

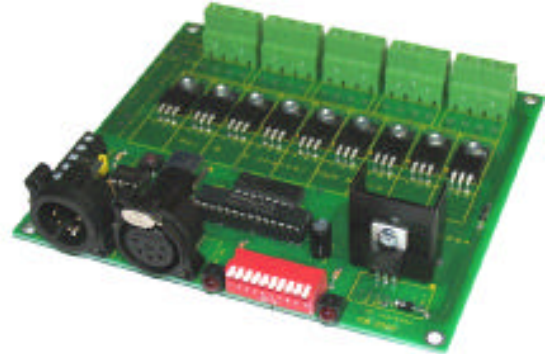
DMX- Duo Stepper Motor Driver

Version 1.1 -2012
WD1587

Overview

DMX- Duo Stepper driver board allows 2 Unipolar Stepper motors and 1 open collector output driver to be controlled from a DMX512 network.

The board provides 2 independent motor drives, 1 external load driver and requires 5 channels of DMX. The base address may be set anywhere between 1 and 508.



Connections:

DMX: Dual 5 Pin XLR (M/F) and 2 x 3-pin terminal connections 1/G = Cable Screen, 2/ 2= Data -, 3/ 3 = Data +.

Power: Standard Board power requirements are 9-12V DC at 1 Amp per motor coil + Decoder current @ 500ma. **Maximum 9 amps in total.**

Base Address Selection:

The base address may be set between 1 and 508 using the DIP switches. Calculate the setting by adding the value of the switches that are set to the ON position. The Base Address is continuously read, No address selected (address = 000, defaults to address 001).

Operation:

5 x DMX Channels are required channel 1 and 3 sets the motor speed and direction for motor A & B respectively, 00 = full speed FWD, 255 = Full speed reverse, 128 = Stop, Channels 2 and 4 enable the drive for the motors A and B respectively, a value of > 224 (87% DMX) will activate the coil outputs. Channel 5 activates the open collector output driver a value > 224 (87% DMX) switches output 9 ON.

Motor Coil connection:

The 8 motor coil outputs and driver are rated at **1 Amp Maximum (9 amps total) @ 9-12 VDC** and are arranged as open collector outputs for **Unipolar type motors only**.

The Motor coil positive terminals should be connected individually to any of the "+" input terminals and the coil negative terminals to the first 8 "-" input terminals on the board the output driver to Channel 9.

(Refer to the diagram below).

Indicators:

Power LED solid red LED when power applied.

DMX Status LED when a valid DMX signal being received- solid red LED. No DMX signal, flashing red LED.

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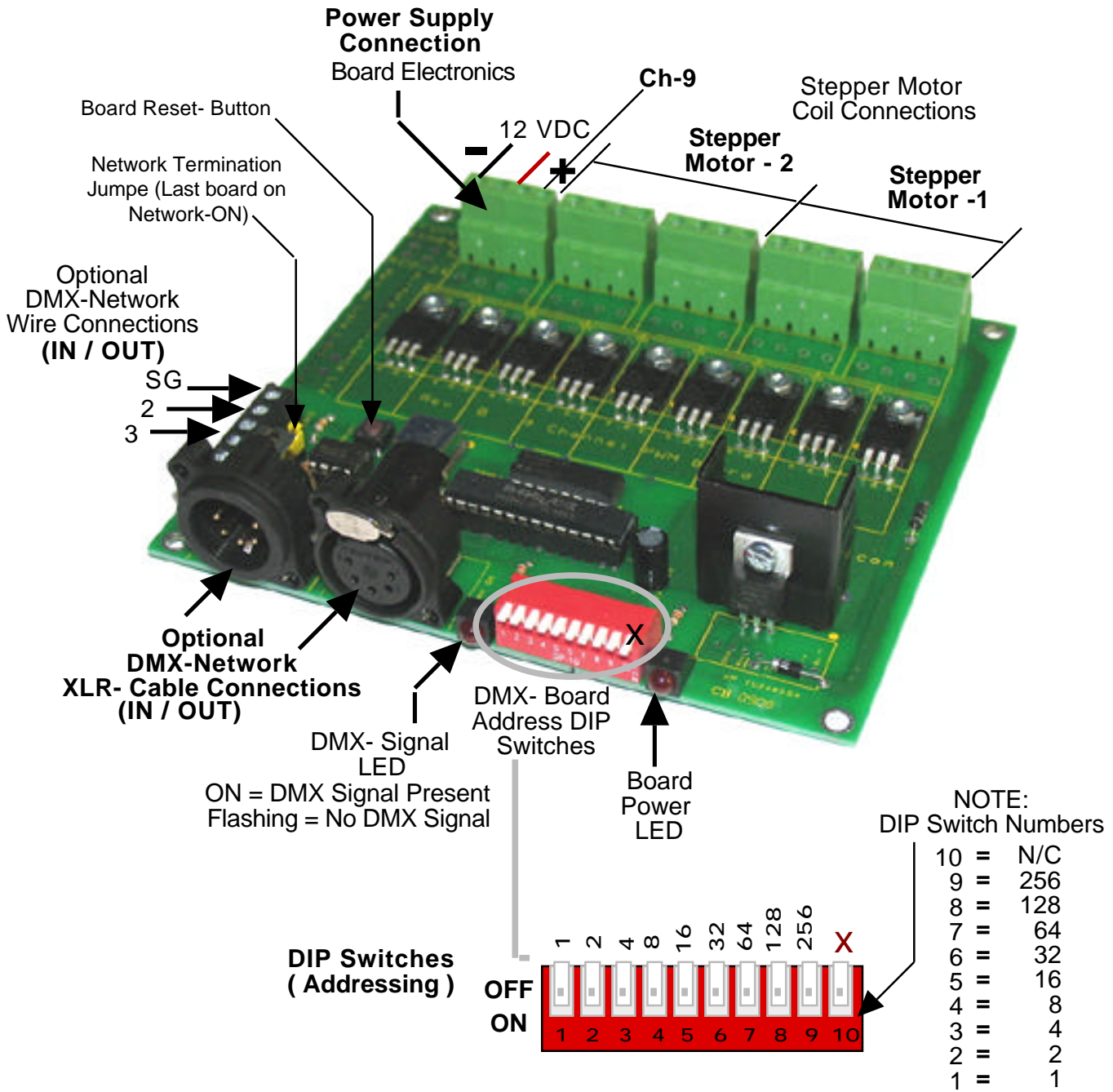
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Hook-up



