

BSR/ASHRAE Addendum *ab*
to ANSI/ASHRAE Standard 135-2008

Public Review Draft

ASHRAE® Standard

Proposed Addendum *ab* to Standard 135-2008, *BACnet®—A Data Communication Protocol for Building Automation and Control Networks*

First Public Review (**March 2010**)
(Draft Shows Changes to the Current
Standard)

This draft has been recommended for public review by the responsible project committee. To submit a comment on this proposed addendum, go to the ASHRAE website at <http://www.ashrae.org/technology/page/331> and access the online comment database. The draft is subject to modification until it is approved for publication by the Board of Directors and ANSI. Until this time, the current edition of the standard (as modified by any published addenda on the ASHRAE web site) remains in effect. The current edition of any standard may be purchased from the ASHRAE Bookstore @ <http://www.ashrae.org> or by calling 404-636-8400 or 1-800-527-4723 (for orders in the U.S. or Canada).

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[This foreword and the “rationale” on the following page are not part of this standard. They are merely informative and do not contain requirements necessary for conformance to the standard.]

FOREWORD

The purpose of this addendum is to present a proposed change for public review. These modifications are the result of change proposals made pursuant to the ASHRAE continuous maintenance procedures and of deliberations within Standing Standard Project Committee 135. The proposed changes are summarized below.

135-2008*ab*-1 Add More Standard Baud Rates for MS/TP, p. 3.

In the following document, language to be added to existing clauses of ANSI/ASHRAE 135-2008 and Addenda is indicated through the use of *italics*, while deletions are indicated by ~~strike through~~. Where entirely new subclauses are proposed to be added, plain type is used throughout. Only this new and deleted text is open to comment as this time. All other material in this addendum is provided for context only and is not open for public review comment except as it relates to the proposed changes.

135-2008ab-1 Add More Standard Baud Rates for MS/TP

Rationale

As the speed of processors has increased over time, so should the standard speeds for MS/TP networks be increased.

[Change 9.2.1 Medium, page 74]

9.2.1 Medium

An MS/TP EIA-485 network shall use shielded, twisted-pair cable with characteristic impedance between 100 and 130 ohms. Distributed capacitance between conductors shall be less than 100 pF per meter (30 pF per foot). Distributed capacitance between conductors and shield shall be less than 200 pF per meter (60 pF per foot). Foil or braided shields are acceptable. The maximum recommended length of an MS/TP segment is 1200 meters (4000 feet) with AWG 18 (0.82 mm² conductor area) cable, *except when the baud rate 115200 is used, in which case the maximum recommended length of an MS/TP segment is 1000 meters (3280 feet) with AWG 18 (0.82 mm² conductor area) cable.* The use of greater distances and/or different wire gauges shall comply with the electrical specifications of EIA-485.

[Change 9.2.3 Timing, page 75]

9.2.3 Timing

Octets shall be transmitted using non-return to zero (NRZ) encoding with one start bit, eight data bits, no parity, and one stop bit. The start bit shall have a value of zero, while the stop bit shall have a value of one. The data bits shall be transmitted with the least significant bit first. This is illustrated in Figure 9-2.

Although asynchronous framing is used, there shall be no more than $T_{\text{frame_gap}}$ of idle line (logical ones or stop bits) between any two octets of a frame.

~~The standard baud rate shall be 9600, plus or minus 1%. Any or all of the additional baud rates 19200, 38400, and 76800 may be supported at the vendor's option, but the 9600 baud shall be selectable. The baud rates 9600 and 38400, plus or minus 1%, shall be supported. Any or all of the additional baud rates 19200, 57600, 76800, and 115200, plus or minus 1%, may be supported at the vendor's option.~~

Transmitter enable: A node shall enable its EIA-485 driver before it generates the leading edge of the first start bit of a frame. The node shall drive the line to the logical one state during the time between the enable and the leading edge of the first start bit of a frame.

Transmitter disable: A node shall not disable its EIA-485 driver until the stop bit of the final octet of a frame has been generated. The node shall disable its EIA-485 driver within $T_{\text{postdrive}}$ after the beginning of the stop bit of the final octet of a frame in order that it not interfere with any subsequent frame transmitted by another node. This specification allows, but does not encourage, the use of a "padding" octet after the final octet of a frame in order to facilitate the use of common UART transmit interrupts for driver disable control. If a "padding" octet is used, its value shall be X'FF'. The "padding" octet is not considered part of the frame, that is, it shall be included within $T_{\text{postdrive}}$.

Receive to Transmit turn-around: A node shall not enable its EIA-485 driver for at least $T_{\text{turnaround}}$ after the node receives the final stop bit of any octet.