

Let's communicate

elo

**USB – RS232 Communication adapter
– virtual serial port (FTDI)**



ELO E360

Operation manual

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1.0 Use of the adapter

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 adapter 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.

All electronic circuits of E360 are closed in RS232 connector case. The adapter has cable shape.

2.0 Operation principles

The adapter ELO E360 converts the signals between RS232 and USB interfaces. All the RS232 signals: TxD, RxD, RTS, CTS, DTR, DSR, DCD and RI are present on RS232 connector DB9 M. The transmission is duplex. FTDI USB chip is used.

There are drivers to interconnect a virtual COM port and USB interface. If they were installed properly, the LED READY has to light up. Data transmission is indicated by bicolour LED. Active TxD – red light and active RxD – green light.

Adapter doesn't need an external supply. All energy is supplied from PC's USB port.

3.0 Installation

E360 adapter installation is described in this part. There are two problems to be solved: the hardware installation and the SW driver installation.

3.1 RS232 interface connection

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.	E360 conn. (DB9M)	DCE conn. (DB9F)	Direction	
				E360	PD
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

3.2 USB interface connection

ELO E360 operates as per specification USB 2.0 full-speed (12 Mbps). The USB adapter connector is of A male type. It can be connected to PC port directly.

When we are interconnecting two devices through the E360 **it is recommended to connect RS232 connector first and then USB one**, because of electrostatic charge which can be present in the devices.

3.3 Installing driver

The ELO E360 adapter may be applied on the PC computers under the MS Windows 98/Me/2000/XP/Vista/Server2k3 or Linux operating systems and on PDA under WindowsCE 6.0 or WindowsMobile 6. 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.

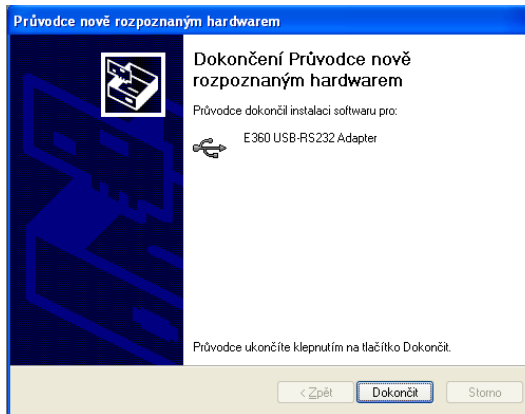
The proper installation of the drivers is indicated via the READY indicator on the cover connected to the adapter.

Following part of the user manual describes the process of driver ver. 2.04.16 installing under MS Windows XP only.

3.3.1 Installing virtual port under Windows XP

There are two parts of the driver – USB controller and COM port. Therefore it must be installed in two steps.

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. Select the third option in the Wizard menu – “No, not this time“ – and click the button “Next“.
3. Select the second option in the Wizard menu “Install from a list or specific location” and click “Next“.
4. In the next Wizard menu select “Don’t search. I will choose the driver to install“ and click “Next”.
5. From “Hardware Type” window select *USB controllers* and click “Next”.
6. Click the button “Have Disk...”. By the button “Browse“ select the directory **e360_drivers\Win2kXPVistaS2k3S2k8** on the supplied CD. Then click “Open“ and “OK”. In New Hardware Wizard window click “Next”.
7. Don’t be worry if the Wizzard will write: “Warning“. Click easily “Continue“.
8. Now click “Finish” in the dialog box of the installing device completion.



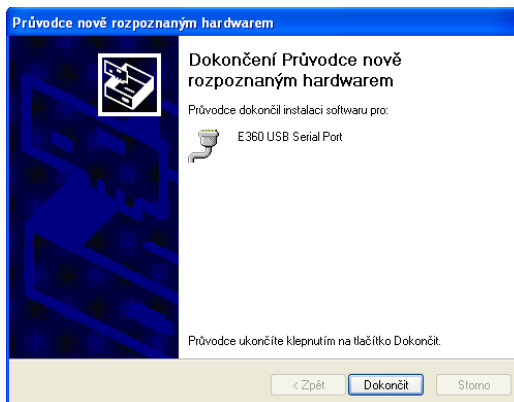
9. Then it is necessary to continue with the second part of installation - virtual port installation. System will write “New hardware found“ again and the installation is running the same way as shown in steps from 2 to 4.

