canfield connector

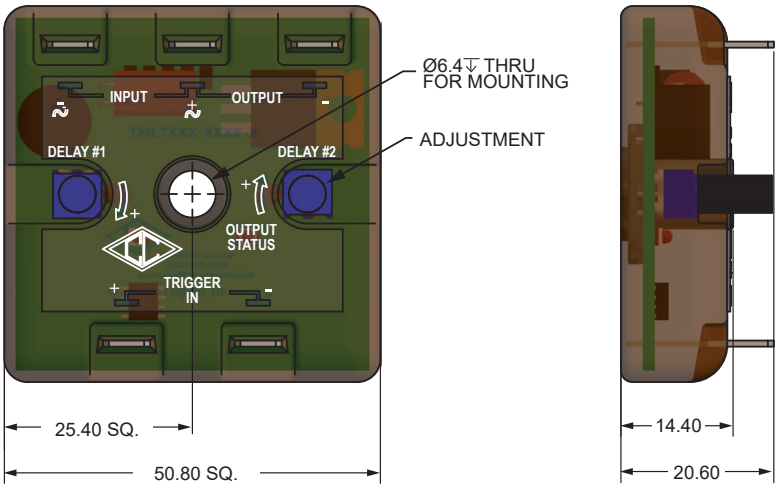
TMLT
MICROLOGIC
TIMER
MODULE

GENERAL DESCRIPTION

The Canfield Connector TMLT is an ultra-compact all solid state timer incorporated into a vibration and environment resistant composite encapsulant housing. The heart of the timer is a powerful microprocessor that is made in quantity then programmed to become the timer type according to customer specification. Featuring 6 timer modes of operation with two voltage ranges; 12-240V AC/DC or 12-60 VDC and four output options; Sinking ON First, Sinking OFF First, Sourcing ON First, and Sourcing OFF First, and 13 time ranges, from 0.1 to 2000 seconds. The timer is available with screwdriver or hand adjustment, and troubleshooting is a breeze with the onboard indicator light. The TMLT is versatile as well as rugged, and each timer is 100% tested, made in America and resistant to dust, vibration and humidity. Mounting is accomplished by use of a through hole able to accommodate up to a 1/4" (6mm) screw or by use of a DIN rail mount adapter plate. Electrical connections are .250" AMP Faston posts for crimp type push-on connectors.

DIMENSIONAL DATA

All dimensions are in millimeters unless otherwise noted.



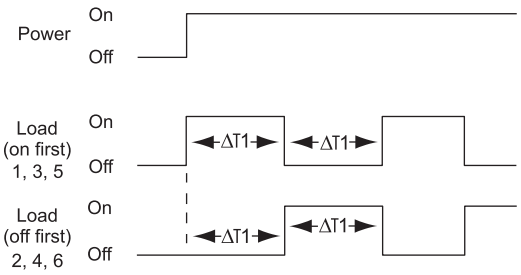
TECHNICAL DATA

Max. Timer Current Draw	2 mA (no load)
Output Current Max.	1 Amp
Input Voltage Range	12-240V AC/DC, 50/60 Hz or 12-60 VDC
Logic Trigger Rated	5-48 VDC (10k input impedance)
Mechanical Trigger Rated	5 VDC, 1 mA max.
Repeat Accuracy	+/-0.1% or 10ms (whichever is greater)
Time Delay	+/- 5% (Variable over ambient temp. range)
Materials	Enclosure: Macromelt Thermoplastic Polyamide
Temp. Range	-20° to +60°C
Environmental Protection	NEMA 1

TIMING DIAGRAMS / ORDERING INFORMATION

SQUARE WAVE

Load cycles with equal ΔT_1 time when power is applied. Reset occurs when power is removed.



