

## Section 5 Dedicated Timers

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-------------------------------------	-------

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Dedicated  
timers

# Coin Vending Timer

## HRV Accu-Vend

### Vending Control



US Patent 6708135



5

- Accumulates 1 ... 256 Coins
- Switch Selectable 1 ... 7 Coins to Start
- Vend Time from 1 s ... 31.75 m
- Coin Switch Can Be Connected to a Counter
- Up to 30 A, 1 Hp at 125 V AC N.O. Contacts
- Encapsulated Circuitry

Approvals:

#### Accessories



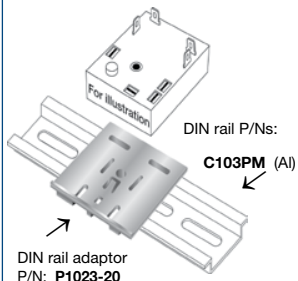
Mounting bracket  
P/N: P1023-6



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



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



DIN rail adaptor  
P/N: P1023-20

See accessory pages for specifications.

#### Description

The HRV combines the accuracy of microcontroller based circuitry with an electromechanical relay output. The HRV's switching capacity allows direct control of loads like compressors, pumps, motors, heaters, and lighting. The HRV "S" version provides a vend time after the selected number of initiate switch closures to start is reached. The HRV "A" version includes all of the "S" features and allows the total vend time to be extended for each additional initiate switch closure. The HRV is ideal for cost sensitive single coin or token vending machines. The electronic circuitry is encapsulated to protect against humidity and vibration.

#### Operation

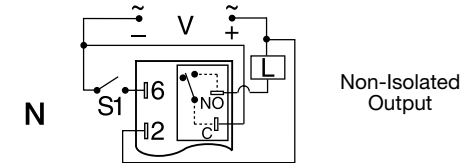
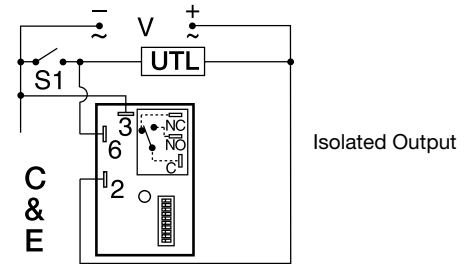
**Coin Totalizer & Vending Timer ("S" Version):**  
Input voltage must be applied prior to & during operation. When the total number of S1 initiate switch closures equals the number to start set on the lower 3 DIP switches, the load energizes and the vending time set on the upper 7 DIP switches begins. At the end of the vending time, the load de-energizes and the vending time is reset. Closing the initiate switch during vend timing will have no effect on vend time delay.

**Accumulating Vending Timer ("A" Version):**  
Input voltage must be applied prior to & during operation. When the total number of S1 initiate switch closures equals the number to start set on the lower 3 DIP switches, the load energizes and the vending time starts. For every initiate switch closure, the HRV unit adds one time per coin period, as set on the upper 7 DIP switches, to the total vending time.

**Operation Note:** If S1 is closed when input voltage is applied, the output remains de-energized and the S1 counter remains at zero closures. At least one "vend time" and one "closures to start" DIP switch must be in the "ON" position for proper operation.

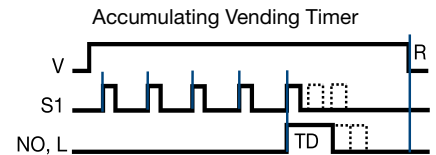
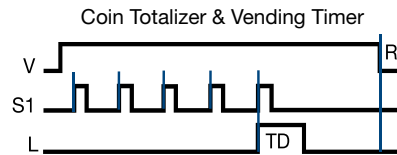
**Reset:** Removing input voltage resets the vend time delay, the S1 closure counter, and de-energizes the output relay.

#### Connection



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

#### Function



#### Available Models-

- |          |          |          |
|----------|----------|----------|
| HRV11SC  | HRV24AC  | HRV31SC  |
| •HRV41AE | HRV41SC  | HRV41SE  |
| HRV42SE  | HRV42SN  | •HRV43AE |
| •HRV43AN | •HRV43SE |          |

Don't see what you need? Call us for a minimum quantity and price quote!

