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Seller is not responsible for incorrect choice of models or where products are used in excess of their rated and recommended capacities and design functions or under abnormal conditions. Seller assumes no liability for loss of time, damage or injuries to property or persons resulting from the use of Seller's products. Buyer shall hold Seller harmless from all liability, claims, suits, and expenses in connection with loss or damage resulting from operation of products or utilization of services, respectively, of Seller and shall defend any suit or action which might arise there from in Buyer's name - provided that Seller shall have the right to elect to defend any such suit or action for the account of Buyer. The foregoing shall be the exclusive remedies of the Buyer and all persons and entities claiming through the Buyer.
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SECTION 1 - SAFETY

Safety Information Responsibility
All owner, operator, and maintenance personnel must read and understand all manuals associated with this product before installation, operation, or maintenance.

The manual provides information on the recommended installation, operation, and maintenance of this product. Failure to read and follow the information provided could cause harm to yourself or others and/or cause product damage. No one should install, operate, or attempt maintenance of this product prior to familiarizing themselves with the information in this manual.

Safety Messages
Safety messages in this manual are preceded by the HAZARD SYMBOL and one of three words: CAUTION, DANGER, OR WARNING. These safety messages are intended to alert you to potential hazards that could cause harm to you or others and/or cause product damage.

⚠️ CAUTION
• The HAZARD SYMBOL used with the word CAUTION indicates unsafe actions or situations that have the potential to cause injury, and/or minor equipment or property damage.

⚠️ DANGER
• The HAZARD SYMBOL used with the word DANGER describes immediate hazards that have the potential to cause severe personal injury or death.

⚠️ WARNING
• The HAZARD SYMBOL used with the word WARNING describes unsafe actions or situations that have the potential to cause severe injury, death, and/or major equipment or property damage.

NOTE
• The word NOTE is used to alert you to installation, operation, programming, or maintenance information that is important, but not hazard related.
General Product Overview

BridgeGuard Pro prevents collision with the crane during operation, either from human error or from system malfunction. This system can be integrated into a current control system without the need to change hardware.

Structure

<table>
<thead>
<tr>
<th>CAUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The original equipment manufacturer / integrator must assure that the system is properly configured. Safety is the ultimate responsibility of the user</td>
</tr>
</tbody>
</table>

Overall features of BridgeGuard Pro can be seen below. See Figure 5-1.

**Status Indicator Lights**

The sensor for BridgeGuard Pro features status indicator LEDs that provide information on the supply voltage activity, signal strength, and output activity. See Figure 5-2.

<table>
<thead>
<tr>
<th>Status</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator LED 1</td>
<td>Green</td>
<td>Operating voltage indicator</td>
</tr>
<tr>
<td>Indicator LED 1</td>
<td>Yellow</td>
<td>Switching output indicator</td>
</tr>
<tr>
<td>Indicator LED 2</td>
<td>Yellow</td>
<td>Switching output indicator</td>
</tr>
</tbody>
</table>

Table 5-2
SECTION 3 - INSTALLATION

Mechanical Installation

Reflector Mounting

**NOTE**
- Reflector plate comes with 6 holes predrilled. See Figure 6-1.
- A minimum of 4 fasteners should be used to mount reflector to I-Beam web.

1. Mount reflector to the I-Beam using appropriate hardware. See Figure 6-1.

**NOTE**
- A spacer must be used between the I-Beam’s web and the reflector back plate.
- A lock washer must be used to prevent loosening.
- The plate can be mounted to other surfaces using the same holes, the beam is only an example.

![Figure 6-1 Reflector Mounting](image)

Sensor Mounting

1. Mount sensor in desired location and make adjustments appropriate to your specific assembly. See Figure 6-2

**WARNING**
- Maximum sensor trigger distance should be no more than 150 feet.

**NOTE**
- The sensor can be mounted to the flange of the beam or other alternative surfaces.

![Figure 6-2 Sensor Mounting](image)
### Sensor to Bracket Assembly

**Figure 7-1**  Sensor to Bracket Assembly

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>WASHER 8 SCREW LK SST</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>WASHER 8 FLAT SST</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>SENSOR</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>SCREW 8-32 X 1-1/4 SST PHP</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>NUT HEX 8-32 NARROW SST</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>SENSOR MOUNTING SET</td>
<td>1</td>
</tr>
</tbody>
</table>

**Figure 7-1**
Sensor Targeting

Included below is a general sensor target installation, your specific installation may vary. See Figure 8-1.

Figure 8-1  General Sensor Target Installation
SECTION 3 - INSTALLATION

Controller

Included below is the controller wiring diagram for reference if experiencing issues. See Figure 9-1.

Figure 9-1  Controller Wiring Diagram
SECTION 3 - INSTALLATION

Electrical Installation

Sensor Cable

Use the Sensor Cable Wiring Table for sensor cable installation. See Table 10-1.

