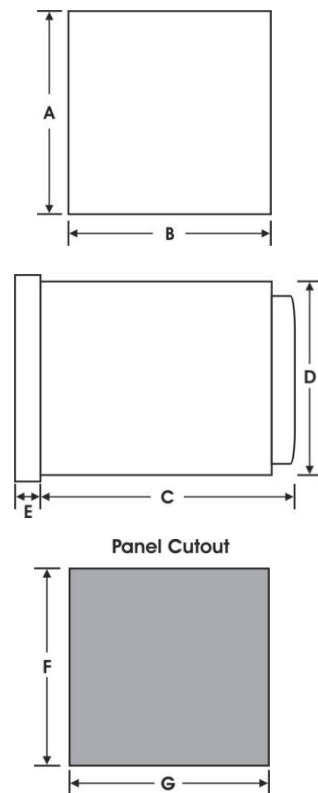


DIGITAL TIMER : TD2D



FEATURES	<ul style="list-style-type: none"> • Single Set point • ON Delay / Interval / Cyclic on first / Cyclic off first / Instantaneous + delayed at start pulse / Instantaneous + delayed at power on • Time range : 0.01 sec to 999 hours • Output Contacts 2 : 1C/O (SPDT) • Front Panel reset • Up/Down counting • High Reliability • Battery backup 	<table border="1"> <thead> <tr> <th colspan="2">TIME RANGES</th> </tr> </thead> <tbody> <tr> <td>0 - 9.99 Sec</td> <td></td> </tr> <tr> <td>0 - 99.9 Sec</td> <td></td> </tr> <tr> <td>0 - 999 Sec</td> <td></td> </tr> <tr> <td>0 - 9.59 Min:Sec</td> <td></td> </tr> <tr> <td>0 - 99.9 Min</td> <td></td> </tr> <tr> <td>0 - 999 Min</td> <td></td> </tr> <tr> <td>0 - 9.59 Hr:Min</td> <td></td> </tr> <tr> <td>0 - 99.9 Hr</td> <td></td> </tr> <tr> <td>0 - 999 Hr</td> <td></td> </tr> <tr> <td colspan="2">(Programmable)</td> </tr> </tbody> </table>	TIME RANGES		0 - 9.99 Sec		0 - 99.9 Sec		0 - 999 Sec		0 - 9.59 Min:Sec		0 - 99.9 Min		0 - 999 Min		0 - 9.59 Hr:Min		0 - 99.9 Hr		0 - 999 Hr		(Programmable)	
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OPERATING MODES	ON Delay, Interval, Cyclic on first, Cyclic off first, Instantaneous +delayed at start pulse, Instantaneous + delayed at power on (Configurable by keys)																							
SUPPLY	SUPPLY VOLTAGE	85 to 270V AC , 50 – 60Hz / 24V AC/DC* (Recommended fuse : 1A, 230V AC Fast blow)																						
	POWER CONSUMPTION	4VA Max																						
	INRUSH CURRENT	Max. 2A@240V AC for 20ms / 5A@24VDC																						
INPUT SPECIFICATIONS	DISPLAY	7 segment LED(Red), Height : Upper display : 0.39"(48x48) / 0.56"(72x72)(96x96) Lower display : 0.28"(48x48) / 0.39"(72x72)(96x96)																						
	TIME SETTING	Programmable by keys																						
	DIGITS	Dual Display, 3 digits																						
	START INPUT	Pulse Start : upon contact closure (15ms minimum), Gate Start																						
	ACCURACY	±0.05% of Set Time or 50msec (whichever is greater) Repeat : ±0.05%																						
	RESET	Front, Remote, On interruption of power Reset time < 100msec																						
OUTPUT SPECIFICATIONS	OUTPUT CONTACT	2 : 1C/O (SPDT)																						
	CONTACT RATING	5A@250V AC																						
	INDICATION	LED Status Indicator : Relay ON, Sec, Min, Hr.																						
ISOLATION	Supply Terminals – Contacts : 1.5KV, 1min Contact Set1 – Contact Set2 : 1.5KV, 1min Supply Terminal – Start/Reset : 1.5KV, 1min Start/Reset – Contacts : 1.5KV, 1min																							
ENDURANCE	RELAY	MECHANICAL : 10,000,000 ops. Minimum (1800 ops./hr.) ELECTRICAL : 100,000 ops. Minimum (1200 ops./hr.)																						
AMBIENT CONDITIONS	OPERATING AMBIENT	0 to 55°C																						
	STORAGE AMBIENT	-5°C to 50°C																						
	HUMIDITY	95% RH non condensing																						
GENERAL SPECIFICATIONS	TERMINATIONS	Screw type, for 2.5mm sq. wire																						
	MOUNTING	Panel Mount																						
	PROTECTION LEVEL	IP20																						



