

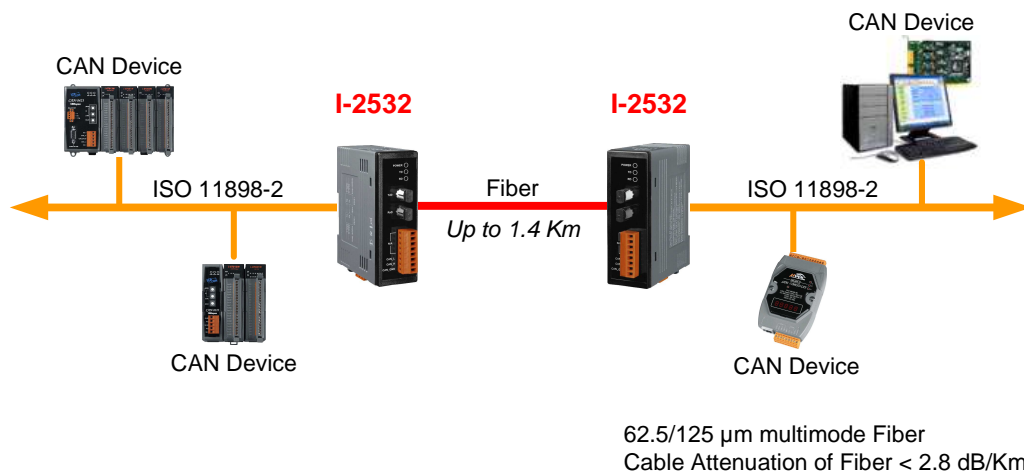
The I-2532 CAN to Fiber Converter

Quick Start User Guide

1. Introduction

Fiber optic transmission medium is a good material to protect data transmission from EMI/RFI interference and has been used in harsh environment extensively. CAN bus is famous in industrial application. More and more users build CAN networks to communicate their controllers, sensors and actuators. In order to solve the problem between different transmission medium, I-2532 is specially designed for converting the electrical CAN bus signal to fiber optic cables.

The fiber length between two I-2532s can be up to 1.4km (4593ft), it is mainly decided by the cable attenuation of fiber and the CAN bus baud. I-2532 is the economic solution for applications which require protecting the data transmission from electrical exposure, surges, lightning or chemical corrosion. Generally, I-2532 can be used in CANopen, DeviceNet and all the other CAN network which follows the ISO 11898-2 standard.

