

Converters, Repeaters and Hubs

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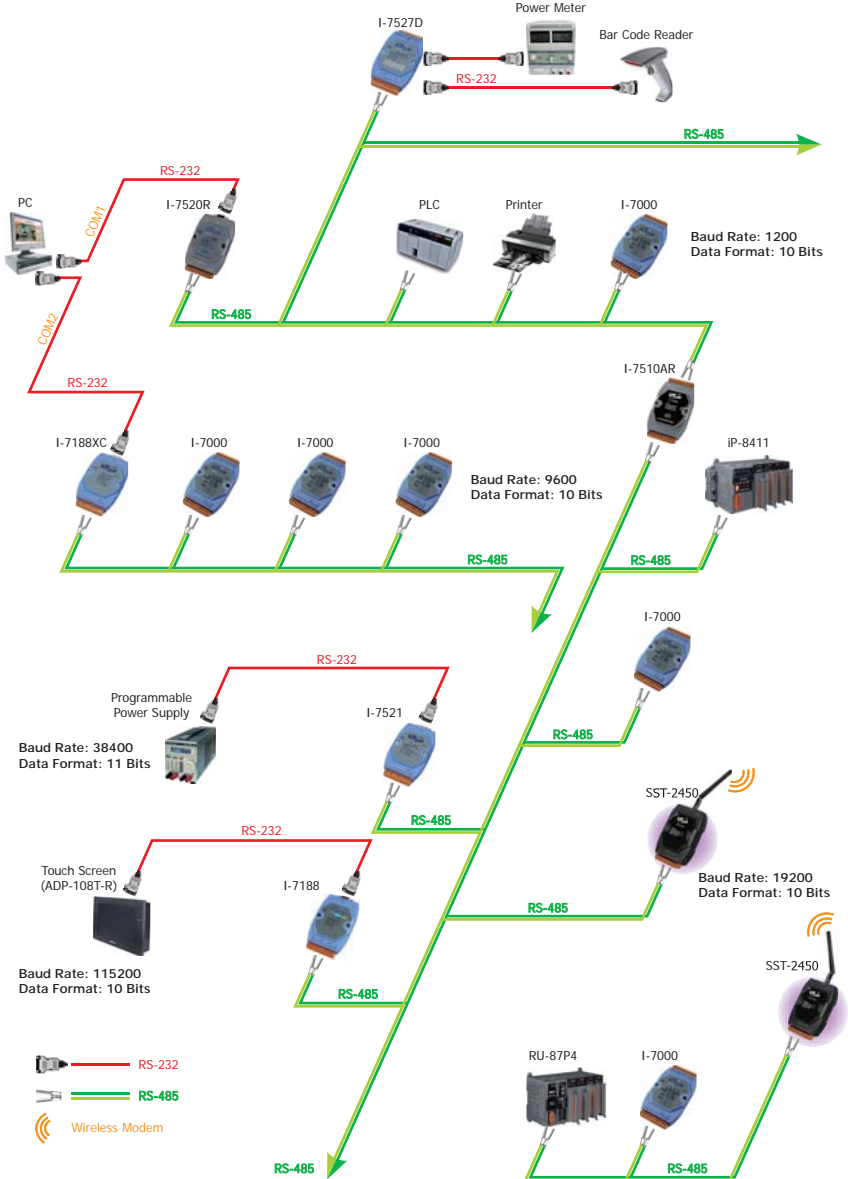
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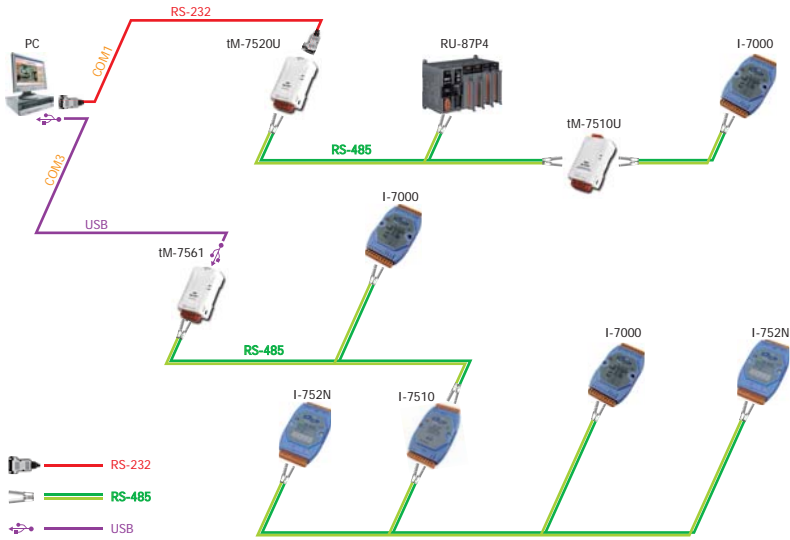
4.1. RS-485 Network Configuration

ICP DAS Self-tuner ASIC Features:

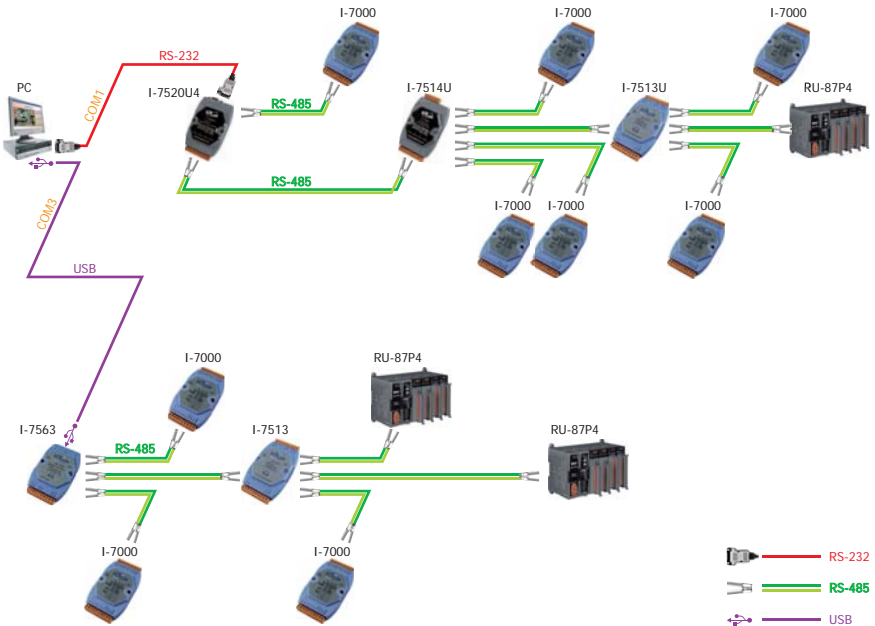
- ◆ Supports Multiple Baud Rate
- ◆ Supports Multiple Data Format
- ◆ Automatic RS-485 Direction Control



Bus Type



Star Type



4.2. RS-422/485 Repeaters



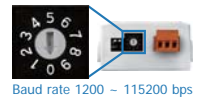
Features

- 2-way 2500 V_{DC} Isolation Protection
- Power and data flow indicator for troubleshooting
- ESD Protection for RS-485 Data Line
- Easy-to-use rotary switch for baud rate setting, 1200 – 115200 bps
- Power Input, +10 – +30 V_{DC}
- Operating Temperatures, -25 °C – +75 °C
- Low power consumption
- Tiny packaging fits on your DIN-Rail
- Cost-effective Repeater

Introduction

The tM-7510U repeater simply amplifies, or boosts, existing RS-485 signals to enable them to cover longer distances. It extends the communication distance by 4000 ft. (1200 m) or increases the maximum number of bus nodes. The module provides 2500 V_{DC} of isolation allowing you to separate and protect critical segments of the system from the rest of the RS-485 network.

The tM-7510U provides a rotary switch that allows easy and quick configuration of baud rate from 1,200 to 115,200 bps without the need to open the case. The fixed baud rate design offers a better quality for data transmission over long or lossy lines or electrically noisy environments.



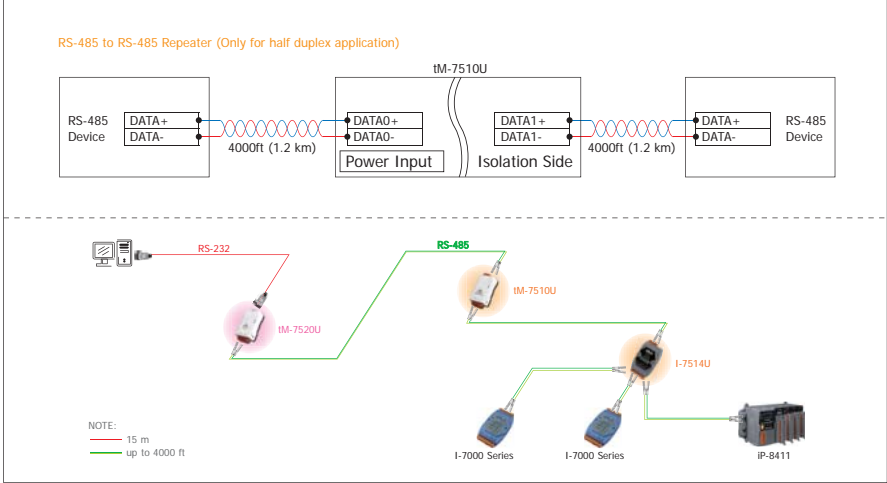
Comparison Table of Repeater

Mode name	tM-7510U	I-7510
RS-485 Direction Control	Fixed baud rate setting	Automatic RS-485 Direction Control (Self-Tuner)
Baud rate	1200 – 115200 bps	300 – 115200 bps
Dimensions (W x H x D)	52 mm x 95 mm x 27 mm	72 mm x 122 mm x 35 mm
Remarks	Cost-effective	Entry-level

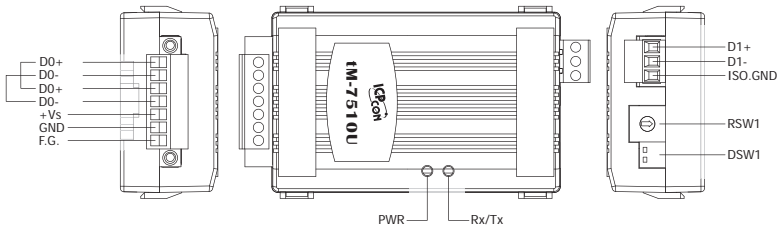
Specifications

Interface		
Serial Interface	RS-485	Data+, Data-
2-wire Cabling	Belden 8941 (2P 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	
2500 V _{DC} Isolated Voltage	2-way Isolated	
Connection	Removable 7-Pin Terminal Block x 1; Removable 3-Pin Terminal Block x 1	
LED Indicators		
Power/Communication	Yes	
Power		
Input Voltage Range	+10 V _{DC} – +30 V _{DC} (Non-isolated)	
Power Consumption	0.6 W	
Environment		
Operating Temperature	-25 °C – +75 °C	
Storage Temperature	-30 °C – +75 °C	
Humidity	10 – 90% RH, non-condensing	

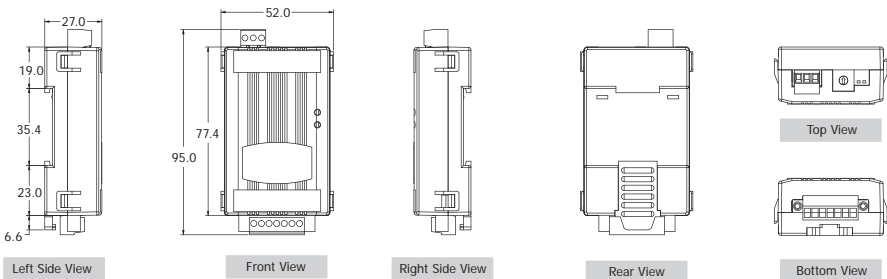
Applications



Pin Assignments



Dimensions (Unit: mm)



Ordering Information

TM-7510U CR	Isolated RS-485 Repeater (RoHS)
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Accessories

GPSU06U-6	24 V _{DC} /0.25 A, 6 W Power Supply
DIN-KA52F	24 V _{DC} /1.04 A, 25 W Power Supply with Din-Rail Mounting



Features

- Automatic RS-485 Direction Control
- 2-way 3000 V_{oc} Isolation Protection for I-7510/I-7510A
- 3-way 3000 V_{oc} Isolation Protection for I-7510AR
- ESD Protection for RS-485 Data Line
- Transmission Speed of up to 115200 bps
- Power Input, +10 ~ +30 V_{oc}
- Operating Temperatures, -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.

