# KRDS SERIES

## Single Shot




## Description

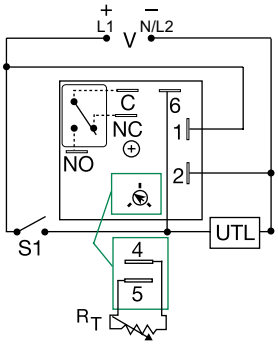
The KRDS Series is a compact time delay relay measuring only 2 in. (50.8 mm) square. Its microcontroller timing circuit provides excellent repeat accuracy and stability. Encapsulation protects against shock, vibration, and humidity. The KRDS Series is a cost effective approach for OEM applications that require small size, isolation, reliability, and long life.

### Operation (Single Shot)

Input voltage must be applied before and during timing. Upon momentary or maintained closure of the initiate switch, the output relay energizes for a measured interval of time. At the end of the delay, the output de-energizes. Opening or reclosing the initiate switch during timing has no affect on the time delay. The output will energize if the initiate switch is closed when input voltage is applied.

**Reset:** Reset occurs when the time delay is complete and the initiate switch is opened. Loss of input voltage resets the time delay and output.

## Wiring Diagram




V = Voltage
S1 = Initiate Switch
C = Common, Transfer Contact
NO = Normally Open
NC = Normally Closed
UTL = Untimed Load

$R_T$ is used when external adjustment is ordered.
A knob is supplied for adjustable units. The untimed load is optional.
Relay contacts are isolated.

## Features & Benefits

| FEATURES | BENEFITS |
|---|---|
| **Compact, low cost design measuring 2 in. (50.8mm) square** | Allows flexiblility for OEM applications |
| **Microcontroller based** | Repeat Accuracy + / -0.5%,<br>Factory calibration + / - 5% |
| **Isolated, 10A, SPDT output contacts** | Allows control of loads for AC or DC voltages |
| **Encapsulated** | To protect against shock, vibration, and humidity |

## Ordering Information

| MODEL | INPUT VOLTAGE | ADJUSTMENT | TIME DELAY |
|---|---|---|---|
| KRDS1135M | 12VDC | Fixed | 35m |
| KRDS120 | 12VDC | Onboard | 0.1 - 10s |
| KRDS221 | 24VAC/DC | Onboard | 1 - 100s |
| KRDS420 | 120VAC | Onboard | 0.1 - 10s |
| KRDS421 | 120VAC | Onboard | 1 - 100s |
| KRDS424 | 120VAC | Onboard | 1 - 100m |
| KRDS430 | 120VAC | External | 0.1 - 10s |

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

## Accessories



**P1004-95, P1004-95-X Versa-Pot**
Panel mountable, industrial potentiometer recommended for remote time delay adjustment.



**P1023-6 Mounting bracket**
The 90° orientation of mounting slots makes installation/removal of modules quick and easy.



**P0700-7 Versa-Knob**
Designed for 0.25 in (6.35 mm) shaft of Versa-Pot. Semi-gloss industrial black finish.



**P1015-64** (AWG 14/16)
**Female Quick Connect**
These 0.25 in. (6.35 mm) female terminals are constructed with an insulator barrel to provide strain relief.



**P1015-18 Quick Connect to Screw Adapter**
Screw adapter terminal designed for use with all modules with 0.25 in. (6.35 mm) male quick connect terminals.

