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# CANdoISO Interface Datasheet

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## 1 Overview

The **CANdoISO** Interface is a compact USB to CAN interface that connects between a PC & an embedded CAN bus. The **CANdoISO** Interface provides galvanic isolation between the PC & the CAN bus.



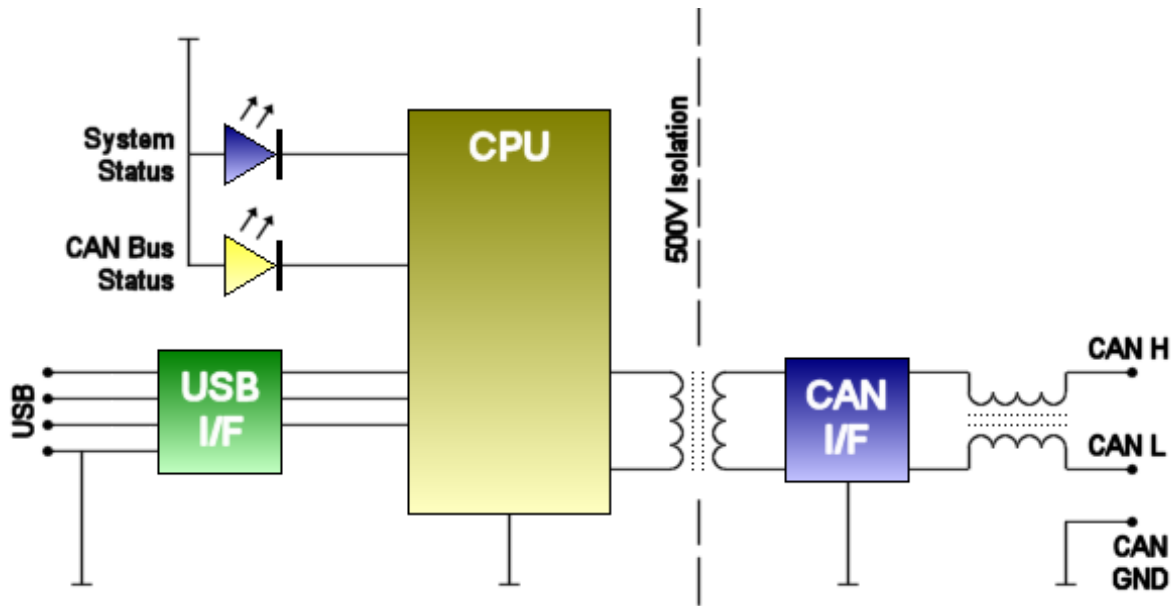
CANdoISO Interface – Top View

- 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
- 500V galvanic isolation between the USB & CAN bus ports
- Compact dimensions (65mm x 35mm x 15mm)
- Upgradeable firmware
- FREE **CANdo** Application CAN bus analyser software
- FREE **CANdo** SDK for Windows & Linux

## 2 History

<b>Version</b>	<b>Date</b>	<b>Modifications</b>	<b>Author</b>
1.0	31/05/23	Created	MJB

### 3 Description



CANdoISO Interface Block Diagram

The CANdoISO Interface is a compact USB to CAN bus interface designed to provide a connection between a CAN bus & a PC. The interface provides an isolation barrier between the CAN bus & the USB port, to prevent ground loops or leakage currents that may cause damage to inter-connected equipment. The interface derives its power from the USB port of the 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 3<sup>rd</sup> party applications
- CANdo Demonstrations – various demonstration programs that work with CANdoISO
- CANdo Programmer – allows firmware within module to be upgraded or customised

#### 3.2 Status

CANdoISO has two status LEDs, one blue '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.

CANdoISO LEDs		
LED State		Unit Status
Blue 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 CANdoISO 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.

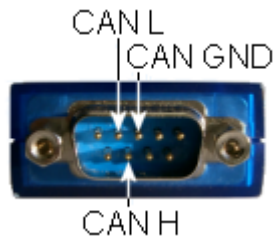
### 3.4 CAN I/F

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.

The [CANdoISO](#) CAN interface provides the electrical connection to the CAN bus & is electrically isolated from the USB connector by a 500V isolation barrier. This isolation allows the module to be connected to the CAN bus in a safe manner, especially where higher voltages exist.

## 4 Pin-Outs

The CAN bus connections on the 9 way 'D' type connector in the **CANdoISO** 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 connections within the **CANdoISO** Interface are electrically isolated from the USB connections.

## 5 Specification

CANdoISO Specification				
Parameter	Min.	Typ.	Max.	Units
<b>USB</b>				
USB supply voltage	4.5	-	5.5	V
USB supply current	-	65	100	mA
USB suspend current	-	360	500	uA
<b>CAN</b>				
Bus output voltage - dominant state				
CAN Bus Low	0.8	1.2	1.5	V
CAN Bus High	2.9	3.5	4.5	V
Bus output voltage - recessive state				
CAN Bus Low	2.0	2.3	3.0	V
CAN Bus High	2.0	2.3	3.0	V
Common mode range relative to GNDISO	-27	-	40	V
Short circuit output current	-110	-	110	mA
<b>Isolation</b>				
USB to CAN bus	500	-	-	V
<b>Environmental</b>				
Operating temperature range	-10	-	50	Deg. C
Storage temperature range	-40	-	85	Deg. C
<b>Mechanical</b>				
Enclosure dimensions	65mm (L) x 35mm (W) x 15mm (H)			
USB tethered cable length	1.0	1.1	1.2	m

The **CANdoISO** 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 **CANdoISO** device is compliant with the REACH regulation (1907/2006).

To ensure compliance with the EMC directive, the **CANdoISO** 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)