#### Ordering Table

<b>HRV Series</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
	<b>Input</b>	<b>Vend Time</b>	<b>Mode of Operation</b>	<b>Output Form &amp; Rating</b>
	-1 - 12 V DC	-1 - 1 ... 127 s	-S - Coin Totalizer	-C - 30 A SPDT-N.O. (Isolated)
	-2 - 24 V AC	-2 - 5 ... 635 s	-V - Vending Timer	-E - 30 A SPDT-N.O. (Isolated)
	-3 - 24 V DC	-3 - 0.1 ... 12.7 m	-A - Accumulating Vending Timer	-N - 30 A SPDT-N.O. (Non-Isolated)
	-4 - 120 V AC	-4 - 0.25 ... 31.75 m		
	-6 - 230 V AC			

Example P/N: HRV43SC, HRV62AN

# Coin Vending Timer

## HRV Accu-Vend

### Vending Control

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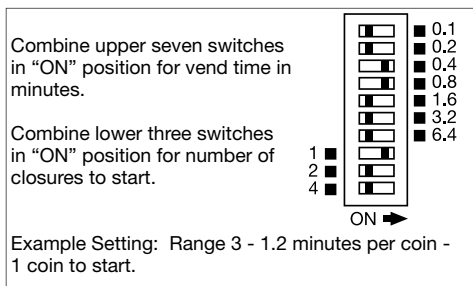
#### Technical Data

<b>Count Functions/Switch Type</b> Minimum Switch Closure Time Minimum Switch Open (between closures) Time Count Range to start Maximum Counts ("A" Version)	Mechanical (counts on switch closure) ≥ 20 ms ≥ 20 ms 1 ... 7 counts 250																								
<b>Time Delay/Range ***</b> Adjustment Setting Accuracy Repeat Accuracy Reset Time Time vs. Input Voltage & Temperature	Adjustable 1 s ... 31.75 m in 4 ranges 7 of a 10 position DIP switch - 0 to +2% or 50 ms, whichever is greater +/-0.1% or 20 ms, whichever is greater ≤ 150 ms ≤ +/-2%																								
<b>Input</b> Voltage/Frequency Tolerance DC Ripple Power Consumption	12 or 24 V DC; 24, 120, or 230 V AC/50 ... 60 Hz -15% ... +20% -20% ... +10% ≤ 10% AC: ≤ 4 VA; DC: ≤ 2 W																								
<b>Output</b> Type Form	Electromechanical relay Isolated SPDT or Non-isolated SPDT																								
Ratings: General Purpose Resistive Motor Load	<table border="1"> <thead> <tr> <th></th> <th>125/240 V AC</th> <th>SPDT-N.O.</th> <th>SPDT-N.C.</th> </tr> </thead> <tbody> <tr> <td>General Purpose</td> <td>125/240 V AC</td> <td>30 A</td> <td>15 A</td> </tr> <tr> <td>Resistive</td> <td>125/240 V AC</td> <td>30 A</td> <td>15 A</td> </tr> <tr> <td></td> <td>28 V DC</td> <td>20 A</td> <td>10 A</td> </tr> <tr> <td>Motor Load</td> <td>125 V AC</td> <td>1 hp*</td> <td>1/4 hp**</td> </tr> <tr> <td></td> <td>240 V AC</td> <td>2 hp**</td> <td>1 hp**</td> </tr> </tbody> </table>		125/240 V AC	SPDT-N.O.	SPDT-N.C.	General Purpose	125/240 V AC	30 A	15 A	Resistive	125/240 V AC	30 A	15 A		28 V DC	20 A	10 A	Motor Load	125 V AC	1 hp*	1/4 hp**		240 V AC	2 hp**	1 hp**
	125/240 V AC	SPDT-N.O.	SPDT-N.C.																						
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	28 V DC	20 A	10 A																						
Motor Load	125 V AC	1 hp*	1/4 hp**																						
	240 V AC	2 hp**	1 hp**																						
Life	Mechanical -- 1 x 10 <sup>6</sup> Electrical -- 1 x 10 <sup>5</sup> , *3 x 10 <sup>4</sup> , ** 6,000																								
<b>Protection</b> Surge Circuitry Dielectric Breakdown Insulation Resistance	IEEE C62.41-1991 Level A Encapsulated ≥ 1500 V RMS input to output on isolated units ≥ 100 MΩ																								
<b>Mechanical</b> Mounting Package Termination	Surface mount with one #10 (M5 x 0.8) screw 3 x 2 x 1.5 in (76.7 x 51.3 x 38.1 mm) 0.25 in. (6.35 mm) male quick connect terminals																								
<b>Environmental</b> Humidity Operating/Storage Temperature Weight	95% relative, non-condensing -40°C ... +70°C / -40°C ... +85°C ≅ 3.9 oz (111 g)																								

