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HRDM SERIES

Delay-on-Make Timer

Description

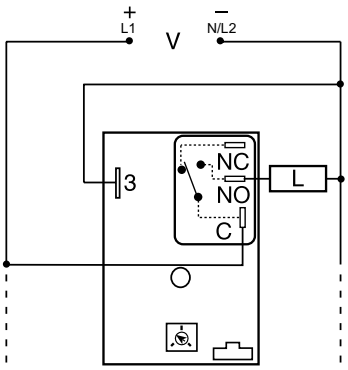
The HRDM Series combines an electromechanical relay output with microcontroller timing circuitry. It offers 12 to 230V operation in five ranges and factory fixed, onboard, or external adjustable time delays with a repeat accuracy of ±0.5%. The output contact rating allows for direct operation of heavy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

Operation (Delay-on-Make)

Upon application of input voltage, the time delay begins. The output is de-energized before and during the time delay. At the end of the time delay, the output relay energizes and remains energized until input voltage is removed.

Reset: Removing input voltage resets the time delay and output.

Wiring Diagram



NO = Normally Open
L = Load
C = Common, Transfer Contact

NOTE: A knob, or terminals 4 & 5 are only included on adjustable units. R_T is used when external adjustment is ordered. Relay contacts are not isolated.

Features & Benefits

FEATURES	BENEFITS
Microcontroller based	Repeat Accuracy + / - 0.5%
Compact, low cost design	Allows flexiblility for OEM applications
Isolated, 30A, SPDT, NO output contacts	Allows direct operation of heavy loads: compressors, pumps, blower moters, heaters.
Encapsulated	Protects against shock, vibration, and humidity

Accessories

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

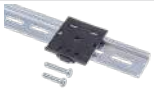
P1023-6 Mounting bracket
The 90° orientation of mounting slots makes installation/removal of modules quick and easy.

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

P1015-13 (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.

Ordering Information

MODEL	INPUT VOLTAGE	ADJUSTMENT	TIME DELAY
HRDM120	12VDC	Onboard	0.1 - 10s
HRDM3112S	24VDC	Fixed	12s
HRDM413M	120VAC	Fixed	3m
HRDM415M	120VAC	Fixed	5m

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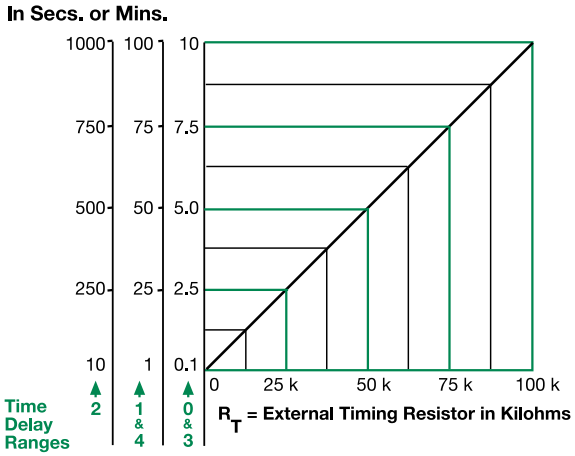
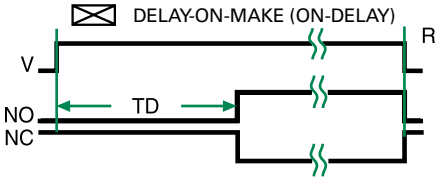
External Resistance vs. Time Delay



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



V = Voltage
NO = Normally Open Contact
NC = Normally Closed Contact
TD = Time Delay
R = Reset
—⌇— = Undefined Time

Specifications

Time Delay

Type	Microcontroller circuitry
Range	0.1s - 100m in 5 adjustable ranges or fixed
Repeat Accuracy	±0.5% or 20 ms, whichever is greater
Tolerance (Factory Calibration)	±1%, ±5%
Reset Time	≤ 150ms
Time Delay vs Temp. & Voltage	±2%

Input

Voltage	12 or 24VDC; 24, 120, or 230VAC
Tolerance	
12VDC & 24VDC	-15% - 20%
24 to 230VAC	-20% - 10%
AC Line Frequency	50/60 Hz
Power Consumption	AC ≤ 4VA; DC ≤ 2W

Output

Type		Electromechanical relay	
Form		Non-isolated, SPDT	
Ratings		**SPDT-NO**	**SPDT-NC**
General Purpose	**125/240VAC**	30A	15A
Resistive	**125/240VAC**	30A	15A
	28VDC	20A	10A
Motor Load	**125VAC**	1 hp*	1/4 hp**
	240VAC	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	≥ 2000V 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
Dimensions	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° to 60°C / -40° to 85°C
Humidity	95% relative, non-condensing
Weight	≅ 3.9 oz (111 g)