



I-2542 Series User Manual

RS-232/422/485 to Single-Mode
Fiber Optic Converter

V1.1, June 2025



Support

I-2542-A/I-2542-B

I-2542-A25/I-2542-B25

Warranty

All products manufactured by ICP DAS are warranted against defective materials for a period of one year from the date of delivery to the original purchaser.

Warning

ICP DAS assumes no liability for damages consequent to the use of this product. ICP DAS reserves the right to change this manual at any time without notice. The information furnished by ICP DAS is believed to be accurate and reliable. However, no responsibility is assumed by ICP DAS for its use, nor for any infringements of patents or other rights of third parties resulting from its use.

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1. Introduction

The I-2542-A/I-2542-B & I-2542-A25/I-2542-B25 series of single-strand fiber converters supports Wavelength Division Multiplexing (WDM) technology that allows two independent data communication channels to transmit and receive over one standard, single mode and fiber optic line. This not only doubles your existing bandwidth, but also effectively reduces the cost of creating a new fiber optic infrastructure.

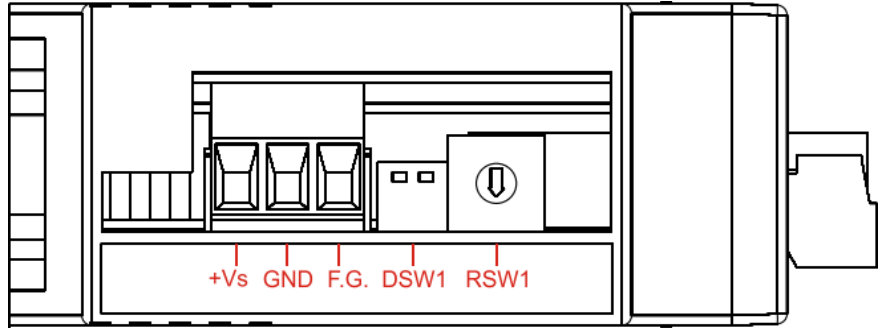
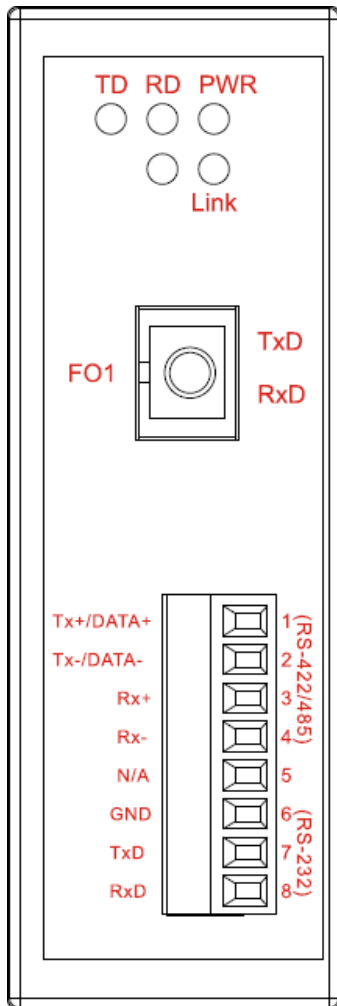
The I-2542-A/I-2542-B & I-2542-A25/I-2542-B25 series are designed for RS-232/422 point-to-point connections and RS-485 multi-drop applications which require a signal to be transmitted for distances of up to 15 km & 25 km, and is a perfect solution in applications where transmission must be protected from electrical exposure, power surges, lightning strikes or chemical corrosion.

Specifications

- Fiber Port: SC Connector (Single-mode).
- Wavelength: TX: 1310, RX: 1550 nm for I-2542-A & I-2542-A25,
TX: 1550, RX: 1310 nm for I-2542-B & I-2542-B25.
- Fiber Cable: 8.3/125, 8.7/125, 9/125 or 10/125 μm .
- Transmission Distance: 15 km for I-2542-A & I-2542-B
25km for I-2542-A25 & I-2542-B25
(9/125 μm recommended).
- RS-422/485 Transfer Distance: Max. 1,200 m @ 9.6 kbps; Max. 400 m @ 115.2 kbps.
- Speed: Fixed baud rate setting via rotary switch, 1200 ~ 115200 bps.
- Provides LEDs for network and power monitoring.
- DIN-Rail, Wall mount for industrial usage.
- Flammability: Fire Retardant Materials (UL94-V0 Level)
- Dimensions (W x H x D): 33 mm x 89 mm x 107 mm.
- Operating Temperature: -25 ~ +75 $^{\circ}\text{C}$.
- Power requirements: Unregulated +10 ~ +30 VDC.
- Power consumption: 2 W max.
- ESD Protection:
 - 4 kV Contact Discharge
 - 8 kV Air-Gap Discharge

