

# CATALOG

**selec**<sup>®</sup>  
Creating Best Value



- Meters • CTs • Protection Relays • Automatic Power Factor Controllers
- Timers • Time Switches • PLCs • HMI • Temperature Controllers
- Process Indicators • Counters

# Index



<b>METERS</b>	<b>3</b>
Multifunction Meters	
Energy Meters	
Digital Panel Meters ( VAF Meters, Voltmeters, Ammeters, Frequency Meters, Power Factor Meters )	
Analog Meters	
Current Transformers	
Automatic Power Factor Controllers	



<b>MONITORING / PROTECTION RELAYS</b>	<b>18</b>
Phase Sequence Relay	
Voltage Protection Relay	
Current Protection Relay	
Earth Leakage Relay	
Earth Fault Relay	
Motor Protection Relay	
Water Level Controller	



<b>TIME SWITCHES</b>	<b>28</b>
Din Rail Mount	
Wall Mount	



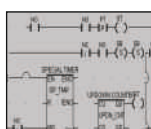
<b>TIMERS</b>	<b>30</b>
17.5mm DIN Rail Timers	
22.5mm DIN Rail Timers	
8 Pin Socket / Panel Mount Timers	
Digital Timers	
Time Totalisers	



<b>COUNTERS &amp; RATE INDICATORS</b>	<b>38</b>
Programmable / Preset Counters	
Totalisers	
Rate Indicators	



<b>TEMPERATURE CONTROLLERS &amp; PROCESS INDICATORS</b>	<b>42</b>
Advanced PID Controllers	
Profile Controller	
Economic Temperature Controllers	
Analog Temperature Controller	
Cooling Controller	
Process Indicators	



<b>PLCs &amp; HMI</b>	<b>50</b>
Flexible I/O Solutions	
Compact Series	
Fixed I/O Solutions	
HMI	

# ELECTRICAL PRODUCTS

Meters / APFCs / Current Transformers



## METERS

- Multifunction
- Energy
- DPM
- Analog

## AUTOMATIC POWER FACTOR CONTROLLERS

- 8/12 steps in 144 x 144mm size
- 8/12 steps with built in MFM in 144 x 144mm size
- 6/8 steps in 96 x 96mm size

## CURRENT TRANSFORMERS

- SPCT (Bus Bar type)
- RCT (Cable type)
- TWCT (Tape Wound type)

Applicable EMI / EMC Standards		
Product Standard : IEC 61326-1		
Category	Standards Compliance	
ESD Immunity	IEC 61000-4-2	Level IV (Air discharge : 15kV), (Contact Discharge : -8kV)
Surge Immunity	IEC 61000-4-5	+/- 2kV common mode, (Line to ground) +/- 1kV differential mode, (Line to Line)
Radiated Susceptibility	IEC 61000-4-3	Level III, 80 to 1000MHz (10V/m) Level II, 1.4GHz to 2GHz (3V/m) Level I, 2GHz to 2.7GHz (1V/m)
Conducted Susceptibility	IEC 61000-4-6	Level II (3V/m)
Voltage Dips and Interruptions	IEC 61000-4-11	Dips : 0% residual voltage / 1 cycle (Criteria B), 40% residual voltage / 10 cycles 50Hz / 12 cycles 60Hz (Criteria C) 70% residual voltage / 25 cycles 50Hz / 30 cycles 60Hz (Criteria C) Interruptions : 0% residual voltage / 250 cycles 50Hz / 300 cycles 60Hz (Criteria C)
Conducted Emission	CISPR-11	
Radiated Emission	CISPR-11	
Electrical Fast Transient	IEC 61000-4-4	Level III (2kV)

Note : Above standards are applicable only for CE certified Multifunction Meters, Digital Panel Meters & Automatic Power Factor Controllers

# Multifunction Meters



**MFM384**  
Size : 96 x 96mm



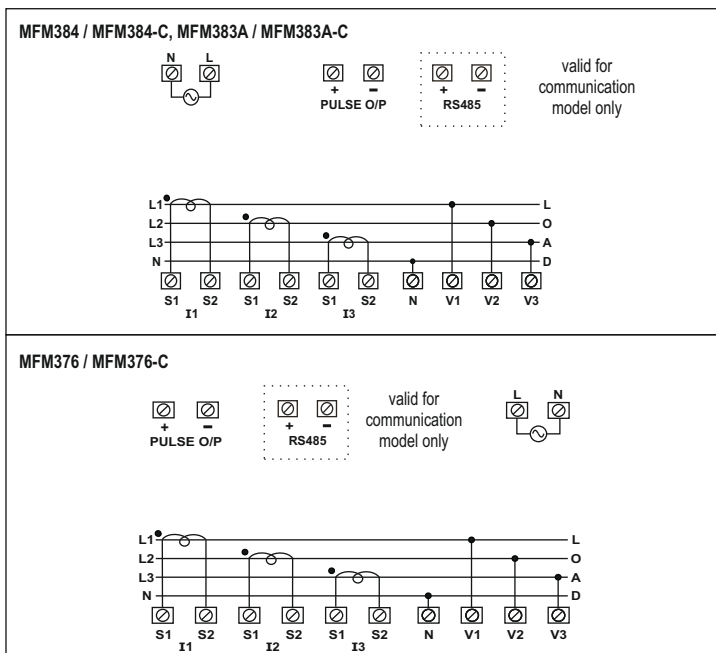
**MFM383A**  
Size : 96 x 96mm



**MFM376**  
Size : 96 x 96mm

FEATURES	<ul style="list-style-type: none"> <li>LCD type with Bargraph</li> <li>Single Pulse Output</li> <li>THD upto 31<sup>st</sup> level</li> <li>Max / Min Demand (Power)</li> <li>Max Demand Current</li> </ul>	<ul style="list-style-type: none"> <li>Single Pulse Output</li> <li>Energy (Active / Reactive / Apparent)</li> </ul>	<ul style="list-style-type: none"> <li>Single Pulse Output</li> <li>Max / Min Demand (Power)</li> <li>Run Hour</li> <li>Auxiliary Interrupts</li> <li>Phase Angle</li> </ul>
DISPLAY	LCD with Backlight		7 segment LED
DIGITS	4 rows of 4 digits, Bargraph representation for current, 1 row of 8 digits for energy display	3 rows of 4 digits, 7½ digits for energy	3 rows of 4 digits
ELECTRICAL CONNECTION	3Ø - 4W, 3Ø - 3W, 2Ø - 3W, 1Ø - 2W		
RATED INPUT VOLTAGE	11 to 300V AC (L-N), 19 to 519V AC (L-L)		
RATED INPUT CURRENT	Nominal 5A AC (11mA min ; 6A max)		Nominal 5A AC (14mA min ; 6A max)
RESOLUTION	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 : 0.001	For energy : 0.1k, 1k (depending upon CT ratio x PT ratio) For Power, Voltage & Current : 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
CT PRIMARY	1 / 5A to 10kA (Programmable for any value)		
CT SECONDARY	1 or 5A (Programmable)		
PT PRIMARY	100V to 500kV (Programmable for any value)	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)		
COMMUNICATION	RS485 Communication MODBUS RTU Protocol (Optional)		
MEASURING PARAMETER	Voltage (L-L / L-N) (Individual / Average), Current (I1, I2, I3) (Individual / Average), Frequency, Power Factor (Individual / Total), Active, Reactive & Apparent power (Individual / Total), Active, Reactive & Apparent Energy (Total)		
ADDITIONAL FUNCTIONS	Phase sequence detection	---	Max instantaneous (Current / Voltage), (Import / Export) Energy, THD upto 31 <sup>st</sup> level (For MFM376-C)
SUPPLY VOLTAGE	100 to 240V AC, -15% to +12%, 50/60Hz (±5%) (Power consumption : Less than 8VA)		240V AC, ±20% (For MFM376-230VAC), 85V to 270V AC & 40 to 270V DC (For MFM376-C)

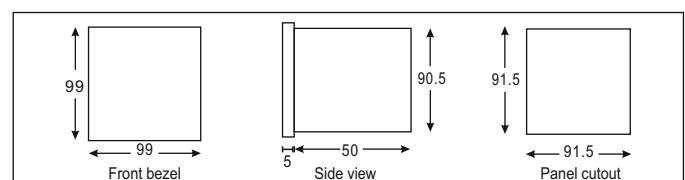
## Terminal Connections



## Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE	OUTPUT		CERTIFICATION
		PULSE OUTPUT	COMM	
MFM384	100V to 240V AC -15% to +12%	■	---	---
MFM384-C		■	■	---
MFM384-C-CE		■	■	CE RoHS
MFM384-MB-CE-RoHS		■	■ (MBUS)	CE RoHS
MID384		■	■	MID CE RoHS
MFM383A		■	---	---
MFM383A-C		■	■	---
MFM383A-C-CE	■	■	CE RoHS	
MFM376-230V	240V AC ± 20%	■	---	---
MFM376-C	85 to 270V AC, 40 to 270V DC	■	■	---

## Dimensions (All are in mm)



## Din Rail Multifunction Meters



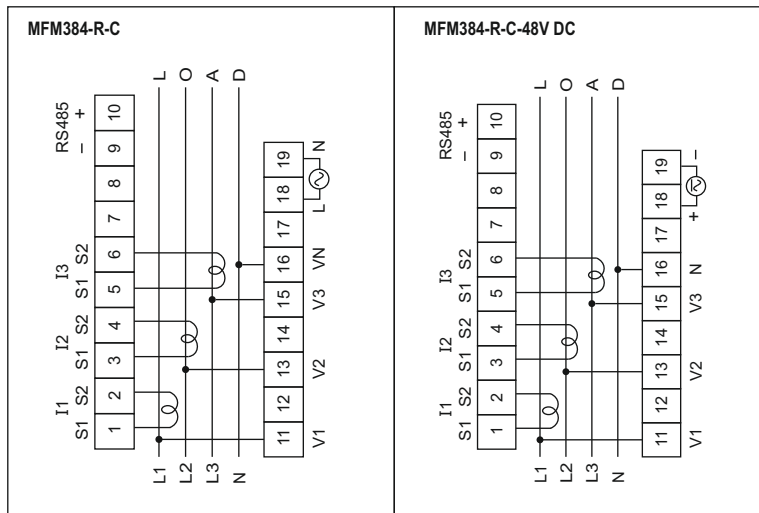
**MFM384-R-C**  
Size : 70 x 90mm



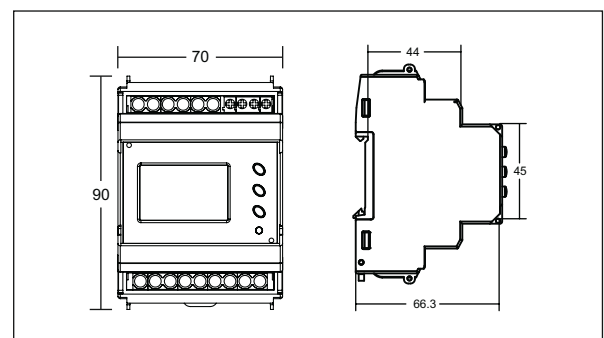
**MFM384-R-C-48V DC**  
Size : 70 x 90mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>• Energy (Active, Reactive, Apparent)</li> <li>• RS485 Communication MODBUS RTU Protocol</li> <li>• Import / Export Energy</li> <li>• Max / Min Demand (Power)</li> <li>• 85 to 270V AC, 50/60Hz Supply</li> </ul>	<ul style="list-style-type: none"> <li>• Energy (Active, Reactive, Apparent)</li> <li>• RS485 Communication MODBUS RTU Protocol</li> <li>• Import / Export Energy</li> <li>• Max / Min Demand (Power)</li> <li>• DC : 30 to 60V ; AC : 18 to 36V Supply</li> </ul>
<b>DISPLAY</b>	LCD with backlight	
<b>DIGITS</b>	1 Row of 4 digits, 2 Rows of 7 digits	
<b>ELECTRICAL CONNECTION</b>	3Ø - 4W, 3Ø - 3W, 2Ø - 3W, 1Ø - 2W	
<b>RATED INPUT VOLTAGE</b>	11 to 300V AC (L-N), 19 to 519V AC (L-L)	2 to 76.2V AC (L-N), 3.5 to 132V AC (L-L)
<b>RATED INPUT CURRENT</b>	Nominal 5A AC (11mA min ; 6A max)	
<b>FREQUENCY</b>	45Hz to 65Hz	
<b>RESOLUTION</b>	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 : 0.01k, 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
<b>ACCURACY CLASS</b>	Voltage (L-L / L-N), Current : ±0.5% Power Factor : ±0.01 of full range, Frequency : ±0.1% of full range Power (kW, kVA, kVAr) : 1% of full range Energy (Active, Reactive, Apparent) : 1% of full range	Voltage & Current : ±0.5% of range, Frequency : ±0.15% of mid frequency Power (Active, Reactive, Apparent) : ±0.5% of range Energy (Active, Reactive, Apparent) : ±0.5% Power Factor : ±0.5% of unity.
<b>CT PRIMARY</b>	1 / 5A to 10kA (Programmable for any value)	
<b>CT SECONDARY</b>	1 or 5A (Programmable)	
<b>PT PRIMARY</b>	100V to 500kV (Programmable for any value)	80V to 500kV (Programmable for any value)
<b>PT SECONDARY</b>	100V to 500V AC (L-L) (Programmable for any value)	80V to 140V AC (L-L) (Programmable for any value)
<b>MEMORY RETENTION FOR ENERGY</b>	10 years	
<b>COMMUNICATION</b>	RS485 Communication MODBUS RTU Protocol (Optional)	
<b>INDICATIONS</b>	LCD : Max Demand of Power, Communication in progress ; LED : Integration of Energy.	
<b>MEASURING PARAMETER</b>	Voltage (L-L / L-N) (Individual / Average), Current (I1, I2, I3) (Individual / Average), Frequency, Power Factor (Individual / Total), Active, Reactive & Apparent power (Individual / Total), Active, Reactive & Apparent Energy (Total), Demand (Min / Max Active & Reactive Power, Max Apparent Power)	
<b>SUPPLY VOLTAGE</b>	85 to 270V AC, 50/60Hz	DC : 30 to 60V ; AC : 18 to 36V, 50/60Hz

### Terminal Connections



### Dimensions (All are in mm)



### Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE	OUTPUT	CERTIFICATION
MFM384-R-C	85 to 270V AC	Commn (RS485)	---
MFM384-R-C-CE			CE RoHS
MFM384-R-C-48V DC	DC : 30 to 60V AC : 18 to 36V	Commn (RS485)	---

# Plug-n-Wire Multifunction Meters



**MRJ4M**  
Size : 90 x 70mm



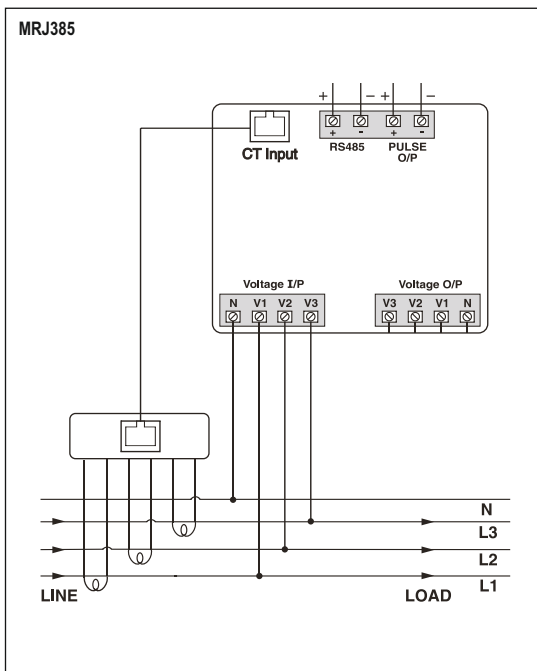
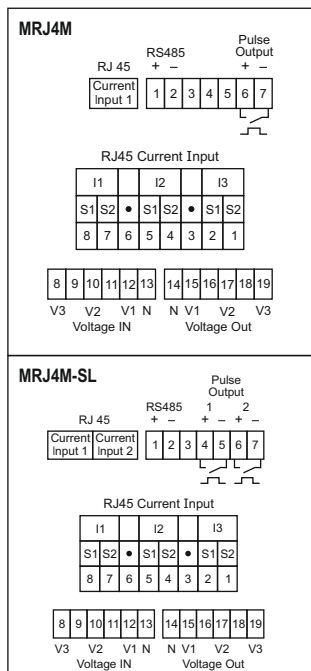
**MRJ4M-SL**  
Size : 90 x 70mm



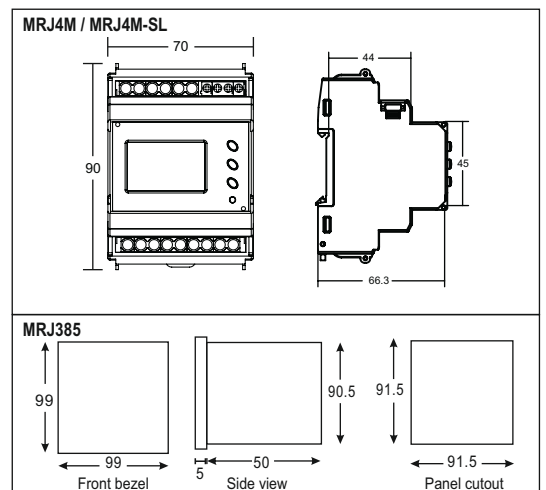
**MRJ385**  
Size : 96 x 96mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>• Energy (Active, Reactive)</li> <li>• RJ45 Connector current input</li> <li>• Single Pulse Output.</li> <li>• Max Demand of Power</li> <li>• Self powered</li> </ul>	<ul style="list-style-type: none"> <li>• Energy (Active, Reactive)</li> <li>• RJ45 Connector current input</li> <li>• 2 Pulse Output.</li> <li>• Max Demand of Power</li> <li>• Self powered</li> </ul>	<ul style="list-style-type: none"> <li>• Energy (Active, Reactive, Apparent)</li> <li>• Split load, RJ45 for current input</li> <li>• Single Pulse Output.</li> <li>• Max / Min Demand of Power</li> <li>• Self Powered</li> <li>• THD upto 31<sup>st</sup> Level</li> </ul>
<b>DISPLAY</b>	LCD with backlight		
<b>DIGITS</b>	2 Rows of 4 digits, 1 Row of 7 digits to show electrical parameters		4 rows of 4 digits, Bargraph representation for current, 1 row of 8 digits for energy display
<b>ELECTRICAL CONNECTION</b>	3Ø - 4W, 1Ø - 2W		
<b>RATED INPUT VOLTAGE</b>	60 to 300V AC (L-N), 104 to 520V AC (L-L)		100 to 240V AC (L-N) , 173 TO 415V AC (L-L)
<b>RESOLUTION</b>	For Energy : 0.01K, 0.1K, 1K, 0.01M, 0.1M (depending upon CT ratio x PT ratio) For Power, Voltage, Current : Auto resolution For Power Factor : 0.01		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
<b>CT PRIMARY</b>	5A to 10kA (Programmable for any value)		
<b>CT SECONDARY</b>	330mV		
<b>PT PRIMARY</b>	100V to 10kV		100V to 500kV (Programmable for any value)
<b>PT SECONDARY</b>	100 to 500V AC (L-L) (Programmable for any value)		173 to 415V AC (L-L) (Programmable for any value)
<b>COMMUNICATION</b>	RS485 Communication MODBUS RTU Protocol (Optional)		
<b>INDICATIONS</b>	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
<b>MEASURING PARAMETER</b>	Voltage (L-L / L-N) (Individual / Average), Current (I1, I2, I3) (Individual / Average), Frequency, Power factor (Individual / Average), Active, Reactive, Apparent power (Individual / Total), Active & Reactive Energy, Demand (Max Active Power, Max Apparent Power)	Voltage (L-L / L-N) (Individual / Average), Current (I1, I2, I3) (Individual), Frequency, Power factor (Individual / Average), Active, Reactive, Apparent power (Individual / Total), Active & Reactive Energy, 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 (I1, I2, I3) (Individual / Average), Frequency, Power factor (Individual / Average), Active, Reactive, Apparent power (Individual / Total), Active, Reactive, Apparent Energy (Phase wise (Import / Export) & Total (Import / Export)), Demand (Min / Max Active Power, Min / Max Reactive Power, Max Apparent Power), Harmonics individual for voltage & Current upto 31 <sup>st</sup> level.
<b>SUPPLY VOLTAGE</b>	Self powered		

## Terminal Connections



## Dimensions (All are in mm)



## Ordering Information

PRODUCT CODE	OUTPUT		CERTIFICATION
	PULSE OUTPUT	COMM (RS485)	
MRJ4M	■	■	CE RoHS
MRJ4M-SL	■	■	CE RoHS
MRJ385-G-PNW	■	■	CE RoHS

# Energy Meters



**EM306B**  
Size : 96 x 96mm



**EM368**  
Size : 96 x 96mm

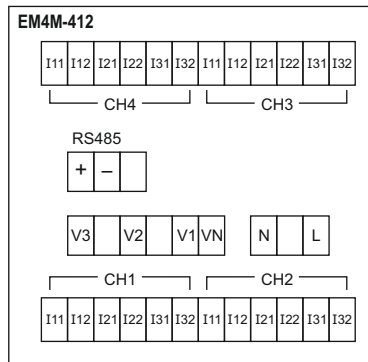
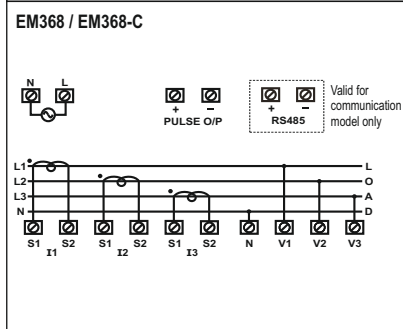
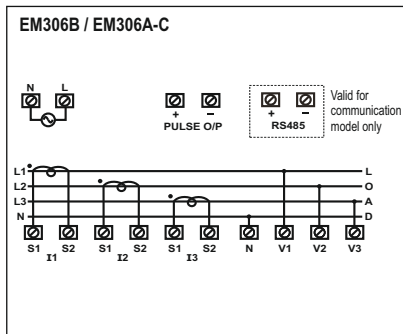


**EM4M-412**  
Size : 70 x 90mm

FEATURES	<ul style="list-style-type: none"> <li>Potential Free Pulse Output for Energy</li> <li>Active Energy</li> </ul>	<ul style="list-style-type: none"> <li>Potential Free Pulse Output for Energy</li> <li>Power (Active / Reactive)</li> <li>Energy (Active / Reactive / Apparent)</li> </ul>	<ul style="list-style-type: none"> <li>Four Loads (3 Ø), 12 Loads (1 Ø) Energy Monitoring</li> <li>Power (Active / Reactive / Apparent)</li> <li>Energy (Active / Reactive / Apparent)</li> </ul>
DISPLAY	7 segment LED	LCD with Backlight	LCD with Backlight
DIGITS	6 digits	8 digits	2 Rows of 4 digits, 1 Row of 7 digits to show electrical parameters
ELECTRICAL CONNECTION	3 Ø - 4 W, 3 Ø - 3 W, 2 Ø - 3 W, 1 Ø - 2 W		
RATED INPUT VOLTAGE	11 to 300V AC (L-N), 19 to 519V AC (L-L)		
RATED INPUT CURRENT	Nominal 5AAC (min : 11mA ; max : 6A)		Nominal 1AAC (min : 11mA ; max : 1.2A)
RESOLUTION	0.01K, 0.1K, 1K & 10K (depending on CT ratio)	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	For Energy : 0.01k, 0.1k, 1k, 0.01M, 0.1M, 1M
ACCURACY	Class 1	Active Energy : Class 1, Reactive / Apparent Energy : ±1% Active / Reactive power : ±1%, PF & Avg. PF : ±1%	Active Energy : 1%
POWER CONSUMPTION	8VA Max		
CT PRIMARY	1 / 5A to 10kA (Programmable for any value)		1A to 10kA (Programmable for any value)
CT SECONDARY	1 or 5A (Programmable)		1A
PT PRIMARY	100V to 500kV (For EM306B)	100V to 500kV (Programmable for any value)	100V to 10kV (Programmable for any value)
PT SECONDARY	100V to 500V AC (L-L) (For EM306B)	100V to 500V AC (L-L) (Programmable for any value)	100V to 500V AC (L-L) (Programmable for any value)
COMMUNICATION	RS485 Communication MODBUS RTU Protocol (For EM306A-C)	RS485 Communication MODBUS RTU Protocol (Optional)	
MEASURING PARAMETER	Active Energy (kWh) Resettable	Power (Total Active / Reactive), Energy (Total Active / Reactive / Apparent), Power factor (Individual & Average)	Voltage, Current, Frequency, PF, 4 Loads & 12 Loads Energy, (Active, Reactive, Apparent), Power (Active, Reactive, Apparent)
LED INDICATIONS	Integration of energy, Resolution is 10, Reverse connected CT warning	Integration of energy, Resolution is 10, Reverse connected CT warning, Communication in progress, pulse output (All Indications on LCD)	Integration of energy
SUPPLY VOLTAGE	230V AC ±20% (50/60Hz) For EM306B 100V to 240V AC, -15% to +12% (50/60Hz) For EM306A-C	100 to 240V AC, -15% to +12%, 50/60Hz (±5%)	85 to 270V AC, (50/60Hz)

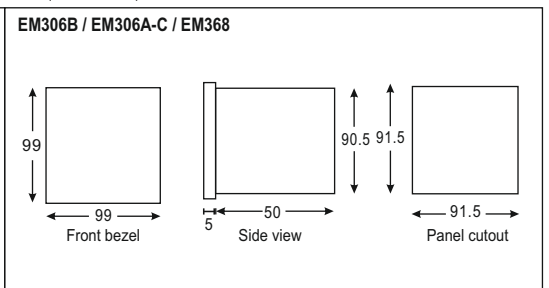
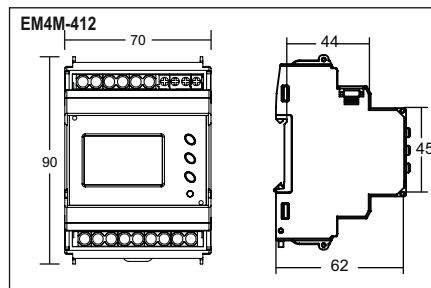
## Terminal Connections

## Ordering Information



PRODUCT CODE	SUPPLY VOLTAGE	OUTPUT		CERTIFICATION
		PULSE OUTPUT	COMM. (RS485)	
EM368	100 to 240V AC, -15% to +12%	■	---	---
EM368-C		■	■	---
EM368-CU		■	---	CE RoHS
EM368-C-CU		■	■	CE RoHS
EM306B	230V AC, ±20%	■	---	---
EM306A - C	100V to 240V AC, -15% to +12%	■	■	---
EM4M-412	85 to 270V AC	---	■	---
EM4M-412-CE	85 to 270V AC	---	■	CE RoHS

## Dimensions (All are in mm)



## VAF Meters - Digital



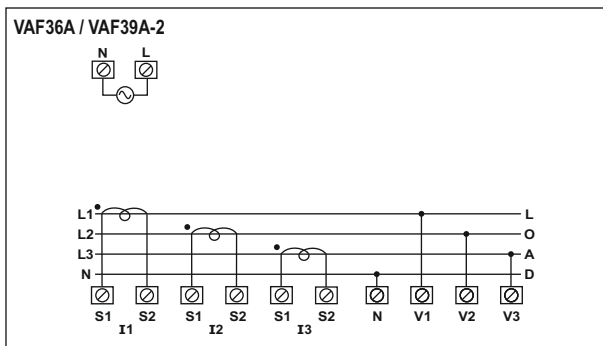
**VAF36A**  
Size : 96 x 96mm



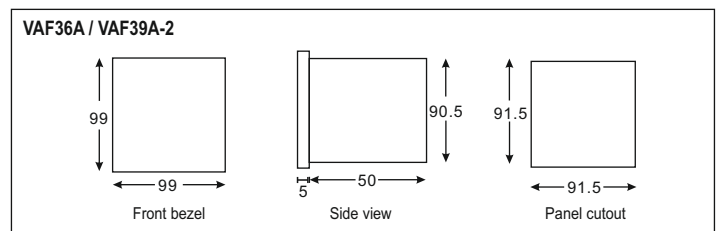
**VAF39A-2**  
Size : 96 x 96mm

FEATURES	<ul style="list-style-type: none"> <li>• 3Ø (True RMS) Voltage &amp; Current</li> <li>• Frequency</li> <li>• Run Hour (Hour - Mins)</li> <li>• RPM</li> <li>• Analog Style Bargraph Indication</li> </ul>	<ul style="list-style-type: none"> <li>• 3Ø (True RMS) Voltage &amp; Current</li> <li>• Frequency</li> <li>• Run Hour (Hour - Mins)</li> <li>• RPM</li> <li>• Programmable CT Secondary</li> </ul>
DISPLAY	LCD (with Backlight)	7 segment LED integrated with parameter units
DIGITS	3 Rows , 3 digits	
ELECTRICAL CONNECTION	3Ø - 4W, 3Ø - 3W, 2Ø - 3W, 1Ø - 2W	
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	
ACCURACY	Voltage(L-N/L-L/Average) : ± 0.5% of F.S. ± 2 digits, Current & Average Current : ± 1% of F.S. ± 2 digits, Run Hour : ± 1%, RPM : ± 0.5%, Frequency : ± 0.1 Hz ± 1 digit	
CT PRIMARY	5A to 10kA (Programmable for any value)	
CT SECONDARY	5A fixed	1 or 5A (Programmable)
PT PRIMARY	100V to 500kV (Programmable for any value)	
PT SECONDARY	100 to 500V AC (L-L) (Programmable for any value)	
MEASURING PARAMETER	Voltage (L-N / L-L) (Individual / Average), Current (I1, I2, I3) (Individual / Average), Frequency, RPM , Run Hour	
SUPPLY VOLTAGE	230V AC ±20% (50/60 Hz), 110V AC ±20% (50/60 Hz)	230V AC ±20% (50/60 Hz)

### Terminal Connections



### Dimensions (All are in mm)



### Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE		CERTIFICATION
	110V AC	230V AC	
VAF36A-230-CE	---	■	CE RoHS
VAF36A-110V-CU	■	---	CE RoHS
VAF39A-2-230V AC	---	■	---



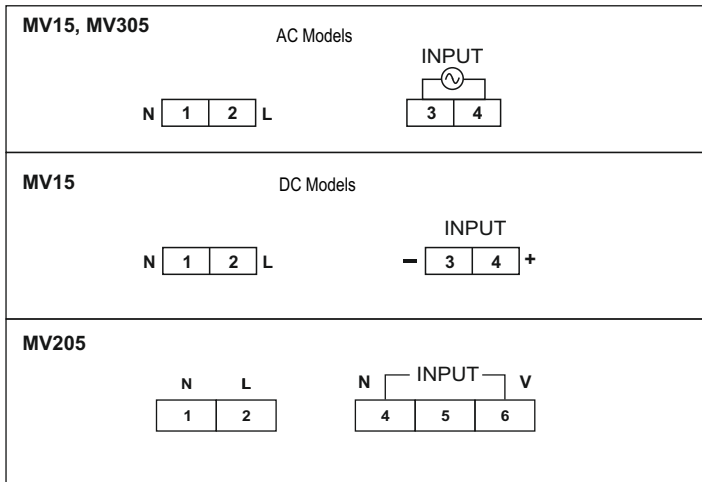
## Voltmeter - Digital



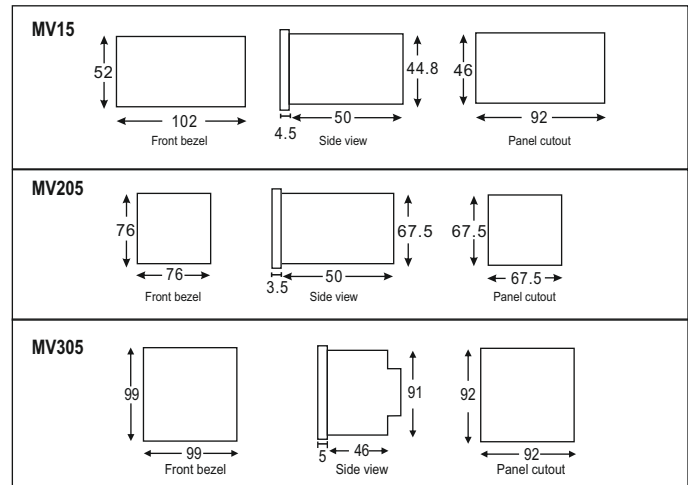
**MV15** Size : 48 x 96mm    
 **MV15-DC-200V** Size : 48 x 96mm    
 **MV15-AC-20/200V** Size : 48 x 96mm    
 **MV205** Size : 72 x 72mm    
 **MV305** Size : 96 x 96mm    
 **MV334-230V** Size : 96 x 96mm