DIM MODELS	A	B	C	D	E	F	G
TD2D-48	48	48	95	46	4	46	46
TD2D-72	72	72	115	68	10	69	69
TD2D-96	96	96	75	90	10	92	92

Dimensions

All dimensions in mm

*Refer ordering information on page 2.

ORDERING INFORMATION	TD2D - 48 - Z			
	DESIGN NAME	SIZE	SUPPLY VOLTAGE	WEIGHT
TD2D	48 : 48mm x 48mm	Z : 85 to 270V AC , 50 – 60Hz 24V : 20V to 30V AC(50 – 60Hz)/DC	150 gms	
	72 : 72mm x 72mm		210 gms	
	96 : 96mm x 96mm		230 gms	

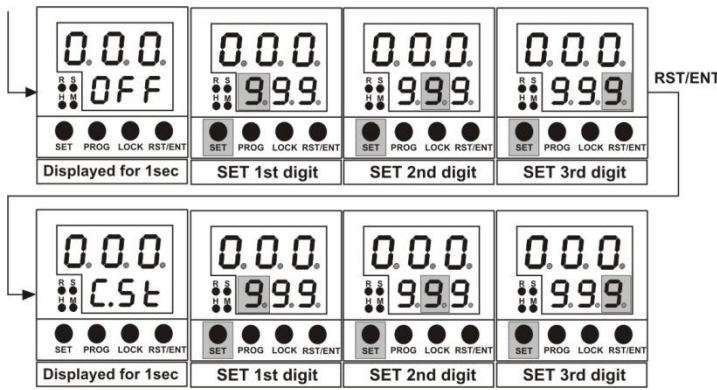
TERMINAL CONNECTIONS	TD2D-48	TD2D-72	TD2D-96

FRONT PANEL DESCRIPTION				LOCK MODE		
				<ol style="list-style-type: none"> Press 'LOCK' key continuously for 3sec to enter into lock mode. Scroll main parameter by pressing 'RST/ENT' key and to save previous parameter setting. Scroll sub parameter by pressing 'LOCK' key Press 'LOCK' key continuously for 3sec to exit from lock mode. (Note: The unit will auto exit from lock mode after 1min of key inactivity). 		
	On line	Config	Lock	OPERATION	DISPLAY	DESCRIPTION
1	Process Time	Parameter name		PRESS 'LOCK' KEY		UNLOCK: Disable lock for time setting mode. Default: UNLOCK
2	Set Time	Parameter setting		PRESS 'LOCK' KEY		LOCK: Enable lock for time setting mode.
3	O/P Status ('R' lit when output is ON) Time Range ('S', 'M', 'H' blink in online mode)			➤ PRESS 'RST/ENT' KEY TO STORE & PROCEED		
	KEYS	FUNCTIONS		OPERATION	DISPLAY	DESCRIPTION
	SET	<ol style="list-style-type: none"> To enter into time setting mode. To view preset time and parameters. Selects the digit to be altered. Selected digit blinks. With every press of this key, next digit towards right starts blinking. 		PRESS 'LOCK' KEY		UNLOCK: Disable lock for configuration mode. Default: UNLOCK.
	PROG	<ol style="list-style-type: none"> To ENTER/EXIT configuration mode. To decrement value of blinking digit. 		PRESS 'LOCK' KEY		LOCK: Enable lock for configuration mode.
	LOCK	<ol style="list-style-type: none"> To ENTER/EXIT lock mode. To increment value of blinking digit. To scroll next option for configuration parameter. 		➤ PRESS 'RST/ENT' KEY TO STORE & PROCEED (roll over back to first parameter)		
	RST/ENT	<ol style="list-style-type: none"> Scrolls to next configuration parameter and stores previous parameter setting. Front panel reset. 				

