



Timers | Time Switches | Hour Meters Counters | Supply Monitors



Larsen & Toubro is India's leading engineering company. The Electrical Business Group of Larsen & Toubro manufactures and markets the country's widest range of low tension Switchgear and accessories all over the country. In addition to high quality products from its own factories, L & T seeks out the best in Power Control Technology and offers these products to the Indian market.

Timers, Time Switches, Hour Meters, Counters & Supply Monitors from GIC are a part of the world-class products offered by Larsen & Toubro.

L&T's marketing efforts are complimented by a strong service capability that extends nationwide. A network of more than 450 stockists in addition to L & T's own offices ensures that wherever you are in the country, GIC products are not far from you.



General Industrial Controls Pvt. Ltd. (GIC), have the unique distinction of being the pioneers in Timers, Time Switches & Hour Meters. They have built up the right infrastructure & wholly integrated facility from design to manufacture of finished products.

Besides being an **ISO 9001:2000** certified organisation, GIC products also have International approvals of

CE (European Standard) & **CS** (Canadian Standard)

NRTL/C
LR 105670-8



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DIGICON

- 8 Modes multifunction facility for complete flexibility and wide range application
- Timing from 0.1 sec. to 999 Hrs
- 3 Digit LC display for preset time and run time
- Selectable up/down counting modes to show elapsed/set time
- Wide operating voltage range
- Key lock function
- Conforms to various IEC standards for EMI/EMC with CE mark



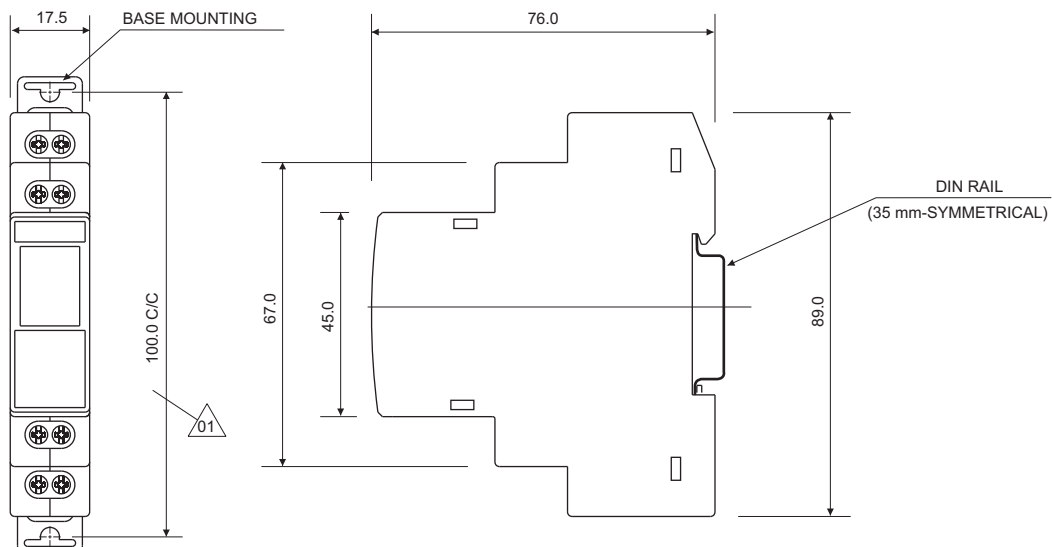
Technical Specifications

Type	AC/DC Model	DC Model
Supply Voltage	110 - 240 V AC or 24 V AC/DC (SEL)	12 V DC
Supply Variation	-15% to +10%	-8% to +10%
Frequency	50 / 60 Hz	-
Modes	A (On Delay), B (Cyclic Off/On), C (Cyclic On/Off), D (Signal On/Off), E (Signal Off), F (Interval), G (Signal Off/On), H (One shot)	A (On Delay), B (Cyclic Off/On), C (Cyclic On/Off), D (Signal On/Off), E (Signal Off), F (Interval), G (Signal Off/On), H (One shot)
Timing Ranges	H : M M : S H M S 9:59 9:59 999 999 999 99.9 99.9 99.9	H : M M : S H M S 9:59 9:59 999 999 999 99.9 99.9 99.9
Repeat Accuracy	+/- 50 msec	+/- 50 msec
Max. Reset Time	100 msec	100 msec
Max. Switching Rate at max./min. load	360/1000 operation / hour	360/1000 operation / hour
Output Contact	1 C/O AgNi 90/10 (Cadmium free) SPDT	1 C/O AgNi 90/10 (Cadmium free) SPDT
Output Contact Rating	5 A @ 240 V AC / 28 V DC	5 A @ 240 V AC / 28 V DC
Power Consumption	15 VA (approx)	15 VA (approx)
Terminal Capacity	2.5 mm ² max	2.5 mm ² max
Protection	IP20 (for front panel only)	IP20 (for front panel only)
Mounting	Base / DIN rail 35mm	Base / DIN rail 35 mm
Weight	85 gms (unpacked)	70 gms (unpacked)
EMI / EMC :		
Radio Interference Suppression	EN 55011 (limit-value Class B)	
Fast Transients	EN 61000-4-4 level III (Rep Freq 5 KHz - 100 KHz)	
Surges	EN 61000-4-5 level IV	
Electrostatic Discharge	EN 61000-4-2 level III	

Ordering Information

Cat. No.	Description
V0DDT0	110 - 240 V AC or 24 V AC/DC
V9DDT0	12 V DC

Overall / Mounting Dimensions (mm)



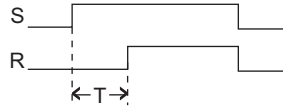
Micon Electronic Timers Series 175

- Compact DIN rail mountable - 17.5 mm wide
- Multiple timing ranges
- Low power consumption



Technical Specifications

Type **On - Delay**
Functional Diagram

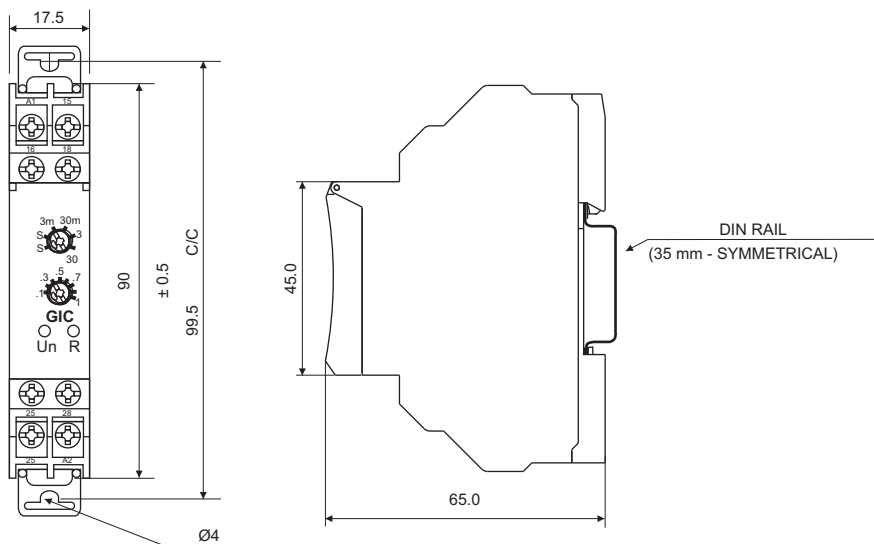


Range	3S, 30S, 3M, 30M, 3Hrs, 30Hrs
Operating Voltage Range	12 V DC, 110 V AC & 240 V AC with 24 V AC / DC
Contact Output	1 C/O - AgSnO
Contact Rating	5 A, 240 V / 28 V DC (Resistive)
LED Indication	Green for power & Red for relay status
Minimum Selectable Time	1/10th of set range
Mounting	Base / DIN rail
Weight	70 gms (unpacked)
EMI / EMC :	
Radio Interference Suppression	EN 55011 (limit-value Class B)
Fast Transients	EN 61000-4-4 level III (Rep Freq 5 KHz - 100 KHz)
Surges	EN 61000-4-5 level IV
Electrostatic Discharge	EN 61000-4-2 level III

Ordering Information

Cat. No.	Description
11ODT4	110 V AC and 24 V AC/DC On Delay
12ODT4	240 V AC and 24 V AC/DC On Delay
15ODT4	12 V DC On Delay

Overall / Mounting Dimensions (mm)



Micon Electronic Timers Series 225

- Compact DIN rail mountable - 22.5 mm wide
- Multifunction & multirange timers
- Wide operating voltage range
- High setting & repeat accuracy



