



1.Summary

ITT-SR-1RS-1SC fiber serial device server is an industrial serial port to fiber converting device developed by Shanghai ITTELECOM. The device can realize transparent transmission between one channel RS232/ RS485/ RS422 data and fiber.

The ITT-SR-1RS-1SC fiber use single-mode single-fiber SC interface, using one fiber to transmit can save fiber cost in long distance transmission. The power input can be plug or 2 line terminal, provide 9~24V wide range input voltage.

It has RS232/485/422 three-in-one serial port, RS232 is common interface DB9, RS485/422 is terminal type, easy to install.

Different with normal serial to fiber product (such as ITT-SR-1RS-1SC), ITT-SR-1RS-1SC is not simply converting serial level signal to fiber signal, but first converting serial data to TCP/IP signal, then transmitting on fiber. The ITT-SR-1RS-1SC fiber signal can directly connect to fiber switch, directly participate in the transmission and exchange of network-layer data.

ITT-SR-1RS-1SC normally has 2 usages:

- 1) ITT-SR-1RS-1SC use in pairs, as the fiber interfaces of the 2 ITT-SR-1RS-1SC connect, it can realize RS485/RS232/RS422 signal extension through fiber, reaching a 20 km extension.
- 2) ITT-SR-1RS-1SC single use, directly connect to fiber switch or first connect a fiber to Ethernet device (ITTELECOM) then connect Ethernet switch. So ITT-SR-1RS-1SC can exchange data with any network device in the network. If communicating with computer, after installing virtual serial software ittelecom in the computer, it can collect the ITT-SR-1RS-1SC serial data via virtual serial port.
- 3) ITT-SR-1RS-1SC second usage is ITT-SR-1RS-1SC advantage, not only reduce the number of serial to fiber from 1 pair to 1 single, but also no need to use serial port directly use network to do the data acquisition in the PC end. The PC end can be modified to use virtual serial port software, and the existing host software no need to rely on network communication when it can be directly realized. ITT-SR-1RS-1SC has real .



Figure 1 ITT-SR-1RS-1SC

ITT-SR-1RS-1SC can be applied to:

- 4) Industrial remote data acquisition and control.
- 5) Connect the serial device to fiber switch network, the PC do the data acquisition and control application.

The typical application is as Figure 2. The existing serial device server connect with ITT-SR-1RS-1SC, then connect ITT-SR1812 with ITTELECOM via fiber, ITTELECOM connect to network via cable. Any data sent by serial device will be transparently transmitted to PC, and data sent to ITT-SR-1RS-1SC from PC also will be transparently transmitted

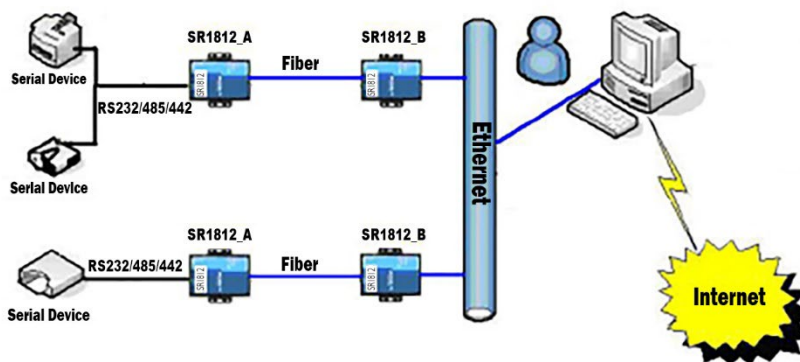


Figure 2 Connection Diagram

Note: ITT-SR-1RS-1SC has 2 sub-models: ITT-SR-1RS-1SC-A and ITT-SR-1RS-1SC-B, if B-end husing in pairs, the 2 models must be different. As: A-end device connect with device; B-end device connect with A-end device; the same sub-model cannot

connect. When ITT-SR-1RS-1SC connect with fiber switch, please confirm the optical interface of optical switch is A or B, then choose the relevant model, if A please

