ADDENDA

ANSI/ASHRAE Addendum bl to
ANSI/ASHRAE Standard 135-2016

A Data Communication Protocol for Building Automation and Control Networks

Approved by ASHRAE on June 15, 2018, and by the American National Standards Institute on June 15, 2018.

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[This foreword 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

The purpose of this addendum is to present changes to ANSI/ASHRAE Standard 135-2016. These modifications are 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 below.

In the following document, language to be added to existing clauses of ANSI/ASHRAE Standard 135-2016 is indicated through the use of *italics*, while deletions are indicated by ~~strikethrough~~. Where entirely new subclauses are added, plain type is used throughout.

The use of placeholders like X, Y, Z, X1, X2, etc., should not be interpreted as literal values of the final standard. These placeholders will be assigned actual numbers/letters only with incorporation of this addendum into the standard for republication.

135-2016*bl*-1. Clarify Result(-) response for failed WritePropertyMultiple requests

Rationale

The standard does not state what a BACnet device should do in execution of the WritePropertyMultiple service when it cannot decode an object identifier, property identifier, or array index after it has already successfully written one or more properties.

The change clarifies what the 'First Failed Write Attempt' parameter shall contain when one or more properties have already been successfully decoded and written.

For the case when the object identifier, property identifier, or array index cannot be decoded, the respective values to return in the 'First Failed Write Attempt' parameter are specified.

[Change **Clause 15.10.2**, p. 702]

15.10.2 Service Procedure

...

If, in the process of carrying out the modification of the indicated properties in the order specified in the 'List of Write Access Specifications', a property is encountered that cannot be modified, the responding BACnet-user shall issue a 'Result(-)' response primitive indicating the reason for the failure. The result of this service shall be either that all of the specified properties or only the properties up to, but not including, the property specified in the 'First Failed Write Attempt' parameter were successfully modified.

A BACnet-Reject-PDU shall be issued only if no write operations have been successfully executed, indicating that the service request was rejected in its entirety. If any of the write operations contained in the 'List of Write Access Specifications' have been successfully executed, a Result(-) response indicating the reason for the failure shall be issued as described above.

In the case that the 'Object Identifier', the 'Property Identifier', or the 'Property Array Index' cannot be successfully decoded after at least one write operation has completed successfully, the object instance portion of the 'Object Identifier' specified in the 'First Failed Write Attempt' shall contain the instance value 4194303. In this case, the value of the 'Property Identifier' parameter and the 'Property Array Index' parameter is a local matter.

135-2016*bl*-2. Clarify ReadPropertyMultiple response on OPTIONAL when empty.

Rationale

Clarification is needed regarding the encoding of the ReadPropertyMultiple-ACK and its constituents for the property OPTIONAL, when there are no optional properties, so the list is empty.

Examples are added to Annex E and F for clarification.

Note that some language is added to Clause 15.7.3.1.2 'List of Property References' as an erratum fix, for clarification of what to return in this case. This is not shown in this addendum.

[Add new **Clause E.3.X**, p. 954**]**

E.3.X Example of the ReadPropertyMultiple Service OPTIONAL response if there are no optional properties

Parameters for reading OPTIONAL properties of a single object:

Assumed object:	Object Identifier	Object Type
	(Analog Input, Instance 19)	ANALOG_INPUT

Service = ReadPropertyMultiple
'List of Read Access Specifications' = ((Analog Input, Instance 19), (OPTIONAL))

Assuming that (Analog Input, 19) exists and contains no optional properties, the result would be:

'List of Read Access Results' = ( )

[Add new **Clause F.3.X**, p. 981]

F.3.X Encoding for Example E.3.X - ReadPropertyMultiple OPTIONAL response if there are no optional properties

X'00'	PDU Type=0 (BACnet-Confirmed-Request-PDU, SEG=0, MOR=0, SA=0)
X'04'	Maximum APDU Size Accepted=1024 octets
X'02'	Invoke ID=2
X'0E'	Service Choice=14 (ReadPropertyMultiple-Request)
X'0C'	SD Context Tag 0 (Object Identifier, L=4)
X'00000013'	Analog Input, Instance Number=19
X'1E'	PD Opening Tag 1 (List Of Property References)
X'09'	SD Context Tag 0 (Property Identifier, L=1)
X'55'	80 (OPTIONAL)
X'1F'	PD Closing Tag 1 (List Of Property References)

