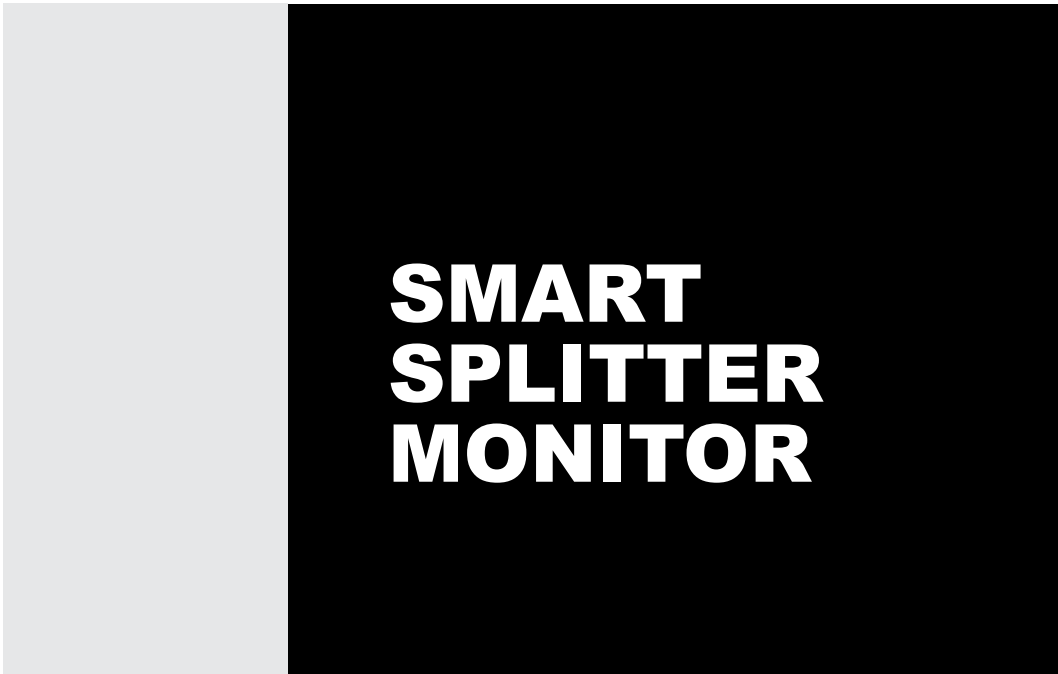


# Installation, Operation and Maintenance Instructions

A large graphic background consisting of a light gray vertical bar on the left and a black vertical bar on the right. The text "SMART SPLITTER MONITOR" is centered in the black bar.

## SMART SPLITTER MONITOR

**ERIEZ MAGNETICS** HEADQUARTERS: 2200 ASBURY ROAD, ERIE, PA 16506-1402 U.S.A.  
*WORLD AUTHORITY IN SEPARATION TECHNOLOGIES*

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## Introduction

This manual details the proper steps for installing, operating and maintaining the Eriez' SMART Splitter Monitor (MM).

Careful attention to these requirements will assure the most efficient and dependable performance of this equipment.

If there are any questions or comments about the manual, please call Eriez at 814-835-6000 for Splitter Monitor assistance.

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## Warranty, Exclusions & Limitations

The workmanship and the materials of all products manufactured by Eriez are warranted for a period of one year from the date of shipment. This warranty covers parts and labor required to correct defects within the scope of the Corporation's warranty.

Excluded from the warranty coverage are products a) which have been subjected to electrical, mechanical or other misuse or abuse b) which have been disassembled or repaired, or attempted to be, by other than Eriez or its authorized servicing agents.

The foregoing warranty shall be in lieu of all other warranties, expressed or implied, and the Corporation expressly disclaims any warranty for merchant ability or fitness for a particular purpose.

Unless otherwise agreed in writing by the Corporation, repairs and replacement parts provided by the Corporation under its warranty shall be guaranteed only for the non-expired portion of the original warranty on the repaired product.

The liability of Eriez to any purchaser or user of its products shall not in any case exceed the cost of correcting defects in a product as herein provided and, upon expiration of the two years from the date of sale, all such liability shall terminate. In no event shall the Corporation be liable for interruption of operations, loss of profit, or special or consequential damages.