Technical Specifications

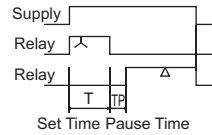
Type

Functional Diagram

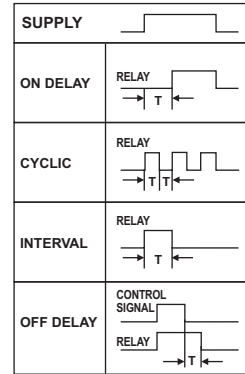
Asymmetrical ON/OFF



Star - Delta



Multifunction



Range	Available in six ON/OFF ranges 1S, 10S, 1M, 10M, 1Hrs, 10Hrs	Available in four ranges 30S, 60S, 90S, 120S	Available in six ranges 1S, 10S, 1M, 10M, 1Hr, 10Hr
Pause Time	NA	60, 90, 120, 150 msec	NA
Operating Voltage Range	24 - 240 V AC / DC	110 & 240 V AC Selectable	24 V - 240 V AC / DC
Contact Output	1 C/O / 2 C/O - AgSnO	1 NO(Δ) + 1 NO(Λ) - AgSnO	1 C/O / 2 C/O - AgSnO
Contact Rating	5 A, 240 V AC / 28 V DC (Res)	5 A, 240 V AC / 28 V DC (Res)	5 A, 240 V AC / 28 V DC (Res)
LED Indication	Green for power & Red for relay status	Red for Star & Delta	Green for power & Red for relay status
Minimum Selectable Time	1/10th of set range	1/10th of set range	1/10th of set range
Mounting	Base / DIN rail	Base / DIN rail	Base / DIN rail
EMI / EMC :			
Radio Interference Suppression	EN 55011 (limit-value Class B)		
Fast Transients	EN 61000-4-4 level III (Rep Freq 5 KHz - 100 KHz)		
Surges	EN 61000-4-5 level IV		
Electrostatic Discharge	EN 61000-4-2 level III		

Ordering Information

Cat. No.	Description
20ADT0	24-240 V AC/DC Asym. On/Off
**20ADT5	24-240 V AC/DC Asym. On/Off

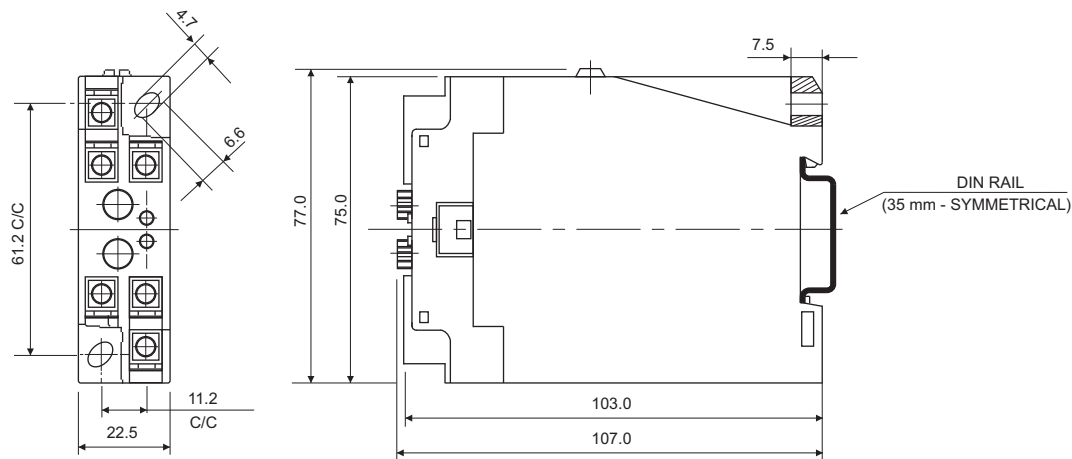
Cat. No.	Description
20SDT0	110/240 V AC Star - Delta

Cat. No.	Description
20MDT0	24-240 V AC/DC Multifunction
*203DT5	24-240 V AC/DC Multifunction
*273DT5	240 V AC Multifunction

* 203DT5, 273DT5 is multifunction (3 mode) with 2 change over.

** 20ADT5 with 2 change over.

Overall / Mounting Dimensions (mm)

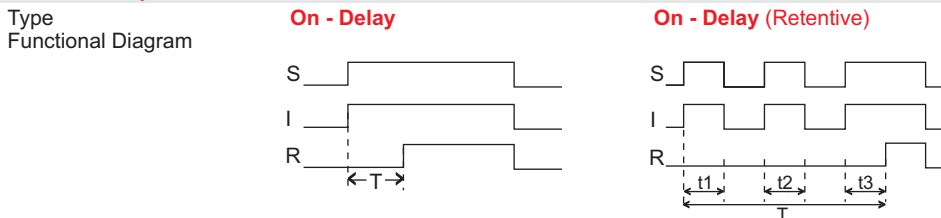


Micon Electronic Timers Series 350

- Compact DIN rail mountable - 35 mm wide
- Multiple timing ranges
- Low power consumption
- Selectable Retentive On Delay (has memory)
- Accurate setting and repeatability



Technical Specifications



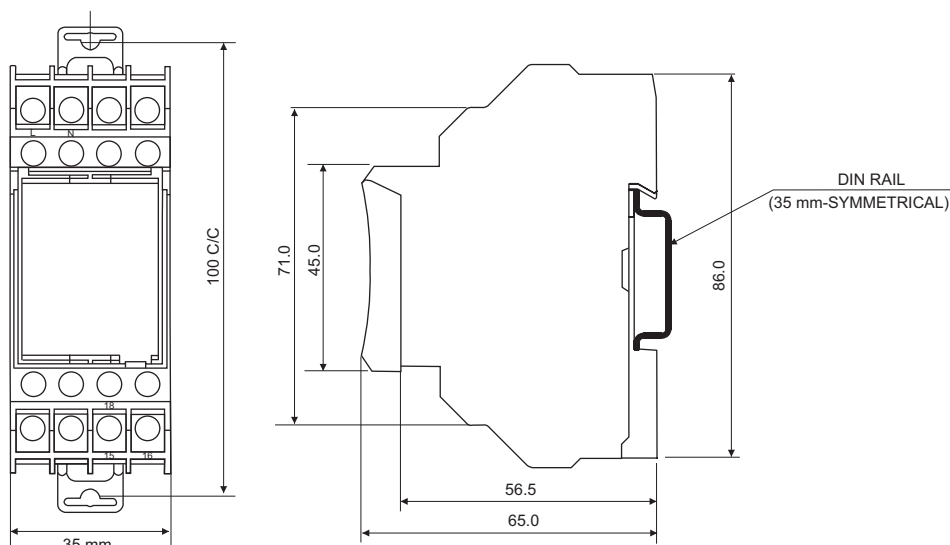
Range	3S, 30S, 3M, 30M, 3Hrs, 30Hrs
Operating Voltage Range	24 V AC/DC, 110 V AC & 240 V AC, 50/60 Hz
Contact Output	1 Inst. C/O and 2 delayed C/O - Ag Alloy
Contact Rating	5 A, 240 V / 28 V DC (Resistive)
LED Indication	Green for power & Red for relay status
Minimum Selectable Time	1/10th of set range
Mounting	Base / DIN rail
Weight	130 gms (unpacked)
EMI / EMC :	
Radio Interference Suppression	EN 55011 (limit-value Class B)
Fast Transients	EN 61000-4-4 level III (Rep Freq 5 KHz - 100 KHz)
Surges	EN 61000-4-5 level IV
Electrostatic Discharge	EN 61000-4-2 level III

Note : To cancel the retentive feature, power off the device, make the new settings and power on the device.

Ordering Information

Cat. No.	Description
36EDT7	24 V AC/DC On Delay
33EDT7	110 V AC On Delay
37EDT7	240 V AC On Delay

Overall / Mounting Dimensions (mm)



Micon Electronic Timers Series 480

- Compact DIN rail mountable - 48 mm wide
- Universal mounting
- Multifunction & multirange timers
- High setting & repeat accuracy



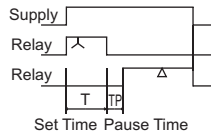
Technical Specifications

Type
Functional Diagram

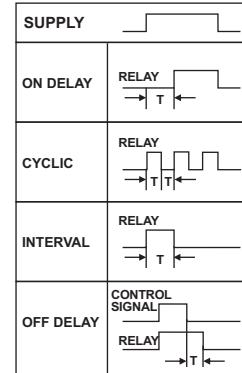
Asymmetrical ON/OFF



Star - Delta



Multifunction



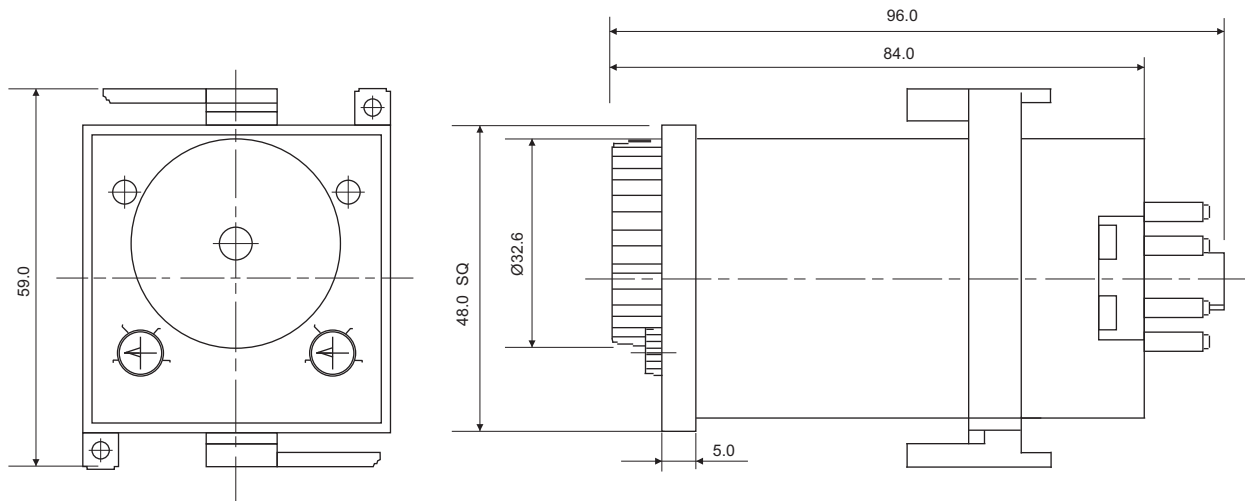
Range	Available in six ranges 1S, 10S, 1M, 10M, 1Hrs, 10Hrs	Available in four ranges 30S, 60S, 90S, 120S	Available in six ranges 1S, 10S, 1M, 10M, 1Hrs, 10Hrs
Pause Time	NA	60, 90, 120, 150 msec	NA
Operating Voltage Range	24 V - 240 V AC / DC	110 V / 240 V AC Selectable	24 V - 240 V AC / DC
Contact Output	2C/O - Ag Alloy	1 CO(λ) + 1 NO (Δ) - Ag Alloy	2 C/O - Ag Alloy
Contact Rating	5 A, 240 V AC / 28 V DC (Res)	5 A, 240 V AC / 28 V DC (Res)	5 A, 240 V AC / 28 V DC (Res)
LED Indication	Green for power & Red for relay status	Red for Star & Delta	Green for power & Red for relay status
Mounting	• Flush, Base / DIN rail with 11 pin Universal or Solderable socket	• Flush, Base / DIN rail with 11 pin Universal or Solderable socket	• Flush, Base / DIN rail with 11 pin Universal or Solderable socket

