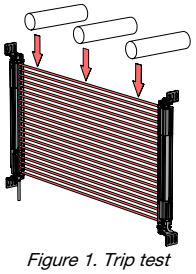
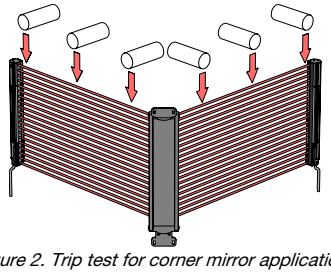
# EZ-SCREEN® LP with Muting Safety Light Screen Daily Checkout Procedure

## Checkout Procedures

### Daily Checkout Procedure

Banner Engineering highly recommends performing the System checkouts as described. However, a qualified person (or team) should evaluate these generic recommendations considering their specific application and determine the appropriate frequency of checkouts. This will generally be determined by a risk assessment, such as the one contained in ANSI B11.0. The result of the risk assessment will drive the frequency and content of the periodic checkout procedures and must be followed.

Daily checkout and checkouts after tooling and machine changes must be performed by a Designated Person (appointed and identified in writing by the employer). During continuous machine run periods, this checkout must be performed at regular intervals. A copy of the checkout results should be kept on or near the machine: see OSHA 1910.217(e)(1).

| **Perform the daily checkout procedure at every power-up, shift change, and machine set up.** | | |
|---|---|---|
| ☐ | 1 | **Verify that:**<br>• **Access to the guarded area is not possible** from any area not protected by the EZ-SCREEN LPM. Hard guarding or supplemental presence-sensing devices must be installed, wherever needed, to prevent any person from reaching over, under, or around the defined area or entering into the hazard area.<br>• **All supplemental guarding devices and hard guarding are in place** and operating properly. |
| ☐ | 2 | **Verify that the minimum separation (safety) distance** from the closest hazard point of the guarded machine to the defined area is not less than the distance calculated in the instruction manual and recorded here: _____. |
| ☐ | 3 | Verify that it is not possible for a person to stand inside the guarded (dangerous) area, undetected by the EZ-SCREEN LPM or other supplemental guarding (as described in ANSI/RIA R15.06, or other appropriate standards). |
| ☐ | 4 | **Verify that:**<br>• The Reset switch (if used) is mounted outside the guarded area, out of reach of anyone inside the guarded area; and<br>• The means of preventing inadvertent use (e.g., rings or guards) is in place. |
| ☐ | 5 | **After all Zone indicators are green, test the effectiveness of the EZ-SCREEN LPM with the power on** using the trip test. Select the appropriate piece:<br>**14 mm Models:** Red Res OFF: STP-13; Red Res Enabled: STP-17<br>**25 mm Models:** Red Res OFF: STP-16; Red Res Enabled: STP-18 |
| | 5a | **Trip Test: With the power on, verify that the EZ-SCREEN LPM is in Run mode.** The receiver status indicators should be as follows:<br>Status indicator: Green or flashing green<br>Mute indicator: Off<br>All Zone indicators: Green<br>Reset indicator: Amber<br>Diagnostic Display: “–” (Trip Output mode) or “L” (Latch Output mode)<br>A manual reset may be required in Latch Output mode. |
| | 5b | **With the guarded machine at rest, pass the test piece downward through the defined area in three paths:** near the receiver, near the emitter, and midway between them.<br>• If the emitter and receiver are far apart, a second person may be needed to monitor the indicators while the test piece is used near the emitter or in the midway position.<br>• If corner mirrors are used in the application, the beams must be tested in three places on each leg of the beam path (between emitter and mirror, and also between mirror and receiver). |
| | | <br>*Figure 1. Trip test*<br><br>*Figure 2. Trip test for corner mirror applications* |



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**Perform the daily checkout procedure at every power-up, shift change, and machine set up.**

**WARNING: If the Trip Test Indicates a Problem**

If the EZ-SCREEN LPM System does not respond properly to the trip test, do not attempt to use the System. If this occurs, the System cannot be relied on to stop dangerous machine motion when a person or object enters the sensing field. **Failure to follow these instructions could result in serious injury or death.**

