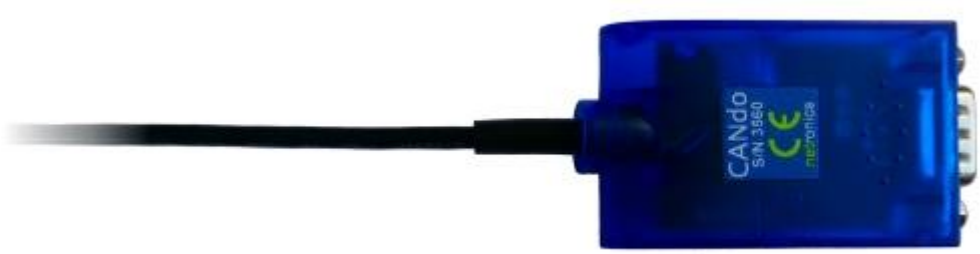
CANdo Interface Datasheet

1 Overview

The CANdo Interface is a compact USB to CAN interface that connects between a PC & an embedded CAN bus.



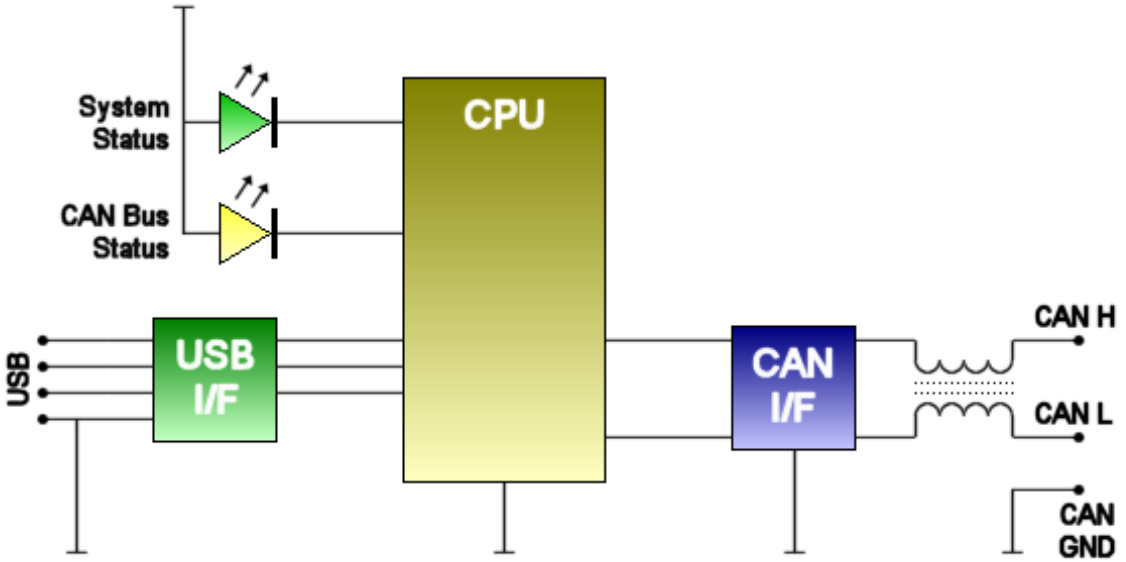
CANdo Interface – Top View

- High speed CAN bus ISO11898-2 compliant interface
- Supports 11 bit (CAN 2.0A) & 29 bit (CAN 2.0B) arbitrators
- Fully supports the CAN Specification Version 2, by Robert Bosch
- USB v1.1, v2.0 & v3.0 compatible
- USB self-powered
- Compact dimensions (65mm x 35mm x 15mm)
- Upgradeable firmware
- FREE CANdo Application CAN bus analyser software
- FREE CANdo SDK for Windows & Linux

2 History

Version	Date	Modifications	Author
1.0	02/05/23	Created	MJB
1.1	31/05/23	CANdoISO references removed	,,
1.2	13/03/25	Updated with CANdo H/W v8.1 images	,,

3 Description



CANdo Interface Block Diagram

The CANdo Interface is a compact USB to CAN bus interface designed to provide a connection between a CAN bus & a PC.

