

Series Included

Relay Output - Single

KRPD	3
KRPS	4

Power Relay Output

HRPD	5
HRID	5
HRPS	6
HRIS	6
HRPU	7
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Solid-State Output

KSPD	9
KSPS	10
KSPU	11

Power Solid-State Output

NHPD	12
NHPS	13
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The KRPD Series is a factory programmed time delay relay available with 1 of 12 standard dual functions. The time delays can be factory fixed, onboard or externally adjustable or a combination of fixed and adjustable. The SPDT output relay contacts offer a full 10A rating with complete isolation. Its microcontroller timing circuit provides excellent repeat accuracy and stability. Encapsulation protects against shock, vibration, and humidity. The KRPD Series is a cost effective approach for OEM applications that require small size, isolation, accuracy and long life.

See Appendix B, page 165, Figure 1 for dimensional drawing.

Features:

- Choose 1 of 12 standard dual functions
- Special time ranges & functions available
- Factory programmed
- Microcontroller circuitry, ±0.5% repeat accuracy
- Isolated, 10A, SPDT output contacts
- Input voltage from 12 to 240V in 2 ranges
- Delays from 100ms - 1000h in 9 ranges

Approvals:

Auxiliary Products:

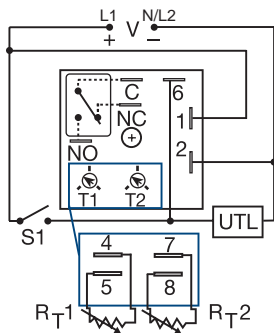
- **Externalad just potentiometer:**
P/N: P1004-95
P/N: P1004-95-X
- **Versa-knob:** P/N: P0700-7
- **Female quick connect:**
P/N: P1015-64 (AWG 14/16)
- **Quick connect to screw adaptor:**
P/N: P1015-18
- **DIN rail:** P/N: C103PM (Al)
- **DIN rail adaptor:** P/N: P1023-20

Available Models:

KRPD12121MB	KRPDA2825AMI
KRPD215S190SMB	KRPDA3232MB
KRPD417M113MRXD	KRPDA3434MB
KRPDA11M14MRXE	KRPDD2121MB
KRPDA175S130SMI	KRPDD3232RXE
KRPDA2222RXE	

If desired part number is not listed, please call us to see if it is technically possible to build.

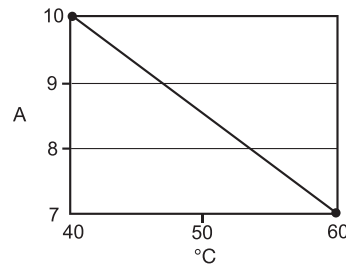
Connection:



V = Voltage
C = Common, Transfer Contact
NC = Normally Closed
NO = Normally Open
S1 = Initiate Switch
UTL = Untimed Load

A knob is supplied for adjustable units or R₁ terminals for external adjust. The untimed load is optional. S1 is not used for some functions.

Output Current/Ambient Temperature:



Order Table:

KRPD	X	X	X	X	X	X
Input	First Adjustment (T1 or R₁1)	First Time Delay*	Second Adjustment (T2 or R₁2)	Second Time Delay*	Function	
-A - 24 to 240VAC/DC	-1 - Fixed	-1 - 0.1 - 10s	-1 - Fixed	-1 - 0.1 - 10s	Specify function	
-D - 12 to 48VDC	-2 - Onboard adjust	-2 - 1 - 100s	-2 - Onboard adjust	-2 - 1 - 100s	Functions: MB, MRE, MI, MS, IRE, BRE, SRE, RXE, RXD, IM, AMI, SL	
-1 - 12VDC	-3 - External adjust	-3 - 10 - 1000s	-3 - External adjust	-3 - 10 - 1000s		
-2 - 24VAC		-4 - 0.1 - 10m		-4 - 0.1 - 10m		
-4 - 120VAC		-5 - 1 - 100m		-5 - 1 - 100m		
-9 - 230VAC		-6 - 10 - 1000m		-6 - 10 - 1000m		
		-7 - 0.1 - 10h		-7 - 0.1 - 10h		
		-8 - 1 - 100h		-8 - 1 - 100h		
		-9 - 10 - 1000h		-9 - 10 - 1000h		

*If fixed delay is selected, insert delay (0.1-999) followed by (S) secs., or (M) mins., or (H) hrs.

For a complete list of functions with descriptions and diagrams, see Appendix A - Timer Functions, pages 156-164.

Specifications

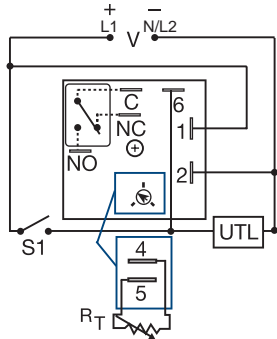
<p>Time Delay</p> Type Microcontroller circuitry Range 0.1s - 1000h in 9 adjustable ranges or fixed (to 999) Repeat Accuracy ±0.5% or 20ms, whichever is greater Tolerance (Factory Calibration) ≤ ±2% Reset Time ≤ 150ms Initiate Time ≤ 40ms; 750 operations per minute Time Delay vs Temp. & Voltage ≤ ±2% Input Voltage 12 to 48VDC; 24 to 240VAC/DC Tolerance 12 to 48VDC -15% - 20% 24 to 240VAC/DC -20% - 10% AC Line Frequency / DC Ripple 50/60 Hz / ≤ 10% Power Consumption AC ≤ 2VA; DC ≤ 2W Output Type Isolated relay contacts Form SPDT	<p>Rating (at 40°C) 10A resistive @ 125VAC 5A resistive @ 230VAC & 28VDC 1/4 hp @ 125VAC 250VAC Max. Switching Voltage 250VAC Life (Operations) Mechanical - 1 x 10⁷; Electrical - 1 x 10⁵ Protection Circuitry Encapsulated Isolation Voltage ≥ 1500V RMS input to output Insulation Resistance ≥ 100 MΩ Polarity DC units are reverse polarity protected Mechanical Mounting Surface mount with one #10 (M5 x 0.8) screw Dimensions 2 x 2 x 1.21 in. (50.8 x 50.8 x 30.7 mm) Termination 0.25 in. (6.35 mm) male quick connects Environmental Operating / Storage Temperature -40° to 60°C / -40° to 85°C Humidity 95% relative, non-condensing Weight ≅ 2.6 oz (74 g)</p>
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The KRPS Series is a factory programmed time delay relay available with 1 of 15 functions and measures only 2 inches square. The KRPS offers a wide range of fixed, onboard, or externally adjustable time delays. The output relay contacts offer a full 10A rating with complete isolation. Its microcontroller timing circuit provides excellent repeat accuracy and stability. Encapsulation protects against shock, vibration, and humidity. The KRPS Series is a cost effective approach for OEM applications that require small size, isolation, accuracy, and long life. Special time ranges and functions are available.

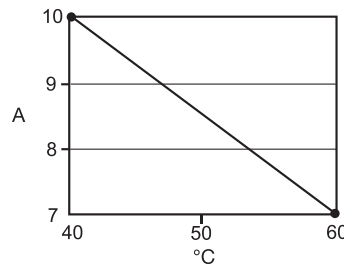
See Appendix B, page 165, Figure 1 for dimensional drawing.

Connection:



V = Voltage
 C = Common, Transfer Contact
 NC = Normally Closed
 NO = Normally Open
 S1 = Initiate Switch
 UTL = Untimed Load
 A knob is supplied for adjustable units, or R_T terminals 4 & 5 for external adjust. See external adjustment vs. time delay chart. The untimed load is optional. S1 is not used for some functions.

Output Current/Ambient Temperature:



Order Table:

KRPS	X	X	X
	Input	Adjustment	Delay*
	-A - 24 to 240VAC/DC	-1 - Fixed	-1 - 0.1 - 10s
	-D - 12 to 48VDC	-2 - Onboard adjust	-2 - 1 - 100s
	-1 - 12VDC	-3 - External adjust	-3 - 10 - 1000s
	-4 - 120VAC		-4 - 0.1 - 10m
	-9 - 230VAC		-5 - 1 - 100m
			-6 - 10 - 1000m
			-7 - 0.1 - 10h
			-8 - 1 - 100h
			-9 - 10 - 1000h

*If fixed delay is selected, insert delay (0.1-1000) followed by (S) secs., (M) mins., or (H) hrs.

