TRAINING BOX

NEXTO XPRESS

THE PORTABLE AUTOMATION LABORATORY

TRAINING BOX NEXTO XPRESS

INTRODUCTION

- Altus Training Box is a complete educational solution. With features that enable you to perform simulations of elements present in most industrial, building and machine automation systems, the tool is suitable for research laboratories of companies and educational institutions that want to apply the new concepts of Industry 4.0 and Internet of Things (IoT).

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MAIN FEATURES

- Webserver embedded in the XP340 controller to create HMI and supervision screens;
- Ethernet port with support for several protocols, such as MODBUS TCP, EtherNet/IP Scanner, IEC 104, OPC DA, OPC UA, MQTT and MSSQL database read/write;
- USB interface with WiFi adapter for the development of IoT applications;
- CAN port for CANopen communications or proprietary protocols and RS-485 port for MODBUS RTU communication;
- Terminals for digital inputs connection and simulation switches with status indication via LEDs.

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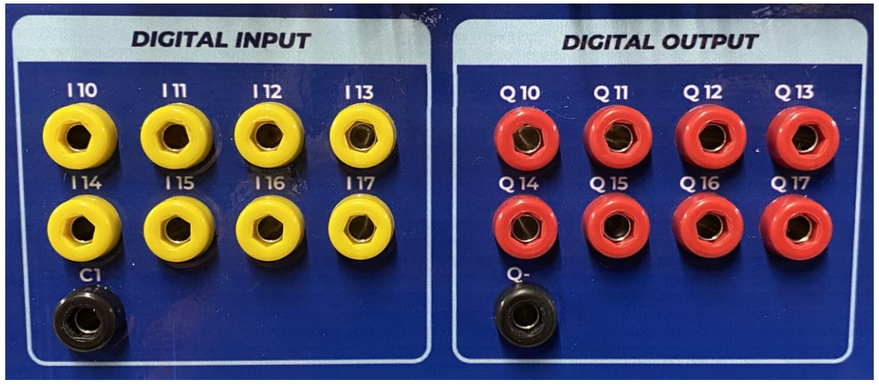
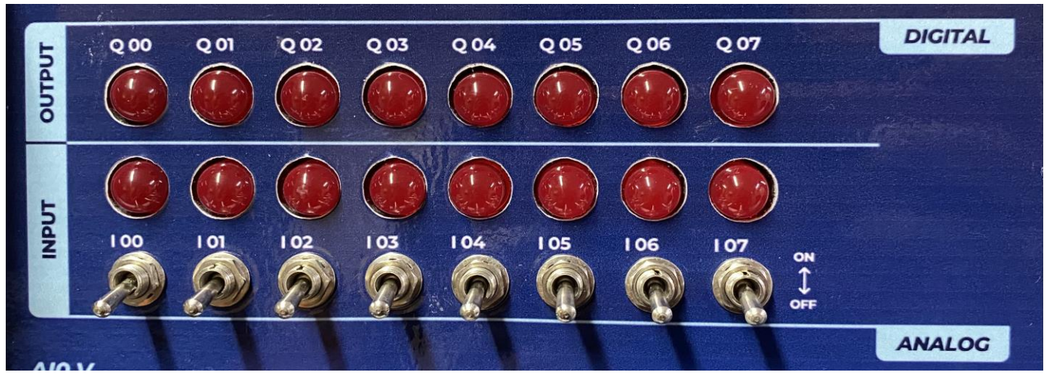
MAIN FEATURES

- Terminals for digital outputs connection and status indication through LEDs;
- Terminals for voltage and current scale analog inputs connection and potentiometers for simulation;
- Terminals for RTD type analog input connection (PT100/PT1000 temperature sensor);
- Terminal for analog voltage or current output connection;
- Digital voltmeter for analog output status indication;
- Disturbance simulation for PID control study.

DIGITAL INPUTS AND OUTPUTS

- 8 terminals for 24 Vdc digital inputs connection (I10 to I17);
- 1 common terminal (C1);
- 8 LEDs for input status indication (I00 to I07).
- 8 keys for simulation of input value (I00 to I07);
- 8 terminals for 24 Vdc transistor digital outputs connection (Q10 to Q17);
- 1 common terminal (Q-);
- 8 LEDs for outputs status indication (Q00 to Q07).





