



Traffic Safety Corporation

Pedestrian Detection Photo-Sensor Bollards Installation and Owner's Manual



TSC-IM-BOLLARD
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Introduction

The Traffic Safety Corp. Photo-Sensor Bollard is a passive detection device used to trigger in-pavement crosswalk lights or LED pedestrian signs used with the TS1000 crosswalk lighting system. The bollard provides a reliable means of pedestrian detection without relying on pedestrian input. The system consists of one master bollard and up to three slave bollards. When a pedestrian enters the crosswalk between the bollards, an infrared beam is broken and the system generates an activation in the form of a relay contact closure, or 12-24VDC momentary signal. The system is directional, meaning and activation only occurs when the pedestrian enters the crosswalk, not when exiting.

To ensure the integrity of the system over its lifetime the system must be properly installed. Failure to install the system properly will negatively impact the performance of the system, shorten its life and may void the manufacturer's warranty.

The proper installation and operation of your system is our top priority. For that reason this installation manual has been designed to guide you through each of the major steps of the installation of the system. We recommend that a copy of the manual be given to both the design engineer and the installer of your system, well in advance of the actual installation.

Please call if you have any questions or concerns about the installation requirements, system set-up or operation. Suggestions for improving our installation manual are welcomed. The TSC Technical Support Center can be reached, toll-free, at 1-888-446-9255.

Bollard System Layout and Wiring

The typical Bollard System consists of one Master Bollard and three Slave Bollards. The master bollard houses the logic circuitry and provides the activation signal. The master bollard also provides power distribution to all slave bollards. The system is powered by 12-24VDC applied to the “+” and “-” terminal blocks. See Figure 1 for complete wiring instructions. Recommend to use **Belden 28601A** or equivalent 18AWG multi-conductor cable.

The bollards should be installed so that when entering the crosswalk either Bollard 1 or Bollard 3 are on your left and either Bollard 2 or Bollard 4 are on your right, see Figure 1. This configuration maintains the proper directionality of the sensors. The bollards should be positioned outside the crosswalk lines in order to capture all pedestrians entering the crosswalk, maximum 50ft separation.

