USBG-422MINI USB to RS-422 / 485 Plug-in Adapter User Manual

This mini USBG-422MINI is a surge and static protected USB to RS-422/485 Plug-in Adapter. The USB-COMi-PL USB-to-Industrial Single RS-422/485 Plug-in Adapter is designed to make industrial communication port expansion quick and simple. Connecting to a USB port on your computer or USB hub, the USB-COMi-PL instantly adds an industrial RS-422/485 communication port to your system. No jumper setting is required for setting this mini Plug-in adapter to RS-422 or RS-485 mode. The mini USB to RS-422/485 Plug-in Adapter makes it easier than ever to add a RS-422 or RS-485 device to your system with easy plug-and-play and hot plug features.

USBG-422MINI

Plugging the USBG-422MINI to the USB port, this Plug-in adapter is automatically detected and installed. There are no IRQ & COM port conflicts, since the port doesn't require any additional IRQ, DMA, memory as resources on the system. The RS-422/485 port functions as native Windows COM port, and it is compatible with Windows serial communication applications.

The USB Industrial I/O Adapter provides instant connectivity to RS-422/485 communication device for factory automation equipment, multi-drop data collection devices, barcode readers, time clocks, scales, data entry terminals, PC-to-PC long distance communications and serial communication in harsh environments. The USB Industrial I/O provides industrial solution for applications requiring single node or multi-drop communications over short and long distance.

Specifications and Features

- Adds a high speed RS-422 / 485 serial port via USB connection
- 256 bytes receive buffer for high speed data throughput
- 128 bytes transmit buffer for high speed data throughput
- Requires no IRQ, DMA, I/O port
- Data rates: 300 bps to 1M bps
- Connector: one 6-pin terminal block connector
- Auto transmit buffer control for 2-wire RS-485 half-duplex operation
- RS-422 (4 wire) data signals: TxD-, TxD+, RxD+, RxD-, GND
- RS-485 (4 wire) data signals: TxD-, TxD+, RxD+, RxD-, GND
- RS-485 (2 wire) data signals: data-, data+ GND
- Monitor LEDs of TxD, RxD indicating port status
- Easy operating mode configuration and setting
- Provides 15KV ESD protection and 600W surge protection for all serial signals
- FTDI virtual COM port drivers provided for Windows 8, 7, Vista, Server 2012, 2008, 2003, XP, 2000
- Linux kernel 2.4 and up built-in support. No driver installation required.
- Wide ambient temperature operation 0°C to 60°C (32°F to 140°F)
- CE, FCC approval

Driver Installation

In most cases, the driver of USBG-422MINI will be installed automatically.

Install in Windows 8, 7, Server 2012, 2008 R2

Connect your computer to the Internet and plug the USB-COMi-PL to the USB port. The driver will be installed automatically via the Internet.

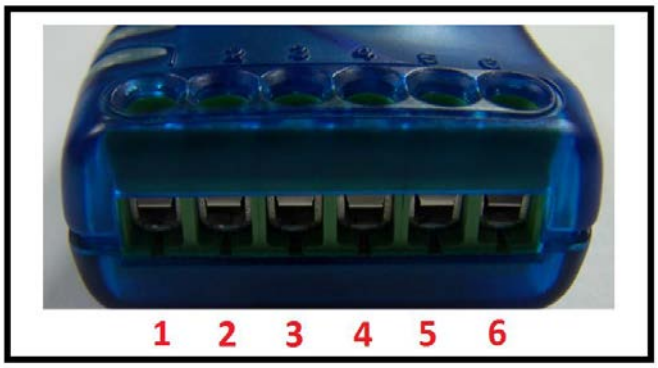
Install in Windows XP, Vista, Server 2003 and 2008

Connect your computer to Internet and plug USB-COMi-PL to the USB port, when asked to install the drivers, allow your computer to search the Internet to load and install the drivers automatically.

Install in Windows 2000

Download drivers: See website.

Pin-outs of Terminal Block Connector



Terminal block connector pin numbers

RS-422/485 Full Duplex Mode Pin-out

The table below shows the RS-422 / 485 full duplex mode pin-out of the terminal block connector.

Pin Number	Pin Type	Description	
1	Output	TxD-	Transmit Data, negative polarity
2	Output	TxD+	Transmit Data, positive polarity
3	Input	RxD+	Receive Data, positive polarity
4	Input	RxD-	Receive Data, negative polarity
5	Power	VCC	DC +5V
6	Ground	GND	Signal Ground

RS-422/485 full duplex pin-out for terminal block connector

RS-485 Half Duplex Mode Pin-out

The table below shows the RS-485 half duplex mode pin-out of the DB-9 Male connector.

