



# ADDENDA

**ANSI/ASHRAE Addendum cj to  
ANSI/ASHRAE Standard 135-2020**



# A Data Communication Protocol for Building Automation and Control Networks

Approved by ASHRAE and by the American National Standards Institute on September 30, 2024.

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**[This foreword, the table of contents, the introduction, and the “rationales” on the following pages are not part of this standard. They are merely informative and do not contain requirements necessary for conformance to the standard.]**

## FOREWORD

*Addendum cj is the result of change proposals made pursuant to the ASHRAE continuous maintenance procedures and of deliberations within Standing Standard Project Committee 135. The changes are summarized as follows:*

**135-2020cj-1 Add a method for restoring luminaire levels, p. 3**

**135-2020cj-2 Add a method for toggling the Binary Lighting Output Object, p. 7**

**135-2020cj-3 Clarify terminology for Current Command Priority, p. 8**

In the following document, language to be added to existing clauses of ANSI/ASHRAE 135-2020 is indicated through the use of *italics*, while deletions are indicated by ~~strikethrough~~. Where entirely new subclauses are proposed to be added, plain type is used throughout. Only this new and deleted text is open to comment at this time. All other material in this document is provided for context only and is not open for public review comment except as it relates to the proposed changes.

The use of placeholders like XX, YY, ZZ, X1, X2, NN, x, n, ? etc. should not be interpreted as literal values of the final published version. These placeholders will be assigned actual numbers/letters only after final publication approval of the addendum.

**135-2020cj-1 Add a method for restoring luminaire levels**

**Rationale**

Add a standardized method of turning on luminaires to the last on-value in order to support dimmable luminaires.

[Change Table 12-64, p. 519]

**Table 12-64.** Properties of the Lighting Output Object Type

Property Identifier	Property Datatype	Conformance Code
...	...	...
<i>Last_On_Value</i>	<i>REAL</i>	<i>R</i>
<i>Default_On_Value</i>	<i>REAL</i>	<i>R</i>
Audit_Level	BACnetAuditLevel	O <sup>11</sup>
...		

[Change Clause 12.54.4, p. 536]

**12.54.4 Present\_Value (Commandable)**

...

The Present\_Value supports special values outside of the normal range of values to provide blink-warn functionality from objects and devices that are unable to write the complex datatypes used in the Lighting Command property (e.g., the BACnet Schedule object type). The special values of the Present\_Value are summarized in Table 12-65.

**Table 12-65.** Special Values of the Present\_Value Property

Value	Description
-1.0	Provides the same functionality as the WARN lighting command.
-2.0	Provides the same functionality as the WARN RELINQUISH lighting command.
-3.0	Provides the same functionality as the WARN OFF lighting command.
-4.0	<i>Provides the same functionality as the RESTORE ON lighting command.</i>
-5.0	<i>Provides the same functionality as the DEFAULT ON lighting command.</i>
-6.0	<i>Provides the same functionality as the TOGGLE RESTORE lighting command</i>
-7.0	<i>Provides the same functionality as the TOGGLE_DEFAULT lighting command</i>

[Change Clause 12.54.6, p. 536]

...

**Table 12-67. Lighting Commands**

Operation	Description
...	...
<i>RESTORE_ON</i>	<p><i>Commands Present_Value to the value of the Last_On_Value property.</i></p> <p><i>The restore-on operation is implemented by writing the Last_On_Value to the specified slot in the priority array.</i></p> <p><i>syntax:</i>  <i>&lt;operation = RESTORE_ON &gt; [priority]</i></p>
<i>DEFAULT_ON</i>	<p><i>Commands Present_Value to the value of the Default_On_Value property.</i></p> <p><i>The default-on operation is implemented by writing the Default_On_Value to the specified slot in the priority array.</i></p> <p><i>syntax:</i>  <i>&lt;operation = DEFAULT_ON &gt; [priority]</i></p>
<i>TOGGLE_RESTORE</i>	<p><i>Commands Present_Value to change its “last on” level</i></p> <p><i>If the priority is numerically higher than the current command priority, then the command shall be considered successful, but the content of the priority array shall not be modified.</i></p> <p><i>Prior to the execution of this command, if Present_Value is 0.0%, write the Last_On_Value to the specified slot in the priority array.</i></p> <p><i>Prior to the execution of this command, if Present_Value is not 0.0%, write 0.0% to the specified slot in the priority array.</i></p> <p><i>syntax:</i>  <i>&lt;operation = TOGGLE_RESTORE &gt; [priority]</i></p>
<i>TOGGLE_DEFAULT</i>	<p><i>Commands Present_Value to change its “default on” level</i></p> <p><i>If the priority is numerically higher than the current command priority, then the command shall be considered successful, but the content of the priority array shall not be modified.</i></p> <p><i>Prior to the execution of this command, if Present_Value is 0.0%, write the Default_On_Value to the specified slot in the priority array.</i></p> <p><i>Prior to the execution of this command, if Present_Value is not 0.0%, write 0.0% to the specified slot in the priority array.</i></p> <p><i>syntax:</i>  <i>&lt;operation = TOGGLE_DEFAULT &gt; [priority]</i></p>