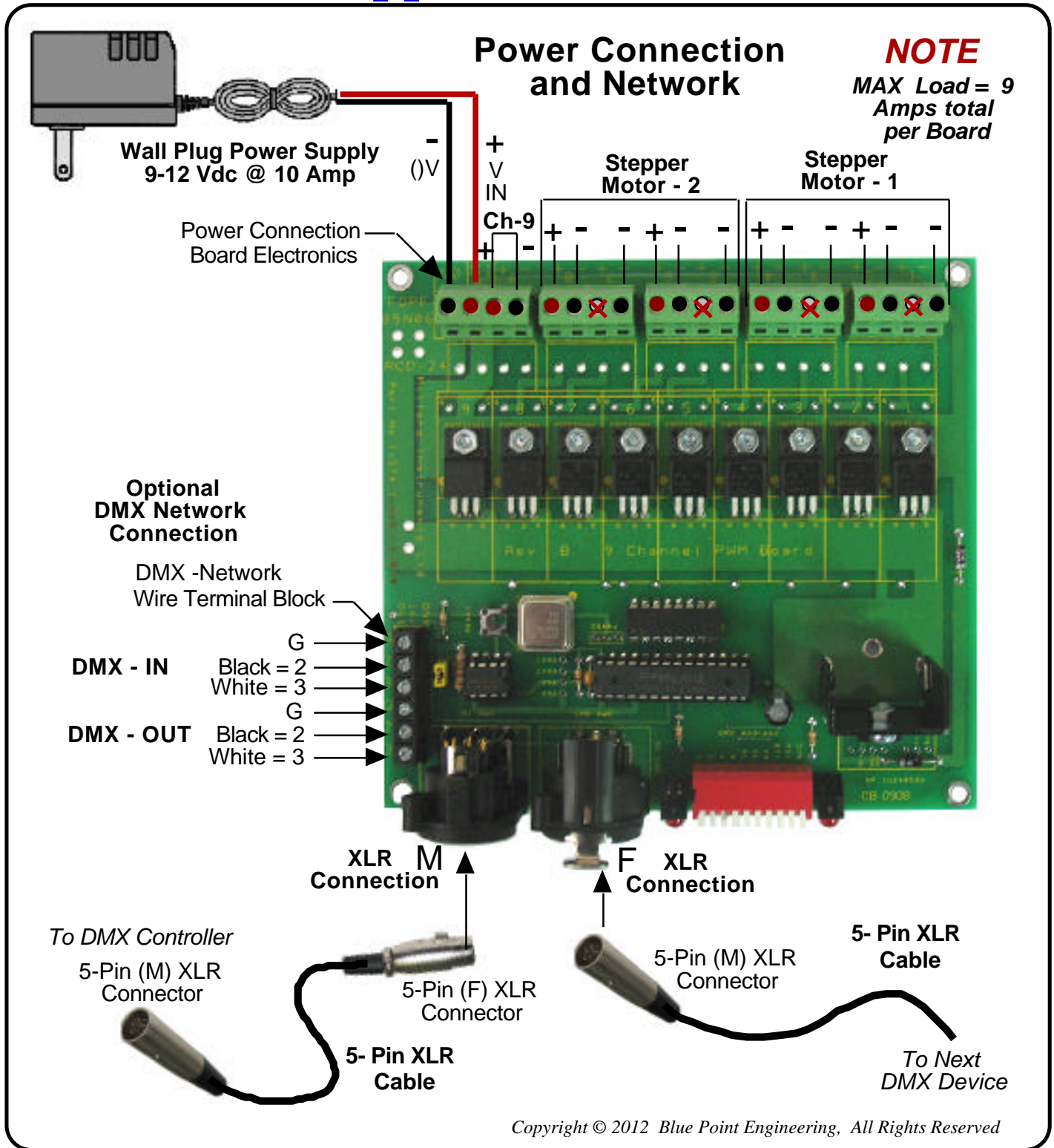
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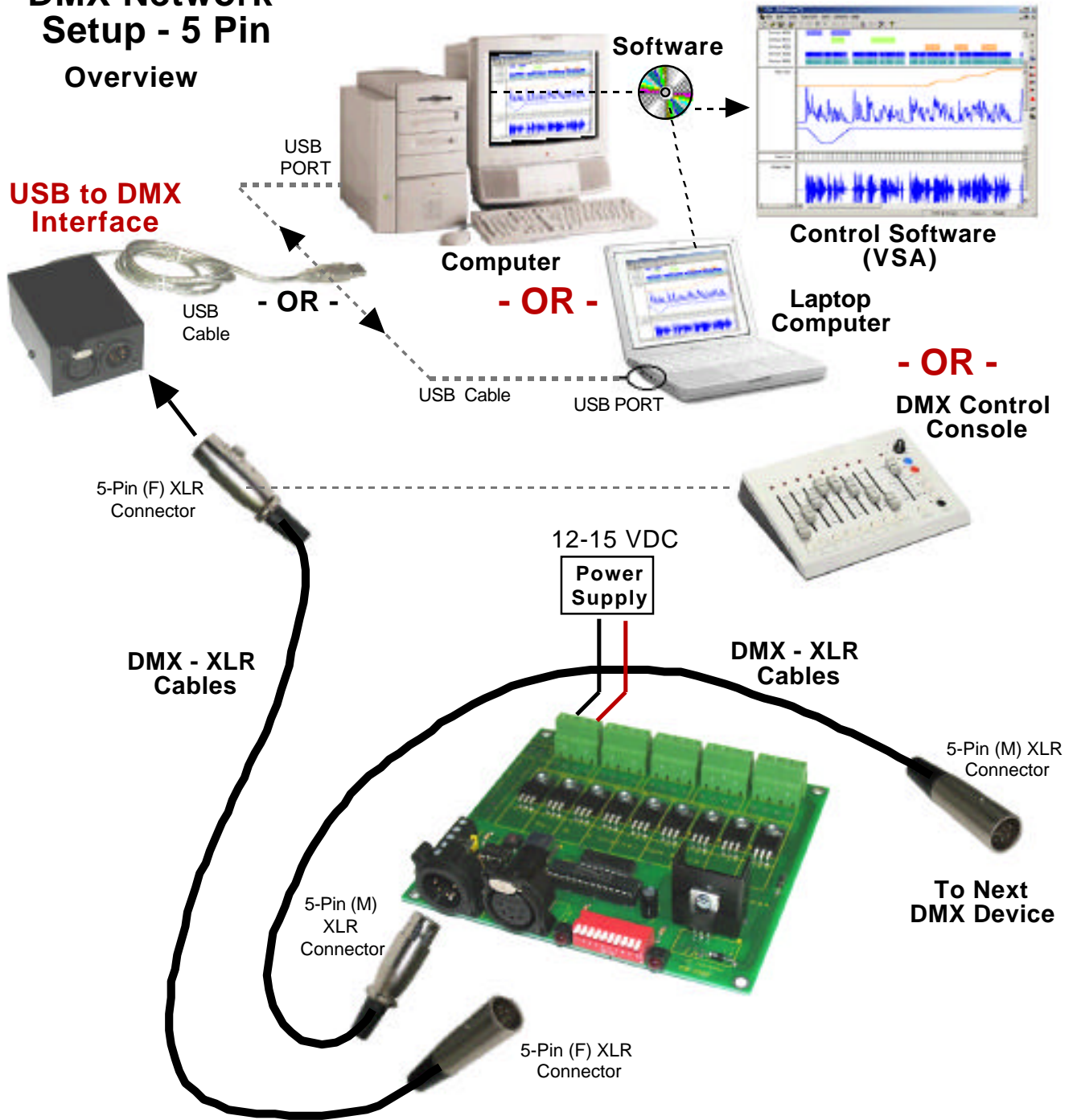
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DMX Network Setup - 5 Pin Overview



