





# Timers Product Specification

## Analog Timers




			
	<b>55XU</b> 48(H) x 48(W)mm	<b>55XC</b> 48(H) x 48(W)mm	<b>55ES</b> 48(H) x 48(W)mm
<b>FEATURES</b>	<ul style="list-style-type: none"> <li>Plug / Panel mount</li> <li>ON delay / Interval</li> <li>12 Time ranges</li> </ul>	<ul style="list-style-type: none"> <li>Plug / Panel mount</li> <li>Asymmetrical Cyclic ON - OFF</li> <li>6 Time ranges</li> </ul>	<ul style="list-style-type: none"> <li>Plug / Panel mount</li> <li>ON delay / Interval</li> <li>8 Time ranges</li> </ul>
<b>BASE TYPE</b>	P8 - 8 Pin plug, T8 - Screw terminal		
<b>MODES</b>	ON delay / Interval	Asymmetrical Cyclic ON first or OFF first	ON delay / Interval
<b>TIME RANGE</b>	1 / 3 / 10 / 30sec / min / hr	1 / 10sec / min / hr for both ON & OFF time	3 / 10 / 30 / 60sec / min
<b>RESOLUTION</b>	0.1sec		0.3sec
<b>ACCURACY</b>	Setting : ± 5% of F.S., Repeat : ± 0.5% or 50 ms		
<b>OUTPUT CONTACT</b>	2 C/O DPDT		1 C/O SPDT
<b>CONTACT RATING</b>	5A @ 250V AC or 24V DC		
<b>SUPPLY VOLTAGE (AC : 50 / 60 Hz)</b>	20 to 240V AC, 12 to 240V DC		230V AC, 24V AC / DC

## Timers

				
	<b>600ST</b> 90(H) x 17.5(W)mm	<b>600XU</b> 90(H) x 17.5(W)mm	<b>600SD</b> 90(H) x 17.5(W)mm	<b>600DT</b> 90(H) x 17.5(W)mm
<b>FEATURES</b>	<ul style="list-style-type: none"> <li>Single function - ON delay</li> <li>10 Time ranges</li> </ul>	<ul style="list-style-type: none"> <li>Multi function (13 Functions)</li> <li>Precise analog time setting</li> <li>Universal supply voltage</li> </ul>	<ul style="list-style-type: none"> <li>Star Delta</li> <li>1 NO for Star &amp; 1 NO for Delta</li> </ul>	<ul style="list-style-type: none"> <li>Multi function (15 Functions)</li> <li>Wide time range (0.1sec to 999hr)</li> <li>Universal supply voltage</li> </ul>
<b>MODES</b>	ON delay	A, B, C, Ci, D, E, F, H, I, J, K, Ai, Bi	Star - Delta	A, B, C, D, E, F, H, J, K, L, P, Q, R, T, U
<b>TIME RANGES</b>	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	0.1 - 1sec, 0.3 - 3sec, 1 - 10sec, 3 - 30sec, 0.1 - 1min, 0.3 - 3min, 1 - 10min, 3 - 30min, 0.1 - 1hr, 0.3 - 3hr	Run up time : 3 - 30sec, 6 - 60sec Change over : 50/100ms	9.99 / 99.9 / 999sec, 9 : 59min : sec, 99.9 / 999min, 9 : 59hr : min, 99.9 / 999hr
<b>RESOLUTION</b>	0.1sec	0.1sec	---	0.01sec
<b>ACCURACY</b>	Setting : ±5% of F.S Repeat : ±0.5% F.S. Pause time accuracy : ±5% ±5ms			Setting : ± 0.1% of F.S. or ±50ms For Y contact operation : ±100ms, Repeat : ± 0.1%
<b>OUTPUT CONTACT</b>	1 C/O SPDT	1 C/O SPDT	1 C/O Relay each for Star & Delta	1 C/O SPDT
<b>CONTACT RATING</b>	5A @ 250V AC or 24V DC			
<b>SUPPLY VOLTAGE (AC : 50 / 60 Hz)</b>	240V AC	20 to 240V AC, 12 to 240V DC	230V AC	20 to 240V AC / DC
<b>Modes</b>	<p><b>600XU</b> A - ON delay, B - Interval, C - Repeat cycle equal OFF first, Ci - Repeat cycle equal ON first, D - Pulse output 500ms fixed, E - Delay on break, F - Delay on make / Delay on break, H - Interval after break, I - Single shot, J - Retriggerable single shot, K - Latching relay, Ai - Delay on break with Totalise, Bi - Interval with Totalise</p> <p><b>600DT</b> A - ON delay, B - Interval, C - Asymmetrical cyclic OFF first, D - Asymmetrical cyclic ON first, E - Repeat cycle equal OFF first, F - Repeat cycle equal ON first, H - Pulse output, J - Delay on break, K - Delay on make/Delay on break, L - Interval after break, P - single shot, Q - Retriggerable single shot, R - Latching relay, T - Delay on break with Totalise, U - Interval with Totalise</p>			

