



AT HOME THROUGHOUT THE WORLD!

TB20. Distributed Fieldbus I/O System

By using the TB20 I/O System you implement enduring and forward-looking control concepts within your facilities.

THREE-COMPONENT MODULE DESIGN

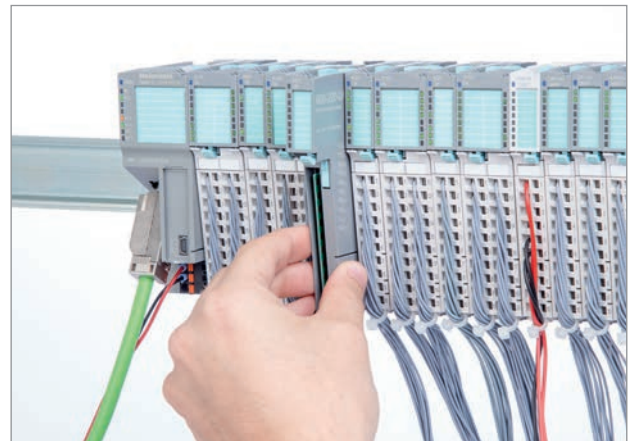
TB20 I/O modules have three components: a separate front connector, an electronic module, and a base module. A locking mechanism ensures that all modules can be quickly mounted and securely attached on DIN rails while guaranteeing a reliable electrical connection. Likewise, all modules can be easily and quickly removed for maintenance and/or system expansions.

Modules are delivered as complete assembled units (i.e., as a single assembly) and can be installed immediately.



HOT-PLUG CAPABILITY

Individual modules can be easily and quickly replaced while the remaining system continues to run. This electronic module hot-plug functionality helps keep downtimes to a minimum.



BUS COUPLERS

All bus couplers feature an integrated power module. However, power modules are also available separately for users interested in segmenting the power supply for the I/O modules in their system.

Bus couplers for PROFINET, PROFIBUS, CAN bus, Modbus/TCP, EtherNet/IP, and EtherCAT are currently available. Our portfolio is designed as an open and vendor-neutral fieldbus system and will gradually be expanded and added to.



MODULE GRANULARITY

The TB20 system has modules with two, four, eight, and 16 channels available so as to ensure that systems can be designed with utmost flexibility and maximum effectiveness. Digital mixed I/O modules complete the range of products. Moreover, 16-channel modules make it possible to implement up to 1,024 inputs/outputs or up to 512 analog measured readings.



FREELY DEFINABLE AUXILIARY CONTACT (AUXILIARY TERMINAL)

This additional terminal can be used flexibly and from end to end, e.g., in order to provide an additional voltage as a reference ground or implement shielding as necessary. This flexibility makes wiring faster and frees up additional distributor terminals.



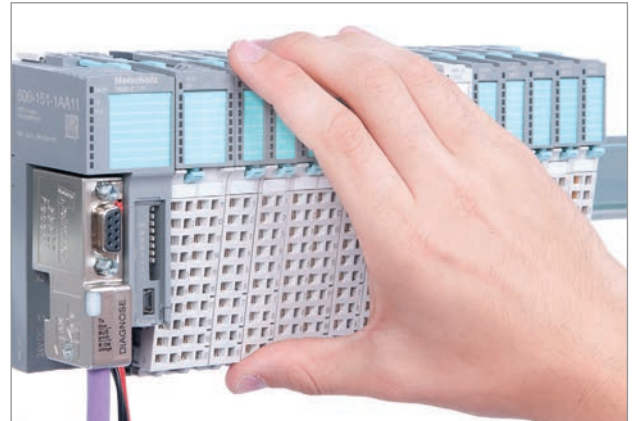
CLEAR, UNIQUE LABELS

The system's design ensures that each channel will be labeled clearly and uniquely. In fact, labels can be easily read during operation, making it possible to directly determine which terminals correspond to which LED indicators. Connector terminal assignment labels are placed on the electronic module, and the label strips can be used with any laser printer.