Assuming that (Analog Input, 19) exists and contains no optional properties, the result would be:

X'30'	PDU Type=3 (BACnet-ComplexACK-PDU, SEG=0, MOR=0)
X'02'	Invoke ID=2
X'0E'	Service ACK Choice=14 (ReadPropertyMultiple-ACK)
X'0C'	SD Context Tag 0 (Object Identifier, L=4)
X'00000013'	Analog Input, Instance Number=19
X'1E'	PD Opening Tag 1 (List of Results)
X'1F'	PD Closing Tag 1 (List of Results)

135-2016*bl*-3. Clarify Out_Of_Service.

Rationale

The Out_Of_Service functionality is inconsistent across objects and is unclear with respect the changeability of the Reliability property (vs writability).

The Out_Of_Service property for all objects is modified to be consistent in requirements and presentation.

[Replace Out_Of_Service property language with the following language in:
Clause 12.4.9, Analog Value object type, p. 172,
Clause 12.8.9, Binary Value object type, p. 198,
Clause 12.20.9, Multi-state Value object type, p. 270,
Clause 12.37.9, CharacterString Value object type, p. 399,
Clause 12.38.9, DateTime Value object type, p. 405,
Clause 12.39.9, Large Analog Value object type, p. 410,
Clause 12.40.10, BitString Value object type, p. 417,
Clause 12.41.9, OctetString Value object type, p. 422,
Clause 12.42.9, Time Value object type, p. 427,
Clause 12.43.9, Integer Value object type, p. 432,
Clause 12.44.9, Positive Integer Value object type, p. 439,
Clause 12.45.9, Date Value object type, p. 446,
Clause 12.46.9, DateTime Pattern Value object type, p. 451,
Clause 12.47.9, Time Pattern Value object type, p. 456,
Clause 12.48.9, Date Pattern Value object type, p. 461]

12.X.Y Out_Of_Service

The Out_Of_Service property, of type BOOLEAN, is an indication whether (TRUE) or not (FALSE) the Present_Value property is controllable by software local to the BACnet device.

When Out_Of_Service is TRUE:

- the Present_Value of the object is prevented from being changed by software local to the BACnet device in which the object resides;
- the Present_Value property and the Reliability property, if present and capable of taking on values other than NO_FAULT_DETECTED, shall be writable to allow simulating specific conditions or for testing purposes;
- other functions that depend on the state of the Present_Value, or Reliability properties shall respond to changes made to these properties, as if those changes had occurred while the object was in service;
- if the Priority_Array and Relinquish_Default properties are present, the Present_Value property shall still be controlled by the BACnet command prioritization mechanism (see Clause 19).

Restrictions on changing the Present_Value property by software local to the BACnet device do not apply to local human-machine interfaces.

[Change
Clause 12.2.10, Analog Input object type, p. 160,
Clause 12.6.10, Binary Input object type, p. 183,
Clause 12.18.10, Multi-state Input object type, p. 259]

[Note that the current language in 12.18.10 is slightly different to that in 12.2.10 and 12.6.10 using “input” instead of “physical input” so that change is to be made as well but does not show in the below change marking]

12.X.10 Out_Of_Service

The Out_Of_Service property, of type BOOLEAN, is an indication whether (TRUE) or not (FALSE) the physical input that the object represents is not in service.

When Out_Of_Service is TRUE:

- ~~This means that~~ the Present_Value property is decoupled from the physical input and will not track changes to the physical input*;* ~~when the value of Out_Of_Service is TRUE.~~
- ~~In addition,~~ the Reliability property and the corresponding state of the FAULT flag of the Status_Flags property shall be decoupled from the physical input ~~when Out_Of_Service is TRUE.~~
- ~~While the Out_Of_Service property is TRUE,~~ the Present_Value *property* and *the* Reliability *property, if present and capable of taking on values other than NO_FAULT_DETECTED,* ~~properties may be changed to any value as a means of~~ *shall be writable to allow* simulating specific ~~fixed~~ conditions or for testing purposes.
- ~~Other~~ *other* functions that depend on the state of the Present_Value or Reliability properties shall respond to changes made to these properties ~~while Out_Of_Service is TRUE~~, as if those changes had occurred in the physical input.