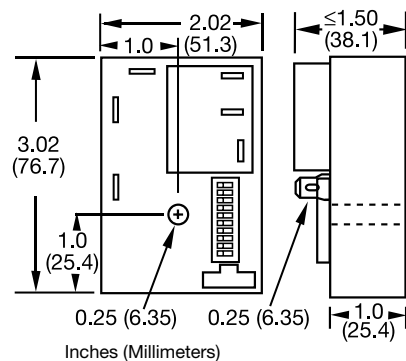
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\*\*\*For CE approved applications, voltage must be removed when a switch position is changed.

#### Switch Adjustment



#### Mechanical View



09.10

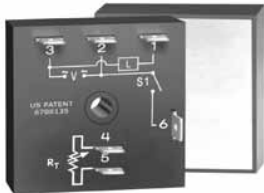
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# Single Shot (Pulse Former)

## THC & THS Series

### Power Timing Module

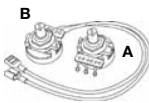


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- High Load Current Capacity, up to 20 A, 200 A Inrush
- Momentary or Maintained Initiate Switch
- +/-2% Repeat Accuracy
- +/-5% Factory Calibration
- Fixed or Adjustable Delays From 0.1 ... 600 s in 4 Ranges
- Metallized Mounting Surface for Efficient Heat Transfer

Approvals:

#### Accessories



External adjust potentiometer  
P/Ns:  
P1004-95 (fig A)  
P1004-95-X (fig B)



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



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



Versa-knob  
P/N: P0700-7

See accessory pages for specifications.

#### Description

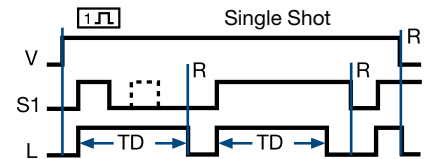
The TH series is a solid state relay and timer combined into one compact, easy-to-use control. When mounted to a metal surface, the TH Series may be used to directly control lamp or heater loads of up to 20 Amps steady 200 Amps inrush. Its single shot function can perform dispensing and pulse shaping operations. The initiate switch can be a momentary or maintained type of switch. Time delays can be selected from 0.1 seconds to 600 seconds in 4 ranges. The THC Series is used for coin vending applications where fast initiate response is required.

#### Operation

Input voltage must be applied before and during timing. Upon momentary or maintained closure of the initiate switch (leading edge triggered), the output energizes for a measured interval of time. At the end of the delay, the output de-energizes. Opening or reclosing the initiate switch during timing has no effect on the time delay. The output will energize if the initiate switch is closed when input voltage is applied.

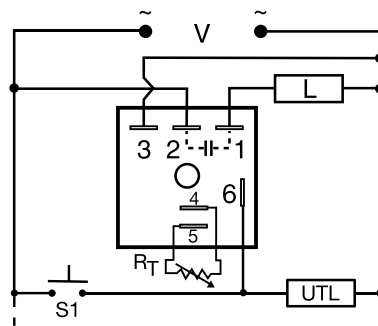
**Reset:** Reset occurs when the time delay is complete and the initiate switch opens. Loss of input voltage resets the time delay and output.

#### Function



V = Voltage L = Load S1 = Initiate Switch  
TD = Time Delay R = Reset

#### Connection



$R_T$  is used when external adjustment is ordered.  
Dashed lines are internal connections.  
S1 = Initiate Switch L = Timed Load  
UTL = Optional Untimed Load

#### Available Models-

THC410.1A	THC41180B	THC421C
THS41600A	THS4160A	THS422B
THS422C	THS423A	

Don't see what you need? Call us for a minimum quantity and price quote!