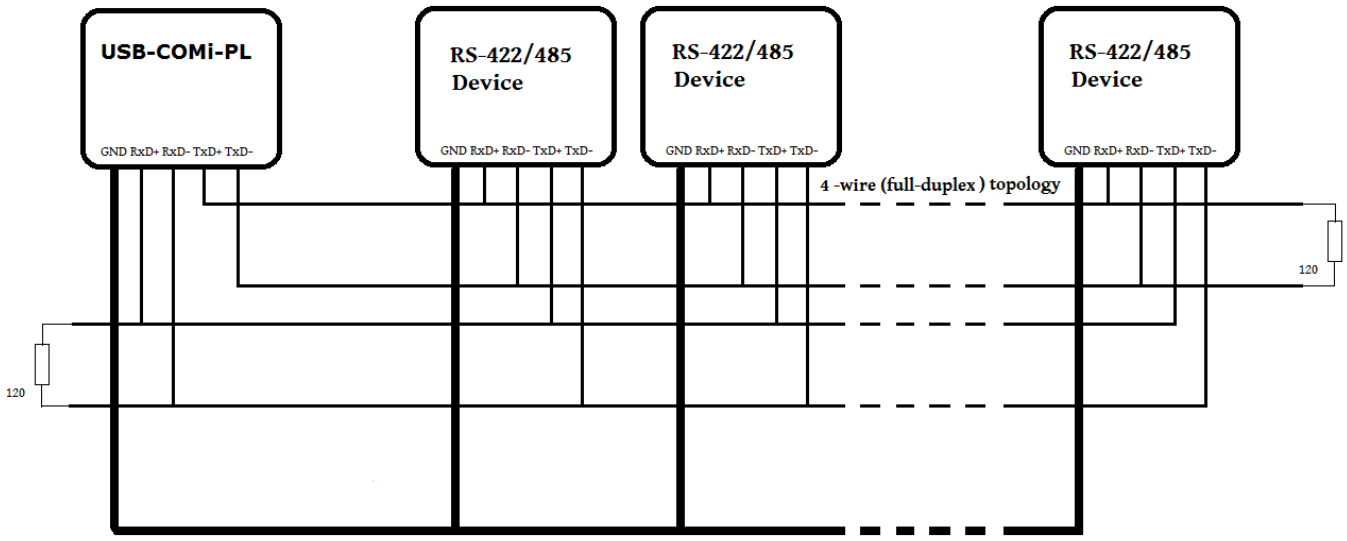
Pin Number	Pin Type	Description
1	Out / In	Data- Transmit / Receive Data, negative polarity
2	Out / In	Data+ Transmit / Receive Data, positive polarity
5	Power	VCC DC +5V
6	Ground	GND Signal Ground

RS-485 half duplex pin-out for terminal block connector

Signal Wiring

RS-422 and RS-485 4-Wire Scheme

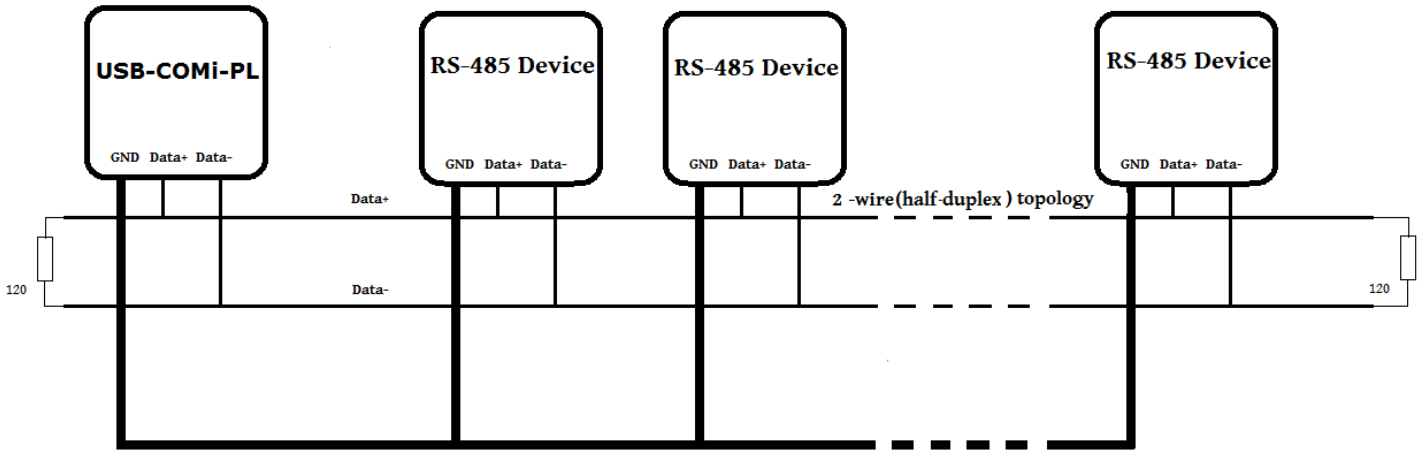
The RS-422/485 requires dedicated wire pairs for transmit and receive. The transmit wires are used to send data to as many as 10 receivers, as stated in the specifications of RS-422. Since the USBG-422MINI uses RS-485 line driver technology, up to 32 receivers are possible. The following diagram shows RS-422 and RS-485 4-wire scheme: Settings are listed as follows:



4-wire cabling scheme

RS-485 2-Wire Scheme

The following diagram shows RS-485 2-Wire scheme:



2 -wire cabling scheme

The RS-485 operation of USB-COMi-PL allows for 2-wire cabling. Several RS-485 2-wire devices are connected in parallel to the wires, which is call bus topology. Each device can either send or receive data at a given time, so it is operating in half-duplex mode.