## Daily / Weekly Time Switches

## Astronomical Time Switch

			
	<b>TS2M1-1-16A</b> 90(H) x 35(W)mm	<b>TS1W1-1-20A</b> 60(H) x 60(W)mm	<b>ATS2M1-1-16A</b> 90(H) x 35(W)mm
<b>FEATURES</b>	<ul style="list-style-type: none"> <li>1 sec least count</li> <li>50 ON - 50 OFF steps per day</li> <li>1 channel</li> <li>Permanent over ride mode</li> <li>10 years power reserve (replaceable battery)</li> </ul>		<ul style="list-style-type: none"> <li>Latitude / Longitude precise to the minute with time zone</li> <li>Automatic calculation of sunrise &amp; sunset times</li> <li>DST offset / power saving mode</li> <li>1 channel</li> <li>10 years power reserve (replaceable battery)</li> </ul>
<b>DISPLAY</b>	Text LCD (Without backlight)		
<b>RTC SHIFT</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>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>	12hr (AM / PM) and 24hr selection		
<b>RELAY OPERATING MODE</b>	Auto / Permanent override ON / Permanent override OFF		
<b>SUPPLY VOLTAGE (AC : 50 / 60 Hz)</b>	230V AC ±10%		

# Digital Counter/Timer-counter Product Specification

## Digital Counters



**XC22B**  
72(H) x 72(W)mm



**XC1200**  
48(H) x 96(W)mm



**XC3200**  
96(H) x 96(W)mm



**XC2200**  
72(H) x 72(W)mm

FEATURES	XC22B	XC1200	XC3200 / XC2200
FEATURES	<ul style="list-style-type: none"> <li>Thumbwheel setting</li> <li>Auto reset</li> <li>Battery backup</li> </ul>	<ul style="list-style-type: none"> <li>Counter with rate indicators</li> <li>Programmable input scaling</li> <li>Up, Down, Quadrature &amp; Bi-directional modes</li> <li>Dual set point</li> </ul>	<ul style="list-style-type: none"> <li>Counter with rate indicator</li> <li>Programmable input scaling</li> <li>Unidirectional, Bi-directional &amp; Quadrature modes</li> <li>Batch counter</li> </ul>
DISPLAY	4 digits	6 digits	6 + 4 digits
MODES	ON delay / Interval / Auto reset	ON delay / Interval / Auto reset / Time pulse repeat	
RANGES	9999 counts	Selectable least count : 0.0001, 0.001, 0.01, 0.1 & 1 Rate : 4.00 to 99999 RPM / RPH	-999 to 999999 counts
RESET	Front, Remote, Auto (Optional)	Front (user selectable), Remote	Front, Remote, Power interruption
MEMORY	Yes (Optional)	Yes	
DIRECTION	Up	Up, Down, Bi-directional, Quadrature	Up / Down
SET POINT	Single set point	Dual set point	
INPUT SPEED	30Hz, 5kHz (Selectable via dip switch)	30Hz, 2.5kHz, 5kHz (Programmable)	30Hz, 5kHz (Programmable)
SCALE FACTOR	---	0.00001 to 9.99999 x 10 <sup>n</sup> , n = -5, -4, -3, -2, -1, 0, 1, 2	
OUTPUT CONTACT	2 C/O DPDT	2 C/O DPDT	
CONTACT RATING	5A @ 250V AC or 24V DC	5A @ 250V AC or 24V DC	
INPUT	NPN, PNP sensor, Potential free contacts	NPN / PNP sensor, Potential free contacts, Encoder	
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	230V AC	90 to 270V AC / DC	

