DIN Timers TD

3 YEAR GUARANTEE

22.5mm DIN rail mounting Electronic Timers

▮ AC/DC coil operation

▮ Multi-time range

▮ Multi-function, On-delay, Off-delay and Star/Delta versions
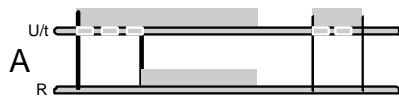
▮ Voltage range selectable

▮ Marking plate cover
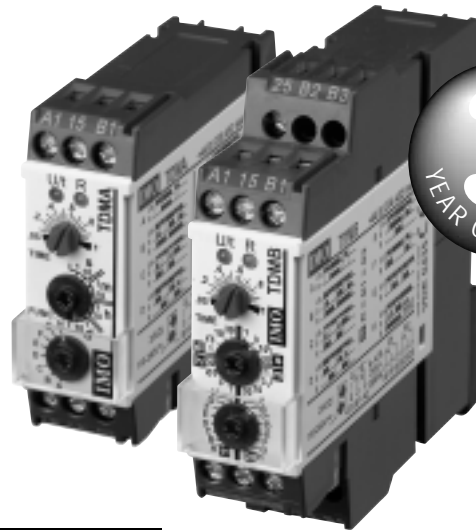
Options and ordering codes

TD	MA

DIN rail mount timers	TD

Multi-function	MA
4 function	MC
Multi-function 2 C/O	MB
On-delay	EA
Off-delay	RA
Asymmetrical recycling	IA
True off-delay 3 minutes	AA
True off-delay 10 minutes	AB
Star/Delta	SD
On delay single function	SF

Multi Voltage Options

All timers are Multi-voltage I/P 24VAC/DC and 100-230VAC selectable on unit. Except EA+RA models	Multi Voltage Options
EA + RA models only	110VAC + 24VAC/DC
EA + RA models only	230VAC + 24VAC/DC
SF model only	24VAC/DC
SF model only	110VAC
SF model only	230VAC

Specification

		TDMA	TDMC	TDMB	TDEA	TDRA	TDIA	TDAA	TDAB	TDSD	TDSF
Operation modes		A,B,C,D E,F,G,H	A,B,F,G	A,B,C,D E,F,G,H	A	B	Rp,Ri	T	T	S	A
Time range		0.05sec- - 10 days	0.05sec- - 10 days	0.05sec- - 10 days	0.05sec- - 10 days	0.05sec- - 10 days	0.05sec- - 10 days	0.1sec- - 3 min	0.1sec- - 10 min	0.5sec-3minY 40-100ms Y	1-10 min
Accuracy		±0.5% FS									
Supply voltage		24VDC ±10%, 24VAC-15% +10%, 110-230VAC-15% +10%									
Nominal power consumption		24V 1.5VA/ 1W-110V 2VA 230V 8VA	24V 1.5VA/ 1W-110V 2VA 230V 8VA	24V 1.5VA/ 1W-110V 2VA 230V 11VA	24V 1.5VA/ 1W-110V 2VA 230V 8VA	24V 1.5VA/ 1W-110V 2VA 230V 11VA	24V 1.5VA/ 1W-110V 2VA 230V 8VA	24V 1.5VA/ 1W-110V 4VA 230V 15VA	24V 1.5VA/ 1W-110V 4VA 230V 15VA	24V 1.5VA/ 1W-110V 2VA 230V 11VA	24V 1.5VA/ 1W-110V 2VA 230V 11VA
Input signal Control contact must be 90% of A1-A2		Power on control contact	Power on control contact	Power on control contact	Power on	Power on control contact	Power on	Power on	Power on	Power on	Power on
Contact configuration		1 C/O	1 C/O	2 C/O programmable	1 C/O	1 C/O	1 C/O	1 C/O	1 C/O	1 C/O with rest position	1 C/O
Control output		8A@250VAC	8A@250VAC	8A@250VAC	5A@250VAC	5A@250VAC	5A@250VAC	5A@250VAC	5A@250VAC	8A@250VAC	5A@250VAC
Life expectancy	Electrical	400,000	400,000	400,000	100,000	100,000	400,000	100,000	100,000	400,000	100,000
	Mechanical	30×10^6	30×10^6	30×10^6	10×10^6	10×10^6	30×10^6	30×10^6	30×10^6	30×10^6	10×10^6
Allowable ambient temperature		-25 ˚C upto +55˚C									
IP rating	Enclosures	IP40									
	Terminals	IP20									
Terminals		Box clamp screw terminal upto 4mm²									

