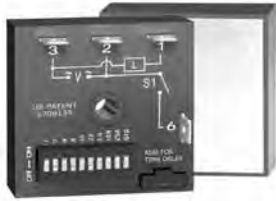


Dedicated  
timers

# ProgramaCube® NHPU Series Power Timing Module



US Patent 6708135



- 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

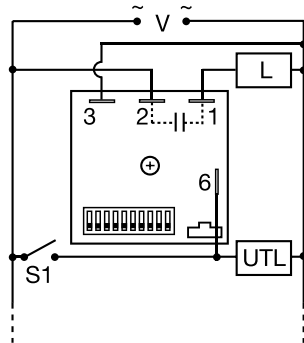
Approvals:



## 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
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.

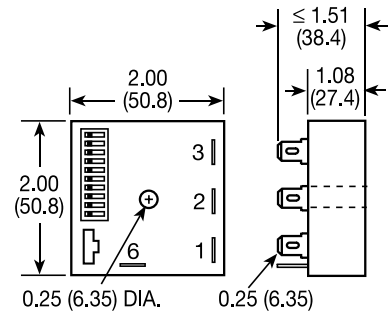
**Don't see what you need? Call us for a minimum quantity and price quote!**

## 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

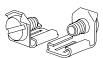
Code	Function
M	Delay on Make
B	Delay on Break
RE	Recycle (ON Time First, Equal Times)
RD	Recycle (OFF Time First, Equal Times)
S, SD	Single Shot
I	Interval
TS	Trailing Edge Single Shot
US	Inverted Single Shot
UB	Inverted Delay on Break
AM	Accumulative Delay on Make
	Motion Detector/Retriggerable
PSD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

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

## 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.

# ProgramaCube®

## NHPU Series

### Power Timing Module

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#### 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.

