User's Guide for U-485 USB/RS485 converter

U-485 is USB to RS485 converter to realize communication conversion from USB to RS485. The power supply of the product is from the USB port, and no external power. Use the unique zero-delay automatic sending and receiving conversion technique and baud rate adaptive technique. Plug-and-play, suit for all software, and a transceiver enable control. And in the high resistance state when not sending data. Support multi-point communication, which is different from other similar cheap products in market. There is a built-in anti-static anti-lightning circuit in the product. This product for micro-design, size is as the same with the flash, anti-static and anti-lightning circuit was built-in, uniquely with sending/receiving indicator lights.

Features and technological index:

1, applies to all USB ports on PC. Support U-485 operating system: Win98/2K/XP、MAC OS-9/X、Linux 2.40 and above

2, USB port-powered, no external power, the current <50 mA

3, output for the second-line Connection-half-duplex RS485 interfaces

4, use the shielded twisted pair whose sectional area is over 0.5 mm2 as communication lines

5, the largest communications distance is 3,000 meters (4800 bps), 2000 m (9600 bps) and

1000m(115.2Kbps).

6, Group website is at least 32 points. For the most points of the group website site is depend on the input

impedance of RS485.

7, communications rate of 300 bps ~ 1Mbps, standard baud rate adaptive

8, support for UART data format: data bits: 7-8, stop bit: 1, 2, check-bit: odd / even / no parity

9, a transient voltage suppression, RS485/422 port can withstand the transient over-voltage whose power is

up to 600 W and electrostatic discharge and lighting strikes impact

10, the working temperature: -20 ~ 70 ℃

11, Dimensions: 65×22×12

Products' shape and definition of video signals:

The shape and size of the U-485 are similar to Flash. The shell is transparent plexiglass. The circuit

board installed two light-emitting diode as sending/receiving indicator lights. RS485 port is the blocks, as

shown below:
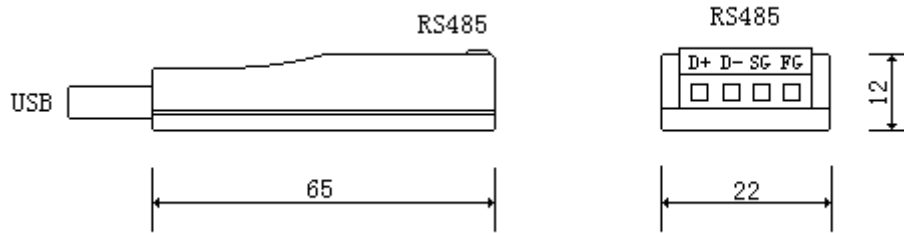
signals definition

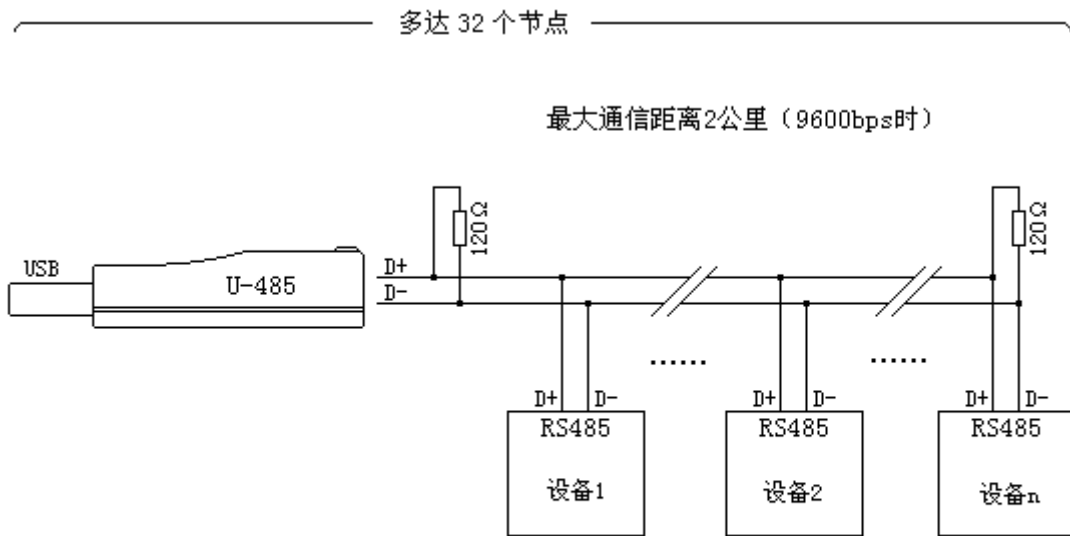| signal	note
D+	RS485 signals positive
D-	RS485 signals positive
SG	DGND
FG	AGND