TMLTSW □ - □ 00 □

ΔT_1

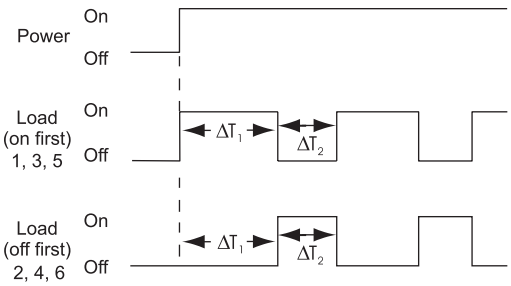
Voltage / Output Type
1 - 12-240V AC/DC / Sinking / On first
2 - 12-240V AC/DC / Sinking / Off first
3 - 12-60V DC / Sinking / On First
4 - 12-60V DC / Sinking / Off First
5 - 12-60V DC / Sourcing / On First
6 - 12-60V DC / Sourcing / OFF First

Adjustable Potentiometer
0 - Screw Adjust
1 - Hand Adjust

Time Range
A - 0.5 to 5 sec.
B - 0.5 to 25 sec.
C - 0.5 to 50 sec.
D - 0.5 to 100 sec.
E - 2.0 to 20 sec.
F - 2.0 to 200 sec.
G - 2.0 to 400 sec.
H - 5.0 to 50 sec.
I - 5.0 to 500 sec.
J - 10 to 100 sec.
K - 10 to 1000 sec.
L - 10 to 2000 sec.
Z - 0.1 to 5 sec.

CYCLE

Load cycles ΔT_1 and ΔT_2 when power is applied. Reset occurs when power is removed.



TMLTCY □ - □ □ 0 □

ΔT_1 ΔT_2

Voltage / Output Type
1 - 12-240V AC/DC / Sinking / On first
2 - 12-240V AC/DC / Sinking / Off first
3 - 12-60V DC / Sinking / On First
4 - 12-60V DC / Sinking / Off First
5 - 12-60V DC / Sourcing / On First
6 - 12-60V DC / Sourcing / OFF First

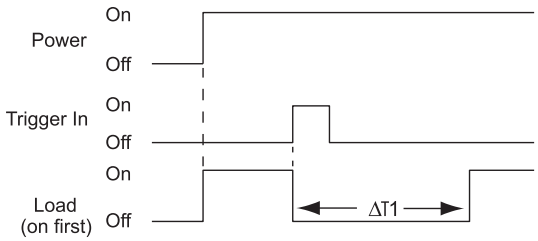
Adjustable Potentiometer
0 - Screw Adjust
1 - Hand Adjust

Time Range
A - 0.5 to 5 sec.
B - 0.5 to 25 sec.
C - 0.5 to 50 sec.
D - 0.5 to 100 sec.
E - 2.0 to 20 sec.
F - 2.0 to 200 sec.
G - 2.0 to 400 sec.
H - 5.0 to 50 sec.
I - 5.0 to 500 sec.
J - 10 to 100 sec.
K - 10 to 1000 sec.
L - 10 to 2000 sec.
Z - 0.1 to 5 sec.

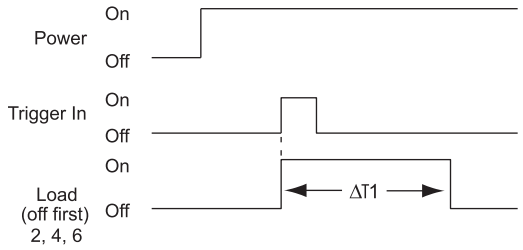
TIMING DIAGRAMS / ORDERING INFORMATION

DELAY ON MAKE

When power is applied, load is on. Load is off for ΔT_1 once the trigger is applied. Reset occurs when load is on and the trigger is re-applied.



When power is applied, load is off. Load is on for ΔT_1 once the trigger is applied. Reset occurs when load is off and the trigger is re-applied.



TMLTDM □ - □ 0 □ □

ΔT_1

Voltage / Output Type
1 - 12-240V AC/DC / Sinking / On first
2 - 12-240V AC/DC / Sinking / Off first
3 - 12-60V DC / Sinking / On First
4 - 12-60V DC / Sinking / Off First
5 - 12-60V DC / Sourcing / On First
6 - 12-60V DC / Sourcing / OFF First