**WARNING: Before Applying Power to the Machine**

Verify that the guarded area is clear of personnel and unwanted materials (such as tools) before applying power to the guarded machine. **Failure to follow these instructions could result in serious injury or death.**

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|---|---|---|
| | 5c | Verify when the test piece is interrupting the defined area at least one Zone indicator must be red. Different red Zone indicator(s) will be lit, according to the position of the test piece.<br>**NOTE:** If beam 1 is blocked, Zone 1 indicator will be red and all other Zone indicators will be off, because beam 1 provides the synchronization signal for all the beams. The display will sequentially indicate "CH1".<br>• **Trip Output Operation**—The Status indicator must turn red and remain red while the test piece remains in the defined area. If not, the installation has failed the trip test.<br>• **Latch Output Operation**—The Status indicator must turn red and remain red, and the amber Reset indicator must remain on while the test piece remains in the defined area. If the Reset indicator begins to flash at any time while the test piece is interrupting the defined area, the installation has failed the trip test.<br>**If all Zone indicators are green or do not follow the position of the test piece, or if the Status indicator turns green while the test piece is interrupting the defined area,** the installation has failed the trip test.<br>Check for correct sensor orientation, for the presence of reflective surfaces (see below), or for unguarded areas created by the use of blanking.<br>**Do not continue with this checkout procedure or operate the guarded machine until the situation is corrected and the indicators respond properly as described.** |
| | 5d | **Verify when the test piece is removed from the defined area:**<br>• All Zone indicators turn green.<br>• If the System is operating in Latch Output mode, the amber Reset indicator should be flashing. Perform a manual reset.<br>• Verify that the receiver Status indicator is green (or flashing green if Reduced Resolution is enabled). |
| ☐ | 6 | **With the EZ-SCREEN LPM not muted**, initiate machine motion of the guarded machine, and while it is moving, insert the supplied test piece into the defined area. **Do not attempt to insert the test piece into the dangerous parts of the machine.**<br>Verify that when the test piece is in the defined area, the dangerous parts of the machine come to a stop with no apparent delay.<br>Remove the test piece from the defined area, and verify that the machine does not automatically restart, and initiation devices must be engaged to restart the machine. |
| ☐ | 7 | **With the guarded machine at rest and the EZ-SCREEN LPM not muted**, insert the test piece into the defined area and verify that the guarded machine cannot be put into motion while the test piece is in the defined area. |
| ☐ | 8 | Initiate machine motion of the guarded machine and verify the muting operation. During the non-hazardous portion of the machine cycle:<br>• MD1 and MD2 indicators are amber,<br>• Display flashes a "-" (Trip) or "L" (Latch), and/or<br>• External mute indicator (if used) is on<br>During the hazardous portion of the machine cycle:<br>• MD1 and MD2 indicators are off,<br>• Display a steady "-" (Trip) or "L" (Latch), and/or<br>• External mute indicator (if used) is off<br>**If the EZ-SCREEN LPM is muted during the hazardous portion of the machine cycle (e.g. closing of power press die, robot motion, etc.), immediately remove power from the machine and do not use until the system is working properly.** |
| ☐ | 9 | Check carefully for external signs of damage or changes to the EZ-SCREEN LPM, the guarded machine, and their electrical wiring. Any damage or changes found should be immediately reported to management. **Do not continue operation until the entire checkout procedure is complete and all problems are corrected.** |
| ☐ | | **To eliminate problems with reflective surfaces:**<br>• If possible, relocate the emitter and/or receiver to move the defined area away from the reflective surface(s), being careful to maintain adequate separation distance (see step 2).<br>• Otherwise, if possible, paint, mask or roughen the surface to reduce the reflectivity.<br>• Where these are not possible (as with a shiny workpiece), include a means of restricting the receiver's field of view or the emitter's spread of light in the sensor mounting.<br>• Repeat the trip test to verify that these changes have eliminated the problem reflection(s). If the workpiece is especially reflective and comes close to the defined area, perform the trip test with the workpiece in place. |

**WARNING: Do Not Use Machine Until System Is Working Properly**

**If all of these checks cannot be verified, do not attempt to use the safety system** that includes the Banner device and the guarded machine until the defect or problem has been corrected. **Attempts to use the guarded machine under such conditions could result in serious injury or death.**



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