SYSTEM WIRING

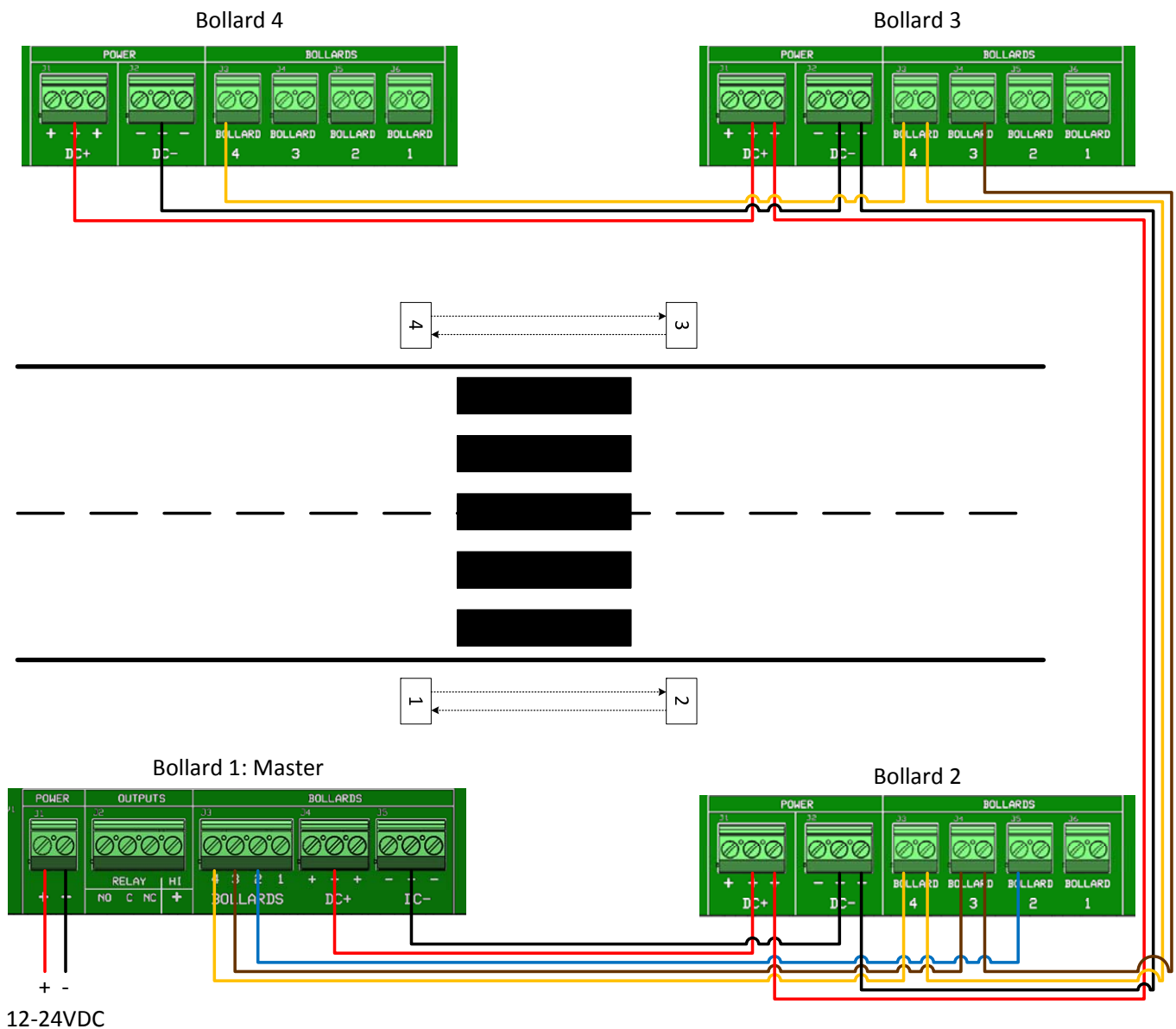


Figure 1: System Wiring

SYSTEM WIRING – SOLAR SIGN

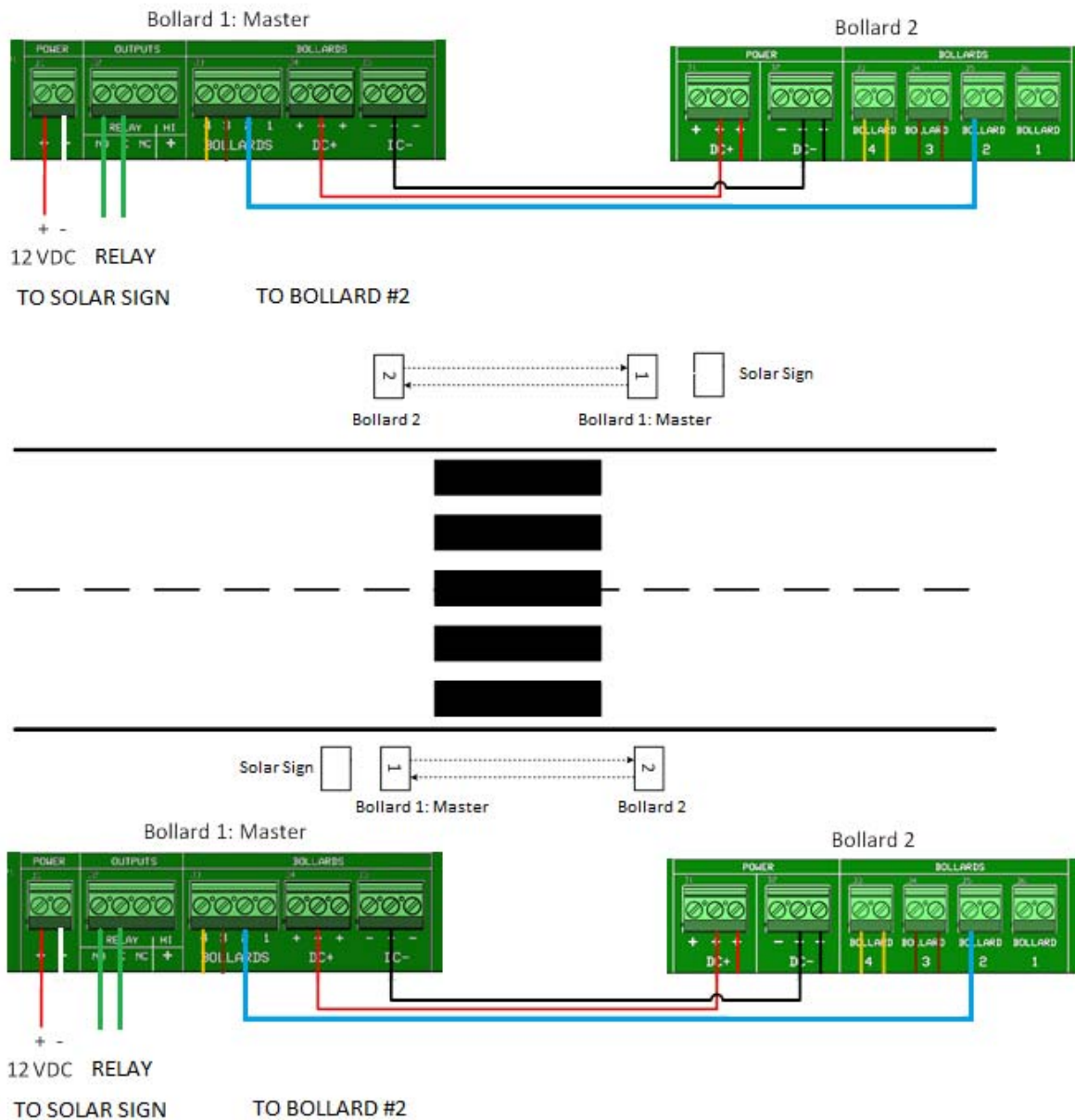


Figure 2: System Wiring-Solar

Mounting and Installation

It is recommended to install the bollards using ½" L-Hook concrete anchors installed in newly poured level concrete. The site engineer should evaluate the installation method to verify adherence to local codes.

The front of the bollards should be directly facing each other, not skewed or offset. The sensors can be adjusted during the aiming process, but proper installation is crucial in order to facilitate calibrating the sensors.