Difference between ITT-SR-1RS-1SC_A and ITT-SR-1RS-1SC_B:

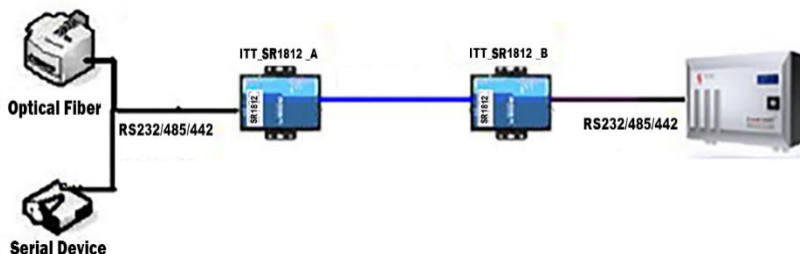
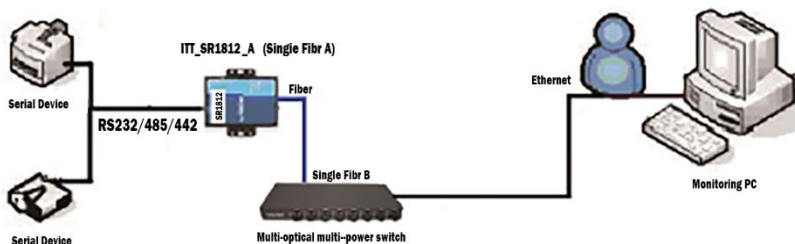


Figure 2 ITT-SR-1RS-1SC Usage Diagram

ITT-SR-1RS-1SC is normally used in optical fiber pairs-connection, can connect two RS485 devices together through fiber, no need to configure any parameters as port baud rate and 1812 IP and so on, can plug and play. In this case, ITT-SR-1RS-1SC

can be regarded as a pure communication medium converter for RS485/232

optical fiber



ITT-SR-1RS-1SC_A ITT-SR-1RS-1SC Usage Diagram

ITT-SR-1RS-1SC usually is single-used, it can connect with fiber switch, the host monitoring software can directly access ITT-SR1812IP address to get data. ITT-SR-1RS-1SC cannot realize this type. ITT-SR-1RS-1SC actually convert RS232/485 data to TCP format, it's a serial device server but transmitting on fiber.

If ITT-SR-1RS-1SC need use in pairs, must know the serial parameter of the device (baud rate, stop bit, data bit), and need to configure the 2 sets ITT-SR-1RS-1SC as mode of pairs connection (refer to "Pairs Connection" Part of < User Guide of eNetworking Products>), one as Client one as Server. The following situation

recommend to use ITT-SR-1RS-1SC:

- 1) There is no single optical fiber left for 485 to fiber, or pair-connection of multiple 485 devices need to through a fiber. At this time, use ITT-SR-1RS-1SC pair-connection, and cooperate with optical switch
- 2) Field network is the structure of optical switch, which requires cross-gateway and cross-routing
- 3) The upper computer is a computer, and the computer wants to access the device through the network, not When connecting through the serial port card, USB to port, et

When connecting ITT-SR-1RS-1SC to the optical switch, pay attention to the A end .
(connecting to ITT-SR-1RS-1SC-B (B end); B end connecting ITT-SR-1RS-1SC-A end ITT-SR-1RS-1SC-B