X
Function
 Specify function

Functions:
 M, B, RE, RD, S, SD, I,
 TS, US, UB, AM, PSD,
 FT, F, SF

For a complete list of functions with descriptions and diagrams, see Appendix A - Timer Functions, pages 156-164.

Features:

- Choose 1 of 15 standard functions
- Special time ranges & functions available
- Factory programmed
- Microcontroller circuitry, ±0.5% repeat accuracy
- Isolated, 10A, SPDT output contacts
- Input voltage from 12 to 240V in 2 ranges
- Delays from 0.1s - 1000h in 9 ranges

Approvals:   

Auxiliary Products:

- External just potentiometer:
 P/N: P1004-95
 P/N: P1004-95-X
- Versa-knob: P/N: P0700-7
- Female quick connect:
 P/N: P1015-64 (AWG 14/16)
- Quick connect to screw adaptor:
 P/N: P1015-18
- DIN rail: P/N: C103PM (Al)
- DIN rail adaptor: P/N: P1023-20

Available Models:

KRPS1110SM	KRPSD10.1SF
KRPS4160MM	KRPSD10.1SM
KRPS425M	KRPSD10.5SS
KRPS913MB	KRPSD12STS
KRPSA10.1SFT	KRPSD13SB
KRPSA10.5SFT	KRPSD21B
KRPSA110SM	KRPSD21M
KRPSA12MM	KRPSD22M
KRPSA125M	KRPSD22PSS
KRPSA15SM	KRPSD22S
KRPSA21RE	KRPSD24B
KRPSA22B	KRPSD24M
KRPSA22PSS	KRPSD25B
KRPSA24M	KRPSD25S
KRPSA28PSE	

If desired part number is not listed, please call us to see if it is technically possible to build.

Specifications

Time Delay		Max. Switching Voltage 250VAC
Type	Microcontroller circuitry	Life (Operations) Mechanical - 1 x 10 ⁷ ; Electrical - 1 x 10 ⁵
Range	0.1s - 1000h in 9 adjustable ranges or fixed	Protection
Repeat Accuracy	±0.5% or 20ms, whichever is greater	Circuitry Encapsulated
Tolerance (Factory Calibration)	± 2%	Isolation Voltage ≥ 1500V RMS input to output
Reset Time	≤ 150ms	Insulation Resistance ≥ 100 MΩ
Initiate Time	≤ 40ms; ≤ 750 operations per minute	Polarity DC units are reverse polarity protected
Time Delay vs Temp. & Voltage	≤ ±2%	Mechanical
Input		Mounting Surface mt. with one #10 (M5 x 0.8) screw
Voltage	12 to 48VDC; 24 to 240VAC/DC	Dimensions 2 x 2 x 1.21 in (50.8 x 50.8 x 30.7 mm)
Tolerance	12 to 48VDC -15% - 20%	Termination 0.25 in. (6.35 mm) male quick connects
	24 to 240VAC/DC -20% - 10%	Environmental
AC Line Frequency / DC Ripple	50/60Hz / ≤ 10%	Operating / Storage Temperature -40° to 60°C / -40° to 85°C
Power Consumption	AC ≤ 2VA; DC ≤ 2W	Humidity 95% relative, non-condensing
Output		Weight ≅ 2.6 oz (74 g)
Type	Isolated relay contacts	
Form	SPDT	
Rating (at 40°C)	10A resistive @ 125VAC	
	5A resistive @ 230VAC & 28VDC	
	1/4 hp @ 125VAC	



The HRID/HRPD Series combines an electromechanical relay with microcontroller timing circuitry. It is a factory programmed module available in any 1 of 12 standard functions. It offers 12 to 240V operation in two universal ranges and factory fixed, onboard or externally adjustable time delays with a repeat accuracy of $\pm 0.5\%$. 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.

See Appendix B, page 165, Figure 2 for dimensional drawing.

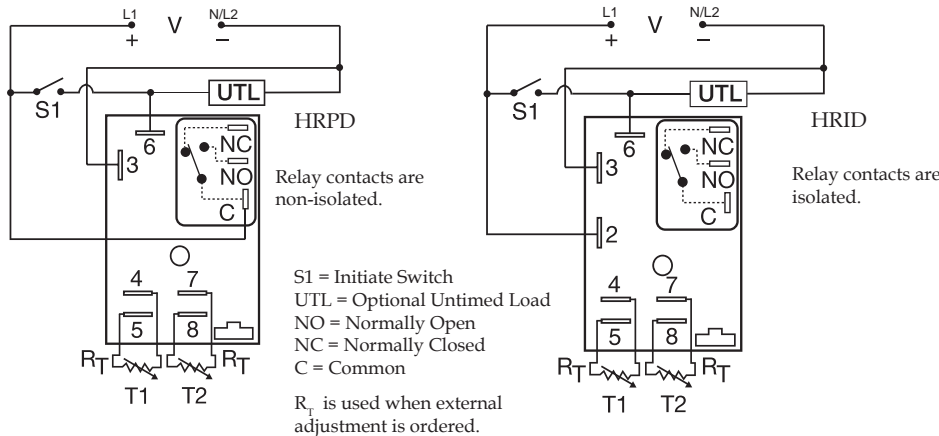
Features:

- Special time ranges & functions available
 - Factory programmed
 - 30A, SPDT, NO output contacts
 - 12 to 240V operation in 2 ranges
 - Delays from 0.1s - 1000h in 9 ranges
 - $\pm 0.5\%$ repeat accuracy
- Approvals:

Auxiliary Products:

- **Externalad just potentiometer:**
P/N: P1004-95
P/N: P1004-95-X
- **Versa-knob:** P/N: P0700-7
- **Quick connect to screw adaptor:**
P/N: P1015-18
- **Female quick connect:**
P/N: P1015-13 (AWG 10/12)
P/N: P1015-64 (AWG 14/16)
- **Mounting bracket:** P/N: P1023-6
- **DIN rail:** P/N: C103PM (Al)
- **DIN rail adaptor:** P/N: P1023-20

Connection:



Available Models:

HRPDD2225RXE

If desired part number is not listed, please call us to see if it is technically possible to build.

Order Table:

HRID / HRPD	X	X	X	X	X	X	
Input	First Adjustment (T1 or R1)	First Time Delay*	Second Adjustment (T2 or R2)	Second Time Delay*	Function	Function	
-W - 24 to 240VAC 24 to 110VDC	-1 - Fixed -2 - Onboard adjust -3 - External adjust	-1 - 0.1 - 10s -2 - 1 - 100s -3 - 10 - 1000s -4 - 0.1 - 10m -5 - 1 - 100m -6 - 10 - 1000m -7 - 0.1 - 10h -8 - 1 - 100h -9 - 10 - 1000h	-1 - Fixed -2 - Onboard adjust -3 - External adjust	-1 - 0.1 - 10s -2 - 1 - 100s -3 - 10 - 1000s -4 - 0.1 - 10m -5 - 1 - 100m -6 - 10 - 1000m -7 - 0.1 - 10h -8 - 1 - 100h -9 - 10 - 1000h	-1 - 0.1 - 10s -2 - 1 - 100s -3 - 10 - 1000s -4 - 0.1 - 10m -5 - 1 - 100m -6 - 10 - 1000m -7 - 0.1 - 10h -8 - 1 - 100h -9 - 10 - 1000h	Specify function	Functions: MB, MRE, MI, MS, IRE, BRE, SRE, RXE, RXD, IM, AMI, SL

*If fixed delay is selected, insert delay (0.1-999) followed by (S) secs., or (M) mins., or (H) hrs.

For a complete list of functions with descriptions and diagrams, see Appendix A - Timer Functions, pages 156-164.