2. Unit Configuration

Connectors



RS-232/422/485 Converter connection

Serial communication	
RS-232	TxD, RxD, GND
RS-422	TxD+, TxD-, RxD+, RxD-
RS-485	Data+, Data-
Baud Rate	1200 ~ 115200 bps

LED Indicators

The TD/RD LED will flash when the unit is transmitting or receiving data.

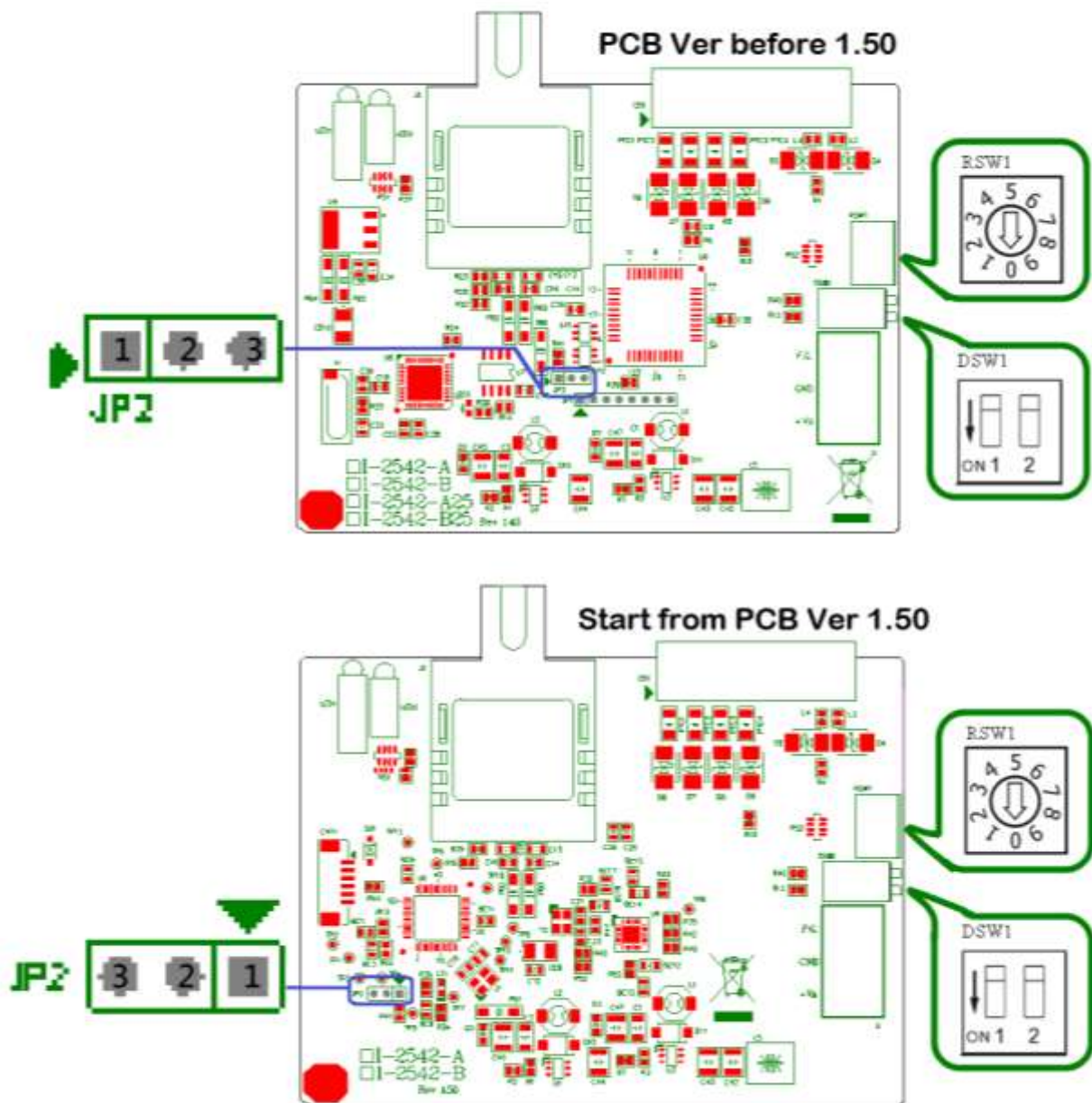
LED	Status	Color	Description
PWR	Power status	Red	LED will be ON solid when the power is On.
TD	Transit Data	Green	LED will flash when the unit is being sent out.
RD	Receive Data	Orange	LED will flash when the unit is being received data.
Link	Cable Link	Green	LED will be ON when the Fiber Cable connects each other.