1. Feature

- 1) The fiber interface use SC pluggable interface, easy for user installing.
- 2) Serial port provide RS232, RS485 and RS422 three type interface.
- 3) Support full duplex, high speed converting, and no packet lost.
ITT-SR-1RS-1SC is the first type of full duplex, continuous, and low cost serial server in industry. It support simultaneously converting between Ethernet & Serial with Technical Parameters large bulk of data with no pause, and also no data is lost.
- 4) Support TCP Server, TCP Client, UDP mode, and if communicating with ittelecom, it automatically change to Real Com Driver Mode .
- 5) Support band rate 1200~1 15200bps, data size 5~9bits, parity of None, Odd, Even, Mark, Space. Support CTS/RTS hardware flow control .
- 6) Embedded 485/422 lightning protection function, suitable for outdoor 485/422 communication .
- 7) Equipped freely with our Windows Virtual Serial & Device Management Tool ittelecom. It supports virtual serial and searching device or modifying parameters with ittelecom .
- 8) Provided device management library (Window DLL library). It will help user to develop program with VC, VB, Delphi, C++ Builder. User need only use read() or ITT-SR-1RS-1SC() function to communicate with ITT-SR-1RS-1SC
- 9) The innovative disconnecting detecting method. Whether it running in TCP Server mode or TCP Client mode can automatically establish connection after network broken, to ensure the data real-time reaching .
- 10) Suitable for Modbus network upgrading, support directly converting Modbus TCP to Modbus RTU .
- 11) With build-in Web server, its parameters can be modified by web browser .
- 12) Support DHCP, easy for IP management and solve IP confliction.
- 13) Support DNS. It fulfills the need of access data server through domain name.
- 14) Support up to 100 TCP connections communicate with network module meanwhile.
- 15) Flexible serial data framing setting. It fulfills all kinds of serial data frame requirement.
- 16) UDP mode support dynamic destination address mode. It helps for multi-user manage one serial server.
- 17) Real Com Driver mode support using the 9-th bit to facilitate communication with multi-device. (the 9-th bit being 0 means data frame and 1 means address frame).
- 18) Support searching serial servers and modifying parameters through Internet remotely
- 19) Support parameter modifying protection, preventing modifying by accident. Support running with default parameters.
- 20) High protection of electromagnetic interference, with its high electromagnetic interference protection SECC external shell.

2. Technical parameter

Figure

Interface 422: Terminal; 485: Terminal; 232: DB9; 1812: Optical SC pluggable interface

Power Supply: 5.5mm, Inside positive outside negative, standard outlet

Size L x W x H =9.4cm×6.5cm×2.5cm

Communicate Interface

Ethernet Not in use, for extension,

Optical Fiber (1812) Single-mode Single-fiber, double transferring

Serial: RS232/485/422×1: RXD, TXD, GND, CTS, RTS

Serial Parameters

Baud rate: 1200~115200bps Parity bits: None, Odd, Even, Mark, Space

Data bits: 5~9 Flow Control: XON/XOFF, RTS/CTS, NONE

Optical Fiber Parameters

Sub-Model: Emission (TX) Wavelength Receiving (RX) Wavelength

(ITT-SR-1RS-1SC-A (A- SSH, SSL, SNMP 1550nm

end1310nm (ITT-SR-1RS- 1310nm

Optical Fiber
Transmission 20Km
Distance: Optical Communication Interface: SC

power

power 9~24V DC, 357mA@9V (1812)

Work Mode

TCP server, TCP client, UDP, Real Com Driver

Environment

Running temperature -40~85℃

Storage temp -45~165℃

Humidity 5~95%RH

3. Hardware instruction

The front view of ITT-SR-1RS-1SC serial device server is shown as FIG 4: ITT-SR-1RS-1SC use black anti-radiation SECC board, it's equipped with two "ears" for easy installation. If you want to install to the guide rail, you can choose the guide installation accessories.



