User manual of EC-UR4-F

I. Packing list

EC-UR4-F	×1
Drive CD	×1
R4CU00	×1
R4CD00	×1
Phone handle line	×1

II. Introduction

EC-UR4-F is a product which integrates parameters copying and USB/RS-485 converter. It is plug-and-play and convenient to be operated. Transient voltage suppressor (TVS) is adopted to protect the RS-485 interfaces. The protector can effectively restrain lightning or ESD with a protection voltage of 600W on each line for lightning surge and surge voltage or transient over voltage possibly caused up by various reasons, and at the same time, a high-speed transmission of RS-485 interfaces is ensured by the tiny capacitance between the poles. The unique I/O circuit of the internal zero delay auto transceiver contained in the converter controls the data stream direction automatically without any handshaking signal (for example RTS, DTR etc). The product is plug-and-play without any jumper settings needed for mode shift for half duplex (RS-485). All these features ensure a universal application on all the existing communication software and hardware interfaces. A reliable and stable point-to-point and point-to-multipoint communication can be ensured by EC-UR4-F photoelectric isolation interface converter. For point-to-multipoint communication, as many as 32 interface facilities of RS-485 standard can be connected to each converter.

III. Specification

1. USB/RS485 non-isolated converter

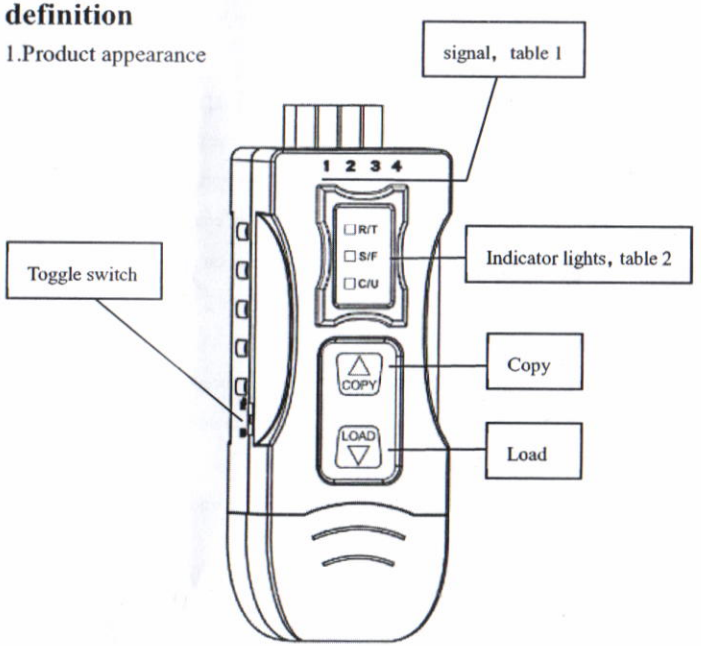
1. Standards: conforming to USBV1.1, 1.0 and 2.0, EIA RS-485, RS-422.
2. USB signals: +5V, DATA+, DATA-, GND, FG
3. RS-485 signals：GND、+5V、A+、B-
4. Working modes: asynchronous, point-to-point or point-to-multipoint, and 2-line half duplex
5. Direction control: adoption of automatic data stream control for automatic recognition and control of data transmission direction.
6. Baud rate: 300-921600bps, automatic detection of the transmission rate of the serial interface signal.
7. Workload ability: point-to-multipoint supported, a maximum of 32 RS-485 interface equipments are supported.
8. Transmission distance: 5,000 meters for RS-485 end (when 9,600bps) and a maximum of 5 meters for USB.
9. Interface protection: 600W lightning strike and surge protection and ±15KV electrostatic protection.
10. Interface forms: A interface female connector for USB end, 4 Pin pluggable terminal for RS-485 end.
11. 2 double color indicator lights for mode selection of parameter copying U disk or USB/485 converter, Receive (RXD) and transmit (TXD)
12. Transmission media: twisted-pair cable or shielded cable.
13. Transmission rate: 128,000bps to 300M.
    38,400bps to 600M.
    9,600bps to 5KM.
14. Dimensions: 77mmX30mmX20mm.
15. -40°C to 80°C, relative humidity 5% to 95%.
16. Transmission distance: 0～1200m (921600bps～300bps)
17. Opreration system: Windows 8.1、Windows 8.1 x64、Windows 8、Windows 8 x64、Windows Server 2008 R2、Windows 7、Windows 7 x64、Windows Server 2008、Windows Server 2008 x64、Windows Vista、Windows Vista x64、Windows Server 2003、Windows Server 2003 x64、Windows XP、Windows XP x64、Windows ME、Windows 98、Linux、Mac OS X、Mac OS 9、Mac OS 8、Windows CE.NET (Version 4.2 and greater)

2. Parameter copying

1. Power: external +5V, GND.
2. Terminals of uploading and downloading signal: GND、+5V、A+、B-
3. 2 double color indicator lights for parameters copying success/failure, mode selection of parameter copying U disk or USB/485 converter.
4. 2 buttons are used to upload and download parameters.
5. Read/write protection: a coding switch is used to realize read/write protection to avoid misoperation.

