

# Recycling (Pulse Generator) HRDR Power-Time Time Delay Relay



10 YEAR WARRANTY



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- 30 A SPDT N.O. Output Contacts
- 12 ... 230 V Operation in 5 Ranges
- Encapsulated Circuitry
- Delays from 100 ms ... 1000 m in 6 Ranges
- Independent Adjustment of ON and OFF Delays
- +/-0.5% Repeat Accuracy
- +/-5% Factory Calibration
- Fixed or Onboard or External Adjustment

Approvals:

### Description

The HRDR Series combines an electromechanical relay and microcontroller timing circuitry. It offers 12 to 230 V operation in five ranges and factory fixed, onboard or externally adjustable time delays with a repeat accuracy of +/-0.5%. The high switching capacity of the output contacts allow for direct control of heavy loads like compressors, pumps, motors, heaters, and lighting. Bypass/reset switch option allows operator to interrupt normal recycling sequence and energize output relay. An excellent choice for OEM applications.

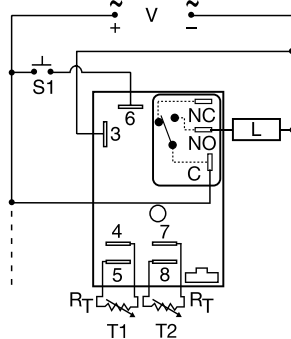
### Operation

Upon application of input voltage, the ON time T1 begins and output relay energizes. At the end of the ON time, the output relay de-energizes and the OFF time T2 begins. At the end of the OFF time, the output relay energizes and the cycle repeats as long as input voltage is applied. Some recycling timers have the OFF time as the first delay.

**Reset:** Removing input voltage resets output and time delays, and returns sequence to the first delay.

**Bypass/Reset Switch:** Closing the normally open bypass/reset switch energizes the output relay and resets the time delays. Opening the switch restarts recycling operation with the first delay.

### Connection



Note: Terminals 4 & 5 and/or 7 & 8 are only included on externally adjustable units.

NO = Normally Open S1 = Reset Switch  
C = Common, Transfer Contact L = Load

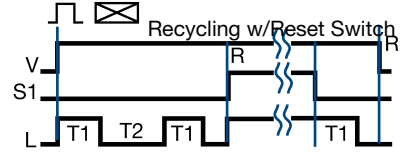
Relay contacts are non-isolated. R<sub>T</sub> is included when external adjustment is ordered. Dashed lines are internal connections. Terminal 6 is included when Bypass/Reset is selected.

### Available Models-

HRDR11720MB60S	HRDR121A4R	HRDR321A4R
HRDR322B2R	HRDR330A0R	HRDR331A1
HRDR411SB30MR	HRDR412SA15M	HRDR4160SA240S
HRDR417SA28SR	HRDR431A1R	HRDR434A4

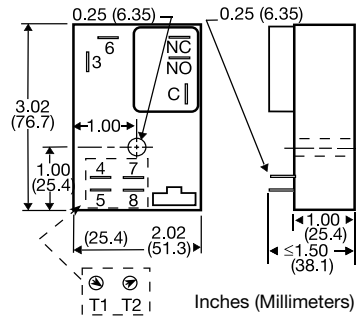
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### Function



V = Voltage S1 = Reset Switch  
L = Load R = Reset T1 = ON Time  
T2 = OFF Time  
— = Undefined time

