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

- 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.

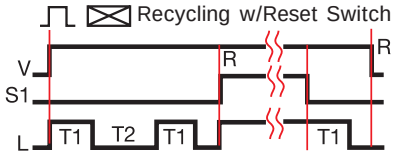
Operation

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.

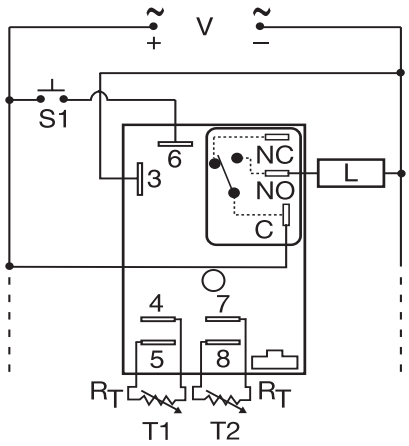
Bypass/Reset Switch: Closing the normally open bypass/reset switch energizes the output relay and resets the time delays. Opening the switch restarts recycling operation with the first delay.

Function



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

Connection

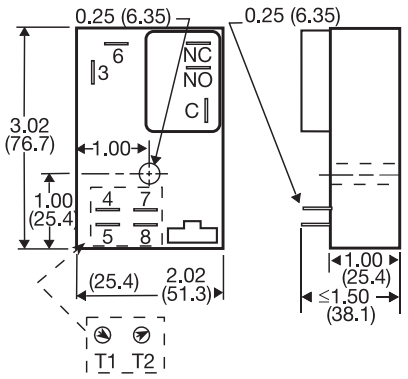


Note: Terminals 4 & 5 and/or 7 & 8 are only included on externally adjustable units.

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

Relay contacts are non-isolated. R_T is included when external adjustment is ordered. Dashed lines are internal connections. Terminal 6 is included when Bypass/Reset is selected.

Mechanical View



Inches (Millimeters)

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 - No Bypass/ 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.				

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

Example P/N:

HRDR431A4R

Fixed – **HRDR410.2SB100S**

HRDRGen 10.03.05

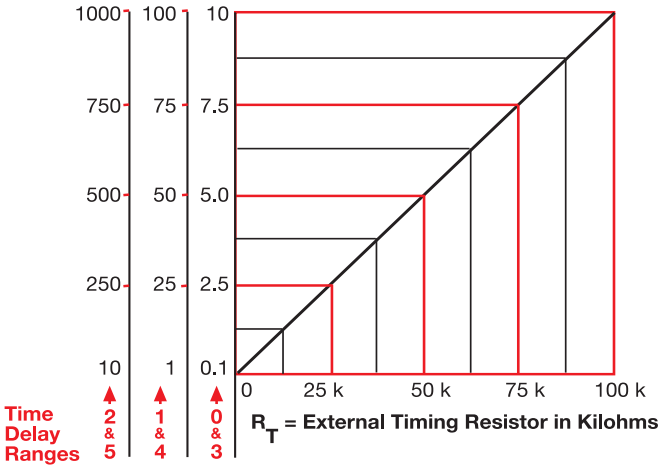
Recycling (Pulse Generator)
HRDR Power-Time
Time Delay Relay

Technical Data

Time Delay			
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%	
Input			
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	
Output			
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 10^6; Electrical -- 1 x 10^5, *3 x 10^4, **6,000	
Protection			
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	
Mechanical			
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	
Environmental			
Operating/Storage Temperature		-40°C ... +60°C/-40°C ... +85°C	
Humidity		95% relative non-condensing	
Weight		≅ 3.9 oz (111 g)	

External Resistance vs Time Delay

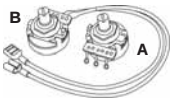
In Secs. or Mins.



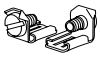
This chart applies to externally adjustable part numbers.
The time delay is adjustable over the time delay range selected by varying the resistance across the RT terminals; as the resistance increases the time delay increases.
When selecting an external RT, add the tolerances of the timer and the RT 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.

Accessories

Versa-knob
P/N: **P0700-7**



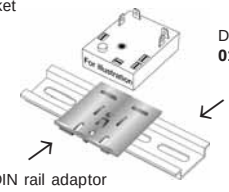
External adjust potentiometer
P/Ns: **P1004-95** (fig. A)
P1004-95-X (fig. B)



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

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

Mounting bracket
P/N: **P1023-6**



DIN rail P/Ns:
017322005 (Steel)
C103PM (Al)

DIN rail adaptor
P/N: **P1023-20**

See accessory pages for specifications.