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USB 1-Channel CAN Interface CAN-USB-01

CAN Interface
via USB

Features

- Single galvanically isolated CAN channel
- High speed (480 Mbit/sec) USB interface
- Supports CAN 2.0A and 2.0B message format
- 32-bit RISC processor
- ISO 11898 compliant high-speed interface supports up to 1 Megabit/sec bit rates

CAN Monitor Software

- View CAN messages
- CAN bus loading
- Diagnostics
- Download firmware

Plug-and-play

- CML & CMO
- Xenus
- Accelnet
- Stepnet



DESCRIPTION

The CAN-USB-01 is a single channel CAN interface card with a high speed USB interface to a host PC. The CAN interface is galvanically isolated to protect the PC hardware and provide better noise immunity in industrial environments.

The card incorporates a high performance 32-bit RISC processor. This processor handles all low level details of interfacing with the CAN hardware, offloading this task from the host processor. A high speed USB interface is used to communicate CAN messages back to the host.

Device driver support is provided for Windows and Linux. Copley CANview bus monitoring software is available for both Windows and Linux hosts.

HIGH SPEED USB

Most USB based CAN interfaces utilize the 12 Mbit/sec full speed USB. The CAN-USB-01 uses the much faster 480 Mbit/sec high speed USB protocol to minimize communication latency.

USB is inherently a polled bus. This means that all communication is initiated by the bus master (PC). It's not possible for a slave device to communicate a state change to the master independently, the slave must wait until the master requests the devices state.

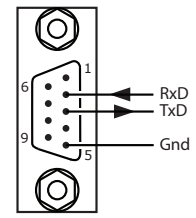
When the older 12 Mbit/sec USB protocol is used, the bus master polls devices at a maximum frame rate of once every millisecond. This adds up to a millisecond of delay between a CAN message being received over the network and that message being communicated to the host processor.

A similar delay is added to the transmission of every CAN message. The software running on the host PC will queue up a CAN message to be sent, but the message won't actually be passed to the CAN interface until the next USB bus cycle at the earliest.

The CAN-USB-01 uses the much faster high speed USB protocol which has a maximum bandwidth of 480 Mbit/sec. An important feature of this higher speed protocol is a much faster frame rate. In high speed USB the host computer scans the bus every 125 microseconds, or 8 times faster then the frame rate used by the full speed USB protocol. This means that the latency added to ever CAN message transmit and receive is only 1/8 of what it would be for more typical USB to CAN interface products. When using CAN to control industrial equipment, this reduction in latency can have a big impact on system cycle times.

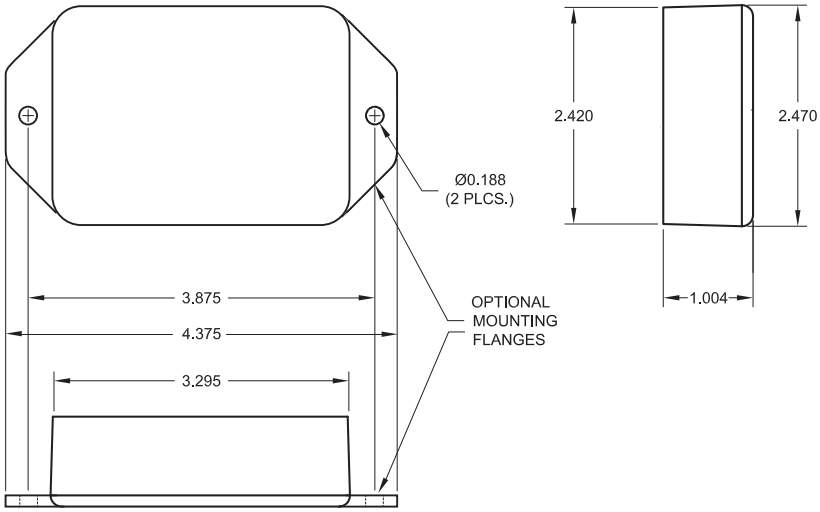
CONNECTOR

Dsub 9M



D-Sub 9M
(DTE)

MECHANICAL OUTLINE



SIGNALS & PINS

PIN	SIGNAL
1	N.C.
2	CAN_L
3	CAN_GND
4	N.C.
5	N.C.
6	CAN_GND
7	CAN_H
8	N.C.
9	N.C.

SPECIFICATIONS

Hardware requirements	USB 2.0, high speed (480 Mbit/sec)
Power requirements	5 Vdc from USB port, 170 mA
USB connector	Type B receptacle
CAN connector	Dsub-9M, male, CAN DS-102 compliant
CAN channels	1, galvanically isolated
CAN termination	121 Ω, internal jumper selectable
CAN bit rate	20 kbps to 1000 kbps
Message buffering	164 receive messages, 10 transmit messages
Timestamp resolution	1 µs
OS supported	Windows®, Linux™
Operating temperature	-10° to +70° C
Storage temperature	-40° to +85 C
Dimensions	4.2 x 2.8 x 1 [106 x 71 x 24] in [mm]
Agency Approvals	RoHS

ORDERING GUIDE

PART NUMBER	DESCRIPTION
CAN-USB-01	USB Single-channel CAN interface*

* One USB 2.0 A-male to B-male cable is included

SOFTWARE

Software, firmware, and drivers listed below are on www.copleycontrols.com.

- Datasheet
- CANview for Windows
- CANview for Linux
- API for Windows & Linux
- Firmware
- Drivers for Windows & Linux

16-118686 Document Revision History

Revision	Date	Remarks
00	May 2, 2018	Initial released version
01	Jan 16, 2020	Updated the power requirements row in the specifications table

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