

# Mesh Device Properties

## **Bluetooth® Specification**

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### **Abstract:**

This specification contains definitions of device properties that are required by the Bluetooth Mesh Profile and Bluetooth Mesh Model specifications.



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# 1 Introduction

This specification contains definitions for device properties required by the Bluetooth Mesh Profile specification [1], for mesh models defined in the Bluetooth Mesh Model specification [2], and for other mesh models.

A *device property* provides a usage context for a Generic Attributes (GATT) characteristic. The property is identified by an assigned Property ID, which references Generic Attributes (GATT) characteristics [3], and has a state called the Property Value.

## 1.1 Language

### 1.1.1 Language conventions

The Bluetooth SIG has established the following conventions for use of the words **shall**, **must**, **will**, **should**, **may**, **can**, **is**, and **note** in the development of specifications:

shall	<u>is required to</u> – used to define requirements.
must	is used to express: a natural consequence of a previously stated mandatory requirement. OR an indisputable statement of fact (one that is always true regardless of the circumstances).
will	<u>it is true that</u> – only used in statements of fact.
should	<u>is recommended that</u> – used to indicate that among several possibilities one is recommended as particularly suitable, but not required.
may	<u>is permitted to</u> – used to allow options.
can	<u>is able to</u> – used to relate statements in a causal manner.
is	<u>is defined as</u> – used to further explain elements that are previously required or allowed.
note	Used to indicate text that is included for informational purposes only and is not required in order to implement the specification. Each note is clearly designated as a “Note” and set off in a separate paragraph.

For clarity of the definition of those terms, see Core Specification Volume 1, Part E, Section 1.

### 1.1.2 Reserved for Future Use

Where a field in a packet, Protocol Data Unit (PDU), or other data structure is described as "Reserved for Future Use" (irrespective of whether in uppercase or lowercase), the device creating the structure shall set its value to zero unless otherwise specified. Any device receiving or interpreting the structure shall ignore that field; in particular, it shall not reject the structure because of the value of the field.

Where a field, parameter, or other variable object can take a range of values, and some values are described as "Reserved for Future Use," a device sending the object shall not set the object to those



values. A device receiving an object with such a value should reject it, and any data structure containing it, as being erroneous; however, this does not apply in a context where the object is described as being ignored or it is specified to ignore unrecognized values.

When a field value is a bit field, unassigned bits can be marked as Reserved for Future Use and shall be set to 0. Implementations that receive a message that contains a Reserved for Future Use bit that is set to 1 shall process the message as if that bit was set to 0, except where specified otherwise.

The acronym RFU is equivalent to Reserved for Future Use.

### 1.1.3 Prohibited

When a field value is an enumeration, unassigned values can be marked as “Prohibited.” These values shall never be used by an implementation, and any message received that includes a Prohibited value shall be ignored and shall not be processed and shall not be responded to.

Where a field, parameter, or other variable object can take a range of values, and some values are described as “Prohibited,” devices shall not set the object to any of those Prohibited values. A device receiving an object with such a value should reject it, and any data structure containing it, as being erroneous.

“Prohibited” is never abbreviated.

## 2 Values and represented values

A device property provides a usage context for a Generic Attributes (GATT) characteristic. Each characteristic value contains one or more fields. The interpretation of the meaning of the raw value stored in the characteristic shall be defined in the characteristic definition. Common default rules for interpretation of characteristics representing scalar values and for byte ordering are given in the following subsections. These rules apply unless otherwise overridden by a specific characteristic definition.

### 2.1 Scalar values

When a characteristic field represents a scalar value and unless otherwise specified by the characteristic definition, the represented value is related to the raw value by the following equations, where the M coefficient, d, and b exponents are defined per field of the characteristic:

$$R = C * M * 10^d * 2^b$$

where R = represented value, C = raw value, M = multiplier (positive or negative integer between -10 and 10, inclusive), d = decimal exponent (positive or negative integer), and b = binary exponent (positive or negative integer).

The default values are: M = 1, d = 0, and b = 0.

#### 2.1.1 Example decimal exponent

To represent a length in decimeters with a resolution of 1 decimeter within a characteristic value, the following values are used:

$$M = 1, d = -1, b = 0$$

#### 2.1.2 Example binary exponent

To represent a duration in 256ths of a second with a precision of 1/256s within a characteristic value, the following values are used:

$$M = 1, d = 0, b = -8$$

#### 2.1.3 Example multiplier

To represent the horizontal dilution of precision with an accuracy of 1/5 with a precision of 1/5 within a characteristic value, the following values are used:

$$M = 2, d = -1, b = 0$$

### 2.2 Octet ordering

Where characteristics and descriptors are made up of multiple octets, and unless otherwise specified by the characteristic definition, the Least Significant Octet (LSO) is the eight low-numbered bits (i.e., bits 0 to 7) of the top-most field in the table. The Most Significant Octet (MSO) is the high-numbered bits of the bottom-most field in the table. See the example in [Table 2.1](#).

Field	Data Type	Size (in Octets)	Field content description
Field 1	xxx	1	Placed on LSO (bits 0 to 7)
...	...	...	...
Field <i>n</i>	xxx	1	Placed on MSO

*Table 2.1: Byte ordering example table*

## 3 Properties

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### 3.1 Ambient Temperature property group

This category contains the property definitions related to the air temperature surrounding a sensor or a device.

#### 3.1.1 Average Ambient Temperature In A Period Of Day property

This property represents an average ambient temperature measured over a period of time during the day. This property can be used to update a column in a histogram. The first value is the average ambient temperature as measured during a period of time, the second value is the start of the period, and the third value is the end of the period.

A period of time is represented with a unit of decihour (1/10th of an hour, or 6 minutes); a start time of 0 corresponds to midnight (local time), and the maximum value for the end time is 240. The values reported represent the most recent measured average values for the periods in the past 24 hours. For example, if the current time is 11:00, and an average is reported for a time period with a start value of 115 and with an end value of 116 (corresponding to a time period from 11:30 to 11:36), that measurement represents the average temperature of that time period during the previous day. This property does not distinguish between indoor and outdoor ambient temperatures. Typically, the use context is derived from the device location properties.

Characteristic: Temperature 8 In A Period Of Day

#### 3.1.2 Indoor Ambient Temperature Statistical Values property

This property represents the most recent average, standard deviation, and minimum and maximum values for a set of measured ambient indoor temperatures, and the period of time over which the measurements were taken.

Characteristic: Temperature 8 Statistics

#### 3.1.3 Outdoor Statistical Values property

This property represents the most recent average, standard deviation, and minimum and maximum values for a set measured ambient outdoor temperatures, and the period of time over which the measurements were taken.

Characteristic: Temperature 8 Statistics

#### 3.1.4 Present Ambient Temperature property

This property represents an ambient air temperature as measured by a temperature sensor. This property does not distinguish between indoor or outdoor temperature. This context is derived from the location of the element when this property is used, for example, by using the device location properties. This property can be used if a temperature sensor can be used both indoors and outdoors.

Characteristic: Temperature 8

### 3.1.5 Present Indoor Ambient Temperature property

This property represents an indoor ambient air temperature as measured by a temperature sensor. This property is typically used for indoor sensors, and is not intended for outdoor use.

Characteristic: Temperature 8

### 3.1.6 Present Outdoor Ambient Temperature property

This property represents an outdoor ambient air temperature as measured by a temperature sensor. This property is typically for outdoor sensors, and is not intended to be used for indoor sensors.

Characteristic: Temperature 8

### 3.1.7 Desired Ambient Temperature property

This property represents a desired ambient air temperature as set on a temperature control such as a user-controlled dial. This property does not distinguish between indoor or outdoor temperature. This context is derived from the location of the element when this property is used, by using the device location properties, for example.

Characteristic: Temperature 8

### 3.1.8 Precise Present Ambient Temperature device property

This property represents precise ambient air temperature as measured by a temperature sensor. This property does not distinguish between indoor or outdoor temperature. This context is derived from the location of the element when this property is used, for example, by using the device location properties. This property can be used if a temperature sensor can be used both indoors and outdoors.

Characteristic: Temperature

## 3.2 Device Operating Temperature property group

This category contains the definitions of properties related to the operating temperature of a device. These properties can, for example, be used to monitor the temperature of an LED fixture or a refrigerator.

### 3.2.1 Device Operating Temperature Range Specification property

This property represents the minimum and maximum operating temperatures for the element. These parameters are used to detect under and over temperature events.

Characteristic: Temperature Range

### 3.2.2 Device Operating Temperature Statistical Values property

This property represents the average, standard deviation, minimum, and maximum operating temperatures and the data recording period as recorded by a temperature sensor. The most recent values are reported. If a value of 0 is reported for the data recording period, the statistical values apply to all the measurements taken by the sensor over its lifetime. These lifetime values for the operating temperature of an LED fixture can be used to predict the remaining lifetime of the fixture, which is strongly dependent on the operating temperature.

Characteristic: Temperature Statistics

### 3.2.3 Device Over Temperature Event Statistics property

This property represents a count of the total number of operating over-temperature events, the average duration of the events, the time elapsed since the most recent over-temperature event, and the total data recording period. These parameters can be used to verify allowed operation with regard to manufacturer warranty conditions, for example, to indicate that food items in a refrigerator have been exposed to high temperature (such that they should be disposed).

Characteristic: Event Statistics

### 3.2.4 Device Under Temperature Event Statistics property

This property represents a count of the total number of operating under-temperature events, the average duration of the events, time elapsed since last under-temperature event, and the total data recording period. These parameters can be used, for example, to verify allowed operation with regard to manufacturer warranty conditions.

Characteristic: Event Statistics

### 3.2.5 Present Device Operating Temperature property

This property represents the current temperature of an element as measured by a temperature sensor.

Characteristic: Temperature

### 3.2.6 Relative Runtime In A Device Operating Temperature Range property

This property represents a relative runtime of a device within an operating temperature range. The first value (Relative Value) is the relative runtime (runtime within the interval compared with the total runtime recorded by the device - see [Total Device Runtime](#) (Section 3.12.7)). The second and third values (Minimum Value and Maximum Value) define the operating temperature range by specifying minimum and maximum values of the range. This property can be used, for example, to update a column in a histogram in order to check whether the element has been operating within the specified operating temperature boundaries for warranty purposes, or to predict remaining life of the device.

