NI-9866 Getting Started

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NI-9866 Software Requirements

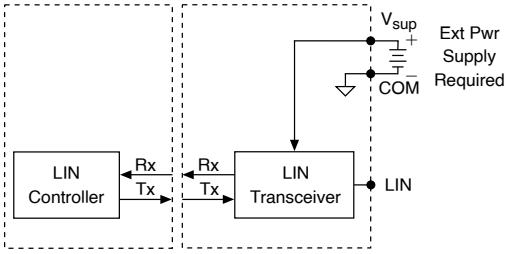
The NI-9866 module requires the latest software to be installed.

The latest version of the software is available at ***ni.com/downloads***.

NI-9866 Block Diagram

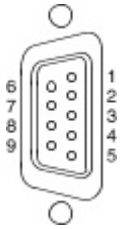
The NI-9866 has one full-featured LIN port that is isolated from the other modules in the system. The port has a LIN controller that is fully compliant with the LIN 1.3/2.0/2.1/2.2 Specification. The port also has an NXP TJA1028 LIN transceiver that is fully compatible with the LIN 1.3/2.0/2.1/2.2 and SAE J2602 standard and supports baud rates up to 20 kbps.

Figure 1. NI-9866 Block Diagram



NI-9866 Pinout

Table 1. NI-9866 Pinout

Connector	Pin	Signal Name
	1	No Connection (NC)
	2	NC
	3	COM
	4	NC
	5	SHLD

Connector	Pin	Signal Name
	6	COM
	7	LIN
	8	NC
	9	Vsup

The NI-9866 has one 9-pin male D-Sub connector that provides connections to a LIN bus.

The port has two common pins (COM) that are internally connected to the module's isolated reference and serve as the reference ground for LIN signal. You can connect the LIN bus reference ground to one or both COM pins. The port also has an optional shield pin, SHLD, that you can connect to a shielded LIN cable. Connecting SHLD may improve signal integrity and EMC performance in a noisy environment.

Caution You must use a UL-listed ITE power supply marked LPS with the NI-9866.

The NI-9866 requires an external power supply of +8 V to +18 V to operate. Supply power to the NI-9866 Vsup pin from the LIN bus.

Note Power on Vsup is required for LIN operation.

Cabling Requirements for the NI-9866

This section deals with cabling specifications, termination resistors, cable lengths, and the number of LIN nodes that can exist in a system.

Cable Specifications

LIN cables should meet the physical medium requirement of a bus RC time constant of 5 µs. For detailed formulas for calculating this value, refer to the ***Line Characteristics*** section of the LIN specification. Belden cable (3084A) and other unterminated CAN/Serial quality cables meet these requirements and should be

suitable for most applications.

Cable Lengths

The maximum allowable cable length is 40 m, per the LIN specification.

Number of LIN Devices

The maximum number of devices on a LIN bus is 16, per the LIN specification.

Termination Resistors

LIN cables require no termination, as nodes are terminated at the transceiver. Slave nodes typically are pulled up from the LIN bus to VBat with a 30 kΩ resistance and a serial diode. This termination usually is integrated into the transceiver package. The master node requires a 1 kΩ resistor and serial diode between the LIN bus and VBat. On NI-XNET LIN products, master termination is software selectable; you can enable it in the API with the NI-XNET Session Interface:LIN:Termination property.