U-485G driver installation method:

The driver of U-485G interface converters is easy to install. plug the converter into USB interface, the

system will prompt the discovery of new hardware, according to dialog , Add a CD-ROM to drive, then

finish the setup with tips on the next step. After the installation is complete, in the Windows "start menu \

Settings \ Control Panel \ system \ hardware \ Device Manager" .the property and other information of the

new COM ports will display on the screen. This new COM port is the COM port which U-485G is mapped

to computer, just select the port in communications software when you need.

For detail of the installation, please refer to "USB to COM driver installation instructions" on the

CD-ROM included in the product.

The application of products:

U-485 can be used for point-to-point communications and multi-point communications. Except for

linking several other RS485 interfaces, it can also make as many as 32 USB interfaces compose of RS485

communication network, its communication range is up to 3km（4800bps）、2km（9600bps）. The addresses

of each nodes are determined by the internal procedures of the equipment. Please connect the shield to the

"FG" terminal of products when using shielded twisted pair.

多达 32 个节点

最大通信距离2公里（9600bps时）

USB | U-485 | D+ D- | 120Ω | 120Ω

D+ D- | D+ D- | D+ D-
RS485 | RS485 | RS485
设备1 | 设备2 | 设备n

当线路长度超过50米时，需在总线的两端接入120欧终端电阻

Note:

1, Shielded twisted pair with. above 0.5 mm2 cross-sectional area and 120-ohm impedance

should be used as the communication lines,

2, In order to prevent the common mode voltage of RS485 interface beyond the permitted range witch

would impact the reliability of communication or even damage interfaces, you can use a low resistance

wire whose cross-sectional area is 1 mm2 to connect the signal ground "SG" of each RS485 to remove the

earth potential difference of each node on the network..

3, if you use unshielded twisted pair, will need connect all the shielding terminal FG (the chassis) of RS485

interfaces with the shield of twisted pair, and the bus will be the last point to shield of earth.

4, the cable length from each RS485 to the bus (extension) is no more than 15 m, otherwise will cause

echoes and affect the normal communication of system. Best scheme is to parallel connect RS485 directly

to the RS485 bus.

5, For the setting of terminal resistance, the role of terminal resistance is to eliminate the waveform

distortion caused by the reflection of signal in the communication lines. Please turn the termination resistor

setting switch K2 witch is on the RS485 of the communication line's terminal and initiating terminal to "R"

(connect 120 ohm terminal resistance), the terminal resistance setting switch K2 of other RS485 to "OFF"

(terminal resistance is unacceptable).

6, when the U-485 and other equipments' RS485 communication interface are connected, please connect

120 Europe terminal Resistance and two 1 K pull-up and pull-down resistances in the receiving terminal of

the final equipment's RS485, as Shown below:
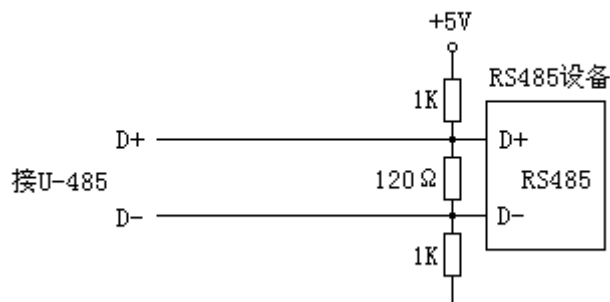
The 120 Ω resistances in the picture is terminal resistance. They are to prevent the signal reflection in the line. 1 K resistances are the level-pull-up resistor and level-pull-down resistor respectively. Its role is to ensure the line is logic "1" when the line is in leisure so that the data bits in cease - to prevent the reception error.

7 Annex: a CD-ROM drivers is with the product.

8, photoelectric isolation for converter of USB to RS485 to choose models: U-485G, for USB to a number of RS485 selected models: U-7485.