

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

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

PROTECTION RELAY

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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

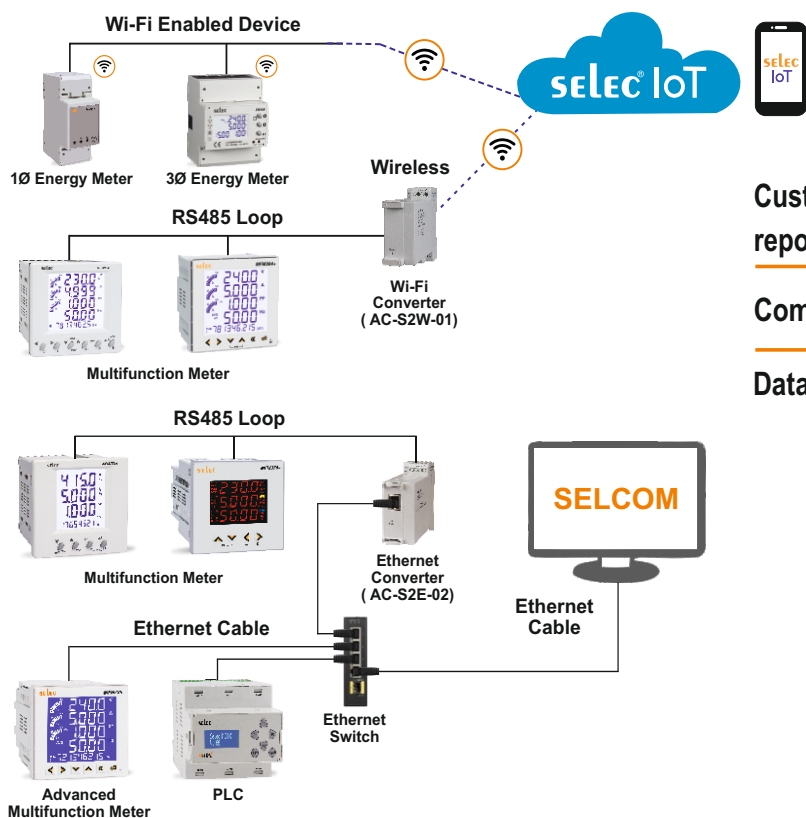
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Astronomical Time Switch
Daily / Weekly Time Switch
Analog Timer

AUTOMATIC POWER FACTOR CONTROLLER

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ENERGY MANAGEMENT



Customized widget based dashboard & reports

Compatibility with third-party devices

Data monitoring & real-time control



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

FEATURES	• MFM with accuracy class 0.5S and built in RTC (Year / Date / Hour) • Dual source measurement (DG + Mains) • %THD up to 31st level • %Unbalance for voltage and current	• MFM with accuracy class 0.5S / class 1 and %THD up to 31st level • Max. demand • Demand measurement	• MFM with accuracy class 1 and %THD up to 31st level • Demand measurement	• MFM with accuracy class 1 and Pulse output
DISPLAY	LCD with backlight			
DIGITS	4 rows of 4 digits, 1 row of 9 digits for energy display, Bar graph representation for current	4 rows of 4 digits, 1 row of 8 digits for energy display, Bar graph representation for current	1 row of 4 digits, 2 rows of 7 digits	3 rows of 4 digits, 7½ digits for energy display
ELECTRICAL CONNECTION	1Ø-2W, 2Ø-3W, 3Ø-3W, 3Ø-4W			
RATED INPUT VOLTAGE	35 to 347V AC (L-N), 35 to 600V AC (L-L)	11 to 300V AC (L - N), 19 to 519V AC (L - L)		
RATED INPUT CURRENT	Nominal 5A AC (Min-5mA; Max-6A)	Nominal 5A AC (Min - 11mA ; Max - 6A)		
RESOLUTION	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
CT PRIMARY	1/5A to 32.76kA (programmable for any value)	1/5A to 10kA (programmable for any value)		
CT SECONDARY	1/5A (programmable)			
PT PRIMARY	100V to 999kV (programmable for any value)	100V to 500kV (programmable for any value)		100V to 10kV (programmable for any value)
PT SECONDARY	100, 110, 115, 120V AC (programmable)	100 to 500V AC (L - L) (programmable for any value)		
COMMUNICATION	RS485 MODBUS RTU protocol			RS485 MODBUS RTU protocol (optional)
MEASURING PARAMETERS	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)			
ADDITIONAL FUNCTIONS	Cybersecurity, Neutral current, RPM (monitors generator speed), Displacement PF, Demand measurement, Import / Export energy, Dual source meter (DG & Mains), Phase sequence indication	Current connection indication, Phase sequence indication, Run hour, Auxiliary interrupts, Import / Export energy, Pulse output,	Import / Export energy	Energy (Active / Reactive / Apparent)
SUPPLY VOLTAGE (AC: 50/60 Hz)	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	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

FEATURES	• MFM with accuracy class 0.5(DG measurement) & %THD up to 31st level • % Unbalance of voltage & current • Demand measurement	• MFM with accuracy class 1 and %THD up to 31st level • Demand measurement • Pulse output
	7 segment LED	
	3 rows of 4 digits, 2 rows of 8 digits for energy display	
	1Ø-2W, 2Ø-3W, 3Ø-3W, 3Ø-4W	
	11 to 350V AC (L-N), 19 to 600V AC (L-L)	

	MFM376+	MFM376
RATED INPUT CURRENT	Nominal 5A AC (Min-10mA; Max-6A)	Nominal 5A AC (Min - 20mA ; Max-6A)
RESOLUTION	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
ACCURACY	Voltage (L-N / L-L): $\pm 0.5\%$ of F.S., Current: $\pm 0.5\%$ of F.S., Power factor: ± 0.01 Frequency: $\pm 0.1\%$ 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): $\pm 0.5\%$ of F.S., Current: $\pm 0.5\%$ of F.S., Power factor: ± 0.01 Frequency: $\pm 0.1\%$ For L-N voltage >20V, For L-L voltage >35V, Power (Active, Reactive, Apparent): 1%, Energy (Active, Reactive, Apparent): Class 1
CT PRIMARY	1 / 5A to 32.76kA (programmable for any value)	1/5A to 10kA (programmable for any value)
CT SECONDARY	1/5A (programmable)	
PT PRIMARY	100V to 999kV (programmable for any value)	100V to 500kV (programmable for any value)
PT SECONDARY	100 to 500V AC (programmable for any value)	
COMMUNICATION	RS485 MODBUS RTU protocol	RS485 MODBUS RTU protocol (optional)
MEASURING PARAMETERS	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)	
FUNCTIONS	Neutral current, RPM (monitors generator speed), Displacement PF, Dualsource measurement (DG+Mains), %unbalance for voltage and current, %THD upto 31st level, Run Hour, Auxiliary interrupts, Phaseangle	RPM (monitors generator speed), %THD up to 31 st level, Run Hour, Auxiliary interrupts, Phase angle, Import / Export energy, Demand measurement, RPM
SUPPLY VOLTAGE (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

