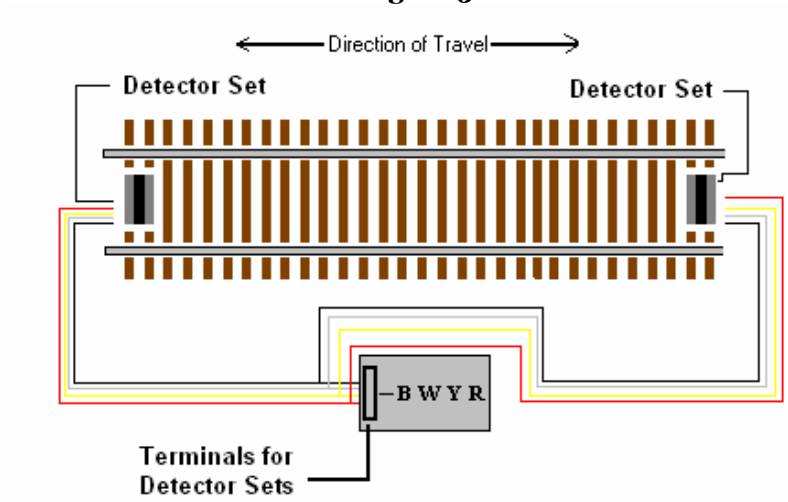
Step [4] Connecting the Detectors to the CFD-IF

WARNING: Do no make connections to the CFD-IF board with power applied to the board. After you have determined the location of the Grade Crossing, connect the wires from each detector set to the appropriate **CFD-IF** terminals on the left side of the board marked **B W Y R1 R2**. There are for wires for each detector set Red, White, and Black for the receiver, and Yellow and White for the emitter. Connect the white wires from the emitter and receiver together. Connect a length of wire from these white wires to the terminal for the detectors marked **W**. Connect a wire from the yellow wire on the emitter to the terminal marked **Y** of the Detector terminals. Attach a wire to the red wire on the receiver and connect it to the detector terminals **R1**. Repeat these connects for the detector set at the other end of the Grade Crossing Block> Connect the second detector set's red wire to **R2**. See **Figure 5** for details.

Figure 5

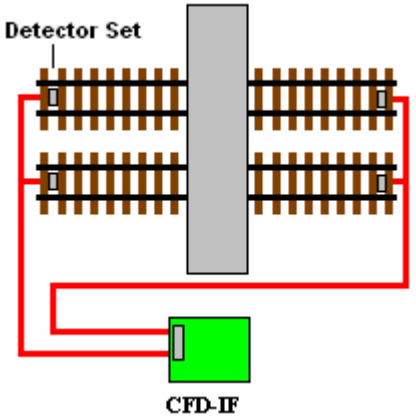


Connect each **CDF-IF** to the power supply using pieces of wire connected to the + and – terminals on the card to the power supply. The power to the **CFD-IF** should be 12volt-18 DC unregulated either from a transformer connected to the house supply or a 12 volt battery**. DO NOT CONNECT THE RELAY CARD TO THE TRACK POWER. Doing so may damage the Relay Card. SBSC will not be responsible for incorrectly powering the CFD-IF with an inappropriate power source.** Connect the power supply to you power source. Check to see if the detected light goes on when each of the detectors in a block are covered. When the red light is off the detectors are clear.

Multiple Track Applications

If the grade crossing signals protect more than one track, you will need to add additional detector sets for the each addition track. Follow the instruction supplied with the detector sets for the proper installation of a multiple track installation.

Figure 5A

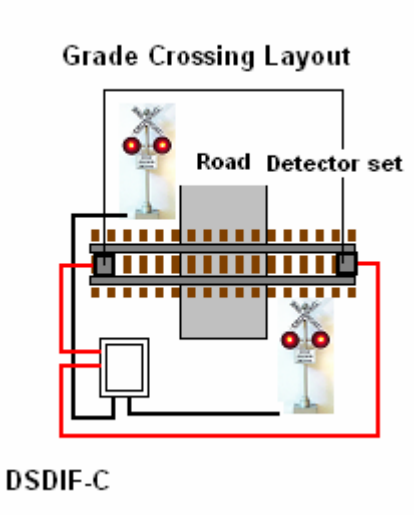


Step [5] Connecting Signals to the CFD-IF

Follow the instructions supplied with the signals to properly install them. Run wire from the crossing signals to the **CFD-IF**. Connect each color wire from the crossing signal to its appropriate terminal on the **CFD-IF** marked **G Y R**; one signal for the left terminals and one for the right terminals. **The Y terminal is the common lead to the signal.** For common ground signals, leave the red signal select jumper on. For common positive signals remove the red signal select jumper off.

