

Electric vehicle energy management systems



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Standards Update Service

CSA SPE-343:21
December 2021

Title: *Electric vehicle energy management systems*

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CSA SPE-343:21
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*Published in December 2021 by CSA Group
A not-for-profit private sector organization
178 Rexdale Boulevard, Toronto, Ontario, Canada M9W 1R3*

*To purchase standards and related publications, visit our Online Store at www.csagroup.org/store/
or call toll-free 1-800-463-6727 or 416-747-4044.*

ISBN 978-1-4883-4046-8

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Contents

Technical Committee on Industrial Products	3
Subcommittee on Electric Vehicle Energy Management Systems	6
Preface	8
1 Scope	9
2 Reference publications	10
3 Definitions	11
4 General	13
4.1 Construction	13
4.2 Communication/control components	13
4.3 Functional requirements	14
4.3.1 Management of loads	14
4.3.2 Communications	14
4.4 Configuration	15
5 Markings	16
6 Tests	17
6.1 General	17
6.2 Test methods	19
6.2.1 General	19
6.2.2 Test 1 — Multi-port or equivalent	20
6.2.3 Test 2 — Single-tier system with uncontrolled load	23
6.2.4 Test 3 — Multi-tiered system (with townhouse (e.g., 6 units)/condo options (e.g., 60 units))	27
6.2.5 Test 4 — Loss of communication	29
6.2.6 Test 5 — DCFC	31
6.2.7 Test 6 — Life safety, system response (where EVEMS is indicated as being capable of being used in this configuration)	32
7 Instructions	32
7.1 General	32
7.2 Instructions pertaining to risk of fire, electric shock, or injury to persons	33
7.3 Installation instructions	33
7.4 Operating instructions — System manager	36
7.5 Use/maintenance instructions — User	36
7.6 Moving, transporting, and storage instructions	36
<hr/>	
Annex A (informative) — Commentary	37
Annex B (informative) — Control approaches	42
Annex C (informative) — Configuration approaches	43

Annex D (informative) — Relationship to CSA C22.2 No.14/UL 508, CSA C22.2 No. 280/UL 2594, and companion engineering standards	44
Annex E (Informative) — Sample single line	45
Annex F (Informative) — Relationship to the CEC Pt. I (CSA C22.1) and NEC (NFPA 70)	47
Annex G (informative) — Sample field installation test principles	49
Annex H (Informative) — Bibliography	51

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Preface

This is the first edition of CSA SPE-343, *Electric vehicle energy management systems*.

This publication covers the design, manufacture, and testing of electrical equipment that comprises or forms a part of an electric vehicle energy management system. This SPE covers only the aspects of an electrical vehicle energy management system (EVEMS) which are not included in the other standards applicable to the equipment that comprise an EVEMS.

CSA Group acknowledges that the development of this Standard was made possible, in part, by the financial support of Natural Resources Canada.

This publication was reviewed by the CSA Subcommittee on Electrical Vehicle Energy Management Systems, under the jurisdiction of the CSA Technical Committee on Industrial Products and the CSA Strategic Steering Committee on Requirements for Electrical Safety.

Application of this publication

Where reference is made to a specific number of specimens to be tested, the specified number is to be considered a minimum quantity.

Notes:

- 1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
- 2) *Although the intended primary application of this publication is stated in its scope, it is important to note that it remains the responsibility of the users of the publication to judge its suitability for their particular purpose.*
- 3) *To submit a proposal for change, please send the following information to inquiries@csagroup.org and include "Proposal for change" in the subject line:*
 - a) *designation (number);*
 - b) *relevant clause, table, and/or figure number;*
 - c) *wording of the proposed change; and*
 - d) *rationale for the change.*

CSA SPE-343:21

Electric vehicle energy management systems

1 Scope

1.1

This publication applies to the design, construction, and testing of electrical equipment that comprises or forms part of an electric vehicle energy management system (EVEMS) (see Annexes [A](#), [B](#), [C](#), [D](#), and [E](#)) in accordance with the use of demand factor sub-rules of CSA C22.1, *Canadian Electrical Code, Part I* (“CEC Pt. I”) or NFPA 70, *National Electrical Code* (“NEC”) to reduce the calculated load contribution of electric vehicle supply equipment (EVSE) controlled by an EVEMS.

1.2

This publication applies only to the aspects of EVEMS equipment specific to them that ensure they can perform the required EVEMS functionality related to demand factor (see Annexes [A](#) and [D](#)). Equipment such as EVSE, that can optionally perform EVEMS functionality, requires listing to the EVSE standard(s) noted under Clause [2](#), as determined by the certification body and this publication. Equipment such as conduit, wire, cable, over-currents, current transformers, etc. do not require testing to this publication.

1.3

This publication applies to all aspects of controlling EVSE loads through the process of activating or suspending, increasing, or decreasing electric power to the electric vehicle supply equipment loads and/or monitoring or calculating electric currents (power) loads in a consumer service, distribution equipment, feeders, or branch circuits.

1.4

This publication applies to the EVEMS equipment intended to be evaluated as a product that is configurable during and after installation, and which consists of any of the following:

- a) current (or power) monitoring device(s);
- b) communications equipment;
- c) controller(s);
- d) timer(s);
- e) compatible EVSE; and
- f) other applicable device(s).

See the commentary in Annex [A](#).

1.5

In this publication, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the standard; “should” is used to express a recommendation or that which is advised but not required; and “may” is used to express an option or that which is permissible within the limits of the publication.