

DeviceNet Protocol Overview

Intellis 7600



DeviceNet is an open network standard originally developed by Allen-Bradley and based on a broadcast oriented, communications protocol - the Controller Area Network (CAN). The CAN protocol was originally developed by BOSCH the European automotive market for replacing expensive, wire harnesses with a low cost network.

In 1995 Allen-Bradley released the protocol to the open DeviceNet Vendors Association (ODVA). ODVA oversees the development of the DeviceNet specification and the conformance testing of DeviceNet products. ODVA is open to any manufacturer or user of this protocol with a worldwide membership of approximately 300 companies.

DeviceNet is a simple networking solution that reduces the cost and time required to install and wire industrial automation devices. A single DeviceNet Intellis System will accommodate up to 63 valves and 1008 discrete I/O points. Although a simple system to design and implement, DeviceNet has the capability to interconnect complex as well as simple devices to the same network, easily accommodating both analog and discrete I/O.

Physical Media	Twisted pair for communications and two wires for power
Maximum Distance	1600 ft. trunk + 512 ft. drop
Maximum Network Monitors per System	63/network
Maximum I/O Points per System	378/network plus optional 4/20mA analog I/O.
Current Consumption Per Network Monitor	45 mA + 20 mA/coil (25 mA XP coil)
Interface Capability	All PLC's & DCS w/ DeviceNet interface
Communications Method	Master/slave multi-master, peer-to-peer
Error Checking	CRC check
Network Topology	Trunk & drop, zero drop, tree and star
Transmission Speed	125 kbps, 250 kbps, 500 kbps
Redundancy	No
Valves Specific Diagnostics	Yes