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					
FEATURES			• MFM with 4 channel 3 phase measurement • RJ45 connector current input • Self powered • Two pulse output			• MFM with Split load 3 phase measurement • RJ45 connector current input • Self powered • Max demand of power			• MFM with single channel 3 phase measurement • RJ45 connector current input • Self powered • Single pulse output • Max demand of power			• MFM with single channel 3 phase measurement • RJ45 connector current input • Self powered • Single pulse output • Demand measurement • %THD up to 31st level		
DISPLAY			LCD with backlight											
DIGITS			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					
ELECTRICAL CONNECTION			1Ø-2W, 3Ø-4W											
RATED INPUT VOLTAGE			60 to 300V AC (L-N), 104 to 520V AC (L-L)						60 to 300V AC (L-N), 104 to 520V AC (L-L)					
FREQUENCY			45 to 65 Hz											
RESOLUTION			0.01k, 0.1k, 1k, 0.01M, 0.1M, (depending upon CT ratio x PT ratio), For Power, Voltage: Auto resolution, For Power factor: 0.01											
ACCURACY CLASS			Class 1											
CT PRIMARY			1A to 10kA (programmable for any value) Plug-N-Wire CTs to be used			5A to 10kA (programmable for any value), Plug-N-Wire CTs to be used								
CT SECONDARY			330mV through Plug-N-Wire CT output											
PT PRIMARY			100V to 10kV (programmable for any value)						100V to 500kV (programmable for any value)					
PT SECONDARY			100 to 500V AC (L-L) (programmable for any value)						173 to 415V AC (L-L) (programmable for any value)					
COMMUNICATION			RS485 MODBUS RTU protocol											
INDICATIONS			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 enervay. Unit in configuration menu		

Plug-N-Wire Multifunction Meters

	MRJ4M-QUAD	MRJ4M-SL	MRJ4M	MRJ385
MEASURING PARAMETERS	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 st level.
SUPPLY VOLTAGE (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

NOTE : * MID variants available

Plug-N-Wire CTs			Plug-N-Wire Accessories				
	Aperture sizes	Current ratio					
	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					
			PWCBL CON-F-3, PWCBL CON-F-1	PWCBL CON-M/F-3, PWCBL CON-M/F-1	PWCON-Male, PWCON-Female	PLCT with CTV Converter(1A/330mV)	PWADP-1A, PWADP-5A
			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	- Measures 3Ø Active energy - Single pulse output		Measures dual source (Mains / D.G) Energy, Power and Power factor		- Measures energy, Power and Power factor - Pulse output for energy
DISPLAY	7 segment LED				LCD with backlight
DIGITS	1 row of 6 digits				1 row of 8 digits
ELECTRICAL CONNECTION	1Ø-2W, 2Ø-3W, 3Ø-3W, 3Ø-4W				
RATED INPUT VOLTAGE	11 to 300V AC (L-N), 19 to 519V AC (L-L)				
RATED INPUT CURRENT	Nominal 5A AC (Min-50mA; Max-6A)			Nominal 5A AC (Min-11mA; Max-6A)	
RESOLUTION	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
ACCURACY	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%
POWER CONSUMPTION	8VA max				
CT PRIMARY	1/5A to 10kA (programmable for any value)				
CT SECONDARY	1/5A (programmable)				
PT PRIMARY	100V to 500kV (programmable for any value)				
PT SECONDARY	100 to 500V AC (L-L) (programmable for any value)				
COMMUNICATION	---		RS485 MODBUS RTU protocol		
MEASURING PARAMETERS	Active energy		Power & Energy (Total Active / Reactive), Power factor (Individual & Average)		Power (Total Active / Reactive), Energy (Total Active / Reactive / Apparent), Power factor (Individual & Average)
LED INDICATIONS	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)
SUPPLY VOLTAGE (AC: 50/60 Hz)	85 to 276V AC			85 to 270V AC	

Ordering information

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

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



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

FEATURES	- Measures single channel DC Voltage, Current, Power and Energy - Current input using DC shunt (50 to 100mV) - Relay output	- Measures 1Ø multifunction parameters 100A direct connection 2 pulse outputs - Import / Export energy - Secured in-built WiFi, MQTT protocol based (Applicable for EM2M-1P-W-100A)	- Measures 3Ø multifunction parameters 100A direct connection - Dual input meter (Mains / D.G) - Multifunction parameter monitoring 2 pulse outputs - Import / Export energy - Secured in-built WiFi, MQTT protocol based (Applicable for EM4M-3P-W-100A)
DISPLAY	7 segment LED	LCD with backlight / Blind display	LCD with backlight
DIGITS	1 row of 4 digits	1 row of 7 digits / No digits	1 row of 4 digits & 2 rows of 7 digits
ELECTRICAL CONNECTION	1Ø-2W		1Ø-2W, 2Ø-3W, 3Ø-3W, 3Ø-4W
RATED INPUT VOLTAGE	0 to 1000V DC	176 to 276V AC (L-N)	85 to 285V AC (L-N); 148-494V AC (L-L)
RATED INPUT CURRENT	-999A to 999A DC	Ib: 10A (IMin-500mA, IMax-100A)	Ib: 10A (IMin-40mA, IMax-100A)
RESOLUTION	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	
ACCURACY	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, kVAh): 1% of F.S., Active energy: Class 1, Reactive energy: Class 2	
COMMUNICATION	RS485 MODBUS RTU protocol	RS485 MODBUS RTU protocol / Wi-Fi, MQTT protocol	RS485 MODBUS RTU protocol / Wi-Fi, MQTT protocol
MEASURING PARAMETERS	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
LED INDICATIONS	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
SUPPLY VOLTAGE (AC: 50/60 Hz)	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 variants available

