

**APPLICATION NOTE:**  
101

#### FEATURES

- Small size and weight
- High-reliability design
- Hermetically sealed
- High transient immunity
- Qualified to MIL-PRF-83726/21

#### PRINCIPLE TECHNICAL CHARACTERISTICS

Seal: Hermetic Tested per MIL- STD-883, Method 1014	1x10 <sup>-6</sup> atm, cm <sup>3</sup> /s max leakage
Finish:	Tin/lead Plate
Terminals:	A (Tin Plate) Solder-lug W (Tin Plate) Plug-in PCB mountable
Weight	0.5 Ounce max.

#### DESCRIPTION

The TD-1436 is packaged in a hermetically sealed military style enclosure. The timing circuits are designed with thick film hybrid microelectronics. The TD-1436 is qualified to MIL-PRF-83726/21 and designed to withstand severe environmental conditions encountered in military/aerospace applications. Our reliable circuit design with state-of-the-art packaging processing and sealing techniques, allow for a very reliable operation over a wide temperature range.

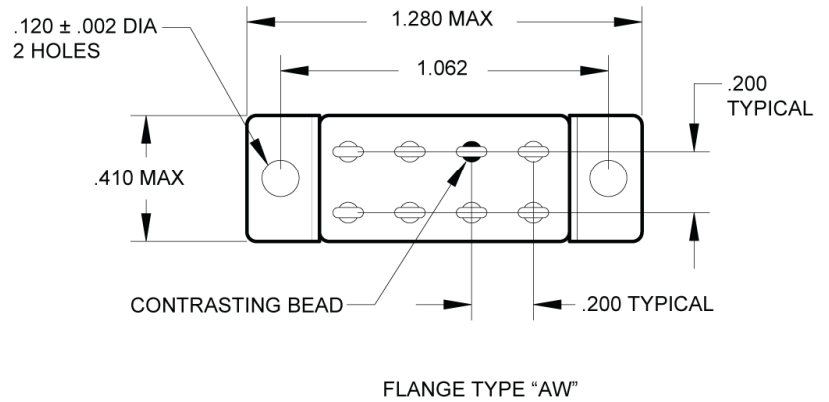
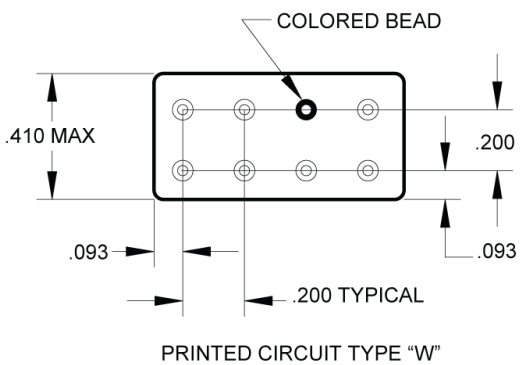
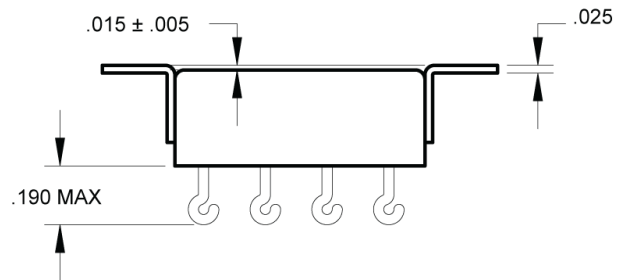
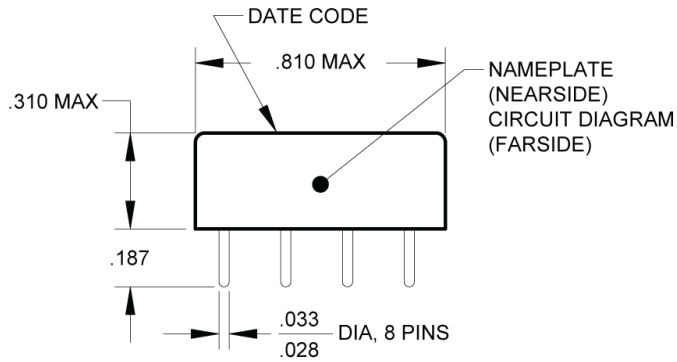
## ELECTRICAL SPECIFICATION