Specifications

Time Delay	Range 0.1s - 1000h in 9 adjustable ranges or fixed		
Repeat Accuracy	$\pm 0.5\%$ or 20ms, whichever is greater		
Tolerance (Factory Calibration)	$\pm 2\%$		
Reset Time	≤ 150 ms		
Initiate Time	≤ 20 ms; ≤ 1500 operations per minute		
Time Delay vs. Temp. & Voltage	$\leq \pm 2\%$		
Input			
Voltage	12 to 48VDC; 24 to 240VAC/24 to 110VDC		
Tolerance	-15% - 20% 24 to 110VDC/24 to 240VAC -20% - 10%		
AC Line Frequency	50/60Hz		
Power Consumption	AC ≤ 4 VA; DC ≤ 2 W		
Output			
Type	Electromechanical relay		
Form	SPDT		
Ratings:	SPDT-N.O	SPDT-NC	
General Purpose	125/240VAC	30A	15A
Resistive	125/240VAC	30A	15A
	28VDC	20A	10A

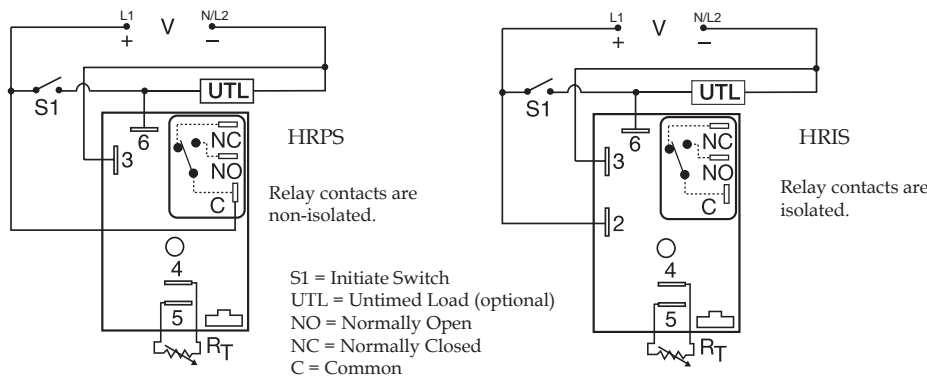
Motor Load	125VAC	1 hp*	1/4 hp**
	240VAC	2 hp**	1 hp**
Life (Operations)	Mechanical - 1×10^6 Electrical - 1×10^5 , * 3×10^4 , **6,000		
Protection			
Surge	IEEE C62.41-1991 Level A		
Circuitry	Encapsulated		
Isolation Voltage	≥ 1500 V RMS input to output; isolated units		
Insulation Resistance	≥ 100 M Ω		
Polarity	DC units are reverse polarity protected		
Mechanical			
Mounting	Surface mt. with one #10 (M5 x 0.8) screw		
Dimensions	3 x 2 x 1.5 in. (76.7 x 51.3 x 38.1 mm)		
Termination	0.25 in. (6.35 mm) male quick connects		
Environmental			
Operating / Storage Temperature	-40° to 60°C / -40° to 85°C		
Humidity	95% relative, non-condensing		
Weight	≈ 3.9 oz (111 g)		



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. It offers 12 to 240V operation in two universal ranges and factory fixed, onboard, or external adjustable time delays with a repeat accuracy of $\pm 0.5\%$. 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. The HRPS has non-isolated SPDT relay contacts, and the HRIS has isolated SPDT relay contacts. Both offer the most popular timer functions in the industry.

See Appendix B, page 165, Figure 2 for dimensional drawing.

Connection:



A knob, or terminals 4 & 5 are only included on adjustable units. R_t is used when external adjustment is ordered.

Features:

- 30A, SPDT, NO output contacts
- Factory programmed
- 12 to 240V operation in 2 ranges
- Special time ranges & functions available
- Delays from 0.1s - 1000h in 9 ranges
- $\pm 0.5\%$ repeat accuracy
- $\pm 2\%$ factory calibration
- Fixed, external, or onboard adjustment

Approvals:

Auxiliary Products:

- **Externalad just potentiometer:**
 P/N: P1004-95
 P/N: P1004-95-X
- **Mounting bracket:** P/N: P1023-6
- **Female quick connect:**
 P/N: P1015-13 (AWG 10/12)
 P/N: P1015-64 (AWG 14/16)
- **Quick connect to screw adaptor:**
 P/N: P1015-18
- **Versa-knob:** P/N: P0700-7
- **DIN rail:** P/N: C103PM (Al)
- **DIN rail adaptor:** P/N: P1023-20

Available Models:

HRISW21FT
 HRISW27I
 HRPSD12HI

If desired part number is not listed, please call us to see if it is technically possible to build.

Order Table:

HRPS / HRIS	X	X	X	X
	Input	Adjustment	Time Delay*	Function
	-W - 24 to 240VAC 24 to 110VDC	-1 - Fixed -2 - Onboard adjust -3 - External adjust	-1 - 0.1 - 10s -2 - 1 - 100s -3 - 10 - 1000s -4 - 0.1 - 10m -5 - 1 - 100m -6 - 10 - 1000m -7 - 0.1 - 10h -8 - 1 - 100h -9 - 10 - 1000h	-Specify function
	-D - 12 to 48VDC			Functions: M, B, RE, RD, S, SD, I, TS, US, UB, AM, PSD, FT

*If fixed delay is selected, insert delay (0.1-1000) followed by (S) secs., (M) mins., or (H) hrs.

For a complete list of functions with descriptions and diagrams, see Appendix A - Timer Functions, pages 156-164.

Specifications

Time Delay	Microcontroller circuitry		
Type	Range 0.1s - 1000h in 9 adjustable ranges or fixed		
Repeat Accuracy	. . . . . $\pm 0.5\%$ or 20ms, whichever is greater		
Tolerance (Factory Calibration)	. . . . . $\pm 2\%$		
Reset Time ≤ 150 ms		
Initiate Time ≤ 20 ms		
Time Delay vs Temp. & Voltage	. . . . . $\pm 2\%$		
Input			
Voltage	. . . . . 12 to 48VDC; 24 to 240VAC/24 to 110VDC		
Tolerance	. . . . . 12 to 48VDC -15% - 20%		
	. . . . . 24 to 110VDC/240VAC -20% - 10%		
AC Line Frequency	. . . . . 50/60Hz		
Power Consumption	. . . . . AC ≤ 4 VA; DC ≤ 2 W		
Output			
Type	. . . . . Electromechanical relay		
Form	. . . . . SPDT		
Ratings:	SPDT-NO	SPDT-NC	
General Purpose	125/240VAC	30A	15A
Resistive	125/240VAC	30A	15A
	28VDC	20A	10A

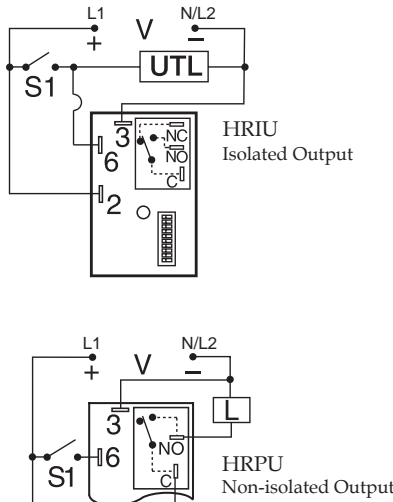
Motor Load	125VAC	1 hp*	1/4 hp**
	240VAC	2 hp**	1 hp**
Life	Mechanical - 1 x 10 ⁶		
	Electrical - 1 x 10 ⁵ , *3 x 10 ⁴ , **6,000		
Protection			
Surge	. . . . . IEEE C62.41-1991 Level A		
Circuitry	. . . . . Encapsulated		
Isolation Voltage ≥ 1500 V RMS input to output; isolated units		
Insulation Resistance ≥ 100 M Ω		
Polarity	. . . . . DC units are reverse polarity protected		
Mechanical			
Mounting	. . . . . Surface mt. with one #10 (M5 x 0.8) screw		
Dimensions	. . . . . 3 x 2 x 1.5 in (76.7 x 51.3 x 38.1 mm)		
Termination	. . . . . 0.25 in. (6.35 mm) male quick connects		
Environmental			
Operating / Storage Temperature	. . . . . -40° to 60°C / -40° to 85°C		
Humidity	. . . . . 95% relative, non-condensing		
Weight ≈ 3.9 oz (111 g)		



The HRP/HRIU Series combines an electromechanical relay output with microcontroller timing circuitry. 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. 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.