CONFIGURATION SCHEME			
<ol style="list-style-type: none"> To enter into configuration mode press 'PROG' key continuously for 3sec. Scroll main parameter by pressing 'RST/ENT' key and to save previous parameter setting. Scroll up to next sub parameter by pressing 'LOCK' key To exit from configuration mode press 'PROG' key continuously for 3sec. (Note: The unit will auto exit from configuration mode after 1min of key Inactivity). 			
❖ LOCK CODE			
OPERATION	LOWER DISPLAY	DESCRIPTION	
PRESS 'SET' KEY		Prompt only if configuration Lock is enabled in LOCK MODE. Lock code: '456' [Fixed]	
➤ PRESS 'RST/ENT' KEY TO PROCEED			
1. DELAY MODE		Default : On Delay	
UPPER DISPLAY:			
OPERATION	LOWER DISPLAY	DESCRIPTION	
PRESS 'LOCK' KEY		ON DELAY	
PRESS 'LOCK' KEY		INTERVAL	
PRESS 'LOCK' KEY		CYCLIC ON FIRST (refer Note1)	
PRESS 'LOCK' KEY		CYCLIC OFF FIRST (refer Note1)	
PRESS 'LOCK' KEY		INSTANTANEOUS + DELAYED AT START PULSE	
PRESS 'LOCK' KEY		INSTANTANEOUS + DELAYED AT POWER ON	
➤ PRESS 'RST/ENT' KEY TO STORE & PROCEED			

2. UPPER DISPLAY: RANGE Default : 9.99 Sec			5. POWER ON RESET Default : Yes		
UPPER DISPLAY: (refer Note1) r-5 / ON / OFF			UPPER DISPLAY: POR		
OPERATION	LOWER DISPLAY	DESCRIPTION	OPERATION	LOWER DISPLAY	DESCRIPTION
PRESS 'LOCK' KEY	9.99	0 – 9.99 sec	PRESS 'LOCK' KEY	YES	YES : Unit is reset on power interruption.
PRESS 'LOCK' KEY	99.9	0 – 99.9 sec	PRESS 'LOCK' KEY	NO	NO : Unit is not reset on power interruption.
PRESS 'LOCK' KEY	999	0 – 999 sec	> PRESS 'RST/ENT' KEY TO STORE & PROCEED		
UPPER DISPLAY: (refer Note1) r-n / ON / OFF			6. COUNTING DIRECTION Default : Down		
UPPER DISPLAY: (refer Note1) r-H / ON / OFF			UPPER DISPLAY: d n		
OPERATION	LOWER DISPLAY	DESCRIPTION	OPERATION	LOWER DISPLAY	DESCRIPTION
PRESS 'LOCK' KEY	9.59	0 – 9.59 min-sec	PRESS 'LOCK' KEY	dn	DOWN : Counting starts from set point and proceed down to 0.
PRESS 'LOCK' KEY	99.9	0 – 99.9 min	PRESS 'LOCK' KEY	UP	UP : Counting starts from 0 and proceed towards set point.
PRESS 'LOCK' KEY	999	0 – 999 min	> PRESS 'RST/ENT' KEY TO STORE & PROCEED		
UPPER DISPLAY: (refer Note1) r-H / ON / OFF			7. DEFAULT SETTING Default : No		
PRESS 'LOCK' KEY	9.59	0 – 9.59 hr-min	UPPER DISPLAY: dfE		
PRESS 'LOCK' KEY	99.9	0 – 99.9 hr	OPERATION	LOWER DISPLAY	DESCRIPTION
PRESS 'LOCK' KEY	999	0 – 999 hr	PRESS 'LOCK' KEY	NO	NO : Parameters remain unchanged.
> PRESS 'RST/ENT' KEY TO STORE & PROCEED			PRESS 'LOCK' KEY	YES	YES : All parameters are set to factory set values.
3. START INPUT Default : Pulse Start			> PRESS 'ENT / RST' KEY TO STORE & PROCEED (roll over back to first parameter)		
UPPER DISPLAY: SEr			Note1:		
OPERATION	LOWER DISPLAY	DESCRIPTION	<ul style="list-style-type: none"> In Cyclic mode, the upper display will prompt 'ON' during selection of ON time range and 'OFF' during selection of OFF time range. Both ON time and OFF time have different time ranges. H, M, S LED will indicate various time ranges. For Id-s / Id-p mode, contact set1 (NO1, COM1, NC1) is instantaneous contact and contact set2 (NO2, COM2, NC2) is delayed contact. 		
PRESS 'LOCK' KEY	PUL	PULSE : Timing starts on momentary closure of switch connected between start and ground.			
PRESS 'LOCK' KEY	GATE	GATE : Timing starts on power ON. When switch between start & ground is closed, timing freezes & resumes only after release of switch.			
> PRESS 'RST/ENT' KEY TO STORE & PROCEED					
4. FRONT PANEL RESET Default : Yes					
UPPER DISPLAY: FPF					
OPERATION	LOWER DISPLAY	DESCRIPTION			
PRESS 'LOCK' KEY	YES	YES : Time can be reset from the front panel.			
PRESS 'LOCK' KEY	NO	NO : Time can- not be reset from the front panel.			
> PRESS 'RST/ENT' KEY TO STORE & PROCEED					