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## Accessories

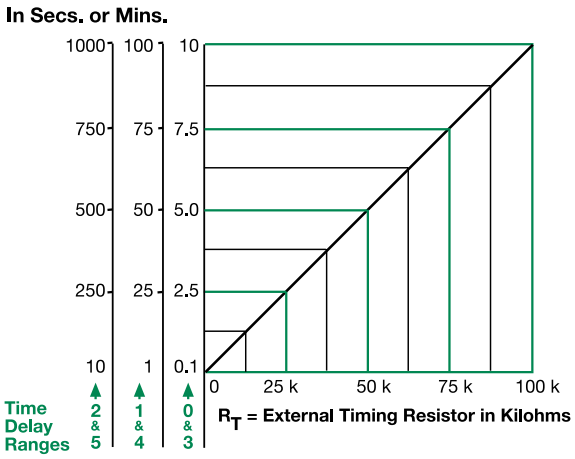


**C103PM (AL) DIN Rail**
35 mm aluminum DIN rail available in a 36 in. (91.4 cm) length.



**P1023-20 DIN Rail Adapter**
Allows module to be mounted on a 35 mm DIN type rail with two #10 screws.

## External Resistance vs. Time Delay

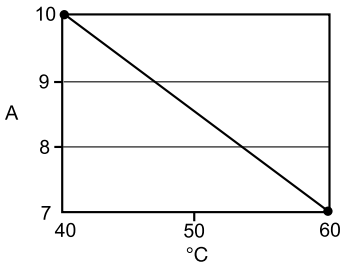



**This chart applies to externally adjustable part numbers.**
The time delay is adjustable over the time delay range selected by varying the resistance across the $R_T$ terminals; as the resistance increases the tie delay increases.

When selecting an external $R_T$, add the tolerances of the timer and the $R_T$ for the full time range adjustment.

**Examples:** 1 to 50 S adjustable time delay, select time delay range 1 and a 50 K ohn $R_T$. For 1 to 100 S use a 100 K ohm $R_T$.

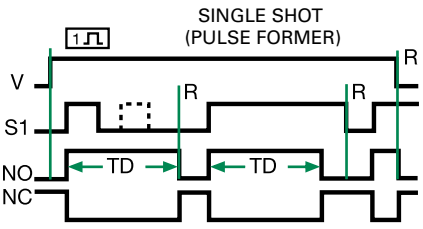
## Output Current/Ambient Temperature




## Specifications

| | |
|---|---|
| **Time Delay** | |
| **Type** | Microcontroller with watchdog circuitry |
| **Range** | 0.1s - 1000m in 6 adjustable ranges or fixed |
| **Repeat Accuracy** | ±0.5% or 20ms, whichever is greater |
| **Tolerance (Factory Calibration)** | ≤ ±5% |
| **Reset Time** | ≤ 150ms |
| **Initiate Time** | ≤ 40ms |
| **Time Delay vs Temp. & Voltage** | ≤ ±5% |
| **Input** | |
| **Voltage** | 12, 24 or 110VDC; 24, 120 or 230VAC |
| **Tolerance** | |
| **12VDC & 24VDC/AC** | -15% - 20% |
| **110VDC, 120VAC or 230VAC** | -20%- 10% |
| **AC Line Frequency/DC Ripple** | 50/60 Hz / ≤ 10% |
| **Power Consumption** | AC ≤ 2VA; DC ≤ 2W |
| **Output** | |
| **Type** | Isolated relay contacts |
| **Form** | SPDT |
| **Rating (at 40°C)** | 10A resistive @ 125VAC;<br>5A resistive @ 230VAC & 28VDC;<br>1/4 hp @ 125VAC |
| **Life (Operations)** | Mechanical - 1 x $10^7$; Electrical - 1 x $10^5$ |
| **Protection** | |
| **Circuitry** | Encapsulated |
| **Isolation Voltage** | ≥ 1500V RMS input to output |
| **Insulation Resistance** | ≥ 100 MΩ |
| **Polarity** | DC units are reverse polarity protected |
| **Mechanical** | |
| **Mounting** | Surface mount with one #10 (M5 x 0.8) screw |
| **Dimensions** | **H** 50.8 mm (2.0"); **W** 50.8 mm (2.0");<br>**D** 30.7 mm (1.21") |
| **Termination** | 0.25 in. (6.35 mm) male quick connect terminals |
| **Environmental** | |
| **Operating/Storage Temperature** | -40° to 60°C/-40° to 85°C |
| **Humidity** | 95% relative, non-condensing |
| **Weight** | ≅ 2.6 oz (74 g) |

## Function Diagram




V = Voltage
S1 = Initiate Switch
NO = Normally Open Contact
NC = Normally Closed Contact
TD = Time Delay
R = Reset

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