[Change
Clause 12.3.10, Analog Output object type, p. 166,
Clause 12.7.10, Binary Output object type, p. 190,
Clause 12.19.10, Multi-state Output object type, p. 264,
Clause 12.55.8, Binary Lighting Output object type, p. 512]

[Note that in the first sentence of 12.19.10 “output or process” is changed to “physical point” to match the other output object types and in the remainder of 12.19.10, “output” is changed to “physical output” to match other output object types. These changes are not shown in change marking.]

[Note that in Clause 12.55.8, “lighting output” is changed to “physical output” to match other output object types and other minor editorial changes are made to make the clause match. These changes are not shown in change marking.]

The Out_Of_Service property, of type BOOLEAN, is an indication whether (TRUE) or not (FALSE) the physical point that the object represents is not in service.

When Out_Of_Service is TRUE:

- ~~This means that~~ changes to the Present_Value property are decoupled from the physical output*;* ~~when the value of Out_Of_Service is TRUE.~~
- ~~In addition,~~ the Reliability property, *if present,* and the corresponding state of the FAULT flag of the Status_Flags property shall be decoupled from the physical output*;* ~~when Out_Of_Service is TRUE.~~
- ~~While the Out_Of_Service property is TRUE,~~ the Present_Value *property* and *the* Reliability *property, if present and capable of taking on values other than NO_FAULT_DETECTED,* ~~properties may still be changed to any value as a means of~~ *shall be writable to allow* simulating specific ~~fixed~~ conditions or for testing purposes*;*~~.~~
- ~~Other~~ *other* functions that depend on the state of the Present_Value or Reliability properties shall respond to changes made to these properties ~~while Out_Of_Service is TRUE~~, as if those changes had occurred to the physical output*;*~~.~~
- ~~The~~ *the* Present_Value property shall still be controlled by the BACnet command prioritization mechanism ~~if Out_Of_Service is TRUE~~ *(see Clause 19).* ~~See Clause 19.~~

[Change
Clause 12.15.11, Life Safety Point object type, p. 237,
Clause 12.16.11, Life Safety Zone object type, p. 244]

The Out_Of_Service property, of type BOOLEAN, is an indication whether (TRUE) or not (FALSE) the input(s) or process the object represents is not in service.

When Out_Of_Service is TRUE:

- ~~This means that~~ changes to the Tracking_Value property are decoupled from the input(s) or process*;* ~~when the value of Out_Of_Service is TRUE.~~
- ~~In addition,~~ the Reliability property and the corresponding state of the FAULT flag of the Status_Flags property shall be decoupled *from the input or process;* ~~when Out_Of_Service is TRUE.~~
- ~~While the Out_Of_Service property is TRUE,~~ the Tracking_Value *property* and *the* Reliability *property, if capable of taking on values other than NO_FAULT_DETECTED,* ~~properties may be changed to any value as a means of~~ *shall be writable to allow* simulating specific ~~fixed~~ conditions or for testing purposes*;*~~.~~

- ~~Other~~ *other* functions that depend on the state of the Tracking_Value or Reliability properties shall respond to changes made to these properties ~~while Out_Of_Service is TRUE~~, as if those changes had occurred to the input(s) or process.

[Change **Clause 12.17.9**, Loop object type, p. 252]

The Out_Of_Service property, of type BOOLEAN, is an indication whether (TRUE) or not (FALSE) the algorithm this object represents is or is not in service.

When Out_Of_Service is TRUE:

- ~~The~~ *the* Present_Value property shall be decoupled from the algorithm*;* ~~when the value of Out_Of_Service is TRUE.~~
- ~~In addition,~~ the Reliability property, *if present,* and the corresponding state of the FAULT flag of the Status_Flags property shall be decoupled from the algorithm*;* ~~when Out_Of_Service is TRUE.~~
- ~~While the Out_Of_Service property is TRUE,~~ the Present_Value *property* and *the* Reliability *property, if present and capable of taking on values other than NO_FAULT_DETECTED, shall be writable to allow* ~~properties may be changed to any value as a means of~~ simulating specific ~~fixed~~ conditions or for testing purposes*;*~~.~~
- ~~The~~ *the* property referenced by Manipulated_Variable_Reference and other functions that depend on the state of the Present_Value or Reliability properties shall respond to changes made to these properties ~~while Out_Of_Service is TRUE~~, as if those changes had been made by the algorithm.

