

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, 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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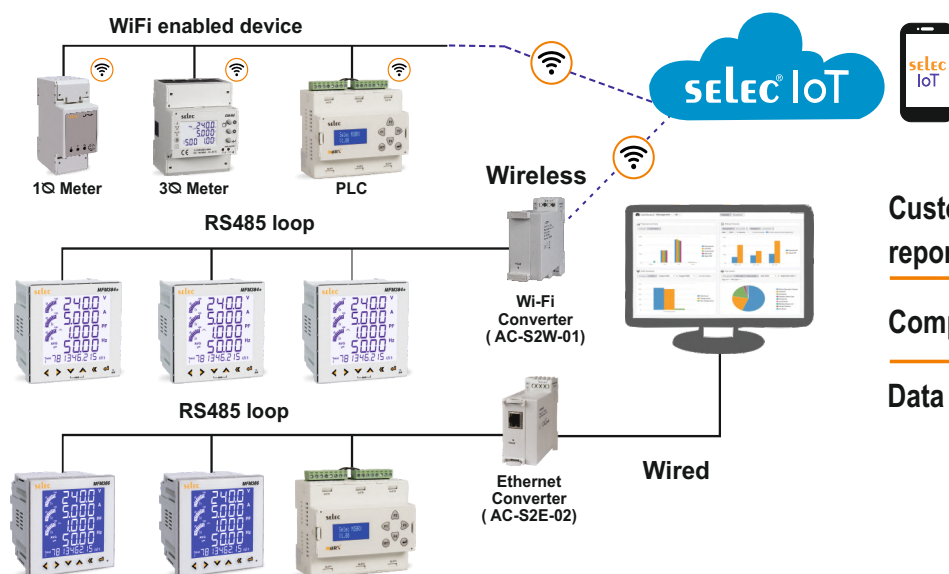
Astronomical Time Switch
Daily / Weekly Time Switch
Analog Timer

AUTOMATIC POWER FACTOR CONTROLLER

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ENERGY MANAGEMENT

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

FEATURES	• MFM with accuracy class 0.5S and built in RTC(Year / Date / Hour) • DG Sensing • %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 measurment	• 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, 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
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 5AAC (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 : 0.1Hz	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 : 0.1Hz		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), DG sensing, Displacement PF, Demand measurement ,Import / Export energy, Dual input meter (Main / DG) Phase sequence indication, Run hour, Load hour, Suppression current, %Unbalance for voltage and current	Current connection indication, Phase sequence indication, Run hour, Auxiliary interrupts, Import / Export energy, Pulse output,	Import / Export energy	Energy (Active / Reactive / Apparent)
SUPPLY VOLTAGE	40 to 300V AC / DC	85 to 300V AC / DC	85 to 270V AC	

Ordering information

PRODUCT CODE	SUPPLY VOLTAGE	OUTPUT		CERTIFICATION
		PULSE OUTPUT	COMM. (RS485)	
MFM384-C-CU *	85 to 300V AC	YES	YES	CE
MFM384-C-CE	85 to 300V 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	YES	---	---
MFM383A-C-CE	85 to 270V AC	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 0.5S (DG) / class 1 (POP) and %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	
	DISPLAY	7 segment LED	
	DIGITS	3 rows of 4 digits, 2 rows of 8 digits for energy display	
	ELECTRICAL CONNECTION	1Ø - 2W, 2Ø - 3W, 3Ø - 3W, 3Ø - 4W	
	RATED INPUT VOLTAGE	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
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 (Not applicable for MFM376-CE)	
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, DG sensing, % unbalance for voltage and current, %THD up to 31 st level, Run Hour, Auxiliary Interrupts, Phase angle	Run Hour, Auxiliary Interrupts, Phase angle Single pulse output, %THD up to 31 st level, Import / Export energy, Demand measurement
SUPPLY VOLTAGE	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	
FEATURES		• MFM with 4 channel 3 phase measurement • RJ45 connector current input • Self powered • Single pulse output • Max demand of power		• MFM with Split load 3 phase measurement • RJ45 connector current input • Self powered • 2 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		2 rows of 4 digits, 1 row of 7 digits to show electrical parameters		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 65Hz					
RESOLUTION		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					
ACCURACY CLASS		Class 1					
CT PRIMARY		1A to 1kA (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		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	