IMO

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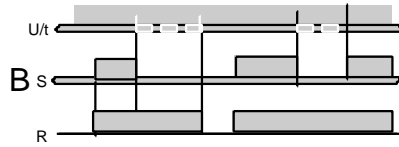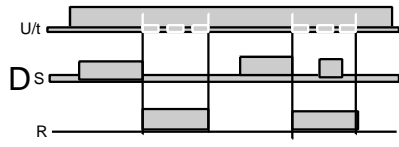
B Off delay
Supply to the unit must be continuous. On closure of the control contact (S) the relay energises immediately. On re-opening of S the time period starts to run and (R) de-energises If the control contact (S) is reclosed before "the actual time period is completed, this period will be deleted"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

C Single shot leading edge pulse started
Supply to the unit must be continuous. On closure of the control contact (S) the relay energises immediately and the time starts to run. On completion of the time the relay will de-energise. Activation of (S) during the time out period has no effect.

D Single shot trailing edge
Supply to the unit must be continuous. The first closure of (S) has no effect. On opening of (S) the time period starts to run and (R) energises immediately. On completion of time the relay de-energises. Activation of the control contact (S) during the time out period has no effect.
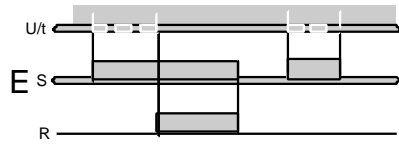
E On delay with control contact
Supply to the unit must be continuous. On closure of (S) the time period starts to run. On completion of time the relay energises and stays energised as long as (S) is closed. Opening the control contact before the time out is complete will reset the time period.

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.
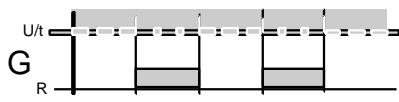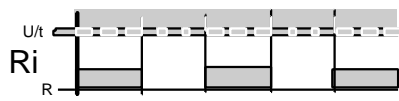
G Flasher pause first
On application of supply voltage the time period starts to "run. The relay switches on and off for the periods, beginning" with a pause. The time period for pause and pulse is equal.
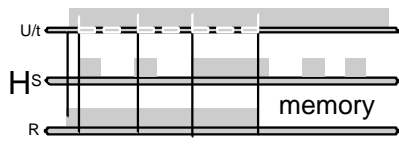
H Pulse detection
On application of supply voltage the relay energises. The first pulse of (S) starts the time period. Receiving pulses during the time period extends it and (R) stays energised. Receiving no pulses during the time period completes it and (R) de-energises. (R) stays latched until supply voltage has been interrupted.

Ri Cyclic timer pulse started
On application of supply voltage the time period starts to run. "The relay switches on and off for the periods, beginning with a" pulse. The time period for t1 and t2 can be different. The function continues as long as voltage is applied.
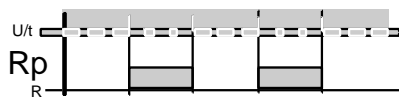
Rp Cyclic timer pause started
On application of supply voltage the time period starts to run. "The relay switches on and off for the periods, beginning with a" pause. The time period for t1 and t2 can be different. The function continues as long as voltage is applied.
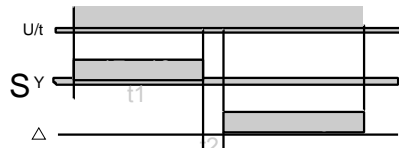
S Star Delta
On application of supply voltage the contact 17 - 18 of the star relay is closed and the star time t1 begins to run. On completion of the t1 the star relay de-energises and the dwell time t2 starts. On completion of t2 the contact 17 - 28 of the delta relay is closed and remains in operation as long as the supply voltage is applied.
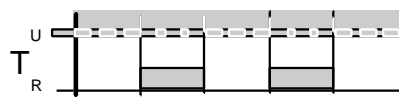
T True Off Delay
When supply voltage U is engaged the relay energises (contacts 15-18). When the supply voltage is removed the set time t begins to run. On completion of time t the output falls back to the off position (contacts 15-16). If the supply voltage U is re-engaged to "the unit before t has elapsed, the time already elapsed is cancelled" and starts again next time the supply voltage is interrupted.