Adjustable Potentiometer
0 - Screw Adjust
1 - Hand Adjust

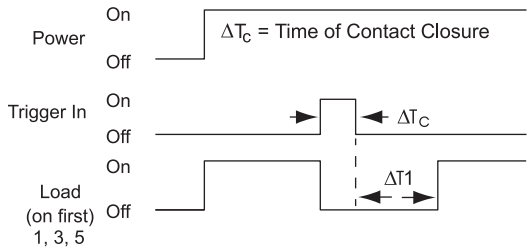
Trigger Option
1 - 5-48 Volt Trigger
2 - Mechanical Trigger

Time Range

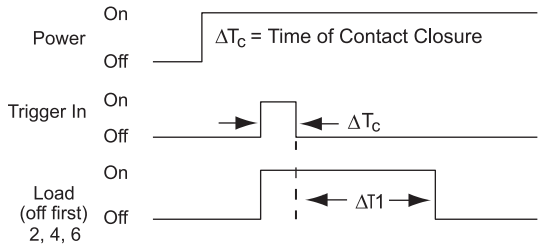
A - 0.5 to 5 sec.	H - 5.0 to 50 sec.
B - 0.5 to 25 sec.	I - 5.0 to 500 sec.
C - 0.5 to 50 sec.	J - 10 to 100 sec.
D - 0.5 to 100 sec.	K - 10 to 1000 sec.
E - 2.0 to 20 sec.	L - 10 to 2000 sec.
F - 2.0 to 200 sec.	Z - 0.1 to 5 sec.
G - 2.0 to 400 sec.	

DELAY ON BREAK

When power is applied, load is on. Load is then off for $\Delta Tc + \Delta T_1$ when trigger is applied then removed. Reset occurs when load is on and the trigger is re-applied.



When power is applied, load is off. Load is on for $\Delta T_c + \Delta T_1$ when trigger is applied then removed. Reset occurs when load is off and the trigger is re-applied.



TMLTDB □ - □ 0 □ □

ΔT_1

Voltage / Output Type
1 - 12-240V AC/DC / Sinking / On first
2 - 12-240V AC/DC / Sinking / Off first
3 - 12-60V DC / Sinking / On First
4 - 12-60V DC / Sinking / Off First
5 - 12-60V DC / Sourcing / On First
6 - 12-60V DC / Sourcing / OFF First

Adjustable Potentiometer
0 - Screw Adjust
1 - Hand Adjust

Trigger Option
1 - 5-48 Volt Trigger
2 - Mechanical Trigger

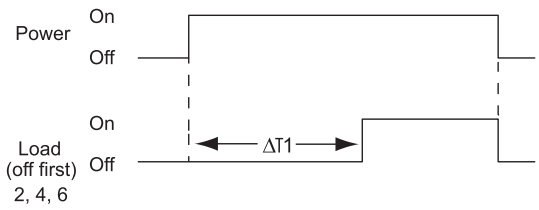
Time Range

A - 0.5 to 5 sec.	H - 5.0 to 50 sec.
B - 0.5 to 25 sec.	I - 5.0 to 500 sec.
C - 0.5 to 50 sec.	J - 10 to 100 sec.
D - 0.5 to 100 sec.	K - 10 to 1000 sec.
E - 2.0 to 20 sec.	L - 10 to 2000 sec.
F - 2.0 to 200 sec.	Z - 0.1 to 5 sec.
G - 2.0 to 400 sec.	

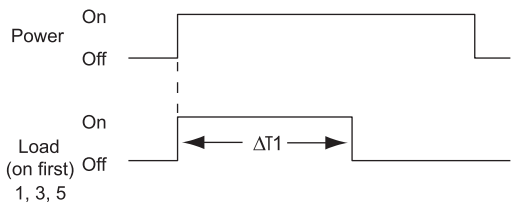
TIMING DIAGRAMS / ORDERING INFORMATION

DELAY (NON-TRIGGERABLE)

When power is applied, load is off. Load on after ΔT_1.
Reset occurs when power is removed



When power is applied, load is on. Load off after ΔT_1.
Reset occurs when power is removed



TMLTDY □-□ 00□

ΔT_1

Voltage / Output Type
1 - 12-240V AC/DC / Sinking / On first
2 - 12-240V AC/DC / Sinking / Off first
3 - 12-60V DC / Sinking / On First
4 - 12-60V DC / Sinking / Off First
5 - 12-60V DC / Sourcing / On First
6 - 12-60V DC / Sourcing / OFF First