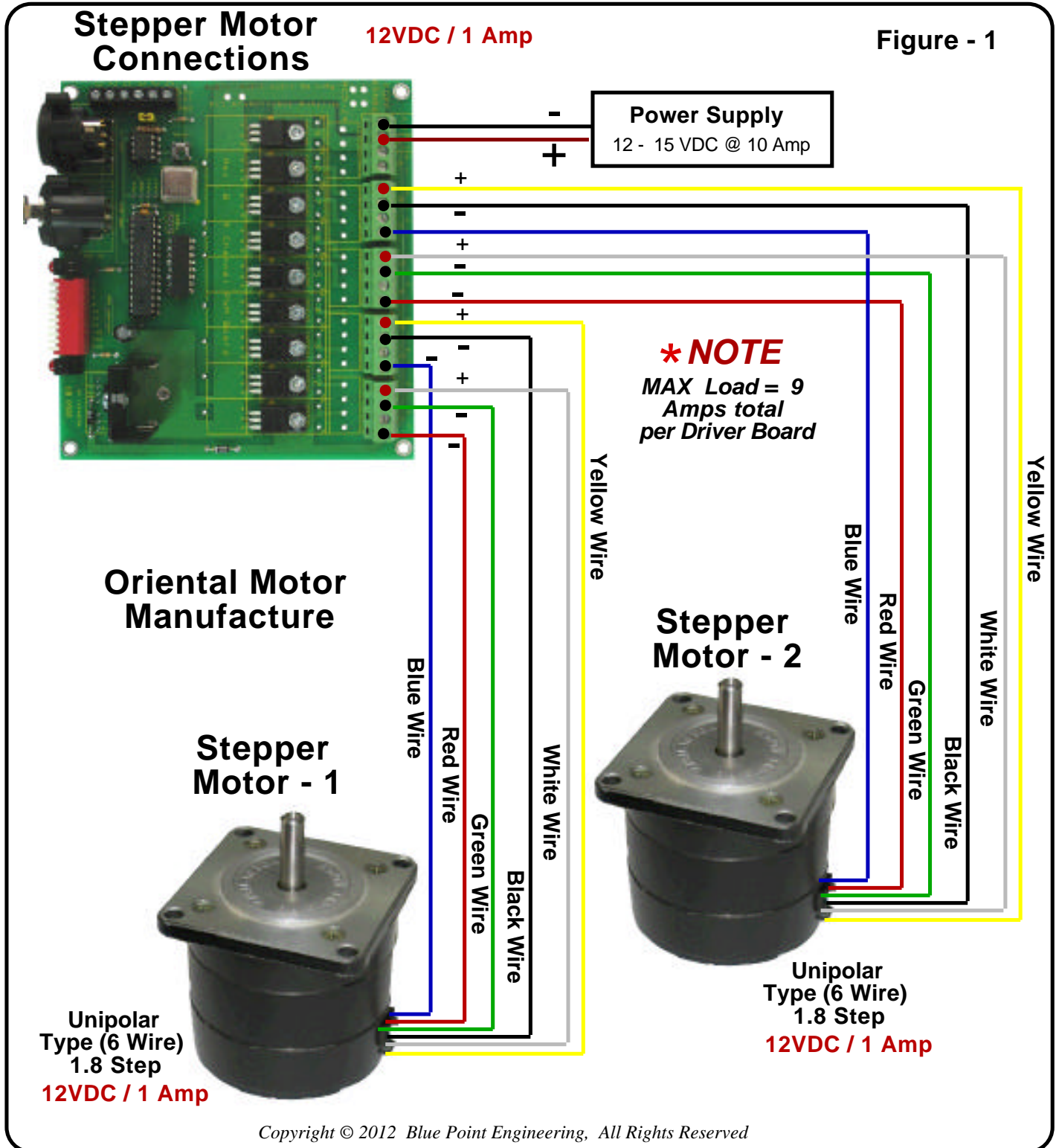
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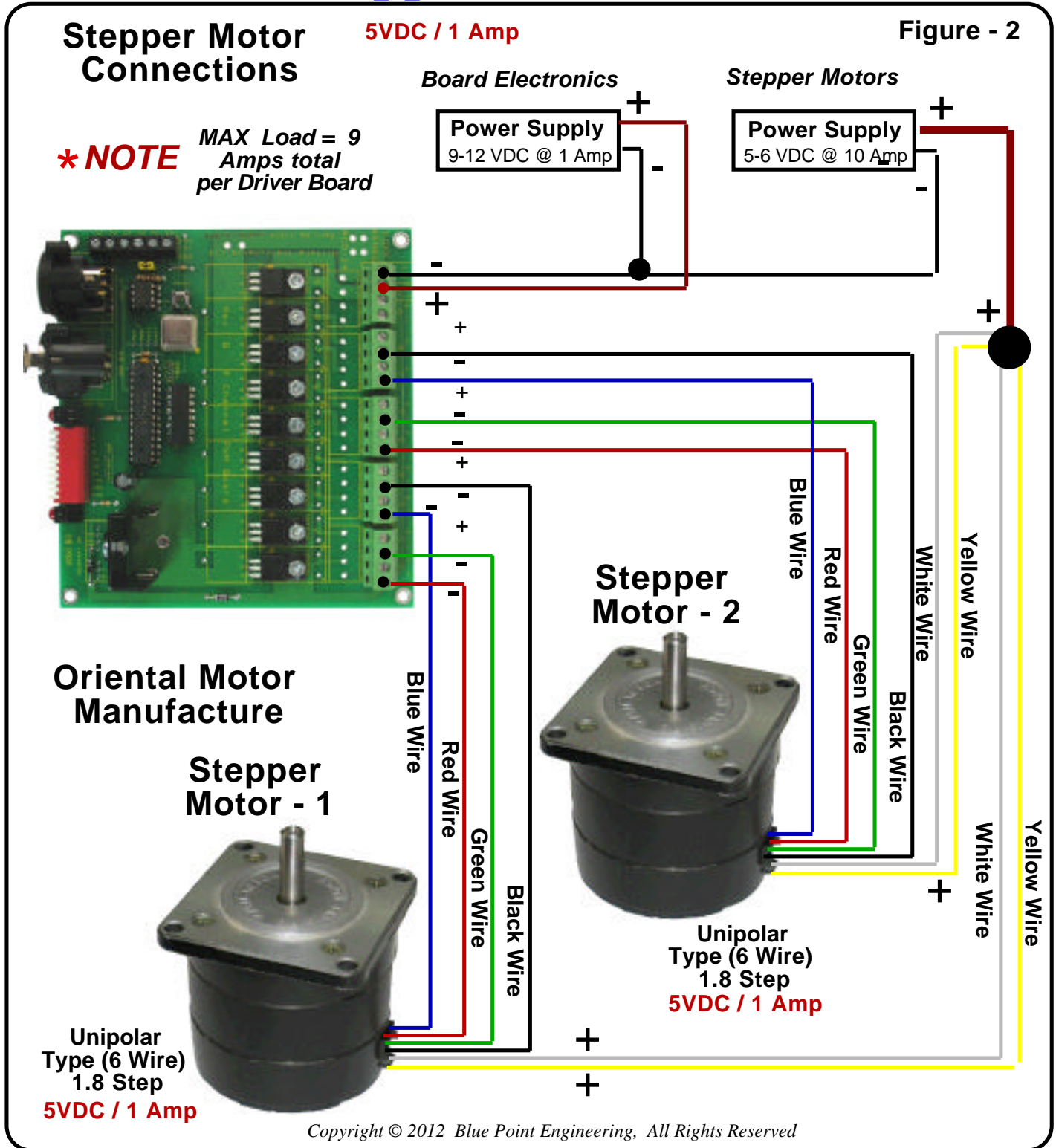
