



Bus Coupler for EtherCAT

The EK1100 coupler connects EtherCAT with the EtherCAT Terminals (ELxxxx). One station consists of an EK1100 coupler, any number of EtherCAT Terminals and a bus end terminal. The coupler converts the passing telegrams from Ethernet 100BASE-TX to E-bus signal representation.

The coupler is connected to the network via the upper Ethernet interface. The lower RJ 45 socket may be used to connect further EtherCAT devices in the same strand. In the EtherCAT network, the EK1100 coupler can be installed anywhere in the Ethernet signal transfer section (100BASE-TX) – except directly at the switch. The couplers EK1000 (for EtherCAT terminals) or the Bus Coupler BK9000 (for K-Bus terminals) are suitable for installation at the switch.

Diagnose

LED		Display	Status	Description
U _S 24 V	green	on	on	power supply for Bus Coupler electronic and E-Bus is active
U _P 24 V	green	on	on	power supply for Power Contacts is active
Link/Act E-Bus	green	off	-	no connection / no Communication with internal E-Bus
		on	linked	E-Bus device (bus terminal) connected
		flashes	active	Communication with E-Bus device (bus terminal)
RUN	green	off	Init	the bus coupler has the status Initialization
		flashes	pre operational	the bus coupler has the status Pre Operational
		single flash	safe operational	the bus coupler has the status Safe Operational
		on	operational	the bus coupler has the status Operational
		flickering	bootstrap	A firmware is being loaded
Link/Act (X1 IN)	green	off	-	no connection / no Communication at the incoming EtherCAT cable
		on	linked	former EtherCAT device is connected
		flashes	active	Communication with former EtherCAT device
Link/Act (X2 OUT)	green	off	-	no connection / no Communication at the outgoing EtherCAT cable
		on	linked	following EtherCAT-device is connected
		flashes	active	Communication with following EtherCAT device

Connection

Bus connector	Description
X1 IN	Incoming EtherCAT cable
X2 OUT	Outgoing EtherCAT cable

Terminal point	No.	Description
Us 24 V	1	Feeding for Bus Coupler und E-Bus electronic
Up 24 V	2	Feeding for Power Contacts, internally connected with terminal point 6
Up 0 V	3	Feeding for Power Contacts, internally connected with terminal point 7
PE	4	PE connector (from hardware version 06), internally connected with terminal point 8
Us 0 V	5	Feeding for Bus Coupler and E-Bus electronic
Up 24 V	6	Feeding for Power Contacts, internally connected with terminal point 2
Up 0 V	7	Feeding for Power Contacts, internally connected with terminal point 3
PE	8	PE connector (from hardware version 06), internally connected with terminal point 4

Technical data	EK1100
Task within EtherCAT system	coupling of EtherCAT Terminals (ELxxxx) to 100BASE-TX EtherCAT networks
Number of EtherCAT Terminals	up to 65535
Number of peripheral signals	unlimited
Data transfer medium	Ethernet CAT 5 cable
Cable length between 2 Bus Couplers	max. 100 m (100BASE-TX)
Protocol / Baud rate	EtherCAT (direct mode) / 100 MBaud
Delay	app. 1 µs
Configuration	no address or configuration setting required
Bus connection	2 x RJ45
Power supply	24 V _{DC} (-15%/+20%) For USA/Canada: to meet the UL requirements use 4 A fuse or class 2 power supply!
Current consumption	70 mA + E-Bus-current/4
E-Bus power supply (5 V)	max. 2,0 A (from hardware version 06) max. 0,5 A (until hardware version 05). At higher E-Bus current consumption use additionally the power supply terminal EL9400!
Power Contacts	max. 24 V _{DC} . For USA/Canada: to meet the UL requirements use 4 A fuse or class 2 power supply!
Power Contacts, current	max. 10 A (according UL: max. 4 A)
Dielectric strength	500 V _{rms} (Power contact/power supply/Ethernet)
Dimensions with connectors (W x H x D)	44mm x 100mm x 68mm
Weight	app. 105 g
Mounting / Installation position	on 35 mm mounting rail according to EN 50022 / variable
permissible ambient temperature	-0°C ... +55°C (at operation) -25°C ... +70°C (at storage)
permissible relative humidity	5% ... 95%, no condensation
Vibration / shock resistance	according to EN 60068-2-6 / EN 60068-2-27, EN 60068-2-29
EMC resistance / burst	according to EN 61000-6-2 / EN 61000-6-4
Protection class / Approval	IP20 / CE