

## 4.2. RS-422/485 Repeater



### I-7510/I-7510A/I-7510AR

I-7510: Isolated RS-485 Repeater  
 I-7510A: Isolated RS-422/485 Repeater/Converter  
 I-7510AR: Three Way Isolated RS-422/485 Repeater/Converter

#### Features

- Auto Switching Baud Rate, 300 – 115200 bps
- 2-way 3000 V<sub>DC</sub> Isolation Protection for I-7510/I-7510A
- 3-way 3000 V<sub>DC</sub> Isolation Protection for I-7510AR
- ESD Protection for RS-485 Data Line
- Transmission Speed of up to 115200 bps
- Power Input of +10 – +30 V<sub>DC</sub>
- Supports Operating Temperatures from -25 °C – +75 °C
- DIN-Rail



#### Introduction

The I-7510/I-7510A provides 2-way optical isolation between one piece of RS-422/RS-485 equipment and the rest of the system. It can also be used as a repeater to extend the transmission of an existing network. Additionally, an RS-485 system can be expanded beyond the 256 node limitation imposed by the standard. It can also be used to convert a four-wire RS-422 signal into a 2-wire RS-485 signal, and vice versa.

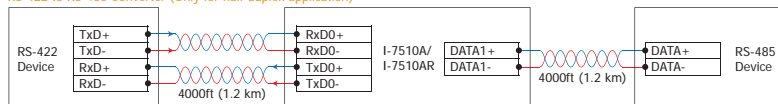
The I-7510AR is exactly the same as the I-7510A, except for the isolation site. The isolation site of the I-7510A is located in the input interface circuit, but the isolation site of the I-7510AR is located in the input and output interface circuit. In other words the I-7510AR is 3-way isolation repeater module.

#### Specifications

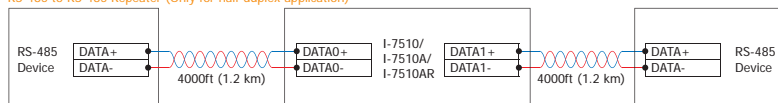
Models	I-7510	I-7510A	I-7510AR
<b>Interface</b>			
Serial Interface	RS-422	-	TxD+, TxD-, RxD+, RxD- The RS-422 and RS-485 cannot be used simultaneously
	RS-485	Data+, Data-	
2-wire Cabling/4-wire Cabling	Belden 8941 (2P twisted-pair cable)/Belden 8942 (4P twisted-pair cable), if different cables are used, the transmission distance may change		
Transfer Distance	Max. 1,200 m at 9.6 kbps; Max. 400 m at 115.2 kbps		
Max. Devices Supported	256		
Self-Tuner ASIC Inside	Yes		
Speed	300 – 115200 bps		
ESD Protection	Yes		
3000 V <sub>DC</sub> Isolated Voltage	2-way Isolated		3-way Isolated
Connection	Removable 10-Pin Terminal Block x 2		
<b>LED Indicators</b>			
Power/Communication	Yes		
<b>Power</b>			
Input Voltage Range	+10 V <sub>DC</sub> – +30 V <sub>DC</sub> (Non-isolated)		
Power Consumption	2.16 W		
<b>Mechanical</b>			
Casing	Plastic		
Flammability	Fire Retardant Materials (UL94-V0 Level)		
Dimensions (W x H x D)	72 mm x 122 mm x 35 mm		
Installation	DIN-Rail		
<b>Environment</b>			
Operating Temperature	-25 °C – +75 °C		
Storage Temperature	-30 °C – +75 °C		
Humidity	10 – 90% RH, non-condensing		

**Applications**

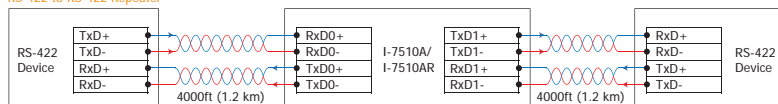
RS-422 to RS-485 Converter (Only for half duplex application)



RS-485 to RS-485 Repeater (Only for half duplex application)



RS-422 to RS-422 Repeater



**Pin Assignments**

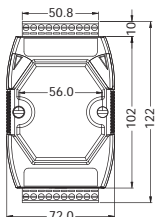


I-7510			
Terminal No.	Pin Assignment	Terminal No.	Pin Assignment
01	DATA+	20	DATA1+
02	DATA-	19	DATA1-
03	--	18	--
04	--	17	--
05	--	16	--
06	--	15	--
07	--	14	--
08	--	13	--
09	(R)+Vs	12	--
10	(B)GND	11	--

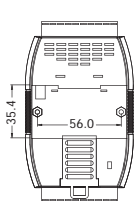
I-7510A   I-7510AR		
Terminal No.	Pin Assignment	Pin Assignment
RS-485	01 DATA0+	DATA0+
	02 DATA0-	DATA0-
	03 --	--
RS-422	04 RxDO+	TxD0+
	05 RxDO-	TxD0-
	06 TxDO+	RxD0+
	07 TxDO-	RxD0-
08	--	--
09	(R)+Vs	(R)+Vs
10	(B)GND	(B)GND

I-7510A/7510AR	
Terminal No.	Pin Assignment
RS-485	20 DATA1+
	19 DATA1-
	18 --
RS-422	17 TxD1+
	16 TxD1-
	15 RxD1+
	14 RxD1-
13	--
12	--
11	--

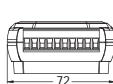
**Dimensions (Unit: mm)**



Front View



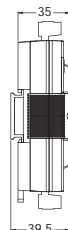
Back View



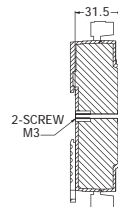
Top View



Bottom View



Din-Rail Mounting Bracket



Side View

**Ordering Information**

I-7510 CR	Isolated RS-485 Repeater (RoHS)
I-7510A CR	Isolated RS-422/485 Repeater/Converter (RoHS)
I-7510AR CR	Three Way Isolated RS-422/485 Repeater/Converter (RoHS)

**Accessories**

GPSU06U-6	24 Vdc/0.25 A, 6 W Power Supply
DIN-KA52F	24 Vdc/1.04 A, 25 W Power Supply with Din-Rail Mounting