FEATURES	<ul style="list-style-type: none"> <li>• True RMS Measurement</li> <li>• 1Ø - 2W Electrical Network</li> </ul>	<ul style="list-style-type: none"> <li>• True RMS Measurement</li> <li>• 1Ø - 2W Electrical Network</li> </ul>	<ul style="list-style-type: none"> <li>• True RMS Measurement</li> <li>• 1Ø - 2W Electrical Network</li> </ul>	<ul style="list-style-type: none"> <li>• True RMS Measurement</li> <li>• 1Ø - 2W Electrical Network</li> </ul>	<ul style="list-style-type: none"> <li>• True RMS Measurement</li> <li>• 1Ø - 2W Electrical Network</li> </ul>	<ul style="list-style-type: none"> <li>• True RMS Measurement</li> <li>• 3Ø - 4W, 3Ø - 3W, 1Ø - 2W Electrical Network</li> <li>• K LED for Kilo Indication</li> </ul>
DISPLAY	7 segment LED					
DIGITS	3 digits		3½ digits		3 digits	
ELECTRICAL CONNECTION	1Ø - 2W					3Ø - 4W, 3Ø - 3W, 1Ø - 2W
RATED INPUT VOLTAGE	50 to 480V AC (516V max)	0 to ±200V	0 to 20/200V	50 to 480V AC (516V max)		11 to 300V AC (L-N) 19 to 516V AC (L-L)
RESOLUTION	1V	0.1	0.01 / 0.1	1V		Auto Resolution
ACCURACY	± 0.5% of full scale over rated operating condition					± 0.5% of full range
PT PRIMARY	--					100V - 999kV
PT SECONDARY	--					100V - 500V
SUPPLY VOLTAGE	240V AC ±20% (50/60Hz), 110V AC ±20% (60Hz)					230V AC ±20% (50/60Hz)

### Terminal Connections



### Dimensions (All are in mm)



### Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE		CERTIFICATION
	110V AC	230V AC	
MV15	---	■	---
MV15-110V-CU	■	---	CE RoHS LISTED
MV15-230V-CE	---	■	CE RoHS
MV15-DC-2V	---	■	---
MV15-DC-20V	---	■	---
MV15-DC-20V-110V-CU	■	---	CE RoHS LISTED
MV15-DC-200V	---	■	---
MV15-DC-200V-110V-CU	■	---	CE RoHS LISTED

PRODUCT CODE	SUPPLY VOLTAGE		CERTIFICATION
	110V AC	230V AC	
MV15-DC-200mV	---	■	---
MV15-AC-20/200V	---	■	---
MV15-AC-200/2000mV	---	■	---
MV205	---	■	---
MV305	---	■	---
MV305-110V	■	---	---
MV334-230V	---	■	---

# Ammeter - Digital



**MA12**  
Size : 48 x 96mm

**MA12-DC-2mA**  
Size : 48 x 96mm

**MA12-AC-2/20mA**  
Size : 48 x 96mm



**MA202**  
Size : 72 x 72mm



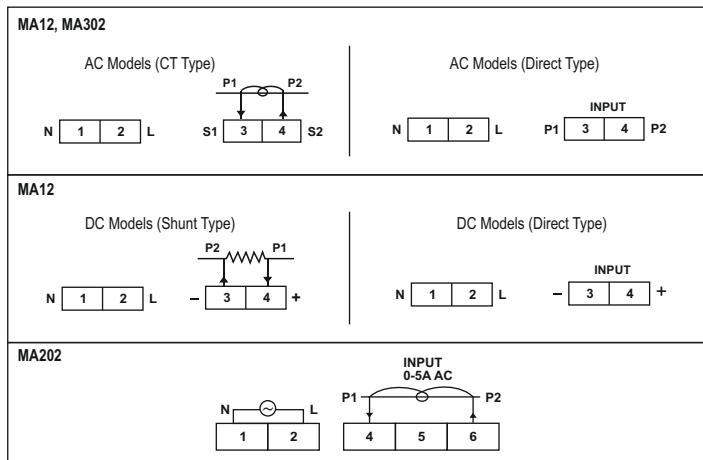
**MA302**  
Size : 96 x 96mm



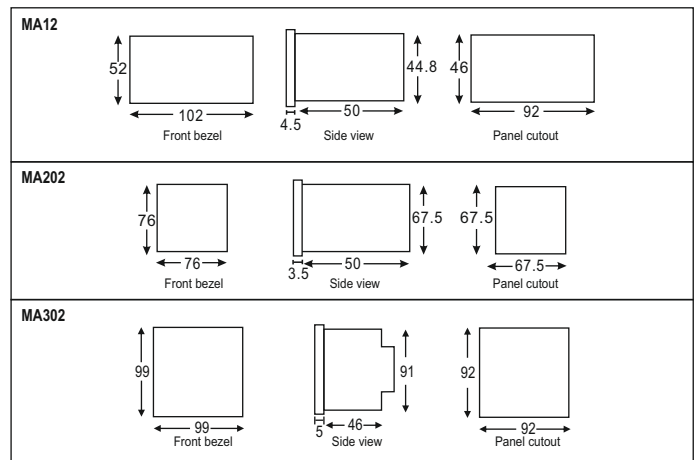
**MA335-230V AC**  
Size : 96 x 96mm

FEATURES	<ul style="list-style-type: none"> <li>• True RMS Measurement</li> <li>• 1Ø - 2W Electrical Network</li> </ul>			<ul style="list-style-type: none"> <li>• True RMS Measurement</li> <li>• 1Ø - 2W Electrical Network</li> <li>• CT Primary Programmable Upto 4000A</li> </ul>		<ul style="list-style-type: none"> <li>• True RMS Measurement</li> <li>• K LED for Kilo Indication</li> </ul>
	DISPLAY	7 segment LED				
DIGITS	4 digits	3½ digits		4 digits		
ELECTRICAL CONNECTION	1Ø - 2W					3Ø - 4W, 3Ø - 3W, 1Ø - 2W
INPUT TYPE	CT	Direct		CT		
RATED INPUT CURRENT	5AAC (min : 50mA, max : 6.2A)	0 to ± 2mA	0 to 2/20mA	5AAC (min : 50mA ; max : 6.2A)		
RESOLUTION	0.001, 0.01, 0.1, 1A (depending upon CT primary settings)	0.001	0.001 / 0.01	0.001, 0.01, 0.1, 1A (depending upon CT primary settings)		
ACCURACY	± 0.5% of full scale					Auto resolution depend upon CT ratio
CT PRIMARY	5 to 4000A (Programmable in steps)	---	---	5 to 4000A (Programmable in steps)		1 to 999.0kA (Programmable for any value)
CT SECONDARY	5A Fixed	---	---	5A Fixed		1 or 5A (Programmable)
SUPPLY VOLTAGE	240V AC ±20% (50/60Hz), 110V AC ±20% (60Hz)					230V AC ±20% (50/60Hz)

## Terminal Connections



## Dimensions (All are in mm)



## Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE		CERTIFICATION
	110V AC	230V AC	
MA12	---	■	---
MA12-110V-CU	■	---	CE RoHS
MA12-CE-RoHS	---	■	CE RoHS
MA12-AC-2/20mA	---	■	---
MA12-AC-200/2000mA	---	■	---
MA12-50mV-DC	---	■	---
MA12-50mV-DC-110V-CU	■	---	CE RoHS
MA12-DC-2mA	---	■	---

PRODUCT CODE	SUPPLY VOLTAGE		CERTIFICATION
	110V AC	230V AC	
MA12-DC-20mA	---	■	---
MA12-DC-200mA	---	■	---
MA12-20A-AC-110V	■	---	---
MA202	---	■	---
MA302	---	■	---
MA335-230V AC	---	■	---

## Ammeter - Digital

## Voltmeter - Digital



**MA501 / MA201**  
Size : 48 x 48mm / 72 x 72mm



**MA2301**  
Size : 72 x 72mm



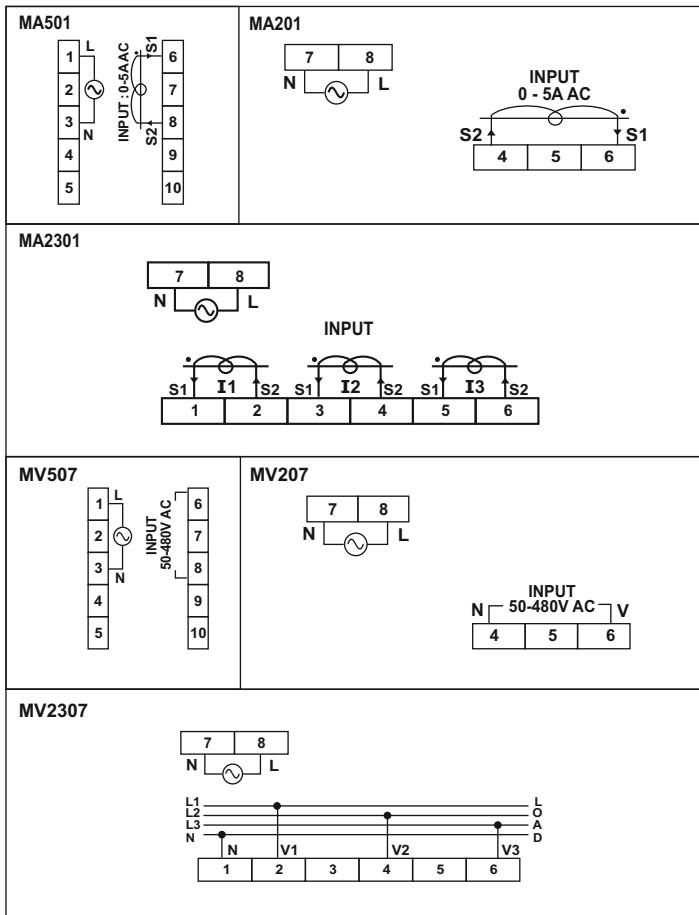
**MV507 / MV207**  
Size : 48 x 48mm / 72 x 72mm



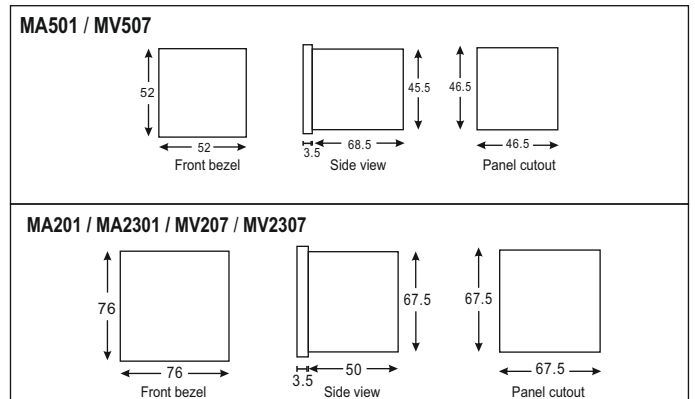
**MV2307**  
Size : 72 x 72mm

FEATURES	Ammeter Models (MA501/MA201, MA2301)		Voltmeter Models (MV507/MV207, MV2307)	
		<ul style="list-style-type: none"> <li>• True RMS Measurement</li> <li>• 1Ø - 2W Electrical Network</li> <li>• Analog Style Bargraph Indication</li> <li>• CT Primary Programmable Upto 5000A</li> </ul>	<ul style="list-style-type: none"> <li>• True RMS Measurement</li> <li>• 3Ø - 4W Electrical Network</li> <li>• Analog Style Bargraph Indication</li> <li>• CT Primary Programmable Upto 5000A</li> <li>• Page Selection Using Selector Switch</li> </ul>	<ul style="list-style-type: none"> <li>• True RMS Measurement</li> <li>• 1Ø - 2W Electrical Network</li> <li>• Analog Style Bargraph Indication</li> </ul>
DISPLAY	LCD (with analog style bargraph indication)			
DIGITS	4 Digits		3 Digits	
ELECTRICAL CONNECTION	1Ø - 2W	3Ø - 4W	1Ø - 2W	3Ø - 4W, 3Ø - 3W
RATED INPUT VOLTAGE	--		50 to 480V AC (max : 516V)	
RATED INPUT CURRENT	5AAC (min : 50mA ; max : 6.2A)		--	
RESOLUTION	0.001, 0.01, 0.1, 1A (Depending on CT primary settings)		1V	
ACCURACY	± 0.5% of F.S.		± 0.5% of F.S. Over rated operating condition	
CT PRIMARY	5 to 5000A (Programmable in steps)		--	
CT SECONDARY	5A Fixed		--	
SUPPLY VOLTAGE	240V AC ±20% (50/60Hz), 110V AC ±20% (60Hz)			

### Terminal Connections



### Dimensions (All are in mm)



### Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE		CERTIFICATION
	110V AC	230V AC	
MA501	---	■	---
MA501-110V-CU	■	---	CE RoHS
MA501-230V-CE	---	■	CE RoHS
MA201	---	■	---
MA201-110V-CU	■	---	CE RoHS
MA201-230V-CE	---	■	CE RoHS
MA2301	---	■	---
MA2301-110V-CU	■	---	CE RoHS
MA2301-230V-CE	---	■	CE RoHS
MV507	---	■	---
MV507-110V-CU	■	---	CE RoHS
MV507-230V-CE	---	■	CE RoHS
MV207	---	■	---
MV2307	---	■	---
MV2307-110V-CU	■	---	CE RoHS
MV2307-230V-CE	---	■	CE RoHS

## Frequency Meter - Digital

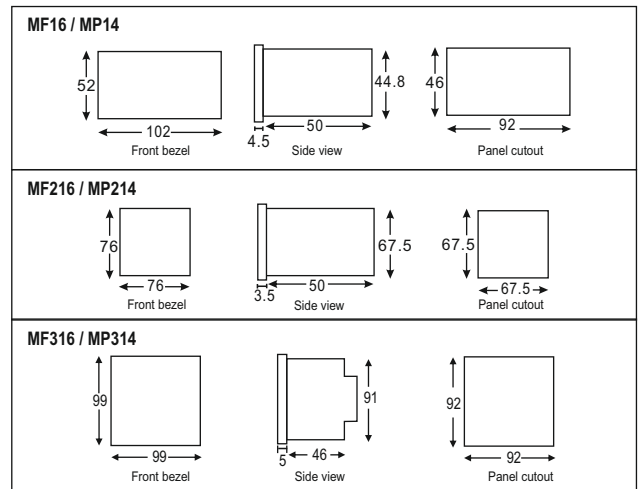
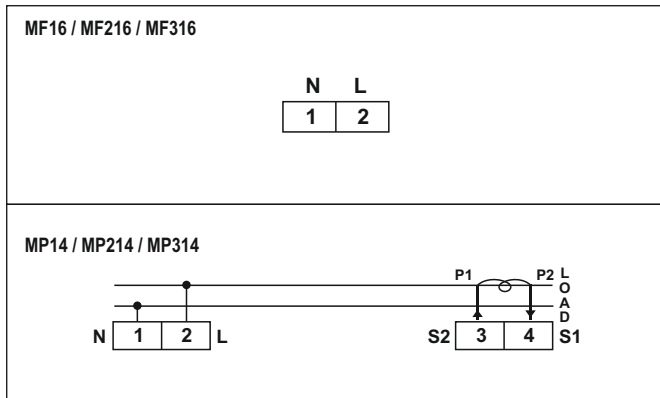
## Power Factor Meters - Digital



	MF16 Size : 48 x 96mm	MF216 Size : 72 x 72mm	MF316 Size : 96 x 96mm	MP14 Size : 48 x 96mm	MP214 Size : 72 x 72mm	MP314 Size : 96 x 96mm
<b>FEATURES</b>	<ul style="list-style-type: none"> <li>• 4 digits 7 segment LED Display</li> <li>• 0.01 Resolution</li> </ul>	<ul style="list-style-type: none"> <li>• 4 digits 7 segment LED Display</li> <li>• 0.01 Resolution</li> </ul>	<ul style="list-style-type: none"> <li>• 4 digits 7 segment LED Display</li> <li>• 0.01 Resolution</li> </ul>	<ul style="list-style-type: none"> <li>• 4 digits 7 segment LED Display</li> <li>• 0.001 Resolution</li> </ul>	<ul style="list-style-type: none"> <li>• 4 digits 7 segment LED Display</li> <li>• 0.001 Resolution</li> </ul>	<ul style="list-style-type: none"> <li>• 4 digits 7 segment LED Display</li> <li>• 0.001 Resolution</li> </ul>
<b>DISPLAY</b>	7 segment LED					
<b>DIGITS</b>	4 digits					
<b>ELECTRICAL CONNECTION</b>	1Ø - 2W					
<b>RESOLUTION</b>	0.01Hz			0.001		
<b>ACCURACY</b>	± 0.05Hz			± 0.5% ± 1 digit		
<b>MEASUREMENT RANGE</b>	45 to 65Hz			-1.000 to +1.000		
<b>SUPPLY VOLTAGE</b>	240V AC ±20% (45 to 65Hz), 110V AC ±20% (45 to 65Hz)			240V AC ±20% (50/60Hz), 110V AC ±20% (50/60Hz)		

### Terminal Connections

### Dimensions (All are in mm)



### Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE		CERTIFICATION
	110V AC	230V AC	
MF16	---	■	---
MF16-110V-CU	■	---	CE RoHS
MF216	---	■	---
MF316	---	■	---

PRODUCT CODE	SUPPLY VOLTAGE		CERTIFICATION
	110V AC	230V AC	
MP14	---	■	---
MP14-110V-CU	■	---	CE RoHS
MP214	---	■	---
MP314	---	■	---

## Ammeter - Analog

## Voltmeter - Analog



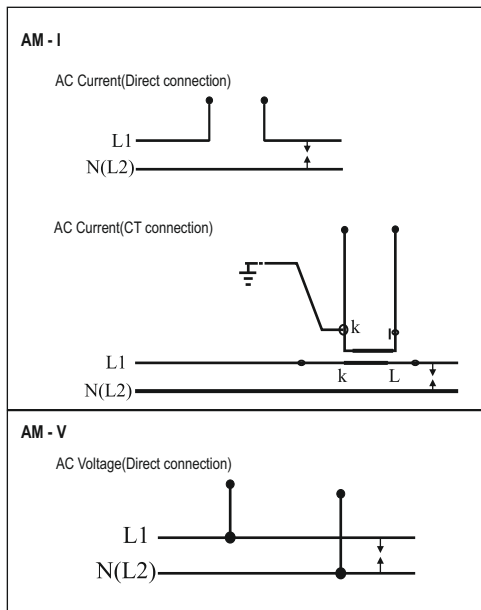
**AM - I**  
Size : 72 x 72mm / 96 x 96mm



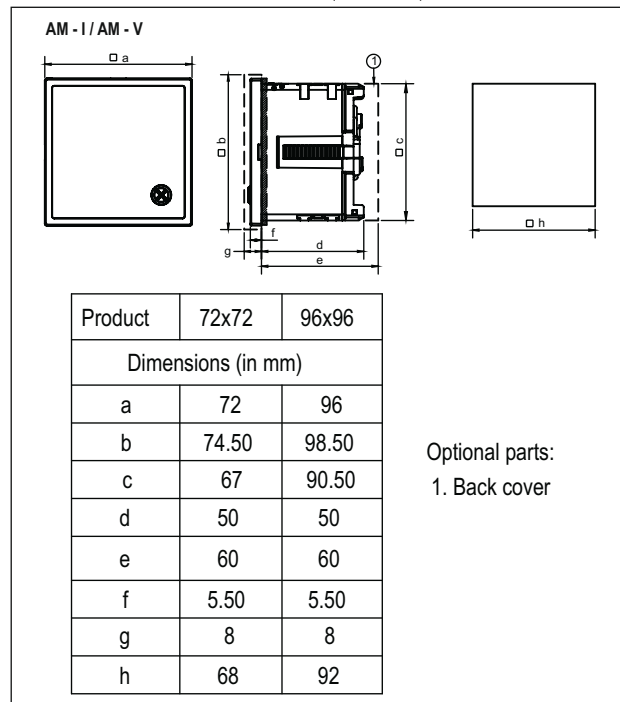
**AM - V**  
Size : 72 x 72mm / 96 x 96mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>• Scale Interchangeability</li> <li>• Near Linear Scale</li> <li>• Knife Edge Pointer</li> <li>• Glass filled Nylon / Polycarbonate Housing</li> <li>• Easy Installation / Termination</li> </ul>	<ul style="list-style-type: none"> <li>• Near Linear Scale</li> <li>• Knife Edge Pointer</li> <li>• Glass filled Nylon / Polycarbonate Housing</li> <li>• Easy Installation / Termination</li> </ul>
<b>MEASURING PARAMETER</b>	AC Current	AC Voltage
<b>POINTER DEFLECTION</b>	0 to 90°	
<b>SCALE CHARACTERISTICS</b>	Near Linear above 10% of Nominal full scale value	
<b>SCALE LENGTH</b>	72 X 72mm : 63 mm / 96 X 96mm : 97 mm	
<b>MEASURING VOLTAGE RANGE</b>	--	0 to 300V & 0 to 500V
<b>MEASURING CURRENT RANGE</b>	0 to 5A (CT Secondary) , Suppress scale : 0 to 5 / 30A(CT Secondary)	--
<b>ACCURACY</b>	Class 1.5	
<b>FREQUENCY</b>	45 to 65Hz	

### Terminal Connections



### Dimensions (All are in mm)



### Ordering Information

SCL	AM	I	2/3	30/5A to 4000/5A	6S
	AM	V	2/3	N/L	

- 6S : 6 times suppressed scale. Keep this cell blank if suppression not required
- N : 300V L - N, L : 500V L - L (For Voltmeters). Select required available current rating from datasheet (For Ammeters)
- 2 : 72 x 72 mm housing, 3 : 96 x 96 mm housing
- I : Ammeter, V : Voltmeter
- AM : Analog Meter
- SCL : Scale (to order only scale). Keep it blank if whole product is required.

### Example:-

Separate dial plate	Ammeter	Voltmeter
SCL-AM-I-2-30/5A	AM-I-2-30/5A	AM-V-2-N
SCL-AM-I-2-30/5A-6S	AM-I-2-30/5A-6S	AM-V-2-L



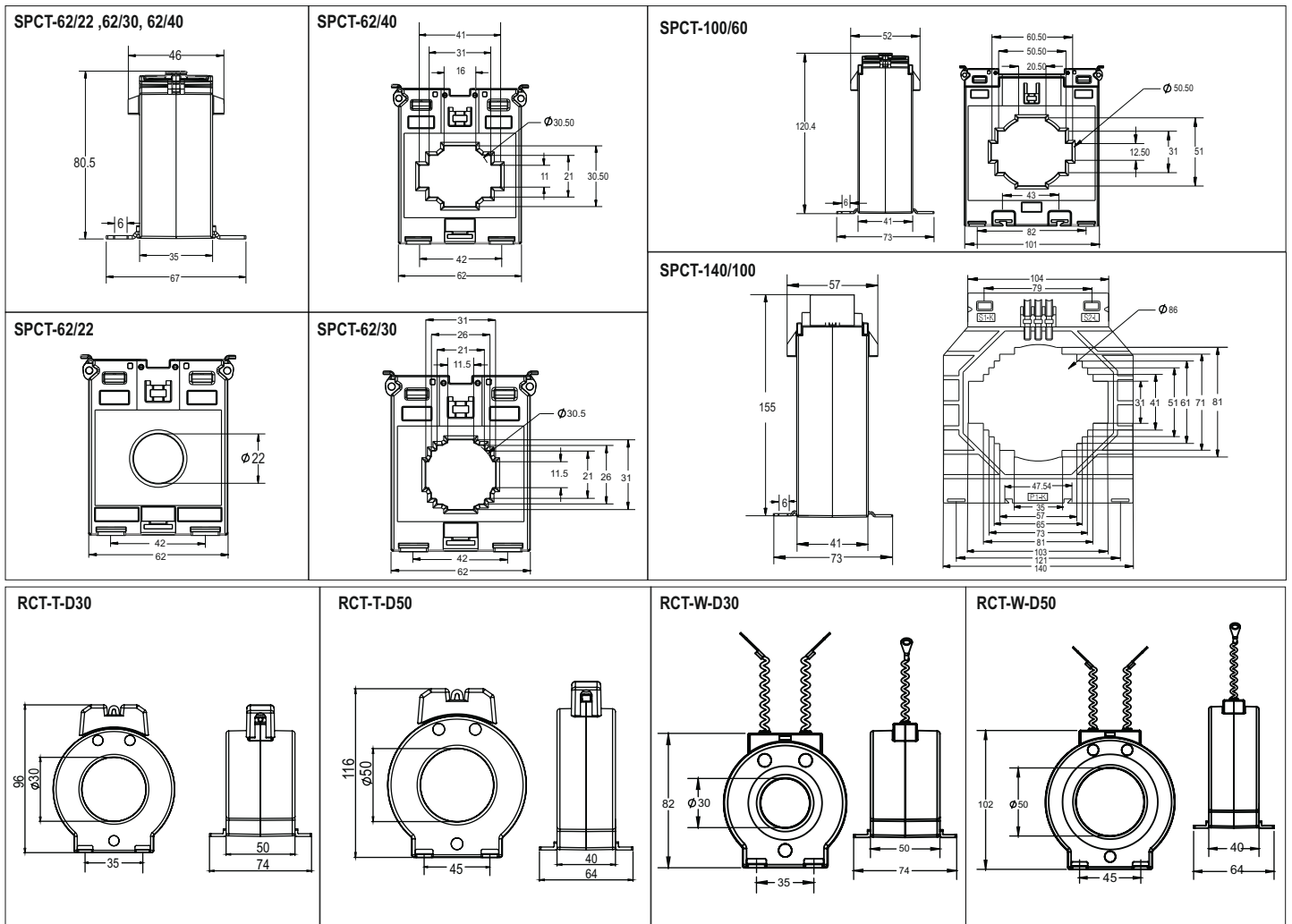
SPCT

RCT

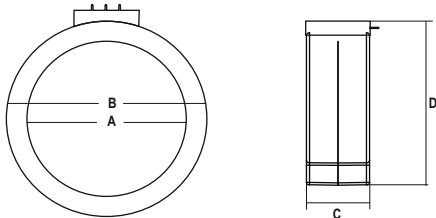
TWCT

FEATURES	<ul style="list-style-type: none"> <li>• Use with different Bus Bar Size</li> <li>• Panel Mount / Din Rail Mount (Require optional accessory)</li> <li>• Accuracy : Class 0.5 to 5</li> </ul>	<ul style="list-style-type: none"> <li>• Selable Terminal / Wire type Output</li> <li>• Panel Mount</li> <li>• Accuracy : Class 1 to 5</li> </ul>	<ul style="list-style-type: none"> <li>• Terminal Output</li> <li>• Accuracy : Class 0.5 to 5</li> </ul>
RATED PRIMARY RATING	30 to 4000A	30 to 600A	30 to 1600A
RATED SECONDARY OUTPUT	5A		
RATED BURDEN	1 to 15VA	1.5 to 5VA	1.5 to 10VA
ACCURACY	0.5 to 5	1 to 5	0.5 to 5
OPERATING FREQUENCY	AC 50/60Hz		
SYSTEM VOLTAGE	720V maximum		
APPLICABLE STANDARD	IEC 61869-2		

Dimensions (All are in mm)



### Dimensions (All are in mm)

TWCT		PRODUCT	A	B	C	D
		TWCT-T-D35	35	70	45	80
TWCT-T-D55 150/5 A	55	90	35	100		
TWCT-T-D55	55	90	25	100		
TWCT-T-D65	65	95	30	105		
TWCT-T-D110	110	35	35	145		
TWCT-T-D120	120	155	25	165		

### Ordering Information

#### SPCT

PRODUCT CODE	WIRE APERTURE In mm	CURRENT RATIO	BURDEN IN VA	ACCURACY CLASS
SPCT 62/22 30/5 A VA 1 CL 5	DIA 22	30/5	1	5
SPCT 62/30 50/5 A VA 1 CL 3	30x10	50/5	1	3
SPCT 62/30 50/5 A VA 1.5 CL 3	30x10	50/5	1.5	3
SPCT 62/30 75/5 A VA 1 CL 3	30x10	75/5	1	3
SPCT 62/30 75/5 A VA 3 CL 3	30x10	75/5	3	3
SPCT 62/30 100/5 A VA 1 CL 1	30x10	100/5	1	1
SPCT 62/30 100/5 A VA 3 CL 1	30x10	100/5	3	1
SPCT 62/40 100/5 A VA 1 CL 1	40x10	100/5	1	1
SPCT 62/40 125/5 A VA 1 CL 1	40x10	125/5	1	1
SPCT 62/40 150/5 A VA 1.5 CL 1	40x10	150/5	1.5	1
SPCT 62/40 150/5 A VA 3 CL 1	40x10	150/5	3	1
SPCT 62/40 160/5 A VA 1.5 CL 1	40x10	160/5	1.5	1
SPCT 62/40 200/5 A VA 2.5 CL 0.5	40x10	200/5	2.5	0.5
SPCT 62/40 200/5 A VA 3 CL 1	40x10	200/5	3	1
SPCT 62/40 250/5 A VA 2.5 CL 0.5	40x10	250/5	2.5	0.5
SPCT 62/40 250/5 A VA 3 CL 1	40x10	250/5	3	1
SPCT 62/40 300/5 A VA 3 CL 0.5	40x10	300/5	3	0.5
SPCT 62/40 400/5 A VA 3.75 CL 0.5	40x10	400/5	3.75	0.5
SPCT 62/40 400/5 A VA 5 CL 1	40x10	400/5	5	1
SPCT 100/60 500/5 A VA 5 CL 1	60x12	500/5	5	1
SPCT 100/60 600/5 A VA 5 CL 0.5	60x12	600/5	5	0.5
SPCT 100/60 600/5 A VA 7.5 CL 1	60x12	600/5	7.5	1
SPCT 100/60 800/5 A VA 10 CL 0.5	60x12	800/5	10	0.5
SPCT 100/60 1000/5 A VA 15 CL 0.5	60x12	1000/5	15	0.5
SPCT 100/60 1200/5 A VA 15 CL 0.5	60x12	1200/5	15	0.5
SPCT 140/100 800/5 A VA 15 CL 0.5	100x30	800/5	15	0.5
SPCT 140/100 1000/5 A VA 15 CL 0.5	100x30	1000/5	15	0.5
SPCT 140/100 1200/5 A VA 15 CL 0.5	100x30	1200/5	15	0.5
SPCT 140/100 1250/5 A VA 15 CL 0.5	100x30	1250/5	15	0.5
SPCT 140/100 1500/5 A VA 15 CL 0.5	100x30	1500/5	15	0.5
SPCT 140/100 1600/5 A VA 15 CL 0.5	100x30	1600/5	15	0.5
SPCT 140/100 2000/5 A VA 15 CL 0.5	100x30	2000/5	15	0.5
SPCT 140/100 2500/5 A VA 15 CL 0.5	100x30	2500/5	15	0.5
SPCT 140/100 3000/5 A VA 15 CL 0.5	100x30	3000/5	15	0.5
SPCT 140/100 3500/5 A VA 15 CL 0.5	100x30	3500/5	15	0.5
SPCT 140/100 4000/5 A VA 15 CL 0.5	100x30	4000/5	15	0.5

#### RCT

PRODUCT CODE	WIRE APERTURE In mm	CURRENT RATIO	BURDEN IN VA	ACCURACY CLASS	NO OF PRIMARY TURNS
RCT-T-D30-30/5 A VA 1.5 CL5	DIA 30	30/5	1.5	5	---
RCT-T-D30-30/5 A VA 5 (2T) CL5	DIA 30	30/5	5	5	2
RCT-T-D30-50/5 A VA 5 CL5	DIA 30	50/5	5	5	---
RCT-T-D30-75/5 A VA 5 CL5	DIA 30	75/5	5	5	---
RCT-T-D30-100/5 A VA 5 CL1	DIA 30	100/5	5	1	---
RCT-T-D30-150/5 A VA 5 CL1	DIA 30	150/5	5	1	---
RCT-T-D50-200/5 A VA 5 CL1	DIA 50	200/5	5	1	---
RCT-T-D50-250/5 A VA 5 CL1	DIA 50	250/5	5	1	---
RCT-T-D50-300/5 A VA 5 CL1	DIA 50	300/5	5	1	---
RCT-T-D50-400/5 A VA 5 CL1	DIA 50	400/5	5	1	---
RCT-T-D50-500/5 A VA 5 CL1	DIA 50	500/5	5	1	---
RCT-T-D50-600/5 A VA 5 CL1	DIA 50	600/5	5	1	---
RCT-W-D30-30/5 A VA 1.5 CL5	DIA 30	30/5	1.5	5	---
RCT-W-D30-30/5 A VA 5 (2T) CL5	DIA 30	30/5	5	5	2
RCT-W-D30-50/5 A VA 5 CL5	DIA 30	50/5	5	5	---
RCT-W-D30-75/5 A VA 5 CL5	DIA 30	75/5	5	5	---
RCT-W-D30-100/5 A VA 5 CL1	DIA 30	100/5	5	1	---
RCT-W-D30-150/5 A VA 5 CL1	DIA 30	150/5	5	1	---
RCT-W-D50-200/5 A VA 5 CL1	DIA 50	200/5	5	1	---
RCT-W-D50-250/5 A VA 5 CL1	DIA 50	250/5	5	1	---
RCT-W-D50-300/5 A VA 5 CL1	DIA 50	300/5	5	1	---
RCT-W-D50-400/5 A VA 5 CL1	DIA 50	400/5	5	1	---
RCT-W-D50-500/5 A VA 5 CL1	DIA 50	500/5	5	1	---
RCT-W-D50-600/5 A VA 5 CL1	DIA 50	600/5	5	1	---