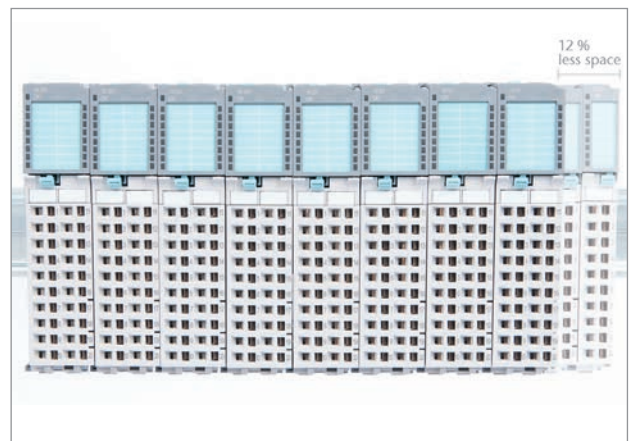
IDEAL HANDLING, ACHIEVED WITH A COMPACT DESIGN

The system's ergonomic design makes it easy to handle. Moreover, the space-saving compact dimensions behind it do not take away from the system components' heavy-duty sturdiness and reliable electrical contacts for industrial applications, which are further complemented by an IP20 protection rating.



TOTAL SOLUTION CONCEPT

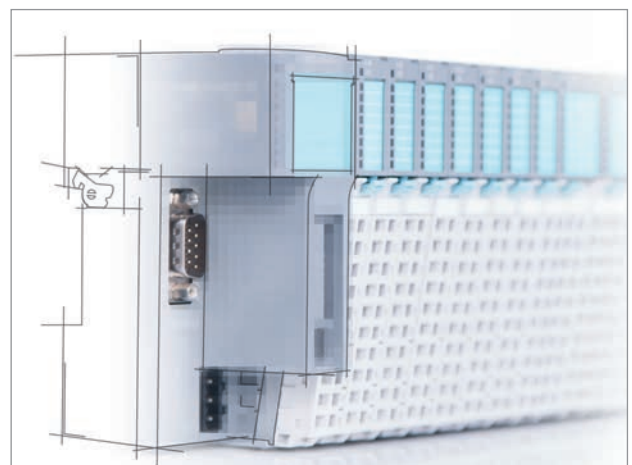
An ideal variety of modules ensures that users will be able to easily select the products they need and conveniently order them. In addition, no additional accessories or add-on parts are required for any unit, and each individual I/O module is characterized by unparalleled quality and a large number of functionalities that come as standard. Moreover, using modules with up to 16 digital or 8 analog channels and digital mixed I/O modules makes it possible to implement a powerful system with a compact configuration.



FREE PRODUCT MACROS FOR ELECTRICAL ENGINEERING SOFTWARE

The product macros for the bus couplers and modules of the TB20-System contain the most important circuit diagram data, as well as layout- and item data.

To be able to quickly and efficiently integrate your TB20 distributed I/O system into your designs, we provide you with free macros for WSCAD* and EPLAN Electric P8 (compatible with version 2.0 and higher).



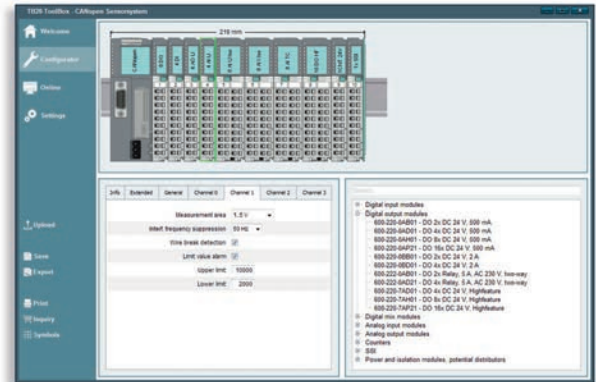
* WSCAD is a registered trademark of WSCAD electronic GmbH.