Ordering Information

Cat. No.	Description	Cat. No.	Description	Cat. No.	Description
40AFS0	24-240 V AC/DC Asym. On/Off	40SFS0	110/240 V AC Star - Delta	40MFS0	24-240 V AC/DC Multifunction

Overall / Mounting Dimensions (mm)

FLUSH MOUNTING



Micon Electronic Timers Series 780

- Multifunction & multirange timers
- Instant / Delayed contact selectable
- High setting & repeat accuracy
- Wide operating voltage range

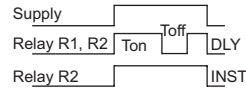


Technical Specifications

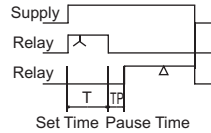
Type

Functional Diagram

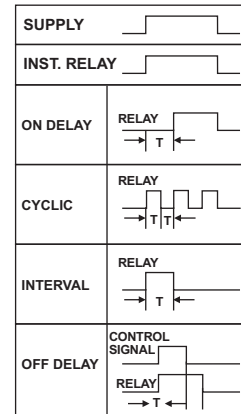
Asymmetrical ON/OFF



Star - Delta



Multifunction



Range	Available in six ranges 1S, 10S, 1M, 10M, 1Hrs, 10Hrs	Available in four ranges 30S, 60S, 90S, 120S	Available in six ranges 1S, 10S, 1M, 10M, 1Hrs, 10Hrs
Pause Time	NA	60, 90, 120, 150 msec	NA
Operating Voltage Range	110/240 V AC 240/415 V AC	110/240 V AC 240/415 V AC	110/240 V AC 240/415 V AC
Contact Output	1 Inst + 1Dly - AgNi (or 2 Dly Selectable)	1 NO(λ) + 1 NO (Δ) - AgSnO	1 Inst + 1Dly - AgNi (or 2 Dly Selectable)
Contact Rating	10 A, 240 V AC / 28 V DC 5 A - 415 V AC (Res)	10 A, 240 V AC / 28 V DC 5 A - 415 V AC (Res)	10 A, 240 V AC / 28 V DC 5 A - 415 V AC (Res)
LED Indication	Green for power & Red for relay status	Red for Star & Delta	Green for power & Red for relay status
Mounting	Base / DIN rail	Base / DIN rail	Base / DIN rail

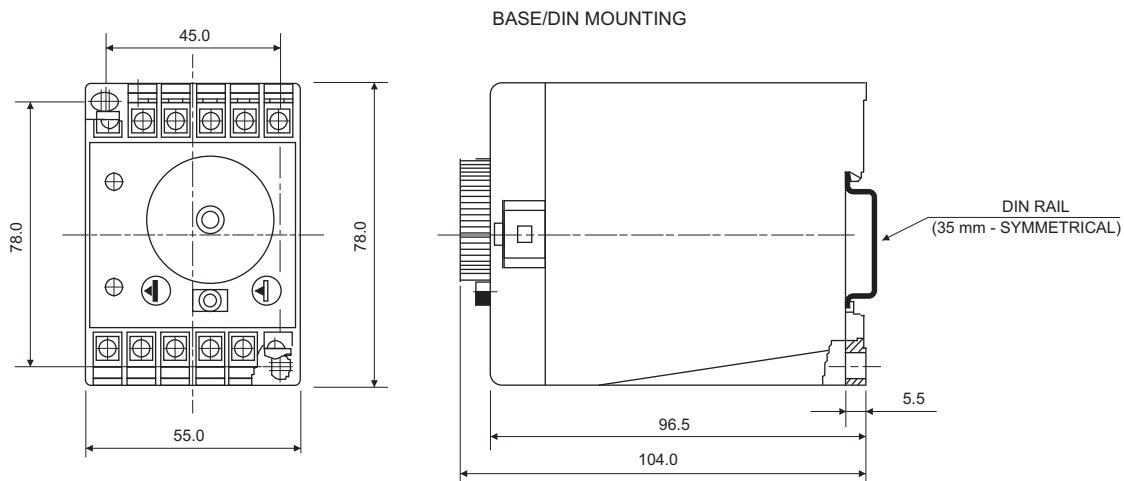
Ordering Information

Cat. No.	Description
70ADT0	110/240 V AC Asym. On/Off
74ADT0	240/415 V AC Asym. On/Off
76ADT0	24 V AC/DC Asym. On/Off

Cat. No.	Description
70SDT0	110/240 V AC Star - Delta
74SDT0	240/415 V AC Star - Delta

Cat. No.	Description
70MDT0	110/240 V AC Multifunction
74MDT0	240/415 V AC Multifunction
76MDT0	24 V AC / DC Multifunction

Overall / Mounting Dimensions (mm)



Electronic Timer True - Off Delay

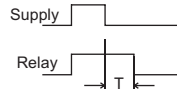
- Compact DIN rail mountable - 22.5 mm wide
- Wide operating voltage range
- High setting & repeat accuracy
- Wide time setting



Technical Specifications

Type
Functional Diagram

True - Off Delay



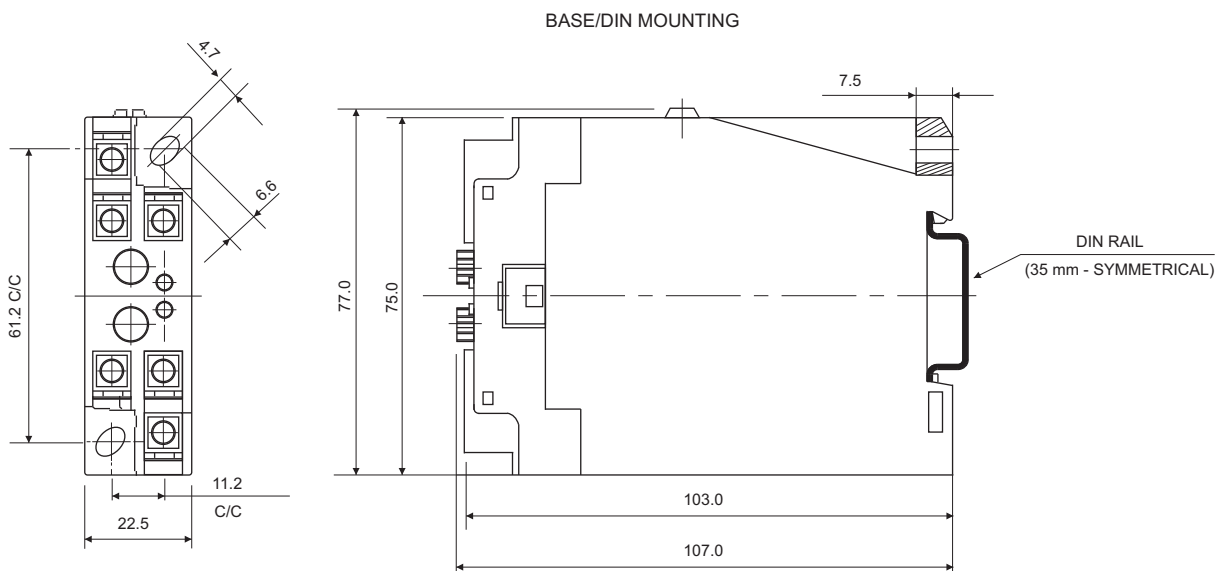
Range	0.6 - 6 sec / 6 - 60 sec / 12-120 sec / 18 - 180 sec
Energizing Time (minimum)	1 sec
Operating Voltage Range	24 V AC/DC, 110 V AC & 240 V AC
Contact Output	1 C/O - AgCdO
Contact Rating	10 A, 240 V / 28 V DC (Res)
LED Indication	Red for power ON
Mounting	Base / DIN rail

Ordering Information

Cat. No.	Voltage
20GDTO	110 - 240 V AC

Cat. No.	Voltage
22GDTO	24 V AC / DC

Overall / Mounting Dimensions (mm)