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## Software Updates

Future revisions of the software that correct errors will be made available to customers at no charge. Improvements and enhancements to the software will be available for a nominal fee.



### CAUTION

**Safety labels must be affixed to this product. Should the safety label(s) be damaged, dislodged or removed, contact Eriez for replacement.**

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**SAFETY WARNINGS**  
**THIS SMART SPLITTER MONITOR SHOULD BE  
INSTALLED BY QUALIFIED ELECTRICAL AND  
MECHANICAL PERSONNEL ONLY.**

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## GENERAL INFORMATION

- All standard safety procedures should be observed when working on electrically powered equipment.
- Proper care should be taken when connecting or disconnecting the power source.
- When connected to a power source, un-insulated, dangerous voltage is present within the SMART Splitter Monitor electronics enclosure which may constitute a risk of electric shock.
- Do not allow moisture to collect in the electronics enclosure or near the power connections. Always close the enclosure and secure the locking mechanism after working with the electronics.
- The user should not attempt to service the SMART Splitter Monitor. All servicing should be referred to certified service personnel qualified to work on electrical equipment.
- Eriez Manufacturing Co. accepts no responsibility for damage due to use or misuse of this equipment.

### INSTALLATION

- Do not install this SMART Splitter Monitor near heat sources such as radiators or air ducts.
- Do not install this SMART Splitter Monitor near sources of electromagnetic interference.
- Place the SMART Splitter Monitor in a location with adequate air circulation to prevent internal heat buildup.

### CONNECTIONS

- As standard, the SMART Splitter Monitor is set for connection to 115 VAC . Refer to Appendix A Control Connection Diagram for information about connections **and** color code hook-up instructions.

### LONG-TERM STORAGE

For long-term storage, the SMART Splitter Monitor should be left sealed inside the shipping container and stored in a dry location in temperatures between -10°C and +50°C (14°F - 122°F).

### GENERAL

Eriez SMART Splitter Monitors are fabricated to suit each user's particular application. Each SMART Splitter Monitor is subjected to extensive testing both at the sub-assembly level and after final assembly to ensure compliance with performance and electrical safety standards.

### STANDARD WARRANTY (PLEASE REFER TO FULL WARRANTY INFORMATION.)

Eriez SMART Splitter Monitors are warranted against defects in workmanship and materials for one year. This warranty does not cover failures due to misuse, neglect, abuse, improper handling, alteration, improper maintenance or accident, and Eriez shall not be liable for any direct, indirect, consequential or incidental damages from use, results of use or inability to use this product. Repairs by any other than Eriez Manufacturing Co. authorized service personnel will void this warranty.

Within the warranty period, the product will be repaired or replaced at Eriez option, free of charge. Shipping costs will be paid by Eriez. Except as mentioned above, no other warranty, expressed or implied, applies. If Modules are not covered by warranty as mentioned above, Dealer/User will be billed for the repair and shipping. Non warranty repairs, Dealer/User must issue a PO # or Credit Card # prior to any repair.

### INSTALLATION ASSISTANCE

Eriez SMART Splitter Monitors have been designed for installation by qualified personnel with detailed instructions provided with each shipment. When required, an Eriez Field Engineer will supervise or check the installation, activate the system and provide training on periodic adjustments and care of the SMART Splitter Monitor for user maintenance personnel. Please contact Eriez for Field Service rates.



## TECHNICAL/APPLICATION ASSISTANCE

Eriez welcomes your inquiries concerning SMART Splitter Monitors and their application, installation and servicing. If technical or application assistance is needed, contact:

ERIEZ MANUFACTURING CO.  
2200 Asbury Road  
Erie, PA 16506

888-999-3743    service@eriez.com

## TECHNICAL DATA-LIGHT EMITTER

Housing	ALUMINUM
Weight	2 POUNDS
Ambient Temp	-18°C TO +55°C
NEMA Rating	N1
Operating Voltage	100-125VAC
Current Consumption	200 MA/115V

## TECHNICAL DATA-SENSOR

Housing	PLASTIC
Weight	2 POUNDS
Ambient Temp	-18°C TO +55°C
NEMA Rating	N1
Operating Voltage	3V DC (Battery)
Current Consumption	Variable

# Chapter 1.

## 1.1 Overview

Eriez SMART Splitter Monitor is an optical system which measures debris build up on the leading edge of splitter blades.

