

Let's communicate

elo

USB – RS232 Communication adapter – virtual serial port



ELO E213

Operation manual

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1.0 Introduction

The USB interface is preferred to the COM port with RS232 interface in personal computer technology. To connect the peripheral devices of the RS232 interface, the USB/RS232 adapters along with the driver are applied to create so-called virtual COM on the PC.

Application running on PC can communicate with a peripheral device through this virtual COM.

1.1 Use of the converter

The adapter isolates both interfaces USB / RS232 hence it is intended to be used in the environments where lightning over-voltage is not necessary to be considered. It is not recommended to use RS232 cable outside buildings.

The adapter allows the transmission rate up to 115.2 kbps. Recommended maximum line length is 15m.

2.0 Operation principles

The adapter converts the signals between RS232 interface and USB. All the RS232 signals: TxD, RxD, RTS, CTS, DTR, DSR, DCD and RI are present on RS232 connector DB9 M. The transmission is duplex.

Adapter doesn't need an external supply. All energy is supplied from USB connector.

3.0 Installation

E213 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 B female type. The adapter is connected to the terminal equipment via the USB jumper cable of AB type.

3.2 RS232 Installing

A peripheral device (DCE) can be connected to adapter through DB9 connector. The adapter is DTE with connector DB9M. Following table shows the signals and contacts:

RS232 SIGNAL	Name abbr.	E213 conn. (DB9M)	DCE conn. (DB9F)	Direction	
				E213	DCE
Signal Ground	SG	5	5	--	--
Transmitted Data	TxD	3	3	output	input
Received Data	RxD	2	2	input	output
Request To Send	RTS	7	7	output	input
Clear To Send	CTS	8	8	input	output
Data Terminal Ready	DTR	4	4	output	input
Data Set Ready	DSR	6	6	input	output
Data Carrier Detect	DCD	1	1	input	output
Ring Indicator	RI	9	9	input	output

3.3 Installing driver

The E213 adapter may be applied on the PC computers under the MS Windows 98/Me/2000/XP, Vista or Linux operating systems. 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.

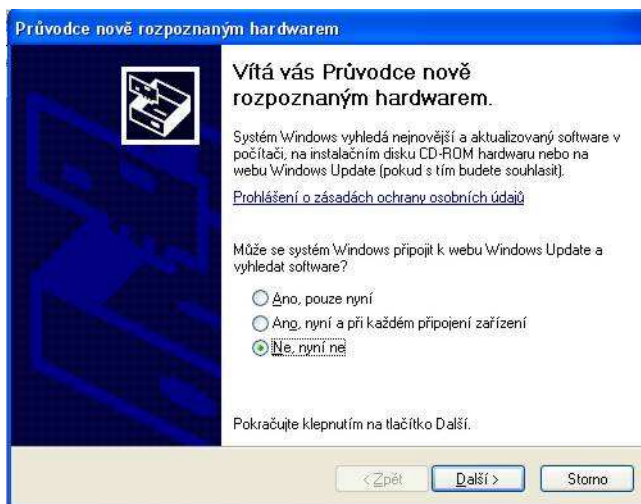
Following part of the user manual describes the process of installing under MS Windows XP only.

3.3.1 Installing virtual port under Windows XP

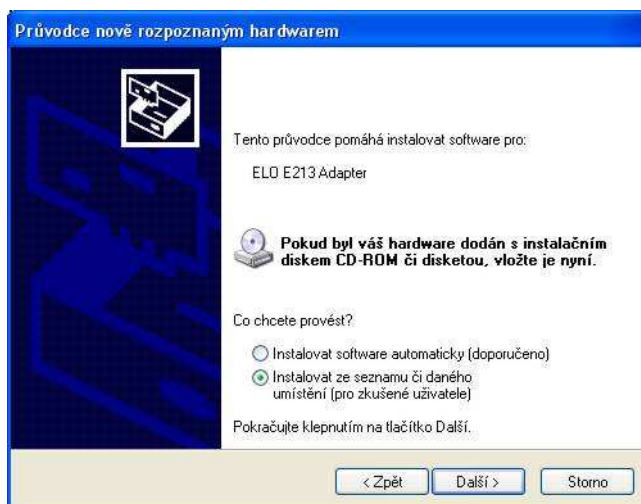
1. When the PC turned on and the adapter connected to the USB port via the cable is detected the operating system reports a new hardware has been found:



