Export energy, Dual input meter (Main / DG) Phase sequence indication, Run hour, Load hour, Suppression current	Current connection indication, Phase sequence indication, Run hour, Auxiliary interrupts, Import / Export energy, Pulse output,	Import / Export energy	Energy (Active / Reactive / Apparent)
<b>SUPPLY VOLTAGE (AC: 50/60 Hz)</b>	40 to 300V AC/DC	85 to 300V AC/DC	85 to 270V AC	85 to 270V AC/DC

## Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	OUTPUT		CERTIFICATION
		PULSE OUTPUT	COMM. (RS485)	
MFM384-C-CU *	85 to 270V AC	YES	YES	CE
MFM384-C-CE	85 to 270V AC/DC	YES	YES	CE
MFM384-C-CE-CL05	85 to 300V AC/DC	YES	YES	CE
MFM384-C-D-CE-CL05-PLUS	40 to 300V AC/DC	YES	YES	CE

PRODUCT CODE	SUPPLY VOLTAGE	OUTPUT		CERTIFICATION
		PULSE OUTPUT	COMM. (RS485)	
MFM384-R-C-CE *	85 to 270V AC	YES	YES	CE
MFM383A	85 to 270V AC/DC	YES	---	---
MFM383A-C-CE	85 to 270V AC/DC	YES	YES	CE

NOTE : \* MID Variants available



**MFM376+**  
96(H) x 96(W) x 49(D)mm



**MFM376**  
96(H) x 96(W) x 49(D)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>MFM with accuracy class 0.5S (DG) / class 1 (POP) and %THD up to 31<sup>st</sup> level</li> <li>% Unbalance of voltage &amp; current</li> <li>Demand measurement</li> </ul>	<ul style="list-style-type: none"> <li>MFM with accuracy class 1 and %THD up to 31<sup>st</sup> level</li> <li>Demand measurement</li> <li>Pulse output</li> </ul>
<b>DISPLAY</b>	7 segment LED	
<b>DIGITS</b>	3 rows of 4 digits, 2 rows of 8 digits for energy display	
<b>ELECTRICAL CONNECTION</b>	1Ø-2W, 2Ø-3W, 3Ø-3W, 3Ø-4W	
<b>RATED INPUT VOLTAGE</b>	11 to 350V AC (L-N), 19 to 600V AC (L-L)	11 to 300V AC (L-N), 19 to 519V AC (L-L)

	MFM376+	MFM376
<b>RATED INPUT CURRENT</b>	Nominal 5A AC (Min-10mA; Max-6A)	Nominal 5A AC (Min - 20mA ; Max-6A)
<b>RESOLUTION</b>	For energy: 0.001k (auto resolution), For Current, Voltage, Power: Auto resolution, For Power factor: 0.001	For energy: 0.01k, 0.1k, 1k, 0.01M, 0.1M, 1M (Depending upon CT ratio x PT ratio), For Current, Voltage, Power: Auto resolution, For Power factor: 0.001
<b>ACCURACY</b>	Voltage (L-N / L-L): ±0.5% of F.S., Current: ±0.5% of F.S., Power factor: ±0.01 Frequency: ±0.1% For L-N Voltage >20V, For L-L Voltage >35V, Power (Active, Reactive, Apparent): 1%, Energy (Active, Reactive, Apparent): Class 0.5S / Class 1	Voltage (L-N / L-L): ±0.5% of F.S., Current: ±0.5% of F.S., Power factor: ±0.01 Frequency: ±0.1% For L-N voltage >20V, For L-L voltage >35V, Power (Active, Reactive, Apparent): 1%, Energy (Active, Reactive, Apparent): Class 1
<b>CT PRIMARY</b>	1 / 5A to 32.76kA (programmable for any value)	1/5A to 10kA (programmable for any value)
<b>CT SECONDARY</b>	1/5A (programmable)	
<b>PT PRIMARY</b>	100V to 999kV (programmable for any value)	100V to 500kV (programmable for any value)
<b>PT SECONDARY</b>	100 to 500V AC (programmable for any value)	
<b>COMMUNICATION</b>	RS485 MODBUS RTU protocol (not applicable for MFM376-CE)	
<b>MEASURING PARAMETERS</b>	Voltage (L-L / L-N) (Individual / Average), Current (Individual / Average), Frequency, Power factor (Individual / Total), Active, Reactive & Apparent Power (Individual / Total), Active, Reactive & Apparent energy (total)	
<b>FUNCTIONS</b>	Neutral current, RPM (monitors generator speed), Displacement PF, DG sensing, % unbalance for voltage and current, %THD up to 31 <sup>st</sup> level, Run Hour, Auxiliary interrupts, Phase angle	RPM (monitors generator speed), %THD up to 31 <sup>st</sup> level, Run Hour, Auxiliary interrupts, Phase angle, Import / Export energy, Demand measurement, RPM
<b>SUPPLY VOLTAGE</b> (AC: 50/60 Hz)	40 to 300V AC/DC	

## Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	OUTPUT		CERTIFICATION
		PULSE OUTPUT	COMM. (RS485)	
MFM376-CE	40 to 300V AC/DC	YES	---	CE
MFM376-C-CE	40 to 300V AC/DC	YES	YES	CE

PRODUCT CODE	SUPPLY VOLTAGE	OUTPUT		CERTIFICATION
		PULSE OUTPUT	COMM. (RS485)	
MFM376-C-D-CE-CL05-PLUS	40 to 300V AC/DC	---	YES	CE
MFM376-C-CE-PLUS	40 to 300V AC/DC	YES	YES	CE

NOTE : \* MID variants available

## Plug-N-Wire Multifunction Meters



**MRJ4M-QUAD**  
90(H) x 70(W) x 66.3(D)mm



**MRJ4M-SL**  
90(H) x 70(W) x 62(D)mm



**MRJ4M**  
90(H) x 70(W) x 62(D)mm



**MRJ385**  
96(H) x 96(W) x 50(D)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>MFM with 4 channel 3 phase measurement</li> <li>RJ45 connector current input</li> <li>Self powered</li> <li>Single pulse output</li> </ul>	<ul style="list-style-type: none"> <li>MFM with Split load 3 phase measurement</li> <li>RJ45 connector current input</li> <li>Self powered</li> <li>2 Pulse output</li> <li>Max demand of power</li> </ul>	<ul style="list-style-type: none"> <li>MFM with single channel 3 phase measurement</li> <li>RJ45 connector current input</li> <li>Self powered</li> <li>Single pulse output</li> <li>Max demand of power</li> </ul>	<ul style="list-style-type: none"> <li>MFM with single channel 3 phase measurement</li> <li>RJ45 connector current input</li> <li>Self powered</li> <li>Single pulse output</li> <li>Demand measurement</li> <li>%THD up to 31<sup>st</sup> level</li> </ul>
<b>DISPLAY</b>	LCD with backlight			
<b>DIGITS</b>	1 row of 4 digits, 2 rows of 7 digits			4 rows of 4 digits, Bar graph representation for current, 1 row of 8 digits for energy display
<b>ELECTRICAL CONNECTION</b>	1Ø-2W, 3Ø-4W			
<b>RATED INPUT VOLTAGE</b>	60 to 300V AC (L-N), 104 to 520V AC (L-L)			60 to 300V AC (L-N), 104 to 520V AC (L-L)
<b>FREQUENCY</b>	45 to 65 Hz			
<b>RESOLUTION</b>	0.01k, 0.1k, 1k, 0.01M, 0.1M, 1M (depending upon CT ratio x PT ratio), For Power, Voltage: Auto resolution, For Power factor: 0.01			
<b>ACCURACY CLASS</b>	Class 1			
<b>CT PRIMARY</b>	1A to 10kA (programmable for any value) <b>Plug-N-Wire CTs to be used</b>	5A to 10kA (programmable for any value), <b>Plug-N-Wire CTs to be used</b>		
<b>CT SECONDARY</b>	330mV through Plug-N-Wire CT output			
<b>PT PRIMARY</b>	100V to 10kV (programmable for any value)			100V to 500kV (programmable for any value)
<b>PT SECONDARY</b>	100 to 500V AC (L-L) (programmable for any value)			173 to 415V AC (L-L) (programmable for any value)
<b>COMMUNICATION</b>	RS485 MODBUS RTU protocol			
<b>INDICATIONS</b>	Communication in progress; LED: Integration of energy	LCD: Max demand of power, Communication in progress; LED: Integration of energy		LCD: Max / Min demand of power, communication in progress; Integration of energy, Unit in configuration menu



	MRJ4M-QUAD	MRJ4M-SL	MRJ4M	MRJ385
<b>MEASURING PARAMETERS</b>	Voltage (L-L / L-N) (Individual / Average) of 4 channels, Current (Individual / Average) of 4 channels, Power (Active, Reactive & Apparent) (Individual) of 4 channels, Power factor & Frequency of 4 channels, Energy (Active, Reactive & Apparent) (Individual / Total) of 4 channels	Voltage (L-L / L-N) (Individual / Average), Current (Individual), Frequency, Power factor (Individual / Average), Active, Reactive, Apparent power (Individual / Total), Total Active & Reactive energy (Current input-1 plus current Input-2), Demand (max active power, Max apparent power)	Voltage (L-L / L-N) (Individual / Average), Current (Individual / Average), Frequency, Power factor (Individual / Average), Active, Reactive & Apparent power (Individual / Total), Total Active & Reactive energy, Demand (Max active power, Max apparent power)	Voltage (L-L / L-N) (Individual / Average), Current (Individual / Average), Frequency, Power factor (Individual / Average), Active, Reactive, Apparent power (Individual / Total), Active, Reactive, Apparent energy [Phase wise & Total (Import / Export)], Demand (Min / Max active power, Min / Max reactive power, Max apparent power), Harmonics individual for voltage & Current up to 31 <sup>st</sup> level.
<b>SUPPLY VOLTAGE</b> (AC: 50/60 Hz)	60 to 300V AC, Self powered (V1, N)			100 to 240V AC, Self powered (V1, N)

## Ordering information

NOTE : \* MID Variants available

PRODUCT CODE	SUPPLY VOLTAGE	OUTPUT		CERTIFICATION
		PULSE OUTPUT	COMM. (RS485)	
MRJ4M-QUAD *	Self powered (V1, N), 60 to 300V AC	---	YES	CE
MRJ4M-SL *	Self powered (V1, N), 60 to 300V AC	YES	YES	CE

PRODUCT CODE	SUPPLY VOLTAGE	OUTPUT		CERTIFICATION
		PULSE OUTPUT	COMM. (RS485)	
MRJ4M *	Self powered (V1, N), 60 to 300V AC	YES	YES	CE
MRJ385-G-PNW *	Self powered (V1, N), 100V to 240V AC	YES	YES	CE