#### TWCT

PRODUCT CODE	WIRE APERTURE In mm	CURRENT RATIO	BURDEN IN VA	ACCURACY CLASS
TWCT-T-D35 30/5 A VA 1.5 CL 5	DIA 35	30/5	1.5	5
TWCT-T-D35 50/5 A VA 5 CL 5	DIA 35	50/5	5	5
TWCT-T-D35 75/5 A VA 5 CL 5	DIA 35	75/5	5	5
TWCT-T-D35 100/5 A VA 5 CL 1	DIA 35	100/5	5	1
TWCT-T-D35 150/5 A VA 5 CL 1	DIA 35	150/5	5	1
TWCT-T-D55 150/5 A VA 5 CL 1	DIA 55	150/5	5	1
TWCT-T-D55 200/5 A VA 5 CL 1	DIA 55	200/5	5	1
TWCT-T-D55 250/5 A VA 5 CL 1	DIA 55	250/5	5	1
TWCT-T-D55 300/5 A VA 5 CL 1	DIA 55	300/5	5	1
TWCT-T-D55 400/5 A VA 5 CL 1	DIA 55	400/5	5	1
TWCT-T-D65 500/5 A VA 5 CL 1	DIA 65	500/5	5	1
TWCT-T-D65 600/5 A VA 5 CL 1	DIA 65	600/5	5	1
TWCT-T-D110 800/5 A VA 10 CL 0.5	DIA 110	800/5	10	0.5
TWCT-T-D110 1000/5 A VA 10 CL 0.5	DIA 110	1000/5	10	0.5
TWCT-T-D120 1000/5 A VA 10 CL 0.5	DIA 120	1000/5	10	0.5
TWCT-T-D120 1200/5 A VA 10 CL 0.5	DIA 120	1200/5	10	0.5
TWCT-T-D120 1600/5 A VA 10 CL 0.5	DIA 120	1600/5	10	0.5



APFC148 : With 3 CT sensing  
Size : 144 x 144mm



APFC147 : With 1 CT sensing  
Size : 144 x 144mm



APFC347 : With 1 CT sensing  
Size : 96 x 96mm

**New**

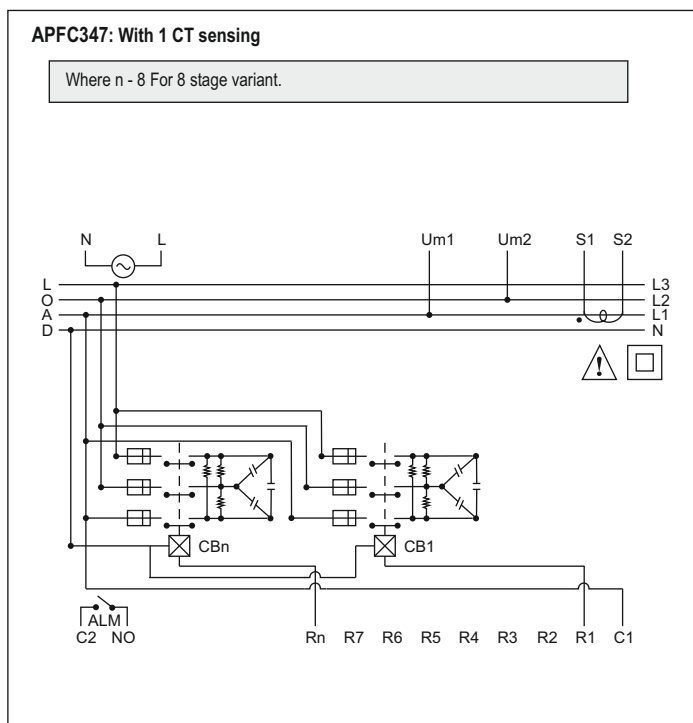
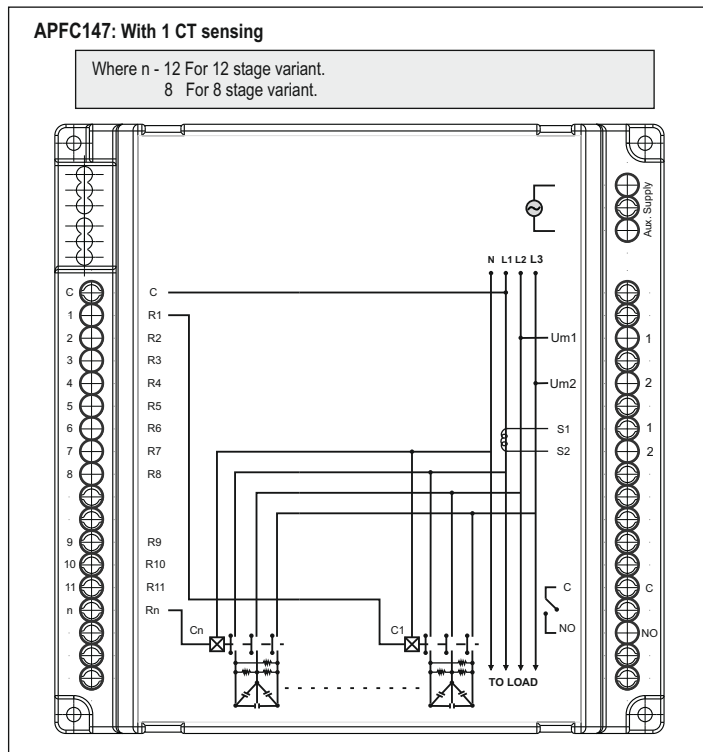
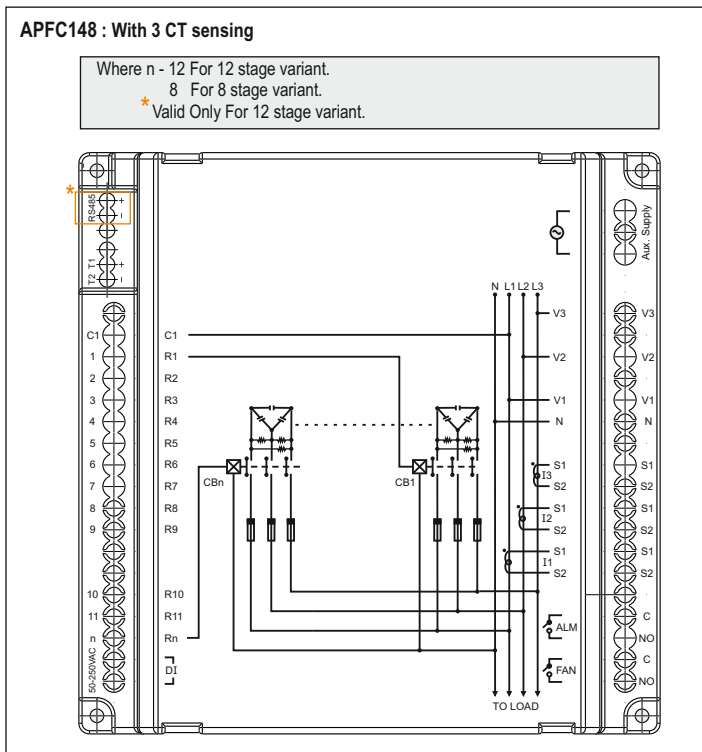
FEATURES	<ul style="list-style-type: none"> <li>• With Built In Multifunction Meter</li> <li>• Dual Colour Backlight for Alarm Indication</li> <li>• Auto Detection of Capacitor Bank Values</li> <li>• Configurable Alarm Settings</li> <li>• Dual Password Protection</li> <li>• RS485 Communication MODBUS RTU Protocol *(Only for 12 stage variant)</li> </ul>	<ul style="list-style-type: none"> <li>• Auto Detection of Capacitor Bank Values</li> <li>• Configurable Alarm Settings</li> <li>• Dual Password Protection</li> </ul>	<ul style="list-style-type: none"> <li>• Auto Detection of Capacitor Bank Values</li> <li>• Configurable Alarm Settings</li> <li>• Dual Password Protection</li> </ul>
DISPLAY	LCD with Dual Colour Backlight		7 segment LED
DIGITS	3 Rows, 4 Digits to show electrical parameters		1 Row, 4 Digits to show Power Factor
ELECTRICAL CONNECTION	3Ø - 4W, 3Ø - 3W, 2Ø - 2W, 1Ø - 2W		2Ø - 2W, 1Ø - 2W
RATED INPUT VOLTAGE	11 to 300V AC (L-N), 50 to 520V AC (L-L)		40 to 300V AC (L-N), 50 to 530V AC (L-L)
RATED INPUT CURRENT	Nominal 5AAC (min : 11mA ; max : 6A)		Nominal 5A AC (min : 50mA ; max : 6A)
POWER CONSUMPTION	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, THDI error, Step Error, Over Temperature, Fan Setting, No voltage	Over / Under Voltage, Over / Under Compensation, CT Polarity Error, Current Absent Indication	
PHASE COMPENSATION	0°, 90°, 120°, 210°, 240°, 330°		
ACCURACY	Power Factor : ± 0.01, Voltage (L-N/L-L), Current : ±0.5% of full scale, Frequency : For L-N >20V, For L-L >35V : ±0.1% of full scale, Power (kW, kVA, kVAh) : 1%, Energy (kWh, kVAh, kVAh) : Class 1 Temperature : ±3°C of full scale	Power Factor : ±0.01	
CT PRIMARY	1 / 5A to 9999A (Programmable for any value)		
CT SECONDARY	1 or 5 A (Programmable)		
PT PRIMARY	100V to 500kV (Programmable for any value)	--	
PT SECONDARY	100 to 500V (Programmable for any value)	--	
STEPS	1 to 8 / 12 / 14* *(FAN & ALARM output can be used as 13 <sup>th</sup> & 14 <sup>th</sup> step)	3 to 8/12	3 to 8
RELAY CONTACT	5A @ 250V AC		
SWITCHING PROGRAM	Automatic / Linear / Rotational		
STEP TIME	1 to 999s		
DISCHARGE TIME	1 to 9999s	1 to 999s	
CONTROL MODE	Automatic / Manual		
CONTROL SENSITIVITY	55 to 100%		
AUTO INITIALIZATION	Yes / No		
COMMUNICATION	RS485 Communication MODBUS RTU Protocol *(Only for 12 stage variant)	--	
SUPPLY VOLTAGE	90 to 550V AC, 50/60Hz		85 to 270V AC, 50/60Hz

### Ordering Information

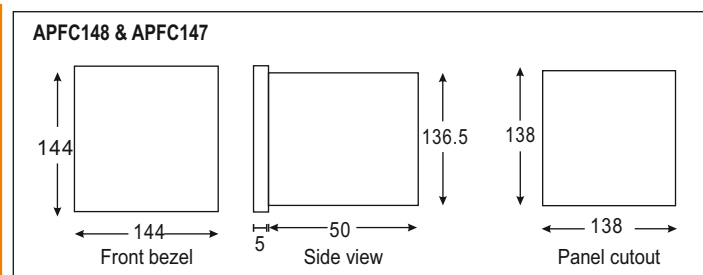
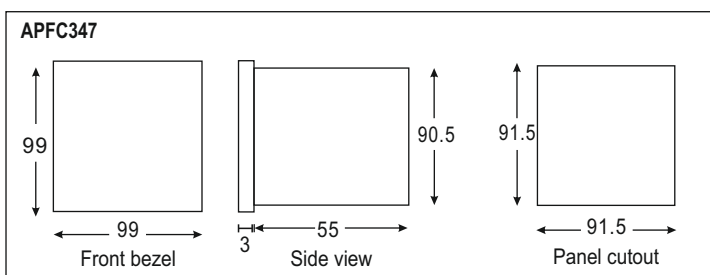
PRODUCT CODE	SUPPLY VOLTAGE	OUTPUT		CERTIFICATION
		STEPS	COMM. (RS485)	
APFC148-312-90/550V-CE-RoHS	90 to 550V AC, 50 / 60Hz	12	■	CE RoHS
APFC148-308-90/550V-CE-RoHS	90 to 550V AC, 50 / 60Hz	8	---	CE RoHS
APFC147-112-90/550V-CE-RoHS	90 to 550V AC, 50 / 60Hz	12	---	CE RoHS in process
APFC147-108-90/550V-CE-RoHS	90 to 550V AC, 50 / 60Hz	8	---	CE RoHS in process
APFC347-108-230V-CE-RoHS	85 to 270V AC, 50 / 60Hz	8	---	CE RoHS in process



## Terminal Connections



## Dimensions (All are in mm)





## Types : Analog / Digital Protection Relays

- Line Monitoring Relay
  - Phase Sequence Relay
  - Voltage Protection Relay
- Current Protection Relay
- Earth Leakage Relay
- Earth Fault Relay
- Motor Protection Relay
- Water Level Controller

Applicable EMI / EMC Standards		
<b>Product Standard :</b>		
<b>Products</b>	<b>Electromagnetic Compatibility</b>	
Phase Sequence	IEC60947-5-1	
Voltage Protection	IEC61326-1	
Current Protection	IEC60947-1	
Earth Leakage Current	IEC60947-2	
Earth Fault Relay	IEC60947-5-1	
Water Level Controller	IEC60947-5-1	
<b>Category</b>	<b>Standards Compliance</b>	
ESD Immunity	IEC 61000-4-2	Level III
Surge Immunity	IEC 61000-4-5	+/- 2 kV common mode, +/- 1 kV differential mode
Radiated Susceptibility	IEC 61000-4-3	Level III, 80 to 1000MHz Level II, 1.4GHz to 2GHz Level I, 2GHz to 2.7GHz
Conducted Susceptibility	IEC 61000-4-6	Level III
Voltage Dips and Interruptions	IEC 61000-4-11	Dips : 0% residual voltage / 1 cycle (Criteria B.), 40% residual voltage / 10 cycles 50 Hz / 12 cycles 60 Hz (Criteria C) 70% residual voltage / 25 cycles 50 Hz / 30 cycles 60 Hz (Criteria C) Interruptions : 0% residual voltage / 250 cycles 50 Hz / 300 cycles 60 Hz (Criteria C)
Conducted Emission	CISPR-11	
Radiated Emission	CISPR-11	
Electrical Fast Transient	IEC 61000-4-4	Level III

Note : Above standards are applicable only for CE certified Analog / Digital Protection Relays

## Phase Sequence Relays



**600PSR**  
Size : 17.5 x 90mm

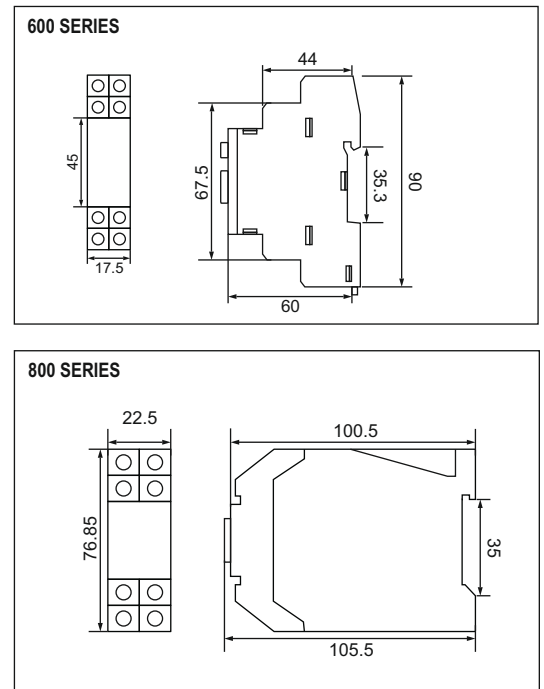
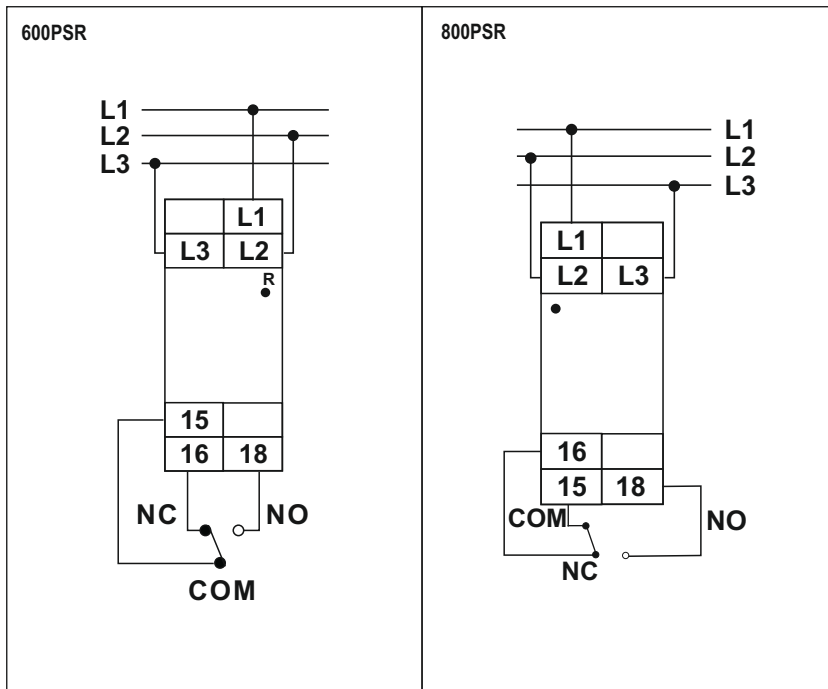


**800PSR**  
Size : 22.5 x 76.85mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>Din Rail Mount</li> <li>Phase Failure</li> <li>Phase Sequence</li> <li>Phase Asymmetry</li> <li>Space Saving Design</li> </ul>	<ul style="list-style-type: none"> <li>Din Rail Mount</li> <li>Phase Failure</li> <li>Phase Sequence</li> <li>Phase Asymmetry</li> </ul>
<b>MODES</b>	Phase Asymmetry, Phase Failure Trip :- <154V AC (L-L) Phase Asymmetry :- 30V Fixed Reset : Auto Reset	
<b>TIME RANGES</b>	Power On Delay :- 200msec	
<b>ACCURACY</b>	Trip accuracy : ±10V	
<b>OUTPUT CONTACT</b>	1 C/O SPDT	
<b>OUTPUT RATING</b>	NC : 3A @ 250V AC, NO : 5A @ 250V AC	
<b>ELECTRICAL CONNECTION</b>	3Ø - 3W	
<b>OPERATING VOLTAGE</b>	154 to 500V AC (L-L)	

### Terminal Connections

### Dimensions (All are in mm)



### Ordering Information

PRODUCT CODE	OPERATING RANGE	CERTIFICATION
600PSR	154 to 500V AC	---
600PSR-CE		CE RoHS
600PSR-165/300-CU	165 to 300V AC	CE RoHS  LIMITED
800PSR	154 to 500V AC	---

## Voltage Protection Relays



**600VPR-310/520V**  
Size : 17.5 x 90mm



**600VPR-170/290V**  
Size : 17.5 x 90mm

**600VPR-1-180/300V**  
Size : 17.5 x 90mm

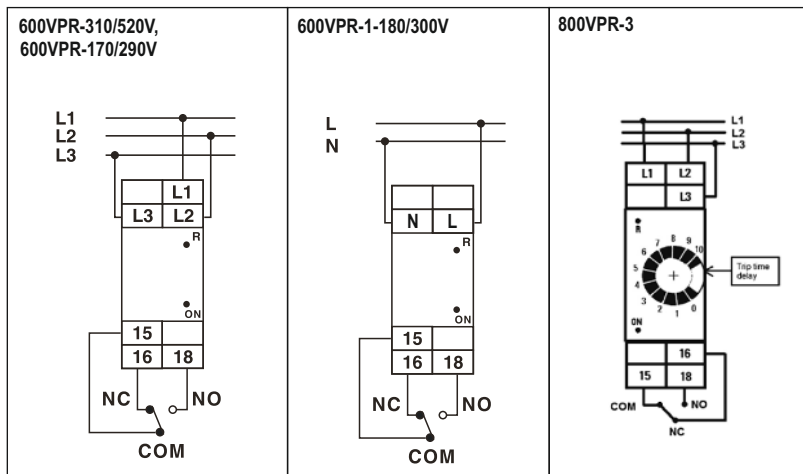


**800VPR-3**  
Size : 22.5 x 76.85mm

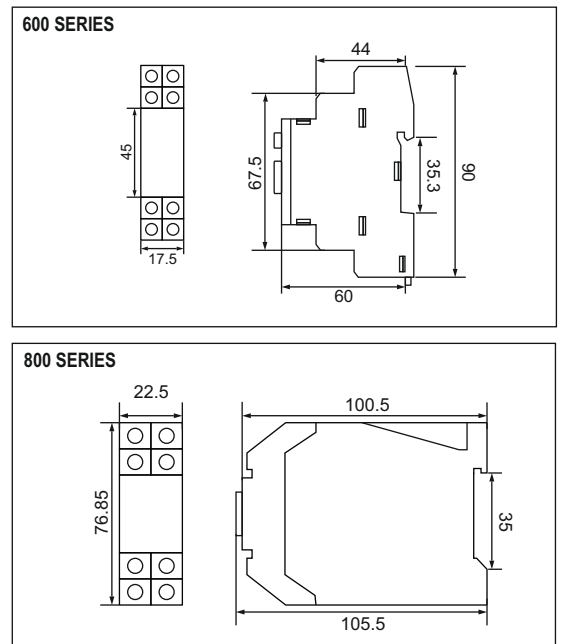
*New*

FEATURES	<ul style="list-style-type: none"> <li>• Din Rail Mount</li> <li>• Under Voltage</li> <li>• Over Voltage</li> <li>• Phase Sequence</li> <li>• Phase Failure</li> <li>• Space Saving Design</li> </ul>	<ul style="list-style-type: none"> <li>• Din Rail Mount</li> <li>• Under Voltage</li> <li>• Over Voltage</li> <li>• Space Saving Design</li> </ul>	<ul style="list-style-type: none"> <li>• Din Rail Mount</li> <li>• Under Voltage</li> <li>• Over Voltage</li> <li>• Phase Sequence</li> <li>• Phase Failure</li> </ul>	
MODES	Under Voltage trip : 310 to 405V AC (-25% to -2.5% of 415V AC) Over Voltage trip : 425 to 520V AC (+2.5% to +25% of 415V AC) Phase Sequence : YES Phase Failure : YES Reset : Auto Reset	Under Voltage trip : 170 to 224V AC (-25% to -2.5% of 230V AC) Over Voltage trip : 236 to 290V AC (+2.5% to +25% of 230V AC) Phase Sequence : YES Phase Failure : YES Reset : Auto Reset	Under Voltage trip : 180 to 234V AC (-25% to -2.5% of 240V AC) Over Voltage trip : 246 to 300V AC (+2.5% to +25% of 240V AC) Reset : Auto Reset	Under voltage trip : 310 to 405V AC (-25% to -2.5% of 415V AC) Over Voltage trip : 425 to 520V AC (+2.5% to +25% of 415V AC) Phase Sequence : YES Phase Failure : YES Reset : Auto Reset
TIME RANGES	Trip time delay : 0.2 to 10 sec (For under voltage and over voltage) : Instantaneous (For phase failure & phase sequence) Power On Delay : 400msec		Trip time delay : 0.2 to 10 sec (For under voltage and over voltage) Power On Delay : 400msec	Trip Delay : 0 to 10s (For under voltage and over voltage) : Instantaneous (For phase failure & phase sequence)
ACCURACY	Trip Voltage : $\pm 0.5\%$ of F.S Trip Time : $\pm 5\%$ of F.S			
OUTPUT CONTACT	1 C/O SPDT			
OUTPUT RATING	NC: 3A @ 250V AC NO: 5A @ 250V AC		NC: 5A @ 250V AC, (Resistive Load) NO: 5A @ 250V AC	
ELECTRICAL CONNECTION	3Ø - 3W		1Ø - 2W	
OPERATING VOLTAGE	310 to 520V AC (L-L)	170 to 290V AC (L-L)	180 to 300V AC(L-N)	310 to 520V AC (L-L)

### Terminal Connections



### Dimensions (All are in mm)



### Ordering Information

PRODUCT CODE	OPERATING RANGE	CERTIFICATION
600VPR-310/520	310 to 520V AC	--
600VPR-310/520-CE		CE RoHS
600VPR-170/290-CU	170 to 290V AC	CE RoHS <small>UL LISTED</small>
600VPR-1-180/300	180 to 300V AC	--
600VPR-1-180/300-CE		CE RoHS
800VPR-3	310 to 520V AC	--

# Voltage Protection Relays



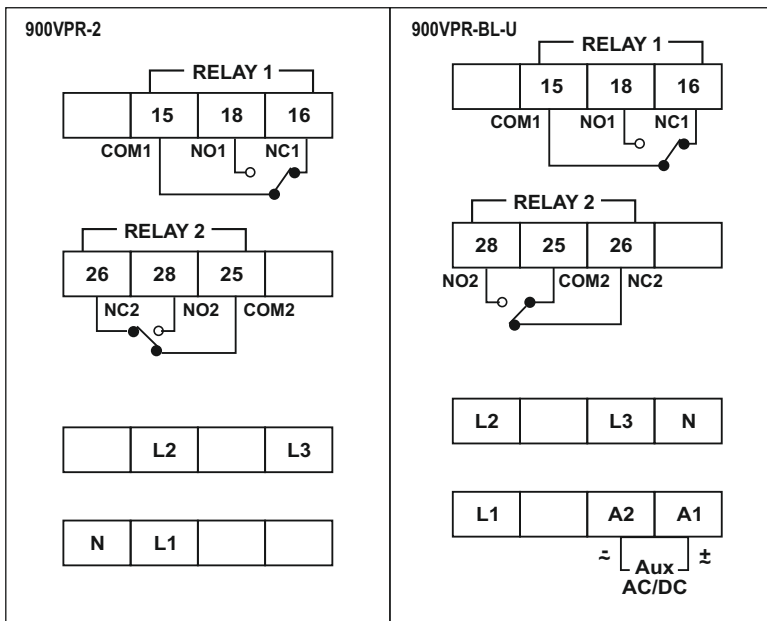
**900VPR-2**  
Size : 35 x 90mm



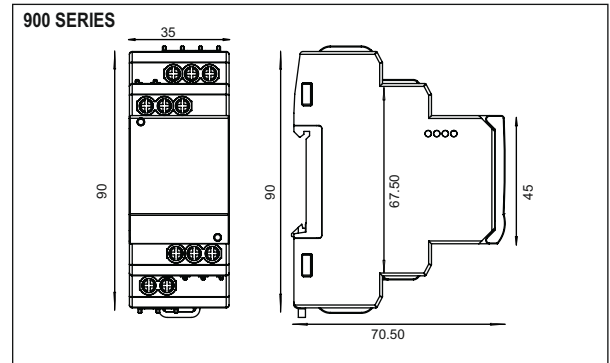
**900VPR-BL-U**  
Size : 35 x 90mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>• Din Rail Mount</li> <li>• Monitors Under Voltage, Over Voltage, Under Frequency, Over Frequency, Phase Asymmetry, Phase Failure and Phase Sequence</li> <li>• True RMS Measurement</li> <li>• Adjustable Switching Hysteresis</li> <li>• Two Separate Alarm Relays</li> </ul>	<ul style="list-style-type: none"> <li>• Din Rail Mount</li> <li>• Monitors Under Voltage, Over Voltage, Under Frequency, Over Frequency, Phase Asymmetry, Phase Failure, Neutral Failure and Phase Sequence</li> <li>• True RMS Measurement</li> <li>• Adjustable Switching Hysteresis</li> <li>• Two Alarm Relays With NO or NC Operation selectable</li> </ul>
<b>MEASUREMENTS</b>	Under / Over Voltage, Under / Over Frequency, Phase Asymmetry, Phase Failure, Phase Sequence, (Neutral Failure applicable only for 900VPR-BL-U)	
<b>DISPLAY</b>	3 digit LCD	3 digit LCD with backlight
<b>ALARM INDICATIONS</b>	Trip	
<b>ELECTRICAL CONNECTION</b>	3Ø - 3W, 3Ø - 4W	
<b>TRIP SETTING</b>	Under / Over Voltage : 280 to 520V AC L-L (for 3Ø - 3W system) 160 to 300V AC L-N (for 3Ø - 4W system) Under / Over Frequency : 45 to 65Hz, Voltage Asymmetry : 5.0 to 99.9%	Under / Over Voltage : 85 to 500V AC L-L (for 3Ø - 3W system) 50 to 288V AC L-N (for 3Ø - 4W system) Under / Over Frequency : 45 to 65Hz, Phase Asymmetry : 5.0 to 30.0%
<b>TRIP TIME SETTING</b>	Power ON Delay : 2 to 99.9sec Trip Time Delay : 0 to 99.9sec Delay on Release : 0 to 99.9sec Response Time : <200ms	Power ON Delay : 0.5 to 300sec Trip Time Delay : 0 to 300sec Recovery Time Delay : 0 to 300sec Response Time : <120ms
<b>HYSTERESIS</b>	Voltage : 1.0 to 99.0V, Frequency : 0.2 to 2Hz, Asymmetry : 2 to 20%	Voltage : 1.0 to 40V, Frequency : 0.1 to 2Hz, Asymmetry : 2 to 20%
<b>RESOLUTION</b>	Voltage : 1V, Frequency : 0.1Hz	
<b>ACCURACY</b>	Voltage : ±1% of set value, Frequency : ±0.3Hz, Time (Recovery Time, Trip delay, Power on delay) : ±5% of setting +200ms	Voltage : ±1% of set value ±2 digits, Frequency : ±0.5% ± 1 digits, Time (Recovery Time, Trip delay, Power on delay) : ±5% of Setting +120ms
<b>OUTPUT CONTACT</b>	2 x 1 C/O SPDT	
<b>RELAY RATING</b>	NO : 5A @ 250V AC ; NC : 3A @ 250V AC (Res.)	
<b>SUPPLY VOLTAGE</b>	Self Powered, Operating Voltage : 280 to 520V AC (L-L) : 160 to 300V AC (L-N)	85 to 270V AC / DC
<b>FREQUENCY</b>	45 to 65Hz	
<b>POWER CONSUMPTION</b>	30VA max.	4VA max.

