



Document Title:  
**Personal Voltage and Current Detector**

Document Type: **Specification**      Engineering Type: **Material Specification**      Document No.: **4350.332**

Department  
**Distribution**

Version:  
**01**

Effective Date:  
**Sep 28, 2023**

**Shared document with: Others**

**HSE**

*\*Select the Departments impacted by the document*

**For others, specify here**

<b>Author</b> Rodolfo A Flores Ortiz, PE General Engineer, Distribution Standards & Materials	Signature and Date  Sep 28, 2023
<b>Reviewer</b> Jose Costa Malaret Manager, Field Safety	Signature and Date  Sep 28, 2023
<b>Reviewer</b> Rafael Torres Martínez, PE Supervisor, Distribution Standards & Materials	Signature and Date  Sep 28, 2023
<b>Approver</b> Ricardo Castro Gómez, PE Manager, Distribution Standards & Materials	Signature and Date  Sep 28, 2023

**Management Approval (If apply)**

<b>Approver</b> Name Position	Signature and Date N/A
-------------------------------------	---------------------------

**Related/Referenced Documents**

N/A.

**Version History**

Version	Date	Revision
01	09/28/2023	Initial release



Document Title: Personal Voltage and  
Current Detector  
Document No.: 4350.332  
Department: Distribution

## Item Version History

Warehouse Catalog #	Asset Suite	Version	Date
072-80440	80440	1	09/28/2023



## 1. Introduction

This is a general specification that covers the minimum requirements for the personal voltage and current detector used in the distribution system in Puerto Rico. Further information will be provided by LUMA Energy at the time of order placement and will provide information on site specific conditions, quantity, and other requirements. This document includes the general electrical and mechanical characteristics of the material.

## 2. Special Requirements

Samples shall be furnished as requested by LUMA Energy. Vendors that have supplied this material to LUMA on previous orders will not have to furnish samples at bid opening. The equipment/material will be received at the LUMA's general warehouse (011) at Palo Seco, Puerto Rico. Shipping will include transportation and unloading at the indicated warehouse.

## 3. Literature

Descriptive and technical literature must be supplied by the vendor at time of bidding. This literature may include, but is not limited to details of material, drawings, documented testing, and instructions for use and installation. Failure to submit documents on time will cause bidder disqualification. For products described in this specification as requiring qualification, awards will be made only for such products that, prior to the time for opening of bids, had been tested and/or approved by LUMA. Evidence of PREPA's and/or LUMA Energy's approval of the equipment/material shall be supplied by vendor if requested by LUMA Energy.

## 4. Markings

- 4.1. Wooden crates or packages must be clearly marked on the outside with LUMA Energy's purchase order, warehouse item number, and supplier's part number.
- 4.2. Packaging labels and tags shall be waterproof.

## 5. Compatible with:

See Table 1 for compatible manufacturers and models. These models are examples of the material(s) described in this document and do not represent a preference. LUMA will evaluate equally any model not listed here during any acquisition event.

## 6. Packaging

All equipment/material shall be packaged and marked in such a way as to facilitate handling and protection from damage and that the receiving warehouse can readily identify it and send it, in one complete unit, to a field location without opening crates or boxes to sort items and/or parts.

## 7. Number Per Package (Logistics)

One (1) per package or as requested by LUMA Energy.

## 8. Acceptance Criteria

- 8.1. Test required: certified by external laboratories.
- 8.2. The equipment/material shall be manufactured in accordance with the latest applicable standard specifications. When conflicts occur between purchaser's specifications and the standard specifications, the purchaser's specification shall prevail.
- 8.3. Latest applicable codes, standards, and other regulations:

## 9. Description

- 9.1. Personal voltage and current detector for providing alerts of electrified sources in proximity to the user.
- 9.2. Operating voltages shall be 2400 V (minimum) to 35.4 kV RMS (line to neutral) at 60 Hz.
- 9.3. Unit shall have internal sensors designed to detect both electrical (V/m) and magnetic (T) fields.
- 9.4. Unit shall have adjustable sensitivity levels of low, medium, high, and adaptive.
- 9.5. Unit shall have antennas under the curved LED bar that provide proximity and directional audible and visual alerts of the energized conductor.
- 9.6. Unit shall detect the direction to a source with a minimum accuracy of +/- 10 degrees heading from 8 feet. Accurate 360 degrees around the user.
- 9.7. Unit shall have a built-in self-test function to ensure that every sensor is always operating properly, low battery indication and a lock out function to prevent use when the compass detects an error.
- 9.8. Unit shall have a built-in rechargeable lithium-ion battery that has a 5-day battery life in rigorous activity (frequent alerts), 10 days for non-rigorous activity and a charge time of 1.5 hours.
- 9.9. Unit shall have a common 5V USB Micro B charge point access.
- 9.10. Case material shall be military grade, flame retardant polycarbonate with a dielectric strength of 510 V/mil, dielectric constant (1MHz) of 2.9 and arc resistance of 110 sec.
- 9.11. Unit shall have an operating temperature range of -20 to 140 degrees Fahrenheit.