[Change **Clause 12.22.13**, Program object type, p. 282]

The Out_Of_Service property, of type BOOLEAN, is an indication whether (TRUE) or not (FALSE) the process this object represents is not in service. In this case, "in service" means that the application program is properly loaded and initialized, although the process may or may not be actually executing. If the Program_State property has the value IDLE, then Out_Of_Service shall be TRUE.

When Out_Of_Service is TRUE:

- *the application program process is not executing;*
- *the Reliability property, if present, and the corresponding state of the FAULT flag of the Status_Flags property shall be decoupled from the program;*
- *the* Reliability *property, if present and capable of taking on values other than NO_FAULT_DETECTED, shall be writable to allow simulating specific conditions or for testing purposes;*
- *other functions that depend on the state of the Reliability property shall respond to changes made to this property, as if those changes had occurred to the application program process.*

[Change **Clause 12.23.10**, Pulse Converter object type, p. 288]

The Out_Of_Service property, of type BOOLEAN, is an indication whether (TRUE) or not (FALSE) the input that the object directly represents, if any, is not in service. ("Directly represents" means that the Input_Reference property is not present in this object.)

When Out_Of_Service is TRUE:

- ~~The~~ *the* Present_Value property is decoupled from the Count property and will not track changes to the input*;* ~~when the value of Out_Of_Service is TRUE.~~
- ~~In addition,~~ the Reliability property and the corresponding state of the FAULT flag of the Status_Flags property shall be decoupled from the input*;* ~~when Out_Of_Service is TRUE.~~
- ~~While the Out_Of_Service property is TRUE,~~ the Present_Value *property* and *the* Reliability *property, if present and capable of taking on values other than NO_FAULT_DETECTED, shall be writable to allow* ~~properties may be changed to any value as a means of~~ simulating specific ~~fixed~~ conditions or for testing purposes*;*~~.~~
- ~~Other~~ *other* functions that depend on the state of the Present_Value or Reliability properties shall respond to changes made to these properties while Out_Of_Service is TRUE as if those changes had occurred in the input.

If the Input_Reference property is present, the state of the Out_Of_Service property of the object referenced by Input_Reference shall not be indicated by the Out_Of_Service property of the Pulse Converter object.

[Change **Clause 12.24.14**, Schedule object type, p. 296]

The Out_Of_Service property, of type BOOLEAN, is an indication whether (TRUE) or not (FALSE) the internal calculations of the schedule object are used to determine the value of the Present_Value property.

When Out_Of_Service is TRUE:

- ~~This means that~~ the Present_Value property is decoupled from the internal calculations and will not track changes to other properties*;* ~~when Out_Of_Service is TRUE.~~
- ~~Other~~ *other* functions that depend on the state of the Present_Value, such as writing to the members of the List_Of_Object_Property_References, shall respond to changes made to that property ~~while Out_Of_Service is TRUE~~, as if those changes had occurred by internal calculations.

[Change **Clause 12.26.9**, Access Door object type, p. 311]

The Out_Of_Service property, of type BOOLEAN, is an indication whether (TRUE) or not (FALSE) the logical door which this object represents is not in service.

When Out_Of_Service is TRUE:

- ~~This means that~~ the Present_Value property is decoupled from the physical door and will not track changes to the physical door*;* ~~when the value of Out_Of_Service is TRUE.~~
- ~~In addition,~~ the Reliability property and the corresponding state of the FAULT flag of the Status_Flags property shall be decoupled from the physical door*;* ~~when Out_Of_Service is TRUE.~~
- ~~While the Out_Of_Service property is TRUE,~~ the Present_Value *property* and *the* Reliability *property, if capable of taking on values other than NO_FAULT_DETECTED,* ~~properties,~~ and if present, the Door_Status, Lock_Status and Door_Alarm_State properties *shall be writable to allow* ~~may be changed to any value as a means of~~ simulating specific ~~fixed~~ conditions or for testing purposes*;*~~.~~
- ~~Other~~ *other* functions that depend on the state of the Present_Value or Reliability properties, and if present the Door_Status, Lock_Status and Door_Alarm_State properties, shall respond to changes made to these properties ~~while Out_Of_Service is TRUE~~, as if those changes had occurred to the physical door.

