



BX5100 | CANopen Bus Terminal Controller



The BX5100 Bus Terminal Controller has a CANopen slave interface. It has automatic baud rate detection up to 1 Mbaud and an address selection switch for address assignment. Up to 16 Tx PDOs and 16 Rx PDOs can be exchanged with the control.

One unit consists of the BX5100 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 CANopen interface of the FC510x 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.

Controller for distributed signal processing

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 FC510x 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.

| PLC data | CANopen BX5100 |
|-----------------------|--|
| 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 | BX5100 |
|------------------------------------|--|
| Number of Bus Terminals | 64 (255 with K-bus extension) |
| Max. number of bytes fieldbus | 32 Tx/Rx PDOs |
| 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 1 Mbaud |
| Bus interface | open style connector, 5-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 | |
|------------------------|--|
| Cordsets | cordsets and connectors |
| FC5101 FC5102 | CANopen PCI fieldbus cards |
| TwinCAT PLC | programming system conforms to IEC 61131-3 |

| Related products | |
|------------------|--|
| BX5100 | CANopen Bus Terminal Controller for up to 64 Bus Terminals (255 with K-bus extension) |
| BK5110 | CANopen Coupler for up to 64 digital Bus Terminals |
| BK5120 | CANopen "Economy plus" Bus Coupler for up to 64 Bus Terminals (255 with K-bus extension) |
| CX8051 | CANopen Embedded PC, slave |

| System | |
|----------------|---|
| CANopen | For further CANopen products please see the system overview |