Supply Monitor Series - SPP - SM 301

- . Compact 35 mm wide
- . Protection against Phase loss, Phase reversal and Phase asymmetry
- . Reliable voltage sense based operation
- . Indication for healthy supply



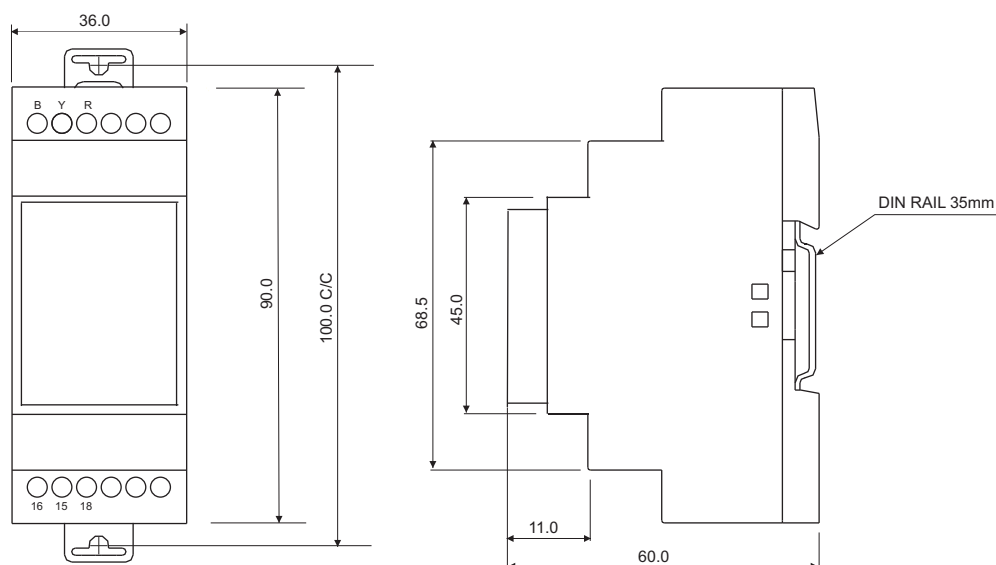
Technical Specifications

Type	SM 301
Operating Voltage Range	3 Phase 415 V AC
Supply Variation	-25% to +10% of Ur
Supply Frequency	50 Hz (+/- 2 Hz)
Power Consumption	10 VA max
Mode of Operation	-
Adjustments :	
- Operate Time	2 sec (fixed)
- Release Time	7 sec (fixed)
Output Relay	1 C/O
Contact Rating	5 A @ 250 V AC / 28 V DC
Mechanical Life	5 x 10 ⁶
Electrical Life	1 x 10 ⁵
Trip Setting :	
- Phase to Phase Unbalance	65 V AC (+/- 5 VAC)
- Unbalance Hysteresis Gap	10-18 V AC
LED Indication	Red for healthy
Operating Temp.	0 to 55°C
Storage Temp.	-25 to 70°C
Protection	IP30
Mounting	Base / DIN rail
Dimension	35 x 65 x 90 (mm)
Weight	139 gms
Reference Standard	IS 3842 Part III

Ordering Information

Cat. No.	Description
MA51BC	SM301 415 V AC/50HZ WITH 65 V AC Asymmetry

Overall / Mounting Dimensions (mm)



Supply Monitor Series Under / Over Voltage - SM 400

- . Compact 35 mm wide
- . Under Voltage, Over voltage and phase loss protection
- . Reliable voltage sense based operation
- . Suitable for single and three phase application
- . Settable under/over voltage range and ON delay time
- . Indication for power supply and Relay status

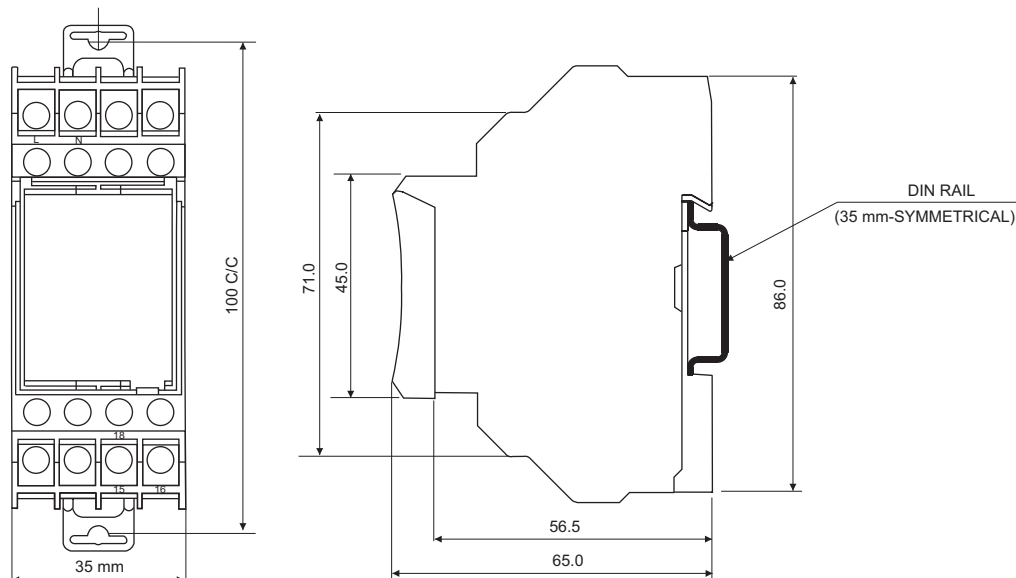


Technical Specifications	
Type	SM 400
Operating Voltage Range	3 Phase 415 V AC (4 Wires)
Supply Variation	-25% to +10% of Ur
Supply Frequency	48-63 Hz
Power Consumption	15 VA max
Trip Levels :	
- Over Voltage	250 - 300 V AC (with respect to neutral)
- Under Voltage	140 - 230 V AC (with respect to neutral)
Hysteresis	2% of set Voltage (Factory Set)
On Delay Time	1.5 - 15 min. & 1.5 - 15 sec
Release Time	3 sec (fix)
Output Relay	1 C/O
LED Indication	Green for power & Red for relay status
Contact Rating	5A @ 250 V AC / 28 V DC
Mechanical Life	3 x 10 ⁷
Electrical Life	1 x 10 ⁵
Operating Temp.	-10 to 55°C
Storage Temp.	-25 to 70°C
Protection	IP30 (Ref. IS 13947 Part I 19993)
Mounting	Base / DIN rail
Dimension	55 x 78 x 96 (mm)
Weight	200 gms
Reference Standard	IS 3842 Part III

Ordering Information

Cat. No.	Description
MD51B9	Under/Over voltage with 1.5 to 15 min on delay time
MD51BE	Under/Over voltage with 1.5 to 15 Sec on delay time

Overall / Mounting Dimensions (mm)



Three Phase Monitoring & UV / OV Relays

- Compact 36 mm wide
- Protects against Phase Loss, Natural Loss (4 wire only), Reversal, Unbalance & Under / Over voltage
- Adjustable time delay
- 3 phase-4 wire model
- LED indication for power and relay status
- Din Rail and Base mountable
- Voltage sensing principle



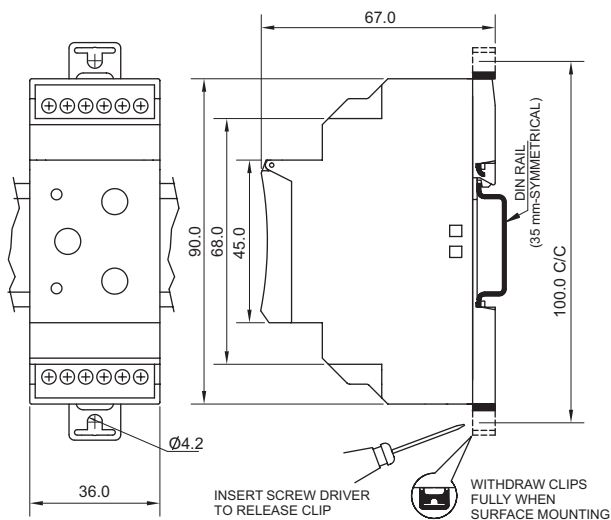
Technical Specifications

Type	MH11BH	MG11BH	MG13BH
Supply Voltage	3 Phase 4 W 415 V AC Ph - Ph 240 V AC Ph - Neutral		
Un:			
Frequency	48 - 63 Hz		
Power Consumption	~4 VA (415 V)		
Isolation supply to relay contacts	2.5 KV		5 KV
Under Voltage	0.55 - 0.95 x Un		
Over Voltage	Not Applicable	1.05 - 1.25 x Un	
Phase to Phase Unbalance	55 ± 5 volts		
Phase Reverse detect	Yes		
Phase Loss detect	Yes		
Hysteresis	5 volts of trip voltage (factory set)		
Time Delays:			
On Delay	1.5 - 15 seconds, ± 10% of Full scale.		
Trip Time	2 seconds (fixed). For Neutral loss < 100 ms.		
Contact Rating	(SPDT) 1 C/O 250 V AC 7 A (resistive) 28 V DC 7 A		(DPDT) 2 C/O 250 V AC 7 A (resistive) 28 V DC 7 A
Electrical Life	1 x 10 ⁵		1 x 10 ⁵
Operating Temp	- 10 to 55° C		
Storage Temp	- 20 to 70° C		
LED Indication	Green à power ON, Red à Relay ON		
Enclosure	Flame retardant UL 94V0		
Dimension (W x H x D)	36 x 67 x 90 mm		
Weight	~120 g		
Mounting	Base / DIN rail (35 mm symmetrical)		
Protection	IP30		
Terminal Connection	1.5 - 2.5mm ² flat lugs		
Certification	CE, CSA		
EMI/EMC			
Radio interference suppression	IEC55011 (Class B)		
Immunity to transients	Level IV as per IEC 1000-4-4		
Immunity to surges	Level III as per IEC 1000-4-5		