It provides a continuously variable analog measure of the amount of this detrimental build up and can be programmed through the Eriez SMART Web Portal to send warning alerts via email or cell phone text messages which prompt the appropriate personnel to clean the splitter blade.

Eriez Splitter Monitors allow operators to perform this essential function with fewer labor hours by automatically monitoring and alerting personnel instead of frequently "making the rounds" to manually check each splitter for debris built up. Cleaning cycles which are based upon these automatic alerts result in greatly improved metal recovery and lower operating costs as well.

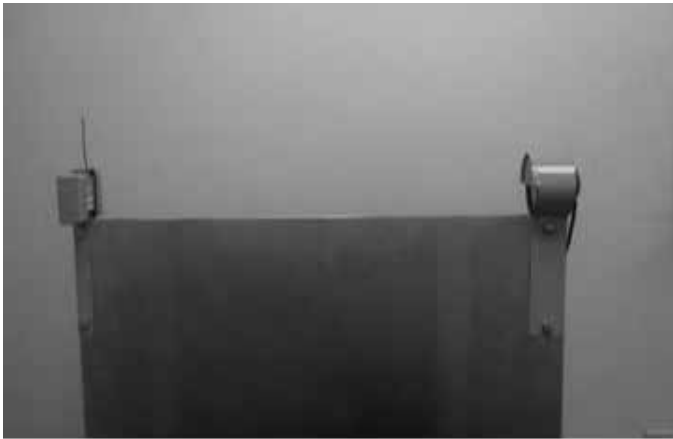


# Chapter 1. (cont.)

## 1.2 Components

The Splitter Monitor system consists of two components:

- 1) the light beam emitter with power supply,
- and 2) the integrated light sensor with wireless data collection transmitter.



## 1.3 Method of Operation

The light beam emitter is mounted on one corner of the splitter blade, as close as possible to the edge which will be monitored for debris. From that position, it directs a powerful beam of light across the splitter edge and into the light sensor located on the opposite corner of the splitter blade. As debris builds up on the splitter edge, this debris partially blocks the light beam. As a result, a reduced level of light intensity is measured by the light sensor and converted to data values which are then transmitted to the Eriez SMART Wireless Data Collection System. Proprietary Web-based software then compares the light intensity data to user-defined thresholds. When the light intensity drops below one of these thresholds, the Web-based software automatically transmits an alert or alarm message to user-defined email addresses or cell phones as a text message. These messages alert the user that the splitter needs to be cleaned to maintain optimum efficiency. The capability of setting several different thresholds, which then trigger different messages to different email addresses or cell phones, enables the user to set a routine alert level for moderate debris buildup, and add a critical alarm level for severe debris buildup. The routine alert level would notify

personnel responsible for cleaning the splitter blade. The added critical alarm level would notify higher levels of management about an unresolved problem.

## 1.4 Installation

Before installation begins, make certain that all equipment in the area where the Splitter Monitor will be installed is turned off, de-energized, and the power controls are locked out per safety procedures. Be especially cautious to keep well clear of all powerful magnetic fields which may exist in the vicinity.

## 1.5 Site Selection

Before beginning installation, the normal material flow over the splitter blade must be observed to determine the location and type of debris build up on the particular splitter to be monitored. This observation should include operation at the normal extremes of moisture content of the material because moisture content can dramatically alter the location of debris build up on the splitter blade. The primary location of problematic debris build up on the splitter blade indicates the location in which the Splitter Monitor components must be located. If it is found that there are two locations in which problematic debris build up occur (due to variations in moisture content of the material, etc.), then proper monitoring can only be achieved by installing two splitter monitor systems on that splitter blade.



Typical splitter monitor locations include:

- 1) along the upper surface of the splitter blade slightly downstream from the splitter edge (for granular debris that builds up on top of the splitter blade),
- 2) directly below the splitter blade edge (for long wires, strings, and fibers that hang down below the splitter blade),
- 3) slightly upstream from the splitter blade edge (for general buildup of moderate size flexible debris objects, shorter wires, strings, fibers, etc.)