## LCD / LED Counters

## Digital Timer - Counter



**LX900A**  
24(H) x 48(W)mm



**XC410A**  
36(H) x 72(W)mm



**XC10D**  
48(H) x 96(W)mm



**XTC5400**  
48(H) x 48(W)mm

FEATURES	LX900A	XC410A / XC10D	XTC5400
FEATURES	<ul style="list-style-type: none"> <li>LCD counter</li> <li>Battery powered</li> <li>Contact / Voltage input</li> </ul>	<ul style="list-style-type: none"> <li>LED counter</li> <li>Inbuilt sensor supply</li> <li>Compact size</li> </ul>	<ul style="list-style-type: none"> <li>Multi function - Timer / Counter (programmable)</li> <li>Batch counter</li> <li>Up / Down counting for counter</li> <li>Dual set point</li> </ul>
DISPLAY	7 <sup>1/2</sup> digits	6 digits	4 + 4 digits
MODES	---	---	Timer : ON delay / Interval / Cyclic ON first / Cyclic OFF first / Batch. Counter : ON delay / Interval / Auto reset / Time pulse repeat / Batch
RANGES	19999999 counts	999999 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	Front, Remote, Power interruption
MEMORY	5 years	Yes	Yes
DIRECTION	---	Up	Timer : Down, Counter : Up / Down
SET POINT	---	---	Dual set point
INPUT SPEED	14Hz, 100Hz (Selectable via jumper)	20Hz, 1kHz (Selectable via jumper)	3Hz, 30Hz, 5kHz (Programmable)
SCALE FACTOR	---	---	0.001 to 9.999 x 10 <sup>n</sup> n = -3, -2, -1, 0, 1, 2
OUTPUT CONTACT	---	---	2 C/O SPST
CONTACT RATING	---	---	5A @ 250V AC or 24V DC
INPUT	a) 24 to 260V AC / DC b) Contact input	NPN, PNP sensor, Potential free contacts	
SUPPLY VOLTAGE (AC : 50 / 60 Hz)	Battery powered	230V AC (Only for XC410A), 90 to 270V AC / DC	
		90 to 270V AC / DC	



# Motor/Pump Protection Product Specification

## Motor Protection Relays



**MPR-3M**  
90(H) x 52.5(W)mm



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

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>• Single phasing, Phase asymmetry, Phase sequence</li> <li>• Under current, Overload trip current</li> <li>• Test and reset function via Front / Remote</li> </ul>	<ul style="list-style-type: none"> <li>• Monitors Overload (As per NEMA Curve ), Over current, Under current, Current asymmetry</li> <li>• Lock current, Earth fault,</li> <li>• Phase loss, Phase sequence,</li> <li>• LED indication : Power ON, Trip relay</li> <li>• Test &amp; reset function via Front / Remote</li> </ul>
<b>DISPLAY</b>	3 LED indication	7 segment, 4 digits LED
<b>AUXILLARY SUPPLY</b>	230 / 415V AC $\pm$ 15%	90V to 270V AC / DC
<b>ELECTRICAL CONNECTION</b>	3Ø - 3W	
<b>TRIP SETTING</b>	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	Over load : Class 5,10,15,20,30, Over current : 4A to 480A, Under Current : 1A to 79A, Current asymmetry : 1A to 79A, Lock current : 4A to 480A, Earth fault : 1A to 160A
<b>TIME SETTINGS</b>	Single phase trip : 5 sec, Phase asymmetry : 5 sec, Phase sequence : 5 sec Over load trip : As per (IDMT Curve), Under current trip : 5 Sec	Power On delay : 1-999 sec, Trip Time : 0-999 sec, Recovery time : 1-999 sec, Response Time : <120ms, 3 Reset Attempt Time : 0-999 min
<b>MODE</b>	Auto / Manual / Remote	
<b>ACCURACY</b>	Time : $\pm$ 5% of setting $\pm$ 100ms, Current : $\pm$ 5% of set value	Current : $\pm$ 5% of Ir $\pm$ 1 digit, Timing : $\pm$ 5% + 100msec
<b>OUTPUT CONTACT</b>	2 C/O (DPDT)	2 x1 C/O (SPDT)
<b>OUTPUT RATING</b>	NC : 5A@ 240V AC, NO : 5A@240V AC	5A@250V AC/28VDC

