Digital Timer Eliso[®]

- Compact 17.5 mm Wide
- Multi Function: (8 or 18) Non Signal & Signal based functions
- Multi-Voltage: 24 240 VAC/DC
- Wide Timing Range: 0.1s to 999 Hr
- 3 Digit LCD for Preset time and Run time
- Option to select Up/Down counting
- Tamper proof with key lock feature



Cat. No.	V0DDTS	V0DDTD	V0DDTS1	V0DDTD1						
Parameters										
Timer Description	Multi Function Digital Timer									
Functions	 ON Delay Cyclic OFF/ON Cyclic ON/OFF Signal ON/OFF Signal OFF Delay Interval Signal OFF/ON One Shot Output 		 ON Delay Cyclic OFF/ON Cyclic ON/OFF Impulse on Energizing Accumulative Delay on Signal Accumulative Delay on Inverted Signal Accumulative Impulse on Signal Signal ON Delay Inverted Signal ON Delay Inverted Signal ON Delay Signal OFF Delay Impulse ON/OFF Signal OFF/ON Leading Edge Impulse 1 Leading Edge Impulse 1 Trailing Edge Impulse 1 Trailing Edge Impulse 2 Trailing Edge Impulse 1 Trailing Edge Impulse 1 Trailing Edge Impulse 1 							
Supply Voltage (中)	24 - 240 VAC/DC									
Supply Variation	-15% to +10% (of 中)									
Frequency	50/60 Hz									
Power Consumption (Max.)	10 VA									
Timing Range	0.1s to 999h									
Reset Time	200 ms (Max.)									
Repeat Accuracy Relay Output	$\pm 0.5\%$	2 NO	1.0/0	2 NO						
Contact Rating	84 @ 240 VAC / 24 VDC	$\frac{1 \text{ C/O}}{2 \text{ NO}} 2 \text{ NO} \qquad 1 \text{ C/O} \qquad 2 \text{ NO}$								
Output Electrical Life	$\frac{1}{1} \times 10^5$									
Mechanical Life	$2x10^7$									
AC - 15	Rated Voltage (Ue): 125/240 V Rated Current (Ie): 3/1 5 A									
Utilization Category DC - 13	Rated Voltage (Ue): 125/250 V, Rated Current (Ie): 2/0.22/0.1 A									
Operating Temperature	-10° C to +55° C									
Storage Temperature	-20° C to +65° C									
Humidity (Non Condensing)	95% (Rh)									
LED Indication	Red LED \rightarrow Relay ON									
Enclosure	Flame Retardant UL94-V0									
Dimension (W x H x D) (in mm)	17.5 X 89 X 76	17.5 X 89 X 76								
Weight (unpacked)	85 g									
Mounting	Base / DIN Rail									
Certification										
Degree of Protection	IP 20 for Terminals, IP 30 for Enclosure									
EMI / EMC										
Harmonic Current Emissions ESD Radiated Susceptibility Electrical Fast Transients Surges Conducted Susceptibility Voltage Dips & Interruptions (AC) Voltage Dips & Interruptions (DC) Conducted Emission Radiated Emission	IEC 61000-3-2 IEC 61000-4-2 IEC 61000-4-3 IEC 61000-4-4 IEC 61000-4-5 IEC 61000-4-6 IEC 61000-4-11 IEC 61000-4-11 IEC 61000-4-29 CISPR 14-1 CISPR 14-1	Ed. 3.2 (2009-04) Class A Ed. 2.0 (2008-12) Level II Ed. 3.2 (2010-04) Level III Ed. 3.0 (2012-04) Level IV Ed. 2.0 (2005-11) Level IV Ed. 3.0 (2008-10) Level III Ed. 2.0 (2004-03) All 7 Leve Ed. 1.0 (2000-08) All 5 Leve Ed. 5.2 (20011-11) Class A Ed. 5.2 (20011-11) Class B	ls ls							
Cold Heat IEC 60068-2-1 Ed. 6.0 (2007-03) Dry Heat IEC 60068-2-2 Ed. 5.0 (2007-07) Vibration IEC 60068-2-6 Ed. 7.0 (2007-12) 5g Repetitive Shock IEC 60068-2-27 Ed. 4.0 (2008-02) 40g, 6ms Non-Repetitive Shock IEC 60068-2-27 Ed. 4.0 (2008-02) 30g, 15ms										
ORDERING INFORMATI	ON									
Cat. No.	Description									
V0DDTS	24 - 240 VAC/DC, Multi Function Digital Timer - Eliro (8 Functions), 1 C/O									
V0DDTD	24 - 240 VAC/DC, Multi Function Digital Timer - Eliro (8 Functions), 2 NO									
V0DDTS1	24 - 240 VAC/DC, Multi	Function Digital Timer - Eliro	(18 Functions), 1 C/O							
V0DDTD1	24 - 240 VAC/DC, Multi Function Digital Timer - Eliro (18 Functions). 2 NO									

Digital Timer Eliro®



FUNCTIONAL DIAGRAMS FOR V0DDTS1 & V0DDTD1

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ON DELAY [0]

On application of supply voltage, the preset time duration (T) starts. On completion of the preset time, the output is switched ON and remains ON till the supply voltage is present.

CYCLIC OFF/ON {OFF Start, (Sym, Asym)} [1]



Т

On application of supply voltage, the output is initially switched OFF for the preset 'OFF' time duration (TOFF) after which it is switched ON for the preset 'ON' time duration

(TON). This cycle repeats and continues till the supply is present.

CYCLIC ON/OFF



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duration (TON) after which it is switched OFF for the preset 'OFF' time duration (TOFF). This cycle repeats and continues till the supply is present.

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IMPULSE ON ENERGIZING [3]

On application of supply voltage, the output is instantly switched ON for the preset time duration (T) after which it is switched OFF.



ACCUMULATIVE DELAY **ON SIGNAL** [4]

On application of supply voltage, the preset timing duration commences. When input signal is applied, the timing pauses and resumes only when the input signal is removed.

The output is switched ON at the end of the preset time duration (T).

ACCUMULATIVE DELAY **ON INVERTED SIGNAL [5]**

On application of supply voltage and input signal, the preset timing duration commences. When the signal is removed the timing pauses and resumes when the signal is applied. The output is switched ON at the end of the preset time duration (T).

ACCUMULATIVE IMPULSE ON SIGNAL [6]

On application of supply voltage the output is switched ON & the preset timing duration commences. When the signal is applied the timing pauses and resumes when the signal is removed. The output is switched OFF at the end of the preset time duration (T).

SIGNAL ON DELAY [7]

On application of input signal, the preset time duration (T) starts. On completion of the preset time, the output is switched ON and remains ON till the input signal is present

INVERTED SIGNAL ON DELAY [8]

On application of supply voltage, the preset time duration (T) starts. When input signal is applied, the timing pauses & resumes only when the signal is removed. On completion of the preset time, the output is switched ON.













 i : Supply Voltage, S: Input Signal, R: Relay Output T: Preset Time, TON: Preset ON Time, TOFF: Preset OFF Time

SIGNAL OFF DELAY [9]

On application of supply voltage and input signal, the output is switched ON. When the signal is removed the preset time duration commences & the output is switched OFF at the end of the time duration.

IMPULSE ON/OFF [A]

On application or removal of input signal, the output is switched ON & the preset time duration (T) starts. On completion of the time duration the output is switched OFF. When timing commences, changing the state of the input signal resets the time.

SIGNAL OFF/ON [b]

On application of input signal, the preset delay time period (T) starts. On completion of the preset time, the output is switched ON. On removal of input signal, the preset time period starts again and the output is switched ON when the preset time duration is complete

LEADING EDGE IMPULSE1 [C]

On application of input signal the output is immediately switched ON. The output remains ON for the preset time duration (T) after which it is switched OFF. If the input signal is removed during the preset time, the output remains unaffected.

LEADING EDGE IMPULSE2 [d]

On application of input signal the output is immediately switched ON. The output remains ON for the preset time duration (T) after which it is switched OFF. If the input signal is removed during the preset time, the output is immediately switched OFF.

TRAILING EDGE IMPULSE1 [E]

When the input signal to the timer is removed, the output is immediately switched ON for the preset time duration (T) after which it is switched OFF. If the input signal is applied during the preset time, the output is immediately switched OFF.

TRAILING EDGE IMPULSE2 [F]

When the input signal to the timer is removed, the output is immediately switched ON for the preset time duration (T) after which it is switched OFF. If the input signal is applied during the preset time, the output remains unaffected.

DELAYED IMPULSE [G]

On application of input signal, the preset 'OFF' time duration (TOFF) starts. the output is switched ON at the end of the preset 'OFF' time duration & the preset 'ON' time duration commences irrespective of signal level and remains ON till the completion of 'TON'

INVERTED SIGNAL ON DELAY-TYPE 2 [H]

Timing starts only upon signal 'S' transition high to low. During timing or after completion of Time (i.e. relay on), any signal transition is ignored. To reset the timer supply has to be interrupted.







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Digital Timer Eliro®



FUNCTIONAL DIAGRAMS FOR V0DDTS & V0DDTD

➡ : Supply Voltage, S: Input Signal, R: Relay Output
T: Preset Time, TON: Preset ON Time, TOFF: Preset OFF Time

ON DELAY (A)

On application of supply voltage, the preset time duration (T) starts. On completion of the preset time, the output is switched ON and remains ON till the supply voltage is present

CYCLIC OFF/ON {OFF Start, (Sym, Asym)}(b)

On application of supply voltage, the output is initially switched OFF for the preset 'OFF' time duration (TOFF) after which it is switched ON for the preset 'ON' time duration (TON). This cycle repeats and continues till the supply is present.