Input (Control) Parameters	
Timing:	
a. Operation, Time Delay on	Operate
b. Method	Adjustable Period
c. Range	0.05 to 500 Seconds
d. Accuracy	±10% [1]
Recycle Time	10 ms, Max [5]
Operations: (X1-X2)	
a. Input & Control Voltage	18-32 Vdc
b. Operating Current	5 mA, Max @ +25° C
Transients: MIL-STD-704A, Limit 1	
a. Spike Susceptibility	+80 Volts Max -600 Volts Max
b. Self-Generated Spikes	None
Electromagnetic Interference Per MIL-STD-461	Class 1D [3]
Power Interrupt	1 Millisecond [2]
Output (Load) Parameters	
Contact Form	SPST
Contact Rating:	250 mA
Voltage Drop	2 Vdc
Dielectric Strength:	
a. @ Sea Level, 60 Hz	1,000 Vrms [4]
b. @ 80,000 ft., 60 Hz	350 Vrms
Insulation Resistance @ 500 Vdc	1,000 M Ω [4]

## GENERAL CHARACTERISTICS

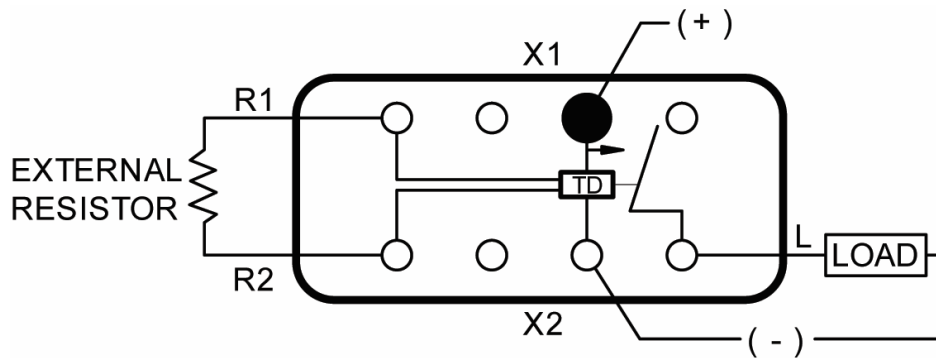
Ambient Temperatures Range:	
a. Operation	-55 to +125° C
b. Non-Operating	-55 to +125° C
Vibration:	
a. Sinusoidal	
10-80 Hz	0.06" DA
80-3000 Hz	30 G
b. Random: 50-2000 Hz, MIL-STD-810	0.4 G <sup>2</sup> /Hz
Shock, 0.5 MS, 1/2 Sine, 3 Axis	1,100 G
Acceleration, in any Axis	100 G
Life at Rated Resistive Load; Minimum	1,000,000 operations

## MECHANICAL SPECIFICATIONS



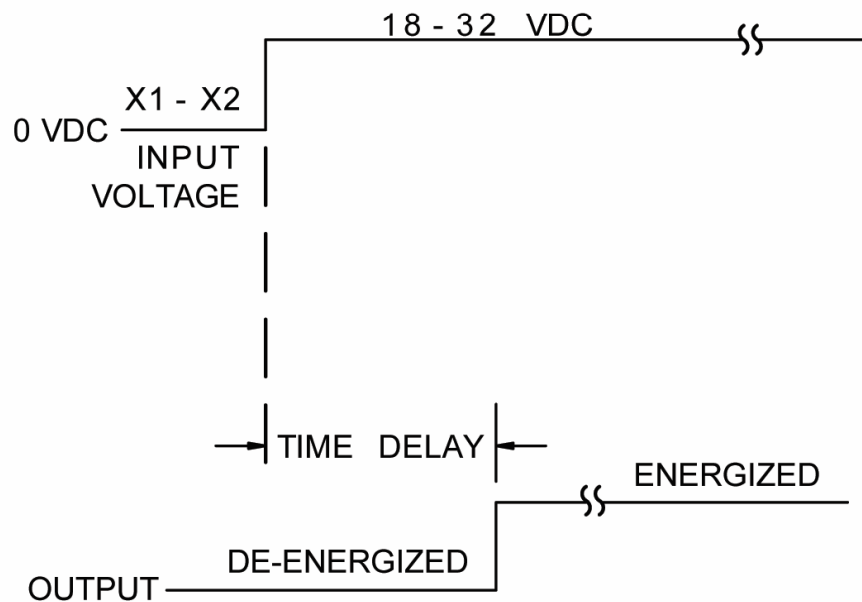
DIMENSIONS ARE SHOWN IN INCHES.

