



ANSI/CAN/UL 2849:2022A

JOINT CANADA-UNITED STATES
NATIONAL STANDARD

STANDARD FOR SAFETY

Electrical Systems for eBikes

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ANSI/UL 2849-2022



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UL Standard for Safety for Electrical Systems for eBikes, ANSI/CAN/UL 2849

First Edition, Dated January 2, 2020

Summary of Topics

This revision of ANSI/CAN/UL 2849 dated December 15, 2022 includes an editorial correction to [Table 8.1](#).

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.

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ANSI/CAN/UL 2849:2022A

Standard for Electrical Systems for eBikes

First Edition

January 2, 2020

This ANSI/UL Standard for Safety consists of the First Edition including revisions through December 15, 2022.

The most recent designation of ANSI/UL 2849 as an American National Standard (ANSI) occurred on June 17, 2022. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page, Preface or SCC Foreword.

This standard has been designated as a National Standard of Canada (NSC) on June 17, 2022.

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Preface

This is the First Edition of the ANSI/CAN/UL 2849, Standard for Safety for Electrical Systems for eBikes.

UL is accredited by the American National Standards Institute (ANSI) and the Standards Council of Canada (SCC) as a Standards Development Organization (SDO).

This Standard has been developed in compliance with the requirements of ANSI and SCC for accreditation of a Standards Development Organization.

This ANSI/CAN/UL 2849 Standard is under continuous maintenance, whereby each revision is approved in compliance with the requirements of ANSI and SCC for accreditation of a Standards Development Organization. In the event that no revisions are issued for a period of four years from the date of publication, action to revise, reaffirm, or withdraw the standard shall be initiated.

In Canada, there are two official languages, English and French. All safety warnings must be in French and English. Attention is drawn to the possibility that some Canadian authorities may require additional markings and/or installation instructions to be in both official languages.

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 <http://csds.ul.com>.

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This Edition of the Standard has been formally approved by the UL Standards Technical Panel (STP) on Electrical Systems for eBikes, STP 2849.

This list represents the STP 2849 membership when the final text in this standard was balloted. Since that time, changes in the membership may have occurred.

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This Standard is intended to be used for conformity assessment.

The intended primary application of this standard is stated in its scope. It is important to note that it remains the responsibility of the user of the standard to judge its suitability for this particular application.

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INTRODUCTION

1 Scope

1.1 This Standard covers the electrical system of eBikes powered by a lithium-based, rechargeable battery. EBikes include both Electrically Power Assisted Cycle (EPAC – pedal assist) and non-pedal assist eBikes.

1.2 Electrical systems as referenced in [1.1](#), may include onboard components and off board components of eBikes. As a minimum, the electrical system consists of the drive unit, battery, battery management system (BMS), interconnecting wiring, and power inlet. Any additional components or systems required to demonstrate compliance are included based on the overall system application and risk.

1.3 Off board components include dedicated chargers for charging batteries that are removed from the eBike during charging or dedicated chargers for charging batteries that are in place on the eBike during charging.

1.4 This Standard does not cover the mechanical structure of the eBike unless specified otherwise.

2 Components

2.1 A critical safety component of a product covered by this Standard shall comply with the requirements for that component.

2.2 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.

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

2.4 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.

3 Units of Measurement

3.1 The values given in SI (metric) units shall be normative. Any other values given shall be for information purposes only.

4 Undated References

4.1 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.

5 Definitions

5.1 For the purpose of this Standard, the following definitions apply.