

# KSPS Series Single Function Timing Module



US Patent 6708135



- Choose 1 of 12 Standard Functions
- Special Time Ranges and Functions Available
- Factory Programmed
- Microcontroller Circuitry, +/-0.5% Repeat Accuracy
- Solid State Output 1 A Steady, 10 A Inrush
- Onboard, External Adjust or Fixed Time Delay
- 12 ... 240 V in 3 Ranges
- Delays from 100 ms...1000 h in 9 Ranges

Approvals:

### Accessories

**B** External adjust potentiometer  
P/Ns:  
**P1004-95** (fig A)  
**P1004-95-X** (fig B)

Versa-knob  
P/N: **P0700-7**

Female quick connect  
P/N:  
**P1015-64** (AWG 14/16)

Quick connect to screw adaptor  
P/N: **P1015-18**

DIN rail P/Ns:  
**C103PM** (Al)

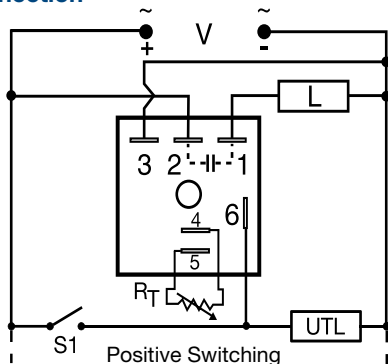
DIN rail adaptor  
P/N: **P1023-20**

See accessory pages for specifications.

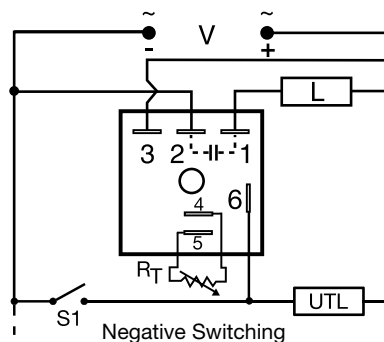
### Description

The KSPS Series is a factory programmed module available in any 1 of 12 standard functions. The KSPS offers a single, fixed, externally or onboard adjustable time delay. Modules are manufactured without the function assigned. When an order is received, the function software is added, making the modules complete. This provides fast delivery on all part numbers. The 1 A steady, 10 A inrush rated solid state output provides 100 million operations typical. Its microcontroller timing circuit provides excellent repeat accuracy and stability. Encapsulation protects against shock, vibration, and humidity. The KSPS Series is a cost effective approach for OEM applications that require small size and solid state reliability. Special time ranges and functions are available, contact Technical Assistance (see below) for more information.

### Connection

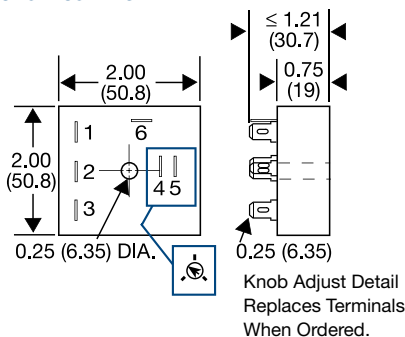


L = Load UTL = Untimed Load  
V = Voltage S1 = Initiate Switch



A knob is supplied for adjustable units, or  $R_T$  terminals for external adjust. See external adjustment vs time delay chart. The untimed load is optional. S1 is not used for some functions. Dashed lines are internal connections.

### Mechanical View



Inches (Millimeters)

### Available Models-

- |              |            |            |
|--------------|------------|------------|
| KSPS121TS    | KSPSA12SB  | KSPSA21FT  |
| KSPS124PS    | KSPSN110SI | KSPSN21B   |
| KSPS2180SB   | KSPSP110SI | KSPSP145SM |
| KSPS3115SRE  | KSPSP25B   | KSPSP31SD  |
| KSPS311SPS   |            |            |
| KSPSA23PSD   |            |            |
| KSPSP10.4SRE |            |            |
| KSPSP21B     |            |            |

### External Resistance vs Time Delay

For details on external  $R_T$  see the external resistance vs. time delay chart at the beginning of this section.