CYCLIC ON/OFF {ON Start, (Sym, Asym)}(C)

On application of supply voltage, the output is initially switched ON for the preset 'ON' time duration (TON) after which it is switched OFF for the preset 'OFF' time duration (TOFF). This cycle repeats and continues till the supply is present.

SIGNAL ON/OFF(d)

On application of signal the preset time (T) starts. After this preset time has elapsed, output is switched ON.If signal is removed then output is switched ON immediately and OFF delay is started. Once this time period has elapsed the output is switched OFF. During this OFF delay if signal is reapplied the output switched OFF immediately and ON Delay restarted.

SIGNAL OFF DELAY(E)

On application of supply voltage and input signal, the output is switched ON. When the signal is removed the preset time duration commences & the output is switched OFF at the end of the time duration.

INTERVAL(F)

When supply power is applied to the timer, the output is instantly switched ON. On completion of the preset time, the output is switched OFF

SIGNAL OFF / ON (G)

On application of input signal, the preset delay time period (T) starts. On completion of the preset time, the output is switched ON. On removal of input signal, the preset time period starts again and the output is switched ON when the preset time duration is complete.

ONE SHOT OUTPUT (H)

When Signal (S) is applied, the Timer Duration (T) starts. At the end of Timer duration (T), the relay gets energized for approximately 1 sec.(Refer Note:2)







Note: 1. For Power-On operation, connect the terminal B1 to A1 permanently.

2. If the Signal (S) changes during the Timer Duration (T), it does not change the output relay but re-triggering takes places and the Timer Duration is extended.

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Programmable Digital Timer *Eliso*®

- Digital 7-Segment display Supply Voltage range of 110-240 VAC
- Input Signal Sensing range of 85-265 VAC/100-265 VDC & 20-60 VAC/DC
- Inbuilt library of 33 functions covering majority applications
- Easy steps to program customized functions
- Suitable for Panel and Base/DIN mounting
- Two separate Channel outputs with selectable Timer modes
- Wide timing range 0.1 Sec. to 999 Days
- Tamper proof with key lock feature
- Provision to edit Preset time
- during Run time
- Provision to save two independent functional Profiles (P1 & P2)



V7DFTS3 Cat. No. V7DDSS3 Parameters Timer Description Programmable Multi Function Digital Timer 17) Impulse on energizing Default Functions 1) On delay 2) On delay constant supply type 2 18) Impulse on/off 3) On delay constant supply type 3 19) Accumulative delay on signal 4) On delay (control switch resettable) 20) Accumulative delay on inverted signal 5) Signal on delay 21) Accumulative impulse on signal 6) Inverted signal on delay 22) Leading edge impulse 7) Inverted signal on delay type 2 23) Leading edge impulse 2 8) Signal off delay 24) Trailing edge impulse 9) Off delay const. supply type 2 25) Trailing edge impulse 2 10) Cyclic on/off 26) Delayed impulse 11) Cyclic off/on 27) Delayed impulse type 2 12) Asymmetric cycle pulse start 28) Delayed pulse (constant supply) 13) Asymmetric recycler pulse start type 2 29) Delayed pulse (remote trig.) 14) Signal on off delay 30) Delayed pulse (const. supply type 1) 31) On pulse (control switch resettable) 15) Signal on off delay type 2 16) Signal off/on (new) 32) On pulse (supply reset)mode 33) Leading edge bi-stable or step relay Supply Voltage (中) 110 - 240 VAC -20% to +10% (of 中) Supply Variation Frequency 47-63 Hz Power Consumption (Max.) 9 VA Timing Range 0.1s to 999 days Reset Time/Initiate Time 200 ms (Max.) / 100 ms (Max.) High Range: 85-265V AC/ 100-265V DC, Low Range: 24-60V AC/DC / 2 KV Input Signals/Signal Isolation Signal Sensing Time/ Wait Period 50ms. (max.) / 100ms @ Power On & for signal based modes only. Timing Accuracy $\pm 0.01\%$ 2 C/O Relay Output Contact Rating 5A for NO & 3A for NC @ 250VAC/30VDC (Resistive.) Output Electrical Life 1x10⁵ Mechanical Life 5x10⁶ AC - 15 250V AC/2A, Cos Ø = 0.6, 85°c, 100000 Operations. Utilization Category DC - 13 Ue rated voltage V - 24; Ie rated current A - 2.0. -5° C to +55° C **Operating Temperature** Storage Temperature -10° C to +60° C Humidity (Non Condensing) 95% (Rh) LED Indication SV (Red) - Set Value; P1/P2 (Red) -P1 Running; Up/Down (Red)-Up Counting; SG (Green)- Signal Present; OP1 (Red)-Relay OP1 ON; OP2 (Red)-Relay OP2 ON; Enclosure IP 30 for Housing & front Facial and IP 20 for Terminals Dimension (W x H x D) (in mm) 48 X 48 X 92.5 Weight (unpacked) 160 g Panel / Flush Mountable Base / DIN Rail with 11 Pin Universal socket Mounting Certification (EV. Degree of Protection IP 20 for Terminals, IP 30 for Enclosure EMI / EMC Harmonic Current Emissions IEC 61000-3-2 Ed. 3.2 (2009-04) Class A IEC 61000-4-2 Ed. 2.0 (2008-12) Level II ESD Radiated Susceptibility IEC 61000-4-3 Ed. 3.2 (2010-04) Level III Electrical Fast Transients IEC 61000-4-4 Ed. 3.0 (2012-04) Level IV IEC 61000-4-5 Ed. 2.0 (2005-11) Level IV Surges Conducted Susceptibility IEC 61000-4-6 Ed. 3.0 (2008-10) Level III Voltage Dips & Interruptions (AC) IEC 61000-4-11 Ed. 2.0 (2004-03) All 7 Levels IEC 61000-4-29 Voltage Dips & Interruptions (DC) Ed. 1.0 (2000-08) All 5 Levels CISPR 14-1 Ed. 5.2 (20011-11) Class A Conducted Emission Radiated Emission CISPR 14-1 Ed. 5.2 (20011-11) Class B Environmental Cold Heat IEC 60068-2-1 Ed. 6.0 (2007-03) Dry Heat IEC 60068-2-2 Ed. 5.0 (2007-07) Vibration IEC 60068-2-6 Ed. 7.0 (2007-12) 5g Repetitive Shock IEC 60068-2-27 Ed. 4.0 (2008-02) 40g, 6ms Non-Repetitive Shock IEC 60068-2-27 Ed. 4.0 (2008-02) 30g, 15ms **ORDERING INFORMATION**

110 - 240 VAC, Multi Function Digital Timer - Eliro (33 Functions), 2 C/O

110 - 240 VAC, Multi Function Digital Timer - Eliro (33 Functions), 2 C/O, 11 Pin Universal socket

Description

Cat. No. V7DFTS3

V7DDSS3

Programmable Digital Timer Eliso®

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FUNCTIONAL DIAGRAMS

ON DELAY [00]

On application of supply voltage, the preset time duration (T) starts. On completion of the preset time, the output is switched ON and remains ON till the supply voltage is present.

ON DELAY CONSTANT SUPPLY TYPE 2 [01]

Timing will commence when the supply is present and input signal is not applied. After the time period has elapsed, output is switched

ON. If signal is applied then the timing period stops. Timing will restart only when signal is removed. Therefore there are two methods this timer can be controlled, either by application or removal of signal input and with the interruption of the supply voltage to the timer with signal removal.

ON DELAY CONSTANT SUPPLY TYPE 3 [02]

A permanent supply is required. The timing period starts when the signal is applied and will

continue irrespective of any further changes to signal input. After the time period has elapsed output is switched ON. Signal change has no effect during timing period. To reset the timer, signal must be removed and then applied.

ON DELAY (CONTROL SWITCH RESETTABLE) [03]

When the supply is connected and signal is applied, the timing function starts. If signal is removed and applied during the preset timing



SIGNAL ON DELAY [04]

On application of input signal, the preset time duration (T) starts. On completion of the preset time, the output is switched ON and remains ON till the input signal is present.

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INVERTED SIGNAL ON DELAY [05]

On application of supply voltage, the preset time duration (T) starts. When input signal is applied, the timing pauses & resumes only when the signal is removed. On completion of the preset time, the output is switched ON.

INVERTED SIGNAL

interrupted.

ON DELAY-TYPE 2 [06]

Timing starts only upon signal 'S' transition

high to low. During timing or after completion

of Time (i.e. relay on), any signal transition is

ignored. To reset the timer supply has to be

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亡 : Supply Voltage, S: Input Signal, R: Relay Output

T: Preset Time, TON: Preset ON Time, TOFF: Preset OFF Time, T-a: Timing Break Before completion

SIGNAL OFF DELAY [07]

On application of supply voltage and input signal, the output is switched ON. When the signal is removed the preset time duration commences & the output is switched OFF at the end of the time duration.



