

**INTERPRETATION IC 135-2020-12 OF
ANSI/ASHRAE STANDARD 135-2020 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 135-2020 for signed integer values. Reference Clauses 21.5 (Application Types) and K.1.17 (DS-M-A requirements) table K-6.

Background: The standard does not directly define a specific allowable range for the INTEGER datatype, suggesting that a property of type INTEGER, such as Present_Value of an Integer-value object, can be extended as needed for various applications that may need more than 32 bits such as metering applications or a gateway point representing a 64-bit Modbus register. Table K-6, however, which defines the requirements for a device claiming Data-Sharing-Modify-A, describes that a device claiming DS-M-A must support 'The complete value range (-2147483648...2147483647)' where the 'complete value range' could be interpreted as either:

- 1) The complete range for a signed integer is... and the DS-M-A device must be able to write this full range
- 2) The complete range simply refers to the full set of values within the range

Note: the range defined in table K-6 uses the min/max values for a Signed32.

Interpretation: The phrase 'The complete range' refers to the full set of values within that range (choice #2). Properties of the INTEGER datatype, where the bit length or value range is not explicitly defined, such as the Present_Value property of an integer-value object type, may use a length appropriate for the application with the understanding that property values over 32 bits in length may not be readable by a device claiming DS-M-A.

Question: Is this Interpretation correct?

Answer: Yes

Comments: The minimum required range for DS-M-A is -214748364 to 2147483647 and devices claiming support for DS-M-A shall support all values in this range.

Note that the ASN.1 Universal 2 (INTEGER) has no limit on its range. So, while both client and server side devices *could* support larger integer sizes there is no requirement that those values be supported by a device claiming DS-M-A.