TO PROGRAM SET VALUE		
OPERATION	DISPLAY	Description
Press 'SET' key for 3 sec to enter into time setting mode (Note: 'LCK' will flash on display for 1 sec if lock enabled for time setting mode.)	Mode: ON Delay / Interval 	<ul style="list-style-type: none"> Press 'SET' key repeatedly to select digit. Selected digit will start blinking. Press 'LOCK/PROG' key to increment/decrement set value. The corresponding digit will increment from 0 to 9 or decrement from 9 to 0. Press 'RST/ENT' key to store the set value.
	Mode: Cyclic 	<ul style="list-style-type: none"> In cyclic mode, display shows parameter name then its value on lower display. Press 'SET' key repeatedly to select digit. Selected digit will start blinking. Press 'LOCK/PROG' key to increment/decrement set value. The corresponding digit will increment from 0 to 9 or decrement from 9 to 0. Press 'RST/ENT' key to store the set value. In Cyclic mode (Cyclic ON/Cyclic OFF) first ON time is set and then OFF time is set.



- Cycle set (**c.st**) is to set no. of ON-OFF operations in cyclic mode (i.e to set no. of required cycles after which ON-OFF operation will stop).
- If **c.st=0**, then cyclic operations (ON-OFF) will continue till power off or any alteration in config. setting.

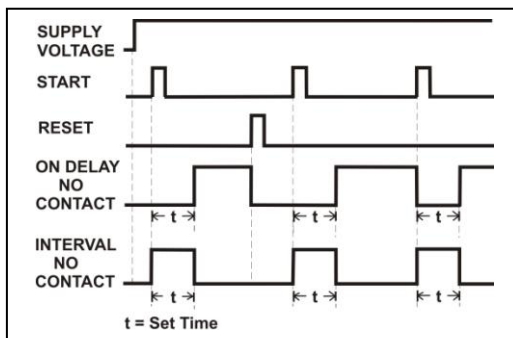
Note : The unit will auto exit from set value mode after 60sec in case of key inactivity.

MODE OF OPERATION

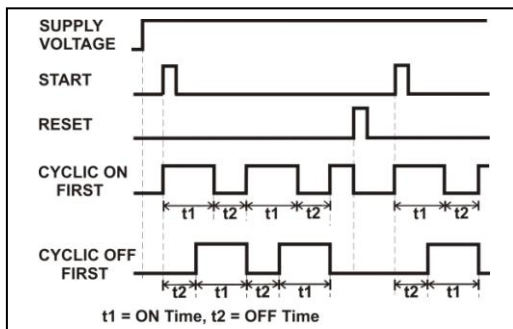
Pulse start input :

- Refer terminal connections for start input.
- Timing starts on momentary closure of start switch.