OFF DELAY CONST. SUPPLY TYPE 2 [08]

A permanent supply is required. When the

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input signal is applied the output is switched ON immediately. When input signal is removed the timing period starts. After the time period has elapsed output is switched

OFF. Once the timing period has started further actions of input signal will have no effect. However once the timing cycle has been completed the process may be started again applying input signal. While the timer is executing the only way to reset the timer is to interrupt the supply.

CYCLIC ON/OFF {ON start, (Sym, Asym)} [09]



initially switched ON for the preset 'ON' time duration (TON) after which it is switched OFF for the preset 'OFF' time duration

CYCLIC OFF/ON {OFF Start, (Sym, Asym)} [10]

On application of supply voltage, the output is initially switched OFF for the preset 'OFF'

time duration (TOFF) after which it is switched ON for the preset 'ON' time duration (TON). This cycle repeats and continues till the supply is present.

ASYMMETRIC CYCLE PULSE **START** [11]

A permanent supply is required. The timer function is triggered by the input signal. When input signal applied the output is switched ON

while the first preset time period (TON) elapses. Once this time period (TON) has elapsed output is switched OFF for the second preset time (TOFF) period. Once this second time period (TOFF) had elapsed then output switched ON and the cycle will start from the beginning again. If input signal is removed during timing (TON or TOFF) the cycle will stop and output is switched OFF, cycle will start with output ON state when the input signal applied again

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ASYMMETERIC RECYCLER PULSE START TYPE 2 [12]

A permanent supply is required. The timer function is triggered by input signal. When input signal is applied the output is switched OFF while the first preset time period (TOFF)

elapses. Once this time period has elapsed output is switched ON for the second preset time period (TON). Once this second time period (TON) had elapsed then output is switched OFF and the cycle will start from the beginning again. If input signal is removed during timing (TON or TOFF) the cycle will stop and output is switched OFF, cycle will start with output OFF state when the input signal applied again.

SIGNAL ON OFF DELAY [13]

On application of signal the preset time (T) starts. After this preset time has elapsed, output is switched ON. During this timing, if signal is removed then output is switched ON immediately and OFF delay is started. Once



this time period has elapsed the output is switched OFF. During this OFF delay if signal is reapplied the output switched OFF immediately and ON Delay restarted.



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Programmable Digital Timer Eliso[®]



FUNCTIONAL DIAGRAMS

SIGNAL ON OFF DELAY TYPE 2 [14]

On application of signal the preset time (T) starts. After this preset time has elapsed, output is switched ON. During this timing, if signal is removed then output is switched ON

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immediately and preset timing is restarted. Removing the signal during this timing suspends timing but does not reset the time sequence. Timing will resume immediately when signal is applied. Therefore, total time taken before the delayed contact changes state is the preset time plus any time that the signal is removed. Once this time period has elapsed the output is switched OFF.

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SIGNAL OFF/ON [15]

On application of input signal, the preset delay time period (T) starts. During this timing if signal is removed then timing is stopped and timing will be restarted when signal applied again. After this time period has elapsed output is switched ON. On removal of input signal, the preset time period starts again & the output is switched OFF when the preset time

duration is complete. Output stays OFF until supply voltage has been interrupted.

IMPULSE ON ENERGIZING [16]

On application of supply voltage, the output is instantly switched ON for the preset time duration (T) after which it is switched OFF.

IMPULSE ON/OFF [17]

On application or removal of input signal, the output is switched ON & the preset time duration (T) starts. On completion of the time duration the output is switched OFF. When timing commences, changing the state of the input signal resets the time.

ACCUMULATIVE DELAY ON SIGNAL [18]

On application of supply voltage, the preset timing duration commences. When input signal is applied, the timing pauses and resumes only when the input signal is removed. The output is switched ON at the end of the preset time duration (T).

ACCUMULATIVE DELAY **ON INVERTED SIGNAL** [19]

On application of supply voltage and input signal, the preset timing duration commences. When the signal is removed the timing pauses and resumes when the signal is applied. The output is switched ON at the end of the preset time duration (T).

ACCUMULATIVE IMPULSE ON SIGNAL [20]

On application of supply voltage the output is switched ON & the preset timing duration commences. When the signal is applied the timing pauses and resumes when the signal is removed. The output is switched OFF at the end of the preset time duration (T).

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: Supply Voltage, S: Input Signal, R: Relay Output T: Preset Time, TON: Preset ON Time, TOFF: Preset OFF Time

LEADING EDGE IMPULSE1 [21]

On application of input signal the output is immediately switched ON. The output remains ON for the preset time duration (T) after which it is switched OFF. If the input signal is removed during the preset time, the output remains unaffected.

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LEADING EDGE IMPULSE2 [22]

On application of input signal the output is immediately switched ON. The output remains ON for the preset time duration (T) after which it is switched OFF. If the input signal is removed during the preset time, the output is immediately switched OFF.

TRAILING EDGE IMPULSE1 [23]

When the input signal to the timer is removed, the output is immediately switched ON for the preset time duration (T) after which it is switched OFF. If the input signal is applied during the preset time, the output is immediately switched OFF

TRAILING EDGE IMPULSE2 [24]

When the input signal to the timer is removed, the output is immediately switched ON for the preset time duration (T) after which it is switched OFF. If the input signal is applied during the preset time, the output remains unaffected

DELAYED IMPULSE [25]

On application of input signal, the preset 'OFF' time duration (TOFF) starts. the output is switched ON at the end of the preset 'OFF' time duration & the preset 'ON' time duration commences irrespective of signal level and remains ON till the completion of 'ToN'.

DELAYED IMPULSE TYPE 2[26]

A permanent supply is required. When signal is applied the output will remain OFF while the first preset time period (TOFF) elapses. Once this time period has elapsed the output is switched ON for the second preset time period (TON). Once this second time period (TON) had elapsed then output is switched OFF and



TOFF TON

cycle stops. Output stays OFF until supply voltage has been interrupted. During timing period (TON or TOFF) if signal is removed then output is switched OFF and the cycle stops, cycle will start with output OFF state when the input signal applied again.

DELAYED PULSE (CONSTANT SUPPLY) POWER BASED [27]

The timing period (TOFF) starts when the supply is applied to the timer. After the preset has elapsed output is switched ON for the preset pulse (TON) duration. To reset the timer the supply has to be interrupted. If this interruption occurs during the pulsed output (TON) then the output is switched OFF and the timer will reset.









FUNCTIONAL DIAGRAMS

DELAYED PULSE (REMOTE TRIG.) [28]

The timing period (TOFF) will start when input signal is applied with the supply connected. After preset time (TOFF) has elapsed the output is switched ON for the perselected pulse (TON) duration. To reset the timer either input signal needs to be removed or supply has to interrupt. If this action occurs during the pulsed output cycle (TON) then output is switched OFF and the timer will reset.



Supply to the unit must be continuous. On application of input signal the time period 'TOFF' starts to run. On completion of 'TOFF', the relay output is switched ON immediately

and the time period 'TON' starts to run. On completion of 'TON' the output is switched OFF. The input signal has no effect until' TOFF'+ 'TON' have completely expired.

旦 S R TOFF TON Timing Stopped &

ON PULSE (SUPPLY RESET)[31]

has elapsed the output is switched OFF

ON PULSE

: Supply Voltage, S: Input Signal, R: Relay Output

(CONTROL SWITCH RESETTABLE) /

When the supply is connected and signal is

applied, output is switched ON and the timing

function starts. If signal is removed and applied

during the preset timing then timing is restarted and output stays ON. After preset time(TON)

WATCH DOG TYPE [30]

T: Preset Time, TON: Preset ON Time, TOFF: Preset OFF Time

On application of supply voltage the output is switched ON. The first pulse of input signal starts the preset time period. Receiving pulses during the time period extends it and output stays ON. Receiving no signal pulses during

LEADING EDGE BI-STABLE OR STEP RELAY [32]

After every signal, the output contact changes their states, alternately switching from open to

CONNECTION DIAGRAM





SIGNAL PANEL / FLUSH MOUNT

DIN / SOCKET / BASE MOUNT





PANEL CUTOUT



V7DFTS3





106.5



V7DDSS3

TERMINAL TORQUE & CAPACITY

Ø 3.5 mm	Torque - 0.50 N.m (3.5 Lb.in) Terminal screw - M3
	Solid Wire - 1 X 0.122 mm ²
AWG	1X26 to 14





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the time period completes it and output is switched OFF. Output stays OFF until supply voltage has been interrupted.

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close and vice versa.