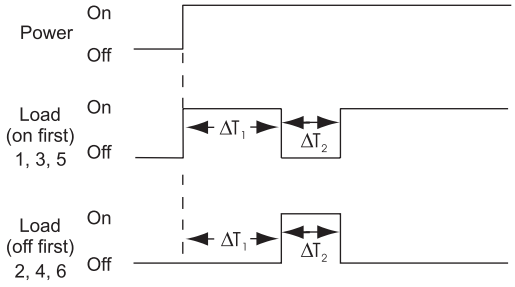
Adjustable Potentiometer
0 - Screw Adjust
1 - Hand Adjust

Time Range

A	0.5 to 5 sec.	H	5.0 to 50 sec.
B	0.5 to 25 sec.	I	5.0 to 500 sec.
C	0.5 to 50 sec.	J	10 to 100 sec.
D	0.5 to 100 sec.	K	10 to 1000 sec.
E	2.0 to 20 sec.	L	10 to 2000 sec.
F	2.0 to 200 sec.	Z	0.1 to 5 sec.
G	2.0 to 400 sec.		

SINGLE CYCLE

Solenoid cycles ΔT_1 and ΔT_2 when power is applied.
Reset occurs when power is removed.



TMLTSC □-□□0□

ΔT_1 ΔT_2

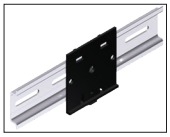
Voltage / Output Type
1 - 12-240V AC/DC / Sinking / On first
2 - 12-240V AC/DC / Sinking / Off first
3 - 12-60V DC / Sinking / On First
4 - 12-60V DC / Sinking / Off First
5 - 12-60V DC / Sourcing / On First
6 - 12-60V DC / Sourcing / OFF First

Adjustable Potentiometer
0 - Screw Adjust
1 - Hand Adjust

Time Range

A	0.5 to 5 sec.	H	5.0 to 50 sec.
B	0.5 to 25 sec.	I	5.0 to 500 sec.
C	0.5 to 50 sec.	J	10 to 100 sec.
D	0.5 to 100 sec.	K	10 to 1000 sec.
E	2.0 to 20 sec.	L	10 to 2000 sec.
F	2.0 to 200 sec.	Z	0.1 to 5 sec.
G	2.0 to 400 sec.		

NOTE: Fixed and custom time ranges available. Consult factory or details.



DIN Rail Mounting Adapter
P/N: DRM-100

Consult factory for available versions recognized under the Component Program of Underwriters Laboratories, Inc.

Ordering Example: TMLTSC1-AB00

12-240 AC/DC, Sinking, Single Cycle 1 (on first), 0.5 to 5 sec., 0.5 to 25 sec., Screw Adjust.

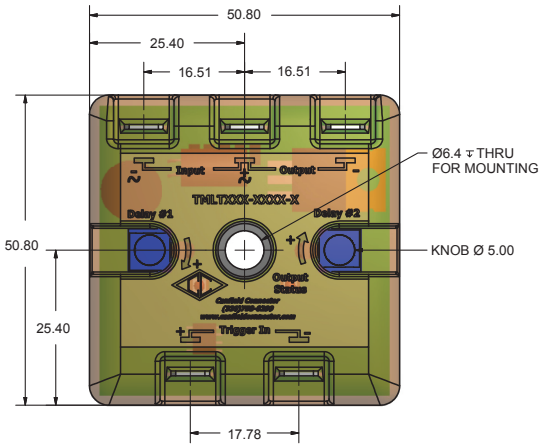
canfield connector
8510 Foxwood Court
Youngstown, Ohio 44514
(330) 758-8299 Fax: (330) 758-8912
www.canfieldconnector.com

