

Technote #
100020

Polarity of RS-485 and RS-422 Signals.

Date
February 2, 1999

There is confusion regarding the polarity of the RS485 and RS422 transmit and receive signal pairs. The RS-485 and RS-422 specifications define the transmit and receive signal pairs as XMT-A, XMT-B, RCV-A, and RCV-B. Unfortunately most manufacturers have ARBITRARILY assigned XMT-A as either XMT+ or XMT-. Similarly for the RCV signal pair. The specification never defines the A and B signals as either negative or positive. They only state that in the mark condition, XMT-A is more negative than XMT-B. This is only a relative definition.

What does this mean? You might want to swap the polarity if your application does not function properly. If the other RS485 or RS422 device does use -A and -B for the polarity identification, note that the Patton signals correspond as follows:

XMT+ -----> XMT-A
XMT- -----> XMT-B
RCV- -----> RCV-B
RCV+ -----> RCV-A.

This only applies if the remote end is not another 2089. If you are using any of these converters on both ends: 2089, 2085, 222N, 222N9, 2084, 2086, and their corresponding rack cards, this does NOT apply. 100020|^Polarity of RS-485 and RS-422 Signals.|^February 2, 1999|^There is confusion regarding the polarity of the RS485 and receive signal pairs. The RS-485 and RS-422 specifications define the transmit and receive signal pairs as XMT-A, XMT-B, RCV-A, and RCV-B. Unfortunately most manufacturers have ARBITRARILY assigned XMT-A as either XMT+ or XMT-. Similarly for the RCV signal pair. The specification never defines the A and B signals as either negative or positive. They only state that in the mark condition, XMT-A is more negative than XMT-B. This is only a relative definition.

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