Characteristic: Relative Value in a Temperature Range

## 3.3 Electrical Input property group

This category contains the definitions of properties related to the electrical input of a device such as input voltage and ripple voltage. These properties can be monitored to check whether the device is running at the right input conditions. They also can be used to monitor the performance of the electrical power distribution within a building, or to monitor the performance of the power supplies powering a device.

### 3.3.1 Average Input Current property

This property represents the most recently measured average current for the element. It consists of the average current value and the averaging period.

Characteristic: Average Current



### 3.3.2 Average Input Voltage property

This property represents the most recently measured average voltage for the element. It consists of the average voltage value and the averaging period.

Characteristic: Average Voltage

### 3.3.3 Input Current Range Specification property

This property represents the minimum, typical, and maximum input current range specification values. These values can be used together with the measured input currents to check whether or not the device is operating within its specification.

Characteristic: Electric Current Specification

### 3.3.4 Input Current Statistics property

This property represents the most recent average, standard deviation, minimum, and maximum values of the input current and the data recording period.

Characteristic: Electric Current Statistics

### 3.3.5 Input Over Current Event Statistics property

This property represents a count of the total number of over-current events, the average duration of the events, time elapsed since the most recent over-current event, and the total data recording period. These parameters can be used, for example, to verify allowed operation with regard to manufacturer warranty conditions.

Characteristic: Event Statistics

### 3.3.6 Input Over Ripple Voltage Event Statistics property

This property represents a count of the total number of over-ripple-voltage events, the average duration of the events, time elapsed since the most recent over-voltage event, and the total data recording period. These parameters can be used, for example, to verify allowed operation with regard to manufacturer warranty conditions.

Characteristic: Event Statistics

### 3.3.7 Input Over Voltage Event Statistics property

This property represents a count of the total number of over-voltage events, the average duration of the events, time elapsed since the most recent over-voltage event, and the total data recording period. These parameters can be used, for example, to verify allowed operation with regard to manufacturer warranty conditions.

Characteristic: Event Statistics

### 3.3.8 Input Under Current Event Statistics property

This property represents a count of the total number of under-current events, the average duration of the events, time elapsed since the most recent over-current event, and the total data recording period. These





parameters can be used, for example, to verify allowed operation with regard to manufacturer warranty conditions.

Characteristic: Event Statistics

### 3.3.9 Input Under Voltage Event Statistics property

This property represents a count of the total number of under-voltage events, the average duration of the events, time elapsed since the most recent over-voltage event, and the total data recording period. These parameters can be used, for example, to verify allowed operation with regard to manufacturer warranty conditions.

Characteristic: Event Statistics

### 3.3.10 Input Voltage Range Specification property

This property represents the minimum, typical, and maximum input voltage range as specified for a device. These values can be used together with the measured input voltages to check if the device is operating within specification.

Characteristic: Voltage Specification

### 3.3.11 Input Voltage Ripple Specification property

This property represents the maximum allowed relative ripple voltage for the device. The relative ripple voltage is the ripple value divided by the average voltage (as reported by the Average Input Voltage property (Section 3.3.2)).

Characteristic: Percentage 8

### 3.3.12 Input Voltage Statistics property

This property represents the most recent average, standard deviation, minimum and maximum values for the input voltage and the data recording period.

Characteristic: Voltage Statistics

### 3.3.13 Present Input Current property

This property represents the most recently measured input current for the device.

Characteristic: Electric Current

### 3.3.14 Present Input Ripple Voltage property

This property represents the current measured relative ripple voltage value. The relative ripple voltage is the ripple voltage value divided by the average voltage (as reported by the Electrical Input: Average Input Voltage property (Section 3.3.2)). These values can be used to monitor the performance of power supplies. An increase in the ripple voltage value may indicate that the capacitors in these power supplies are starting to fail. This property can be used as an early sign of power supply failure.

Characteristic: Percentage 8

### 3.3.15 Present Input Voltage property

This property represents the most recently measured input voltage for the device.

Characteristic: Voltage

### 3.3.16 Relative Runtime In An Input Current Range property

This property represents a relative runtime of a device within a current range. The first value (Relative Value) is the relative runtime (runtime in the interval compared to the total runtime recorded by the device - see [Total Device Runtime](#) (Section 3.12.7)). The second (Minimum Current) and third values (Maximum Current) define the operating current range as minimum and maximum values of a range. This can be used, for example, to update a column in a histogram in order to check whether or not the device powered by the supply has been operating within the specified current boundaries for warranty purposes, or to predict the remaining life of the device.

Characteristic: Relative Runtime In A Current Range

### 3.3.17 Relative Runtime In An Input Voltage Range property

This property represents a relative runtime of a device within a voltage range. The first value (Relative Value) is the relative runtime (runtime in the interval compared to the total runtime recorded by the device - see [Total Device Runtime](#) (Section 3.12.7)). The second (Minimum Temperature) and third values (Maximum Temperature) define the operating voltage range as minimum and maximum temperatures of a range. This can be used, for example, to update a column in a histogram in order to check whether or not the device powered by the supply has been operating within the specified voltage boundaries for warranty purposes, or to predict the remaining life of the device.

Characteristic: Relative Value In A Voltage Range

## 3.4 Energy Management property group

This category contains the definitions of properties related to the energy management of a device. These properties can, for example, be used for monitoring the energy use of devices such as a heater or a light fixture. They enable building information services to report aggregate energy usage, and to report high-energy-use devices. A building operator may use this information to decide which devices to replace with more efficient devices, or to reduce energy usage by reducing the energy-use level or total operating time for high-energy-use devices.

### 3.4.1 Device Energy Use Since Turn On property

This property reports the energy used by the element since it was turned on. The runtime since turn on can be obtained from the Device Runtime Since Turn On property (Section 3.12.1).

Characteristic: Energy

### 3.4.2 Device Power Range Specification property

The Power Range Specification property represents minimum, typical, and maximum power consumption of the device as specified by the manufacturer of the device.

Characteristic: Power Specification



### 3.4.3 Present Device Input Power property

This property reports the current power usage of a device. It can be either measured by the device if the device has the capability to measure power directly, or it can be obtained from a mathematical model and a level setting value.

Characteristic: Power

### 3.4.4 Present Device Operating Efficiency property

This property represents the current power efficiency of the operating device. The power efficiency is the useful output power divided by the total input power of the device. This efficiency is most affected by the current output level or the input power conditions. The reported value either can be determined by measurement or can be calculated by the device based on manufacturer model data. This value can be used by building management systems to operate devices in a building with greater power efficiency.

Characteristic: Percentage 8

### 3.4.5 Relative Device Energy Use In A Period Of Day property

This property represents energy use by a device over a period of time during the day. This property can be used to update a column in a histogram.

The first value (Energy Value) is the average of the energy use of the device during a period of time, the second value (Start Time) the start of that time period, and the third value (End Time) is the end of the measurement period. A period of time is represented with a unit of decihour (1/10th of an hour, or 6 minutes). A start time of 0 corresponds to midnight (local time), and the maximum value for the start time is 23.9.

The values reported represent the most recent measured average values for these periods during the past 24 hours. For example, if the current time is 11:00AM, and an average is reported for a time period with a start value of 11.5 and an end value of 11.7 (corresponding to a time period from 11:30AM to 11:42AM), that measurement represents the average energy use during that time period on the previous day.

Characteristic: Energy In A Period Of Day

### 3.4.6 Total Device Energy Use property

This property represents the total energy used by the device since meter reset. If the meter cannot be reset, the energy usage value is the value measured over the lifetime of the element.

Characteristic: Energy

### 3.4.7 Precise Total Device Energy Use device property

This property represents the total energy used by a device over its lifetime.

Characteristic: Energy32



### 3.4.8 Power Factor device property

This property represents the ratio of the actual electrical power dissipated by an AC circuit to the product of the r.m.s. values of current and voltage. The difference between the two values is caused by a reactance in the circuit and represents power that does no useful work.

Characteristic: Cosine Of The Angle

### 3.4.9 Apparent Energy property

This property represents the apparent energy used by the device to either change it into work and heat in alternating current or into work in direct current.

Characteristic: Apparent Energy32

### 3.4.10 Apparent Power property

This property represents the apparent power that is the product of the RMS values of the voltage and the current, expressed as volt-amperes.

Characteristic: Apparent Power

### 3.4.11 Active Energy Loadside property

This property represents the active energy loadside used by the device to either change it into work and heat in alternating current or into work in direct current.

Characteristic: Energy32

### 3.4.12 Active Power Loadside property

This property represents the active power loadside used by the device to either change it into work and heat in alternating current or into work in direct current.

Characteristic: Power

## 3.5 Environmental property group

This category contains property definitions for environment conditions. These properties can, for example, be used to monitor the air quality that surrounds a sensor or a device.

### 3.5.1 Air Pressure property

This property represents a pressure measured by an air pressure sensor. This property is for sensors designed to report measured air pressure.

Characteristic: Pressure

### 3.5.2 Apparent Wind Direction property

This property represents the apparent wind direction as measured by the device.

Characteristic: Apparent Wind Direction



### 3.5.3 Apparent Wind Speed property

This property represents the apparent wind speed as measured by the device.

Characteristic: Apparent Wind Speed

### 3.5.4 Dew Point property

This property represents the Dew Point temperature as measured by the device.

Characteristic: Dew Point

### 3.5.5 Gust Factor property

This property represents the gust factor as measured by the device.

Characteristic: Gust Factor

### 3.5.6 Heat Index property

This property represents the heat index as measured by the device.

Characteristic: Heat Index

### 3.5.7 Magnetic Declination property

This property represents the magnetic declination as measured by the device.

Characteristic: Magnetic Declination

### 3.5.8 Magnetic Flux Density - 2D property

This property represents the magnetic flux density in two dimensions as measured by the device for two orthogonal axes: X and Y.

Characteristic: Magnetic Flux Density - 2D

### 3.5.9 Magnetic Flux Density - 3D property

This property represents the magnetic flux density in three dimensions as measured by the device for three orthogonal axes: X, Y, and Z.