[Change **Clause 12.31.8**, Access Point object type, p. 351]

The Out_Of_Service property, of type BOOLEAN, is an indication whether (TRUE) or not (FALSE) the authentication and authorization process this object represents is out of service.

When Out_Of_Service is TRUE:

- ~~If out of service, then~~ the process that this object represents shall not perform any authentication or authorization.
- *the Reliability property and the corresponding state of the FAULT flag of the Status_Flags property shall be decoupled from the associated process this object represents;*
- *the Reliability property, if capable of taking on values other than NO_FAULT_DETECTED shall be writable to allow simulating specific conditions or for testing purposes;*
- *other functions that depend on the state of the Reliability property shall respond to changes made to this property, as if those changes had occurred to the associated process this object represents.*

When this property changes from FALSE to TRUE, then the Access_Event property shall be set to OUT_OF_SERVICE. When this property changes from TRUE to FALSE, then the Access_Event property shall be set to OUT_OF_SERVICE_RELINQUISHED.

[Change **Clause 12.32.10**, Access Zone object type, p. 368]

The Out_Of_Service property, of type BOOLEAN, is an indication whether (TRUE) or not (FALSE) the object is out of service.

When *Out_Of_Service is TRUE:* ~~the object is out of service,~~

- the Reliability property and the corresponding state of the FAULT flag of the Status_Flags property shall be decoupled *from the associated process this object represents;*

- ~~and~~ the Reliability property, *if capable of taking on values other than NO_FAULT_DETECTED, shall be writable to allow* ~~may be changed to any value as a means of~~ simulating specific ~~fixed~~ conditions or for testing purposes*;*~~.~~ ~~Other functions that depend on the state of the Reliability property shall respond to changes made to this property while Out_Of_Service is TRUE;~~
- ~~If~~ *if* occupancy counting is supported ~~and the object is out of service~~, then the Occupancy_Count property is decoupled from the processing of occupancy counting.
- ~~In addition,~~ writing to the Adjust_Value property shall not modify the Occupancy_Count*;*~~.~~
- ~~The~~ *the* Occupancy_Count property, *if present, shall be writable to allow* ~~may be changed to any value as a means of~~ simulating specific ~~fixed~~ conditions or for testing purposes*;*~~.~~
- ~~Other~~ *other* functions that depend on the state of the Occupancy_State *or Reliability properties* ~~property~~ shall respond to changes made to ~~this property while Out_Of_Service is TRUE~~ *these properties, as if those changes had occurred to the associated process this object represents.*

[Change **Clause 12.36.8**, Credential Data Input object type, p. 393]

The Out_Of_Service property, of type BOOLEAN, is an indication whether (TRUE) or not (FALSE) the Present_Value of the Credential Data Input object is prevented from being modified by some process local to the BACnet device in which the object resides.

~~While the~~ *When* Out_Of_Service ~~property~~ is TRUE~~,~~*:*

- the Present_Value *property* and *the* Reliability *property, if capable of taking on values other than NO_FAULT_DETECTED, shall be writable to allow* ~~properties may be changed to any value as a means of~~ simulating specific ~~fixed~~ conditions or for testing purposes*;*~~.~~
- ~~Other~~ *other* functions that depend on the state of the Present_Value or Reliability properties shall respond to changes made to these properties ~~while Out_Of_Service is TRUE~~, as if those changes had occurred in the input.

[Change **Clause 12.50.12**, Global Group object type, p. 470]

This property, of type BOOLEAN, indicates and controls whether (TRUE) or not (FALSE) *the object is out of service.*

When Out_Of_Service is TRUE:

- the Present_Value property is decoupled and is not updated to track the values of the group members*;*~~.~~
- ~~In addition,~~ the Reliability property, *if present,* and the corresponding state of the FAULT flag of the Status_Flags property shall be decoupled from ~~their normal calculations~~*the state of the object;* ~~when Out_Of_Service is TRUE.~~
- ~~While the Out_Of_Service property is TRUE,~~ the Reliability property, *if present and capable of taking on values other than NO_FAULT_DETECTED, shall be writable to allow* ~~may be changed to any value as a means of~~ simulating specific ~~fixed~~ conditions or for testing purposes*;*~~.~~
- ~~Other~~ *other* functions that depend on the state of the Reliability property shall respond to changes made to *this property*~~these properties~~ ~~while Out_Of_Service is TRUE~~ as if those changes had occurred by normal operation.

