

Series Included

Relay Output - Single

KRPD	3
KRPS	4

Power Relay Output

HRPD	5
HRID	5
HRPS	6
HRIS	6
HRPU	7
HRIU	7

Solid-State Output - Dual

HSPZ	8
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Solid-State Output

KSPD	9
KSPS	10
KSPU	11

Power Solid-State Output

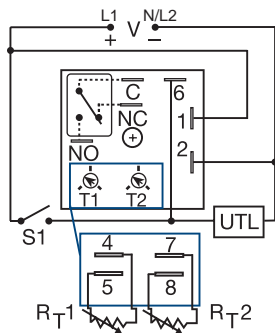
NHPD	12
NHPS	13
NHPU	14



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.

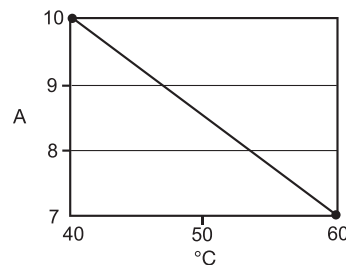
Connection:



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 for external adjust. The untimed load is optional. S1 is not used for some functions.

Output Current/Ambient Temperature:



Features:

- Choose 1 of 12 standard dual functions
- Special time ranges & functions available
- Factory programmed
- Microcontroller circuitry, $\pm 0.5\%$ 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 (AI)
- **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.

Order Table:

KRPD	X	X	X	X	X	X
Input	First Adjustment (T1 or R _{T1})	First Time Delay*	Second Adjustment (T2 or R _{T2})	Second Time Delay*	Function	Functions:
A - 24 to 240VAC/DC	1 - Fixed	1 - 0.1 - 10s	1 - Fixed	1 - 0.1 - 10s	Specify function	MB, MRE, MI, MS,
D - 12 to 48VDC	2 - Onboard adjust	2 - 1 - 100s	2 - Onboard adjust	2 - 1 - 100s		IRE, BRE, SRE, RXE,
1 - 12VDC	3 - External adjust	3 - 10 - 1000s	3 - External adjust	3 - 10 - 1000s		RXD, IM, AMI, SL
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

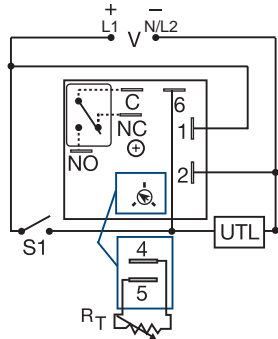
Time Delay Type..... Microcontroller circuitry Range..... 0.1s - 1000h in 9 adjustable ranges or fixed (to 999) Repeat Accuracy..... $\pm 0.5\%$ or 20ms, whichever is greater Tolerance (Factory Calibration)..... $\leq \pm 2\%$ Reset Time..... ≤ 150 ms Initiate Time..... ≤ 40 ms; 750 operations per minute Time Delay vs Temp. & Voltage..... $\leq \pm 2\%$ 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 / $\leq 10\%$ Power Consumption..... AC ≤ 2 VA; DC ≤ 2 W Output Type..... Isolated relay contacts Form..... SPDT	Rating (at 40°C)..... 10A resistive @ 125VAC 5A resistive @ 230VAC & 28VDC 1/4 hp @ 125VAC Max. Switching Voltage..... 250VAC Life (Operations)..... Mechanical - 1×10^7 ; Electrical - 1×10^5 Protection Circuitry..... Encapsulated Isolation Voltage..... ≥ 1500 V RMS input to output Insulation Resistance..... ≥ 100 M Ω 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)
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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.

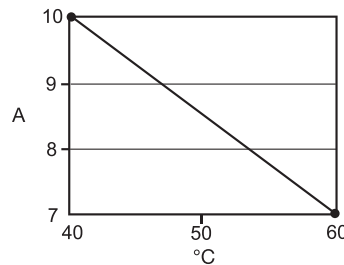
See Appendix B, page 165, Figure 1 for dimensional drawing.