### Mechanical View



### Ordering Table

HRDR Series	X Input	X External Adjust	X T1 ON Time *	X Operating Sequence	X T2 OFF Time *	X Operation
	1 - 12 V DC	1 - Both Times Fixed	0 - 0.1 ... 10 s	A - ON Time First	0 - 0.1 ... 10 s	Blank - NoBypass/Reset Option
	2 - 24 V AC	2 - Both Times Onboard Adj.	1 - 1 ... 100 s	B - OFF Time First	1 - 1 ... 100 s	R - Bypass/Reset Option
	3 - 24 V DC	3 - Both Times External Adj.	2 - 10 ... 1000 s		2 - 10 ... 1000 s	
	4 - 120 V AC	4 - ON Time External Adj. OFF Time Fixed	3 - 0.1 ... 10 m		3 - 0.1 ... 10 m	
	6 - 230 V AC	5 - ON Time Fixed OFF Time External Adj.	4 - 1 ... 100 m		4 - 1 ... 100 m	
		6 - ON Time Onboard Adj. OFF Time, Fixed	5 - 10... 1000 m		5 - 10 ... 1000 m	
		7 - ON Time, Fixed OFF Time Onboard Adj.				
		8 - ON Time Onboard Adj. OFF Time, External Adj.				
		9 - ON Time, External Adj. OFF Time Onboard Adj.				

Example P/N:

HRDR431A4R

Fixed - HRDR410.2SB100S

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

# Recycling (Pulse Generator)

## HRDR Power-Time

### Time Delay Relay

Dedicated  
timers

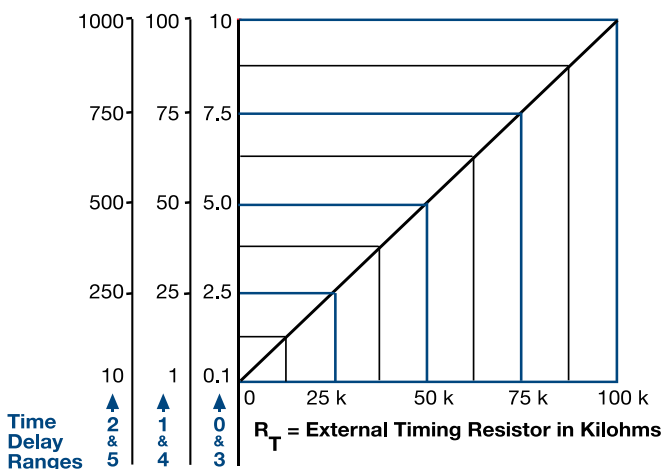
#### Technical Data

<b>Time Delay</b>			
Range		100 ms ... 1000 m in 6 adjustable ranges or fixed	
Repeat Accuracy		+/-0.5% or 20 ms, whichever is greater	
Tolerance (Factory Calibration)		+/-5%	
Reset Time		≤ 150 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, non-isolated	
Ratings:		SPDT- N.O.      SPDT-N.C.	
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.



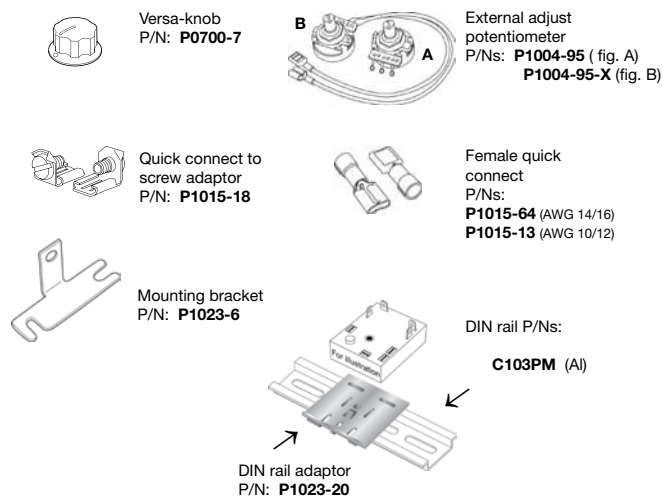
This chart applies to externally adjustable part numbers.

The time delay is adjustable over the time delay range selected by varying the resistance across the  $R_T$  terminals; as the resistance increases the time 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 ohm  $R_T$ . For 1 to 100 S use a 100 K ohm  $R_T$ .

#### Accessories



See accessory pages for specifications.