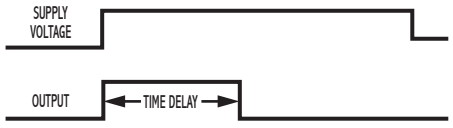
c UL us
E55826

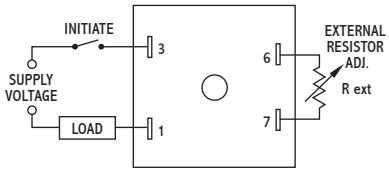
Interval Solid-State Output

OPERATION

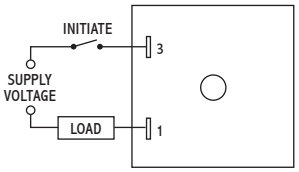
When voltage is applied to the input terminals, the load energizes and the time delay begins. Upon completion of the delay period, the load de-energizes. Reset during or after the delay period is accomplished by removal of the input voltage. The TSA Series is a two input terminal device that connects in series with the input and load.



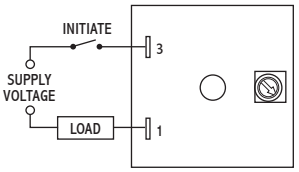
WIRING



R = OPERATION



F = OPERATION

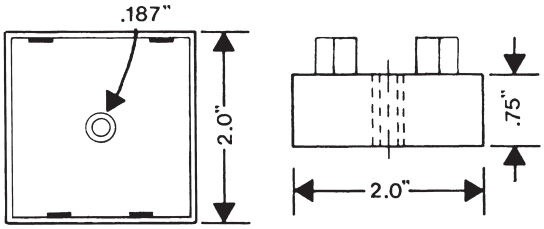


S = OPERATION

SPECIFICATIONS

TIMING RANGES	Virtually unlimited. See page 77 for standard ranges available.	
OUTPUT RATING	Solid-state, SPST-N.O. 1 amp resistive; 1A resistive or 25VA 1A resistive or 125VA 0.5A resistive or 125VA	
TIMING TOLERANCES	Minimum Setting Maximum Setting	+0 – 20% ±10%
REPEATABILITY	1% maximum; no first cycle effect	
RESET TIMES	Before Time Out After Time Out	100 mSEC 50 mSEC
RECYCLE TIME	40 mSEC	
SUPPLY VOLTAGE	24 to 240 ±10% VAC, 50/60 Hz	
FALSE TRANSFER	No	
ENCLOSURE	Surface mounted; totally encapsulated with a high quality epoxy for environmental protection.	
TEMPERATURE RATING	Operate Storage	32° to 131°F (0° to +55°C) -49° to 185°F (-45° to +85°C)
TERMINATIONS	1/4" quick disconnect terminals	
WEIGHT	NET: 1.28 oz Shipping: 1.6 oz.	

DIMENSIONS (INCHES)



MODEL NUMBER

MODEL NUMBER	TSA	100	A		C	
TYPE OF OPERATION						
Fixed (Factory Preset)				F		
External Resistor Adjustable; See page 77 for resistor selection.				R		
Screwdriver Adjustable				S		
DELAY PERIOD See page 77 for standard ranges available						

Example: TSA-100-ARC-100—Interval on operate, 24 to 240 VAC, external resistor adjustable from 1 to 100 seconds.

STANDARD DELAY RANGES AVAILABLE

The chart below shows the standard adjustable time delay ranges available. The part number suffix equals the maximum adjustable delay period of the timer. No letters following the suffix number indicates the delay period in seconds; an M indicates minutes; and an H indicates hours.

STANDARD DELAY RANGE CHART

PART NUMBER SUFFIX	MINIMUM SETTING	MAXIMUM SETTING
010	0.1 seconds	10 seconds
030	0.3 seconds	30 seconds
060	0.6 seconds	60 seconds
100	1 second	100 seconds
200	2 seconds	200 seconds
300	3 seconds	300 seconds
600	6 seconds	600 seconds
900	9 seconds	900 seconds
30M	18 seconds	30 minutes
60M	36 seconds	60 minutes
90M	54 seconds	90 minutes
2H	1.2 Minutes	2 hours
4H	2.4 Minutes	4 hours
8H	4.8 Minutes	8 hours
12H	7.2 Minutes	12 hours
16H	9.6 Minutes	16 hours
20H	12 Minutes	20 hours
24H	14.4 Minutes	24 hours

Longer delays available upon request. Consult Factory

EXTERNAL RESISTANCE SELECTION

On models specified as having the external resistor adjustability feature, the delay period is set by placing resistance across designated pins or terminals. One meg ohm resistance provides the maximum delay on all models. The minimum delay is obtained by jumping the terminals together.

The resistor or potentiometer chosen should be a 1/4 watt or larger.

To determine the resistor value required for a specific time delay, use the following formula:

$R_{ext} = (T_{des}/T_{max}) \times 1000$

R_{ext} = Resistance value required to obtain T_{des} (in K ohms)

T_{des} = Desired time delay

T_{max} = Maximum delay period of the timer

Example: Model TDC-120-ARC-300; find the external resistance value required for a 240 second delay:

$$R_{ext} = \frac{240}{300} \times 1000 = 800 \text{ K ohms}$$

"FIXED" DELAY OPTION

Most ATC Diversified timers are available with the delay period factory preset ("fixed") for some specified duration. When this option is ordered, the part number should have an "F" in the Type of Operation designation: and the last digits should specify the desired time delay in seconds (S), minutes (M), or hours (H).

Example: TDC 120-AFA-30M—delay-on-operate,120 Volts AC or DC, 8-pin octal plug-in package with a 30 minute fixed delay.

OFF/ON DELAY TIMERS

Included in ATC Diversified's broad line of timers are six (6) models that feature independent OFF/ON delay adjustments. They are TDF, TDH, TDI, TSF, and TSH. Notice in the ordering information section on each of their respective pages the timing range is specified by a three (3) digit suffix. This indicates that both the OFF and ON delay periods have the same timing ranges. Example: TDF-120-ALA-300: Both OFF and ON delay periods are independently adjustable from 3 to 300 seconds.

In the event that two (2) separate delay ranges would be required, the part number is modified to add a slash (/) followed by three (3) more digits. Since the OFF delay (TI) is first in all models, it is specified first in the part number. Example: TDF-120-ALA-12H/30M: the OFF delay is adjustable from 7.2 minutes to 12 hours and the ON delay is adjustable from 18 seconds to 30 minutes.

NOTE: Combinations of various "types of operation" are available: fixed/adjustable, knob/lock nut, etc. Consult factory.

MODEL NUMBER

MODEL NUMBER	T							
TIME DELAY								
SERIES								
Relay Output	D,U							
Solid State Output	S							
MODE OF OPERATION								
SUPPLY VOLTAGE								
24 Volts			24					
120 Volts			120					
240 Volts			240					
TYPE OF VOLTAGE								
AC				A				
DC				D				
TYPE OF OPERATION								
Knob Adjustment					K			
Lock Nut Adjustment					L			
Fixed (Factory Preset)					F			
External Resistor Adjustable					R			
ENCLOSURE STYLE								
8 or 11-pin Round Plug-in								A
Blade Plug-in						B		
Potted Cube						C		
DELAY PERIOD								
See Standard Delay Range Chart								

NOTE: Not all time delays are available with each option shown above. The specific options for each timer type are described on their respective pages.

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TSA