Plug-N-Wire CTs			Plug-N-Wire Accessories				
	<b>Aperture sizes</b>	<b>Current ratio</b>					
	15 x 20mm	60 to 160A					
	16 x 20mm	60 to 160A					
	21 x 25mm	60 to 250A					
	31 x 31mm	150 to 630A					
54 x 50mm	800 to 1600A						
			Power cable with Female type connector, 1 & 3 Meter length	Daisy chain cable to loop MRJ meters with Male & Female type connectors, 1 & 3 Meter length	Voltage connector Male / Female	Primary current 60 to 250A	Adapter to use with conventional CT 1A-MRJ4M-QUAD 5A-MRJ4M, MRJ4M-SL & MRJ385

## Energy Meters



**EM306**  
96(H) x 96(W) x 50(D)mm



**EM306-C-D**  
96(H) x 96(W) x 50(D)mm



**EM368**  
96(H) x 96(W) x 50(D)mm

FEATURES	<ul style="list-style-type: none"> <li>Measures 3Ø Active energy</li> <li>Single pulse output</li> </ul>	<ul style="list-style-type: none"> <li>Measures dual source (Mains / D.G) Energy, Power and Power factor</li> </ul>	<ul style="list-style-type: none"> <li>Measures energy, Power and Power factor</li> <li>Pulse output for energy</li> </ul>
<b>DISPLAY</b>	7 segment LED		LCD with backlight
<b>DIGITS</b>	1 row of 6 digits		1 row of 8 digits
<b>ELECTRICAL CONNECTION</b>	1Ø-2W, 2Ø-3W, 3Ø-3W, 3Ø-4W		
<b>RATED INPUT VOLTAGE</b>	11 to 300V AC (L-N), 19 to 519V AC (L-L)		
<b>RATED INPUT CURRENT</b>	Nominal 5A AC (Min-50mA; Max-6A)		Nominal 5A AC (Min-11mA; Max-6A)
<b>RESOLUTION</b>	For Energy : 0.01k, 0.1k, 1k, 0.01M, 0.1M, 1M (depending upon CT ratio x PT ratio)	For energy: 0.01k, 0.1k, 1k, 0.01M, 0.1M, 1M (depending upon CT ratio x PT ratio) For Power: Auto resolution, For Power factor: 0.001	For energy: 0.01k, 0.1k, 1k, 0.01M, 0.1M, 1M, 10M (depending upon CT ratio x PT ratio) For Power: Auto resolution, For Power factor: 0.01
<b>ACCURACY</b>	Active energy: Class 1	Active / Apparent power: ±1%, Reactive power: ±2%, Power factor: 0.01, Active energy: Class 1, Reactive energy: Class 2	Active energy: Class 1, Reactive / Apparent energy: ±1% Active / Reactive power: ±1%, PF & Avg. PF: ±1%
<b>POWER CONSUMPTION</b>	8VA max		
<b>CT PRIMARY</b>	1/5A to 10kA (programmable for any value)		
<b>CT SECONDARY</b>	1/5A (programmable)		
<b>PT PRIMARY</b>	100V to 500kV (programmable for any value)		
<b>PT SECONDARY</b>	100 to 500V AC (L-L) (programmable for any value)		
<b>COMMUNICATION</b>	---	RS485 MODBUS RTU protocol	
<b>MEASURING PARAMETERS</b>	Active energy	Power & Energy (Total Active / Reactive), Power factor (Individual & Average)	Power (Total Active / Reactive), Energy (Total Active / Reactive / Apparent), Power factor (Individual & Average)
<b>LED INDICATIONS</b>	CT reverse detection, Kilo, Mega	CT reverse detection, Kilo, Mega, Communication, DG	Integration of energy, Resolution is 10, CT Reverse detection, Communication in progress, Pulse output (All indications on LCD)
<b>SUPPLY VOLTAGE</b> (AC: 50/60 Hz)	85 to 276V AC		85 to 270V AC

## Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	OUTPUT		CERTIFICATION
		PULSE OUTPUT	COMM.	
EM306	85 to 276V AC	YES	---	---
EM306-C-D	85 to 276V AC	---	RS485	---

PRODUCT CODE	SUPPLY VOLTAGE	OUTPUT		CERTIFICATION
		PULSE OUTPUT	COMM.	
EM368-C-CE	85 to 270V AC	YES	RS485	CE



**EMDC2M-1CH-C-DC-1RO**  
90(H) x 35(W) x 60(D)mm



**EM2M-1P-C-100A**    **EM2M-1P-W-100A**  
90(H) x 35(W) x 66.3(D)mm



**EM4M-3P-C-100A**    **EM4M-3P-W-100A**  
90(H) x 70(W) x 66.3(D)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>Measures single channel DC Voltage, Current, Power and Energy</li> <li>Current input using DC shunt (50 to 100mV)</li> <li>Relay output</li> </ul>	<ul style="list-style-type: none"> <li>Measures 1Ø multifunction parameters</li> <li>100A direct connection</li> <li>2 pulse outputs</li> <li>Import / Export energy</li> <li>Secured in-built WiFi, MQTT protocol based (Applicable for EM2M-1P-W-100A)</li> </ul>	<ul style="list-style-type: none"> <li>Measures 3Ø multifunction parameters</li> <li>100A direct connection</li> <li>Dual input meter (Mains / D.G)</li> <li>Multifunction parameter monitoring</li> <li>2 pulse outputs</li> <li>Import / Export energy</li> <li>Secured in-built WiFi, MQTT protocol based (Applicable for EM4M-3P-W-100A)</li> </ul>
<b>DISPLAY</b>	7 segment LED	LCD with backlight / Blind display	LCD with backlight
<b>DIGITS</b>	1 row of 4 digits	1 row of 7 digits / No digits	1 row of 4 digits & 2 rows of 7 digits
<b>ELECTRICAL CONNECTION</b>	1Ø-2W		1Ø-2W, 2Ø-3W, 3Ø-3W, 3Ø-4W
<b>RATED INPUT VOLTAGE</b>	0 to 1000V DC	176 to 276V AC (L-N)	85 to 285V AC (L-N); 148-494V AC (L-L)
<b>RATED INPUT CURRENT</b>	-999A to 999A DC	1b: 10A (I <sub>Min</sub> -500mA, I <sub>Max</sub> -100A)	1b: 10A (I <sub>Min</sub> -40mA, I <sub>Max</sub> -100A)
<b>RESOLUTION</b>	For voltage: 0.1V, Current: 0.1A, Power & Energy: 0.1k	For energy: 0.01k, For Power, Voltage, Current: Auto resolution, For power factor: 0.01	
<b>ACCURACY</b>	Voltage, Current & Power: ±0.5%, Energy: Class 0.5	Voltage (L - N), Current: ±0.5% of F.S., Power factor : ±0.01, Frequency: ±0.1% of F.S. Power (kW, kVA, kVAr): 1% of F.S., Active energy: Class 1, Reactive energy: Class 2	
<b>COMMUNICATION</b>	RS485 MODBUS RTU protocol	RS485 MODBUS RTU protocol / Wi-Fi, MQTT protocol	RS485 MODBUS RTU protocol / Wi-Fi, MQTT protocol
<b>MEASURING PARAMETERS</b>	Voltage, Current, Power, Import / Export energy	Voltage, Current, Frequency, Power factor, Import / Export, Max demand for power	Mains/DG Voltage, Current, Frequency, Power factor, Power, Energy, Active, Reactive (Import / Export) Energy, Max demand power
<b>LED INDICATIONS</b>	V, I, P, IM, EX, MF	LED-2 for Pulse output 1, Pulse output 2    Power LED, Network LED	LED-2 for Pulse output 1, Pulse output 2    Pulse indication, Network indication
<b>SUPPLY VOLTAGE (AC: 50/60 Hz)</b>	18 to 30V DC	176 to 276V AC (L-N), Self powered	85 to 285V AC (L-N), 120 to 494V AC (L-L) DG Sensing: 85 to 285V AC, Self-Powered

## Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	OUTPUT	CERTIFICATION
EMDC2M-1CH-C-DC-1RO	18 to 30V DC	Relay output	CE

NOTE : \* MID ariants available

PRODUCT CODE	SUPPLY VOLTAGE	OUTPUT		CERTIFICATION
		PULSE OUTPUT	COMM.	
EM2M-1P-C-100A *	176 to 276V AC (self powered)	YES	RS485	CE
EM2M-1P-W-100A	176 to 276V AC (self powered)	---	Wi-Fi	CE
EM4M-3P-C-100A *	85 to 285V AC (L-N) 150 to 494V AC (L-L) (self powered)	YES	RS485	CE
EM4M-3P-W-100A	85 to 285V AC (L-N) 150 to 494V AC (L-L) (self powered)	YES	Wi-Fi	CE

## Digital VAF Meters



**VAF36A**  
96(H) x 96(W) x 50(D)mm



**VAF39A-1**  
96(H) x 96(W) x 50(D)mm



**VAF391**  
96(H) x 96(W) x 49(D)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>Measures 3Ø (True RMS) Voltage, Current, Frequency</li> <li>Run hour / RPM measurement</li> </ul>	<ul style="list-style-type: none"> <li>Measures 3Ø (True RMS) Voltage, Current and Frequency, Power and Power factor</li> <li>Run hour / RPM measurement</li> </ul>
<b>DISPLAY</b>	LCD with backlight	7 segment LED
<b>DIGITS</b>	3 rows of 3 digits, Bar graph representation of current	3 rows of 3 digits
<b>ELECTRICAL CONNECTION</b>	1Ø-2W, 3Ø-3W, 3Ø-4W	
<b>RATED INPUT VOLTAGE</b>	11 to 300V AC (L-N), 19 to 519V AC (L-L)	
<b>RATED INPUT CURRENT</b>	Nominal 5A (Min-20mA, Max-6A)	Nominal 5A (Min-30mA; Max-6A)
<b>RESOLUTION</b>	Current & Voltage: Depending on CT & PT primary setting, RPM: 0.1, Run hour: 0.1hr	For Power, Voltage, Current: Auto resolution, For Power factor: 0.01

<b>ACCURACY</b>	Voltage (L-N / L-L / Average): $\pm 0.5\%$ of F.S. $\pm 2$ digits, Current & Average current : $\pm 1\%$ of F.S. $\pm 2$ digits, Run hour: $\pm 1\%$ , RPM: $\pm 0.5\%$ , Frequency: $\pm 0.1$ Hz $\pm 1$ digit	Voltage (L-N / L-L): $\pm 0.5\%$ of F.S., Current: $\pm 0.5\%$ of F.S., Power factor: $\pm 0.01$ Frequency: $\pm 0.1\%$ For L-N Voltage $> 11V$ , For L-L Voltage $> 35V$ , Power (Active, Reactive, Apparent): 1%,
<b>CT PRIMARY</b>	5A to 10kA (Programmable for any value)	1/5A to 10kA (programmable for any value)
<b>CT SECONDARY</b>	5A fix	1/5A (programmable)
<b>PT PRIMARY</b>	100V to 500kV (programmable for any value)	
<b>PT SECONDARY</b>	100 to 500V AC (L-L) (programmable for any value)	
<b>MEASURING PARAMETERS</b>	Voltage (L-L / L-N) (Individual / Average), Current (Individual / Average), Frequency	Voltage (L - L / L - N) (Individual / Average), Current (Individual / Average), Frequency, Power factor (Individual / Average), Active, Reactive & Apparent power (Individual / Average),
<b>SUPPLY VOLTAGE</b> (AC : 50 / 60 Hz)	230V AC $\pm 20\%$	85 to 270V AC

## Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
VAF36A-230-CE	230V AC, $\pm 20\%$	CE
VAF39A-1-230V	230V AC, $\pm 20\%$	---

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
VAF39A-1-230V-CE	230V AC, $\pm 20\%$	CE
VAF391	80 to 270V AC	CE Optional

## Digital Voltmeter

## Digital Ammeter

## Voltage Ampere Meter

## Multifunction DPM



**MV35**  
96(H) x 96(W) x 50(D)mm



**MA32**  
96(H) x 96(W) x 50(D)mm



**MVA591**  
48(H) x 48(W) x 68.5(D)mm



**MX300**  
96(H) x 96(W) x 50(D)mm

FEATURES	<ul style="list-style-type: none"> <li>Measures 1Ø &amp; 3Ø True RMS Voltage</li> <li>PT Primary programmable up to 999.0kV</li> <li>K LED for kilo indication</li> </ul>	<ul style="list-style-type: none"> <li>Measures 1Ø &amp; 3Ø True RMS Current</li> <li>CT Primary programmable up to 999.0kA</li> <li>K LED for kilo indication</li> </ul>	<ul style="list-style-type: none"> <li>True RMS Voltage and Current</li> <li>Direct 10A / 30A / 80A Measurements with hanging CT</li> </ul>	<ul style="list-style-type: none"> <li>True RMS measurement</li> <li>Voltage, Current, Power, Power factor &amp; Frequency</li> <li>Programmable CT &amp; PT</li> <li>Communication and Relay output (applicable only for MX300-1-C-CE)</li> </ul>
DISPLAY	7 segment LED			
DIGITS	1 row of 4 digits		2 row of 3 digits	1 row of 4 digits
ELECTRICAL CONNECTION	1Ø-2W, 3Ø-3W, 3Ø-4W		1Ø-2W	
RATED INPUT VOLTAGE	11 to 300V AC (L-N), 19 to 516V AC (L-L)	---	230V AC ( $\pm 20\%$ )	20-300V AC (L-N), 34-519V AC (L-L)
RATED INPUT CURRENT	---	5A AC (Min-50mA; Max-6.2A)	0.1 to 10A / 1 to 30A / 4 to 80A	Nominal 5A AC (Min-40mA, Max-6A)
RESOLUTION	Auto resolution depend upon PT ratio	Auto resolution depend upon CT ratio	Voltage: 1V; Current: 0.1A	Auto resolution depend upon CT ratio
ACCURACY	$\pm 0.5\%$ of F.S.		$\pm 1\%$ full scale	
CT PRIMARY	---	1/5A to 999.0kA (programmable for any value)	---	5A-9999A (programmable for any value)
CT SECONDARY	---	1/5A (programmable)	---	5A fix
PT PRIMARY	100 to 999kV (programmable for any value)	---	---	100V to 500kV (programmable for any value)
PT SECONDARY	100 to 500V (programmable for any value)	---	---	100V to 500V AC (programmable for any value)
SUPPLY VOLTAGE	40 to 300V AC/DC		230V AC, $\pm 20\%$	85 to 300V AC/DC

## Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
MA32-3-G-40/300V-CE	40 to 300V AC/DC	CE
MA32-1-G-40/300V-CE	40 to 300V AC/DC	CE
MV35-3-G-40/300V-CE	40 to 300V AC/DC	CE
MV35-1-G-40/300V-CE	40 to 300V AC/DC	CE
MVA591-10A-230V	230V AC, $\pm 20\%$	---

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
MVA591-30A-230V	230V AC, $\pm 20\%$	---
MVA591-80A-230V	230V AC, $\pm 20\%$	---
MX300-CE	85 to 300V AC	CE
MX300-1-C-CE	85 to 300V AC	CE



**MV15**  
48(H) x 96(W) x 29(D)mm



**MV205**  
72(H) x 72(W) x 35(D)mm



**MV305**  
96(H) x 96(W) x 36(D)mm



**MV334-230V**  
96(H) x 96(W) x 50(D)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>Measures True RMS 1Ø Voltage</li> <li>Accuracy Class 0.5</li> </ul>	<ul style="list-style-type: none"> <li>Measures 1Ø &amp; 3Ø true RMS voltage</li> <li>Accuracy class 0.5</li> <li>Programmable PT Primary &amp; Secondary</li> </ul>
<b>DISPLAY</b>	7 segment LED	
<b>DIGITS</b>	1 row of 3 digits	1 row of 4 digits
<b>ELECTRICAL CONNECTION</b>	1Ø - 2W	1Ø-2W, 3Ø-3W, 3Ø-4W
<b>RATED INPUT VOLTAGE</b>	50 to 480V AC (600V max)	11 to 300V AC (L-N), 19 to 516V AC (L-L)
<b>RESOLUTION</b>	1V	Auto resolution
<b>ACCURACY</b>	± 0.5% of F.S.	±0.5% of F. S.
<b>PT PRIMARY</b>	---	100V-999kV
<b>PT SECONDARY</b>	---	100V-500V
<b>SUPPLY VOLTAGE</b> (AC : 50 / 60 Hz)	240V AC ±20%	230V AC ±20%

### Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
MV15	240V AC, ±20%	---
MV15-CE	240V AC, ±20%	CE
MV205	240V AC, ±20%	---
MV205-CE	240V AC, ±20%	CE

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
MV305	240V AC, ±20%	---
MV305-CE	240V AC, ±20%	CE
MV334-230V	230V AC, ±20%	---



**MA12** 48(H) x 96(W) x 29(D)mm  
**MA202** 72(H) x 72(W) x 35(D)mm  
**MA302** 96(H) x 96(W) x 36(D)mm



**MA12-75mV-DC** 48(H) x 96(W) x 50(D)mm  
**MA12-20A-AC** 48(H) x 96(W) x 50(D)mm



**MA335-230V AC**  
96(H) x 96(W) x 50(D)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>Measures true RMS 1Ø current</li> <li>Accuracy class 0.5</li> <li>Programmable CT Primary up to 4000A</li> </ul>	<ul style="list-style-type: none"> <li>Measures true RMS 1Ø current</li> <li>Accuracy class 0.5</li> </ul>	<ul style="list-style-type: none"> <li>Measures 1Ø &amp; 3Ø true RMS current</li> <li>Accuracy class 0.5</li> <li>Programmable CT Primary and Secondary</li> </ul>
<b>DISPLAY</b>	7 segment LED		
<b>DIGITS</b>	1 row of 4 digits		
<b>ELECTRICAL CONNECTION</b>	1Ø-2W		1Ø-2W, 3Ø-3W, 3Ø-4W
<b>INPUT TYPE</b>	CT	Shunt	Direct
<b>RATED INPUT CURRENT</b>	5A AC (Min-50mA; Max-7A)	0 to 75mV DC	20A direct
<b>RESOLUTION</b>	0.001, 0.01, 0.1, 1A (depending upon CT primary settings)	0.001, 0.01, 0.1, 1A (depending upon shunt settings)	0.001, 0.01, 0.1, 1A
<b>ACCURACY</b>	± 0.5% of F.S.		
<b>CT PRIMARY / SHUNT SETTING</b>	5 to 4000A (programmable in steps)	---	1 to 999.0kA (programmable for any value)
<b>CT SECONDARY</b>	5A fix	---	1/5A (programmable)
<b>SUPPLY VOLTAGE</b> (AC : 50 / 60 Hz)	240V AC ±20%		230V AC ±20%

## Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
MA12	240V AC, ±20%	---
MA12-CE	240V AC, ±20%	CE
MA12-20A-AC	240V AC, ±20%	---
MA12-75mV-DC	230V AC, ±20%	---

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
MA202	240V AC, ±20%	---
MA202-CE	240V AC, ±20%	CE
MA302	240V AC, ±20%	---
MA302-CE	240V AC, ±20%	CE
MA335-230V AC	230V AC, ±20%	---

## Current Transformers



Square (SPCT)



Split Core (SCCT)



Round (RCT)



Tape Wound (TWCT)

<b>RATED PRIMARY RATING</b>	30 to 4000A	100 to 6000A	30 to 600A	30 to 1600A
<b>RATED SECONDARY OUTPUT</b>	5A			
<b>RATED BURDEN (VA)</b>	1, 1.25, 1.5, 2.5, 3, 3.75, 5, 7.5, 10, 15	1, 1.5, 2.5, 3, 5, 7.5, 10, 15	1.5, 5	1.5, 5, 10
<b>ACCURACY</b>	0.5, 1, 3, 5	0.5, 1, 3	1, 5	0.5, 1, 5
<b>OPERATING FREQUENCY</b>	AC 50/60 Hz			
<b>SYSTEM VOLTAGE</b>	720V max			
<b>APPLICABLE STANDARD</b>	IEC 61869-2			

## Ordering information

### SPCT-50/30-60/5A-VA1-CL5-CE

Primary current	Accuracy	
	1	5
30	-	1VA
60	-	1VA
75	1VA	-
80	1VA	-
100	1VA	-
125	1.25VA	-
160	1.5VA	-
200	3VA	-
250	3VA	-
400	5VA	-

### SPCT-62/22-30/5A-VA1-CL5-CE

Primary current	Accuracy	
	5	
30	1VA	

### SPCT-62/30-50/5A-VA1-CL3-CE

Primary current	Accuracy		
	1	3	5
30	-	-	1VA
50	-	1VA	-
50	-	1.5VA	-
75	-	1VA	-
75	-	3VA	-
100	1VA	-	-
100	3VA	-	-

### SPCT-62/40-100/5A-VA1-CL1-CE

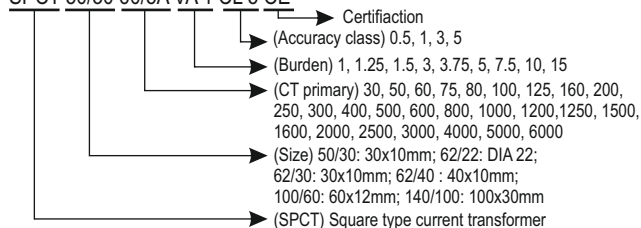
Primary current	Accuracy	
	0.5	1
100	-	1VA
100	-	3VA
125	-	1VA
150	-	1.5VA
150	-	3VA
160	-	1.5VA
200	2.5VA	3VA
250	2.5VA	3VA
300	3VA	-
400	3.75VA	5VA

### SPCT-140/100-800/5A-VA15-CL0.5-CE

Primary current	Accuracy		Primary current	Accuracy	
	0.5			0.5	
800	15VA	-	2000	15VA	-
1000	15VA	-	2500	15VA	-
1200	15VA	-	3000	15VA	-
1250	15VA	-	3500	15VA	-
1500	15VA	-	3500	15VA	-
1600	15VA	-	4000	15VA	-