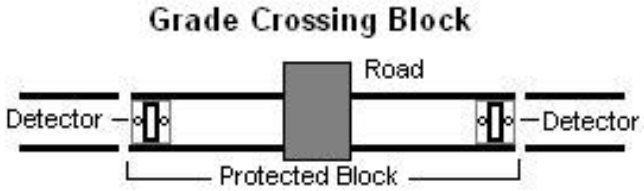
Step [1] Establishing a Grade Crossing Block

The first step if installation is to establish a grade crossing block. A grade crossing block is a section of track that protects a grade crossing at the intersection of a road and tracks which are protected by signals. Figure 1 below illustrated this.



The detector sets are positioned between the rails where the signals are activated to allow enough warning that a train is approaching. There is one detector set at each end of the grade crossing block. See Figure 2.

Figure 2



Detector Set Description

Each **CDF-IF** comes with 2 detector sets. A set consists of an **Emitter** and a **Receiver**. When the signal system is connected to 12-18 volts, the emitter sends out an infrared beam at a particular frequency and wave length. The receiver is calibrated to this same frequency and wave length. When the detector set is covered by a locomotive or any piece of rolling stock, the beam from the emitter is bounced off the rolling stock and is recognized by the receiver causing the receiver to transmit a signal to the CFD-IF microcontroller that a detection has been made. The microcontroller then turns the crossing signals on.

The emitter has a **YELLOW** and **WHITE** wire connected to it.
The **Receiver** has **RED**, **WHITE**, and **BLACK** wires connected to it.
The **WHITE** wire is the common ground for both the emitter and the receiver. A common wire can connect the white wires from the emitter and receiver then connected to the terminal marked **W** on the detector terminal section on the CFD-IF board.

Figure 8 below shows how the emitter and receiver look.

Figure 8

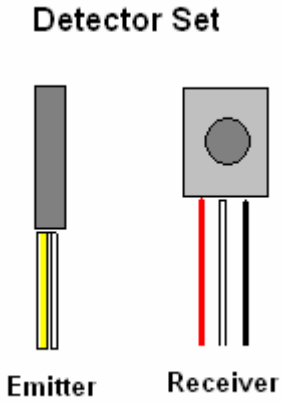


Table of Contents

Description

The CFD-IF is a detector/signal driver which provides detection and signaling for grade crossing signals.

Specifications

- 12 -18volt DC operation (unregulated)
- 100 ma power draw per board
- Uses infrared state –f-the-art detection device
- Bi-directional providing signal control in both directions of travel
- Two detector sets one for each end of the Grade Crossing block
- Compatible with any train control system: DC or DCC

Materials Needed

- small Phillips and slotted screw driver
- 1/8th and 1/4th drill bits and power drill
- 12-18volt DC power source (**not the throttle supply**)
- Wires cutters and wire strippers
- Appropriate hook-up wire (22 gauge)

Note: The CFD-IF may not work correctly in all cases. Interference from errant RF signals and IF throttle controls and other IF sources may cause the detector to work erratically.

Crossing Gates or other Crossing Devices

The CFD-IF is supplied with terminals for devices such as crossing gates which can be operated using the CFD-IF. To use the CFD-IF to control crossing gates or other crossing devices using stall type switch machines or small DC motors connect one wire from the motor to the S1 connection and one wire to the S2 connection. You will have to determine which wire from the motor is to be connected to which terminal on the CFD-IF.

Caution: **The CFD-IF is capable of driving DC motors capable of running at 5 volts and drawing not more than 60 milliamps. Exceeding these parameters will damage the CFD-IF board.**