

ProgramaCube® HRPS/HRIS Power-Time Time Delay Relay

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US Patent 6708135

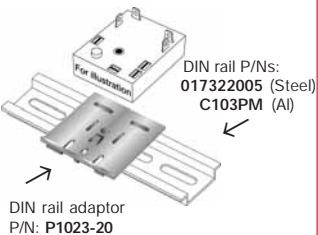


- 30 A SPDT N.O. Output Contacts
- Factory Programmed
- 12 ... 240 V Operation in 2 Ranges
- Special Time Ranges and Functions Available
- Encapsulated Circuitry
- Delays from 100 ms...1000 h in 9 ranges
- +/-0.5% Repeat Accuracy
- +/-2% Factory Calibration
- Fixed, External, or Onboard Adjustment

Approvals:

Accessories

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

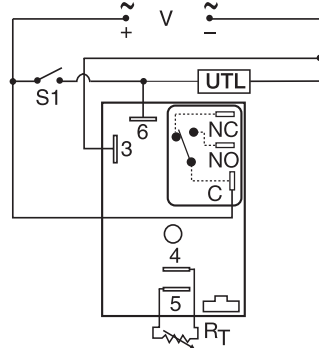


See accessory pages for specifications.

Description

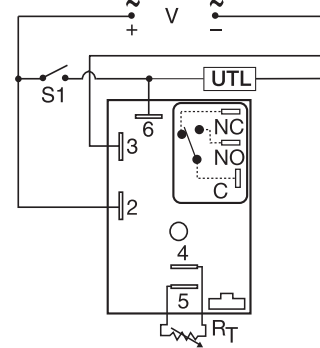
The HRPS/HRIS Series combines an electromechanical relay output with microcontroller timing circuitry. It is a factory programmed module available in any 1 of 13 standard functions. Modules are manufactured without the function assigned. When an order is received, the function software is added. It offers 12 to 240 V operation in two universal ranges and factory fixed, external, or onboard 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. HRPS has non-isolated SPDT relay contacts, and HRIS has isolated SPDT relay contacts. Both offer the most popular timer functions in the industry.

Connection



HRPS

Relay contacts are not isolated.



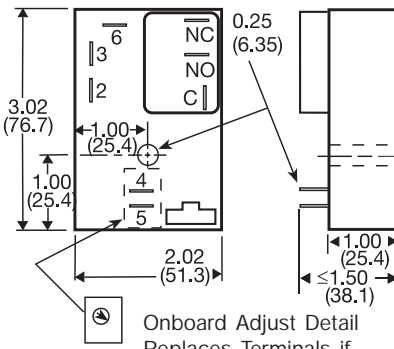
HRIS

Relay contacts are isolated.

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

NOTE: A knob, or terminals 4 & 5 are only included on adjustable units. R_T is used when external adjustment is ordered. Dashed lines are internal connections.

Mechanical View



Inches (Millimeters)

External Resistance vs Time Delay

For details on external R_T see the external resistance vs. time delay chart at the beginning of this section.

**Function Chart

Function	Code
Delay On Make	M
Delay On Break	B
Recycle (ON Time First, Equal Times)	RE
Recycle (OFF Time First, Equal Times)	RD
Single Shot	S, SD
Interval	I
Trailing Edge Single Shot	TS
Inverted Single Shot	US
Inverted Delay On Break	UB
Accumulative Delay on Make	AM
Motion Detector/Retriggerable Single Shot	PSD
Alternating Relay	FT

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

Ordering Table

HRPS/
HRIS
Series

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

X	Adjustment
-1	- Fixed
-2	- Onboard Adjust
-3	- External Adjust

X	Time Delay *
-1	- 0.1 ... 10 s
-2	- 1 ... 100 s
-3	- 10 ... 1000 s
-4	- 0.1 ... 10 m
-5	- 1 ... 100 m
-6	- 10 ... 1000 m
-7	- 0.1 ... 10 h
-8	- 1 ... 100 h
-9	- 10 ... 1000 h

X	Function**
	- Specify Function (Refer to Function Chart for Code)

Example P/N: **HRPSW23S** Fixed - **HRISD10.5SB**

*If Fixed Delay is selected, insert delay [0.1 ... 1000] followed by (S) secs., (M) mins., or (H) hrs.