### Terminal Connections



### Dimensions (All are in mm)



### Ordering Information

PRODUCT CODE	OPERATING RANGE	CERTIFICATION
900VPR-2-280/520V	280 to 520V AC	---
900VPR-2-280/520V-CE		CE RoHS
900VPR-2-280/520V-CU		CE RoHS <small>UL LISTED</small>
900VPR-BL-U-CE	85 to 270V AC / DC	CE RoHS

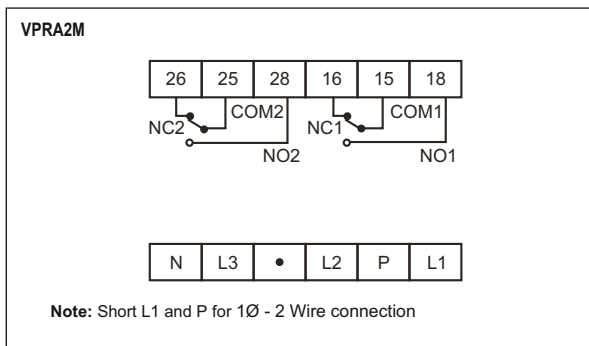
# Voltage Protection Relays



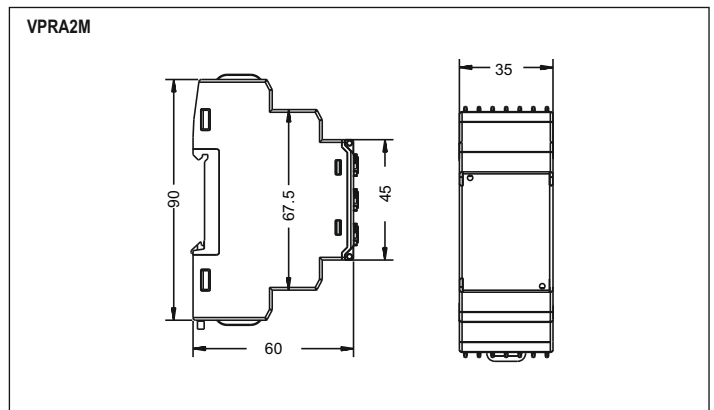
**VPRA2M**  
Size : 35 x 90mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>• Din Rail Mount</li> <li>• Monitors Under Voltage, Over Voltage</li> <li>• Monitors Phase Asymmetry, Phase Failure, Phase Sequence</li> <li>• True RMS Measurement</li> <li>• Adjustable Over and Under Voltage Trip Level</li> <li>• Adjustable Operate Time &amp; Trip Time Delay</li> <li>• Auto Reset</li> </ul>
<b>MEASUREMENT</b>	Under Voltage, Over Voltage, Phase Failure, Phase Sequence, Phase Asymmetry
<b>DISPLAY</b>	LED indications for Power ON, Phase Failure, Under Voltage, Over Voltage, Phase Sequence, Phase Asymmetry
<b>ELECTRICAL CONNECTION</b>	1Ø - 2W, 3Ø - 4W
<b>TRIP SETTING</b>	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%
<b>TRIP TIME SETTING</b>	Power ON Delay : 0 to 15sec, Trip Time Delay : 0 to 15sec Recovery Time Delay : 5sec ± 200ms, L1 / Neutral Failure trip delay <200msec, Phase sequence trip delay <250msec
<b>HYSTERESIS</b>	Voltage : 7V (±2V) of trip voltage
<b>ACCURACY</b>	Trip Setting Accuracy : ±5% of F. S. Time Setting Accuracy : ±10% of F. S.
<b>OUTPUT CONTACT</b>	2 C/O DPDT
<b>RELAY RATING</b>	NO, NC : 5A @ 250V AC (Res.) / 28V DC
<b>SUPPLY VOLTAGE</b>	Self powered, Nominal Input Voltage (Un) : 230V AC (L-N), Operating Voltage : 127 to 288V AC (L-N)
<b>FREQUENCY</b>	48 to 63Hz
<b>POWER CONSUMPTION</b>	5VA max

### Terminal Connections



### Dimensions (All are in mm)



### Ordering Information

PRODUCT CODE	OPERATING RANGE	CERTIFICATION
VPRA2M	127 to 288V AC	---
VPRA2M-CE		CE RoHS

## Current Protection Relays



**900CPR-1**  
Size : 35 x 90mm



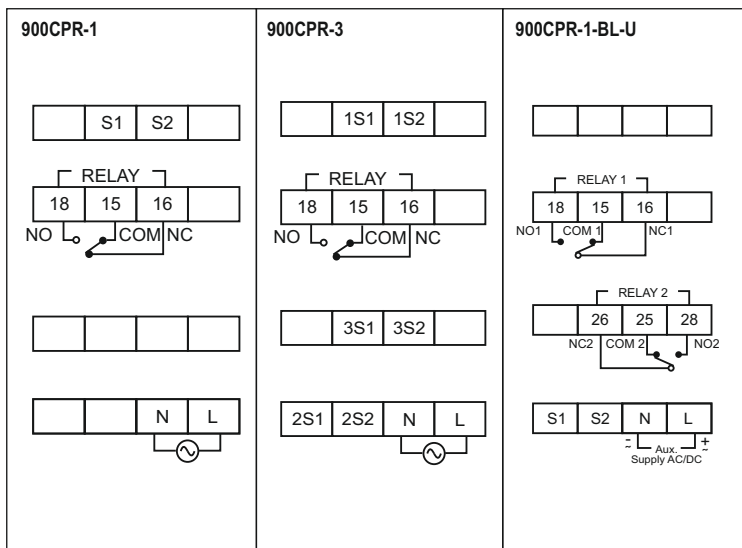
**900CPR-3**  
Size : 35 x 90mm



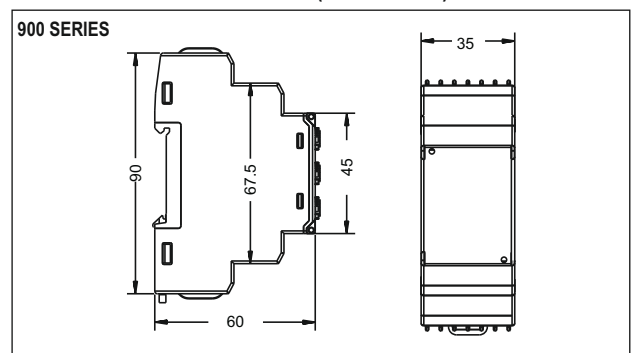
**900CPR-1-BL-U**  
Size : 35 x 90mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>Din Rail Mount</li> <li>Under Current &amp; Over Current Protection for 1Ø system</li> <li>True RMS Measurement</li> <li>One Alarm Relay with NC or NO operation</li> </ul>	<ul style="list-style-type: none"> <li>Din Rail Mount</li> <li>Under Current &amp; Over Current Protection for 1Ø &amp; 3Ø system</li> <li>True RMS Measurement</li> <li>One Alarm Relay with NC or NO operation</li> </ul>	<ul style="list-style-type: none"> <li>Din Rail Mount</li> <li>Under Current &amp; Over Current Protection for 1Ø system</li> <li>True RMS Measurement</li> <li>Two Alarm Relay with NC or NO operation</li> </ul>
<b>MEASUREMENTS</b>	Under Current, Over Current (Current Asymmetry applicable only for 900CPR-3)		
<b>DISPLAY</b>	3 digit LCD		3 digit LCD with backlight
<b>ALARM INDICATIONS</b>	Trip		
<b>ELECTRICAL CONNECTION</b>	1Ø - 2W	1Ø - 2W, 3Ø - 3W, 3Ø - 4W	1Ø - 2W
<b>CT SETTING</b>	CT Primary : 1A/5A - 999A, CT Secondary : 1A / 5A (selectable)		
<b>TRIP SETTING</b>	Under Current : 0-999A, Over Current : 0.5 to 1.19kA, (Current Asymmetry : 5.0 to 99.9% applicable only for 900CPR-3)		
<b>TRIP TIME SETTING</b>	Power ON Delay : 0.5 to 99.9sec Trip Time Delay : 0 to 99.9sec Recovery Time Delay : 0 to 99.9sec Response Time : < 200ms		
<b>HYSTERESIS</b>	Current : 0.1 to 99.9A		
<b>RESOLUTION</b>	Current : 0.01, 0.1, 1A, 0.01kA (Depends on CT setting)		
<b>ACCURACY</b>	Current : ±1% of Setting ± 2 digits, Time (Recovery Time, Trip delay, Power on delay) : ±5% of setting +200ms		
<b>OUTPUT CONTACT</b>	1C/O SPDT		2 x 1 C/O SPDT
<b>RELAY RATING</b>	NO : 5A @ 250V AC; NC : 3A @ 250V AC		
<b>SUPPLY VOLTAGE</b>	230V AC ±15%		85 to 270V AC/DC
<b>FREQUENCY</b>	45 to 65Hz		
<b>POWER CONSUMPTION</b>	12VA max.		4VA max.

### Terminal Connections



### Dimensions (All are in mm)



### Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
900CPR-1-230V	230V AC	---
900CPR-3-230V		---
900CPR-1-BL-U-CE	85 to 270V AC / DC	CE RoHS

## Current Protection Relays



**CPRD2M**  
Size : 35 x 90mm



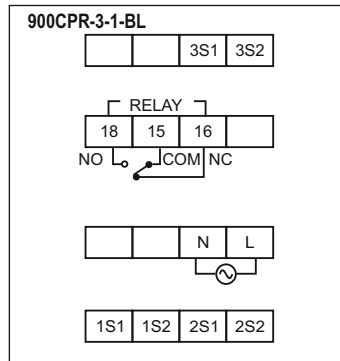
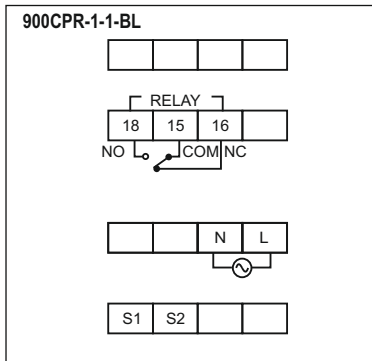
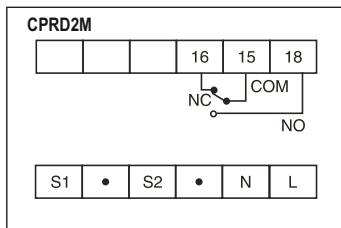
**900CPR-1-1-BL**  
Size : 35 x 90mm



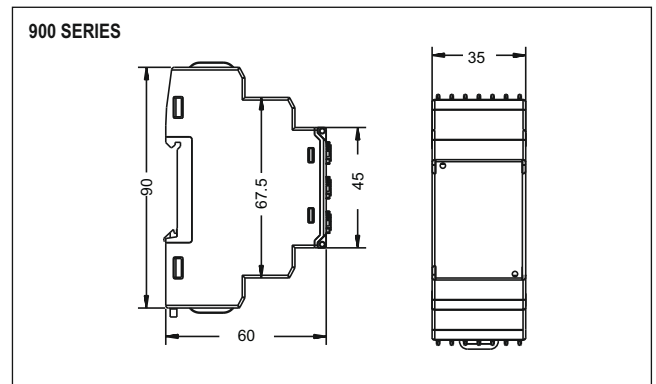
**900CPR-3-1-BL**  
Size : 35 x 90mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>• Din Rail Mount</li> <li>• Under Current &amp; Over Current Protection for 1Ø system</li> <li>• True RMS Measurement</li> <li>• One Alarm Relay with NC or NO operation Selectable</li> </ul>	<ul style="list-style-type: none"> <li>• Din Rail Mount</li> <li>• Under Current &amp; Over Current Protection for 1Ø system</li> <li>• True RMS Measurement</li> <li>• One Alarm Relay with NC or NO operation Selectable</li> </ul>	<ul style="list-style-type: none"> <li>• Din Rail Mount</li> <li>• Under Current &amp; Over Current Protection for 1Ø &amp; 3Ø system</li> <li>• True RMS Measurement</li> <li>• One Alarm Relay with NC or NO operation Selectable</li> </ul>
	UnderCurrent & Over Current monitoring		Under Current & Over Current monitoring, Current Asymmetry
<b>MEASUREMENTS</b>			
<b>DISPLAY</b>	3 digit LCD		3 digit LCD with backlight
<b>ALARM INDICATIONS</b>	Trip		
<b>ELECTRICAL CONNECTION</b>	1Ø - 2W		1Ø - 2W, 3Ø - 3W, 3Ø - 4W
<b>CT SETTING</b>	CT Primary : 5A / 10A to 999A (selectable), CT Secondary : 5A / 10A (selectable)		CT Primary : 1A / 5A to 999A, CT Secondary : 1A / 5A (selectable)
<b>TRIP SETTING</b>	Under Current : 0 to 999A, Over Current : 0.5 to 1.09kA		Under Current : 0 to 999A, Over Current : 0.5 to 1.19kA, Current Asymmetry : 5.0 to 99.9%
<b>TRIP TIME SETTING</b>	Power ON Delay: 0.5 to 99.9sec Trip Time Delay: 0 to 99.9sec Recovery Time Delay: 0 to 99.9sec Response Time: < 100ms		Power ON Delay: 0.5 to 99.9sec Trip Time Delay: 0 to 99.9sec Recovery Time Delay: 0 to 99.9sec Response Time: < 200ms
<b>HYSTERESIS</b>	Current : 0.1 to 99.9A		
<b>RESOLUTION</b>	Current : 0.01, 0.1, 1A, 0.01kA (Depends on CT setting)		
<b>ACCURACY</b>	Current : ±1% of Setting ± 2 digits, Time (Recovery Time, Trip delay, Power on delay) : ±5% of setting ±200ms		
<b>OUTPUT CONTACT</b>	1C/O SPDT		
<b>RELAY RATING</b>	NO : 10A @ 250V AC ; NC : 10A @ 250V AC		NO : 5A @ 250V AC ; NC : 3A @ 250V AC
<b>SUPPLY VOLTAGE</b>	230V AC ±15%		
<b>FREQUENCY</b>	50 to 60Hz		50 to 60Hz
<b>POWER CONSUMPTION</b>	18VA max.		15VA max.

### Terminal Connections



### Dimensions (All are in mm)



### Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
CPRD2M-1-1-230V-CE	230V AC	CE RoHS
900CPR-1-1-BL-230V-CE		CE RoHS
900CPR-3-1-BL-230V-CE		CE RoHS



# Earth Leakage Relays



**900ELR-2**  
Size : 35 x 90mm



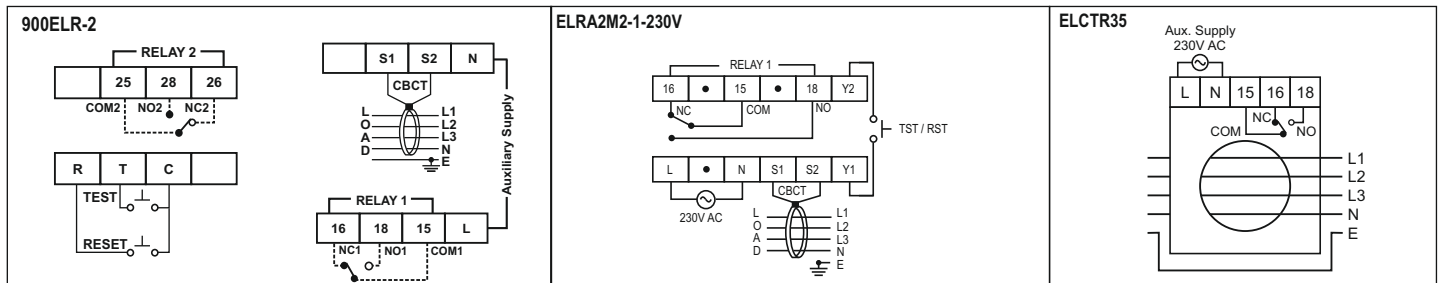
**ELRA2M**  
Size : 35 x 90mm



**ELCTR35**  
Size : 74 x 105mm

FEATURES	<ul style="list-style-type: none"> <li>Din Rail Mount</li> <li>Leakage Current Monitoring in 3Ø &amp; 1Ø systems</li> <li>RMS Value Measurement (AC)</li> <li>Test and Reset via Front / Remote</li> <li>Two Separate Alarms Relays with NO or NC operation selectable</li> </ul>	<ul style="list-style-type: none"> <li>Din Rail Mount</li> <li>Monitors True Rms Earth Leakage Current (upto 30A)</li> <li>Sensitivity and Time Delay Adjustable</li> <li>Test and Reset Function</li> <li>CBCT Open Circuit Indication</li> </ul>	<ul style="list-style-type: none"> <li>Din Rail Mount</li> <li>Inbuilt CBCT</li> <li>Monitors True RMS Earth Leakage Current</li> <li>Test and Reset Function</li> <li>1 SPDT Output Protection Relay</li> </ul>
MEASUREMENT	Earth Leakage Current (Via external CBCT)		Earth Leakage Current (internal CBCT)
DISPLAY	3 Digit LCD with backlight. 2 LED for Trip indication	5 LED indication	2 LED indication
ELECTRICAL CONNECTION	1Ø - 2W, 3Ø - 4W, 3Ø - 3W	1Ø - 2W, 3Ø - 4W	1Ø - 2W, 3Ø - 3W, 3Ø - 4W
TRIP SETTING	10mA to 30A	30mA to 30A	75% of 30mA or 300mA
TIME RANGES	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	Trip Time Delay : 0 to 9 sec (NA when In=0.03A)	Reset time : Instantaneous
HYSTERSIS	5 to 40%	--	8% of input current
RESOLUTION	0.1mA, 1mA, 0.01A, 0.1A	--	--
ACCURACY	Current : ± 5% of setting, Recovery Time, Trip Delay, Power ON delay : ± 5% of setting + 100ms	Trip : ± 5% of Set Trip Current Time : ± 5% of set Time + Response Time	Trip : ± 5% of Input Current Time : ± 5% of Response Time
OUTPUT CONTACT	2 C/O SPDT	1 C/O SPDT	
OUTPUT RATING	NC : 3A @ 250V AC, NO : 5A @ 250V AC	NC : 5A @ 250V AC, NO : 10A @ 277V AC / 28DC	NC : 5A @ 250V AC, NO : 5A @ 30V AC
SUPPLY VOLTAGE	230V AC	230V AC (± 15%)	
FREQUENCY	45 to 65Hz	50 / 60Hz	
POWER CONSUMPTION	3VA max	<5 VA max	15 VA max

## Terminal Connections



## Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION	PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
900ELR-2-230V	230V AC	---	ELCTR35-1-30mA-230V	230V AC	CE RoHS in process
900ELR-2-230V-CE		CE RoHS	ELRA2M2-1-230V		CE RoHS in process
ELCTR35-1-300mA-230V		CE RoHS in process			

## CBCT for Earth Leakage Relays



DESCRIPTION	CBCT for ELRA2M	CBCT for 900ELR-2
CT RATIO	1000:1	
SIZES (inner diameter)	35 mm, 70 mm, 120 mm, 210mm, 310mm	

## Ordering Information

Order Code	Inner Diameter (in mm)	CERTIFICATION
CBCT-35-1	35	CE RoHS in process
CBCT-70-1	70	CE RoHS in process
CBCT-120-1	120	CE RoHS in process
CBCT-210-1	210	CE RoHS in process
CBCT-310-1	310	CE RoHS in process

## Earth Fault Relays



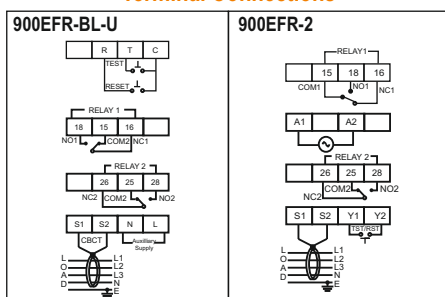
**900EFR-BL-U**  
Size : 35 x 90mm



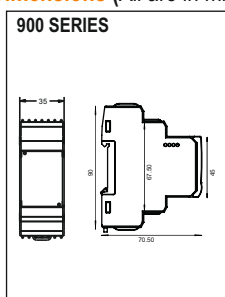
**900EFR-2**  
Size :35 x 90mm

FEATURES	<ul style="list-style-type: none"> <li>• Din Rail Mount</li> <li>• Earth Fault Current Monitoring in 1Ø and 3Ø systems,</li> <li>• RMS Value Measurements(AC)</li> <li>• Alarm Relays With NO and NC operation selectable</li> </ul>	<ul style="list-style-type: none"> <li>• Din Rail Mount</li> <li>• Earth Fault Current Monitoring in 1Ø and 3Ø Systems</li> <li>• RMS Value Measurements(AC)</li> <li>• Alarm Relays with NO and NC operation selectable</li> </ul>
MEASUREMENT	Earth fault Current (via external EFCT)	
DISPLAY	3 Digit Liquid Crystal Display with backlight, 2 LED for Trip indication	3 Digit Liquid Crystal Display without backlight, 3 LED for Trip indication
ELECTRICAL CONNECTION	1Ø - 2W, 3Ø - 3W, 3Ø - 4W	
FRAME RATING (CT PRIMARY)	160A, 250A, 630A	
M.C.C.B RATING	Depends on Frame Rating	16A to Frame Rating
TRIP SETTING	10% to 80% of selectable MCCB frame rating	Upto 80% of MCCB rating
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	Trip time delay : 0 to 99.9sec Recovery time : 0 to 99.9sec Power ON delay : 0.5 to 99.9sec 1 to 10% of fault current settings
HYSTERSIS	1 to 10% of fault current settings	
RESOLUTION	0.1A when fault current is less than or equal to 99.9A 1A when fault current is greater than 100A	
ACCURACY	Current : ±5% of the settings ±2digit Time : ±5% of the settings ±100ms	
OUTPUT CONTACT	2 C/O SPDT	
OUTPUT RATING	NC : 3A @ 250V AC NO : 5A @ 250V AC	
SUPPLY VOLTAGE	Auxillary Supply : 85 to 270V AC/DC	415V AC
FREQUENCY	50 / 60Hz	
POWER CONSUMPTION	4VA max	50VA max

### Terminal Connections



### Dimensions (All are in mm)



### Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
900EFR-BL-U	85 to 270V AC/DC	---
900EFR-BL-U-CE		CE RoHS
900EFR-2-415V-CE	415V AC	CE RoHS

## CT for Earth Fault Relays



DESCRIPTION	900EFR
CURRENT RATIO	160/1A, 250/A, 630/1A
LOAD RESISTANCE	1 VA

### Ordering Information

Part No.	Window Size	Current Rating
EFCT 100/25 160/1A VAL CL1	100/25	160/1A
EFCT 140/35 160/1A VAL CL1	140/35	160/1A
EFCT 140/35 250/1A VAL CL1	140/35	250/1A
EFCT 180/35 250/1A VAL CL1	180/35	250/1A
EFCT 180/35 630/1A VAL CL1	180/35	630/1A
EFCT 220/50 630/1A VAL CL1	220/50	630/1A

## Motor Protection Relay



**MPR-3M**  
Size : 52.5 x 90mm

**MPCT**

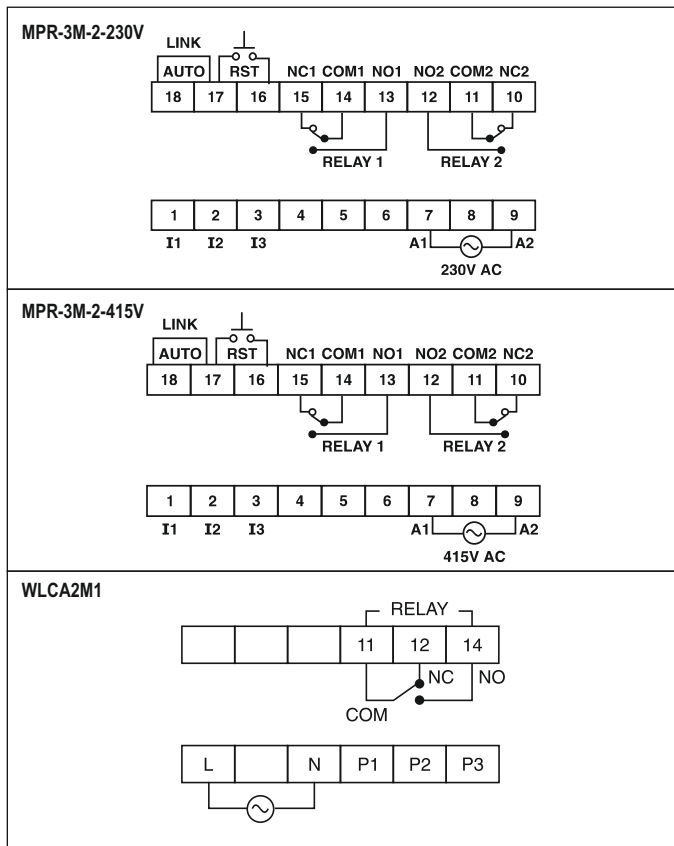
## Water Level Controller



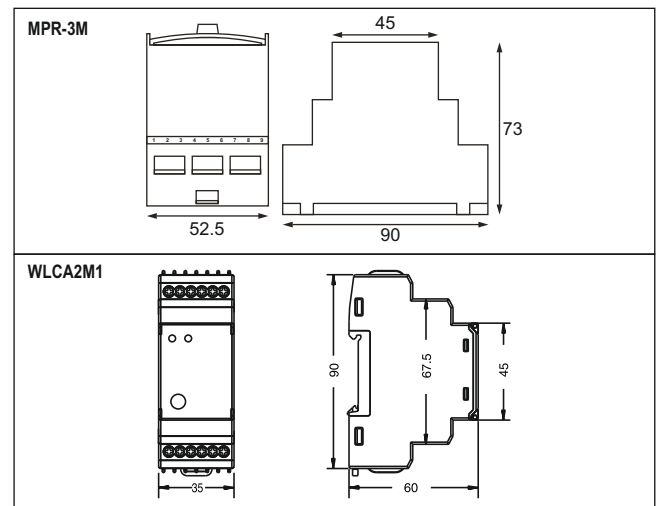
**WLCA2M1**  
Size : 35 x 90mm

FEATURES	<ul style="list-style-type: none"> <li>• Din Rail Mount</li> <li>• Single Phasing, Phase Asymmetry, Phase Sequence</li> <li>• Under Current, Overload Trip Current</li> <li>• Test and Reset Buttons via Front / Remote</li> </ul>	FEATURES	<ul style="list-style-type: none"> <li>• Din Rail Mount</li> <li>• Used For Drain &amp; Fill Control.</li> <li>• 3 No's Stainless Steel Prods.</li> <li>• 10A SPDT Output (Resistive)</li> </ul>
DISPLAY	3 LED Indication	DISPLAY	2 LED Indication
AUXILLARY SUPPLY	230 / 415V AC $\pm 15\%$	AUXILLARY SUPPLY	85 - 270V AC/DC
FREQUENCY	45 to 65Hz	FREQUENCY	50 to 60Hz
ELECTRICAL CONNECTION	3 $\phi$ - 3W	ELECTRICAL CONNECTION	Auxiliary Supply
POWER RATING	5 VA max	POWER RATING	3 VA max
TRIP SETTING	Phase Asymmetry : 50% of motor current (Fixed) T(sec) setting : To select 2, 4, 6, 8, 10 sec trip time curve in overload trip curve graph. Under Current : 50% of Motor Current X Imax : To select motor current rating	TRIP SETTING	According to the levels of sensor placed in the water tank
SENSITIVITY	NA	SENSITIVITY	1 Kohms to 200Kohms
TRIP TIME	Single Phase trip : 5 sec, Phase Asymmetry : 5 sec, Phase Sequence : 5 sec Over load trip : As per graph 1, Under Current trip : 5 Sec	TRIP TIME	0.5 sec (approx)
MODE	Auto / Manual / Remote	MODE	Automatic
ACCURACY	Time : $\pm 5\%$ of full scale $\pm 100$ msec Current : $\pm 5\%$ of full scale	ACCURACY	NA
OUTPUT CONTACT	2 C/O DPDT	OUTPUT CONTACT	1 C/O SPDT
OUTPUT RATING	NC : 5A @ 240V AC NO : 5A @ 240V AC	OUTPUT RATING	10A @ 250V AC / 28V DC

### Terminal Connections



### Dimensions (All are in mm)



### Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
MPR-3M-2-230V	230V AC	---
MPR-3M-2-415V	415V AC	---
WLCA2M1	85 to 270V AC/DC	CE RoHS in process

PRODUCT CODE	INPUT CURRENT	CERTIFICATION
MPCT D15 10 A	10 A	---
MPCT D15 40 A	40 A	---
MPCT D15 80 A	80 A	---



- Time Switch - Din Rail Mount
- Time Switch - Wall Mount

Applicable EMI / EMC standards		
Product standard : IEC 61326-1		
Category	Standards Compliance	
ESD Immunity	IEC 61000-4-2	Level II for Contact discharge Level III for Air discharge
Surge Immunity	IEC 61000-4-5	+/- 2 kV common mode,
Radiated Susceptibility	IEC 61000-4-3	Level III, 80 to 1000MHz Level II, 1.4GHz to 2GHz Level I, 2GHz to 2.7GHz
Conducted Susceptibility	IEC 61000-4-6	Level II
Conducted Emission	CISPR-11	
Radiated Emission	CISPR-11	
Electrical Fast Transient	IEC 61000-4-4	Level II

## Weekly

## Astronomical



**TS2M1-1-16A-230V**  
Size : 35mm (Width)



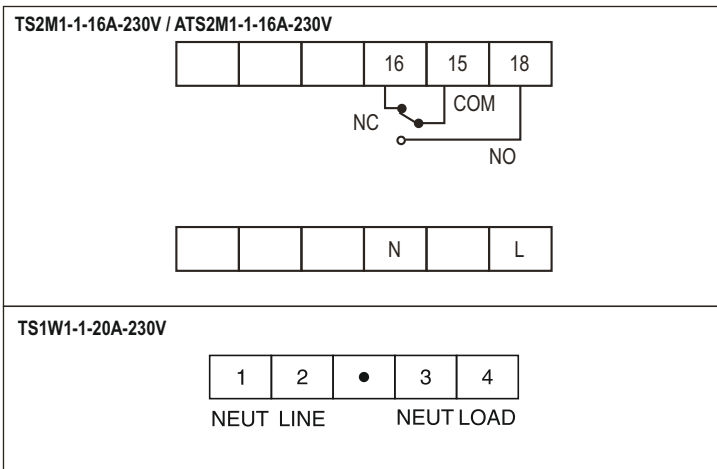
**TS1W1-1-20A-230V**  
Size : 60 x 60 mm



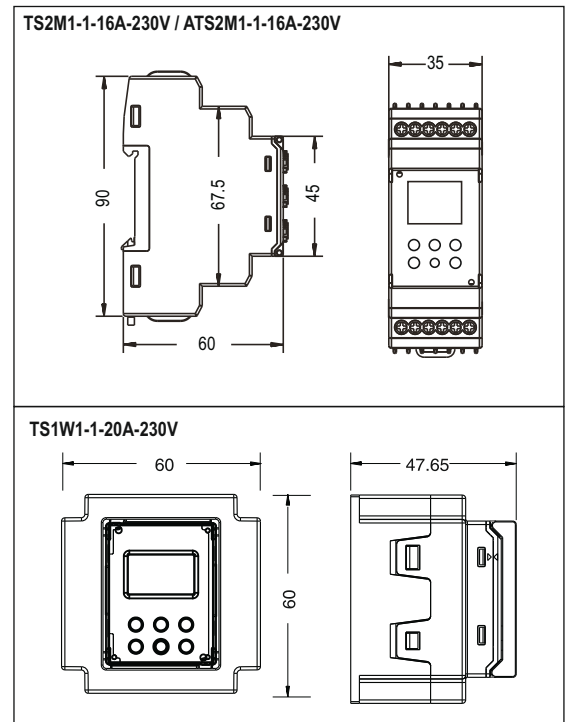
**ATS2M1-1-16A-230V**  
Size : 35mm (Width)

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>• Din Rail Mount</li> <li>• 50 ON - OFF Steps per day</li> <li>• 1 C/O SPDT</li> <li>• 10+ years battery life</li> </ul>	<ul style="list-style-type: none"> <li>• Wall Mount</li> <li>• 50 ON - OFF Steps per day</li> <li>• 1 NO &amp; Neutral</li> <li>• 10+ years battery life</li> </ul>	<ul style="list-style-type: none"> <li>• Din Rail Mount</li> <li>• Latitude / Longitude precise to a minute with the time zone.</li> <li>• Sunrise / Sunset or Twilight rise / set trigger modes</li> <li>• 1 C/O SPDT</li> <li>• 10+ years battery life</li> </ul>
<b>DISPLAY</b>	Text LCD (Without Backlight)		
<b>RTC ACCURACY</b>	15 Minutes a year @ 25°C		
<b>OUTPUT CONTACT</b>	1 C/O SPDT	1 NO & Neutral	1 C/O SPDT
<b>CONTACT RATING</b>	16A @ 250V AC	20A @ 250V AC	16A @ 250V AC
<b>OPERATION PERIOD</b>	1 Week		
<b>WEEKLY PROGRAM</b>	Total 50 ON Steps and 50 OFF Steps 2 Programs x 25 Steps 3 Programs x 16 Steps 4 Programs x 12 Steps 5 Programs x 10 Steps 6 Programs x 08 Steps 7 Programs x 07 Steps 8 Programs x 06 Steps		
<b>MINIMUM SETTING UNIT</b>	1 second		
<b>HOLIDAY SETTINGS</b>	16 Dates		
<b>CLOCK</b>	12-hr. (AM / PM) and 24-hr. selection		
<b>RELAY OPERATING MODE</b>	Auto / Temporary Override / Permanent Override ON / Permanent Override OFF		
<b>SUPPLY VOLTAGE (AC : 50 / 60 Hz)</b>	230V AC ±10% / 110V AC ±10%		

### Terminal Connections



### Dimensions (All are in mm)



### Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
TS2M1-1-16A-230V	230V AC	---
TS2M1-1-16A-230V-CE	230V AC	CE
TS1W1-1-20A-230V	230V AC	---
TS1W1-1-20A-230V-CE	230V AC	CE
TS2M1-1-16A-110V	110V AC	---
TS2W1-1-20A-110V	110V AC	---
ATS2M1-1-16A-230V	230V AC	---