#### Ordering Table

THC/  
THS  
Series

X	Input
-2	- 24 V AC
-4	- 120 V AC
-6	- 230 V AC

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

X	Time Delay *
-1	- 0.1 ... 3 s
-2	- 0.5 ... 60 s
-3	- 2 ... 180 s
-4	- 5 ... 600 s

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

Example P/N: **THC432C** Fixed - **THC612A**  
**THS421B** Fixed - **THS410.5C**

\*If Fixed Delay is selected, insert delay [0.1...600] in seconds.

# Single Shot (Pulse Former) THC & THS Series Power Timing Module

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## Technical Data

<b>Time Delay</b>			
Range		0.1 ... 600 s in 4 adjustable ranges or fixed	
Repeat Accuracy		+/-2% or 20 ms, whichever is greater	
Tolerance (Factory Calibration)		≤ +/- 5%	
Reset Time		≤ 150 ms	
Initiate Time		≤ 20 ms	
Time Delay vs. Temperature & Voltage		≤ +/-10%	
<b>Input</b>			
Voltage		24, 120, or 230 V AC	
Tolerance		+/-15%	
Line Frequency		50 ... 60 Hz	
Power Consumption		≤ 2 VA	
<b>Output</b>			
Type		Solid state	
Form		Normally Open, closed during timing	
Maximum Load Currents	<b>Output</b>	<b>Steady State</b>	<b>Inrush**</b>
	A	6 A	60 A
	B	10 A	100 A
	C	20 A	200 A
Minimum Load Current		100 mA	
Voltage Drop		≅ 2.5 V at rated current	
OFF State Leakage Current		≅ 5 mA at 230 V AC	
<b>Protection</b>			
Circuitry		Encapsulated	
Dielectric Breakdown		≥ 2000 V RMS terminals to mounting surface	
Insulation Resistance		≥100 MΩ	
<b>Mechanical</b>			
Mounting **		Surface mount with one #10 (M5 x 0.8) screw	
Package		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 connect terminals	
<b>Environmental</b>			
Operating Temperature		-20°C ... +60°C	
Storage Temperature		-40°C ... +85°C	
Humidity		95% relative, non-condensing	
Weight		≅ 3.9 oz (111 g)	

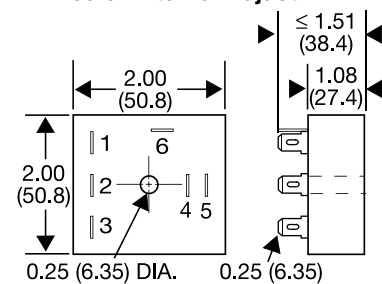
\*\*Must be bolted to a metal surface using the included heat sink compound. The maximum mounting surface temperature is 90°C. Inrush: Non-repetitive for 16 ms.

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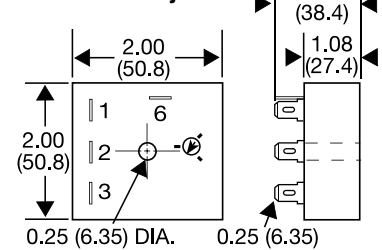
Desired Time Delay*				R <sub>T</sub> Kohms
Seconds				
1	2	3	4	
0.1	0.5	2	5	0
0.3	6	20	60	10
0.6	12	38	120	20
0.9	18	55	180	30
1.2	24	73	240	40
1.5	30	90	300	50
1.8	36	108	360	60
2.1	42	126	420	70
2.4	48	144	480	80
2.7	54	162	540	90
3.0	60	180	600	100

\* When selecting an external R<sub>T</sub> add at least 20% for tolerance of unit and the R<sub>T</sub>.

### Mechanical View Fixed & External Adjust



### Onboard Adjust



Inches (Millimeters)

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# ProgramaCube® KSPU Series Timing Module



US Patent 6708135

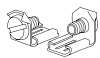


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- Choose 1 of 14 Standard Functions
- Special Time Ranges and Functions Available
- Factory Programmed
- Microcontroller Circuitry, +/-0.1% Repeat Accuracy
- Solid State Output 1 A Steady, 10 A Inrush
- Accurate Switch Adjustment
- 12 ... 240 V in 3 Ranges
- Delays from 100 ms...1023 h in 6 ranges
- Counts to 1023 in 3 Ranges

Approvals:

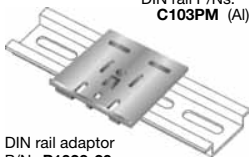
### Accessories



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



Female quick connect  
P/Ns:  
**P1015-64** (AWG 14/16)  
**P1015-14** (AWG 18/22)