Characteristic: Magnetic Flux Density - 3D

### 3.5.10 Pollen Concentration property

This property represents the pollen concentration as measured by the device.

Characteristic: Pollen Concentration

### 3.5.11 Present Ambient Relative Humidity device property

This property represents relative humidity measured by a humidity sensor.



Characteristic: Humidity

### **3.5.12 Present Ambient Carbon Dioxide Concentration device property**

This property represents present ambient carbon dioxide concentration measured by a CO<sub>2</sub> sensor.

Characteristic: CO<sub>2</sub> Concentration

### **3.5.13 Present Ambient Volatile Organic Compounds Concentration device property**

This property represents present ambient volatile organic compounds concentration measured by a VOC sensor.

Characteristic: VOC Concentration

### **3.5.14 Present Ambient Noise device property**

This property represents present ambient noise level measured by a sound level sensor.

Characteristic: Noise

### **3.5.15 Present Indoor Relative Humidity property**

This property represents an indoor relative humidity measured by a humidity sensor. This property is typically for sensors designed to measure indoor environmental humidity and is not intended to be used for measuring outdoor environmental humidity.

Characteristic: Humidity

### **3.5.16 Present Outdoor Relative Humidity property**

This property represents an outdoor relative humidity measured by a humidity sensor. This property is typically for sensors designed to measure outdoor environmental humidity and is not intended to be used for measuring indoor environmental humidity.

Characteristic: Humidity

### **3.5.17 Pressure property**

This property represents a pressure measured by a pressure sensor. This property is typically for sensors designed to report measured pressure other than the air pressure.

Characteristic: Pressure

### **3.5.18 Rainfall property**

This property represents the rainfall as measured by a rain sensor.

Characteristic: Rainfall

### 3.5.19 True Wind Direction property

This property represents the true wind direction as measured by the device.

Characteristic: True Wind Direction

### 3.5.20 True Wind Speed property

This property represents the true wind speed as measured by the device.

Characteristic: True Wind Speed

### 3.5.21 UV Index property

This property represents the UV index as measured by the device.

Characteristic: UV Index

### 3.5.22 Wind Chill property

This property represents the wind chill factor as measured by the device.

Characteristic: Wind Chill

## 3.6 General Device Information property group

This category contains property definitions related to general device information such as device appearance, manufacturing data, and total runtime.

### 3.6.1 Device Appearance property

This property represents the external appearance of the device. A value is composed of a category (10 bits) and a sub-category (6 bits).

Characteristic: Appearance

### 3.6.2 Device Country Of Origin property

This property represents the country of origin of the device using ISO 3166-1 numeric M49 Country codes as maintained by the United Nations [\[4\]](#).

Characteristic: Country Code

### 3.6.3 Device Date Of Manufacture property

This property represents the manufacturing date for the device.

Characteristic: Date UTC

### 3.6.4 Device Firmware Revision property

This property represents a revision identifier for the firmware within the device.

Characteristic: Fixed String 8



### 3.6.5 Device Global Trade Item Number property

This property represents a 14-digit Global Trade Item Number, which is typically used in product barcodes.

Characteristic: Global Trade Item Number

### 3.6.6 Device Hardware Revision property

This property represents the hardware revision for the hardware within the device.

Characteristic: Fixed String 16

### 3.6.7 Device Manufacturer Name property

This property represents the name of the manufacturer of the device. This value is set by the manufacturer or supplier of the device.

Characteristic: Fixed String 36

### 3.6.8 Device Model Number property

This property represents the model number that is assigned by the device vendor.

Characteristic: Fixed String 24

### 3.6.9 Device Serial Number property

This property represents the serial number for a particular instance of the device.

Characteristic: Fixed String 16

### 3.6.10 Device Software Revision property

This property represents the software revision for the software within the device.

Characteristic: Fixed String 8

### 3.6.11 Overall Failure Condition property

This property represents a count of the total number of device failure events, the average duration of the events, the time elapsed since the last event, and the total data recording period. These parameters can be used, for example, to provide predictive maintenance services.

Characteristic: Event Statistics

### 3.6.12 Total Device Starts property

This property is a counter that represents the number of device starts since the first start. This parameter can be used, for example, to provide predictive maintenance services.

Characteristic: Count24



## 3.7 Light Control property group

This category contains properties related to light control, and defines, for example, the light control properties set in the Lighting Control Model in the Mesh Model specification [2].

### 3.7.1 Light Control Ambient LuxLevel On property

This property represents the minimum ambient illuminance level as measured by a lux sensor that determines if a light or a group of lights transitions from the standby state to a run state. The standby state is a state when the light is switched on and controlled, but operating at minimum level. This minimum level can be zero but can also be set to a low value for security or safety reasons. The run state is a state in which the light is switched on and operating at normal light level.

This property can be used to avoid lights being on during the day with ample daylight in a space.

Characteristic: Illuminance

### 3.7.2 Light Control Ambient LuxLevel Prolong property

This property represents the ambient light level for a light or a group of lights in the prolong state. The prolong state is the intermediate state in between the run state and the standby state of a light.

Characteristic: Illuminance

### 3.7.3 Light Control Ambient LuxLevel Standby property

This property represents the ambient light level for a light or a group of lights to remain in a standby state. The standby state is a state when the light is switched on and controlled, but operating at minimum level. This minimum level can be zero but can also be set to a low value so that the lights are never fully turned off.

Characteristic: Illuminance

### 3.7.4 Light Control Lightness On property

This property represents the light lightness level of a light or a group of lights in a run state.

Characteristic: Perceived Lightness

### 3.7.5 Light Control Lightness Prolong property

This property represents the light lightness level of a light or a group of lights when in a prolong state.

Characteristic: Perceived Lightness

### 3.7.6 Light Control Lightness Standby property

This property represents the perceived light lightness level of a light or a group of lights when in a standby state.

Characteristic: Perceived Lightness

### 3.7.7 Light Control Regulator Accuracy property

This property represents the accuracy of a proportional-integral light regulator. This represents the regulation error that does not result in changing the regulator output.

Characteristic: Percentage 8

### 3.7.8 Light Control Regulator Kid property

This property represents the integral coefficient  $K_i$  in a decreasing output operation mode of a proportional-integral light controller. This represents the integral coefficient when the light is decreasing its light output — indicated by the third character, d (“down”), in Kid, as opposed to the coefficient used when the light output is increasing, indicated by the third character, u (“up”), in Kiu.

Characteristic: Coefficient

### 3.7.9 Light Control Regulator Kiu property

This property represents the integral coefficient  $K_i$  in an increasing output operation mode of a proportional-integral light controller. This represents the integral coefficient when the light is increasing its light output — indicated by the third character, u (“up”), in Kiu, as opposed to the coefficient used when the light output is decreasing, indicated by the third character, d (“down”), in Kid.

Characteristic: Coefficient

### 3.7.10 Light Control Regulator Kpd property

This property represents the proportional coefficient  $K_p$  in a decreasing output operation mode of a proportional-integral light controller. This represents the proportional coefficient when the light is decreasing its light output — indicated by the third character, d (“down”), in Kpd, as opposed to the coefficient used when the light output is increasing, indicated by the third character, u (“up”), in Kpu.

Characteristic: Coefficient

### 3.7.11 Light Control Regulator Kpu property

This property represents the proportional coefficient  $K_p$  in an increasing output operation mode of a proportional-integral light controller. This represents the proportional coefficient when the light is increasing its light output — indicated by the third character, u (“up”), in Kpu, as opposed to the coefficient used when the light output is decreasing, indicated by the third character, d (“down”), in Kpd.

Characteristic: Coefficient

### 3.7.12 Light Control Time Fade property

This property represents the time a light takes to transition from a run state to a prolong state. The run state is the state when the light is running at normal light level, the prolong state is an intermediate state of a light between the run state and the standby state.

Characteristic: Time Millisecond 24



### 3.7.13 Light Control Time Fade On property

This property represents the time lights take to transition from a standby state to a run state.

Characteristic: Time Millisecond 24

### 3.7.14 Light Control Time Fade Standby Auto property

This property represents the time lights transition from a prolong state to a standby state when the transition is automatic (such as when triggered by an occupancy or light sensor).

Characteristic: Time Millisecond 24

### 3.7.15 Light Control Time Fade Standby Manual property

This property represents the time lights take to transition to a standby state when the transition is triggered by a manual operation (e.g., by a user operating a light switch).

Characteristic: Time Millisecond 24

### 3.7.16 Light Control Time Occupancy Delay property

This property represents the time delay between receiving a signal from an occupancy sensor and a light controller executing a state change as a result of the signal. This property can, for example, be used to synchronize state changes between multiple lights.

Characteristic: Time Millisecond 24

### 3.7.17 Light Control Time Prolong property

This property represents the duration of the prolong state, which is the state of a device between its run state and its standby state.

Characteristic: Time Millisecond 24

### 3.7.18 Light Control Time Run On property

This property represents the duration of the run state after last occupancy was detected. This duration can be used to prevent lights from entering a standby state, for example, when people are still in a room and occupancy detectors fail to detect occupancy (which could occur, for example, with passive infrared motion sensors and people in the room not moving for a period of time).

Characteristic: Time Millisecond 24

## 3.8 Lighting property group

This category contains properties related to general lighting, light sources, and light fixtures. It does not define properties related to light control (see [Light Control](#) (Section 3.7), Light LC for these properties). It also does not define properties related to detection of light (see [Photometry](#) (Section 3.10) for these).

### 3.8.1 Center Beam Intensity At Full Power property

This property represents the maximum center beam intensity of a beam of light, for example, as produced by a spotlight fixture or a car headlight.

Characteristic: Luminous Intensity

### 3.8.2 Chromaticity Tolerance property

This property represents the tolerance as a circle in the CIE 1976 [5] ( $u',v'$ ) diagram of the chromaticity of the light produced by a device, such as a light source or a lighting fixture. This tolerance can, for example, be dependent on the current setting, temperature, or operating history of the device. It can be used to decide when to replace a light in quality-sensitive lighting applications.