[Change **Clause 12.51.7**, Notification Forwarder object type, p. 478]

The Out_Of_Service property, of type BOOLEAN is an indication whether (TRUE) or not (FALSE) the object has been prevented from forwarding event notifications.

When Out_Of_Service is TRUE:

- ~~This property can be used to disable~~ the Notification Forwarder object *is disabled and does not forward event notifications;*~~.~~
- *the Reliability property, if capable of taking on values other than NO_FAULT_DETECTED, shall be writable to allow simulating specific conditions or for testing purposes;*~~.~~
- *other functions that depend on the state of the Reliability property shall respond to changes made to this property as if those changes had occurred by normal operation.*

[Change **Clause 12.53.11**, Channel object type, p. 491]

This property, of type BOOLEAN, is an indication whether (TRUE) or not (FALSE) the forwarding mechanism that the object represents is not in service.

When Out_Of_Service is TRUE:

- ~~This means that~~ changes to the Present_Value property are decoupled from the forwarding mechanism*;* ~~when the value of Out_Of_Service is TRUE.~~
- ~~In addition,~~ the Reliability property, *if present*, and the corresponding state of the FAULT flag of the Status_Flags property shall be decoupled from the forwarding mechanism*;* ~~when Out_Of_Service is TRUE.~~
- ~~While the Out_Of_Service property is TRUE,~~ the Present_Value *property* and *the* Reliability *property, if present and capable of taking on values other than NO_FAULT_DETECTED, shall be writable to allow* ~~properties may still be changed to any value as a means of~~ simulating specific ~~fixed~~ conditions or for testing purposes*;*~~.~~
- ~~Other~~ *other* functions that depend on the state of the Present_Value or Reliability properties shall respond to changes made to these properties ~~while Out_Of_Service is TRUE~~, as if those changes had occurred and *had* been passed on to the forwarding mechanism.

~~Since the Channel object does not directly implement command prioritization, the Present_Value property shall not be required to implement the BACnet command prioritization mechanism when Out_Of_Service is TRUE. See Clause 19.~~

[Change **Clause 12.54.11**, Lighting Output object type, p. 504]

[This Out_Of_Service clause is identical to that for the other output object types except for the last bullet point which talks about lighting command.]

~~This~~ *The Out_Of_Service* property, of type BOOLEAN, indicates whether (TRUE) or not (FALSE) the physical point that the object represents is not in service.

When Out_Of_Service is TRUE:

- ~~This means that~~ changes to the Present_Value property are decoupled from the physical ~~lighting~~ output*;* ~~when the value of Out_Of_Service is TRUE.~~
- ~~In addition,~~ the Reliability property, *if present*, and the corresponding state of the FAULT flag of the Status_Flags property shall be decoupled from the physical ~~lighting~~ output*;* ~~when Out_Of_Service is TRUE.~~
- ~~While the Out_Of_Service property is TRUE,~~ the Present_Value *property* and *the* Reliability *property, if present and capable of taking on values other than NO_FAULT_DETECTED, shall be writable to allow* ~~properties may still be changed to any value as a means of~~ simulating specific ~~fixed~~ conditions or for testing purposes*;*~~.~~
- ~~Other~~ *other* functions that depend on the state of the Present_Value or Reliability properties shall respond to changes made to these properties ~~while Out_Of_Service is TRUE~~, as if those changes had occurred to the physical ~~lighting~~ output*;*~~.~~
- ~~The~~ *the* Present_Value property shall still be controlled by the BACnet command prioritization mechanism and lighting command ~~if Out_Of_Service is TRUE~~ *(see Clause 19)*~~. See Clause 19.~~

[Change Clause **12.56.7**, Network Port object type, p. 523]

The Out_Of_Service property, of type BOOLEAN, is an indication whether (TRUE) or not (FALSE) the network port is out of service.