Figure 5 Optical fiber interface and RS232



Figure 6 Front View

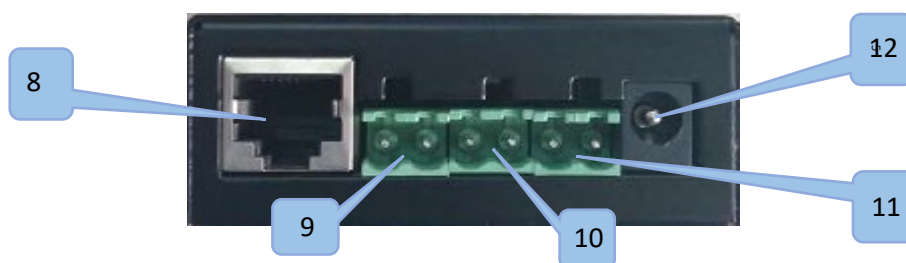


Figure 7 Power and RS485/RS422

Table: Interface No. and Description

Item	Name	Instruction
1	Sc – fiber – optical - interface	fiber optical interface
2	RS232 port	RS232 port DB9
3	RS232 port	DB9
4	Fiber Link Indicator	Optical fiber interface link/status indicator; The light indicates that there is optical fiber access; light off indicates that no optical fiber access.
5	Power Indicator	Power on
6	TCP Link Indicator	TCP connection establish indicator. When 1812 as TCP Server there has other computer establish the TCP connection with it; when 1812 as TCP Client, it connects with the destination computer; when 1812 as UDP mode.
7	Active Indicator	Communication indicator, the light is on when there has data communication
8	RJ45	Ethernet Port
9	RS422 Terminal	Combined with RS485 port to RS422 port
10	RS485 Terminal	RS485 port
11	DC Plug	Power interface; OD 5.5mm, ID 2.1mm
12	DC Terminal	Power interface; 5.08mm terminal

The serial port use standard DB9 male head, the line sequence shows as the following table:

Item	Name	Instruction
2	RXD	receiving pin of the serial device server
3	TXD	sending pin of the serial device server
5	GND	Ground wire
7	RTS	After the flow control in using, the serial device server will accept the data of the serial device when the pin is 0.
8	CTS	After the flow control in using, the serial device server will send the data to the serial device when the pin is 0.

4. Usage

ITT-SR-1RS-1SC **single use** method 5.1

ITT-SR-1RS-1SC a single use, ITT-SR-1RS-1SC communicates with a PC of a network, and 12.8there should have a fibre-optic to Ethernet product between PC and ITT-SR1 Please install ittelecom on the PC. ittelecom search ITT-SR1812 through the e, IPtEthernet port and do configuration, main configure the serial port baud rate, address, port, working mode, etc. of 1812, the specific methods of configuration are similar with common serial device server, please refer to: <User Guide>

ITT-SR-1RS-1SC **for pair-connection 5.2**

When used in pairs, the first thing to notice is that must be the interconnection between ITT-SR-1RS-1SC-B and ITT-SR-1RS-1SC-A. In addition, need to configure the serial port baud rate and TCP pair-connection. If the user has the photoelectric conversion device, just ITT-SR-1RS-1SC, ITT-SR-1RS-1LC to the Ethernet port of the computer, it can be conveniently configured via ittelecom through the Ethernet port search. If the user does not have a photoelectric conversion device, the ittelecom 4.13 provides a method for serial search and configuration. The specific methods are as follows:

1) Search Device

a) User has a photoelectric converter, just connect 1812 to the computer network, click the "Device Manage", ittelecom automatically find device, click on the "Edit Device" to configure the baud rate and working mode of the device.

b) User doesn't have photoelectric converter, connect RS232 port of 1812 to computer serial port or USB to RS232 port. As shown in figure 8, click "Search Serial", select the serial number in the pop-up dialog box, no need to select baud rate, and click ok. ittelecom searches for 1812 through a serial port, the device will be listed in the list after being searched out, the type is "Serial". Then click "Edit Device" to enter the configuration of the device parameters.