In all installations, the light beam should be arranged to pass as close as possible to the splitter blade surface or edge and must remain parallel to the splitter blade edge. The light beam emitter and light detector modules must be located in positions outside the normal material flow to prevent them from being damaged by the material flow. Where the splitter blade is wider than the material flow, this can be accomplished by mounting the light beam emitter and light detector on opposite corners of the splitter blade edge. But if the material flow extends to the corners of the splitter blade, the splitter monitor components must be protected by a material diverter or a shield between the material flow and the splitter monitor components.

The location chosen for the splitter monitor light sensor must not be subject to illumination from sunlight or any other sources of direct external illumination. When planning the installation, observe any light coming from floodlights, work lights, windows, sunlight at all times of day and all seasons, etc. The location chosen for installing the splitter monitor light sensor must be shaded from all such external light. If such a location is not available, a shade can be fabricated and installed to provide the necessary shaded area.

## 1.6 Mounting

Assure that all power and energy to the equipment into which the splitter monitor will be installed is turned off, deactivated, de-energized, and locked out per approved safety procedures.

Clamp the splitter monitor light emitter and light sensor in the selected locations and mark the locations of the mounting holes on the splitter blade. Remove the light emitter and light sensor from the splitter blade. Drill mounting holes in the splitter blade at the marked locations. Mount the splitter monitor light emitter and light sensor to the splitter blade using these holes and appropriately sized bolts, nuts, and lock washers.

Route the power cord of the light beam emitter through areas which are protected from the material flow and other potential sources of damage. Use insulating grommets to protect the power cord where it passes through any partition or wall. Plug the power supply into a 110 VAC to 125 VAC source. When this power source is activated, observe that the light beam emitter illuminates and that the brightest portion of the light beam falls on the light sensor light input port. If the light beam fails to fall on the light sensor light input port, or if the light beam fails to pass sufficiently close to the splitter blade edge, relocate the splitter monitor components to achieve correct orientation.

## 1.7 Wireless Data Collection

If no other Eriez SMART system components have previously been installed at this site, refer to the Eriez SMART Wireless Data Collection System Guide for instructions pertaining to installing the wireless data collection internet gateway. After internet gateway installation, or if the internet gateway has been previously installed with other Eriez SMART system components, contact Eriez SMART system support at [service@eriez.com](mailto:service@eriez.com) or call 1-888-999-3743 to register each new splitter monitor on the data collection network.

After the splitter monitor system is installed and registered on the data collection network, use any computer with internet access to log into your Eriez SMART web portal. Then click on the symbol for the splitter monitor. A list of recent data from the splitter monitor will be displayed. Notice that a new data reading is added to this list every 10 minutes. The illumination data is displayed in units of LUX. Higher LUX readings indicate a clean splitter blade because the sensor is receiving maximum illumination from the light beam emitter. As debris builds up on the splitter blade, partially blocking the splitter monitor light beam, the LUX readings will diminish. Observe and note the LUX level that is reported when there is sufficient debris build up to warrant sending someone to clean the splitter blade. This LUX level can then be used to set up the alert/alarm threshold via your Eriez SMART web portal. Prepare a list of the email addresses and/or cell phone numbers of personnel that should receive each alert or alarm message. Then contact Eriez SMART system support at [service@eriez.com](mailto:service@eriez.com) for assistance to set up the alerts and alarms.

### 1.8 Maintenance

Using a clean soft cloth, the lens of the light beam emitter should be gently wiped clean each time the splitter edge is cleaned. Also, each time the splitter edge is cleaned, the light input port of the light sensor should be checked for debris build up and cleared of debris if blocked. Clearing this debris and wiping the light beam emitter lens should also be repeated any time the reported LUX level fails to return to the normal maximum reading when the splitter blade has no debris buildup.