PRODUCT CODE	SUPPLY VOLTAGE	OUTPUT		CERTIFICATION
		PULSE OUTPUT	COMMUN.	
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
96(H) x 96(W) x 50(D)mm



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

FEATURES	- Measures 3Ø (True RMS) Voltage, Current, Frequency - Run hour / RPM measurement	- Measures 3Ø (True RMS) Voltage, Current and Frequency, Power and Power factor - Run hour / RPM measurement
DISPLAY	LCD with backlight	7 segment LED
DIGITS	3 rows of 3 digits, Bar graph representation of current	3 rows of 3 digits
ELECTRICAL CONNECTION	1Ø-2W, 3Ø-3W, 3Ø-4W	
RATED INPUT VOLTAGE	11 to 300V AC (L-N), 19 to 519V AC (L-L)	
RATED INPUT CURRENT	Nominal 5A (Min-20mA, Max-6A)	Nominal 5A (Min-30mA; Max-6A)
RESOLUTION	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

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

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
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	- Measures 1Ø & 3Ø True RMS Voltage - PT Primary programmable up to 999.0kV - K LED for kilo indication	- Measures 1Ø & 3Ø True RMS Current - CT Primary programmable up to 999.0kA - K LED for kilo indication	- True RMS Voltage and Current - Direct 30A Measurements with hanging CT	- True RMS measurement - Voltage, Current, Power, Power factor & Frequency - Programmable CT & PT - Communication and Relay output (applicable only for MX300-1-C-CE)
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	Voltage & Current: $\pm 0.5\%$ of F.S., Frequency: $\pm 1\%$, Active power: $\pm 1\%$, Reactive power : $\pm 2\%$
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 (AC: 50/60 Hz)	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

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
MV35-1-G-40/300V-CE	40 to 300V AC/DC	CE
MVA591-30A-230V-CE	230V AC, $\pm 20\%$	CE
MX300-1-C-CE	85 to 300V AC	CE

Digital Voltmeters



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

FEATURES	- Measures True RMS 1Ø Voltage - Accuracy Class 0.5	- Measures 1Ø & 3Ø true RMS voltage - Accuracy class 0.5 - Programmable PT Primary & Secondary
DISPLAY	7 segment LED	
DIGITS	1 row of 3 digits	1 row of 4 digits
ELECTRICAL CONNECTION	1Ø - 2W	1Ø-2W, 3Ø-3W, 3Ø-4W
RATED INPUT VOLTAGE	50 to 480V AC (600V max)	11 to 300V AC (L-N), 19 to 516V AC (L-L)
RESOLUTION	1V	Auto resolution
ACCURACY	± 0.5% of F.S.	±0.5% of F. S.
PT PRIMARY	---	100V-999kV
PT SECONDARY	---	100V-500V
SUPPLY VOLTAGE (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%	---

Digital Ammeters



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

FEATURES	- Measures true RMS 1Ø current - Accuracy class 0.5 - Programmable CT Primary up to 4000A	- Measures true RMS 1Ø current - Accuracy class 0.5	- Measures 1Ø & 3Ø true RMS current - Accuracy class 0.5 - Programmable CT Primary and Secondary
DISPLAY	7 segment LED		
DIGITS	1 row of 4 digits		
ELECTRICAL CONNECTION	1Ø-2W		1Ø-2W, 3Ø-3W, 3Ø-4W
INPUT TYPE	CT	Shunt	Direct
RATED INPUT CURRENT	5A AC (Min-50mA; Max-7A)	0 to 75mV DC	20A direct
RESOLUTION	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
ACCURACY	± 0.5% of F.S.		
CT PRIMARY / SHUNT SETTING	5 to 4000A (programmable in steps)	---	1 to 999.0kA (programmable for any value)
CT SECONDARY	5A fix	---	1/5A (programmable)
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	240V AC ±20%		230V AC ±20%

Ordering information

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

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

Current Transformers



Square (SPCT)



Split Core (SCCT)



Round (RCT)



Tape Wound (TWCT)

RATED PRIMARY RATING	30 to 4000A	100 to 6000A	30 to 600A	30 to 1600A
RATED SECONDARY OUTPUT	5A			
RATED BURDEN (VA)	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
ACCURACY	0.5, 1, 3, 5	0.5, 1, 3	1, 5	0.5, 1, 5
OPERATING FREQUENCY	AC 50/60 Hz			
SYSTEM VOLTAGE	720V max			
APPLICABLE STANDARD	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	-

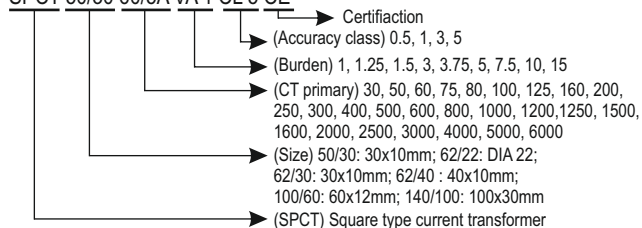
SPCT-62/40-100/5A-VA1-CL1-CE

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

Nomenclature

E.g. SPCT-50/30-60/5A-VA1-CL5

SPCT 50/30 60/5A VA 1 CL 5 CE



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-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

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

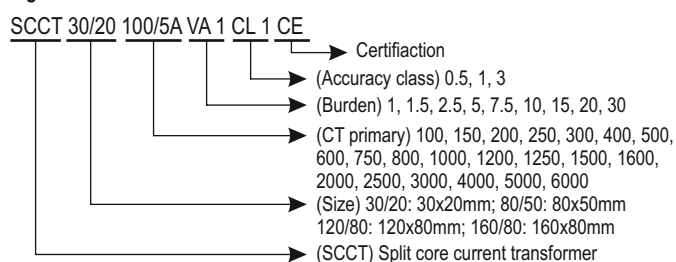
Primary current	Accuracy		
	0.5	1	3
500	2.5VA	3.75VA	15VA
600	2.5VA	5VA	15VA
750	2.5VA	2.5VA	20VA
800	2.5VA	7.5VA	20VA
1000	5VA	10VA	20VA
1200	7.5VA	15VA	30VA
1250	7.5VA	15VA	30VA
1500	7.5VA	10VA	30VA
1600	10VA	20VA	30VA

