

Let's communicate

elo

**USB – RS-485 Communication adapter
- virtual serial port**



ELO E218

Operation manual

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1.0 Introduction

The USB interface is preferred to the COM port with RS-232 interface in personal computer technology. To connect the peripheral devices of the RS-232 interface, the USB/RS-232 adapters along with the driver are applied to create so-called virtual COM on the PC.

ELO E218 is a device which converts virtual COM to the asynchronous line of the symmetric signal via the USB interface. The signals transmission to the half-duplex RS-485 interface allows the range, communication partners' number and the transmission interference immunity to increase.

1.1 Use of the adapter

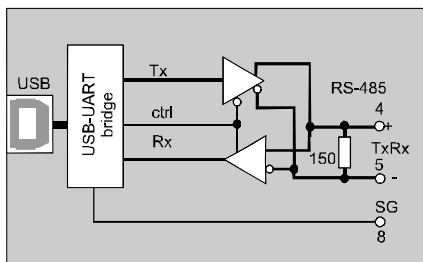
he converter increases transmission immunity against electrical disturbance hence it is intended to be used in the environments where lightning over-voltage is not necessary to be considered. The adapter allows the transmission rate up to 1 Mbps. This maximum attainable rate decreases due to the line length and/or its impedance growth. Recommended maximum line length is 1200 m at the rate of 9600 bps.

2.0 Operation principles

The adapter E218 converts the RS-485 interface to the USB interface, transmits Tx and Rx signals. The transmission is half-duplex that means switching on the RS-485 transmitter only during its own transmitting to allow other communication partners (max.32) to transmit. The RS-485 transmitter is automatically controlled.

There are two LED indicators - READY and DATA. READY indicates that drivers are installed correctly, DATA indicates that data are transmitted (red) or received (green) over RS-485.

Adapter is supplied from USB port



3.0 Installation

E218 adapter installation is described in this part. There are two problems to be solved: the hardware installation and the SW driver installation.

3.1 USB interface connection

The adapter operates as per specification USB 2.0 full-speed (12 Mbps). The USB adapter connector is of A male type.

3.2 RS-485 Installing

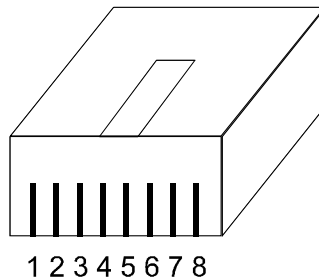
Model ELO E218 can be supplied with various RS485 connectors.

3.2.1 VW3A8E214 version

To built a two-point connection a local adapters' contact Tx+ (Tx-) must be connected to Rx+ (Rx-) contact of remote one and local Rx+ (Rx-) to remote Tx+ (Tx-). RS-485 interface is equipped with RJ45 connector (see the symbolic picture).

Contacts meaning :

1	Nc	5	TxRx- (D0)
2	Nc	6	Nc
3	Nc	7	Nc
4	TxRx+ (D1)	8	GND



There is a terminátor 150 Ohm between the contacts 4-5 (TxRx).

3.3 Installing driver

The E218 adapter may be applied on the PC computers under the MS Windows 98/Me/2000/XP, Vista or Linux. The drivers are supplied together with the other files at the installation CD. They may be downloaded from the producer web-sides www.elo.cz.

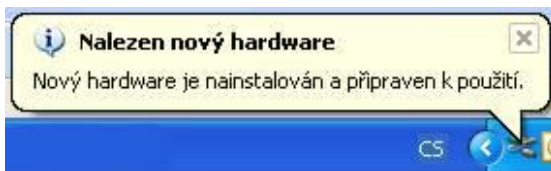
The proper installation of the drivers is indicated via the lit READY indicator on the cover connected to the adapter.

Following part of the user manual describes the process of installing under MS Windows XP only.

3.3.1 Installing virtual port under Windows XP

1. When the PC turned on and the adapter connected to the USB port via the cable is detected the operating system reports a new hardware has been found: **Nalezen nový hardware: ELO E218 Adapter**.
2. The system runs the Add New Hardware Wizard automatically. Failing this, the **Control panel** may be used to start the Wizard. Select the third option in the Wizard menu - „**Ne, nyní ne**“ („No, not now“) – and click the button „**Další**“ („Next“):
3. Select the second option in the Wizard menu „**Instalovat ze seznamu či daného umístění**“ (“Install from a list or specific location”) and click „**Další**“ („Next“):
4. In the next Wizard menu select „**Při hledání zahrnout toto umístění**“ and by the help of button „**Procházet**“ („Browse“) select the directory **e218_drivers** on the supplied CD. Then click „**Další**“ („Next“):
5. Don't be worry if the Wizzard will write: „Warning“ and click „**Pokračovat**“ („Continue“):