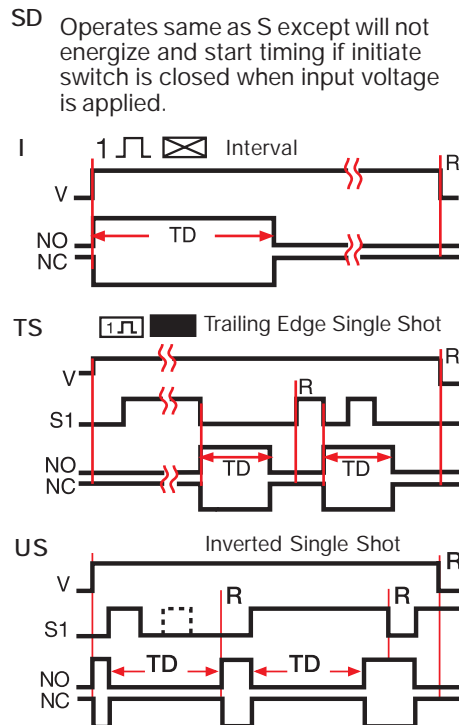
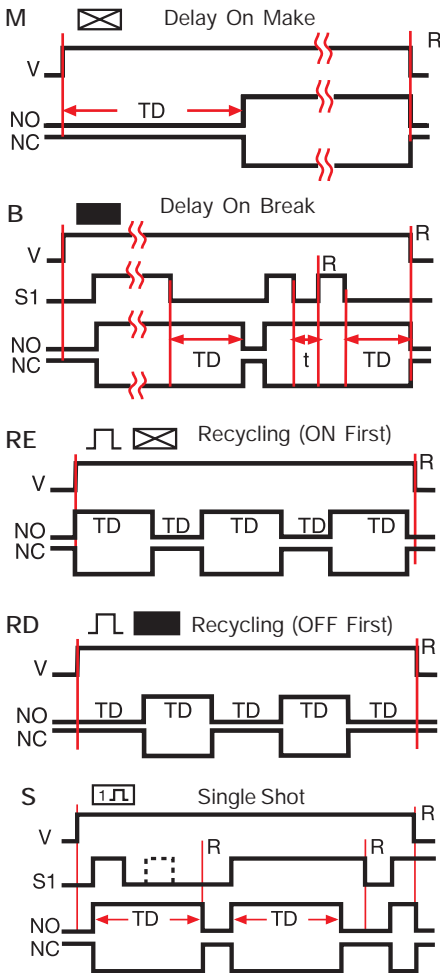
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Technical Data

Time Delay Type Range Repeat Accuracy Tolerance (Factory Calibration) Reset Time Initiate Time Time Delay vs. Temp. & Voltage		Microcontroller circuitry 100 ms ... 1000 h in 9 adjustable ranges or fixed +/-0.5% or 20 ms, whichever is greater +/-2% ≤ 150 ms ≤ 20 ms +/-2%		Protection Surge Circuitry Isolation Voltage Insulation Resistance Polarity		IEEE C62.41-1991 Level A Encapsulated ≥ 1500 V RMS input to output; isolated units ≥ 100 MΩ DC units are reverse polarity protected																			
Input Voltage Tolerance 12 ... 48 V DC 24 ... 110 V DC/240 V AC Line Frequency Power Consumption		24 ... 240 V AC/24 ... 110 V DC; 12 ... 48 V DC -15% ... +20% -20% ... +10% 50 ... 60 Hz AC ≤ 4 VA; DC ≤ 2 W		Mechanical Mounting Package Termination		Surface mt. with one #10 (M5 x 0.8) screw 3 x 2 x 1.5 in (76.7 x 51.3 x 38.1 mm) 0.25 in. (6.35 mm) male quick connects																			
Output Type/Form Ratings: General Purpose Resistive Motor Load Life		Electromechanical relay/SPDT <table border="1" style="width: 100%;"> <thead> <tr> <th></th> <th>SPDT-N.O.</th> <th>SPDT-N.C.</th> </tr> </thead> <tbody> <tr> <td>30 A</td> <td>15 A</td> <td>15 A</td> </tr> <tr> <td>125/240 V AC</td> <td>30 A</td> <td>15 A</td> </tr> <tr> <td>28 V DC</td> <td>20 A</td> <td>10 A</td> </tr> <tr> <td>125 V AC</td> <td>1 hp*</td> <td>1/4 hp**</td> </tr> <tr> <td>240 V AC</td> <td>2 hp**</td> <td>1 hp**</td> </tr> </tbody> </table> Mechanical -- 1 x 10 ⁶ Electrical -- 1 x 10 ⁵ , *3 x 10 ⁴ , **6,000			SPDT-N.O.	SPDT-N.C.	30 A	15 A	15 A	125/240 V AC	30 A	15 A	28 V DC	20 A	10 A	125 V AC	1 hp*	1/4 hp**	240 V AC	2 hp**	1 hp**	Environmental Operating Temp. Storage Temp. Humidity Weight		-40°C ... +60°C -40°C ... +85°C 95% relative, non-condensing ≅ 3.9 oz (111 g)	
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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, US, UB, AM, PSD, FT)

Legend

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