



## **Remote Coupler Driver**

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## Table of Contents

Introduction.....	3
The Circuit Board.....	4
Power.....	4
Solenoid Output.....	4
Servo Output.....	4
Trigger & Aux Power Inputs.....	4
DCC.....	5
DCC Checkout.....	5
DCC Function Defaults.....	5
Control Variables (DCC CV).....	6
Remote Control.....	7
Remote Control Checkout.....	7
Default Trigger Assignments.....	7
Adjusting Settings.....	7
Computer Interface.....	7
Appendix A: General Wiring Diagrams.....	8
DCC.....	8
Remote Control.....	8
Wiring Diagram Reference Chart.....	9
Appendix B: The LED Codes.....	9
Appendix C: Technical Specifications.....	9
Warranty.....	10

## **Introduction**

The Phoenix Remote Coupler Driver is designed to provide flexibility and options in the control of remote operated couplers. This driver board is capable of operating servo based remote couplers as well as solenoid powered couplers. By default the servo coupler will automatically close 10 seconds after opening.

This board is compatible with both remote control and DCC, capable of being controlled by your existing throttle.

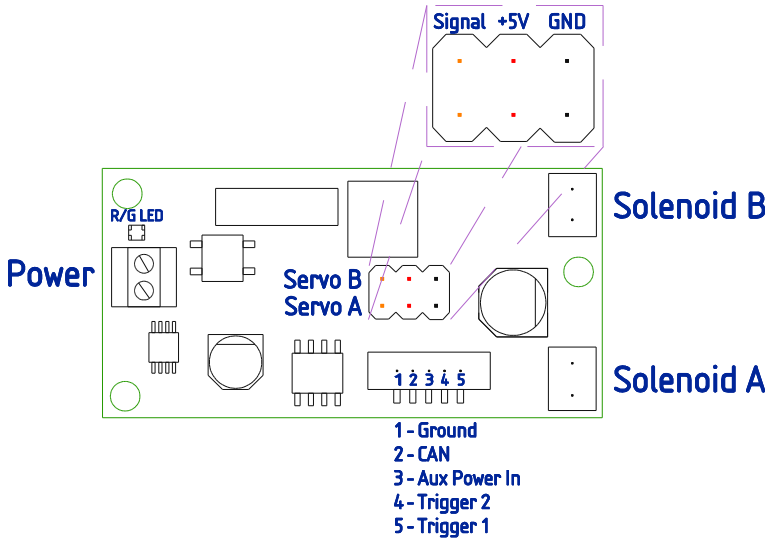
The Remote Coupler Driver is a stand alone DCC coupler decoder supporting long & short addressing, configuration by Control Variables and functions 1 through 16.

For Non-DCC remote control systems this board has 2 external trigger inputs.

The circuit board has 4 outputs, 2 for solenoid (pulsed) operation and two for servo or DC on/off control.

Please read this handbook and any included installation notes prior to installation and operation. Contact us if you have questions or are unsure about any aspect of installation or operation.

## The Circuit Board



### Power

Power is connected to the 2 position screw terminal on the board, input voltages range from 5-24V AC, DC or DCC. Polarity does not matter.

### Solenoid Output

Two solenoid outputs are on the board, these are 2 position JST connectors located on the edge of the board opposite the power terminals. Simply plug the mating connector from the Phoenix Knuckle Coupler into the socket.

### Servo Output

The two servo connections are located in the center of the board. These mate with a standard 0.1" 'JR' style connector. The diagram detail above shows the correct pin order for the power, signal and ground connections.

### Trigger & Aux Power Inputs

Located along the long axis of the board is a JST 5 position connector. This is a multi purpose connector. Pin 1 is ground. Pin 2 is a data connection to a BigSound board. Pin 3 is a backup +V DC power input, such as from a BigSound board. Pins 4 & 5 are the trigger connections for non-DCC remote control devices such as the Phoenix Wireless Buttons.

# DCC

## DCC Checkout

Connect both the Power terminals to the track pick ups of your locomotive or DCC output of your Airwire receiver. Select address 3, the default coupler board address, on your DCC controller. Test the function buttons, default function button assignments are in the chart below.