See Appendix B, page 165, Figure 2 for dimensional drawing.

Connection:



S1 = Initiate Switch
 UTL = Optional Untimed Load
 L = Load
 V = Voltage

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

Features:

- Choose 1 of 14 standard functions
 - Special time ranges & functions available
 - Factory programmed
 - Microcontroller circuitry, ±0.1% repeat accuracy
 - 30A, SPDT, NO output contacts
 - Accurate switch adjustment
 - 12 to 240V operations in 2 ranges
 - Delays from 0.1s - 1023h
- Approvals:

Auxiliary Products:

- **Female quick connect:**
 P/N: P1015-13 (AWG 10/12)
 P/N: P1015-64 (AWG 14/16)
- **Mounting bracket:** P/N: P1023-6
- **Quick connect to screw adaptor:**
 P/N: P1015-18
- **DIN rail:** P/N: C103PM (Al)
- **DIN rail adaptor:** P/N: P1023-20

Available Models:

HRIUW2I
 HRIUW2M

If desired part number is not listed, please call us to see if it is technically possible to build.

Order Table:

HRPU/ HRIU	X Input	X Time Delay/Counts	X Function
W	24 to 240VAC 24 to 110VDC	1 - 0.1 - 102.3s	Specify function
D	12 to 48VDC	2 - 1 - 1023s	
		3 - 0.1 - 102.3m	
		4 - 1 - 1023m	
		5 - 0.1 - 102.3h	
		6 - 1 - 1023h	
		7 - 1 - 165 counts (straight) w/ pulsed output	
		8 - 1 - 1023 counts (binary) w/ pulsed output	
		9 - 1 - 7 counts to start 1 - 63s or m interval time	

Functions:
 M, B, RE, RD, S, SD, I,
 TS, PSD, US, AM, UB,
 C, CI

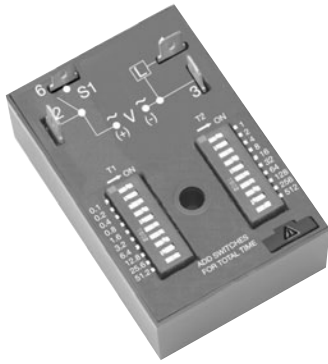
For a complete list of functions with descriptions and diagrams, see Appendix A - Timer Functions, pages 156-164.

Specifications

Count Functions/Switch Type	Mechanical switch (counts on switch closure)		
Count Range	1 - 1023 counts		
Counter Output (Variable 7 & 8)	Pulse widths 300ms ±20%		
Initiate Time	≤ 20ms, ≤ 1500 operations per minute		
Time Delay/Range ***	Adjustable 0.1s - 1023h		
Setting Accuracy	±1%, or 50ms, whichever is greater		
Repeat Accuracy	0.1% or 20ms, whichever is greater		
Reset Time	≤ 150ms		
Time Delay vs Temp. & Voltage	±2%		
Input			
Voltage	12 to 48VDC; 24 to 240VAC/24 to 110VDC		
AC Line Frequency / DC Ripple	50/60Hz / ≤ 10%		
Tolerance	12 to 48VDC -15% - 20%		
	24 to 240VAC/24 to 110VDC -20% - 10%		
Power Consumption	AC ≤ 4VA; DC ≤ 2W		
Output			
Type	Electromechanical relay		
Form	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		
Isolation Voltage	≥ 1500V RMS input to output; isolated units		
Insulation Resistance	≥ 100 MΩ		
Mechanical			
Mounting	Surface mt. with one #10 (M5 x 0.8) screw		
Dimensions	3 x 2 x 1.5 in. (76.7 x 51.3 x 38.1 mm)		
Termination	0.25 in. (6.35 mm) male quick connects		
Environmental			
Operating / Storage Temperature	-40° to 60°C / -40° to 85°C		
Humidity	95% relative, non-condensing		
Weight	≈ 3.9 oz (111 g)		

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



The HSPZ Series is a factory programmed module available in any 1 of 13 standard functions. The HSPZ offers dual switch adjustable timer or counter functions. Switch adjustment allows accurate selection of the time delay or number of counts the first time and every time. The 1A steady, 10A inrush rated solid-state output provides 100 million operations, typical. Its microcontroller timing circuit provides excellent repeat accuracy and stability. Encapsulation protects against shock, vibration, and humidity. The HSPZ Series is a cost effective approach for OEM applications that require small size, solid state reliability, and accurate switch adjustment.

See Appendix B, page 165, Figure 3 for dimensional drawing.

Features:

- Choose 1 of 13 standard functions
 - Special time ranges & functions available
 - Factory programmed
 - Microcontroller circuitry, ±0.1% repeat accuracy
 - 1A, solid-state output
 - Accurate switch adjustment
 - 12 to 240V in 3 options
 - Delays from 0.1s - 1023h
 - Counts to 1023
- Approvals:

Auxiliary Products:

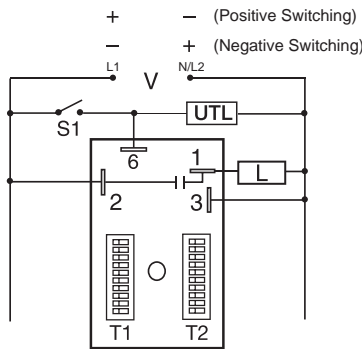
- **Female quick connect:**
P/N: P1015-64 (AWG 14/16)
P/N: P1015-14 (AWG 18/22)
- **Quick connect to screw adaptor:**
P/N: P1015-18
- **DIN rail:** P/N: C103PM (Al)
- **DIN rail adaptor:** P/N: P1023-20

Available Models:

HSPZA13MS
HSPZA22SL

If desired part number is not listed, please call us to see if it is technically possible to build.

Connection:



S1 = Initiate Switch
UTL = Optional Untimed Load
L = Load
V = Voltage

Switch Adjustment:

Adjustment Switch Operation			
TIME DELAY		TIME DELAY and COUNTER	
0.1...102.3	1...512	1...1023	1...165
OFF ▶ ON	OFF ▶ ON	OFF ▶ ON	OFF ▶ ON
0.1	1	1	1
0.2	2	2	2
0.4	4	4	3
0.8	8	8	4
1.6	16	16	5
3.2	32	32	10
6.4	64	64	20
12.8	128	128	30
25.6	256	256	40
51.2	M	512	50
6.3	300 s Delay	544	57 counts

Order Table:

HSPZ

X Input

- A - 24 to 240VAC
- P - 12 to 120VDC positive switching
- N - 12 to 120VDC negative switching

X T1 Time Delay/Counts

- 1 - 0.1 - 102.3s
- 2 - 1 - 1023s
- 3 - 0.1 - 102.3m
- 4 - 1 - 1023m
- 5 - 0.1 - 102.3h
- 6 - 1 - 1023h
- 7 - 1 - 165 counts (straight)
- 8 - 1 - 1023 counts (binary)
- 9 - 1 - 512m or s

X T2 Time Delay/Counts

- 1 - 0.1 - 102.3s
- 2 - 1 - 1023s
- 3 - 0.1 - 102.3m
- 4 - 1 - 1023m
- 5 - 0.1 - 102.3h
- 6 - 1 - 1023h
- 7 - for future expansion
- 8 - for future expansion
- 9 - 1 - 512m or s

X Function

Specify function

Functions:

- MB, MRE, MI, MS,
- IRE, BRE, SRE, RXE,
- RXD, IM, AMI, SL, CI

For a complete list of functions with descriptions and diagrams, see Appendix A - Timer Functions, pages 156-164.

