UL 2237

STANDARD FOR SAFETY

Multi-Point Interconnection Power Cable Assemblies for Industrial Machinery

UL Standard for Safety for Multi-Point Interconnection Power Cable Assemblies for Industrial Machinery, UL 2237

First Edition, Dated April 16, 2019

Summary of Topics

This revision of ANSI/UL 2237 dated January 8, 2021 includes new requirements for Markings and Instructions; 48.1A

Text that has been changed in any manner or impacted by UL's electronic publishing system is marked with a vertical line in the margin.

The new requirements are substantially in accordance with Proposal(s) on this subject dated October 2, 2020.

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APRIL 16, 2019
(Title Page Reprinted: January 8, 2021)

ANSI/UL 2237-2021

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Standard for Multi-Point Interconnection Power Cable Assemblies for Industrial Machinery

First Edition

April 16, 2019

This ANSI/UL Standard for Safety consists of the First Edition including revisions through January 8, 2021.

The most recent designation of ANSI/UL 2237 as an American National Standard (ANSI) occurred on January 8, 2021. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at https://csds.ul.com.

No Text on This Page

CONTENTS

INTRODUCTION

CONSTRUCTION

PERFORMANCE

INTRODUCTION

1 Scope

1.1 This standard covers multi-point interconnection power cable assemblies. They may consist of power cable assemblies, male or female power cable fittings, panel-mounted power cable/conductor fittings and feeder-tap power cable fittings, referred to as the device in this standard, used with industrial machinery in accordance with the National Fire Protection Association Electrical Standard for Industrial Machinery, NFPA 79 that have system voltages up to and including 1,000 V.

1.2 These interconnection power cable assemblies may be used in an industrial environment to distribute the power to feeder and branch circuits, including motor branch circuits, of industrial machinery.

1.3 Devices covered under this standard are only intended for indoor use, unless otherwise identified.

1.4 Devices covered under this standard are rated 1,000 V or less. Each device is rated in volts and amperes. The electrical ratings are marked, on each device or on a flag label affixed to each individual power cable assembly.

1.5 The cable assembly fittings and panel-mount fittings are intended to be installed in accordance with the manufacturer's installation instructions. The cable assembly fittings are intended to be assembled or molded on flexible cord. The power cable assemblies and mating fittings are not intended to be used as a substitute for the fixed wiring of the building or structure. The power cable assemblies and mating fittings may be connected to the fixed wiring of the building or structure; using a feeder tap fitting or male/female cable fitting.

1.6 Power cable assemblies and fittings covered under this standard are not intended to make or interrupt current under load conditions. These power cable assemblies and fittings have been investigated to their marked short-circuit current rating. Power cable assemblies and fittings may specify a maximum ampere rating, type of overcurrent protective device, or both. Unless otherwise marked, the power cable assemblies and fittings are intended to be supplied from an overcurrent protective device of the maximum ampere rating permitted by the Relationship Between Conductor Size and Maximum Rating or Setting of Short-Circuit Protective Device for Power Circuits Table, Table 7.2.10.4, of the National Fire Protection Association Electrical Standard for Industrial Machinery, NFPA 79.

1.7 This standard does not cover male-to-male cable assemblies or multi-outlet fittings.

1.8 These devices are intended for use only with the manufacturer's same line of products covered under this standard.

1.9 These devices are not intended for disconnecting means under load conditions and are marked as described in 48.3.

Exception: Devices may be investigated for use as a disconnecting means under load conditions, if so requested and the device complies with the overload, temperature, resistance to arcing and dielectric voltage withstand testing as described in Table 19.1.

2 Glossary

2.1 For the purpose of this standard, the following definitions apply.

2.2 CONNECTOR (CABLE CONNECTOR) – A portable receptacle that is intended to provide power, with means for attachment of flexible cord or cable and not intended for permanent mounting.

2.3 FEEDER-TAP CABLE FITTING – A fitting intended for feed-through termination to tray cable or other appropriate cable together with either a female interconnection device to terminate to a cable assembly or to connect to a flexible cord or cable suitable for hard use that is the same size and ampacity as the feeder cable.

2.4 FEED-THROUGH FITTING – A male and female device directly connected through the pins or contacts. This device is not assembled on a flexible cord, cable or AWM.

