

# ProgramaCube® HRPD/HRID Power-Time Time Delay Relay

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US Patent 6708135

- Special Time Ranges and Functions Available
- Factory Programmed
- 30 A SPDT N.O. Output Contacts
- 12 ... 240 V Operation in 2 Ranges
- Delays from 100 ms ... 1000 h in 9 Ranges
- +/-0.5% Repeat Accuracy

Approvals:

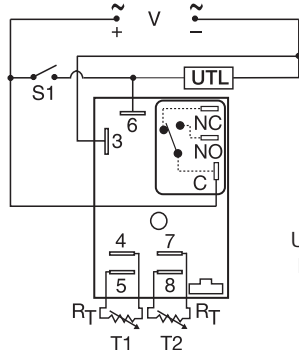
### Accessories

- B** External adjust potentiometer  
P/Ns: P1004-95 (fig A) P1004-95-X (fig B)
  - Versa-knob  
P/N: P0700-7
  - 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.

### Description

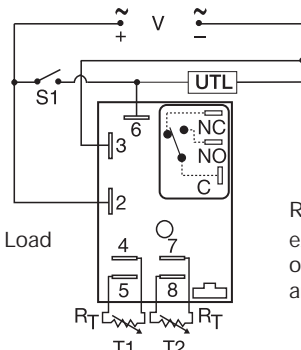
The HRPD/HRID Series combines an electromechanical relay with microcontroller timing circuitry. It is a factory programmed module available in any 1 of 12 standard functions. Modules are manufactured without the function assigned. When an order is received, the function software is added. It offers 12 to 240 V operation in two universal ranges and factory fixed, onboard knob 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. HRPD has non-isolated SPDT relay contacts, and the HRID has isolated SPDT relay contacts. An excellent choice for OEM applications where cost is a factor. Both offer dual functions in one convenient package.

### Connection



Relay contacts are non-isolated.

S1 = Initiate Switch  
UTL = Optional Untimed Load  
NO = Normally Open  
NC = Normally Closed  
C = Common



Relay contacts are isolated.

R<sub>T</sub> is used when external adjustment is ordered. Dashed lines are internal connections.

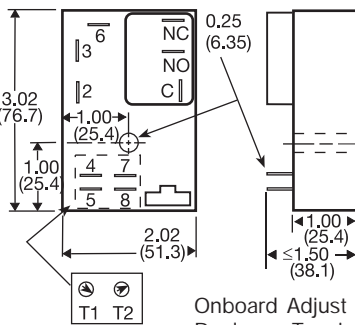
### External Resistance vs Time Delay

For details on external R<sub>T</sub> see the external resistance vs. time delay chart at the beginning of this section.

### \*\*Function Chart

Code	Description
<b>MB</b>	Delay On Make/Delay on Break
<b>MRE</b>	Delay On Make/Recycle (ON Time First, Equal Times)
<b>MI</b>	Delay On Make/Interval
<b>MS</b>	Delay On Make/Single Shot Interval/Recycle (ON Time First, Equal Times)
<b>IRE</b>	Delay On Break/Recycle (ON Time First, Equal Times)
<b>BRE</b>	Single Shot/Recycle (ON Time First, Equal Times)
<b>SRE</b>	Recycle (Both Times Adjustable, ON Time First)
<b>RXE</b>	Recycle (Both Times Adjustable, OFF Time First)
<b>RXD</b>	Interval/Delay On Make
<b>AMI</b>	Accumulative Delay On Make/Interval
<b>SL</b>	Single Shot Lockout

### Mechanical View



Onboard Adjust Detail  
Replaces Terminals if Ordered

Inches (Millimeters)

For a Complete List of Functions with Descriptions, see Timer Function Section.

### HRPD/HRID

Series	Input	First Adjustment (T1 or R <sub>1</sub> )	First Time Delay*	Second Adjustment (T2 or R <sub>2</sub> )	Second Time Delay*	Function**
<b>W</b>	24...240 V AC	-1 - Fixed	-1 - 0.1 ... 10 s	-1 - Fixed	-1 - 0.1 ... 10 s	*If Fixed Delay is selected, insert delay [0.1 ... 999] followed by (S) secs., (M) mins., or (H) hrs.
	24...110 V DC	-2 - Onboard Adjust	-2 - 1 ... 100 s	-2 - Onboard Adjust	-2 - 1 ... 100 s	
<b>D</b>	12 ... 48 V DC	-3 - External Adjust	-3 - 10 ... 1000 s	-3 - External Adjust	-3 - 10 ... 1000 s	
			-4 - 0.1 ... 10 m		-4 - 0.1 ... 10 m	
			-5 - 1 ... 100 m		-5 - 1 ... 100 m	
			-6 - 10 ... 1000 m		-6 - 10 ... 1000 m	
			-7 - 0.1 ... 10 h		-7 - 0.1 ... 10 h	
			-8 - 1 ... 100 h		-8 - 1 ... 100 h	
			-9 - 10 ... 1000 h		-9 - 10 ... 1000 h	

Example P/N: **HRPDW2221MB** Fixed - **HRIDD10.5S21RXE**

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Low Voltage Products & Systems