TDAS

Basic Specifications

Modes

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.
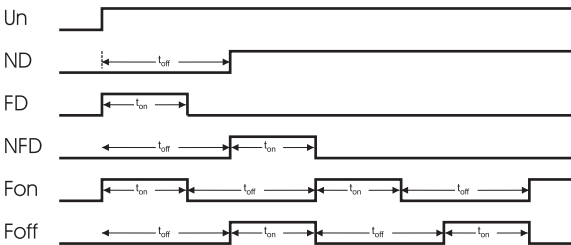
Time Settings

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.
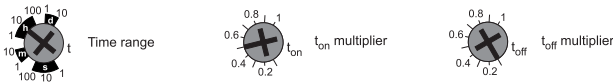
In the above figure :

$$t_{on} = 10h \times 0.5 = 5 \text{ hour} \qquad t_{off} = 10h \times 0.1 = 1 \text{ hour}$$

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

Technical Specification

|	
Operating voltage	12..265V$_{AC}$
Operating frequency	50 .. 60Hz
Adjustment values	
Time range :1s : 1 second	
10s : 10 second	
100s : 100 second	
1m : 1 minute	
10m : 10 minute	
1h : 1 hour	
10h : 10 hour	
100h : 100 hour	
1d : 100 day	
10d : 10 day	
t_{on} , t_{off} multiplier : 0.1 - 0.2 - 0.3 - 0.4 - 0.5 - 0.6 - 0.7 - 0.8 - 0.9 - 1	
Output contact	1 C/O 10A, 250V$_{AC}$
Operating temperature	-25°C .. 70°C
Storage temperature	-40°C .. 85°C
Protection class	IP20
Connection	Rail mounted

Warning Lights Legend

On and out lights are green, M1 and M2 lights are red.

Warning light	State	Description
On	On	Power on
	Off	Power off
Out	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 (mm)

Connections

Power Input   Relay

DC 12..350V DC

AC 12..265V AC

U1   U2

DIN Timers TDM10

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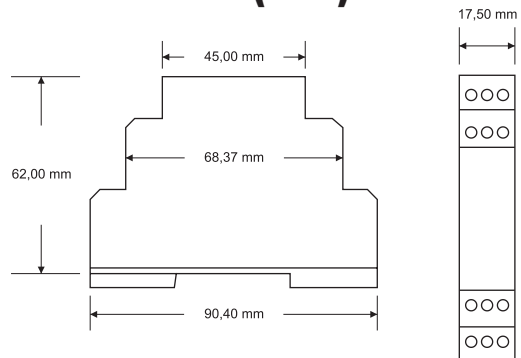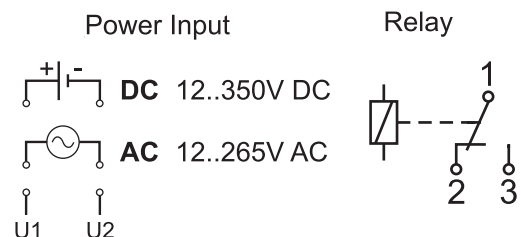
- ▌ Multi-function time delay
- ▌ Multi-time range
- ▌ Compact design
- ▌ Universal voltage input 24~300V AC/DC
- ▌ Single module size