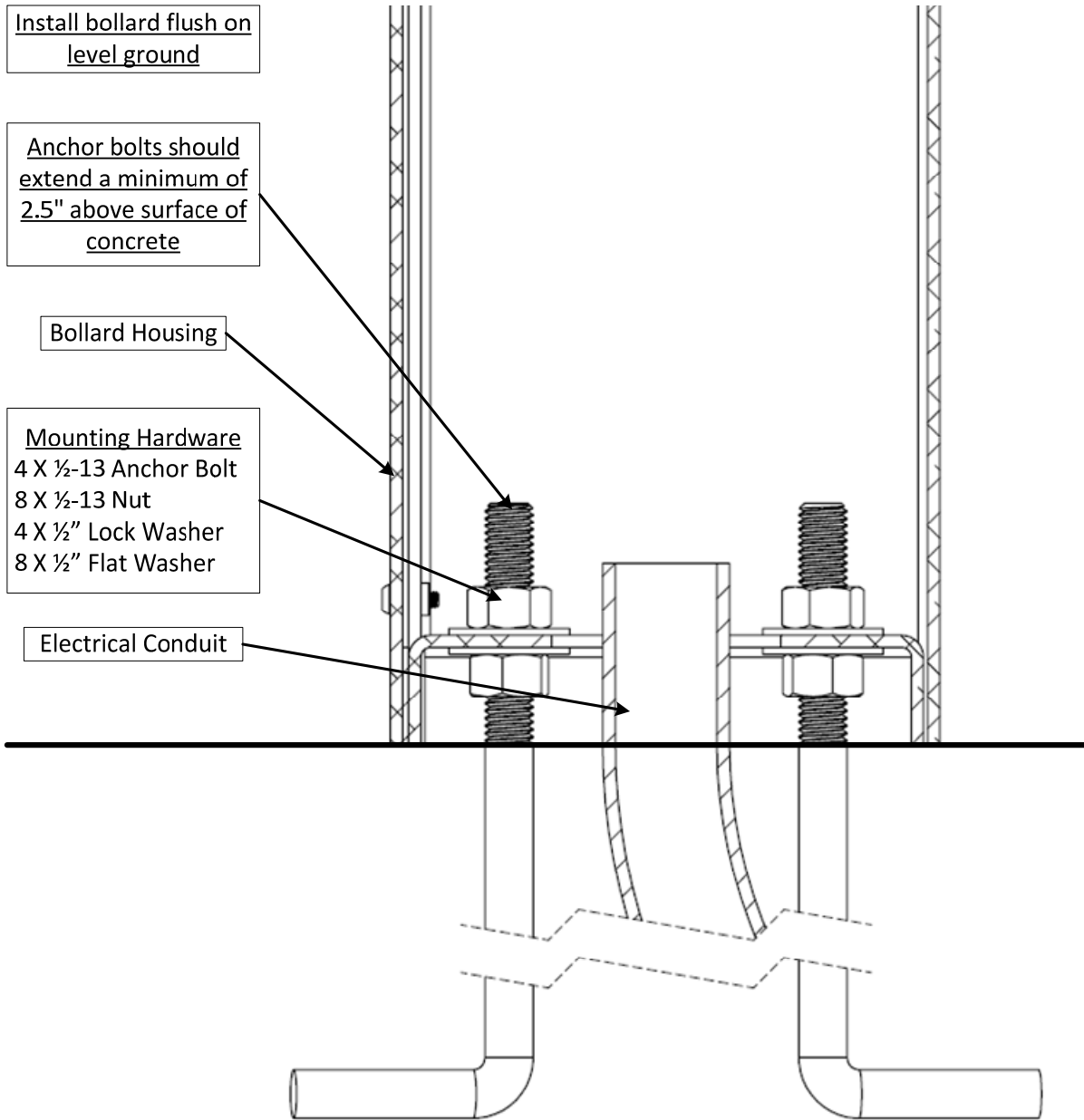


Figure 3: Installation Hardware

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Insert Mounting Template PDF Here

Alignment and Operation

In order for proper operation, the sensors in each bollard must be properly aligned. When the sensors are optimally aligned the green LED and orange LED on the receiver will be illuminated. When the beam is blocked or the sensor is misaligned, the amber LED will be illuminated. See Figure 3.