When ~~a network port is~~ Out_Of_Service *is TRUE:*~~,~~

- all BACnet communication through ~~that~~ *the* port shall be disabled*;*~~,~~
- ~~and~~ writing any value other than RESTART_PORT, DISCONNECT, ~~and~~ *or* DISCARD_CHANGES to the Command property shall result in an error response with an 'Error Class' of PROPERTY and 'Error Code' of VALUE_OUT_OF_RANGE*;*~~.~~
- *the Reliability property, if present, and the corresponding state of the FAULT flag of the Status_Flags property shall be decoupled from the port;*
- *the Reliability property, if capable of taking on values other than NO_FAULT_DETECTED, shall be writable to allow simulating specific conditions or for testing purposes;*

- *other functions that depend on the state of the Reliability property shall respond to changes made to the property, as if those changes had occurred to the port.*

[Change **Clause 12.57.9**, Timer object type, p. 547]

The Out_Of_Service property, of type BOOLEAN, is an indication whether (TRUE) or not (FALSE) the timer this object represents is in service and will count down.

~~If~~ *When* Out_Of_Service is FALSE, the timer is functioning as specified.

~~If~~ *When* Out_Of_Service is TRUE~~,~~*:*

- the object shall behave as specified, except that Present_Value shall not automatically count down in the RUNNING state~~.~~*;*
- ~~While Out_Of_Service is TRUE,~~ the Present_Value *property* and *the* Reliability *property, if present and capable of taking on values other than NO_FAULT_DETECTED, shall be writable to allow* ~~properties may be changed as a means of~~ simulating states and transitions, or for testing purposes*;*~~.~~
- *other functions that depend on the state of the Present_Value and Reliability properties, such as timer state changes, shall respond to changes made to that, as if those changes had occurred while Out_Of_Service was FALSE.*
  ~~Writing values to Present_Value shall cause the timer to perform respective timer state transitions as specified in the state machine description. If an event algorithm and/or reliability evaluation is in place, it shall perform its evaluations as specified, regardless of the value of this property.~~

[Change **Clause 12.59.30**, Lift object type, p. 564]

The Out_Of_Service property, of type BOOLEAN, is an indication whether (TRUE) or not (FALSE) the object is decoupled from the lift that this object represents.

When Out_Of_Service is TRUE:

- ~~This means that~~ the object does not track the status of the lift*;*
- ~~, and~~ the object will not control the lift operation~~. The~~ *and the* value of this property shall have no effect on the operation of the lift this object represents~~.~~*;*
- ~~While this property has a value of TRUE,~~ the status properties Assigned_Landing_Calls, Registered_Car_Call, Car_Position, Car_Moving_Direction, Car_Assigned_Direction, Car_Door_Status, Car_Door_Zone, Car_Load, Next_Stopping_Floor, Passenger_Alarm, Energy_Meter, Car_Drive_Status, Fault_Signals, and Landing_Door_Status shall not track the status of the lift~~. These properties~~ *and* shall be writable*;*~~ while Out_Of_Service is TRUE.~~
- ~~While this property has a value of TRUE,~~ the properties Making_Car_Call, Car_Door_Command, and Car_Mode, *shall not track the respective values currently applied by the lift,* shall not have any effect on the operation of the lift, ~~. In addition, these properties shall not track the respective values currently applied by the lift. These properties~~ *and* shall be writable*;*~~ while Out_Of_Service is TRUE.~~
- ~~While the Out_Of_Service property is TRUE,~~ the properties listed in this clause normally indicating status or currently applied control values *shall be writable to allow* ~~may be changed to any value as a means of~~ simulating specific ~~fixed~~ conditions or for testing purposes*;*~~.~~
- ~~Object~~ *other* functions that depend on the state of *any of the aforementioned* ~~these~~ properties shall respond to changes made to these properties ~~while Out_Of_Service is TRUE~~, as if those changes had occurred in the lift.

[Change **Clause 12.60.15**, Escalator object type, p. 572]

The Out_Of_Service property, of type BOOLEAN, is an indication whether (TRUE) or not (FALSE) the object is decoupled from the escalator that this object represents.