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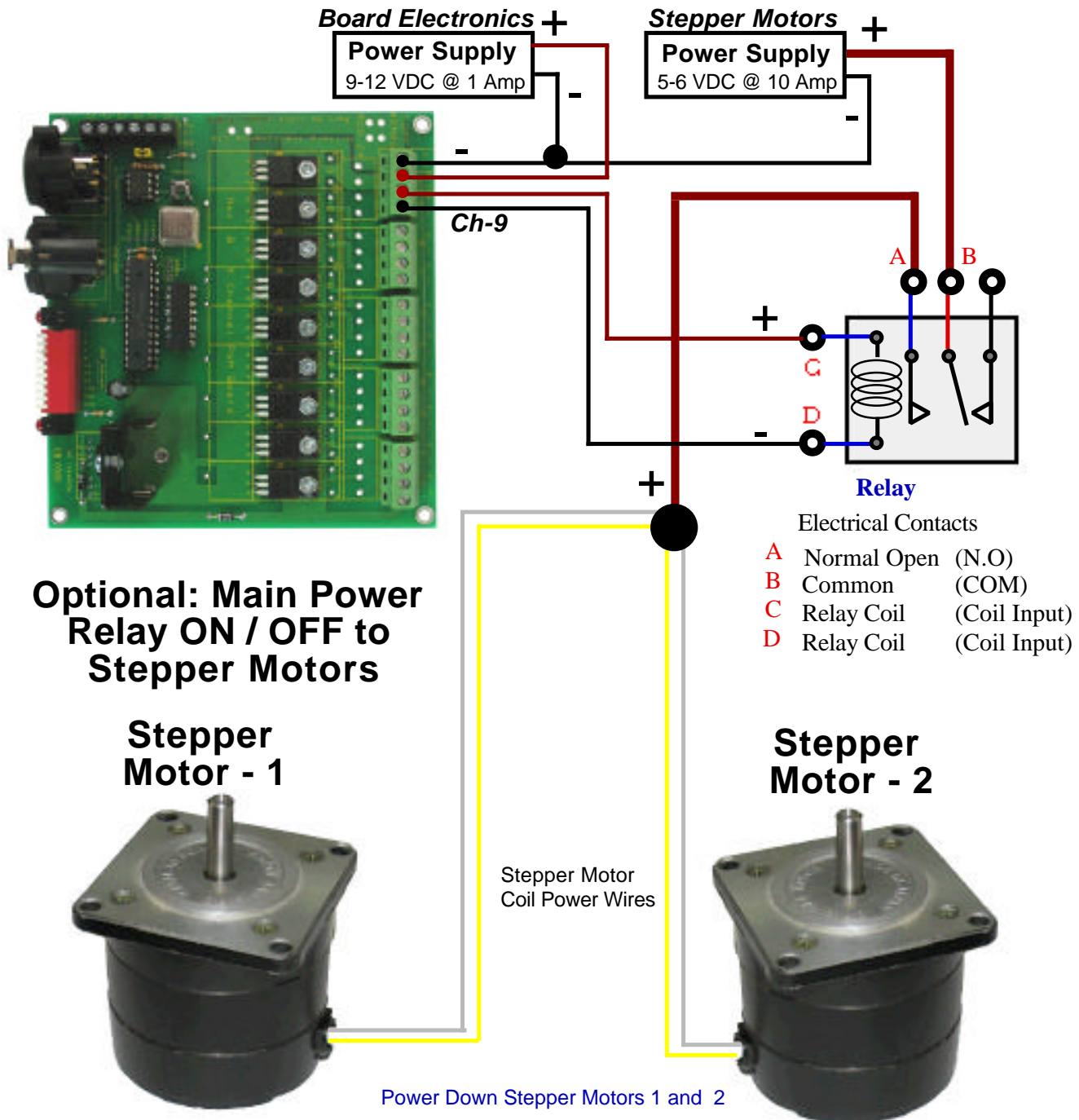
DMX- Duo Stepper Motor Driver