IV. Product appearance and connector signal definition

1.Product appearance



2.RS-485 output signals and PIN assignment

Table 1:

Four terminals (PIN)	Output signal	Parameter copying U disk cabling	RS-485 half duplex cabling
1	T/R-	Transmission (B-)	RS-485 (B-)
2	T/R+	Transmission (A+)	RS-485 (A+)
3	+5V	Power	none
4	GND	Grounding	none

1.Description of indicator lights

Table 2:

Indicator lights	Signal description
□R/T	RXD/ TXD
□S/F	Parameters copying success/failure
□C/U	Mode selection of parameter copying U disk or USB/485 converter

V. Hardware installment and application

Read the user manual carefully before using the product. When the working mode is USB/RS485, please connect it to USB port of PC, and connect T/R+（A+）、T/R-（B-）of EC-UR4-F to A+、B- of communication product.

USB/RS-485 supports the following 2 communication modes:

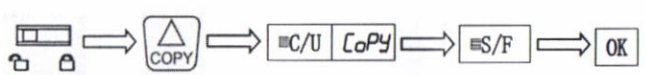
1. Point-to-point 2-line half duplex

2. Point-to-multipoint 2-line half duplex

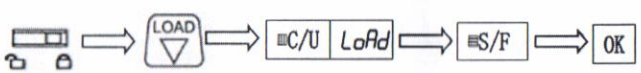
In order to prevent the signal reflection or interference when converter is used in half-duplex mode, a proper matching resistance should be connected at the termin al of the line (120Ω 1/4W).

Parameter copying U disk supports the following 2 kind of communication modes:

1.COPY mode:



2.LOAD mode:



Instructions of fault:

Fault mode	Indicator lights	Instructions
1	when the ■ S/F is always on	it means there is no valid data in copy U disk, or the data in copy U disk is wrong.
2	when the ▯ S/F is on once within 2s	data is received wrong
3	when the ▯ S/F is on twice within 2s	receiving wrong code Er71~Er75, slave computer is forbidden copying.
4	when the ▯ S/F is on three times within 2s	slave computer is interrupted copying.

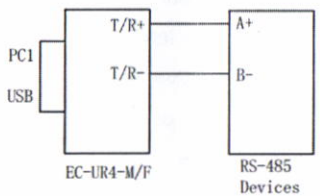
Note:1.▯ means red,■ means green.

2.when parameters copying, the power must be supplied by external terminal, USB port can not supply the power.

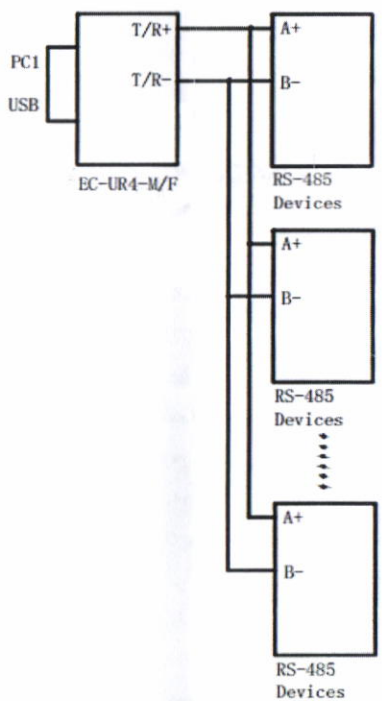
VI. Communication Connection Chart

1. USB to RS-485

1.1. RS-485 point-to-point / 2-line half duplex

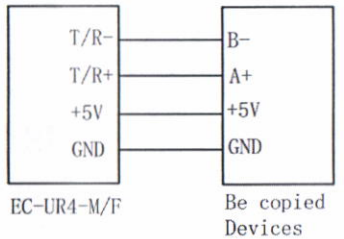


1.2. RS-485 point-to-multipoint / 2-line half duplex



2. Parameter copying mode

2.1. Parameter copying



VII. Trouble shooting

1. USB to RS-485 communication failure

1.1 Check if USB port is normal,users can try to change a USB port.

1.2 Check if RS-485 output interface line is correct.

1.3 Check whether TXD indicator is sparkling at transmission status.

1.4 Check whether RXD indicator is sparkling at receiving status.

1.5 Check whether wiring terminals is connected well.

1.6 Check whether the two ends data of data communication equipment are coincident.

2. Parameter copying failure

2.1. Please check whether the wiring and the power is normal.

2.2. Please check whether copied equipment stops.

2.3. Please check whether USB port is disconnected to USB port of PC.

2.4. Please check whether ON/OFF status of coding switch is correct at read/write protection status.

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