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SE Multi Conductor 12-3 & Cable Grip

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Author

Miguel J. Rios López, PE (Lic. 16636)
General Engineer, Distribution Standards & Materials

Signature and Date

Jul 23, 2024

Reviewer

Rodolfo A. Flores Ortiz, PE (Lic. 27131)
General Engineer, Distribution Standards & Materials

Signature and Date

Jul 23, 2024

Approver

Ricardo Castro Gómez, PE (Lic. 12135)
Manager, Distribution Standards & Materials

Signature and Date

Jul 23, 2024

Management Approval (If apply)

Approver

Name
Position

Signature and Date

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N/A

Version History

Version	Date	Revision Comments
1	Dec. 12, 2022	Initial release.
2	Jul. 23, 2024	General format modifications, TOC updated, Section 4 modified, and sections order rearranged.



Item Version History

Warehouse Catalog #	Asset Suite #	Version	Date
006-83906	83906	2	7/23/2024
002-83907	83907	2	7/23/2024



1. Introduction

This is a general specification that covers the minimum requirements for SE Multi Conductor and Cable Grips to be 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 equipment/material.

2. Special Requirements

- 2.1. Samples shall be furnished as requested by LUMA Energy. All documented testing required by applicable specifications and standards shall be submitted with product samples, including mechanical and electrical drawings, prior to approval. Vendors that have supplied this equipment/material to LUMA Energy on previous orders will not have to furnish samples at bid opening. If any material or design changes were made to an approved product, it must be re-submitted to the material specification engineer for approval before shipping.
- 2.2. Upon inspection of incoming equipment/material, the purchaser reserves the right to refuse product shipments and to determine the acceptability or rejection of product received. The supplier shall be liable for all costs incurred for products that are refused/rejected.
- 2.3. 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.
- 2.4. Vendor shall submit two (2) quotes: one for conductor on steel reel and another for conductor on wood reel. See detail of reels in section 6.

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. If required by LUMA, final drawings shall be submitted by the vendor before the manufacturing and shipping process for approval.

4. Compatible with

For compatible manufacturers and models, see Table 1. These models are examples of the equipment/materials described in this document and do not represent a preference. LUMA will evaluate equally any models not listed here during any acquisition event.

5. Markings

- 5.1. Cable reels shall be marked outside with LUMA Energy's purchase order, item number, description of wire & specification date, code name, net length & size, gross & tare weights, and manufacturer's name & lot/production number.
- 5.2. Packaging labels and tags shall be waterproof.

6. Packaging

- 6.1. 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.
- 6.2. Shall be shipped in a non-returnable new reel of continuous cable. Cable won't be accepted by sections.
- 6.3. Wood reels shall be made of treated wood conforming with AWPA (U1 & T1-17), with a retention of 0.3 lbs./cu ft (4.81 kg/cu m) of pentachlorophenol or chromated-copper-arsenate (CCA).
- 6.4. Treatment material shall comply with AWPA P9.
- 6.5. Steel reels shall consist of a finishing high pressure hot phosphate wash and bonding agent, zinc chromate-iron oxide primer, and a final enamel coat to provide the necessary extra durability.
- 6.6. Reels shall have a minimum arbor hole diameter of 2.5 in (6.35 cm).
- 6.7. Each end of the conductor shall be firmly and properly secured to reel.
- 6.8. Reels shall be protected against damage in ordinary handling and shipping.
 - a. Manufacturer shall protect the upper layers with pieces of wood along the transverse section of reel for conductor protection NEMA level 2 wrapping of protective material.
 - b. Manufacturer shall protect conductor ends from water entrance or damage by means of an adequate seal.
- 6.9. Other types of reels will be evaluated by Luma Energy.

7. Number Per Package (Logistics)

- 7.1. Multi Conductor: Two hundred fifty feet (76.2 m) per reel or as requested by LUMA.
- 7.2. Cable Grip: Twenty-five (25) per box or as requested by LUMA.

8. Acceptance Criteria

- 8.1. Test required: certified by external laboratories.
- 8.2. Product shall be manufactured in accordance with the latest issue below (section 8.3). When conflicts occur between purchaser's specifications and the latest issue below, the purchaser's specification shall prevail.
- 8.3. Latest applicable codes, standards, and other regulations:
 - a. ASTM B-174: For bare bunch-stranded conductors made from round copper wires, either uncoated or coated with tin, lead, or lead-alloy for use as electrical conductors.
 - b. NEC 400: Requirements, applications, and construction specifications for flexible cords and flexible cables.
 - c. UL 62 & CSA C22.2-No. 49: For flexible cords, elevator cables, and hoistway cables rated 600 V maximum.
- 8.4. If any other standard different from the ones indicated in this document are used, the supplier must provide information showing compatibility with the required ones.