Selecting the I-2542-A/I-2542-B & I-2542-A25/I-2542-B25

Data Formats: Fixed bud rate mode





DSW1 and **JP2** control the data format. Data can be 9, 10, 11 or 12 bits. The factory default is 10 bits: one start bit, eight data bits, no parity bit and one stop bit. The option of changing to 9, 11 or 12 bits is for use with other modules (other than I-7000 series modules) that have different data formats. Should you change the data format, be aware that you will have to change the data format settings on all the other modules in the network.

Example of Adjustable parts:



JP2 and DSW1 Setting

Please re-plug power of I-2542 after changing the jumper.

Data Format	DSW1		JP2 (Before PCB Ver 1.50)	JP2 (Start from PCB Ver 1.50)
	1=ON	2=ON		
N.7.1	1=ON	2=ON	 <p>Default Position</p>	 <p>Default Position</p>
N.8.1	1=ON	2=OFF		
E.8.1	1=OFF	2=ON		
E.8.2	1=OFF	2=OFF		
O.8.1	1=OFF	2=ON		
O.8.2	1=OFF	2=OFF		

RSW1 Setting

Band Rate Setting (RSW1)	
0=1200 bps	4=19200 bps
1=2400 bps	5=38400 bps
2=4800 bps	6=57600 bps
3=9600 bps	7=115200 bps

3. Network Connection

Important note: RS-232/485/422 protocols cannot be used simultaneously.

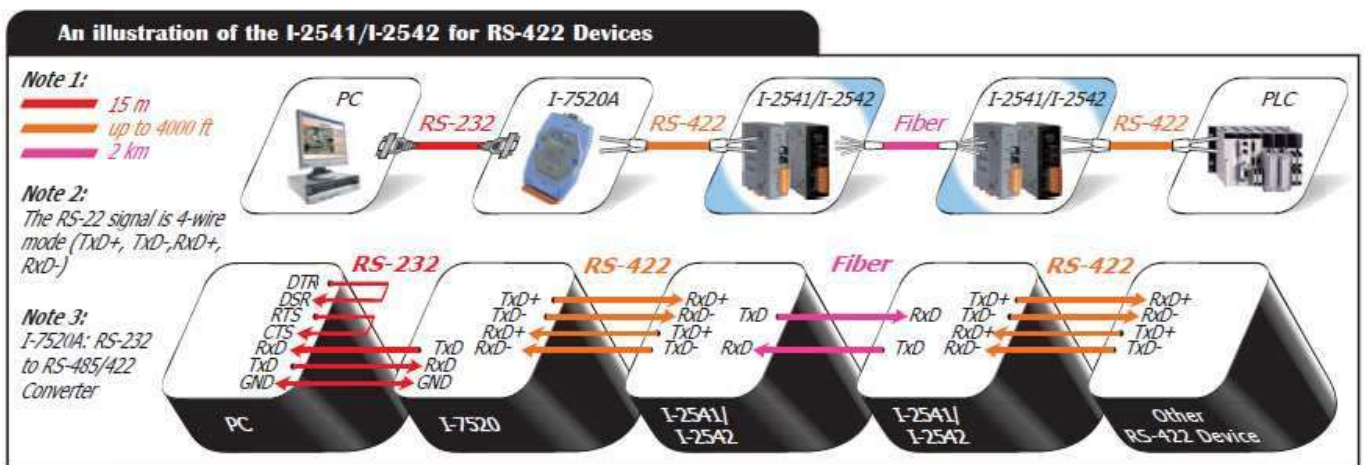
The RS-485 pin assignment of the I-2542-A/I-2542-B & I-2542-A25/I-2542-B25

Terminal Number	TxD	RxD	1	2	3	4	5	6	7	8
Pin Name	Fiber TxD	Fiber RxD	DATA+	DATA-	—	—	—	—	—	—



