

Signal bus voltage

Article Overview

Signal bus voltage refers to the electrical potential levels on a communication or power bus that determine logical states and ensure proper operation of connected devices.

General Concept of Bus Voltage

A bus is a shared conductor that distributes power or signals among multiple components in a system. The bus voltage is the electrical potential measured on this conductor, which can be either DC or AC depending on the application. In digital and communication systems, the bus voltage defines logical states, while in power systems, it ensures stable energy delivery to all connected devices .

CAN Bus Voltage

In a CAN bus, differential signaling is used with two lines: CAN_H and CAN_L. Typical voltage levels are approximately 3.5V for CAN_H and 1.5V for CAN_L during a dominant state. The differential voltage ($V_{diff} = CAN_H - CAN_L$) determines the logical state:

- Dominant state: $V_{diff} > 0.9V$
- Recessive state: $V_{diff} < 0.5V$
- Undefined state: $0.5V \leq V_{diff} \leq 0.9V$ This differential approach improves resistance to electromagnetic interference (EMI) and ensures reliable communication even in electrically noisy environments

Article Content

Mar 10, 2026

I2C Voltage Level Translators for Serial Communications

The bidirectional nature of I 2 C signals, the variation of bus voltage levels and the open drain output requirements considerably

Sep 23, 2025

Learn the Inner Workings of a CAN Bus Driver and How to Debug

In my last post, I focused on what CAN bus signals look like in terms of voltage levels on the bus pins. In this post, I'll focus on the

Apr 06, 2026

What do CAN bus signals look like?

Since the difference between the two signals is used to define the state of the bus, this signaling type is known as differential

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Intro_CAN_EN_GS | Vector E-Learning

Gäste können auf diesen Kurs nicht zugreifen. Melden Sie sich bitte an.

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What are some ARINC 429 electrical characteristics?

An ARINC 429 data bus uses two signal wires to transmit 32 bit words. Transmission of sequential words is separated by at least 4

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Understanding RS-485 Signal Voltage: A Technical Overview

3. Terminating Resistors and Signal Integrity To maintain signal integrity over long cables, terminating resistors are used at both

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PCIE (PCI Express) 1x, 4x, 8x, 16x bus pins and signals

Pinout of PCI Express 1x, 4x, 8x, 16x bus and layout of connectorPCI Express (PCIe, PCI-e) is a high-speed serial

Dec 18, 2025

Foundation Fieldbus: System and Diagnostic Basics

Figure 2: The voltage on the Fieldbus includes a DC-supply voltage and the actual bus signal. and poor terminations, will create

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Automotive Communication Networks, Part II CAN Bus

The CAN transceiver converts the binary data into a voltage range and this is the signal voltage observed on the network. Note:

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Automotive Communication Networks, Part I LIN Bus

The exception being the Engine Control Module uses the LIN bus to control a transistor which varies the current flow

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CAN Bus Voltage Level: Analyzing the Electrical Potential

The voltage levels on the CAN bus are crucial for signal transmission and data integrity. Understanding

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Differential signalling

Differential signalling does not make a line balanced, nor does noise rejection in balanced circuits require differential signalling.

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Preferred schematic symbol for voltage rail and bus labels

If not, which is preferred? Most of my textbook use the middle symbol (black line with voltage written on top/under it. Positive

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What do CAN bus signals look like?

By subtracting the voltage potential of the two bus pins, you can determine the logical state of the bus using the equation below.

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LIN Bus Voltage: Essential Guide for Automotive Diagnostics

Learn standard LIN bus voltage levels for dominant and recessive states. Master diagnostic techniques to

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Electrical level

The voltage difference between high and low levels, measured between B and A, should lie between 4 V and 7 V. The values for

Jul 17, 2026

What Is Bus Voltage and How Does It Work?

Bus voltage is the electrical potential measured on a shared conductor, or “bus,” that distributes power or signals

Sep 29, 2025

What Is DC Bus Voltage? Engineering Insights

Define DC bus voltage and explore the engineering techniques needed to stabilize this vital electrical highway in

Feb 04, 2026

LIN Physical Layer

The simple single-wire bus connects to each node in the cluster and switches from ground to battery-level voltage as

Aug 11, 2025

LIN Bus Voltage: Troubleshooting Guide & Solutions

The Local Interconnect Network (LIN) consortium defines the communication protocol utilized extensively in modern

Jul 28, 2025

Foundation Fieldbus Electrical Parameters

The most common DC operating voltage for a FF network segment is 24 VDC (typical). The minimum transmission

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Automotive Communication Networks, Part II CAN Bus

CAN bus waveform analysis The waveform below shows both the signal when CAN High and CAN Low are tested with respect to

Mar 08, 2026

LIN Protocol and Physical Layer Requirements (Rev

The TXD (transmit) and RXD (receive) of the LIN transceiver, facilitate the communication to and from the bus through voltage

Sep 27, 2025

LIN Bus physical layer | Automotive oscilloscope test

Voltages for this signal are generally a switching voltage from battery voltage to ground which is why it can be often mistaken for a

Nov 02, 2025

Troubleshooting VFD Problems – How to Measure DC

Measuring DC Bus Voltage Here are the few considerations before attempting to measure

Contact Us

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