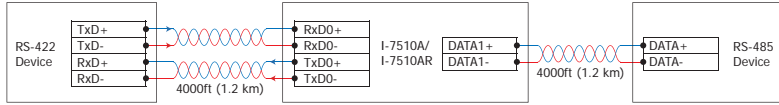
The I-7510AR is exactly the same as the I-7510A, except for the isolation site. The isolation site of the I-7510A is located in the input interface circuit, but the isolation site of the I-7510AR is located in the input and output interface circuit. In other words the I-7510AR is 3-way isolation repeater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

Specifications

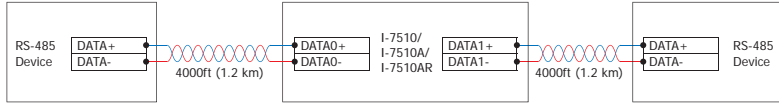
Models		I-7510	I-7510A	I-7510AR
Interface				
Serial Interface	RS-422	-	TxD+, TxD-, RxD+, RxD-	The RS-422 and RS-485 cannot be used simultaneously
	RS-485	Data+, Data-		
2-wire Cabling/4-wire Cabling		Belden 8941 (2P twisted-pair cable)/Belden 8942 (4P twisted-pair cable), if different cables are used, 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 _{oc} Isolated Voltage		2-way Isolated		3-way Isolated
Connection		Removable 10-Pin Terminal Block x 2		
LED Indicators				
Power/Communication		Yes		
Power				
Input Voltage Range		+10 V _{oc} ~ +30 V _{oc} (Non-isolated)		
Power Consumption		2.16 W		
Mechanical				
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		
Environment				
Operating Temperature		-25 °C ~ +75 °C		
Storage Temperature		-30 °C ~ +75 °C		
Humidity		10 ~ 90% RH, non-condensing		

Applications

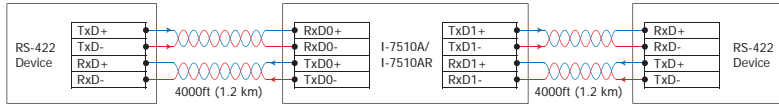
RS-422 to RS-485 Converter (Only for half duplex application)



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



RS-422 to RS-422 Repeater



Pin Assignments

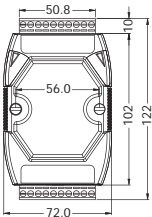


I-7510			
Terminal No.	Pin Assignment	Terminal No.	Pin Assignment
01	DATA+	20	DATA1+
02	DATA-	19	DATA1-
03	--	18	--
04	--	17	--
05	--	16	--
06	--	15	--
07	--	14	--
08	--	13	--
09	(R)+Vs	12	--
10	(B)GND	11	--

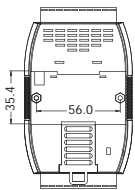
I-7510A | I-7510AR		
Terminal No.	Pin Assignment	Pin Assignment
RS-485	01 DATA+	DATA+
	02 DATA-	DATA-
	03 --	--
RS-422	04 RxDO+	TxD0+
	05 RxDO-	TxD0-
	06 TxDO+	RxD0+
	07 TxDO-	RxD0-
08	--	--
09	(R)+Vs	(R)+Vs
10	(B)GND	(B)GND

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	--

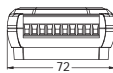
Dimensions (Unit: mm)



Front View



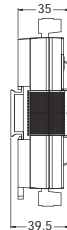
Rear View



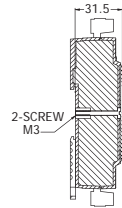
Top View



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

4.3 RS-485 Star Wiring Hub



Features

- True RS-485 Star Wiring Hub
- Independent RS-485 driver for each channel
- Power and data flow indicator for troubleshooting
- Automatic RS-485 Direction Control
- Easy-to-use rotary switch for fixed baud rate setting, 1200 ~ 115200 bps
- 120 Ω termination resistor for each channel
- Power Input, +10 ~ +30 V_{DC}
- Operating Temperatures, -25 °C ~ +75 °C
- DIN-Rail



Introduction

RS-485 Active Hub

The I-7514U is a 4-ch RS-485 active star wiring hub, it has 4 independent RS-485 output channels and one RS-485 input channel. Each output channel is equipped with an individual driver. The data from a master to the input channel will simultaneously be forwarded to all the four output channels.

Baud Rate Setting

The I-7514U provides 2 modes of baud rate setting, one is Self-Tuner mode and the other is fixed baud rate mode. The Self-Tuner mode can support Multiple Baud Rate and Multiple Data Format. The Self-Tuner design is exactly the same as I-7513 and I-7510 series. The Fixed baud rate mode offers a better quality for data transmission over long or lossy lines or electrically noisy environments.

RS-485 Short-Circuit

The Short-circuit protection can automatically shut off the breakdown channel, this kind of design can suffice to protect the communication system. When a connected RS-485 equipment breaks down, the breakdown channel will be isolated to ensure that other equipments work normally.

Termination resistors

In some critical environments, you may need to add termination resistors to prevent the reflection of serial signals. The I-7514U includes a 120 Ω termination resistor for each channel by jumper selectable (Default disable).

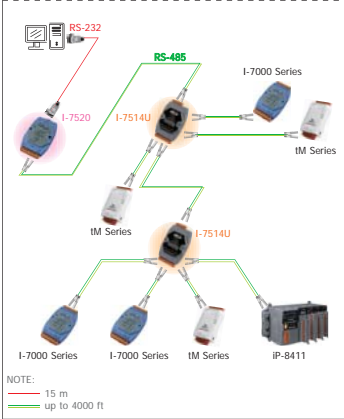
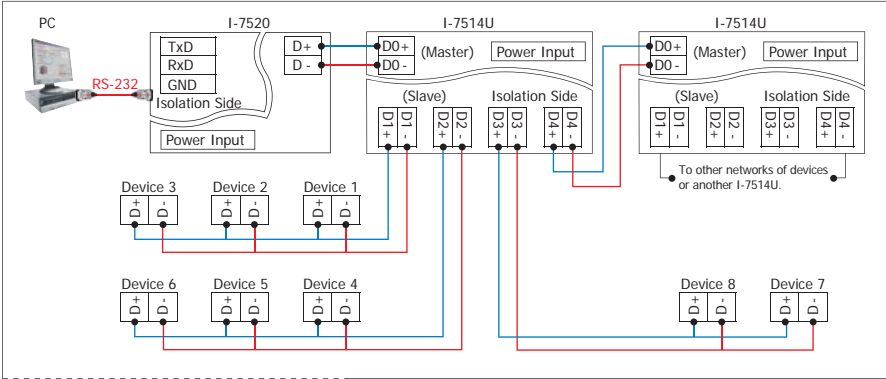
LED Indicators

The I-7514U has 6 LED to indicate the power status and network traffic. The Tx/D/RxD LED will flash when the unit is being sent out or received data.

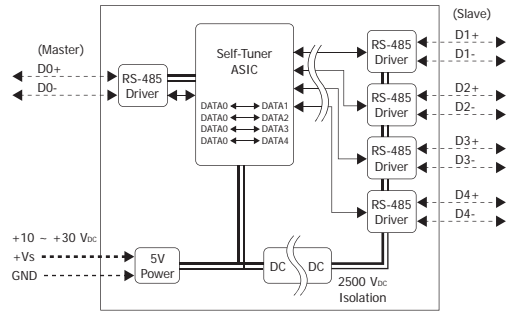
Specifications

Interface	
Input (Master)	1 RS-485 Channel: Data+, Data-
Output (Slave)	4 RS-485 Channels: Data+, Data-
2-wire Cabling	Belden 8941 (2P 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 (Each channel)
Self-Tuner Asic Inside	Yes
Speed	300 ~ 115200 bps via Self-Tuner mode; 1200 ~ 115200 bps via Fixed Baud Rate mode
ESD Protection	Yes
2500 V _{DC} isolation on CH1~CH4	Yes
Connection	Removable 10-Pin Terminal Block x 1; Removable 6-Pin Terminal Block x 1
LED Indicators	
Power/Communication	Yes
Power	
Input Voltage Range	+10 V _{DC} ~ +30 V _{DC} (Non-isolated)
Power Consumption	1.2 W
Mechanical	
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
Environment	
Operating Temperature	-25 °C ~ +75 °C
Storage Temperature	-30 °C ~ +80 °C
Humidity	10 ~ 90% RH, non-condensing

Applications

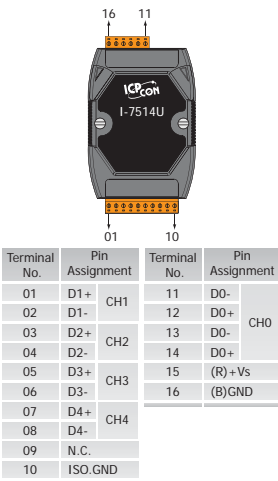


Internal I/O Structure

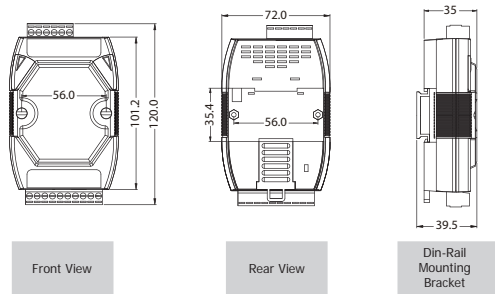


Active transmission control is provided by the hub for outbound messages from the Master input. All channels transmit simultaneously.

Pin Assignments



Dimensions (Unit: mm)



Ordering Information

I-7514U-G CR Isolated 4 Channels RS-485 Active Hub (Gray Cover) (RoHS)

Accessories

GPSU06U-6 Isolated 4 Channels RS-485 Active Hub (Gray Cover) (RoHS)
 DIN-KA52F 24 Vdc/1.04 A, 25 W Power Supply with Din-Rail Mounting



I-7513

Three Way Isolated RS-485 Active Star Wiring Hub

Features

- RS-485 Active Star Wiring Applications
- Automatic RS-485 Direction Control
- 3000 V_{DC} Three Way Isolation Protection
- ESD Protection for the RS-485 Data Line
- Power Input, +10 ~ +30 V_{DC}
- Operating Temperatures, -25 °C ~ +75 °C
- DIN-Rail



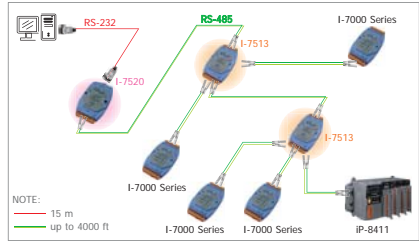
Introduction

The I-7513 is a 3-ch RS-485 Active Star Wiring Hub. The unit has three independent RS-485 output channels, each with their own driver, which can transmit signals across 4,000 ft (1200 m) of cable on each channel.