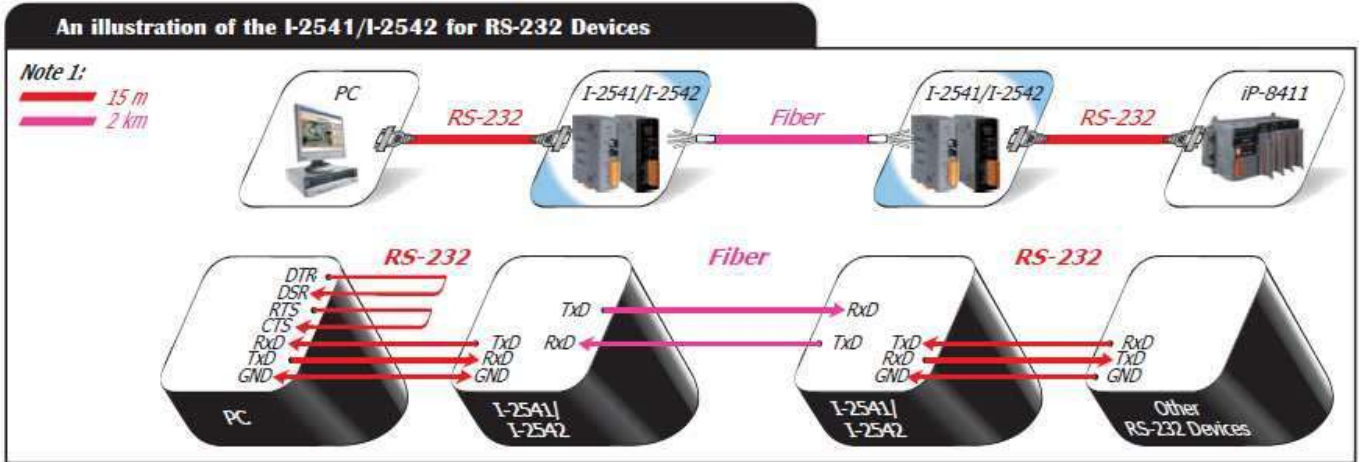
The RS-422 pin assignment of the I-2542-A/I-2542-B & I-2542-A25/I-2542-B25

Terminal Number	TxD	RxD	1	2	3	4	5	6	7	8
Pin Name	Fiber TxD	Fiber RxD	Tx+	Tx-	Rx+	Rx-	—	—	—	—



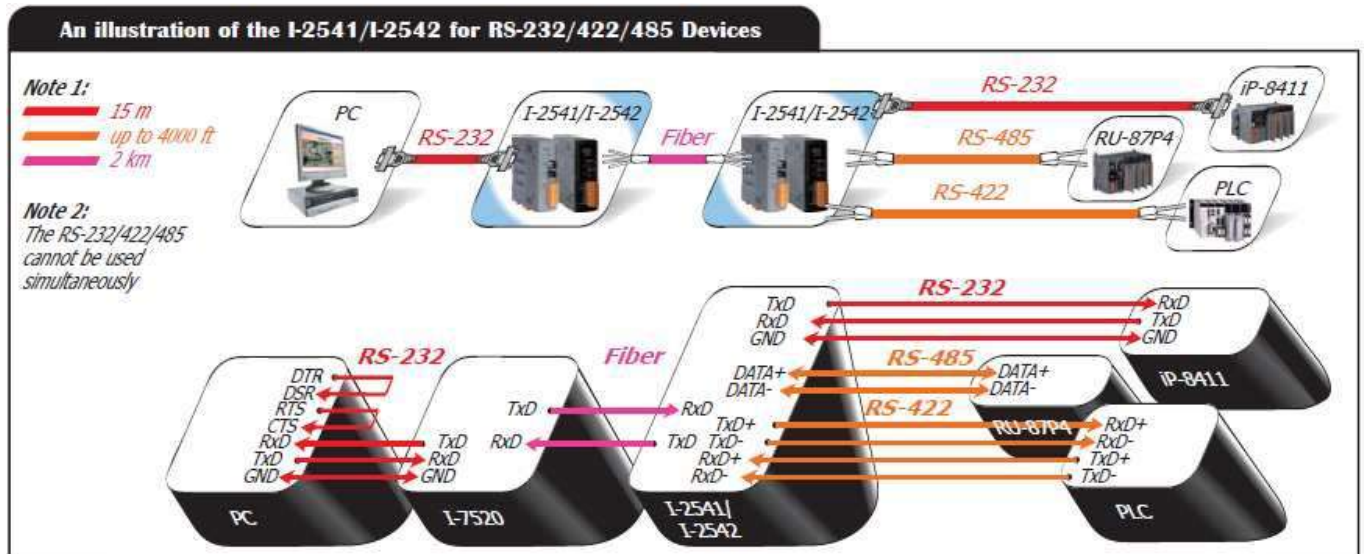
The RS-232 pin assignment of the I-2542-A/I-2542-B & I-2542-A25/I-2542-B25

