I-2533CS-FD-UL series

CAN/CAN FD to Single-mode Fiber Bridge

Features

- Compatible with the ISO 11898-2 standard
- Compatible with CAN specification 2.0 A/B and FD
- CAN FD support for ISO and Non-ISO (Bosch) standards switchable
- CAN FD bit rates for data field from 100 kbps to 10000 kbps
- CAN bit rates from 10 kbps to 1000 kbps
- Fiber broken line detection
- Support CAN Bus message filter configuration
- Support firmware update via USB
- Basic CAN message routing function via Group ID settings
- Built-in switchable 120 ohm terminal resistor for CAN Bus

Introduction

The I-2533CS-FD-UL series is a local CAN/CAN FD (CAN with Flexible Data-Rate) bridge used to establish a connection between two CAN bus system via single mode fiber optic transmission medium. In order to solve the problem between CAN/CAN FD and fiber transmission medium, the I-2533CS-FD-UL series is specially designed for converting the electrical CAN/CAN FD bus signal to fiber optic cables. Besides, I-2533CS-FD-UL series has three more important features. First, the transmission distance limitation of the CAN bus system will not affected due to the different CAN/CAN FD baud rate. It means that the total CAN/CAN FD bus working distance can be extended. Second, the bus error on one CAN/CAN FD network will not affect the operation of another CAN/CAN FD network. Finally, the two CAN/CAN FD network can communication with each other by using different CAN/CAN FD baud rate for highly flexibility.

The I-2533CS-FD-UL series modules have obtained UL certification, meeting strict safety standards including fire resistance, electric shock protection, and durability requirements. This ensures stability and safety across various usage environments, providing consumers with reliable quality assurance. The UTA version uses conformal coating technology that offers excellent resistance to moisture and salt spray, making it particularly suitable for coastal and high-humidity environments.

Specifications

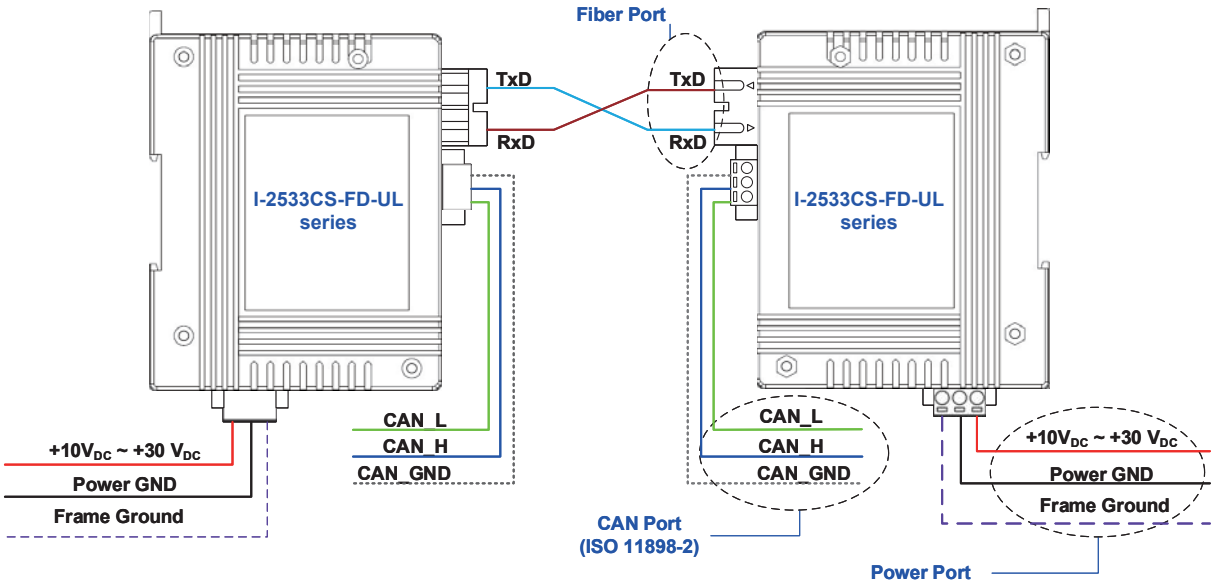
CAN Interface	
Transceiver	TI TCAN1042HG
Channel Number	1
Connector	3-pin terminal-block connector
Transmission Speed	CAN bit rates: 10 ~ 1000 kbps, CAN FD bit rates for data field: 100 k ~ 10M bps
Terminal Resistor	DIP switch for the 120 Ω terminal resistor
Isolation	3000 VDC for DC-to-DC, 2500 Vrms for photocoupler
Specification	ISO 11898-2, CAN 2.0 A/B and FD
CAN Filter Configuration	Selectable via Utility tool
Receive Buffer	128 data frames
Fiber Interface	
Type	SC type ; Single mode ; 100 Base-FX
Wave Length (nm)	1310
Fiber Cable (μm)	8.3/125, 8.7/125, 9/125 or 10/125
Transmission Distance (km)	30 (theoretical value)
Min. TX Output (dBm)	-15
Max. TX Output (dBm)	-8
Max. RX Sensitivity (dBm)	-34
Max. RX Overload (dBm)	-5
Budget (dBm)	19

