DIN Timers TD

17.5mm or 22.5mm DIN rail mounting Electronic Timers

- Wide coil operation, 24V to 320V AC/DC (from 12V with TDMD-X)
- Multi Time range / Multi function
- ON-Delay, OFF-Delay, Asymetrical, Star/Delta versions
- Perfect to fit in Modular Enclosure
- Protection against over voltage and reverse polarity
- Self-Extinguishing plastic housing

Options and ordering codes

TD	M10
DIN rail mount timers: TD	
	Multi-function: M10
	Asymetical 5 function: AS
	Star/Delta 20-500ms: SD1
	4 function (from 12V coil): MD-X

Specification

	TDM10	TDAS	TDSD1	TDMD-X
Operation modes	A,B,C,D,E,F,G,H,I,K	ND,FD,NFD,Fon, Foff	Star Delta	A,B,F,G
Time range	0.1sec - 10 days	0.1sec - 10 days	λ1-30sec / λ△20-500ms	0.05sec - 10 days
Accuracy	30ppm			+/- 0.5% full time scale
Supply voltage	24-300V AC/DC, +/-10%, 45-65Hz		150-500VAC 45-65 Hz	12-240V AC/DC, +/- 10%, 48-63Hz
Nominal power consumption	24-320VDC max 1W ; 24VAC 2.5VA, 48VAC 4.46VA ; 110VAC 1.76 VA ; 220VAC 2.53 VA			24VAC/DC 0.8VA ; 110 VAC 2.5VA ; 230VAC 3VA
Input signal Control contact must be 90% of A1-A2	Power On - contact control	Power On	Power On	Power On - contact control
Contact configuration	1 C/O contact	1 C/O contact	2 independent C/O contact	1 C/O contact
Control output	10A @ 250VAC / 3A @ 30VDC			8A @ 250VAC
Life expectancy Electrical / Mechanical	5×10^4 (5 A @ 250 V AC) / 10^7 operations			2 x 10^5 operations / 20 x 10^6 operations
Allowable ambient temperature Storage / Operating	-40 to +85 deg C / -25 to +70 deg C			-25 to +70 deg C / -25 to +55 deg C
IP rating	IP20			
Terminals	2.5mm² Stranded, 4mm² Solid or 2x1.5mm² Solid			
Guarantee / Certification	2 years / CE			3 years / CE / UL / cUL

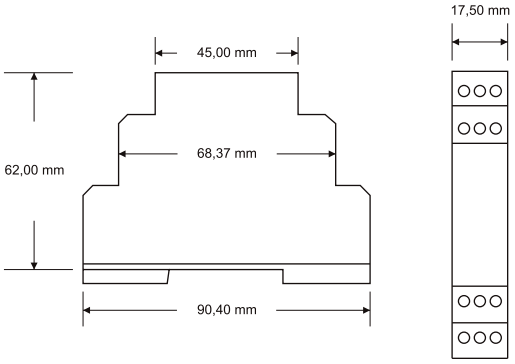
DIN Timers TDM10

- Multi-function time delay
- Multi-time range
- Compact design
- Universal voltage input 24~300V AC/DC
- Single module size

Specification

	TDM10
Adjustable values / Time Range	1 second
	10 second
	100 second
	1 minute
	10 minute
	1 hour
	10 hour
	100 hour
	1 day
	10 day
Multiplier	0.1 - 0.2 - 0.3 - 0.4 - 0.5 - 0.6 - 0.7 - 0.8 - 0.9 - 1

Dimensions

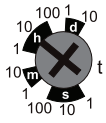


Indication Lights Legend

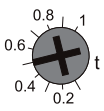
LED	State	Description
On/t	ON	Power ON
	OFF	Power OFF
Relay output	ON	Output relay energised
	OFF	Output relay de-energised
M1, M2	M1, M2 are used to indicate which function is currently used, see charts page 3 for more details	

Time Settings

Time range selector switch selects full scale time range. The t multiplier selector switch provides fine adjustment of time value, t, within the full scale time range. Selector switch positions are latched upon startup to avoid accidental changes during operation. Therefore changing selector switch positions have no effect when the device is operational. The below example shows how to set a t value.



Time range



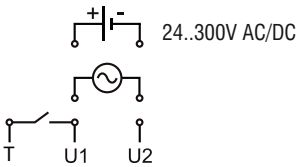
t multiplier

In the above figure: t=10h x 0.5 = 5 hour

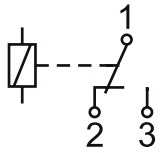
Note: All the pot values are digitilised. Cannot be set to mid values.