The I-7513 includes both Hub and Repeater functions, so each output channel can be connected to another hub.

The isolation site of the I-7513 is located in the input and output interface circuit. In other words, the I-7513 is a three-way isolation module.

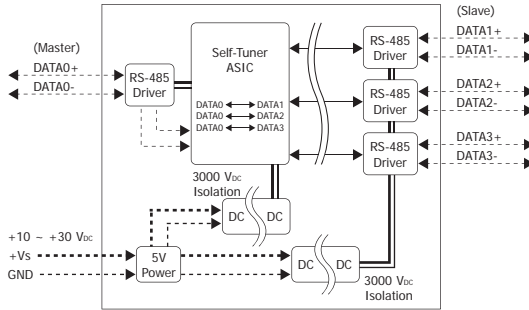
Applications



Specifications

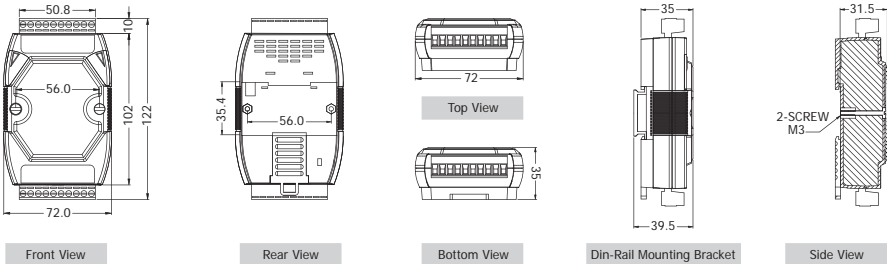
Interface	
Input	1 RS-485 Channel: Data+, Data-
Output	3 RS-485 Channels: Data+, Data-
2-wire Cabling	Belden 8941 (2P twisted-pair cable), if different cables are used, the transmission distance may change
Transfer Distance	Max. 1,200 m at 9.6 kbps; Max. 400 m at 115.2 kbps
Max. Devices Supported	256 (Each channel)
Self-Tuner Asic Inside	Yes
Speed	300 ~ 115200 bps
ESD Protection	Yes
3000 V _{DC} Three Way Isolated Protection	Yes
Connection	Removable 10-Pin Terminal Block x 2
LED Indicators	
Power/Communication	Yes
Power	
Input Voltage Range	+10 V _{DC} ~ +30 V _{DC} (Non-isolated)
Power Consumption	2.16 W
Mechanical	
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
Environment	
Operating Temperature	-25 °C ~ +75 °C
Storage Temperature	-30 °C ~ +75 °C
Humidity	10 ~ 90% RH, non-condensing

Internal I/O Structure



Active transmission control is provided by the hub for outbound messages from the Master input. All channels transmit simultaneously.

Dimensions (Unit: mm)



Pin Assignments

Terminal No.	Pin Assignment	Terminal No.	Pin Assignment
01	DATA+	20	DATA1+
02	DATA-	19	DATA1-
03	--	18	--
04	--	17	--
05	--	16	--
06	--	15	DATA2+
07	--	14	DATA2-
08	--	13	--
09	(R)+Vs	12	DATA3+
10	(B)GND	11	DATA3-

Ordering Information

I-7513 CR	Three Way Isolated RS-485 Active Star Wiring Hub (RoHS)
I-7513-G CR	Three Way Isolated RS-485 Active Star Wiring Hub (Gray Cover) (RoHS)

Accessories

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

4.4. RS-232/RS-422/485 Converters



Features

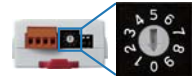
- 2-way 2500 V_{DC} Isolation Protection
- Power and data flow indicator for troubleshooting
- ESD Protection for RS-485 Data Line
- Easy-to-use rotary switch for baud rate setting, 1200 ~ 115200 bps
- Power Input, +10 ~ +30 V_{DC}
- Operating Temperatures, -25 °C ~ +75 °C
- Low power consumption
- Tiny packaging fits on your DIN-Rail
- Cost-effective Converter



Introduction

Most industrial computer systems provide standard RS-232 serial ports with limited transmission speed, range, and networking capabilities. The RS-485 standards overcome these limitations by using differential voltage lines for data and control signals. The tm-7520U transparently converts RS-232 signals into isolated RS-485 signal with no need to change any hardware or software. This lets you easily build an industrial grade, long-distance communication system using standard PC hardware. The module provides 2500 V_{DC} of optical isolation allowing you to separate and protect critical segments of the system from the rest of the RS-485 network.

The tm-7520U provides a rotary switch that allows easy and quick configuration of baud rate from 1,200 to 115,200 bps without the need to open the case. The fixed baud rate design offers a better quality for data transmission over long or lossy lines or electrically noisy environments.



Baud rate 1200 ~ 115200 bps

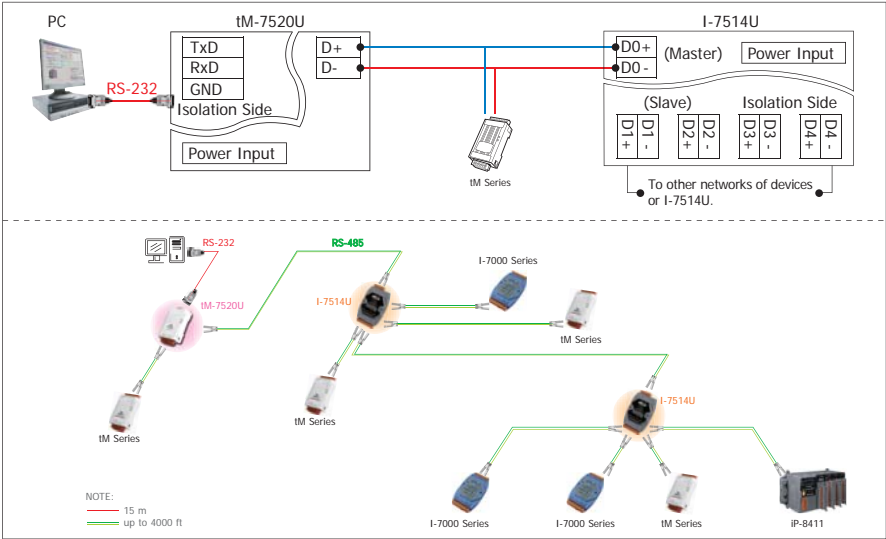
Comparison Table of Converter

Mode name	tm-7520U	I-7520
RS-485 Direction Control	Fixed baud rate setting	Automatic RS-485 Direction Control (Self-Tuner)
Baud rate	1200 ~ 115200 bps	300 ~ 115200 bps
Dimensions (W x H x D)	52 mm x 92 mm x 27 mm	72 mm x 118 mm x 35 mm
Remarks	Cost-effective	Entry-level

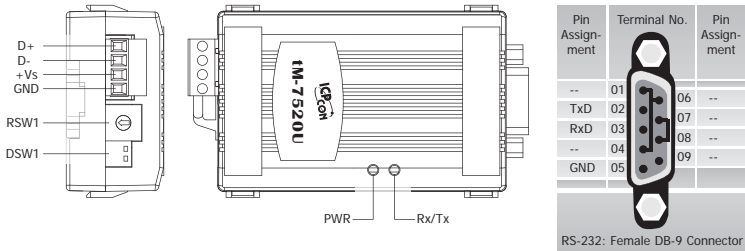
Specifications

Interface	
Input	RS-232: TxD, RxD and GND
Output	RS-485: Data+, Data-
2-wire Cabling	Belden 8941 (2P 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
2500 V _{DC} Isolated Protection	Yes
Connection	Removable 4-Pin Terminal Block x 1; 9-Pin Female D-Sub x 1
LED Indicators	
Power/Communication	Yes
Power	
Input Voltage Range	+10 V _{DC} ~ +30 V _{DC} (Non-isolated)
Power Consumption	0.6 W
Environment	
Operating Temperature	-25 °C ~ +75 °C
Storage Temperature	-30 °C ~ +75 °C
Humidity	10 ~ 90% RH, non-condensing

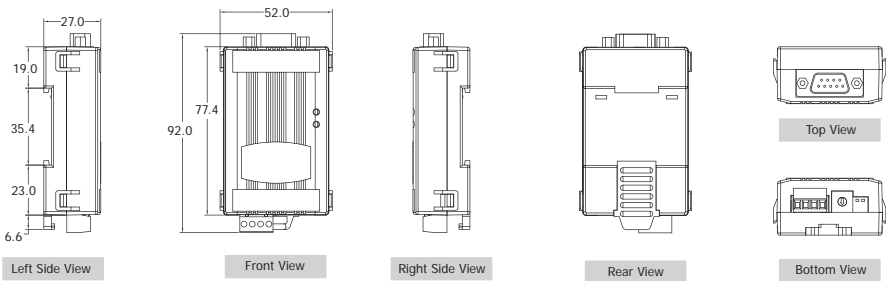
Applications



Pin Assignments



Dimensions (Unit: mm)



Ordering Information

tM-7520U CR	Isolated RS-232 to RS-485 Converter (RoHS)
tM-7520U-CA CR	tM-7520U CR with CA-0915 cable x 1 (RoHS)

Accessories

GPSU06U-6	24 V _{DC} /0.25 A, 6 W Power Supply
DIN-KA52F	24 V _{DC} /1.04 A, 25 W Power Supply with Din-Rail Mounting
tM-7510U CR	Isolated RS-485 Repeater (RoHS)
CA-0915	9-Pin Male-Female D-Sub Cable, 1.5 m



Features

- True RS-485 Star Wiring Hub
- Independent RS-485 driver for each channel
- Power and data flow indicator for troubleshooting
- Automatic RS-485 Direction Control
- Easy-to-use rotary switch for fixed baud rate setting, 1200 ~ 115200 bps
- 120 Ω termination resistor for each channel
- Power Input, +10 ~ +30 V_{DC}
- Operating Temperatures, -25 °C ~ +75 °C
- DIN-Rail



Introduction

RS-485 Active Hub

The I-7520U4 is isolated RS-232 to 4-ch RS-485 active star wiring hub, it has 4 independent RS-485 output channels and one RS-485 input channel. Each output channel is equipped with an individual driver. The data from a master to the input channel will simultaneously be forwarded to all the four output channels.

Baud Rate Setting

The I-7520U4 provides 2 modes of baud rate setting, one is Self-Tuner mode and the other is fixed baud rate mode. The Self-Tuner mode can support Multiple Baud Rate and Multiple Data Format. The Self-Tuner design is exactly the same as I-7520 series.

The Fixed baud rate mode offers a better quality for data transmission over long or lossy lines or electrically noisy environments.

RS-485 Short-Circuit

The Short-circuit protection can automatically shut off the breakdown channel, this kind of design can suffice to protect the communication system. When a connected RS-485 equipment breaks down, the breakdown channel will be isolated to ensure that other equipments work normally.

Termination resistors

In some critical environments, you may need to add termination resistors to prevent the reflection of serial signals.

The I-7520U4 includes a 120Ω termination resistor for each channel by jumper selectable (Default disable).