DMX- Duo Stepper Motor Driver

Optional- Board Ch-9 Connection

Figure - 3



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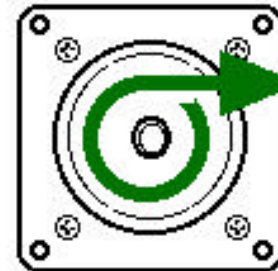
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DMX- Duo Stepper Motor Driver

Board Address

DMX - Stepper Motor - 1

Stepper Motor -1
(DMX Channel - 1 Stepper Motor -1 Rotation - (CW, CCW)
(DMX Channel - 2 Board Stepper Motor - 1 Drivers Energized)



Value 0 -127
CW

Stepper
Motor

DMX Channel-1
Clockwise Direction (CW)

Value 0 -127 = Stepper motor-1 rotates in the Clockwise Direction

Value 127 = Stepper Motor -1 movement near Stop

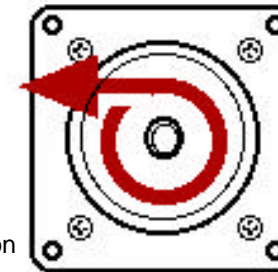
Value 128 = Stepper motor-1 rotates slowest rotation at 128msecs per step in the Clockwise Direction.

Value 0 = Stepper motor-1 rotates fastest rotation speed of 0.5msecs per step in the Clockwise Direction.

Note: Some Stepper motors may stall or shake at a value near 255, the stepper has exceeded the step rate designed in the motor. Lower the Value 255 - 250 to find the **Max** stepper speed for that type stepper design / manufacture type.

Note: Some Stepper motors may stall or shake at a value near 126-129, the stepper has exceeded the slowest step rate designed in the motor. Change the Value up to find the **Min** stepper speed for that type stepper design or manufacture type.

Value 129-255
CCW



Stepper
Motor

DMX Channel-1
Counter ClockWise Direction (CCW)

Values 129-255 = Stepper motor-1 rotates in the Counter Clockwise Direction

Value 128 = Stepper motor-1 movement near Stop

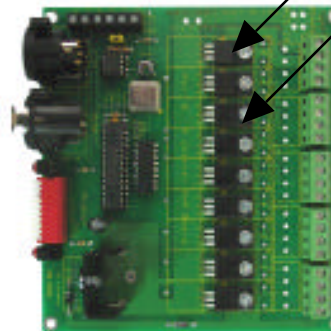
Value 129= Stepper motor -1 rotates slowest rotation speed at 128msecs per step in the Counter Clockwise Direction.

Value 255 = Stepper motor-1 rotates fastest rotation speed of 0.5msecs per step in the Counter Clockwise Direction.

Note: Some Stepper motors may stall or shake at a value near 0, the stepper has exceeded the step rate designed in the motor. Raise the Value 0-5 to find the **Max** stepper speed for that type stepper design / manufacture.

Note: Some Stepper motors may stall or shake at a value near 126-129, the stepper has exceeded the slowest step rate designed in the motor. Change the Value down to find the **Min** stepper speed for that type stepper design or manufacture type.

DMX Channel-2
Board Motor Drivers Energized - ON / OFF
 Value 128 - 255 = Board Motor Driver Activated (ON)
 Value 127- 0 = Board Motor Driver NOT activated (OFF)



Board Motor Drivers



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Board Address

DMX - Stepper Motor - 2

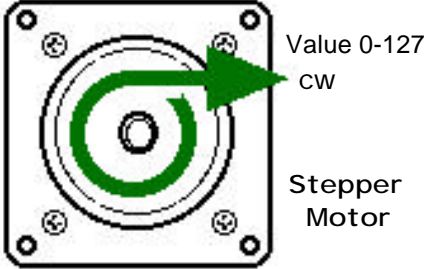
Stepper Motor -2
(DMX Channel - 3 Stepper Motor -2 Rotation - (CW, CCW)
(DMX Channel - 4 Board Stepper Motor - 2 Drivers Energized)

DMX Channel-3 Clockwise Direction (CW)

Value 0 -127 = Stepper motor-2 rotates in the Clockwise Direction
Value 128 = Stepper motor-2 movement near Stop
Value 127 = Stepper motor -2 rotates slowest rotation at 128msecs per step in the Clockwise Direction.
Value 0 = Stepper motor -2 rotates fastest rotation speed of 0.5msecs per step in the Clockwise Direction.

Note: Some Stepper motors may stall or shake at a value near 255, the stepper has exceeded the step rate designed in the motor. Lower the Value 255 - 250 to find the **Max** stepper speed for that type stepper design / manufacture type.

Note: Some Stepper motors may stall or shake at a value near 126-129, the stepper has exceeded the slowest step rate designed in the motor. Change the Value up to find the **Min** stepper speed for that type stepper design or manufacture type.

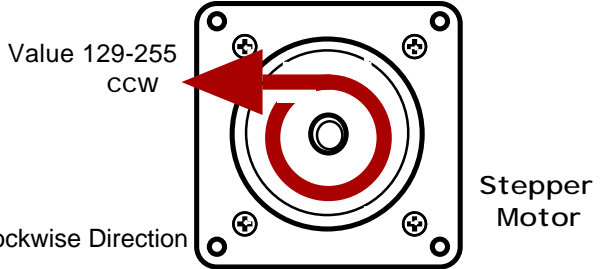


DMX Channel-3 Counter Clockwise Direction (CCW)

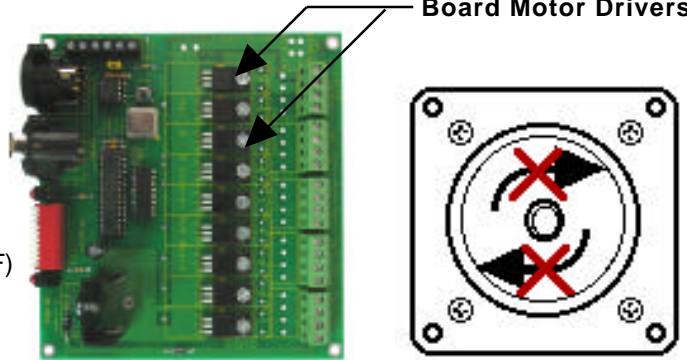
Values 129-255 = Stepper motor -2 rotates in the Counter Clockwise Direction
Value 128 = Stepper motor-2 movement near Stop
Value 129 = Stepper motor -2 rotates slowest rotation speed at 128msecs per step in the Counter Clockwise Direction.
Value 255 = Stepper motor -2 rotates fastest rotation speed of 0.5msecs per step in the Counter Clockwise Direction.

