Intelligent CAN Bus Multi-drop Bus Fiber Optic Converter

User Manual

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1. Overview

1.1 Introduction

The No-Cascading new CAN Fiber Optic Converter is a multi-master and high performance Field bus Control System (FCS). The modular fiber optic transmission system can be used to transmit CAN-based bus systems such as DeviceNet or CANOpen via fiber optics data interfaces over a pair of multi mode or single mode optical fibers. Our FMC Fiber Optic Converter uses the fiber cable as its transmission medium and utilizes Optical Fiber modulation/demodulation technology to changes the electric medium into a light medium transmission.

The Fiber Optic Converter product eliminates many of the disadvantages of copper cable. Examples of these disadvantages are EMI/RFI, ground loops (electrical isolation with fiber), high attenuation (high signal loss), short transmission distance between nodes of a system, and potential lightning damage.

The Fiber Optic Converter can be widely used, such as Industrial Controls, Intelligent Transportation Systems (ITS), Industrial Networking, Supervisory Control and Data (SCADA) and so on.

1.2 Technical Specification

CAN BUS	
Connectors	Block Terminal
Standard	CAN1.0, CAN2.0
Data Rate	DC0-1Mbps
Extended Distance	SM:0~20Km MM:0~2Km

OPTICAL	
Number of Fibers	4
Wavelength	1310/1550nm(SM), 850/1310nm(MM)
Fiber Type	62.5/125μm(MM), 9/125μm(SM)
Distance	0 ~ 2Km(MM) , 0~20 Km(SM)
Connector Type	ST/PC or SC/FC as options

GENERAL	
Operating Temperature	-30~ 70˚C / -30 ~ +158ºF
Operating Humidity	0 ~ 95% non-condensing
Mean Time Between Failure (MTBF)	> 70,000hrs
Power Supply Adaptor	DC 9~40V
Dimensions (H ×L×W)	112(H)×147(W)×36(D)MM

1.3 Warranty

- Repair
  - Please contact your local distributors when product is defective. Please apply RA in advance and prepay shipping cost when returning the defective product to us. We will pay the cost for sending it back to you.
  - Please attach a statement clearly describing the problem.
- We will repair defective product under warranty free of charge to our customer.
- 5 years warranty for product only.
- Any unauthorized modification of hardware and software voids the warranty.
- Warranty does not cover mishandling and/or abuse of the product.

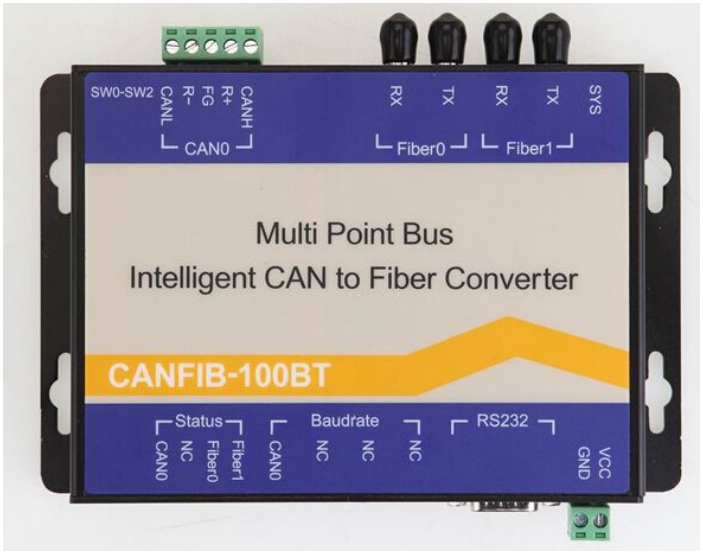
2 Installation

2.1 Package Contents

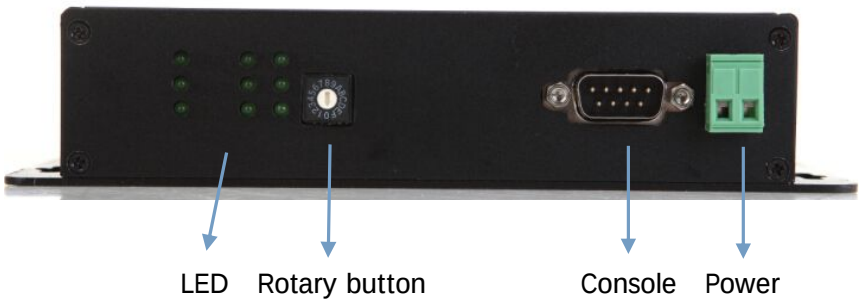
- Fiber Optic Converter
- CD

Please contact dealer or distributor if part is missing or damaged.