## Nomenclature

E.g. SPCT-50/30-60/5A-VA1-CL5-CE  
 SPCT 50/30 60/5A VA 1 CL 5 CE



### SPCT-100/60-500/5A-VA5-CL1-CE

Primary current	Accuracy	
	0.5	1
500	-	5 VA
600	5VA	7.5 VA
800	10VA	-
1000	15VA	-
1200	15VA	-



## Range Available

### SCCT-30/20-100/5A-VA1-CL1-CE

Primary current	Accuracy		
	0.5	1	3
100	-	1VA	1.5VA
150	1VA	-	1.5VA
200	1VA	1.5VA	2.5VA
250	1.5VA	2.5VA	3.75VA
300	2.5VA	3.75VA	5VA
400	2.5VA	5VA	10VA

### SCCT-80/50-250/5A-VA1-CL0.5-CE

Primary current	Accuracy		
	0.5	1	3
250	1VA	2.5VA	3.75
300	1.5VA	2.5VA	5VA
400	1.5VA	2.5VA	10VA
500	2.5VA	5VA	15VA
600	2.5VA	5VA	15VA
750	2.5VA	7.5VA	20VA
800	2.5VA	7.5VA	20VA
1000	5VA	5VA	20VA

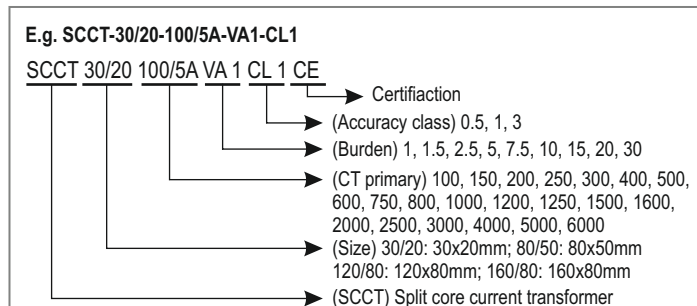
### SCCT-120/80-500/5A-VA2.5-CL0.5-CE

Primary current	Accuracy		
	0.5	1	3
500	2.5VA	3.75VA	15VA
600	2.5VA	5VA	15VA
750	2.5VA	2.5VA	20VA
800	2.5VA	7.5VA	20VA
1000	5VA	10VA	20VA
1200	7.5VA	15VA	30VA
1250	7.5VA	15VA	30VA
1500	7.5VA	10VA	30VA
1600	10VA	20VA	30VA

### SCCT-160/80-1000/5A-VA10-CL0.5-CE

Primary current	Accuracy		
	0.5	1	3
1000	10VA	15VA	20VA
1200	10VA	-	-
1250	10VA	15VA	20VA
1500	15VA	20VA	30VA
2000	15VA	20VA	30VA
2500	15VA	20VA	30VA
3000	15VA	20VA	30VA
4000	15VA	20VA	30VA
5000	15VA	20VA	30VA
6000	15VA	20VA	30VA

## Nomenclature



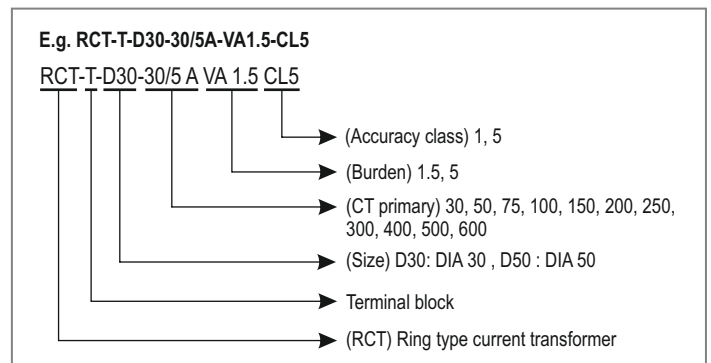
### RCT-T-D30-30/5A-VA1.5-CL5

Primary current	Accuracy	
	1	5
30	-	1.5VA
50	-	5VA
75	-	5VA
100	5 VA	-
150	5 VA	-

### RCT-T-D50-200/5A-VA5-CL1

Primary current	Accuracy	
	1	5
200	5VA	-
250	5VA	-
300	5VA	-
400	5VA	-
500	5VA	-
600	5VA	-

## Nomenclature



### TWCT-T-D35-30/5A-VA1.5-CL5

Primary current	Accuracy	
	1	5
30	-	1.5VA
50	-	5VA
75	-	5VA
100	5VA	-
150	5VA	-

### TWCT-T-D55-150/5A-VA5-CL1

Primary current	Accuracy	
	1	
150	5VA	
200	5VA	
250	5VA	
300	5VA	
400	5VA	

### TWCT-T-D65-500/5A-VA5-CL1

Primary current	Accuracy	
	1	
500	5VA	
600	5VA	

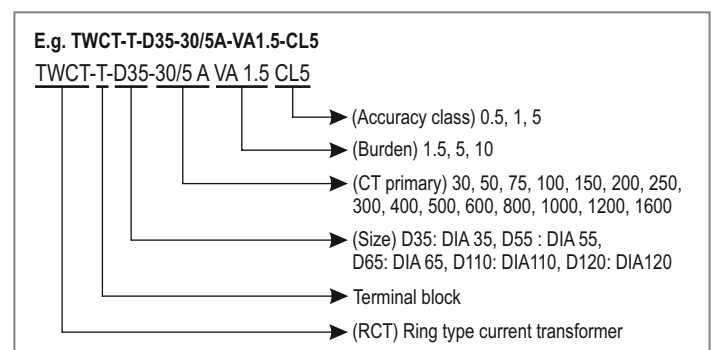
### TWCT-T-D110-800/5A-VA10-CL0.5

Primary current	Accuracy	
	0.5	
800	10VA	
1000	10VA	

### TWCT-T-D120-1000/5A-VA10-CL0.5

Primary current	Accuracy (0.5)
1000	10VA
1200	10VA
1600	10VA

## Nomenclature



## Line Monitoring Relays



**640PSR-CE**  
90(H) x 17.5(W) x 60(D)mm



**640PSR-CE**  
90(H) x 17.5(W) x 60(D)mm



**600PSR**  
90(H) x 17.5(W) x 60(D)mm



**800PSR**  
76.85(H) x 22.5(W) x 105.5(D)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>Monitors phase failure, Sequence</li> <li>Selectable asymmetry 40/65V</li> <li>Selectable function SPP / PSR</li> <li>Selectable Over / Under voltage ON / OFF tripping</li> <li>LED indication: Healthy and Trip conditions</li> <li>Variable trip time delay: 2 to 10 sec</li> </ul>	<ul style="list-style-type: none"> <li>Monitors phase failure, Sequence, asymmetry</li> <li>LED indication: Healthy and Trip conditions</li> </ul>	<ul style="list-style-type: none"> <li>Monitor phase failure, Sequence &amp; Asymmetry</li> <li>LED indication: Relay ON</li> <li>Slim space saving design</li> </ul>	<ul style="list-style-type: none"> <li>Monitor phase failure, Sequence &amp; Asymmetry</li> <li>LED indication: Relay ON</li> </ul>
<b>MODES</b>	Phase failure: Yes, Phase sequence: Yes, Phase asymmetry: 40V/65V selectable, Reset: Auto reset on removal of fault condition, Under voltage: 310V fixed, Over voltage: 500V fixed	Phase failure: Yes, Phase sequence: Yes, Phase asymmetry: 40V fixed, Reset: Auto reset on removal of fault condition	Phase failure: Yes, Phase sequence: Yes, Phase asymmetry: 30V fixed, Reset: Auto reset on removal of fault condition	
<b>TIME RANGES</b>	Power ON delay: <400 msec		Power ON delay: 200 msec	
<b>ACCURACY</b>	±5% of F.S.		±3% of F.S.	
<b>OUTPUT CONTACT</b>	1 C/O (SPDT)			
<b>OUTPUT RATING</b>	NC: 3A @250V AC / 30V DC, NO: 5A @250V AC / 30V DC			
<b>ELECTRICAL CONNECTION</b>	3Ø-3W			
<b>OPERATING VOLTAGE</b>	154 to 520V AC (L-L)		154 to 500V AC (L-L)	

### Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
640PSR-CE	154 to 520V AC	CE
640PSR-V-CE	154 to 520V AC	CE

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
600PSR-CE	154 to 500V AC	CE
800PSR	154 to 500V AC	---

## Line Monitoring Relays



**SPPA2M2**  
90(H) x 35(W) x 60(D)mm



**600SPP**  
90(H) x 17.5(W) x 60(D)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>Monitor phase failure, Asymmetry, over voltage &amp; Under voltage</li> <li>LED indication: Power ON &amp; Trip</li> </ul>	<ul style="list-style-type: none"> <li>Monitor phase failure &amp; Asymmetry</li> <li>LED indication: Relay ON</li> <li>Slim space saving design</li> </ul>
<b>MODES</b>	Phase failure: Yes, Phase sequence: Yes, Phase asymmetry: 30V fixed, Reset: Auto reset on removal of fault condition	Phase failure: Yes, Phase sequence: Yes, Phase asymmetry: 30V fixed, Reset: Auto reset on removal of fault condition
<b>TIME RANGES</b>	Power ON delay: 3 sec	
<b>ACCURACY</b>	±1% of F.S.	
<b>OUTPUT CONTACT</b>	2 C/O (DPDT)	1 C/O (SPDT)
<b>OUTPUT RATING</b>	NC : 3A@250V AC / 30V DC, NO : 5A@250V AC / 30V DC	
<b>ELECTRICAL CONNECTION</b>	3Ø-3W	
<b>OPERATING VOLTAGE</b>	280 to 520V AC (L-L)	154 to 500V AC (L-L)

### Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
SPPA2M2	280 to 520V AC	---

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
600SPP	154 to 500V AC	---



## Voltage Monitoring Relays

	900VPR-2-280/600V-CE	900VPR-BL-U
TRIP TIME SETTING	Power ON delay: 0 to 999 sec, Trip time delay: 0 to 999 sec, Recovery time delay: 0 to 999 sec, Response time: <200ms	Power ON delay: 0.5 to 300 sec, Trip time delay: 0 to 300 sec Recovery time delay: 0 to 300 sec (In auto reset mode), Response time: <120ms
HYSTERESIS	Voltage: 1.0 to 99.9V, Frequency: 0.2 to 2 Hz, Asymmetry: 2 to 20%	Voltage: 1.0 to 40V, Frequency: 0.2 to 2 Hz, Asymmetry: 2 to 20%
RESOLUTION	Voltage: 1V, Frequency: 0.1 Hz	
ACCURACY	Voltage: $\pm 1\%$ of set value, Frequency: $\pm 0.3$ Hz, Time (Recovery time, Trip delay, Power on delay): $\pm 5\%$ of setting $\pm 200$ ms	Voltage: $\pm 1\%$ of set value $\pm 2$ digits, Frequency: $\pm 0.5\%$ $\pm 1$ digits, Time (Recovery time, Trip delay, Power on delay): $\pm 5\%$ of setting $\pm 120$ ms
OUTPUT CONTACT	2 x 1 C/O (SPDT)	
OUTPUT RATING	NO : 5A@240V AC / 30V DC, NC : 3A@240V AC / 30V DC	NO: 5A @250V AC / 30V DC, NC: 3A @250V AC / 30V DC
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	Self powered, Operating voltage: 280 to 600V AC (L-L), 160 to 300V AC (L-N)	85 to 270V AC/DC

### Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
900VPR-2-280/600V-CE	280 to 600V AC	CE

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
900VPR-BL-U-CE	85 to 270V AC/DC	CE

## Voltage Monitoring Relays



VPRA2M  
90(H) x 35(W) x 70.5(D)mm



VPRD2M  
90(H) x 35(W) x 70.5(D)mm

	VPRA2M	VPRD2M
FEATURES	<ul style="list-style-type: none"> <li>Monitors under voltage, Over voltage</li> <li>Monitors phase failure, Sequence &amp; Asymmetry</li> <li>Adjustable over and under voltage trip level</li> <li>Adjustable trip time delay</li> </ul>	<ul style="list-style-type: none"> <li>Monitors under voltage, Over voltage</li> <li>Monitors phase failure, Sequence &amp; Asymmetry</li> <li>Adjustable switching hysteresis</li> <li>One relay with two change over alarm relay operation</li> </ul>
MEASUREMENT	Phase failure, Sequence, Asymmetry, Under voltage, Over voltage	
DISPLAY	Separate LED indications for Power ON, Phase failure, Phase sequence, Phase asymmetry, Under voltage, Over voltage,	3 digits LCD
ELECTRICAL CONNECTION	1Ø-2W, 3Ø-4W	
TRIP SETTING	Under voltage: 55 to 95% of Un [127 to 219V AC (L-N)] Over voltage: 105 to 125% of Un [242 to 288V AC (L-N)], Phase asymmetry: >10%	Under voltage: 127 to 219V AC (L-N) Over voltage: 242 to 288V AC (L-N), Phase asymmetry: 5-30%
TRIP TIME SETTING	Power ON delay : 0 to 15sec, Trip time delay : 0 to 15sec Recovery time delay : 5sec $\pm$ 200ms, Phase sequence trip delay <250msec	Power ON delay: 0.5 to 300sec, Trip time delay: 0 to 300 sec Recovery time delay: 0 to 300sec, Phase sequence trip delay <150 msec
HYSTERESIS	Voltage : 7V ( $\pm 2$ V) of trip voltage	Voltage: 1.0V-99.9V, Asymmetry: 2 to 20%
ACCURACY	Trip setting : $\pm 5\%$ of F. S., Time setting : $\pm 10\%$ of F. S.	Voltage: $\pm 1\%$ $\pm 2$ digits, Time setting: $\pm 5\%$ of settings $\pm 150$ ms
OUTPUT CONTACT	2 C/O (DPDT)	
OUTPUT RATING	NC: 5A @250V AC / 30V DC, NO: 5A @250V AC / 30V DC	
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	Self powered, Nominal input voltage (Un): 230V AC (L-N), Operating voltage: 127 to 288V AC (L-N)	

### Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
VPRA2M-CE	127 to 288V AC	CE

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
VPRD2M	127 to 288V AC	---

## Current Monitoring Relays



**900CPR-1-BL-U**  
90(H) x 35(W) x 70.5(D)mm



**900CPR-3-1-BL**  
90(H) x 35(W) x 70.5(D)mm



**900CPR-1**  
90(H) x 35(W) x 70.5(D)mm



**900CPR-3**  
90(H) x 35(W) x 70.5(D)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>Monitors under, Over current protection for 1Ø system</li> <li>True RMS measurement</li> <li>Two alarm relay with NC or NO operation selectable</li> <li>LED indication: Fault condition</li> </ul>	<ul style="list-style-type: none"> <li>Monitors under, Over current &amp; Current asymmetry protection for 1Ø &amp; 3Ø system</li> <li>True RMS measurement</li> <li>One alarm relay with NC or NO operation selectable</li> <li>LED indication: Fault condition</li> </ul>	<ul style="list-style-type: none"> <li>Monitors under, Over current protection for 1Ø system</li> <li>True RMS measurement</li> <li>One alarm relay with NC or NO operation</li> <li>LED indication: Fault condition</li> </ul>	<ul style="list-style-type: none"> <li>Monitors under, Over current &amp; Current asymmetry protection for 1Ø &amp; 3Ø system</li> <li>True RMS measurement</li> <li>One alarm relay with NC or NO operation</li> <li>LED indication: Fault condition</li> </ul>
<b>MEASUREMENTS</b>	Under current, Over current (Current asymmetry applicable only for 900CPR-3, 900CPR-3-1-BL)			
<b>DISPLAY</b>	3 digit LCD with backlight		3 digits LCD	
<b>ELECTRICAL CONNECTION</b>	1Ø-2W	1Ø-2W, 3Ø-3W, 3Ø-4W	1Ø-2W	1Ø-2W, 3Ø-3W, 3Ø-4W
<b>CT SETTING</b>	CT primary: 1A/5A-999A, CT secondary: 1A/5A (selectable)			
<b>TRIP SETTING</b>	Under current: 0-999A, Over current: 0.5-1.19kA, (Current asymmetry: 5.0-99.9% applicable only for 900CPR-3, 900CPR-3-1-BL)			
<b>TRIP TIME SETTING</b>	Power ON delay: 0.5-99.9sec, Trip time delay: 0-99.9 sec, Recovery time delay: 0-99.9 sec, Response time: <200ms			
<b>HYSTERESIS</b>	Current: 0.1 to 99.9A			
<b>ACCURACY</b>	Current: ±1% of setting ±2 digits, Time (Recovery time, Trip delay, Power ON delay): ±5% of setting ±200ms			
<b>OUTPUT CONTACT</b>	2 x 1 C/O (SPDT)		1C/O SPDT	
<b>OUTPUT RATING</b>	NO: 5A @250V AC / 30V DC; NC: 3A @250V AC / 30V DC			
<b>SUPPLY VOLTAGE (AC : 50 / 60 Hz)</b>	85 to 270V AC/DC		230V AC (±15%)	

### Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
900CPR-1-BL-U-CE	85 to 270V AC/DC	CE
900CPR-3-1-BL-230V-CE	230V AC (±15%)	CE

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
900CPR-1-230V	230V AC (±15%)	---
900CPR-3-230V	230V AC (±15%)	---

## Earth Fault Relay



**900EFR-BL-U**  
90(H) x 35(W) x 70.5(D)mm



**EFR-341-2-CE**  
96(H) x 96(W) x 50(D)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>Earth fault current monitoring</li> <li>Two alarm relays with NO and NC operation selectable</li> <li>Test and reset via Front / Remote</li> </ul>	<ul style="list-style-type: none"> <li>Earth fault current monitoring</li> <li>Work with Standard CT and EFCT</li> <li>Two alarm relays with NO and NC operation selectable</li> <li>Test and reset via Front / Remote</li> </ul>
<b>MEASUREMENT</b>	Earth fault monitoring	Earth fault current monitoring
<b>DISPLAY</b>	3 digit liquid crystal display with backlight	3 digits, 7 segments LED display
<b>ELECTRICAL CONNECTION</b>	1Ø-2W, 3Ø-3W, 3Ø-4W	(1Ø-2W), (3Ø-3W), (3Ø-4W)
<b>FRAME RATING (CT PRIMARY)</b>	160A, 250A, 630A	---
<b>TRIP SETTING</b>	10% to 80% of selectable MCCB frame rating	Low set value (10 to 1000 % of primary current) High set value 1A (10 to 1000% of primary current) High set value 5A (10 to 300% of primary current)
<b>TIME RANGES</b>	Response time: <100ms, Trip time delay: 0 to 99.9 sec, Recovery time: 0 to 99.9 sec, Power ON delay: 0.5 to 99.9 sec	0.5-999.9 sec (For power ON, Trip time, Recovery time)
<b>OUTPUT CONTACT &amp; RATING</b>	2 x 1 C/O (SPDT) NC: 3A @250V AC / 30V DC, NO: 5A @250V AC / 30V DC	2 x 2 C/O (SPDT) NO: 5A @250V AC / 30V DC, NC: 3A @250V AC / 30V DC



## Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
900EFR-BL-U-CE	85 to 270V AC/DC	CE

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
EFR-341-2-CE	85 to 270V AC/DC	CE

## Earth Fault Current Transformer



Description	Common Accessory for Earth Fault Relay
Current ratio	160/1A, 250/1A, 630/1A
Rated burden	1 VA
Sizes (mm)	100 x 25, 140 x 35, 180 x 35, 220 x 50

## Ordering information

PRODUCT CODE	DIMENSION IN MM	CURRENT TRANSFORMER RATIO
EFCT 100/25 160/1A VA CL1	100x25	160/1A
EFCT 140/35 160/1A VA CL1	140x35	160/1A
EFCT 140/35 250/1A VA CL1	140x35	250/1A

PRODUCT CODE	DIMENSION IN MM	CURRENT TRANSFORMER RATIO
EFCT 180/35 250/1A VA CL1	180x35	250/1A
EFCT 180/35 630/1A VA CL1	180x35	630/1A
EFCT 220/50 630/1A VA CL1	220x50	630/1A

## Earth Leakage Relays



**600ELR**  
90(H) x 17.5(W) x 60(D)mm



**ELRA2M**  
90(H) x 35(W) x 60(D)mm



**900ELR-2**  
90(H) x 35(W) x 70.5(D)mm

FEATURES	<ul style="list-style-type: none"> <li>Monitors true RMS earth leakage current (Up to 500mA) in 1Ø &amp; 3Ø system</li> <li>Leakage current (In) &amp; Time delay (ΔT) adjustable</li> <li>LED indication for power ON and relay status</li> <li>Test and reset function via front key</li> </ul>	<ul style="list-style-type: none"> <li>Monitor true RMS earth leakage current up to 30A in 1Ø &amp; 3Ø system</li> <li>CBCT connection monitoring</li> <li>Test and reset via Front / Remote</li> <li>Sensitivity and time delay adjustable</li> </ul>	<ul style="list-style-type: none"> <li>Monitor true RMS earth leakage current up to 30A in 1Ø &amp; 3Ø system</li> <li>CBCT connection monitoring</li> <li>Test and reset via Front / Remote</li> <li>Two separate alarms relays with NO or NC operation selectable</li> </ul>
MEASUREMENT	Earth leakage current (Via external CBCT)		
DISPLAY	2 LED indications (Power on and Relay status)	5 LED indication	3 digit LCD with backlight, 2 LED for trip indication
ELECTRICAL CONNECTION	1Ø-2W, 3Ø-3W, 3Ø-4W		
TRIP SETTING	30mA, 100mA, 300mA, 500mA	30mA to 30A	10mA to 30A
TIME RANGES	Variable time settings (0, 2, 4, 6, 8, 10 sec) for 100mA, 300mA & 500mA current setting (For 1xIn) and <30ms for 5xIn.	Trip time delay: 0 to 9 sec (NA when In=0.03A)	Power ON delay: 0.5 to 99.9 sec, Trip time delay: 0 to 99.9 sec, Delay on release: 0 to 99.9 sec
ACCURACY	Current : 5% of In , Time : 5% of Set time	Current: ±5% of set trip current Time: ± 5% of set time + Response time	Current: ±5% of setting, Time (Recovery time, Trip delay, Power on delay): ±5% of setting ±200ms
OUTPUT CONTACT	1 SPDT relay		
OUTPUT RATING	NO: 5A @250V AC / 24V DC, NC: 3A @ 250V AC / 24V DC	NO: 10A @277V AC / 28V DC	NC: 3A @250V AC / 24V DC, NO: 5A @250V AC / 24V DC
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	230V AC (±15%)		

## Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
600ELR-1-30/500mA-230V	230V AC (±15%)	---
900ELR-2-230V-CE	230V AC (±15%)	CE

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
ELRA2M2-1-230V-CE	230V AC (±15%)	CE



**ELR-341**  
96(H) x 96(W) x 50(D)mm



**ELCTR35**  
105(H) x 74(W) x 27(D)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>• Monitor true RMS earth leakage current up to 30A in 1Ø &amp; 3Ø system</li> <li>• CBCT connection monitoring</li> <li>• Test and reset via Front / Remote</li> <li>• Pre-alarm indication selectable</li> </ul>	<ul style="list-style-type: none"> <li>• Monitors True RMS earth leakage current in 1Ø &amp; 3Ø system</li> <li>• Inbuilt CBCT</li> <li>• Test and reset function</li> </ul>
<b>MEASUREMENT</b>	Earth leakage current (Via external CBCT)	Earth leakage current (internal CBCT)
<b>DISPLAY</b>	3 digits, 7 segments LED display	2 LED indication
<b>ELECTRICAL CONNECTION</b>	1Ø-2W, 3Ø-3W, 3Ø-4W	
<b>TRIP SETTING</b>	30mA to 30A	75% of 30mA or 300mA
<b>TIME RANGES</b>	Power ON delay: 1 to 999 sec, Trip time delay: 0 to 9999 sec, Recovery time: 1 to 99 min	Reset time: Instantaneous
<b>ACCURACY</b>	Current : ± 5% of set trip current Time : ± 5% of set time + Response time	Current: ± 5% of input current Time: ± 5% of response time
<b>OUTPUT CONTACT</b>	1 C/O SPDT	
<b>OUTPUT RATING</b>	NC: 3A @250V AC / 28V DC, NO: 5A @250V AC / 28V DC	
<b>SUPPLY VOLTAGE</b> (AC : 50 / 60 Hz)	90 to 270V AC/DC	230V AC (±15%)

## Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
ELR-341-1	90 to 270V AC/DC	---
ELCTR35-1-30mA-230V-CE	230V AC (±15%)	CE
ELCTR35-1A-30mA-230V	230V AC (±15%)	---

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
ELCTR35-1-300mA-230V-CE	230V AC (±15%)	CE
ELCTR35-1A-300mA-230V	230V AC (±15%)	---

# Core Balance Current Transformers



Description	Common Accessory for ELR
Operating current range	30mA - 30A
Sizes (inner diameter)	35mm, 70mm, 120mm, 210mm, 310mm

## Ordering information

PRODUCT CODE	SIZE INNER DIAMETER	CERTIFICATION
CBCT-35-1-CE	35	CE
CBCT-70-1-CE	70	CE
CBCT-120-1-CE	120	CE

PRODUCT CODE	SIZE INNER DIAMETER	CERTIFICATION
CBCT-210-1-CE	210	CE
CBCT-310-1-CE	310	CE



**MPR-341-2**  
96(H) x 96(W) x 50(D)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>Monitors overload (As per NEMA class curve), Over, Under current, Current asymmetry, Lock current, Earth fault, Phase failure, Sequence</li> <li>LED indication: Power ON, Trip relay</li> <li>Test &amp; reset function via Front / Remote</li> </ul>
<b>DISPLAY</b>	7 segment, 4 digits LED
<b>AUXILLARY SUPPLY</b>	90V to 270V AC / DC
<b>ELECTRICAL CONNECTION</b>	3Ø - 3W
<b>TRIP SETTING</b>	Over load: Class 5,10,15,20,30, Over current: 4A to 480A, Under current: 1A to 79A, Current asymmetry: 1A to 79A, Lock current: 4A to 480A, Earth fault: 1A to 160A
<b>TIME SETTINGS</b>	Power on delay: 1-999 sec, Trip time: 0-999 sec, Recovery time: 1-999 sec, Response time: <120ms, 3 Reset attempt time: 0-999 min
<b>MODE</b>	Auto / Manual / Remote
<b>ACCURACY</b>	Current: ±5% of Ir ±1 digit, Timing: ±5% +100 msec
<b>OUTPUT CONTACT</b>	2x1 C/O (SPDT)
<b>OUTPUT RATING</b>	NC: 5A@ 240V AC / 28V DC, NO: 5A @240V AC / 28V DC

## Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
MPR-3M-2-230V	230V AC (± 15%)	---

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
MPR-341-2	90 to 270V AC / DC	---



**PPRD-4M-1-230V**  
90(H) x 70(W) x 60(D)mm



**PPRD-4M-3-415V**  
90(H) x 70(W) x 60(D)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>Monitors over load (As per NEMA class curve), Over / Under current, Locked current, Over / Under voltage</li> <li>Direct current measuring up to 32A</li> <li>Monitors overload (As per NEMA class curve), Over, Under current, Current asymmetry, Lock current</li> <li>Phase failure, Sequence, Asymmetry, Over voltage and Under voltage</li> </ul>
<b>DISPLAY</b>	7 segment, 3 digits LED
<b>AUXILLARY SUPPLY</b>	180 to 300V AC (L-N) (Self powered)
<b>ELECTRICAL CONNECTION</b>	1Ø-2W
<b>CT SETTING</b>	Direct measuring upto 30A
<b>TRIP SETTING</b>	Over load: NEMA class curve 5, 10, 15, 20, 30, Over current: 2A to 32A, Under current: 0.2 to 29A, Locked current: 2A to 32A, Over voltage: 180V-300V (L-N), Under voltage: 180V-300V (L-N)
<b>TIME SETTINGS</b>	Power on delay: 1 sec (Fixed), Trip time delay: 0-999 sec, Recovery time: 1-999 sec, Reset attempts 3 (fixed): 1-999 min
<b>HYSTERESIS</b>	Voltage: 0 to 10 V
<b>ACCURACY</b>	Current accuracy: ±5% of rated current ±1 digit, Voltage accuracy: ±1% of 300V ±1 digit, Time accuracy: ±5% ±100 msec
<b>OUTPUT CONTACT</b>	1 NO relay
<b>OUTPUT RATING</b>	30A @277V AC

## Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
PPRD-4M-1-230V	180 to 300V AC	---

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
PPRD-4M-3-415V	415V AC (± 15%)	---

## Ordering information



**MPCT**  
73(H) x 100(W) x 60(D)mm

Description	Common Accessory for MPR & ELR
Current range	10A, 40A, 80A

PRODUCT CODE	INNER DIAMETER (IN MM)	CERTIFICATION
MPCT D15 10A	10A	---
MPCT D15 40A	40A	---
MPCT D15 80A	80A	---

## Liquid Level Controllers



**WLCA2M1**  
90(H) x 35(W) x 60(D)mm



**LLCA-2M-U-CE**  
90(H) x 35(W) x 60(D)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>Used for drain &amp; fill control</li> <li>3 No's stainless steel prods</li> <li>10A SPDT output (Resistive)</li> </ul>	<ul style="list-style-type: none"> <li>Selectable suction and delivery mode in single tank operation</li> <li>Used for single and two tank liquid level monitoring</li> <li>Pump protection from dry run and overflow</li> <li>Adjustable trip &amp; Recovery time delay</li> <li>Manual start facility</li> </ul>
<b>DISPLAY</b>	2 LED indication	4 LED indication
<b>AUXILLARY SUPPLY</b>	85 to 270V AC/DC	
<b>TRIP SETTING</b>	According to the levels of sensor placed in the water tank	
<b>SENSITIVITY</b>	1ohms to 200Kohms	0 ohms to 500Kohms
<b>TRIP TIME</b>	0.5s	0.5s to 10s
<b>MODE</b>	Auto	Auto / Manual
<b>ACCURACY</b>	±5% +100 msec	
<b>OUTPUT CONTACT</b>	1 C/O (SPDT)	1 N/O & 1 N/C
<b>OUTPUT RATING</b>	10A @250V AC / 28V DC	6A @277V AC / 28V DC

### Ordering information

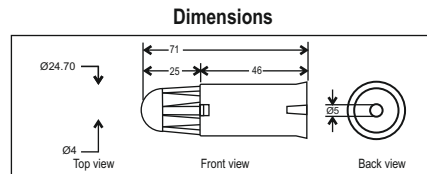
PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
WLCA2M1-CE-RoHS	85 to 270V AC/DC	CE

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
LLCA-2M-1-U-CE-RoHS	85 to 270V AC/DC	CE

## Liquid Level Sensor



- Stainless steel
- Suitable for conductive liquids



### Ordering information

PRODUCT CODE	DESCRIPTION
WLC SENSOR	Set of 3 numbers

## Thermistor Protection Relay



**TPRA2M1-1-U-CE**  
90(H) x 35(W) x 60(D)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>Monitors winding temperature of motors, generators, transformers</li> <li>PTC input</li> <li>LED indication : Power ON, Trip, Open, Short</li> <li>DPDT relay output</li> </ul>
<b>LED INDICATION</b>	Green: Power ON indication, Yellow: Sensor indication, Red: Relay status
<b>INPUT TYPE</b>	PTC sensor
<b>SENSOR</b>	Sensor short: <40 (±1Ω), Sensor healthy: 44Ω (±3Ω) to <3.8KΩ (±150Ω) Sensor trip: ≥3.8KΩ (±150Ω) to <5.5KΩ (±150Ω) Sensor open: ≥5.5KΩ (±150Ω) & above Sensor cut-in: ≤1.5KΩ (±60Ω)
<b>FUNCTIONAL</b>	Relay operating mode: Fail-safe & Shunt-trip mode, Reset: Auto / Manual
<b>OUTPUT CONTACT</b>	2 C/O (DPDT)
<b>OUTPUT RATING</b>	8A @250V AC