LED Indicators

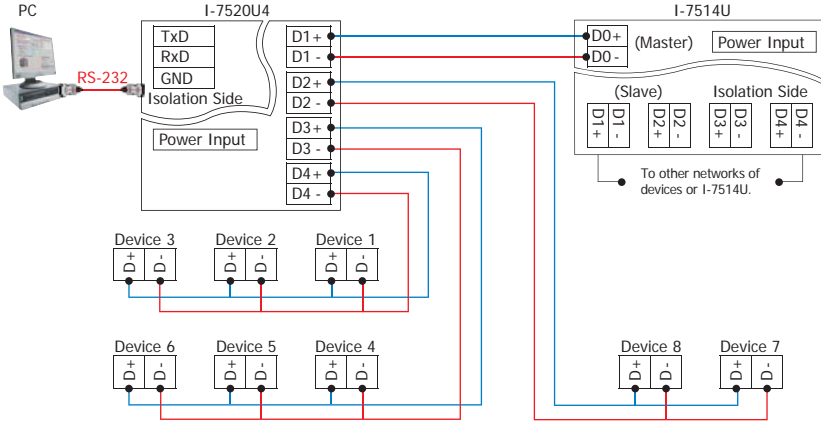
The I-7520U4 has 6 LED to indicate the power status and network traffic.

The Tx/D/RxD LED will flash when the unit is being sent out or received data.

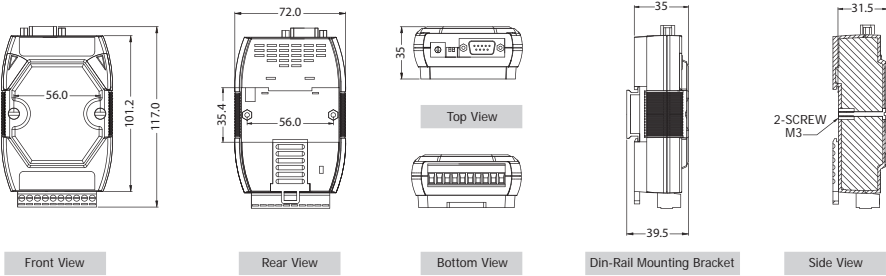
Specifications

Interface	
Input	1 RS-232 Channel: Tx/D, Rx/D and GND
Output	4 RS-485 Channels: Data+, Data-
2-wire Cabling	Belden 8941 (2P 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 (Each channel)
Self-Tuner Asic Inside	Yes
Speed	300 ~ 115200 bps via Self-Tuner mode; 1200 ~ 115200 bps via Fixed Baud Rate mode
ESD Protection	Yes
2500 V _{DC} Three Way Isolated Protection	Yes
Connection	Removable 10-Pin Terminal Block x 1; 9-Pin Female D-Sub x 1
LED Indicators	
Power/Communication	Yes
Power	
Input Voltage Range	+10 V _{DC} ~ +30 V _{DC} (Non-isolated)
Power Consumption	1.2 W
Mechanical	
Casing	Plastic
Flammability	Fire Retardant Materials (UL94-V0 Level)
Dimensions (W x H x D)	72 mm x 118 mm x 35 mm
Installation	DIN-Rail
Environment	
Operating Temperature	-25 °C ~ +75 °C
Storage Temperature	-30 °C ~ +75 °C
Humidity	10 ~ 90% RH, non-condensing

Applications



Dimensions (Unit: mm)



Pin Assignments

Terminal No.	Pin Assignment	Pin Assignment	Terminal No.	Pin Assignment	
RS-485	01	D1+		06	--
	02	D1-		07	--
	03	D2+		08	--
	04	D2-		09	--
	05	D3+		04	--
	06	D3-		05	--
	07	D4+			
	08	D4-			
	09	(R)+Vs			
	10	(B)GND			

RS-232: Female DB-9 Connector

Ordering Information

I-7520U4-G CR	Isolated RS-232 to 4 Channels RS-485 Active Hub (Gray Cover) (RoHS)
I-7520U4-CA-G CR	I-7520U4-G CR with CA-0915 cable x 1

Accessories

GPSU06U-6	24 V _{DC} /0.25 A, 6 W Power Supply
DIN-KA52F	24 V _{DC} /1.04 A, 25 W Power Supply with Din-Rail Mounting
I-7510 CR	Isolated RS-485 Repeater (RoHS)
CA-0915	9-Pin Male-Female D-Sub Cable, 1.5 m



PCISA-7520R/PCISA-7520AR

PCISA-7520R: Isolated RS-232 to RS-485 Converter Card
 PCISA-7520AR: Isolated RS-232 to RS-422/485 Converter Card

Features

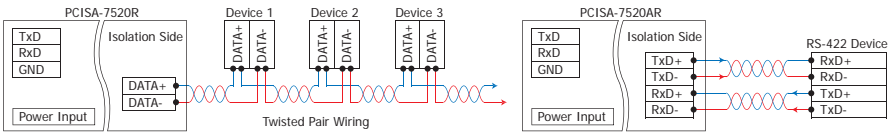
- No External Power Supply required
- No Driver installation required
- Automatic RS-485 Direction Control
- 3000 V_{oc} Isolation Protection
- ESD Protection for the RS-232/422/485 Data Line
- Transmission Speed of up to 115200 bps
- Can be used in an ISA Bus, a PCI Bus or any system with an RS-232 Interface



Introduction

The PCISA-7520A series is exactly the same as I-7520A series except for the PCI and ISA Interface and is designed for easy installation. The PCISA-7520A series is equipped with both an RS-232 serial port and an RS-485 serial port. The RS-232 port is designed to communicate with the local Host PC, the RS-485 is designed to communicate with the remote IO module.

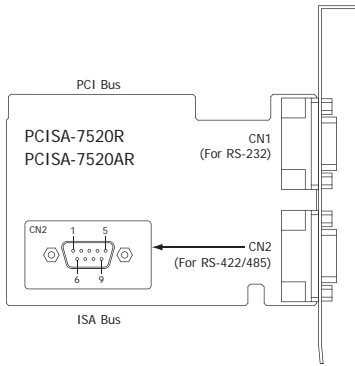
Applications



Specifications

Models	PCISA-7520R	PCISA-7520AR
Interface		
Serial Interface	RS-232	TxD, RxD, GND
	RS-422	-
	RS-485	Data+, Data-
2-wire Cabling/4-wire Cabling	Belden 8941 (2P twisted-pair cable)/Belden 8942 (4P twisted-pair cable), when 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 (Without repeater)	
Self-Tuner Asic Inside	Yes	
Speed	300 – 115200 bps	
ESD Protection	Yes	
Isolated Voltage	3000 V _{oc} on the RS-422/485 side	
Connection	RS-232	9-Pin Female D-Sub x 1
	RS-422/485	9-Pin Male D-Sub x 1
Power		
Input Voltage Range	+5 V _{oc} from the PC	
Power Consumption	1.0 W	
Mechanical		
Dimensions (L x W x D)	118 mm x 72 mm x 22 mm	
Environment		
Operating Temperature	0 °C – +50 °C	
Storage Temperature	-20 °C – +70 °C	
Humidity	0 – 90% RH, non-condensing	

Pin Assignments



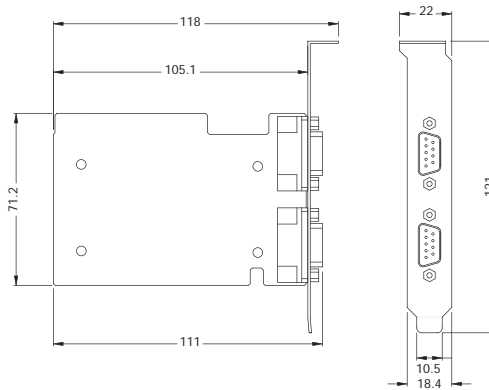
PCISA-7520R

Pin	2-wire for RS-485
01	DATA+
02	
03	
04	NC
05	
06	DATA-
07	
08	NC
09	

PCISA-7520AR

Pin	2-wire for RS-485	4-wire for RS-422
01	DATA+	Tx+
02		
03		
04	NC	Rx+
05		
06	DATA-	Tx-
07		
08	NC	Rx-
09		

Dimensions (Unit: mm)



Ordering Information

PCISA-7520R CR	Isolated RS-232 to RS-485 Converter Card (RoHS)
PCISA-7520AR CR	Isolated RS-232 to RS-422/485 Converter Card (RoHS)

Accessories

I-7510 CR	Isolated RS-485 Repeater (RoHS)
I-7510A CR	Isolated RS-422/485 Repeater (RoHS)
CA-0915	9-Pin Male-Female D-Sub Cable, 1.5 m



I-7520/I-7520A I-7520R/I-7520AR

I-7520: Isolated RS-232 to RS-485 Converter
 I-7520A: Isolated RS-232 to RS-422/485 Converter
 I-7520R: RS-232 to Isolated RS-485 Converter
 I-7520AR: RS-232 to Isolated RS-422/485 Converter

Features

- Automatic RS-485 Direction Control
- 3000 V_{DC} Isolation Protection on the RS-485 side
- ESD Protection for the RS-232/422/485 Data Line
- Transmission Speed of up to 115200 bps
- Power Input, +10 ~ +30 V_{DC}
- Operating Temperatures, -25 °C ~ +75 °C
- DIN-Rail



Introduction

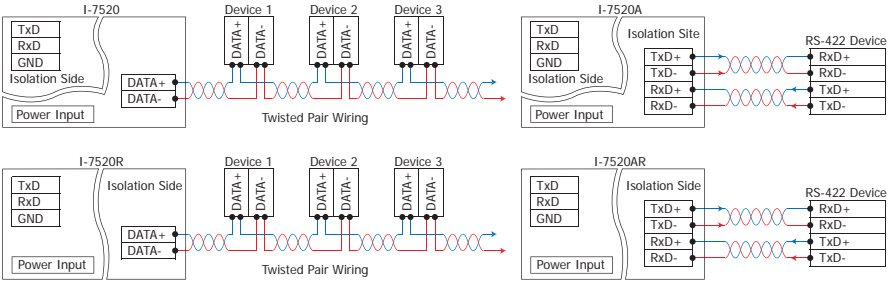
Most industrial computer systems provide standard RS-232 serial ports. Though widely accepted, RS-232 has limited transmission speed, range, and networking capabilities. The RS-422 and RS-485 standards overcome these limitations by using differential voltage lines for data and control signals, which transparently converts RS-232 signals into isolated RS-422 or RS-485 signal with no need to change any hardware or software. The I-7520/I-7520A lets you easily build an industrial grade, long-distance communication system using standard PC hardware.

The design of the isolation between the I-7520 and the I-7520R/AR is different. If the user wants to supply power from the PLC/PC, the I-7520R/AR should be used, otherwise the isolation will be broken. Refer to the I-7000 bus converter manual for detailed information.