Characteristic: Chromaticity Tolerance

### 3.8.3 Color Rendering Index R9 property

This property represents the Color Rendering Index R9 value of the light output of a lamp or light fixture calculated in accordance with CIE standard CIE 13.3-1995 "Method of Measuring and Specifying Color Rendering Properties of Light Sources [6]." The R9 value is the ninth index of the set provided by the CIE 13.3-1995 standard. It represents the precision of the rendering of red color patches, and can be an indication of how well skin tones are rendered. This index value can be dependent on the operating conditions. The value reported by the property represents the Color Rendering Index at its present state.

Characteristic: CIE 13.3-1995 Color Rendering Index

### 3.8.4 Color Rendering Index Ra property

This property represents the Color Rendering Index Ra value of the light output of a lamp or light fixture calculated in accordance with CIE standard CIE 13.3-1995 "Method of Measuring and Specifying Color Rendering Properties of Light Sources [6]." The Ra value is the average of the color rendering indexes (indexes 1 through 8). This index value can be dependent on the operating conditions. The value reported by the property represents the Color Rendering Index at its present state.

Characteristic: CIE 13.3-1995 Color Rendering Index

### 3.8.5 Light Distribution property

This property represents luminaire light distribution. It is basically the projected pattern of light a fixture will disperse onto a surface. It is mostly applicable for outdoor lighting.

Characteristic: Light Distribution

### 3.8.6 Light Source Current property

This property represents the current needed to be provided for the light source to reach the nominal output.

Characteristic: Average Current

### 3.8.7 Light Source On Time Not Resettable property

This property represents the total time the light source has been on since manufacturing. This property is not resettable.

Characteristic: Time Second 32

### 3.8.8 Light Source On Time Resettable property

This property represents the total time the light source has been on since the last timer reset.

Characteristic: Time Second 32

### 3.8.9 Light Source Open Circuit Statistics property

This property represents a count of the total number of light source open circuit events in the light source, the average duration of the events, the time elapsed since the last open circuit event, and the total data recording period. These parameters can be used, for example, to provide predictive maintenance services.

Characteristic: Event Statistics

### 3.8.10 Light Source Overall Failures Statistics property

This property represents a count of the total number of light source failure events in the light source, the average duration of the events, the time elapsed since the last overall failure event, and the total data recording period. These parameters can be used, for example, to provide predictive maintenance services.

Characteristic: Event Statistics

### 3.8.11 Light Source Short Circuit Statistics property

This property represents a count of the total number of light source short circuit events in the light source, the average duration of the events, the time elapsed since the last short circuit event, and the total data recording period. These parameters can be used, for example, to provide predictive maintenance services.

Characteristic: Event Statistics

### 3.8.12 Light Source Start Counter Resettable property

This property represents the number of times a light source has been turned on since the last reset. This property is resettable.

Characteristic: Count 24

### 3.8.13 Light Source Temperature property

This property represents the light source temperature.

Characteristic: High Temperature

### 3.8.14 Light Source Thermal Derating Statistics property

This property represents a count of the total number of thermal derating events in the light source, the average duration of the events, the time elapsed since the last thermal derating failure event, and the total data recording period. These parameters can be used, for example, to provide predictive maintenance services.

Characteristic: Event Statistics

### 3.8.15 Light Source Thermal Shutdown Statistics property

This property represents a count of the total number of light source thermal shutdowns events in light source, the average duration of the events, the time elapsed since the last thermal shutdown event of the light source, and the total data recording period. These parameters can be used, for example, to provide predictive maintenance services.

Characteristic: Event Statistics

### 3.8.16 Light Source Total Power On Cycles property

This property represents the number of times the light source has been turned on since manufacturing. This property is not resettable. It is useful for predictive maintenance.

Characteristic: Count 24

### 3.8.17 Light Source Type property

This property specifies means, by which a luminaire generates light and is an enumeration. The defined values include low pressure fluorescent, HID, low voltage halogen, incandescent, LED and OLED. Special values are defined to indicate the light source type has not been specified, is other than any of the defined types, is not installed, or multiple light sources are installed.

Characteristic: Light Source Type

### 3.8.18 Light Source Voltage property

This property represents the voltage needed to be provided to use the light source with a constant current driver.

Characteristic: Average Voltage

### 3.8.19 Luminous Efficacy property

This property represents the present luminous efficacy of a light source or a lighting fixture. The luminous efficacy is the luminous flux produced by the device divided by its electrical input. Luminous efficacy typically is dependent on drive conditions, and the value reported represents the efficacy at present drive conditions.

Characteristic: Luminous Efficacy

### 3.8.20 Luminous Energy Since Turn On property

This property represents the luminous energy produced by a light source or a lighting fixture since it was turned on.

Characteristic: Luminous Energy

### 3.8.21 Nominal Light Output property

This property represents the nominal light output of the light source.

Characteristic: Light Output

### 3.8.22 Relative Runtime In A Correlated Color Temperature Range property

This property represents a relative runtime of a device in a correlated color temperature range. The first value (Relative Value) is the relative runtime (runtime in the interval compared to the total runtime recorded by the device - see [Total Device Runtime](#) (Section 3.12.7)). The second (Minimum Value) and third values (Maximum Value) define the correlated color temperature range as minimum and maximum values of a range. This can be used, for example, to update a column in a histogram in order to see if the device powered by the supply has been operating within the specified correlated color temperature boundaries for warranty purposes, or to predict the remaining life of the device.

Characteristic: Luminous Energy

### 3.8.23 Total Luminous Energy property

This property represents the total recorded luminous energy produced by a light source or a lighting fixture.

Characteristic: Luminous Energy

## 3.9 Occupancy property group

This category contains properties related to occupancy of spaces. The occupancy properties are related to people, but also to cars (in parking garages), animals (on farms), and units within a building (e.g., rental units or hotel rooms).

### 3.9.1 Motion Sensed property

This property represents the activity level, as, for example, detected by a motion sensor. Typically, this is detected by a Passive Infrared (PIR) sensor. The motion activity is represented by a relative value ranging from 0 percent to 100 percent, with 100 percent the maximum activity that the sensor can record.

Characteristic: Percentage 8

### 3.9.2 Motion Threshold property

This property represents the activity level, for example, as detected by a motion sensor, below which Occupancy Presence is not reported. For instance, a Passive Infrared (PIR) sensor does not report presence when activity level is below this value. The motion activity is represented by a relative value ranging from 0 percent to 100 percent, with 100 percent the maximum activity that the sensor can record.

Characteristic: Percentage 8

### 3.9.3 People Count property

This property represents the number of people currently present in a space or in a building. This property can, for example, be measured by counting the number of people entering and leaving a space, or by using a camera.

Characteristic: Count 16

### 3.9.4 Presence Detected property

This property represents whether or not an occupant is detected within range of the occupancy detector.

Characteristic: Boolean

### 3.9.5 Time Since Motion Sensed property

This property represents the time that has elapsed since the sensor last detected any activity. This value can, for example, be used to turn off lights in the absence of any activity in a space.

Characteristic: Time Second 16

### 3.9.6 Time Since Presence Detected property

This property represents the time that has elapsed since the sensor last detected presence. This value can, for example, be used to turn off lights in the absence of any activity in a space.

Characteristic: Time Second 16

## 3.10 Photometry property group

This category contains property definitions for quantities related to photometrics. These typically are measured with photodetectors.

### 3.10.1 Initial CIE 1931 Chromaticity Coordinates property

This property represents the initial chromaticity coordinates  $x$  and  $y$  of a device using CIE 1931 [7]  $C_x$  and  $C_y$  chromaticity coordinates at first use of the device. The value typically is measured by a spectrometer or a chroma meter, but can also be reported by a device that is aware of its chromaticity values, either by measurement or as a result of an association of its operating parameters with a color model. The property value typically is configured by the manufacturer of the device.

Characteristic: Chromaticity Coordinates

### 3.10.2 Initial Correlated Color Temperature property

This property represents the initial correlated color temperature associated with a device such as a color-tunable light. The value typically is measured by a spectrometer or a chroma meter, but can also be reported by a device that is aware of its chromaticity values, either by measurement or as a result of an association of its operating parameters with a color model. This property typically is configured by the manufacturer of the device.



Characteristic: Correlated Color Temperature

### 3.10.3 Initial Luminous Flux property

This property represents the maximum luminous output flux capability of a device at time of first use of the device. This value is typically configured by the manufacturer of the device.

Characteristic: Luminous Flux

### 3.10.4 Initial Planckian Distance property

This property represents the distance of a chromaticity coordinate from the Planckian locus on the ( $u'$ ,  $2/3v'$ ) diagram as defined by ANSI standard C78.377-2008 [8] at first use of the device. The value typically is measured by a spectrometer or a chroma meter, but can also be reported by a device which is aware of its chromaticity values, either by measurement, or as a result of an association of its operating parameters with a color model. This property is typically configured by the manufacturer of the device.

Characteristic: Chromatic Distance From Planckian

### 3.10.5 Lumen Maintenance Factor property

This property represents the current maximum luminous flux capability of a lamp or lighting fixture relative to the initial maximum luminous flux capability. This value can be measured using an integrated sensor of a device but will typically be calculated based on its operational runtime and other operating history parameters based on a mathematical model.

Characteristic: Percentage

### 3.10.6 Luminous Exposure property

This property represents the total recorded luminous exposure as measured by a lux meter. This property can be used to monitor luminous exposure of an illuminated work of art and adjust light levels or to take the art piece out of the exhibition when the exposure is too high.

Characteristic: Luminous Exposure

### 3.10.7 Luminous Flux Range property

This property represents the luminous flux range of a device as specified by the manufacturer of a light source or a lighting fixture. The first value (Minimum Luminous Flux) represents the start of the range and the second value (Maximum Luminous Flux) represents the end of the range.

Characteristic: Luminous Flux Range

### 3.10.8 Present Ambient Light Level property

This property represents the light level as measured by a light sensor measuring illuminance (Lux).

Characteristic: Illuminance



### 3.10.9 Present CIE 1931 Chromaticity Coordinates property

This property represents the chromaticity coordinates  $x$  and  $y$  of a device using CIE 1931 [7]  $C_x$  and  $C_y$  chromaticity coordinates. The value typically is measured by a spectrometer or a chroma meter, but it can also be reported by a device that is aware of its chromaticity values, either by measurement or as a result of an association of its operating parameters with a color model.