3 YEAR GUARANTEE

CE

Specification

	TDM10
Operating Volatge	24..300V AC/DC
Operating Frequency	50 .. 60Hz
Adjustable values / Time Range	1s / 1 second
	10s / 10 second
	100s / 100 second
	1m / 1 minute
	10m / 10 minute
	1h / 1 hour
	10h / 10 hour
	100h / 100 hour
	1d / 1 day
	10d / 10 day
Multiplyer	0.1 - 0.2 - 0.3 - 0.4 - 0.5 - 0.6 - 0.7 - 0.8 - 0.9 - 1
Output Contact	1 C/O 10A, 250VAC
Operating Temperature	-25°C .. 70°C
Storage Temperature	-40°C .. 85°C
Protection Class	IP20
Connection	Rail mounts

Dimensions (mm)

17,50 mm

45,00 mm

62,00 mm

68,37 mm

90,40 mm
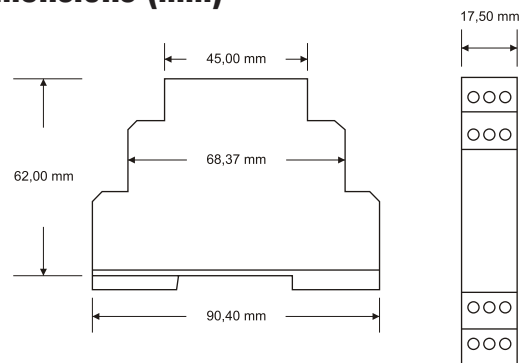
Time Settings

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.
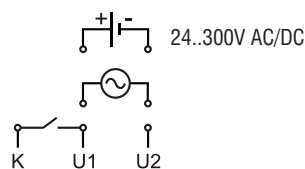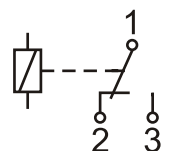
Time range

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

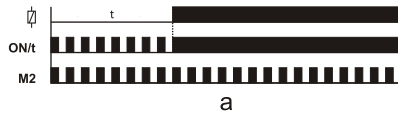24..300V AC/DC

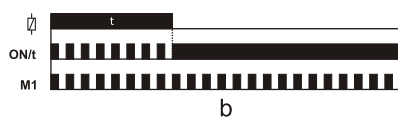K   U1   U2
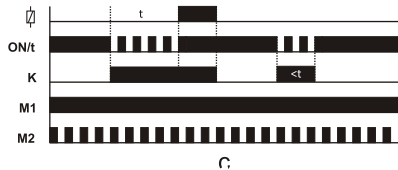
Relay

1

2   3

IMO

Mode functions

a

A On Delay

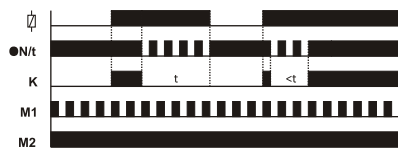The output relay is initially de-energised after an adjustable time delay, t.

b

B Off delay

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

c

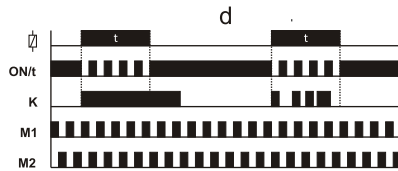**C** On-delay with control input

The output relay is intially 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.
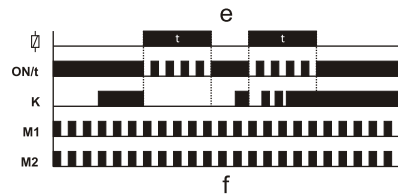

d

D Off delay with control input

The output relay is intially 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
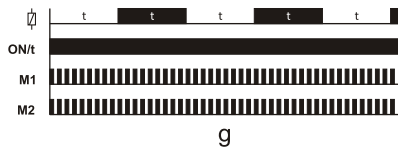

e

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.
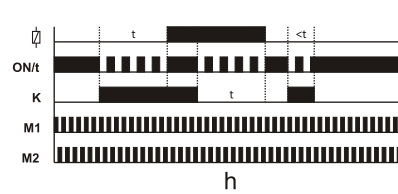

f

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
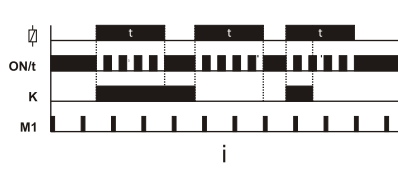
I Adjustable pulse output with control input