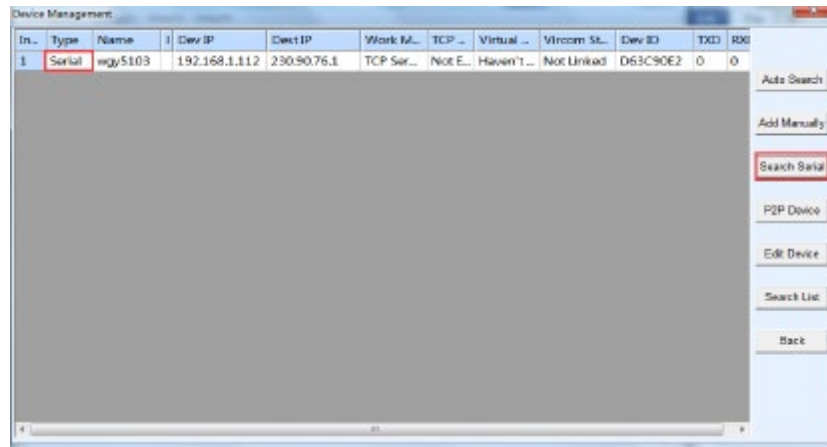


Figure 8 Serial Port Search Device

2) Serial Parameter Setting

Please configure the parameters of 1812 according to the baud rate, data bits and check bits of the device connected with the serial port.

3) TCP pair-connection configuration

The configuration is to make two 1812 establish TCP connections. As shown in figure 9, the picture on the left shows the configuration of 1812-A, and the picture on the right shows the configuration of 1812-B.

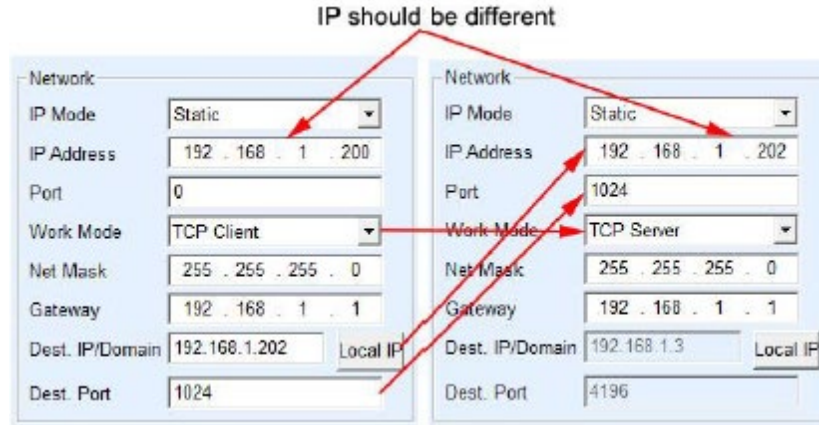


Figure 9 IP configuration of device pair-connection

- 4) As shown in figure 10, if you need to speed up the corresponding speed of the

round-trip data packet, change the packet interval to 0, so that the speed of the serial port can be speeded up. After setting, click "Modify Settings". However, after this modification, the function of the serial port configuration parameter will be disabled, so it is suggested that the user can be configured with the Ethernet port to follow this setting method.

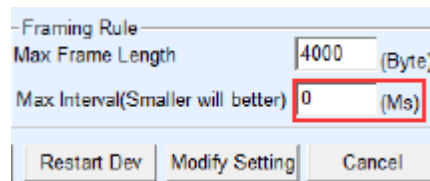


Figure 10 Reduces Packet Interval

- 5) After the above configuration is completed, the optical ports of 1812-A and

1812-B are connected to each other, and the TCP Link lights of 1812-A and 1812-B are also highlighted, indicating that the above network configuration is correct. When there is serial data communication, the ACT light of the two devices will be on at the same time, indicating that the data is transmitted between the two.

5. 485 Character

ITT-SR-1RS-1SC meet the RS485 standard, each ITT-SR-1RS-1SC can be with 32 terminal 485 devices. The maximum communication distance is 1200 meter, the resistance of 485 terminal is 120 ohms, usually must use terminal resistance when wiring over 300m. Pay attention to the wiring, 485+ and 485- must be a twisted-pair, in order to reduce signal interference.

6. Model Choice

Model	Instruction
ITT-SR-1RS-	A-end device
1SC-A ITT-	B-end device
SR1812-B	SC interface, 1m. Non-standard equipped, if need please purchase separately.
Fiber jumper	9V1A, 220V input, standard equipped.
Power adapter	

Phone: 021-44446012

Web: <http://www.ittelecom.com>