When Out_Of_Service is TRUE:

- ~~This means that~~ the object does not track the status of the escalator*;*~~, and~~
- the object will not control the escalator operation~~. The~~ *and the* value of this property shall have no effect on the operation of the escalator this object represents~~.~~*;*

- ~~While this property has a value of TRUE,~~ the status properties Power_Mode, Operation_Direction, Energy_Meter, Fault_Signals, and Passenger_Alarm shall not track the status of the escalator~~. These properties~~ *and* shall be writable*;* ~~while Out_Of_Service is TRUE.~~
- ~~While this property has a value of TRUE,~~ the property Escalator_Mode shall not have any effect on the operation of the escalator*,*~~. In addition, this property~~ shall not track the respective value currently applied by the lift, *and*~~. The property Escalator_Mode~~ shall be writable*;* ~~while Out_Of_Service is TRUE.~~
- ~~While the Out_Of_Service property is TRUE,~~ the properties listed in this clause normally indicating status or currently applied control values *shall be writable to allow* ~~may be changed to any value as a means of~~ simulating specific ~~fixed~~ conditions or for testing purposes*;*~~.~~
- ~~Object~~ *other* functions that depend on the state of ~~these~~ *any of the aforementioned* properties shall respond to changes made to these properties ~~while Out_Of_Service is TRUE~~, as if those changes had occurred in the escalator.

[Replace **Clause 12.61.10**, Accumulator object type with the following language, p. 579]

12.61.10 Out_Of_Service

The Out_Of_Service property, of type BOOLEAN, is an indication whether (TRUE) or not (FALSE) the physical input that the object represents is not in service.

When Out_Of_Service is TRUE:

- ~~This means that~~ the Present_Value and Pulse_Rate properties are decoupled from the physical input and will not track changes to the physical input ~~when the value of Out_Of_Service is TRUE~~.
- ~~In addition,~~ the Reliability property, if present, and the corresponding state of the FAULT flag of the Status_Flags property shall be decoupled from the physical input*;* ~~when Out_Of_Service is TRUE.~~
- ~~While the Out_Of_Service property is TRUE,~~ the Present_Value, *and* Pulse_Rate *properties* and *the* Reliability *property, if present and capable of taking on values other than NO_FAULT_DETECTED,* ~~properties may be changed to any value as a means of~~ *shall be writable to allow* simulating specific ~~fixed~~ conditions or for testing purposes.
- ~~Other~~ *other* functions that depend on the state of the Present_Value, Pulse_Rate or Reliability properties shall respond to changes made to these properties ~~while Out_Of_Service is TRUE~~, as if those changes had occurred in the physical input.

[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	20	**Addendum *bl* to ANSI/ASHRAE Standard 135-2016** Approved by ASHRAE on June 15, 2018; and by the American National Standards Institute on June 15, 2018. 1. Clarify Result(-) response for failed WritePropertyMultiple requests. 2. Clarify ReadPropertyMultiple response on OPTIONAL when empty. 3. Clarify Out_Of_Service.

POLICY STATEMENT DEFINING ASHRAE'S CONCERN FOR THE ENVIRONMENTAL IMPACT OF ITS ACTIVITIES

ASHRAE is concerned with the impact of its members' activities on both the indoor and outdoor environment. ASHRAE's members will strive to minimize any possible deleterious effect on the indoor and outdoor environment of the systems and components in their responsibility while maximizing the beneficial effects these systems provide, consistent with accepted Standards and the practical state of the art.

ASHRAE's short-range goal is to ensure that the systems and components within its scope do not impact the indoor and outdoor environment to a greater extent than specified by the Standards and Guidelines as established by itself and other responsible bodies.

As an ongoing goal, ASHRAE will, through its Standards Committee and extensive Technical Committee structure, continue to generate up-to-date Standards and Guidelines where appropriate and adopt, recommend, and promote those new and revised Standards developed by other responsible organizations.

Through its *Handbook*, appropriate chapters will contain up-to-date Standards and design considerations as the material is systematically revised.

ASHRAE will take the lead with respect to dissemination of environmental information of its primary interest and will seek out and disseminate information from other responsible organizations that is pertinent, as guides to updating Standards and Guidelines.

The effects of the design and selection of equipment and systems will be considered within the scope of the system's intended use and expected misuse. The disposal of hazardous materials, if any, will also be considered.

ASHRAE's primary concern for environmental impact will be at the site where equipment within ASHRAE's scope operates. However, energy source selection and the possible environmental impact due to the energy source and energy transportation will be considered where possible. Recommendations concerning energy source selection should be made by its members.

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