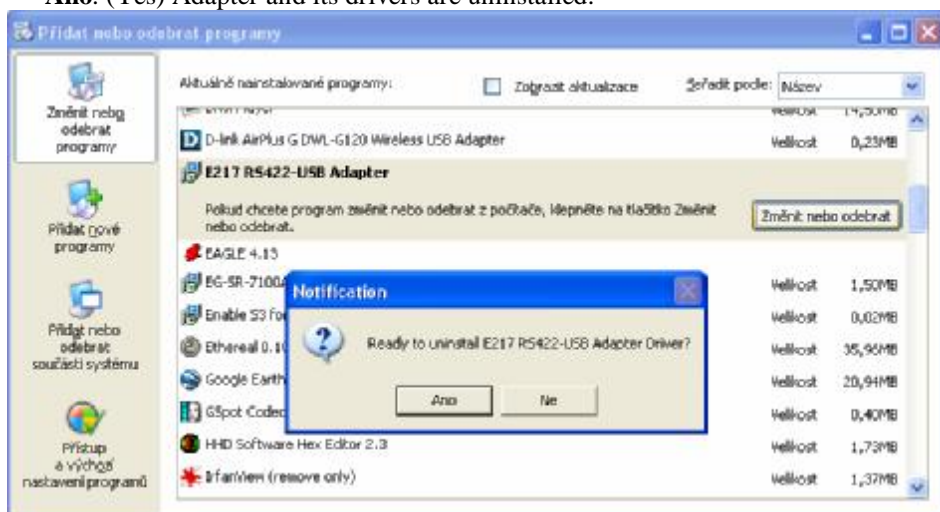
6. Now click “Finish” in the dialog box of the installing device completion.
7. Then it is necessary to continue with the virtual port installation. System will write „New hardware found“ again and the installation is running the same way as shown in steps from 2 to 4:
8. When the correct drivers of virtual COM port are found a new Warning is displayed. Click „**Pokračovat**“ („Continue“):
9. The virtual COM port installation has been completed:
10. **Nalezen nový hardware** („New hardware found and prepared for use“). **READY** indicates that drivers are installed correctly.



3.3.2 Uninstalling virtual port under Windows XP

Adapter E218 must be connected to PC during the process of uninstalling.

1. Select the part **Přidat nebo odebrat programy** (Add or remove programs) from **Ovládací panely** (Control panels). Then select the row **E218 RS485-USB Adapter**. Press button **Změnit nebo odebrat** (Change or remove) and confirm by pressing **Ano**. (Yes) Adapter and its drivers are uninstalled:

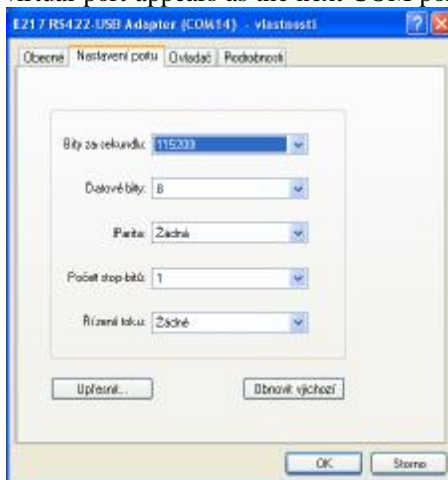


2. Pressing button „**OK**“ you’ll confirm uninstalling
3. After the uninstalling the LED „**READY**“ will switch off. Adapter E218 can be disconnected.



3.3.3 Virtual port properties setting

When connection is established the adapter virtual port appears as the next COM port in the **Správce zařízení**. (Device Manager) Go to **Ovládací panely** (Control panel) and select **System / Hardware** and run the **Správce zařízení** (Device Manager). The next COM called **E218 RS485-USB Adapter** has appeared among the **Ports**. In **Vlastnosti** (Properties), its setting, e.g. data rate, character format and/or flow control can be changed. **Caution!!!** The control signals are not transmitted hence no hardware flow control can be used. Pod volbou The port number assignment (e.g. COM3, COM4,) may be changed under the **Upřesnit** (Specify option).



4.0 Specification

4.1 Parameters

USB interface	USB 2.0 full-speed (12Mb/s)
USB connector	typ A - male
RS485 connector,	RJ45
Terminator	internal 150 Ohm
Transmission mode	asynchronous, half-duplex
Maximum data rate	921 600 kbps

4.2 Other

Supply	from USB interface
Power take-off	max. 100 mA
Length	2300 mm
Weight	cca 100 g
Skladovací teplota	- 10° to +55 °C
Working temperature	+ 0° to +50 °C
Humidity	0 – 85% (non-condensing)

5.0 Testing

The proper installation of ELO E218 and the drivers is indicated via the lit READY indicator on the cover connected to the adapter.

TxD – RxD indicator must blink when the data are transmitted. It is necessary to use two pieces of E218, connect them (see chapter 3.2). PC with SW HyperTerminal can serve as typical end device.

6.0 Troubleshooting

Symptom	Action
Adapter does not work after installation	Check if the cable is connected properly. Check if READY is alight Unplug and plug USB connector. Repeat the driver installation
Connection in normal operation quit working.	Check if READY is alight. Check the cable connection.
RS485-USB adapter is absent in Device Manager	Unplug and plug USB connector. If necessary repeat the driver installation

7.0 Ordering information

Objednací kód je ELO E218 or VW3A8E214. The adapter is supplied with the installation CD and this manual.