Electronic Timer - Series Staircase

- Multi Function/Mono Function Staircase Timer in compact 17.5mm
- Time Range: 0.5min 20min
- Long Run mode with Time range from 0.5h 20h
- Functions with Pre-Warning, Cut-Off & Release Delay
- Maintenance Mode available
- \bullet Switch indications (Glow-lamps / Pilot lamps) up to 50 mA
- 3 Wire & 4 Wire Configurations



Cat.	No.		27B1C3B1						
Parame	eters								
Timer D	Description		Staircase Timer						
Modes			 Staircase Relay Staircase Relay with Pre-Warning Staircase Relay with Cut-Off Staircase Relay with Cut-Off & Pre-Warning Timing Step with Release Delay & Cut-Off Timing Step with Release Delay, Cut-Off & Pre-Warning Long Run Long Run with Pre-Warning Step Relay Pre-Warning Step Relay Delay Long Run 						
Supply	Voltage (中)		230 VAC						
Supply	Variation		- 25% to +15% (of 中)						
Frequen	cy		50 Hz						
Power C	Consumption (N	fax.)	3 VA						
Timing	Ranges		0.5m, 2m, 4m, 6m, 9m, 1	5m, 20m (The unit will change from minutes to hours for 'Long Run' modes)					
Reset Ti	me		500 ms (Max.)						
Signal S	Sensing Time		40 ms < 1s < 5 s (For mo	des 1, 2, 3, 4, 5, 6, 9) & $Ts \ge 5s$ (For modes 7, 8, 11)					
Mainten	ance Mode		If the Relay is 'OFF' and	the signal is present for 5 sec or more ($1s \ge 5$ s), the timer will enter 'Maintenance mode					
Repeat	Accuracy		± 5% of Marking						
repear	Relay Output		1 NO (Pole is internally s	horted with 'Live')					
	Contact Ratin	g	16A @ 230 VAC (Resistive)						
Output	t Electrical Life		1X10 ⁵						
	Mechanical Life		5X10 ⁶						
Litilizati	on Cotocom	AC - 15	Rated Voltage (Ue): 120/240 V, Rated Current (Ie): 3.0/1.5 A						
DC - 13			Rated Voltage (Ue): 24/12	25/250 V, Rated Current (Ie): 2.0/0.22/0.1 A					
Operating Temperature			-10°C to +60°C						
Storage	Temperature		-15°C to +70°C	-15°C to +70°C					
LED Inc	dication		Green LED \rightarrow Power ON, Yellow LED \rightarrow Relay ON						
Enclosu	re	. <i>.</i>	Fiame Retardant UL94-V0						
Dimens	$(W \times H \times D)$) (in mm)	18 X 85 X 85 70 c						
Weight	(unpacked)		/Ug						
Mountir	ıg			Base / DIN Rail					
Certifica	ation		CE Valts compliant						
Degree	of Protection		IP 20 for Terminals, IP 40) for Enclosure					
Harmonic Current Emissions ESD Radiated Susceptibilty Electrical Fast Transients Surges Conducted Susceptibilty Voltage Dips & Interruptions (AC) Voltage Dips & Interruptions (DC) Conducted Emission Radiated Emission			IEC 61000-3-2 IEC 61000-4-2 IEC 61000-4-3 IEC 61000-4-4 IEC 61000-4-5 IEC 61000-4-6 IEC 61000-4-6 IEC 61000-4-29 CISPR 14-1 CISPR 14-1	Ed. 3.0 (2005-11) Class A Ed. 1.2 (2001-04) Level II Ed. 3.0 (2006-02) Level III Ed. 2.0 (2004-07) Level IV Ed. 2.0 (2005-11) Level IV Ed. 2.2 (2006-05) Level III Ed. 2.0 (2004-03) Level All 7 Levels Ed. 1.0 (2000-08) Level All 5 Levels Ed. 5.0 (2005-11) Class B Ed. 5.0 (2005-11) Class A					
Environmental Cold Heat Dry Heat Vibration Repetitive Shock Non-Repetitive Shock			IEC 60068-2-1 IEC 60068-2-2 IEC 60068-2-6 IEC 60068-2-27 IEC 60068-2-27	Ed. 6.0 (2007-03) Ed. 5.0 (2007-07) Ed. 7.0 (2007-12) 5g Ed. 4.0 (2008-02) 40g, 6ms Ed. 4.0 (2008-02) 30g, 15ms					
ODDI	TDINC INF	ODMATI							

120A/20ms (Peak Inrush Current) 80A/20ms (Peak Inrush Current)

ORDERING INFORMATION 27 ____ 3 B ___

					-	
	Casing Colour		I	Mode		Output Relay Contact
В	Casing: White & Knob: Red	1	С	Multi Mode	1	1 'NO', 16A, 120A/20ms
С	Casing: Dark Grey &	2	В	Mono Mode	2	1 'NO', 16A, 80A/20ms
	Knob: Green					

* For Mono Mode the available mode is 'Timing Step with Release Delay & Cut-Off'

FUNCTIONAL DIAGRAM

1. STAIRCASE RELAY



On initial signal, the output closes & timing starts for the preset duration. Subsequent signals during the run time will extend the time duration by the full preset value

3. STAIRCASE RELAY WITH CUT-OFF



On initial signal, the output closes & timing starts for the preset duration. Subsequent signals during the run time will extend the time duration by the full preset value. If a signal of duration more than 2 seconds is applied, the output contacts open instantly.

5. TIMING STEP WITH RELEASE DELAY & CUT-OFF

< 2s	< 2s < 2s	< 2s > 2s
R T	• T • •	

On initial signal, the output closes & timing starts for the preset duration. During run time, if a signal of duration less than 2 seconds is applied, it is ignored. If the duration is more than 2 seconds, the output contacts open instantly

7. LONG RUN



On initial signal, the output closes & timing starts for the preset duration. On completion of the time duration the output contacts open. Any signal during the run time is ignored.

9. STEP RELAY

<5s	< 5s	< 5s	< 5s	

After every signal, the output changes state, alternately switching from open to closed & vice versa.

11. MAINTENANCE MODE

If the relay is OFF and a signal of duration more than 5 seconds is applied, the maintenance mode is activated. In this mode the output contacts close for a duration of 60 minutes after which it opens. During this period if a signal of duration more than 5 seconds is applied, the maintenance mode is interrupted and the output contacts open. The mode can be activated from any one of the modes (Mode 1, 2, 3, 4, 5, 6, 9) provided that the output contacts are open initially.

2. STAIRCASE RELAY WITH PRE-WARNING



4. STAIRCASE RELAY WITH CUT-OFF & PRE-WARNING



6. TIMING STEP WITH RELEASE DELAY & CUT-OFF & PRE-WARNING



8. LONG RUN WITH PRE-WARNING



10. PERMANENT ON



In this mode the output contacts are permanently closed until the mode is changed and the device is reset.



S: Supply, R: Relay Output, T: Preset Time, t: 10 seconds

Pre-Warning:

On completion of the set time duration the output blinks once & again blinks twice after a delay of 10 seconds and the contacts open after a further delay of 10 seconds.

- Compact 17.5mm Wide
- Integrated Dual Voltage
- Functions: ON Delay, Star Delta, One Shot, ON Delay Retentive
- Wide Time Range: 0.3s 30h
- LED Indications for Power and Relay status
- Low Power Consumption



Cat.	No.		120	DDT4	12SDT0			
Parame	ters							
Timer D	escription		ON D	elay Timer	Star Delta Timer			
Mode			ON	Delay	Star Delta			
Function	nal Diagram							
Supply Y	Voltage (中)		240 VAC	/ 24 VAC/DC	240 VAC / 24 VAC/DC			
Supply '	Variation		- 20% to	+10% (of 中)	- 20% to +10% (of 中)			
Frequen	cy		50,	/60 Hz	50 Hz			
Power C	Consumption (N	Iax.)	8	3 VA	8 VA			
Timing	Ranges		0.35	s to 30h	3s to 120s			
Pause T	ime			N A	60 ms			
Reset Ti	me		100 n	ns (Max.)	150 ms (Max)			
Setting	Accuracy		+ 5% of Full scale	15 (1910.7)	150 115 (1908.)			
Repeat A	Accuracy		$\pm 1\%$ of Pull Scale					
	Relay Output		1	C/O	Star - 1 'NO', Delta - 1 'NO'			
0	Contact Rating	g	5A @ 240 VAC /	28 VDC (Resistive)	5A @ 240 VAC / 3A @ 30 VDC (Resistive)			
Output	Electrical Life		$1X10^{5}$					
	Mechanical Li	fe	$5X10^{6}$	5X10 ⁶				
T T4:1:4	Cotto com	AC - 15	Rated Voltage (Ue): 120	/240 V, Rated Current (Ie): 3.0/	1.5 A			
Utilizati	on Category	DC - 13	Rated Voltage (Ue): 24/125/250 V, Rated Current (Ie): 2.0/0.22/0.1 A					
Operating Temperature Storage Temperature		-10°C to +55°C -20°C to +70°C						
Humidit	y (Non Conder	nsing)	95% (Rh)					
LED Inc	lication		Green LED \rightarrow Power C	N, Red LED \rightarrow Relay ON	Red LED $1 \rightarrow ` \downarrow `$ ON, Red LED $2 \rightarrow ` \Delta `$ ON			
Enclosu	re		Flame Retardant UL94-	VO				
Dimensi	ion (W x H x D) (in mm)	17.5 X 90 X 58.5					
Weight	(unpacked)		(65 g	60 g			
Mountir	ıg		Base / DIN Rail	č	Č.			
Certifica	ation		CE Kutts Comptiant					
Degree	of Protection		IP 20 for Terminals, IP 40 for Enclosure					
EMI / EMC Harmonic Current Emissions ESD Radiated Susceptibilty Electrical Fast Transients Surges Conducted Susceptibilty Voltage Dips & Interruptions (AC) Voltage Dips & Interruptions (DC) Conducted Emission Radiated Emission		IEC 61000-3-2 IEC 61000-4-2 IEC 61000-4-3 IEC 61000-4-4 IEC 61000-4-5 IEC 61000-4-6 IEC 61000-4-6 IEC 61000-4-11 IEC 61000-4-29 CISPR 14-1 CISPR 14-1	Ed. 3.0 (2005-11) Class A Ed. 1.2 (2001-04) Level II Ed. 3.0 (2006-02) Level III Ed. 2.0 (2004-07) Level IV Ed. 2.0 (2005-11) Level IV Ed. 2.2 (2006-05) Level III Ed. 2.0 (2004-03) All 7 Leve Ed. 1.0 (2000-08) All 5 Leve Ed. 5.0 (2005-11) Class A Ed. 5.0 (2005-11) Class A	ds ds				
Environ	mental							
Cold He Dry Hea Vibratio Repetitiv Non-Rep	at tt n ve Shock petitive Shock		IEC 60068-2-1 IEC 60068-2-2 IEC 60068-2-6 IEC 60068-2-27 IEC 60068-2-27	Ed. 6.0 (2007-03) Ed. 5.0 (2007-07) Ed. 7.0 (2007-12) 5g Ed. 4.0 (2008-02) 40g, 6ms Ed. 4.0 (2008-02) 30g, 15ms				
ORDE	RING INF	ORMATI	ON					
Cat. No			Description					