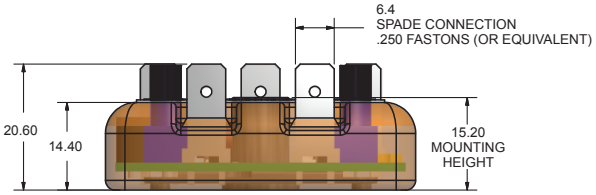
MODEL TMLT

INSTALLATION GUIDE
SINKING OUTPUT

Dimensional Data

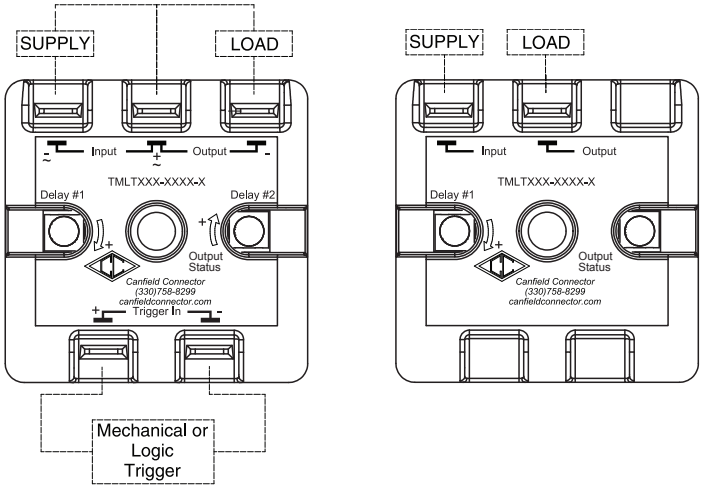
ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED



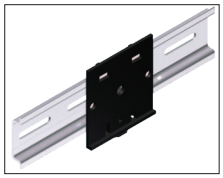


Hand Adjustment Shown

Hook-Up



Note: Failure to connect the timer properly will cause unit failure.



DIN Rail Mounting Adapter - DRM-100

Technical Data

- Maximum timer current draw: 2 mA (No Load)
- Absolute max. input voltage: 240V AC/DC or 60 VDC
- Input voltage range: 12-240 V AC/DC (50/60Hz) or 12-60 VDC
- Maximum output current: 1 Amp
- Logic trigger in: 5-48 VDC (10k input impedance)
- Mechanical trigger rated: 5 VDC, 1mA max
- Ambient temp. range: -20° to +60°C
- Repeat accuracy: ± 0.1% or 10 ms. (whichever is greater)
- Time delay variable over ambient temp. range: +/- 5%
- Enclosure material: Macromelt Thermoplastic Polyamide
- NEMA 1

Operation

Mechanical Trigger Input - A switch closure at this input begins or resets the timing period of any non-cycling TMLT function. Refer to following pages for timing diagrams.

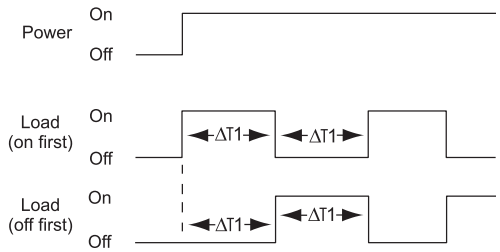
Logic Trigger Input - A sourcing or sinking voltage signal (5 - 48 volts) at this input begins or resets the timing period of any non-cycling TMLT function. Refer to following pages for timing diagrams.

Timing Diagrams

Square Wave

Part Number: TMLTSW_-_00_

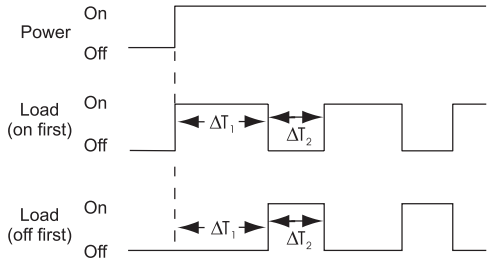
Load cycles with equal ΔT_1 time when power is applied. Reset occurs when power is removed.



Cycle

Part Number: TMLTCY_-_ _0_

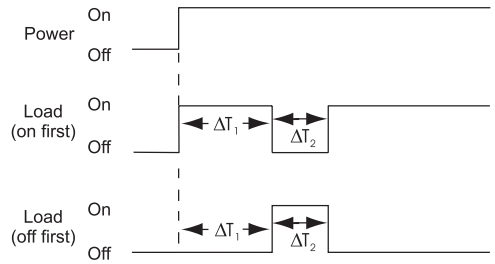
Load cycles ΔT_1 and ΔT_2 when power is applied. Reset occurs when power is removed.