- Analog Timers - 17.5mm DIN Rail Timers
- Analog Timers - 22.5mm DIN Rail Timers
- Analog Timers - Plug / Panel Mount
- Digital Timers - Single Display Multifunction
- Digital Timers - Dual Display Multifunction
- Digital Timer - Sequential
- Time Interval Meters

Applicable EMI / EMC standards		
Product standard : IEC 61326-1		
Category	Standards Compliance	
ESD Immunity	IEC 61000-4-2	Level II for Contact discharge Level III for Air discharge
Surge Immunity	IEC 61000-4-5	+/- 2 kV common mode,
Radiated Susceptibility	IEC 61000-4-3	Level III, 80 to 1000MHz Level II, 1.4GHz to 2GHz Level I, 2GHz to 2.7GHz
Conducted Susceptibility	IEC 61000-4-6	Level II
Radiated Emission	CISPR-11	
Electrical Fast Transient	IEC 61000-4-4	Level II

Note : Above standards are applicable only for CE certified Timers

## 17.5mm Din Rail Timers

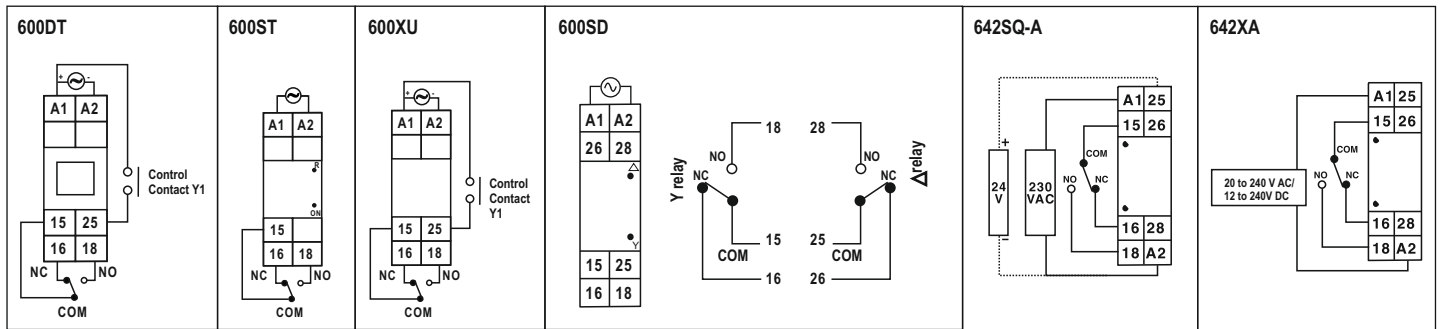


**600DT** Size : 17.5 x 90 x 60mm    
 **600ST** Size : 17.5 x 90 x 60mm    
 **600XU** Size : 17.5 x 90 x 60mm    
 **600SD** Size : 17.5 x 90 x 60mm    
 **642SQ-A** Size : 17.5 x 90 x 60mm    
 **642XA** Size : 17.5 x 90 x 60mm

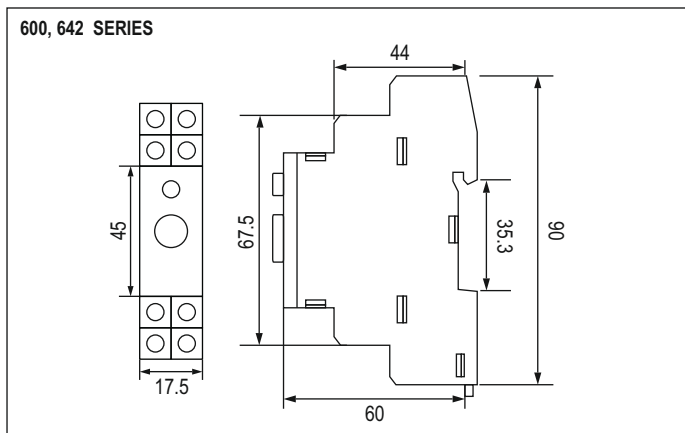
FEATURES	<ul style="list-style-type: none"> <li>Digital Timer</li> <li>15 Functions</li> <li>8 Time Ranges</li> <li>1 C/O SPDT</li> </ul>	<ul style="list-style-type: none"> <li>Single Function</li> <li>10 Time Ranges</li> <li>1 C/O SPDT</li> </ul>	<ul style="list-style-type: none"> <li>13 Functions</li> <li>10 Time Ranges</li> <li>1 C/O SPDT</li> </ul>	<ul style="list-style-type: none"> <li>Star Delta</li> <li>1 C/O Relay each for Star &amp; Delta</li> </ul>	<ul style="list-style-type: none"> <li>2 Functions</li> <li>8 Time Ranges</li> <li>1 C/O SPDT</li> </ul>	<ul style="list-style-type: none"> <li>2 Functions</li> <li>8 Time Ranges</li> <li>1 C/O SPDT</li> </ul>
MODES	A, B, C, D, E, F, H, J, K, L, P, Q, R, T, U	A	A, B, C, Ci, D, E, F, H, I, J, K, Ai, Bi	Star - Delta	ON delay / Interval	ON delay / Interval
TIME RANGES	99.9sec / min / hr, 999sec / min / hr 9:59min:sec, 9:59hr:min	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	0.1sec	Runup time : 3 - 30sec, 6 - 60sec Change over : 50/100ms	0 - 3sec / min, 0 - 10sec / min, 0 - 30sec / min, 0 - 60sec / min	0 - 3sec / min, 0 - 10sec / min, 0 - 30sec / min, 0 - 60sec / min
RESOLUTION	0.1sec	0.1sec	0.1sec	---	0.3sec	0.3sec
ACCURACY	Setting : ± 0.1% of set time or ±50ms (whichever is greater) For Y contact operation : +100ms, Repeat : ± 0.1 %			Setting : ±5% of F.S Repeat : ±0.5% (F.S. = Full Scale) Pause time accuracy : ±5% ±5ms		
OUTPUT CONTACT	1 C/O SPDT	1 C/O SPDT	1 C/O SPDT	1 C/O Relay each for Star & Delta	1 C/O SPDT	
CONTACT RATING	8 A @ 250V AC			5A @ 250V AC or 24V DC		
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	20 to 240V AC / DC	240V AC, 110V AC, 24V DC	20 to 240V AC 12 to 240V DC	110V AC, 230V AC	230V AC, 24V AC/DC	20 to 240V AC 12 to 240V DC

Modes	600DT	600ST & 600XU
	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 make with Totalise, U - Interval with Totalise	
	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 make with Totalise, Bi - Interval with Totalise	

### Terminal Connections



### Dimensions (All are in mm)



### Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
600DT	20 to 240V AC/DC	CE
600DT-CU		CE RoHS
600XU	20 to 240V AC, 12 to 240V DC	CE
600XU-A-1-CU		CE RoHS
600SD-2-230	230V AC	CE
600SD-2-230-CU-RoHS		CE RoHS
600SD-2-110V	110V AC	CE
600SD-2-110-CU		CE
600ST	240V AC	CE
600ST-CU		CE RoHS
600ST-110V	110V AC	---
600ST-24V		24V DC
642SQ-A	230VAC, 24 AC/DC	---
642XA	20 to 240V AC, 12 to 240VDC	---

## 22.5mm Din Rail Timers



**800XU**  
Size : 22.5 x 75 x 101mm



**800XA**  
Size : 22.5 x 75 x 101mm



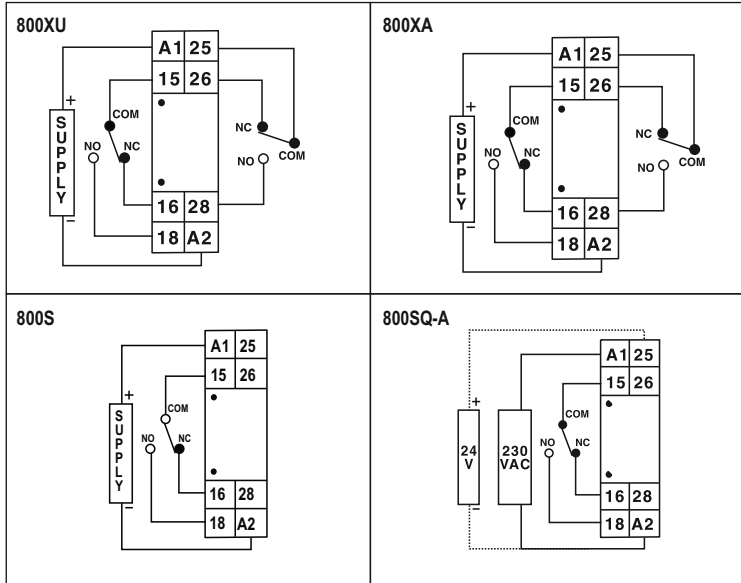
**800SQ-A**  
Size : 22.5 x 75 x 101mm



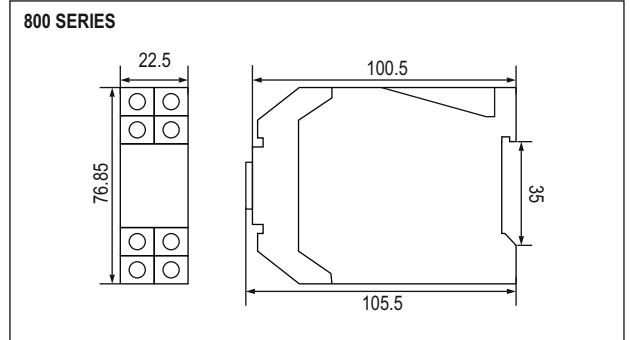
**800S**  
Size : 22.5 x 75 x 101mm

FEATURES	<ul style="list-style-type: none"> <li>• 2 Functions</li> <li>• 12 Time Ranges</li> <li>• 2 C/O DPDT</li> </ul>	<ul style="list-style-type: none"> <li>• 2 Functions</li> <li>• 8 Time Ranges</li> <li>• 2 C/O DPDT</li> </ul>	<ul style="list-style-type: none"> <li>• 2 Functions</li> <li>• 8 Time Ranges</li> <li>• 1 C/O SPDT</li> </ul>	<ul style="list-style-type: none"> <li>• Single Function</li> <li>• 2 Time Ranges</li> <li>• 1 C/O SPDT</li> </ul>
MODES	ON delay / Interval			ON delay
TIME RANGES	1 / 3 / 10 / 30sec / min / hr	3 / 10 / 30 / 60sec / min	3 / 10 / 30 / 60sec / min	30sec, 60sec (factory set)
RESOLUTION	0.1sec	0.3sec	0.3sec	---
ACCURACY	Setting : $\pm 5\%$ of Full Scale Repeat : $\pm 0.5\%$ or 50ms (Whichever is greater)			
OUTPUT CONTACT	2 C/O DPDT	2 C/O DPDT	1 C/O SPDT	1 C/O SPDT
CONTACT RATING	5A @ 250V AC or 24V DC			
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	20 to 240V AC, 12 to 240V DC	20 to 240V AC, 12 to 240V DC	230V AC & 24V AC/DC	230V AC, 415V AC, 12V DC

### Terminal Connections



### Dimensions (All are in mm)



### Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
800XU		---
800XU-CU	20 to 240VAC, 12 to 240V DC	CE
800XA		---
800XA-CE	20 to 240V AC, 12 to 240V DC	CE
800SQ-A		---
800SQ-A-230-CU	230V AC, 24V AC/DC	CE
800S-1-ON-30S-230		---
800S-1-ON-60S-230	230V AC	---
800S-1-ON-30S-415		---
800S-1-ON-60S-415	415V AC	---



## 22.5mm Din Rail Timers



**800SD-2**  
Size : 22.5 x 75 x 101mm



**800XC**  
Size : 22.5 x 75 x 101mm



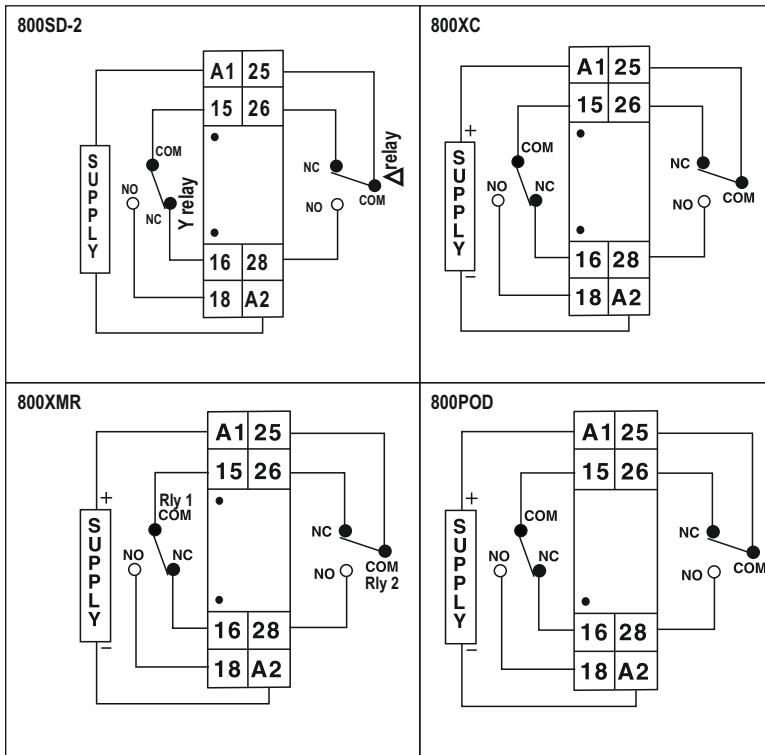
**800XMR**  
Size : 22.5 x 75 x 101mm



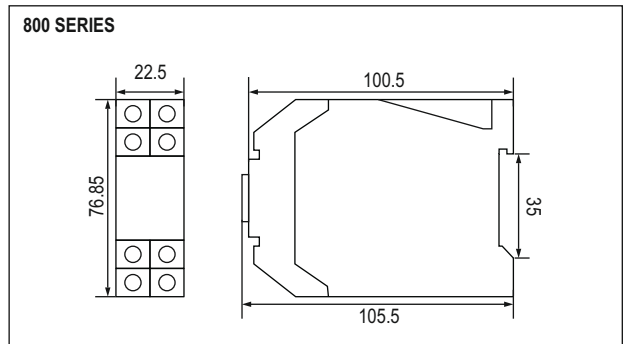
**800POD**  
Size : 22.5 x 75 x 101mm

FEATURES	<ul style="list-style-type: none"> <li>• Star Delta</li> <li>• 2 Time Ranges</li> <li>• 1 C/O relay each for Star &amp; Delta</li> </ul>	<ul style="list-style-type: none"> <li>• 2 Functions</li> <li>• 6 Time Ranges</li> <li>• 2 C/O DPDT</li> </ul>	<ul style="list-style-type: none"> <li>• Forward Pause Reverse</li> <li>• 1 C/O Relay each for Forward &amp; Reverse</li> </ul>	<ul style="list-style-type: none"> <li>• True Power OFF delay</li> <li>• Fixed Time Ranges</li> <li>• 2 C/O DPDT</li> </ul>
MODES	Star - Delta	Asymmetrical Cyclic ON first or OFF first	Forward - Pause - Reverse	True Power OFF delay
TIME RANGES	Run up time range : 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	60sec, 180sec
RESOLUTION	---	0.1sec	---	---
ACCURACY	Setting : $\pm 0.5\%$ or 50ms (Whichever is greater) Repeat : $\pm 5\%$ of full scale			Setting : $\pm 10\%$ of full scale, Repeat : $\pm 2\%$ or 100ms
OUTPUT CONTACT	1 C/O Relay each for Star & Delta	2 C/O DPDT	1 C/O each for Forward & Reverse	2 C/O DPDT
CONTACT RATING	5A @ 250V AC or 24V DC			
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	110V AC, 230V AC 230 to 450V AC	20 to 240V AC, 12 to 240V DC	20 to 240V AC, 12 to 240V DC	110 to 240V AC/DC

### Terminal Connections



### Dimensions (All are in mm)



### Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
800SD-2-230	230V AC	---
800SD-2-230-CU		CE
800SD-2-110	110V AC	---
800SD-2-110-CU		CE
800SD-2-415	230 to 450V AC	---
800XC	20 to 240V AC, 12 to 240V DC	---
800XC-CU		CE
800XMR	20 to 240V AC, 12 to 240V DC	---
800POD-180S	110 to 240V AC/DC	CE
800POD-60S		CE

## Plug / Panel Mounting Timers



**55XU**  
Size : 48 x 48mm



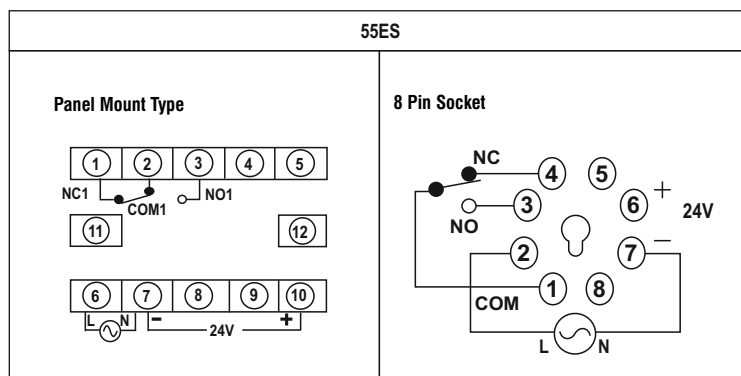
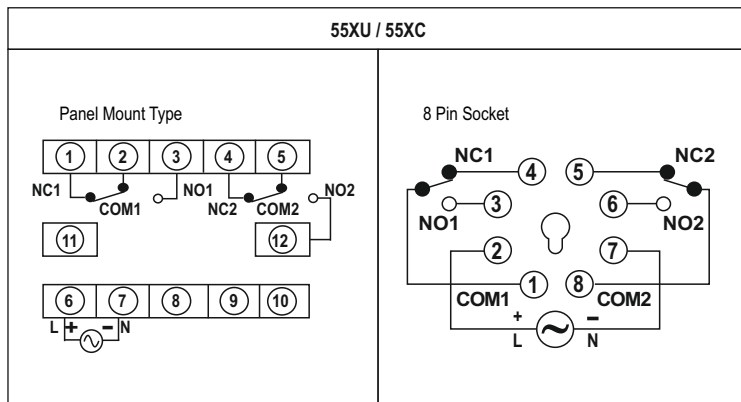
**55XC**  
Size : 48 x 48mm



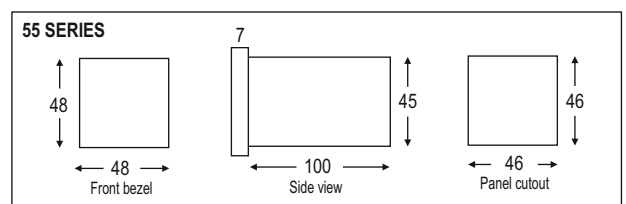
**55ES**  
Size : 48 x 48mm

FEATURES	<ul style="list-style-type: none"> <li>• 2 Functions</li> <li>• 12 Time Ranges</li> <li>• 2 C/O DPDT</li> </ul>	<ul style="list-style-type: none"> <li>• 2 Functions</li> <li>• 6 Time Ranges</li> <li>• 2 C/O DPDT</li> </ul>	<ul style="list-style-type: none"> <li>• 2 Functions</li> <li>• 8 Time Ranges</li> <li>• 1 C/O SPDT</li> </ul>
BASE TYPE	P8 - 8 pin plug, T8 - Screw terminal		
MODES	ON delay / Interval	Asymmetrical Cyclic ON first or OFF first	ON delay / Interval
TIME RANGE	1 / 3 / 10 / 30sec min / hr	1 / 10sec / min / hr for both ON & OFF time	3 / 10 / 30 / 60sec / min
RESOLUTION	0.1sec	0.1sec	0.3sec
ACCURACY	Setting : $\pm 5\%$ of full scale, Repeat : $\pm 0.5\%$ or 50 ms (whichever is greater)		
OUTPUT CONTACT	2 C/O DPDT	2 C/O DPDT	1 C/O SPDT
CONTACT RATING	5A @ 250V AC or 24V DC		
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	20 to 240V AC, 12 to 240V DC	20 to 240V AC, 12 to 240V DC	230V AC & 24V AC/DC, 110V AC & 24V AC/DC

### Terminal Connections



### Dimensions (All are in mm)



### Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
55XC-P8	20 to 240V AC, 12 to 240V DC	---
55XC-P8-CU		CE RoHS,
55XC-T8		---
55XC-T8-CU	20 to 240V AC, 12 to 240V DC	CE RoHS,
55XU-P8		---
55XU-P8-CU		CE RoHS,
55XU-T8	230V AC & 24V AC/DC	---
55XU-T8-CU		CE RoHS,
55ES-P8-230		---
55ES-P8-230-CU	230V AC & 24V AC/DC	CE
55ES-T-230		---
55ES-T-230-CU		CE
55ES-P8-110	110V AC & 24V AC/DC	---
55ES-P8-110-CU		CE
55ES-T-110		---
55ES-T-110-CU	110V AC & 24V AC/DC	CE

# Single Display, Multifunction Timers



**XT532**  
Size : 48 x 48mm



**XT543**  
Size : 48 x 48mm



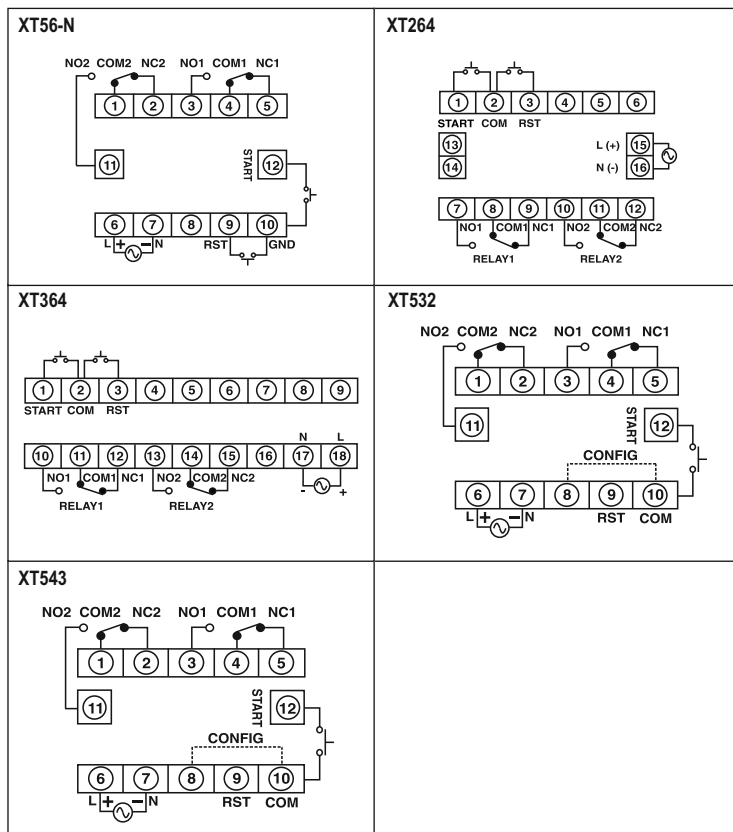
**XT56**  
Size : 48 x 48mm

**XT264**  
Size : 72 x 72mm

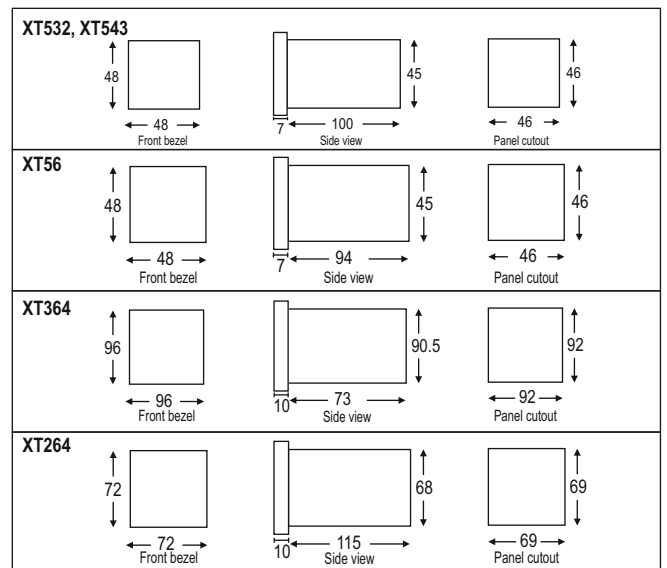
**XT364**  
Size : 96 x 96mm

FEATURES	<ul style="list-style-type: none"> <li>• Single set point</li> <li>• 4 Functions</li> <li>• 6 Time Ranges</li> <li>• 2 C/O DPDT</li> </ul>	<ul style="list-style-type: none"> <li>• Single set point</li> <li>• 4 Functions</li> <li>• 9 Time Ranges</li> <li>• 2 C/O DPDT</li> </ul>	<ul style="list-style-type: none"> <li>• Single set point</li> <li>• 2 Functions</li> <li>• 6 Time Ranges</li> <li>• 2 C/O DPDT</li> </ul>
DISPLAY	2 digits	3 digits	
SET POINT	Single set point		
DELAY MODES	ON delay / Interval / Cyclic ON first / Cyclic OFF first		ON delay / Interval
TIME RANGE	9.9 / 99sec, 9.9 / 99min, 9.9 / 99hr	9.99 / 99.9 / 999sec, 9 : 59min : sec, 99.9 / 999min, 9 : 59hr : min, 99.9 / 999hr	9.99 / 99.9 / 999sec, 99.9 / 999min, 99.9hr
RESOLUTION	0.1sec	0.01sec	
TIME SETTING	---		Pushwheel
RESET / START INPUT	Start : Pulse start	Start : Gate / Pulse start (Programmable)	Start : Pulse start
ACCURACY	Reset : Front panel, Remote reset, On power interruption ±0.5% of F.S. or 50 ms		
OUTPUT CONTACT	2 C/O DPDT		
CONTACT RATING	5A @ 250V AC or 24V DC		
MEMORY RETENTION	10 Years	No memory retention	
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	90 to 270V AC/DC	90 to 270V AC/DC, 24V DC (optional)	

## Terminal Connections



## Dimensions (All are in mm)



## Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
XT532	90 to 270V AC/DC	---
XT543	90 to 270V AC/DC	---
XT56-N	90 to 270V AC/DC	---
XT56-N-CE	90 to 270V AC/DC	CE
XT56-N-24	24V DC	---
XT264	90 to 270V AC/DC	---
XT364	90 to 270V AC/DC	---

## Dual Display, Multifunction Timers

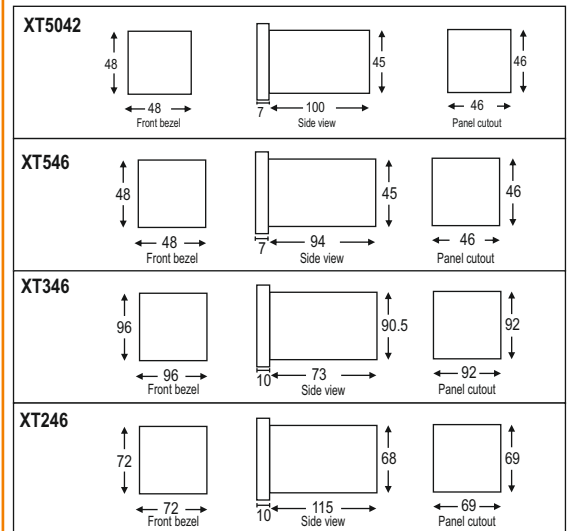
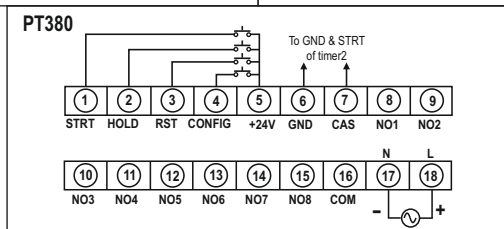
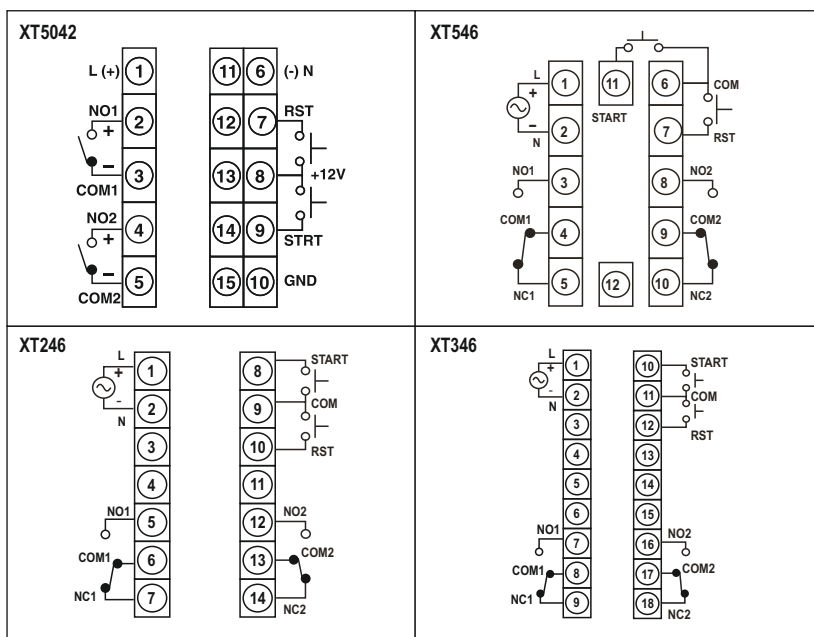
## Sequential Timer



FEATURES	<ul style="list-style-type: none"> <li>• Single set point</li> <li>• 4 Functions</li> <li>• 9 Time Ranges</li> <li>• 2 C/O SPDT</li> </ul>	<ul style="list-style-type: none"> <li>• Dual set point</li> <li>• 7 Functions</li> <li>• 9 Time Ranges</li> <li>• 2 C/O SPST</li> </ul>	<ul style="list-style-type: none"> <li>• Sequential timer</li> <li>• 4 Functions</li> <li>• 6 Time Ranges</li> <li>• 8 Channels</li> </ul>
DISPLAY	3 digit 7 Segment LED, Dual display		2 + 4 digits
SET POINT	Single set point		Single set point
MODES	ON delay / Interval / Cyclic ON first / Cyclic OFF first		ON delay / Interval / Cyclic ON first / Cyclic OFF first (Start up delay & no. of cycles programmable for cyclic mode)
TIME RANGES	9.99 / 99.9 / 999sec, 9.59min : sec, 99.9 / 999min, 9.59hr : min, 99.9 / 999hr		99.99sec, 999.9sec, 99.59min : sec, 999.9 / 9999min, 99.59hr : min, 999.9 / 9999hr
RESOLUTION	0.01sec		
TIME SETTING	Front keypad		
NO. OF CHANNELS	--		8 Channels
RESET/START INPUT	Start : Gate / Pulse start (Programmable) Reset : Front panel, Remote reset, On power interruption		Start, Hold
ACCURACY	±0.05% of F.S. or 50ms (whichever is greater)		±0.5% of F.S. or 50ms (whichever is greater)
OUTPUT CONTACTS	2 C/O SPDT		--
CONTACT RATING	5A @ 250V AC or 24V DC		
MEMORY RETENTION	10 Years		10 Years (User selectable)
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	85 to 270V AC, 24V AC/DC (optional)		85 to 270V AC/DC

### Terminal Connections

### Dimensions (All are in mm)



### Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
XT5042	90 to 270V AC/DC	CE
XT5042-CU	90 to 270V AC/DC	CE, RoHS
XT546	85 to 270V AC/DC	CE
XT546-24V	24V AC/DC	---
XT246	85 to 270V AC/DC	CE
XT246-24V	24V AC/DC	---
XT346	85 to 270V AC/DC	CE
PT380	85 to 270V AC/DC	---

