



BX3100 | PROFIBUS Bus Terminal Controller



The BX3100 Bus Terminal Controller has a PROFIBUS slave interface with automatic baud rate detection up to 12 Mbaud and an address selection switch for address assignment. Up to 244 byte of input and 244 byte of output can be exchanged with the controller.

One unit consists of the BX3100 Bus Terminal Controller with up to 64 Bus Terminals and a bus end terminal. With the terminal bus extension system, the connection of up to 255 Bus Terminals is possible. The controller is programmed via the COM1 or via the PROFIBUS interface of the FC310x PC Fieldbus Card.

In terms of their equipment and performance, the BX series Bus Terminal Controllers are positioned between the BC series Bus Terminal Controllers and the CX series Embedded PCs. The main features distinguishing BC and BX are the larger memory and the expanded interfaces of the BX. Additionally, two serial interfaces are integrated for programming and for the connection of further serial devices. The device itself comprises an illuminated LC display with two lines of 16 characters each, a joystick switch and a real-time clock. Further peripheral devices, e.g. displays, can be connected via the integrated Beckhoff Smart System Bus (SSB).

The BX family is particularly suitable for a modular machine concept. Within a network, the Bus Terminal Controller can exchange data with other system parts via the fieldbus interfaces. The real-time clock enables decentralised applications, for which the day of the week or the time play an important role. The areas of application of this series are similar to that of the BC series, but due to the larger memory the BX can execute significantly more complex and larger programs and can manage more data locally (e.g. history and trend data recording), which are then successively fetched over the fieldbus.

Like for all other Beckhoff controllers, the TwinCAT automation software is the basis for parameterisation and programming. The BX devices are programmed according to the powerful IEC 61131-3 standard in the programming languages IL, FBD, LD, SFC or ST. Users therefore have the familiar TwinCAT tools available, e.g. the PLC programming interface, the System Manager and TwinCAT Scope. Data is exchanged optionally via the serial port (COM1) or via the fieldbus through Beckhoff FC310x PC Fieldbus Cards.

The configuration is also carried out using TwinCAT. The fieldbus interface, the SSB bus and the real-time clock can be configured and parameterised via the System Manager. The System Manager can read all connected devices and Bus Terminals. After the parameterisation, the configuration is saved on the BX via the serial interface and can be accessed again later.

Controller for distributed signal processing

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PLC data	PROFIBUS BX3100
Programming	TwinCAT (via programming interface or fieldbus)
Program memory	256 kbytes
Data memory	256 kbytes
Remanent data	2 kbytes
Persistent data	1 kbyte
Runtime system	1 PLC task
PLC cycle time	approx. 1 ms for 1,000 instructions (without I/O cycle, K-bus)
Programming languages	IEC 61131-3 (IL, LD, FBD, SFC, ST)
Online change	yes
Up/down load code	yes/yes

Technical data	BX3100
Number of Bus Terminals	64 (255 with K-bus extension)
Max. number of bytes fieldbus	244 byte input and 244 byte output
Max. number of bytes process image	2048 byte input and 2048 byte output
Digital peripheral signals	2,040 inputs/outputs
Analog peripheral signals	512 inputs/outputs
Data transfer rates	automatic detection up to 12 Mbaud
Bus interface	1 x D-sub socket, 9-pin
Serial interface	COM1: 1 x RS232, COM2: 1 x RS232 or RS485
SSB	CANopen-based subsidiary bus system for the connection of further peripheral devices
Diagnostics LED	2 x power supply, 2 x K-bus
Display	FSTN display with 2 x 16 characters for diagnosis or own texts, illuminated
Switch	joystick switch for parameterisation and diagnosis
Clock	battery-powered real-time clock for time and date
Power supply	24 V DC (-15 %/+20 %)
Input current	140 mA + (total K-bus current)/4, 500 mA max.
Starting current	2.5 x continuous current
Current supply K-bus	1450 mA
Power contacts	24 V DC max./10 A max.
Electrical isolation	500 V (power contact/supply voltage)
Weight	approx. 250 g
Operating/storage temperature	-25...+60 °C/-40...+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, UL

Accessories	
TwinCAT PLC	programming system conforms to IEC 61131-3
Cordsets	cordsets and connectors
FC310x	PC Fieldbus Cards with PCI interface

Related products	
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
CX8031	PROFIBUS Embedded PC, slave

System	
PROFIBUS	For further PROFIBUS products please see the system overview