

**INTERPRETATION IC 135-2024-13 OF
ANSI/ASHRAE STANDARD 135-2024 BACnet® -
A Data Communication Protocol for Building
Automation and Control Networks**

Approval Date: June 23, 2025

Request from: Christoph Zeller (christoph.zeller@ch.sauter-bc.com), Fr. Sauter AG, Im Surinam 55, CH 4066 Basel, Switzerland. (Phone: +41 61 6955550)

Reference: This request for interpretation refers to ANSI/ASHRAE Standard 135-2024 and pertains to the Link_Speed_Autonegotiate property in the Network Port Object.

Background:

12.56.23 Link_Speed_Autonegotiate

This property, of type Boolean, represents the auto negotiation setting of the network port.

A value of TRUE indicates that the device automatically determines the speed of this network port. In this case, Link_Speed shall be read-only and indicate the determined speed, if available. A value of FALSE indicates that the link speed is determined by the value of the Link_Speed property.

If this property is writable, then a successful write to this property shall set the Changes_Pending property to TRUE. A value written to this property shall become effective when the device receives a ReinitializeDevice service request with a 'Reinitialized State of Device' of ACTIVATE_CHANGES or WARMSTART.

Tables 12.71-x

Link_Speed_Autonegotiate is marked OPTIONAL in the PHYSICAL column and absent in BACnet_Application and PROTOCOL columns.

Table 12-71.x. Additional Properties of the Network Port Object Type if Network_Type is xxx

Property Identifier	Property Datatype	BACNET_APPLICATION	PROTOCOL	PHYSICAL
...	...			
Link_Speed_Autonegotiate	Boolean			O
...	...			

Problem:

Clause 12.56.21 Link Speed states

If the value of the Link_Speed_Autonegotiate property is TRUE, then this property shall be read-only.

Clause 12.56.16 Command

...

Any of the following commands may be written to this property:

...
RESTART_AUTONEGOTIATION

...
This port shall restart its link speed auto-negotiation algorithm.

If the value of the Link Speed Autonegotiate property is FALSE, writing this value shall result in the return of a Result(-) with an 'Error Class' of PROPERTY and an 'Error Code' of VALUE_OUT_OF_RANGE.

If this port does not support auto-negotiation when the command is issued, writing this value shall result in the return of a Result(-) with an 'Error Class' of PROPERTY and an 'Error Code' of OPTIONAL_FUNCTIONALITY_NOT_SUPPORTED.

If the auto-negotiation algorithm fails, the value of the Reliability property shall be set to RESTART_AUTONEGOTIATION_FAILURE.

It is a local matter whether the value of this property remains at RESTART_AUTONEGOTIATION until the auto-negotiation has completed (whether in success or failure), and then returns to IDLE; or whether the property returns to IDLE once the auto-negotiation process has been initiated and the object is prepared to accept another command.

The Standard seems vague what the expected behaviour is, when this property is absent.

The problematic section is in 12.56.16 which seems counter intuitive to the other commands where the language is very explicit.

Examples

RENEW_FD_REGISTRATIONS: If the value of Network_Type is not IPV4 and not IPV6, or if the IP mode is not FOREIGN, writing this value shall result in the return of a Result(-) with an 'Error Class' of PROPERTY and an 'Error Code' of VALUE_OUT_OF_RANGE.

RENEW_DHCP: If the Network_Type is not IPV4 of IPV6, writing this value shall result in the return of Result(-) with an 'Error Class' of PROPERTY and an 'Error Code' of VALUE_OUT_OF_RANGE.

DISCONNECT: If the value of Network_Type is not PTP, writing this value shall result in the return of a Result(-) with an 'Error Class' of PROPERTY and an 'Error Code' of VALUE_OUT_OF_RANGE

Interpretation 1:

The Link_Speed_Autonegotiate property is not required to be present when RESTART_AUTONEGOTIATION command is supported.

Question 1: Is this Interpretation correct?

Answer 1: YES

Comment 1:

Interpretation 2:

If the Network Port Object is a hierarchical Network Port Object with a Protocol_Level other than Physical, an attempt to write RESTART_AUTONEGOTIATION should result in Error Code of VALUE_OUT_OF_RANGE.

Question 2: Is this Interpretation correct?

Answer 2: No

Comment 2: Paragraph 7 of Clause 12.56.16 states “If the Network Port object does not support a command written to this property, the device shall return a Result(-) with an 'Error Class' of PROPERTY and an 'Error Code' of OPTIONAL_FUNCTIONALITY_NOT_SUPPORTED.”