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

E.g. SCCT-30/20-100/5A-VA1-CL1-CE



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

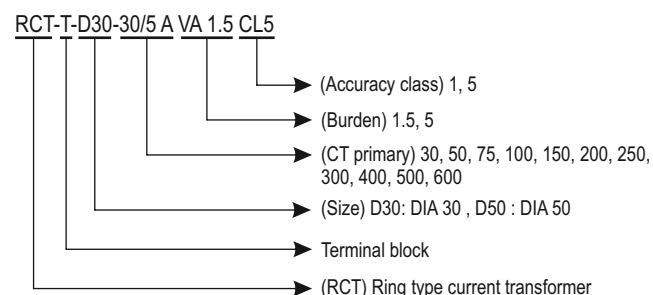
Primary current	Accuracy	
	1	5
30	-	1.5VA
50	-	5VA
75	-	5VA
100	5 VA	-
150	5 VA	-

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

E.g. RCT-T-D30-30/5A-VA1.5-CL5



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

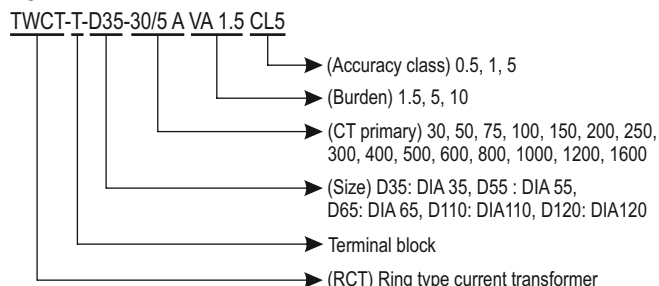
Primary current	Accuracy	
	0.5	
800	10VA	
1000	10VA	

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

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

Nomenclature

E.g. TWCT-T-D35-30/5A-VA1.5-CL5



Line Monitoring Relays



640PSRV-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

FEATURES	• Monitors phase failure, Sequence • Selectable asymmetry 40/65V • Selectable function SPP / PSR • Selectable Over / Under voltage ON / OFF tripping • LED indication: Healthy and Trip conditions • Variable trip time delay: 2 to 10 sec	• Monitors phase failure, Sequence, asymmetry • LED indication: Healthy and Trip conditions	• Monitor phase failure, Sequence & Asymmetry • LED indication: Relay ON • Slim space saving design	• Monitor phase failure, Sequence & Asymmetry • LED indication: Relay ON
MODES	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: 40V fixed, Reset: Auto reset on removal of fault condition	
TIME RANGES	Power ON delay: <400 msec		Power ON delay: 200 msec	
ACCURACY	±5% of F.S.		±3% of F.S.	
OUTPUT CONTACT	1 C/O (SPDT)			
OUTPUT RATING	NC: 3A @250V AC / 30V DC, NO: 5A @250V AC / 30V DC			
ELECTRICAL CONNECTION	3Ø-3W			
OPERATING VOLTAGE	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

FEATURES	- Monitor phase failure, Asymmetry, over voltage & Under voltage - LED indication: Power ON & Trip	- Monitor phase failure & Asymmetry - LED indication: Relay ON - Slim space saving design
MODES	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
TIME RANGES	Power ON delay: 3 sec	
ACCURACY	±1% of F.S.	
OUTPUT CONTACT	2 C/O (DPDT)	1 C/O (SPDT)
OUTPUT RATING	NC : 3A@250V AC / 30V DC, NO : 5A@250V AC / 30V DC	
ELECTRICAL CONNECTION	3Ø-3W	
OPERATING VOLTAGE	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



600DVR-CE
90(H) x 17.5(W) x 62(D)mm



600VPR-310/520V
90(H) x 17.5(W) x 60(D)mm



600VPR-170/290V
90(H) x 17.5(W) x 60(D)mm



600VPR -130/320V
90(H) x 17.5(W) x 60(D)mm

FEATURES	• Monitor under & Over voltage • Monitor phase failure, Sequence & Asymmetry • Monitor under, Over frequency & Neutral loss	• Monitors under & Over voltage • Monitors phase failure & Sequence	• LED indication: Power ON, Fault condition • Space saving design	• Monitors Under Voltage, Over Voltage	
MODES	Phase failure: Yes; Phase sequence: Yes Phase asymmetry: 5-99% Over frequency: 45/65 Hz Under frequency: 45/65 Hz Over voltage: 280 to 600V AC (3Ø-3W) (L-L) : 160 to 300V AC (3Ø-4W) (L-N) Under voltage: 280 to 600V AC (3Ø-3W) (L-L) : 160 to 300V AC (3Ø-4W) (L-N) Neutral loss: Yes	Phase failure: Yes Phase sequence: Yes Under voltage: 310 to 405V AC Over voltage: 425 to 520V AC Reset : Auto reset on removal of fault condition	Phase failure: Yes Phase sequence: Yes Under voltage: 170 to 224V AC Over voltage: 236 to 290V AC Reset: Auto reset on removal of fault condition	Under voltage: 130V AC to 210V AC Over voltage: 240V AC - 320V AC	
TIME RANGES	0-999 sec (For power ON, Trip time, Recovery time) Response time <120ms (For under voltage, Over voltage, Phase asymmetry) Response time <250ms (For Phase failure, Phase sequence, Neutral loss)	Trip time delay : 0.2 to 10s, Power on delay : 400msec		Trip delay (T) -0.25 to 20sec Power on delay- <400msec	
ACCURACY	Trip voltage: +1% of Full range Trip time: +5% of setting +250ms, Frequency: +0.3 Hz	Trip voltage: ±0.5% of F.S, Trip time: ±5% of F.S		Accuracy (Trip voltage) ±1% of full scale Accuracy (Trip time) ±5% of set value ±100msec	
OUTPUT CONTACT	1 C/O (SPDT)				
OUTPUT RATING	NO: 5A @250V AC / 30V DC, NC 3A @250V AC / 30V DC		NC: 3A @250V AC / 30V DC, NO: 5A @250V AC / 30V DC		NO / 5A, NC / 3A@250V AC
ELECTRICAL CONNECTION	(3Ø-3W), (3Ø-4W)		3Ø-3W		1Ø-2W
OPERATING VOLTAGE	280 to 600V AC (3Ø-3W) (L-L) 160 to 300V AC (3Ø-4W) (L-N)		310 to 520V AC (L-L)	170 to 290V AC (L-L)	130-320V AC

Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
600VPR-170/290-CU	170 to 290V AC	CE 
600VPR-310/520-CE	310 to 520V AC	CE

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
600VPR-1-130-320-CE	130 to 320V AC	CE
600DVR-CE	280 to 600V AC	CE

Voltage Monitoring Relays



900VPR-2-280/600V-CE
90(H) x 35(W) x 70.5(D)mm



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

FEATURES	- Monitors phase failure, Sequence, Asymmetry, Under voltage, Neutral loss, Over voltage, Under frequency and Over frequency - Two separate alarm relays - LED indication: Power ON, Fault condition	- Monitors Phase Failure, Sequence , Asymmetry, Under voltage, Over voltage, Under frequency, Over frequency and Neutral loss - Two alarm relays with NO or NC operation selectable - LED indication : Fault condition
MEASUREMENTS	Phase failure, Sequence, Asymmetry, Under / Over voltage, Under / Over frequency, Neutral loss	
DISPLAY	3 digit LCD	3 digit LCD with backlight
ALARM INDICATIONS	Trip	
ELECTRICAL CONNECTION	1Ø-2W (Only applicable for 900VPR-2-280/600V-CE), 3Ø-3W, 3Ø-4W	
TRIP SETTING	Under / Over voltage: 280 to 600V AC L-L (for 3Ø-3W), 160 to 300V AC L-N (for 3Ø-4W), Under / Over frequency: 45/65 Hz, Voltage asymmetry: 5.0 to 99.9%	Under / Over voltage: 85 to 500V AC L-L (for 3Ø-3W), 50 to 288V AC L-N (for 3Ø-4W), Under / Over frequency: 45/65 Hz, Phase asymmetry: 5.0 to 30.0%

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: ± 0.3 Hz, Time (Recovery time, Trip delay, Power on delay): $\pm 5\%$ of setting ± 200 ms	Voltage: $\pm 1\%$ of set value ± 2 digits, Frequency: $\pm 0.5\%$ ± 1 digits, Time (Recovery time, Trip delay, Power on delay): $\pm 5\%$ of setting ± 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	PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
900VPR-2-280/600V-CE	280 to 600V AC	CE	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-BL-CE
90(H) x 35(W) x 70.5(D)mm



VPRD-2-280/520V-CE
90(H) x 35(W) x 70.5(D)mm

FEATURES	- Monitors under voltage, Over voltage - Monitors phase failure, Sequence & Neutral loss - Adjustable over and under voltage trip level - Adjustable trip time delay	- Monitors under voltage, Over voltage - Monitors phase failure, Sequence & Asymmetry - Adjustable switching hysteresis - One relay with two change over alarm relay operation	3 phase and single phase RMS voltage protection relay - Monitors Over / Under Voltage, Over/Under Frequency, Phase asymmetry, Phase failure, Phase sequence
MEASUREMENT	Phase failure, Sequence, Asymmetry, Under voltage, Over neutral loss		Over/Under Voltage, Over/Under Frequency, Phase asymmetry, Phase failure, Phase sequence
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		1Ø-2W, 3Ø-3W 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%	Under voltage 280 to 520V AC (L - L) 160-300 V AC (L-N) Over voltage 280 to 520V AC (L - L) 160-300 V AC (L-N) Under frequency- 45-65Hz, Over frequency-45-65Hz Phase asymmetry -5.0-99%
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 300sec, Recovery time delay: 0 to 300sec, Phase sequence trip delay <150msec	Power ON delay: 0-999sec, Trip time delay: 0-999sec, Recovery time delay 0-999 Response time <250ms
HYSTERESIS	Voltage : 7V (± 2 V) of trip voltage	Voltage: 1.0V-99.9V, Asymmetry: 2 to 20%	voltage -1.0-99V, frequency-0.2-2.0Hz, Asymmetry-2.0-20%
ACCURACY	Trip setting : $\pm 5\%$ of F. S., Time setting : $\pm 10\%$ of F. S.	Voltage: $\pm 1\%$ ± 2 digits, Time setting: $\pm 5\%$ of settings ± 150 ms	Voltage: $\pm 1\%$ of full scale(± 1 digit) Frequency: ± 0.3 Hz Time: $\pm 5\%$ of setting ± 250 ms
OUTPUT CONTACT	2 C/O (DPDT)		
OUTPUT RATING	NC: 5A @250V AC / 30V DC, NO: 5A @250V AC / 30V DC	NC: 5A @250V AC / 28V DC, NO: 5A @250V AC / 28V DC	NO/5A, NC/3A @250V AC
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	Self powered, Nominal input voltage (Un): 230V AC (L-N), Operating voltage: 127 to 288V AC (L-N)		Self powered

Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION	PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
VPRA2M-CE	127 to 288V AC	CE	VPRD-2-280/520-CE	280 to 520V AC	CE
VPRD2M-BL-CE	127 to 288V AC	CE			

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-1-1-BL
90(H) x 35(W) x 70.5(D)mm