Specifications

Models	I-7520	I-7520R	I-7520A	I-7520AR
Interface				
Serial Interface	RS-232	TxD, RxD, GND		
	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 for at speed 9.6 kbps; Max. 400 m at 115.2 kbps			
Max. Devices Supported	256 (Without repeater)			
Self-Tuner Asic Inside	Yes			
Speed	300 ~ 115200 bps			
ESD Protection	Yes			
3000 V _{DC} Isolated Voltage	On RS-232 side	On RS-485 side	On RS-232 side	On RS-485 side
Connection	RS-232	9-Pin Female D-Sub		
	RS-422/485	Removable 10-Pin Terminal Block		
LED Indicators				
Power/Communication	Yes			
Power				
Input Voltage Range	+10 V _{DC} ~ +30 V _{DC} (Non-isolated)			
Power Consumption	1.2 W			
Mechanical				
Casing	Plastic			
Flammability	Fire Retardant Materials (UL94-V0 Level)			
Dimensions (W x H x D)	72 mm x 118 mm x 35 mm			
Installation	DIN-Rail			
Environment				
Operating Temperature	-25 °C ~ +75 °C			
Storage Temperature	-30 °C ~ +75 °C			
Humidity	10 ~ 90% RH, non-condensing			

Applications



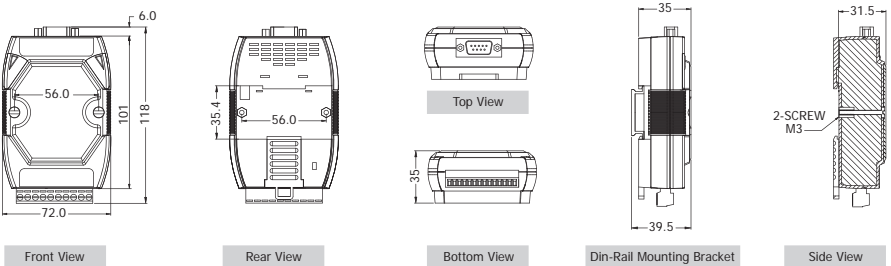
Pin Assignments

I-7520/I-7520R				
Terminal No.	Pin Assignment	Pin Assignment	Terminal No.	Pin Assignment
RS-485 01	DATA+		06	--
02	DATA-		07	--
03	--		08	--
04	--		09	--
05	--		05	GND
06	--			
07	--			
08	--			
09 (R)+Vs				
10 (B)GND				



I-7520A/I-7520AR				
Terminal No.	Pin Assignment	Pin Assignment	Terminal No.	Pin Assignment
RS-485 01	DATA1+		06	--
02	DATA1-		07	--
03	--		08	--
04	TxD+		09	--
RS-422/485 05	TxD-		05	GND
06	RxD+/DATA2+			
07	RxD-/DATA2-			
08	--			
09 (R)+Vs				
10 (B)GND				

Dimensions (Unit: mm)



Ordering Information

I-7520 CR	Isolated RS-232 to RS-485 Converter (RoHS)
I-7520A CR	Isolated RS-232 to RS-422/485 Converter (RoHS)
I-7520-G CR	Isolated RS-232 to RS-485 Converter (Gray Cover) (RoHS)
I-7520A-G CR	Isolated RS-232 to RS-422/485 Converter (Gray Cover) (RoHS)
I-7520R CR	RS-232 to Isolated RS-485 Converter (RoHS)
I-7520AR CR	RS-232 to Isolated RS-422/485 Converter (RoHS)
I-7520R-G CR	RS-232 to Isolated RS-485 Converter (Gray Cover) (RoHS)
I-7520AR-G CR	RS-232 to Isolated RS-422/485 Converter (Gray Cover) (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
I-7510 CR	Isolated RS-485 Repeater (RoHS)
I-7510A CR	Isolated RS-422/485 Repeater (RoHS)
CA-0915	9-Pin Male-Female D-Sub Cable, 1.5 m



Features

- 3000 V_{oc} 3-way Isolation Protection
- ESD Protection
- Transmission Speed of up to 115200 bps
- Power Input, +10 ~ +30 V_{oc}
- Operating Temperatures, -25 °C ~ +75 °C
- DIN-Rail



Introduction

The I-7551 Photo coupler provides a complete full-duplex (including control signal) electrical isolation channel between two RS-232 devices. This isolation is an important consideration if a system uses different power sources, has noisy signals, or must operate at different ground potentials.

The I-7551 provides the option of reconfiguring which control signal is used. CTS can be selected instead of DSR, and RTS instead of DTR.

The I-7551 incorporates two DC-to-DC converters, the isolation site of the I-7551 is located in the input and output interface circuit. In other words, the I-7551 is 3-way isolated RS-232 to RS-232 converter.

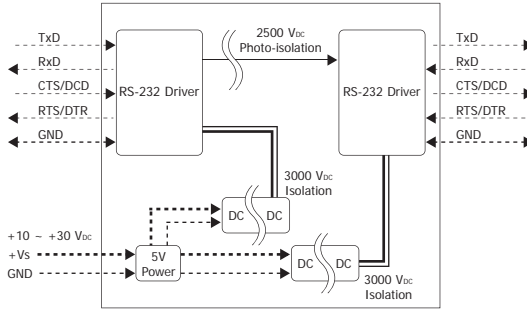
Applications



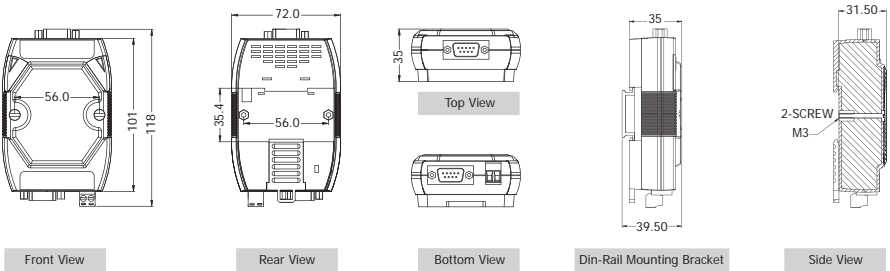
Specifications

Interface	
Input	TxD, RxD, CTS, RTS, GND (Default) or TxD, RxD, DSR, DTR, GND Jumpers JP1 and JP2 are used to select the RS-232 input source type
Output	TxD, RxD, CTS, RTS, GND (Default) or TxD, RxD, DSR, DTR, GND
Transfer Distance	Max. 15 M at 115200 bps
Speed	300 ~ 115200 bps
ESD Protection	Yes
3000 V _{oc} Three Way Isolated Protection	Yes
Connection	RS-232 Input
	RS-232 Output
LED Indicators	
Power/Communication	Yes
Power	
Input Voltage Range	+10 V _{oc} ~ +30 V _{oc} (Non-isolated)
Power Consumption	1.2 W
Mechanical	
Casing	Plastic
Flammability	Fire Retardant Materials (UL94-V0 Level)
Dimensions (W x H x D)	72 mm x 118 mm x 35 mm
Installation	DIN-Rail
Environment	
Operating Temperature	-25 °C ~ +75 °C
Storage Temperature	-30 °C ~ +75 °C
Humidity	10 ~ 90% RH, non-condensing

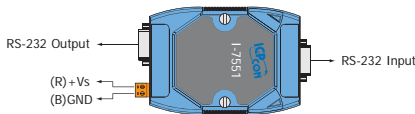
Internal I/O Structure



Dimensions (Unit: mm)



Pin Assignments



Default			OR			OR			OR		
RS-232 Input			RS-232 Output			RS-232 Input			RS-232 Output		
Pin Assignment	Terminal No.	Pin Assignment	Pin Assignment	Terminal No.	Pin Assignment	Pin Assignment	Terminal No.	Pin Assignment	Pin Assignment	Terminal No.	Pin Assignment
GND	01	06	..	05	09	..	05	09	DTR	05	09
TxD	02	07	CTS	..	04	08	CTS	07	08	04	08
RxD	03	08	RTS	TxD	03	07	RTS	02	03	07	07
..	04	09	..	RxD	02	06	..	03	02	03	02
..	05	..	..	..	01	..	..	04	01	01	06
..	05	..	..	..	01	..	..	05	..	..	01

Ordering Information

I-7551 CR	Isolated RS-232 to RS-232 Converter (RoHS)
I-7551-G CR	Isolated RS-232 to RS-232 Converter (Gray Cover) (RoHS)

Accessories

GPSU06U-6	24 V _{DC} /0.25 A, 6 W Power Supply
DIN-KA52F	24 V _{DC} /1.04 A, 25 W Power Supply with Din-Rail Mounting

4.5. Intelligent Communication Controllers



I-752N Series

Intelligent Communication Controller

Features

- Built-in "Addressable RS-485 to RS-232 Converter" firmware
- Programmable Intelligent Communication Controller
- Supports about 30 well-defined commands
- Supports Dual-Watchdog commands
- Supports power-up and safe value for DO
- Watchdog timer provides fault tolerance and recovery
- Low power consumption
- R.O.C. Invention Patent No. 086674, No.103060 and No. 132457
- Made from fire retardant materials (UL94-V0 Level)



Introduction

There are many RS-232 devices in industry applications. Nowadays it becomes important to link all those RS-232 devices together for automation and information. Usually those RS-232 devices are far away from the host-PC and widely distributed in the factory. So it is not a good idea to use multi-serial cards to connect all these RS-232 devices together. The I-752N series product can be used to link multiple RS-232 devices by a single RS-485 network. The RS-485 is famous for its easy maintenance, simple cabling, stable, reliable and low cost.

Onboard 1 KB Queue buffer

The I-752N series module is equipped with a 1 KB queue buffer for its local RS-232 device. All input data can be stored in the queue buffer until the Host PC has time to read it. This feature allows the Host PC to link to thousands of RS-232 devices without any loss of data.

3000V isolation on RS-485 side

COM2 of the I-752N modules is an isolated RS-485 port with 3000 VDC isolation, which protects the local RS-232 devices from transient noises coming from the RS-485 network.

Self-Tuner ASIC inside

The built-in Self-Tuner ASIC on an RS-485 port can auto detect and control the send/receive direction of the RS-485 network. Thus, there is no need for application programs to be concerned about direction control of the RS-485 network.

Can be used as Addressable RS-485 to RS-232 Converter

Most RS-232 devices don't support device addressing. The ICP DAS I-752N module assigns a unique address for each RS-232 device installed. When Host PC sends a command with a device address to the RS-485 network, the destination I-752N module will remove the address field, and then pass the other commands to the specified local RS-232 devices. The response from the local RS-232 devices will be returned to the Host PC via the I-752N.

Master-type Addressable RS-485 to RS-232 Converter

The ICP DAS I-752N product is unique. In that they are Master-type converters which use our R.O.C. Patent 086674, while most other converters are Slave-type, which are helpless without a Host PC. In real industrial applications, many users are not satisfied with Slave-type converters as they cannot be adapted to individual requirement.

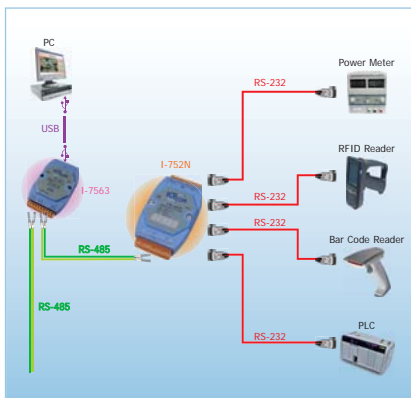
The powerful I-752N series analyzes the local RS-232 devices, DI and DO without the need for a Host PC. Refer to Applications 5 - 9 for more information in the manual.

Can be used as RS-232 to RS-485 Device Server

The Device Server is an appliance that networking any device with a serial communication port. The I-752N series Intelligent Communication Controller allows the RS-232 serial devices to connect to the RS-485 network. Also, there are PDS series products available from ICP DAS, which provide Ethernet connectivity for serial devices.