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:



Features:

- Choose 1 of 15 standard functions
- Special time ranges & functions available
- Factory programmed
- Microcontroller circuitry, $\pm 0.5\%$ 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:

- **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:

KRPS1110SM	KRPSD10.1SF
KRPS4160MM	KRPSD10.1SM
KRPS425M	KRPSD10.5SS
KRPS913MB	KRPSD12STS
KRPSA10.1SFT	KRPSD13SB
KRPSA10.5SFT	KRPSD21B
KRPSA110SM	KRPSD21M
KRPSA12MM	KRPSD22M
KRPSA125M	KRPSD22PSD
KRPSA155M	KRPSD22S
KRPSA21RE	KRPSD24B
KRPSA22B	KRPSD24M
KRPSA22PSD	KRPSD25B
KRPSA24M	KRPSD25S
KRPSA28PSE	

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

Order Table:

KRPS	X	X	X	X
	Input	Adjustment	Delay*	Function
	A - 24 to 240VAC/DC	1 - Fixed	1 - 0.1 - 10s	Specify function
	D - 12 to 48VDC	2 - Onboard adjust	2 - 1 - 100s	Functions:
	1 - 12VDC	3 - External adjust	3 - 10 - 1000s	M, B, RE, RD, S, SD, I,
	4 - 120VAC		4 - 0.1 - 10m	TS, US, UB, AM, PSD,
	9 - 230VAC		5 - 1 - 100m	FT, F, SF
			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.

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

Specifications

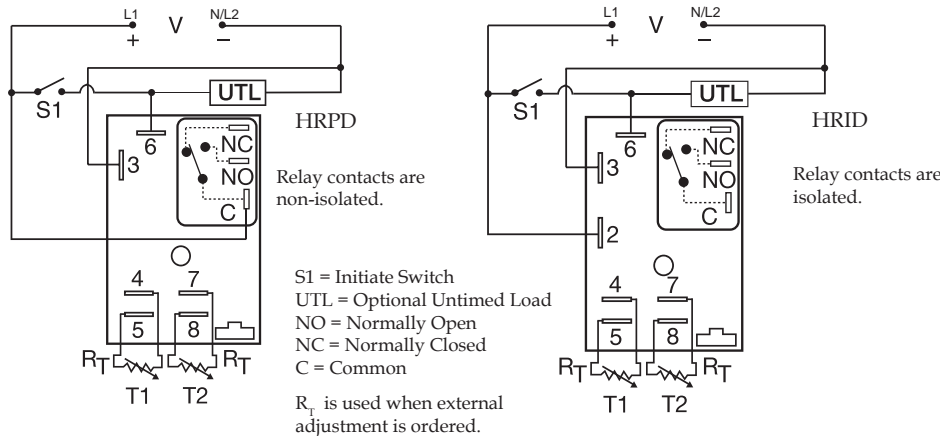
Time Delay			
Type	Microcontroller circuitry	Max. Switching Voltage	250VAC
Range	0.1s - 1000h in 9 adjustable ranges or fixed	Life (Operations)	Mechanical - 1×10^7 ; Electrical - 1×10^5
Repeat Accuracy	$\pm 0.5\%$ or 20ms, whichever is greater	Protection	
Tolerance (Factory Calibration)	$\pm 2\%$	Circuitry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

Connection:



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

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 R ₁)	First Time Delay*	Second Adjustment (T2 or R ₂)	Second Time Delay*	Function	Function
W - 24 to 240VAC 24 to 110VDC	1 - Fixed	1 - 0.1 - 10s	1 - Fixed	1 - 0.1 - 10s	Specify function	Functions:
D - 12 to 48VDC	2 - Onboard adjust	2 - 1 - 100s	2 - Onboard adjust	2 - 1 - 100s		MB, MRE, MI, MS,
	3 - External adjust	3 - 10 - 1000s	3 - External adjust	3 - 10 - 1000s		IRE, BRE, SRE, RXE,
		4 - 0.1 - 10m		4 - 0.1 - 10m		RXD, IM, AMI, SL
		5 - 1 - 100m		5 - 1 - 100m		
		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	
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-NO SPDT-NC
General Purpose	125/240VAC 30A 15A
Resistive	125/240VAC 30A 15A
	28VDC 20A 10A

