

# ProgramaCube® HRPU/HRIU Series Time Delay Relay

3



US Patent 6708135



- Choose 1 of 14 Standard Functions
- Special Time Ranges and Functions Available
- Factory Programmed
- Microcontroller Circuitry, +/-0.1% Repeat Accuracy
- 30 A, N.O. Output Contacts
- Accurate Switch Adjustment
- 12 ... 240 V in 2 Ranges
- Delays from 100 ms ...1023 h

Approvals:

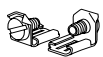
## Accessories



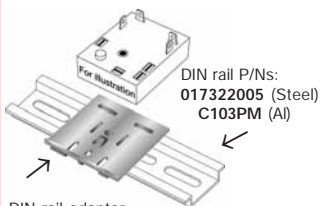
Mounting bracket  
P/N: P1023-6



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



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



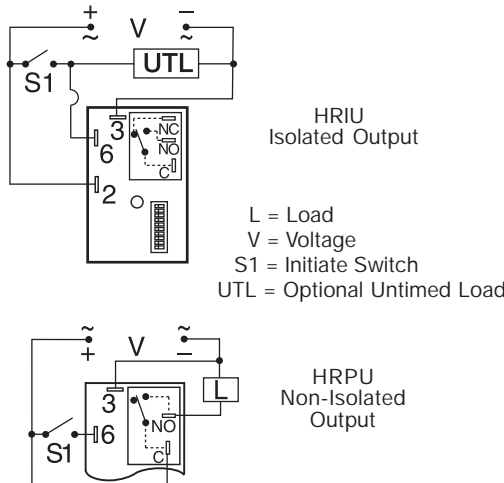
DIN rail adaptor  
P/N: P1023-20

See accessory pages for specifications.

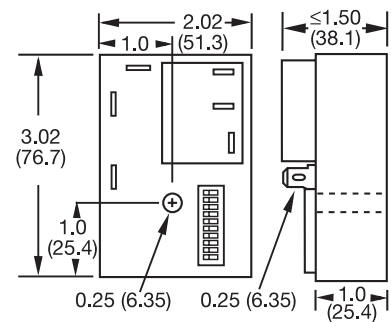
## Description

The HRP/HRIU combines the accuracy of microcontroller based circuitry with an electromechanical relay output. Its switching capacity allows direct control of loads like compressors, pumps, motors, heaters, and lighting. It is a factory programmed module available in any 1 of 14 standard functions. The HRP/HRIU offers a single adjustable timer or counter function. Modules are manufactured without the function assigned. When an order is received, the function software is added. This approach provides fast delivery on all part numbers. Switch adjustment allows accurate selection of the time delay or number of counts. The HRP/HRIU has non-isolated relay contacts, the HRIU has isolated relay contacts. Encapsulation protects against shock, vibration, and humidity. The HRP/HRIU Series is a cost effective approach for OEM applications that require small size, reliability and accurate switch adjustment. Special time ranges and functions are available; contact Technical Assistance (see below) for more information.

## Connection



## Mechanical View



Inches (Millimeters)

## \*\*Function Chart

Function	Code
Delay on Make Timer	M
Delay on Break Timer	B
Recycle Timer (ON Time First, Equal Times)	RE
Recycle Timer (OFF Time First, Equal Times)	RD
Single Shot Timer	S
Single Shot Timer (See Time Diagram)	SD
Interval Timer	I
Trailing Edge Single Shot Timer	TS
Motion Detector/Retriggerable Single Shot Timer	PSD
Inverted Single Shot Timer	US
Accumulative Delay on Make Timer	AM
Inverted Delay on Break Timer	UB
Counter/Pulsed Output	C
Counter/Interval Output	CI

## Switch Adjustment

Adjustment Switch Operation			
TIME DELAY		COUNTER	
0.1...102.3	1...1023	1...165	1...63
OFF ▶ ON	OFF ▶ ON	OFF ▶ ON	OFF ▶ ON
0.1	1	1	1
0.2	2	2	2
0.4	4	3	4
0.8	8	4	8
1.6	16	5	16
3.2	32	10	32
6.4	64	20	M
12.8	128	30	1
25.6	256	40	2
51.2	512	50	4
6.3	544	57 counts	44 s Delay 2 counts to Start

One or more switches must be ON for proper operation.

