Power LEDs
E-bus
Coupler supply
Front flap
Input for power contacts
Power contacts

Link/Act
Ethernet
Link/Act
EtherCAT
Address selector

ⓘ EK1000 | EtherCAT TSN Coupler

The EK1000 EtherCAT Coupler supports EtherCAT communication via a switched Ethernet network, combining TSN (Time-Sensitive Networking) with the wide I/O range of EtherCAT Terminals. The EK1000 EtherCAT Coupler also enables EtherCAT communication in standard Ethernet networks. In addition, proven EtherCAT features such as distributed clocks and XFC can also be used within a TSN network. In this way, the EK1000 effectively links EtherCAT and TSN networks and combines their benefits: EtherCAT provides a real-time capable single-device level and is therefore ideally suited to combine the numerous small data packets of digital and analog inputs that are typical for industrial environments into a complete process image. TSN, on the other hand, defines a physical layer, which only relates to the switch layer in switched Ethernet networks. As a real-time extension of the general Ethernet technology, it controls the procedures and priorities for the transport of Ethernet telegrams through a TSN-capable, switched network. The EtherCAT Coupler has two RJ45 ports. One of these 100 Mbit/s ports connects the EK1000 to the Ethernet or TSN network. The second port enables EtherCAT network extensions, e.g. via the EK1100 EtherCAT Coupler. The EK1000 extends the TwinCAT automation software with a TSN-capable version of EtherCAT communication. In this way, TSN networks can also be managed seamlessly, and EtherCAT devices located in different terminal strands can be addressed via the TSN network.

Technical data	EK1000
Task within EtherCAT system	coupling of EtherCAT Terminals (ELxxxx) to TSN networks
Networks	mode 1: for unmanaged switch networks; mode 2: for TSN networks
Data transfer medium	Ethernet/EtherCAT cable (min. Cat. 5), shielded
Distance between stations	max. 100 m (100BASE-TX)
Number of EtherCAT Terminals	up to 65,534
Protocol	EtherCAT
Data transfer rates	100 Mbit/s
Configuration	not required
Bus interface	X001 (RJ45) = 100 Mbit/s Ethernet (TSN); X002 (RJ45) = 100 Mbit/s EtherCAT (EK1100 e.g.)
Power supply	24 V DC (-15 %/+20 %)
Current supply E-bus	2000 mA
Power contacts	max. 24 V DC/max. 10 A
Electrical isolation	500 V (power contact/supply voltage/Ethernet)
Operating/storage temperature	0…+55 °C/-25…+85 °C
Relative humidity	95 %, no condensation
Vibration/shock resistance	conforms to EN 60068-2-6/EN 60068-2-27
EMC immunity/emission	conforms to EN 61000-6-2/EN 61000-6-4
Protect. class/installation pos.	IP 20/variable
Approvals	CE

Accessories	
Cordsets	cordsets and connectors

System	
EtherCAT	For further EtherCAT products please see the system overview