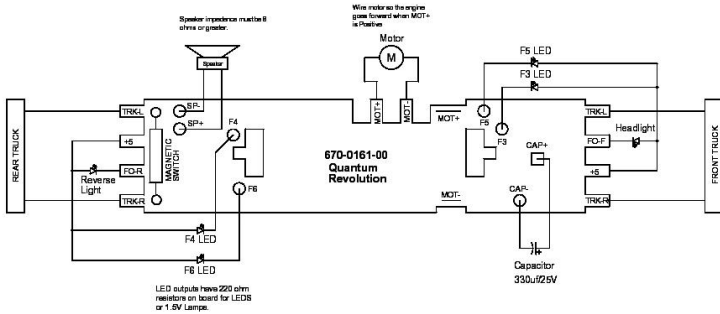
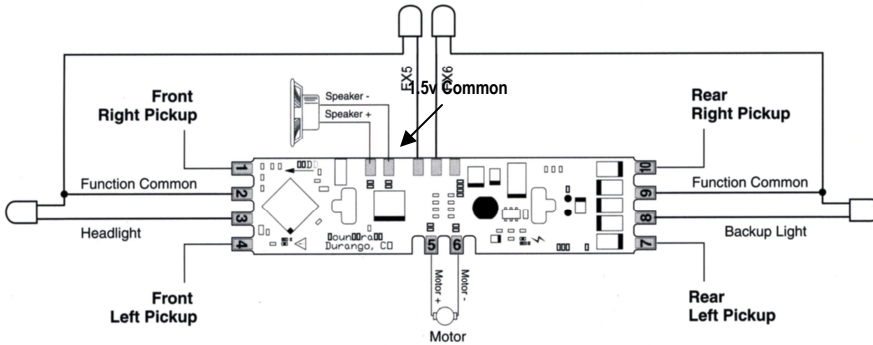


# DCC Cheat Sheet



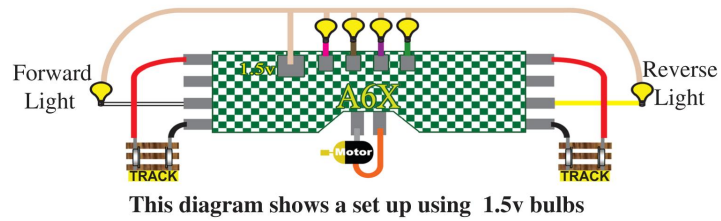
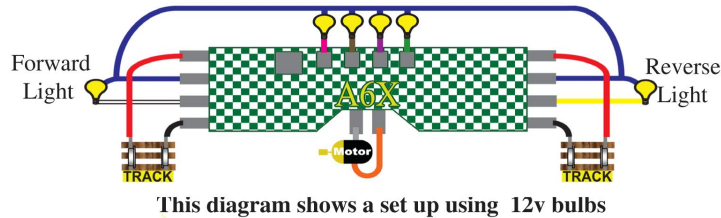
## QSI Revolution A Sound Decoder

Note: FOF, FOR are set up for LED's. For Light bulbs change SMF resistors. Example: 47 ohm for 2—1.5v 30 ma bulbs



## Tsunami AT-1000 Sound Decoder

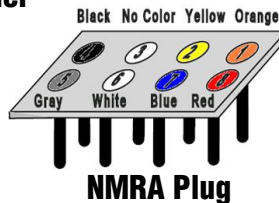
1. Normal Light functions are 14v DC use resistors for LED, etc.
2. Use 1.5v common for 1.5v bulbs.



## TCS A6X Plug & Play Decoder



## Wired Decoder



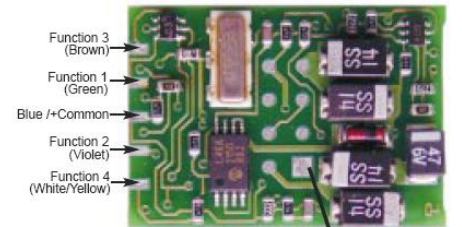
## NMRA Plug

## Digitrax Sound Only (SFX004)

## Sound Bug



Figure 4. DH163IP Decoder Function Outputs



## NMRA Plug Decoder

DCC Plug Pin 1 (Square Pad) (Plug pins on other side)

## Decoder Color Code

Track:

**Red (Engineer)**

**Black**

Motor:

**Gray**

**Orange +**

Lights:

**Blue - Common**

**White - F0 (Forward)**

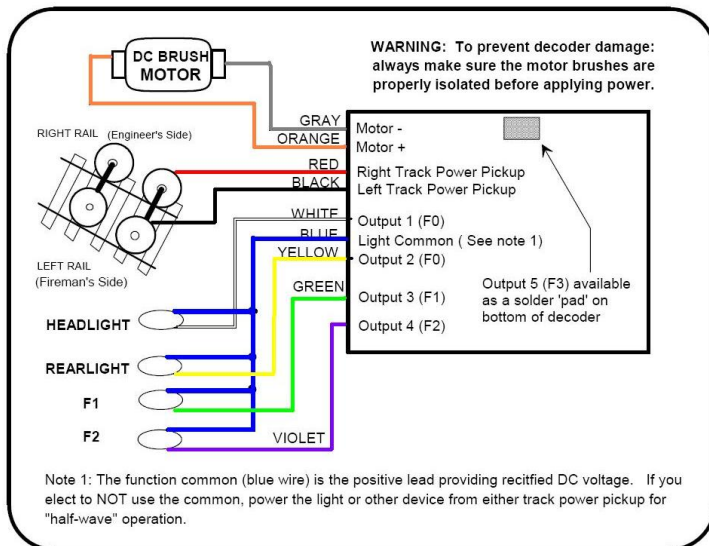
**Yellow - F0 (Reverse)**

**Green - F1**

**Violet - F2**

**Brown - F3**

**White/Yellow - F4**



**Lighting Notes:**

**Lights of Choice:**  
 Miniatronics 18-C03-10  
 1.5v 30ma

**Start Resistor**  
 Headlight/Taillight  
 Single bulb-402Ω 1/2w  
 Dual Bulbs-391Ω 1/2w  
**Mars/Gyralight**  
 Single Bulb-391Ω 1/2w  
 Dual Bulbs-361Ω 1/2w