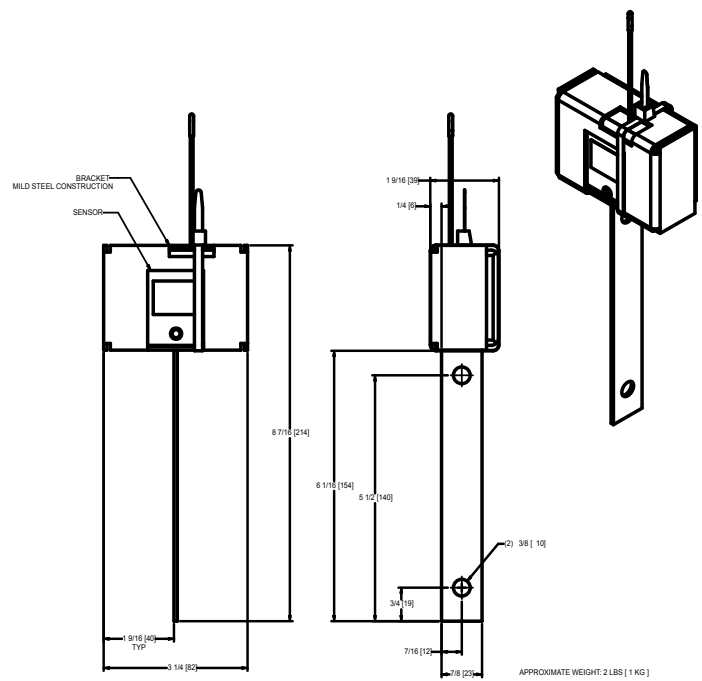
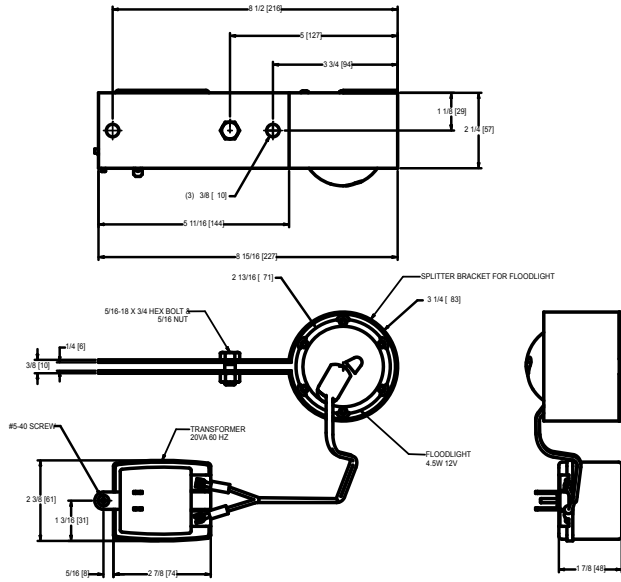
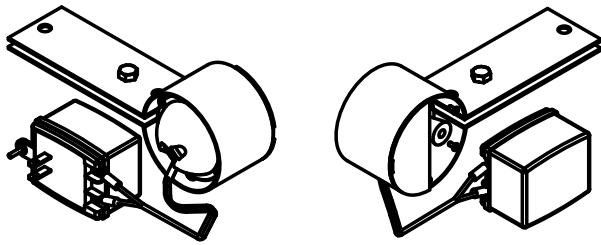
The web portal page which displays the LUX data table also displays the condition of the light sensor battery. When this display indicates that the remaining battery energy is below 20%, the light sensor batteries should be replaced with two high quality alkaline “AA” cells. In order to replace the light sensor batteries, cut the plastic tie from the light sensor bracket (being careful NOT to cut the light sensor antenna wire). Then remove the light sensor from its bracket, being careful not to damage the light sensor antenna wire. Next, slide the back cover open to expose the batteries. Notice the orientation of the batteries. Remove the two “AA” cell batteries and properly dispose of them. Install new “AA” cell batteries in the same orientation as those that were removed. Replace the back cover. Install the light sensor into the light sensor bracket, being careful not to damage the wire antenna. Secure the light sensor in the light sensor bracket by means of a plastic tie in the same location as the one which was removed. Do not block the light input port. After 30 minutes, check the web portal to verify that the light sensor is transmitting LUX data as before.

Each time the splitter blade is cleaned, the splitter monitor components should be inspected for damage. Verify that the light beam emitter is projecting the light beam correctly. Verify that the light sensor antenna is intact. Look for any other physical damage. If damage is observed, further damage must be prevented by moving the splitter monitor components farther from the material stream or by improving the material stream diverters or shields that protect the splitter monitor components. Contact Eriez SMART system support at [service@eriez.com](mailto:service@eriez.com) or call 1-888-999-3743 for assistance in all cases of component damage.





# 1.9 Dimensions



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