** EPLAN and EPLAN Electric P8 are registered trademarks of EPLAN Software & Service GmbH & Co. KG.

TB20 TOOLBOX

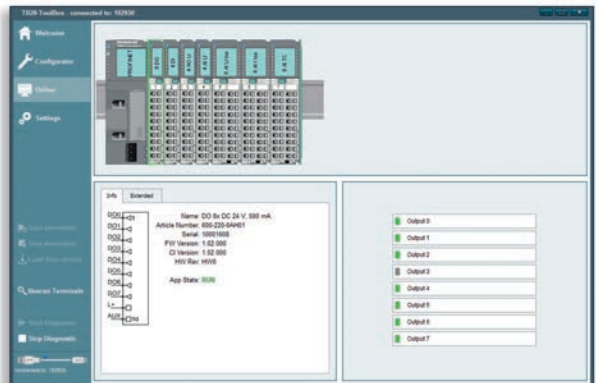
Smart planning and configuration

TB20 ToolBox makes it easy to methodically design TB20 systems. From selecting and positioning components and configuring their parameters to printing label strips and documentation for projects, every single step is combined into one single intuitive software package. Integrated terminal mapping, system width calculations, and current-carrying capacity monitoring all make it possible to quickly design systems without making any mistakes.



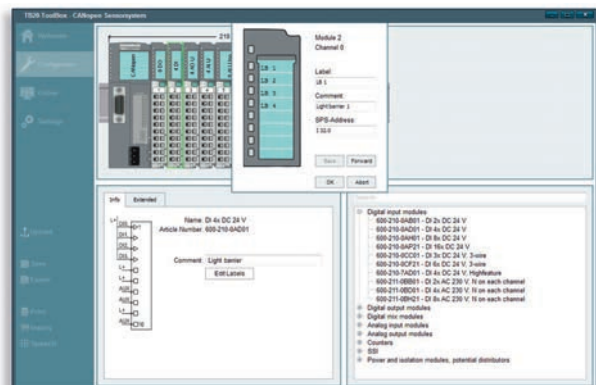
Real-time diagnosis

TB20 ToolBox is a practical setup and servicing tool used to import configurations, display a system's current status, and analyze parameter configuration and setup errors. An I/O map, the current parameter configuration, and diagnostic messages can all be displayed in real-time.



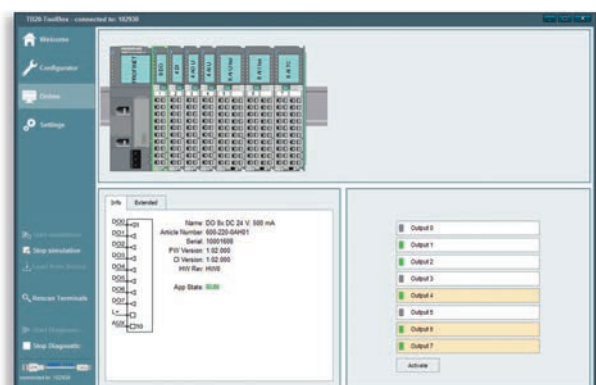
Importing/exporting symbols

TB20 ToolBox can be used to define the following for each channel in the configuration: labeling of the strip label, a symbol description, and a PLC address. This information can be imported or exported in a variety of formats, making it possible to efficiently use TB20 ToolBox as a configuration tool together with electrical engineering software and with PLC programming software.



Simulation (I/O check)

The option of setting up TB20 I/O systems without a higher-level controller by directly reading and writing to inputs and outputs and configuring parameters for functionality testing purposes makes it easier to check the system's wiring and entire design.



TB20 ToolBox training

A few minutes is all you need to learn more about our ToolBox and how to use it.

