EZ-SCREEN® LP with Muting Semi-Annual Checkout Procedure

Checkout Procedures

Semi-Annual 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.

Perform the procedure contained on this Semi-Annual Checkout card every six months following System installation, or whenever changes are made to the System (either a new configuration of the EZ-SCREEN LPM or changes to the machine). Semi-Annual checkouts must be performed by a **Qualified Person** (as defined by OSHA and in the Safety Glossary of the manual). A copy of the checkout results should be kept on or near the machine: see OSHA 1910.217(e)(1).

To prepare for this checkout, configure the EZ-SCREEN LPM as it will be during machine operation.

Perform the following every six months following the system installation.		
☐	1	Examine the guarded machine to verify that it is of a type and design compatible with the EZ-SCREEN LPM. Refer to the Instruction Manual for a list of appropriate applications and limitations.
☐	2	Verify that the minimum separation distance from the closest hazard point of the guarded machine to the defined area is not less than the calculated distance as determined in the Instruction Manual and indicated here: _____.
☐	3	Verify that: • Access to any dangerous parts of the guarded machine is not possible from any direction not protected by the EZ-SCREEN LPM, hard guarding, or supplemental safeguarding, and • It is not possible for a person to stand between the safety light screen and the dangerous parts of the machine, or • Supplemental safeguarding and hard guarding, as described by the appropriate safety standards, are in place and functioning properly in any space (between the safety light screen and any hazard) that is large enough to allow a person to stand undetected by the EZ-SCREEN LPM.
☐	4	Verify that: • The reset switch (if used) is mounted outside the guarded area, out of reach of anyone inside the guarded area and • The key or other means of preventing inadvertent use is in place.
☐	5	Examine the electrical wiring connections between the EZ-SCREEN LPM OSSD outputs and the guarded machine's control elements to verify that the wiring meets the requirements stated in the instruction manual.
☐	6	Inspect the area near the defined area (including work pieces and the guarded machine) for reflective surfaces. (Reflective surfaces may cause System beams to reflect around a person in the light screen, preventing the person from being detected and not stopping the machine motion.) Remove the reflective surfaces as possible by relocating them, painting, masking, or roughening them. Remaining problem reflections will become apparent during step 10.
☐	7	Apply power to the EZ-SCREEN LPM. Ensure that power to the guarded machine is off. Remove all obstructions from the defined area. If the System is configured for Latch mode, the receiver Reset indicator will be double-flashing. Perform a manual reset (close the reset switch for 1/4 to 2 seconds, then open the switch). Verify that the Reset indicator is on.
☐	8	Observe the receiver Diagnostic Display to verify that the System is set to the desired operating mode (Trip Output - "–"; Latch - "L"). Observe the status indicators on the receiver to determine System status: • Lockout: Status flashing red; all others off • Blocked: Status red; One or more Zone indicators red; and Reset is amber • Clear: Status green (flashes if Reduced Resolution is enabled); All Zone indicators green; and Reset is amber • Latch (defined area clear): Status red; All Zone indicators are green; and Reset is flashing amber • Muted: Mute Device Input Indicators amber; Mute Lamp on (if used); and the Display flashes a "-" (Trip) or "L" (Latch)
☐	9	If in a Clear condition, go to step 10. If in a Lockout condition, refer to the Troubleshooting section of the instruction manual. A Blocked condition indicates that one or more of the beams is misaligned or interrupted. To correct this situation: 1. Check carefully for any obstruction in the beam path. 2. Check for contamination. Clean the emitter and receiver windows as required. 3. If the defined area is completely clear of obstructions, realign the emitter and receiver, as described in the manual. If the System is in a Latch condition, perform a manual reset. Ensure the System is not in a muted condition or that bypass/override is enabled.
☐	10	After the Status indicator and all Zone indicators are green, perform the trip test (described on the Daily Checkout card) to verify proper System operation and to detect possible reflection problems.
		⚠ **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). Failure to do so may result in serious bodily injury or death.
☐	11	Apply power to the guarded machine and verify that the machine does not start up. Insert the test piece into the defined area and verify that it is not possible for the guarded machine to be put into motion while a beam is blocked.
☐	12	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. Upon blocking any beam, the dangerous parts of the machine should come to a stop with no apparent delay. Upon removal of the test piece from the defined area, verify that the machine does not automatically restart, and that the initiation devices must be engaged to restart the machine.
☐	13	Remove electrical power to the EZ-SCREEN LPM. All OSSD outputs should immediately turn off, and should not be capable of turning on until power is re-applied and, if in Latch Output mode, a manual reset is performed (Trip Output mode requires no manual reset).

