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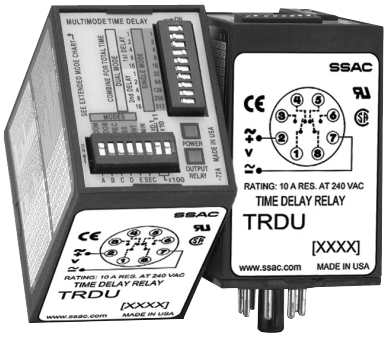
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Find the *ABB / SSAC TRDU120A2* at our website: *Click HERE*



The TRDU Series is a versatile universal time delay relay with 21 selectable single and dual functions. The dual functions replace up to three timers required to accomplish the same function. Both the function and the timing range are selectable with switches located on the face of the unit. Two LED's indicate input voltage and output status. This device offers full 10A isolated relay output contacts in either SPDT or DPDT. The TRDU replaces hundreds of part numbers, thereby, reducing your stock inventory requirements.

Features:

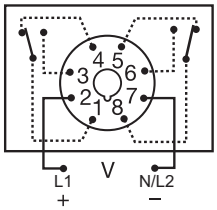
- Microcontroller ±0.1% repeat accuracy
- Multifunction – 21 timing functions
- Multirange – 0.1s - 1,705h in 8 ranges
- Switch selectable modes, time delay, & ranges
- AC & DC input voltages are available
- Isolated, 10A, SPDT or DPDToutput contacts

Approvals:

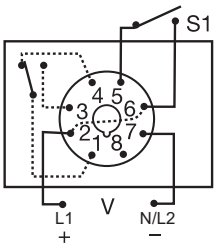
Auxiliary Products:

- **Panel mount kit:** P/N: BZ1
- **Hold-down clips (sold in pairs):**
  P/N: PSC8 (NDS-8)
  P/N: PSC11 (NDS-11)
- **11-pin socket:** P/N: NDS-11
- **Octal 8-pin socket:** P/N: NDS-8
- **DIN rail:**
  P/N: C103PM (Al)

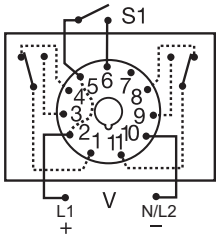
Connection:



8-pin DPDT



8-pin SPDT



11-pin DPDT

V = Voltage
S1 = Initiate Switch

21 Functions:

Five switches are provided to set one of 10 single or 11 dual modes of operation.

Single Functions-
- * Delay-on-Make
- Delay-on-Break
- * Recycle (ON time first, equal recycle delays)
- Single Shot
- * Interval
- Trailing Edge Single Shot
- Inverted Single Shot
- Inverted Delay-on-Break
- Accumulative Delay-on-Make
- Retriggerable Single Shot (motion detector)

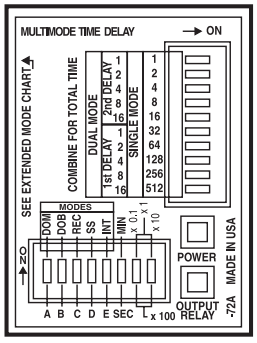
Dual Functions -
- Delay-on-Make/Delay-on-Break
- * Delay-on-Make/Recycle
  (ON time first, equal recycle delays)
- * Delay-on-Make/Interval
- Delay-on-Make/Single Shot
- * Interval/Recycle
  (ON time first, equal recycle delays)
- Delay-on-Break/Recycle
  (ON time first, equal recycle delays)
- Single Shot/Recycle
  (ON time first, equal recycle delays)
- * Recycle - both times adjust. (ON time first)
- * Recycle - both times adjust. (OFF time first)
- * Interval/Delay-on-Make
- Accumulative Delay-on-Make/Interval

For more information see:
Appendix A, page 163-164 for function diagrams.
Appendix B, page 165, Figure 5 for dimensional drawing.