Connections

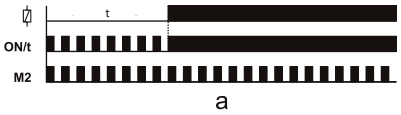
Power Input



Relay

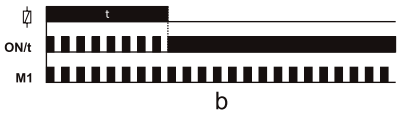


Mode functions



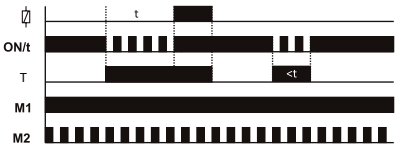
a

A On Delay
The output relay is initially de-energised after an adjustable time delay, t.



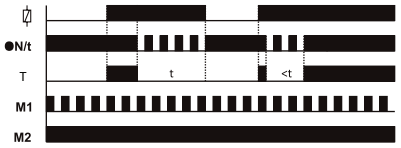
b

B Off delay
The output relay is intially energised and de-energised after an adjustable time delay, t.



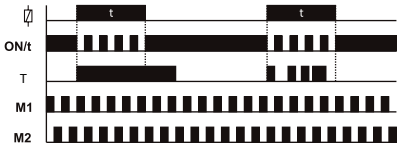
c

C On-delay with control input
The output relay is initally de-energised. A contact closure on K input triggers an adjustable time delay, t, which energises the output relay when expired. The output relay stays energised as long as the K input is active. Delay time, t, is cleared when the contact on K input opens.



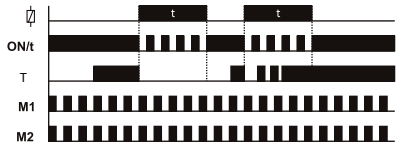
d

D Off delay with control input
The output relay is initally de-energised and energised when a contact closure on K input is detected.
A contact release on K input triggers an adjustable time delay, t, which de-energises the output relay when expired. Reclosure of the contact on K input before the time delay is expired restarts time delay, t, and keeps the output relay energised



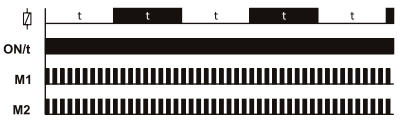
e

E Rising edge triggerred Off delay
The output relay is initially de-energised. A contact closure on K input both energised the output relay and triggers an adjustable time delay, t, which de-energises the output relay when expired. During the time delay, K input is insensitive to state changes and becomes sensitive when time delay, t, expired.



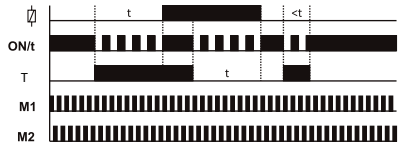
f

F Falling edge triggerred Off delay
The output relay is initially de-energised. A state change of the contact on K input from closed to open both energises the output relay and triggers an adjustable time delay, t, which de-energises the output relay when expired. During the time delay, K input is insensitive to state changes and becomes sensitive when time delay t, expired.



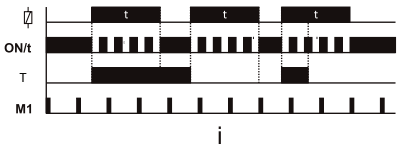
g

G Off flasher
The output relay is initially de-energised and energised after an adjustable time delay, t, and stays energised for the period, t, and the de-energised. This loop is repeated until the device is powered off.



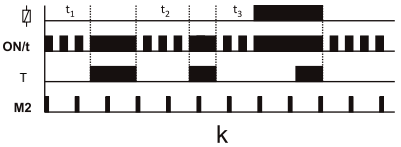
h

H On and Off delay with control input
The output relay is initially de-energised. A contact closure on K input triggers an adjustable time delay, t, which energises the output relay when expired. Similarly contact release of K input triggers the time delay, t, which de-energises the output relay when expired. Delay time, t, is cleared when the contact state of K input changes.



i

I Adjustable pulse output with control input
The output relay is initially de-energised. A state change on K input both energises the output relay and triggers an adjustable time delay, t, which de-energises the output relay when expired. During the time delay, K input is insensitive to state changes and becomes sensitive when time delay, t, expired.



k

$t = t_1+t_2+t_3$

K On delay with memory
The output relay is initially de-energised. If K input is open, adjustable time delay, t, counts down and output relay energises when t is expired. Any contact closure on K input pauses the count down process, and the process continues when the contact release on K input occurs. A contact release is needed to restart the cycle, after the output relay is energised.