# TIME INTERVAL METERS



TT412  
Size : 36 x 72mm



TI103  
Size : 48 x 96mm



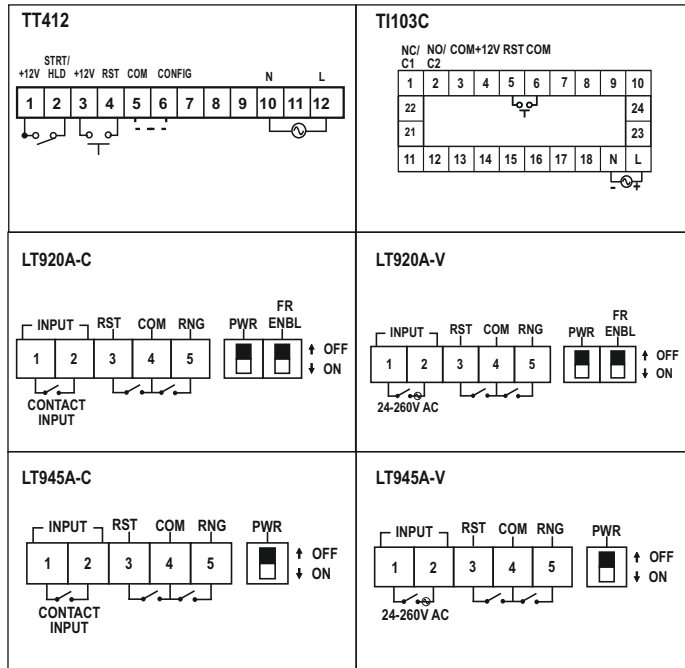
LT920A  
Size : 24 x 48mm



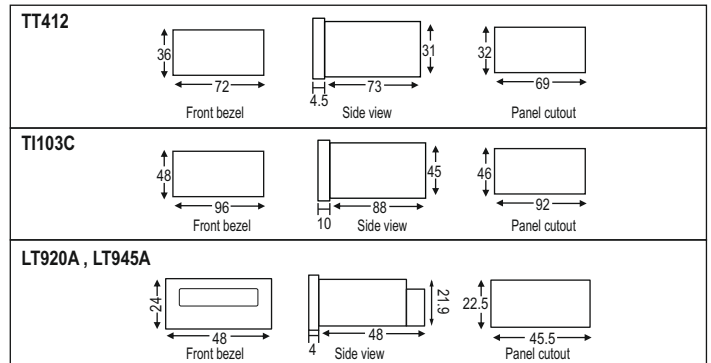
LT945A  
Size : 24 x 48mm

FEATURES	<ul style="list-style-type: none"> <li>• 6 Digits Time Totaliser</li> <li>• Selectable Least Count</li> <li>• Remote Reset</li> </ul>	<ul style="list-style-type: none"> <li>• 4 Digits Time Interval Meter</li> <li>• Range : Auto Ranging, Fixed Ranges</li> </ul>	<ul style="list-style-type: none"> <li>• 8 Digits LCD Time Totaliser</li> <li>• Self Powered</li> <li>• Long Battery Life</li> <li>• Contact / Voltage Input</li> <li>• Front Reset Button</li> </ul>	<ul style="list-style-type: none"> <li>• 8 Digits LCD Time Totaliser</li> <li>• Self Powered</li> <li>• Long Battery Life</li> <li>• Contact / Voltage Input</li> </ul>
DISPLAY	6 digits	4 digits	8 digits	
TIME RANGES	99999.9 / 999999sec / min / hr	a) Auto ranging : .0001 to 9999sec b) Fixed ranges : .9999, 9.999, 99.99, 999.9, 9999sec	a) 9999.59.59hr:min:sec b) 999999.99hr	999999.99hr
ACCURACY	±0.05% + 1 count			
INPUT	Mains, Potential free contact, PNP sensor	Potential free & 3 to 30V DC from solid state devices	a) 24 to 260V AC b) Contact input	a) 24 to 260V AC b) Contact input
RESET	Remote (Reset time : 20ms)	Front, Remote (Reset time : 20ms), Auto	Front, Remote	Remote
MEMORY	10 Years	---	5 years	
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	90 to 270V AC/DC		Battery Powered	

## Terminal Connections



## Dimensions (All are in mm)



## Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION	
TI103C	90 to 270V AC/DC	---	
TT412	90 to 270V AC/DC	---	
PRODUCT CODE	INPUT TYPE		CERTIFICATION
	CONTACT	VOLTAGE	
LT920A-C	■	---	---
LT920A-V	---	■	---
LT945A-C	■	---	---
LT945A-V	---	■	---
LT920A-C-CE	■	---	CE
LT920A-V-CE	---	■	CE
LT945A-C-CE	■	---	CE
LT945A-V-CE	---	■	CE

## Accessories (Common For All Products)

<p><b>ADAPTER PLATES</b> - Material: ABS plastic To fit smaller products into 92 x 92mm size or 69 x 69mm size cut outs</p> <p>Model : AP9672 To fit 72 x 72mm product in to 92 x 92mm cutout                      Model : AP9648 To fit 48 x 48mm product in to 92 x 92mm cutout                      Model : AP7248 To fit 48 x 48mm product in to 69 x 69mm cutout                      Model : AP6050                      Model : AP4848</p>	<p><b>48 x 48mm COLLAR CLAMP</b> Model : ACL4802</p>	<p><b>SNUBBER CIRCUIT</b> R - C network to reduce electrical noise Model : APRC01</p>
<p><b>TRANSPARENT FULL COVER</b> Material : Poly carbonate Size : to fit for 48 x 48mm products Model : ACF4801</p>	<p><b>8 PIN SOCKET</b> Mounting : a) DIN rail mounting b) Surface mounting Model : AS08</p>	

# COUNTERS & RATE INDICATORS



- Count Totalisers
- Counters - Programmable / Preset
- Rate Indicators

Applicable EMI / EMC standards		
Product standard : IEC 61326-1		
Category	Standards Compliance	
ESD Immunity	IEC 61000-4-2	Level III
Surge Immunity	IEC 61000-4-5	+/- 2kV common mode, +/- 1kV differential mode
Radiated Susceptibility	IEC 61000-4-3	Level III, 80 to 1000MHz Level II, 1.4GHz to 2GHz Level I, 2GHz to 2.7GHz
Conducted Susceptibility	IEC 61000-4-6	Level II
Voltage Dips and Interruptions	IEC 61000-4-11	Dips : 0% residual voltage /1 cycle (Criteria B.), 40% residual voltage /10 cycles 50Hz / 12 cycles 60Hz (Criteria C) 70% residual voltage / 25 cycles 50Hz / 30 cycles 60Hz (Criteria C) Interruptions : 0% residual voltage / 250 cycles 50Hz / 300 cycles 60Hz (Criteria C)
Conducted Emission	CISPR-11	
Radiated Emission	CISPR-11	
Electrical Fast Transient	IEC 61000-4-4	Level III

Note : Above standards are applicable only for CE certified Counters

## Count Totalisers

## Programmable / Preset Counters



**XC410A**  
Size : 36 x 72mm

**XC10D**  
Size : 48 x 96mm



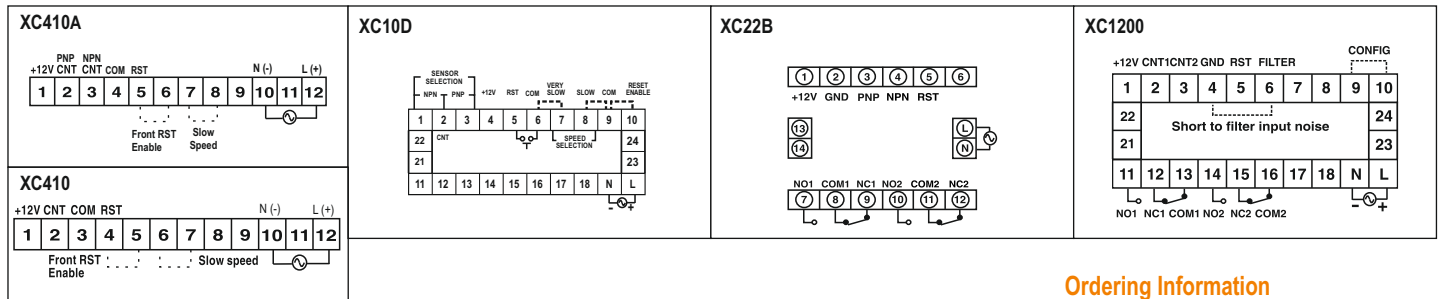
**XC22B**  
Size : 72 x 72mm



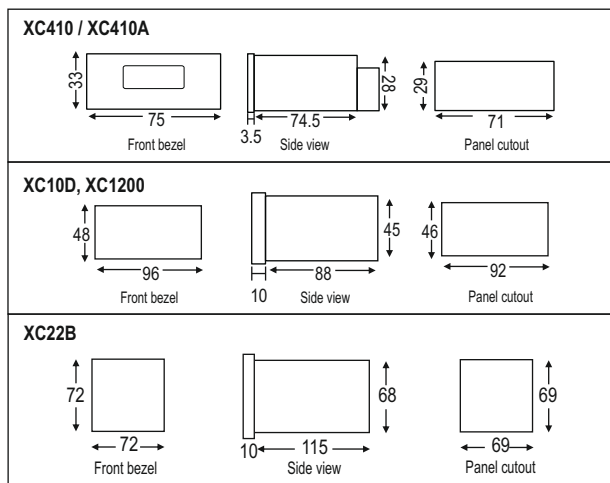
**XC1200**  
Size : 48 x 96mm

FEATURES	<ul style="list-style-type: none"> <li>• 6 Digits, 7 segment LED Totaliser</li> <li>• Compact Size</li> <li>• Inbuilt Sensor Supply</li> </ul>	<ul style="list-style-type: none"> <li>• Preset Counter</li> <li>• Thumbwheel Setting</li> <li>• Auto Reset</li> <li>• Battery Backup</li> </ul>	<ul style="list-style-type: none"> <li>• 6 Digits Counter ; 5 Digits RPM Indicator</li> <li>• LED Status Indicator : Relay 1, Relay 2</li> <li>• Dual Set point</li> <li>• Programmable Input Scaling</li> <li>• Up, Down, Quadrature &amp; Bi-directional</li> </ul>
OPERATING MODES	---	On delay / Interval / Auto reset	On delay / Interval / Auto reset / Time pulse repeat
TIME RANGES	999999 counts	9999 counts	Selectable least count : 0.0001, 0.001, 0.01, 0.1 & 1 Rate : 4.00 to 99999 RPM/RPH
RESET	Front, Remote	Front, Remote, Auto (Optional)	Front (user selectable), Remote
MEMORY	Yes	Yes (Optional)	Yes
DIRECTION	Up	Up	Up, Down, Bidirectional, Quadrature
SET POINT	---	Single set point	Dual set point
INPUT SPEED	a) 0 to 20Hz, b) 0 to 1kHz	a) 3Hz, 30Hz, b) 1kHz	a) 0 to 30Hz, b) 0 to 2.5kHz, c) 0 to 5kHz
SCALE FACTOR	---	---	0.00001 to 9.99999 x 10" n = -5, -4, -3, -2, -1, 0, 1, 2
OUTPUT CONTACT	---	2 C/O DPDT	
OUTPUT RATING	---	5A @ 250V AC or 24V DC	
SENSOR TYPE	NPN, PNP, Potential free contacts	NPN, PNP, Potential free contacts	NPN, PNP, Potential free contacts, Encoder
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	230V AC (only for XC410A), 90 to 270V AC/DC, 24V AC/DC (only for XC410)	230V AC	90 to 270V AC/DC

### Terminal Connections



### Dimensions (All are in mm)



### Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
XC22B-4-230	230V AC	---
XC22B-4-AR-M1-230		---
XC1200	90 to 270V AC/DC	CE
XC1200-CU		CE RoHS,
XC410	90 to 270V AC/DC	CE
XC410-CU		CE RoHS,
XC410-24	24V AC/DC	---
XC410-24-CU		CE
XC410A-1-230	230V AC	CE in process
XC10D	90 to 270V AC/DC	---

## Count Totaliser

## Programmable / Preset Counters



**LXC900A**  
Size : 24 x 48mm



**XTC5400**  
Size : 48 x 48mm



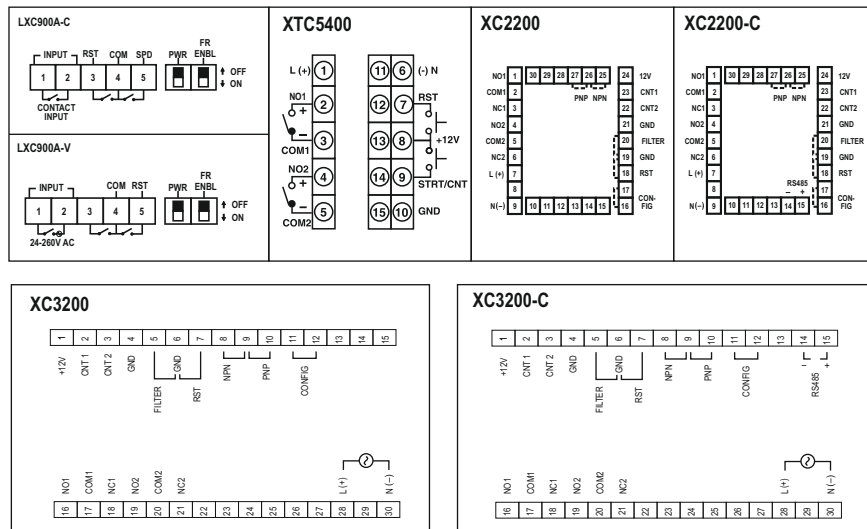
**XC3200**  
Size : 96 x 96mm



**XC2200**  
Size : 72 x 72mm

FEATURES	<ul style="list-style-type: none"> <li>8 Digits LCD Counter</li> <li>Self Powered</li> <li>Long Battery Life</li> <li>Contact / Voltage input</li> </ul>	<ul style="list-style-type: none"> <li>Dual Display, 4 Digits, 7 segment LED</li> <li>LED Status Indicator : Relay 1, Relay 2, Seconds, Minutes, Hours</li> <li>Dual Set point</li> <li>Programmable Input Scaling</li> <li>Batch Counting</li> </ul>	<ul style="list-style-type: none"> <li>6 Digits Counter, 4 Digits RPM Indicator</li> <li>LED Status Indicator : Relay 1, Relay 2, Rate, Batch</li> <li>Dual Set point</li> <li>Programmable Input Scaling, RS485 Communication (against order)</li> <li>User Configurable Relay 2 Operation Mode, Rate / Batch</li> <li>Unidirectional, Bi-directional &amp; Quadrature with up / down selection</li> </ul>
OPERATING MODES	---	Timer : ON delay / Interval / Cyclic ON first / Cyclic OFF first / Batch. Counter : ON delay / Interval / Auto reset, Time pulse repeat, Batch	ON delay / Interval / Auto reset / Time pulse repeat
TIME RANGES	99999999 counts	Timer : 99.99 / 999.9 / 9999sec, 99:59min:sec, 999.9 / 9999min, 99:59hr:min, 999.9 / 9999hr Counter : -999 to 9999 counts	---
RESET	Front, Remote	Front, Remote, Power Interruption	Front (user selectable), Remote
MEMORY	Yes	Yes	Yes
DIRECTION	Up	Timer : Down Counter : Up / Down	Up / Down
SET POINT	---	2	2
INPUT SPEED	a) 14Hz, b) 100Hz	a) 3Hz, b) 30Hz, c) 5kHz	a) 0 to 30Hz, b) 0 to 5kHz
SCALE FACTOR	---	0.001 to 9.999 x 10 <sup>n</sup> n = -3, -2, -1, 0, 1, 2	0.00001 to 9.99999 x 10 <sup>n</sup> n = -5, -4, -3, -2, -1, 0, 1, 2
OUTPUT CONTACTS	---	2 Relays each 1 NO	2 C/O DPDT
OUTPUT RATING	---	5A @ 250V AC or 24V DC	
SENSOR TYPE	---	NPN / PNP sensor	
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	Battery powered	90 to 270V AC / DC	

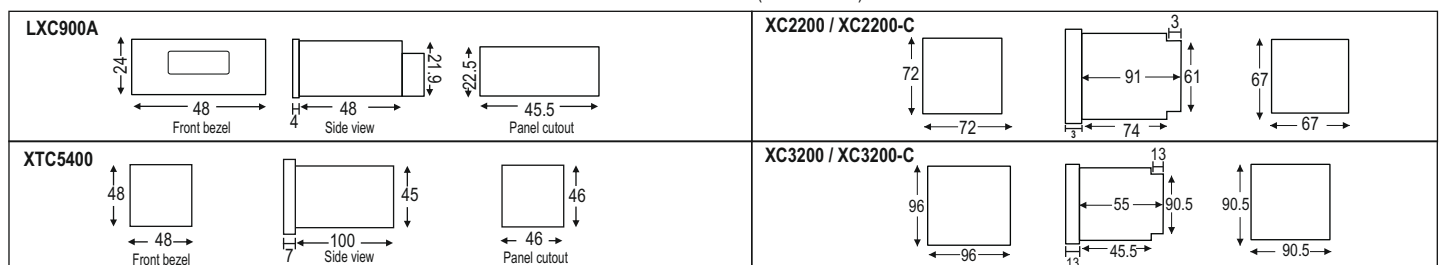
### Terminal Connections



### Ordering Information

PRODUCT CODE	INPUT TYPE		CERTIFICATION
	Contact	Voltage	
LXC900A-C	■	---	---
LXC900A-V	---	■	---
LXC900A-C-CE	■	---	CE
LXC900A-V-CE	---	■	CE
PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION	
XTC5400	90 to 270V AC/DC	CE	
XTC5400-CU		CE RoHS,	
XC3200-C	90 to 270V AC/DC	---	
XC3200		---	
XC2200-C		CE	
XC2200		CE	

### Dimensions (All are in mm)





# RATE INDICATORS



**RC5100**  
Size : 48 x 48mm



**RC2100**  
Size : 72 x 72mm



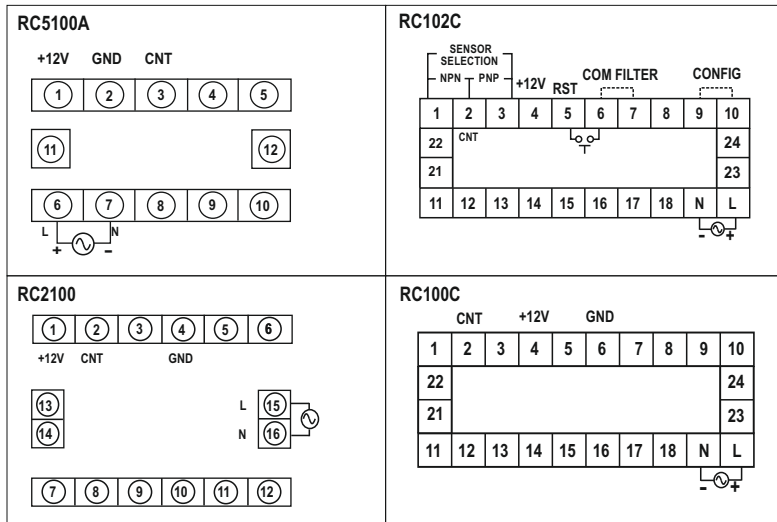
**RC100**  
Size : 48 x 96mm



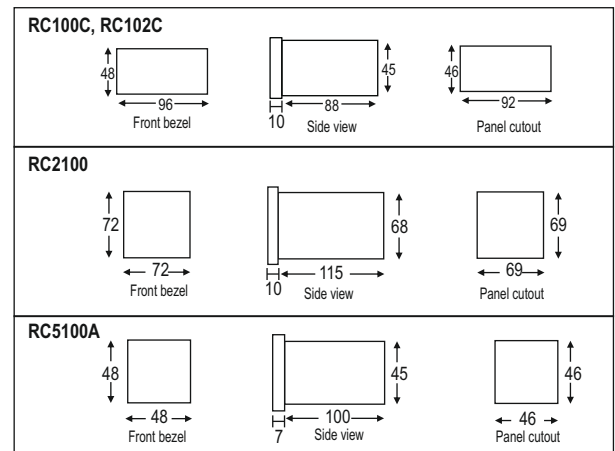
**RC102C**  
Size : 48 x 96mm

FEATURES	<ul style="list-style-type: none"> <li>Measures upto 9999 RPM</li> <li>Inbuilt Sensor Supply</li> </ul>			<ul style="list-style-type: none"> <li>6 Digits Counter</li> <li>4 Digits Rate Indicator</li> <li>Programmable Input Scaling</li> <li>Inbuilt Sensor Supply</li> </ul>
	DISPLAY	4 digits		
RANGE	4.00 to 9999 RPM			Count : 0.01 to 999999 Rate : 4.00 to 9999 RPM
RESET	---			Front, Remote
SET POINT	---			---
RELAY RATING	---			---
INPUT SPEED	4 to 9999 pulses per minute			a) 0 to 30Hz, b) 0 to 2.5kHz
SCALE FACTOR	---			0.00001 to 9.99999 X 10 <sup>n</sup> . n = -3, -2, -1, 0, 1, 2
SENSOR TYPE	PNP	PNP / NPN	PNP	PNP / NPN
SENSOR SUPPLY	Inbuilt, 12V DC, ±10%, 30mA.			
COUNTING DIRECTION	Unidirectional (Up)			
INPUT TYPE	Voltage Pulse : a) 3 to 30V DC from proximity switches, encoder solid state devices, b) Potential free contacts.			
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	90 to 270V AC/DC			

## Terminal Connections



## Dimensions (All are in mm)



## Ordering Information

PRODUCT CODE	SUPPLY VOLTAGE	CERTIFICATION
RC100C	90 to 270V AC/DC	---
RC102C-CE	90 to 270V AC/DC	CE
RC102C-CU		CE RoHS
RC5100A	90 to 270V AC/DC	---
RC2100	90 to 270V AC/DC	---

# TEMPERATURE CONTROLLERS



- Temperature Controllers - PID
- Temperature Controller - Profile
- Temperature Controllers
- Temperature Controller - Analog
- Cooling Controller
- Process Indicators

Applicable EMI / EMC standards		
Product standard : IEC 61326-1		
Category	Standards Compliance	
ESD Immunity	IEC 61000-4-2	Level III
Surge Immunity	IEC 61000-4-5	+/- 2 kV common mode, +/- 1 kV differential mode
Radiated Susceptibility	IEC 61000-4-3	Level III, 80 to 1000MHz Level II, 1.4GHz to 2GHz Level I, 2GHz to 2.7GHz
Conducted Susceptibility	IEC 61000-4-6	Level II
Voltage Dips and Interruptions	IEC 61000-4-11	Dips : 0% residual voltage /1 cycle (Criteria B.), 40% residual voltage /10 cycles 50 Hz / 12 cycles 60 Hz (Criteria C) 70% residual voltage / 25 cycles 50 Hz / 30 cycles 60 Hz (Criteria C) Interruptions : 0% residual voltage / 250 cycles 50 Hz / 300 cycles 60 Hz (Criteria C)
Conducted Emission	CISPR-11	
Radiated Emission	CISPR-11	
Electrical Fast Transient	IEC 61000-4-4	Level II

Note : Above standards are applicable only for CE certified Temperature Controllers

## PID

## Profile



**PID500**  
Size : 48 x 48mm



**PID110**  
Size : 96 x 48mm



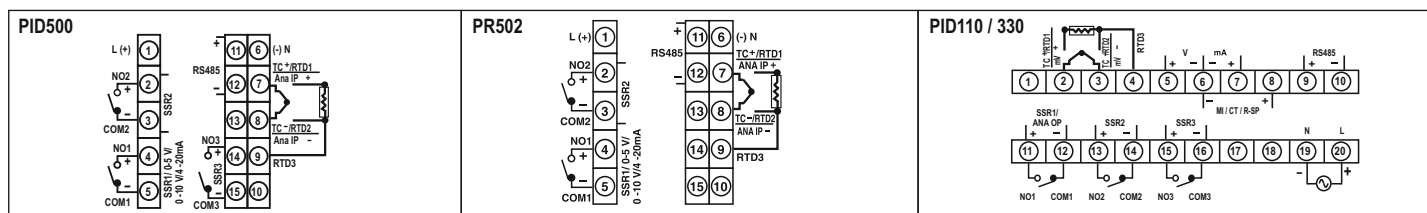
**PID330**  
Size : 96 x 96mm



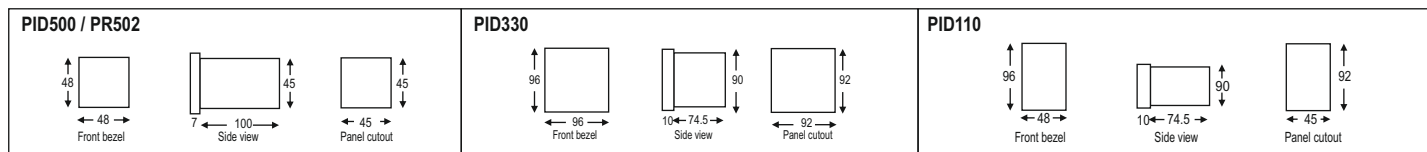
**PR502**  
Size : 48 x 48mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>• Universal Inputs</li> <li>• Ramp Soak</li> <li>• Max 3 Output</li> <li>• Retransmission (Optional)</li> <li>• RS485 Communication MODBUS RTU Protocol (Optional)</li> </ul>	<ul style="list-style-type: none"> <li>• Ramp / Soak Control</li> <li>• 10 Programs, 16 Steps Each</li> <li>• Alarm at Each Stage</li> <li>• Memory Retention</li> </ul>
<b>DISPLAY</b>	4 + 4 digits, 7 segment LED Dual display	
<b>INPUT TYPE</b>	Thermocouple: J, K, T, R, S, C, E, B, N, L, U, W, Platineel II RTD: Pt100 Signal Inputs (DC): -5 to 56 mV, 0 to 10 V DC, 0 to 20 mA DC	
<b>RESOLUTION</b>	TC / RTD : 1 / 0.1°; Analog input : 1 / 0.1 / 0.01 / 0.001	
<b>ACCURACY</b>	For TC input : 0.25% of F.S. ±1°; For R & S inputs : 0.5% of F.S. ±2° (20 min of warm up time); For RTD input : 0.1% of F.S. ±1°; Cold junction accuracy ± 5°C; Signal input : ±0.5%, ± 1 digit	
<b>SET POINT</b>	Maximum 3	
<b>CONTROL MODE</b>	Autotune PID or ON - OFF	
<b>CONTROL OUTPUT</b>	Relay : 5A @ 230V AC / 30V DC or SSR : 18V DC, 20mA or Current : 0/4 to 20 mA DC (max load 500E) or Voltage : 0 to 5/10V DC (min load 10K) (Depends on product code selection)	
<b>AUXILIARY OUTPUT</b>	(Maximum 2) Relay or SSR (Mode: Set point or Alarm mode) Relay : 5A @ 230V AC / 30V DC ; SSR : 12V DC, 20mA	
<b>OPTIONAL FEATURES</b>	Extra alarm output (relay3), RS485 Communication MODBUS RTU protocol Retransmission analog output	No. of Profiles : 10 (16 steps each), Ramp / Soak Time Range : 0.01 to 99.99 Hrs, Other Profile Parameters : Link profiles, Programmable repeat cycle, Power down resume, Reset option, Deviation hold, Alarm at each step with settable alarm duration, Retransmission analog output
<b>SUPPLY VOLTAGE</b> (AC : 50 / 60 Hz)	85 to 270V AC / DC	

### Terminal Connections



### Dimensions (All are in mm)



### PID500 / PID110 / PID330

PRODUCT CODE	OUTPUT 1	OUTPUT 2	OUTPUT 3		SUPPLY VOLTAGE	CERTIFICATION
			RELAY / SSR	COMMUNICATION (RS485)		
PID500-0-0-00 V2	RELAY	RELAY	--	--	85-270V AC / DC	CE
PID500-0-0-01 V2	RELAY	RELAY	RELAY	--	85-270V AC / DC	CE
PID500-0-0-04 V2	RELAY	RELAY	RELAY	YES	85-270V AC / DC	CE
PID500-1-0-00 V2	SSR	RELAY	--	--	85-270V AC / DC	CE
PID500-2-0-00 V2	4-20mA	RELAY	--	--	85-270V AC / DC	CE
PID500-2-0-01 V2	4-20mA	RELAY	RELAY	--	85-270V AC / DC	CE
PID500-2-0-04 V2	4-20mA	RELAY	RELAY	YES	85-270V AC / DC	CE
PID500-3-0-00 V2	0 - 10V	RELAY	--	--	85-270V AC / DC	CE
PID330-0-0-01 V2	RELAY	RELAY	RELAY	--	85-270V AC / DC	--
PID330-2-0-01 V2	4-20mA	RELAY	RELAY	--	85-270V AC / DC	--
PID110-0-0-01 V2	RELAY	RELAY	RELAY	--	85-270V AC / DC	--

### PR502

PRODUCT CODE	OUTPUT 1	OUTPUT 2	SUPPLY VOLTAGE	CERTIFICATION
PR502-0-0-0	RELAY	RELAY	85-270V AC / DC	CE
PR502-2-0-0	4-20mA	RELAY	85-270V AC / DC	CE

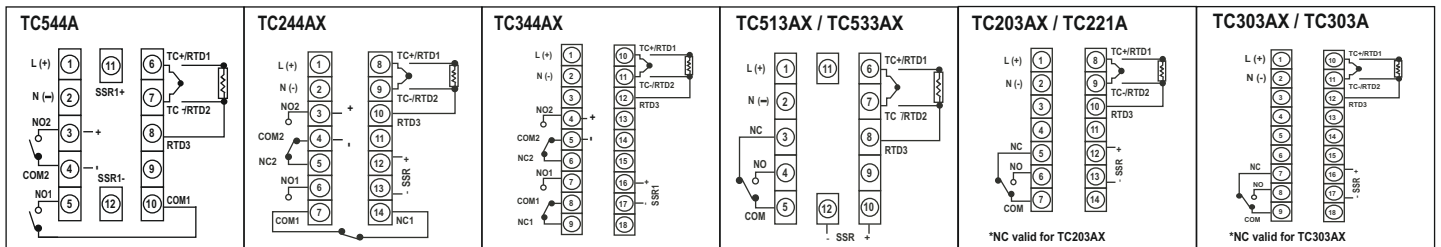
# Temperature Controllers



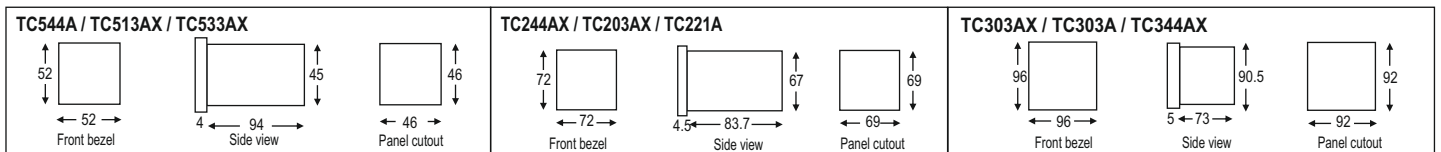
TC544A Size : 48 x 48mm    TC244AX Size : 72 x 72mm    TC344AX Size : 96 x 96mm    TC513AX Size : 48 x 48mm    TC203AX Size : 72 x 72mm    TC303AX Size : 96 x 96mm    TC533AX Size : 48 x 48mm

FEATURES	<ul style="list-style-type: none"> <li>Dual Display, Dual Setpoint</li> <li>TC / RTD inputs</li> <li>Control Output : Relay or SSR</li> <li>Auxiliary Output : Relay</li> <li>Dwell Timer , Heat Cool PID</li> </ul>	<ul style="list-style-type: none"> <li>Single Display, Single Setpoint</li> <li>TC / RTD inputs</li> <li>Control Output : Relay or SSR</li> </ul>	<ul style="list-style-type: none"> <li>Dual Display, Single Setpoint</li> <li>TC / RTD inputs</li> <li>Control Output : Relay or SSR</li> </ul>
DISPLAY	4 + 4 digits, 7 segment LED Dual display	3 digits, 7 segment LED Single display	3 + 3 digits, 7 segment LED Dual display
INPUT TYPE	Thermocouple (J,K,T,R,S) / RTD (Pt100)		
RESOLUTION	0.1/1° for TC/RTD (fixed 1° for R & S TC)	Fixed 1° resolution	
ACCURACY	For TC inputs : 0.25% of F.S. ±1°; For R & S inputs: 0.5% of F.S. ±2° (20 min of warm up time); For RTD input : 0.1% of F.S. ±1°		
SETPOINT	2	1	
CONTROL MODE	Autotune PID or ON - OFF		
CONTROL OUTPUT	Relay : 5A resistive @ 230V AC / 30V DC or SSR (Field Selectable) : 12V DC,50mA	Relay : 10A resistive @ 230V AC / 30V DC or SSR : 12V DC,50mA	
AUXILIARY OUTPUT	Relay : 5A resistive @ 230V AC / 30V DC	--	
SPECIAL FUNCTIONS	Heat cool PID Dwell timer	--	
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	85 to 270V AC / DC, 24V AC / DC (optional)	85 to 270V AC / DC	