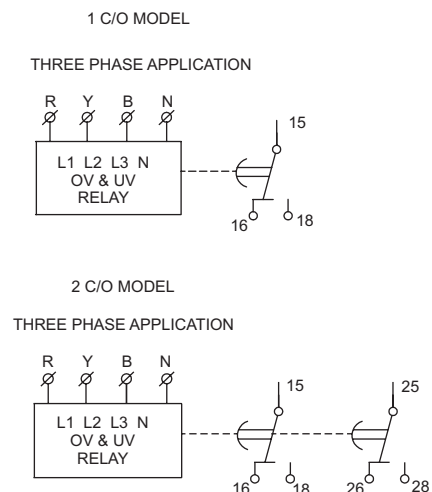
Ordering Information

Cat. No.	Description
MH11BH	3 Ph-4 W phase monitoring & UV relay with adjustable on time delay & 1 C/O
MG11BH	3 Ph-4 W phase monitoring & UV/OV relay with adjustable on time delay & 1 C/O
MG13BH	3 Ph-4 W phase monitoring & UV/OV relay with adjustable on time delay & 1 C/O

Mounting Dimension (mm)



Connection Diagram



Three Phase Monitoring with UV/OV Relay

- Protects against Phase Loss, Phase Reversal and Phase - Phase Unbalance and Under/Over Voltage faults
- 3 phase 3 wire model
- Adjustable Trip Time Delay
- Intelligent LED indications for power on and phase fault detection
- Din Rail and Base mountable
- Voltage sensing principle



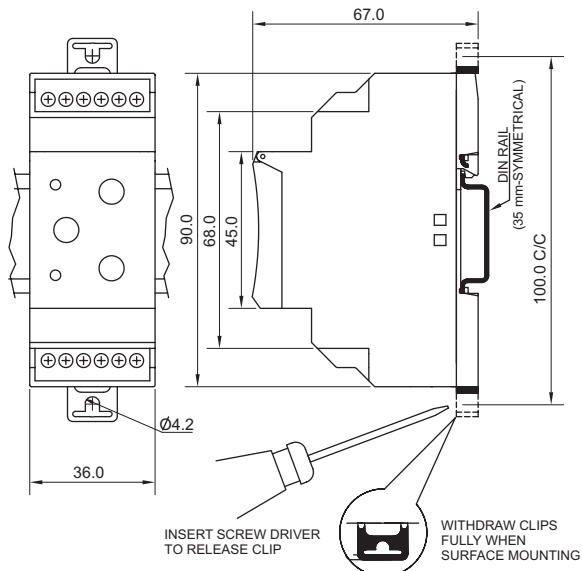
Technical Specifications

Type	MG53BF
Supply Voltage Un	3 Ph 415 V AC
Frequency	48 - 62 Hz
Power Consumption	~4 VA (415 V)
Isolation	5 KV (supply to relay contacts)
Trip Settings :	
Under Voltage	0.55 - 0.95 x Un
Over Voltage	1.05 - 1.25 x Un
Phase-Phase Unbalance	55 V (+/-5 volts) Fixed
Phase Reverse Detect	Yes
Hysteresis	5 volts of trip voltage
Time Delays	
On Delay	2 sec (factory set)
Trip Time (Off Delay)	1.5 - 15 Sec (adjustable)
Setting Accuracy	± 10 % of full scale
Contact Rating	(DPDT) 2 C/O 250 V AC 7 A (resistive) 28 V DC 7 A
Electrical Life	1 x 10 ⁵
Operating Temp.	- 10 to 55° C
Storage Temp.	- 20 to 70° C
LED Indication	Green à Power ON, Red à Relay On Intelligent LED indications for supply and relay status
Enclosure	Flame Retardant UL 94V0
Dimension (W x H x D)	36 x 67 x 90 mm
Weight	~120 g
Mounting	Base / DIN rail (35 mm symmetrical)
Protection	IP30
Terminal Connection	1.5 - 2.5 mm ² flat lugs
Certification	CE, CSA
EMI/ EMC	
Radio Interference Suppression	IEC55011 (Class B)
Immunity to Transients	Level IV as per IEC 1000-4-4
Immunity to Surges	Level III as per IEC 1000-4-5

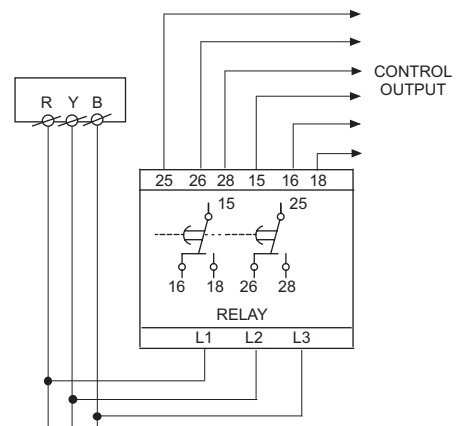
Ordering Information

Cat. No.	Description
MG53BF	3 Ph 415 V AC with adjustable trip time. 2C/O

Mounting Dimension (mm)



Connection Diagram



Digital Hour Meter & Counter Series HM - D24

- 6 Digit LC display for easy to read
- Exceptional reliability due to non-volatile memory (EEPROM)
- Wide operating voltage range (9 - 32 V AC/DC, 75 - 130 V AC, 190 - 270 V AC)
- Electrical reset, Front reset
- Available in 3 different bezels
- Low power consumption



Technical Specifications

Type	Hour Meter	Counter
Supply Voltage	10 - 80 V DC, 12 - 48 V AC/DC, 85 - 265 V AC	10 - 80 V DC, 12 - 48 V AC/DC, 85 - 265 V AC
Count Range	99999.9	999999
Display	6 Digit LCD 5 mm height	6 Digit LCD 5 mm height
Resolution	0.1 hours	1 Count
Counting Speed	-	2 Hz
Scale Factor	-	-
Resetting	Electrical	Electrical
Accuracy	+/- 0.2% (at 25°C & 24 V DC)	+/- 1 Count (at 25°C & 24 V DC)
Operating Temperature	-10°C to +50°C	-10°C to +50°C
Storage Temperature	-20°C to +65°C	-20°C to +65°C
Humidity	95% Rh (non condensing)	95% Rh (non condensing)
Protection Class	IP54 (for front side only)	IP54 (for front side only)
Terminals	1, 2 : Input Supply, 3 : Enable, 4 : Reset	1, 2 : Input Supply, 3 : Count I/P, 4 : Reset

Ordering Information

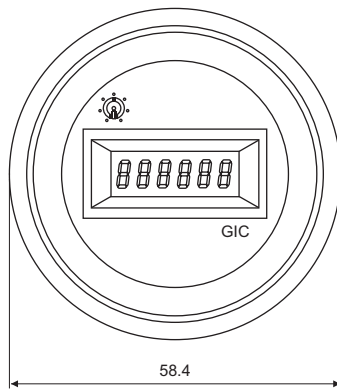
Cat. No.	Description
ZH1FBX	10 - 80 V DC Hour Meter
ZJ1FBX	12 - 48 V AC/DC Hour Meter
Z71FBX	85 - 265 V AC Hour Meter

Cat. No.	Description
ZH2FBX	10 - 80 V DC Counter
ZJ2FBX	12 - 48 V AC/DC Counter
Z72FBX	85 - 265 V AC Counter

X = • A : Round Bezel, • B : 24 x 48 Bezel • C : Screw Mount Bezel

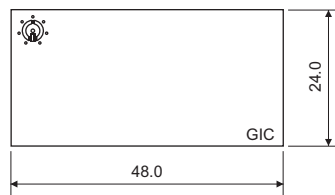
Overall / Mounting Dimensions (mm)

ROUND BEZEL



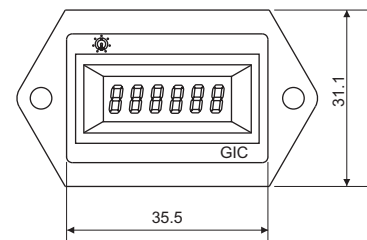
Recommended Panel Cutout :
37.0(+0.5)mmx24.6(+0.5)mm

24 x 48 BEZEL



Recommended Panel Cutout :
45.5(+0.5)mmx23.0(+0.5)mm

SCREW MOUNT BEZEL



Recommended Panel Cutout :
37.0(+0.5)mmx24.6(+0.5)mm

Hour Meter Series HM48 & HM700

- High degree of accuracy
- Compact
- Maintenance free
- Versatility in mounting
- AC synchronous hour meter driven by synchronous motor
- DC quartz hour meter driven by stepper motor