Applications

Factory, Building and Home Automation



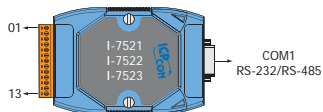
I/O Specifications

Models	I-7521(D)	I-7522(D)	I-7523(D)	I-7522A(D)	I-7524(D)	I-7527(D)
User-Defined I/O						
I/O Channel	3	-	-	-	-	-
Digital Output						
DI Channel	2	2	1	5	1	1
Input Type	Source (Dry Type), Common Ground, non-isolated					
Off Voltage	+1 V max.					
On Voltage	+3.5 V _{oc} ~ +30 V _{oc}					
Digital Output						
DO Channel	3	1	-	5	1	1
Output Type	Open Collector (Sink/NPN), non-isolated					
Load Voltage	+30 V _{oc} max.					
Load Current	100 mA max.					

System Specifications

Models	I-7521(D)	I-7522(D)	I-7523(D)	I-7522A(D)	I-7524(D)	I-7527(D)
System						
CPU	80188, 20 Mhz			80188, 40 Mhz		
SRAM	128 KB			256 KB		
Flash	512 KB					
EEPROM	2 KB					
Real-Time Clock	-			Yes		
Watchdog Timer	Yes					
Operating System	MiniOS7					
Communication Interface						
COM1	5-wire RS-232 or 2-wire RS-485					
COM2	Isolated 2-wire RS-485					
COM3	-	5-wire RS-232	5-wire RS-232	4-wire RS-422	5-wire RS-232	3-wire RS-232
COM4	-	-	3-wire RS-232	-	5-wire RS-232	3-wire RS-232
COM5	-	-	-	-	5-wire RS-232	3-wire RS-232
COM6	-	-	-	-	-	3-wire RS-232
COM7	-	-	-	-	-	3-wire RS-232
COM8	-	-	-	-	-	3-wire RS-232
Baud Rate	300 ~ 115200 bps					
Data Bit	COM1 ~ COM2: 7 or 8 COM3 ~ COM8: 5, 6, 7 or 8					
Parity	COM1 ~ COM2: None, Even, Odd COM3 ~ COM8: None, Even, Odd, Mark, Space					
Stop Bit	COM1 ~ COM2: 1 or 2 (data bit must be 7) COM3 ~ COM8: 1 or 2					
Connector	Male DB-9 x 1 13-Pin screw terminal block x 1 (for 16 ~ 26 AWG wires; 3.81 mm pitch)			14-Pin screw terminal block x 2 (for 16 ~ 22 AWG wires; 3.5 mm pitch)		
LED Indicators						
LED Display	5-digit 7-segment LED display for D versions					
Power						
Protection	Power input reverse polarity protection					
Power Requirement	Unregulated +10 V _{oc} ~ 30 V _{oc}					
Power Consumption	2 W (without display), 3 W (with display)					
Mechanical						
Casing	Plastic					
Flammability	Fire Retardant Materials (UL94-V0 Level)					
Dimensions (W x H x D)	72 mm x 118 mm x 35 mm			72 mm x 120 mm x 35 mm		
Installation	DIN-Rail					
Environment						
Operating Temperature	-25 °C ~ +75 °C					
Storage Temperature	-40 °C ~ +80 °C					
Humidity	0 ~ 90% RH, non-condensing					
Note:						
3-wire RS-232: RxD, TxD, GND						
5-wire RS-232: RxD, TxD, CTS, RTS, GND						
2-wire RS-485: DATA+, DATA-, GND: Self-Tuner inside						
Isolated 2-wire RS-485: DATA+, DATA-: Self-Tuner inside; 3000 V _{oc} Isolation						
4-wire RS-422: RxD+, RxD-, TxD+, TxD-, GND						

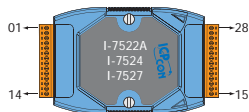
Pin Assignments



I-7521/I-7521D

Terminal No.	Pin Assignment	Pin Assignment	Terminal No.	Pin Assignment
01	X3		05	GND
02	X2		06	N.C.
03	X1		07	RxD
04	DO3		08	TxD
DO	05 DO2		09	Data-
	06 DO1		08	RTS
	07 DI3		07	CTS
DI	08 DI2		06	N.C.
	09 INIT*			
COM2	10 (Y)D2+			
	11 (G)D2-			
Power Input	12 (R)+Vs			
	13 (B)GND			

COM1: RS-232 Male DB-9 Connector



I-7522A/I-7522AD

Terminal No.	Pin Assignment	X507	
		Terminal No.	Pin Assignment
DO	01 DO	28	DO3
DI	02 DI	27	DO2
COM1	03 D1+	DO	26 DO1
	04 D1-	25	DO0
	05 CTS1	24	DO.PWR
	06 RTS1	23	GND
	07 GND	22	DI3
DI	08 TxD1	21	DI2
	09 RxD1	20	DI1
	10 INIT*	19	DI0
	11 (Y)D2+	18	RxD3-
COM2	12 (G)D2-	17	RxD3+
	13 (R)+Vs	16	TxD3-
Power Input	14 (B)GND	15	TxD3+

I-7522/I-7522D

Terminal No.	Pin Assignment	Pin Assignment	Terminal No.	Pin Assignment
COM3	01 CTS3		05	GND
	02 RTS3		06	N.C.
	03 RxD3		07	RxD
	04 TxD3		08	TxD
	05 GND		09	Data-
DO	06 DO1		08	RTS
DI	07 DI3		07	CTS
	08 DI2		06	N.C.
	09 INIT*			
COM2	10 (Y)D2+			
	11 (G)D2-			
Power Input	12 (R)+Vs			
	13 (B)GND			

COM1: RS-232 Male DB-9 Connector

I-7524/I-7524D

Terminal No.	Pin Assignment	X505	
		Terminal No.	Pin Assignment
DO	01 DO	28	RxD5
DI	02 DI	27	TxD5
COM1	03 D1+	COM5	26 RTS5
	04 D1-	25	CTS5
	05 CTS1	24	GND
	06 RTS1	23	RxD4
	07 GND	22	TxD4
DI	08 TxD1	21	RTS4
	09 RxD1	20	CTS4
	10 INIT*	19	GND
COM2	11 (Y)D2+	18	RxD3
	12 (G)D2-	17	TxD3
Power Input	13 (R)+Vs	16	RTS3
	14 (B)GND	15	CTS3

I-7523/I-7523D

Terminal No.	Pin Assignment	Pin Assignment	Terminal No.	Pin Assignment
COM3	01 CTS3		05	GND
	02 RTS3		06	N.C.
	03 RxD3		07	RxD
	04 TxD3		08	TxD
	05 GND		09	Data-
COM4	06 TxD4		08	RTS
DI	07 RxD4		07	CTS
	08 DI2		06	N.C.
	09 INIT*			
COM2	10 (Y)D2+			
	11 (G)D2-			
Power Input	12 (R)+Vs			
	13 (B)GND			

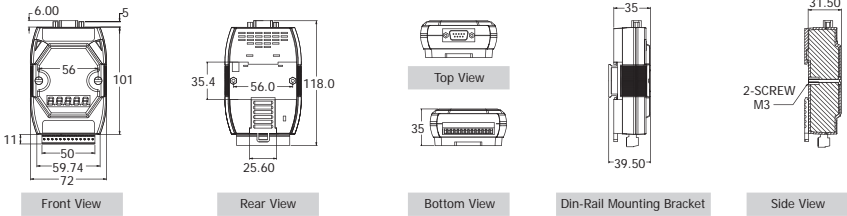
COM1: RS-232 Male DB-9 Connector

I-7527A/I-7527AD

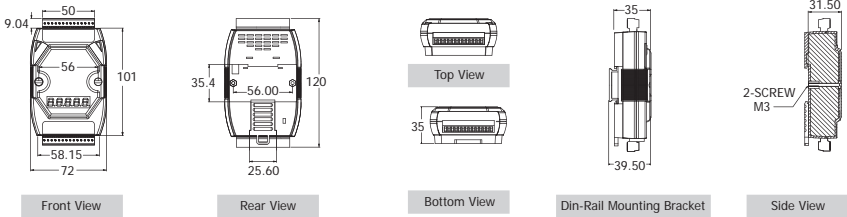
Terminal No.	Pin Assignment	X506	
		Terminal No.	Pin Assignment
DO	01 DO	28	TxD8
DI	02 DI	27	RxD8
COM1	03 D1+	COM7/8	26 TxD7
	04 D1-	25	RxD7
	05 CTS1	24	GND
	06 RTS1	23	TxD6
	07 GND	22	RxD6
DI	08 TxD1	COM5/6	21 TxD5
	09 RxD1	20	RxD5
	10 INIT*	19	GND
COM2	11 (Y)D2+	18	TxD4
	12 (G)D2-	17	RxD4
Power Input	13 (R)+Vs	16	TxD3
	14 (B)GND	15	RxD3

Dimensions (Unit: mm)

I-7521(D)/I-7522(D)/I-7523(D)

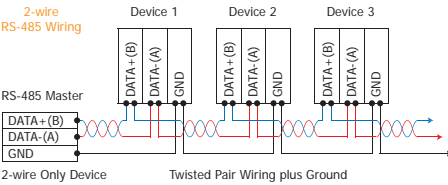


I-7522A(D)/I-7524(D)/I-7527(D)

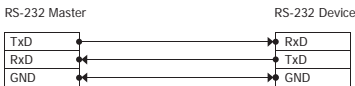


Wiring

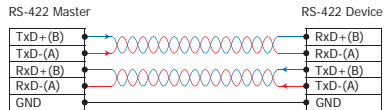
2-wire RS-485 Wiring



3-wire RS-232 Wiring



4-wire RS-422 Wiring



Input Type	DI Value as 0	DI Value as 1
Relay Contact	Relay ON 	Relay Off
	Voltage < 1V 	Voltage > 3.5V
TTL/CMOS Logic	Logic Level Low 	Logic Level High
Open Collector	Open Collector On 	Open Collector Off
	DO Command as 1	DO Command as 0
Drive Relay	Relay ON 	Relay Off
	Resistance Load 	

Ordering Information

I-7521 CR	Intelligent Communication Controller (RoHS)
I-7521D CR	I-7521 with Display
I-7522 CR	Intelligent Communication Controller (RoHS)
I-7522D CR	I-7522 with Display
I-7522A CR	Intelligent Communication Controller (RoHS)
I-7522AD CR	I-7522A with Display
I-7523 CR	Intelligent Communication Controller (RoHS)
I-7523D CR	I-7523 with Display
I-7524 CR	Intelligent Communication Controller (RoHS)
I-7524D CR	I-7524 with Display
I-7527 CR	Intelligent Communication Controller (RoHS)
I-7527D CR	I-7527 with Display

Accessories

GPSU06-6	24 V _{DC} /0.25 A, 6 W Power Supply
MDR-20-24	24 V _{DC} /1 A, 24 W Power Supply with DIN-Rail Mounting
KA-52F	24 V _{DC} /1.04 A, 25 W Power Supply
DIN-KA52F	24 V _{DC} /1.04 A, 25 W Power Supply with Din-Rail Mounting

4.6. USB to RS-232/422/485 Converters



I-7560

USB to RS-232 Converter

Features

- Fully Compliant with the USB 1.1/2.0 (High Speed)
- No External Power Supply required
- Automatic RS-485 Direction Control
- Operating Temperatures, -25 °C ~ +75 °C
- Driver Supports Windows 98/ME/2000/XP/Vista (32/64-bit)/7 (32/64-bit)/Linux



Introduction

The I-7560 contains a Windows serial com port via it's USB connection and is compatible with new and legacy RS-232 devices. USB Plug-and-Play allows easy serial port expansion and requires no IRQ, DMA, or I/O port resources.