DIN rail P/Ns:  
**C103PM** (AI)

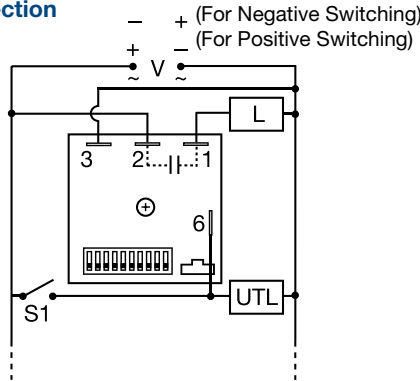
DIN rail adaptor  
P/N: **P1023-20**

See accessory pages for specifications.

### Description

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. Modules are manufactured without the function assigned. When an order is received, the function software is added. This approach provides fast delivery on all part numbers. Switch adjustment allows accurate selection of the time delay or number of counts the first time and every time. The 1 A steady, 10 A 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. Special time ranges and functions are available; contact Technical Assistance (see below) for more information.

### Connection



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

The untimed load is optional. S1 is not used for some functions. Dashed lines are internal connections.

### 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
6.3	544	57 counts	44 s Delay 2 counts to Start

One or more switches must be ON for proper operation.

### Available Models-

KSPU11M  
KSPUA2I  
KSPUP3B

KSPU42I  
KSPUA8C

KSPU92I  
KSPUP1M

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### Ordering Table

**KSPU**  
Series

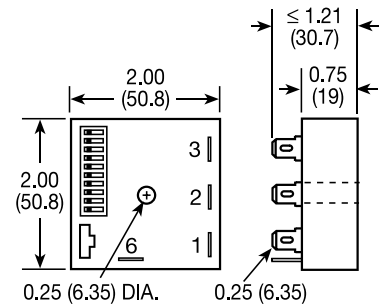
**X**  
Input  
- **A** - 24 ... 240 V AC  
- **P** - 12 ... 120 V DC  
Positive Switching  
- **N** - 12 ... 120 V DC  
Negative Switching

**X**  
Time Delay/Counts

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

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

### Mechanical View



Inches (Millimeters)

### \*\*Function Chart

Delay on Make  
Delay on Break  
Recycle (ON Time First, Equal Times)  
Recycle (OFF Time First, Equal Times)  
Single Shot  
Interval  
Trailing Edge Single Shot  
Inverted Single Shot  
Inverted Delay on Break  
Accumulative Delay on Make  
Motion Detector/Retriggerable  
Single Shot  
Counter/Pulsed Output  
Counter/Interval Output