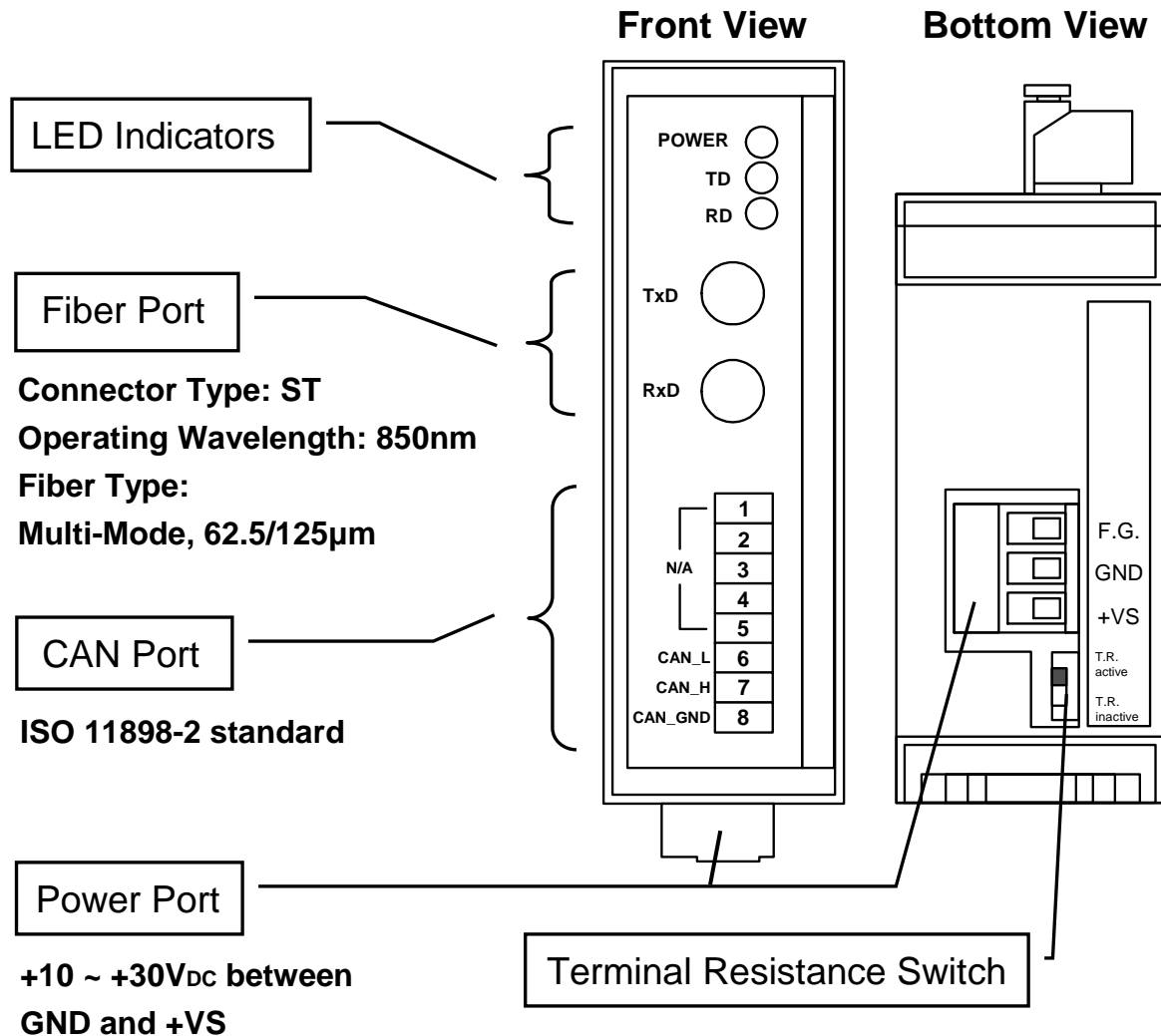


This quick-start describes how to implement the I-2532 module into users' applications in a quick and easy way. Therefore, it only provides the basic concepts. If users want to know more detail information about the I-2532, please refer to the user manual of I-2532 in the product CD or visit our website as follows:

http://www.icpdas.com/products/Remote_IO/can_bus/i-2532.htm

2. Appearance

The following figure is the appearance of the I-2532.



3. Pin Assignment

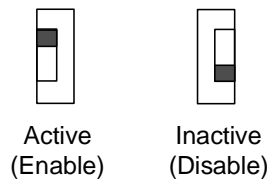
Port	Name	Description
CAN	CAN_L	CAN_Low, signal line of CAN Port.
	CAN_H	CAN_High, signal line of CAN Port.
	CAN_GND	CAN_Ground, ground voltage level of CAN Port.
Fiber	TXD	Transmit data to fiber optic cable.
	RXD	Receive data from fiber optic cable.
Power	+VS	Voltage Source Input. +10V _{DC} ~ +30V _{DC} .
	GND	Power Ground.
	F.G.	Frame Ground.

