INTERPRETATION IC 135-2020-10 OF
ANSI/ASHRAE STANDARD 135-2020 BACnet® -
A Data Communication Protocol for Building
Automation and Control Networks

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Request from: Jim Butler, Cimetrics Inc., 376 Washington St. Ste. 104, Malden, MA 02148.

Reference: This request for interpretation refers to the requirements presented in ANSI/ASHRAE Standard 135-2020, Clauses 12.2.10 and 12.17.9, Tables 12-2 and 12-20, regarding writability of the Reliability property when Out_Of_Service is TRUE.

Background: Addendum 135-2016bl-3 clarified the required out-of-service behavior for several object types, stating as justification: "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." The changes in 135-2016bl-3 were incorporated into ASHRAE Standard 135-2020. However, there were no corresponding changes to the property tables for each object type.

For example, clause 12.2.10 (Analog Input Object, Out_Of_Service property) of 135-2020 now reads as follows:

> …
> When Out_Of_Service is TRUE:
> (a) the Present_Value property is decoupled from the physical input and will not track changes to the physical input;
> (b) 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;
> (c) 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;
> (d) …

Clause 12.17.9 (Loop Object, Out_Of_Service property) of 135-2020 says something very similar, including the following: "…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;" which is identical to the text in the corresponding part of 12.2.10. Out_Of_Service property descriptions for numerous other object types have substantially similar text.

However, if we look at the property tables for the Analog Input and Loop object types (Tables 12-2 and 12-20 in 135-2020), the information provided for the Reliability property is not entirely consistent with the information in the property description for the Out_Of_Service property. In Table 12-2, a footnote indicates that the Present_Value property "is required to be writable when Out_Of_Service is TRUE," but there is no mention of any writability requirement for the Reliability property in that table. In Table 12-20, a footnote indicates that both the Present_Value and the Reliability properties are required to be writable when Out_Of_Service is

TRUE. Neither of these precisely match the writability requirement for the Reliability property specified in the object type's description of the Out_Of_Service property (12.2.10 and 12.17.9).

This interpretation request illustrates two of numerous examples of inconsistencies related to the writability requirement for the Reliability property. Which Reliability property writability requirement is correct: the one in the Out_Of_Service property description, or the one in the property table?

Interpretation: The writability requirement for the Reliability property when Out_Of_Service is TRUE is specified in the subclauses describing the Out_Of_Service property (e.g., 12.2.10 and 12.17.9) for each object type that contains both the Out_Of_Service and Reliability properties. In case of an inconsistency with the property table for the corresponding object type (e.g., Tables 12-2 and 12-20), the writability requirements specified in the subclause for the Out_Of_Service property for each object type shall take precedence.

Question: Is this Interpretation correct?

Answer: Yes