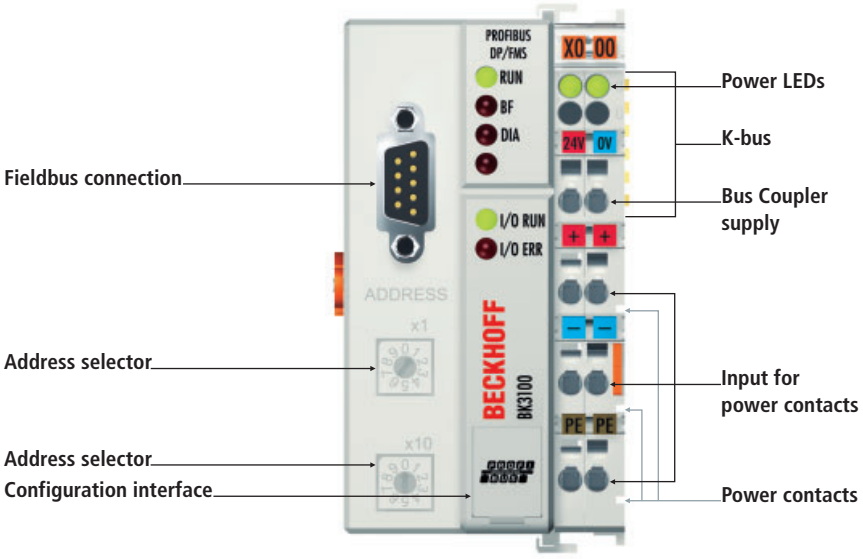

BK3010, BK3100, BK3110 | **PROFIBUS Bus Couplers**

The BK3010, BK3100 and BK3110 Bus Couplers connect the PROFIBUS system to the electronic terminal blocks, which can be extended in modular fashion. One unit consists of the Bus Coupler, any number of up to 64 terminals and one end terminal. The BK3010 and BK3110 economy variants permit particularly economical creation of peripheral interfacing connections. Up to 64 digital input/output terminals can be connected.

The Bus Coupler recognises the connected terminals and automatically generates the affiliations of the inputs/outputs to the bytes of the process image. The first input/output signal is inserted in the first bit of one byte (LSB), beginning from the left. The Bus Coupler inserts further signals in this byte.

Inputs and outputs are clearly separated. The Bus Coupler automatically begins a further byte if the number of inputs or outputs exceeds 8 bits.

Ordering information	Description	
BK3010	PROFIBUS Bus Coupler for up to 64 digital Bus Terminals, 1.5 Mbaud	
BK3100	PROFIBUS DP/FMS Bus Coupler for up to 64 Bus Terminals, 12 Mbaud	
BK3110	PROFIBUS Bus Coupler for up to 64 digital Bus Terminals, 12 Mbaud	
BK3120	PROFIBUS "Economy plus" Bus Coupler for up to 64 Bus Terminals (255 with K-bus extension), 12 Mbaud	402
BK3150	PROFIBUS "Compact" Bus Coupler for up to 64 Bus Terminals (255 with K-bus extension), 12 Mbaud	403
BK3500	PROFIBUS Bus Coupler with fibre optic connection for up to 64 Bus Terminals, 1.5 Mbaud	404
BK3520	PROFIBUS "Economy plus" Bus Coupler for up to 64 Bus Terminals (255 with K-bus extension), 12 Mbaud	406
LC3100	PROFIBUS "Low Cost" Bus Coupler for up to 64 digital Bus Terminals, 12 Mbaud	407
BC31x0, BX3100	PROFIBUS Bus Terminal Controller	446
CX8031	PROFIBUS Embedded PC	263

Complex signal processing for analog I/Os, position measurement, …

The BK3100 Bus Coupler supports the operation of all Bus Terminals. As far as the user is concerned, handling of the analog inputs/outputs is not different to other series. The information is available in the process image of the controller for processing in the form of a byte array.

The analog and multi-functional Bus Terminals can be adapted to each specific application using the KS2000 configuration set. Depending on the type, the analog Bus Terminals' registers contain temperature ranges, gain values and linearisation characteristics. With the KS2000, the required parameters can be set on a PC. The Bus Terminals store settings permanently and in a fail-safe manner.

Optionally, the Bus Terminals can also be controlled by the control system. Via function blocks (FBs), the programmable logic controller (PLC) or the Industrial PC (IPC) handles configuration of the complete periphery during the start up phase. If required, the controller can upload the decentrally created configuration data in order to centrally manage and store this data. Therefore, new adjustments are not necessary in the event of replacement of a Bus Terminal. The controller automatically sets the required setting on power up.

The Beckhoff GSE and type data files to the Bus Couplers support the Bus Terminal options and can be loaded in the corresponding master configuration software to facilitate planning and design. Various configurations and parameters for the Bus Coupler can be selected via GSE and type data files.

System data	PROFIBUS | BK3010, BK3100, BK3110				
Number of I/O stations	100 with repeater				
Number of I/O points	approx. 6,000, depending on the master				
Data transfer medium	shielded copper cable, 2 x 0.25 mm²				
Max. cable length	1,200 m	1,000 m	400 m	200 m	100 m
Data transfer rates	9.6/19.2/93.75 kbaud	187.5 kbaud	500 kbaud	1,500 kbaud	…3, 6, 12 Mbaud
Data transfer time	approx. 3 ms (10 stations for 32 bit input and output each)			approx. 0.5 ms	

Technical data	BK3010	BK3100	BK3110
Number of Bus Terminals	64		
Max. number of bytes fieldbus	64 byte input and 64 byte output	64 byte input and 64 byte output (DP and FMS mode), 128 byte input and 128 byte output (only DP mode)	64 byte input and 64 byte output
Digital peripheral signals	512 inputs/outputs		
Analog peripheral signals	–	64 inputs/outputs (only DP mode)	–
Configuration possibility	via KS2000 or the controller		
Data transfer rates	automatic detection up to max. 1.5 Mbaud	12 Mbaud	12 Mbaud
Bus interface	1 x D-sub 9-pin socket with shielding		
Power supply	24 V DC (-15 %/+20 %)		
Input current	70 mA + (total K-bus current)/4, 500 mA max.		
Starting current	2.5 x continuous current		
Recommended fuse	≤ 10 A		
Supply current K-bus	500 mA	1,750 mA	500 mA
Power contacts	24 V DC max./10 A max.		
Electrical isolation	500 V_{rms} (power contact/supply voltage/fieldbus)		
Weight	approx. 150 g	approx. 170 g	approx. 150 g
Operating/storage temperature	0…+55 °C/-25…+85 °C		
Relative humidity	95 %, no condensation		
Vibration/shock resistance	conforms to EN 60068-2-6/EN 60068-2-27/29		
EMC immunity/emission	conforms to EN 61000-6-2/EN 61000-6-4		
Protect. class/installation pos.	IP 20/variable		
Further information	www.beckhoff.com/BK3010		

Accessories		
KS2000	configuration software for extended parameterisation	1064
Cordsets	cordsets and connectors	632
FC310x	PC Fieldbus Cards with PCI interface	1044