**Recommend dropping resistors if using 1.5 volt bulbs**

Bulb Current	Track Voltage (14 volts is typical for HO scale)								Wattage
	12.5	13	13.5	14	14.5	15	15.5	16	
15ma	680	680	720	750	820	820	910	910	¼ watt
30ma	330	360	360	390	390	430	430	470	½ watt
40ma	240	270	270	300	300	300	330	330	1 watt
50ma	200	200	220	220	240	240	270	270	1 watt
60ma	160	180	180	200	200	200	220	220	1 watt
80ma	120	130	130	150	150	160	160	160	2 watt

**Resistor selection:**  
 302,331,361,391,402,431 all 1/2w

**Digitrax Decoder notes:**

1. Eliminating the Jump in DH163x, DH165x Decoders: Caused by EMF Problems

Reset CV as follows: (decimal)

CV	Description	De-fault	Change
55	Static Compensation	128	64
56	Dynamic Compensation	48	24
57	Intensity (Droop)	6	3

2. Auto reverse for FX<sup>3</sup> Functions  
 Values for CV 113 (F3),114 (F4),115 (F5),116 (F6) (decimal)

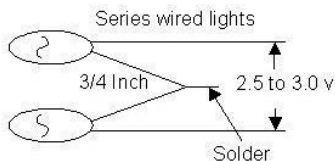
Direction	Value
Forward	32
Reverse	48

When using bulbs rated less than the track voltage, you must use a resistor in series with the bulb.

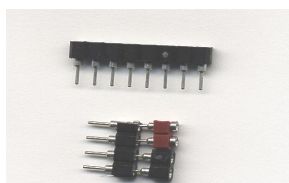
Light Type and Power Source		Resistor Values in Ohms		
Quantity and Type of Light	Power Wire	12 V. Track	14 V. Track	16 V. Track
12 V (1) 30mA Bulb (2) 30mA Bulbs in Parallel (3) 30mA Bulbs in Parallel	Blue	0 to 100	47 to 150	100 to 220
		0 to 68	33 to 82	56 to 100
		0 to 68	10 to 68	22 to 68
1.5 Volt (1) 15mA Bulb (2) 15mA Bulbs in Series (4) 15mA Bulbs in Series	Blue			
1.5 Volt (1) 30mA Bulb (2) 30mA Bulbs in Series (4) 30mA Bulbs in Series	Blue	270 to 390	330 to 390	470 to 560
		220 to 330	270 to 330	470 to 560
		180 to 270	270 to 390	330 to 470
LED (1) 30mA Bulb (2) 30mA Bulbs in Series (4) 30mA Bulbs in Series	Red or Black	180 to 270	220 to 330	270 to 390
		100 to 180	150 to 220	220 to 330
		10 to 100	47 to 150	82 to 180
LED (1) White LED (2) White LEDs in Series (1) Color LED (2) Color LEDs in Series (3) Color LEDs in Series (4) Color LEDs in Series	Red or Black	180 to 1200	220 to 1500	270 to 1800
		82 to 680	150 to 820	180 to 1200
		220 to 1200	270 to 1800	330 to 2200
LED (2) Color LEDs in Series (3) Color LEDs in Series (4) Color LEDs in Series	Red or Black	150 to 1000	220 to 1500	270 to 1800
		0 to 560	100 to 1000	220 to 1200
			82 to 820	180 to 1000
Constant Lighting Wired Across Rails		12 V. Track	14 V. Track	16 V. Track
12 V (1) 30ma Bulb (2) 30ma Bulbs in Parallel (3) 30ma Bulbs in Parallel (4) 30ma Bulbs in Parallel	Red to Black	0 to 100	82 to 150	150 to 330
		0 to 68	47 to 82	82 to 150
		0 to 33	33 to 56	56 to 100
LED (1) White LED (2) White LEDs in Series (2) Color LEDs in Series	Red to Black	0 to 22	22 to 47	39 to 82
		180 to 1200	270 to 1500	330 to 1800
		100 to 680	180 to 1000	220 to 1200
LED (2) Color LEDs in Series	Red to Black	180 to 1000	220 to 1200	270 to 1500

NOTE: If you are powering features with the red or black wires, make sure to make those features inactive on DC power because the voltage will be higher. See table 16.

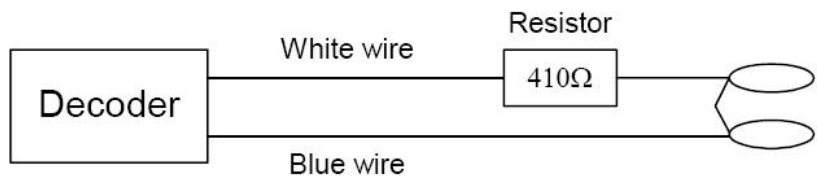
**Series Lighting with a resistor**



**SIPP Pins**



By Bob Rohwer  
 Revised 2/2010



**Resistors and SIPP pins on a Digitrax DH163AO**

