# UL 1741

## STANDARD FOR SAFETY

## Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources

UL Standard for Safety for Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources, UL 1741

Third Edition, Dated September 28, 2021

***Summary of Topics:***

***This new edition of UL 1741 dated September 28, 2021 includes revisions to Supplement SB – Grid Support Utility-Interactive Inverters and Converters based Upon IEEE 1547-2018 and IEEE 1547.1-2020 and miscellaneous editorial updates.***

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated May 7, 2021 and July 27, 2021.

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# UL 1741

## Standard for Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources

Before November 7, 2005, the title for UL 1741 was Standard for Inverters, Converters, and Controllers for Use in Independent Power Systems.

First Edition – May, 1999
Second Edition – January, 2010

**Third Edition**

**September 28, 2021**

This UL Standard for Safety consists of the Third edition.

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.

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## INTRODUCTION

### 1 Scope

1.1 These requirements cover inverters, converters, charge controllers, and interconnection system equipment (ISE) intended for use in stand-alone (not grid-connected) or interactive (grid-connected) power systems. Interactive inverters, converters, and ISE are intended to be operated in parallel with an electric power system (EPS) to supply power to common loads.

1.2 For interactive equipment, these requirements are intended to supplement and be used in conjunction with the Standard for Interconnecting Distributed Resources With Electric Power Systems, IEEE 1547, and the Standard for Conformance Test Procedures for Equipment Interconnecting Distributed Resources with Electric Power Systems, IEEE 1547.1.

1.3 These requirements cover AC modules that combine flat-plate photovoltaic modules and inverters to provide AC output power for stand-alone use or interaction with the electric power system (EPS), commonly the electric utility grid, and power systems that combine other alternative energy sources with inverters, converters, charge controllers, and interconnection system equipment (ISE), in system specific combinations.

1.4 These requirements also cover power systems that combine independent power sources with inverters, converters, charge controllers, and interconnection system equipment (ISE) in system specific combinations.

1.5 The products covered by these requirements are intended to be installed in accordance with the National Electrical Code, NFPA 70.

1.6 These requirements also cover rapid shutdown equipment and systems.

### 2 Glossary

#### 2.1 General

2.1.1 In the text of this standard, the term "unit" refers to any product covered by this Standard. For the purpose of this Standard, the definitions in 2.1.2 – 2.1.54 apply.

2.1.2 AC MODULE – The smallest complete unit that includes solar cells, optics, inverters, and other components, excluding tracking devices, intended to generate ac power from sunlight.

2.1.3 BARRIER – A part inside an enclosure that reduces access to a part that involves a risk of fire, electric shock, injury to persons, or electrical energy-high current levels.

2.1.4 BRANCH CIRCUIT – The portion of the building wiring system beyond the final overcurrent protective device in the power-distribution panel that protects the ac output of the field-wiring terminals in a permanently connected unit.

2.1.5 BYPASS SOURCE – A branch circuit or generator to which the load is connected when the power conversion portion of the inverter is not supplying power to the load.

2.1.6 CHARGE CONTROLLER – A device intended to control the charging process of storage batteries used in photovoltaic power systems.