

# ProgramaCube® KSPS Series Single Function Timing Module

3



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



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



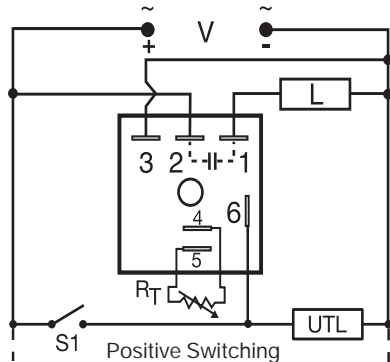
DIN rail adaptor  
P/N: P1023-20

See accessory pages for specifications.

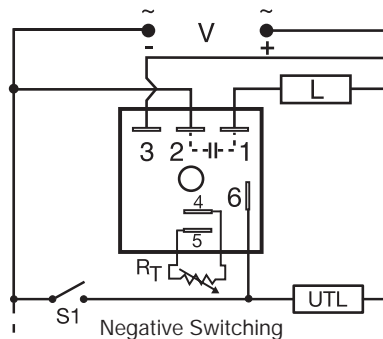
### Description

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

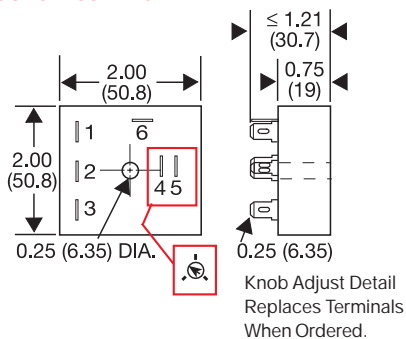


L = Load UTL = Untimed Load  
V = Voltage S1 = Initiate Switch



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)

### 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

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.

### Ordering Table

<b>KSPS</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
<b>Series</b>	<b>Input</b>	<b>Adjustment</b>	<b>Time Delay*</b>	<b>Function**</b>
	<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)  *If Fixed Delay is selected, insert delay [0.1 ... 1000] followed by (S) secs., (M) mins., or (H) hrs.
	<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	
			<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**

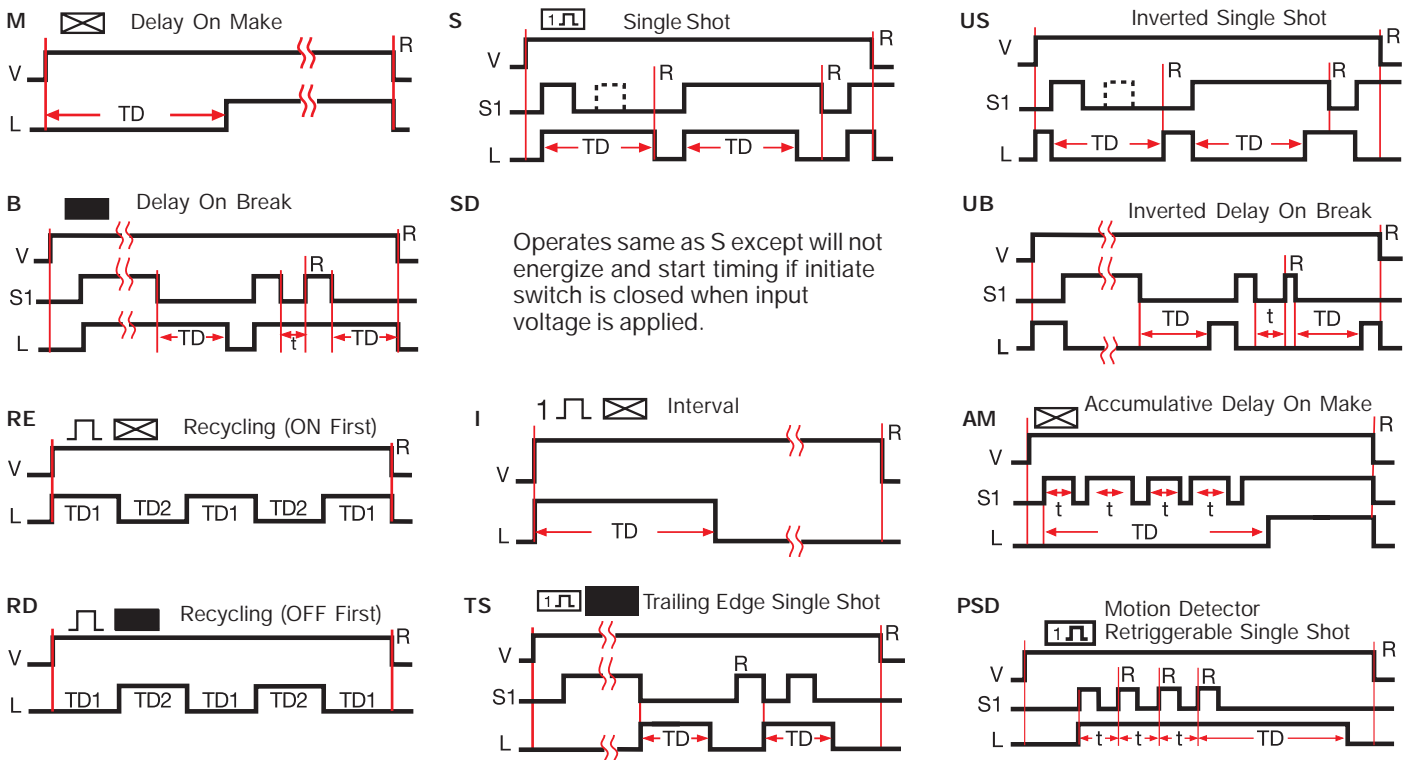
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## Technical Data

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