■ On
□ Off

TDAS

Mode functions

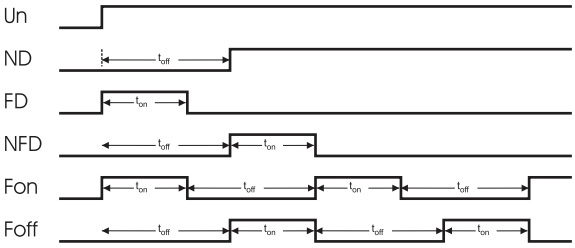
1 - On Delay (ND)
The output relay is initially de-energized and energized after an adjustable time delay, t_{off}.

2 - Off Delay (FD)
The output relay is initially energized and de-energized after an adjustable time delay, t_{on}.

3 - On - Off Delay (NFD)
The output relays is initially de-energized and energized after an adjustable time delay, t_{off}, and stays energized for an adjustable period, t_{on}, and then de-energized.

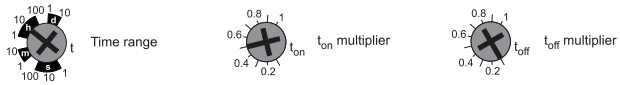
4 - On Flasher (Fon)
The output relays is initially energized and de-energized after an adjustable time delay, t_{on}, and stays de-energized for an adjustable period, t_{off}, and then energized. This loop is repeated until the device is powered off.

5 - Off Flasher (Foff)
The output relay is initially de-energized and energized after an adjustable time delay, t_{off}, and stays energized for an adjustable period, t_{on}, and then de-energized. This loop is repeated until the device is powered off.



Time Settings

Time range knob selects full scale time range. The t_{on} and t_{off} multiplier knobs provide fine adjustment of t_{on} and t_{off} time values within the full scale time range. Knob positions are latched upon startup to avoid accidental changes during operation. Therefore changing knob positions have no effect when the device is operational. The below example shows how to set particular t_{on} and t_{off} values.



In the above figure :

t_{on} = 10h x 0.5 = 5 hour t_{off} =10h x 0.1 = 1 hour

Note: All the pot values are digitized. Cannot be set to mid values.

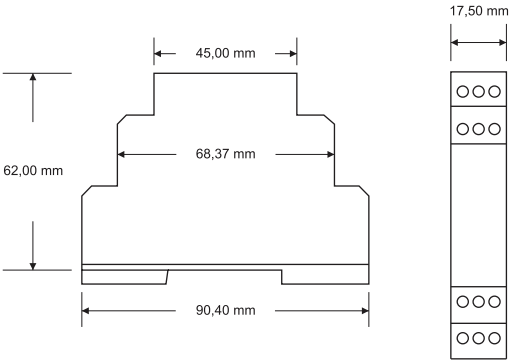
Specification

	TDAS
Adjustable values / Time Range	1 second
	10 second
	100 second
	1 minute
	10 minute
	1 hour
	10 hour
	100 hour
	1 day
	10 day
Multiplier	0.1 - 0.2 - 0.3 - 0.4 - 0.5 - 0.6 - 0.7 - 0.8 - 0.9 - 1

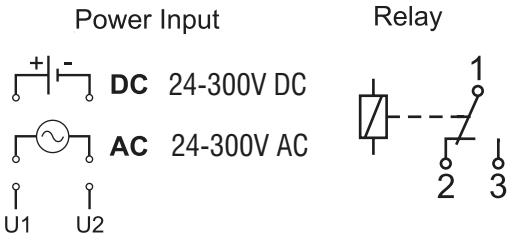
Indication Lights Legend

LED	State	Description
On/t	On	Power on
	Off	Power off
Relay Output	On	Output relay energized
	Off	Output relay de-energized
M1, M2	On	On-Off delay mode
	M2 flashing, M1 off	On delay mode
	M1 flashing, M2 off	Off delay mode
	Flash sequentially	On flasher mode
	Flash simultaneously	Off flasher mode

