



**ANSI C137.10-2024**

*American National Standard for Lighting Systems—  
Sensor Data Models*

Secretariat

**National Electrical Manufacturers Association**

Approved: June 5, 2024

**American National Standards Institute, Inc.**

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**Foreword** (This foreword is not a part of ANSI C137.10-2024)

The interconnected nature of sensors and lighting systems provides great opportunities, along with great challenges. One pathway forward is through grouping parameters for given sensor applications, which can be presented to an NLC and CMS. With the standardization of sensor data models necessary for lighting, as well as the definition of default inferences, this document can serve as a basis for deploying sensors, within smart lighting systems, for Smart City applications. As more use cases are identified, by users and sensor manufacturers, those sensor interfaces could be added to this standard in the future.

This is a new standard and not a revision of a previous standard.

Suggestions for improvement of this standard are welcomed. They should be sent to:

Secretary, C137 Consensus Body  
National Electrical Manufacturers Association  
Rosslyn, VA 22209

This standard was processed and approved for submittal to ANSI by the C137 Consensus Body on Lighting Systems. Approval of the standard is not meant to imply that all Consensus Body Members voted to approve it.

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## 1 Scope

This standard defines the data model for sensors (focused on but not limited to outdoor) to present to Network Lighting Controllers (NLC). The sensor applications and Item Types defined in this document are intended to leverage elements of existing data models such as Open Mobile Alliance, Digital Illumination Interface Alliance (DiiA), and TALQ. This standard does not apply to the internal communications of NLC integrated devices or by what protocol the data is transported from the sensor to NLC or from NLC to CMS.

## 2 Definitions

**Custom Item Type:** Proprietary Item Type that is not standardized but is implemented according to the specification of the manufacturer.

**Data Model:** Specification that defines the formatting and availability of specific information as provided at the interface between two systems.

**Data Type:** Formatting of a specific data element such as an integer, float, or string.

**Item Type:** Standardized data element that is common to sensors in a particular application.

## 3 References

### 3.1 Normative References

The following normative documents contain provisions, which through reference in this text, constitute provisions of this technical publication. By reference herein, these publications are adopted, in whole or in part as indicated, in this technical publication.

All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

ISO/IEC 10646                      *Universal Coded Character Set (UCS)*

### 3.2 Informative References

The following informative documents are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

IEEE 754                              *Standard for Floating-Point Arithmetic*

## 4 Overview of Understanding and Using This Standard

### 4.1 Basis of Selection

An ANSI C137 ad hoc committee met from 2021 to 2023 to review common sensor applications and evaluate the benefit of a standardized data model for each. Data models for the following applications have been selected for inclusion in this edition of the standard.

1. Air quality monitoring
2. Energized pole monitoring
3. Pole tilt sensor
4. Ambient noise monitoring