### \*\*Function Chart

	Code
Delay on Make	<b>M</b>
Delay on Break	<b>B</b>
Recycle (ON Time First, Equal Times)	<b>RE</b>
Recycle (OFF Time First, Equal Times)	<b>RD</b>
Single Shot	<b>S, SD</b>
Interval	<b>I</b>
Trailing Edge Single Shot	<b>TS</b>
Inverted Single Shot	<b>US</b>
Inverted Delay on Break	<b>UB</b>
Accumulative Delay on Make	<b>AM</b>
Motion Detector/Retriggerable Single Shot	<b>PSD</b>

For a Complete List of Functions with Descriptions, see Timer Function Section.

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### Ordering Table

KSPS Series	X Input	X Adjustment	X Time Delay*	X Function**
	<b>A</b> - 24 ... 240 V AC	<b>1</b> - Fixed	<b>1</b> - 0.1 ... 10 s	Specify Function (Refer to Function Chart for Code)
	<b>P</b> - 12 ... 120 V DC Positive Switching	<b>2</b> - Onboard Adjust	<b>2</b> - 1 ... 100 s	
	<b>N</b> - 12 ... 120 V DC Negative Switching	<b>3</b> - External Adjust	<b>3</b> - 10 ... 1000 s	*If Fixed Delay is selected, insert delay [0.1 ... 1000] followed by (S) secs., (M) mins., or (H) hrs.
			<b>4</b> - 0.1 ... 10 m	
			<b>5</b> - 1 ... 100 m	
			<b>6</b> - 10 ... 1000 m	
			<b>7</b> - 0.1 ... 10 h	
			<b>8</b> - 1 ... 100 h	
			<b>9</b> - 10 ... 1000 h	

Example P/N: **KSPSA23RE** Fixed - **KSPSP10.5SI**

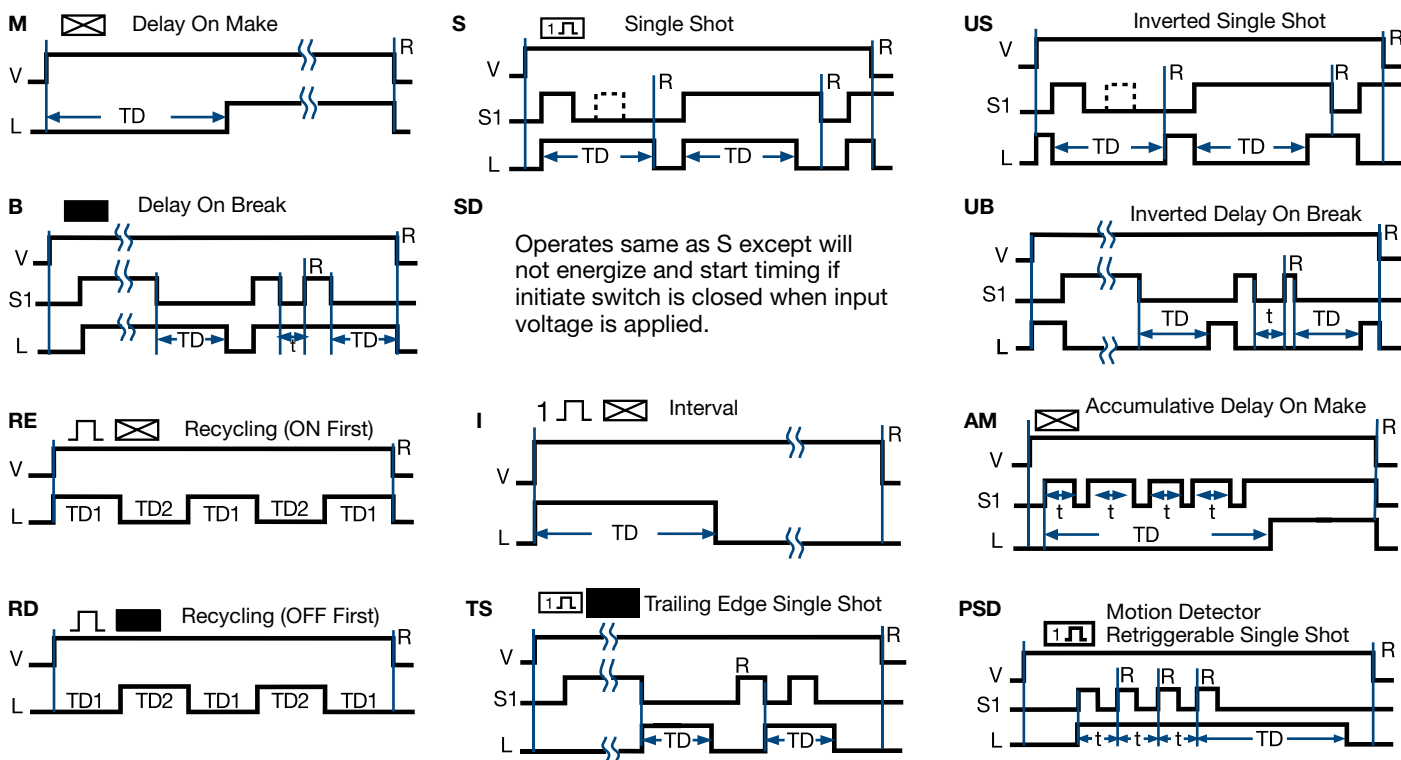
# KSPS Series Single Function Timing Module