Note: Some Stepper motors may stall or shake at a value near 0, the stepper has exceeded the step rate designed in the motor. Raise the Value 0-5 to find the **Max** stepper speed for that type stepper design / manufacture.

Note: Some Stepper motors may stall or shake at a value near 126-129, the stepper has exceeded the slowest step rate designed in the motor. Change the Value down to find the **Min** stepper speed for that type stepper design or manufacture type.



DMX Channel-4
Board Motor Drivers Energized - ON / OFF
Value 128 - 255 = Board Motor Driver Activated (ON)
Value 127- 0 = Board Motor Driver NOT activated (OFF)



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DMX- Duo Stepper Motor Driver

Board Address

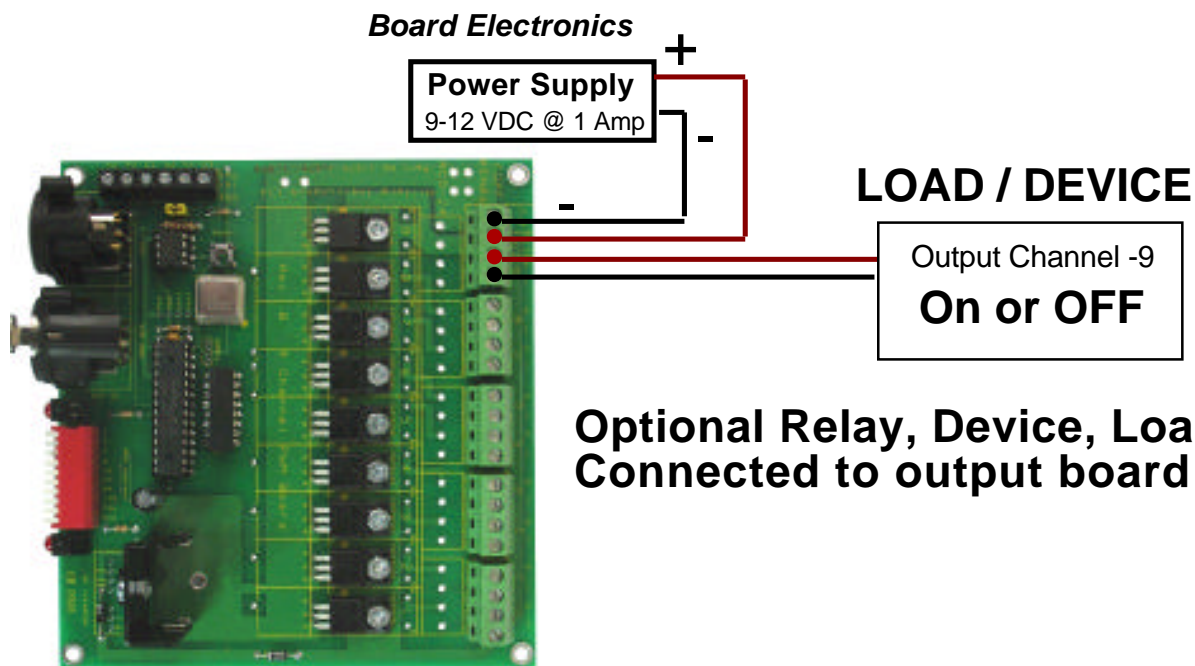
DMX - Channel 5

DMX Channel 5 activates the open collector output driver, switches board output 9 ON or OFF.

(DMX Channel - 5 Energize - (ON / OFF)

Value 224 - 255 = Board Ch-9 Output Energized **ON** (87% DMX)

Value 223 - 0 = Board Ch-9 Output Energized **OFF**



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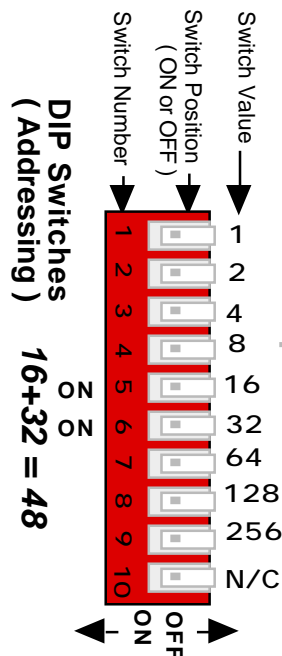
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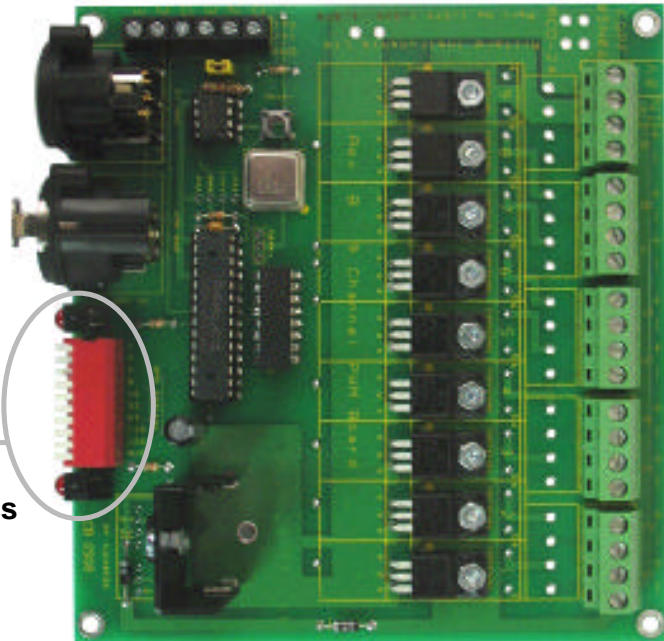
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DMX-Duo Stepper Motor Driver

Board Address DMX - Values



Base address selectable between 1 and 503



Power Supply
Ch-9
Ch-4
Ch-3
Ch-2
Ch-1

NOTE: Address=000 defaults to Address 001

Setting the base address of Stepper Motor Channel Outputs

Add the value of the address DIP switches set to the **ON** position to calculate the base address.