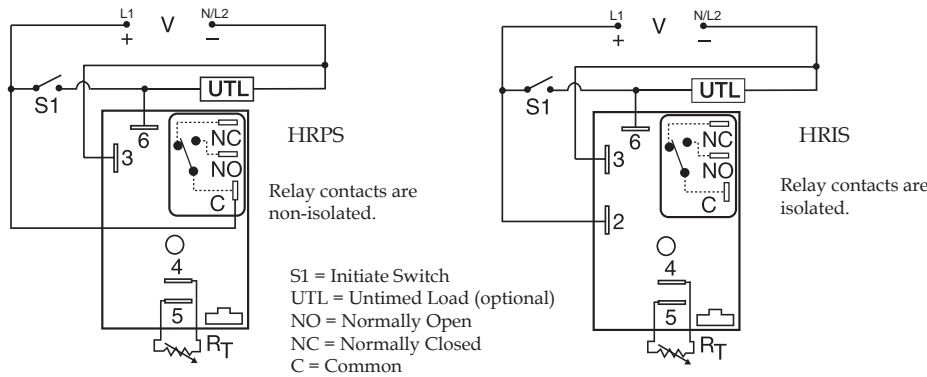
Motor Load	125VAC 1 hp*	1/4 hp**
	240VAC 2 hp**	1 hp**
Life (Operations)	Mechanical - 1×10^6	
	Electrical - 1×10^5 , * 3×10^4 , **6,000	
Protection		
Surge	IEEE C62.41-1991 Level A	
Circuitry	Encapsulated	
Isolation Voltage	≥ 1500 V RMS input to output; isolated units	
Insulation Resistance	≥ 100 M Ω	
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	1 - Fixed	1 - 0.1 - 10s	Specify function	
24 to 110VDC	2 - Onboard adjust	2 - 1 - 100s		
D - 12 to 48VDC	3 - External adjust	3 - 10 - 1000s		
		4 - 0.1 - 10m		
		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.

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

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

Specifications

Time Delay	Microcontroller circuitry		
Type	0.1s - 1000h in 9 adjustable ranges or fixed		
Range	$\pm 0.5\%$ or 20ms, whichever is greater		
Repeat Accuracy	$\pm 2\%$		
Tolerance (Factory Calibration)	$\leq 150\text{ms}$		
Reset Time	$\leq 20\text{ms}$		
Initiate Time	$\pm 2\%$		
Time Delay vs Temp. & Voltage	12 to 48VDC; 24 to 240VAC/24 to 110VDC		
Input	12 to 48VDC		
Voltage	-15% - 20%		
Tolerance	24 to 110VDC/240VAC		
AC Line Frequency	50/60Hz		
Power Consumption	AC $\leq 4\text{VA}$; DC $\leq 2\text{W}$		
Output	Electromechanical relay		
Type	SPDT		
Form	SPDT-NO		
Ratings:	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 - 1×10^6		
	Electrical - 1×10^5 , * 3×10^4 , **6,000		
Protection	IEEE C62.41-1991 Level A		
Surge	Encapsulated		
Circuitry	$\geq 1500\text{V}$ RMS input to output; isolated units		
Isolation Voltage	$\geq 100\text{M}\Omega$		
Insulation Resistance	DC units are reverse polarity protected		
Polarity	Surface mt. with one #10 (M5 x 0.8) screw		
Mechanical	3 x 2 x 1.5 in (76.7 x 51.3 x 38.1 mm)		
Mounting	0.25 in. (6.35 mm) male quick connects		
Dimensions	Operating / Storage Temperature		
Termination	-40° to 60°C / -40° to 85°C		
Environmental	Humidity		
Operating / Storage Temperature	95% relative, non-condensing		
Humidity	Weight		
Weight	$\approx 3.9\text{ oz}$ (111 g)		



