

**INTERPRETATION IC 135-2016-21 OF
ANSI/ASHRAE STANDARD 135-2016 BACnet® -
A Data Communication Protocol for Building
Automation and Control Networks**

Approval Date: October 30, 2019

Request from: Kishore Venkitachalam, Puvi Solutions, 20/705, Suncity Apartements, Ibblur, Bangalore, Karnataka, India 560102.

Reference: This request for interpretation refers to the requirements presented in ANSI/ASHRAE Standard 135-2016, Clause 13.3.1, regarding BITSTRING Object.

Background: As per Standard 135-2016, for CHANGE_OF_BITSTRING:

pBitmask This parameter, of type BIT STRING, represents the bitmask that defines the bits of pMonitoredValue that are significant for comparison with values of pAlarmValues. This value is bit-wise ANDed with the pMonitoredValue before comparison with pAlarmValues

The above statement means that each bits in the BitMask is ANDed with the bit in corresponding position of the pMonitored Value, i.e Present_Value. This means that the length of the pMonitored Value and Bit_Mask should be same.

Problem: In the standard there is no wording to indicate that length of pMonitored Value and Bit_Mask should be same.

Interpretation:

1. The length of pMonitoredValue and Bit_Mask need not be the same.
2. If the length of the Bit_Mask property is less than that of pMonitoredValue, while calculating the event state, bit-wise AND shall be carried out assuming '0' (zero) if the corresponding position in the Bit_Mask is empty.

For example:

pMonitoredValue = { 1, 1, 1 }

Bit_Mask = { 1 }

Resulting AND Operation = { 1 AND 1, 1 AND 0, 1 AND 0 }
= { 1, 0, 0 }

3. However, pMonitoredValue shall not be shorter than Bit_Mask. Appropriate error response shall be thrown when pMonitoredValue is written shorter than Bit_Mask.

Question: Is this Interpretation correct?

Answer: No.

Comments: The standard does not rule on how a device is to behave when these bitstrings are of differing lengths. Among the many ways in which a device could behave, the above behavior is acceptable, as would be objects which detect the condition and go into fault.