Terminal Number	TxD	RxD	1	2	3	4	5	6	7	8
Pin Name	Fiber TxD	Fiber RxD	—	—	—	—	—	GND	TxD	RxD



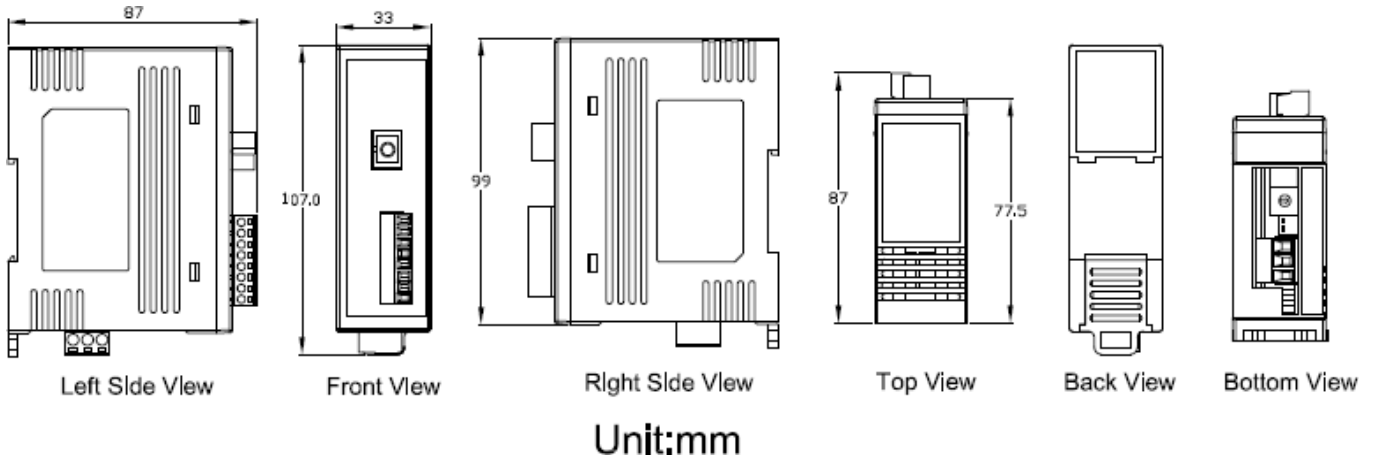
All pin assignments for the I-2542-A/I-2542-B & I-2542-A25/I-2542-B25

Terminal Number	TxD	RxD	1	2	3	4	5	6	7	8
Pin Name	Fiber TxD	Fiber RxD	Tx+ DATA+	Tx- DATA-	Rx+	Rx-	NC	GND	TxD	RxD



Note: RS-232/485/422 protocols cannot be used simultaneously.

4. Dimensions (Unit:mm)



Ordering Information

I-2542-A CR	RS-232/422/485 to Single-Mode 15 km, SC Fiber optic converter, TX 1310 nm, RX 1550 nm (RoHs)
I-2542-B CR	RS-232/422/485 to Single-Mode 15 km, SC Fiber optic converter, TX 1550 nm, RX 1310 nm (RoHs)
I-2542-A25 CR	RS-232/422/485 to Single-Mode 25 km, SC Fiber optic converter, TX 1310 nm, RX 1550 nm (RoHs)
I-2542-B25 CR	RS-232/422/485 to Single-Mode 25 km, SC Fiber optic converter, TX 1550 nm, RX 1310 nm (RoHs)

Important Note:

You must purchase both I-2542-A and I-2542-B or I-2542-A25 and I-2542-B25 since these products work as a pair.

Accessories

GPSU06U-6	24 VDC/0.25 A, 6 W Power Supply
GST25A24-DA1-DIN	24 VDC/1.04 A, 25 W Power Supply with DIN-Rail , Wall mount