1. ON Delay, Interval modes :

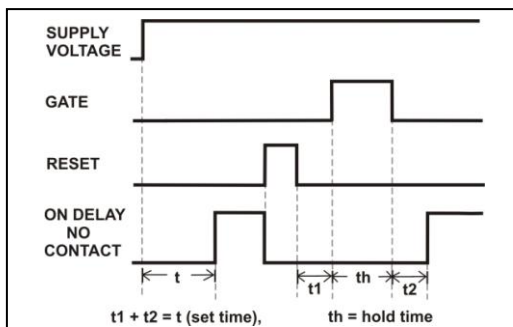


2. Cyclic ON first, Cyclic OFF first modes :



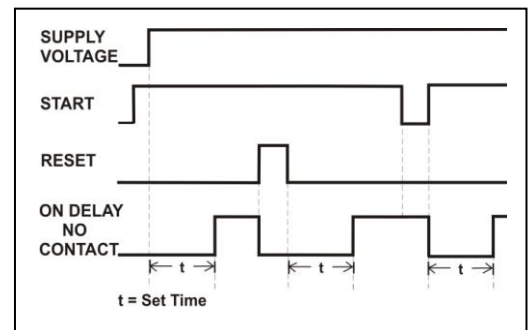
3. Typical application of Gate start (eg. On delay) :

Time will start at every power ON or after applying reset input.

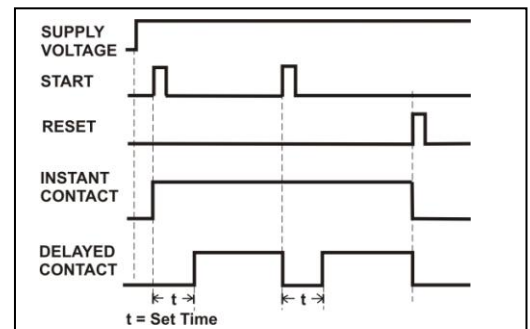


4. Typical application of Continuous Start input (eg. On delay) :

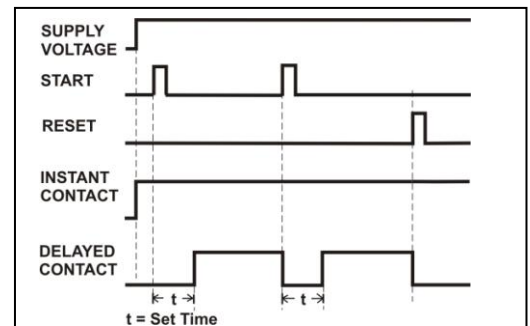
If start switch is kept closed continuously, then time will start at every power ON.



5. Instantaneous + Delayed at Start pulse :



6. Instantaneous + Delayed at Power on :



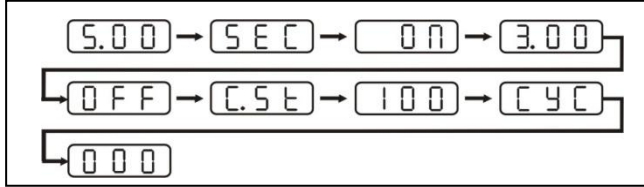
VIEW MODE

1. To view preset time in ON delay / Interval / Id+s / Id+p :

- Press 'SET' key on front panel (< 1sec).
- If set parameters are, Mode=On delay, Range=9.99sec, Set time=5.00sec then, timer will display parameters (each for 1sec) in following sequence on lower display.



- If set parameters are, Mode=Cyclic on first, ON time=5.00sec, OFF time=3.00 sec cycle set(c.st)=100 then, timer will display parameters (each for 1sec) in following sequence on lower display.



RESETTING THE TIMER

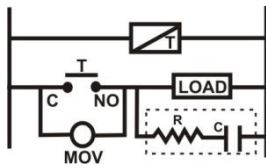
- FRONT RESET** : Timer can be reset from front panel by pressing 'RST/ENT' key (min. 1sec). (valid only if front panel reset is enabled in config setting).
- REMOTE RESET** : Timer can be reset by pressing switch connected between terminals 'RST' & 'GND' on rear side of timer (refer terminal connections).

POWER ON RESET (YES/NO)

YES : Time resets on power interruption. On power ON, timing starts accordingly with start input.

NO : On power interruption timer keeps backup of its current running status(i.e timing status, relay status), so on power resumption timer restores previous operation.

LOAD CONNECTION



Note : For inductive load , use of snubber and MOV, as shown above, is recommended

(Specifications subject to change as development is a continuous process)