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

Plug-N-Wire CTs			Plug-N-Wire Accessories				
	Aperture sizes	Current Ratio	 PWCBL_CON-F-3, PWCBL_CON-F-1 Power cable with Female type connector, 1 & 3 Meter length	 PWCBL_CON-M/F-3, PWCBL_CON-M/F-1 Daisy chain cable to loop MRJ meters with Male & Female type connectors, 1 & 3 Meter length	 PWCON-Male, PWCON-Female Voltage connector Male / Female	 PLCT with CTV Converter(1A/330mV) Primary current 60 to 250A	 PWADP-1A, PWADP-5A Adapter to use with conventional CT 1A - MRJ4M-QUAD 5A - MRJ4M, MRJ4M-SL & MRJ385
	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						

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		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.	
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



EM2M-1CH-DC
90(H) x 35(W) x 60(D)mm



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



EM4M-3P-C-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, kVAR) : 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	LED-2 for Pulse output 1, Pulse output 2
SUPPLY VOLTAGE	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
EM2M-1CH-C-DC-1RO	18 to 30V DC	Relay Output	CE

NOTE : * MID ariants 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)	YES	RS485	CE
EM4M-3P-W-100A	85 to 285V AC (L-N), 150 to 494V AC (L-L)	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

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, 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 (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-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



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

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	- Measures True RMS Voltage and Current - Direct 10A / 30A / 80A Measurements with hanging CT
DISPLAY	7 segment LED		
DIGITS	1 row of 4 digits		2 row of 3 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 ($\pm 20\%$)
RATED INPUT CURRENT	---	5A AC (Min - 50mA; Max - 6.2A)	0.1 to 10A / 1 to 30A / 4 to 80A
RESOLUTION	Auto resolution depend upon PT ratio	Auto resolution depend upon CT ratio	Voltage : 1V; Current : 0.1A
ACCURACY	$\pm 0.5\%$ of F.S.		$\pm 1\%$ full scale
CT PRIMARY	---	1 / 5A to 999.0kA (Programmable for any value)	---
CT SECONDARY	---	1 / 5A (Programmable)	---
PT PRIMARY	100 to 999kV (Programmable for any value)	---	---
PT SECONDARY	100 to 500V (Programmable for any value)	---	---
SUPPLY VOLTAGE	40 to 300V AC / DC		230V AC, $\pm 20\%$
OPERATING FREQUENCY	50 - 60 Hz		50Hz ($\pm 5\%$)

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

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
MVA591-10A-230V	230V AC, $\pm 20\%$	---
MVA591-30A-230V	230V AC, $\pm 20\%$	---
MVA591-80A-230V	230V AC, $\pm 20\%$	---

Digital Voltmeters



MV15
48(H) x 96(W) x 26.30(D)mm



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



MV305
96(H) x 96(W) x 46(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 26.30(D)mm



MA202
72(H) x 72(W) x 35(D)mm



MA302
96(H) x 96(W) x 46(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	5AAC (Min - 50mA ; Max - 6.2A)	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
MV302	240V AC, $\pm 20\%$	---
MV302-CE	240V AC, $\pm 20\%$	CE
MV335-230VAC	230V AC, $\pm 20\%$	---

Current Transformers



Square (SPCT)



Split Core (SCCT)



Round (RCT)



Tape Wound (TWCT)

RATED PRIMARY RATING	30 to 4000A	10 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 / 60Hz			
SYSTEM VOLTAGE	720V max			
APPLICABLE STANDARD	IEC 61869-2			

Ordering information

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

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

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

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

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

Primary Current	Accuracy	
	5	
30	1 VA	

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

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

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

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

Nomenclature

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

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

- Certification
- (Accuracy Class) 0.5, 1, 3, 5
- (Burden) 1, 1.25, 1.5, 3, 3.75, 5, 7.5, 10, 15
- (CT Primary) 30, 50, 60, 75, 80, 100, 125, 160, 200, 250, 300, 400, 500, 600, 800, 1000, 1200, 1250, 1500, 1600, 2000, 2500, 3000, 4000, 5000, 6000
- (Size) 50/30 : 30x10mm ; 62/22 : DIA 22 ; 62/30 : 30x10mm ; 62/40 : 40x10mm ; 100/60 : 60x12mm ; 140/100 : 100x30mm
- (SPCT) Square Type Current Transformer