Specifications

Time Delay Type	Microcontroller circuitry
Range	0.1 - 102.3s, m or h in 0.1s, m or h increments 1 - 1023s, m or h in 1s, m or h increments 1 - 512s or m in 1s or m increments
Repeat Accuracy	±0.1% or 20ms, whichever is greater
Setting Accuracy	±1% or 20ms, whichever is greater
Reset Time	≤ 150ms
Initiate Time	≤ 20ms
Time Delay vs Temp. & Voltage	≤ ±2%
Count Range	1 - 1023 in 2 ranges
Count Rate	≤ 25 counts per second
Input Voltage	12 to 120VDC; 24 to 240VAC
Tolerance	≤ ±15%
AC Line Frequency / DC Ripple	50/60Hz / ≤ 10%
Power Consumption	AC ≤ 2VA; DC ≤ 1W
Output Type	Solid-state output
Rating	1A steady, 10A inrush for 16ms
Voltage Drop	AC ≈ 2.5V @ 1A; DC ≈ 1V @ 1A
OFF State Leakage Current	AC ≈ 5mA @ 240VAC; DC ≈ 1mA

Counter Output	Output pulse width: 300ms ±20%
Protection	
Circuitry	Encapsulated
Dielectric Breakdown	≥ 2000V RMS terminals to mounting surface
Insulation Resistance	≥ 100 MΩ
Polarity	DC units are reverse polarity protected
Mechanical	
Mounting	Surface mt. with one #10 (M5 x 0.8) screw
Dimensions	3 x 2 x 1.5 in. (76.7 x 51.3 x 38.1 mm)
Termination	0.25 in. (6.35 mm) male quick connects
Environmental	
Operating / Storage Temperature	-40° to 60°C / -40° to 85°C
Humidity	95% relative, non-condensing
Weight	≈ 3.9 oz (111 g)



The KSPD Series is a factory programmed module available with 1 of 12 standard dual functions. The time delays can be factory fixed, externally or onboard adjustable, or a combination of fixed and adjustable. The 1A steady, 10A inrush rated solid-state output provides 100 million operations, typical. Its microcontroller timing circuit provides excellent repeat accuracy and stability. Encapsulation protects against shock, vibration, and humidity. The KSPD Series is a cost effective approach for OEM applications that require small size and long life.

See Appendix B, page 165, Figure 1 for dimensional drawing.

Features:

- Choose 1 of 12 standard dual functions
- Special time ranges & functions available
- Factory programmed
- Microcontroller circuitry, ±0.5% repeat accuracy
- 1A steady, solid-state output , 10A inrush
- 12 to 240V in 3 options
- Delays from 0.1s - 1000h in 9 ranges

Approvals:

Auxiliary Products:

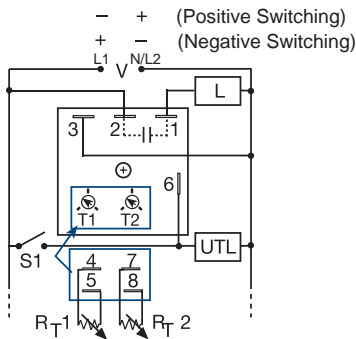
- **External adjust potentiometer:**
P/N: P1004-95
P/N: P1004-95-X
- **Versa-knob:** P/N: P0700-7
- **Female quick connect:**
P/N: P1015-64 (AWG 14/16)
- **Quick connect to screw adaptor:**
P/N: P1015-18
- **DIN rail:** P/N: C103PM (Al)
- **DIN rail adaptor:** P/N: P1023-20

Available Models:

KSPD32221RXD	KSPDA2222RXE
KSPD4175S130SMS	KSPDP10.1S31RXE
KSPD42121MB	KSPDP110M18SRXD
KSPDA110ST00127	KSPDP110M18SRXE
KSPDA114ST00173	KSPDP3131MI
KSPDA2121RXE	

If desired part number is not listed, please call us to see if it is technically possible to build.

Connection:



Terminal Location for External Adjustment.
 V = Voltage
 L = Load
 S1 = Initiate Switch
 UTL = Untimed Load
 T1 & R₁ = First Adjustment
 T2 & R₂ = Second Adjustment

Order Table:

KSPD	X	X	X	X	X	X
Input	First Adjustment (T1 or R₁)	First Time Delay*	Second Adjustment (T2 or R₂)	Second Time Delay*	Function	
A - 24 to 240VAC	-1 - Fixed	-1 - 0.1 - 10s	-1 - Fixed	-1 - 0.1 - 10s	Specify function Functions: MB, MRE, MI, MS, IRE, BRE, SRE, RXE, RXD, IM, AMI, SL	
P - 12 to 120VDC positive switching	-2 - Onboard adjust	-2 - 1 - 100s	-2 - Onboard adjust	-2 - 1 - 100s		
N - 12 to 120VDC negative switching	-3 - External adjust	-3 - 10 - 1000s	-3 - External adjust	-3 - 10 - 1000s		
1 - 120VDC positive switching		-4 - 0.1 - 10m		-4 - 0.1 - 10m		
3 - 24VDC		-5 - 1 - 100m		-5 - 1 - 100m		
4 - 120VAC		-6 - 10 - 1000m		-6 - 10 - 1000m		
		-7 - 0.1 - 10h		-7 - 0.1 - 10h		
		-8 - 1 - 100h		-8 - 1 - 100h		
		-9 - 10 - 1000h		-9 - 10 - 1000h		

*If fixed delay is selected, insert delay (0.1-999) followed by (S) secs., or (M) mins., or (H) hrs.

For a complete list of functions with descriptions and diagrams, see Appendix A - Timer Functions, pages 156-164.

Specifications

Time Delay	Microcontroller circuitry	Voltage Drop	AC ≅ 2.5V @ 1A; DC ≅ 1V @ 1A
Type	0.1s - 1000h in 9 adjustable ranges or fixed (to 999)	OFF State Leakage Current	AC ≅ 5mA @ 230VAC; DC ≅ 1mA
Range	±0.5% or 20ms, whichever is greater	Protection	
Repeat Accuracy	≤ ±2%	Circuitry	Encapsulated
Tolerance (Factory Calibration)	≤ 150ms	Dielectric Breakdown	≥ 2000V RMS terminals to mounting surface
Reset Time	≤ 20ms; ≤ 1500 operations per minute	Insulation Resistance	≥ 100 MΩ
Time Delay vs Temp. & Voltage	≤ ±2%	Polarity	DC units are reverse polarity protected
Input		Mechanical	
Voltage	12 to 120VDC; 24 to 240VAC	Mounting	Surface mt. with one #10 (M5 x 0.8) screw
Tolerance	≤ ±15%	Dimensions	2 x 2 x 1.21 in. (50.8 x 50.8 x 30.7 mm)
AC Line Frequency / DC Ripple	50/60Hz / ≤ 10%	Termination	0.25 in. (6.35 mm) male quick connects
Power Consumption	AC ≤ 2VA; DC ≤ 1W	Environmental	
Output		Operating / Storage Temperature	-40° to 60°C / -40° to 85°C
Type	Solid-state output	Humidity	95% relative, non-condensing
Rating	1A steady, 10A inrush for 16ms	Weight	≅ 2.4 oz (68 g)



The KSPS Series is a factory programmed module available in any 1 of 14 standard functions. The KSPS offers a single, fixed, externally or onboard adjustable time delay. The 1A steady, 10A inrush rated solid-state output provides 100 million operations typical. Its microcontroller timing circuit provides excellent repeat accuracy and stability. Encapsulation protects against shock, vibration, and humidity. The KSPS Series is a cost effective approach for OEM applications that require small size and solid state reliability.

See Appendix B, page 165, Figure 1 for dimensional drawing.

