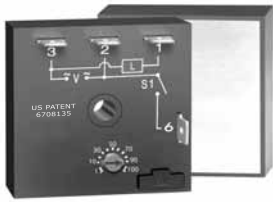


ProgramaCube® NHPS Series Power Timing Module

3



US Patent 6708135



- High Load Currents up to 20 A, 200 A Inrush
- Factory Programmed
- Choose 1 of 12 Standard Functions
- Special Time Ranges and Functions Available
- Microcontroller Circuitry, +/-0.5% Repeat Accuracy
- Onboard Adjust, External Adjust, or Fixed Time Delay
- 24 ... 240 V AC
- Delays from 100 ms...1000 h in 9 Ranges

Approvals:

Accessories

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

Versa-knob
P/N: P0700-7

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

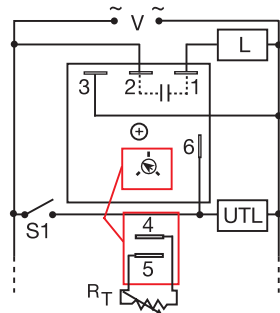
Quick connect to screw adaptor
P/N: P1015-18

See accessory pages for specifications.

Description

The NHPS Series is a factory programmed module available in any 1 of 12 standard functions. The NHPS offers a single, fixed, onboard adjustment or an externally adjustable time delay. 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. 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 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 NHPS Series is a cost effective approach for OEM applications that require small size and solid state reliability. Special time ranges and functions are available, contact Technical Assistance (see below) for more information.

Connection



Terminal Location for External Adjustment

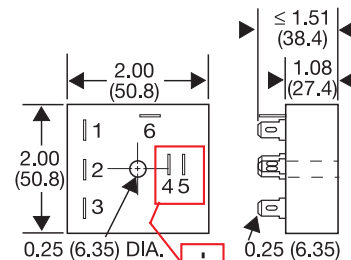
V = Voltage S1 = Initiate Switch
UTL = Untimed Load L = Load

A knob is supplied for adjustable units, or R_T terminals for external adjust. See external adjustment vs time delay chart. The untimed load is optional. S1 is not used for some functions. Dashed lines are internal connections.

External Resistance vs Time Delay

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

Mechanical View



Inches (Millimeters)

Knob Adjust Detail Replaces Terminals When Ordered.

**Function Chart

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

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

Ordering Table

NHPS	X	X	X	X
Series	Output Rating	Input	Adjustment	Time Delay*
	-A - 6 A	-A - 24 ... 240 V AC	-1 - Fixed	-1 - 0.1 ... 10 s
	-B - 10 A		-2 - Onboard Adjust	-2 - 1 ... 100 s
	-C - 20 A		-3 - External Adjust	-3 - 10 ... 1000 s
				-4 - 0.1 ... 10 m
				-5 - 1 ... 100 m
				-6 - 10 ... 1000 m
				-7 - 0.1 ... 10 h
				-8 - 1 ... 100 h
				-9 - 10 ... 1000 h

