

## HRDB SERIES

### Delay-on-Break Timer



### Wiring Diagram



### Description

The HRDB Series combines an electromechanical, relay output with microcontroller timing circuitry. The HRDB offers 12 to 230V operation in five options and factory fixed, external, or onboard adjustable time delays with a repeat accuracy of  $\pm 0.5\%$ . The isolated output contact rating allows for direct operation of heavy loads, such as compressors, pumps, blower motors, heaters, etc. The HRDB is ideal for OEM applications where cost is a factor.

#### Operation (Delay-on-Break)

Input voltage must be applied before and during timing. Upon closure of the initiate switch, the output relay energizes. The time delay begins when the initiate switch is opened. The output remains energized during timing. At the end of the time delay, the output de-energizes. The output will energize if the initiate switch is closed when input voltage is applied.

**Reset:** Reclosing the initiate switch during timing resets the time delay. Loss of input voltage resets the time delay and output.

### Features & Benefits

FEATURES	BENEFITS
<b>Microcontroller based</b>	Repeat Accuracy $\pm 0.5\%$
<b>Compact, low cost design</b>	Allows flexibility for OEM applications
<b>Isolated, 30A, SPDT, NO output contacts</b>	Allows direct operation of heavy loads: compressors, pumps, blower motors, heaters.

### 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.

### Ordering Information

MODEL	INPUT VOLTAGE	ADJUSTMENT	TIME TOLERANCE	TIME DELAY	MODEL	INPUT VOLTAGE	ADJUSTMENT	TIME TOLERANCE	TIME DELAY
HRDB1110M	12VDC	Fixed	+ / -5%	10m	HRDB223	24VAC	Onboard	+ / -5%	0.1 - 10m
HRDB117S	12VDC	Fixed	+ / -5%	7s	HRDB321	24VDC	Onboard	+ / -5%	1 - 100s
HRDB120	12VDC	Onboard	+ / -5%	0.1 - 10s	HRDB324	24VDC	Onboard	+ / -5%	1 - 100m
HRDB121	12VDC	Onboard	+ / -5%	1 - 100s	HRDB423	120VAC	Onboard	+ / -5%	0.1 - 10m
HRDB124	12VDC	Onboard	+ / -5%	1 - 100m	HRDB623	230VAC	Onboard	+ / -5%	0.1 - 10m
HRDB21A65M	24VAC	Fixed	+ / -1%	65m					

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# Time Delay Relays

## Dedicated - Delay-on-Break

### HRDB SERIES

#### Accessories



**P1015-13** (AWG 10/12), **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.



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



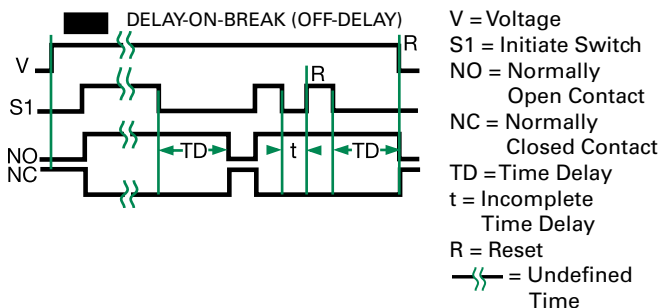
**P1023-20 DIN Rail Adapter**  
 Allows module to be mounted on a 35 mm DIN type rail with two #10 screws.

#### 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 RT terminals; as the resistance increases the time delay increases. When selecting an external RT, add the tolerances of the timer and the RT for the full time range adjustment.  
**Examples:** 1 to 50 S adjustable time delay, select time delay range 1 and a 50 K ohm RT. For 1 to 100 S use a 100 K ohm RT.

#### Function Diagram



#### Specifications

##### Time Delay

##### Type

##### Range

##### Repeat Accuracy

##### Tolerance

##### (Factory Calibration)

##### Reset Time

##### Initiate Time

##### Time Delay vs Temp. & Voltage

##### Input

##### Voltage

##### Tolerance

##### 12VDC & 24VDC

##### 24 to 230VAC

##### AC Line Frequency

##### Power Consumption

##### Output

##### Type

##### Form

##### Ratings

##### General Purpose

##### Resistive

##### Motor Load

##### Life

##### Protection

##### Surge

##### Circuitry

##### Dielectric Breakdown

##### Insulation Resistance

##### Polarity

##### Mechanical

##### Mounting

##### Dimensions

##### Termination

##### Environmental

##### Operating/Storage

##### Temperature

##### Humidity

##### Weight

Microcontroller circuitry

0.1s - 100m in 5 adjustable ranges or fixed  $\pm 0.5\%$  or 20ms, whichever is greater

$\pm 1\%$ ,  $\pm 5\%$

$\leq 150\text{ms}$

$\leq 20\text{ms}$

$\pm 2\%$

12 or 24VDC; 24, 120, or 230VAC

-15% - 20%

-20% - 10%

50/60 Hz

AC  $\leq 4\text{VA}$ ; DC  $\leq 2\text{W}$

Electromechanical relay

Isolated, SPDT

##### SPDT-NO

##### SPDT-NC

125/240VAC

30A

15A

125/240VAC

30A

15A

28VDC

20A

10A

125VAC

1 hp\*

1/4 hp\*\*

240VAC

2 hp\*\*

1 hp\*\*

Mechanical -  $1 \times 10^6$ ;

Electrical -  $1 \times 10^5$ ,  $*3 \times 10^4$ ,  $**6,000$

IEEE C62.41-1991 Level A

Encapsulated

$\geq 2000\text{V RMS}$  terminals to mounting surface

$\geq 100\text{ M}\Omega$

DC units are reverse polarity protected

Surface mount with one #10 (M5 x 0.8) screw

**H** 50.8 mm (2"); **W** 50.8 mm (2");

**D** 38.1 mm (1.51")

0.25 in. (6.35 mm) male quick connect terminals

-40° to 60°C / -40° to 85°C

95% relative, non-condensing

$\approx 3.9\text{ oz}$  (111 g)

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