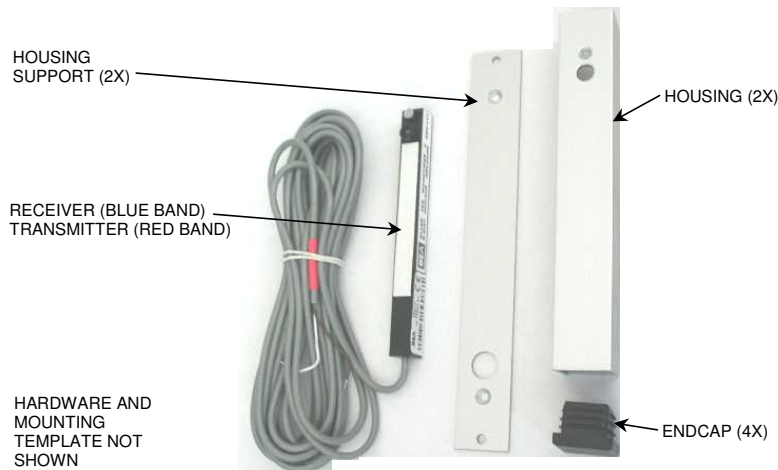


# USERS GUIDE SBK-111 KIT FOR SWINGING DOORS

## PRODUCT DESCRIPTION

The SBK-111 (PN: 10SBK11) kit operates on infrared technology and utilizes a photo-cell system located at the end of rails found on the safety side of an automatic swing door. The SBK-111 kit is used in conjunction with BEA's Bodyguard Presence Sensor or DK-12 and LO-21 Lockout Relay. Normally, the LO-21 would lock out the signal from the presence sensor as it sees the door closing, thus enabling recycling of the door upon demand. The SBK-111 kit allows the function of the LO-21 to be overridden. This is accomplished by installing a photocell system at the end of the guide rails found on the swing side of an automatic door. This photocell system establishes a barrier across the entry to the rails at the swing side of the doorway. When this barrier is broken, the LO-21 is disabled, thereby allowing a safety signal from the Bodyguard/ DK-12 to reach the door control. When this happens, the door will not reopen until it has fully closed, and the path of the Bodyguard / DK-12 is all clear. The SBK-111 kit can be retrofitted on all automatic door units.

## COMPONENT ID



## SPECIFICATION

EMITTER	
Emitter	Infrared LED at 880 nm
Supply Voltage	12 -24 VDC (-5% / + 20%) with protection against polarity inversion
Consumption	<30 mA.
Frequency	833 pulses/sec.
Connections	2 wire lead (supply voltage & ground)
Allowable misalignment	8°
Weight	3.53 oz.
RECEIVER	
Receiver	Photo-transistor
Supply Voltage	12 -24 VDC (-5% / + 20%) with protection against polarity inversion
Permissible voltage	30 VDC max.
Permissible current	20 mA max.
Voltage drop	2 V max. @ 20 mA.
Consumption	<10 mA.
Indicator	Red LED
Output	Open PNP transistor collector, protected against short-lived polarity inversion
Connections	3 wire lead (supply voltage, ground, output)
Allowable misalignment	8°
Weight	4.24 oz.
OPERATIONAL PARAMETERS	
Adjustment range	None
Immunity from ambient light	100,000 Lux (sunlight); 33,000 Lux (incandescent light with an 8° angle)
Temperature range	-30° to + 131° F.
Reaction time	5 milliseconds for triggering or external monitoring
Cable length	16'
Distance between emitter & receiver	1' min. to 15' max.
Installation height	1' min. above ground level
Dimensions	4 7/8" x 14/32" x 3/8"
Housing support dimension	1" x 7"

