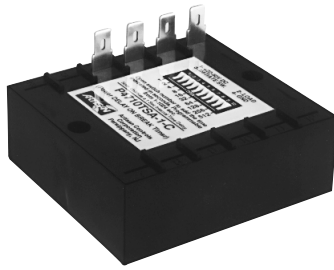




Solid State Timers and Controllers

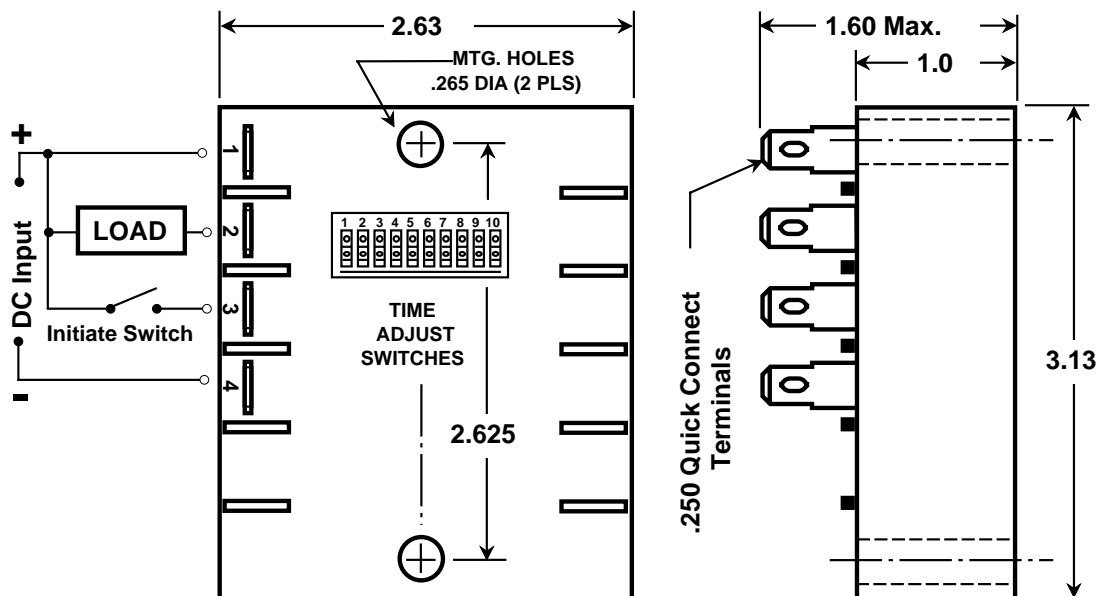


P4710TSA Delay-On-Break Solid State Timer

The model P4710TSA is an all solid state timer that offers DIP switch adjustable timing with 15 ampere output in a delay-on-break operation. The model P4710TSA offers excellent transient protection and provides for reliable timing control. The model P4710TSA is capable of controlling remote DC loads to 15 amperes at voltages up to 150V DC. Closure of the Initiate Switch energizes the remote load circuit and resets the timing to zero. The timing will remain reset until the initiate switch is opened, at which time a preset timing period begins. The load

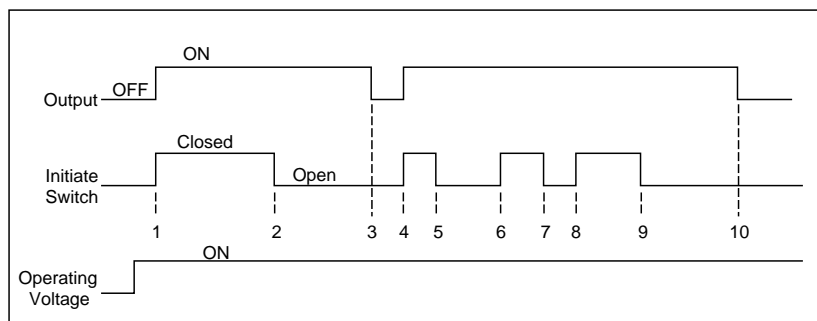
circuit remains energized until the timing period has elapsed, then de-energizes. Should the initiate switch be reclosed before the timing period has been completed, the timing cycle will reset and the load circuit will remain energized. The model P4710TSA is available in five timing ranges covering 10 milliseconds to 4096 seconds. The model P4710TSA is highly transient protected to withstand DC voltage systems in transit car applications.