Example: DIP switches 5 and 6 set to **ON** position, the base address is now 48, (16+32) this setting is used to determine the starting address output of **Channel-1**, the next Channel would be address 49 for **Channel-2**, and the next 50 for **Channel-3**, 51 for **Channel-4**, 52 for **Channel-5**.

Stepper Motor - 1

DMX Channel-1 = Stepper Motor 1- Direction (CW / CCW)
 DMX Value 0 - 127 = Stepper Motor -1 CW Rotation
 DMX Value 128 = Stepper Motor 1- STOP
 DMX Value 129- 255 = Stepper Motor -1 CCW Rotation
DMX Channel-2 = Stepper Motor 1- Enable Driver output
 DMX Value 224-255 = ON output
 DMX Value 223-0 = OFF output

Stepper Motor - 2

DMX Channel-3 = Stepper Motor 2- Direction (CW / CCW)
 DMX Value 0 - 127 = Stepper Motor-2 CW Rotation
 DMX Value 128 = Stepper Motor STOP
 DMX Value 129- 255 = Stepper Motor-2 CCW Rotation
DMX Channel-4 = Stepper Motor 2- Enable Driver output
 DMX Value 224-255 = ON output
 DMX Value 223-0 = OFF output

DMX Board Channel - 9 (Output driver)

DMX Channel-5 = Activated ON / OFF output driver on board channel-9
 DMX Value 0- 224 = Open Collector Output Driver OFF
 DMX Value 224- 255 = Open Collector Output Driver ON

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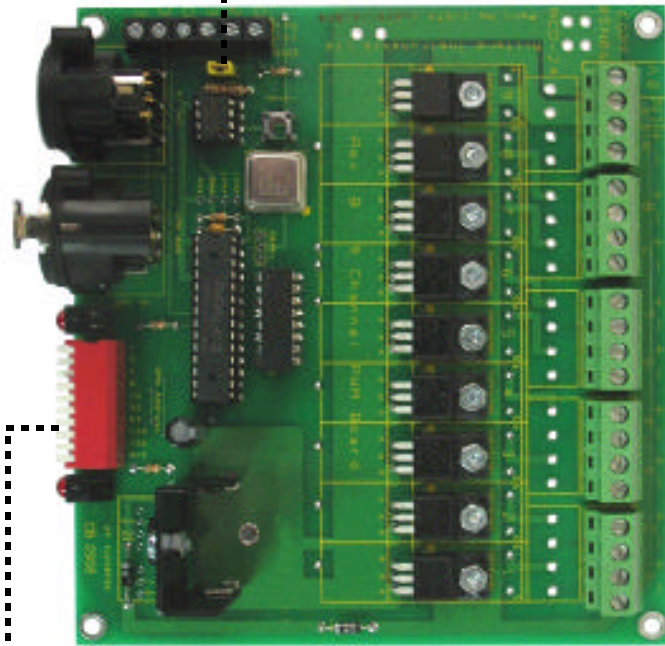
DMX- Duo Stepper Motor Driver

Notes / Worksheet:

DMX Duo Stepper Motor BOARD NO: _____

DMX Duo Stepper Motor Application: _____

TRM = (ON /OFF) _____



Addressing

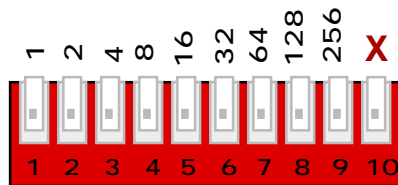
Application Output

Ch -3

Ch -2

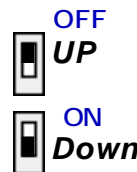
Ch -1

Addressing



Switch Positions
(UP / Down)