<table>
<thead>
<tr>
<th>Pin</th>
<th>Wire Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Brown</td>
<td>+24 VDC from Power Supply</td>
</tr>
<tr>
<td>2</td>
<td>Blue</td>
<td>DC Common from Power Supply</td>
</tr>
<tr>
<td>3</td>
<td>Black</td>
<td>Digital Output Q1</td>
</tr>
<tr>
<td>4</td>
<td>White</td>
<td>Digital Output Q2</td>
</tr>
<tr>
<td>5</td>
<td>Gray</td>
<td>Analog Output</td>
</tr>
<tr>
<td>6</td>
<td>Pink</td>
<td>Discrete Input 1. TEACH Q1 (Apply 24VDC to Toggle)</td>
</tr>
<tr>
<td>7</td>
<td>Violet</td>
<td>Discrete Input 2. TEACH Q2 (Apply 24VDC to Toggle)</td>
</tr>
<tr>
<td>8</td>
<td>Orange</td>
<td>Discrete Input 1. Laser Off (Apply 24VDC to Toggle)</td>
</tr>
</tbody>
</table>

Table 10-1  Sensor Cable Wiring Table

Control and Power Cable

Use the Power and Control Cable Table for control and power cable installation. See Table 10-2.

<table>
<thead>
<tr>
<th>Conductor #</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Black</td>
<td>120 VAC Power Supply (L)</td>
</tr>
<tr>
<td>2</td>
<td>White</td>
<td>120 VAC Power Supply (N)</td>
</tr>
<tr>
<td>3</td>
<td>Red</td>
<td>Sensor Angle Output (Terminal 5)</td>
</tr>
<tr>
<td>4</td>
<td>Green</td>
<td>120 VAC Power Supply (GND)</td>
</tr>
<tr>
<td>5</td>
<td>Orange</td>
<td>Q1 Relay Normally Open or Closed (N.O. or N.C.)</td>
</tr>
<tr>
<td>6</td>
<td>Blue/Black</td>
<td>Q1 Relay Common</td>
</tr>
<tr>
<td>7</td>
<td>White/Black</td>
<td>Q2 Relay Normally Open or Closed (N.O. or N.C.)</td>
</tr>
<tr>
<td>8</td>
<td>Red/Black</td>
<td>Q2 Relay Common</td>
</tr>
</tbody>
</table>

Table 10-2  Power and Control Cable Table
SECTION 3 - INSTALLATION

Sensor Calibration

NOTE

• Perform a factory reset before setting crane distances.

1. Reset to factory setting
   A. Remove power from the sensor
   B. Press and hold either button
   C. Apply power to the sensor while holding the button.
   D. Hold button for more than 10 seconds until both lights flash 3 times.
      • All settings have been reset to the factory setting.

2. Set the distance for the crane to stop
   A. Position reflector at the closest distance location and aim red laser at the reflector.
   B. Press and hold the Q1/Q2 pushbutton for more than 3 seconds. After 3 seconds, lights flash green then yellow slowly.
      • STOP distance has been taught. Push Q1 button to end teaching.

3. Set the distance for the crane to slow down
   A. Position reflector at teaching point from STOP teaching and aim red laser at the reflector.
   B. Press and hold the Q1/Q2 pushbutton for longer than 6 seconds. After 6 seconds, lights flash green then yellow rapidly.
      • First slow distance has been taught.
   C. Position reflector at the furthest teaching point and aim red laser at the reflector.
   D. Press the Q1/Q2 pushbutton.
      • SLOW distance has been taught.
SECTION 4 - MAINTENANCE

Mechanical Maintenance

Reflector
Ensure that the reflector is clean and clear of dirt and other debris at all times.

Sensor
Ensure the sensor is clean and clear of dirt and debris at all times.

Ensure sensor-target path is clear of obstructions.

Electrical Maintenance

![WARNING]

- Equipment damage due to improper cleaning!
- Never use cleaning agents containing aggressive substance
- Never use pointed objects for cleaning

<table>
<thead>
<tr>
<th>Interval</th>
<th>Maintenance work</th>
<th>To be performed by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleaning interval depends on ambient conditions and climate</td>
<td>Clean housing</td>
<td>Specialist</td>
</tr>
<tr>
<td>Every 3 months depending on the application conditions with regard to shock and vibration</td>
<td>Check the screw connections and plug connections.</td>
<td>Specialist</td>
</tr>
</tbody>
</table>

Table 12-1

NOTE

- Compressed air should be used to clean.
## SECTION 5 - TROUBLESHOOTING

Potential issues and solutions are shown below. Contact the factory for additional support. See Table 13-1.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Potential Cause</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of signals</td>
<td>Electrical Connections</td>
<td>Inspect the electrical connections to the sensors and to the control box.</td>
</tr>
<tr>
<td>Unable to read output signals</td>
<td>Electrical Connection</td>
<td>Inspect the connection to terminal blocks in control box and to the sensor.</td>
</tr>
<tr>
<td></td>
<td>Laser is not on reflector plate</td>
<td>Realign sensor and reflector plate.</td>
</tr>
<tr>
<td>Sensor not working even when plugged in</td>
<td>Sensor-target misalignment</td>
<td>Check to see if sensor is working by holding the reflector close to the sensor.</td>
</tr>
<tr>
<td></td>
<td>Sensor-target misalignment</td>
<td>If the sensor is working, check sensor-target alignment and make adjustments.</td>
</tr>
</tbody>
</table>

Table 13-1
Contact USA for our Global Sales Offices

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BridgeGuard Pro Manual

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