Cat. No. Description 110DT4 110 VA / 24 VAC/DC, ON Delay Timer, 1 C/O 120DT4 240 VAC / 24 VAC/DC, ON Delay Timer, 1 C/O 150DT4 12 VDC, ON Delay Timer, 1 C/O 11SDT0 110 VAC / 24 VAC/DC, Star Delta Timer, 1 NO (Star) + 1 NO (Delta) 12SDT0 240 VAC / 24 VAC/DC, Star Delta Timer, 1 NO (Star) + 1 NO (Delta)



Cat.	No.		15BDT4		
Param	eters				
Timer I	Description		One Shot Timer		
Mode			One Shot		
Functio	onal Diagram				
Supply	Voltage (中)		12 VDC		
Supply	Variation		- 20% to +10% (of 中)		
Freque	ncy		NA		
Power	Consumption (N	fax.)	0.5 VA		
Timing	Ranges		0.3s to 30h		
Reset T	Time		100 ms (Max.)		
Setting Repeat	Accuracy Accuracy		\pm 5% of Full scale \pm 1%		
	Relay Output		1 C/O		
Output	Contact Ratin	g	5A (resistive) @ 240 VA	C / 28 VDC	
Output	Electrical Life	e	$1X10^{5}$		
	Mechanical L	ife	$5X10^{6}$		
Utilizat	tion Category	AC - 15	Rated Voltage (Ue): 120/	240 V, Rated Current (Ie): 3.0/1.5 A	
e uniza	lion cutogory	DC - 13	Rated Voltage (Ue): 24/1	25/250 V, Rated Current (Ie): 2.0/0.22/0.1 A	
Operating Temperature Storage Temperature		-10°C to +55°C -20°C to +70°C			
Humidity (Non Condensing)		95% (Rh)			
LED Indication		Green LED \rightarrow Power O	N, Red LED \rightarrow Relay ON		
Enclosu	ure		Flame Retardant UL94-V	/0	
Dimens	sion (W x H x D) (in mm)	17.5 X 90 X 58.5		
Weight	(unpacked)		75 g		
Mounti	ing		Base / DIN Rail		
Certific	cation		C C Compliant		
Degree	of Protection		IP 20 for Terminals, IP 40) for Enclosure	
EMI / I Harmon ESD Radiate Electric Surges Conduc Voltage Conduc Radiate	EMC nic Current Emis ed Susceptibilty cal Fast Transien cted Susceptibilt e Dips & Interruj e Dips & Interruj cted Emission ed Emission	ssions ts ptions (AC) ptions (DC)	IEC 61000-3-2 IEC 61000-4-2 IEC 61000-4-3 IEC 61000-4-4 IEC 61000-4-5 IEC 61000-4-6 IEC 61000-4-11 IEC 61000-4-19 CISPR 14-1 CISPR 14-1	Ed. 3.0 (2005-11) Class A Ed. 1.2 (2001-04) Level II Ed. 3.0 (2006-02) Level III Ed. 2.0 (2004-07) Level IV Ed. 2.0 (2005-11) Level IV Ed. 2.2 (2006-05) Level III Ed. 2.0 (2004-03) All 7 Levels Ed. 1.0 (2000-08) All 5 Levels Ed. 5.0 (2005-11) Class A Ed. 5.0 (2005-11) Class A	
Enviro Cold H Dry He Vibratio Repetit Non-Ro	nmental leat eat on tive Shock epetitive Shock		IEC 60068-2-1 IEC 60068-2-2 IEC 60068-2-6 IEC 60068-2-27 IEC 60068-2-27	Ed. 6.0 (2007-03) Ed. 5.0 (2007-07) Ed. 7.0 (2007-12) 5g Ed. 4.0 (2008-02) 40g, 6ms Ed. 4.0 (2008-02) 30g, 15ms	

ORDERING INFORMATION

Cat. No.	Description
11BDT4	110 VAC / 24 VAC/DC, One Shot Timer, 1 C/O
12BDT4	240 VAC / 24 VAC/DC, One Shot Timer, 1 C/O
15BDT4	12 VDC, One Shot Timer, 1 C/O

- Multi Function: 10 Different (Non Signal & Signal based) Modes
- Wide Voltage range for both AC & DC
- Wide Time range: 0.1s 100h
- LED Indications for Power and Relay status
- Independent settings for both ON Time & OFF Time
- Low Power Consumption



Cat. No.		1 C J	DT0	1CMDT0
Parameters				
Timer Description		Asymme	etric Timer	Multi Function Timer
Modes		 Asymmetric ON-OFF, Asymmetric OFF-ON 		 Signal ON Delay Cyclic ON/OFF Cyclic OFF/ON Signal OFF Delay Signal OFF/ON Accumulative Delay on Signal Impulse ON/OFF Leading Edge Impulse Trailing Edge Impulse Leading Edge Bi-stable
Derived Modes		NA		ON Delay, Interval
Supply Voltage (中)		12 - 240 VAC/DC		
Supply Variation		-15% to +10% (of 中)		
Frequency		50/60 Hz		
Power Consumption (Max.)	2 VA		
Timing Range		0.1s to 100h		
Reset Time		200 ms (Max)		
Setting Accuracy		\pm 5% of Full scale		
Repeat Accuracy		± 1%		
Relay Outp	ut	1 (C/O	1 C/O
Output Contact Rat	ing	8A @ 240 VAC / 5A @ 24	4 VDC (Resistive)	8A @ 240 VAC / 5A @ 24 VDC (Resistive)
Electrical L	ife	$1X10^{5}$		
Mechanical	Life	5X10 ⁶		
Utilization Category	AC - 15 DC - 13	Rated Voltage (Ue): 120/2 Rated Voltage (Ue): 24/12	240 V, Rated Current (Ie): 3.0/ 25/250 V, Rated Current (Ie): 2	1.5 A 2.0/0.22/0.1 A
Operating Temperatur	e	-10° C to $+60^{\circ}$ C	, , , ,	
Storage Temperature		$-15^{\circ}C$ to $+70^{\circ}C$		
LED Indication		Green LED \rightarrow Power ON	N, Amber LED \rightarrow Relay ON	Green LED \rightarrow Power ON, Yellow LED \rightarrow Relay ON
Enclosure		Flame Retardant UL94-V	0	
Dimension (W x H x	D) (in mm)	18 X 85 X 65		
Weight (unpacked)		70 g		
Mounting		Base / DIN Rail		
Certification		CE Roffs Compliant		
Degree of Protection		IP 20 for Terminals, IP 40	for Enclosure	
EMI / EMC Harmonic Current En ESD Radiated Susceptibilt Electrical Fast Transic Surges Conducted Susceptibil Voltage Dips & Interr Voltage Dips & Interr Conducted Emission Radiated Emission	uissions y ents lty uptions (AC) uptions (DC)	IEC 61000-3-2 IEC 61000-4-2 IEC 61000-4-3 IEC 61000-4-3 IEC 61000-4-4 IEC 61000-4-5 IEC 61000-4-6 IEC 61000-4-11 IEC 61000-4-29 CISPR 14-1 CISPR 14-1	Ed. 3.0 (2005-11) Class A Ed. 1.2 (2001-04) Level II Ed. 3.0 (2006-02) Level III Ed. 2.0 (2004-07) Level IV Ed. 2.0 (2005-11) Level III Ed. 2.2 (2006-05) Level III Ed. 2.0 (2004-03) All 7 Leve Ed. 1.0 (2000-08) All 5 Leve Ed. 5.0 (2005-11) Class B Ed. 5.0 (2005-11) Class A	els els
Environmental Cold Heat Dry Heat Vibration Repetitive Shock Non-Repetitive Shock		IEC 60068-2-1 IEC 60068-2-2 IEC 60068-2-6 IEC 60068-2-27 IEC 60068-2-27	Ed. 6.0 (2007-03) Ed. 5.0 (2007-07) Ed. 7.0 (2007-12) 5g Ed. 4.0 (2008-02) 40g, 6ms Ed. 4.0 (2008-02) 30g, 15ms	

ORDERING INFORMATION

Cat. No.Description1CMDT012 - 240 VAC/DC, Multi Function Timer (10 Modes), 1 C/O (RAL 7016 Casing)1CJDT012 - 240 VAC/DC, Asymmetric Timer, 1 C/O(RAL 7016 Casing)1CMDTB12 - 240 VAC/DC, Multi Function Timer (10 Modes), 1 C/O (RAL 7035 Casing)1CJDTB12 - 240 VAC/DC, Asymmetric Timer, 1 C/O (RAL 7035 Casing)

On application of supply voltage, the output is initially switched ON for the preset 'ON' time duration (T) after which it is switched OFF for the preset 'OFF' time duration (T). This cycle repeats and continues till the supply is present. The ON time & OFF time are set independently.