2.2 Enclosure



Panel 1:



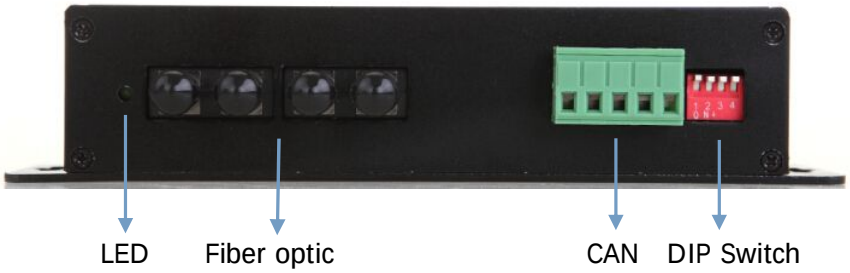
LED:

LED No	LED For	LED Name	LED Function
1	CAN0	TX	Transmitting
2		RX	Receiving
3		Error	Failure
1	Fiber0 & Fiber1	TX	Transmitting
2		RX	Receiving
3		Error	Failure

Others:

Name	Relevant	Function	Remarks
Baudrate	CAN0	Rotary button	Configure baud rate by button,fast configuration
RS232	CAN0	Console port	Configure baud rate by software on computer
VCC		V+ Power input	DC 9~40V, With SPD,RCP,OCP
GND		V- Power input	DC 9~40V,With SPD,RCP,OCP

Panel 2:



Port Name	Relevant	Function	Remarks
SYS		System LED	
TX	Fiber0 & Fiber1	Transmit	Fiber optic connector TX
RX	Fiber0 & Fiber1	Receive	Fiber optic connector RX
CANH	CAN0	CANH	CAN copper port
CANL	CAN0	CANL	CAN copper port
R+	CAN0	R+ Terminal resistance	Not necessary in normal condition
FG	CAN0	Grounding	Not necessary
R-	CAN0	R- Terminal resistance	Not necessary in normal condition
SW0-SW2		DIP Switch button	Button 4 on for 120Ohm resistance

2.3 Install Methods

1. Switch off all power supply before installation.
2. Connect the local “TX” Fiber Optic to the remote “RX” Fiber Optic, the local “RX” to the remote “TX”. And ensure that fiber is properly aligned to the receiving connector.
3. Connect the “**D0+”** Data of the CANH and the “**D0-**” Data to the CANL. Then screw down the bolt.
4. On the bottom of the Converter, there is a DIP Switch., When the SW0 is “ON”,it's connected to 120 Ohm terminal resistance .

DIP Switch setup table:

DIP Switch pin name	SW0	Others
Setup State	OFF	OFF

120 ohm Terminal Resistance

DIP Switch pin name	SW0	Others
Setup State	ON	OFF

Baud rate rotary switch button setup table:

“B0 Button Position	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
CAN Baud Rate	80Kbps	100Kbps	125Kbps	200Kbps	250Kbps	400Kbps	500Kbps	666Kbps	800Kbps	1000Kbps