2.5 GROUNDED CONDUCTOR – The circuit conductor that is identified and intended for connection to the grounded (neutral circuit conductor) circuit.

2.6 GROUNDING-CONDUCTOR – The circuit conductor that is identified and intended for connection to the grounding (protective earth conductor) circuit.

2.7 GROUNDING-CONDUCTOR PATH – A path between the grounding pin or contact and/or terminal to the grounding conductor.

2.8 INLET – A permanently mounted plug intended to receive power from a cable connector.

2.9 MALE OR FEMALE CABLE FITTING – A fitting intended to be either molded-on or field-assembled to flexible cord or cable with either a male or female insert.

2.10 PANEL-MOUNTED CABLE/CONDUCTOR FITTING – A fitting consisting of a panel-mounted assembly with either a male or female insert. Each assembly is provided with a means to secure to an enclosure, a panel, of the industrial machinery.

2.11 PLUG (ATTACHMENT PLUG) – A device intended to receive power when inserted in a receptacle or connector, which establishes connection between conductors of the attached flexible cord or cable and the conductors connected to the receptacle or cable connector.

2.12 POLARIZED DEVICE – A device intended to receive power when inserted in a receptacle or connector, which establishes connection between conductors of the attached flexible cord or cable and the conductors connected to the receptacle or cable connector.

2.13 POWER CABLE ASSEMBLIES – Cable assemblies consist of a length of cable or flexible cord with a molded-on or assembled-on male or female power cable fitting on at least one end of the cable.

2.14 RECEPTACLE (OUTLET) – A device that is intended to provide power to an inserted plug, and that is installed as a fixed outlet or on equipment.

2.15 SPLITTER – A male fitting that terminates in two or more female fitting which may or may not be cord connected.

2.16 SYSTEM VOLTAGE – The rated supply or line voltage to which the end product will be connected.

2.17 TERMINAL, CRIMP TYPE – A terminal in which an electro-mechanical connection is made between the terminal lug, pin or contact and a conductor by compressing the lug, pin or contact onto the conductors.

2.18 TERMINAL, INSULATION-DISPLACEMENT – A terminal having a contacting member that forces the conductor insulation aside and presses to contact the current-carrying conductor.

2.19 TERMINAL, PIN TYPE (INSULATION-PIERCING) – A terminal having a contact pin that punctures the conductor insulation to contact the current-carrying conductor.

2.20 TERMINAL, PRESSURE WIRE – A terminal that establishes a connection between one or more conductors and a terminal plate by means of mechanical pressure without the use of solder. The terminal is one of the following types:

a) Clamp-type – A terminal in which the conductor is held under a pressure plate or saddle clamp by one or more screws. This type of terminal may be provided in combination with a wire-binding screw terminal.

b) Setscrew-type – A terminal in which the pressure is applied by the end of the screw bearing on the conductor, either directly or through a wire-protecting pad.

2.21 TERMINAL, WIRE-BINDING SCREW – A terminal in which the conductor is bent around the screw and is clamped directly under the head of the screw when it is tightened.

2.22 UNIT CONTAINER – The smallest carton, package, or container, in which a fitting is packaged. A unit container may contain more than one fitting if the devices are not intended to be removed from the container for individual sale.

3 Components

3.1 Except as indicated in 3.2, a component of a product covered by this standard shall comply with the requirements for that component. See Appendix A for a list of standards covering components used in the products covered by this standard.

3.2 A component is not required to comply with a specific requirement that:

a) Involves a feature or characteristic not required in the application of the component in the product covered by this standard; or

b) Is superseded by a requirement in this standard.

3.3 A component shall be used in accordance with its rating established for the intended conditions of use.

3.4 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

4 Units of Measurement

4.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

5 Undated References

5.1 Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard.

CONSTRUCTION

6 Accessibility of Uninsulated Live Parts

6.1 Uninsulated live parts, other than exposed wiring terminals, and internal wiring shall not be accessible to contact by the probe illustrated in Figure 6.1. The probe is to be applied with a force of 3 lbf (13.3 N). The probe is to be rotated, changed in configuration, or angled; before, during, and after application.