Available Models:

TRDU120A1	TRDU230A2
TRDU120A2	TRDU24A1
TRDU120A3	TRDU24A2
TRDU12D1	TRDU24A3
TRDU12D3	

If desired part number is not listed, please call us to see if it is technically possible to build.



Order Table:

TRDU **X** **X**

Input Voltage
- **12D** - 12VDC
- **24A** - 24VAC/DC
- **120A** - 120VAC
- **230A** - 230VAC

Base Connection
- **1** - 8-pin DPDT*
- **2** - 8-pin SPDT
- **3** - 11-pin DPDT

*Limited to 9 operating functions in 8-pin DPDT units

Specifications

Time Delay
Type ..... Microcontroller
Range: Switch Selectable** ..... Single Functions: 0.1s - 1,705h in 8 ranges
Dual Functions: 0.1s - 3,100m each in 8 ranges
Adjustments ..... Multiplier: 3 position DIP switches select 0.1, 1, 10, or 100 in s or m
Setting Accuracy ..... ±1% or 50ms, whichever is greater
Repeat Accuracy ..... ±0.1% or 20ms, whichever is greater
Timing Functions ..... Five switches are provided to set one of twenty-one single or dual functions
Reset Time ..... ≤ 50ms
Initiate Time 120VAC: 75ms
Time Delay vs Temp. & Voltage ..... ±1%

Indication
Two LEDs indicate ..... 1) Input voltage applied 2) Output relay status

Input
Voltage ..... 12VDC, 24VAC/DC, 120VAC, or 230VAC
Tolerance 12VDC & 24VAC/DC ..... -15% - 20%
120 & 230VAC ..... -20% - 10%
AC Line Frequency 50/60Hz
Power Consumption ..... 24 to 230V ≤ 3W; 12VDC ≤ 2W

Output
Type ..... Electromechanical relay
Form ..... SPDT or DPDT
Rating ..... 10A resistive @ 120/240VAC & 28 VDC; 1/3 hp @ 120/240VAC
Life ..... Mechanical – 1 x 10^7; Electrical – 1 x 10^6

Protection
Isolation Voltage ..... ≥ 1500V RMS input to output
Insulation Resistance ..... ≥ 100 MΩ
Polarity ..... DC units are reverse polarity protected

Mechanical
Mounting ..... Plug-in socket
Dimensions ..... 3.1 x 2.39 x 1.78 in. (78.7 x 60.7 x 45.2 mm)
Termination ..... Octal 8-pin plug-in or magnal 11-pin plug-in

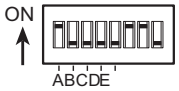
Environmental
Operating / Storage Temperature ..... -20° to 65°C / -40° to 85°C
Weight ..... ≅ 5.8 oz (164 g)

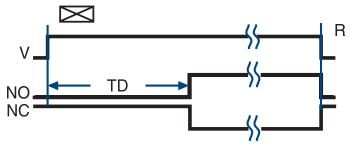
**For CE approved applications, power must be removed from the unit when a switch position is changed.

TRDU Function Diagrams

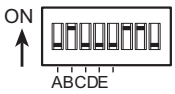
Single Functions

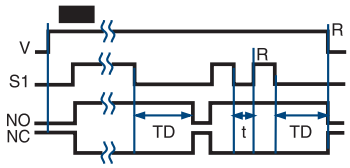
* Delay-on-Make





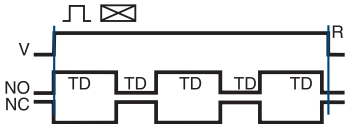
Delay-on-Break



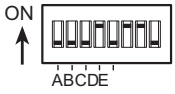


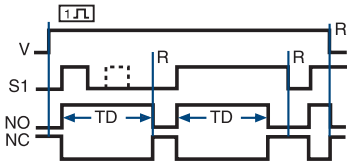
* Recycle
(ON Time First, Equal Delays)