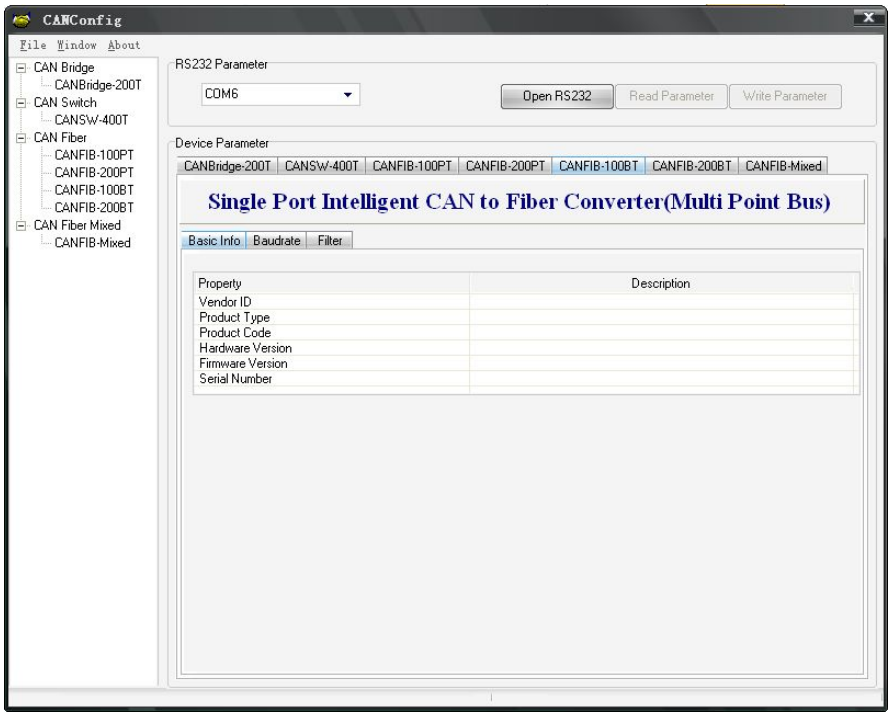
A	**B**	**C**	**D**	**E**	**F**
50Kbps	40Kbps	20Kbps	10Kbps	5Kbps	configuration

Note: When the B0 is switched to F position, you can configure the baud rate through the serial DB9 port.

2.4 Configure the baud rate by software

Switch the “B0” button to F position and connect the straight line(NOT cross line) to the console port(DB9) and the other end of the line to the computer.

1.Open CANConfig and click“CAN FIB-100BT”,you will see 3 options: Basic Info,Baud rate and Filter.



2.Software Configuration

(1) Open RS232：Communicate with the serial RS232.

(2) Read Parameter：Read all parameters of the device and display them.

(3) Write Parameter：Write all parameters into the device.These parameters will be stored to the flash and read them automatically when powers on.