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

Example P/N: **NHPSAA22M** Fixed - **NHPSBA10.5SB**

ProgramaCube® NHPS Series Power Timing Module

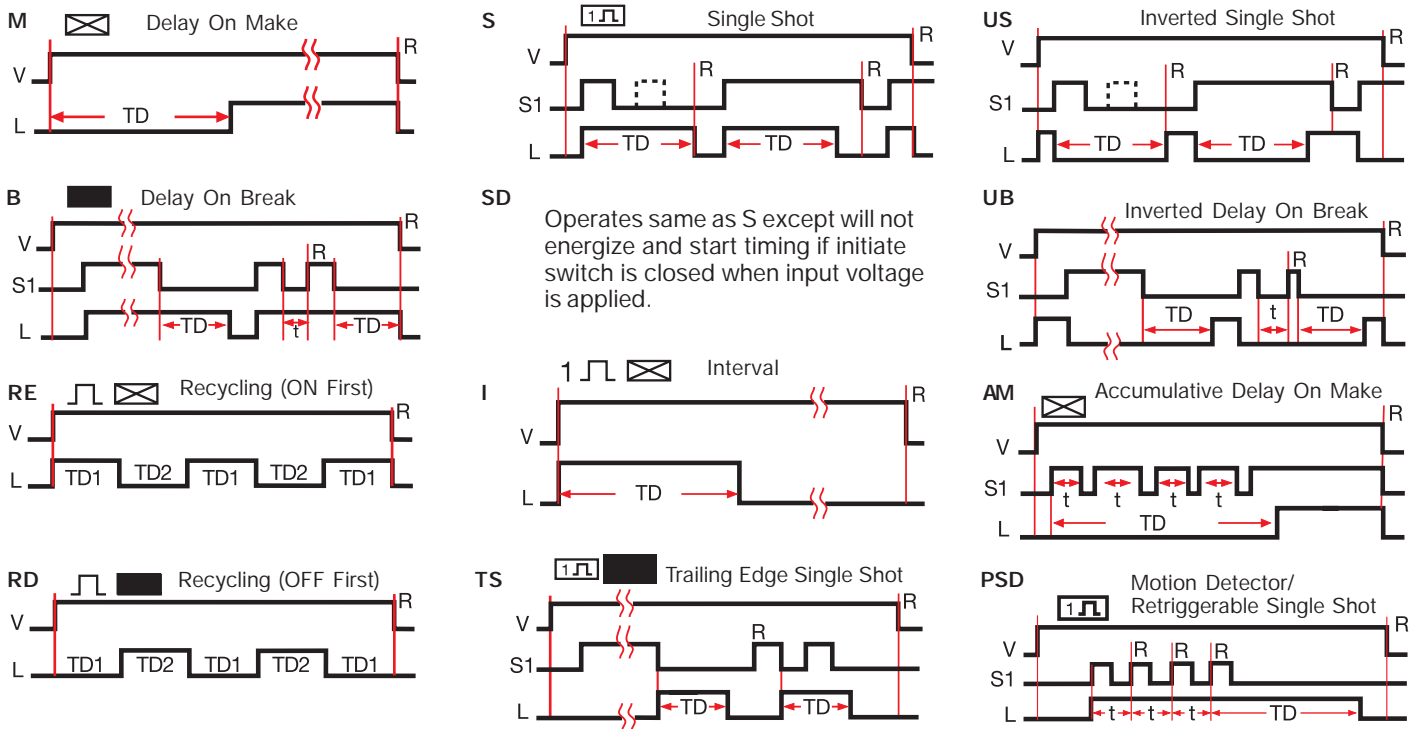
Technical Data

Time Delay Type: Microcontroller circuitry Range: 0.1 s ... 1000 h in 9 adjustable ranges or fixed Repeat Accuracy: +/-0.5% or 20 ms, whichever is greater Tolerance (Factory Calibration): ≤ +/-2% Reset Time: ≤ 150 ms Initiate Time: ≤ 20 ms; ≤ 1500 operations per minute Time Delay / Temp. & Voltage: ≤ +/-2%		Protection Circuitry: Encapsulated Dielectric Breakdown: ≥ 2000 V RMS terminals to mounting surface Insulation Resistance: ≥ 100 MΩ													
Input Voltage: 24 ... 240 V AC Tolerance: ≤ +/-15% Line Frequency: 50 ... 60 Hz		Mechanical Mounting ***: Surface mt. 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 connects													
Output Type: Solid state Rating: <table border="1"> <thead> <tr> <th>Output</th> <th>Steady State</th> <th>Inrush***</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>6 A</td> <td>60 A</td> </tr> <tr> <td>B</td> <td>10 A</td> <td>100 A</td> </tr> <tr> <td>C</td> <td>20 A</td> <td>200 A</td> </tr> </tbody> </table> Minimum Load Current: 100 mA Voltage Drop: ≅ 2.5 V at rated current OFF State Leakage Current: ≅ 5 mA at 230 V AC		Output	Steady State	Inrush***	A	6 A	60 A	B	10 A	100 A	C	20 A	200 A	Environmental Operating Temp.: -40°C ... +60°C Storage Temp.: -40°C ... +85°C Humidity: 95% relative, non-condensing Weight: ≅ 3.9 oz (111 g)	
Output	Steady State	Inrush***													
A	6 A	60 A													
B	10 A	100 A													
C	20 A	200 A													

***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.

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)

Legend

V	Voltage
R	Reset
S1	Initiate Switch
L	Output & Load
TD, TD1, TD2	Time Delay
t	Incomplete Time Delay
— —	Undefined time