



CAN-do Cable Solutions for Many Applications

First introduced in 1986 for automotive applications, CAN (controller area network) is a multi-master broadcast serial bus standard for networking, controlling and monitoring electrical and electronic devices. It requires no central computer and allows devices connected through an ECU (electronic control unit) to communicate with one another. Several devices may be connected to one ECU, and a typical CAN system may have as many as 50 ECUs.

Previously, automobiles utilized harnesses (many wires wrapped together) to directly wire individual devices, such as a brake pedal to the brake lights, creating a jumble of wires throughout the vehicle. Using as few as two wires, a CAN system connects the engine management ECU with other ECUs for controlling the transmission, airbags, antilock brakes, automatic windows and other electronic devices. Using a CAN system improves functionality, diagnostics and monitoring capabilities while providing greater reliability due to fewer needed wires and connections.

These same benefits and lower installation costs make CAN an ideal serial bus system for factory automation, wind power generators, solar plants, dams, irrigation systems and oil fields—wherever multiple electronic devices communicate with one another. Most of these applications employ one of three popular CAN standards. Northwire offers cable solutions engineered to the specific requirements of each CAN system.



The on-vehicle CAN standard is SAE J1939, which the Society of Automotive Engineers (SAE) recognizes as the preferred serial data bus system for machinery used in industries ranging from agriculture, construction and fire/rescue to forestry, material handling, and on- and off-highway equipment. Northwire introduced J1939-specified cables in 2004 and is now a market leader in these products. [Learn More](#)

The CAN standard widely used in the automation industry for connecting industrial controllers and I/O (input/output) devices is DeviceNet™, a communication protocol and hardware standard for digital, multi-drop networks, developed by the Open DeviceNet Vendors Association (ODVA™). Each device or controller on the network is an ECU interconnected with a DeviceNet cable consisting of a data pair of wires for the CAN signal, plus an additional pair for supplying power to the individual devices.

Northwire's involvement with ODVA dates back two decades to the development of several standard cable designs. Northwire developed the ODVA "Mid" cable as well as a high-flex-life version. Current Northwire offerings include four standard DeviceNet cables and several variations. [Learn More](#)

Another CAN-based system is CANopen, developed as a standard for embedded networks with highly flexible configuration capabilities. CANopen may be used in a wide range of applications such as handling systems, medical equipment, off-road vehicles, maritime electronics, wind power, railway applications and building automation.



Other than the requirement for a 120 ohm impedance data pair, CANopen has no defined cable standard. This leaves CAN system choices open to application requirements. CiA (CAN in Automation), the worldwide organization that upholds CANopen, also supports both DeviceNet and SAE J1939. [Learn More](#)

Most applications for a CAN system fit one of these three standards. Whether your needs are basic or custom, Northwire's can-do service and unparalleled expertise will provide the necessary solution.



North America/Global Headquarters
110 Prospect Way
Osceola, Wisconsin 54020
USA
Tel.: +1 715-294-2121

Central/South America
11 Earhardt Way
Santa Teresa, New Mexico 88008
USA
Tel.: +1 575-874-2000

Europe
Ninaberlaan 83
7447 AC Hellendoorn
The Netherlands
Tel.: +31 548 659029

Asia
Mingda Road, Linzhe Economic Development Zone,
Qidu Town, Wujiang, Suzhou,
Jiangsu Province, 215234, China
Tel.: +86-512-6382 2637

www.northwire.com | cableinfo@northwire.com

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