Characteristic: Chromaticity Coordinates

### 3.10.10 Present Correlated Color Temperature property

This property represents the present correlated color temperature associated with a device such as a color tunable light. The value typically is measured by a spectrometer or a chroma meter, but it can also be reported by a device that is aware of its chromaticity values, either by measurement, or as a result of an association of its operating parameters with a color model.

Characteristic: Correlated Color Temperature

### 3.10.11 Present Illuminance property

This property represents the illuminance as currently measured by a lux meter.

Characteristic: Illuminance

### 3.10.12 Present Luminous Flux property

This property represents the luminous flux as currently output by a device.

Characteristic: Luminous Flux

### 3.10.13 Present Planckian Distance property

This property represents the present distance of a chromaticity coordinate from the Planckian locus on the  $(u', 2/3v')$  diagram as defined by ANSI standard C78.377-2008 [8]. The value typically is measured by a spectrometer or a chroma meter, but also can be reported by a device that is aware of its chromaticity values, either by measurement, or as a result of an association of its operating parameters with a color model.

Characteristic: Chromatic Distance From Planckian

### 3.10.14 Relative Exposure Time In An Illuminance Range property

This property represents a relative exposure time of a light sensor (typically a photodetector) in an illuminance range.

The first value (Relative Value) is the relative exposure time (that is, exposure time during the illuminance interval compared with the total exposure time recorded by the sensor - See [Total Light Exposure Time](#) (Section 3.10.15)).

The second and third values (Minimum Value and Maximum Value) define the illuminance range by specifying the minimum and maximum value of the range.

This property can, for example, be used to update a column in a histogram that is used by curators in a museum to adjust light levels or reduce the hours of display for a particular piece of art.

Characteristic: Relative Value In An Illuminance Range

### 3.10.15 Total Light Exposure Time property

This property represents the total recorded sensing duration of a light sensor (typically a photodetector).

This property typically can, for example, be used in combination with the Relative Exposure Time In An Illuminance Range property to calculate absolute exposure times of an illuminated work of art as presented in a histogram.

Characteristic: Time Hour 24

Referenced by:

- [Relative Exposure Time In An Illuminance Range](#) (Section 3.10.14)

## 3.11 Power Supply Output property group

This section contains definitions of properties related to the electrical output of a power supply such as output voltage, output ripple voltage, and output current. These values can be used to monitor drive conditions and electrical operating history for light sources such as LED arrays.

### 3.11.1 Average Output Current property

This property represents the average output current for the device. This property consists of two fields: the first value (Electric Current Value) is the average current of a set of current values, and the second value (Sensing Duration) the period over which the set of values were measured.

Characteristic: Average Current

### 3.11.2 Average Output Voltage property

This property represents the average output voltage for the device. This property consists of two fields: the first value (Voltage Value) is the average voltage of a set of voltage values, and the second value (Sensing Duration) the period over which the set of values were measured.

Characteristic: Average Voltage

Referenced by:

- [Present Relative Output Ripple Voltage](#) (Section 3.11.16)
- [Output Ripple Voltage Specification](#) (Section 3.11.10)

### 3.11.3 External Supply Voltage property

This property represents the external supply voltage.

Characteristic: High Voltage

### 3.11.4 External Supply Voltage Frequency property

This property represents the external supply voltage frequency.

Characteristic: Voltage Frequency



### 3.11.5 Open Circuit Event Statistics property

This property represents the open circuit event statistics and is composed of four values. The first value (Number Of Events) represents the count of open circuit events. The second value (Average Event Duration) represents the average duration of all the open circuit events in the data recording period. The third value (Time Elapsed Since Last Event) represents the time elapsed since the last open circuit event occurred. The fourth and last value (Sensing Duration) represents the total data recording period.

Characteristic: Event Statistics

### 3.11.6 Output Current Percent property

This property represents the output current of a luminaire power supply related to the nominal output current. It includes the luminaire dim level and all internal reductions of the output current except the reduction by constant lumen functionality. It can be used, for example, to provide predictive maintenance services.

Characteristic: Percentage 8

### 3.11.7 Output Current Range property

This property represents a current output range of a device and consists of two fields: this first field (Minimum Electric Current) represents the minimum current and the second field (Maximum Electric Current) represents the maximum output current of a current range for a device.

Characteristic: Electric Current Range

### 3.11.8 Output Current Statistics property

This property represents a set of statistical values for the output current of a device. It consists of five fields. The first field (Average Electric Current Value) represents the average current of a set of measured current values over a period of time. The second field (Standard Deviation Electric Current Value) represents the standard deviation of a set of measured current values over a period of time. The third field (Minimum Electric Current Value) represents the minimum of a set of measured current values over a period of time. The fourth field (Maximum Electric Current Value) represents the maximum of a set of measured current values over a period of time. The fifth and last field (Sensing Duration) represents the total data recording period.

Characteristic: Electric Current Statistics

### 3.11.9 Output Power Limitation property

Output power limitation is a condition when a power supply device limits the output current due to its internal power limitation. This property represents a count of the total number of output power limitation events, the average duration of the events, the time elapsed since the last event, and the total data recording period. These parameters can be used, for example, to provide predictive maintenance services.

Characteristic: Event Statistics

### 3.11.10 Output Ripple Voltage Specification property

This property represents the maximum allowed relative ripple voltage for the device. The relative ripple voltage is the ripple value divided by the average output voltage (see [Average Output Voltage](#) (Section 3.11.2) property).

Characteristic: Percentage 8

### 3.11.11 Output Voltage Range property

This property represents the minimum and maximum output voltage of the power supply.

Characteristic: Voltage Specification

### 3.11.12 Output Voltage Statistics property

This property represents a set of statistical values for the output voltage of a device. It consists of five fields. The first field (Average Voltage Value) represents the average voltage of a set of measured voltage values over a period of time. The second field (Standard Deviation Voltage Value) represents the standard deviation of a set of measured voltage values over a period of time. The third field (Minimum Electric voltage Value) represents the minimum of a set of measured voltage values over a period of time. The fourth field (Maximum Electric voltage Value) represents the maximum of a set of measured voltage values over a period of time. The fifth and last field (Sensing Duration) represents the total data recording period.

Characteristic: Voltage Statistics

### 3.11.13 Over Output Ripple Voltage Event Statistics property

This property represents the over output ripple voltage event statistics and is composed of four values. The first value (Number Of Events) represents the count of over output ripple voltage events. The second value (Average Event Duration) represents the average duration of all the over output ripple voltage events in the data recording period. The third value (Time Elapsed Since Last Event) represents the time elapsed since the last over output ripple voltage event occurred. The fourth and last field (Sensing Duration) represents the total data recording period.

Characteristic: Event Statistics

### 3.11.14 Present Output Current property

This property represents the present output current for the device.

Characteristic: Electric Current

### 3.11.15 Present Output Voltage property

This property represents the present output voltage of the power supply.

Characteristic: Voltage

### 3.11.16 Present Relative Output Ripple Voltage property

This property represents the most recently measured relative ripple voltage value. The relative ripple voltage is the ripple voltage value divided by the average voltage (as reported by the [Average Output Voltage](#) (Section 3.11.2) property). These values can be used to monitor the performance of power supplies, because an increase in the ripple voltage value may indicate that the capacitors in these power supplies are starting to fail. This property can be used as an early sign of power supply failure.

Characteristic: Percentage 8

### 3.11.17 Reference Temperature property

This property represents the internal reference temperature of a luminaire. The value is derived by the luminaire manufacturer by measuring it at  $t_q = 25^{\circ}\text{C}$ , at rated luminaire power (at 100% dimming level).

Characteristic: High Temperature

### 3.11.18 Short Circuit Event Statistics property

This property represents the short circuit event statistics and is composed of four values. The first value (Number Of Events) represents the count of short circuit events. The second value (Average Event Duration) represents the average duration of all the short circuit events in the data recording period. The third value (Time Elapsed Since Last Event) represents the time elapsed since the last short circuit event occurred. The fourth and last field (Sensing Duration) represents the total data recording period.

Characteristic: Event Statistics

### 3.11.19 Thermal Derating property

Thermal derating is a condition when the temperature of a device exceeds a threshold defined by the manufacturer. This property represents a count of the total number of thermal derating events, the average duration of the events, the time elapsed since the last event, and the total data recording period. These parameters can be used, for example, to provide predictive maintenance services.

Characteristic: Event Statistics

## 3.12 Warranty and Service property group

This category contains property definitions related to warranty and service of a device, for example, the total runtime of a device and the warranty runtime as provided by the manufacturer.

The device properties in this category can be used to check whether or not the device is still covered by a runtime warranty and to track aspects of device usage for a runtime warranty.

### 3.12.1 Device Runtime Since Turn On property

This property represents the total time the element has been operating in the On-state since it was turned on the last time. A value of 0 represents that the run time is not known.

Characteristic: Time Hour 24

### 3.12.2 Device Runtime Warranty property

This property represents the total operating time covered by the warranty.

Characteristic: Time Hour 24

### 3.12.3 Relative Device Runtime In A Generic Level Range property

This property represents a relative runtime of a device within a generic level range.

The first value (Relative Value) is the relative runtime (runtime within the interval compared with the total runtime recorded by the device - see the Total Device Runtime (Section 3.12.7) property.

The second and third values (Minimum Level Value and Maximum Level Value) define the generic level range by specifying a minimum value and the size of the range.

This can be used, for example, to update a column in a histogram, or to predict the remaining life of the device.

Characteristic: Relative Runtime In A Generic Level Range

### 3.12.4 Total Device Off On Cycles property

This property represents the total recorded count of transitions from an Off-state to an On-state for a device.

Characteristic: Count 24

### 3.12.5 Total Device Power On Cycles property

This property represents the total recorded power-on event count for a device.

Characteristic: Count 24

### 3.12.6 Total Device Power On Time property

This property represents the total of the recorded duration the device has been powered on. A value of 0 represents that this time is not known.

Characteristic: Time Hour 24

### 3.12.7 Total Device Runtime property

This property represents the total time that the element has been operating (has been in an On-state).