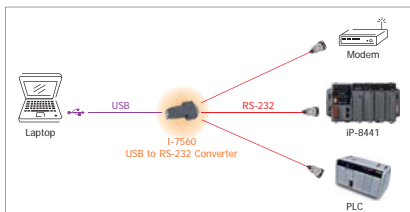
The I-7560 features a full set of RS-232 modem data and control signals (TxD, RxD, RTS, CTS, DSR, DTR, DCD, RI and GND) on it's PC compatible DB-9 male connector. It also features a high-speed 115200 bps transmission rate.

The I-7560 is powered from the USB bus and no additional power supply is needed.

Software

Driver
Windows 98/ME/2000/XP/Vista (32/64-bit)/7 (32/64-bit)/Linux

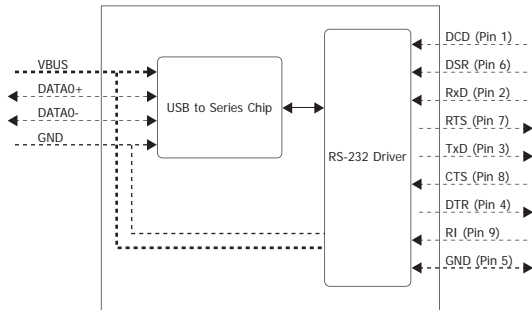
Applications



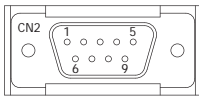
Specifications

Interface		
USB	Compatibility: USB 1.1 and 2.0 standards	
RS-232	TxD, RxD, RTS, CTS, DSR, DTR, DCD, RI and GND; non-Isolated	
Speed	300 ~ 115200 bps	
Connection	RS-232	9-Pin Male D-Sub
	USB	Type B
Cable Included	CA-USB18 (1.8 m Cable) x 1	
LED Indicators		
Power	Yes	
Power		
Input Voltage Range	+5 Voc from USB	
Power Consumption	0.3 W	
Mechanical		
Casing	Plastic	
Flammability	Fire Retardant Materials (UL94-V0 Level)	
Dimensions (W x H x D)	33 mm x 60 mm x 15 mm	
Environment		
Operating Temperature	-25 °C ~ +75 °C	
Storage Temperature	-30 °C ~ +75 °C	
Humidity	10 ~ 90% RH, non-condensing	

Internal I/O Structure

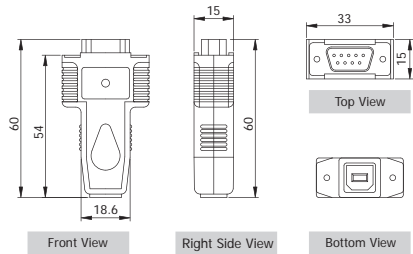


Pin Assignments



Pin	Signal	Mode
01	DCD Data Carrier Detect	Input
02	RxD Receive Data	Input
03	TxD Transmit Data	Output
04	DTR Data Term Ready	Output
05	GND Ground	--
06	DSR Data Set Ready	Input
07	RTS Request To Send	Output
08	CTS Clear To Send	Input
09	RI Ring Indicator	Input

Dimensions (Unit: mm)



Ordering Information

I-7560 CR	USB to RS-232 Converter (RoHS)
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Accessories

USB-2560 CR	Industrial 4-port USB 2.0 Hub
CA-USB18	USB Type A to Type B Cable



tM-7561

USB to Isolated RS-485 Converter

Features

- Fully Compliant with the USB 1.1/2.0 (High Speed)
- No External Power Supply required
- Power and data flow indicator for troubleshooting
- Automatic RS-485 Direction Control
- 2500 V_{oc} Isolation Protection on the RS-485 side
- Operating Temperatures, -25 °C ~ +75 °C
- Driver Supports Windows 98/ME/2000/XP/Vista (32/64-bit)/7 (32/64-bit)/Linux
- Low power consumption
- Tiny packaging fits on your DIN-Rail
- Cost-effective Converter



Introduction

The tM-7561 is a cost-effective USB to RS-485 converter. Connecting the tM-7561 to a PC, you get one RS-485 port that allows you to access RS-485 devices through the USB interface. Like the I-7520, the tM-7561 contains "Self-Tuner" chip auto-tunes the baud rate and data format to the RS-485 network. The tM-7561 module derives its power from the USB port and doesn't need external power adapter.

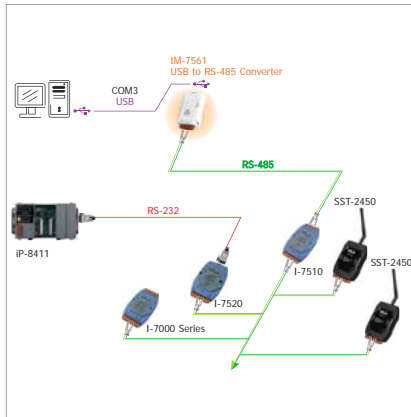
Comparison Table of Converter

Mode name	tM-7561	I-7561
Serial Interface	Only RS-485	RS-232/422/485
Dimensions (W x H x D)	52 mm x 87 mm x 27 mm	72 mm x 115 mm x 35 mm
Remarks	Cost-effective, Entry-level	Entry-level

Specifications

Interface		
USB	Compatibility: USB 1.1 and 2.0 standards	
RS-485	Data+, Data-	
2-wire cabling	Belden 8941 (2P twisted-pair cable), if different cables are used, the transmission distance may change	
RS-485 Transfer Distance	Max. 1,200 m at 9.6 kbps; Max. 400 m at 115.2 kbps	
Maximum Supported RS-485 Devices	256 (Without repeater)	
Self-Tuner Asic Inside	Yes	
Speed	300 ~ 115200 bps	
Connection	RS-485	Removable 7-Pin Terminal Block
	USB	Type B
Cable Included	CA-USB18 (1.8 m Cable) x 1	
LED Indicators		
Power/Communication	Yes	
Power		
Input Voltage Range	+5 V _{oc} from USB	
Power Consumption	0.4 W	
Mechanical		
Casing	Plastic	
Flammability	Fire Retardant Materials (UL94-V0 Level)	
Dimensions (W x H x D)	52 mm x 87 mm x 27 mm	
Installation	DIN-Rail	
Environment		
Operating Temperature	-25 °C ~ +75 °C	
Storage Temperature	-30 °C ~ +75 °C	
Humidity	10 ~ 90% RH, non-condensing	

Applications

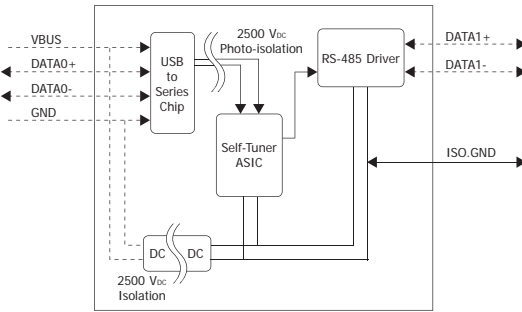


Software

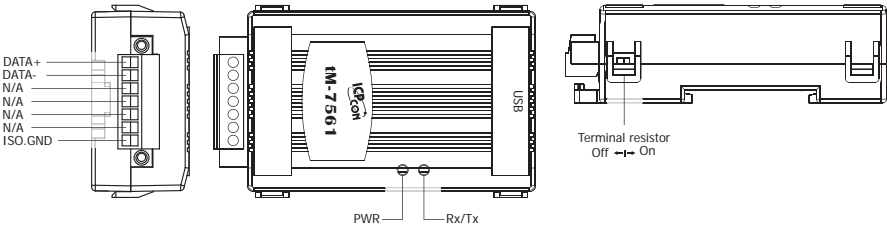
Driver

Windows 98/ME/2000/XP/Vista (32/64-bit)/7 (32/64-bit)/Linux

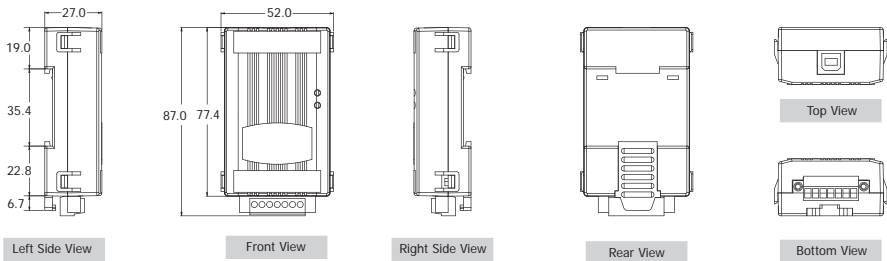
Internal I/O Structure



Pin Assignments



Dimensions (Unit: mm)



Ordering Information

IM-7561 CR	USB to Isolated RS-485 Converter (RoHS)
Include Cable	CA-USB18 (1.8 m Cable) x 1

Accessories

USB-2560 CR	Industrial 4-port USB 2.0 Hub
CA-USB18	USB Type A to Type B Cable



I-7561

USB to Isolated RS-232/422/485 Converter

Features

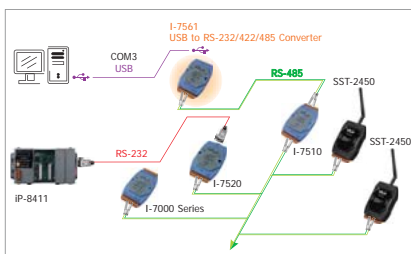
- Fully Compliant with the USB 1.1/2.0 (High Speed)
- No External Power Supply required
- Automatic RS-485 Direction Control
- 3000 V_{oc} Isolation Protection on the RS-232/422/485 side
- ESD Protection for the RS-232/422/485 Data Line
- Operating Temperatures, -25 °C ~ +75 °C
- Driver Supports Windows 98/ME/2000/XP/Vista (32/64-bit)/7 (32/64-bit)/Linux
- DIN-Rail



Introduction

The I-7561 is a cost-effective module for transferring serial data via USB. It allows you to connect your serial devices to systems that use a USB interface. Connecting the I-7561 to a PC, you get one RS-232/422/485 port. Like the I-7520A, the I-7561 contains "Self-Tuner" chip auto-tunes the Baud Rate and data format to the RS-485 network. The I-7561 module derives its power from the USB port and doesn't need any power adapter.