## Terminal Connections



## Dimensions (All are in mm)



## Ordering Information

PRODUCT CODE	OUTPUT 1	OUTPUT 2	SUPPLY VOLTAGE	CERTIFICATION	PRODUCT CODE	OUTPUT	SUPPLY VOLTAGE	CERTIFICATION
TC544A	RELAY	SSR	RELAY	85-270V AC / DC	TC513AX	RELAY	SSR	85-270V AC / DC
TC544A-24V	RELAY	SSR	RELAY	24V AC / DC	TC533AX	RELAY	SSR	85-270V AC / DC
TC244AX	RELAY	SSR	RELAY	85-270V AC / DC	TC203AX	RELAY	SSR	85-270V AC / DC
TC244AX-24V	RELAY	SSR	RELAY	24V AC / DC	TC303AX	RELAY	SSR	85-270V AC / DC
TC344AX	RELAY	SSR	RELAY	85-270V AC / DC	TC303A	RELAY	SSR	85-270V AC / DC
TC344AX-24V	RELAY	SSR	RELAY	24V AC / DC				

# Temperature Controllers



**TC518**  
Size : 48 x 48mm



**PID528**  
Size : 48 x 48mm



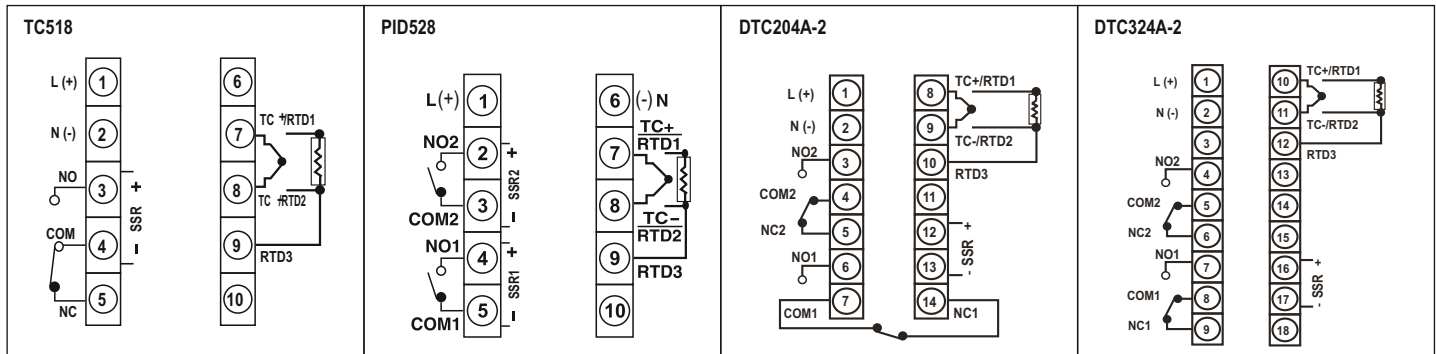
**DTC204A-2**  
Size : 72 x 72mm



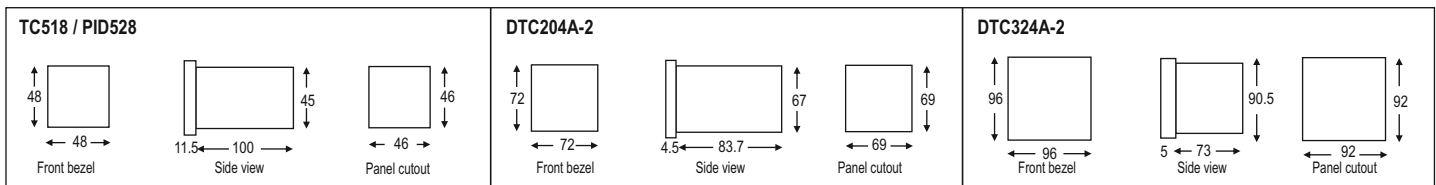
**DTC324A-2**  
Size : 96 x 96mm

FEATURES	<ul style="list-style-type: none"> <li>Dual Display, Single Setpoint</li> <li>TC / RTD inputs</li> <li>Control Output : Relay or SSR</li> </ul>	<ul style="list-style-type: none"> <li>Dual Display, Dual Setpoint</li> <li>TC / RTD inputs</li> <li>Control Output : Relay or SSR</li> <li>Auxiliary Output : Relay</li> </ul>	<ul style="list-style-type: none"> <li>Single Display, Dual Setpoint</li> <li>TC / RTD inputs</li> <li>Control Output : Relay or SSR</li> <li>Auxiliary Output : Relay</li> </ul>
DISPLAY	4 + 4 digits, 7 segment LED display		4 digits, 7 segment LED display
INPUT TYPE	Thermocouple (J,K,T,R,S) / RTD (PT 100)		
RESOLUTION	0.1/1° for TC/ RTD inputs (fixed 1° for R & S type TC input)		
ACCURACY	For TC inputs : 0.25% of F.S. ±1°; For R & S inputs : 0.5% of F.S. ±2° (20 min of warm up time); For RTD input : 0.1% of F.S. ±1°		
SETPOINT	1	2	
CONTROL MODE	Autotune PID or ON - OFF		
CONTROL OUTPUT	Relay : 10A resistive @ 230V AC / 30V DC Optional SSR : 18V DC, 20mA	Relay : 5A resistive @ 230V AC / 30V DC Optional SSR : 18V DC, 30mA	Relay : 10A resistive @ 230V AC / 30V DC or SSR : 12V DC, 30mA
AUXILIARY OUTPUT	Relay : 5A resistive @ 230V AC / 30V DC		
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	85 to 270V AC / DC		

## Terminal Connections



## Dimensions (All are in mm)



## Ordering Information

PRODUCT CODE	OUTPUT 1	OUTPUT 2	SUPPLY VOLTAGE	CERTIFICATION
TC518 V2	RELAY	--	85-270V AC / DC	CE in process
TC518-SSR V2	--	SSR	85-270V AC / DC	CE in process
PID528-1 V2	RELAY	RELAY	85-270V AC / DC	CE in process
PID528-2 V2	--	SSR	85-270V AC / DC	CE in process
DTC204A-2	RELAY	SSR	85-270V AC / DC	--
DTC324A-2	RELAY	SSR	85-270V AC / DC	--

# Temperature Controllers



**TC544B**  
Size : 48 x 48mm



**TC513BX**  
Size : 48 x 48mm



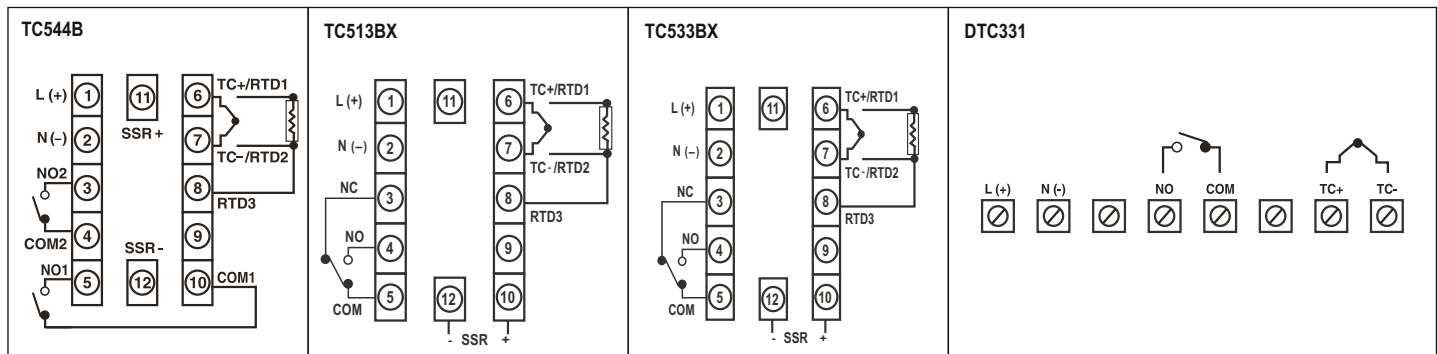
**TC533BX**  
Size : 48 x 48mm



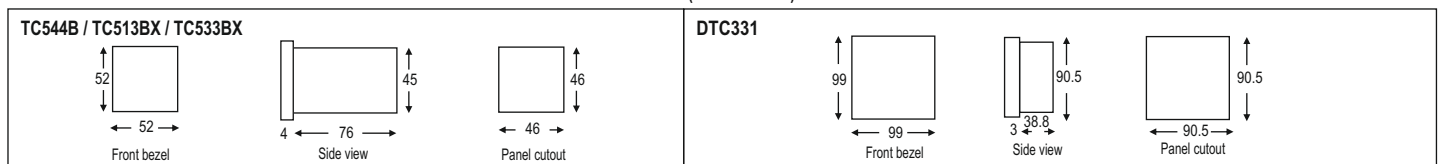
**DTC331**  
Size : 96 x 96mm

FEATURES	<ul style="list-style-type: none"> <li>Dual Display, Dual Set Point</li> <li>Short Depth TC</li> <li>TC / RTD input</li> <li>Control Output : Relay or SSR</li> <li>Dwell Timer, Heat Cool PID</li> </ul>	<ul style="list-style-type: none"> <li>Single Display, Single Set Point</li> <li>Short Depth TC</li> <li>TC / RTD input</li> <li>Control Output : Relay or SSR</li> </ul>	<ul style="list-style-type: none"> <li>Dual Display, Single Set Point</li> <li>Short Depth TC</li> <li>TC / RTD input</li> <li>Control Output : Relay or SSR</li> </ul>	<ul style="list-style-type: none"> <li>3 Digit Single Display</li> <li>J, K TC input</li> <li>ON-OFF Control</li> <li>Economical TC</li> </ul>
DISPLAY	4 + 4 digits, 7 segment LED dual display	3 digits, 7 segment LED single display	3 + 3 digits, 7 segment LED dual display	3 digits, 7 segment single display
INPUT TYPE	Thermocouple (J,K,T,R,S) / RTD (PT 100)			Thermocouple (J,K)
RESOLUTION	0.1/1° for TC/RTD inputs (fixed 1° for R & S type TC input)	Fixed 1° resolution		Fixed 1° resolution
ACCURACY	For J, K & T TC inputs : 0.25% of F.S ±1° ; For R & S inputs : 0.5% of F.S. ±2° (20 min of warm up time for TC inputs); For RTD input : 0.1% of F.S ±1°			0.25% of F.S. ±1° (20 min warm up time)
SETPOINT	2	1		1
CONTROL MODE	Auto tune / self tune PID or ON-OFF			ON-OFF
CONTROL OUTPUT	Relay : 5A resistive @ 230V AC / 30V DC or SSR : 12V DC, 30mA	Relay : 10A resistive @ 230V AC / 30V DC or SSR : 12V DC, 50mA		Relay : 10A resistive @ 230V AC / 30V DC
AUXILIARY OUTPUT	Relay : 5A resistive @ 230V AC / 30V DC	---	---	---
SPECIAL FUNCTIONS	Heat Cool PID, Dwell timer	---	---	---
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	85 to 270V AC / DC			

## Terminal Connections



## Dimensions (All are in mm)



## Ordering Information

PRODUCT CODE	OUTPUT 1		OUTPUT 2	SUPPLY VOLTAGE	CERTIFICATION
TC544B	RELAY	SSR	RELAY	85-270V AC / DC	CE
TC533BX	RELAY	SSR	--	85-270V AC / DC	CE in process
TC513BX	RELAY	SSR	--	85-270V AC / DC	CE in process
DTC331	RELAY	--	--	85-270V AC / DC	--
DTC231	RELAY	--	--	85-270V AC / DC	--

# Analog

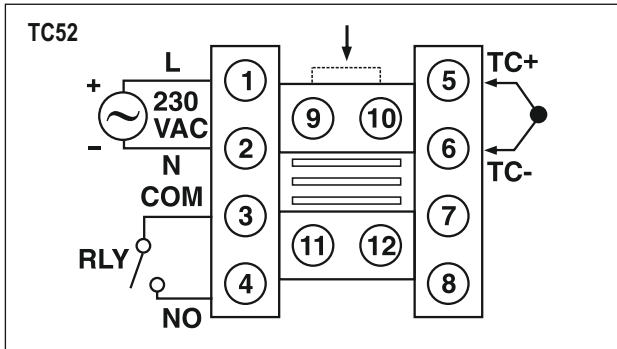


**TC52**

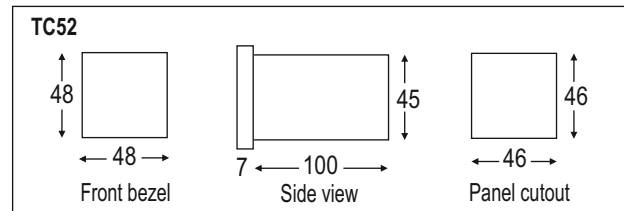
Size : 48 x 48mm / Panel Cutout : 46 x 46

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>• Features:</li> <li>• Dial setting</li> <li>• TC Inputs</li> <li>• Single relay output</li> <li>• Easy to use</li> </ul>
<b>DISPLAY</b>	Dial Setting
<b>INPUT TYPE</b>	Thermocouple (J,K)
<b>RESOLUTION</b>	Fixed 1° resolution
<b>ACCURACY</b>	Setting $\pm 3\%$ of full scale $\pm 0.5\%$ of full scale
<b>SETPOINT</b>	1
<b>CONTROL MODE</b>	Time Proportional & ON-OFF
<b>CONTROL OUTPUT</b>	7A resistive @ 230V AC
<b>SUPPLY VOLTAGE</b> (AC : 50 / 60 Hz)	230V AC

## Terminal Connections



## Dimensions (All are in mm)



## Ordering Information

PRODUCT CODE	OUTPUT	SUPPLY VOLTAGE
TC52-400-J-230	RELAY	230V AC

# Cooling Controller



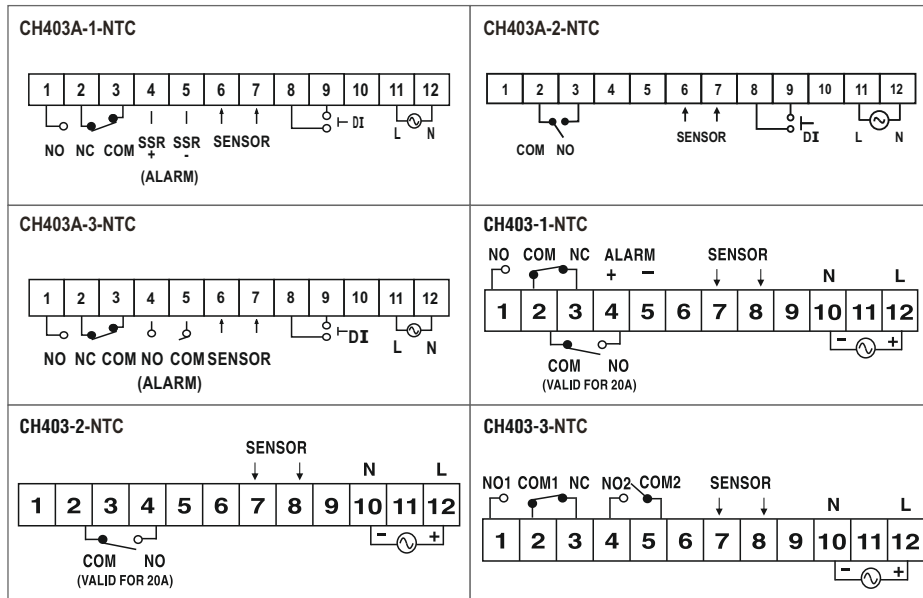
**CH403A**  
Size : 36 x 72mm



**CH403**  
Size : 36 x 72mm

FEATURES	<ul style="list-style-type: none"> <li>• 2½ Digit</li> <li>• Defrost Management</li> <li>• High / Low Temperature Alarms</li> <li>• Control Output : Relay</li> <li>• Auxiliary Output : Relay &amp; SSR</li> </ul>	<ul style="list-style-type: none"> <li>• 3 Digit</li> <li>• Defrost Management</li> <li>• High / Low Temperature Alarms</li> <li>• Control Output : Relay</li> <li>• Auxiliary Output : Relay &amp; SSR</li> </ul>
	DISPLAY	2½ digits, 7 segment display
INPUT TYPE	NTC type sensor	
RESOLUTION	1 / 0.1°	
ACCURACY	0.25% of full scale ±1°	±1% of F.S.
SETPOINT	1	
CONTROL MODE	ON - OFF	
CONTROL OUTPUT	10A @ 230V AC / 30V DC or 20A @ 230V AC / 30V DC (Depends on product code selection)	
AUXILIARY OUTPUT	12V DC, 10mA or 5A @ 230V AC / 30V DC (Depends on product code selection)	
HYSTERESIS	0.1 to 9.9°	
DISPLAY OFFSET	-19.9° to 19.9°	-19.9° to 20.0°
RESTART TIME DELAY	Adjustable from 0 to 19.9 min	
RELAY ACTION	Heat & Cool Mode	
DEFROST TIME	Programmable from 0 to 99 min	
DEFROST FREQUENCY	Programmable from 0 to 99 (hr / min / sec)	
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	230V AC, 85 to 270 V AC / DC	85 to 270V AC / DC, 24V AC / DC

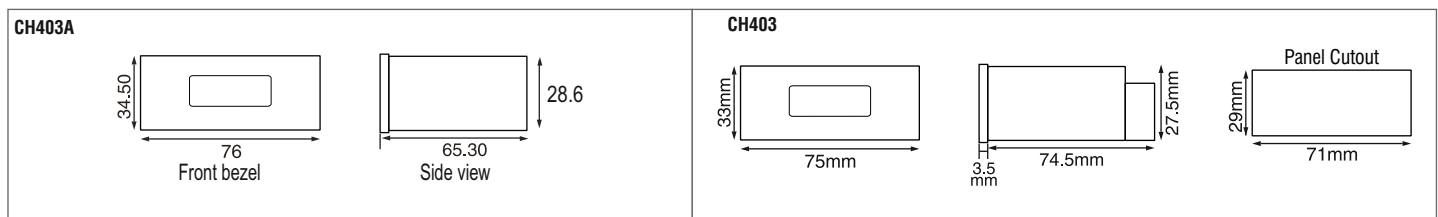
## Terminal Connections



## Ordering Information

PRODUCT CODE	OUTPUT		SUPPLY VOLTAGE	CERTIFICATION
	CONTROL OUTPUT	ALARM OUTPUT		
CH403A-1-NTC	RELAY	SSR	230V AC	-
CH403A-2-NTC	RELAY	--	85 to 270V AC / DC	-
CH403A-3-NTC	RELAY	RELAY	230V AC	-
CH403A-1-NTC-CE	RELAY	SSR	230V AC	CE
CH403A-2-NTC-CE	RELAY	--	85 to 270V AC / DC	CE
CH403A-3-NTC-CE	RELAY	RELAY	230V AC	CE
CH403-1-NTC	RELAY	SSR	85 to 270V AC / DC	CE
CH403-2-NTC	RELAY	--	85 to 270V AC / DC	CE
CH403-3-NTC	RELAY	RELAY	85 to 270V AC / DC	CE
CH403-1-24	RELAY	SSR	24V AC / DC	CE

## Dimensions (All are in mm)





# Process Indicators



**PIC152A-VI**  
Size : 48 x 96mm



**PIC101N**  
Size : 48 x 96mm



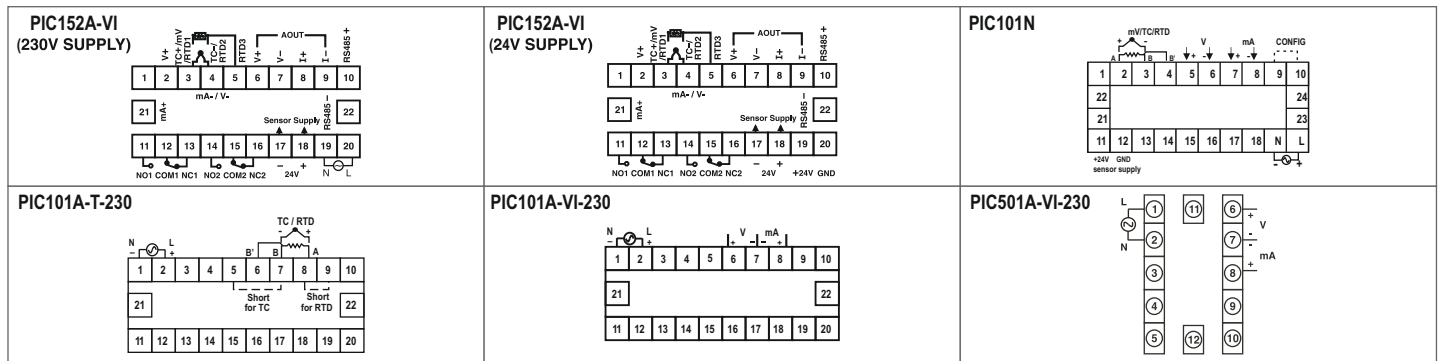
**PIC101A-T-230**  
Size : 48 x 96mm



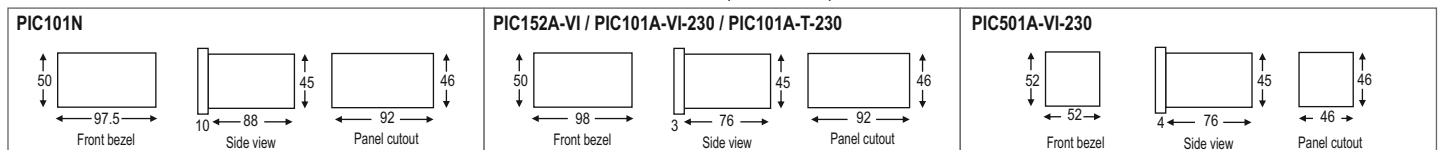
**PIC501A-VI-230**    **PIC101A-VI-230**  
Size : 48 x 48mm    Size : 48 x 96mm

FEATURES	<ul style="list-style-type: none"> <li>• TC / RTD / Analog input</li> <li>• 2 Alarm Output</li> <li>• Retransmission</li> <li>• RS485 Communication</li> <li>• MODBUS RTU Protocol (optional)</li> </ul>	<ul style="list-style-type: none"> <li>• TC / RTD / Analog input</li> <li>• Basic Scalable Indicator</li> </ul>	<ul style="list-style-type: none"> <li>• Simple Temperature Indicator</li> <li>• TC / RTD input type</li> </ul>	<ul style="list-style-type: none"> <li>• Scalable Analog input</li> <li>• Voltage / Current input type</li> </ul>
DISPLAY	4 digits, 7 segment LED			
INPUT TYPE	Thermocouple : J, K, T, R, S RTD : Pt100 Signal Inputs (DC) : -5 to 56mV, 0 to 10V, 0/4 to 20mA	Thermocouple : J, K, T, R, S RTD : Pt100 Signal Inputs (DC) : 0 to 56mV, 0 to 10V, 0/4 to 20mA	Thermocouple : J, K, T, R, S RTD : Pt100	Signal Inputs (DC) : 0 to 10V, 0/4 to 20mA
RESOLUTION	TC / RTD : 1 / 0.1, Analog input : 1 / 0.1 / 0.01 / 0.001		1 / 0.1° (Fix 1° resolution for R & S type TC)	Decimal Point position selectable : 1/0.1/0.01/0.001
ACCURACY	For TC inputs : 0.25% of F.S. ±1°; For R & S inputs : 0.5% of F.S. ±2° (20 min of warm up time); For RTD input : 0.1% of F.S. ±1°; Cold junction accuracy ± 5°C ; Signal input : ±0.5% of F.S. ± 1 digit		For TC inputs : 0.25% of F.S. ±1°; For R & S input : 0.5% of F.S. ±2° (20 min of warm up time); RTD input : 0.1% of F.S. ±1°	Signal input : ±0.5% of F.S. ± 1 digit
OUTPUT	2 Alarms : 5A @ 230V AC / 24V DC  Alarm modes : High, Low, Band, Fail output & fault diagnosis. Hysteresis, Annunciator : Programmable, Reset action : Automatic or latched		--	--
OPTIONAL FEATURES	Retransmission output : 0/4 to 20mA DC, 0 to 5V DC, 0 to 10V DC, RS485 Communication MODBUS RTU Protocol (optional)		--	--
SENSOR SUPPLY	24V DC output to power the sensor, 30mA		--	--
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	85 to 270V AC / DC, 24V DC (optional)		230V AC, ±20%	

## Terminal Connections



## Dimensions (All are in mm)



## Ordering Information

PRODUCT CODE	RETRANSMISSION	COMMUNICATION (RS485)	SUPPLY VOLTAGE	CERTIFICATION
PIC101N	--	--	85-270V AC / DC	C €
PIC101N-24V	--	--	24V AC / DC	C €
PIC152A-VI	Universal	--	85-270V AC / DC	CE in process
PIC152A-VI-24V	Universal	--	24V AC / DC	CE in process
PIC152A-VI-C	Universal	YES	85-270V AC / DC	CE in process
PIC152A-VI-C-24V	Universal	YES	24V AC / DC	CE in process

PRODUCT CODE	SUPPLY VOLTAGE
PIC101A-T-230	230V AC
PIC101A-VI-230	230V AC
PIC501A-VI-230	230V AC

# PLCs & HMI



- Flexible IO Solution
- Compact Series
- Fixed I/O Solution
- HMI

Applicable EMI / EMC standards		
Product standard : IEC61131-2		
Category	Standards Compliance	
ESD Immunity	IEC 61000-6-2	Level III
Surge Immunity	IEC 61000-6-2	+/- 2kV common mode, +/- 1kV differential mode
Radiated Susceptibility	IEC 61000-6-2	Level III, 80 to 1000MHz Level II, 1GHz to 2GHz Level I, 2GHz to 2.7GHz
Conducted Susceptibility	IEC 61000-6-2	Level II
Voltage Dips and Interruptions	IEC 61000-6-2	0%, 0.5 Periods (Criteria A) 0%, 250/300 Periods (Criteria C) 40%, 10/12 Periods (Criteria C) 70%, 25/30 Periods (Criteria C) 80%, 250/300 Periods (Criteria C)
Conducted Emission	CISPR 16-2-1 CISPR 16-1-2	Criteria B
Radiated Emission	CISPR 16-2-3	Criteria A
Electrical Fast Transient	IEC61000-6-2	Level III

Note : Above standards are applicable only for CE certified PLCs & HMI

# Flexible IO Solution



**FLEXYS GT35**  
Size : 99 x 95.6 x 90.5mm



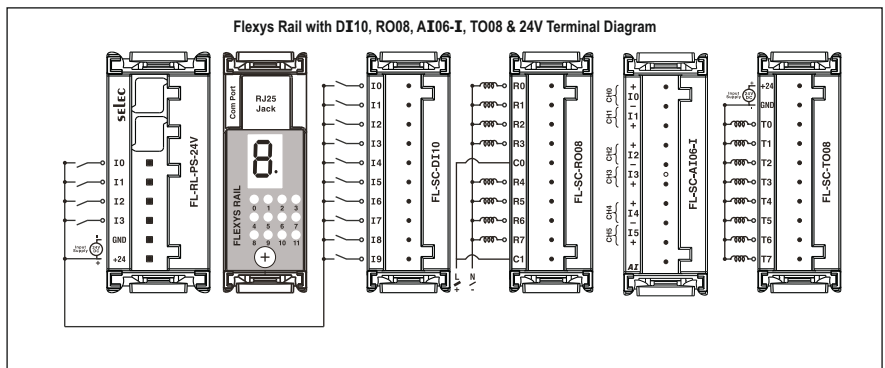
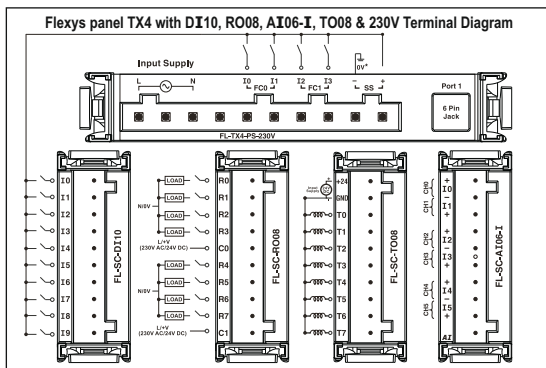
**FLEXYS PANEL TX4**  
Size : 99 x 95.6 x 90.5mm



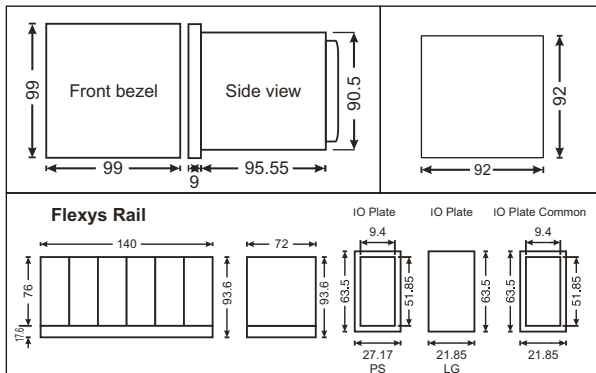
**FLEXYS RAIL**  
Size : 140 x 93.4 x 72mm

FEATURES	<ul style="list-style-type: none"> <li>3.5" LCD with Touch Screen</li> <li>Flexible I/O Card selection</li> <li>Real Time Clock</li> <li>Expandable</li> </ul>	<ul style="list-style-type: none"> <li>PLC with built in HMI</li> <li>Flexible I/O Card selection</li> <li>Real Time Clock</li> <li>Expandable</li> </ul>	<ul style="list-style-type: none"> <li>PLC with Flexible I/O Card Selection</li> <li>Real Time Clock</li> <li>Expandable</li> </ul>
DISPLAY	TFT 3.5" diagonal Touch screen, Resolution 320x240	LCD with Backlight, 4x16 Character display, Font size 5x7mm	7 segment display for slot number & card status. Multipurpose LED Bank
NO. OF KEYS	5 function keys +1 System Key	18 keys (14 user configurable)	One key to scroll through different slots
I/Os	3 I/O slots (Please refer I/O card for Flexys series)	4 I/O slots (Please refer I/O card for Flexys series)	
DIGITAL INPUTS	4 / 10 /14 per card, PNP (6 to 30V DC)		
MAXIMUM COUNTING FREQUENCY	FC0 (I0 & I1) & FC1 (I2 & I3) - 5KHz (on power supply card only), Normal Digital Inputs - 30Hz		
ANALOG INPUTS	3 / 4 / 6 Channels per card (TC, RTD, 0-10V, 0 to 20mA)		
RESOLUTION	12 Bit		
RELAY OUTPUTS	4 / 8 per card, NO type 5A @ 230V AC / 30V DC (Resistive)		
TRANSISTOR OUTPUTS	8 per card, Source type 100mA @ 24V DC		
ANALOG OUTPUTS	2 / 4 Channels per card (0 - 10V, 0 - 20mA)		
RESOLUTION	14 Bit (0.0 to 100.0% = 0 to 10.000V, 0.0 to 100.0% = 0 to 20.000mA)		
PROGRAM MEMORY	221K	351K	
EXPANSION	Yes		
COMMUNICATION INTERFACE	RS485 MODBUS RTU Protocol	RS485 MODBUS RTU, Proprietary Protocol	
RTC	Yes		
SUPPLY VOLTAGE	24V DC, 230V AC 50 / 60Hz		

## Terminal Diagram



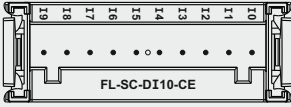
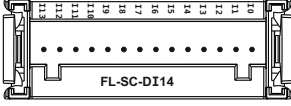
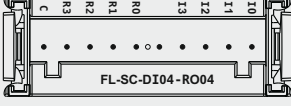
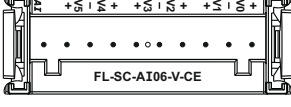
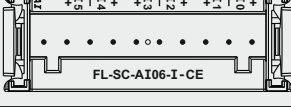
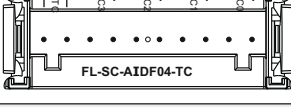
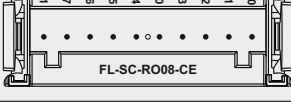
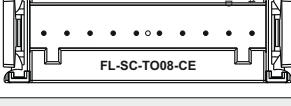


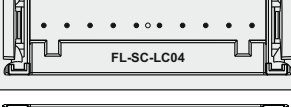
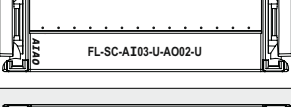
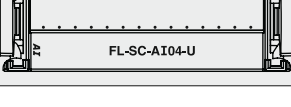
## Dimensions (All are in mm)



## Ordering Information

PRODUCT CODE	CERTIFICATION
FL-GT35-DI04-PS-230V	---
FL-GT35-DI04-PS-24V	---
FL-GT35-DSP	---
FL-GT35-LG-1-0-1	---
FL-TX4-DI04-PS-230V-CE	CE RoHS
FL-TX4-DI04-PS-24V-CE	CE RoHS
FL-TX4-LG-1-1-1-CE	CE RoHS
FL-RL-DI04-PS-24V-CE	CE RoHS
FL-RL-BS-6-CE	CE RoHS
FL-RL-LG-1-1-1-CE	CE RoHS
FL-RL-PS-230V	---