FEATURES	• Monitors under, Over current protection for 1Ø system • True RMS measurement • Two alarm relay with NC or NO operation selectable • LED indication: Fault condition	• Monitors under, Over current & Current asymmetry protection for 1Ø & 3Ø system • True RMS measurement • One alarm relay with NC or NO operation selectable • LED indication: Fault condition	• Monitors under, Over current protection for 1Ø system • True RMS measurement • One alarm relay with NC or NO operation • LED indication: Fault condition
MEASUREMENTS	Under current, Over current (Current asymmetry applicable only for 900CPR-3, 900CPR-3-1-BL)		
DISPLAY	3 digit LCD with backlight		3 digit LCD with backlight
ELECTRICAL CONNECTION	1Ø-2W	1Ø-2W, 3Ø-3W, 3Ø-4W	1Ø-2W
CT SETTING	CT primary: 1A/5A-999A, CT secondary: 1A/5A (selectable)		
TRIP SETTING	Under current: 0-999A, Over current: 0.5-1.19kA, (Current asymmetry: 5.0-99.9% applicable only for 900CPR-3-1-BL)		
TRIP TIME SETTING	Power ON delay: 0.5-99.9 sec, Trip time delay: 0-99.9 sec, Recovery time delay: 0-99.9 sec, Response time: <200ms		
HYSTERESIS	Current: 0.1 to 99.9A		
ACCURACY	Current: ±1% of setting ±2 digits, Time (Recovery time, Trip delay, Power ON delay): ±5% of setting ±200ms		
OUTPUT CONTACT	2 x 1 C/O (SPDT)	1C/O SPDT	
OUTPUT RATING	NO: 5A @250V AC / 30V DC; NC: 3A @250V AC / 30V DC		
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	85 to 270V AC/DC	110V AC / 230V AC	

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-1-1-BL-230V-CE	230V AC (±15%)	CE

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

FEATURES	- Earth fault current monitoring - Two alarm relays with NO and NC operation selectable - Test and reset via Front / Remote		- Earth fault current monitoring - Work with Standard CT and EFCT - Two alarm relays with NO and NC operation selectable - Test and reset via Front / Remote	
MEASUREMENT	Earth fault current monitoring		Earth fault current monitoring	
DISPLAY	3 digit liquid crystal display with backlight		3 digits, 7 segments LED display	
ELECTRICAL CONNECTION	1Ø-2W, 3Ø-3W, 3Ø-4W		(1Ø-2W), (3Ø-3W), (3Ø-4W)	
FRAME RATING (CT PRIMARY)	160A, 250A, 630A		---	
TRIP SETTING	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)	
TIME RANGES	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)	
OUTPUT CONTACT & RATING	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 VA1 C11	100x25	160/1A
EFCT 140/35 160/1A VA1 C11	140x35	160/1A
EFCT 140/35 250/1A VA1 C11	140x35	250/1A

PRODUCT CODE	DIMENSION IN MM	CURRENT TRANSFORMER RATIO
EFCT 180/35 250/1A VA1 C11	180x35	250/1A
EFCT 180/35 630/1A VA1 C11	180x35	630/1A
EFCT 220/50 630/1A VA1 C11	220x50	630/1A

Earth Leakage Relays



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



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

FEATURES	- Monitor true RMS earth leakage current up to 30A in 1Ø & 3Ø system - CBCT connection monitoring - Test and reset via Front / Remote - Sensitivity and time delay adjustable	- Monitor true RMS earth leakage current up to 30A in 1Ø & 3Ø system - CBCT connection monitoring - Test and reset via Front / Remote - Two separate alarms relays with NO or NC operation selectable
MEASUREMENT	Earth leakage current (Via external CBCT)	
DISPLAY	5 LED indication	3 digit LCD with backlight, 2 LED for trip indication
ELECTRICAL CONNECTION	1Ø-2W, 3Ø-3W, 3Ø-4W	
TRIP SETTING	30mA to 30A	10mA to 30A
TIME RANGES	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 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	2 x 1 C/O (SPDT)
OUTPUT RATING	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
ELRA2M2-1-230V-CE	230V AC (±15%)	CE
ELRA2M2-1-230V	230V AC (±15%)	---

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
900ELR-2-230V-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

FEATURES	- Monitor true RMS earth leakage current up to 30A in 1Ø & 3Ø system - CBCT connection monitoring - Test and reset via Front / Remote - Pre-alarm indication selectable	- Monitors True RMS earth leakage current in 1Ø & 3Ø system - Inbuilt CBCT - Test and reset function
MEASUREMENT	Earth leakage current (Via external CBCT)	Earth leakage current (internal CBCT)
DISPLAY	3 digits, 7 segments LED display	2 LED indication
ELECTRICAL CONNECTION	1Ø-2W, 3Ø-3W, 3Ø-4W	
TRIP SETTING	30mA to 30A	75% of 30mA or 300mA
TIME RANGES	Power ON delay: 1 to 999 sec, Trip time delay: 0 to 9999 sec, Recovery time: 1 to 99 min	Reset time: Instantaneous
ACCURACY	Current : $\pm 5\%$ of set trip current Time : $\pm 5\%$ of set time + Response time	Current: $\pm 5\%$ of input current Time: $\pm 5\%$ of response time
OUTPUT CONTACT	1 C/O SPDT	
OUTPUT RATING	NC: 5A @250V AC / 28V DC, NO: 5A @250V AC / 28V DC	
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	90 to 270V AC/DC	230V AC ($\pm 15\%$)

Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
ELR-341-1	90 to 270V AC/DC	---

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
ELCTR35-1-300mA-230V-CE	230V AC ($\pm 15\%$)	CE

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 (IN MM)	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

FEATURES	- Monitors overload (As per NEMA class curve), Over, Under current, Current asymmetry, Lock current, Earth fault, Phase failure, Sequence - LED indication: Power ON, Trip relay - Test & reset function via Front / Remote
DISPLAY	7 segment, 4 digits LED
AUXILLARY SUPPLY	90V to 270V AC / DC
ELECTRICAL CONNECTION	3Ø - 3W
TRIP SETTING	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
TIME SETTINGS	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
MODE	Auto / Manual / Remote
ACCURACY	Current: $\pm 5\%$ of $I_r \pm 1$ digit, Timing: $\pm 5\%$ +100 msec
OUTPUT CONTACT	2x1 C/O (SPDT)
OUTPUT RATING	NC: 5A@240V AC / 28V DC, NO: 5A @240V AC / 28V DC