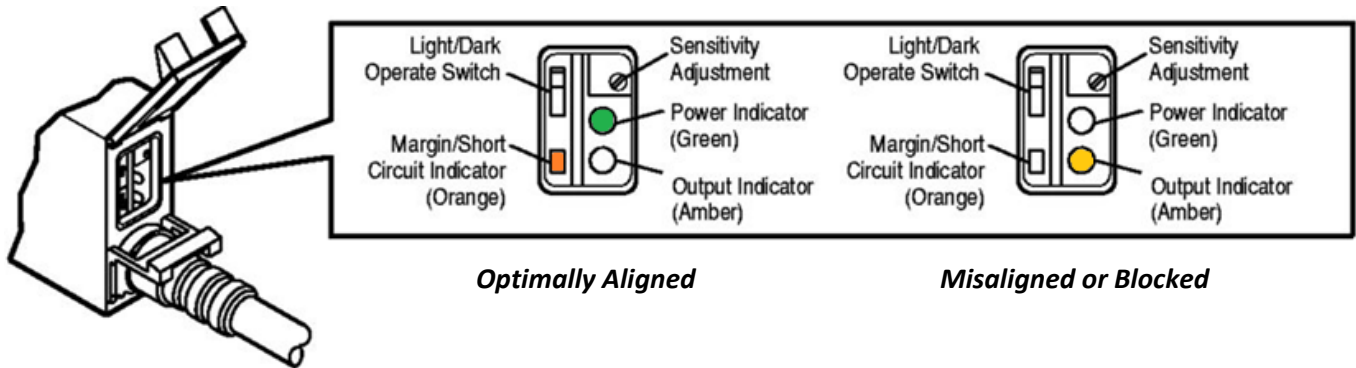
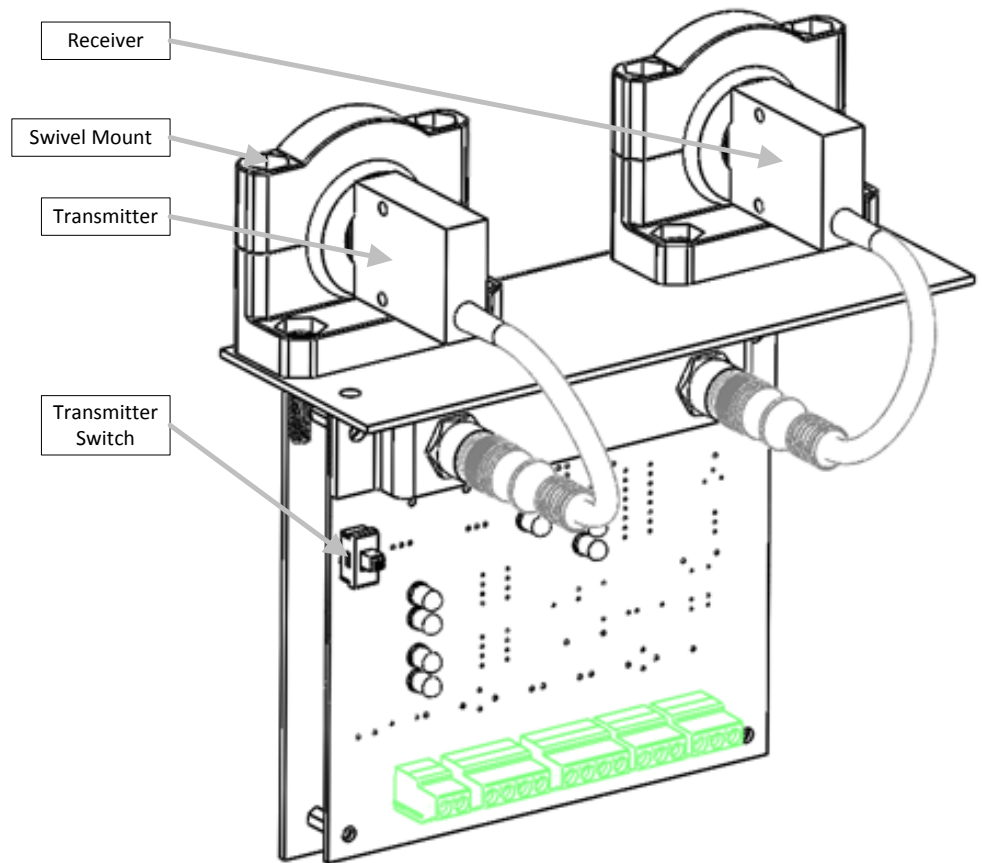


Figure 42: Sensor Status Indicators

When viewing the bollard from the rear, the receiver is on the right hand side. There is a slide switch located on the circuit board below the transmitter. This switch controls the power to the transmitter. It is best to have the transmitter turned off when aligning the receiver in the same bollard. Follow the following steps to align each bollard.

- Have one person stand at the first bollard and watch the LEDs on the receiver.
- Turn off the transmitter of the first bollard.
- Have a second person at the corresponding bollard loosen the screws on the transmitter swivel mount.
- Aim the transmitter using small adjustments until the receiver in the first bollard shows proper alignment.
- Tighten the swivel mount screws.
- Turn the first bollard transmitter back on.
- Repeat steps for each bollard.



Alignment and Operation Continued

Slave Bollard Selector Switch

Each receiver generates a signal when the infrared beam is broken, these signals are then passed to the Master Bollard which determines whether there is an activation. The signals are passed through the terminal blocks labeled "Bollards". The rotary switch on the Slave bollards must be set to correspond with the placement of the bollard. This determines which terminal block the signal is sent to. (See Figure 1 above)