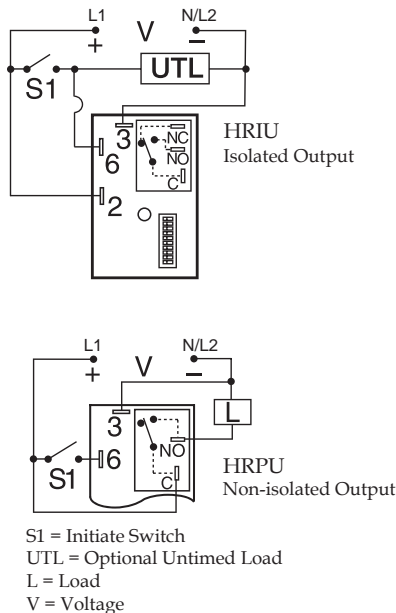
The HRPV/HRIU Series combines an electromechanical relay output with microcontroller timing circuitry. Its switching capacity allows direct control of loads like compressors, pumps, motors, heaters, and lighting. It is a factory programmed module available in any 1 of 14 standard functions. The HRPV/HRIU offers a single adjustable timer or counter function. Switch adjustment allows accurate selection of the time delay or number of counts. The HRPV has non-isolated relay contacts, the HRIU has isolated relay contacts. Encapsulation protects against shock, vibration, and humidity. The HRPV/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.

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

Connection:



Order Table:

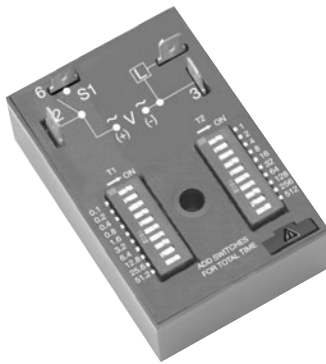
HRPU/ HRIU	X	X	X
Input	Time Delay/Counts	Function	Specify function
W - 24 to 240VAC	1 - 0.1 - 102.3s	M, B, RE, RD, S, SD, I,	
24 to 110VDC	2 - 1 - 1023s	TS, PSD, US, AM, UB,	
D - 12 to 48VDC	3 - 0.1 - 102.3m	C, CI	
	4 - 1 - 1023m		
	5 - 0.1 - 102.3h		
	6 - 1 - 1023h		
	7 - 1 - 165 counts (straight) w/ pulsed output		
	8 - 1 - 1023 counts (binary) w/ pulsed output		
	9 - 1 - 7 counts to start 1 - 63s or m interval time		

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, $\pm 0.1\%$ 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:

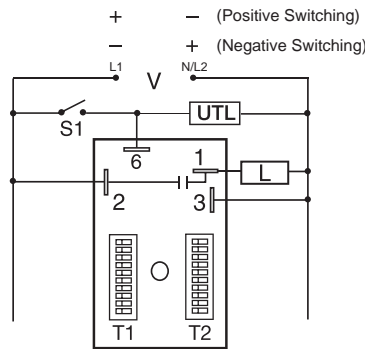
- **Female quick connect:**
P/N: P1015-64 (AWG 14/16)
P/N: P1015-14 (AWG 18/22)
- **Quick connect to screw adaptor:**
P/N: P1015-18
- **DIN rail:** P/N: C103PM (Al)
- **DIN rail adaptor:** P/N: P1023-20

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 \rightarrow ON	OFF \rightarrow ON	OFF \rightarrow ON	OFF \rightarrow 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	X	X	X
Input	T1 Time Delay/Counts	T2 Time Delay/Counts	Function
A - 24 to 240VAC	1 - 0.1 - 102.3s	1 - 0.1 - 102.3s	Specify function
P - 12 to 120VDC positive switching	2 - 1 - 1023s	2 - 1 - 1023s	
N - 12 to 120VDC negative switching	3 - 0.1 - 102.3m	3 - 0.1 - 102.3m	
	4 - 1 - 1023m	4 - 1 - 1023m	
	5 - 0.1 - 102.3h	5 - 0.1 - 102.3h	
	6 - 1 - 1023h	6 - 1 - 1023h	
	7 - 1 - 165 counts (straight)	7 - for future expansion	
	8 - 1 - 1023 counts (binary)	8 - for future expansion	
	9 - 1 - 512m or s	9 - 1 - 512m or s	