Ordering information

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

FEATURES	- Monitors over load (As per NEMA class curve), Over / Under current, Locked current, Over / Under voltage - Direct current measuring up to 32A	- Monitors overload (As per NEMA class curve), Over, dry run current, Current asymmetry, Lock current - Phase failure, Sequence, Asymmetry, Over voltage and Under voltage
DISPLAY	7 segment, 3 digits LED	
AUXILLARY SUPPLY	180 to 300V AC (L-N) (Self powered)	280V-500V (L-L)
ELECTRICAL CONNECTION	1Ø-2W	3Ø-3W
CT SETTING	Direct measuring upto 30A	10A, 40A, 80A
TRIP SETTING	Over load: NEMA class curve 5, 10, 15, 20, 30, Over current: 1A 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)	Over load: NEMA class curve 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, Over voltage: 280V-500V, Under voltage: 280V-500V, Voltage asymmetry: 5V to 50V
TIME SETTINGS	Power on delay: 1 sec (Fixed), Trip time delay: 0-999 sec, Recovery time: 1-999 sec, Reset attempts 3 (fixed): 1-999 min	Power on delay: 1 sec, Trip time: 0-999 sec, Recovery time: 1-999 sec, Response time: <120ms, 3 Reset attempt time: 0-999 min
HYSTERESIS	Voltage: 0 to 10 V	
ACCURACY	Current accuracy: $\pm 5\%$ of rated current ± 1 digit, Voltage accuracy: $\pm 1\%$ of 300V ± 1 digit, Time accuracy: $\pm 5\%$ ± 100 msec	Current: $\pm 5\%$ of $I_r \pm 1$ digit, Timing: $\pm 5\%$ ± 100 msec, Voltage: $\pm 1\%$ of 500V ± 1 digit
OUTPUT CONTACT	1 NO relay	1 C/O (SPDT)
OUTPUT RATING	30A @277V AC	5A @250V AC / 28V DC

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 ($\pm 15\%$)	---



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

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

Ordering information

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

FEATURES	- Used for drain & fill control 3 No's stainless steel prods 10A SPDT output (Resistive)	- Selectable suction and delivery mode in single tank operation - Used for single and two tank liquid level monitoring - Pump protection from dry run and overflow - Adjustable trip & Recovery time delay - Manual start facility
DISPLAY	2 LED indication	4 LED indication
AUXILIARY SUPPLY	85 to 270V AC/DC	
TRIP SETTING	According to the levels of sensor placed in the water tank	
SENSITIVITY	1ohms to 200Kohms	0 ohms to 500Kohms
TRIP TIME	0.5s	0.5s to 10s
MODE	Auto	Auto
ACCURACY	±5% +100msec	
OUTPUT CONTACT	1 C/O (SPDT)	1 N/O & 1 N/C
OUTPUT RATING	10A @250V AC / 28V DC	6A @277V AC / 28V DC

Ordering information

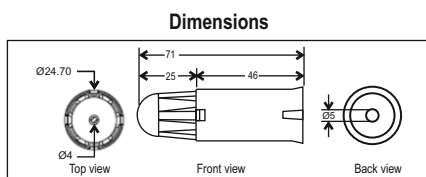
PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
WLCA2M1-CE-RoHS	85 to 270V AC/DC	CE

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

FEATURES	- Monitors winding temperature of motors, generators, transformers - PTC input - LED indication : Power ON, Trip, Open, Short - DPDT relay output
LED INDICATION	Green: Power ON indication, Yellow: Sensor indication, Red: Relay status
INPUT TYPE	PTC sensor
SENSOR	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)
FUNCTIONAL	Relay operating mode: Fail-safe & Shunt-trip mode, Reset: Auto / Manual
OUTPUT CONTACT	2 C/O (DPDT)
OUTPUT RATING	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

FEATURES	• Latitude / Longitude precise to the minute with time zone • Automatic calculation of sunrise & sunset times • DST offset / power saving mode • 1 channel 24 hours programable time switch • 10 years power reserve (replaceable battery)	• 2 channel 24 hours programable time switch • 1 sec least count • 30 ON - 30 OFF steps per day • Auto / Permanent override ON / Permanent Override OFF • 10 years power reserve (replaceable battery)	• 1 channel 24 hours programable time switch • 1 sec least count • 50 ON - 50 OFF steps per day • Auto / Permanent override ON / Permanent Override OFF • 10 years power reserve (replaceable battery)	
DISPLAY	Text LCD (without backlight)			
RTC SHIFT	15 minuits a year @25 °C			
OUTPUT CONTACT	1 C/O SPDT	2 x 1 C/O SPDT	1 C/O SPDT	1 NO & Neutral
CONTACT RATING	16A @250V AC	16A @250V AC		20A @250V AC
WEEKLY PROGRAM	---	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	
MINIMUM SETTING UNIT	---	1 second		
HOLIDAY SETTINGS	---	16 dates		
CLOCK	12hr (AM / PM) and 24hr selection			
RELAY OPERATING MODE	Auto / Permanent override ON / Permanent override OFF			
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	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

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
TS2M1-1-16A-230V V2	230V AC	CE
TS1W1-1-20A-230V	230V AC	---

Analog Timers



600ST-U
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

FEATURES	- Single function - ON delay 10 time ranges	- Multi function (13 Functions) - Precise analog time setting - Universal supply voltage	- Star Delta 1 C/O Relay each for Star & Delta	2 Functions 8 Time ranges
MODES	ON delay	A, B, C, Cl, D, E, F, H, I, J, K, Al, Bl	Star-Delta	ON delay / Interval
TIME RANGES	0.1-1 sec, 0.3-3 sec, 1-10sec, 3-30 sec, 0.1-1 min, 0. -3 min, 1-10min, 3-30 min, 0.1-1 hr, 0-3 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
RESOLUTION	0.1 sec	0.1 sec	---	0.3 sec
ACCURACY	Setting: $\pm 5\%$ of F.S Repeat: $\pm 0.5\%$ F.S. Pause time accuracy: $\pm 5\%$ ± 5 ms			
OUTPUT CONTACT	1 C/O SPDT	1 C/O SPDT	1 C/O relay each for Star & Delta	1 C/O SPDT
CONTACT RATING	5A @250V AC / 24V DC			

	600ST	600XU	600SD	642SQ-A	642XA
SUPPLY VOLTAGE (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
MODES	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-CU	240V AC	CE 