FUNCTIONAL DIAGR	AMS FOR 1CMDT0		
SIGNAL ON DELAY [stn]		ACCUMULATIVE DELAY On SIGNAL [san]	Implementation S T+t1+t2
On application of input signal, the preset do preset time, the output is switched ON and ren	elay time period starts. On completion of the nains ON till the input signal is present	On application of supply voltage, the preset dela during this period, the preset time stops and res On completion of the preset time, the output is sw	y time period starts. If input signal is applied umes only when the input signal is removed. vitched ON
CYCLIC ON/OFF [cnf]	R TON TOFF TON TOFF	IMPULSE ON/OFF [inf]	
On application of supply voltage, the output duration (T) after which it is switched OFF f This cycle continues till the power supply is p	is initially switched ON for the preset time for the same time duration (T). present	On application or removal of input signal to the ON for the preset time duration (T). If the state preset time, the output does not change state or	e timer, the output is immediately switched of the input signal is changed during the ily the time is reset.
CYCLIC OFF/ON [cfn]	R TOFF TON TOFF TON	LEADING EDGE IMPULSE [iL]	空 S R T
On application of supply voltage, the output duration (T) after which it is switched ON continues till the power supply is present	t is initially switched OFF for the preset time for the same time duration (T). This cycle	When input signal is applied to the timer the ou output remains ON for the preset time duration input signal is removed during the preset time,	a (T) after which it is switched ON. The the output is immediately switched OFF. If the the output is immediately switched OFF.
SIGNAL OFF DELAY [sf]		TRAILING EDGE IMPULSE [it]	
On application of input signal to the timer, the input signal is switched OFF, the preset time period the output is switched OFF	output is immediately switched ON. When the delay period starts. On completion of the time	When the input signal to the timer is removed, the preset time duration (T) after which it is sw during the preset time, the output is immediate	the output is immediately switched ON for ritched OFF. If the input signal is applied ly switched OFF
SIGNAL OFF/ON [sfn]		LEADING EDGE BISTABLE [sbi]	
On application of input signal to the timer, completion of the time preset time, the output i When the input signal is switched OFF, agai completion of the time period the output is swit	, the preset delay time period (T) starts. On is switched ON in the preset time delay period (T) starts. On tched OFF	On application of input signal to the timer, the c after the input signal is removed. On subsequent on changing its state	output is switched ON and remains ON even application of input signal, the output keeps
DERIVED MODES			
Select mode, 'Signal ON Delay' and short the Select mode, 'Accumulative Delay ON Signa	e connection between A1 - B1 before power ON l'and keep the connection between A1 - B1 open	Select mode, "Leading Edge Impulse" and shore	t the connection between A1 & B1.
ON DELAY		INTERVAL	空 R T
When supply power is applied to the tim completion of the preset time, the output is supply is present	er, the preset delay time period starts. On switched ON and remains ON till the input	When supply power is applied to the timer, completion of the preset time, the output is switch	the output is instantly switched ON. On hed OFF
FUNCTIONAL DIAG	RAMS FOR 1CJDT0		
ASYMMETRIC ON-OFF	中 R TON TOFF TON	ASYMMETRIC OFF-ON	中 R TOFF TON TOFF

On application of supply voltage, the output is initially switched OFF for the preset 'OFF' time duration (T) after which it is switched ON for the preset 'ON' time duration (T). This cycle repeats and continues till the supply is present. The ON time & OFF time are set independently.

MOUNTING DIMENSIONS (mm)





110DT4, 120DT4, 150DT4, 11SDT0, 12SDT0 110DT8, 120DT8, 11BDT4, 12BDT4, 15BDT4

TERMINAL TORQUE & CAPACITY

Ø 3.5 mm	Torque - 0.40 N.m (3.5 Lb.in) Terminal screw - M2.5		
	Solid Wire - 1 X 0.32.5 mm ²		
AWG	1 X 22 to 14		
VODDTS, VODDTD, VODDTS1, VODDTD1			

Ø 3.54.0 mm	Torque - 0.6 N.m (6 Lb.in) Terminal screw - M3
	Solid Wire - 1 X 14 mm ²
AWG	1 X 18 to 10

1CMDT0, 1 CJDT0, STAIRCASE TIMER

Ø 3.55.0 mm	Torque - 1.1 N.m (10 Lb.in) Terminal screw - M3.5
	Solid Wire - 2 X 0.22.5 mm ²
AWG	1 X 24 to 10

110DT4, 120DT4, 150DT4, 11SDT0, 12SDT0 110DT8, 120DT8, 11BDT4, 12BDT4, 15BDT4



1CMDT0, 1CJDT0, STAIRCASE TIMER

CONNECTION DIAGRAM





VODDTS, VODDTD, VODDTS1, VODDTD1

24 - 240 2

VAC/DC

A 1

B1

 A^2





110DT4, 120DT4, 150DT4, 11SDT0, 12SDT0, 11ODT8, 120DT8, 11BDT4, 12BDT4, 15BDT4,1CMDT0. 1CJDT0, VODDTS, VODDTS1











STAIRCASE TIMER

Electronic Timer - Series Micon[®] 225 Signal Based Multi - Function

- Multi-function with Signal Start and Supply Start.16 Timing Functions selected by DIP switch.
- Two independent relay outputs with either both relays
- timed or one timed and one instantaneous.
- Wide Input Signal & Supply range 24-240V AC/DC.
- Wide Timing Range 0.1 s to 120 days.
- High timing Accuracy.
- LED indicators for Power Supply & Relay Status.
- 22.5mm DIN Mount Housing.



Cat. No.	2A8DT6			
Parameters				
Timer Description	Multi-function with Signal Start and Supply Start			
Supply Voltage (中)	24-240 VAC / DC			
Supply Variation	- 20% to +10% (of 中)			
Frequency	50/60 Hz			
Power Consumption (Max.)	3 VA			
Initiate Time	100 ms (Max.)			
Reset Time	200 ms (Max.)			
Signal Low Range (B1L-A2)	24-60V AC/DC			
voltage night Kange (BIR-A2)	For AC Signals: 50 ms Max			
Signal Sensing Time	For DC Signals: 20 ms Max.			
Signal stabilization Delay	100 ms (Applicable at Power ON Only)			
Setting Accuracy	\pm 5% of Full scale			
Repeat Accuracy				
Relay Output	1 C/O (Delayed) & 1 C/O (Configurable as either Delayed or Instant)			
Contact Rating	5A @ 240 VAC / 28 VDC (Resistive)			
Output Contact Material	AgNi			
Electrical Life	A A Jms (Max.) 60V AC/DC 26SV AC, 100-26SV DC AC Signals: 20 ms Max. DC Signals: 20 ms Max. DC Signals: 20 ms Max. DC Signals: 20 ms Max. DC Signals: 20 ms Max. $\frac{1}{0}$ (Delayed) & 1 C/O (Configurable as either Delayed or Instant) @ 240 VAC / 28 VDC (Resistive) Ni 0' 2 240 VAC / 28 VDC (Resistive) Ni 0' 2 240 VAC / 28 VDC (Resistive) Ni 0' 2 240 VAC / 28 VDC (Resistive) Ni 0' 8 240 VAC / 28 VDC (Resistive) Ni 0' 5 2 00 Japs Fr page no. 23 and 24 en LED ON: Power ON, Amber LED ON : Relay ON for Delayed contact ise / DIN Rail 10 m me retardant (UL 94-V0) *C to +60°C *C to +70°C 4 (Rh) ren LED D+ Power ON, Red LED → Relay ON me Retardant UL94-V0 5 X 75 X 100.5 0g E 20 for Terminals, IP 40 for Enclosure 10 for 0-3-2 E d. 3.2 (2009-04) Class A 2 (1000-4-2 E d. 3.0 (2012-04) Level III 2 (1000-4-4 E d. 3.0 (2012-04) Level III 2 (1000-4-5 E d. 3.0 (2001-04) Level III 2 (1000-4-5 E d. 3.0 (2001-11) Class B IPR 14-1 E d. 5.2 (20011-11) Class B IPR 14-1 E d. 5.2 (20011-11) Class A			
Mechanical Life	dit-function with Signal Start and Supply Start 240 VAC / DC % (o f · 0) 60 Hz A This (Max.) 60 A CX (100-265 V DC CX Signalis: 20 ms Max. DC Signalis: 20 ms Max. Signalis: 20 ms Ma			
Set lime (1s)	0.1 seconds to 120 Days Refer page no. 23 and 24			
LED Indication on front panel	Green LED ON: Power ON Amber LED ON Relay ON for Delayed contact			
Mounting	Base / DIN Rail			
Max. Operating Altitude	2000 m			
Housing	Flame retardant (UL 94-V0)			
Operating Temperature	-10°C to +60°C			
Storage Temperature	-20°C to +70°C			
Humidity (Non Condensing)	95% (Rh)			
LED Indication	Green LED \rightarrow Power ON, Red LED \rightarrow Relay ON			
Enclosure	Flame Retardant UL94-V0			
Dimension (W x H x D) (in mm)	22.5 X 75 X 100.5			
Weight (unpacked)	130 g			
Pollution Degree				
Certification				
Degree of Protection	IP 20 for Terminals, IP 40 for Enclosure			
EMI / EMC				
Harmonic Current Emissions	IEC 61000-3-2 Ed. 3.2 (2009-04) Class A			
ESD	IEC 61000-4-2 Ed. 2.0 (2008-12) Level II			
Radiated Susceptibility	IEC 61000-4-3 Ed. 3.2 (2010-04) Level III			
Surges	IEC 61000-4-4 Ed. 3.0 (2012-04) Level IV IEC 61000-4-5 Ed. 2.0 (2005-11) Level IV			
Conducted Susceptibility	IEC 61000-4-6 Ed. 3.0 (2008-10) Level III			
Voltage Dips & Interruptions (AC)	IEC 61000-4-11 Ed. 2.0 (2004-03) All 7 Levels			
Conducted Emission	CISPR 14-1 Ed. 5.2 (20011-11) Class B			
Radiated Emission	CISPR 14-1 Ed. 5.2 (20011-11) Class A			
Safety:				
Test Voltage between I/P and O/P	IEC 60947-5-1 Ed.3.0 (2003-11) 2 kv			
& enclosure	IEC 60947-5-1 Ed.3.0 (2003-11) 4 kv			
Impulse Voltage between I/P and O/P	IEC 60947-5-1 Ed.3.0 (2003-11) Level IV			
Single Fault	IEC 61010-1 Ed.3.0 (2010-06)			
Insulation Resistance	UL 508 Ed.17 $(1999-01) > 50$ M			
Product Reference Standard	IEC 61812-1 Ed.2.0 (2011-05)			
Cold Heat	IEC 60068-2-1 Ed. 6.0 (2007-03)			
Dry Heat	IEC 60068-2-2 Ed. 5.0 (2007-07)			
Vibration	IEC 60068-2-6 Ed. 7.0 (2007-12) 5g			
Repetitive Shock	IEC 60068-2-27 Ed. 4.0 (2008-02) 40g, 6ms			
Non-Repetitive Shock	EC 60068-2-27 Ed. 4.0 (2008-02) 30g, 15ms			