### Ordering information

PRODUCT CODE	OUTPUT	SUPPLY VOLTAGE	CERTIFICATION
TPRA2M1-1-U-CE	RELAY	90 to 270V AC/DC	CE

## Astronomical Time Switch

## Daily / Weekly Time Switches



**ATS2M1-1-16A**  
90(H) x 35(W) x 60(D)mm



**TS2M1-2-16A**  
90(H) x 35(W) x 60(D)mm



**TS2M1-1-16A**  
90(H) x 35(W) x 60(D)mm



**TS1W1-1-20A**  
60(H) x 60(W) x 47.65(D)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>Latitude / Longitude precise to the minute with time zone</li> <li>Automatic calculation of sunrise &amp; sunset times</li> <li>DST offset / power saving mode</li> <li>1 channel 24 hours programmable time switch</li> <li>10 years power reserve (replaceable battery)</li> </ul>	<ul style="list-style-type: none"> <li>2 channel 24 hours programmable time switch</li> <li>1 sec least count</li> <li>30 ON - 30 OFF steps per day</li> <li>Auto / Permanent override ON / Permanent Override OFF</li> <li>10 years power reserve (replaceable battery)</li> </ul>	<ul style="list-style-type: none"> <li>1 channel 24 hours programmable time switch</li> <li>1 sec least count</li> <li>50 ON - 50 OFF steps per day</li> <li>Auto / Permanent override ON / Permanent Override OFF</li> <li>10 years power reserve (replaceable battery)</li> </ul>	
<b>DISPLAY</b>	Text LCD (without backlight)			
<b>RTC SHIFT</b>	6 minutes a year @25 °C			
<b>OUTPUT CONTACT</b>	1 C/O SPDT	2 x 1 C/O SPDT	1 C/O SPDT	1 NO & Neutral
<b>CONTACT RATING</b>	16A @250V AC	16A @250V AC	20A @250V AC	
<b>WEEKLY PROGRAM</b>	---	For Relay 1 - Total 30 ON steps and 30 OFF steps 1 program 30 steps, 2 programs 15 steps, 3 programs 10 steps, 4 programs 07 steps, 5 programs 06 steps. (same for Relay 2)	Total 50 ON steps and 50 OFF steps - 2 program 25 steps, 3 programs 16 steps, 4 programs 12 steps, 5 programs 10 steps, 6 programs 08 steps, 7 programs 07 steps, 8 programs 06 steps	
<b>MINIMUM SETTING UNIT</b>	---	1 second		
<b>HOLIDAY SETTINGS</b>	---	16 dates		
<b>CLOCK</b>	12hr (AM / PM) and 24hr selection			
<b>RELAY OPERATING MODE</b>	Auto / Permanent override ON / Permanent override OFF			
<b>SUPPLY VOLTAGE (AC : 50 / 60 Hz)</b>	230V AC ±10%			

### Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
ATS2M1-1-16A-230V-CE	230V AC	CE
TS2M1-2-16A-230V-CE	230V AC	CE
TS2M1-1-16A-230V V2	230V AC	CE

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
TS2M1-1-16A-230V-CE	230V AC	CE
TS1W1-1-20A-230V	230V AC	---
TS1W1-1-20A-230V-CE	230V AC	CE

## Analog Timers



**600ST**  
90(H) x 17.5(W) x 60(D)mm



**600XU**  
90(H) x 17.5(W) x 60(D)mm



**600SD**  
90(H) x 17.5(W) x 60(D)mm



**642SQ-A**  
90(H) x 17.5(W) x 63.5(D)mm




**642XA**  
90(H) x 17.5(W) x 63.5(D)mm


<b>FEATURES</b>	<ul style="list-style-type: none"> <li>Single function - ON delay</li> <li>10 time ranges</li> </ul>	<ul style="list-style-type: none"> <li>Multi function (13 Functions)</li> <li>Precise analog time setting</li> <li>Universal supply voltage</li> </ul>	<ul style="list-style-type: none"> <li>Star Delta</li> <li>1 C/O Relay each for Star &amp; Delta</li> </ul>	<ul style="list-style-type: none"> <li>2 Functions</li> <li>8 Time ranges</li> </ul>
<b>MODES</b>	ON delay	A, B, C, Cl, D, E, F, H, I, J, K, Al, Bl	Star-Delta	ON delay / Interval
<b>TIME RANGES</b>	0.1-1 sec, 0.3-3 sec, 1-10sec, 3-30 sec, 0.1-1 min, 0.3-3 min, 1-10min, 3-30 min, 0.1-1 hr, 0.3-3 hr		Run up time: 3-30sec, 6-60 sec change over: 50/100ms	0-3 sec / min, 0-10 sec / min, 0-30 sec / min, 0-60 sec / min
<b>RESOLUTION</b>	0.1 sec	0.1 sec	---	0.3 sec
<b>ACCURACY</b>	Setting: ±5% of F.S Repeat: ±0.5% F.S. Pause time accuracy: ±5% ±5ms			
<b>OUTPUT CONTACT</b>	1 C/O SPDT	1 C/O SPDT	1 C/O relay each for Star & Delta	1 C/O SPDT
<b>CONTACT RATING</b>	5A @250V AC / 24V DC			







	600ST	600XU	600SD	642SQ-A	642XA
<b>SUPPLY VOLTAGE</b> (AC : 50 / 60 Hz)	240V AC	20 to 240V AC, 12 to 240V DC	230V AC	230V AC, 24V AC/DC	20 to 240V AC, 12 to 240V DC
<b>MODES</b>	600XU A-ON delay, B-Interval, C-Repeat cycle equal OFF first, CI-Repeat cycle equal ON first, D - Pulse output 500ms fixed, E-Delay on break, F-Delay on make / Delay on break, H-Interval after break, I-Single shot, J-Retriggerable single shot, K-Latching relay, AI-Delay on break with Totalise, BI-Interval with Totalise				


## Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
600XU-A-1-CU	20 to 240V AC, 12 to 240V DC	CE 
600SD-2-230	230V AC	CE
600ST	240V AC	CE





PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
600ST-CU	240V AC	CE 
642SQ-A	230VAC, 24V AC/DC	---
642XA	20 to 240V AC, 12 to 240V DC	---

				
	<b>800XU</b> 75(H) x 22.5(W) x 105.5(D)mm	<b>800XA</b> 75(H) x 22.5(W) x 105.5(D)mm	<b>800SQ-A</b> 75(H) x 22.5(W) x 105.5(D)mm	<b>800S</b> 75(H) x 22.5(W) x 105.5(D)mm
<b>FEATURES</b>	<ul style="list-style-type: none"> <li>• 2 Functions</li> <li>• 12 Time ranges</li> <li>• Universal supply voltage</li> </ul>	<ul style="list-style-type: none"> <li>• 2 Functions</li> <li>• 8 Time ranges</li> <li>• Universal supply voltage</li> </ul>	<ul style="list-style-type: none"> <li>• 2 Functions</li> <li>• 8 Time ranges</li> </ul>	<ul style="list-style-type: none"> <li>• Single function</li> <li>• Fixed time range (60sec)</li> </ul>
<b>MODES</b>	ON delay / Interval			ON delay
<b>TIME RANGES</b>	1 / 3 / 10 / 30 sec / min / hr	3 / 10 / 30 / 60 sec / min	3 / 10 / 30 / 60 sec / min	60 sec
<b>RESOLUTION</b>	0.1 sec	0.3 sec	0.3 sec	6 sec
<b>ACCURACY</b>	Setting: ±5% of F.S. Repeat: ±0.5% or 50ms (whichever is greater)			
<b>OUTPUT CONTACT</b>	2 C/O SPDT	2 C/O SPDT	1 C/O SPDT	1 C/O SPDT
<b>CONTACT RATING</b>	5A @250V AC/24V DC			
<b>SUPPLY VOLTAGE</b> (AC : 50 / 60 Hz)	20 to 240V AC, 18 to 240V DC		230V AC & 24V AC/DC	230V AC, 415V AC

## Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
800XU-CU	20 to 240V AC, 18 to 240V DC	CE 
800XA	20 to 240V AC, 18 to 240V DC	---
800XA-CE	20 to 240V AC, 18 to 240V DC	CE

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
800SQ-A	230V AC, 24V AC/DC	---
800S-1-ON-60S-230	230V AC	---
800S-1-ON-60S-415	415V AC	---

				
	<b>800SD-2</b> 75(H) x 22.5(W) x 105.5(D)mm	<b>800XC</b> 75(H) x 22.5(W) x 105.5(D)mm	<b>800XMR</b> 75(H) x 22.5(W) x 105.5(D)mm	<b>800POD</b> 75(H) x 22.5(W) x 105.5(D)mm
<b>FEATURES</b>	<ul style="list-style-type: none"> <li>• Star delta</li> <li>• 1 C/O Relay each for Star &amp; Delta</li> </ul>	<ul style="list-style-type: none"> <li>• Asymmetrical cyclic</li> <li>• 6 Time ranges</li> </ul>	<ul style="list-style-type: none"> <li>• Forward pause reverse</li> <li>• 1 C/O Relay each for Forward &amp; Reverse</li> </ul>	<ul style="list-style-type: none"> <li>• True power OFF delay</li> <li>• Fixed time range (180 sec)</li> </ul>
<b>MODES</b>	Star-Delta	Asymmetrical cyclic ON first or OFF first	Forward-Pause-Reverse	True power OFF Delay
<b>TIME RANGES</b>	Run up time: 30/60 sec Change over: 50/100 msec	1/10 sec / min / hr for both ON & OFF time	ON time: 1 / 2 / 4 / 8 min Pause time: 10 / 20 / 40 / 80s	180 sec

	800SD-2	800XC	800XMR	800POD
RESOLUTION	---	0.1 sec	ON time: 6s Pause time: 0.1s	7.5 sec
ACCURACY	Setting: $\pm 5\%$ , Repeat: $\pm 0.5\%$ of F.S or 50ms			Setting: $\pm 10\%$ of F.S. Repeat: $\pm 2\%$ or 100ms
OUTPUT CONTACT	1 C/O Relay each for Star & Delta	2 C/O SPDT	1 C/O Relay each for Forward & Reverse	2 C/O SPDT
CONTACT RATING	5A @ 250V AC / 24V DC			
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	110V AC, 230V AC 230 to 415V AC	20 to 240V AC, 18 to 240V DC		110 to 240V AC/DC

## Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
800SD-2-230	230V AC	---
800SD-2-230-CE	230V AC	CE
800SD-2-110	110V AC	---
800SD-2-415	230 to 415V AC	---

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
800XC	20 to 240V AC, 18 to 240V DC	---
800XC-CE	20 to 240V AC, 18 to 240V DC	CE
800XMR	20 to 240V AC, 18 to 240V DC	---
800POD-180S	110 to 240V AC/DC	---



**55XU**  
48(H) x 48(W) x 70.5(D)mm



**55XC**  
48(H) x 48(W) x 70.5(D)mm



**55ES**  
48(H) x 48(W) x 70.5(D)mm

FEATURES	<ul style="list-style-type: none"> <li>ON delay / Interval</li> <li>Plug / Panel mount</li> <li>12 Time ranges</li> </ul>	<ul style="list-style-type: none"> <li>Asymmetrical Cyclic ON - OFF</li> <li>Plug / Panel mount</li> <li>6 Time ranges</li> </ul>	<ul style="list-style-type: none"> <li>ON delay / Interval</li> <li>Plug / Panel mount</li> <li>8 Time ranges</li> </ul>
BASE TYPE	P8-8 pin plug, T8-Screw terminal		
MODES	ON delay / Interval	Asymmetrical cyclic ON first or OFF first	ON delay / Interval
TIME RANGE	1 / 3 / 10 / 30sec / min / hr	1 / 10 sec / min / hr for both ON & OFF time	3 / 10 / 30 / 60 sec / min
RESOLUTION	0.1sec		0.3sec
ACCURACY	Setting: $\pm 5\%$ of F.S., Repeat: $\pm 0.5\%$ or 50 ms		
OUTPUT CONTACT	2 C/O SPDT		1 C/O SPDT
CONTACT RATING	5A @250V AC / 24V DC		
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	20 to 240V AC, 12 to 240V DC		230V AC, 24V AC/DC

## Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
55XU-P8-230V-G	20 to 240V AC, 12 to 240V DC	CE
55XU-T-230V-G	20 to 240V AC, 12 to 240V DC	CE
55XC-P8-230V-G	20 to 240V AC, 12 to 240V DC	CE

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
55XC-T-230V-G	20 to 240V AC, 12 to 240V DC	CE
55ES-P8-230V-G	230V AC, 24V AC/DC	CE
55ES-T-230V-G	230V AC, 24V AC/DC	CE

## Analog Timers

## Digital Timers



**55MF**  
48(H) x 48(W) x 70.5(D)mm




**600DT**  
90(H) x 17.5(W) x 62(D)mm

FEATURES	<ul style="list-style-type: none"> <li>Multi function (10 functions)</li> <li>Wide time range (0.05 sec to 300 hr)</li> <li>Universal supply voltage</li> </ul>	<ul style="list-style-type: none"> <li>Multi function (15 functions)</li> <li>Wide time range (0.1 sec to 999 hr)</li> <li>Universal supply voltage</li> </ul>
DISPLAY	---	3+3 digits
SET POINT	---	Single set point
MODES	A, B, C, D, E, F, G, H, I, J	A, B, C, D, E, F, H, J, K, L, P, Q, R, T, U
TIME RANGES	0.05 sec to 300 hr	9.99 / 99.9 / 999 sec, 9: 59 min: sec, 99.9 / 999 min, 9: 59hr: min, 99.9 / 999 hr
RESOLUTION	0.05 sec	0.01 sec
TIME SETTING	Front knobs	Front keypad
RESET / START INPUT	Start : Gate/Pulse start (depending on modes) Reset: Terminal / Remote	Start: Gate / Pulse start (depending on modes) Reset: Front panel, On power interruption
ACCURACY	Setting: $\pm 5\%$ of F.S., Repeat : $\pm 0.5\%$ or 50 ms	Setting: $\pm 0.1\%$ of F.S. or $\pm 50\text{ms}$ , For Y contact operation: +100ms, Repeat: $\pm 0.1\%$
OUTPUT CONTACT	2 x 1 C/O SPDT	1 C/O SPDT
CONTACT RATING	6A @250V AC / 24V DC, resistive	8A @250V AC
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	20 to 240V AC/DC	20 to 240V AC/DC
MODES	600DT	A-ON delay, B- Interval, C-Asymmetrical cyclic OFF first, D-Asymmetrical cyclic ON first, E-Repeat cycle equal OFF first, F-Repeat cycle equal ON first, H-Pulse output, J-Delay on break, K-Delay on make/Delay on break, L-Interval after break, P-Single shot, Q-Retriggerable single shot, R-Latching relay, T-Delay on break with totalise, U-Interval with totalise
	55MF-P11	A-Signal ON delay, B- nterval, C-Cyclic equal OFF first, D-Cyclic equal ON first, E-Signal OFF delay, F-Signal ON / OFF delay, G-Interval after break H-Single shot, I-Retriggerable single shot, J-Delay on make/Delay on break
	55MF-P8	A-ON delay, B-Pulse output with instantaneous limit, C-ON delay instantaneous limit, D-Interval with instantaneous limit, E-Cyclic equal OFF first, F-Cyclic equal OFF first with instantaneous limit, G-Cyclic equal ON first, H-Cyclic equal ON first with instantaneous limit, I-Star delta with 50ms pause time, J-Star delta with 100ms pause time

## Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
55MF-P11	20 to 240V AC/DC	CE
55MF-P8	20 to 240V AC/DC	CE

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
600DT	20 to 240V AC/DC	CE
600DT-CU	20 to 240V AC/DC	CE 

# Automatic Power Factor Controller



**APFC148** : With 3 CT sensing  
144(H) x 144(W) x 50(D)mm



**APFC146** : With 1 CT sensing  
144(H) x 144(W) x 50(D)mm



**APFC346** : With 1 CT sensing  
96(H) x 96(W) x 55(D)mm



**APFC147** : With 1 CT sensing  
144(H) x 144(W) x 50(D)mm



**APFC347** : With 1 CT sensing  
96(H) x 96(W) x 55(D)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>• 3 CT sensing with MFM function built in</li> <li>• Available with relay or transistor output</li> <li>• Configurable up to 12/14* stages</li> <li>• Configurable alarm settings</li> <li>• Dual colour backlight for indicating normal &amp; Alarm function</li> </ul>	<ul style="list-style-type: none"> <li>• 1 CT sensing</li> <li>• Intelligent switching sequence</li> <li>• Configurable up to 12 stages</li> <li>• Alarm for No current, Low current error &amp; Over temperature</li> <li>• Automatic sensing of capacitor bank values</li> </ul>	<ul style="list-style-type: none"> <li>• 1 CT sensing</li> <li>• Intelligent switching sequence</li> <li>• Configurable up to 8 stages</li> <li>• Alarm for No voltage, Low current error</li> <li>• Automatic sensing of capacitor bank values</li> </ul>	<ul style="list-style-type: none"> <li>• 1 CT sensing</li> <li>• Intelligent switching sequence</li> <li>• Configurable up to 8 &amp; 12 stages</li> <li>• Automatic sensing of capacitor bank values</li> </ul>	<ul style="list-style-type: none"> <li>• 1 CT sensing</li> <li>• Intelligent switching sequence</li> <li>• Configurable up to 8</li> <li>• Automatic sensing of capacitor bank values</li> </ul>
<b>DISPLAY</b>	LCD with dual colour backlight	LCD with backlight		7 segment LED	
<b>DIGITS</b>	3 rows, 4 digits to show electrical parameters	4 digit to show electrical parameter			
<b>ELECTRICAL CONNECTION</b>	1Ø-2W, 2Ø-2W, 3Ø-3W, 3Ø-4W	2Ø - 2W (L2-L3)		1Ø-2W, 2Ø-2W	
<b>RATED INPUT VOLTAGE</b>	11 to 300V AC (L-N) 50 to 520V AC (L-L)	50 to 520V AC (L-L)		40 to 300V AC (L-N), 50 to 520V AC (L-L)	
<b>RATED INPUT CURRENT</b>	Nominal 5AAC (Min-11mA; Max-6A)	Nominal 5A AC (Min 50mA, Max 6A)			
<b>POWER CONSUMPTION</b>	15VA max	7VA max	15VA max	7VA max	
<b>FREQUENCY</b>	45 to 65 Hz				
<b>MEASUREMENT RANGE</b>	Power factor: 0.8 lag to 0.8 lead				
<b>ALARM SETTINGS</b>	Over / Under voltage, Over / Under-compensation, CT polarity error, Over-temperature, Fan setting, No voltage, THDI.	Trip indication for over temperature & Error indication for low current	No Voltage & Trip indication for low current	Over / Under Voltage, Over / Under Compensation, CT Polarity Error, CURR : Low Current Error , No Voltage	
<b>PHASE COMPENSATION</b>	0°, 90°, 120°, 210°, 240°, 330°	---		0°, 90°, 120°, 210°, 240°, 330°	
<b>ACCURACY</b>	Power factor: ±0.01, Voltage (L-N/L-L), Current: ±0.5% of F.S., Frequency: For L-N >20V For L-L >35V: ±0.1% of F.S., Power (kW, kVA, kVAh): 1%, Energy (kWh, kVAh, kVAh): Class 1, Temperature : ±3°C of F.S, Harmonics measurement	Power factor : ±0.01, Temperature : ±3° of full scale		Power factor : ±0.01	
<b>CT PRIMARY</b>	1A / 5A to 9999A (programmable for any value)	---		5A fix	
<b>CT SECONDARY</b>	1A / 5A (programmable)	---		5A fix	
<b>PT PRIMARY</b>	100 to 500kV (programmable for any value)	---		---	
<b>PT SECONDARY</b>	100 to 500kV (programmable for any value)	---		---	
<b>STEPS</b>	1 to 12 / 14* <small>*(FAN &amp; ALARM output can be used as 13° &amp; 14° step. Not applicable for APFC148-T)</small>	1 to 12	8 / 12	1 - 8	
<b>RELAY CONTACT</b>	5A @ 230V AC				
<b>SWITCHING PROGRAM</b>	Automatic / Linear / Rotational		Automatic		
<b>STEP TIME</b>	1 to 999s				
<b>DISCHARGE TIME</b>	1 to 999s				
<b>CONTROL MODE</b>	Automatic / Manual				
<b>CONTROL SENSITIVITY</b>	60%	---		60%	
<b>AUTO INITIALIZATION</b>	Yes / No	Yes		Yes / No	
<b>COMMUNICATION</b>	RS485 MODBUS RTU protocol	---			
<b>SUPPLY VOLTAGE (AC : 50 / 60 Hz)</b>	90 to 550V AC		230V AC	90 to 550V AC	230V AC

## Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	OUTPUT		CERTIFICATION
		RELAY	RS485	
APFC146-112-90/550V-CE	90 to 550V AC, 50/60 Hz	12	---	CE
APFC346-108-230V-CE	230V AC, 50/60 Hz	8	---	CE
APFC147-108-90/550V-CE	90 to 550V AC, 50/60 Hz	8	---	CE

PRODUCT CODE	SUPPLY VOLTAGE	OUTPUT		CERTIFICATION
		RELAY	RS485	
APFC147-112-90/550V-CE	90-550V AC, 50/60 Hz	12	---	CE
APFC347-108-230V-CE	230V AC, 50/60 Hz	8	---	CE
APFC148-312-90/550V-CE	90 to 550V AC, 50/60 Hz	12	YES	CE
APFC148-T-312-90/550V-CE	90 to 550V AC, 50/60 Hz	12	YES	CE



## OUR FACILITIES



- 9 Facilities in Mahape, Navi Mumbai, India
- Spread over 1.70 Lakhs sq. ft.

## MANUFACTURING



- Capacity: 4 Million Products per Year
- 14 SMT Lines
- 27 Injection Moulding Machines
- Assembly & Automated Testing
- 5 Wave Soldering Lines
- 25 Million Plastic Parts per Year

## NETWORK

**75+**  
Country presence

**280+**  
Channel partners worldwide

**1000+**  
Employee strength

## CERTIFICATIONS



Subsidiaries : **Selec GmbH** | **Selec USA** | **Selec Australia**

### Head Office :

### Selec Controls Pvt. Ltd.

EL-27/1, Electronic Zone, TTC Industrial Area, MIDC, Mahape, Navi Mumbai 400710, INDIA.

Mob.: +91-9136977315. Email: sales@selec.com | [www.selec.com](http://www.selec.com)

**Selec USA :** [www.selec.com/us/en](http://www.selec.com/us/en) | **Selec GmbH :** [www.selec-europe.com](http://www.selec-europe.com) | **Selec Australia :** [www.selec.com/au/en](http://www.selec.com/au/en)