Master Bollard Indicators

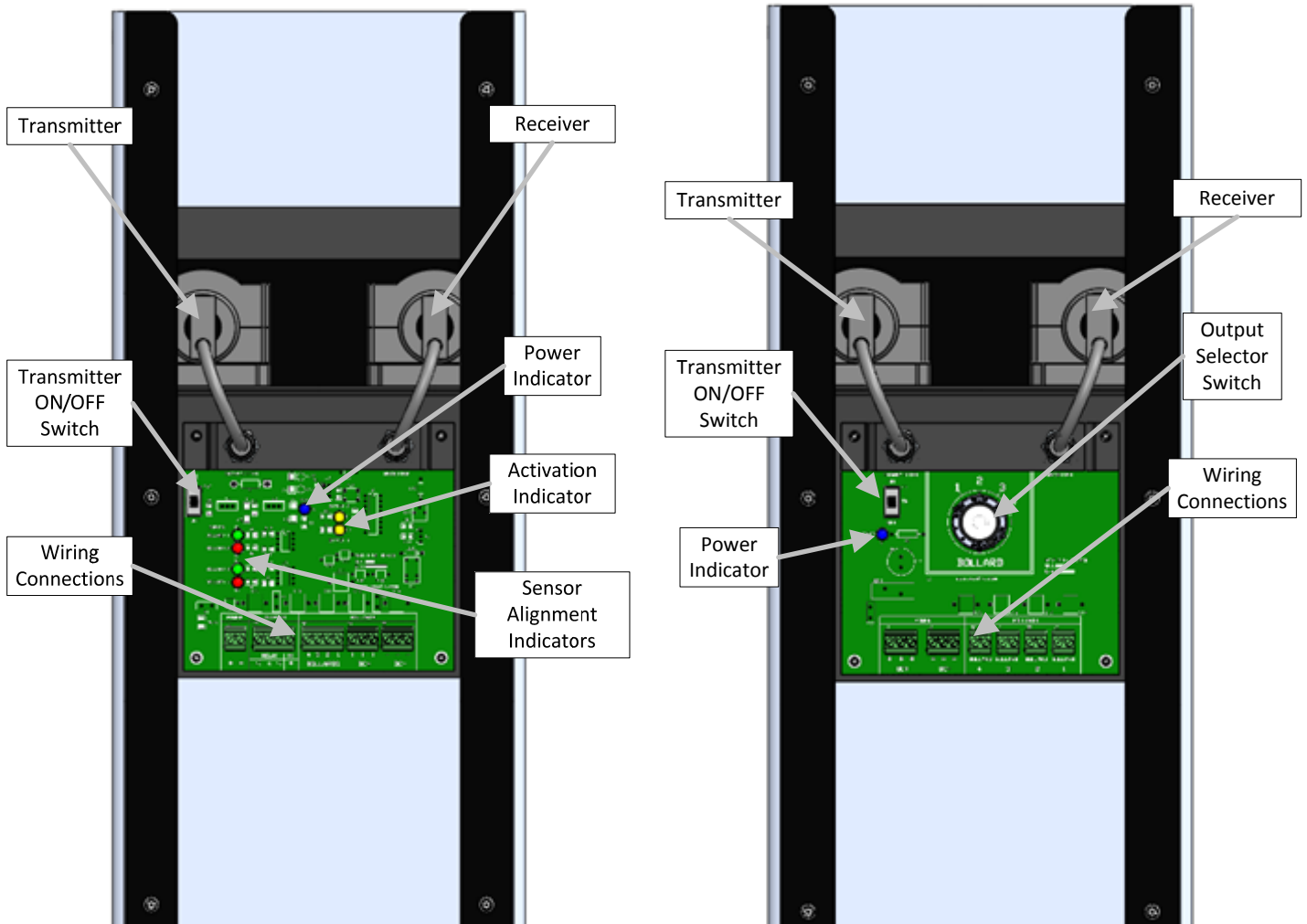
When the bollards are all properly wired and aligned, the Sensor Alignment LED Indicators on the Master Bollard circuit board will all be **OFF**. When the receiver of one of the bollards is obstructed the corresponding Sensor Alignment LED Indicator will illuminate. When the master bollard receives the proper sequence of signals (GREEN then RED) the yellow LED will illuminate, indicating an activation has occurred. The blue LED indicates power is applied.

Master Bollard Outputs

When an activation is generated, the relay on the Master Bollard PCB switches from Normally Closed to Normally Open. The relay contacts are accessed via the terminals labeled OUTPUTS. In addition to the relay, the PCB generates an active high 12V or 24V signal at the "HI +" terminal.

Relay Contact Ratings: 1 Amp Max; 120V AC or 60V DC

High Signal Rating: 1 Amp Max





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