Characteristic: Time Hour 24

Referenced by:

- [Relative Runtime In A Device Operating Temperature Range](#) (Section 3.2.6)
- [Relative Runtime In An Input Voltage Range](#) (Section 3.3.17)
- [Relative Runtime In An Input Current Range](#) (Section 3.3.16)
- [Relative Runtime In A Correlated Color Temperature Range](#) (Section 3.8.22)
- [Relative Device Runtime In A Generic Level Range](#) property (Section 3.12.3)

### 3.12.8 Sensor Gain device property

This property represents the ratio of value presented by the sensor to raw value read from the sensor. It can be used to calibrate presented values, acting as an attenuator or amplifier. A negative value is used in case of the sensor presenting metrics in reverse to the adopted reference system.

Characteristic: Coefficient

## 3.13 Luminaire property group

The Luminaire property group aims to gather all properties that describe luminaires.

### 3.13.1 Luminaire Color property

This property represents the luminaire color description. This property is mapped to the luminaire color field in memory bank 1 which is defined by the DiiA specification “DALI Part 251 – Memory Bank 1 Extension” [9].

Characteristic: Fixed string 24

### 3.13.2 Luminaire Identification Number property

This property represents the luminaire identification number.

Characteristic: Fixed String 24

### 3.13.3 Luminaire Identification String property

This property represents the luminaire identification string.

Characteristic: Fixed String 64

### 3.13.4 Luminaire Manufacturer GTIN property

This property represents the luminaire manufacturer Global Trade Item Number (GTIN).

Characteristic: Global Trade Item Number



### 3.13.5 Luminaire Nominal Input Power property

This property represents the luminaire nominal input power.

Characteristic: Power

### 3.13.6 Luminaire Nominal Maximum AC Mains Voltage property

This property represents the luminaire nominal maximum AC mains voltage.

Characteristic: Voltage

### 3.13.7 Luminaire Nominal Minimum AC Mains Voltage property

This property represents the luminaire nominal minimum AC mains voltage.

Characteristic: Voltage

### 3.13.8 Luminaire Power At Minimum Dim Level property

This property represents the luminaire power at minimum dimming level.

Characteristic: Power

### 3.13.9 Luminaire Time Of Manufacture property

This property represents the luminaire time of manufacture.

Characteristic: Date UTC

### 3.13.10 Rated Median Useful Life Of Luminaire property

This property represents the luminaire rated median useful life. It is useful to find out how long the light source in the luminaire is designed to work.

Characteristic: Time Hour 24

### 3.13.11 Rated Median Useful Light Source Starts property

This property represents the light source median useful time. The parameter represents the rated median useful lifetime of the luminaire (including light source and other components).

Characteristic: Count 24

## 4 Property summary

### 4.1 Properties by name

Property	Characteristic	Property ID
Active Energy Loadside	Energy32	0x0080
Active Power Loadside	Power	0x0081
Air Pressure	Pressure	0x0082
Apparent Energy	Apparent Energy32	0x0083
Apparent Power	Apparent Power	0x0084
Apparent Wind Direction	Apparent Wind Direction	0x0085
Apparent Wind Speed	Apparent Wind Speed	0x0086
Average Ambient Temperature In A Period Of Day	Temperature 8 In A Period Of Day	0x0001
Average Input Current	Average Current	0x0002
Average Input Voltage	Average Voltage	0x0003
Average Output Current	Average Current	0x0004
Average Output Voltage	Average Voltage	0x0005
Center Beam Intensity At Full Power	Luminous Intensity	0x0006
Chromaticity Tolerance	Chromaticity Tolerance	0x0007
Color Rendering Index R9	CIE 13.3-1995 Color Rendering Index	0x0008
Color Rendering Index Ra	CIE 13.3-1995 Color Rendering Index	0x0009
Desired Ambient Temperature	Temperature 8	0x0071
Device Appearance	Appearance	0x000A
Device Country Of Origin	Country Code	0x000B
Device Date Of Manufacture	Date UTC	0x000C
Device Energy Use Since Turn On	Energy	0x000D
Device Firmware Revision	Fixed String 8	0x000E
Device Global Trade Item Number	Global Trade Item Number	0x000F

Property	Characteristic	Property ID
Device Hardware Revision	Fixed String 16	0x0010
Device Manufacturer Name	Fixed String 36	0x0011
Device Model Number	Fixed String 24	0x0012
Device Operating Temperature Range Specification	Temperature Range	0x0013
Device Operating Temperature Statistical Values	Temperature Statistics	0x0014
Device Over Temperature Event Statistics	Event Statistics	0x0015
Device Power Range Specification	Power Specification	0x0016
Device Runtime Since Turn On	Time Hour 24	0x0017
Device Runtime Warranty	Time Hour 24	0x0018
Device Serial Number	Fixed String 16	0x0019
Device Software Revision	Fixed String 8	0x001A
Device Under Temperature Event Statistics	Event Statistics	0x001B
Dew Point	Dew Point	0x0087
External Supply Voltage	High Voltage	0x0088
External Supply Voltage Frequency	Voltage Frequency	0x0089
Gust Factor	Gust Factor	0x008A
Heat Index	Heat Index	0x008B
Indoor Ambient Temperature Statistical Values	Temperature 8 Statistics	0x001C
Initial CIE 1931 Chromaticity Coordinates	Chromaticity Coordinates	0x001D
Initial Correlated Color Temperature	Correlated Color Temperature	0x001E
Initial Luminous Flux	Luminous Flux	0x001F
Initial Planckian Distance	Chromatic Distance From Planckian	0x0020
Input Current Range Specification	Electric Current Specification	0x0021
Input Current Statistics	Electric Current Statistics	0x0022
Input Over Current Event Statistics	Event Statistics	0x0023



Property	Characteristic	Property ID
Input Over Ripple Voltage Event Statistics	Event Statistics	0x0024
Input Over Voltage Event Statistics	Event Statistics	0x0025
Input Under Current Event Statistics	Event Statistics	0x0026
Input Under Voltage Event Statistics	Event Statistics	0x0027
Input Voltage Range Specification	Voltage Specification	0x0028
Input Voltage Ripple Specification	Percentage 8	0x0029
Input Voltage Statistics	Voltage Statistics	0x002A
Light Control Ambient LuxLevel On	Illuminance	0x002B
Light Control Ambient LuxLevel Prolong	Illuminance	0x002C
Light Control Ambient LuxLevel Standby	Illuminance	0x002D
Light Control Lightness On	Perceived Lightness	0x002E
Light Control Lightness Prolong	Perceived Lightness	0x002F
Light Control Lightness Standby	Perceived Lightness	0x0030
Light Control Regulator Accuracy	Percentage 8	0x0031
Light Control Regulator Kid	Coefficient	0x0032
Light Control Regulator Kiu	Coefficient	0x0033
Light Control Regulator Kpd	Coefficient	0x0034
Light Control Regulator Kpu	Coefficient	0x0035
Light Control Time Fade	Time Millisecond 24	0x0036
Light Control Time Fade On	Time Millisecond 24	0x0037
Light Control Time Fade Standby Auto	Time Millisecond 24	0x0038
Light Control Time Fade Standby Manual	Time Millisecond 24	0x0039
Light Control Time Occupancy Delay	Time Millisecond 24	0x003A
Light Control Time Prolong	Time Millisecond 24	0x003B
Light Control Time Run On	Time Millisecond 24	0x003C
Light Distribution	Light Distribution	0x008C

Property	Characteristic	Property ID
Light Source Current	Average Current	0x008D
Light Source On Time Not Resettable	Time Second 32	0x008E
Light Source On Time Resettable	Time Second 32	0x008F
Light Source Open Circuit Statistics	Event Statistics	0x0090
Light Source Overall Failures Statistics	Event Statistics	0x0091
Light Source Short Circuit Statistics	Event Statistics	0x0092
Light Source Start Counter Resettable	Count 24	0x0093
Light Source Temperature	High Temperature	0x0094
Light Source Thermal Derating Statistics	Event Statistics	0x0095
Light Source Thermal Shutdown Statistics	Event Statistics	0x0096
Light Source Total Power On Cycles	Count 24	0x0097
Light Source Type	Light Source Type	0x00B3
Light Source Voltage	Average Voltage	0x0098
Lumen Maintenance Factor	Percentage 8	0x003D
Luminaire Color	Fixed String 24	0x0099
Luminaire Identification Number	Fixed String 24	0x009A
Luminaire Identification String	Fixed String 64	0x00B4
Luminaire Manufacturer GTIN	Global Trade Item Number	0x009B
Luminaire Nominal Input Power	Power	0x009C
Luminaire Nominal Maximum AC Mains Voltage	Voltage	0x009D
Luminaire Nominal Minimum AC Mains Voltage	Voltage	0x009E
Luminaire Power At Minimum Dim Level	Power	0x009F
Luminaire Time Of Manufacture	Date UTC	0x00A0
Luminous Efficacy	Luminous Efficacy	0x003E
Luminous Energy Since Turn On	Luminous Energy	0x003F
Luminous Exposure	Luminous Exposure	0x0040

Property	Characteristic	Property ID
Luminous Flux Range	Luminous Flux Range	0x0041
Magnetic Declination	Magnetic Declination	0x00A1
Magnetic Flux Density - 2D	Magnetic Flux Density - 2D	0x00A2
Magnetic Flux Density - 3D	Magnetic Flux Density - 3D	0x00A3
Motion Sensed	Percentage 8	0x0042
Motion Threshold	Percentage 8	0x0043
Nominal Light Output	Light Output	0x00A4
Open Circuit Event Statistics	Event Statistics	0x0044
Outdoor Statistical Values	Temperature 8 Statistics	0x0045
Output Current Percent	Percentage 8	0x00B7
Output Current Range	Electric Current Range	0x0046
Output Current Statistics	Electric Current Statistics	0x0047
Output Power Limitation	Event Statistics	0x00B5
Output Ripple Voltage Specification	Percentage 8	0x0048
Output Voltage Range	Voltage Specification	0x0049
Output Voltage Statistics	Voltage Statistics	0x004A
Over Output Ripple Voltage Event Statistics	Event Statistics	0x004B
Overall Failure Condition	Event Statistics	0x00A5
People Count	Count 16	0x004C
Pollen Concentration	Pollen Concentration	0x00A6
Power Factor	Cosine Of The Angle	0x0073
Precise Present Ambient Temperature	Temperature	0x0075
Precise Total Device Energy Use	Energy32	0x0072
Presence Detected	Boolean	0x004D
Present Ambient Carbon Dioxide Concentration	CO <sub>2</sub> Concentration	0x0077
Present Ambient Light Level	Illuminance	0x004E