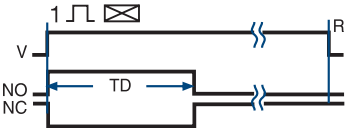
Single Shot





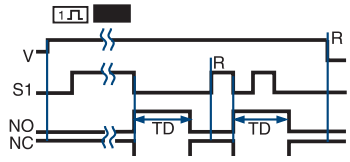
* Interval





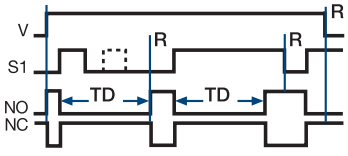
Trailing Edge
Single Shot



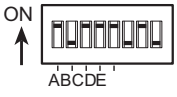


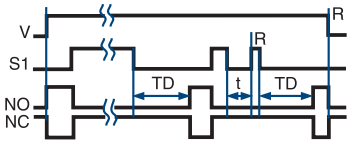
Inverted
Single Shot





Inverted
Delay-on-Break

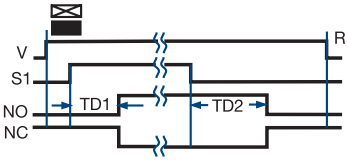




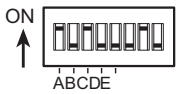
Dual Functions

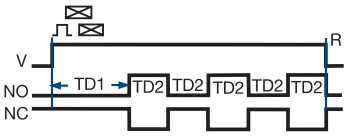
Delay-on-Make
Delay-on-Break



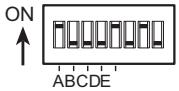


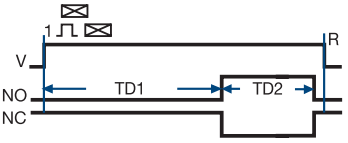
* Delay-on-Make
Recycle (ON Time First)





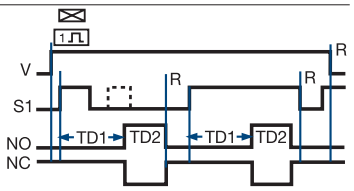
* Delay-on-Make
Interval





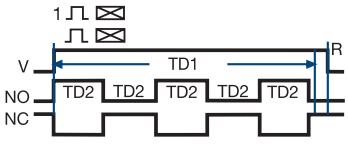
Delay-on-Make
Single Shot





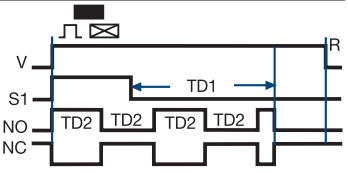
* Interval
Recycle (ON Time First)





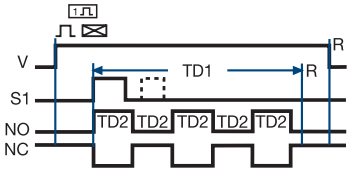
Delay-on-Break
Recycle (ON Time First)



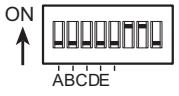


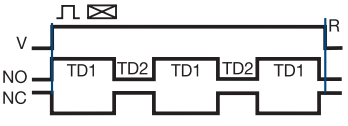
Single Shot
Recycle (ON Time First)





* Recycle (ON Time First)
Both Times Adjustable





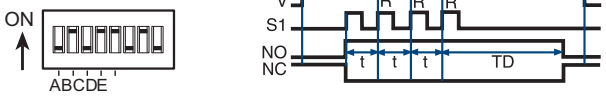
* 9 Functions included in the 8 pin DPDT models

Continued on next page...