Single Cycle Timer

Part Number: TMLTSC_-_ _0_

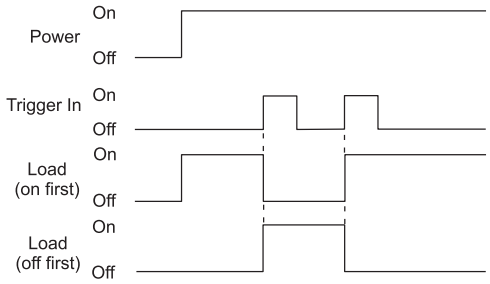
Solenoid cycles ΔT_1 and ΔT_2 when power is applied. Reset occurs when power is removed.



Toggle

Part Number: TMLTTO_-00_0

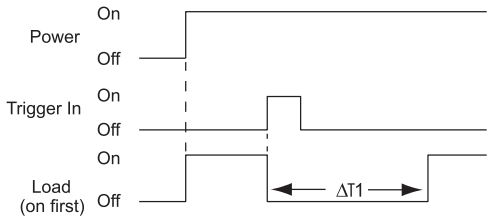
When power is applied, load is On. Load switches state (On/Off) with each application of trigger.



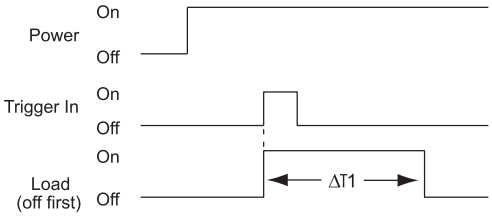
Delay On Make

Part Number: TMLTDM_-_0_ _

When power is applied, load is on. Load is off for ΔT_1 once the trigger is applied. Reset occurs when load is on and the trigger is re-applied.



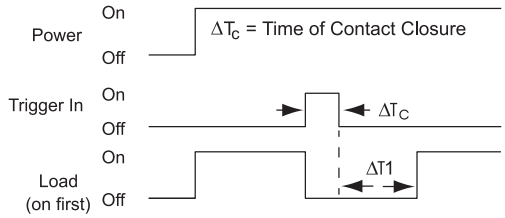
When power is applied, load is off. Load is on for ΔT_1 once the trigger is applied. Reset occurs when load is off and the trigger is re-applied.



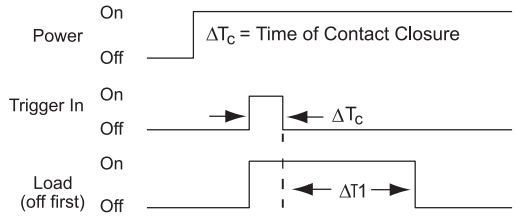
Delay On Break

Part Number: TMLTDB_-_0_ _

When power is applied, load is on. Load is then off for $\Delta T_c + \Delta T_1$ when trigger is applied then removed. Reset occurs when load is on and the trigger is re-applied.



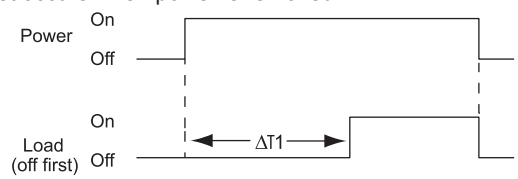
When power is applied, load is off. Load is on for $\Delta T_c + \Delta T_1$ when trigger is applied then removed. Reset occurs when load is off and the trigger is re-applied.