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

Primary Current	Accuracy	
500	-	5 VA
600	5VA	7.5 VA
800	10 VA	-
1000	15 VA	-
1200	15 VA	-

Range Available

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

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

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

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

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

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

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

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

Nomenclature

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

SCCT 30/20 100/5A VA 1 CL 1 CE

- Certification
- (Accuracy Class) 0.5, 1, 3
- (Burden) 1, 1.5, 2.5, 5, 7.5, 10, 15, 20, 30
- (CT Primary) 100, 150, 200, 250, 300, 400, 500, 600, 750, 800, 1000, 1200, 1250, 1500, 1600, 2000, 2500, 3000, 4000, 5000, 6000
- (Size) 30/20 : 30x20mm ; 80/50 : 80x50mm ; 120/80 : 120x80mm ; 160/80 : 160x80mm
- (SCCT) Split Core Current Transformer

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

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

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

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

Nomenclature

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

RCT-T-D30-30/5 A VA 1.5 CL5

- (Accuracy Class) 1, 5
- (Burden) 1.5, 5
- (CT Primary) 30, 50, 75, 100, 150, 200, 250, 300, 400, 500, 600
- (Size) D30 : DIA 30 , D50 : DIA 50
- Terminal Block
- (RCT) Ring Type Current Transformer

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

Primary Current	Accuracy
	1
500	5 VA
600	5 VA

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

Primary Current	Accuracy
	0.5
800	10 VA
1000	10 VA

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

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

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

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

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

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

Nomenclature

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

TWCT-T-D35-30/5 A VA 1.5 CL5

- (Accuracy Class) 0.5, 1, 5
- (Burden) 1.5, 5, 10
- (CT Primary) 30, 50, 75, 100, 150, 200, 250, 300, 400, 500, 600, 800, 1000, 1200, 1600
- (Size) D35 : DIA 35, D55 : DIA 55, D65 : DIA 65, D110 : DIA 110, D120 : DIA 120
- Terminal Block
- (RCT) Ring Type Current Transformer

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 : 30V fixed, Reset : Auto reset on removal of fault condition	
TIME RANGES	Power ON delay : <400msec		Power ON delay : 200msec	
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 : 3sec	
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



800VPR-3
76.85(H) x 22.5(W) x 105.5(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		• Monitor Under & Over Voltage • Monitor Phase Failure & Sequence • LED indication : Power ON, Fault condition
Modes	Phase failure : Yes ; Phase sequence : Yes Phase asymmetry : 5-99% Over frequency : 45-65Hz Under Frequency : 45-65Hz Over Voltage : 280 to 600VAC (3Ø - 3W) (L-L) : 160 to 300VAC (3Ø - 4W) (L-N) Under Voltage : 280 to 600VAC (3Ø - 3W) (L-L) : 160 to 300VAC (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	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
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 asymmetry, Phase failure, Phase sequence , Neutral loss)	Trip time delay : 0.2 to 10s, Power On delay : 400msec		Trip Delay : 0 to 10s (For under voltage and over voltage); Instantaneous (For phase failure & phase sequence)
ACCURACY	Trip Voltage : +1% of Full Range Trip Time : +5% of setting + 250ms, Frequency : +0.3Hz	Trip Voltage : ±0.5% of F.S, Trip Time : ±5% of F.S		
OUTPUT CONTACT	1 C/O SPDT	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		
ELECTRICAL CONNECTION	(3Ø - 3W), (3Ø - 4W)	3Ø - 3W		
OPERATING VOLTAGE	280 to 600VAC (3 Ø - 3W) (L-L) 160 to 300VAC (3 Ø - 4W) (L-N)	310 to 520V AC (L - L)	170 to 290V AC (L - L)	310 to 520V AC (L - L)

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
600DVR-CE	280 to 600V AC	CE
800VPR-3	310 to 520V AC	---