## DCC Function Defaults

Address: 3

Function	Effect
F1	<unassigned>
F2	<unassigned>
F3	Solenoid A & Servo A
F4	<unassigned>
F5	<unassigned>
F6	<unassigned>
F7	<unassigned>
F8	<unassigned>
F9	<unassigned>
F10	<unassigned>
F11	<unassigned>
F12	<unassigned>
F13	Solenoid B & Servo B
F14	<unassigned>
F15	<unassigned>
F16	<unassigned>

NOTE: ADVANCED CONSISTING IS NOT CURRENTLY SUPPORTED

## Control Variables (DCC CV)

The following Control Variables are supported. These can be programmed on the program track or using service mode programming.

OPS MODE IS NOT RECOMMENDED FOR ADDRESS CHANGES, OPS MODE WILL NOT PROGRAM A LONG ADDRESS CORRECTLY.

CV	Description	Default Value
1	Short Address	3
7	Manufacturer Version # {Read Only}	6
8	Manufacturer ID {Read Only}	107
17	Long Address	192
18	Long Address	3
29	Configuration Data #1 [0=short address, 32=long]	0
200	Servo A Start Position [5–250 (10ns)]	90
201	Servo A End Position [5–250 (10ns)]	170
202	Servo A Servo Rate [(faster)0–50 (slower)]	10
203	Servo A Mode Select [0=servo, 1=on/off keying]	0
204	Servo B Start Position [5–250 (10ns)]	90
205	Servo B End Position [5–250 (10ns)]	170
206	Servo B Servo Rate [(faster)0–50 (slower)]	10
207	Servo B Mode Select [0=servo, 1=on/off keying]	0
208	Solenoid A Function [1–28]	3
209	Servo A Function [1–28]	3
210	Solenoid B Function [1–28]	13
211	Servo B Function [1–28]	13
212	Trigger 1 Output {bits} [0=None, 1= Sol A, 2= Sol B, 4=Servo A, 8=Servo B]	5
213	Trigger 2 Output {bits} [0=None, 1= Sol A, 2= Sol B, 4=Servo A, 8=Servo B]	10
214	Servo A Auto-close timer [0–30sec.]	10
215	Servo B Auto-close timer [0–30sec.]	10
216	Trigger 1 Mode [0=Active Low, 1=Active Hi, 2=Toggle]	2
217	Trigger 2 Mode [0=Active Low, 1=Active Hi, 2=Toggle]	2

# Remote Control

## Remote Control Checkout

Connect both the Power terminals to your remote control power source, battery or track pick ups of your locomotive depending on your system. Connect the Trigger 1 (JST pin 5) and Trigger 2 (JST pin 4) inputs to the desired trigger output of your remote control receiver. Turn on the power to your transmitter and receiver and test the triggers.

## Default Trigger Assignments

Trigger	Description
1	Solenoid A & Servo A
2	Solenoid B & Servo B

## Adjusting Settings

The settings of the coupler board may be adjusted by altering the CV values listed in the DCC Control Variable section. This can be done either with conventional DCC CV programming or with the Phoenix Computer Interface.

### Computer Interface

The settings of this board may also be adjusted with the Phoenix Computer Interface, version *TBA* or newer, if you connect the coupler board to a BigSound P5, P8, PB9, PB11 or PB11v6 sound board. You can not use the computer interface to adjust settings in conjunction with a Model 96, Model 97 or 2K2 sound board.

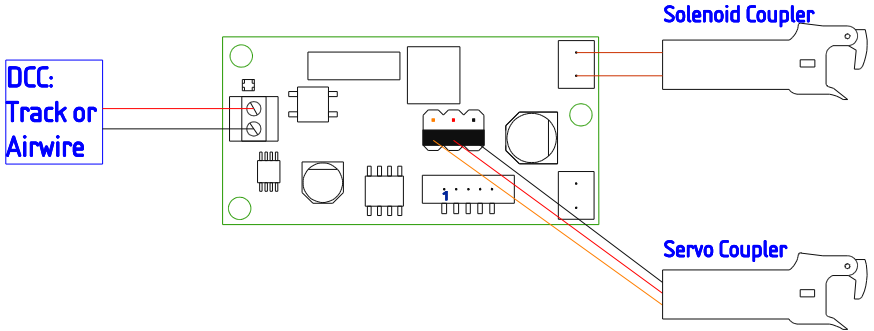
Settings are adjusted with computer interface through the Coupler Configuration screen. To access this feature:

- Connect the coupler board to the sound board and then the sound board to the computer interface as you normally would for just the sound board.
- Once the board has connected and the icons have populated the screen, go to the 'Tools' menu and select 'Coupler Configuration', a new window will open.
  - If you do not see the 'Tools' menu located between 'Level' and 'Info', then go to the 'Level' menu and make sure 'Advanced' is selected.
- On the Coupler Configuration screen adjust the settings as desired and press the 'Submit' button. This will commit the changes to the coupler board.