Code

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

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

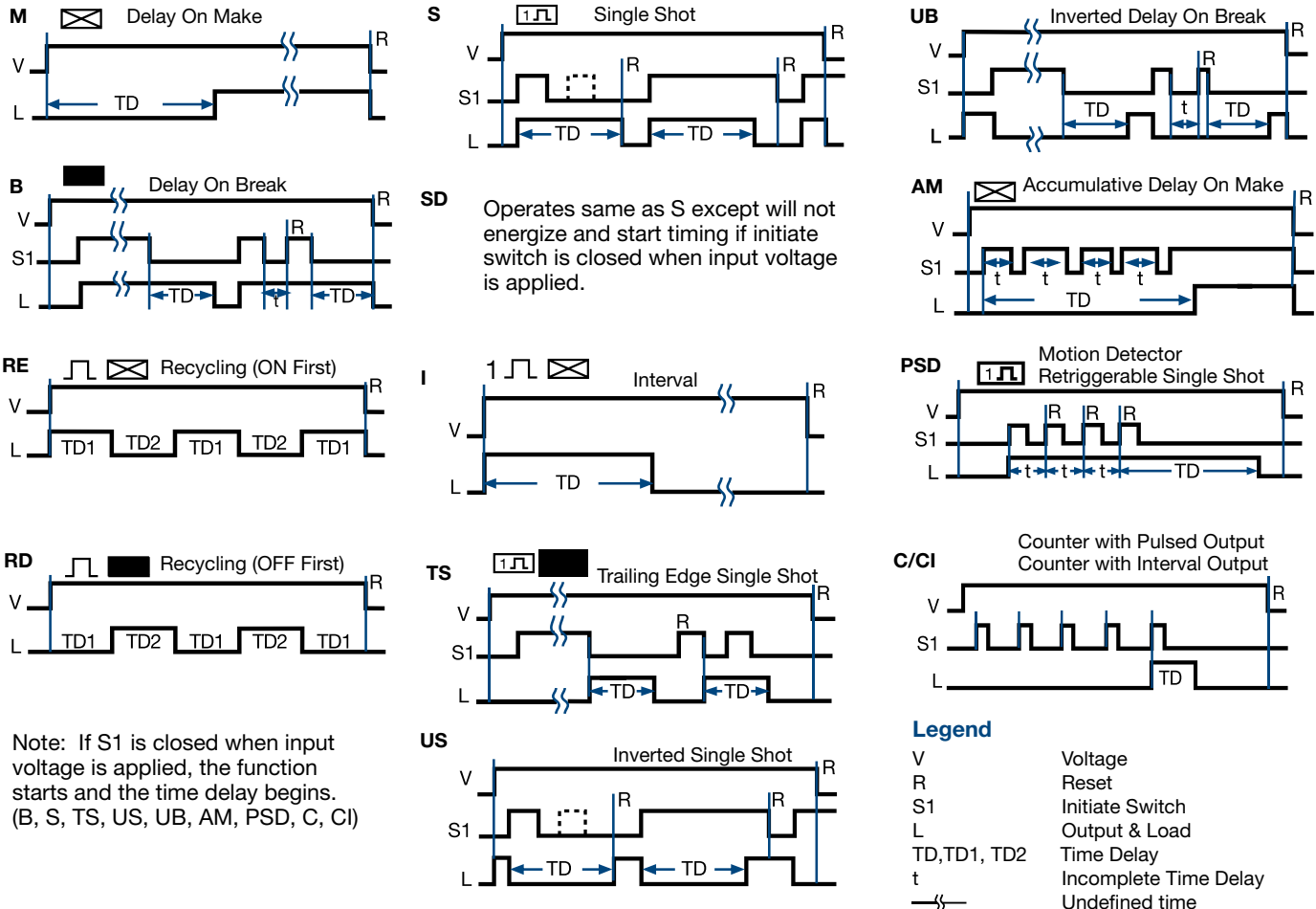
**Technical Data**

<b>Time Delay</b> Type Range  Repeat Accuracy Setting Accuracy Reset Time Initiate Time Time Delay / Temp. & Voltage Count Range Count Rate	Microcontroller circuitry 0.1 ... 102.3 s, m or h in 0.1 s, m or h increments 1 ... 1023 s, m or h in 1 s, m or h increments 1 ... 63 s or m in 1 s or m increments +/-0.1% or 20 ms, whichever is greater +/-1% or 20 ms, whichever is greater ≤ 150 ms ≤ 20 ms ≤ +/-2% 1 ... 1023 in 3 ranges ≤ 25 counts per second	<b>Protection</b> Circuitry Dielectric Breakdown Insulation Resistance Polarity	Encapsulated ≥ 2000 V RMS terminals to mounting surface ≥ 100 MΩ DC units are reverse polarity protected
<b>Input</b> Voltage Tolerance Frequency/DC Ripple Power Consumption	12 ... 120 V DC; 24 ... 240 V AC ≤ +/-15% 50 ...60 Hz / ≤ 10% AC ≤ 2 VA; DC ≤ 1 W	<b>Mechanical</b> Mounting Package Termination	Surface mt. with one #10 (M5 x 0.8) screw 2 x 2 x 1.21 in. (50.8 x 50.8 x 30.7 mm) 0.25 in. (6.35 mm) male quick connects
<b>Output</b> Type Rating Voltage Drop OFF State Leakage Current Counter Output (P/N Variable 7 & 8)	Solid state output 1 A steady, 10 A inrush for 16 ms AC ≅ 2.5 V at 1 A; DC ≅ 1 V at 1A AC ≅ 5 mA at 240 V AC; DC ≅ 1mA Output Pulse width: 300 ms +/-20%	<b>Environmental</b> Operating Temp. Storage Temp. Humidity Weight	-40°C ... +60°C -40°C ... +85°C 95% relative, non-condensing ≅ 2.4 oz (68 g)

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**Function Diagrams**

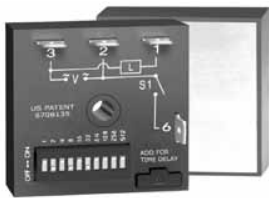
For a Complete List of Functions with Descriptions, see Timer Function Section.



