



→ Ethernet is becoming established as the standard communication medium for automation technology. Beckhoff expands the Ethernet market with new, powerful components. PCI Ethernet cards and Ethernet switches complement the Beckhoff system solution (for example EtherCAT), but they can also be used outside automation in any IT application requiring robust industrial technology. The network cards and switches meet the special requirements of real-time-capable Industrial Ethernet solutions through several outstanding features.

Industrial Ethernet components

PCI Ethernet cards

The features of FC900x Ethernet PCI network cards from Beckhoff make them suitable for a range of applications in office and automation networks. Up to four Ethernet channels are bundled on one slot, saving space and costs. Furthermore, the Ethernet network cards have a plug & play interface and can be used with a standard operating system driver. The baud rate is 10/100 MBaud in full duplex mode. The baud rate is set automatically for each channel according to IEEE 802.3u. Hardware-integrated checksum creation and verification ensure maximum performance. Furthermore, the hardware side supports Quality of Service (QoS) through prioritized multiple queues. The PCI cards support all Ethernet-based protocols. For each channel, a RJ45 socket is available as interface: 10BASE-T/100BASE-TX Ethernet. Naturally, the cards (or individual channels) can also be operated with TwinCAT drivers – and therefore in real-time.

Ethernet switches

The Beckhoff Ethernet switches ES2008 and ES2016 offer 8 or 16 RJ45 Ethernet ports. Switches relay incoming Ethernet frames to the destination ports. In full duplex mode, they prevent collisions. They can be used universally in automation and office networks. The switches are easily mounted on standard DIN rail via the integrated adapter. The robust and user-friendly DIN rail design, i. e. a compact size, stainless steel housing make the switch ideal for industrial environments. The baud rate is 10/100 MBaud, in semi or full duplex mode, with automatic baud rate detection and adjustment. Cross-over detection enables automatic detection and correction of crossover and straight-through Ethernet cables. 3 LEDs for each Ethernet port enable quick diagnostics. The switches meet the special requirements of real-time-capable Industrial Ethernet solutions through several outstanding features:

- | All Ethernet (IEEE 802.3) based protocols are supported, store-and-forward switching mode
- | Optional broadcast filtering supports the integration of any Ethernet devices in real-time environments
- | Optional packet-based or port-based prioritization (QoS, VLAN)
- | 10BASE-T/100BASE-TX Interface with 8 x RJ45 or 16 x RJ45
- | Cable length up to 100 m twisted pair, switches cascadable without restriction
- | Baud rate: 10/100 Mbit/s, IEEE 802.3u auto-negotiation, half or full duplex at 10 and 100 Mbit/s possible, automatic settings
- | Hardware diagnosis: 3 LEDs per channel (link/activity, 10/100 Mbit, collision/full duplex)
- | Power supply: 24 (18... 30) V DC, 200 mA

i Product announcement

Estimated market release of the FC900x PCI Ethernet cards and the ES20xx Ethernet switches 3rd quarter 2003. We reserve the right to make technical changes.