Property	Characteristic	Property ID
Present Ambient Noise	Noise	0x0079
Present Ambient Relative Humidity	Humidity	0x0076
Present Ambient Temperature	Temperature 8	0x004F
Present Ambient Volatile Organic Compounds Concentration	VOC Concentration	0x0078
Present CIE 1931 Chromaticity Coordinates	Chromaticity Coordinates	0x0050
Present Correlated Color Temperature	Correlated Color Temperature	0x0051
Present Device Input Power	Power	0x0052
Present Device Operating Efficiency	Percentage 8	0x0053
Present Device Operating Temperature	Temperature	0x0054
Present Illuminance	Illuminance	0x0055
Present Indoor Ambient Temperature	Temperature 8	0x0056
Present Indoor Relative Humidity	Humidity	0x00A7
Present Input Current	Electric Current	0x0057
Present Input Ripple Voltage	Percentage 8	0x0058
Present Input Voltage	Voltage	0x0059
Present Luminous Flux	Luminous Flux	0x005A
Present Outdoor Ambient Temperature	Temperature 8	0x005B
Present Outdoor Relative Humidity	Humidity	0x00A8
Present Output Current	Electric Current	0x005C
Present Output Voltage	Voltage	0x005D
Present Planckian Distance	Chromatic Distance From Planckian	0x005E
Present Relative Output Ripple Voltage	Percentage 8	0x005F
Pressure	Pressure	0x00A9
Rainfall	Rainfall	0x00AA
Rated Median Useful Life Of Luminaire	Time Hour 24	0x00AB

Property	Characteristic	Property ID
Rated Median Useful Light Source Starts	Count 24	0x00AC
Reference Temperature	High Temperature	0x00AD
Relative Device Energy Use In A Period Of Day	Energy In A Period Of Day	0x0060
Relative Device Runtime In A Generic Level Range	Relative Runtime In A Generic Level Range	0x0061
Relative Exposure Time In An Illuminance Range	Relative Value In An Illuminance Range	0x0062
Relative Runtime In A Correlated Color Temperature Range	Luminous Energy	0x0063
Relative Runtime In A Device Operating Temperature Range	Relative Value in a Temperature Range	0x0064
Relative Runtime In An Input Current Range	Relative Runtime In A Current Range	0x0065
Relative Runtime In An Input Voltage Range	Relative Value In A Voltage Range	0x0066
Sensor Gain	Coefficient	0x0074
Short Circuit Event Statistics	Event Statistics	0x0067
Thermal Derating	Event Statistics	0x00B6
Time Since Motion Sensed	Time Second 16	0x0068
Time Since Presence Detected	Time Second 16	0x0069
Total Device Energy Use	Energy	0x006A
Total Device Off On Cycles	Count 24	0x006B
Total Device Power On Cycles	Count 24	0x006C
Total Device Power On Time	Time Hour 24	0x006D
Total Device Runtime	Time Hour 24	0x006E
Total Device Starts	Count 24	0x00AE
Total Light Exposure Time	Time Hour 24	0x006F
Total Luminous Energy	Luminous Energy	0x0070
True Wind Direction	True Wind Direction	0x00AF
True Wind Speed	True Wind Speed	0x00B0



Property	Characteristic	Property ID
<a href="#">UV Index</a>	UV Index	0x00B1
<a href="#">Wind Chill</a>	Wind Chill	0x00B2

Table 4.1: Properties by name

## 4.2 Properties by characteristic

Characteristic	Property
Apparent Energy32	<a href="#">Apparent Energy</a>
Apparent Power	<a href="#">Apparent Power</a>
Apparent Wind Direction	<a href="#">Apparent Wind Direction</a>
Apparent Wind Speed	<a href="#">Apparent Wind Speed</a>
Appearance	<a href="#">Device Appearance</a>
Average Current	<a href="#">Average Input Current</a>
	<a href="#">Average Output Current</a>
	<a href="#">Light Source Current</a>
Average Voltage	<a href="#">Average Input Voltage</a>
	<a href="#">Average Output Voltage</a>
	<a href="#">Light Source Voltage</a>
Boolean	<a href="#">Presence Detected</a>
Chromatic Distance From Planckian	<a href="#">Initial Planckian Distance</a>
	<a href="#">Present Planckian Distance</a>
Chromaticity Coordinates	<a href="#">Initial CIE 1931 Chromaticity Coordinates</a>
	<a href="#">Present CIE 1931 Chromaticity Coordinates</a>
Chromaticity Tolerance	<a href="#">Chromaticity Tolerance</a>
CIE 13.3-1995 Color Rendering Index	<a href="#">Color Rendering Index R9</a>
	<a href="#">Color Rendering Index Ra</a>
CO <sub>2</sub> Concentration	<a href="#">Present Ambient Carbon Dioxide Concentration</a>
Coefficient	<a href="#">Light Control Regulator Kid</a>

Characteristic	Property
	Light Control Regulator Kiu
	Light Control Regulator Kpd
	Light Control Regulator Kpu
	Sensor Gain
Correlated Color Temperature	Initial Correlated Color Temperature
	Present Correlated Color Temperature
Cosine Of The Angle	Power Factor
Count 16	People Count
Count 24	Light Source Start Counter Resettable
	Light Source Total Power On Cycles
	Rated Median Useful Light Source Starts
	Total Device Off On Cycles
	Total Device Power On Cycles
	Total Device Starts
Country Code	Device Country Of Origin
Date UTC	Device Date Of Manufacture
	Luminaire Time Of Manufacture
Dew Point	Dew Point
Electric Current	Present Input Current
	Present Output Current
Electric Current Range	Output Current Range
Electric Current Specification	Input Current Range Specification
Electric Current Statistics	Input Current Statistics
	Output Current Statistics
Energy	Device Energy Use Since Turn On
	Total Device Energy Use

Characteristic	Property
Energy32	Active Energy Loadside
	Precise Total Device Energy Use
Energy In A Period Of Day	Relative Device Energy Use In A Period Of Day
Event Statistics	Device Over Temperature Event Statistics
	Device Under Temperature Event Statistics
	Input Over Current Event Statistics
	Input Over Ripple Voltage Event Statistics
	Input Over Voltage Event Statistics
	Input Under Current Event Statistics
	Input Under Voltage Event Statistics
	Light Source Open Circuit Statistics
	Light Source Overall Failures Statistics
	Light Source Short Circuit Statistics
	Light Source Thermal Derating Statistics
	Light Source Thermal Shutdown Statistics
	Open Circuit Event Statistics
	Output Power Limitation
	Over Output Ripple Voltage Event Statistics
	Overall Failure Condition
	Short Circuit Event Statistics
	Thermal Derating
Fixed String 8	Device Firmware Revision
	Device Software Revision
Fixed String 16	Device Hardware Revision
	Device Serial Number
Fixed String 24	Device Model Number

Characteristic	Property
	Luminaire Color
	Luminaire Identification Number
Fixed String 36	Device Manufacturer Name
Fixed String 64	Luminaire Identification String
Global Trade Item Number	Device Global Trade Item Number
	Luminaire Manufacturer GTIN
Gust Factor	Gust Factor
Heat Index	Heat Index
High Temperature	Light Source Temperature
	Reference Temperature
High Voltage	External Supply Voltage
Humidity	Present Ambient Relative Humidity
	Present Indoor Relative Humidity
	Present Outdoor Relative Humidity
Illuminance	Light Control Ambient LuxLevel On
	Light Control Ambient LuxLevel Prolong
	Light Control Ambient LuxLevel Standby
	Present Ambient Light Level
	Present Illuminance
Light Distribution	Light Distribution
Light Output	Nominal Light Output
Light Source Type	Light Source Type
Luminous Efficacy	Luminous Efficacy
Luminous Energy	Luminous Energy Since Turn On
	Relative Runtime In A Correlated Color Temperature Range
	Total Luminous Energy

Characteristic	Property
Luminous Exposure	Luminous Exposure
Luminous Flux	Initial Luminous Flux
	Present Luminous Flux
Luminous Flux Range	Luminous Flux Range
Luminous Intensity	Center Beam Intensity At Full Power
Magnetic Declination	Magnetic Declination
Magnetic Flux Density - 2D	Magnetic Flux Density - 2D
Magnetic Flux Density - 3D	Magnetic Flux Density - 3D
Noise	Present Ambient Noise
Perceived Lightness	Light Control Lightness On
	Light Control Lightness Prolong
	Light Control Lightness Standby
Percentage 8	Input Voltage Ripple Specification
	Light Control Regulator Accuracy
	Lumen Maintenance Factor
	Motion Sensed
	Motion Threshold
	Output Current Percent
	Output Ripple Voltage Specification
	Present Device Operating Efficiency
	Present Input Ripple Voltage
	Present Relative Output Ripple Voltage
Pollen Concentration	Pollen Concentration
Power	Active Power Loadside
	Luminaire Nominal Input Power
	Luminaire Power At Minimum Dim Level

Characteristic	Property
	Present Device Input Power
Power Specification	Device Power Range Specification
Pressure	Air Pressure
	Pressure
Rainfall	Rainfall
Relative Runtime In A Current Range	Relative Runtime In An Input Current Range
Relative Runtime In A Generic Level Range	Relative Device Runtime In A Generic Level Range
Relative Value in a Temperature Range	Relative Runtime In A Device Operating Temperature Range
Relative Value In A Voltage Range	Relative Runtime In An Input Voltage Range
Relative Value In An Illuminance Range	Relative Exposure Time In An Illuminance Range
Temperature	Precise Present Ambient Temperature
	Present Device Operating Temperature
Temperature 8	Desired Ambient Temperature
	Present Ambient Temperature
	Present Indoor Ambient Temperature
	Present Outdoor Ambient Temperature
Temperature 8 In A Period Of Day	Average Ambient Temperature In A Period Of Day
Temperature 8 Statistics	Indoor Ambient Temperature Statistical Values
	Outdoor Statistical Values
Temperature Range	Device Operating Temperature Range Specification
Temperature Statistics	Device Operating Temperature Statistical Values
Time Hour 24	Device Runtime Since Turn On
	Device Runtime Warranty
	Rated Median Useful Life Of Luminaire
	Total Device Power On Time
	Total Device Runtime