Features:

- Choose 1 of 14 standard functions
 - Special time ranges & functions available
 - Factory programmed
 - Microcontroller circuitry, ±0.5% repeat accuracy
 - Solid-state output 1A steady, 10A inrush
 - Fixed, external, or onboard adjustment
 - 12 to 240V in 3 options
 - Delays from 0.1s - 1000h in 9 ranges
- Approvals:

Auxiliary Products:

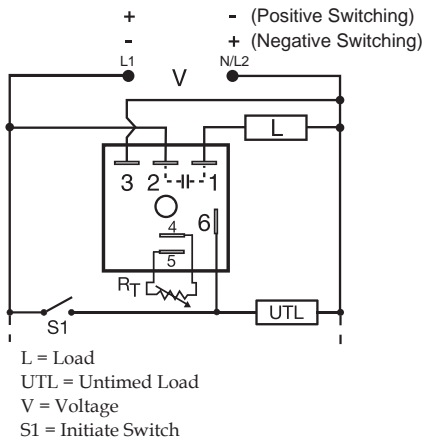
- **External adjust potentiometer:**
P/N: P1004-95
P/N: P1004-95-X
- **Versa-knob:** P/N: P0700-7
- **Female quick connect:**
P/N: P1015-64 (AWG 14/16)
- **Quick connect to screw adaptor:**
P/N: P1015-18
- **DIN rail:** P/N: C103PM (Al)
- **DIN rail adaptor:** P/N: P1023-20

Available Models:

KSPS121TS	KSPSA24US
KSPS124PS	KSPSN110SI
KSPS2180SB	KSPSN21B
KSPS3115SRE	KSPSP110SI
KSPSA21FT	KSPSP145SM
KSPSA23SD	KSPSP160MB
KSPSA24B	

If desired part number is not listed, please call us to see if it is technically possible to build.

Connection:



Order Table:

KSPS	X	X	X	X
Input	Adjustment	Time Delay*	Function	
A - 24 to 240VAC	1 - Fixed	1 - 0.1 - 10s	Specify function	
P - 12 to 120VDC positive switching	2 - Onboard adjust	2 - 1 - 100s	Functions:	
N - 12 to 120VDC negative switching	3 - External adjust	3 - 10 - 1000s	M, B, RE, RD, S, SD,	
1 - 12VDC positive switching		4 - 0.1 - 10m	FT I, TS, US, UB, AM,	
2 - 24VAC		5 - 1 - 100m	PS, PSD	
3 - 24VDC positive switching		6 - 10 - 1000m		
		7 - 0.1 - 10h		
		8 - 1 - 100h		
		9 - 10 - 1000h		

*If fixed delay is selected, insert delay (0.1-1000) followed by (S) secs., or (M) mins., or (H) hrs.

For a complete list of functions with descriptions and diagrams, see Appendix A - Timer Functions, pages 156-164.

Specifications

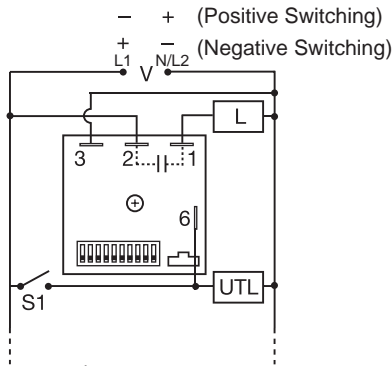
Time Delay		Voltage Drop	AC ≅ 2.5V @ 1A; DC ≅ 1V @ 1A
Type	Microcontroller circuitry	OFF State Leakage Current	AC ≅ 5mA @ 240VAC, DC ≅ 1mA
Range	0.1s - 1000h in 9 adjustable ranges or fixed	Protection	
Repeat Accuracy	±0.5% or 20ms, whichever is greater	Circuitry	Encapsulated
Tolerance (Factory Calibration)	≤ ±2%	Dielectric Breakdown	≥ 2000V RMS terminals to mounting surface
Reset Time	≤ 150ms	Insulation Resistance	≥ 100 MΩ
Initiate Time	≤ 20ms; ≤ 1500 operations per minute	Polarity	DC units are reverse polarity protected
Time Delay vs Temp. & Voltage	≤ ±2%	Mechanical	
Input		Mounting	Surface mt. with one #10 (M5 x 0.8) screw
Voltage	12 to 120VDC; 24 to 240VAC	Dimensions	2 x 2 x 1.21 in. (50.8 x 50.8 x 30.7 mm)
Tolerance	≤ ±15%	Termination	0.25 in. (6.35 mm) male quick connects
AC Line Frequency / DC Ripple	50/60Hz / ≤ 10%	Environmental	
Power Consumption	AC ≤ 2VA; DC ≤ 1W	Operating / Storage Temperature	-40° to 60°C / -40° to 85°C
Output		Humidity	95% relative, non-condensing
Type	Solid-state output	Weight	≅ 2.4 oz (68 g)
Rating	1A steady, 10A inrush for 16ms		



The KSPU Series is a factory programmed module available in any 1 of 14 standard functions. The KSPU offers a single adjustable timer or counter function. Switch adjustment allows accurate selection of the time delay or number of counts the first time and every time. The 1A steady, 10A inrush rated solid-state output provides 100 million operations, typical. Its microcontroller timing circuit provides excellent repeat accuracy and stability. Encapsulation protects against shock, vibration, and humidity. The KSPU Series is a cost effective approach for OEM applications that require small size, solid state reliability, and accurate switch adjustment.

See Appendix B, page 165, Figure 1 for dimensional drawing.

Connection:



V = Voltage
S1 = Initiate Switch
L = Load
UTL = Untimed Load

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, 0.2, 0.4, 0.8, 1.6, 3.2, 6.4, 12.8, 25.6, 51.2	1, 2, 4, 8, 16, 32, 64, 128, 256, 512	1, 2, 3, 4, 5, 10, 20, 30, 40, 50	1, 2, 4, 8, 16, 32, M, 1, 2, 4
6.3	544	57 counts	44 s Delay 2 counts to Start

Features:

- Choose 1 of 14 standard functions
- Special time ranges & functions available
- Factory programmed
- Microcontroller circuitry, ±0.1% repeat accuracy
- 1A steady, solid-state output, 10A inrush
- Accurate switch adjustment
- 12 to 240V in 3 options
- Delays from 0.1s - 1023h
- Counts 1 to 1023

Approvals:

Auxiliary Products:

- **Female quick connect:**
P/N: P1015-64 (AWG 14/16)
P/N: P1015-14 (AWG 18/22)
- **Quick connect to screw adaptor:**
P/N: P1015-18
- **DIN rail:** P/N: C103PM (Al)
- **DIN rail adaptor:** P/N: P1023-20

Available Models:

KSPU11M
KSPUA2I
KSPUA8C

If desired part number is not listed, please call us to see if it is technically possible to build.

Order Table:

KSPU	X	X
Input		Time Delay/Counts
-A - 24 to 240VAC		-1 - 0.1 - 102.3s
-P - 12 to 120VDC positive switching		-2 - 1 - 1023s
-N - 12 to 120VDC negative switching		-3 - 0.1 - 102.3m
-1 - 12VDC positive switching		-4 - 1 - 1023m
-4 - 120VAC		-5 - 0.1 - 102.3h
-9 - 120/240VAC		-6 - 1 - 1023h
		-7 - 1 - 165 counts (straight) w/ pulsed output
		-8 - 1 - 1023 counts (binary) w/ pulsed output
		-9 - 1 - 7 counts to start 1 - 63s or m interval time

X
Function
Specify function

Functions:
M, B, RE, RD, S, SD, I,
TS, US, UB, AM, PSD,
C, CI

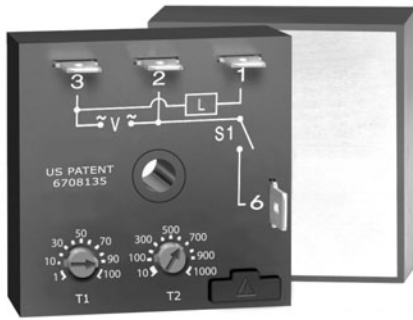
For a complete list of functions with descriptions and diagrams, see Appendix A - Timer Functions, pages 156-164.