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

$t = t_1 + t_2 + t_3$
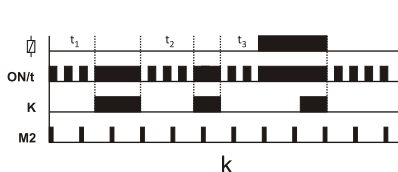
K On delay with memory

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

Function switches
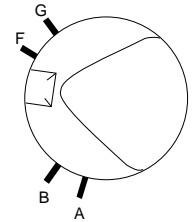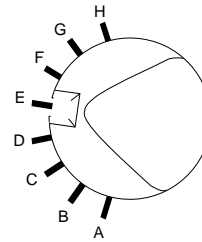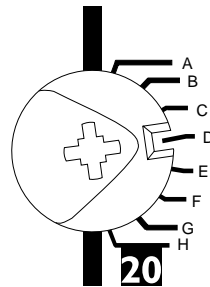
TDMB
TDMA
TDMC

Positions of function switch with one contact as instantaneous c.t.

Both contacts delayed

H pulse detection	
G flashing pause first	
F single shot	
E ON-delay controlled by trigger input	
D single shot trailing edge	
C single shot pulse operated	
B Off-delay	
A On-delay	
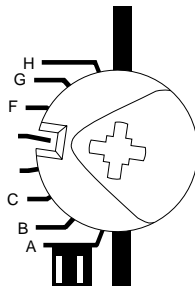
Start function B, C, D, E and H by control contact A1-B1

if instantaneous option is selected R1 becomes timed and R2 becomes instantaneous

Connection diagrams

TDMA; TDRA
TDMB
TDEA, TDAA, TDAB, TDSF
TDSD
TDIA
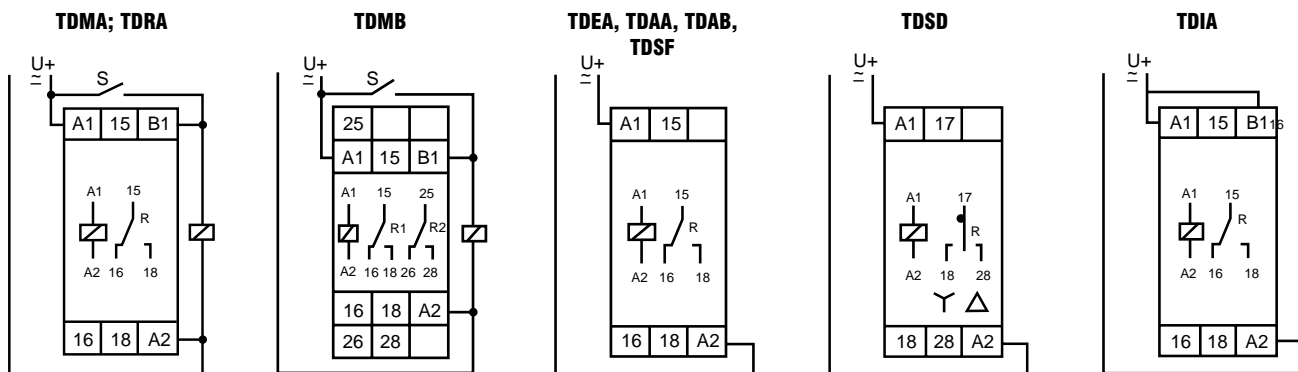
Control Function   Function Rp: without link   Function Ri: link A1-B1

Dimensions

TDMA, TDEA, TDRA, TDIA, TDAA, TDAA, TDAB, TDSD, TDSF

TDMB

65mm
70mm
5mm
22.5mm
64mm

85mm
89mm
5mm
22.5mm
85mm