[Change Clause 12.54.44 and 12.54.45, p. 536]

#### **12.54.44 Last\_On\_Value**

*This read-only property, of type Real, represents the last value of the Present\_Value property that was greater than or equal to 1.0%. If the Present\_Value property has never had a value greater or equal to 1.0% then Last\_On\_Value shall be 100.0%.*

#### **12.54.45 Default\_On\_Value**

*This property, of type REAL, indicates the value that is used as the target value when a DEFAULT\_ON command is executed. The range of allowable Default\_On\_Value values is 1.0% to 100.0%.*

[Renumber Clauses 12.54.44 through 12.54.59, increasing clause numbers by 2, p. 536 - 537]

#### **12.54.4446 Audit\_Level**

...

#### **12.54.4547 Auditable\_Operations**

...

#### **12.54.4648 Audit\_Priority\_Filter**

...

#### **12.54.4749 Tags**

...

#### **12.54.4850 Profile\_Location**

...

#### **12.54.4951 Profile\_Name**

[Extend BACnetLightingOperation definition in clause 21, p. 885]

```
BACnetLightingOperation ::= ENUMERATED {  
    none (0),  
    fade-to (1),  
    ramp-to (2),  
    step-up (3),  
    step-down (4),  
    step-on (5),  
    step-off (6),  
    warn (7),  
    warn-off (8),  
    warn-relinquish (9),  
    stop (10),  
    restore-on (11),  
    default-on (12),  
    toggle-restore (13),  
    toggle-default (14)  
}
```

[Change BACnetPropertyIdentifier definition in clause 21, p. 925]

...  
default-fade-time (374),  
*default-on-value* (4194341),  
default-present-value (492),  
...  
last-notify-record (173),  
*last-on-value* (4194342),  
last-priority (369),  
...  
-- *see default-on-value* (4194341),  
...  
-- *see last-on-value* (4194342),  
...

**135-2020cj-2 Add a method for toggling the Binary Lighting Output Object**

**Rationale**

Add a standardized method for toggling the Binary Lighting Output Object.

[Change Table 12-70, p. 533]

**Table 12-70.** Special Values for the Present Value Property

Operation	Description
...	...
<i>TOGGLE</i>	<p><i>Commands Present_Value to change its state</i></p> <p><i>If the priority is numerically higher than the current command priority, then the command shall be considered successful, but the content of the priority array shall not be modified.</i></p> <p><i>Prior to the execution of this command, if the Present_Value property is currently OFF, write ON to the specified slot in the priority array.</i></p> <p><i>Prior to the execution of this command, if the Present_Value property is currently ON, write OFF to the specified slot in the priority array.</i></p>

[Extend BACnetBinaryLightingPV definition in clause 21, p. 889]

```

BACnetBinaryLightingPV ::= ENUMERATED {
    off           (0),
    on            (1),
    warn          (2),
    warn-off      (3),
    warn-relinquish (4),
    stop          (5),
    toggle        (6)
}

```



**135-2020cj-3 Clarify terminology for Current Command Priority**

**Rationale**

Propose specific language changes to clarify the meaning of “highest” and “lowest” and to unify the use of the term Current Command Priority.

[Add to 3.2]

...

**current command priority:** *In priority arrays, the array index of the entry in the priority array from which the Present\_Value's value has been taken.*

[Change Table 12-66]

priority	This field, of type Unsigned (1..16), represents the priority values 1 (highest priority) through 16 (lowest priority). <i>See 19.2.</i> If this field is not specified, then the value of Lighting_Command_Default_Priority specifies the priority to be used.
----------	--

[Change Table 12-67]