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 / 65Hz, 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 / 65Hz, 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 999sec, Trip time delay : 0 to 999sec Recovery time delay : 0 to 999sec, Response time : <200ms	Power ON delay : 0.5 to 300sec, Trip time delay : 0 to 300sec Recovery time delay : 0 to 300sec (In Auto Reset Mode), Response time : <120ms
HYSTERESIS	Voltage : 1.0 to 99.9V, Frequency : 0.2 to 2Hz, Asymmetry: 2 to 20%	Voltage : 1.0 to 40V, Frequency : 0.2 to 2Hz, Asymmetry : 2 to 20%
RESOLUTION	Voltage : 1V, Frequency : 0.1Hz	
ACCURACY	Voltage : $\pm 1\%$ of set value, Frequency : $\pm 0.3\text{Hz}$, Time (Recovery time, Trip delay, Power on delay) : $\pm 5\%$ of setting $\pm 200\text{ms}$	Voltage : $\pm 1\%$ of set value ± 2 digits, Frequency : $\pm 0.5\% \pm 1$ digits, Time (Recovery Time, Trip delay, Power on delay) : $\pm 5\%$ of setting $\pm 120\text{ms}$
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-CU-RoHS	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

FEATURES	- Monitors Under Voltage, Over Voltage - Monitors Phase Failure, Sequence & Asymmetry - 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
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 300sec Recovery time delay : 0 to 300sec, Phase sequence trip delay <150msec
HYSTERESIS	Voltage : 7V ($\pm 2\text{V}$) 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 $\pm 150\text{ms}$
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

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	- Monitors Under, Over Current & Current Asymmetry protection for 1Ø & 3Ø 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 digits LCD	
ELECTRICAL CONNECTION	1Ø - 2W	1Ø - 2W, 3Ø - 3W, 3Ø - 4W	1Ø - 2W	1Ø - 2W, 3Ø - 3W, 3Ø - 4W
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, 900CPR-3-1-BL)			
TRIP TIME SETTING	Power ON delay : 0.5 – 99.9sec, Trip time delay : 0 - 99.9sec, Recovery time delay : 0 - 99.9sec, 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	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 ($\pm 15\%$)	CE

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

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

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 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 99.9sec, Recovery time : 0 to 99.9sec, Power ON delay : 0.5 to 99.9sec		0.5-99.9 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 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	- Monitors true RMS earth leakage current (Up to 500mA) in 1Ø & 3Ø system - Leakage current (In) & Time delay (ΔT) adjustable - LED indication for power ON and relay status - Test and reset function via front key	- 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	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 @ 250VAC / 24V DC , NC: 3A @ 250VAC / 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

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 : ± 5% of Set Trip current Time : ± 5% of set Time + Response time	Current : ± 5% of Input current Time : ± 5% of Response time
OUTPUT CONTACT	1 C/O SPDT	
OUTPUT RATING	NC : 3A@250V AC / 28V DC, NO : 5A@250V AC / 28V DC	
SUPPLY VOLTAGE (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	SUPPLY VOLTAGE	CERTIFICATION
CBCT-35-1-CE	35	CE
CBCT-70-1-CE	70	CE
CBCT-120-1-CE	120	CE

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
CBCT-210-1-CE	210	CE
CBCT-310-1-CE	310	CE

Motor Protection Relays



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
AUXILIARY 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 Ir ± 1 digit, Timing : $\pm 5\%$ + 100msec
OUTPUT CONTACT	2 x1 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-3M-2-230V	230V AC ($\pm 15\%$)	---

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

Pump Protection Relays



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, Under current, Current asymmetry, Lock current - Phase Failure, Sequence, Asymmetry, Over voltage and Under voltage
DISPLAY	7 segment, 3 digits LED	
AUXILIARY SUPPLY	180 to 300VAC (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 : 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)	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 Ir ± 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 ($\pm 15\%$)	---

Motor Protection Current Transformer



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 10 A	10 A	---
MPCT D15 40 A	40 A	---
MPCT D15 80 A	80 A	---

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	1 ohms to 200Kohms	0 ohms to 500Kohms
TRIP TIME	0.5s	0.5s to 10s
MODE	Auto	Auto / Manual
ACCURACY	±5% + 100msec	
OUTPUT CONTACT	1 C/O (SPDT)	1 N/O & 1 N/C
OUTPUT RATING	10A@250V AC / 28V DC	6A@ 277 V AC / 28V DC