## Technical Data

<b>Time Delay</b> Type: Microcontroller circuitry Range: 0.1 s ... 1000 h in 9 adjustable ranges or fixed +/-0.5% or 20 ms, whichever is greater Repeat Accuracy: $\leq \pm 2\%$ Tolerance (Factory Calibration): $\leq \pm 2\%$ Reset Time: $\leq 150$ ms Initiate Time: $\leq 20$ ms; $\leq 1500$ operations per minute Time Delay / Temp. & Voltage: $\leq \pm 2\%$		<b>Protection</b> Circuitry: Encapsulated Dielectric Breakdown: $\geq 2000$ V RMS terminals to mounting surface Insulation Resistance: $\geq 100$ M $\Omega$ Polarity: DC units are reverse polarity protected	
<b>Input</b> Voltage/Frequency: 12 ... 120 V DC; 24 ... 240 V AC/50 ... 60 Hz Tolerance: $\leq \pm 15\%$ DC Ripple: $\leq 10\%$ Power Consumption: AC $\leq 2$ VA; DC $\leq 1$ W		<b>Mechanical</b> Mounting: Surface mt. with one #10 (M5 x 0.8) screw Package: 2 x 2 x 1.21 in. (50.8 x 50.8 x 30.7 mm) Termination: 0.25 in. (6.35 mm) male quick connects	
<b>Output</b> Type: Solid state output Rating: 1 A steady, 10 A inrush for 16 ms Voltage Drop: AC $\cong 2.5$ V at 1 A; DC $\cong 1$ V at 1 A OFF State Leakage Current: AC $\cong 5$ mA at 240 V AC; DC $\cong 1$ mA		<b>Environmental</b> Operating Temp.: -40°C ... +60°C Storage Temp.: -40°C ... +85°C Humidity: 95% relative, non-condensing Weight: $\cong 2.4$ oz (68 g)	

## Function Diagrams

For a Complete List of Functions with Descriptions, see Timer Function Section.



Note: If S1 is closed when input voltage is applied, the function starts and the time delay begins. (B, S, TS, US, UB, AM, PSD)

### Legend

V	Voltage
R	Reset
S1	Initiate Switch
L	Output & Load
TD, TD1, TD2	Time Delay
t	Incomplete Time Delay
—  —	Undefined time