Mechanical & Wiring



Timing Diagram

With *Operating Voltage* applied and the *Initiate Switch* open, the *Output* is OFF. At time #1, the *Initiate Switch* closes and the *Output* turns ON, energizing the load. At time #2 the *Initiate Switch* opens and the delay period begins. At time #3 the delay period ends, and the *Output* turns OFF. At



time #4, the *Initiate Switch* closes and the *Output* turns ON, energizing the load. The *Initiate Switch* opens and closes at times #5, 6, 7, and 8, but re-closes before the end of the timing period keeping the *Output* ON and the load energized. At time #9 the *Initiate Switch* opens and remains open longer than the timing period causing the *Output* to turn OFF at time #10.

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Solid State Timers and Controllers

Specifications

Operating Voltage: 22V - 50V DC (-1),
50V - 90V DC (-2),
90V - 120V DC (-3),
120V - 150V DC (-4) See *Ordering Information*.

Operating Current: Less than 10 milliamperes plus external load current.

Timing Mode: Delay-On-Break - initiate switch activated. Delay-On-Break Timing period is DIP switch adjustable. See *Ordering Information*.

Adjustable Timing Ranges: Five (5) ranges of DIP switch adjustable delay-on-break timing:
0.01 - 10.24 seconds to a resolution of 10 milliseconds.
0.1 - 102.4 seconds to a resolution of 100 milliseconds.
1 - 1024 seconds to a resolution of 1 second.
2 - 2048 seconds to a resolution of 2 seconds.
4 - 4096 seconds to a resolution of 4 seconds.

Time Setting Technique: Binary (1 - 1024) - all switches closed = minimum time, all switches open = maximum time. Time in between minimum and maximum is set by dividing the required delay period by the resolution of the timer and setting the DIP switches to that number -1, I.E. set the 0.1 - 102.4 model to 74.6 seconds. $74.6 / 0.1 = 746$, minus 1 = 745. Set the 10 DIP switches to binary 745 and the timer is set for a 74.6 second delay.

Adjustable Timing Setting Accuracy: $\pm 10\%$ of DIP switch setting.

Timing Variation: Less than 5% of set point over full temperature and voltage range.

Repeatability Of Timing Period: $\pm 1\%$ nominal.

Recycle Time: Operating voltage must be removed for a minimum of 50 milliseconds to assure all timing and output circuits are reset.

Initiate Switch: Isolated SPST rated for 5 mA service - Load current does not flow through initiate switch.

Output Rating: Solid state switch switching the low side of the DC operating voltage rated for 1 mA to 15A inductive with inrush current to 50A for 5 milliseconds.

Voltage Drop Across Solid State

Output Switch When Output ON: 1 volt maximum.

Leakage Current Through Solid State

Output Switch When Output OFF: 2 mA maximum.

Transient Protection: Protected by silicon transient suppressors responding to transients within 1×10^{-12} seconds to a peak pulse power dissipation of 1500 watts, with transient surge currents to 200 amperes for durations up to 1/120 second at 25° C. Maximum transient voltage protection is 6000 volts as delivered through a source resistance of 30 ohms with a maximum duration of 8.3ms.

Dielectric: 1500V rms all terminals to case.

Operating Temperature: -40° C to +85° C

Construction: Encapsulated module with .25 quick connect wiring terminals.

Data Sheet Revision Date: April 20, 1995

Ordering Information

Part Number	Operating Voltage	(X) Timing Range In Seconds
P4710TSA - 1 - X	22V - 50V DC	-A 0.01 - 10.24
P4710TSA - 2 - X	50V - 90V DC	-B 0.1 - 102.4
P4710TSA - 3 - X	90V - 120V DC	-C 1 - 1024
P4710TSA - 4 - X	120V - 150V DC	-D 2 - 2048
		-E 4 - 4096

Example: P4710TSA - 3 - C

P4710TSA, operating from 90V to 120V DC, with DIP switch adjustable timing from 1 to 1024 seconds

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