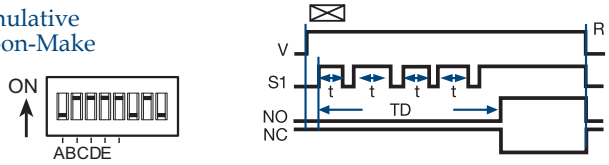
Appendix A - Timer/Flasher Functions

Single Functions

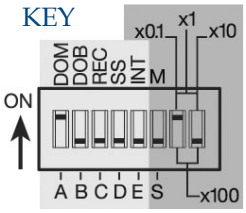
Retriggerable Single Shot



Accumulative Delay-on-Make



KEY



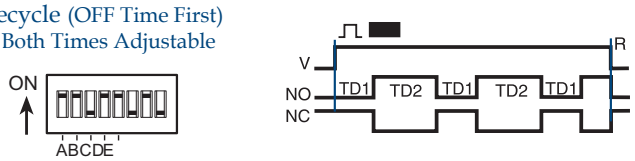
V=Voltage, R=Reset, S1=Initiate Switch, NO=Normally Open Contact, NC=Normally Closed Contact, TD,TD1,TD2=Complete Time Delay, t=Partial Time Delay, DOM=Delay-on-Make, DOB=Delay-on-Break, REC=Recycle, SS=Single Shot, INT=Interval, M=Minutes, S=Seconds, ≡⟨⟩≡ Undefined time

5 Switches for Function Selection
3 Switches for Time Delay Range

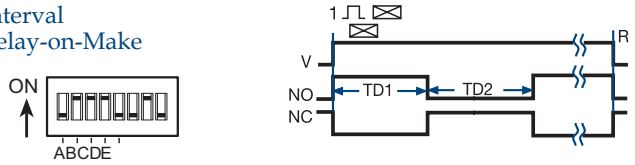
NOTE: The time delay range is the same for both functions when dual functions are selected.

Dual Functions

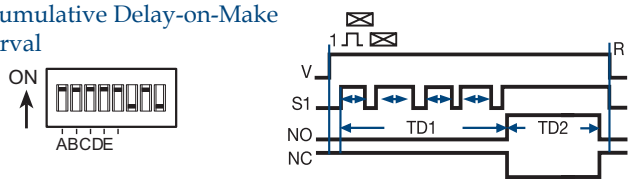
* Recycle (OFF Time First) Both Times Adjustable



* Interval Delay-on-Make



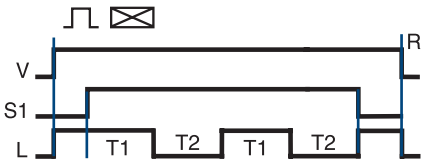
Accumulative Delay-on-Make Interval



* 9 Functions included in the 8 pin DPDT models

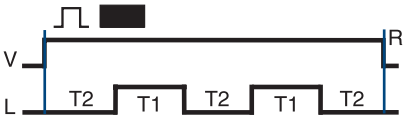
Flasher Function Diagrams

Flasher (NC)



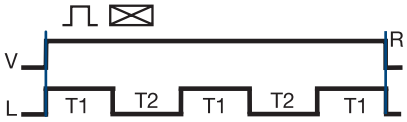
V = Voltage S1 = Initiate Switch L = Load
R = Reset T1 = ON Time T2 = OFF Time
T1 ≅ T2

Flasher (OFF First)



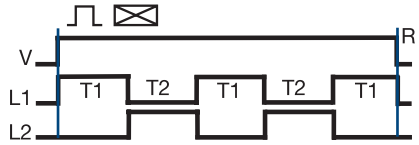
V = Voltage R = Reset L = Load
T1 = ON Time T2 = OFF Time
T1 ≅ T2

Flasher (ON First)



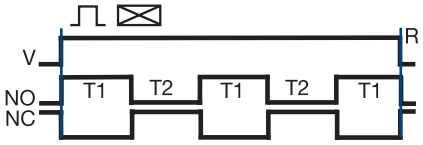
V = Voltage R = Reset L = Load
T1 = ON Time T2 = OFF Time T1 ≅ T2
ON time plus OFF time equals one complete flash.

