

Application Note DK9322-0809-0002 TwinCAT Supplement “Virtual Serial COM Driver”

Keywords

Virtual Serial COM Driver
TwinCAT
supplement
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EtherCAT
EL6001
EL6021

Virtual Serial COM Driver

By using a software supplement under TwinCAT in conjunction with an EL60x1 EtherCAT Terminal a serial interface can be positioned in the I/O field of a system at a significantly further distance from the controller than would be possible with a cable-based physical layer (RS232/RS422/RS485).

Basic Principles

The TwinCAT Supplement Virtual Serial COM Driver in combination with a serial EL6001 (RS232) or EL6021 (RS422/RS485) interface terminal for the EtherCAT I/O system enables virtual COM interfaces to be generated that can be used by Windows applications just like normal serial interfaces. The actual connection point for devices with serial interface can be anywhere in the field (see Fig. 1). In order to use such third-party devices with serial connection in the field, in the past a PC with a suitable interface had to be installed in the field or a connection between the interface and the central controller had to be established using a suitably long cable. A PC generates additional costs for acquisition and system integration. The cable length is limited by the corresponding physical layer. A Windows-compliant serial interface can be set up in the PC by using the EL60x1 EtherCAT Terminal and the TwinCAT Virtual Serial COM Driver.

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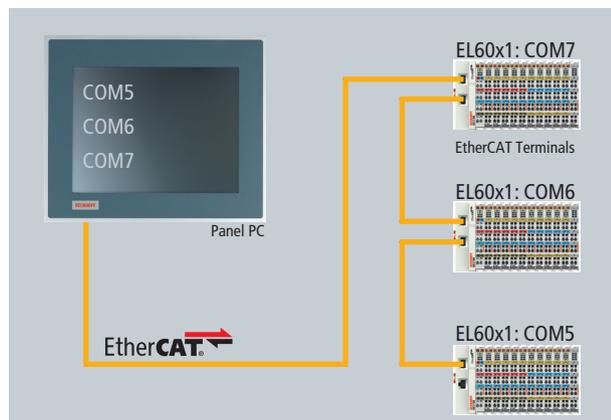


Fig. 1 Serial interface in the field

Advantages

The advantage of the combination of TwinCAT Supplement and serial terminal is that Windows applications can access one or several terminals that are linked via EtherCAT and can therefore be distributed at different points in the field. No separate wiring of the individual serial interfaces is required. In theory, up to 255 terminals can be integrated, although this is rarely used in practice. Another advantage is system conformity: the integration costs are reduced since no additional computer has to be installed for operating a device in the field. The virtual interfaces can be configured conveniently (name, baud rate, handshake) via TwinCAT in the System Manager. If several networked PCs and interface terminals are distributed in the system, the TwinCAT System Manager can be used to specify on which PC which interface is available.

Practical applications of the Virtual Serial COM Driver with the EL6001: bar code hand scanner integrated in the field

Software for the third-party device, for example a bar code hand scanner, is installed on the central control system, where data are to be processed usually. Here the software interface is a standard Windows COM interface. However, the hand scanner is used at a remote I/O station in the field. Software for the hand scanner cannot be implemented in TwinCAT, and the scanner data are not processed with TwinCAT. In addition, the software for the third-party device does not know about EtherCAT and need not be Ethernet- or EtherCAT-capable. Despite this, EtherCAT can be used as transmission medium for the scanner data (see Fig. 2).

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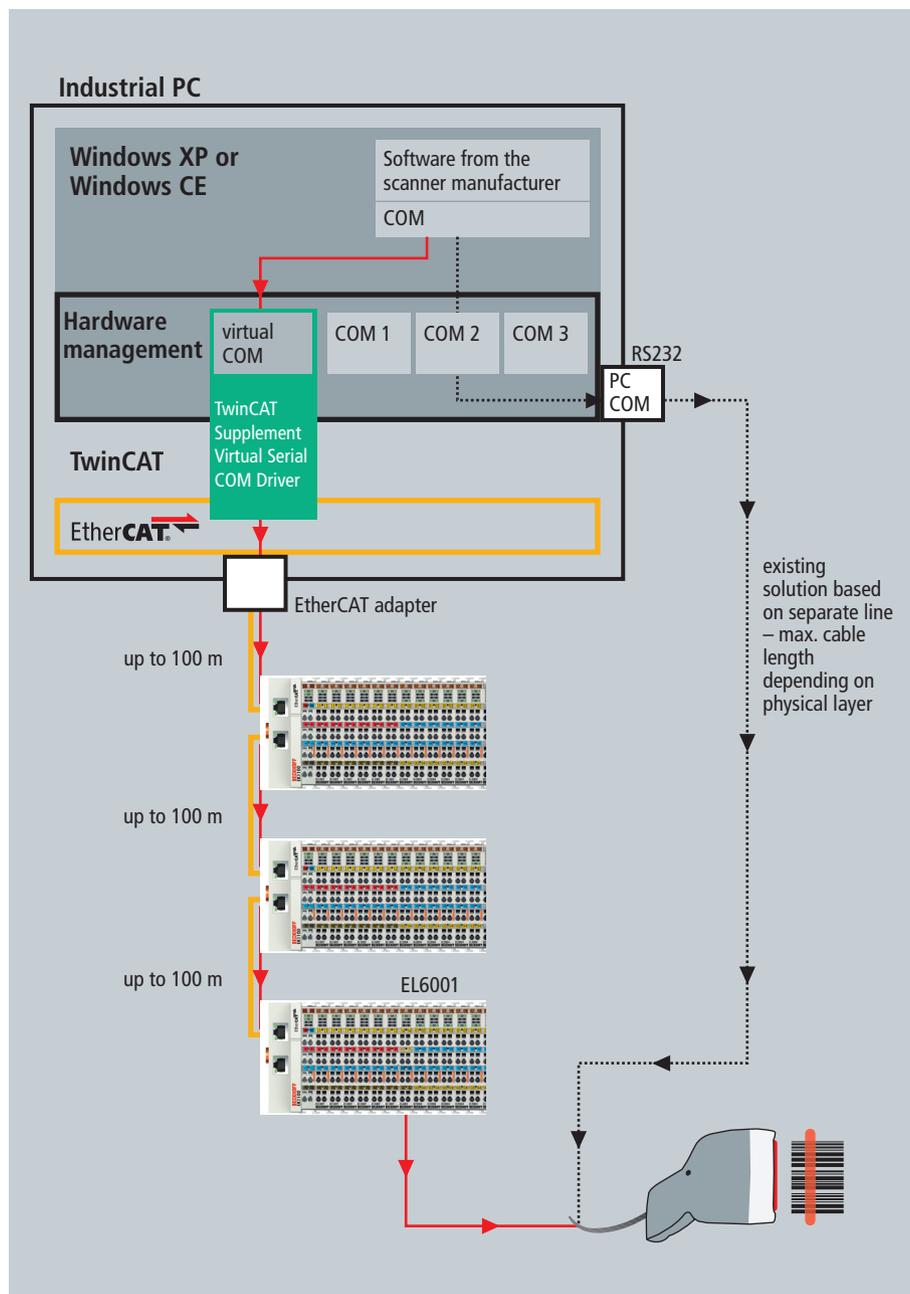


Fig. 2 Connecting a scanner

This is achieved by using the TwinCAT Supplement „Virtual serial COM driver“, which makes the scanner data available from the field via the EtherCAT network at a virtual interface through TwinCAT. This virtual interface is generated through TwinCAT and displayed in the operating system of the central controller (Windows XP or CE). The software of the hand scanner can access this virtual interface as standard under Windows to obtain the scanner data.

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