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Perform the following every six months following the system installation.			
☐	14	Test the machine stopping response time, using an instrument designed for that purpose, to verify that it is the same or less than the overall system response time specified by the machine manufacturer.	
☐	15	If any decrease in machine braking ability has occurred, make the necessary clutch/brake repairs, readjust separation (safety) distance (“Ds” or “S”) appropriately, record the new distance calculation on the appropriate Daily Checkout Procedure card and/or in the manual, and re-perform the Daily Checkout procedure.	
☐	16	Examine and test the machine primary control elements (MPCEs) and any intermediary controls (such as interface modules) to verify that they are functioning correctly and are not in need of maintenance or replacement.	
☐	17	Inspect the guarded machine to verify that no other mechanical or structural problems could prevent the machine from stopping or assuming an otherwise safe condition when signalled to do so by the EZ-SCREEN LPM.	
☐	18	Examine and inspect the machine controls and connections to the EZ-SCREEN LPM to verify that no modifications have been made that adversely affect the System.	
☐	19	If the Muting feature is used, do not expose any individual to hazard while attempting to initiate a mute cycle.	
	19a	Verify that the mute devices are intact and operating properly.	
	19b	Initiate a normal mute cycle. Observe the receiver Diagnostic Display (see step 8). Verify:	Status indicator is green MD1 and MD2 indicators are amber Display flashes a “-“ (Trip) or “L” (Latch)
	19c	If used, verify that the external mute indicator is ON.	
	19d	Interrupt the safety light screen with the selected test piece. Verify:	Status indicator is green Zone indicator(s) are red identifying location of interruption Display flashes number of blocked beams or CH1 if beam 1 is blocked
	19e	Clear the safety light screen (before the Mute Timer expires). Verify that the Zone indicator(s) are all green, the Display flashes a “-“ (Trip) or “L” (Latch), and the external mute indicator (if used) is on.	
	19f	Clear (or deactivate) the mute devices and verify:	External mute indicator (if used) is off Status indicator is green MD1 and MD2 indicators are off Display shows a solid “-“ (Trip) or “L” (Latch)
	19g	Verify that it is not possible for an individual to trigger the mute devices (block both photoelectric beams or actuate both switches) to initiate a mute and then pass through the defined area without being detected and a subsequent stop command being issued to the machine. If Muting option 7 is selected, verify that a mute cycle cannot be initiated from the non-hazardous side of the installation.	
☐	20	If the Override or Bypass feature is used:	
	20a	Ensure that the positioning of the OR1 and OR2 switches allows the operator full view of the hazardous area and the area being guarded by the safety light screen. Verify that the location is not within reach from inside the safeguarded space.	
	20b	With muting de-activated, interrupt the safety light screen with the test piece. If Mute Dependent Override is used, also block one mute device, and then verify:	The external mute indicator, if used, is flashing Status indicator is red MD1 or MD2 indicator (whichever is blocked) is amber Display flashes the number of blocked beams or CH1 if beam 1 is blocked
		If the Bypass feature is used:	The external mute indicator, if used, is off Status indicator is red Zone indicator(s) are red identifying location the interruption
	20c	Initiate an override/bypass by activating the OR1 and OR2 switches within 3 seconds of each other.	
	20d	While the light screen is interrupted, verify:	External mute indicator, if used, is on Status indicator is green Display flashes number of blocked beams
	20e	Verify that the override drops out after 60 seconds or the bypass drops out after 5 minutes. To initiate another override or bypass, return switches to the original condition, wait 3 seconds, and then activate both Override switches again within 3 seconds of each other.	
☐	21	If all checks cannot be verified, shut machine down and do not use until the problem(s) has been corrected. **Important:** Do not continue operation until the entire checkout procedure is complete and all problems are corrected.	

WARNING: Do not use machine until the system is working properly. If any of these checks cannot be verified, do not attempt to use the EZ-SCREEN LPM/guarded machine until the defect or problem has been corrected (see the Troubleshooting section of the Instruction Manual). Attempts to use the guarded machine under such conditions may result in serious bodily injury or death.

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