- 9.12. Size of unit shall be 3.5 in x 1.2 in x 0.4 in.
- 9.13. The weight of the unit shall be 2 oz.
- 9.14. Shall be compatible with any standard hard hat.
- 9.15. Individual boxes shall contain compass unit, quick start guide, USB charging cable, and storage case.

## 10. Inspection

The acceptance of any equipment/material shall in no way relieve the vendor from his responsibility to meet all the requirements of this specification, and it would not prevent subsequent rejection if such equipment/material were found later to be defective.

## 11. Proposal Information

- 11.1. Submitted proposals must include:
  - a. Technical information
  - b. Table of Compliance completed by the bidder with reference (see Appendix 1).

## 12. Table 1: Warehouse Identification Table

Warehouse Number	Asset Suite	Compatible Manufacturer	Catalog model
072-80440	80440	Safeguard	Compass

— End of Specification —



## Appendix



## Appendix 1: Table of Compliance

Criteria	Description	Pass/Fail (P / F)	Comments
Specification	The Proponent complies with the corresponding specification document (4350.332).		
Industry Standards	The Proponent complies with the industry standards established in the specification document.		
Operating Voltage	2400 V (minimum) to 35.4 kV RMS (line to neutral) at 60 Hz		
Functionality	Adjustable sensitivity levels of low, medium, high, and adaptive		
	Antennas that provide proximity and directional audible and visual alerts.		
	Shall detect the direction to a source.		
	Built-in self-test function to ensure that every sensor is always operating properly, low battery indication and a lock out function.		
Battery	Built-in rechargeable lithium-ion battery		
	Common 5V USB Micro B charge point access		
Construction	Case material shall be military grade, flame retardant polycarbonate with a dielectric strength of 510 V/mil, dielectric constant (1mhz) of 2.9 and arc resistance of 110 sec.		
	Operating temperature range of -20 to 140 degrees Fahrenheit.		
	3.5 in x 1.2 in x 0.4 in.		
	Weight of the unit shall be 2 oz.		
	Compatible with any standard hard hat.		
Package and Accessories	Compass unit, quick start guide, USB charging cable, and storage case.		











# 4350.332 Personal Voltage and Current Detector (09-28-2023)


Final Audit Report

2023-09-28

Created:	2023-09-28
By:	Rodolfo Flores (rodolfo.floresortiz@lumapr.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAAeRmJJN6N9Kk2HwpKgamhGieLa0pXAaPV

## "4350.332 Personal Voltage and Current Detector (09-28-2023)" History

-  Document created by Rodolfo Flores (rodolfo.floresortiz@lumapr.com)  
2023-09-28 - 6:06:17 PM GMT
-  Document e-signed by Rodolfo Flores (rodolfo.floresortiz@lumapr.com)  
Signature Date: 2023-09-28 - 6:08:45 PM GMT - Time Source: server
-  Document emailed to jose.costa@lumapr.com for signature  
2023-09-28 - 6:08:46 PM GMT
-  Email viewed by jose.costa@lumapr.com  
2023-09-28 - 6:44:35 PM GMT
-  Signer jose.costa@lumapr.com entered name at signing as Jose Costa  
2023-09-28 - 6:54:15 PM GMT
-  Document e-signed by Jose Costa (jose.costa@lumapr.com)  
Signature Date: 2023-09-28 - 6:54:17 PM GMT - Time Source: server
-  Document emailed to Rafael Torres-Martinez (rafael.torresm@lumapr.com) for signature  
2023-09-28 - 6:54:18 PM GMT
-  Email viewed by Rafael Torres-Martinez (rafael.torresm@lumapr.com)  
2023-09-28 - 6:55:05 PM GMT
-  Document e-signed by Rafael Torres-Martinez (rafael.torresm@lumapr.com)  
Signature Date: 2023-09-28 - 6:55:37 PM GMT - Time Source: server
-  Document emailed to ricardo.castro@lumapr.com for signature  
2023-09-28 - 6:55:38 PM GMT

 Email viewed by ricardo.castro@lumapr.com

2023-09-28 - 9:57:55 PM GMT

 Signer ricardo.castro@lumapr.com entered name at signing as Ricardo Castro Gómez

2023-09-28 - 9:58:36 PM GMT

 Document e-signed by Ricardo Castro Gómez (ricardo.castro@lumapr.com)

Signature Date: 2023-09-28 - 9:58:38 PM GMT - Time Source: server

 Agreement completed.

2023-09-28 - 9:58:38 PM GMT