Applications



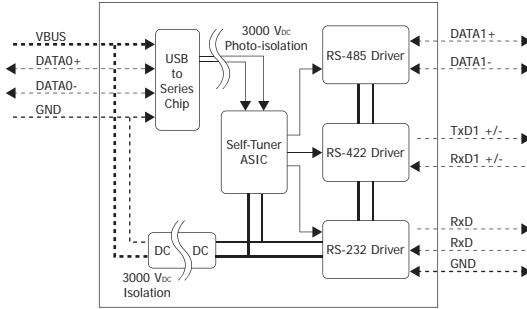
Software

Driver	Windows 98/ME/2000/XP/Vista (32/64-bit)/7 (32/64-bit)/Linux
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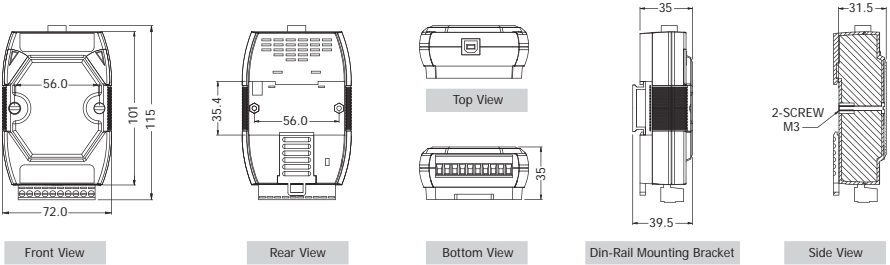
Specifications

Interface		
USB		Compatibility: USB 1.1 and 2.0 standards
Serial Interface	RS-232	TxD, RxD, GND
	RS-422 RS-485	TxD+, TxD-, RxD+, RxD- 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
RS-422/485 Transfer Distance		Max. 1,200 m at 9.6 kbps; Max. 400 m at 115.2 kbps
Maximum Supported RS-485 Devices		256 (Without repeater)
Self-Tuner Asic Inside (RS-485)		Yes
Speed		300 – 115200 bps
Connection	RS-232/422/485	Removable 10-Pin Terminal Block
	USB	Type B
Cable Included		CA-USB18 (1.8 m Cable) x 1
LED Indicators		
Power		Yes
Power		
Input Voltage Range		+5 V _{oc} from USB
Power Consumption		0.5 W
Mechanical		
Casing		Plastic
Flammability		Fire Retardant Materials (UL94-V0 Level)
Dimensions (W x H x D)		72 mm x 115 mm x 35 mm
Installation		DIN-Rail
Environment		
Operating Temperature		-25 °C ~ +75 °C
Storage Temperature		-30 °C ~ +75 °C
Humidity		10 – 90% RH, non-condensing

Internal I/O Structure



Dimensions (Unit: mm)



Pin Assignments



Terminal No.	Pin Assignment
RS-485	01 DATA+
	02 DATA-
	03 TXD+
	04 TXD-
RS-422/485	05 Rx/D+/DATA2+
	06 Rx/D-/DATA2-
	07 Tx/D
	08 Rx/D
RS-232	09 (B)GND
	10 (B)GND

Ordering Information

I-7561 CR	USB to RS-232/422/485 Converter (RoHS)
I-7561-G CR	USB to RS-232/422/485 Converter (Gray Cover) (RoHS)
Include Cable CA-USB18 (1.8 m Cable) x 1	

Accessories

USB-2560 CR	Industrial 4-port USB 2.0 Hub
CA-USB18	USB Type A to Type B Cable



I-7563

USB to Isolated RS-485 Active Star Wiring Converter

Features

- Fully Compliant with USB 1.1/2.0 (High Speed)
- No External Power Supply required
- RS-485 Active Star Wiring Applications
- Automatic RS-485 Direction Control
- 3000 V_{DC} Isolation Protection on the RS-485 side
- ESD Protection for the RS-485 Data Line
- Operating Temperatures, -25 °C ~ +75 °C
- Driver Supports Windows 98/ME/2000/XP/Vista (32/64-bit)/7 (32/64-bit)/Linux
- DIN-Rail

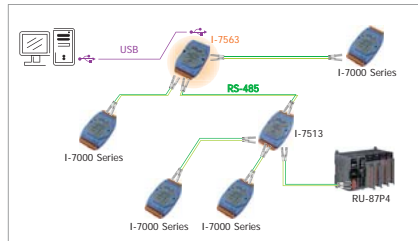


Introduction

The I-7563 is a cost-effective module for transferring serial data via USB. It allows you to connect your serial devices to systems that use a USB interface. Connecting the I-7563 to a PC. The I-7563 contains "Self-Tuner" This chip auto-tunes the Baud Rate and data format to the RS-485 network. The I-7563 module derives its power from the USB port and doesn't need any power adapter.

Do you have any RS-485 wiring problems I-7563 is a USB to 1-channel RS-485 converter with a 3-way RS-485 Hub. Each channel contains its own RS-485 driver IC, so it can support star-shaped wiring.

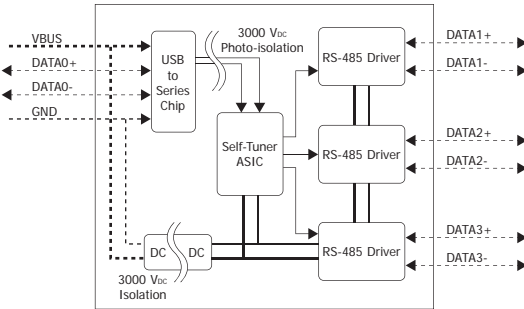
Applications



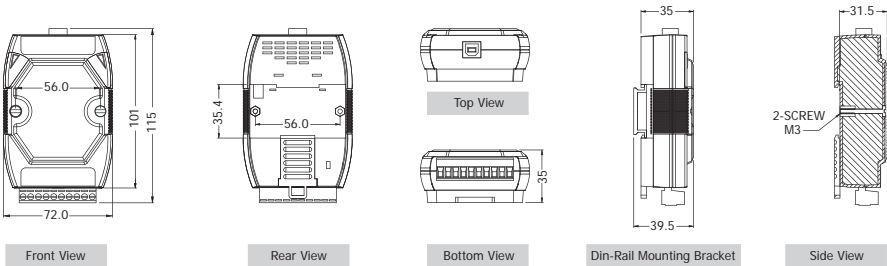
Specifications

Interface	
USB	Compatibility: USB 1.1 and 2.0 standards 3 Channels: For active star wiring applications
RS-485	Data1+, Data1- Data2+, Data2- Data3+, Data3-
2-wire cabling	Belden 8941 (2P twisted-pair cable), if different cables are used, the transmission distance may change
RS-485 Transfer Distance	Max. 1,200 m at 9.6 kbps; Max. 400 m at 115.2 kbps
Maximum Supported RS-485 Devices	Max. of 256 devices
Self-Tuner Asic Inside for RS-485	Yes
Speed	300 – 115200 bps
Connection	RS-485: Removable 10-Pin Terminal Block USB: Type B
Cable Included	CA-USB18 (1.8 m Cable) x 1
LED Indicators	
Power	Yes
Power	
Input Voltage Range	+5 V _{DC} from USB
Power Consumption	0.5 W
Mechanical	
Casing	Plastic
Flammability	Fire Retardant Materials (UL94-V0 Level)
Dimensions (W x H x D)	72 mm x 115 mm x 35 mm
Installation	DIN-Rail
Environment	
Operating Temperature	-25 °C ~ +75 °C
Storage Temperature	-30 °C ~ +75 °C
Humidity	10 – 90% RH, non-condensing

Internal I/O Structure



Dimensions (Unit: mm)



Pin Assignments



Terminal No.	Pin Assignment
RS-485	01 DATA3+
	02 DATA3-
	03 --
	04 --
RS-485	05 DATA2-
	06 DATA2+
	07 --
	08 --
RS-485	09 DATA1-
	10 DATA1+

Ordering Information

I-7563 CR	USB to Isolated RS-485 Active Star Wiring Converter (RoHS)
I-7563-G CR	USB to Isolated RS-485 Active Star Wiring Converter (Gray Cover) (RoHS)
Include Cable	CA-USB18 (1.8 m Cable) x 1

Accessories

USB-2560 CR	Industrial 4-port USB 2.0 Hub
CA-USB18	USB Type A to Type B Cable

4.6. RS-232/422/485 to Fiber Optic Converter



Features

- Automatic RS-485 Direction Control
- Optical fibers enable transmission of 2 km
- Avoids lightning strikes and EMI/RFI interference
- ESD Protection for the RS-232/422/485 Data Line
- Power Input, +10 ~ +30 V_{DC}
- Operating Temperatures, -25 °C ~ +75 °C
- DIN-Rail



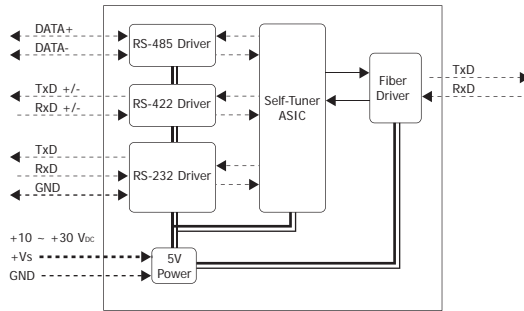
Introduction

The I-2541 is an RS-232/422/485 to fiber optic converter that secures data transmission by using fiber optic transmission to provide immunity from EMI/RFI interference. The I-2541 is used for RS-232/422 point-to-point connections and RS-485 multi-drop applications for transmitting a signal up to 2 km (6,600 ft) and is the perfect solution for applications where transmission must be protected from electrical exposure, surges or chemical corrosion.

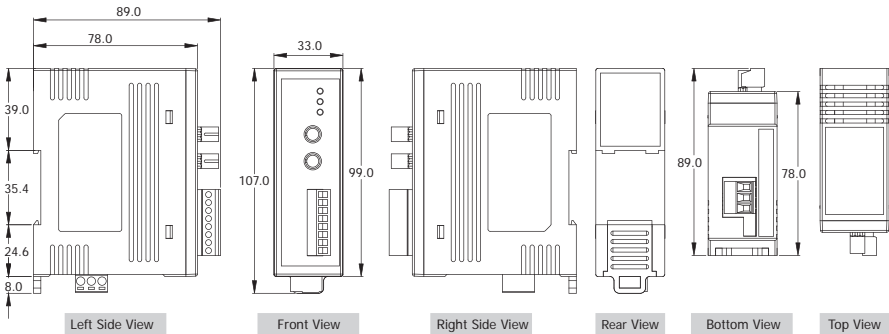
Specifications

Interface		
Fiber Interface	Fiber Port	Multi Mode; ST Connector
	Wavelength	850 nm
	Fiber Cable	50/125, 62.5/125, 100/140 μm
	Distance	2 km, (62.5/125 μm recommended)
Serial Interface	RS-232	TxD, RxD, GND
	RS-422	TxD+, TxD-, RxD+, RxD-
	RS-485	Data+, Data-
The RS-232, RS-422 and RS-485 cannot be used simultaneously		
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	
RS-422/485 Transfer Distance	Max. 1,200 m at 9.6 kbps; Max. 400 m at 115.2 kbps	
Maximum Supported RS-485 Devices	256 (Without repeater)	
Self-Tuner Asic Inside	Yes	
Speed	300 ~ 115200 bps	
ESD Protection	Yes	
RS-232/422/485 Connection	Removable 8-Pin Terminal Block	
LED Indicators		
Power/Communication	Yes	
Power		
Input Voltage Range	+10 V _{DC} ~ +30 V _{DC} (Non-isolated)	
Power Consumption	1.9 W	
Mechanical		
Casing	Plastic	
Flammability	Fire Retardant Materials (UL94-V0 Level)	
Dimensions (W x L x H)	33 mm x 89 mm x 107 mm	
Installation	DIN-Rail	
Environment		
Operating Temperature	-25 °C ~ +75 °C	
Storage Temperature	-30 °C ~ +75 °C	
Humidity	10 ~ 90% RH, non-condensing	

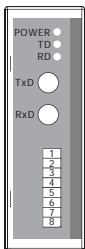
Internal I/O Structure



Dimensions (Unit: mm)



Pin Assignments



Terminal No.	Pin Assignment
TxD	Fiber TxD
RxD	Fiber RxD
01	TxD+/DATA+
02	TxD-/DATA-
03	RxD+
04	RxD-
05	NC
06	GND
07	TxD
08	RxD

Ordering Information

I-2541 CR	RS-232/422/485 to Fiber Optic Converter
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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

Applications