1 = ON
0 = OFF



- SW-1
- SW-2
- SW-3
- SW-4
- SW-5
- SW-6
- SW-7
- SW-8
- SW-9

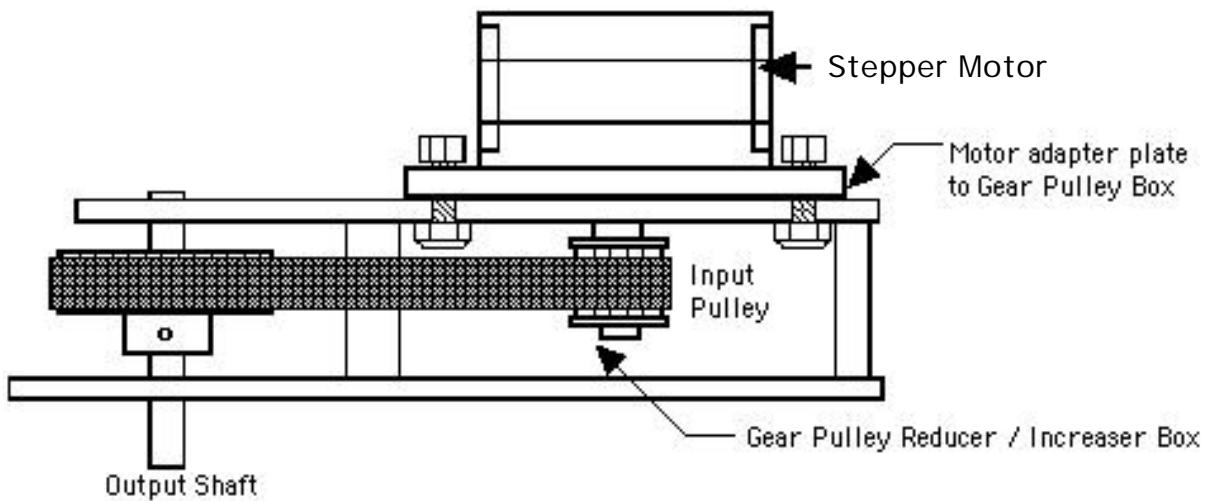
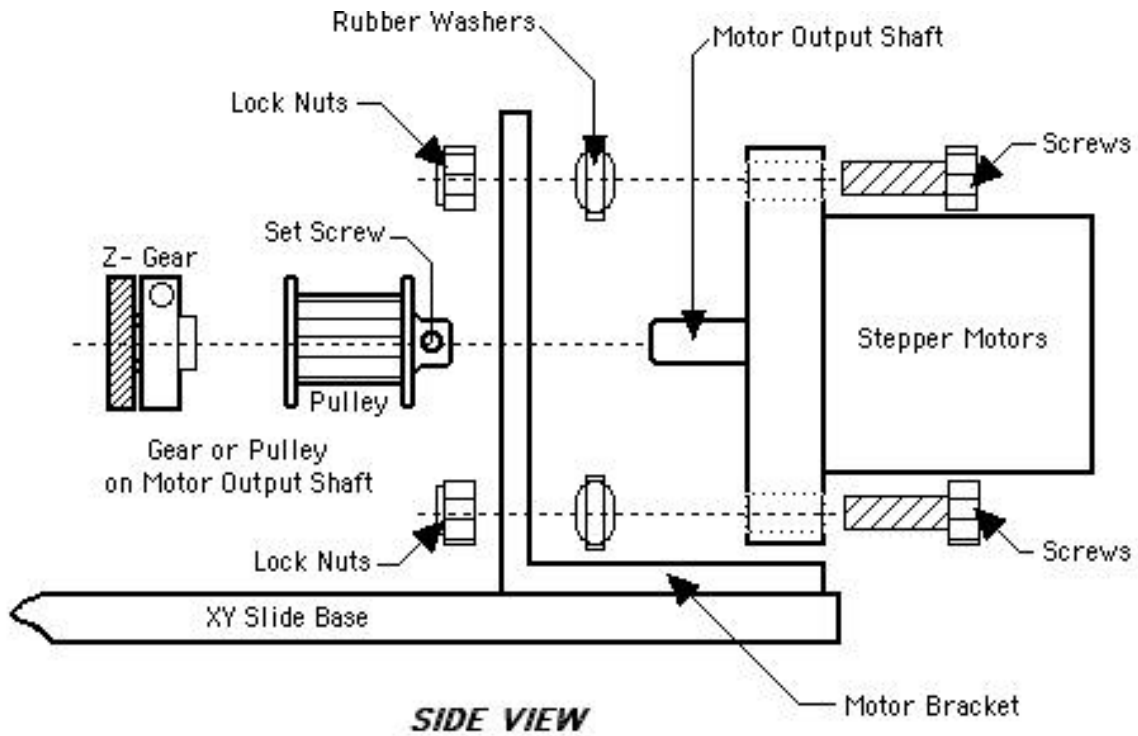
BASE Addressing

Value	0	1
	OFF	ON

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

DMX Position

DMX- Duo Stepper Motor Driver



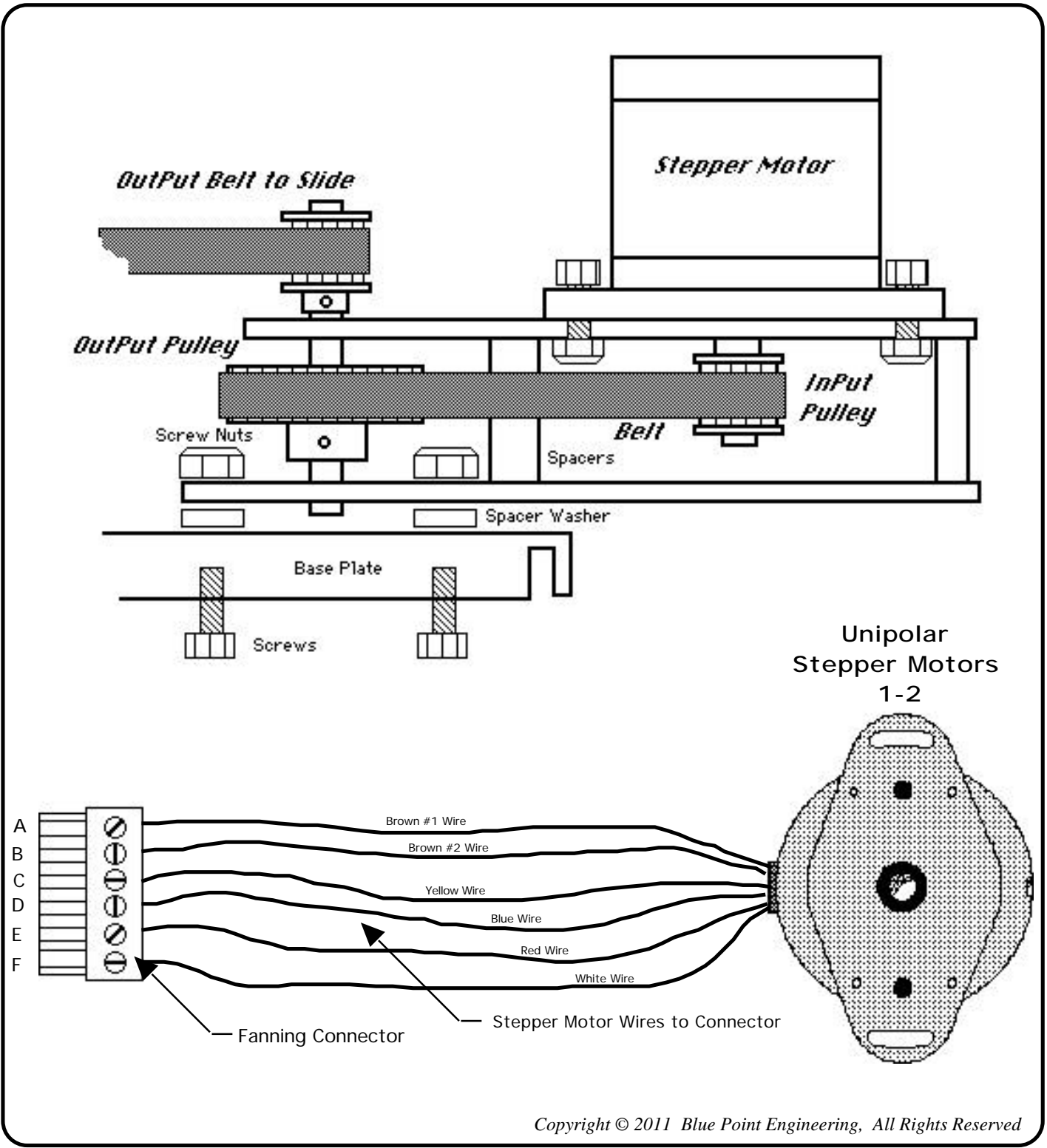
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