10. From “Hardware Type” window select *Ports (COM & LPT)* and click “Next”.

11. Same as step 6.

12. When the correct drivers of virtual COM port are found a new Warning is displayed. Click “Continue“.

13. Click “Finish“ and the virtual COM port installation is completed.



14. The message appears in right down corner of the screen “New hardware found and prepared for use“. First free number is assigned to new virtual port, e.g. COM3 – see *Device Manager*.

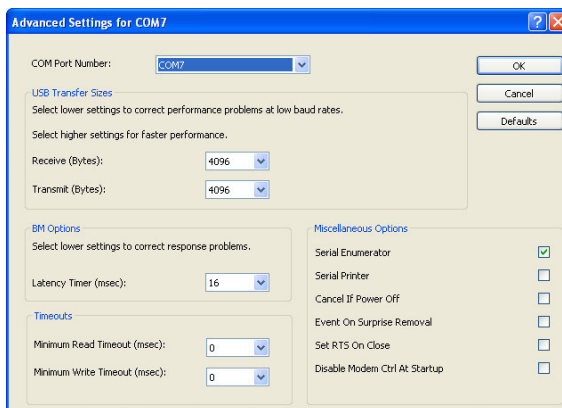
3.3.2 Uninstalling virtual port under Windows XP

E360 must be connected to PC during the process of uninstalling.

1. Open the Device Manager. In listed hardware select *Ports (COM & LPT)* and by the mouse right button click on *E360 USB Serial Port* item. From context menu choose “Uninstall” and confirm “OK”.
2. The same way as above uninstall *E360 USB-RS232 Adapter* item from hardware *USB controllers*.
3. Uninstalling is finalized, LED indicator READY stop light. Adapter E360 can be disconnected from USB port. Driver files stays on PC hard disk.

3.3.3 Virtual port properties settings

When connection is established the adapter virtual port appears as the next COM port in the **Device Manager**. Select COM port called *E360 USB serial Port* and from context menu click “Properties”. On card *Port Settings* click “Advanced...”. Now you can change some adapter settings. Most changed parameter is COM Port Number. Choose proper port number from scroll menu e.g. COM7 and confirm “OK”.



Don't forget assign the new COM port number in application using the adapter!

4.0 Specification

4.1 Parameters

USB interface	USB 2.0 full-speed (12 Mbps)
USB connector	A – male type
RS232 interface	signals transmitted: TxD, RxD, RTS, CTS DTR, DSR, DCD and RI
RS232 connector	DB9M – DTE
Isolation between USB/RS232	none
Transmission mode	asynchronous, full-duplex
Maximum data rate	230 400 bps
Special function	autoshtutdown, when RxD is disconnected

4.2 Other

Supply	from USB interface
Power take-off	up to 50mA
Indication LED	READY-red, TxD-red, RxD-green
Cable length	cca 1.8 m
Weight	cca 20 g
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. By the DB9F/DB9F reduction (GND and TxD crossed with RxD signals) connect adapter through COM1 physical port on PC. Run the Hyperterminal two time. In first Hyperterminal window set connection through COM1 and through adapter's virtual COM (e.g. COM3) in second window. Communication parameters must be set identically in both Hyperterminals. Written characters from keyboard in one window (transmitted chars) must be identical with received chars in other window and vice versa. When transmission is running the LED indicator Tx/Rx must blink. Tx – in red and Rx – in green.

6.0 Troubleshooting

Symptom	Action
Adapter doesn't work after installation.	Check if the connectors are connected properly. Check if READY is alight. Check if peripheral device has active RxD. Disconnect and connect again USB connector. Repeat drivers installation.
Connection in normal operation quit working.	Check if READY is alight. Check if the connectors are connected properly. Disconnect USB connector and connect it again.

7.0 Ordering information

Supply code is ELO E360. The adapter is supplied with the installation CD. On request cable length and/or type of USB connector could be changed.

ELOE360ZKE001



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