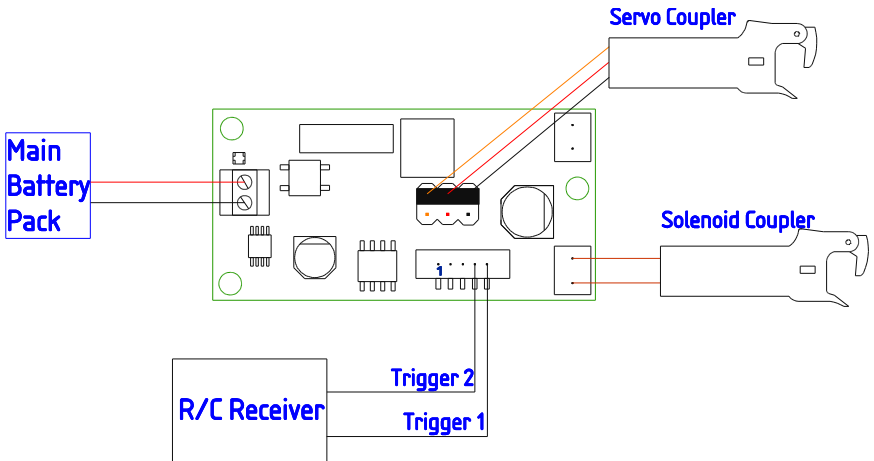
## Appendix A: General Wiring Diagrams

FOLLOWING ARE A GENERAL DIAGRAM FOR THE TWO BASIC CONTROL TYPES

### DCC



### Remote Control





## Wiring Diagram Reference Chart

Using the chart below you can identify the specific wiring diagram that will be of most use to you. These individual diagrams can be requested from us or downloaded and printed from our website at: <http://www.phoenixsound.com>

Control	Sound Board	Notes	Diagram
DC	None	External rechargeable battery required.	dc-cdb
	Model 96/97	Auto shutoff circuit recommended.	dc-cdb-model9x
	2K2		dc-cdb-2k2
	PB9	Triggerable from sound board via CAN connection.	dc-cdb-pb9-can
	PB11		dc-cdb-pb11-can
	PB11v6		dc-cdb-pb11v6-can

## Appendix B: The LED Codes

### RED led

- On: Servo Output On/Open
- Off: Servo Output Off/Closed
- Flash: Solenoid triggered

### GREEN led

- Constant: Good DC power
- Slow blink: Valid DCC
- Fast flash: DCC error/bad packet

## Appendix C: Technical Specifications

**Length** - 1.86 in; 47.2 mm

**Width** - 0.93 in ; 23.6 mm

**Height** - 0.45 in ; 11.5 mm

**Maximum Track Volts** - 30V.

**Power Consumption** - Typically <100mA; varies with servo output.

## **Warranty**

This electronic board is manufactured to the highest standards using the latest assembly technology and quality, conservatively rated parts. We are dedicated to producing the world's finest modeling equipment for years of railroading enjoyment.

The materials and operation of the Remote Coupler Driver electronic board supplied by Phoenix are guaranteed to perform correctly for one year when installed and operated according to the instruction manual. In the unlikely event that your system fails, please call or e-mail us so that we may evaluate the situation and save any unnecessary shipping. We prefer to pre-evaluate returns because frequently there is a simple explanation for any perceived problem you may be experiencing. Repairs and or replacements covered by this warranty are at no cost. However return shipping may be charged, especially if you return your system in an engine, tender, box car or the like. A service fee may be assessed if it is determined that the failure was not due to any Phoenix supplied components.

Phoenix Sound Systems, Inc. cannot be liable for damage to the system during shipping to our facilities due to mishandling, inadequate packaging or similar circumstances beyond our control. Please be sure to package the coupler board in a secure, static safe manner.

Physical modification, such as drilling, component replacement or substitution, of the coupler board in any fashion voids the 1 year warranty and may cause operational problems.