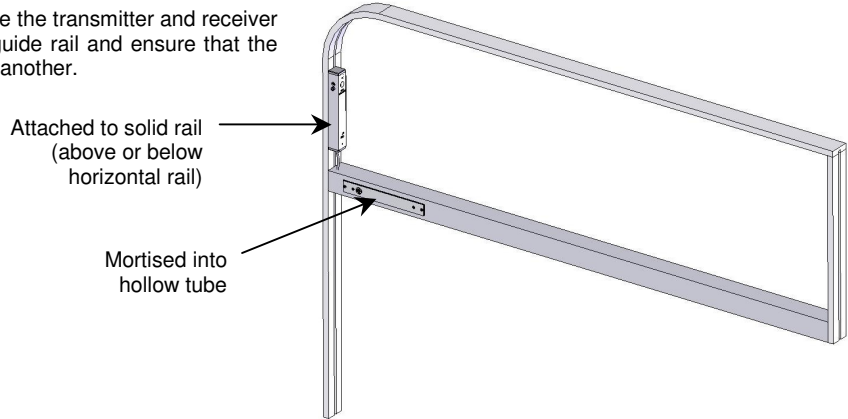
## SAFETY PRECAUTIONS



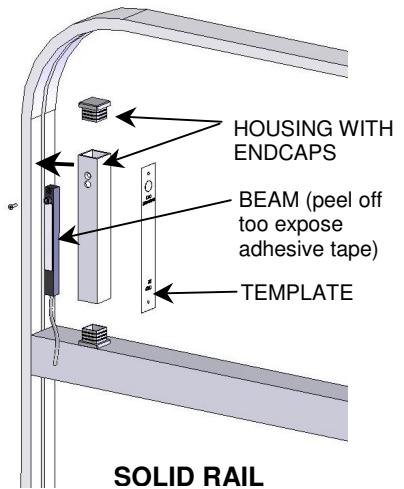
- Shut off all power going to the header before attempting any wiring procedures.
- Maintain a clean & safe environment when working in public areas.
- Be constantly aware of pedestrian traffic around the door area.
- Always stop pedestrian traffic through the doorway when performing tests that may result in unexpected reactions by the door.
- Always check placement of all wiring before powering up to insure that moving door parts will not catch any wires and cause damage to equipment.
- Ensure compliance with all applicable safety standards (i.e. ANSI A156.10) upon completion of installation.

## INSTALLATION TIPS

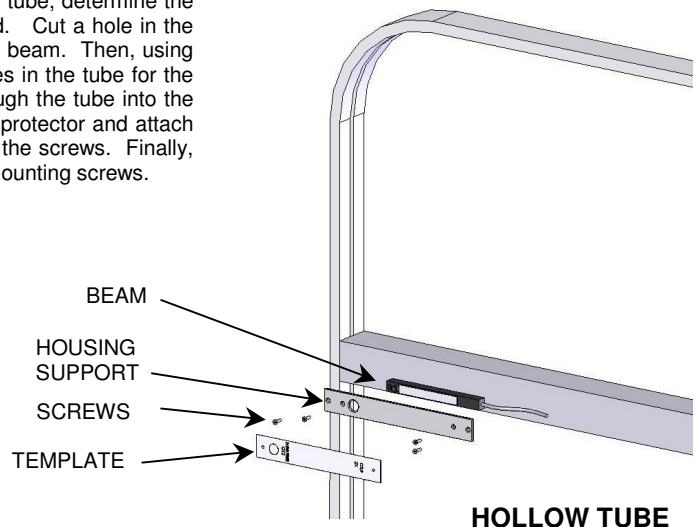
1. Determine the location where the transmitter and receiver are to be mounted on the guide rail and ensure that the beams are aligned with one another.



2. If the beam is to be mounted to a solid rail, use the housing support and template to locate the mounting holes on housing and rail. Drill the screw holes with a 1/8" drill bit, and drill the through-hole for the wire with a 1/2" bit. Secure the housing support to the housing with the flathead #6 screws provided. Then route the wire to the door header. Finish by tapping the plastic endcaps into the housing.