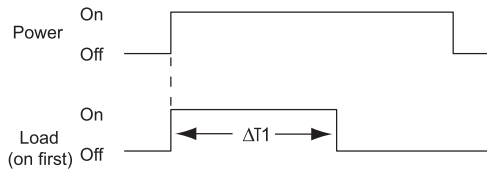
Delay (Non-Triggerable)

Part Number: TMLTDY_-_00_

When power is applied, load is off. Load on after ΔT_1. Reset occurs when power is removed



When power is applied, load is on. Load off after ΔT_1. Reset occurs when power is removed



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MODEL TMLT

INSTALLATION GUIDE
SOURCING OUTPUT

Dimensional Data

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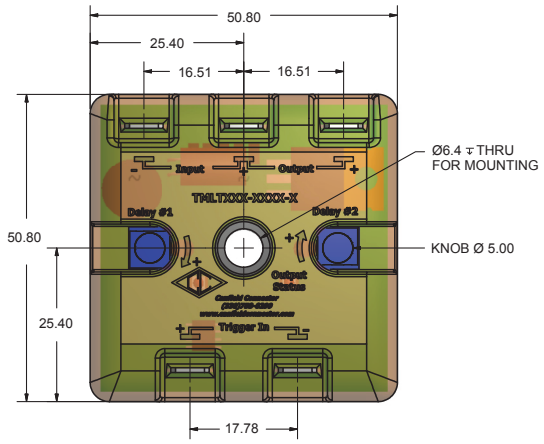
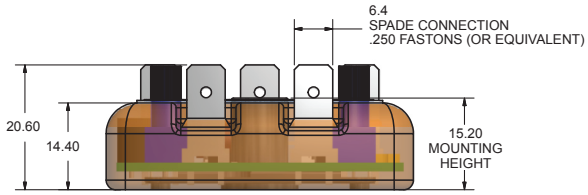
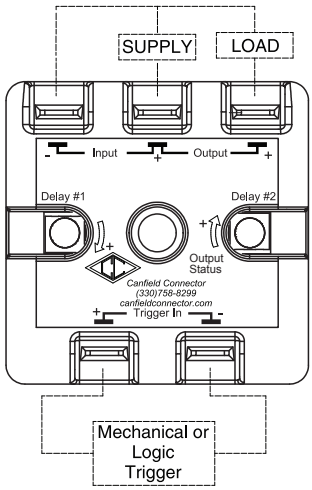




Hand Adjustment Shown

Hook-Up



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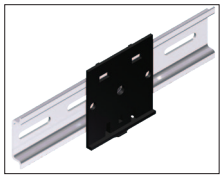


DIN Rail Mounting Adapter - DRM-100

Technical Data

- Maximum timer current draw: 2 mA (No Load)
- Absolute max. input voltage: 60 VDC
- Input voltage range: 12-60 VDC
- Maximum output current: 1 Amp
- Logic trigger in: 5-48 VDC (10k input impedance)
- Mechanical trigger rated: 5 VDC, 1mA max
- Ambient temp. range: -20° to +60°C
- Repeat accuracy: ± 0.1% or 10 ms. (whichever is greater)
- Time delay variable over ambient temp. range: +/- 5%
- Enclosure material: Macromelt Thermoplastic Polyamide
- NEMA 1

Operation

Mechanical Trigger Input - A switch closure at this input begins or resets the timing period of any non-cycling TMLT function. Refer to following pages for timing diagrams.

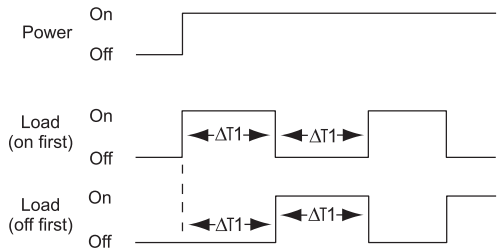
Logic Trigger Input - A sourcing or sinking voltage signal (5 - 48 volts) at this input begins or resets the timing period of any non-cycling TMLT function. Refer to following pages for timing diagrams.

Timing Diagrams

Square Wave

Part Number: TMLTSW_-_00_

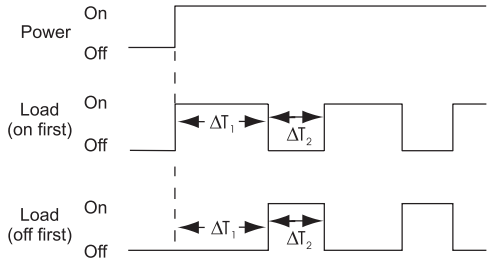
Load cycles with equal ΔT_1 time when power is applied. Reset occurs when power is removed.