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

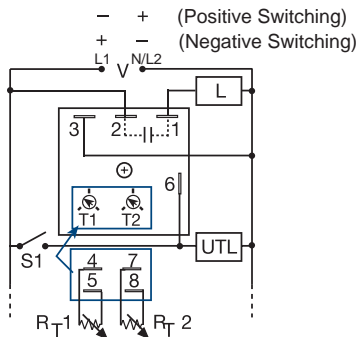
Counter Output	Output pulse width: 300ms $\pm 20\%$
Protection	
Circuitry	Encapsulated
Dielectric Breakdown	≥ 2000 V RMS terminals to mounting surface
Insulation Resistance	≥ 100 M Ω
Polarity	DC units are reverse polarity protected
Mechanical	
Mounting	Surface mt. with one #10 (M5 x 0.8) screw
Dimensions	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 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.

Connection:



Terminal Location for External Adjustment.

V = Voltage
L = Load
S1 = Initiate Switch
UTL = Untimed Load
T1 & R_{T1} = First Adjustment
T2 & R_{T2} = Second Adjustment

Order Table:

KSPD	X	X	X	X	X	X
Input	First Adjustment (T1 or R _{T1})	First Time Delay*	Second Adjustment (T2 or R _{T2})	Second Time Delay*	Function	Functions:
A - 24 to 240VAC	1 - Fixed	1 - 0.1 - 10s	1 - Fixed	1 - 0.1 - 10s	Specify function	MB, MRE, MI, MS,
P - 12 to 120VDC positive switching	2 - Onboard adjust	2 - 1 - 100s	2 - Onboard adjust	2 - 1 - 100s		IRE, BRE, SRE, RXE,
N - 12 to 120VDC negative switching	3 - External adjust	3 - 10 - 1000s	3 - External adjust	3 - 10 - 1000s		RXD, IM, AMI, SL
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
Type	0.1s - 1000h in 9 adjustable ranges or fixed (to 999)
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	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 @ 230VAC; DC ≅ 1mA
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)

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 (AI)
- **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.



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, $\pm 0.5\%$ 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:

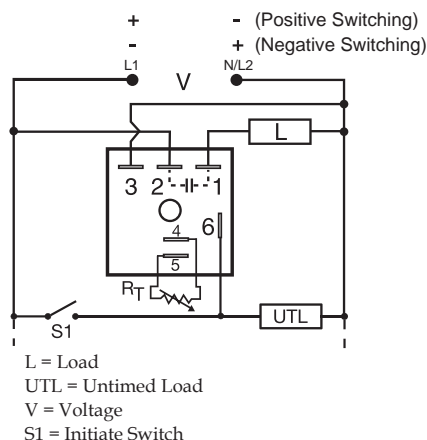
- **External adjust potentiometer:**
P/N: P1004-95
P/N: P1004-95-X
- **Versa-knob:** P/N: P0700-7
- **Female quick connect:**
P/N: P1015-64 (AWG 14/16)
- **Quick connect to screw adaptor:**
P/N: P1015-18
- **DIN rail:** P/N: C103PM (Al)
- **DIN rail adaptor:** P/N: P1023-20