Characteristic	Property
	Total Light Exposure Time
Time Millisecond 24	Light Control Time Fade
	Light Control Time Fade On
	Light Control Time Fade Standby Auto
	Light Control Time Fade Standby Manual
	Light Control Time Occupancy Delay
	Light Control Time Prolong
	Light Control Time Run On
Time Second 16	Time Since Motion Sensed
	Time Since Presence Detected
Time Second 32	Light Source On Time Not Resettable
	Light Source On Time Resettable
True Wind Direction	True Wind Direction
True Wind Speed	True Wind Speed
UV Index	UV Index
VOC Concentration	Present Ambient Volatile Organic Compounds Concentration
Voltage	Luminaire Nominal Maximum AC Mains Voltage
	Luminaire Nominal Minimum AC Mains Voltage
	Present Input Voltage
	Present Output Voltage
Voltage Frequency	External Supply Voltage Frequency
Voltage Specification	Input Voltage Range Specification
	Output Voltage Range
Voltage Statistics	Input Voltage Statistics
	Output Voltage Statistics

Characteristic	Property
Wind Chill	<a href="#">Wind Chill</a>

Table 4.2: Properties by characteristic

### 4.3 Property identifiers

Property ID	Property Name
0x0000	Prohibited
0x0001	<a href="#">Average Ambient Temperature In A Period Of Day</a>
0x0002	<a href="#">Average Input Current</a>
0x0003	<a href="#">Average Input Voltage</a>
0x0004	<a href="#">Average Output Current</a>
0x0005	<a href="#">Average Output Voltage</a>
0x0006	<a href="#">Center Beam Intensity At Full Power</a>
0x0007	<a href="#">Chromaticity Tolerance</a>
0x0008	<a href="#">Color Rendering Index R9</a>
0x0009	<a href="#">Color Rendering Index Ra</a>
0x000A	<a href="#">Device Appearance</a>
0x000B	<a href="#">Device Country Of Origin</a>
0x000C	<a href="#">Device Date Of Manufacture</a>
0x000D	<a href="#">Device Energy Use Since Turn On</a>
0x000E	<a href="#">Device Firmware Revision</a>
0x000F	<a href="#">Device Global Trade Item Number</a>
0x0010	<a href="#">Device Hardware Revision</a>
0x0011	<a href="#">Device Manufacturer Name</a>
0x0012	<a href="#">Device Model Number</a>
0x0013	<a href="#">Device Operating Temperature Range Specification</a>
0x0014	<a href="#">Device Operating Temperature Statistical Values</a>
0x0015	<a href="#">Device Over Temperature Event Statistics</a>



Property ID	Property Name
0x0016	Device Power Range Specification
0x0017	Device Runtime Since Turn On
0x0018	Device Runtime Warranty
0x0019	Device Serial Number
0x001A	Device Software Revision
0x001B	Device Under Temperature Event Statistics
0x001C	Indoor Ambient Temperature Statistical Values
0x001D	Initial CIE 1931 Chromaticity Coordinates
0x001E	Initial Correlated Color Temperature
0x001F	Initial Luminous Flux
0x0020	Initial Planckian Distance
0x0021	Input Current Range Specification
0x0022	Input Current Statistics
0x0023	Input Over Current Event Statistics
0x0024	Input Over Ripple Voltage Event Statistics
0x0025	Input Over Voltage Event Statistics
0x0026	Input Under Current Event Statistics
0x0027	Input Under Voltage Event Statistics
0x0028	Input Voltage Range Specification
0x0029	Input Voltage Ripple Specification
0x002A	Input Voltage Statistics
0x002B	Light Control Ambient LuxLevel On
0x002C	Light Control Ambient LuxLevel Prolong
0x002D	Light Control Ambient LuxLevel Standby
0x002E	Light Control Lightness On
0x002F	Light Control Lightness Prolong

Property ID	Property Name
0x0030	Light Control Lightness Standby
0x0031	Light Control Regulator Accuracy
0x0032	Light Control Regulator Kid
0x0033	Light Control Regulator Kiu
0x0034	Light Control Regulator Kpd
0x0035	Light Control Regulator Kpu
0x0036	Light Control Time Fade
0x0037	Light Control Time Fade On
0x0038	Light Control Time Fade Standby Auto
0x0039	Light Control Time Fade Standby Manual
0x003A	Light Control Time Occupancy Delay
0x003B	Light Control Time Prolong
0x003C	Light Control Time Run On
0x003D	Lumen Maintenance Factor
0x003E	Luminous Efficacy
0x003F	Luminous Energy Since Turn On
0x0040	Luminous Exposure
0x0041	Luminous Flux Range
0x0042	Motion Sensed
0x0043	Motion Threshold
0x0044	Open Circuit Event Statistics
0x0045	Outdoor Statistical Values
0x0046	Output Current Range
0x0047	Output Current Statistics
0x0048	Output Ripple Voltage Specification
0x0049	Output Voltage Range

Property ID	Property Name
0x004A	Output Voltage Statistics
0x004B	Over Output Ripple Voltage Event Statistics
0x004C	People Count
0x004D	Presence Detected
0x004E	Present Ambient Light Level
0x004F	Present Ambient Temperature
0x0050	Present CIE 1931 Chromaticity Coordinates
0x0051	Present Correlated Color Temperature
0x0052	Present Device Input Power
0x0053	Present Device Operating Efficiency
0x0054	Present Device Operating Temperature
0x0055	Present Illuminance
0x0056	Present Indoor Ambient Temperature
0x0057	Present Input Current
0x0058	Present Input Ripple Voltage
0x0059	Present Input Voltage
0x005A	Present Luminous Flux
0x005B	Present Outdoor Ambient Temperature
0x005C	Present Output Current
0x005D	Present Output Voltage
0x005E	Present Planckian Distance
0x005F	Present Relative Output Ripple Voltage
0x0060	Relative Device Energy Use In A Period Of Day
0x0061	Relative Device Runtime In A Generic Level Range
0x0062	Relative Exposure Time In An Illuminance Range
0x0063	Relative Runtime In A Correlated Color Temperature Range

Property ID	Property Name
0x0064	Relative Runtime In A Device Operating Temperature Range
0x0065	Relative Runtime In An Input Current Range
0x0066	Relative Runtime In An Input Voltage Range
0x0067	Short Circuit Event Statistics
0x0068	Time Since Motion Sensed
0x0069	Time Since Presence Detected
0x006A	Total Device Energy Use
0x006B	Total Device Off On Cycles
0x006C	Total Device Power On Cycles
0x006D	Total Device Power On Time
0x006E	Total Device Runtime
0x006F	Total Light Exposure Time
0x0070	Total Luminous Energy
0x0071	Desired Ambient Temperature
0x0072	Precise Total Device Energy Use
0x0073	Power Factor
0x0074	Sensor Gain
0x0075	Precise Present Ambient Temperature
0x0076	Present Ambient Relative Humidity
0x0077	Present Ambient Carbon Dioxide Concentration
0x0078	Present Ambient Volatile Organic Compounds Concentration
0x0079	Present Ambient Noise
0x0080	Active Energy Loadside
0x0081	Active Power Loadside
0x0082	Air Pressure
0x0083	Apparent Energy

Property ID	Property Name
0x0084	Apparent Power
0x0085	Apparent Wind Direction
0x0086	Apparent Wind Speed
0x0087	Dew Point
0x0088	External Supply Voltage
0x0089	External Supply Voltage Frequency
0x008A	Gust Factor
0x008B	Heat Index
0x008C	Light Distribution
0x008D	Light Source Current
0x008E	Light Source On Time Not Resettable
0x008F	Light Source On Time Resettable
0x0090	Light Source Open Circuit Statistics
0x0091	Light Source Overall Failures Statistics
0x0092	Light Source Short Circuit Statistics
0x0093	Light Source Start Counter Resettable
0x0094	Light Source Temperature
0x0095	Light Source Thermal Derating Statistics
0x0096	Light Source Thermal Shutdown Statistics
0x0097	Light Source Total Power On Cycles
0x0098	Light Source Voltage
0x0099	Luminaire Color
0x009A	Luminaire Identification Number
0x009B	Luminaire Manufacturer GTIN
0x009C	Luminaire Nominal Input Power
0x009D	Luminaire Nominal Maximum AC Mains Voltage

Property ID	Property Name
0x009E	Luminaire Nominal Minimum AC Mains Voltage
0x009F	Luminaire Power At Minimum Dim Level
0x00A0	Luminaire Time Of Manufacture
0x00A1	Magnetic Declination
0x00A2	Magnetic Flux Density - 2D
0x00A3	Magnetic Flux Density - 3D
0x00A4	Nominal Light Output
0x00A5	Overall Failure Condition
0x00A6	Pollen Concentration
0x00A7	Present Indoor Relative Humidity
0x00A8	Present Outdoor Relative Humidity
0x00A9	Pressure
0x00AA	Rainfall
0x00AB	Rated Median Useful Life Of Luminaire
0x00AC	Rated Median Useful Light Source Starts
0x00AD	Reference Temperature
0x00AE	Total Device Starts
0x00AF	True Wind Direction
0x00B0	True Wind Speed
0x00B1	UV Index
0x00B2	Wind Chill
0x00B3	Light Source Type
0x00B4	Luminaire Identification String
0x00B5	Output Power Limitation
0x00B6	Thermal Derating
0x00B7	Output Current Percent

Property ID	Property Name
All other values	Reserved for Future Use

Table 4.3 Property identifiers



## 5 References

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- [1] Bluetooth Mesh Profile specification, Version 1.0 or later
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