Technical Specifications

Type	AC Model HM48	Synchron - AC Model HM 700 Quartz - DC Model HM 700
Rated Voltage	24 V AC / 110 V AC / 240 V AC	24, 110 & 240, 415 V AC 50 Hz (for AC) 6 - 12 / 12 - 36 / 36 - 80, 110, 220 V DC (for DC)
Voltage Range	80% to + 110%	80% - 110% (for AC/DC)
Drive	Synchronous Motor	Synchronous Motor (for AC) Stepper Motor (for DC)
Consumption	Approx 1VA	5 VA (for AC) 2 W (for DC)
Register	7 Digital (2 decimal)	7 Digit (2 decimal for AC) 7 Digit (1 decimal for DC)
Read out	99999.99	99,999.99 (for AC) 999999.9 (for DC)
Least count	1/100 Hrs	1/100 Hrs (for AC) / 1/10 Hrs (for DC)
Accuracy	Directly proportional to supply frequency	Directly proportional to supply frequency (for AC) ± 1.0 sec / 24 Hrs. At 25°C (for DC)
Vibration Shocks	10 to 2000 Hz with 0.5 g	10 - 50 Hz, amplitude, 0.35 mm 50 blows at acceleration 7g for vibration proof buffer mounting
Protection	IP20	IP54 : IS 13947
Net weight	70 gms	85 gms (unpacked)
Ambient Temperature	20°C to + 55°C	-5°C to +45°C
Mounting	Flush / Base	Standard Hour Meter is furnished with flush mounting metal bracket. On request, base mounting bracket can be furnished in place of flush mounting bracket.

Ordering Information

HM700 SYNCHRON
E 5 □ S □ 1

Voltage	Mounting
1 24 VAC 50Hz	B Base Mounting
3 110 VAC 50Hz	F Flush Mounting
4 240 VAC 50Hz	
5 415 VAC 50Hz	

HM700 QUARTZ
E 6 □ Q □ 1

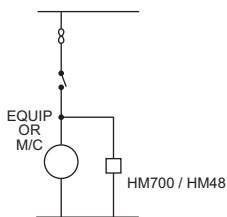
Voltage	Mounting
1 12-36 VDC	B Base Mounting
2 36-80 VDC	F Flush Mounting
3 110 VDC	
4 220 VDC	
5 6-12 VDC	

HM48 SYNCHRON
K 5 □ S □ 1

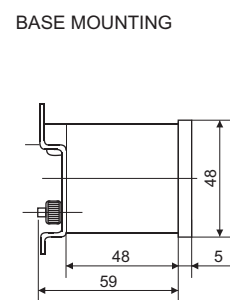
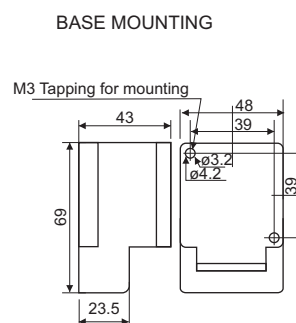
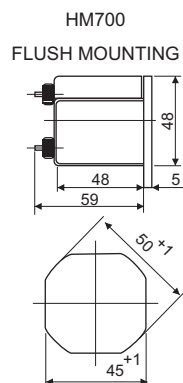
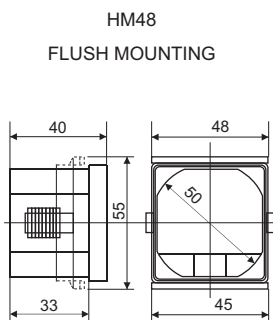
Voltage	Mounting
1 24 VAC 50Hz	B Base Mounting
3 110 VAC 50Hz	F Flush Mounting
4 240 VAC 50Hz	

Mounting Accessories for HM700	
Mounting frame	Cat. No.
55 x 55 mm	EF 1900
72 x 72 mm	EF 1901
Base mounting bracket	EF 2002
Vibration proof buffer	EF 9000

Wiring Diagrams of Series HM48 & HM700



Overall / Mounting Dimensions (mm)



Time Switches *Crono* (Digital)

- Sleek MCB shaped design with front display and DIN rail mounting
- Suitable for daily & weekly applications
- 8 ON & OFF functions
- 4 mode manual override
- LED indication for relay status
- Power reserve for 1500 Hours



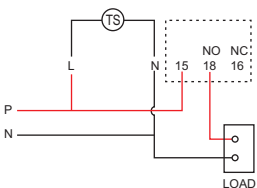
Technical Specifications

Type	Crono	Pulse
Operating Voltage	240 V AC	240 V AC
Supply Frequency	50 / 60 Hz	50 / 60 Hz
Power consumption	6 VA	6 VA
Ambient Temperature	0°C to 55°C	0°C to 55°C
Clock accuracy	± 2.5 sec / day at 20°C	± 2.5 sec / day at 20°C
Switching contact	1 C/O contact - AgSnO	1 C/O contact - AgSnO
Power reserve	1500 hrs	1500 hrs
Shortest Switching Time :		
- Daily / Weekly	1 min	-
- Pulse duration	-	1 sec (Max 59 sec)
Memory locations	8 ON / OFF	16
Max. Contact rating :		
- Resistive	16 A / 250 V AC	16 A / 250 V AC
- Inductive (cosØ = 0.6)	6 A / 250 V AC	6 A / 250 V AC
- Incandescent Lamp	1000 W	1000 W
Manual Over-ride	Provided	Provided
Mounting	Base / DIN rail	Base / DIN rail
Weight	120 gms (unpacked)	120 gms (unpacked)
Applications	Ideal for Lighting	Ideal for Siren, School bell

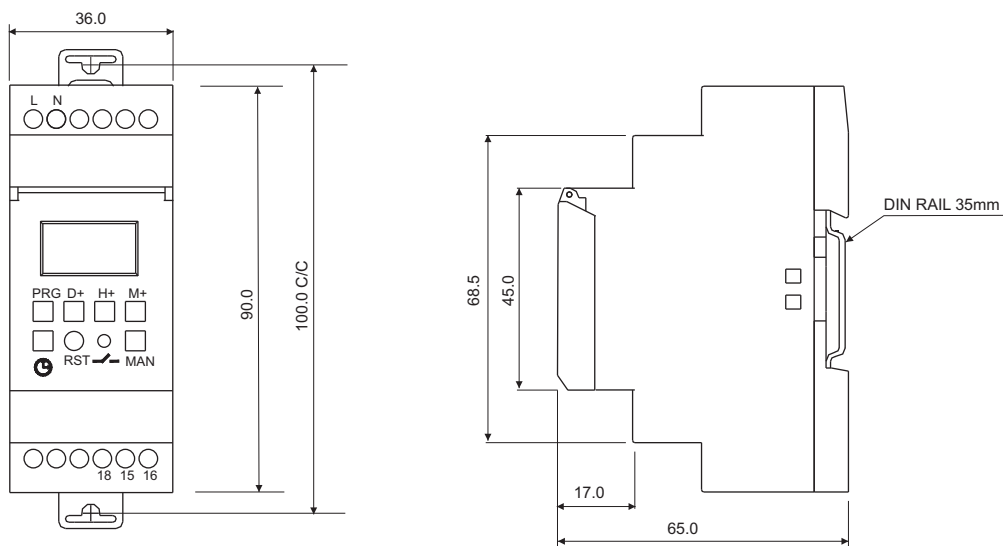
Ordering Information

Cat. No.	Description
62DDT0	Digital Time Switch 240 V AC Crono
62DDT9	Digital Time Switch 240 V AC Pulse

Wiring Diagrams of Crono



Overall / Mounting Dimensions (mm)



Time Switches Series FM

- Modular construction
- Inbuilt over-ride facility
- High switching capacity
- Analog & Digital version
- Tamper Proof sealing



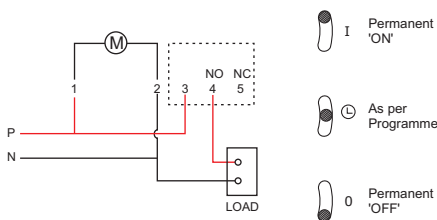
Technical Specifications

Type	FM/1 Quartz	FM/1 Digi
Operating Voltage	240 V AC	240 V AC
Supply Frequency	45 - 65 Hz	45 - 65 Hz
Power consumption	2 VA	4.4 VA
Ambient Temperature	-20°C to 55°C	-10°C to 55°C
Clock accuracy	± 2.5 sec / day at 20°C	± 2.5 sec / day at 20°C
Switching contact	1 C/O contact - AgCdO	1 C/O contact - AgCdO
Power reserve	150 Hrs	150 Hrs
Shortest Switching Time :		
- Daily	15 Min	1 Min
- Weekly	2 Hrs	1 Min
Memory locations	NA	20
Contact rating :		
- Resistive	16 A / 250 V AC	16 A / 250 V AC
- Inductive (cosØ = 0.6)	8 A / 250 V AC	8 A / 250 V AC
- Incandescent Lamp	1350 W	1000 W
Manual Over-ride	Provided	Provided
Mounting	Flush, Base / DIN rail	Flush, Base / DIN rail