## Pump Protection Relays



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



**PPRA-4M-3-415V**  
90(H) x 70(W)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>• Monitors Overload (As per NEMA Curve), Over current, Under current, Current asymmetry, Lock current</li> <li>• Over voltage, Under voltage</li> <li>• Phase loss, Phase sequence, Phase asymmetry</li> <li>• LED indication : Power ON, Trip relay</li> <li>• Test &amp; reset function via Front / Remote</li> </ul>	<ul style="list-style-type: none"> <li>• Monitors Overload (As per NEMA Curve), Over current, Under current, Current asymmetry, Lock current,</li> <li>• Over voltage, Under voltage</li> <li>• Phase loss, Phase sequence, Phase asymmetry</li> <li>• LED indication : Power ON, Trip relay</li> <li>• Test &amp; reset function via Front / Remote</li> </ul>
<b>DISPLAY</b>	7 segment, 3 digits LED	4 LED & 4 knob for variable setting
<b>AUXILLARY SUPPLY</b>	280V-500V (L-L)	
<b>ELECTRICAL CONNECTION</b>	3Ø - 3W	
<b>CT SETTING</b>	10A, 40A, 80A	
<b>TRIP SETTING</b>	Over load : Class 5,10,15,20,30, Over current : 4A to 480A, Under current : 1A to 79A, Current asymmetry : 1A to 79A, Lock current : 4A to 480A, Over voltage : 280V-500V Under voltage : 280V-500V, Voltage asymmetry : 5V TO 50V	Over load : Class 5,10,15,20,30, Over current : 10%-70% of Ir (Rated current) Under current : 20%-80% of Ir (Rated current), Current asymmetry : Fixed: 50% of Ir (Rated current) Lock current : Fixed 300% of Ir (Rated current), Over voltage : Fixed (480V), Under voltage : Fixed (350V), Voltage asymmetry : Fixed (30V)
<b>TIME SETTINGS</b>	Power On delay : 1 sec, Trip time : 0-999 sec, Recovery time : 1-999 sec , Response time : <120ms, 3 Reset attempt time : 0-999 min	Power On delay : 1 sec (Fixed), Trip Time (sec) : 0,2,4,6,8 &10, Recovery time : 15min, Response time : <240ms, 3 Reset attempt time : 60min (Fixed)
<b>HYSTERESIS</b>	Voltage : 0 to 10 V	Voltage : 6V (fixed)
<b>ACCURACY</b>	Current : $\pm$ 5% of Ir $\pm$ 1 digit, Timing : $\pm$ 5% $\pm$ 100msec, Voltage : $\pm$ 1% of 500V $\pm$ 1 digit	
<b>OUTPUT CONTACT</b>	1 C/O (SPDT)	
<b>OUTPUT RATING</b>	5A@250V AC/28VDC	