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

Analog Timers

 800XU 99(H) x 22.5(W) x72.25 (D)mm	 800XA 99(H) x 22.5(W) x72.25 (D)mm	 800SQ-A 99(H) x 22.5(W) x72.25 (D)mm	 800S 99(H) x 22.5(W) x72.25 (D)mm
FEATURES	• 2 Functions • 12 Time ranges • Universal supply voltage	• 2 Functions • 8 Time ranges • Universal supply voltage	• 2 Functions • 8 Time ranges • Single function • Fixed time range (60 sec)
MODES	ON delay / Interval		
TIME RANGES	1 / 3 / 10 / 30 sec / min / hr	3 / 10 / 30 / 60 sec / min	3 / 10 / 30 / 60 sec / min
ACCURACY	Setting: ±5% of F.S. Repeat: ±0.5% or 50ms (whichever is greater)		
OUTPUT CONTACT	2 C/O DPDT		1 C/O SPDT
CONTACT RATING	5A @250V AC/24V DC		
SUPPLY VOLTAGE (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
800XA	20 to 240V AC, 18 to 240V DC	---
800SQ-A	230V AC, 24V AC/DC	---
800XU	20 to 240V AC & 12 to 240V DC	---

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
800S-1-ON-60S-230	230V AC	---
800S-1-ON-60S-415	415V AC	---

Analog Timers

	 800SD-2 99(H) x 22.5(W) x 72.25 (D)mm	 800XC 75(H) x 22.5(W) x 105.5(D)mm	 800XMR 75(H) x 22.5(W) x 105.5(D)mm	 800POD 75(H) x 22.5(W) x 105.5(D)mm
FEATURES	- Star delta 1 C/O Relay each for Star & Delta	- Asymmetrical cyclic 6 Time ranges	- Forward pause reverse 1 C/O Relay each for Forward & Reverse	- True power OFF delay - Fixed time range (180 sec)
MODES	Star-Delta	Cyclic ON first or OFF first	Forward-Pause-Reverse	True power OFF Delay
TIME RANGES	Run up time: 30 / 60 sec Change over: 50 / 100 / 150 / 200msec	0-1 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)	230V AC & 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-2-415	415V AC	---
800XC	20 to 240V AC, 18 to 240V DC	---

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
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	- ON delay / Interval - Plug / Panel mount 12 Time ranges		- Asymmetrical Cyclic ON - OFF - Plug / Panel mount 6 Time ranges		- ON delay / Interval - Plug / Panel mount 8 Time ranges	
	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: ±5% of F.S., Repeat: ±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-G	20 to 240V AC, 12 to 240V DC	CE
55XU-T-G	20 to 240V AC, 12 to 240V DC	CE
55XC-T-G	20 to 240V AC, 12 to 240V DC	CE

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

Analog Timers



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

Digital Timers



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

FEATURES	- Multi function (10 functions) - Wide time range (0.05 sec to 300 hr) - Universal supply voltage	- Multi function (15 functions) - Wide time range (0.1 sec to 999 hr) - Universal supply voltage
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: ± 5% of F.S., Repeat : ± 0.5% or 50 ms	Setting: ±0.1% of F.S. or ±50ms, For Y contact operation: +100ms, Repeat: ± 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-CU	20 to 240V AC/DC	CE 



APFC148 : With 3 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

FEATURES	• 3 CT sensing with MFM function built in • Available with relay or transistor output • Configurable up to 12/14* stages • Configurable alarm settings • Dual colour backlight for indicating normal & Alarm function	• 1 CT sensing • Intelligent switching sequence • Configurable up to 8 stages • Alarm for No voltage, Low current error • Automatic sensing of capacitor bank values	• 1 CT sensing • Intelligent switching sequence • Configurable up to 8 & 12 stages • Automatic sensing of capacitor bank values	• 1 CT sensing • Intelligent switching sequence • Configurable up to 8 • Automatic sensing of capacitor bank values
DISPLAY	LCD with dual colour backlight	LCD with backlight	7 segment LED	
DIGITS	3 rows, 4 digits to show electrical parameters	4 digit to show electrical parameter		
ELECTRICAL CONNECTION	1Ø-2W, 2Ø-2W, 3Ø-3W, 3Ø-4W	2Ø - 2W (L2-L3)	1Ø-2W, 2Ø-2W	
RATED INPUT VOLTAGE	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)	
RATED INPUT CURRENT	Nominal 5A AC (Min-11mA; Max-6A)	Nominal 5A AC (Min 50mA, Max 6A)		
POWER CONSUMPTION	15VA max	7VA max	15VA max	7VA max
FREQUENCY	45 to 65 Hz			
MEASUREMENT RANGE	Power factor: 0.8 lag to 0.8 lead			
ALARM SETTINGS	Over / Under voltage, Over / Under-compensation, CT polarity error, Over-temperature, Fan setting, No voltage, THDI.	No Voltage & Trip indication for low current	Over / Under Voltage, Over / Under Compensation, CT Polarity Error, CURR : Low Current Error , No Voltage	
PHASE COMPENSATION	0°, 90°, 120°, 210°, 240°, 330°	---	0°, 90°, 120°, 210°, 240°, 330°	
ACCURACY	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		
CT PRIMARY	1A / 5A to 9999A (programmable for any value)	---	5A fix	
CT SECONDARY	1A / 5A (programmable)	---	5A fix	
PT PRIMARY	100 to 500kV (programmable for any value)	---		
PT SECONDARY	100 to 500kV (programmable for any value)	---		
STEPS	1 to 12 / 14* *(FAN & ALARM output can be used as 13° & 14° step. Not applicable for APFC148-T)	8 / 12		1 - 8
RELAY CONTACT	5A @230V AC			
SWITCHING PROGRAM	Automatic / Linear / Rotational	Automatic		
STEP TIME	1 to 999s			
DISCHARGE TIME	1 to 999s			
CONTROL MODE	Automatic / Manual			
CONTROL SENSITIVITY	60%	---	60%	
AUTO INITIALIZATION	Yes / No	Yes	Yes / No	
COMMUNICATION	RS485 MODBUS RTU protocol	---		
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	90 to 550V AC	230V AC	90 to 550V AC	230V AC

Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	OUTPUT		CERTIFICATION
		RELAY	RS485	
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
APFC147-112-90/550V-CE	90-550V AC, 50/60 Hz	12	---	CE

PRODUCT CODE	SUPPLY VOLTAGE	OUTPUT		CERTIFICATION
		RELAY	RS485	
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



CERTIFICATIONS



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