9. Description

- 9.1. These cables, suitable for indoor and outdoor usage, are used for reclosers control connection on overhead distribution system. The cable grip is used for the cable connection to the control box.
- 9.2. Shall be three (3) stranded copper conductors, 12 AWG, 65 strands each, Class K, separated by a non-wicking polypropylene filler with a tissue-paper wrapped around the assembly for easy jacket removal.
- 9.3. The insulation shall be thermoplastic rubber (TPE) or equivalent, rated at 600V, fire retardant and oil, heat, sunlight, and water resistant. The thickness shall be 45 mils.
- 9.4. The jacket shall be black thermoplastic rubber (TPE) or equivalent. The thickness shall be 95 mils.
- 9.5. Type: SEOOW
- 9.6. Operating Temperature: -50°C to 105°C (-58°F to 221°F)
- 9.7. Approximate Overall Diameter: 0.605" (15.4 mm)
- 9.8. Conductor Nominal DC Resistance: 1.66 Ω/1k ft
- 9.9. Approximate Weight: 193 lbs./1000 ft (287.8 kg/km)
- 9.10. Conductor Color: Black/White/Green
- 9.11. The outside cable jacket markings shall include "Property of PREPA", sequential footage marks (SFM), and all required markings as per the applicable standards and regulations. The supplier shall provide an example of the final legend at bid opening.



9.12. Cable Grip Requirements:

- a. Material: Aluminum
- b. Shall be straight configuration with male thread. A 1/2" (1.27 cm) lock nut, also in aluminum, to make the connection to the box shall be included.
- c. Shall be suitable for a 1/2" (1.27 cm) knockout.
- d. Shall be suitable for a cable diameter of 0.605" as mentioned in section 9.7.
- e. Shall be suitable for wet and corrosive environments.
- f. Shall have an internal O-ring or equivalent component to complete the seal with the compression nut to avoid water ingress.
- g. The nut and body shall be hex type to provide a large wrenching area for easy installation.

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/materials were found later to be defective.

11. Proposal Information

11.1. Submitted proposals must include:

- a. Technical information, tests, and drawings.
- b. Table of Compliance completed by the bidder with reference (see Appendix 1 & 2).

12. Warranty

The cable shall be designed and manufactured to provide a minimum life expectancy of 40 years. Replacement costs associated with premature conductor failure due to inadequate design or faulty manufacturing is to be the responsibility of the supplier. The manufacturer shall guarantee that each part of the finished conductor has been manufactured in accordance with the requirements of the referenced specifications and standards. The supplier and/or manufacturer shall agree to replace any length of conductor for two years after date of delivery if defective material or workmanship is found during installation or if the conductor fails from normal use during its first year of service. In either case, the supplier and/or manufacturer shall be given a reasonable opportunity to inspect such defect or failure. A technical report detailing the cause(s) of the defect and the corrective measures implemented to prevent recurrence shall be provided upon request of the purchaser.



13. Table 1: Warehouse and Asset Suite Identification Number

Item	Warehouse Catalog #	Asset Suite #	Packaging	Compatible Manufacturer & Model
Multi Conductor	006-83906	83906	250 ft (76.2 m) per reel	Southwire (55039599)
Cable Grip	002-83907	83907	25 units per box	Remke (RSR-110)

- End of Specification -



Appendix

Appendix 1: Table of Compliance for SE Multi Conductor

Line	Description	Pass/Fail (P / F)	Comments
1	The Proponent complies with the specification document 4350.291.		
2	The Proponent complies with the industry standards established in the specification document (ASTM, AWPA, NEC, NEMA & UL).		
3	Tech. info., tests & drawings provided.		
4	Type: SE00W		
5	Non-wicking polypropylene filler with a tissue-paper wrapped around each conductor.		
6	Fire retardant and oil, heat, sunlight, and water resistant.		
7	Gauge: 3 Conductors, 12 AWG each		
8	65 Strands, Class K		
9	Max. Temperature: 105°C		
10	Conductor Material: Copper		
11	Insulation/Jacket: Thermoplastic Rubber (TPE)		
12	Insulation Thickness: 45 mils		
13	Jacket Thickness: 95 mils		
14	Jacket Color: Black		
15	Cable Individual Color: Black/White/Green		
16	Voltage: 600V		
17	Ampacity: 25A		
18	Resistance: 1.66 Ω /1k ft		
19	Approx. OD: 0.605"		
20	Jacket markings including "Property of PREPA", SFM, and all required as per the applicable standards and regulations.		
21	Package: 250 ft / reel		

NOTE: This table is only a checklist for reference. The compliance shall be with the complete document. Marking a PASS in the table won't be accepted as a compliance without the technical information required to certify it.



Appendix 2: Table of Compliance for Cable Grip

Line	Description	Pass/Fail (P / F)	Comments
1	The Proponent complies with the corresponding specification document 4350.291.		
2	The Proponent complies with the industry standards established in the specification document (UL).		
3	Cable Grip & Lock Nut Material: Aluminum		
4	Straight configuration with male thread.		
5	For a 1/2" knock out.		
6	For wet & corrosive environment.		
7	For a 0.605" cable diameter.		
8	Hex type body and nut.		
9	1/2" lock nut included.		

NOTE: This table is only a checklist for reference. The compliance shall be with the complete document. Marking a PASS in the table won't be accepted as a compliance without the technical information required to certify it.










4350.291 SE Multi Conductor 12-3 with Cable Grip (7-23-24)

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