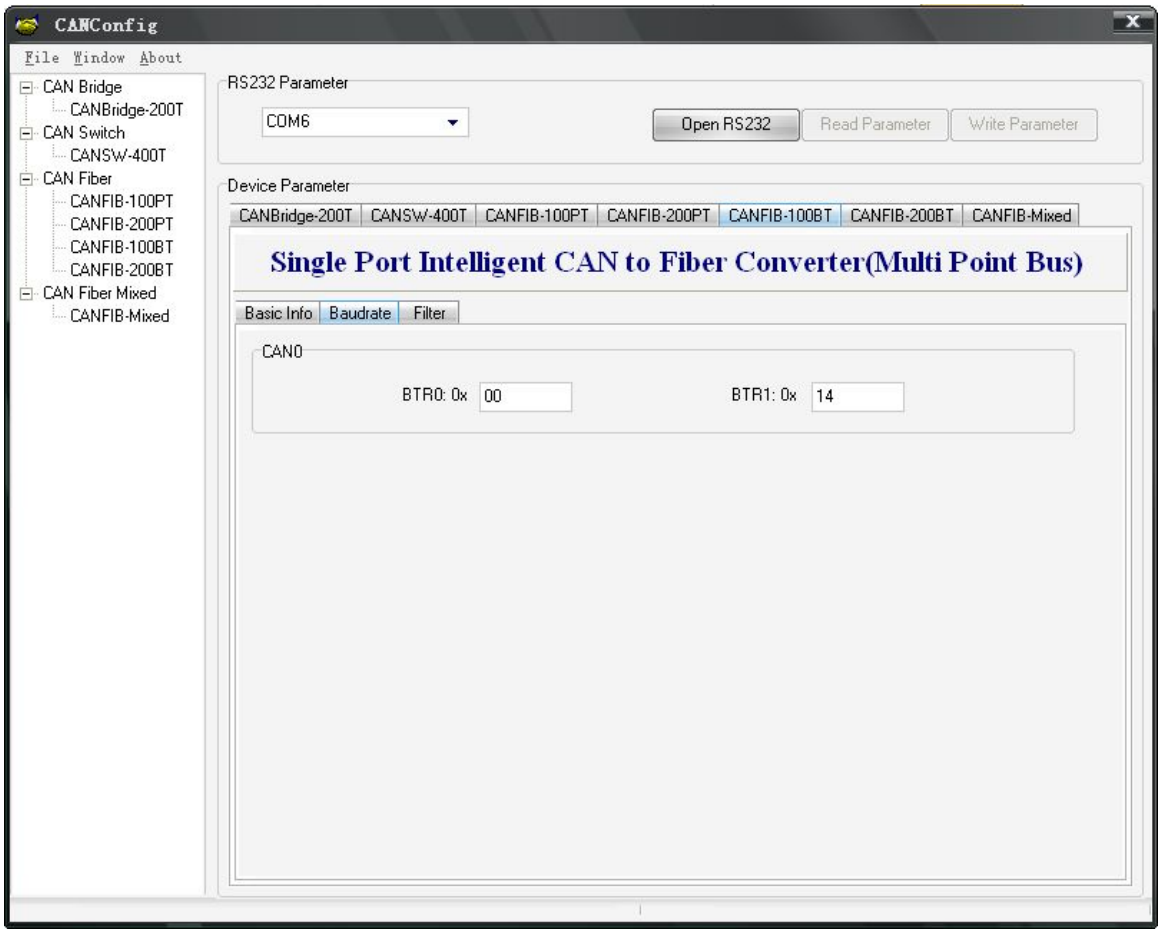
3.Device Parameters

3.1 Basic Info

Click the “Open RS232” and read out all information by clicking “Read Parameter” button.The “Basic info” option contains the vendor ID,device type,device code,hardware version,software version and serial numbers.

3.2 Baudrate

“Baudrate” is for setting up the baud rate of all channels of the device.When the rotary button is switched to”F” position,you can configure the baud rate on it.See the below figure and baud rate table:

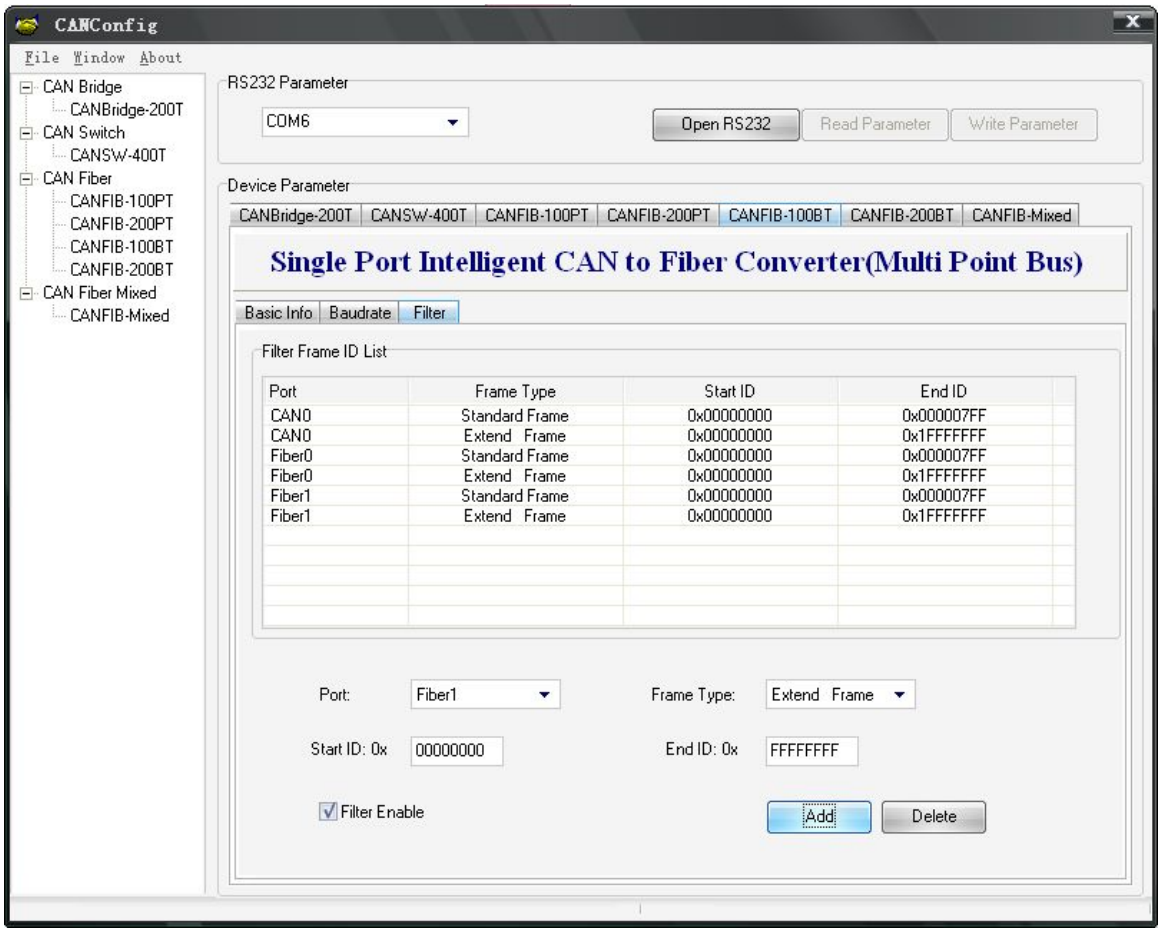


Common standard baud rate's BTR0 and BTR1 values:

CAN Baud rate	BTR0(Time0-SJA1000)	BTR1(Time1-SJA1000)
5Kbps	0xBF	0xFF
10Kbps	0x31	0x1C
20Kbps	0x18	0x1C
40Kbps	0x87	0xFF
50Kbps	0x09	0x1C
80Kbps	0x83	0Xff
100Kbps	0x04	0x1C
125Kbps	0x03	0x1C
200Kbps	0x81	0xFA
250Kbps	0x01	0x1C
400Kbps	0x80	0xFA
500Kbps	0x00	0x1C
666Kbps	0x80	0xB6
800Kbps	0x00	0x16
1000Kbps	0x00	0x14

3.3 Filter

The CAN FIB-100BT has a strong message filter,on “Filter” option button,The user can set up the filter.This function depends on the work condition of the user.



How to use the filter function：

(1) Select “Filter Enable”and you can revise the content of the filter.

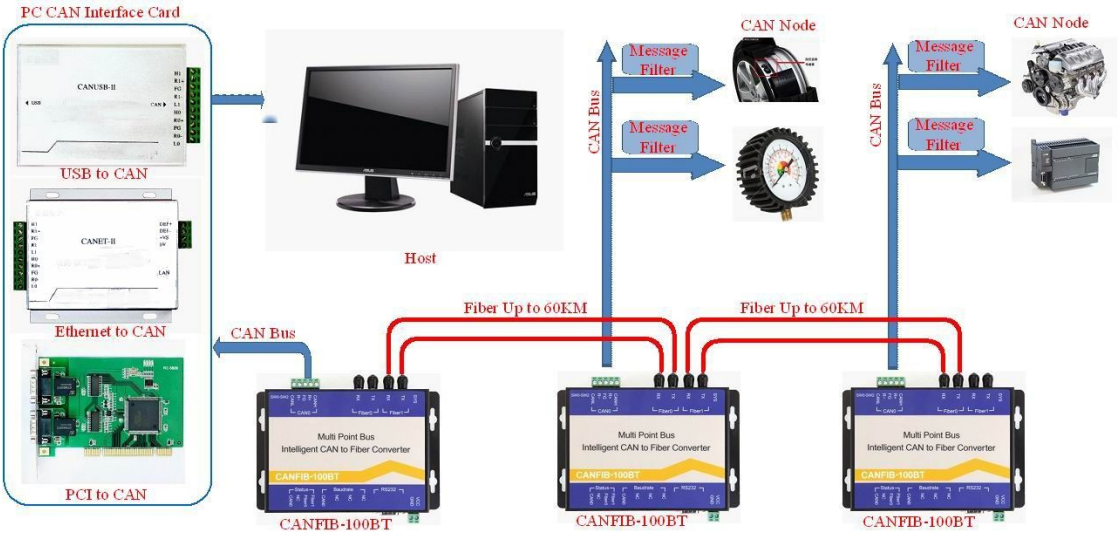
(2) Select the channel that needs filter function from the sub list of “Port”.

(3) Select the frame type(Standard or extended frame types) from the “Frame Type”.

(4) On “Start ID”and “End ID” rows，please fill in the ID of the frame that you want to filter.The standard frame range is 0~2047（0x7FF）and the extended frame range is 0~536870911 (0x1FFFFFFF).

(5)After setting up the frame’s filter parameters,please click “Write Parameter” button and write the router parameters into the device,then it’s valid.

2.5 Install Application



3 Dimensions (mm)