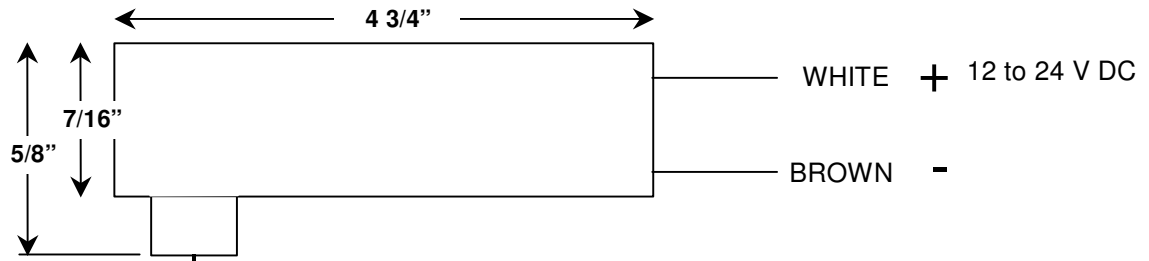
3. If the beam is to be mounted into a hollow tube, determine the location where the beam is to be mounted. Cut a hole in the tube large enough to pass the body of the beam. Then, using the mounting template, mark and drill holes in the tube for the housing support. Then, fish the wire through the tube into the door header. Next, remove the adhesive protector and attach the beam to the housing support and use the screws. Finally, attach this assembly to the tube with the mounting screws.



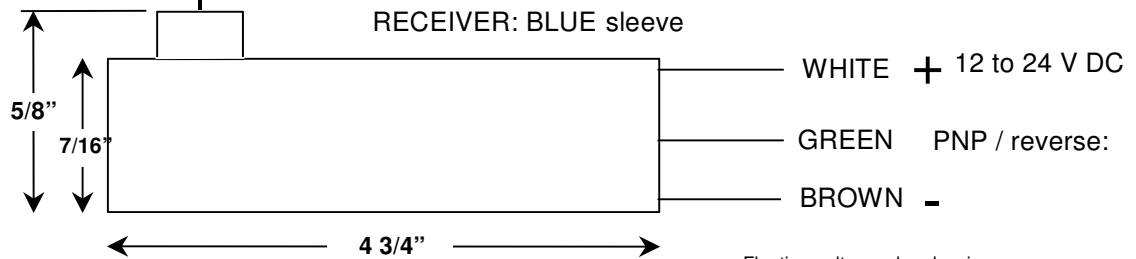
**MECHANICAL  
INSTALLATION**

**CONNECTION TO THE OPERATING EQUIPMENT**

TRANSMITTER: RED sleeve



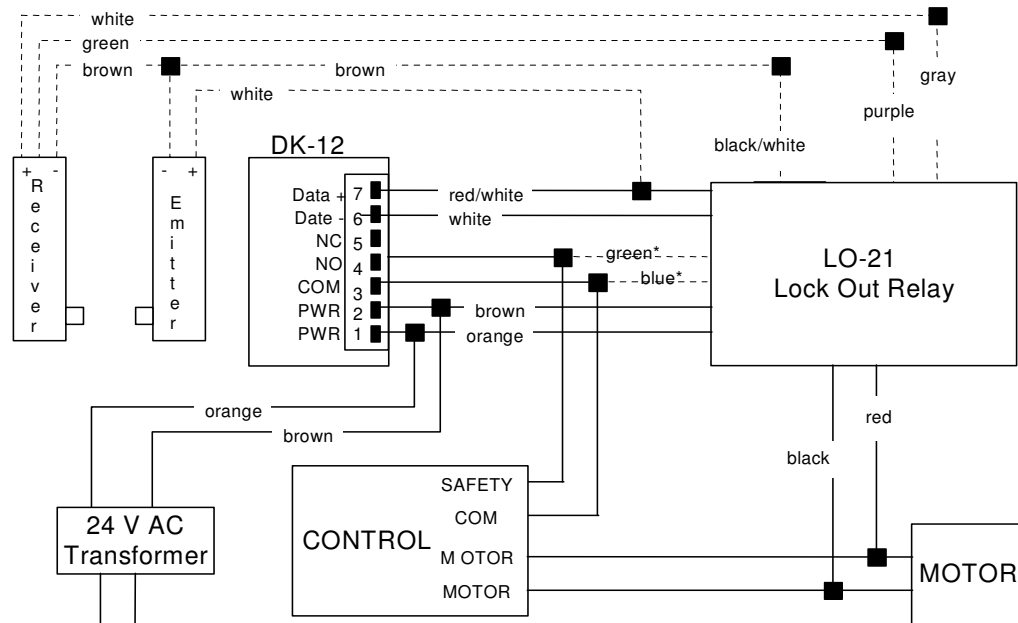
**Connect the receiver to the operating equipment**