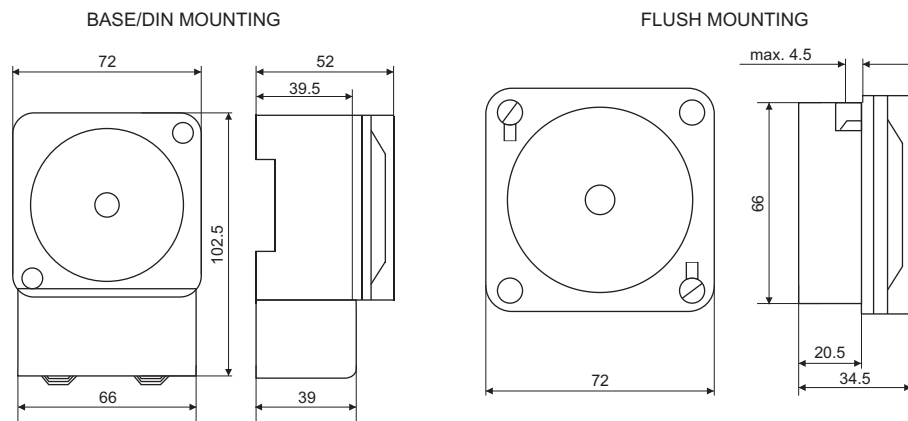
Ordering Information

Base/DIN Mounting	Flush Mounting	Description	
Cat. No.	Cat. No.		
J648B1	J648F1	FM/1 QT	Daily dial, 240 V AC
J848B1	J848F1	FM/1 QW	Weekly dial 240 V AC
J638B1	J638F1	FM/1 QT	Daily dial 110 V AC
J838B1	J838F1	FM/1 QW	Weekly dial 110 V AC
D847B1	D847F1	FM/1 digi 20	Digital 240 V AC
D837B1	D837F1	FM/1 digi 20	Digital 110 V AC

Wiring Diagrams of Series FM



Overall / Mounting Dimensions (mm)



Time Switch *Astro*

Feature :-

- Sunrise and Sunset time for entire year
- Offset from Sunrise / Sunset
- ON / OFF / PULSE
- Pulse Duration
- Back-lit LC Display
- 2 Channels
- Mid Night Off
- Alternate days Switching
- DST (Daylight Saving Time)
- Interface for Memory card and PC



Technical Specifications

Type

Astro

Operating Voltage	110 - 240 V AC
Supply Frequency	50 - 60 Hz
Power consumption	~ 3 W
Storage Temperature	-20°C to +70°C
Operating Temperature	0°C to +50°C
Clock accuracy	± 1 sec / day at 20°C
Switching contact	2 NO contact - AgSnO
Power reserve (for clock only)	1000 Hrs
Shortest Switching Time :	
- Daily	1 Min
Contact rating :	
- Resistive	8 A @ 240 V AC / 30 V DC
- Incandescent Lamp	1000 W
Manual Over-ride	Auto, Auto ON, Auto OFF, Manual ON and Manual OFF
Mounting	Base / DIN
Weight	214 gms

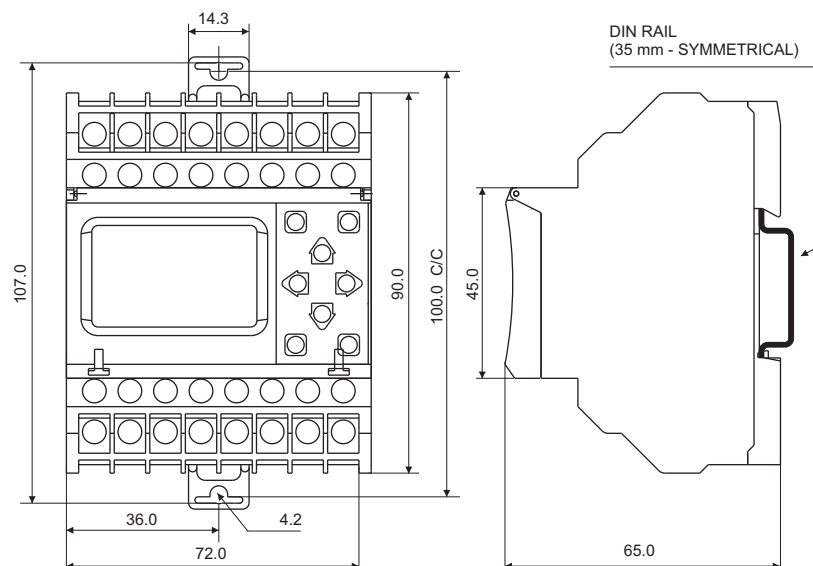
Ordering Information

Cat. No.	Description
T2DDT0	Digital Astro Time Switch 110 - 240 VAC

Accessories

TGDDT1	Software on PC
TGDDT2	Serial Interface cable
TGDDT3	Memory Card
TGDDT4	Instruction Manual

Overall / Mounting Dimensions (mm) *Astro*



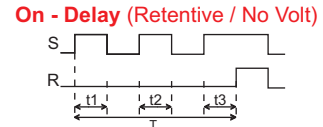
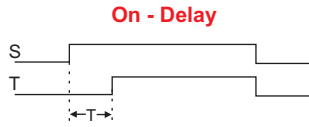
Auto-Reset Synchronous Timers Series EM1000

- Time delay is independent of normal voltage and temperature fluctuations
- Black pointer gives clear indication of time set on a calibrated dial while the red one indicates the time left to complete the cycle
- Automatic reset on de-energisation of the clutch coil
- Base mounting or flush mounting versions
- No-volt feature is available



Technical Specifications

Type
Functional Diagram

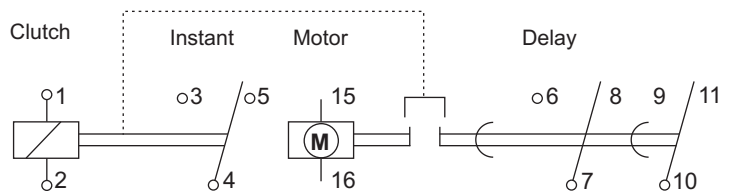


Rated Voltage	240/110 V AC with -20% to +10% Voltage
Frequency Range	95% - 105%
Nominal Consumption	10 V AC Max
Rated Duty	Continuous
Max. Switching Rate	3000 op/hr
Pointer Reset Time	250ms at max settings
Repeat Accuracy	± 0.5% of FSR at constant Frequency
Variation due to Temp. Change	0.0% at Constant Frequency
Variation due to Voltage Change	0.0% at Constant Frequency
Ambient Temperature	-5°C to + 45°C
Protection	Enclosure Conforms to IP30 - IS 13947
Contact	1 inst + 1 delayed - AgCdO 1 inst + 2 delayed - AgCdO (Optional)
Contact Rating	6 A max
Mounting	Flush & Base
Range	0.15 Sec to 120 Hr

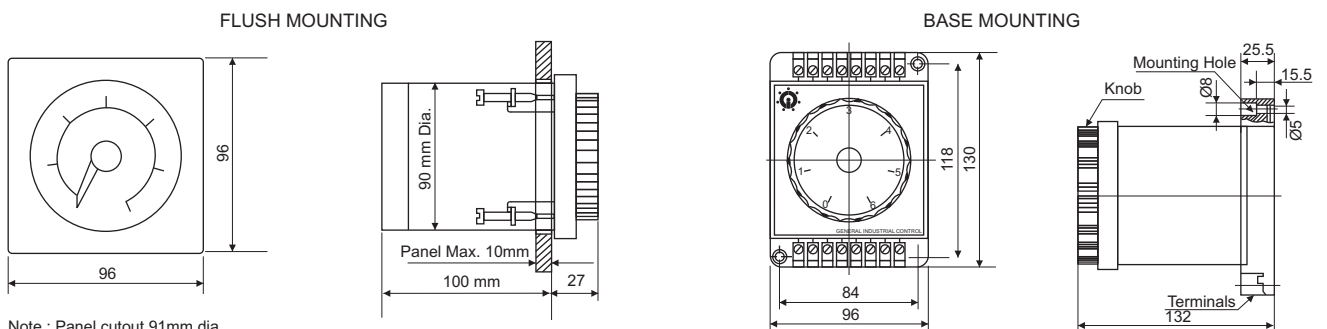
Ordering Information

Timing Ranges(SR)	B □ □ □ □		
B	0.15 - 3.0 SEC		
C	1.5 - 30 SEC		
D	0.15 - 3.0 MIN		
E	1.5 - 30 MIN		
F	0.15 - 3.0 HRS		
G	1.5 - 30 HRS		
H	0.3 - 6.0 SEC		
J	3.0 - 60 SEC		
K	0.3 - 6.0 MIN		
L	3.0 - 60 MIN		
M	0.3 - 6.0 HRS		
N	3.0 - 60 HRS		
P	0.6 - 12 SEC	X 0.15 SEC.-3.0 HRS.	
Q	6.0 - 120 SEC	Y 0.3 SEC.- 6.0 HRS.	
R	0.6 - 12 MIN	Z 0.6 SEC.-12.0 HRS.	
S	6.0 - 120 MIN		
T	0.6 - 12 HRS		
V	6 - 120 HRS		
		Voltage	
		3	110 V AC 50 Hz
		4	240 V AC 50 Hz
		C	110 V AC 60 Hz
		D	240 V AC 60 Hz
		Delay	
		1	Standard ON delay
		2	With 'NO VOLT'
		Mounting	
		B	Base Mounting
		F	Flush (door) Mtg.
		Contact	
		1	1 Inst + 1 Del C/O
		2	1 Inst + 2 Del C/O

Wiring Diagrams of Series EM1000



Overall / Mounting Dimensions (mm)