Dimensions



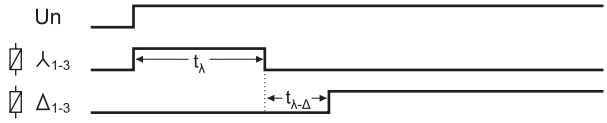
Connections



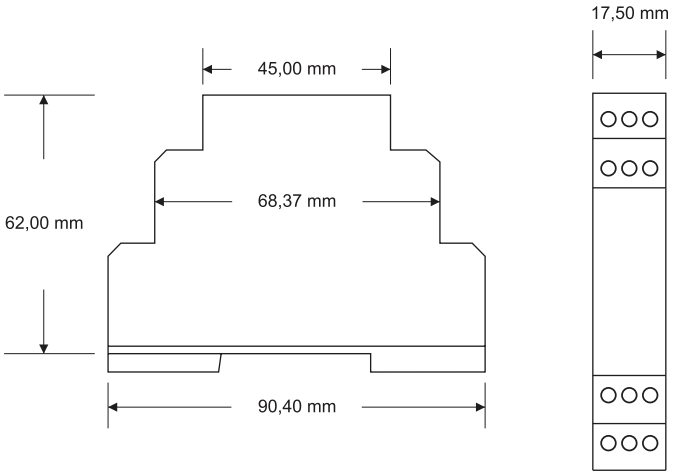
TDSD1

Mode Functions

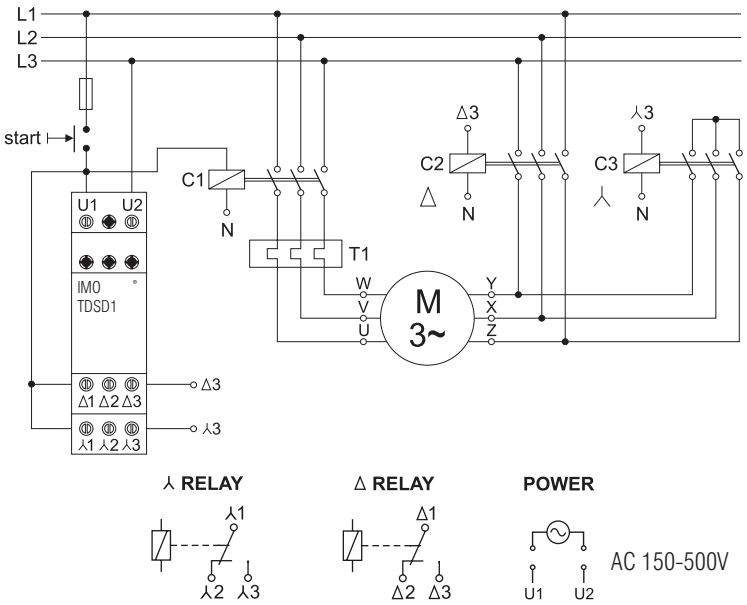
TDS1 star-delta starter is used for take-off starting method used in electrical motors. When energy applied from U1 and U2 terminals, star contacts will be energised until the end of the adjustable t_{λ} time. Later, at the end of the adjusted wait time $t_{\lambda-\Delta}$, delta contacts will be energised until the device powered off.



Dimensions



Connections

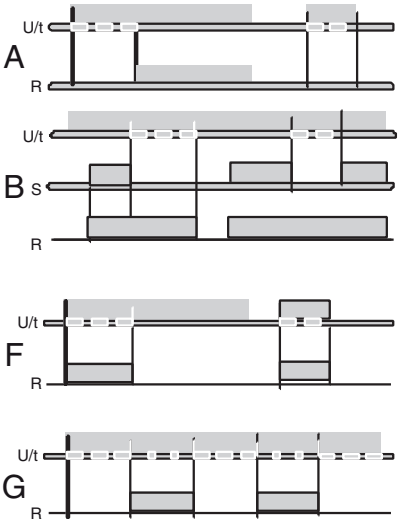


TDMD-X

Specification

	TDMD-X
Adjustable values / Time Range	1 second
	10 second
	1 minute
	10 minute
	1 hour
	10 hour
	1 day
	10 day
Multiplier	0.1 - 0.2 - 0.3 - 0.4 - 0.5 - 0.6 - 0.7 - 0.8 - 0.9 - 1

Mode functions



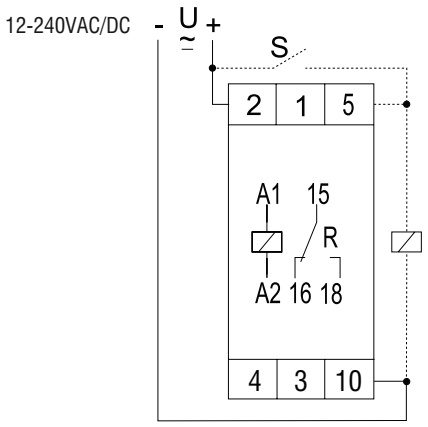
A On Delay
On application of supply voltage the time period starts to run. On completion of time the relay energises. Power off reset.

B Off delay
Supply to the unit must be continuous. On closure of the control contact (S) the relay energises immediately. On re-opening of S the time period starts to run and (R) de-energises If the control contact (S) is reclosed before “the actual time period is completed, this period will be deleted” and a new one starts on re-opening of (S).

F Single shot leading edge
On application of supply voltage the time starts and (R) energises immediately. Following time out the relay will de-energise. For a new start of function the supply voltage must be interrupted.

G Flasher pause first
On application of supply voltage the time period starts to “run. The relay switches on and off for the periods, beginning” with a pause. The time period for pause and pulse is equal.

Connections



Dimensions