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

HRPU/  
HRIU  
Series

**X**  
Input  
-W - 24 ... 240 V AC  
24 ... 110 V DC  
-D - 12 ... 48 V DC

**X**  
Time Delay/Counts

-1 - 0.1 ... 102.3 s  
-2 - 1 ... 1023 s  
-3 - 0.1 ... 102.3 m  
-4 - 1 ... 1023 m  
-5 - 0.1 ... 102.3 h  
-6 - 1 ... 1023 h  
-7 - 1 ... 165 counts (straight) w/pulsed output  
-8 - 1 ... 1023 counts (binary) w/pulsed output  
-9 - 1 ... 7 counts to start 1 ... 63 s or m interval time

**X**  
Function\*\*

- Specify Function  
(Refer to Function Chart for Code)

Example P/N: **HRIUD2B, HRPW3AM**

# ProgramaCube® HRPU/HRIU Series Time Delay Relay

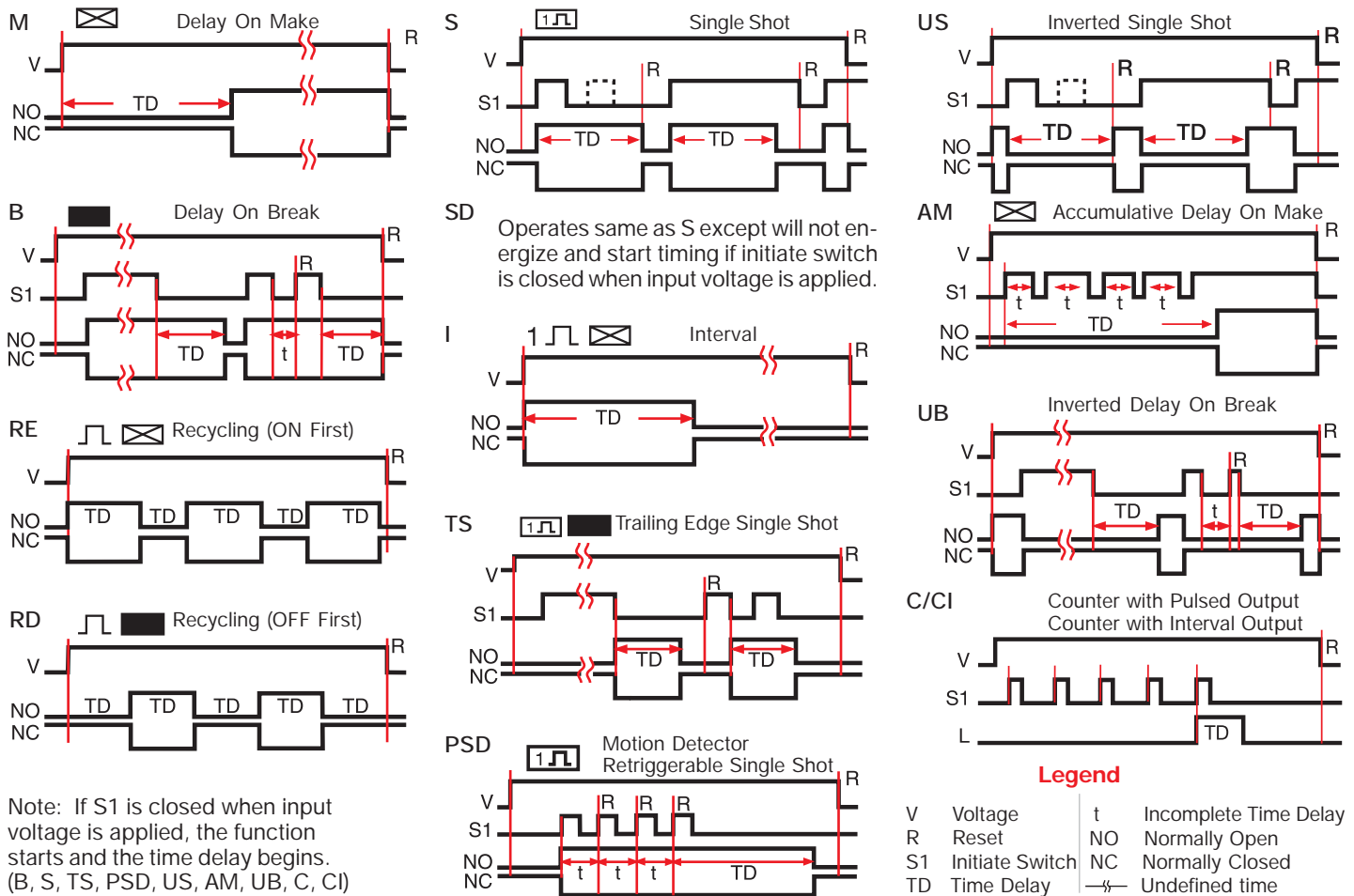
## Technical Data

<b>Count Functions/Switch Type</b>	Mechanical Switch (counts on switch closure)	<b>Output</b>	Electromechanical relay/SPDT
Count Range	1 ... 1023 counts in 8 ranges	Type/Form	SPDT-N.O. SPDT-N.C.
Counter Output (Variable 7 & 8)	Pulse Widths 300 ms +/-20%	Ratings:	General Purpose 125/240 V AC 30 A 15 A
Initiate Time	≤ 20 ms, ≤ 1500 operations per minute	Resistive	125/240 V AC 30 A 15 A
		Motor Load	28 V DC 20 A 10 A
			125 V AC 1 hp* 1/4 hp**
			240 V AC 2 hp** 1 hp**
<b>Time Delay/Range ***</b>	Adjustable 0.1 s ... 1023 h in 8 ranges	<b>Protection</b>	Life