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

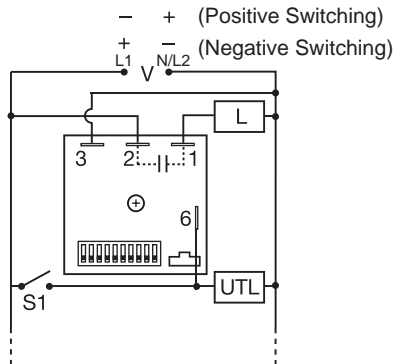
Time Delay		Voltage Drop	AC $\approx 2.5V @ 1A$; DC $\approx 1V @ 1A$
Type	Microcontroller circuitry	OFF State Leakage Current	AC $\approx 5mA @ 240VAC$, DC $\approx 1mA$
Range	0.1s - 1000h in 9 adjustable ranges or fixed	Protection	
Repeat Accuracy	$\pm 0.5\%$ or 20ms, whichever is greater	Circuitry	Encapsulated
Tolerance (Factory Calibration)	$\leq \pm 2\%$	Dielectric Breakdown	$\geq 2000V$ RMS terminals to mounting surface
Reset Time	$\leq 150ms$	Insulation Resistance	$\geq 100 M\Omega$
Initiate Time	$\leq 20ms$; ≤ 1500 operations per minute	Polarity	DC units are reverse polarity protected
Time Delay vs Temp. & Voltage	$\leq \pm 2\%$	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	$\leq \pm 15\%$	Termination	0.25 in. (6.35 mm) male quick connects
AC Line Frequency / DC Ripple	50/60Hz / $\leq 10\%$	Environmental	
Power Consumption	AC $\leq 2VA$; DC $\leq 1W$	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	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	10
6.4	64	20	20
12.8	128	30	30
25.6	256	40	40
51.2	512	50	50
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, $\pm 0.1\%$ 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 (AI)
- **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		2 - 1 - 1023s
positive switching		3 - 0.1 - 102.3m
N - 12 to 120VDC		4 - 1 - 1023m
negative switching		5 - 0.1 - 102.3h
1 - 12VDC		6 - 1 - 1023h
positive switching		7 - 1 - 165 counts (straight) w/ pulsed output
4 - 120VAC		8 - 1 - 1023 counts (binary) w/ pulsed output
9 - 120/240VAC		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.

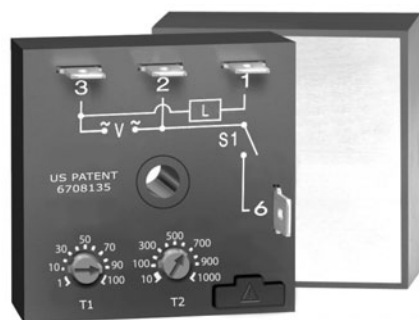
Specifications

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

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

Protection

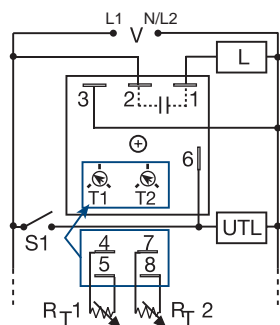
Circuitry.....	Encapsulated
Dielectric Breakdown.....	≥ 2000 V RMS terminals to mounting surface
Insulation Resistance.....	≥ 100 M Ω
Polarity.....	DC units are reverse polarity protected
Mechanical	
Mounting.....	Surface mt. with one #10 (M5 x 0.8) screw
Dimensions.....	2 x 2 x 1.21 in. (50.8 x 50.8 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 R₁)	First Time Delay*	Second Adjustment (T2 or R₂)	Second Time Delay*	Function
	A - 6A	A - 24 to 240VAC	1 - Fixed	1 - 0.1 - 10s	1 - Fixed	1 - 0.1 - 10s	Specify function
	B - 10A		2 - Onboard adjust	2 - 1 - 100s	2 - Onboard adjust	2 - 1 - 100s	
	C - 20A		3 - External adjust	3 - 10 - 1000s	3 - External adjust	3 - 10 - 1000s	
				4 - 0.1 - 10m		4 - 0.1 - 10m	
				5 - 1 - 100m		5 - 1 - 100m	
				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.

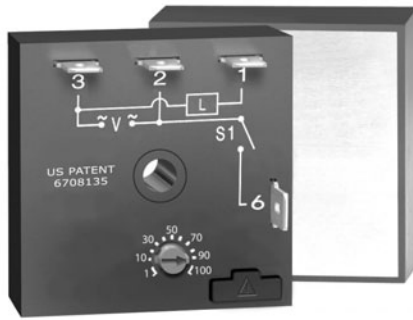
For a complete list of functions with descriptions and diagrams, see Appendix A - Timer Functions, pages 156-164.