www.youtube.com/user/SystemeHelmholz

ORDERING DATA

Ordering data	Order no.	Ordering data	Order no.
Bus Coupler TB20-C, Bus Coupler PROFINET IO TB20-C, Bus Coupler PROFIBUS-DP Slave TB20-C, Bus Coupler CANopen® Slave TB20-C, Bus Coupler ModbusTCP TB20-C, Bus Coupler EtherNet/IP TB20-C, Bus Coupler EtherCAT	600-180-1AA11 600-151-1AA11 600-160-1AA11 600-170-1AA11 600-175-1AA11 600-185-1AA11	Analog Input Modules AI 2 x I, 0/4–20 mA, ±20 mA, 12 Bit AI 4 x I, 0/4–20 mA, ±20 mA, 12 Bit AI 2 x I, 0/4–20 mA, ±20 mA, Iso., 16 Bit AI 4 x I, 0/4–20 mA, ±20 mA, Iso., 16 Bit AI 8 x I, 0/4–20 mA, ±20 mA, Iso., 16 Bit AI 2 x U, ±10 V, 0–10 V, 1–5 V, 12 Bit AI 4 x U, ±10 V, 0–10 V, 1–5 V, 12 Bit AI 2 x U, ±10 V, 0–10 V, 1–5 V, Iso., 16 Bit AI 4 x U, ±10 V, 0–10 V, 1–5 V, Iso., 16 Bit AI 8 x U, ±10 V, 0–10 V, 1–5 V, Iso., 16 Bit AI 2 x U, ±24 V, 0–24 V, 12 Bit AI 4 x U, ±24 V, 0–24 V, 12 Bit AI 1/2 x R, RTD, 16 Bit, 2/3/4-Draht AI 2/4 x R, RTD, 16 Bit, 2/3/4-Draht AI 2 x TC, Iso., 16 Bit AI 4 x TC, Iso., 16 Bit AI 8 x TC, Iso., 16 Bit	600-250-4AB01 600-250-4AD01 600-250-7BB01 600-250-7BD01 600-250-7BH21 600-252-4AB01 600-252-4AD01 600-252-7BB01 600-252-7BD01 600-252-7BH21 600-252-4CB01 600-252-4CD01 600-253-4AB01 600-253-4AD01 600-254-4AB02 600-254-4AD02 600-254-4AH22
Digital Input Modules DI 2 x DC 24 V DI 4 x DC 24 V DI 8 x DC 24 V DI 16 x DC 24 V DI 3 x DC 24 V, 3-wire DI 6 x DC 24 V, 3-wire DI 2 x AC 230 V, per channel N, type 1 DI 4 x AC 230 V, per channel N, type 1 DI 8 x AC 230 V, per channel N, type 1	600-210-0AB01 600-210-0AD01 600-210-0AH01 600-210-0AP21 600-210-0CC01 600-210-0CF21 600-211-0BB01 600-211-0BD01 600-211-0BH21	Analog Output Modules AO 2 x I, 0/4–20 mA, 12 Bit AO 4 x I, 0/4–20 mA, 12 Bit AO 2 x U, ±10 V, 0–10 V, 1–5 V, 12 Bit AO 4 x U, ±10 V, 0–10 V, 1–5 V, 12 Bit	600-260-4AB01 600-260-4AD01 600-261-4AB01 600-261-4AD01
Digital Output Modules DO 2 x DC 24 V, 500 mA DO 4 x DC 24 V, 500 mA DO 8 x DC 24 V, 500 mA DO 16 x DC 24 V, 500 mA DO 4 x DC 24 V, 700 mA, HF DO 8 x DC 24 V, 700 mA, HF DO 16 x DC 24 V, 700 mA, HF DO 2 x DC 24 V, 2 A DO 4 x DC 24 V, 2 A DO 2 x relays, 5 A, AC 230 V, change-over DO 4 x relays, 5 A, AC 230 V, change-over	600-220-0AB01 600-220-0AD01 600-220-0AH01 600-220-0AP21 600-220-7AD01 600-220-7AH01 600-220-7AP21 600-220-0BB01 600-220-0BD01 600-222-0AB01 600-222-0AD21	Function Modules 1 x counter 24 V, 500 kHz, 32 Bit 1 x counter 5 V (RS422), 4 MHz, 32 Bit 1 x SSI encoder interface Energy meter, 1 A Energy meter, 5 A	600-300-7AA01 600-310-7AA01 600-320-7AA01 600-255-7AA21 600-255-7BA21
Digital Mix Modules DIO 2 x In/2 x Out DC 24 V, 500 mA DIO 4 x In/4 x Out DC 24 V, 500 mA DIO 8 x Out/8 x In DC 24 V, 500 mA	600-230-0AD01 600-230-0AH01 600-230-0AP21	Communication Modules RS232 serial port	600-400-7AA31
		System Modules Power and isolation Module DC 24 V, 8 A Potential Distributor 4 x DC 24 V, HF Potential Distributor 9 x DC 24 V Potential Distributor 9 x GND Potential Distributor 10 x AUX Potential Distributor 4 x DC 24 V + 4 x GND Potential Distributor 9 x Frei Pot. Power Module DC 24 V	600-710-0AA01 600-730-4AD01 600-720-0AH01 600-720-0BH01 600-720-0CH01 600-720-0DH01 600-720-0XH01 600-700-0AA01

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