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Electrical Submeter—Current Sensor Accuracy

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This standard was originally developed by the NEMA BS-SM Working Group and announced to ANSI (PINS) under the NEMA ESM1-7 designation. NEMA changed its designation policy in 2021 and subsequently changed the designation of the entire ESM1 standards series to SM 31000.

Main contributors were:

<table>
<thead>
<tr>
<th>Name</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daniel</td>
<td>Aljadeff</td>
</tr>
<tr>
<td>Henry</td>
<td>Alton</td>
</tr>
<tr>
<td>Dave</td>
<td>Bovankovich</td>
</tr>
<tr>
<td>Nathaniel</td>
<td>Crutcher</td>
</tr>
<tr>
<td>Craig</td>
<td>Denson</td>
</tr>
<tr>
<td>Don</td>
<td>McComas</td>
</tr>
<tr>
<td>Aaron</td>
<td>Parker</td>
</tr>
</tbody>
</table>

Panoramic Power / Centrica
Triacta Power Solutions LP, a Division of Metergy Solutions Inc.
Quadlogic Controls Corporation
Continental Control Systems, LLC
DENT Instruments, Inc.
Eaton
Schneider Electric
CONTENTS

Foreword ....................................................................................................................................................... I

Section 1 General ........................................................................................................................................ 1
  1.1 Scope ............................................................................................................................................... 1
  1.2 Normative References ....................................................................................................................... 1
  1.3 Informative References ....................................................................................................................... 1
  1.4 Definitions ....................................................................................................................................... 2
    1.4.1 Burden ........................................................................................................................................ 2
    1.4.2 Current Sensor ............................................................................................................................. 2
    1.4.3 Current Sensor, Voltage Output .................................................................................................. 2
    1.4.4 Current Transformer ................................................................................................................... 2
    1.4.5 Marked Ratio ............................................................................................................................... 2
    1.4.6 Nominal Accuracy Percentage .................................................................................................... 2
    1.4.7 Output Loading ............................................................................................................................ 2
    1.4.8 Phase Angle of a Current Sensor ................................................................................................. 2
    1.4.9 Primary Operating Frequency ..................................................................................................... 2
    1.4.10 Rated Input Current .................................................................................................................... 3
    1.4.11 Rated Output ............................................................................................................................... 3
    1.4.12 Sensor Accuracy Class ............................................................................................................... 3

Section 2 General Requirements ............................................................................................................... 4
  2.1 Markings ......................................................................................................................................... 4
    2.1.1 Recommended Secondary Outputs ............................................................................................ 4
  2.2 Documentation ................................................................................................................................. 4

Section 3 Performance Requirements and Test Procedures .................................................................... 5
  3.1 Accuracy Classes ............................................................................................................................ 5
  3.2 Current Sensor Types ....................................................................................................................... 5
  3.3 Current Sensor Output Loading ....................................................................................................... 5
  3.4 Testing Overview ............................................................................................................................ 6
    3.4.1 Test Condition Tolerances ......................................................................................................... 6
  3.5 Gain and Phase Tests ....................................................................................................................... 6
  3.6 Multiple Frequency Tests ............................................................................................................... 8
  3.7 Effect of Variation of Output Loading ......................................................................................... 8
  3.8 Temperature Variation .................................................................................................................... 8
    3.8.1 Allowable Error from Temperature Variation ............................................................................ 8
  3.9 EMC Requirements and Tests ...................................................................................................... 9
    3.9.1 Current Sensor Design Type EMC Immunity Tests ................................................................. 10
    3.9.2 Active Current Sensor Design Type EMC Immunity Tests ................................................... 10

Annex A  Voltage Output Current Sensors (VCS) For Parallel Applications ........................................ 12
  A.1 Foreword .................................................................................................................................... 12
  A.2 VCS Parallel Function Explanation .............................................................................................. 12
  A.3 VCS Parallel Applications ............................................................................................................ 13
  A.4 VCS Paralleling Rules .................................................................................................................. 13

Figures

Figure A-1 Paralleling of Voltage Output Current Sensors ........................................................................ 12

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## Tables

Table 1 Test Condition Tolerances ............................................................................................................... 6  
Table 2 AC Accuracy Class (Cs) Limits and Test Levels ............................................................................. 7  
Table 3 DC Accuracy Class (Cs) Limits and Test Levels ............................................................................. 7  
Table 4 Example of Accuracy Class Limits ............................................................................................. 8  
Table 5 Example Error Limits for Class 0.5M ......................................................................................... 9  
Table 6 Active Current Sensor Design Type EMC Immunity Tests ........................................................... 10
Section 1

General

1.1 Scope

SM 31000-7 covers metrological requirements and associated testing for current sensors used with electrical energy submeters. The standard applies to multiple sensor technologies with a variety of outputs. These sensors enable current measurement for AC and DC energy submetering.

The standard applies to indoor and outdoor applications and covers temporary and permanently installed sensors for AC and DC applications.

The SM 31000 standard is broken into the following parts:

a. SM 31000-1 General Requirements
b. SM 31000-2 AC Active Energy Accuracy
c. SM 31000-4 Additional Measurements Accuracy
d. SM 31000-5 DC Energy Accuracy
e. SM 31000-6 Power Quality Measurements and Accuracy
f. SM 31000-7 Current Sensor Accuracy
g. SM 31000-8 Demand Metering
h. SM 31000-9 Field Testing
i. SM 31000-10 Voltage Sensor Accuracy

1.2 Normative References

In addition to the requirements of this part, products certified to this standard shall also meet applicable requirements from the following other SM 31000 parts.

a. SM 31000-1 General Requirements
b. SM 31000-2 AC Active Energy Accuracy

1.3 Informative References

b. Canadian Electricity and Gas Inspection Regulations (SOR/86-131), subsection 12(1)
c. CAN/CSA/IEC-61869/C61869-1:14 Instrument transformers – Part 1: General requirements
e. CAN/CSA/IEC-61869/C61869-4:14 Instrument transformers – Part 4: Additional requirements for combined transformers
g. IEEE C57.13-2008: IEEE Standard Requirements for Instrument Transformers
h. mA Current transformer references
   1. Measurement Canada, LMB-EG-07: Specifications for Approval of Type of Electricity Meters, Instrument Transformers and Auxiliary Devices
   2. Measurement Canada, S-E-07: Specifications for the Approval of Measuring Instrument Transformers

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