### DIAGRAMS



SCHEMATIC DIAGRAM

### FIXED TIME DELAY



### TIME DELAY ON OPERATE

## NUMBERING SYSTEM

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PCB Mount  
TD-1436 - 5001  
 |            |  
 1            3

Flange Mount  
TD-1436 - 5001  
 |            |  
 1            3

M83726/21 - 002  
 |    |    |  
 1    2    3

M83726/21 - 006  
 |    |    |  
 1    2    3

1. Model Number or Basic "MIL-PRF" Series number.
2. Military "Slash" number.
3. Timing Range.
4. Mounting Style

PCB MOUNT		FLANGE MOUNT		TIME DELAY
Military	Leach	Military	Leach	Range
Dash No.	Dash No.	Dash No.	Dash No.	(seconds) ±10%
001 W	5000W	005 W	5000AW	0.05-0.5
002 W	5001W	006 W	5001AW	0.5-5
003 W	5002W	007 W	5002AW	5-50
004 W	5003W	008 W	5003AW	50-500

## NOTES

1. The accuracy specification applies for any combination of operating temperature and voltage.
2. The accuracy will not be affected by power interruptions up to 1 millisecond, spaced at least 10 milliseconds apart. Transient and power loss specifications are based on a maximum duty cycle of 1/50.
3. EMI test limits will not be exceeded during the timing interval or when continuously energized under steady state conditions, per paragraph 3.26, MIL-PRF-83726.
4. Terminals X1, X2, R1, R2 and L must be connected together during the test. Dielectric withstanding voltage and insulation resistance are measured at sea level between all mutually insulated terminals and between all terminals and case.
5. Recycle time is defined as the maximum time power must be removed from terminal X1 to assure that a new cycle can be completed within the specified timing tolerance.
6. A four digit number defines the time delay in seconds (or milliseconds). The first three digits are significant figures, used to define the specific time delay. The fourth digit represents the number of zeros to follow the first three digits.

SPECIFY	STANDARD DECADE RANGE
- 5000	= 0.05 to 0.5 second (50 to 500 milliseconds)
- 5001	= 0.5 to 5 seconds (500 to 5000 milliseconds)
- 5002	= 5 to 50 seconds
- 5003	= 50 to 500 seconds

An external resistor is used to obtain a specific time delay within the specified decade range. The formula below provides the proper resistance value to achieve the desired time delay:

$$R_{\text{ext}} = \left( \frac{T_1}{T_0} - 1 \right) 100,000 \text{ Ohms}$$

Where:  $R_{\text{ext}}$  = External resistance value (Ohms)  
 $T_1$  = Desired time in seconds  
 $T_0$  = Minimum time (low end of the decade range)

in seconds.

As an example, if using a 5 to 50 second adjustable timer and a 30 second delay is desired, the calculation is:

$$R_{\text{ext}} = \left( \frac{30}{5} - 1 \right) 100,000 \text{ Ohms or } R_{\text{ext}} = 500 \text{ K Ohms}$$

Recommended resistors IAW MIL-R-55182 1/8 Watt, 1% (RNC60HXXXXFS).  
External resistor not supplied.