INTERPRETATION IC 135-2016-22 OF
ANSI/ASHRAE STANDARD 135-2016 BACnet® -
A Data Communication Protocol for Building
Automation and Control Networks

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Reference: This request for interpretation refers to the requirements presented in ANSI/ASHRAE Standard 135-2016, Addendum *bl*, Clause 12.18.10, regarding Multi-state Input object when the Out_Of_Service property is TRUE and the resulting requirements of the Reliability and Status_Flags properties and the fault algorithm.

Background: Addendum *bl*, Claus 12.18.10 states:

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.

Bullets 3 and 4 appear to contradict each other. In 3, if the Reliability property is written to simulate specific functions, it must be decoupled from the fault algorithm for the write to be successful. In 4, a change to the Present_Value indicates the object must perform the fault algorithm and reevaluate the Reliability property. 4 will always overwrite 3.

Interpretation:

When the Multi-state Input object Out_Of_Service property is TRUE the fault algorithm is not evaluated and the Present_Value and Reliability properties, if writable, may be independently written.

Question: Is this Interpretation correct?

Answer: No.

Comments: The fault algorithm will continue to be evaluated independent of the value of the Out_of_Service property. The Reliability property will track the result of the fault algorithm as

long as the value of the Reliability property is NO_FAULT_DETECTED or MULTI_STATE_FAULT. If the value of the Reliability property is written to a value other than NO_FAULT_DETECTED or MULTI_STATE_FAULT the fault algorithm will not modify the value of the Reliability property. See 135-2016 Clause 13.4.5.