

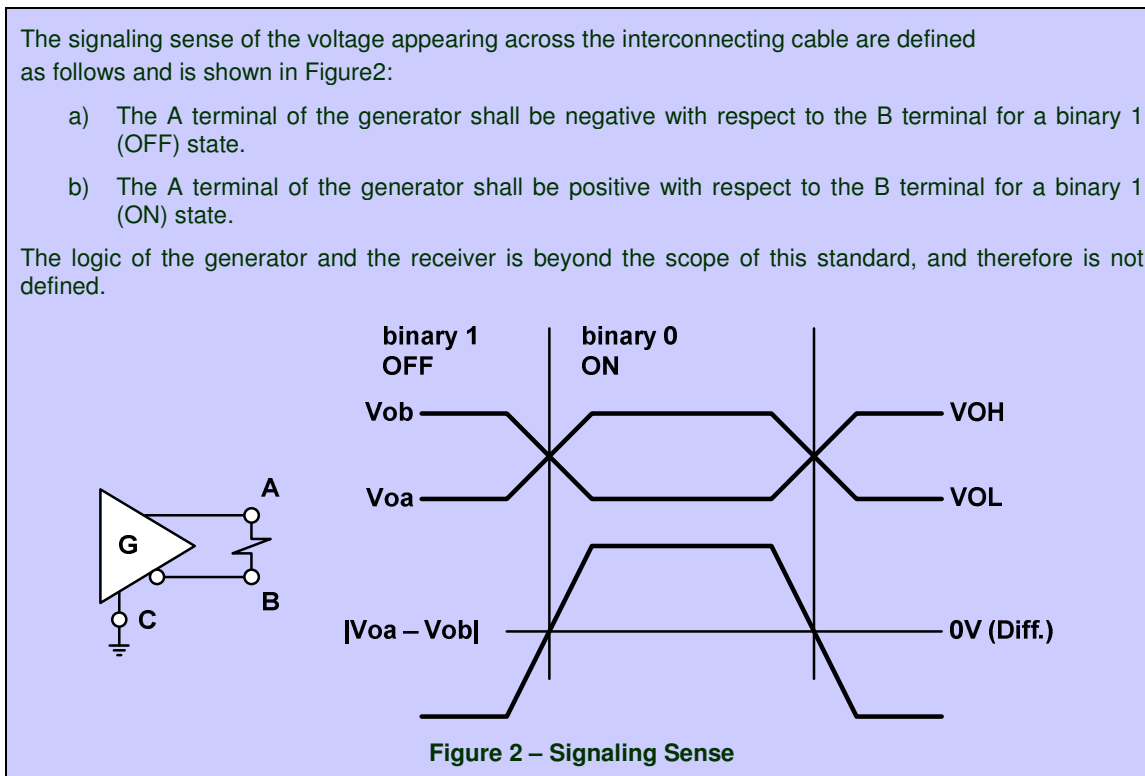
## Polarity Conventions for RS-485 Transceivers

The excerpt below is from the latest version of the RS-485 standard<sup>1</sup>. The differential signals on the bus are described. There is no discussion of the *single-ended* logic signals to the driver or from the receiver.

In the diagram, A is shown as non-inverting output; B is shown as inverting output.

The standard states that when  $V_A > V_B$ , that is a “0” on the bus and is called the “ON” state.

The standard states that when  $V_A < V_B$ , that is a “1” on the bus and is called the “OFF” state.



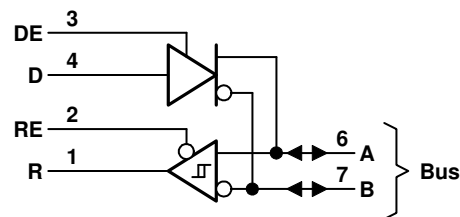
Texas Instruments datasheets for RS-485 transceivers follow the convention that A is the non-inverting pin and B is the inverting pin.

Most, if not ALL manufacturers of RS-485 transceivers use the same convention for polarity and pin naming as Texas Instruments.

Using any typical RS-485 device, logic HIGH on the driver input “D” will create an “ON” state, also called a “0” on the bus, which will cause logic HIGH on the receiver output “R”.

Using any typical RS-485 device, logic LOW on the driver input “D” will create an “OFF” state, also called a “1” on the bus, which will cause logic LOW on the receiver output “R”.

### logic diagram (positive logic)



<sup>1</sup> ANSI/TIA/EIA-485-A-1998 reaffirmed 2003. Available for purchase from IHS Global Engineering Documents <http://global.ihs.com/> under license with EIA.