Cycle

Part Number: TMLTCY_-_ _0_

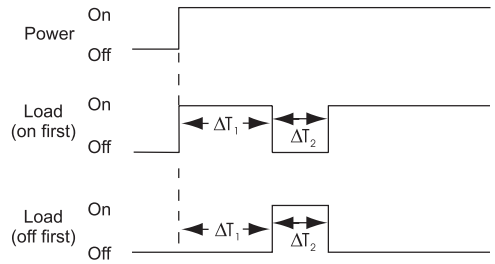
Load cycles ΔT_1 and ΔT_2 when power is applied. Reset occurs when power is removed.



Single Cycle Timer

Part Number: TMLTSC_-_ _0_

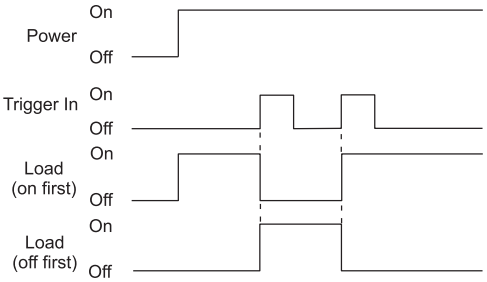
Solenoid cycles ΔT_1 and ΔT_2 when power is applied. Reset occurs when power is removed.



Toggle

Part Number: TMLTTO_-00_0

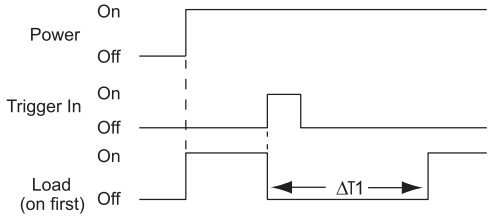
When power is applied, load is On. Load switches state (On/Off) with each application of trigger.



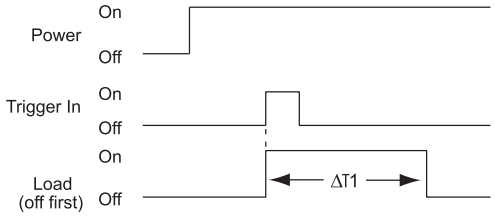
Delay On Make

Part Number: TMLTDM_-_0_ _

When power is applied, load is on. Load is off for ΔT_1 once the trigger is applied. Reset occurs when load is on and the trigger is re-applied.



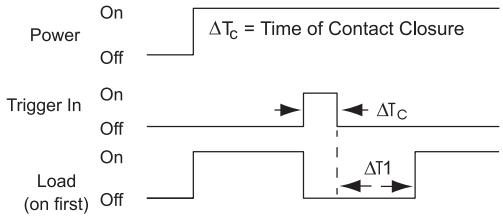
When power is applied, load is off. Load is on for ΔT_1 once the trigger is applied. Reset occurs when load is off and the trigger is re-applied.



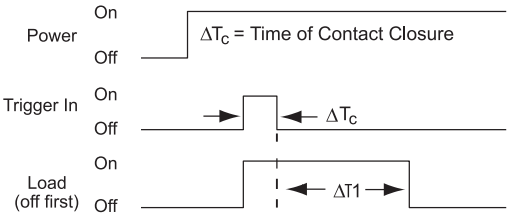
Delay On Break

Part Number: TMLTDB_-_0_ _

When power is applied, load is on. Load is then off for $\Delta T_c + \Delta T_1$ when trigger is applied then removed. Reset occurs when load is on and the trigger is re-applied.



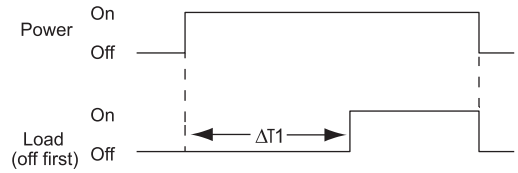
When power is applied, load is off. Load is on for $\Delta T_c + \Delta T_1$ when trigger is applied then removed. Reset occurs when load is off and the trigger is re-applied.



Delay (Non-Triggerable)

Part Number: TMLTDY_-_00_

When power is applied, load is off. Load on after ΔT_1. Reset occurs when power is removed



When power is applied, load is on. Load off after ΔT_1. Reset occurs when power is removed