Setting Accuracy	+/-1%, or 50 ms, whichever is greater	Circuitry	Mechanical -- 1 x 10 <sup>6</sup>
Repeat Accuracy	0.1% or 20 ms, whichever is greater	Surge	Electrical -- 1 x 10 <sup>5</sup> , *3 x 10 <sup>4</sup> , ** 6,000
Reset Time	≤ 150 ms	Isolation Voltage	Encapsulated
Time vs. Input Voltage & Temp.	+/-2%	Insulation Resistance	IEEE C62.41-1991 Level A
<b>Input</b>		<b>Mechanical/Environmental</b>	≥ 1500 V RMS input to output; isolated units
Voltage	12 ... 48 V DC; 24 ... 240 V AC/ 24 ... 110 V DC	Mounting	≥ 100 MΩ
Line Frequency/DC Ripple	50 ... 60 Hz/≤ 10%	Termination	Surface mt. with one #10 (M5 x 0.8) screw
Tolerance 12 ... 48 V DC	-15% ... +20%	Humidity	0.25 in. (6.35 mm) male quick connects
24 ... 240 V AC/24 ... 110 V DC	-20% ... +10%	Operating Temperature	95% relative, non-condensing
Power Consumption	AC: ≤ 4 VA; DC: ≤ 2 W	Storage Temperature	-40°C ... +60°C
		Weight	-40°C ... +85°C
			≅ 3.9 oz (111 g)

\*\*\*For CE approved applications, power must be removed from the unit when a switch position is changed.

## Function Diagrams

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



Note: If S1 is closed when input voltage is applied, the function starts and the time delay begins. (B, S, TS, PSD, US, AM, UB, C, CI)