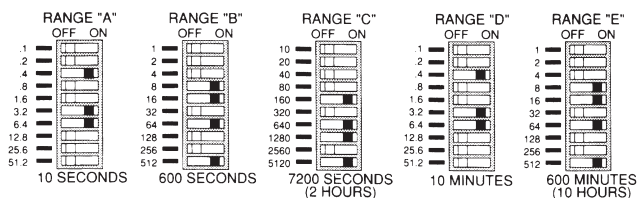


OPERATION

The TBU Series offers the accuracy of DIP SWITCH delay ranges "A" through "E" as well as the user programmable model, DIP SWITCH delay range "P," with 4 different ranges obtainable by either leaving 2 designated terminals unconnected or by connecting them to the appropriate terminals as shown on the next page. The 6 most common modes of operation are easily selected by the use of one or more jumpers applied externally between designated base pins as outlined on the next page. These features, coupled with 6 most popular supply voltages, make this timer one of the most versatile and cost effective Time Delay Relays available today. The CMOS digital circuitry provides high accuracy, repeatability and fast reset times.



DIP SWITCH OPERATION



Digital selection of the time delay is accomplished by the use of ten (10) binary switches, each marked with a time increment. The time periods, of which there are five (5) ranges, represented by each switch in the ON position is added together to obtain the desired time delay. No more trial-by-error adjustments.

*Programmable Multi-Mode
DIP switch TDR*

SPECIFICATIONS

TIME DELAY RANGE

A	0.1 to 102.3 SEC in 0.1 SEC Increments
B	1.0 to 1,023 SEC in 1.0 SEC Increments
C	10 to 10,230 SEC in 10 SEC Increments
D	0.1 to 102.3 MIN in 0.1 MIN Increments
E	1.0 to 1,023 MIN in 1.0 MIN Increments

OUTPUT RATING

10 A @ 250 VAC or 24 VDC, resistive

ACCURACY

Setting ±2% or ±50 mSEC; whichever is greater
Repeat ±0.1% or ±8.3 mSEC; whichever is greater

RESET TIMES

Before Time Out	100 mSEC
After Time Out	50 mSEC

SUPPLY VOLTAGE

12, 24, 48, 120 or 240 VAC, 50/60 Hz; or DC; ±10%

FALSE TRANSFER

No

REVERSE POLARITY PROTECTED

Yes

POWER REQUIRED

3 VA, approximately

DUTY CYCLE

Continuous

TEMPERATURE RATING

Operate 32° to 131°F (0° to +55°C)
Storage -49° to 185°F (-45° to +85°C)

LIFE EXPECTANCY

Mechanical 10 million operations, minimum
Electrical 100,000 Operations @ rated load

INDICATORS

LED glows when relay is energized.

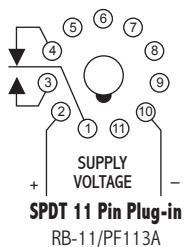
ISOLATION

1,500 volts, input/output

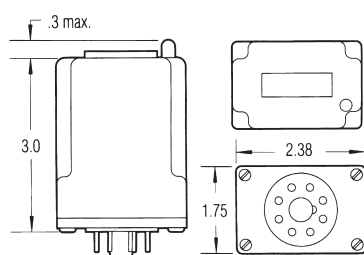
WEIGHT

0.35 lbs.

WIRING



DIMENSIONS



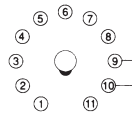
MODEL NUMBER

MODEL NUMBER	TBU				A
CONTROL VOLTAGE					
12 Volts DC	12	D			
24 Volts AC/DC	24	A			
48 Volts DC	48	D			
120 Volts AC/DC	120	A			
240 Volts AC	240	A			
TIME DELAY RANGE					
0.1 to 102.3 SEC in 0.1 SEC Increments				A	
1.0 to 1,023 SEC in 1.0 SEC Increments				B	
10 to 10,230 SEC in 10 SEC Increments				C	
0.1 to 102.3 MIN in 0.1 MIN Increments				D	
1.0 to 1,023 MIN in 1.0 MIN Increments				E	
Four (4) Programmable Ranges (TBU only)				P	
HOUSING					A

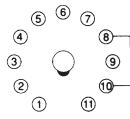
TIME DELAY RANGE "P" SELECTION

CAUTION: DO NOT PROGRAM WITH POWER ON! WIRE FOR ONE TIMING RANGE ONLY!

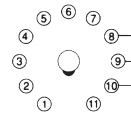
4 different ranges can be obtained by either leaving 2 designated terminals unconnected or by connecting them to the appropriate terminals shown below. Because the Time Delay programming is the same regardless of the mode of operation only the wiring connections affecting the Time Delay are shown here.



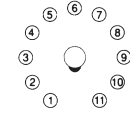
Jumper 9 to 10.
0.1 to 102.3 seconds
in 0.1 SEC increments



Jumper 8 to 10.
0.4 to 409.2 seconds
in 0.4 SEC increments



Jumper 8 and 9 to 10.
0.05 to 54.6 minutes
in .05 MIN increments



No Connections
to 8, 9 or 10
0.42 to 436.5 minutes
in 0.42 MIN increments

MODE OF OPERATION SELECTION – WIRE FOR ONE MODE ONLY!

INTERVAL: When supply voltage is applied to the input terminals, the relay energizes and the time delay begins. Upon completion of the delay period, the relay de-energizes. Reset during or after the delay period is accomplished by removal of the supply voltage.

ON-DELAY: The time delay begins when supply voltage is applied to the input. Upon completion of the delay period, the relay energizes. Reset during or after the delay period is accomplished by removal of the supply voltage. The timer will not false transfer if supply voltage is removed prior to completion of the delay period.

OFF-DELAY: Supply voltage is continuously applied to the input. An external isolated switch controls the timer. When closed, the relay energizes. Opening the switch initiates the delay period. Upon completion of the delay period, the relay de-energizes. If the control switch recloses during the delay period, the relay remains energized and the timer resets to zero.

SINGLE-SHOT: Supply voltage is continuously applied to the input. An external isolated switch initiates the time delay. When closed (momentary or maintained), the relay energizes and the delay period begins. Upon completion of the delay period, the relay de-energizes.

FLASHER—OFF TIME FIRST: When supply voltage is applied to the input, the OFF time (T1) begins. Upon completion of the OFF time, the relay energizes and the ON time (T2) begins. Upon completion of the ON time, the relay de-energizes and one cycle is complete. This OFF/ON cycling continues until supply voltage is removed from the input. The OFF time always equals the ON time.

FLASHER—ON TIME FIRST: When supply voltage is applied to the input, the relay energizes and ON time (T1) begins. Upon completion of the ON time, the relay de-energizes and the OFF time (T2) begins. Upon completion of the OFF time, the relay energizes and one cycle is complete. This ON/OFF cycling continues until supply voltage is removed from the input. The ON time always equals the of time.