3.1 USB I/F

The 'USB I/F' provides power & communication to the module when connected to a PC. The module requires no other power source, as all the power is taken from the 'USB I/F'. Various applications are available to communicate with the module via the 'USB I/F' –

- CANdo Application software – converts the module into a CAN bus analyser
- CANdo SDK – allows the module to be integrated into 3rd party applications
- CANdo Demonstrations – various demonstration programs that work with CANdo
- CANdo Programmer – allows firmware within module to be upgraded or customised

3.2 Status

CANdo has two status LEDs, one green 'System Status' & one yellow 'CAN Bus Status' LED. The 'System Status' indicates the power & error status of the module. The 'CAN Bus Status' indicates the reception & transmission of messages on the CAN bus.

CANdo LEDs		
LED State		Unit Status
Green System LED	Off	No power to unit
	Flashing	System error
	On constantly	System OK
Yellow CAN Bus LED	Mainly off	High CAN bus load
	Flashing	CAN messages received/transmitted
	On constantly	No CAN messages received or transmitted

3.3 CPU

The CANdo Interface serves as a USB to CAN bus interface & maybe used to view, analyse & transmit CAN messages on the CAN bus using a PC, with either the CANdo Application software or the CANdo SDK. Using the CANdo SDK, custom programs may be written to perform specific tasks,

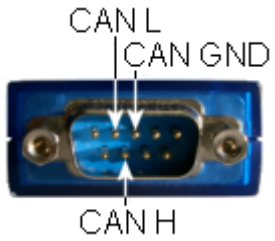
such as downloading software over the CAN bus to an ECU or requesting & displaying OBD data from a vehicle.

3.4 CAN I/F

The CAN interface provides the electrical connection to the CAN bus & conforms to the ISO11898-2 '*Road Vehicles - Interchange of Digital Information - Part 2: High Speed Medium Access Unit and Medium Dependant Interface'* specification.

4 Pin-Outs

The CAN bus connections on the 9 way 'D' type connector in the CANdo housing are detailed below.



Pin No.	Signal
1	N.C.
2	CAN L - CAN bus low
3	CAN GND - CAN bus ground
4	N.C.
5	N.C.
6	N.C.
7	CAN H - CAN bus high
8	N.C.
9	N.C.

N.C. - Not Connected

The CAN bus & the USB ground connections within the CANdo Interface are electrically connected.

5 Specification

CANdo Specification				
Parameter	Min.	Typ.	Max.	Units
USB				
USB supply voltage	4.0	-	5.25	V
USB supply current	-	45	80	mA
USB suspend current	-	330	500	uA
CAN				
Bus output voltage - dominant state CAN Bus Low CAN Bus High	 0.5 2.45	 - -	 1.25 3.5	 V V
Bus output voltage - recessive state CAN Bus Low CAN Bus High	 - -	 2.3 2.3	 - -	 V V
Common mode range relative to GND	-4	-	16	V
Transient voltage relative to GND	-25	-	25	V
Short circuit output current	-250	-	250	mA
Environmental				
Operating temperature range	-10	-	50	Deg. C
Storage temperature range	-40	-	85	Deg. C
Mechanical				
Enclosure dimensions	65mm (L) x 35mm (W) x 15mm (H)			
USB tethered cable length	1.0	1.1	1.2	m

The CANdo Interface is CE marked to indicate compliance with the European Directive concerning Electromagnetic Compatibility (2014/30/EU) & RoHS the Restriction of Hazardous Substances (2011/65/EU as amended by 2015/863/EU) in electronic equipment. The manufacture of the CANdo device is compliant with the REACH regulation (1907/2006).

To ensure compliance with the EMC directive, the CANdo Interface has been tested according to the following standards.

- EN 55032 (Electromagnetic compatibility of multimedia equipment - Emission requirements)
- EN 55035 (Electromagnetic compatibility of multimedia equipment - Immunity requirements)
- EN 61000-6-2 (immunity, industrial interference immunity)
- EN 61000-4-2 (air discharge 8kV, contact discharge 4kV)
- EN 61000-4-3 (electromagnetic field compatibility 80MHz-1GHz, 10V/m)