USB Interface	
Connector	1 x USB (Mini-B)
Compatibility	USB 2.0 High Speed (480Mbps)
Software Driver	Built-in Windows 7/8.1/10
LED	
Round LED	PWR, FB_Ack, FB_Err, CAN_Err, CAN_Tx and CAN_Rx LEDs
Power	
Power supply	Unregulated +10 ~ +30 VDC
Protection	Power reverse polarity protection, Over-voltage brown-out protection
Power Consumption	0.125A @ 24VDC
Mechanism	
Installation	DIN-Rail
Dimensions	33.0 mm x 127 mm x 101 mm (W x L x H)
Environment	
Operating Temp.	I-2533CS-FD-UL: -25 ~ 70 °C I-2533CS-FD-UL-UTA: -40 ~ 70 °C
Storage Temp.	-30 ~ 80 °C
Humidity	10 ~ 90% RH, non-condensing

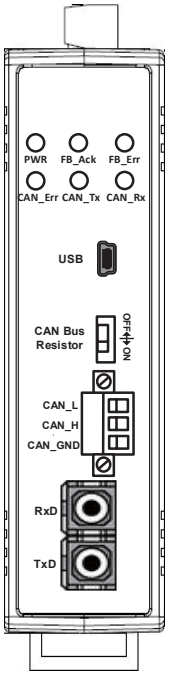
Attention:

The maximum CAN FD data rate can be exceeded depending on the concrete operating conditions (cable length, network topology, settings,...), but it can also not be reached.