## Motor Protection Current Transformer



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

<b>Description</b>	<b>MPCT</b>
<b>Current range</b>	10A, 40A, 80A

## Motor/Pump Protection Product Specification

### Pump Protection Relays



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



**PPRWD-4M-1**  
90(H) x 70(W)mm



**PPRA-4M-1-230V**  
90(H) x 70(W)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>Monitors Over load (As per NEMA curve), Over current, Under current,</li> <li>Locked current, Over voltage, Under voltage</li> <li>Direct current measuring up to 32A</li> <li>LED indication : Power ON, Trip relay</li> <li>Test &amp; Reset function via key &amp; terminal</li> </ul>	<ul style="list-style-type: none"> <li>Automatic pump on &amp; off as per water level detection</li> <li>Monitors Over load (As per NEMA curve), Over current, Under current, Locked current, Over voltage, Under voltage</li> <li>Direct current measuring up to 32A</li> <li>Capacitor cut off features</li> </ul>	<ul style="list-style-type: none"> <li>Monitors Over load (As per NEMA curve), Over current, Under current, Locked current, Over voltage, Under voltage,</li> <li>4 Knob for variable setting</li> <li>Direct current measuring up to 32A</li> <li>LED indication : Power ON, Trip relay</li> </ul>
<b>DISPLAY</b>	3 Digits, 7 Segment LED display	3 Digits, 7 Segment LED display	3 LED & 4 Knob for variable Setting
<b>ELECTRICAL CONNECTION</b>	1Ø-2W		
<b>MEASURING RANGE</b>	A) Motor rated current Measuring : 1A to 30 A B) Voltage measuring range : 180 to 300VAC (L - N)		
<b>TRIP SETTING</b>	Over load : NEMA class curve 5, 10, 15, 20, 30 , Over current : 2A to 32A, Under current : 0.2 to 29A, Locked current : 2A to 32A Over voltage : 180V - 300V ( L - N ), Under voltage : 180V - 300V ( L - N )		Over load : NEMA class curve 5, 10, 15, 20, 30 , Over current : 10% to 70%, Under current : 20% to 80% Locked current : 300% of Ir, Over voltage : 280V (fixed) Under voltage : 180V (fixed)
<b>TIME SETTINGS</b>	Power ON delay : 1 sec (Fixed), Trip time delay : 0 - 999 sec Recovery time : 1 - 999 sec, Reset attempts 3 (fixed) : 1 - 999 min		Power ON delay : 1 sec (fixed), Trip time delay : 0 - 10 sec Auto Reset Time : 15 min, Reset attempts 3 (fixed) : 60 min
<b>ACCURACY</b>	Current accuracy : ±5% of rated current ±1 digit, Voltage accuracy : ±1% of 300V ±1 digit, Time accuracy : ±5% ±100msec		
<b>OUTPUT CONTACT</b>	1 NO relay	2 NO relay	1 NO relay
<b>OUTPUT RATING</b>	30A@277V AC		
<b>SUPPLY VOLTAGE (AC : 50 / 60 Hz)</b>	180 to 300V AC (L - N)		

### Water Level Controllers



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



**WLCA-2M-U-CE**  
90(H) x 35(W)mm

<b>FEATURES</b>	<ul style="list-style-type: none"> <li>Used for drain &amp; fill control</li> <li>3 No's stainless steel prods</li> <li>10A SPDT output (Resistive)</li> </ul>	<ul style="list-style-type: none"> <li>Selectable suction and delivery mode in single tank operation</li> <li>Used for two tank monitoring, Single tank water level monitoring</li> <li>Manual start switch facility</li> <li>Trip relay &amp; alarm relay indication</li> </ul>
<b>DISPLAY</b>	2 LED indication	4 LED indication
<b>AUXILLARY SUPPLY</b>	85 to 270V AC / DC	
<b>TRIP SETTING</b>	According to the levels of sensor placed in the water tank	
<b>SENSITIVITY</b>	1 Kohms to 200Kohms	Auto
<b>TRIP TIME</b>	0.5sec (approx)	2sec
<b>MODE</b>	Auto	Auto / Manual
<b>ACCURACY</b>	NA	±5% + 100msec
<b>OUTPUT CONTACT</b>	1 C/O (SPDT)	1 N /O (Resistive )
<b>OUTPUT RATING</b>	10A@250V AC / 28V DC	5A@ 250 V AC /28V DC

### Water Level Sensor



- Stainless steel
- Suitable for conductive liquids