KSPU06n 09.10

Dedicated  
timers

# ProgramaCube® NHPU Series Power Timing Module



US Patent 6708135



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- High Load Currents up to 20 A, 200 A Inrush
- Factory Programmed
- Choose 1 of 14 Standard Functions
- Special Time Ranges and Functions Available
- Microcontroller Circuitry, +/-0.1% Repeat Accuracy
- Accurate Switch Adjustment
- 24 ... 240 V AC
- Delays from 100 ms...1023 h in 6 Ranges
- Counts to 1023 in 3 Ranges

Approvals:

### Accessories



Female quick connect  
P/Ns:  
P1015-13 (AWG 10/12)  
P1015-64 (AWG 14/16)  
P1015-14 (AWG 18/22)



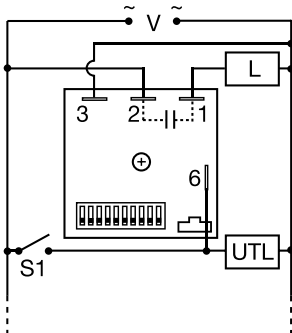
Quick connect to screw adaptor  
P/N: P1015-18

See accessory pages for specifications.

### Description

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. Modules are manufactured without the function assigned. When an order is received, the function software is added, making the modules complete. This approach provides fast delivery on all part numbers. 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 20 A 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. Special time ranges and functions are available; contact Technical Assistance (see below) for more information.

### Connection



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

The untimed load is optional. S1 is not used for some functions. Dashed lines are internal connections.

### Switch Adjustment

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

One or more switches must be ON for proper operation.

### Available Models-

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

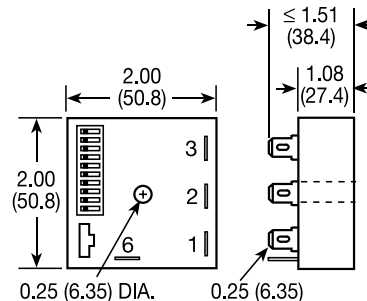
**Don't see what you need? Call us for a minimum quantity and price quote!**

### Ordering Table

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

Example P/N: NHPUBA3TS, NHPUCA7C

### Mechanical View



Inches (Millimeters)