Specifications

Time Delay			
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.



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, $\pm 0.5\%$ repeat accuracy
- Fixed, external, or onboard adjustment
- 24 to 240VAC
- Delays from 0.1s - 1000h in 9 ranges

Approvals:   

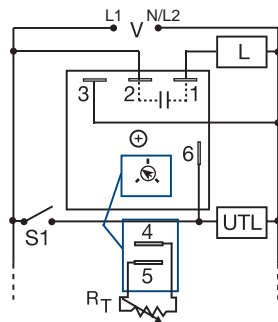
Auxiliary Products:

- **Externalad just potentiometer:**
P/N: P1004-95
P/N: P1004-95-X
- **Versa-knob:** P/N: P0700-7
- **Female quick connect:**
P/N: P1015-13 (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

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.

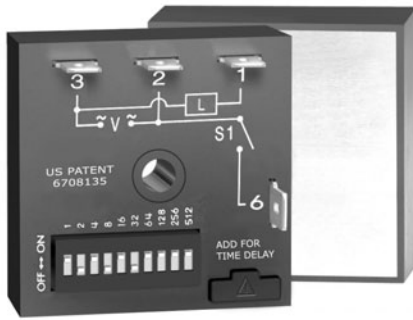
*If fixed delay is selected, insert delay (0.1-1000) followed by (S) secs., or (M) mins., or (H) hrs.

Specifications

Time Delay			
Type	Microcontroller circuitry		
Range	0.1s - 1000h in 9 adjustable ranges or fixed		
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	≥ 2000 V RMS terminals to mounting surface
Insulation Resistance	≥ 100 M Ω
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	$\cong 3.9$ 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, $\pm 0.1\%$ repeat accuracy
 - Accurate switch adjustment
 - 24 to 240VAC
 - Delays from 0.1s - 1023h
 - Counts to 1023
- Approvals:   

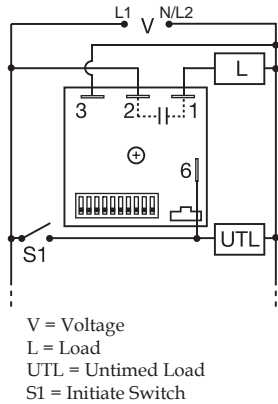
Auxiliary Products:

- **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:



Switch Adjustment:

Adjustment Switch Operation			
TIME DELAY		COUNTER	
0.1...102.3	1...1023	1...165	1...63
OFF \blacktriangleright ON	OFF \blacktriangleright ON	OFF \blacktriangleright ON	OFF \blacktriangleright 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	10
6.4	64	20	20
12.8	128	30	30
25.6	256	40	40
51.2	512	50	50
6.3	544	57 counts	44 s Delay 2 counts to Start

Order Table:

NHPU

X

Output Rating
A - 6A
B - 10A
C - 20A

X

Input Voltage
A - 24 to 240VAC

X

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) 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

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 - 63s or m in 1s or m increments
Repeat Accuracy..... $\pm 0.1\%$ or 20ms, whichever is greater
Setting Accuracy..... $\leq \pm 1\%$ or 20ms, whichever is greater
Reset Time..... ≤ 150 ms
Initiate Time..... ≤ 20 ms
Time Delay vs Temp. & Voltage..... $\leq \pm 2\%$
Count Range.....1 - 1023 in 3 ranges
Count Rate..... ≤ 25 counts per second

Input

Voltage.....24 to 240VAC
Tolerance..... $\leq \pm 15\%$
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..... ≤ 2.5 V @ 1A
OFF State Leakage Current..... ≤ 5 mA @ 230VAC
Counter Output
Time Delay/Counts Variable 7 & 8).....Pulse width: 300ms $\pm 20\%$
Protection
Circuitry.....Encapsulated
Dielectric Breakdown..... ≥ 2000 V RMS terminals to mounting surface
Insulation Resistance..... ≥ 100 M Ω
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......025 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.