CUSTOM SIGNALS' BSF BLOCK SIGNAL FLASHER®

CONGRATULATIONS on the purchase of the most advanced signal flasher on the market today. This unit will flash the red, amber or green signal lights of any single target. The BSF will give a prototypical flash rate with a built in “ramp-up/ramp down” effect similar to real signals. Make sure you use the correct flasher for your signals:

- BSF-1 for COLOR LIGHT signals such as the G, N&W, and B&O–series
- BSF-2 for POSITION LIGHT signals such as the PRR-series.
- BSF-3 for D style and for SEARCHLIGHT signals such as the SL, SP and NYC-series

BACKGROUND: In order to increase the number and variety of aspects for railroad signals, flashing lights are used. These flashing indications usually mean to slow down to a reduced speed or maintain a reduced speed until some other requirement is met. Depending on the color and position, these require limited, medium or slow speeds.

THE BSF-1 CONNECTIONS: Below is an illustration of the BSF-1. Please follow the connections carefully. These will be described in more detail below the illustration.

![Custom Signals Block Signal Flasher Diagram](image)

- **Signal lead in from block signal controller J3**
- **Jumper for searchlight**
- **Jumper for PRR**
  - Green to flashing green
  - Green to flashing yellow
  - Yellow to flashing yellow
  - Yellow to flashing red

**TS1 Terminal Strip:**
- **P Terminals:** These are for the hot or positive leads.
- **C Terminals:** These are for the common or negative leads.

**Jin Socket:** This is the input from the J3 terminal on the block signal control board. Connect with a 6-conductor modular connector.

**Jout Socket:** This is the output to the signal target. Use a 6-conductor extension and coupler to connect to the signal.

- **Signal lead out to signal**

- Common to next PCB
- Power to next PCB
- Common from 6-20VAC or VDC
- Hot from 6-20VAC or VDC
JP1 Jumper: Connect this jumper for bicolor LED searchlight signals.

JP2 Jumper: Connect this jumper for the position light signals such as PRR series.

Leave both jumpers off for individual LED signals such as the G, SL, D, N&W, B&O series.

TS2 Terminal Strip: Each of the following terminals will activate the corresponding flashing light when it is connected to the “COMMON” of the signal system. This connection can either be fixed or intermittent. When the connection is closed to common, the input for that terminal is said to go “LOW”. I will use this term in the directions when a flashing signal is activated by a connection to common. To make this connection you can use:

1. A direct connection to any “C” terminal. This would be a fixed connection.
2. A connection to a Dout on a specific block signal board, BSC-1. This will activate the flasher when the target controlled by this board turns red through detection.
3. An auxiliary switch to manually open and close the connection to common.
4. A connection through an insulated switch on your switch motor. This can be set to connect to “C” when the turnout faces either the main or diverting routes.
5. A connection to the SW terminal on a TSC-2 controller only. This will activate the flasher when the turnout faces the diverting route.

By using an intermittent connection, it is still possible to have other aspects on that same target. For example, you can have different steady green or flashing green aspects on the same target at different times. In most cases, a more restrictive speed will override a less restrictive speed when both inputs are activated simultaneously. For example a red will over ride a flashing yellow or a yellow will over ride a flashing green.

G Terminal: This changes a steady green to a flashing green. The flashing green will override a steady green when the G terminal is low. This can give you a red, yellow, flashing green sequence. This is used for a Limited Clear indication.

G TO Y Terminal: This changes a steady green to a flashing yellow. The flashing yellow now overrides the steady green. This can give you a red, yellow, flashing yellow sequence. This is used for a Medium Approach or an Advanced Approach indication.

Y Terminal: This changes a steady yellow to a flashing yellow. The flashing yellow now overrides the steady yellow. This can give you a red, flashing yellow, green sequence. This is used for a Slow Approach indication.

Y TO R Terminal: This changes a steady yellow to a flashing red. The flashing red now overrides the steady yellow. This can give you a red, flashing red, red sequence. This was used specifically on the early SF railroad for trains entering non-signaled territory.

SPECIFIC APPLICATIONS: Here are five of the most widely used applications for a flashing signal light. Each application has a track layout and a corresponding circuit board layout. Each of these aspects could be used on other track layouts. I am sure there are other aspects that are possible using the BSF-1. Call Custom Signals for further assistance.

1. Limited Clear
2. Advanced Approach
3. Medium Approach
4. Slow approach
5. Non-signaled Territory
1. LIMITED CLEAR: When a train enters a slightly more speed restrictive territory or approaches a high-speed crossover, it may receive a Limited Clear indication. A flashing green would replace the steady green. Here is a high-speed crossover illustration:

![Limited Clear for High-Speed Crossover Diagram]

2. ADVANCED APPROACH, 4 ASPECT, 3 BLOCK: This will give you a red, yellow, flashing yellow, green sequence. If there was a turnout at 2W, The G TO Y could be connected to the SW connection on the turnout for an Advanced Approach to the diverting route only.

![Advanced Approach, 4 Aspect, 3 Block Diagram]
3. MEDIUM APPROACH: This is probably the most common use of a flashing signal. When a train is entering a siding or medium speed crossover, the lower target will flash yellow. Connect the lower target through the BSF. Connect the G TO Y terminal on the BSF to common. This will be a normal sequence with the flashing yellow replacing the green aspect.

Medium Approach For Diverting Route
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Track and Circuit layouts illustrated by Alex Mazure

Flash Yellow When Diverting
4. SLOW APPROACH: When a train is entering a siding with slow speed territory, this indication is given. This indication requires a flashing yellow on a dwarf or the lowest target of a triple target signal. Connect the signal lead through the BSF. Connect the Yin on the signal control board and the Y on the BSF to common.
5. NON-SIGNALED TERRITORY: In the early days of the SF, some areas used a flashing red to indicate the beginning or entrance to non-signaled territory. Since a flashing red would be very restrictive, the normal sequence would be red, flashing red, red. Connect the Yin terminal on the signal control board for the target displaying the flashing red to common. Connect the Y to R terminal on the BSF-1 to common. The steady red will still override the flashing red when detection is activated.