- Floating voltage when barrier established
- Pull up to supplied voltage when barrier interrupted

**ELECTRICAL  
INSTALLATION**

**SBK-111 KIT with LO-21, DK-12, and Motion Sensor**



**\* Please note: Connect the dashed lines (green, blue, black/white, purple, & gray) ONLY if safety Beams are used. See text below.**

**NOTE:** Remember to wire an in-line 10KΩ resistor to the red wire from the LO-21 if an AC motor is used.

## TROUBLESHOOTING

The red and green LED's on the front of the LO-21 are the primary source for troubleshooting common problems. The red LED should illuminate during the closing cycle of the door. The green LED should illuminate anytime the SBK-111 safety beams have been blocked.

### A - RED LED DOES NOT COME ON AT LO-21 DURING CLOSING CYCLE:

1. Reverse the red and black wire connections from the LO-21 to the input of the motor.
2. If using an AC motor, ensure that the red and black wires are connected at a point that supplies AC power when door is opening.

### B - GREEN LED DOES NOT COME ON WHEN SBK-111 BEAM IS BLOCKED:

1. Check to ensure that the SBK-111 receiver and emitter are being supplied with adequate power, and that they are working properly. Repair / replace as necessary. See below for test procedures.

### C - TESTING BEAM AND LO-21 WITH VOLT METER:

#### Test 1.

Set Volt Meter to 50 Vdc setting or higher. Connect positive probe to red/white-striped wire at LO-21, and the negative probe to the black/white-striped wire at LO-21. Reading should indicate 12-24 volts. If test fails, check input power to LO-21. Repair or replace power supply or LO-21 as necessary.

#### Test 2.

Set Volt Meter to 50 Vdc setting or higher. Connect positive probe to the white wire of the emitter, and the negative probe to the brown wire of emitter. Reading should indicate 12-24 volts. If test fails, check input power to LO-21. Repair or replace power supply or LO-21 as necessary.

#### Test 3.

Set Volt Meter to 50 Vdc setting or higher. Connect positive probe to the gray wire of the LO-21, and negative probe to the black/white-striped wire at LO-21. Reading should indicate 12-24 volts. If test fails, check input power to LO-21. Repair or replace power supply or LO-21 as necessary.

#### Test 4.

Set Volt Meter to 50 Vdc setting or higher. Connect positive probe to the white wire of the receiver, and the negative probe to the brown wire of receiver. Reading should indicate 12-24 volts. If tests 1, 2, and 3 were good, but this test fails, faulty wiring exists between LO-21 and the receiver. Repair as necessary.

#### Test 5.

Set Volt Meter to 50 Vdc setting or higher. Connect positive probe to the green wire of the receiver, and the negative probe to the brown wire of the receiver. Ensure that all wires are still connected to the LO-21. A reading of 12-24 volts should be indicated when the beam is blocked. Voltage should drop to zero when beam is unblocked. If a voltage reading of 12-24 volts is constant, blocked or unblocked, replace receiver.

### D - DOOR WILL NOT OPEN / CLOSE:

1. SBK-111 safety beam is blocked.
2. Faulty SBK-111 receiver or emitter.
3. Faulty power supply to SBK-111.
4. Faulty wiring to SBK-111 safety beam

### E - DOOR WILL NOT RECYCLE OPEN DURING CLOSING CYCLE:

1. Improperly tuned LO-21. Red LED should go out when door reaches the fully closed position.
2. Faulty power supply to LO-21.
3. Faulty wiring at power supply, LO-21, or DK-12.

## COMPANY CONTACT

If after troubleshooting a problem, a satisfactory solution cannot be achieved, please call B.E.A., Inc. for further assistance during Eastern Standard Time at **1-800-523-2462 from 7am - 5pm**.  
**For after-hours, call East Coast: 1-866-836-1863 or 1-800-407-4545 / Mid-West: 1-888-308-8843 / West Coast: 1-909-596-3011. DO NOT** leave any problem unresolved. If you must wait for the following workday to call B.E.A., leave the door inoperable until satisfactory repairs can be made.  
**NEVER** sacrifice the safe operation of the automatic door or gate for an incomplete solution.