# ProgramaCube® HRPD/HRID Power-Time Time Delay Relay

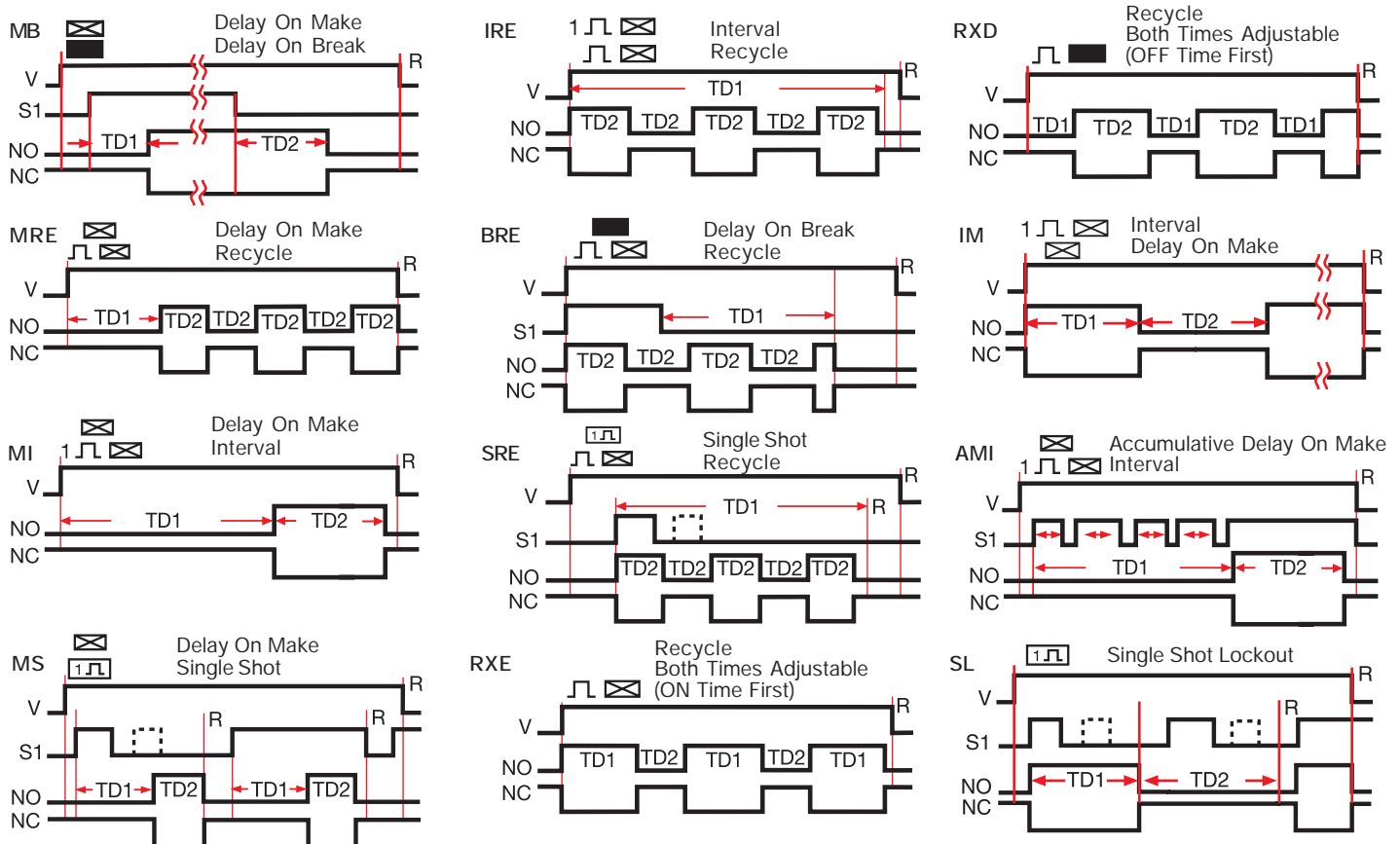
## Technical Data

<b>Time Delay</b>		100 ms ... 1000 h in 9 adjustable ranges or fixed		<b>Protection</b>		IEEE C62.41-1991 Level A	
Range		100 ms ... 1000 h in 9 adjustable ranges or fixed		Surge Circuitry		Encapsulated	
Repeat Accuracy		+/-0.5% or 20 ms, whichever is greater		Isolation Voltage		≥ 1500 V RMS input to output; isolated units	
Tolerance (Factory Calibration)		+/-2%		Insulation Resistance		≥ 100 MΩ	
Reset Time		≤ 150 ms		Polarity		DC units are reverse polarity protected	
Initiate Time		≤ 20 ms, ≤ 1500 operations per minute		<b>Mechanical</b>		Surface mt. with one #10 (M5 x 0.8) screw	
Time Delay vs. Temp. & Voltage		≤ +/-2%		Mounting		3 x 2 x 1.5 in. (76.7 x 51.3 x 38.1 mm)	
<b>Input</b>		12 ... 48 V DC; 24 ... 240 V AC / 24 ... 110 V DC		Package		0.25 in. (6.35 mm) male quick connects	
Voltage		12 ... 48 V DC; 24 ... 240 V AC / 24 ... 110 V DC		Termination			
Tolerance		12 ... 48 V DC: -15% ... +20%		<b>Environmental</b>		Operating Temp.	
24 ... 110 V DC/24 ... 240 V AC		-20% ... +10%		Storage Temp.		-40°C ... +60°C	
Line Frequency		50 ... 60 Hz		Humidity		-40°C ... +85°C	
Power Consumption		AC ≤ 4 VA; DC ≤ 2 W		Weight		95% relative, non-condensing	
<b>Output</b>		Electromechanical relay/SPDT				≅ 3.9 oz (111 g)	
Type/Form		Electromechanical relay/SPDT					
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			

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## Function Diagrams

For a Complete List of Functions with Descriptions, see Timer Function Section.



### Legend

V	Voltage	t	Incomplete Time Delay
R	Reset	NO	Normally Open
S1	Initiate Switch	NC	Normally Closed
TD1, TD2	Time Delay	—	Undefined time

Note: If S1 is closed when input voltage is applied, the function starts and the time delay begins. (MB, MS, BRE, SRE, AMI, SL)

HRPDGen 06.06.05