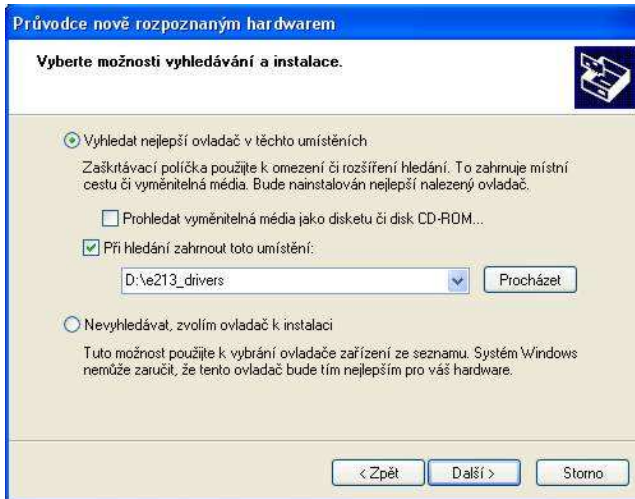
2. The system runs the Add New Hardware Wizard automatically. Failing this, the **Control panel** may be used to start the Wizard. Select the third option in the Wizard menu - „Ne, nyní ne“ („No, not now“) – and click the button „Další“ („Next“):



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“):



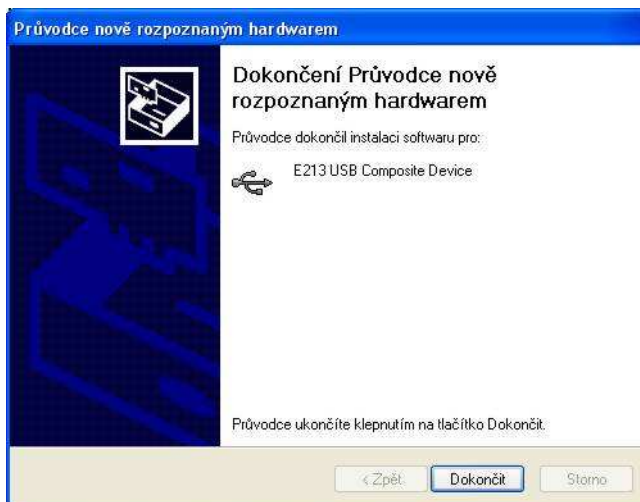
4. In the next Wizard menu select „Při hledání zahrnout toto umístění“ and by the help of button „Procházet“ („Browse“) select the directory **e213_drivers** on the supplied CD. Then click „Další“ („Next“):



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:



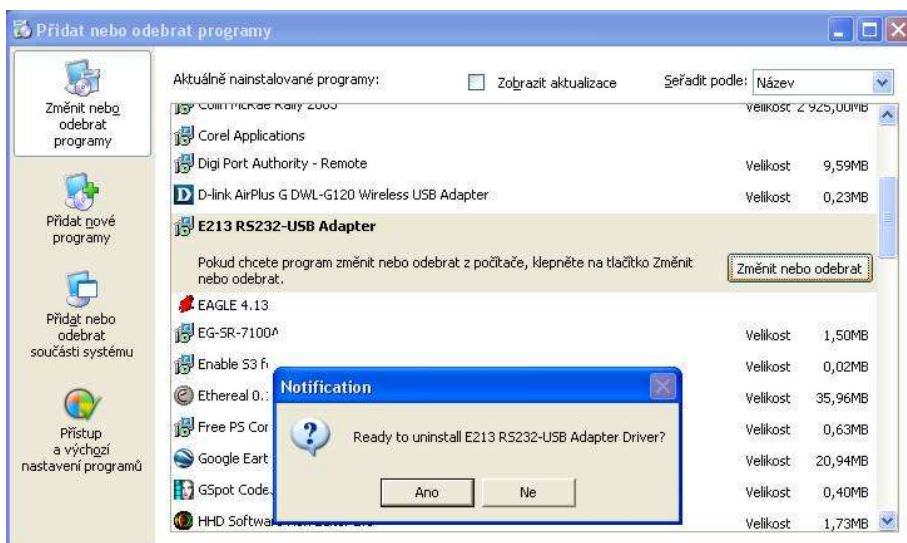
10. Nalezen nový hardware“ („New hardware found and prepared for use“):



3.3.2 Uninstalling virtual port under Windows XP

E213 must be connected to PC during the process of uninstalling.