Specifications

Time Delay	Microcontroller circuitry
Type	0.1 - 102.3s, m or h in 0.1s, m or h increments
Range	1 - 1023s, m or h in 1s, m or h increments 1 - 63s or m in 1s or m increments
Repeat Accuracy	±0.1% or 20ms, whichever is greater
Setting Accuracy	±1% or 20ms, whichever is greater
Reset Time	≤ 150ms
Initiate Time	≤ 20ms
Time Delay vs Temp. & Voltage	±2%
Count Range	1 - 1023 in 3 ranges
Count Rate	≤ 25 counts per second
Input	
Voltage	12 to 120VDC; 24 to 240VAC
Tolerance	±15%
AC Line Frequency / DC Ripple	50/60 Hz / ≤ 10%
Power Consumption	AC ≤ 2VA; DC ≤ 1W
Output	
Type	Solid-state output
Rating	1A steady, 10A inrush for 16ms
Voltage Drop	AC ≅ 2.5V @ 1A; DC ≅ 1V @ 1A

OFF State Leakage Current	AC ≅ 5mA @ 240VAC; DC ≅ 1mA
Counter Output	Output pulse width: 300ms ±20% Time Delay/Counts Variable 7 & 8

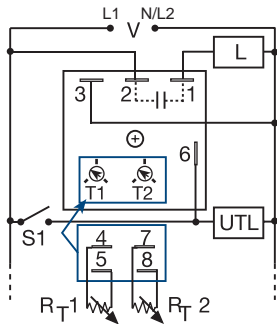
Protection	
Circuitry	Encapsulated
Dielectric Breakdown	≥ 2000V RMS terminals to mounting surface
Insulation Resistance	≥ 100 MΩ
Polarity	DC units are reverse polarity protected
Mechanical	
Mounting	Surface mt. with one #10 (M5 x 0.8) screw
Dimensions	2 x 2 x 1.21 in. (50.8 x 50.8 x 30.7 mm)
Termination	0.25 in. (6.35 mm) male quick connects
Environmental	
Operating / Storage Temperature	-40° to 60°C / -40° to 85°C
Humidity	95% relative, non-condensing
Weight	≅ 2.4 oz (68 g)



The NHPD Series is a factory programmed module available in any 1 of 12 standard dual functions. The time delays can be factory fixed, externally or onboard adjustable, or a combination of fixed and adjustable. The NHPD includes a high current solid-state output. It can switch motors, lamps and heaters directly without the addition of a contactor. It can switch up to 20A with up to 100 million operations typical. Its microcontroller timing circuit provides excellent repeat accuracy and stability. Encapsulation protects against shock, vibration, and humidity. The NHPD Series is a cost effective approach for OEM applications that require small size and long life.

See Appendix B, page 165, Figure 4 for dimensional drawing.

Connection:



Terminal Location for External Adjustment

- V = Voltage
- L = Load
- S1 = Initiate Switch
- UTL = Untimed Load
- T1 & R₁ = First Adjustment
- T2 & R₂ = Second Adjustment

Order Table:

NHPD	X	X	X	X	X	X	X
	Output Rating	Input Voltage	First Adjustment (T1 or R ₁)	First Time Delay*	Second Adjustment (T2 or R ₂)	Second Time Delay*	Function
	A - 6A B - 10A C - 20A	A - 24 to 240VAC	1 - Fixed 2 - Onboard adjust 3 - External adjust	1 - 0.1 - 10s 2 - 1 - 100s 3 - 10 - 1000s 4 - 0.1 - 10m 5 - 1 - 100m 6 - 10 - 1000m 7 - 0.1 - 10h 8 - 1 - 100h 9 - 10 - 1000h	1 - Fixed 2 - Onboard adjust 3 - External adjust	1 - 0.1 - 10s 2 - 1 - 100s 3 - 10 - 1000s 4 - 0.1 - 10m 5 - 1 - 100m 6 - 10 - 1000m 7 - 0.1 - 10h 8 - 1 - 100h 9 - 10 - 1000h	Specify function Functions: MB, MRE, MI, MS, IRE, BRE, SRE, RXE, RXD, IM, AML, SL

*If fixed delay is selected, insert delay (0.1-999) followed by (S) secs., or (M) mins., or (H) hrs.

For a complete list of functions with descriptions and diagrams, see Appendix A - Timer Functions, pages 156-164.

Specifications

Time Delay	Microcontroller circuitry		
Type	Microcontroller circuitry		
Range	0.1s - 1000h in 9 adjustable ranges or fixed (to 999)		
Repeat Accuracy	±0.5% or 20ms, whichever is greater		
Tolerance (Factory Calibration)	≤ ±2%		
Reset Time	≤ 150ms		
Initiate Time	≤ 20ms; ≤ 1500 operations per minute		
Time Delay vs Temp. & Voltage	≤ ±2%		
Input			
Voltage	24 to 240VAC		
Tolerance	≤ ±15%		
AC Line Frequency	50/60Hz		
Output			
Type	Solid state		
Rating	Output	Steady State	Inrush**
	A	6A	60A
	B	10A	100A
	C	20A	200A
Minimum Load Current	100mA		

Voltage Drop	≈ 2.5V @ rated current
OFF State Leakage Current	≈ 5mA @ 230VAC
Protection	
Circuitry	Encapsulated
Dielectric Breakdown	≥ 2000V RMS terminals to mounting surface
Insulation Resistance	≥ 100 MΩ
Mechanical	
Mounting**	Surface mt with one #10 (M5 x 0.8) screw
Dimensions	2 x 2 x 1.51 in. (50.8 x 50.8 x 38.4 mm)
Termination	0.25 in. (6.35 mm) male quick connects
Environmental	
Operating / Storage Temperature	-40° to 60°C / -40° to 85°C
Humidity	95% relative, non-condensing
Weight	≈ 3.9 oz (111 g)

**Must be bolted to a metal surface using the included heat sink compound. The maximum mounting surface temperature is 90°C. Inrush: Non-repetitive for 16ms.

Features:

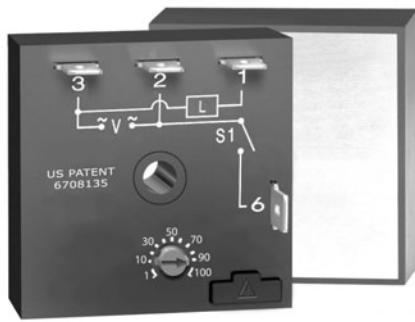
- High load currents up to 20A, 200A inrush
 - Factory programmed
 - Choose 1 of 12 standard dual functions
 - Special time ranges & functions available
 - Microcontroller circuitry, ±0.5% repeat accuracy
 - Fixed, external, or onboard adjustment
 - 24 to 240VAC
 - Delays from 0.1s - 1000h in 9 ranges
- Approvals:

Auxiliary Products:

- **External adjust potentiometer:**
P/N: P1004-95
P/N: P1004-95-X
- **Versa-knob:** P/N: P0700-7
- **Female quick connect:**
P/N: P1015-13 (AWG 10/12)
P/N: P1015-64 (AWG 14/16)
- **Quick connect to screw adaptor:**
P/N: P1015-18

Available Models:

There are no part numbers currently active. Please call Technical Support with your requirements.



The NHPS Series is a factory programmed module available in any 1 of 13 standard functions. The NHPS offers a single, fixed, onboard adjustment or an externally adjustable time delay. The NHPS includes a high current solid-state output. It can switch motors, lamps and heaters directly without the addition of a contactor. It can switch up to 20A with up to 100 million operations typical. Its microcontroller timing circuit provides excellent repeat accuracy and stability. Encapsulation protects against shock, vibration, and humidity. The NHPS Series is a cost effective approach for OEM applications that require small size and solid state reliability.

See Appendix B, page 165, Figure 4 for dimensional drawing.

Features:

- High load currents up to 20A, 200A inrush
 - Factory programmed
 - Choose 1 of 13 standard functions
 - Special time ranges & functions available
 - Microcontroller circuitry, ±0.5% repeat accuracy
 - Fixed, external, or onboard adjustment
 - 24 to 240VAC
 - Delays from 0.1s - 1000h in 9 ranges
- Approvals:

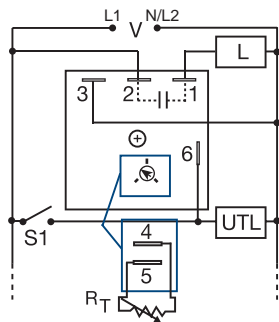
Auxiliary Products:

- **External adjust potentiometer:**
P/N: P1004-95
P/N: P1004-95-X
- **Versa-knob:** P/N: P0700-7
- **Female quick connect:**
P/N: P1015-13 (AWG 10/12)
P/N: P1015-64 (AWG 14/16)
- **Quick connect to screw adaptor:**
P/N: P1015-18

Available Models:

There are no part numbers currently active. Please call Technical Support with your requirements.