FADE_TO	<p>Commands Present_Value to fade from the current Tracking_Value to the target-level specified in the command at the specified priority. The fade operation is implemented by first writing target-level to the specified slot in the priority array <i>then reevaluating the priority array.</i></p> <p><del>If the fade command is the highest priority when written, then</del> <i>After the reevaluation of the priority array, if the provided priority is not the current command priority, this fade operation shall not be executed. Otherwise, the fade operation continues by changing the physical lighting output proportionally from its current value to target-level, over a period of time defined by fade-time. While the fade operation is executing, In_Progress shall be set to FADE_ACTIVE, and Tracking_Value shall be updated to reflect the current progress of the fade.</i></p> <p><del>If the fade command is not the highest priority when written, then this fade operation is not executed.</del></p> <p>syntax:  <code>&lt;operation = FADE_TO&gt; &lt;target-level&gt; [priority] [fade-time]</code></p>
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<p>RAMP_TO</p>	<p>Commands Present_Value to ramp from the current Tracking_Value to target-level specified in the command at the specified priority. The ramp operation is implemented by first writing target-level to the specified slot in the priority array <i>then reevaluating the priority array.</i></p> <p><del>If the ramp command is the highest priority when written, After the reevaluation of the priority array, if the provided priority is not the current command priority, then the ramp operation continues by changing the physical lighting output proportionally from its current value to target-level, with a fixed rate of change defined by ramp-rate. While the ramp operation is executing, In_Progress shall be set to RAMP_ACTIVE, and Tracking_Value shall be updated to reflect the current progress of the fade.</del></p> <p><del>If the ramp command is not the highest priority when written, then this ramp operation is not executed.</del></p> <p>syntax:  <code>&lt;operation = RAMP_TO&gt; &lt;target-level&gt; [priority] [ramp-rate]</code></p>
<p>WARN</p>	<p>Executes a blink-warn notification at the specified priority. After the blink-warn notification has been executed, the value at the specified priority in the priority array is unchanged.</p> <p><del>The blink warn notification shall not occur if any of the following conditions occur:  (a) The specified priority is not the highest active priority, or  (b) The value at the specified priority is 0.0%, or  (c) Blink_Warn_Enable is FALSE.</del></p> <p>The blink-warn notification shall only occur if Blink_Warn_Enable is TRUE, the Present_Value is not 0.0%, and the specified priority is the current command priority.</p> <p>See Clause 12.54.6.2 Blink-Warn Behavior.</p> <p>syntax:  <code>&lt;operation = WARN&gt; [priority]</code></p>
<p>WARN_RELINQUISH</p>	<p>Executes a blink-warn notification at the specified priority and then relinquishes the value at the specified priority in the priority array after a delay of Egress_Time seconds.</p> <p>The blink-warn notification shall not occur, and the value at the specified priority shall be relinquished immediately if any of the following conditions occur:  <del>(a) The specified priority is not the highest active priority, or  (b) The value at the specified priority is 0.0% or NULL, or  (c) The value of the next highest non NULL priority, including Relinquish_Default, is greater than 0.0%, or  (d) Blink_Warn_Enable is FALSE.</del></p> <p>(a) <i>Blink_Warn_Enable is FALSE, or</i>  (b) <i>The Present_Value is 0.0%, or</i>  (c) <i>The Present_Value would not evaluate to 0.0% after the priority slot is relinquished.</i></p> <p>See Clause 12.54.6.2 Blink-Warn Behavior.</p> <p>syntax:  <code>&lt;operation = WARN_RELINQUISH&gt; [priority]</code></p>

<p>WARN_OFF</p>	<p>Executes a blink-warn notification at the specified priority and then writes the value 0.0% to the specified slot in the priority array after a delay of Egress_Time seconds.</p> <p>The blink-warn notification shall not occur and the value 0.0% <i>shall be</i> written at the specified priority immediately if any of the following conditions occur:</p> <p><del>(a) The specified priority is not the highest active priority, or</del>  <del>(b) The Present_Value is 0.0%, or</del>  <del>(c) Blink_Warn_Enable is FALSE</del></p> <p>(a) <i>Blink_Warn_Enable is FALSE, or</i>          (b) <i>The Present_Value is 0.0%, or</i>          (c) <i>The specified priority is not the current command priority</i></p> <p>See Clause 12.54.6.2 Blink-Warn Behavior.</p> <p>syntax:              &lt;operation = WARN_OFF&gt; [priority]</p>
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[Change 12.54.19 Transition]

### 12.54.19 Transition

This property, of type BACnetLightingTransition, specifies how a change in the Present\_Value transitions from the current level to the target level. A transition comes into effect when the Present\_Value is directly commanded or when the ~~current highest priority value~~ *current command priority* has been relinquished. Writing the Lighting commands FADE\_TO, RAMP\_TO, STEP\_ON, STEP\_OFF, STEP\_UP, or STEP\_DOWN shall ignore the Transition property.

The transition may be one of NONE, FADE, or RAMP. The transition NONE causes the Present\_Value to immediately be set to the target level when ~~the highest priority value~~ *the current command priority* has been relinquished. If this property does not exist, then the transition type shall be assumed to be NONE.

[Add a new entry to **History of Revisions**, p. 1364]

**(This History of Revisions is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard.)**

**HISTORY OF REVISIONS**

...	...	...
1	28	<b>Addendum <i>cj</i> to ANSI/ASHRAE Standard 135-2020</b> Approved by ASHRAE on September 30, 2024; and by the American National Standards Institute on September 30, 2024.  <ol style="list-style-type: none"><li>1. Add a method for restoring luminaire levels</li><li>2. Add a method for toggling the Binary Lighting Output Object</li><li>3. Clarify terminology for Current Command Priority</li></ol>

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