Note : Panel cutout 91mm dia

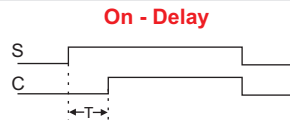
Auto-Reset Synchronous Timers Series EM2000

- Time delay is independent of normal voltage & temp. fluctuations
- Large knob operating on a linear scale makes time setting easy
- Set time is indicated by a fixed pointer of the setting knob
Time left for completion of cycle is indicated by red pointer
- Wiring is quicker and easier as terminals are in the front of the unit
- All part subjected to wear & tear are made of 'Derlin' which has high resistance to wear & tear and thus ensures longer life



Technical Specifications

Type
Functional Diagram



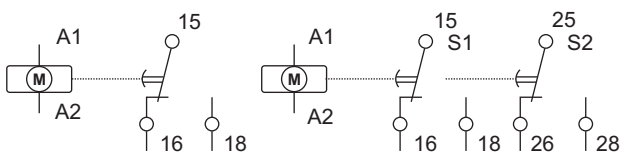
Coil Voltage	110 / 240 / 415 V AC
Voltage Range	80% - 110% of nominal voltage
Frequency Range	95% - 110% of nominal frequency
Max. Switching Rate	1000 op/hr
Contact drop-out time	< 250 ms
Reset time	< 4% of set time
Repeat accuracy	± 2% of FSR at constant frequency
Ambient Temperature	-5°C to + 45°C
Protection	Enclosure Conforms to IP30 - IS 13947
Contact	1 Set of delayed Changeover contact - AgCdO 2 Set of delayed Changeover contact - AgCdO (Optional)
Contact Rating	5 A 240 V AC
Mounting	Base/DIN Mounting & can be mounted on vertical plane with maximum inclination of 15° from vertical
Range	1 sec to 120 sec

Ordering Information

Timing Ranges	Voltage	Contact
C 1.0 - 30 SEC	3 110 V AC 50 Hz	5 1 Del C/O
J 2.0 - 60 SEC	4 240 V AC 50 Hz	6 2 Del C/O
Q 4.0 - 120 Sec	5 415 V AC 50 Hz	

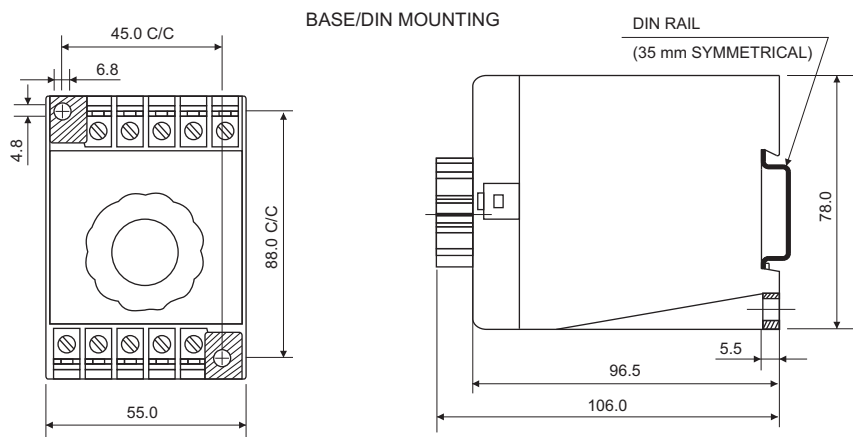
C □ □ □ B 1

Wiring Diagrams of Series EM2000




Note : Switch 2 operates before switch 1

Overall / Mounting Dimensions (mm)



MICON Series Electronic Timers - General Technical Specification

Feature	General Specifications	
Operating Voltage	80% - 110% of Rated Voltage	
Power Consumption	*10-15 VA (approximate)	
Frequency	50 / 60 Hz	
Setting Accuracy	± 5 % of full scale maximum	
Repeat Accuracy	± 1% maximum	
Reset Time	100 ms maximum	
Variation in timing due to Voltage change	± 2% maximum (for minimum to maximum operating voltage)	
Variation in timing due to Temperature change	± 5% maximum (for minimum to maximum operating temperature)	
Indications	LEDs for Power ON and Relay Status	
Insulation Resistance	> 100 M ohms @ 500 V DC	
Mechanical Life Expectancy	5 X 10 ⁶ operations	
(at no load and maximum switching frequency)		
Electrical Life Expectancy	175, 225, 350, 480 Series	780 Series
• 240 V AC, PF =1.0, rated maximum load current	1 x 10 ⁵ operations	0.5 x 10 ⁵ Operation
• 30 V DC, L/R = 7 ms	6 x 10 ⁴ operations	6 x 10 ⁴ Operation
• 240 V AC, PF = 0.4, rated maximum load current	4 x 10 ⁴ operations	
Maximum Switching Frequency	1000 operations / Hour	
Contact Material	As mentioned in respective page of products	
Protection Class	IP 30	
Terminal Size	Suitable for maximum 2.5 mm ² wires	
Operating Temperature	-10°C to +55°C	
Storage Temperature	-20°C to +70°C	
Certification		

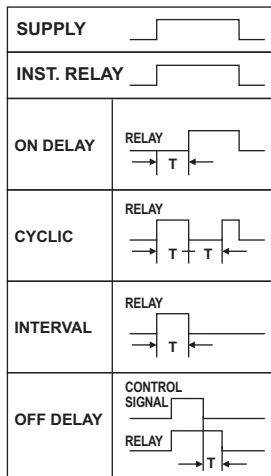
* 20 VA for True Off Delay Timer

Glossary

Operating Voltage	Input supply required for the operation.
Supply Variation	Allowable variation in input power supply connected to timer for satisfactory functioning.
Delayed Contacts	A contact in timer that changes state at the end of time you have set.
Instantaneous Contact	A contact which changes state as soon as power is switched on to the Timer.
Mechanical Life	The number of operations of contact without electrical supply.
Electrical Life	The number of operation that the contact can be expected to make and break at rated electrical load.
Reset Time	Time taken by timer to start a new cycle.
Repeat Accuracy	It Indicates how consistently the timer will repeat the time. It is more important especially where uniform processing time cycles are required.
Rated Current	A current that can flow continuously through the closed contact.
Contact Rating	Voltage & current which can switch under specified conditions.
Ambient Temperature	Temperature of atmosphere surrounding the product.
Power Consumption	Power absorbed by timer for its own satisfactory functioning.
Mounting	The type of placement of timer (Base / DIN / Flush).
No-volt protection feature	Timers are available with a no-volt protection feature which ensures that elapsed time is not canceled as they do not reset when the supply is interrupted during any timing cycle. This feature is particularly useful for applications like battery charging, mixing or any application where aggregate timing has to be kept constant even under power interruption.

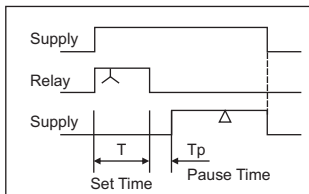
Operating Modes / Functions

Multifunctional



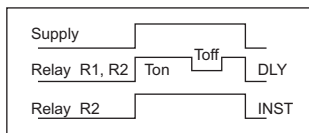
- Delay on Energisation (ON Delay) :**
 The set time (Delay) starts when timer receives supply. The output relay energises at the end of the pre-set time.
- Cyclic Instant (Equal ON/OFF) :**
 On energisation, relay output is on and off repeatedly for the set time. Cycle starts with relay in energised condition. By removing supply, the relay gets reset.
- Interval Timer :**
 On energisation of Timer, Output relay changes the state for the time set. After completion of set time, output relay de-energises. By switching off supply, the Timer gets de-energised & is ready for the next cycle of the operation.
- (Signal)-Off delay :**
 Timer is energised and relay is in Off condition. When control input is given through control contacts, relay is energised. Delay period commences when control input is removed. At the end of set time, relay is de-energised and load is disconnected.

Star - Delta



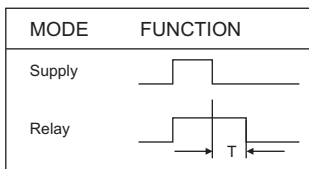
- Star-Delta :**
 This timer has a fixed transition time from Star to Delta connections. On energisation, the output Star relay energises instantly. After completion of preset delay time, output Delta relay energises after fixed pause time. This pause time (60, 90, 120, 150 ±20 ms) provides the shortest possible 'current off' pause and simultaneously ensures smooth change over.

Asymmetrical ON/OFF



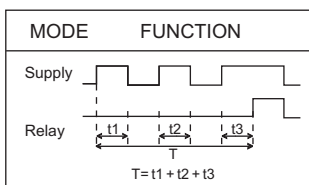
- Asymmetrical ON/OFF (Cyclic Instant) :**
 ON/ OFF, can be independently selected from 0.1 Sec. to 10 Hrs. On energisation, relay output is on and off repeatedly for the respective set times. Cycle starts with relay in energised condition. By removing supply, the relay gets reset.

True Off Delay



- True off Delay :**
 On energisation the Relay O/P is in ON position. Timing delay period commences when supply to the true off delay Timer goes OFF. The O/P Relay de-energises at the end of pre-set time.

On Delay (Retentive / No Volt)



- On Delay (Retentive) :**
 The set time (Delay) starts when timer receives supply. The output relay energises at the end of the pre-set time. If power fails during set time, the elapsed time will be retained by timer. Upon resumption of power, remaining cycle will continue.

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