ANSI/BHMA A156.35-2020

STANDARD

FOR

POWER SUPPLIES FOR ELECTRONIC ACCESS CONTROL

SPONSOR
BUILDERS HARDWARE MANUFACTURERS ASSOCIATION

AMERICAN NATIONAL STANDARDS INSTITUTE
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AMERICAN NATIONAL STANDARD

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FOREWORD (This Foreword is not a part of ANSI/BHMA A156.35)

Customers face many choices when selecting a power supply for use with access control hardware. Our work on a BHMA standard will assume confidence in the building codes relative to safety, and seek to differentiate products based on improved efficiency and prolonged life when properly pared. The proposed standard will not be limited by technology or the creativity of manufacturers to provide a high value solution. Also, it will maintain alignment with other BHMA standards that delineate based on energy consumption and other factors such as time in use that influence a product's Life Cycle Assessment.

The general classification of builders hardware includes a wide variety of items which are divided into several categories. To recognize this diversity, a sectional classification system has been established. Power Supplies is one such section and this Standard is the result of the collective efforts of members of the Builders Hardware Manufacturers Association, Inc. who manufacture these products. The total product standards effort is therefore, a collection of sections, each covering a specific category of items.

Performance tests have been established to insure safety and stability to which the public is entitled. There are no restrictions on design except for those imposed for the purpose of classification.

This Standard is not intended to obstruct but rather to encourage the development of improved products, methods and materials. The BHMA recognizes that errors will be found, items will become obsolete, and new products and methods will be developed. With this in mind the Association plans to update, correct and revise these Standards on a regular basis. It shall also be the responsibility of manufacturers to request such appropriate revisions.

The BHMA numbers which indicate classification of power supplies are intended to be used with supplementary product information. Individual manufacturer's catalogues should be consulted for this.

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1. SCOPE

1.1 This Standard establishes requirements for power supplies specifically designed for use with electronic access control hardware and related electrical components to distribute power. Products are required to meet minimum performance criteria and given an energy efficiency rating. These basic criteria will enable a customer to make an informed decision to best fit their needs and ensure compatibility with the physical Electronic Access Control system.

1.2 Tests described in this Standard are performed under laboratory conditions. In actual usage, results may vary because of installation, maintenance, and environmental conditions.

2. DEFINITIONS

2.1 **Battery Backup** A system that provides short-term, uninterrupted power in the event of the input (source) power failure. It typically maintains the energy stored in the battery using a charging circuit and switches between the main power source and the battery source based on voltage detection circuitry.

2.2 **Chassis Ground** A chassis ground is a connection to the main chassis of a piece of electronic or electrical equipment. Ideally, all chassis grounds should lead to earth grounds.

2.3 **DC Ground** Common reference point for any DC outputs. It provides a reference that can be considered to have zero voltage. All other circuit voltages (positive and negative) are measured or defined with respect to it.

2.4 **DUT Device Under Test**. In this document it is the power supply under test.

2.5 **Earth Ground** An electrical connection that is made to earth (or to some conductor that is connected to earth). A power supplies DC ground or common is not actually earth ground unless it is connected to earth.

2.6 **Efficiency** A performance curve which demonstrates the manner in which a supply's efficiency varies under varying load conditions. The higher the efficiency, the lower the cost to run the power supply. Example: A 70% efficient power supply wastes 30% of its input power to produce its rated output power.

2.7 **Electronic Loading Device** A device used to simulate an in-service electrical load for testing purposes.

2.8 **Input Voltage** Also known as the "supply voltage", the source of the electricity (ex: generator or power grid) to a power supply. Commonly limited to a "rated voltage" or range within which the power supply is designed to work.

2.9 **Line Regulation** The change in DC output voltage of a power supply over the entire input range while the output load is held constant.

2.10 **Load** The components or circuitry drawing current from the output of a supply. The characteristic (resistance, inductive, reactance, etc.) of the load determines the amount of power drawn from the supply.

2.11 **Load Regulation** The change in DC output voltage of a power supply over the entire output load range while the input is held constant.

2.12 **Overshoot/ Undershoot** see step response.

2.13 **Power Supply** An electrical device that supplies electric power to an electrical load. The primary function of a power supply is to convert voltage and current from the input to the rated output voltage, and current, to power a designated load.

2.14 **Ripple** Also known as "ripple voltage", it is the periodic variation or undulations of the DC voltage (waveform) as a result of the AC (input) to DC (output) conversion. Ripple is eliminated or considerably reduced with a filter circuit to both improve the efficiency of the power supply and control noise.