

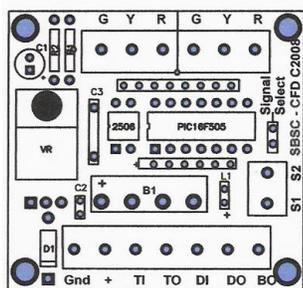
Grade Crossing Flasher/Detector Unit (CFD)

Thank you for purchasing this flasher detector unit. This unit will add realism to grade crossing signals.

Description

This unit will operate any crossing signal with 2 LEDs. It is designed to work with South Bend Signal's Grade Crossing Signal but will work with other crossing signals or devices with LEDs. The unit operates with either common positive (+) or common ground (-). It has a built in detector that will work with DCC or DC train control. The detector is a current sensing type circuit with a 4-amp capacity. The unit operates with a separate 12-18volt DC power supply. It has built-in resistors to limit the current to the LEDs.

CFD Pin Description



Pin Description

Gnd: Ground from CF power source (12-18 volts DC)
+: Positive connection from CF power source (12 – 18 volts DC)
TI: Throttle input wire
TO: Output wire to track.

DI: Input from device or switch to activate flasher (grounding pin activates flasher).
DO: Output from detector (ground when block is detected)
BO: Output to device or SBSC Crossing Bell (ground when unit is flashing).
S1 and S2: Output S1 and S2 will alternate between ground and +5 volts when **CFD** is flashing or off. S1 is low when not detected and high when detected. S2 is the opposite for the same conditions
S1 and S2 can be used for activating crossing gates.
G Y R: Connections to crossing signals or devices for flashing. **Y** is the common and can be configured for positive or ground connection with the red jumper block.

Setting Signal Type

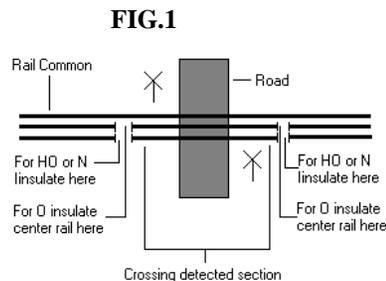
There is a red jumper block on the **CFD** marked **Signal Select**. For signals with a common ground **leave** this block on. For signals with a common positive **remove** the jumper block. South Bend crossing signals have a

common positive so **remove the jumper block**.

Step [1] Create a block for detection

The first step is to create a block that will determine where the train will be detected to activate the crossing signal. Decide where the crossing signal(s) will be placed. Cut one rail at each end where you want the crossing signals to be activated or deactivated. For O Scale three-rail type systems, cut the center rail. You can use insulated rail joiners at these points.

Figure 1 shows the details.

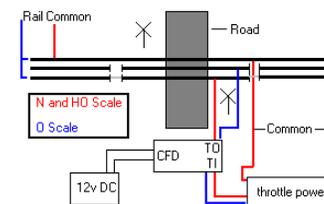


Step [2] Connecting the CFD Unit

Locate the **CFD** under the layout where the crossing signals will be. Fasten with #4 1/2" wood screws. Solder a feeder wire to the insulated rail. This wire connects to the terminal on the **CFD** marked **TI**. Connect a wire from your throttle power supply to the terminal on the **CFD** marked **TO**. The other throttle

power connection goes to the common rail(s). Connect the ground and +12V from a 12v DC power supply (**not the throttle supply**) to the terminals on the **CFD** marked **Gnd** and **+**. See **FIG.2**

FIG.2

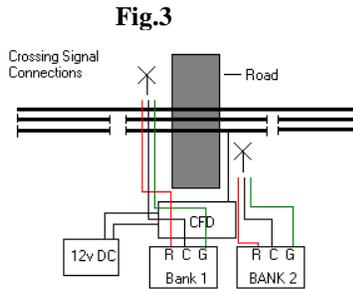


Turn on your track power. Turn on the 12v DC power source for the **CFD**. Place a locomotive in the detected block. The red indicator light on the **CFD** should be on (red). Remove the locomotive from the block. The red indicator light should be off.

Step [3] Connecting the Crossing Signals

Run phone wire or other small gauge wire from the terminals on the **CFD** marked **G Y R** from Bank 1 and Bank 2 to the locations of the crossing signals. Terminate these wires with screws or a terminal block. Connect these wires to the **CFD** as follows: connect the yellow wire or common wire from the crossing signal to **Y** on the **CFD**. Connect the red (**R**) and green wires (**G**) from the **CFD** to the crossing signal(s) other two wires.

Turn on your track power.
Turn on the 12v DC power source for the **CFD**. Place a locomotive in the detected block. The crossing signal(s) should start flashing. See **Fig.3**.



If the signals do not work, turn off the signal power source and remove the jumper for **Signal Select on the CFD board**. Turn the signal power source back on. The signal should be flashing now.

Step [4] Connecting SBSC'S Crossing Bell

BO has an output low (-) when the block is detected. If you are using **SBSC'S** crossing bell (**CB**), connect **BO** from the **CFD** to the **IN** terminal on the **CB** board.

Step [5] Connecting CFD for Double Tracks

To protect a double track grade crossing you will need one **CFD** for each protected track. Connect **DI** of the **CFD** for TRACK 1 to **DO** of the **CFD** for TRACK 2. Connect **DO** of

TRACK 1 **CFD** to TRACK 2 **CF DI**.

Step [6] Connecting a Switch Machine to power crossing Signals with Gates

Terminals **S1** and **S2** are outputs to a switch machine such as a Tortoise. **They cannot be used directly with solenoid type switch machines**. **S1** and **S2** are connected to pins 1 and 8 on the Tortoise machine to activate it.

If you are using **SBSC'S** SCU servo control, **S1** and **S2** connect to **S1** and **S2** on the servo board. Follow the directions which come with the SCU for details.

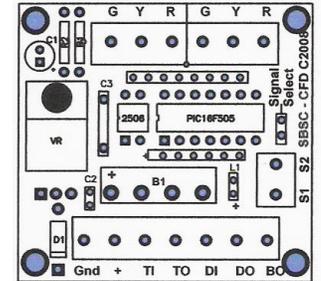
Follow the instructions which come with crossing signals with gates for properly installing the Tortoise to the signal. For **SBSC'S** Switch Gate machine, follow the directions which come with the machine.

Thanks again for choosing our products.
We appreciate your business.

Jim Leslie CEO
South Bend Signal
Company

South Bend Signal
"Making Your Railroad Real"
Company

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Grade Crossing
Flasher/Detector Unit

CFD v3
2015