ORDERING INFORMATION

Cat. No. 2A8DT6 Description 24-240 VAC / DC, Signal Based Multi - Function, 1 C/O + 1 C/O

Electronic Timer - Series Micon[®] 225 Signal Based Multi - Function



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FUNCTIONAL DIAGRAMS

ON DELAY (Non Signal Based)

When supply is applied, timing starts and after the preset time duration 'T', output switches ON and remains ON till the supply is present.

SIGNAL ON DELAY TYPE 1

When the input supply & signal are applied, timing starts and after preset time duration 'T' output switches ON & remains ON till the supply is present. Changing the state of signal during 'T' does not affect the output.

SIGNAL ON DELAY

Time commences as supply and signal is present. When input signal is opened, the timing resets. The output is switched ON at the end of the preset time duration 'T'. When output is ON if signal is opened then the output switches OFF.

INVERTED SIGNAL ON DELAY

When supply is applied and signal is opened, preset time duration 'T' starts. On completion of the 'T', output switches ON. If the signal is closed during timing 'T', timing resets.

INTERVAL

When supply voltage is applied & signal is closed, output switches ON & timing function starts. If signal is opened and closed during the preset time, the timing restarts. After preset time 'T' has elapsed, the output switches OFF.

LEADING EDGE IMPULSE

When the supply applied and signal is closed, the output switches ON for preset time 'T'. After the completion of preset time 'T', the output switches OFF. If signal closed or opened during preset time duration 'T', the output remains unaffected.

TRAILING EDGE IMPULSE

When supply voltage is applied and signal is opened, output switches ON for the preset time duration 'T'. After completion of preset time 'T', output switches OFF. If the signal is closed during preset timing 'T', output switches OFF & timing stops.

CYCLIC OFF/ON

When the supply applied and signal is closed, output switches OFF for the preset time duration 'T' and then switches ON for preset time duration 'T'. This cycle repeats while the supply is present. Changing the state of signal during 'T' does not affect the output.

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R(D)		
R(I)		

	Т	L
R(D)		L
R(I)		L



R(D) R(I)		

	T-a	T-a T	
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Rm	— i	i	
R(I)			





CYCLIC ON/OFF

When the supply applied and signal is closed, output switches ON for the preset time duration 'T' and then switches OFF for preset time duration 'T'. This cycle repeats while the supply is present. Changing the state of signal during 'T' does not affect the output.

🛱: Supply Voltage, S: Input Signal, R: Relay Output, R(I): Instant Relay, R(D): Delayed Relay

T: Preset Time, TON: Preset ON Time, TOFF: Preset OFF Time, T-a: Timing Break Before completion

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R(D)

R(I)

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R(D)

R(I)

SIGNAL ON/ OFF Delay

Signal ON/OFF Delay: When the supply is applied and signal is closed, outputs switches ON after preset time 'T'. During the timing 'T' if signal is opened, the output switches ON immediately and OFF delay starts. Once this time period has elapsed the output switches OFF. During this OFF delay if signal is closed, the output switches OFF immediately and ON Delay restarts.

ignal closed or for Preset time d 'T', changing state of input signal does not affect the output but resets the

	Т	r
s		
R(D)		
R(I)		

ACCUMULATIVE DELAY	
ON SIGNAL	

Accumulative Delay ON Signal: On application of the supply voltage, the preset timing commences. Whenever signal is closed, timing pauses & resumes back only when the input signal is opened. The output switches ON at the end of the preset time duration 'T'.

DELAYED IMPULSE

Delayed Impulse: When supply voltage is applied and signal is closed, output switches ON at the end of the preset time 'TOFF'. Then the preset ON time 'TON' starts irrespective of the signal state and remains ON till the

Toff	Ton	Toff	Ton	Toff	
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	логі П	ЧЦ	וחר		
R(D)					
	, .	_			
R(I)					
	-				-

completion of preset time duration 'TON'. If signal closed during the timing 'TOFF', the timing restarts but the output state remains unaffected. The signal change does not have any effect during the timing period 'TON'.

ONE SHOT

One Shot: When the supply voltage is applied and signal is closed, timing starts and after the preset time duration'T', output switches ON for One sec. only.

	Т	a	Т	a	T-a	Т	а	_
空				ПЦ				
S	Π		Π					٦
R(D)		FL		ЯЦ			ΗL	_
R(I)		;	a = 1 s	iec 🗌				l

STEP MODE

Step Mode: When the supply voltage is applied and signal closed, output switches ON for preset time duration 'T', removal of the input signal during this time duration 'T' does not affect the output state. But if the signal is closed during time duration 'T', output switches OFF.

中 R(D) R(I)

SIGNAL OFF DELAY

Signal OFF Delay: When the supply is applied and signal is closed, output is switches ON. When signal is opened, the preset timing commences and output is switches OFF at the end of time duration 'T'. If signal is closed during timing period, then timing stops and restarts when signal.

R(D)

R(I)

1	IMPULSE ON/OFF
	When supply is applied and if s
	opened, output switches ON f duration 'T' During time perio

timing.	<u> </u>
LATIVE DELAY	

	t	
R(I)	1	

Electronic Timer - Series Micon[®] 225 Signal Based Multi - Function





Selection of Function: Operating Mode & timing can be selected by using DIP switches

MOUNTING DIMENSION (mm)



UNSPECIFIED TOLERANCE IS +/-0.1

CONNECTION DIAGRAM



TERMINAL TORQUE & TERMINAL CAPACITY



Motor Control Timers

- Brown Out Timer with 3 Functions: ON Delay, Interval, Pulse
- Detects Voltage Dips and Momentary Loss of Supply & Resets the control panel
- Low Power Consumption
- Fast Response Time