Ordering information

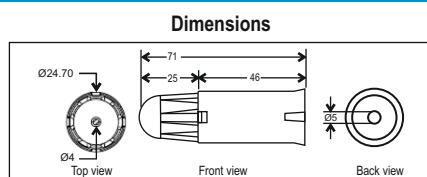
PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
WLCA2M1-CE-RoHS	85 to 270V AC / DC	CE

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	6 minutes 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
TS2M1-1-16A-230V V2	230V AC	---

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

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, Ci, D, E, F, H, I, J, K, Ai, Bi	Star - Delta	ON delay / Interval
TIME RANGES	0.1 - 1sec, 0.3 - 3sec, 1 - 10sec, 3 - 30sec, 0.1 - 1min, 0.3 - 3min, 1 - 10min, 3 - 30min, 0.1 - 1hr, 0.3 - 3hr		Run up time : 3 - 30sec, 6 - 60sec Change over : 50/100ms	0 - 3sec / min, 0 - 10sec / min, 0 - 30sec / min, 0 - 60sec / min
RESOLUTION	0.1sec	0.1sec	---	0.3sec
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			

Analog Timers

	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	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	---

Analog Timers

				
	800XU 75(H) x 22.5(W) x 105.5(D)mm	800XA 75(H) x 22.5(W) x 105.5(D)mm	800SQ-A 75(H) x 22.5(W) x 105.5(D)mm	800S 75(H) x 22.5(W) x 105.5(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 (60sec)
MODES	ON delay / Interval			ON delay
TIME RANGES	1 / 3 / 10 / 30sec / min / hr	3 / 10 / 30 / 60sec / min	3 / 10 / 30 / 60sec / min	60sec
RESOLUTION	0.1sec	0.3sec	0.3sec	6sec
ACCURACY	Setting : ±5% of F.S. Repeat : ±0.5% or 50ms (Whichever is greater)			
OUTPUT CONTACT	2 C/O SPDT	2 C/O SPDT	1 C/O SPDT	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
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	---

Analog Timers

				
	800SD-2 75(H) x 22.5(W) x 105.5(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 (180sec)
MODES	Star - Delta	Asymmetrical Cyclic ON first or OFF first	Forward - Pause - Reverse	True Power OFF Delay
TIME RANGES	Run up time : 30 / 60sec Change over : 50 / 100msec	1 / 10sec / min / hr for both ON & OFF time	ON time : 1 / 2 / 4 / 8min Pause time : 10 / 20 / 40 / 80s	180sec

	800SD-2	800XC	800XMR	800POD
RESOLUTION	---	0.1sec	ON time : 6s Pause time : 0.1s	7.5sec
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	• 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 / 10sec / min / hr for both ON & OFF time		3 / 10 / 30 / 60sec / 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-P8-230V-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



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 (0.05sec to 300hr) • Universal supply voltage	• Multi function (15 Functions) • Wide time range (0.1sec to 999hr) • 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	0.05sec to 300hr	9.99 / 99.9 / 999sec, 9 : 59min : sec, 99.9 / 999min, 9 : 59hr : min, 99.9 / 999hr
RESOLUTION	0.05sec	0.01sec
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 - Interval, 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

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 12 stages • Alarm for No current, Low current error & over temperature • Automatic sensing of capacitor bank values	• 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 5AAC (Min - 11mA; Max - 6A)		Nominal 5AAC (Min 50mA, Max 6A)			
POWER CONSUMPTION	15VA max		7VA max		15VA max	7VA max
FREQUENCY	45 to 65Hz					
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.	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	
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, kVArh) : Class 1, Temperature : ±3°C of F.S, Harmonics Measurement	Power factor : ±0.01, Temperature : ±3° of full scale		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)	1 to 12		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	
APFC146-112-90/550V-CE	90 to 550V AC, 50 / 60Hz	12	---	CE
APFC346-108-230V-CE	230V AC, 50 / 60Hz	8	---	CE
APFC147-108-90/550V-CE	90 to 550V AC, 50 / 60Hz	8	---	CE

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

Tel.: +91-22-4141 8468 / 452. Mob.: +91-9136977315. Email: sales@selec.com | www.selec.com

Selec USA : www.selec.com/us/en | **Selec GmbH :** www.selec-europe.com | **Selec Australia :** www.selec.com/au/en