Connection:



Terminal Location for External Adjustment

V = Voltage
S1 = Initiate Switch
UTL = Untimed Load
L = Load

Order Table:

NHPS	X	X	X	X	X
	Output Rating	Input	Adjustment	Time Delay*	Function
	-A - 6A -B - 10A -C - 20A	A - 24 to 240VAC	-1 - Fixed -2 - Onboard adjust -3 - External adjust	-1 - 0.1 - 10s -2 - 1 - 100s -3 - 10 - 1000s -4 - 0.1 - 10m -5 - 1 - 100m -6 - 10 - 1000m -7 - 0.1 - 10h -8 - 1 - 100h -9 - 10 - 1000h	Specify function

Functions:
M, B, RE, RD, S,
SD, I, TS, US, UB,
AM, FT, PSD

For a complete list of functions with descriptions and diagrams, see Appendix A - Timer Functions, pages 156-164.

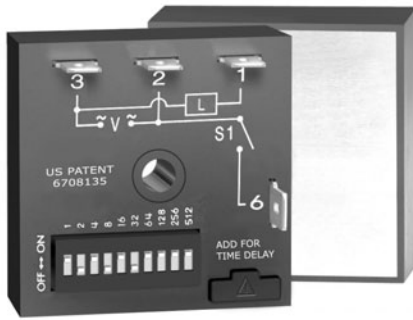
*If fixed delay is selected, insert delay (0.1-1000) followed by (S) secs., or (M) mins., or (H) hrs.

Specifications

Time Delay	Microcontroller circuitry
Type	0.1s - 1000h in 9 adjustable ranges or fixed
Range	±0.5% or 20ms, whichever is greater
Repeat Accuracy	≤ ±2%
Tolerance (Factory Calibration)	≤ 150ms
Reset Time	≤ 20ms; ≤ 1500 operations per minute
Initiate Time	≤ ±2%
Time Delay vs Temp. & Voltage	
Input	
Voltage	24 to 240VAC
Tolerance	≤ ±15%
AC Line Frequency	50/60Hz
Output	
Type	Solid state
Rating	Output Steady State Inrush**
	A 6A 60A
	B 10A 100A
	C 20A 200A
Minimum Load Current	100mA
Voltage Drop	≅ 2.5V @ rated current
OFF State Leakage Current	≅ 5mA @ 230VAC

Protection	Encapsulated
Circuitry	≥ 2000 V RMS terminals to mounting surface
Dielectric Breakdown	≥ 100 MΩ
Insulation Resistance	
Mechanical	
Mounting**	Surface mt. with one #10 (M5 x 0.8) screw
Dimensions	2 x 2 x 1.51 in. (50.8 x 50.8 x 38.4 mm)
Termination	0.25 in. (6.35 mm) male quick connects
Environmental	
Operating / Storage Temperature	-40° to 60°C / -40° to 85°C
Humidity	95% relative, non-condensing
Weight	≅ 3.9 oz (111 g)

**Must be bolted to a metal surface using the included heat sink compound. The maximum mounting surface temperature is 90°C. Inrush: Non-repetitive for 16ms.



The NHPU Series is a factory programmed module available in any 1 of 14 standard functions. The NHPU offers a single adjustable timer or counter function. Switch adjustment allows accurate selection of the time delay or number of counts, the first time and every time. The NHPU includes a high current solid-state output. It can switch motors, lamps and heaters directly without the addition of a contactor. It can switch up to 20A with up to 100 million operations, typical. Its microcontroller timing circuit provides excellent repeat accuracy and stability. Encapsulation protects against shock, vibration, and humidity. The NHPU Series is a cost effective approach for OEM applications that require small size, solid state reliability, and accurate switch adjustment.

Features:

- High load currents up to 20A, 200A inrush
 - Factory programmed
 - Choose 1 of 14 standard functions
 - Special time ranges & functions available
 - Microcontroller circuitry, ±0.1% repeat accuracy
 - Accurate switch adjustment
 - 24 to 240VAC
 - Delays from 0.1s - 1023h
 - Counts to 1023
- Approvals:

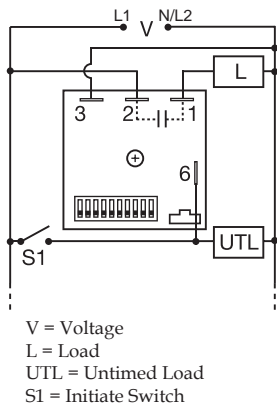
Auxiliary Products:

- **Female quick connect:**
P/N: P1015-13 (AWG 10/12)
P/N: P1015-64 (AWG 14/16)
P/N: P1015-14 (AWG 18/22)
- **Quick connect to screw adaptor:**
P/N: P1015-18

Available Models:

There are no part numbers currently active. Please call Technical Support with your requirements.

Connection:



See Appendix B, page 165, Figure 4 for dimensional drawing.

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	3
0.8	8	4	4
1.6	16	5	5
3.2	32	10	16
6.4	64	20	32
12.8	128	30	M
25.6	256	40	1
51.2	512	50	2
6.3	544	57 counts	4
			44 s Delay 2 counts to Start

Order Table:

NHPU	X	X	X	X
	Output Rating	Input Voltage	Time Delay/Counts	Function
	A - 6A	A - 24 to 240VAC	1 - 0.1 - 102.3s	Specify function
	B - 10A		2 - 1 - 1023s	
	C - 20A		3 - 0.1 - 102.3m	
			4 - 1 - 1023m	
			5 - 0.1 - 102.3h	
			6 - 1 - 1023h	
			7 - 1 - 165 counts (straight) w/ pulsed output	
			8 - 1 - 1023 counts (binary) w/ pulsed output	
			9 - 1 - 7 counts to start 1 - 63s or m interval time	

- Functions:**
M, B, RE, RD, S, SD,
I, TS, US, UB, AM,
PSD, C, CI

For a complete list of functions with descriptions and diagrams, see Appendix A - Timer Functions, pages 156-164.

Specifications

Time Delay	Type.....Microcontroller circuitry	Minimum Load Current.....100mA
Range.....0.1 - 102.3s, m or h in 0.1s, m or h increments	1 - 1023s, m or h in 1s, m or h increments	Voltage Drop≅ 2.5V @ 1A
	1 - 63s or m in 1s or m increments	OFF State Leakage Current≅ 5mA @ 230VAC
Repeat Accuracy.....±0.1% or 20ms, whichever is greater		Counter Output
Setting Accuracy≤ ±1% or 20ms, whichever is greater		Time Delay/Counts Variable (7 & 8).....Pulse width: 300ms ±20%
Reset Time≤ 150ms		Protection
Initiate Time≤ 20ms		Circuitry.....Encapsulated
Time Delay vs Temp. & Voltage≤ ±2%		Dielectric Breakdown≥ 2000V RMS terminals to mounting surface
Count Range.....1 - 1023 in 3 ranges		Insulation Resistance≥ 100 MΩ
Count Rate≤ 25 counts per second		Mechanical
Input		Mounting****.....Surface mt. with one #10 (M5 x 0.8) screw
Voltage.....24 to 240VAC		Dimensions.....2 x 2 x 1.51 in. (50.8 x 50.8 x 38.4 mm)
Tolerance≤ ±15%		Termination.....0.25 in. (6.35 mm) male quick connects
AC Line Frequency.....50/60Hz		Environmental
Output		Operating / Storage Temperature.....-40° to 60°C / -40° to 85°C
Type.....Solid state		Humidity.....95% relative, non-condensing
Rating	Output Steady State Inrush**	Weight≅ 3.9 oz (111 g)
	A 6A 60A	
	B 10A 100A	
	C 20A 200A	

**Must be bolted to a metal surface using the included heat sink compound. The maximum mounting surface temperature is 90°C. Inrush: Non-repetitive for 16ms.