• LED indications for Healthy & Unhealthy conditions



• Excellent Noise Immunity to the latest IEC standards

Cat. No.		23UDT0 27UDT0			27UDT0		
Parameters							
Timer Description			Brown O	ut Timer			
Modes			ON Delay, In	terval, Pulse			
Functional Diagram							
Supply Voltage (由)		110 VAC	INTE	RVAL 2	PULSE 240 VAC		
Supply Voltage (4)		- 40% to +10% (of 曲)		- 40% ti	o +10% (of 由)		
Frequency		50/60 Hz		1070 0	50 Hz		
Power Consumption (M	lax.)	6 VA			10 VA		
Timing Range		0.3s to 30s		0.	.3s to 30s		
Initiate Time		Max. 200 ms		Ma	ax. 200 ms		
Trip Voltage		81 V (± 6 V)		16	8 V (± 6 V)		
Recovery Voltage		96 V (± 4 V)		18	$4 V (\pm 4 V)$		
Response Voltage Ir	nterruptions	15 ms (Max.)			· · · ·		
Time Voltage D	Dips	30 ms (Max.)					
Setting Accuracy	1	\pm 5% of Full scale					
Relay Output		± 1.70					
Contact Ratin	σ	54 @ 240 VAC / 28 VDC (Resistive)					
Output Electrical Life	5	1×10^5					
Mechanical L	ife	1×10^{7}					
incentation D	AC - 15	Rated Voltage (Ue): 120/240 V. Rated	Current (Ie): 3.0/1	5 A			
Utilization Category	DC - 13	Rated Voltage (Ue): 24/125/250 V, Rated Current (Ie): 2.0/0.22/0.1 A					
Operating Temperature Storage Temperature		-10°C to +55°C -10°C to +60°C					
Humidity (Non Conden	sing)	95% (Rh)					
	0,	Healthy Condition: Flashing, Unhealt	hy Condition: Blin	king			
LED Indication	Colour	Amber Red					
Enclosure		Flame Retardant UL94-V0					
Dimension (W x H x D)) (in mm)	22.5 X 75 X 100.5					
Weight (unpacked)		130 g					
Mounting		Base / DIN rail					
Certification		CE Roffs Compliant					
Degree of Protection		IP 20 for Terminals, IP 40 for Enclos	ure				
EMI / EMC Harmonic Current Emis ESD Radiated Susceptibilty Electrical Fast Transien Surges Conducted Susceptibilty Voltage Dips & Interrup Conducted Emission Radiated Emission	ssions ts y otions (AC)	IEC 61000-3-2 Ed. 3.0 (20 IEC 61000-4-2 Ed. 1.2 (20 IEC 61000-4-3 Ed. 3.0 (20 IEC 61000-4-3 Ed. 2.0 (20 IEC 61000-4-5 Ed. 2.0 (20 IEC 61000-4-6 Ed. 2.2 (20 IEC 61000-4-11 Ed. 2.0 (20 IEC 61000-4-11 Ed. 2.0 (20 IEC 61000-4-11 Ed. 2.0 (20 CISPR 14-1 Ed. 5.0 (20 CISPR 14-1 Ed. 5.0 (20	05-11) Class A 01-04) Level II 06-02) Level III 04-07) Level IV 05-11) Level IV 06-05) Level III 04-03) Performano 05-11) Class A 005-11) Class A	ce Criteria B			
Environmental Cold Heat Dry Heat Vibration Repetitive Shock Non-Repetitive Shock		IEC 60068-2-1 Ed. 6.0 (20 IEC 60068-2-2 Ed. 5.0 (20 IEC 60068-2-6 Ed. 7.0 (20 IEC 60068-2-7 Ed. 4.0 (20 IEC 60068-2-27 Ed. 4.0 (20	107-03) 107-07) 107-12) 5g 108-02) 40g, 6ms 108-02) 30g, 15ms				

ORDERING INFORMATION

Cat. No.	Description
23UDT0	110 VAC, Brown Out Timer, 1 C/O
27UDT0	240 VAC, Brown Out Timer, 1 C/O

Synchronous Timer - Series EM 1000

• Time delay is independent of normal voltage and temperature fluctuations

- Black pointer gives clear indication of the time set on the 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 available



Mode		ON Delay	ON Delay Retentive (No Volt)				
Functio	nal Diagram						
Supply	Variation	- 20% to +10%					
Frequer	cy Variation	95% to 105%					
Power Consumption (Max.)		10 VAC					
Timing	Range	0.15s to 120h					
Repeat	Accuracy	± 0.5% of Full Scale Range @ Constant Frequency					
Mode Functional Supply V Frequence Power Co Timing R Repeat A Output Operating Enclosure Dimension Weight (n Mounting Terminal Degree o	Contact Rating	6A (resistive) @ 250 VAC					
	Switching Frequency	3000 operations/hr. (Max.)					
Operating Temperature		-5°C to 45°C					
Enclosu	re	Conforms to IP30 - IS 13947.					
Dimension (W x H x D) (in mm)		96 X 96 X 100					
Weight (unpacked)		530 g					
Mounting		Flush / Base					
Terminal Connection		1–2.5 mm ² solid/stranded.					
Degree of Protection		IP20					
0.11							

ORDERING INFORMATION

Timing Ranges(SR)				
B 0.15 - 3.0 C 1.5 - 30 D 0.15 - 3.0	SEC SEC MIN			Delay 1 Standard ON delay
E 1.5 - 30 E 0.15 - 30	MIN			2 with NO VOLI
G 1.5 - 30	HRS			Mounting
J 3.0 - 60	SEC			B Base Mounting F Flush (door) Mtg.
K 0.3 - 6.0 L 3.0 - 60	MIN MIN			Contact
M 0.3 - 6.0 N 3.0 - 60	HRS	Timing Ranges(MR)	Voltage	1 1 Inst + 1 Del C/O 2 1 Inst + 2 Del C/O
P 0.6 - 12 Q 6.0 - 120	SEC SEC	Y 0.3 SEC 5.0 HRS.	3 110V AC 50 Hz	
R 0.6 - 12 S 6.0 - 120	MIN MIN	Z 0.6 SEC12.0 HRS.	4 240V AC 50 Hz C 110V AC 60 Hz	
T 0.6 - 12 V 6 - 120	HRS HRS		D 240V AC 60 Hz	

MOUNTING DIMENSION (mm)





CONNECTION DIAGRAM



TERMINAL TORQUE & CAPACITY

Ø 3.55.0 mm	Torque - 1.1 N.m (10 Lb.in) Terminal screw - M3.5
	Solid Wire - 2 X 0.22.5 mm ²
AWG	1 X 24 to 10

Synchronous Timer - Series EM 2000

- Time delay is independent of normal voltage & temperature 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 'Delrin' which has high
- resistance to wear & tear and thus ensures longer life.



Mode		ON Delay			
Functio	nal Diagram				
Supply	Variation	- 20% to +10%			
Frequer	ncy Variation	95% to 105%			
Timing	Range	1s to 120s			
Repeat Accuracy		\pm 2% of Full Scale Range at Constant Frequency			
	Output Contact	1 Delayed C/O or 2 Delayed C/O (Resistive)			
Output	Contact Rating	5A @ 250 VAC (Resistive)			
	Switching Frequency	1000 operations / hr. (Max.)			
Operati	ng Temperature	-5°C to 45°C			
Enclosure		Conforms to IP30 - IS 13947.			
Dimens	ion (W x H x D) (in mm)	55 X 88 X 106			
Weight	(unpacked)	260 g			
Mounti	ng	Base/DIN Mounting & can be mounted on vertical plane with maximum inclination of 15° from vertical.			
Termina	al Connection	1–2.5 mm ² solid/stranded.			
Degree	of Protection	IP20			

ORDERING INFORMATION

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

MOUNTING DIMENSION (mm)



CONNECTION DIAGRAM



TERMINAL TORQUE & CAPACITY

Ø 3.55.0 mm	Torque - 1.1 N.m (10 Lb.in) Terminal screw - M3.5
	Solid Wire - 2 X 0.22.5 mm ²
AWG	1 X 24 to 10

Basic Operating Modes / Functions

⇔ : SUPPLY, S: SIGNAL, R: RELAY OUTPUT, T: SET TIME, TP: PAUSE TIME, TON: ON TIME, TOFF: OFF TIME, T1, T2, T3: POWER DOWN REGION

preset time, the output is switched ON and remains ON till the supply voltage is present





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• ONE SHOT (PULSE):

On application of supply voltage to the timer, the preset delay time period starts. On completion of the preset time, the output is switched ON for a period of one second after which it is switched OFF.

On application of supply voltage to the timer, the preset delay time period starts. On completion of the

• INTERVAL (IMPULSE ON):

On application of supply voltage to the timer, the output is instantly switched ON for the preset time period. On completion of the preset time, the output is switched OFF.

• CYCLIC ON/OFF (SYMMETRIC):

On application of supply voltage, the output is initially switched ON for the preset time duration (T) after which it is switched OFF for the same time duration (T). This cycle repeats and continues till the supply is present.



• CYCLIC OFF/ON (SYMMETRIC):

On application of supply voltage, the output is initially switched OFF for the preset time duration (T) after which it is switched ON for the same time duration (T). This cycle repeats and continues till the supply is present.



• TRUE OFF DELAY (POWER OFF DELAY):

On application of supply voltage, the output relay energizes instantly. On removal of supply voltage to the timer, the preset delay time period starts. On completion of the preset time, the output is switched OFF.



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• ON DELAY RETENTIVE (NO VOLT):

On application of supply voltage to the timer, the preset delay time period starts. On completion of the preset time, the output is switched ON and remains. If power fails during preset time duration, the elapsed time is retained by timer. Upon resumption of power, the remaining cycle continues.

• ASYMMETRIC ON-OFF/CYCLIC ON-OFF(ASYMMETRIC):

On application of supply voltage, the output is initially switched ON for the preset 'ON' time duration (T) after which it is switched OFF for the preset 'OFF' time duration (T). This cycle repeats and continues till the supply is present. The ON time & OFF time are set independently.

• STAR DELTA:

On application of supply voltage, the output Star relay energizes instantly. On completion of the preset delay time, the output Delta relay energizes after a fixed pause time. This pause time (60, 90, 120, 150 ms) provides the shortest possible 'current off' pause and simultaneously ensures smooth change over.



• SIGNAL ON DELAY :

On application of input signal to the timer, the preset delay time period starts. On completion of the preset time, the output is switched ON and remains ON till the input signal is present.

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• SIGNAL OFF DELAY:

On application of input signal, the output relay energizes instantly. On removal of input signal to the timer, the preset delay time period starts. On completion of the preset time, the output is switched OFF.