1. Select the part „**Add or remove programs** (Přidat nebo odebrat programy)“ from „**Control panels** (Ovládací panely)“. Then select the row **E213 RS232-USB Adapter**. Press button „**Change or remove** (Změnit nebo odebrat)“ and confirm by pressing „**Yes** (Ano)“. Adapter and its drivers are uninstalled:



- Pressing button „**OK**“ you'll confirm uninstalling:

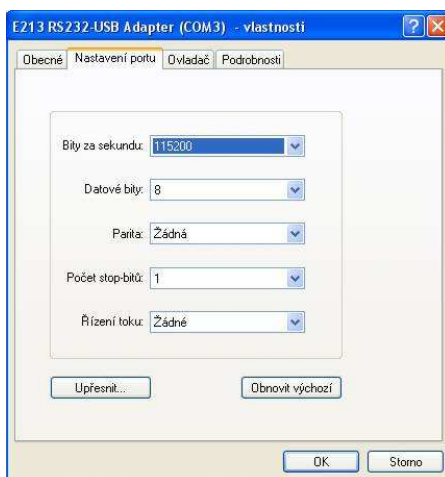


- After the uninstalling the LED „**READY**“ will switch off. Adapter E213 can be disconnected.

3.3.3 Virtual port properties setting

When connection is established the adapter virtual port appears as the next COM port in the **Device Manager** (Správce zařízení). Go to **Control panel** (Ovládací panely) and select **System / Hardware** and run the **Device Manager**. The next COM called **E213 RS232-USB Adapter** has appeared among the **Ports**. In **Properties** (Vlastnosti), its setting, e.g. transmission speed, character format can be changed. A flow control (Řízení toku) must be set **No** (Žádné).

The port number assignment (e.g. COM3, COM4,) may be changed under the **Specify option** (Upřesnit).



Important!

If application SW doesn't use the operating system services, a correct cooperation between application SW and adapter can't be warranted!

4.0 Specification**4.1 Parameters**

USB interface	USB 2.0 full-speed (12 Mbps)
USB connector	B type
RS232 interface	signals transmitted: TxD, RxD, RTS, CTS DTR, DSR, DCD and RI
RS232 connector	DB9M - DTE
Isolation between USB/RS232	isolation barrier of 1 kV for 1 sec
Transmission mode	asynchronous, duplex
Maximum data rate	115 200 bps

4.2 Other

Supply	from USB interface
Power take-off	up to 60mA
Weight	circa 75 g
Dimension: Width	55 mm
Length	68 mm
Height	25 mm
Stocking temperature	- 10° to +55 °C
Working temperature	+ 0° to +50 °C
Humidity	0 – 85% (non-condensing)

5.0 Testing

When the USB cable is connected and the drivers are installed properly the LED READY has to light up. When the RS232 transmitter and receiver (TxD and RxD) are interconnected the transmitted and received data has to be equal. The Hyperterminal program which is of the MS Windows part or **e213_test** supplied on the installation CD may be used for testing.

The TxD and RxD LED diodes blink during the transmission. If there is the transmission of the high rate and the data blocks are very short the LED brightness is low because they only shine if the data signal is on the active level. It means the short data transmission (or even a sign transmission) of the high data rate are not perceptible to the eye.



6.0 Troubleshooting

Symptom	Action
Adapter does not work after installation.	Check if the metallic link and the USB cable are connected properly. Disconnect USB connector and connect it again. Check if READY is alright.
Connection in normal operation quit working.	Check if READY is alright. Check the cables connection.
The E213 adapter is missing in the Device Manager.	Turn it off and on. If need be, repeat the installation.

7.0 Ordering information

Supply code is ELO E213. The adapter is supplied with the installation CD. The USB cable of the required length can be ordered separately as it is not provided.

Notes