### \*\*Function Chart

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

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

# ProgramaCube® NHPU Series Power Timing Module

Dedicated  
timers

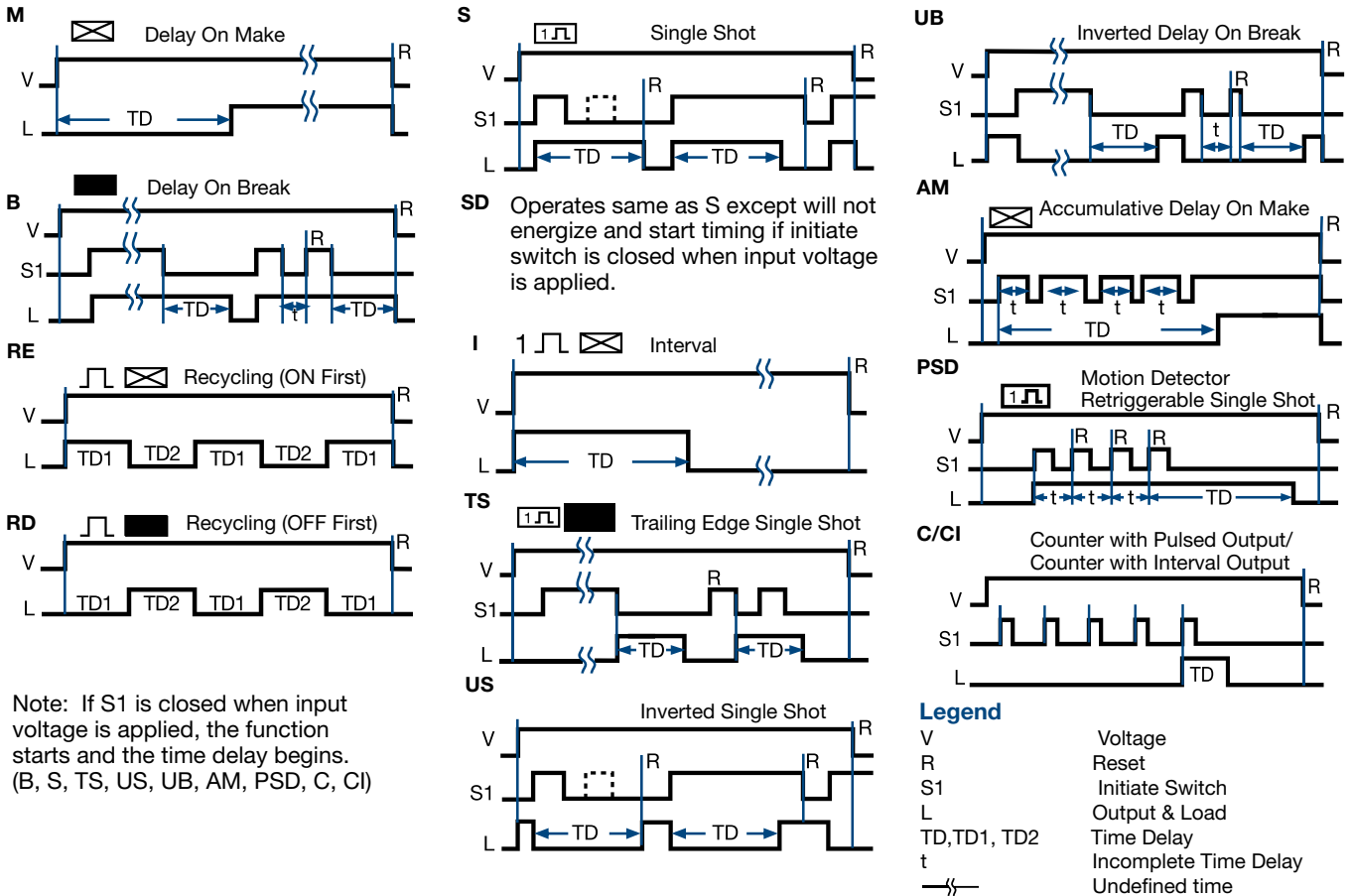
## Technical Data

<b>Time Delay</b>		<b>Protection</b>	
Type	Microcontroller circuitry	Circuitry	Encapsulated
Range	0.1 ... 102.3 s, m or h in 0.1 s, m or h increments 1 ... 1023 s, m or h in 1 s, m or h increments 1 ... 63 s or m in 1 s or m increments	Dielectric Breakdown	≥ 2000 V RMS terminals to mounting surface
Repeat Accuracy	+/-0.1% or 20 ms, whichever is greater	Insulation Resistance	≥ 100 MΩ
Setting Accuracy	≤ +/-1% or 20 ms, whichever is greater		
Reset Time	≤ 150 ms		
Initiate Time	≤ 20 ms		
Time Delay vs. Temp. & Voltage	≤ +/-2%		
Count Range	1 ... 1023 in 3 ranges		
Count Rate	≤ 25 counts per second		
<b>Input</b>		<b>Mechanical</b>	
Voltage	24 ... 240 V AC	Mounting***	Surface mt. with one #10 (M5 x 0.8) screw
Tolerance	≤ +/-15%	Package	2 x 2 x 1.51 in. (50.8 x 50.8 x 38.4 mm)
Line Frequency	50 ... 60 Hz	Termination	0.25 in. (6.35 mm) male quick connects
<b>Output</b>		<b>Environmental</b>	
Type	Solid state	Operating Temp.	-40°C ... +60°C
Rating	Output    Steady State    Inrush***	Storage Temp.	-40°C ... +85°C
	A            6 A            60 A	Humidity	95% relative, non-condensing
	B            10 A          100 A	Weight	≈ 3.9 oz (111 g)
	C            20 A          200 A		
Minimum Load Current	100 mA	***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 16 ms.	
Voltage Drop	≈ 2.5 V at 1 A		
OFF State Leakage Current	≈ 5 mA at 230 V AC		
Counter Output (P/N Variable 7 & 8)	Pulse width: 300 ms +/-20%		

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## Function Diagrams

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



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