## Add ons - PLC IO's

ORDER CODE	DESCRIPTION	TERMINAL CONNECTION	CERTIFICATION
FL-SC-DI10-CE	10DI (10 Digital Inputs)		CE RoHS
FL-SC-DI14	14DI (14 Digital Inputs)		CE RoHS in process
FL-SC-DI04-RO04	4 Digital Inputs & 4 Relay Outputs		CE RoHS in process
FL-SC-AI06-V-CE	6 Analog Inputs (0-10V)		CE RoHS
FL-SC-AI06-I-CE	6 Analog Inputs (0-20mA)		CE RoHS
FL-SC-AIDF04-TC-CE	4 Channel Thermocouple Analog Inputs Differential type		CE RoHS
FL-SC-RO08-CE	8 Relay Outputs		CE RoHS
FL-SC-TO08-CE	8 Transistor Outputs		CE RoHS
FL-SC-AO04-V-CE	4 Analog Outputs (0-10V)		CE RoHS
FL-SC-AO04-I-CE	4 Analog Outputs (0-20mA)		CE RoHS
FL-SC-LC04	4 Channel Load Cell Card		CE RoHS in process
FL-SC-AI03-U-AO02-U	3 Universal Analog Inputs, 2 Universal Analog Outputs		CE RoHS in process
FL-SC-AI04-U	4 Universal Analog Inputs		CE RoHS in process

# Compact Series



**DIGIX-1**  
Size : 70 x 90mm



**DIGIX-1-1-1-230V**  
Size : 70 x 90mm

*New*



**DIGIX-2-1-0-24VDC**  
Size : 70 x 90mm

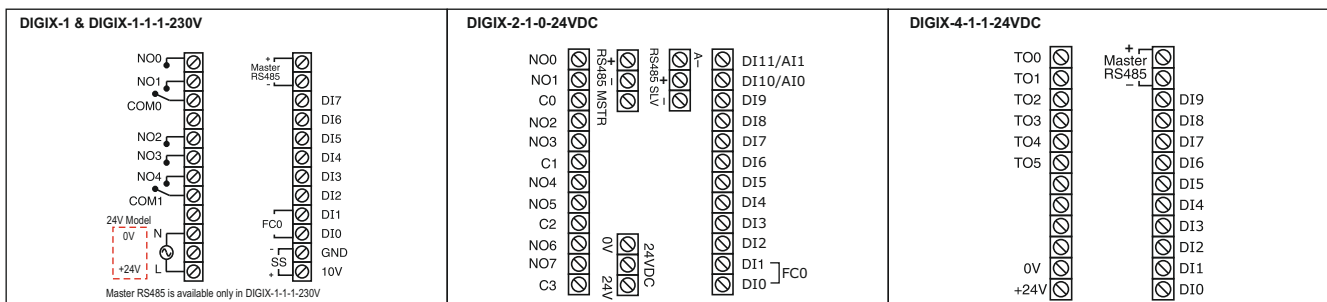
*New*

**DIGIX-4-1-1-24VDC**  
Size : 70 x 90mm

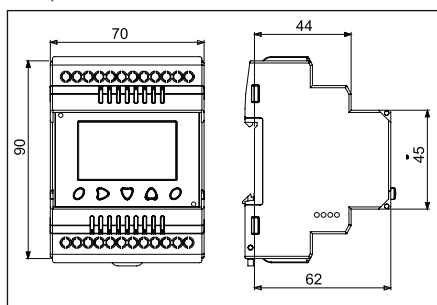
<b>FEATURES</b>	<ul style="list-style-type: none"> <li>• Compact PLC with built in HMI</li> <li>• 2 Line 8 Character LCD</li> <li>• Real Time Clock</li> <li>• RS485 Communication MODBUS RTU Protocol</li> </ul>		
<b>DISPLAY</b>	2 X 8 Character LCD		
<b>NO. OF KEYS</b>	5 keys (4 - User configurable)		
<b>DIGITAL INPUTS</b>	8	10 + 2*	10
<b>INPUT TYPE</b>	PNP (6 - 30V DC)		
<b>MAXIMUM COUNTING FREQUENCY</b>	FC0 (I0 & I1) - 5KHz, Normal Digital Input: 30Hz		
<b>ANALOG INPUTS</b>	NA	Through Expansion	2 Channels (0 to 10V) Through Expansion
<b>RESOLUTION</b>	12 Bit		
<b>DIGITAL OUTPUTS</b>	5 Relay	8 Relay	6 Transistor
<b>TYPE &amp; RATING</b>	5A NO type @ 230V AC / 30V DC (Resistive)		Source 100mA @ 24V DC
<b>ANALOG OUTPUTS</b>	NA	Through Expansion	
<b>RESOLUTION</b>	As per expansion model		
<b>RTC</b>	NO	YES	NO YES
<b>EXPANSION</b>	NO	YES	
<b>PROGRAM MEMORY</b>	112K	240K	
<b>COMMUNICATION INTERFACE</b>	RS485 Modbus RTU Protocol		
<b>SUPPLY VOLTAGE</b>	18 to 30V DC**, 100 to 270V AC / DC 50 / 60Hz.	100 to 270V AC / DC 50 / 60Hz.	18 to 30V DC

\*Voltage Analog Inputs can be configured as Digital Inputs \*\*Please refer Datasheet for exact Order code

## Terminal Diagram



## Dimensions (All are in mm)



## Ordering Information

PRODUCT CODE	CERTIFICATION
DIGIX-1-230V	--
DIGIX-1-0-0-24V	--
DIGIX-1-1-1-230V	--
DIGIX-2-1-0-24VDC	--
DIGIX-4-1-1-24VDC	--

# Compact Series

New



**TWIX-1**  
Size : 48 x 96mm

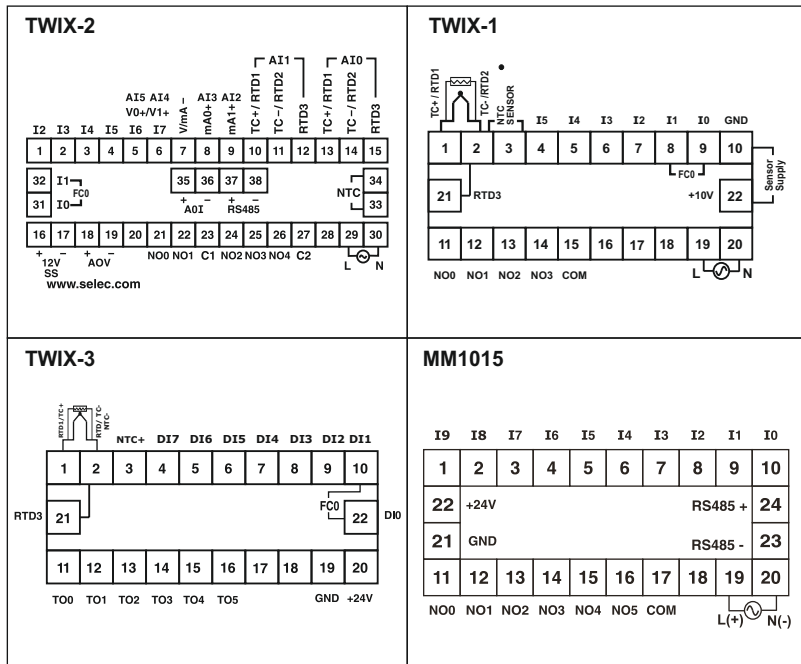
**TWIX-2**  
Size : 48 x 96mm

**TWIX-3**  
Size : 48 x 96mm

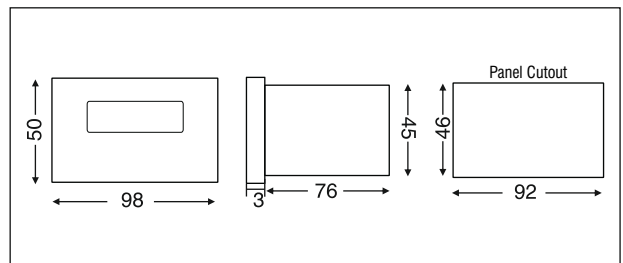
**MM1015**  
Size : 48 x 96mm

FEATURES	<ul style="list-style-type: none"> <li>Compact PLC with built in HMI</li> <li>Configurable LED display</li> <li>RS485 Communication MODBUS RTU Protocol</li> </ul>			<ul style="list-style-type: none"> <li>Compact PLC with built in HMI</li> <li>RS485 Communication MODBUS RTU Protocol</li> </ul>	
	DISPLAY	4 + 4 digits Red & 6 Green digits 7 Segment LED			3 + 4 digits Red & 4 Green digits 7 Segment LED
NO. OF KEYS	5 keys (4 - User configurable)				
DIGITAL INPUTS	6	6 + 2*		8	10
INPUT TYPE	PNP (6 to 30V DC)				PNP (11 - 30V DC)
MAXIMUM COUNTING FREQUENCY	FC0 (I0 & I1) - 5KHz, Normal Digital Input: 30Hz			Normal Digital Input: 30Hz	
ANALOG INPUTS	1 Channel (TC / RTD)	6 Channels 2 (TC / RTD), 2 (0 to 10V), 2 (0 to 20mA)		1 Channel (TC / RTD)	NA
RESOLUTION	12 Bit				
DIGITAL OUTPUTS	4 Relay	5 Relay	6 Transistor	6 Relay	
TYPE & RATING	5A NO type @ 230V AC / 30V DC (Resistive)		Source 100mA @ 24V DC	5A NO type @ 230V AC / 30V DC (Resistive)	
ANALOG OUTPUTS	NA	1 Channel (0 to 10V / 0 to 20mA)	NA	NA	
RESOLUTION	12 Bit				
RTC	NO				
EXPANSION	NO				
PROGRAM MEMORY	112K	240K	112K	224KB	
COMMUNICATION INTERFACE	RS485 Modbus RTU Protocol				
SUPPLY VOLTAGE	18 to 30VDC**, 100 to 270V AC / DC 50 / 60Hz.	100 to 270V AC / DC 50 / 60Hz.		18 to 30V DC	100 to 270V AC 50 / 60Hz without retention 180 to 270V AC, 50 / 60Hz with retention

\*Voltage Analog Inputs can be configured as Digital Inputs \*\*Please refer Datasheet for exact Order code



## Dimensions (All are in mm)



## Ordering Information

PRODUCT CODE	CERTIFICATION
TWIX-1-230V	--
TWIX-1-24V	--
TWIX-2-230V	--
TWIX-3-24VDC	--
MM1015-230V	--

# Fixed IO Solution



**New**

**MM3030-1**

Size : 96 X 96 mm

**MM3030-2**

Size : 96 X 96 mm

**MM3030-4**

Size : 96 X 96 mm

**MM3030-3**

Size : 96 X 96 mm

**MM3032-2-0-0-24V**

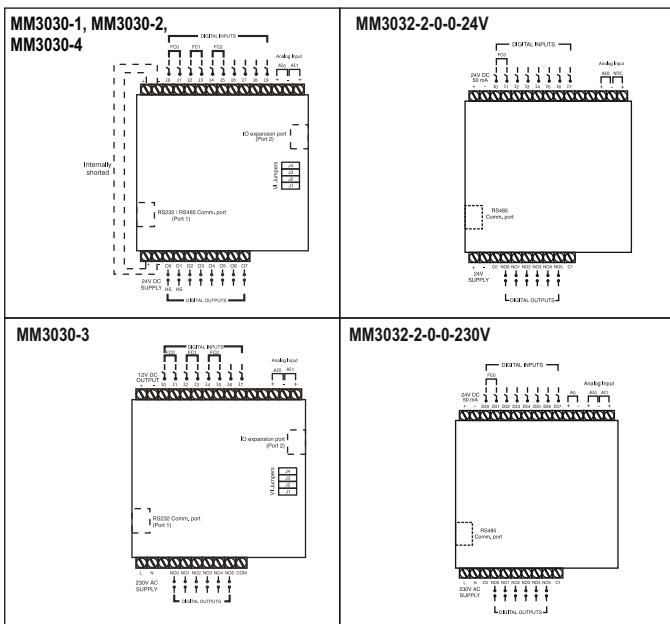
Size : 96 X 96 mm

**MM3032-2-0-0-230V**

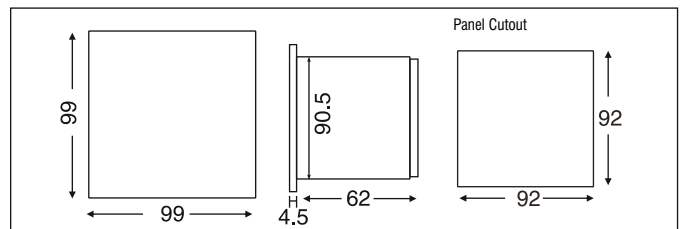
Size : 96 X 96 mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>• Low Cost</li> <li>• Panel / Din Rail Mounting</li> <li>• Fast Inputs / Outputs</li> <li>• Windows based User Friendly Software for Ladder Programming and HMI Configuration</li> </ul>			<ul style="list-style-type: none"> <li>• Compact PLC with built-in HMI</li> <li>• 2 line x 16 characters LCD Display</li> <li>• Panel / Din Rail Mounting</li> <li>• Windows based User Friendly Software for Ladder Programming and HMI Configuration</li> </ul>		
	<b>DISPLAY</b>	4x16 Character LCD			2x16 Character LCD	
<b>NO. OF KEYS</b>	15 Keys (12 User Configurable)			8 Keys (6 User Configurable)		
<b>DIGITAL INPUTS</b>	10 PNP (11 to 30V DC)			8 PNP (6 to 30V DC)		
<b>MAXIMUM COUNTING FREQUENCY</b>	FC0 (I0 & I1) – 12KHz, FC1 (I2 & I3) & FC2 (I4 & I5) – 7.5KHz Normal Input – 30Hz.			FC0 (I0 & I1), FC1 (I2 & I3) & FC2 (I4 & I5) – 7.5KHz Normal Input – 30Hz.		
<b>ANALOG INPUTS</b>	2 Channel (0 to 10V or 0 to 20mA) selectable via jumpers			2 Channels (NTC & 0 to 20mA)		2 Channels (0 to 20mA)
<b>RESOLUTION</b>	10 Bit			12 Bit		
<b>DIGITAL OUTPUTS</b>	8 Transistor			6 Relay		
<b>TYPE AND RATING</b>	O0 - O1 - Sink 50mA @ 24V DC (Fast Outputs 50KHz) O2 - O7 - Source 100mA @ 24V DC			3A NO type @ 230V AC / 30V DC (Resistive)		5A NO type @ 230V AC / 30V DC (Resistive)
<b>ANALOG OUTPUTS</b>	Through Expansion			NA		1 Channel (0 to 10V)
<b>RESOLUTION</b>	As per expansion modules					14 Bits (0.0% to 100.0% = 0 – 10.000V)
<b>RTC</b>	YES			NO		
<b>EXPANSION</b>	YES			NO		
<b>PROGRAM MEMORY</b>	351K			240K		
<b>COMMUNICATION INTERFACE SLAVE</b>	RS232 MODBUS RTU Protocol	RS485 MODBUS RTU Protocol		RS232 MODBUS RTU Protocol	RS485 MODBUS RTU Protocol	
<b>COMMUNICATION INTERFACE MASTER</b>	Proprietary Protocol	Proprietary Protocol & RS485 MODBUS RTU Protocol	RS485 MODBUS RTU Protocol	Proprietary Protocol	NA	
<b>SUPPLY VOLTAGE</b>	18 – 30V DC			100 to 270V AC 50 / 60Hz without retention 180 to 270V AC, 50 / 60Hz with Retention		18 – 30V DC 100 to 270V AC 50 / 60Hz without retention 180 to 270V AC, 50 / 60Hz with Retention

## Terminal Diagram



## Dimensions (All are in mm)



## Ordering Information

PRODUCT CODE	CERTIFICATION
MM3030-1	--
MM3030-2	--
MM3030-3-P1	--
MM3030-4	--
MM3032-2-0-0-230V	--
MM3032-2-0-0-24V	--

# Human Machine Interface



**SP11-GT70**  
Size : 214 x 160mm

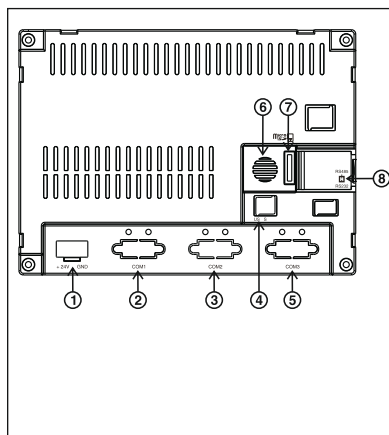


**SP3-GT35**  
Size : 96 x 96mm

FEATURES	<ul style="list-style-type: none"> <li>7" LCD with Resistive Touchscreen</li> <li>10 Password Levels</li> <li>Serial Printing</li> <li>Data Logging</li> <li>Built in Buzzer</li> <li>Recipe Management</li> </ul>	<ul style="list-style-type: none"> <li>3.5" LCD with Resistive Touchscreen</li> <li>10 Password Levels</li> <li>Serial Printing</li> <li>Data Logging</li> <li>Built in Buzzer</li> <li>Recipe Management</li> </ul>
DISPLAY	7" Diagonal	3.5" Diagonal
TOUCHSCREEN	Yes (Resistive)	
RESOLUTION	800 x 480 pixels	320 x 240 pixels
BACKLIGHT	LED Backlight	
USER MEMORY	16 MB	
DATA LOGGING	2 GB (External SD Card)	
COMMUNICATION PORT 1	Master Port - RS485 MODBUS RTU Protocol	Master Port - RS485 MODBUS RTU Protocol
COMMUNICATION PORT 2	Slave Port - RS485 / RS232 MODBUS RTU Protocol (selectable via jumper)	Slave Port - RS232 MODBUS RTU Protocol
COMMUNICATION PORT 3	Serial Printer ESC/P Protocol	
USB SLAVE	USB 2.0	NA
KEYS	7 Function keys + 1 System Key	5 Function keys + 1 System Key
RTC	Yes	
BACKUP BATTERY	3V CR2032	
OPERATING TEMPERATURE	0° to 55° C	
STORAGE TEMPERATURE	-30° to 80° C	
SUPPLY VOLTAGE	18 to 30V DC	

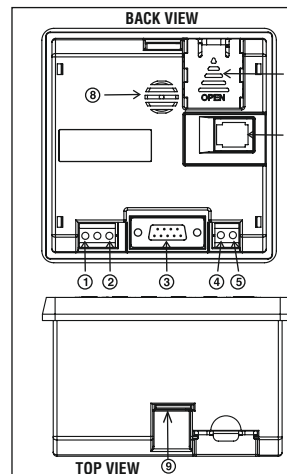
## Terminal Diagram

SP11-GT70



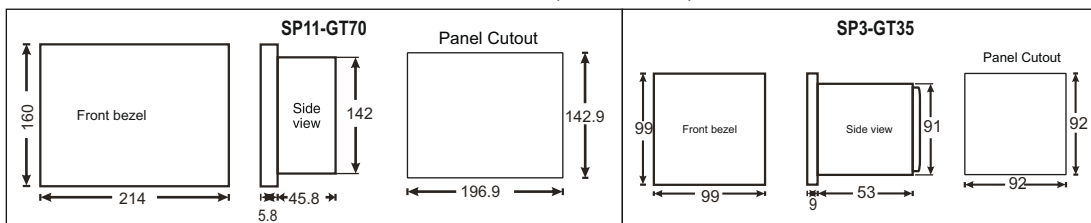
Sr. No.	Description
①	Supply terminal
②	COM1
③	COM2
④	USB slave port
⑤	COM3
⑥	Buzzer
⑦	Micro SD Card Slot
⑧	Jumper for RS232/RS485 slave

SP3-GT35



Sr. No.	Description
①	+24V
②	GND
③	Slave Port
④	(-) RS485 Master Port
⑤	(+) RS485 Master Port
⑥	Printer Port
⑦	Battery Cover
⑧	Buzzer
⑨	SD Card Slot

## Dimensions (All are in mm)



## Ordering Information

PRODUCT CODE	CERTIFICATION
SP11-GT70-V2	--
SP3-GT35	--



## Add on - PLC IO's



**EXP FLEX 2M**  
Size : 35 x 90mm



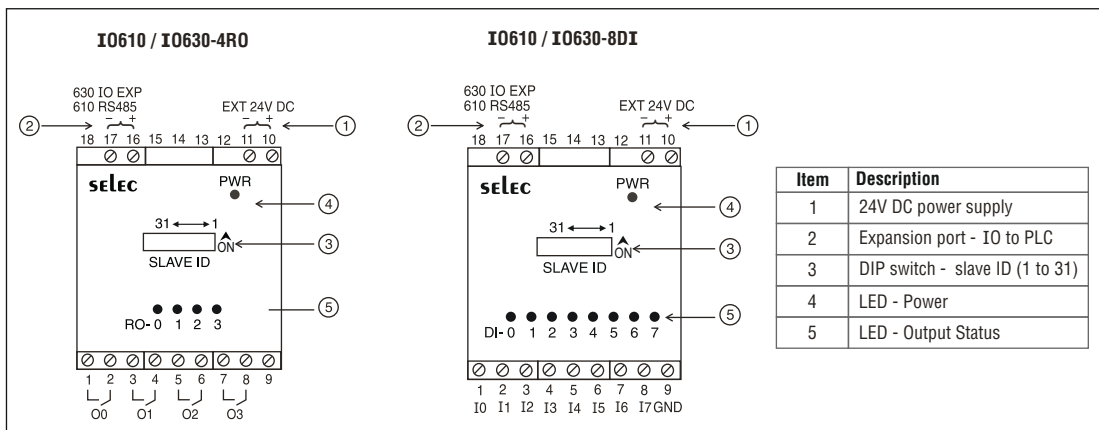
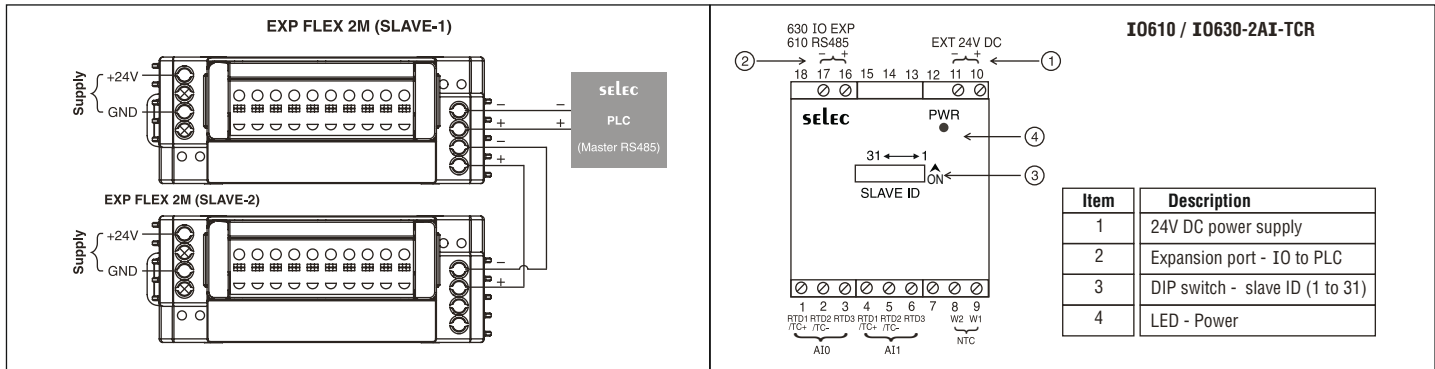
**IO610**  
Size : 53 x 90mm



**IO630**  
Size : 53 x 90mm

FEATURES	<ul style="list-style-type: none"> <li>Any Flexys card can be Configured</li> <li>Selectable baudrate and Slave ID</li> </ul>	<ul style="list-style-type: none"> <li>Can be used as independent I/O modules through RS485 Modbus RTU</li> </ul>	<ul style="list-style-type: none"> <li>High Speed Communication between PLC and Expansion through Proprietary Protocol</li> </ul>
DISPLAY	LED indication for Power ON and Communication Status	LED indication for Power On and Digital I/O status	
DIGITAL INPUTS	4 / 10 / 14 per card PNP (6 to 30V DC)	8 per module (11 to 30V DC)	
ANALOG INPUTS	3/4/6 Channels per card (TC, RTD, 0 to 10V, 0 to 20mA)	2 Channels per module (TC, RTD, 0 to 10V, 0 to 20mA)	
RESOLUTION	12 Bit		
RELAY OUTPUTS	4 / 8 per card. NO type 5A @ 230VA C / 30V DC (Resistive)	4 per module, NO type 5A @ 230V AC / 30V DC (Resistive)	
TRANSISTOR OUTPUTS	8 per card. Source type 100mA @ 24V DC	4 per module, Source type 100mA @ 24V DC	
ANALOG OUTPUTS	2 / 4 Channels per card (0 to 10V, 0 to 20mA)	2 Channels per module (0 to 10V, 0 to 20mA)	
RESOLUTION	14 Bit (0.0 – 100.0% = 0 – 10.000V, 0.0 – 100.0% = 0 – 20.000mA)		
RESPONSE TIME	100 mSec to 2 Sec + IO card Response	35 mSec	200 µSec
BAUDRATE	19200 / 115200 bps (Selectable)	19200 bps	500 Kbps
COMMUNICATION INTERFACE	RS485 Proprietary Protocol	RS485 MODBUS RTU Protocol	Proprietary Protocol
SUPPLY VOLTAGE	24V DC		

### Terminal Diagram



### Ordering Information

PRODUCT CODE	CERTIFICATION
EXP-FLEX 2M	--
IO610-8DI	--
IO610-4RO	--
IO610-4TO	--
IO610-2AI-TCR	--
IO610-2AI-VI	--
IO610-2AO	--
IO630-8DI	--
IO630-4RO	--
IO630-4TO	--
IO630-2AI-TCR	--
IO630-2AI-VI	--
IO630-2AO	--

## Data Converters



AC-USB-RS232-01



AC-USB-RS485-03



AC-USB-RS485-02

AC-USB-RS485-02-3M



AC-S2E-01

FEATURES	<ul style="list-style-type: none"> <li>Port Powered</li> <li>Communication status available as LED Indication</li> </ul>		<ul style="list-style-type: none"> <li>Web Configuration Telnet Protocol</li> <li>TCP / IP Protocol</li> </ul>	
	LED indication for Tx & Rx		LED indication for Power ON, Tx and Rx, & Ethernet Communication	
DISPLAY	RS232 MODBUS RTU Protocol		RS485 MODBUS RTU Protocol	
SERIAL INTERFACE	DB9		RJ25 (6Pin)      2 open wires	
CONNECTOR	USB 2.0 Compliance		DB9	
USB INTERFACE	USB Type A		NA	
CONNECTOR	NA		TCP / IP, Telnet Protocol	
ETHERNET INTERFACE	NA		RJ45 (8 Pin)	
CONNECTOR	2400 to 115000 bps		RS485 : 300 to 115000 bps Ethernet :10 / 100 Mbps	
TRANSMISSION SPEED	1 Meter		3 Meter	
CABLE LENGTH	75mA @ 5V		0.5 W	
POWER CONSUMPTION	Port powered		12 to 30V DC	
SUPPLY VOLTAGE				

## ACCESSORIES

### Connecting Links



AC-IOEXP-03



AC-IOEXP-01



ACH-002



ACH-004

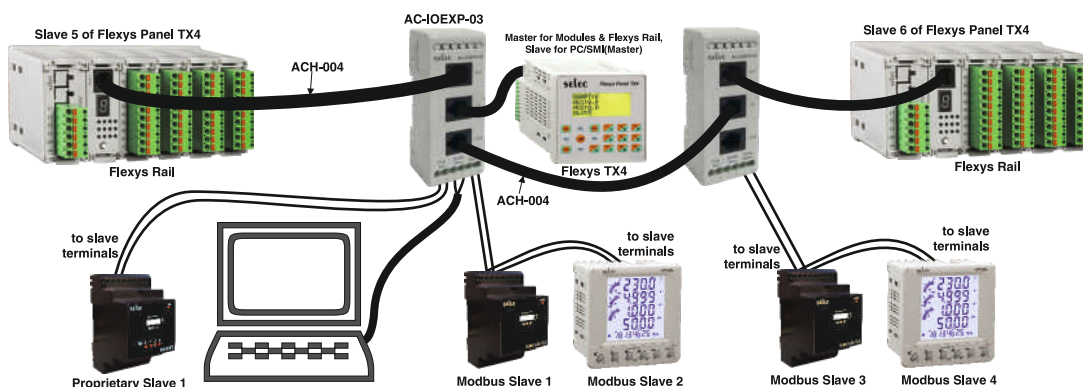


ACH-003

DESCRIPTION	Adapter for directing RJ25 to open terminal and also for network looping	Expansion adaptor for MM303X PLCs	DB9 to RJ25 cable	Both Side RJ25 type Connector	Both Side RJ45 Type Connector
-------------	--	-----------------------------------	-------------------	-------------------------------	-------------------------------

### Ordering Information

PRODUCT CODE	CERTIFICATION
AC-USB-RS232-01	--
AC-USB-RS485-02	--
AC-USB-RS485-02-3M	--
AC-USB-RS485-03	--
AC-S2E-01	--
AC-IOEXP-03	--
AC-IOEXP-01	--
ACH-004	--
ACH-002	--
ACH-003	--



# Relay Modules



RLYMD-1-S4-1C0-24VDC



RLYMD-2-S8-1C0-24VDC



RLYMD-1-S4-2C0-24VDC



RLYMD-2-S8-2C0-24VDC



ERLYMD-2-1-S8-1C0-24V

*New*

FEATURES	<ul style="list-style-type: none"> <li>LED and Freewheeling Diode Across Coils</li> <li>Reverse Polarity Protection</li> <li>Jumpers for Coil Looping</li> <li>Pluggable Relays</li> </ul>				<ul style="list-style-type: none"> <li>Selectable Baudrate and Slave ID</li> <li>Pluggable Relays</li> </ul>	
	CONTACTS	1 C/O		2 C/O		1 C/O
NO. OF CHANNELS	4	8	4	8	8	
CONTACT RATING	10A @ 277V AC / 30V DC (Resistive)					
NOMINAL VOLTAGE	24V DC					
MUST VOLTAGE	18V DC					
MAX VOLTAGE	33V DC					
OPERATE TIME	15mSec					
RESET SETTIME	5mSec					
COIL TO CONTACT DIELECTRIC STRENGTH	5000V AC for 1min					
OPEN CONTACT DIELECTRIC STRENGTH	1000V AC for 1min					
COMMUNICATION PROTOCOL	NA				RS485 MODBUS RTU	
STATUS DISPLAY	LED indication for Relay ON Status				LED Indication for Relay ON Status, Power ON & Communication Status	
SUPPLY VOLTAGE	NA				24V DC	

## Terminal Diagram

### RLYMD-2-S8-2C0-24VDC

For Negative looping of coils place jumpers at 0-,1-,2-,....7-  
For Positive looping of coils place jumpers at 0+,1+,2+,....7+  
For isolated coils place jumpers at BERG5 & BERG6

### ERLYMD-2-1-S4-1C0-24V

04	01	02	14	11	12	24	21	22	34	31	32	44	41	42	54	51	52	64	61	62	74	71	72
1NO	1C	1NC	2NO	2C	2NC	3NO	3C	3NC	4NO	4C	4NC	5NO	5C	5NC	6NO	6C	6NC	7NO	7C	7NC	8NO	8C	8NC

### RLYMD-1-S4-2C0-24VDC

For negative looping of coils place jumpers at 0-,1-,2-,3-  
For Positive looping of coils place jumpers at 0+,1+,2+,3+  
For isolated coils place jumpers at BERG3

### Ordering Information

PRODUCT CODE	CERTIFICATION
RLYMD-1-S4-1C0-24VDC	--
RLYMD-1-S4-2C0-24VDC	--
RLYMD-2-S8-1C0-24VDC	--
RLYMD-2-S8-2C0-24VDC	--
ERLYMD-2-1-S8-1C0-24V	--

## Company Overview...



Delhi Office



Our facilities at Navi Mumbai, India...

## Manufacturing:

**Electronic Manufacturing**  
SMT Manufacturing Plant (5 lines)



**Electronic Manufacturing**  
Assembly and Testing

**Plastic Manufacturing**  
Injection Moulding & Printing



Other Facilities :  
Government Approved Design Center, Laboratory For Certification and EMC, Tool Room

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

### Head Office :

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**Selec GmbH :** [www.selec-europe.com](http://www.selec-europe.com)