Flasher (Alternating)



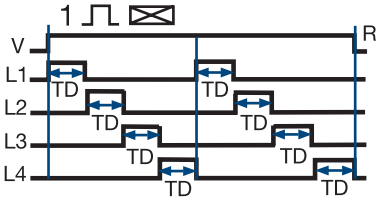
V = Voltage L1 = Load 1 L2 = Load 2
R = Reset T1 = ON Time T2 = OFF Time
T1 ≅ T2

Flasher (ON First-DPDT)



V = Voltage R = Reset
T1 = ON Time T2 = OFF Time
NO = Normally Open NC = Normally Closed

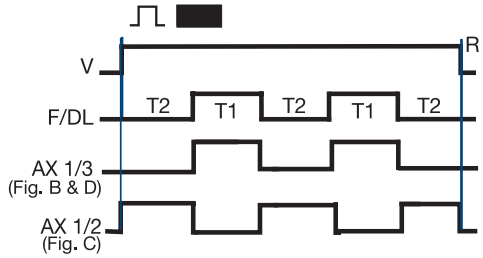
Flasher (Chasing)



SC4 shown; SC3, L4 is eliminated and L1 TD begins as soon as L3 TD is completed.

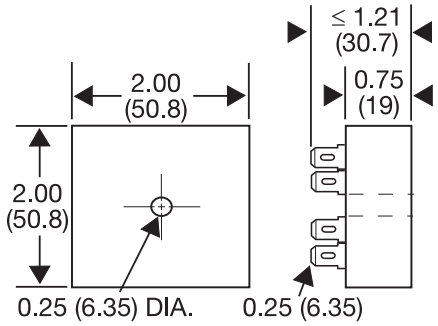
V = Voltage R = Reset L (1...4) = Lamps
TD = Time Delay (all are equal)

Flashers & Aux. Modules



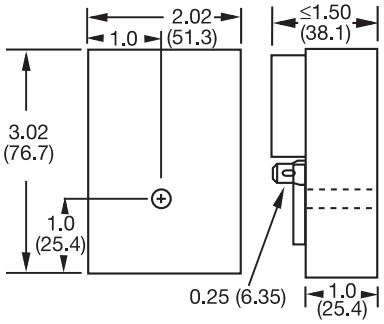
V = Voltage L = Load T1 = ON Time
T2 = OFF Time R = Reset
T1 ≅ T2

FIGURE 1



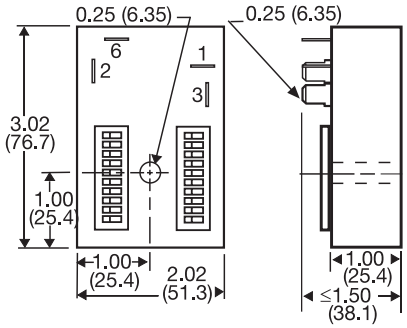
CT; ESD5; ESDR; FS100; FS200; FS300; KRD3; KRD9; KRDB; KRDI; KRDM; KRDR; KRDS; KRPD; KRPS; KSD1; KSD2; KSD3; KSD4; KSDB; KSDR; KSDS; KSDU; KSPD; KSPS; KSPU; KVM; T2D; TA; TAC1; TAC4; TDU; TDUB; TDUI; TDUS; TL; TMV8000; TS1; TS2; TS4; TS6; TSB; TSD1; TSD2; TSD3; TSD4; TSD6; TSD7; TSDB; TSDR; TSDS; TSS; TSU2000

FIGURE 2



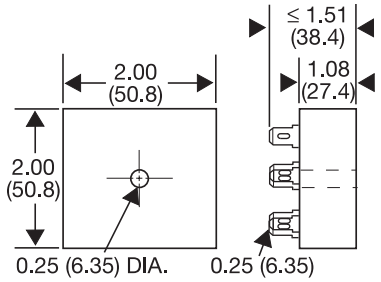
HLV; HRD3; HRD9; HRDB; HRDI; HRDM; HRDR; HRDS; HRID; HRIS; HRIU; HRPD; HRPS; HRPU; HRV; RS

