

# Delay On Break (Release) HRDB Power-Time Time Delay Relay

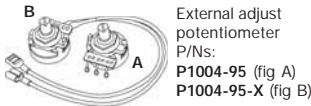
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- 30 A SPDT N.O. Isolated Output Contacts
- 12 ... 230 V Operation in 5 Ranges
- Delays from 100 ms ... 100 m in 5 Ranges
- +/-0.5% Repeat Accuracy
- Fixed, External, or Onboard Adjustment

Approvals:

### Accessories



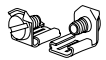
External adjust potentiometer  
P/Ns:  
P1004-95 (fig A)  
P1004-95-X (fig B)



Mounting bracket  
P/N: P1023-6



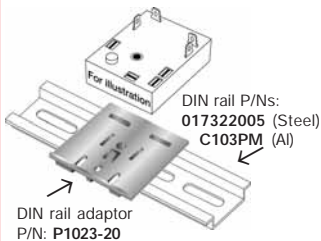
Female quick connect P/Ns:  
P1015-64 (AWG 14/16)  
P1015-13 (AWG 10/12)



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



Versa-knob  
P/N: P0700-7



See accessory pages for specifications.

### Description

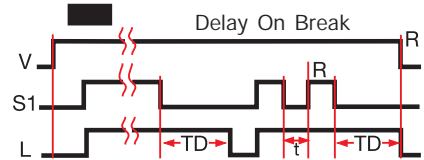
The HRDB Series combines an electromechanical relay output with microcontroller timing circuitry. The HRDB offers 12 to 230 V operation in five ranges and factory fixed, external, or onboard adjustable time delays with a repeat accuracy of +/-0.5%. The isolated output contact rating allows for direct 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

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.

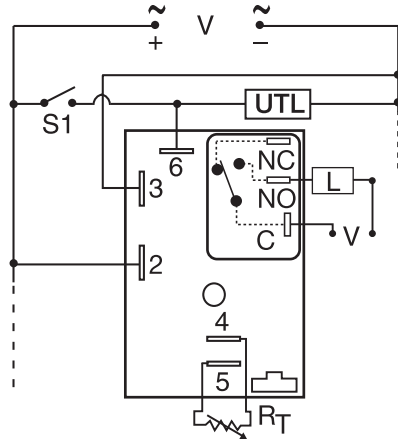
**Reset:** Reclosing the initiate switch during timing resets the time delay. Loss of input voltage resets the time delay and output.

### Function



V = Voltage L = Load S1 = Initiate Switch  
TD = Time Delay R = Reset  
t = Incomplete Time Delay  
—||— = Undefined time

### Connection



S1 = Initiate Switch L = Timed Load  
UTL = Untimed Load NO = Normally Open  
C = Common, Transfer Contact

NOTE: A knob, or terminals 4 & 5 are only included on adjustable units. R<sub>T</sub> is used when external adjustment is ordered. Relay contacts are isolated. Dashed lines are internal connections. The untimed load is optional.

### Ordering Table

HRDB Series	X Input	X Adjustment	X Time Tolerance	X Time Delay*
	-1 - 12 V DC	-1 - Fixed	-A - +/-1%	-0 - 0.1 ... 10 s
	-2 - 24 V AC	-2 - Onboard Knob	Blank - +/-5%	-1 - 1 ... 100 s
	-3 - 24 V DC	-3 - External Adjust		-2 - 10 ... 1000 s
	-4 - 120 V AC			-3 - 0.1 ... 10 m
	-6 - 230 V AC			-4 - 1 ... 100 m

\* If Fixed Delay is selected, insert delay [0.1 ... 1000] followed by (S) sec. or [0.1 ... 100] (M) min.

Example P/N: HRDB421 Fixed - HRDB41A0.5S

# Delay On Break (Release)

## HRDB Power-Time

### Time Delay Relay

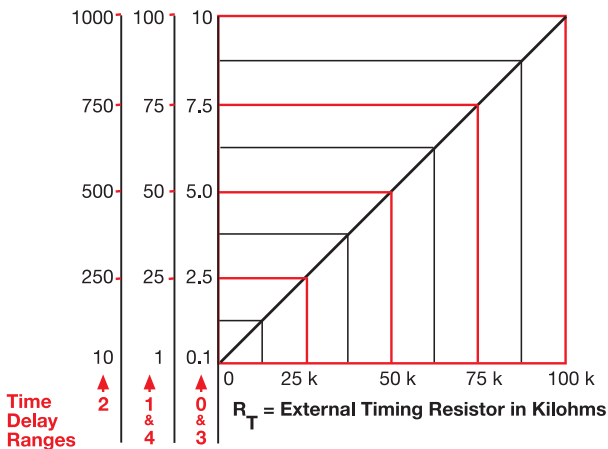
#### Technical Data

<b>Time Delay</b>			
Type		Microcontroller circuitry	
Range		100 ms ... 100 m in 5 adjustable ranges or fixed	
Repeat Accuracy		+/-0.5 % or 20 ms, whichever is greater	
Tolerance (Factory Calibration)		+/-1%, +/-5%	
Reset Time		≤ 150 ms	
Initiate Time		≤ 20 ms	
Time Delay vs. Temperature & Voltage		+/-2%	
<b>Input</b>			
Voltage		12 or 24 V DC; 24, 120, or 230 V AC	
Tolerance	12 V DC & 24 V DC	-15% ... +20%	
	24 ... 230 V AC	-20% ... +10%	
Line Frequency		50 ... 60 Hz	
Power Consumption		AC ≤ 4 VA; DC ≤ 2 W	
<b>Output</b>			
Type		Electromechanical relay	
Form		SPDT, isolated	
Ratings:		<b>SPDT-N.O.</b>	<b>SPDT-N.C.</b>
General Purpose	125/240 V AC	30 A	15 A
Resistive	125/240 V AC	30 A	15 A
	28 V DC	20 A	10 A
Motor Load	125 V AC	1 hp*	1/4 hp**
	240 V AC	2 hp**	1 hp**
Life		Mechanical -- 1 x 10 <sup>6</sup> ; Electrical -- 1 x 10 <sup>5</sup> , *3 x 10 <sup>4</sup> , **6,000	
<b>Protection</b>			
Surge		IEEE C62.41-1991 Level A	
Circuitry		Encapsulated	
Dielectric Breakdown		≥ 2000 V RMS terminals to mounting surface	
Insulation Resistance		≥ 100 MΩ	
Polarity		DC units are reverse polarity protected	
<b>Mechanical</b>			
Mounting		Surface mount with one #10 (M5 x 0.8) screw	
Package		3 x 2 x 1.5 in. (76.7 x 51.3 x 38.1mm)	
Termination		0.25 in. (6.35 mm) male quick connect terminals	
<b>Environmental</b>			
Operating/Storage Temperature		-40°C ... +60°C/-40°C ... +85°C	
Humidity		95% relative, non-condensing	
Weight		≅ 3.9 oz (111 g)	

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#### External Resistance vs Time Delay

In Secs. or Mins.



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

#### Mechanical View

