October 1, 2026

UL 3700

Outline of Investigation for Interactive Plug-In PV (PIPV) Equipment and Systems

Issue Number: 2

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Summary of Topics

This second issue of the Outline of Investigation for Interactive Plug-In PV (PIPV) Equipment and Systems, UL 3700, expands the requirements for DC circuits up to 600 VDC, and clarifies requirements for complete systems, protection, installation, and testing. See below for a numbered list of the principal changes.

1) Sections 1.3 and 1.4 were revised to expand the permitted PIPV DC voltage from 64 VDC to 480 VDC at Outline Test Conditions (80 VDC and 600 VDC in cold conditions) , and to establish requirements for the enhanced protection of DC circuits from mechanical damage and user access when DC voltage is above 64 VDC at STC.

2) Section 1.10 was added to clarify that the scope covers complete PIPV systems.

3) Section 4 was updated to add UL 817, Standard for Cord Sets and Power-Supply Cords, to clarify requirements for PIPV interconnection cords having a molded connection to the power-supply cord; UL 5A, Nonmetallic Surface Raceways and Fittings; UL 50E, Enclosures for Electrical Equipment, Environmental Considerations; UL 746C, Polymeric Materials – Use in Electrical Equipment Evaluations UL 870, Wireways, Auxiliary Gutters, and Associated Fittings; and UL 1660, Liquid-Tight Flexible Nonmetallic Conduit.

4) Section 5 was revised to add definitions for a physical barrier and a convenience receptacle. The physical-barrier definition supports the new higher-voltage DC requirements, and the convenience-receptacle definition distinguishes a receptacle supplying utilization equipment from the PIPV receptacle used to connect the system to premises wiring.

5) New Section 6.1.10 requires evaluation of a complete PIPV system and identification of the components, accessories, mounting and guarding means, interconnection means, protective devices, ratings, and installation conditions necessary for compliance. It also limits component substitution and requires specifically identified bidirectional Class A GFCI protection.

6) Sections 6.1.3, 6.1.7, and 9.2 were revised to clarify PIPV receptacle construction and installation. The mating portion is required to comply with the PIPV connector requirements, the remaining receptacle construction is subject

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to applicable UL 498 tamper-resistant and weather-resistant requirements, and installation instructions must identify the evaluated bidirectional overcurrent and Class A GFCI devices.

7) Section 6.1.7 was revised to clarify requirements.

8) Sections 6.2, 6.5, and 6.6 were revised to clarify GFCI protection in stand-alone and multimode operation, permit omission of additional stand-alone GFCI protection where hazardous ground-fault leakage cannot be produced. A clarification has been added that UL 9741 EV chargers or EV power export equipment may not be export to the premises wiring.

9) Section 6.10 was reorganized to distinguish Class 2 PV power sources, circuits exceeding Class 2 limits at or below 64 VDC at STC, and circuits above 64 VDC at STC. New construction requirements for barriers used to restrict access to higher-voltage DC wiring or to protect modules during mechanical abuse tests, if required in order to pass the tests.

10) New Section 6.10.5 establishes construction and environmental requirements for barriers, enclosures, and wireways relied upon to prevent access to DC wiring with voltages higher than 64 VDC. Requirements address outdoor enclosures, cold impact, operating temperature, electrical isolation, mechanical strength, ultraviolet exposure, water exposure, and material temperature ratings.

11) Section 7.2 was revised to add testing requirements for modules and DC wiring in circuits above 64 VDC at SCT. The new requirements apply the existing temperature, point-load, impact, folding, and cold-folding tests with modifications, including impact testing of DC wiring and wet leakage-current testing of accessible module and wiring surfaces in place of the dry leakage current test that is required for lower voltage DC circuits.

12) Section 9.2 was consolidated and clarified to identify required components and installation conditions for dedicated and non-dedicated branch circuits, including PCS documentation and receptacle location requirements.

13) Requirements for insulation or isolation in Section A1.4 in Annex A were clarified.

14) Figure titles in Annex B were also updated with editorial corrections.

This is the second issue of the Outline of Investigation for Interactive Plug-In PV (PIPV) Equipment and Systems, UL 3700 dated October 1, 2026. It covers plug-in PV (PIPV) equipment and systems that generate power and have an AC or DC PIPV interconnection cord with a PIPV plug used for connection to a permanently installed PIPV receptacle.

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INTRODUCTION

1 Scope

1.1 These requirements apply to plug-in PV (PIPV) equipment and systems that generate power and have an AC or DC PIPV interconnection cord with a PIPV plug used for connection to a permanently installed PIPV receptacle.

1.2 PIPV equipment covered by this outline is complete in their construction, comply with the applicable requirements of this outline, and can be interconnected with other plug-in equipment to form a PIPV System.

1.3 The scope of these requirements is limited to PV modules and PV DC circuits with a maximum open circuit voltage of 480 VDC at Outline Test Conditions (600 VDC with an applied 1.25 factor to adjust for cold temperature).

1.4 This standard limits user access to system equipment and components (both insulated and uninsulated) operating at cold temperature-adjusted voltages above 30 VDC to reduce the likelihood of electric shock.

1.5 Equipment covered by this outline is only intended for use in non-hazardous locations.

1.6 Equipment covered by this Outline may be movable.

1.7 The scope of this outline does not include roof mounted PV, Building Integrated PV, or PV equipment and systems that are permanently electrically connected to the premises wiring or point of service. PV equipment and systems with electrical connections to premises wiring or point of service are within the scope of the local building codes such as the National Electrical Code® (NEC®) (NFPA 70®) and fire code(s).

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1.8 The requirements of this outline also address requirements for PIPV equipment and systems that are supplied with manufacturer's installation instructions that include provisions for securing the equipment to withstand environmental loads in accordance with the International Building Code (IBC) or International Residential Code (IRC), as applicable, such as wind, snow, seismic forces, and gravity. This outline does not evaluate or verify the structural integrity or load-bearing capacity of the building components themselves, such as balcony railings.

1.9 The scope applies to PIPV connected only to an area or local electric power system (EPS) circuit where all components in the circuit – including connectors, receptacles, circuit interrupter devices (e.g., GFCI), and overcurrent devices – are listed and identified for bidirectional current flow and installed in accordance with applicable National Electrical Code (NEC), NFPA 70 requirements.

1.10 PIPV products and PIPV system evaluated in accordance with this standard are complete, including all components, accessories, mounting means, guarding means, interconnection means, protective devices, ratings, markings, conditions of use, and installation instructions necessary for compliance with this document and the National Electrical Code (NEC), NFPA 70.

2 Components

2.1 A component of a product covered by this Outline shall:

a) Comply with the requirements for that component as specified by this Outline;

b) Be used in accordance with the rating(s) established for the intended conditions of use; and

c) Be used within its established use limitations or conditions of acceptability.

2.2 A component of a product covered by this Outline 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 outline;

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