Wire Connections

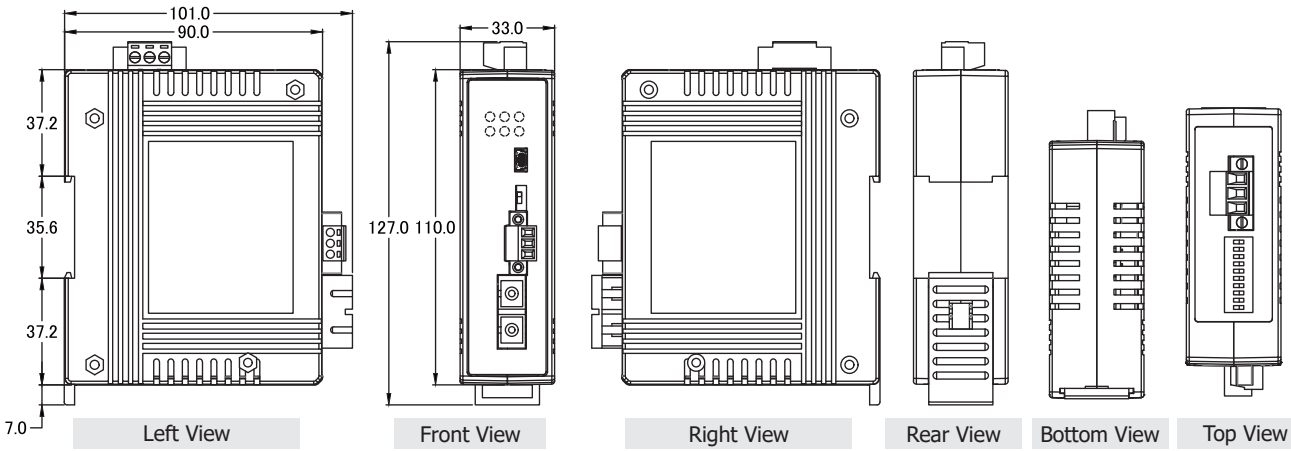


Pin Assignments

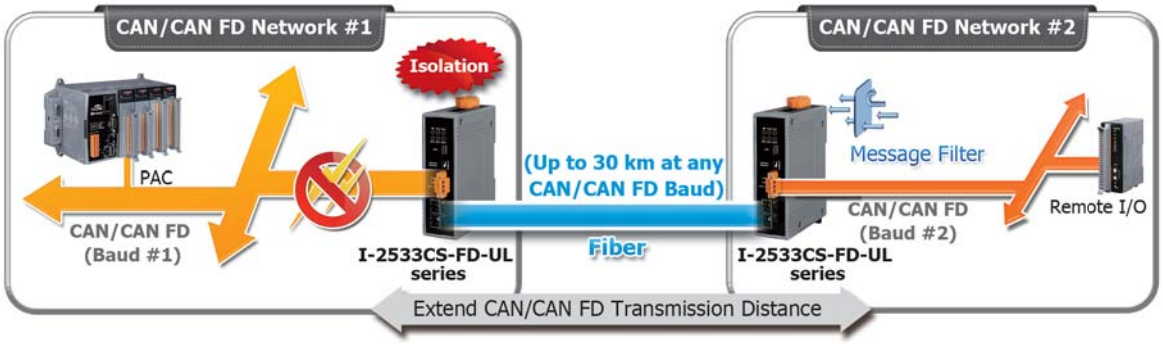


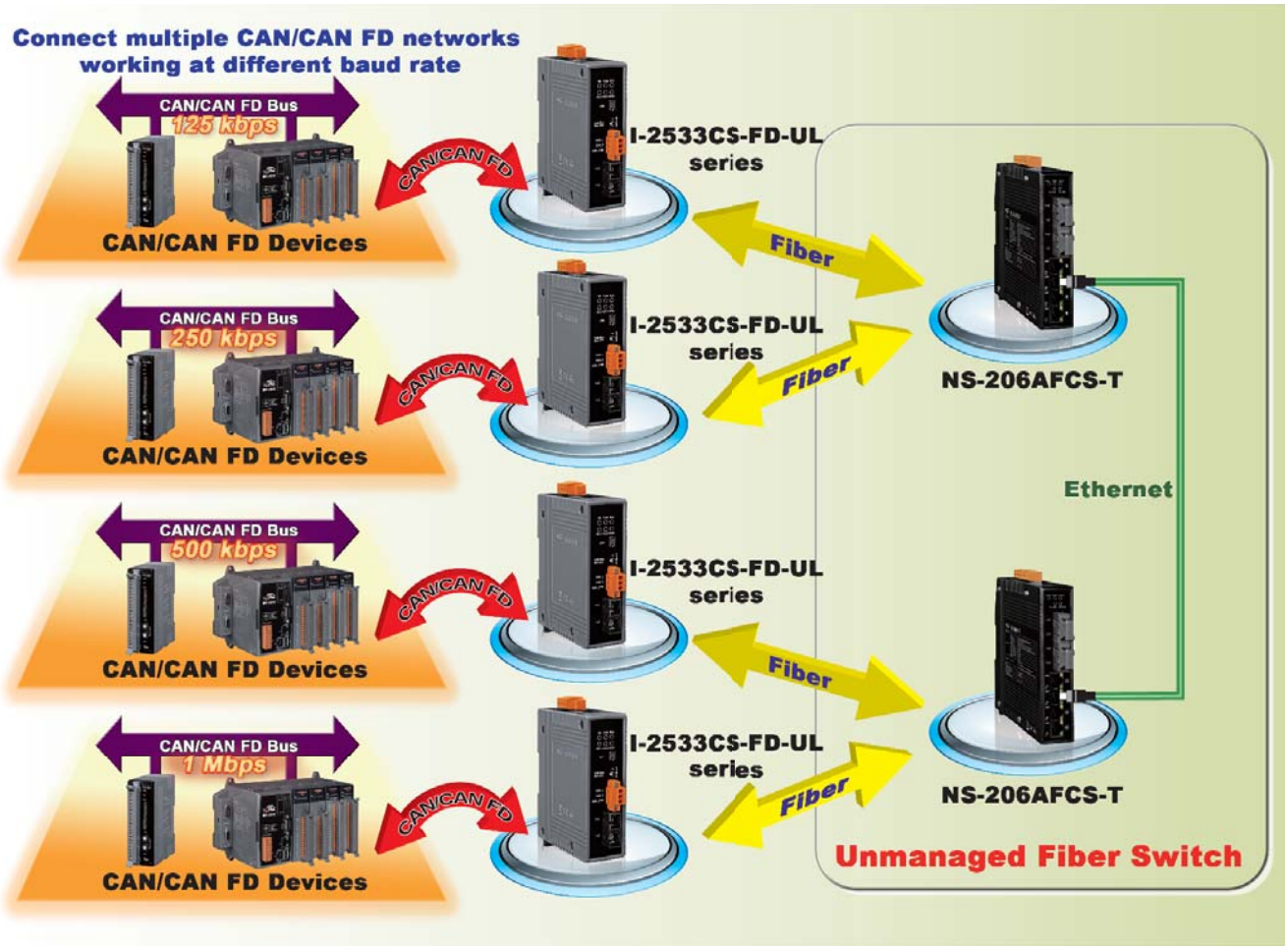
Pin. No.	Meaning
USB	Used for configuration utility
CAN_L	CAN_L pin of CAN bus
CAN_H	CAN_H pin of CAN bus
CAN_GND	CAN_GND pin of CAN bus
RxD	Fiber RxD port
TxD	Fiber TxD port

Dimensions (Units: mm)



Applications





Ordering Information

I-2533CS-FD-UL CR	CAN/CAN FD to Single-mode Fiber Bridge ; 1 (30 km) single-mode, SC connector (RoHS)
I-2533CS-FD-UL-UTA CR	CAN/CAN FD to Single-mode Fiber Bridge ; 1 (30 km) single-mode, SC connector (RoHS) (-40°C Operating Temperature)