Australian Standard®

Battery chargers for stationary batteries

This Australian Standard was prepared by Committee EL/5, Secondary Batteries. It was approved on behalf of the Council of Standards Australia on 22 May 1992 and published on 17 August 1992.

The following interests are represented on Committee EL/5:

Australian Automobile Association
Australian Automotive Aftermarket Association
Australian Electrical and Electronic Manufacturers Association
Australian Federation of Consumer Organizations
Australian Lead Development Association
Confederation of Australian Industry
Department of Defence
Electricity Supply Association of Australia
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Regulatory authorities electrical

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PREFACE

This Standard was prepared by the Standards Australia Committee on Secondary Batteries. The electrical safety requirements for stationary battery chargers are not completely specified in this Standard but are specified in AS 3100—1990, *Approval and test specification—General requirements for electrical equipment*.

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STANDARDS AUSTRALIA

Australian Standard

Battery chargers for stationary batteries

1 SCOPE This Standard specifies requirements for stabilized constant-potential battery chargers that are designed to supply direct current power from an alternating current source, while charging a float-type stationary battery, and which may simultaneously supply power to a connected direct current system load.

NOTE: Appendix A provides guidance on information to be supplied by a purchaser.

2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS

1042 Direct-acting indicating electrical measuring instruments and their accessories

1044 Electromagnetic interference—Household electrical appliances, portable tools and similar electrical equipment—Limits and methods of measurement

1104 Informative symbols for use on electrical and electronic equipment

1217 Acoustics—Determination of sound power levels of noise sources

1217.2 Part 2: Precision methods for broad-band sources in reverberation rooms

1217.3 Part 3: Precision methods for discrete-frequency and narrow-band sources in reverberation rooms

1259 Acoustics—Sound level meters

1939 Degrees of protection provided by enclosures for electrical equipment (IP Code)

2374 Power transformers

3000 SAA Wiring Rules

3100 Approval and test specification—General requirements for electrical equipment

CCITT Recommendation 0.41: Psophometer for use on telephone type circuits

3 DEFINITIONS For the purpose of this Standard, the definitions given in AS 3100 and those below apply.

3.1 Audible noise—the sound level produced by the battery charger measured in decibels.

3.2 Battery—a unit consisting of one or more cells connected in a series, parallel, or a series-parallel arrangement to supply the voltage and current requirements of the load.

3.3 Boost charge—a charge performed at a higher potential than a float or equalizing charge. A boost charge is applied to partially restore the capacity of a discharged battery at a faster rate than a float charge.

3.4 Capacity—the quantity of electricity in ampere hours (A.h) which a fully charged battery can deliver under specified conditions.

The capacity of a cell or battery is denoted by the symbol *C*. As the capacity varies with rate of discharge, the symbol *C* is followed by a numerical suffix giving the rate of discharge. Thus C_{120} is the capacity in ampere hours (A.h) at the 120 hour rate of discharge. The specified temperature is usually 25°C. The final voltage depends on battery type and conditions of service.

Capacity may be specified as follows:

(a) *Actual capacity*—the quantity of electricity in ampere hours (A.h) that can be withdrawn from a cell or battery for a specific set of operating conditions including discharge rate, temperature, initial state of charge, age and final voltage.

(b) *Rated capacity*—the quantity of electricity in ampere hours (A.h), declared by the manufacturer which a battery can deliver after a full charge under specified conditions.

NOTE: The specified conditions are rate of discharge, final voltage and temperature.

3.5 Cell—an assembly of electrodes and electrolytes which constitutes the basic unit of a battery.

3.6 Charger efficiency—the output power in watts divided by the input power in watts, expressed in percent.

3.7 Constant voltage charge—a charge during which the voltage across the battery terminals of the battery charger is maintained at a constant value.

3.8 Displacement factor—the ratio of the active power of the fundamental wave to the apparent power of the fundamental wave.

3.9 Equalizing charge—an extended charge to ensure complete charging of all the cells in the battery. An equalizing charge is performed at a higher potential than a float charge.