FIGURE 3



HSPZ

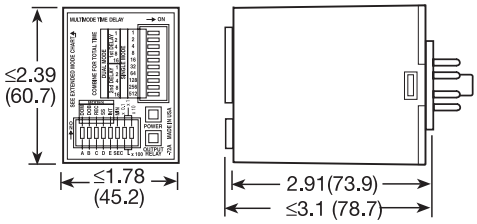
FIGURE 4



FA; FS; FSU1000*; NHPD; NHPS; NHPU; NLF1*; NLF2*; PHS*; PTHF*; SIR1; SIR2; SLR1*; SLR2*; TH1; TH2; THC; THD1; THD2; THD3; THD4; THD7; THDB; THDM; THDS; THS

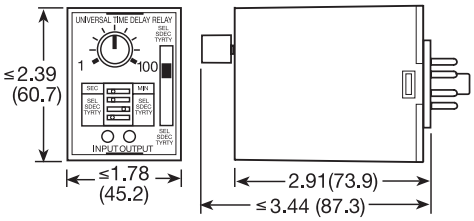
*If unit is rated @ 1A, see Figure 1

FIGURE 5



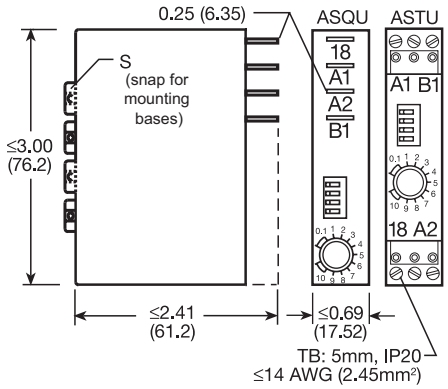
TRDU

FIGURE 6



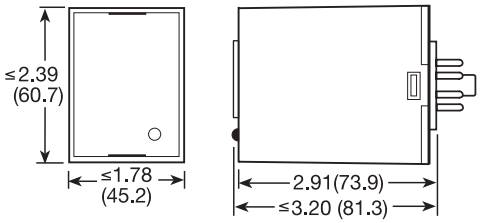
TRU

FIGURE 7



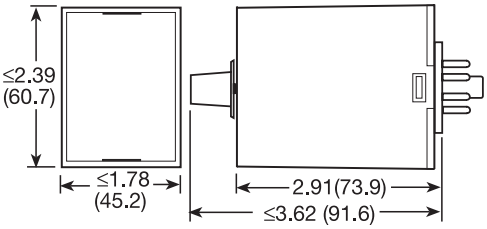
ASQU; ASTU; DSQU; DSTU

FIGURE 8



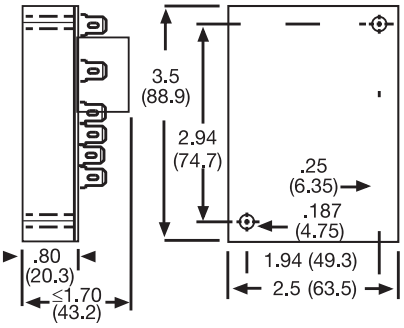
PLM; PLR; TDB; TDBH; TDBL; TDI; TDIH; TDIL; TDM; TDMB; TDMH; TDML; TDR; TDS; TDSH; TDSL

FIGURE 9



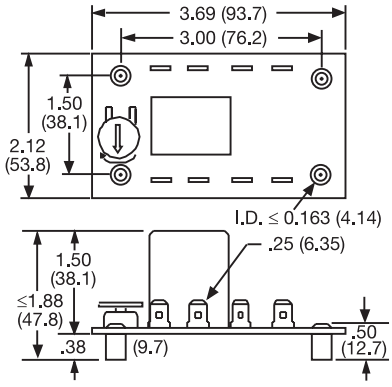
FS500; PRLB; PRLM; PRLS; TRB; TRM; TRS

FIGURE 10



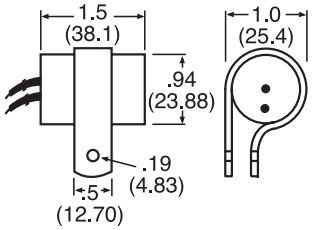
ERD3; ERDI; ERDM

FIGURE 11



ORB; ORM; ORS

FIGURE 12



FS100; FS400

inches (millimeters)

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