Chapter I Product Introduction

1.1 Overview

UT-8251 is an adapter from USB to CAN equipment. Since it applies USB2.0 protocol and plug and play, the user needs not to install USB drive. The user can connect with CAN profibus via this adapter and conveniently debug profibus equipment, gather and control data by PC computer.

The harsh electrical environment of profibus is fully considered in designing UT-8251. The CAN bus applies independent DCDC power module for optoelectronic isolation to make the port adapter have strong anti-interference capability and not easy to be damaged which can greatly improve utilization reliability of the system in harsh environment. During the design process of the software, we combine the large-capacity data caching technology and real time transport technology to enable the equipment to obtain high data throughput; therefore UT8251 adapter can be widely used in the fields such as the laboratory, industrial control, intelligent building and automotive electronics to carry out data treatment, data gathering, data transmission and control for CAN profibus equipment.

UT-8251 can send and receive data for CAN bus equipment by PC computer software and write their own software according to the DLL dynamic link libraries and routines provided by the manufacturer of UTEK or integrate them into the existed software system. In using this adapter, the user needn't to get familiar with USB protocol and can operate the CAN bus by direct application of the provided interface function.

1.2 Performance index and specification

☆ Conversion from USB2.0 protocol to CAN bus protocol

☆ 1 USB port and 1 CAN channel

☆ Support CAN controller status monitoring

☆ Support CAN2.0A and CAN2.0B protocol, support standard frame and extended frame

☆ Support double-way transmission, CAN sending and CAN receiving

☆ Support data frame, remote frame format

☆ The baud rate of CAN controller is available within 5Kbps~1Mbps, software configuration is available

☆ CAN bus port applies optoelectronic isolation, DC-DC power isolation

☆ The maximum flow is 4000 frame/sec. CAN bus data

☆ Capacity of internal CAN receive buffer is 600Messages (7800 bytes)

☆ The internal send buffer is double buffer structure, providing buffer ability of 800Messages

☆ USB direct power supply, with no need for external power source

☆ Isolation insulation voltage: 2500Vrms

☆ Working temperature: -20~85℃

☆ Working current: <100mA

☆ Shell dimension: 112.5mm*64mm*25mm, metal aluminum

1.3 Typical application

☆ Realize CAN bus network sending and receiving by the USB port of PC or notebook

☆ Fast CAN network data gathering and data analysis

☆ CAN bus—USB gateway

☆ USB port to CAN network port

☆ Extent network communication length of CAN bus

☆ Industrial site CAN network data monitoring

☆ On-site debugging for CAN bus equipment

1.4 Product sales list

One UT-8251 port adapter

One USB connection wire

1 piece of optical disk (two instruction books, equipment specification, testing software and programming manual, CAN bus communication testing software and routine DLL and IB development files and CAN bus relevant data, etc.)

# Chapter II Appearance and Port Description

2.1 Product appearance

2.2 Port description

Pin	Pin description	Pin definition
1	CANH	Information connecting terminal
2	CANL	Information connecting terminal
3	RES-	Distribution resistance terminal first
4	RES+	Distribution resistance terminal second
5	RST	Reset
6	GND	Signal line
7	SET	Set

2.3 Indicator light description

Indicator light	Color	Function	Description
PWR	Red	Working power supply	Light on mean that the power of converter works normally
TXD	Green	CAN CAN sending	Light flashes mean that the CAN equipment is sending data to profibus
RXD	Yellow	CAN CAN receiving	Light flashes mean that the CAN equipment is receiving data from profibus

2.4 CAN bus connection
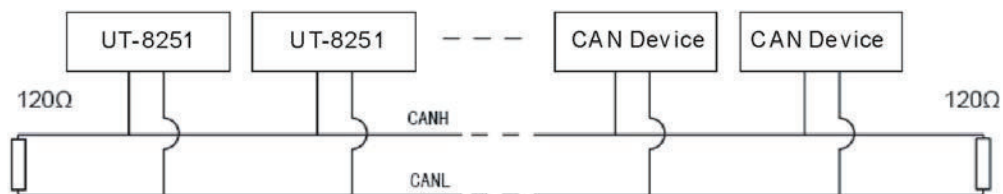
CAN equipment   CAN equipment

When the UT-8251 converter connects with CAN bus, the CANL connects with CANL and CANH connects with CANH. According to ISO 11898 norms, in order to enhance reliability of CAN-bus communication, the terminal matched resistance (120Ω) shall be usually be added at the two terminals of CAN-bus network, as indicated above. The magnitude of terminal matched resistance is determined by the characteristic impedance of transmission cable, for example, the characteristic impedance of twisted pair is 120Ω, and then the two terminals of profibus shall integrate 120Ω terminal resistance.

The internal circuit of UT-8251 converter integrates 120Ω terminal resistance. When the UT-8251 converter is used as terminal equipment, the user can connect the internal terminal resistance by short circuit at the CAN port of UT-8251 converter, i.e. between pin 3 "Res-" and pin 4 "Res＋".

The twisted pair and shield twisted pair can be used as CAN communication wire. If the communication distance surpasses 1KM, the section area of the wire shall be ensured to surpass

1.0mm^2. The specific specification shall be determined as per distance. Normally, it shall be increased as the distance lengthens.

2.5 Default setting

Ex-factory default: CAN baud rate is 100Kbit/s and the mask code is 00000000, without mask bit. Receiving CANID is 00000001. When it starts up, CAN receiving interrupt is closed. It's in ordinary working mode, not testing mode.

The setting of CANID is right alignment.