4. LED Indicators & Terminal Resistance

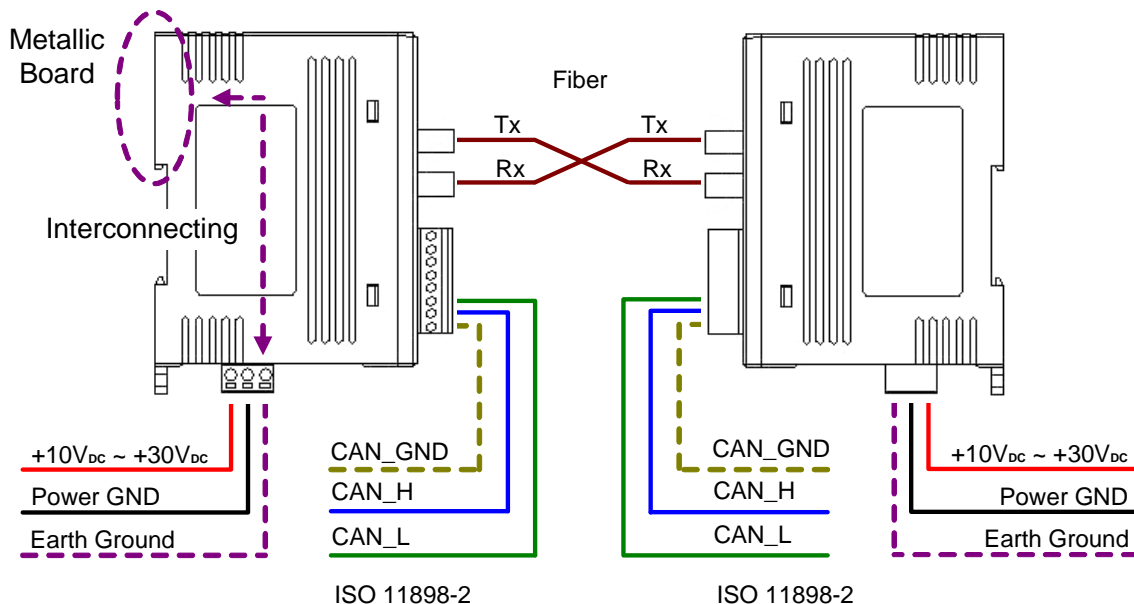
The table below shows the meanings of LED indicators on the I-2532. Transmitting/receiving one message to/from fiber cable will flash the TD/RD LED once. The TD/RD LED may always be turned on if there are a lot of messages transmitted on fiber cable.

POWER LED (Red Light)		TD LED (Green Light)		RD LED (Green Light)	
on	module active	flashing	messages transmitting	flashing	messages receiving
off	module inactive	off	no message transmitting	off	no message receiving

The switch at bottom of I-2532 is used for adjusting terminal resistance (120Ω) on CAN Port. The switch functions are shown below.



5. Wire Connection



Roughly speaking, wiring of CAN_GND and FG can improve the capability of anti-interference of CAN bus system, but this is not necessary.

6. Bus Length & Fiber Length

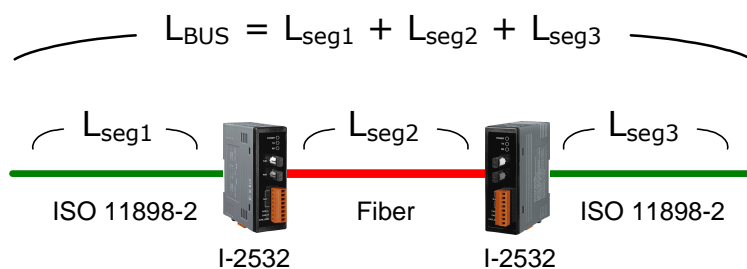
Higher attenuation of fiber will reduce the transmission distance. Users can use following table to know the relationship between those two.

Attenuation [dB/km]	Ideal Fiber Length [m]
2.8	<1400
4	<400

The limitation of baud on a CAN network is restricted by propagation delay. On the other hand, long bus length leads to long propagation delay. The relationship between baud and bus length is displayed below.

Baud [bit/sec]	Ideal Bus Length [m]
500K	< 100
250K	< 250
125K	< 500
50K	< 1000
20K	< 2500
10K	< 5000

The definition of segments the relationship between segment length (L_{SEG1} , L_{SEG2} ...) and bus length (L_{BUS}) in the same CAN bus system are shown in the following figure.



When users add one pair of I-2532 into a CAN bus system, the ideal bus length will reduce 50 meters because the propagation delay of one I-2532 is equal to the propagation delay caused by 25 meters bus length. For example, if users use baud 50Kbps and add two I-2532s into the CAN network, the ideal bus length should less than 950 meters ($1000 - 25 * 2 = 950$).

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