ANALOG INPUTS AND OUTPUTS

- 1 terminal for voltage scale analog input connection (AI3.V);
- 1 terminal for analog input in current scale connection (AI4.I);
- 1 common terminal (C2);
- 3 terminals for 2 or 3 wire RTD analog input – PT100/PT1000 connection (RI0.A, RI0.B and RI0.C);
- 2 potentiometers for simulation of analog inputs value (AI0.V and AI1.V);
- 1 terminal for analog output connection (AO1);
- 1 common terminal (C3);
- 1 digital voltmeter for analog output voltage value indication (AO0).

PID SIMULATION CIRCUIT

Training Box Nexto Xpress provides the user with a process simulator:

- Electronic circuit internally coupled to TB340;
- Activated through the key located next to the PID identifier.

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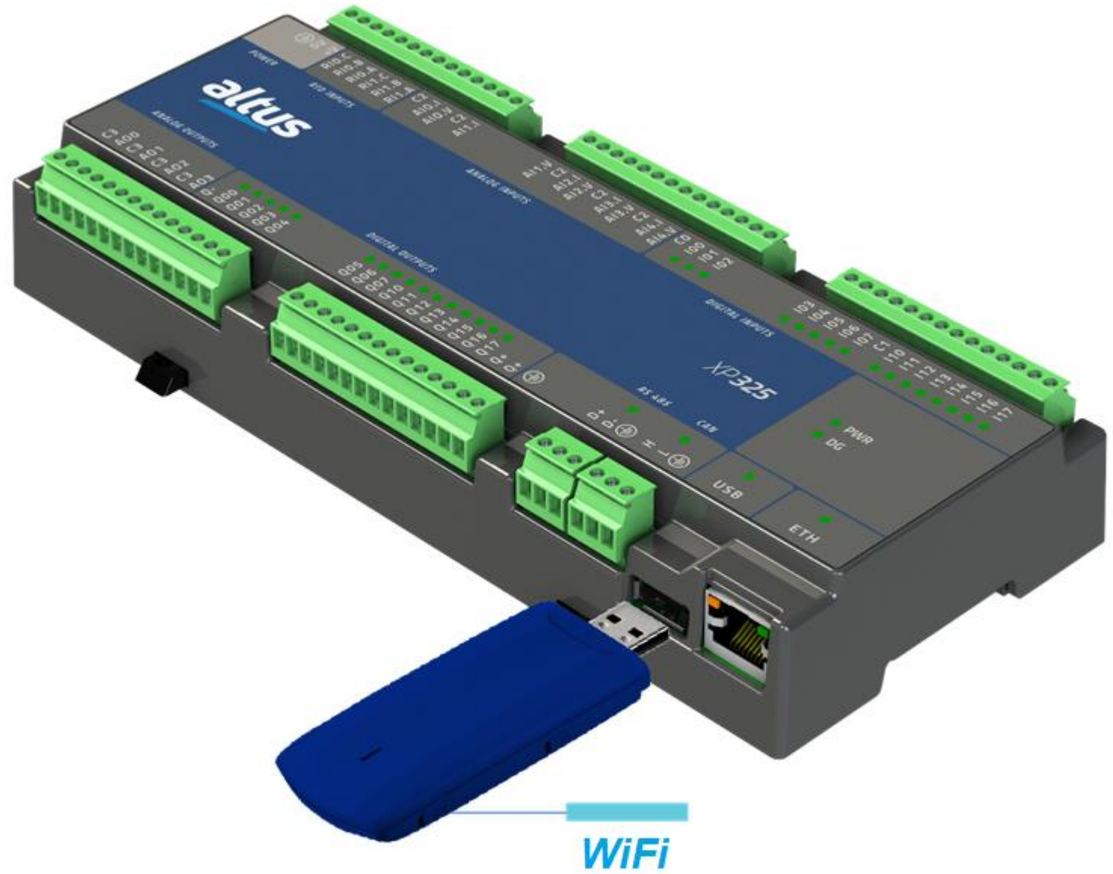
COMMUNICATION INTERFACES

- CAN:
  - CANopen
  - CAN low level
  - I/O Expansion
- RS-485:
  - MODBUS RTU Master/Slave
- USB:
  - Datalogger (external memory)
  - Converter to RS-232
  - WiFi adapter (included with TB340)
  - 3G/4G modem
  - Programming and configuration
- Ethernet:
  - MODBUS TCP Client/Server
  - OPC DA/OPC UA
  - MQTT (TLS 1.2)
  - EtherNet/IP Scanner
  - SNTP
  - IEC 60870-5-104
  - Webserver
  - Programming and configuration

WIFI ADAPTER

- USB interface with WiFi adapter for the development of IoT applications;
- The new functionality enables Nexto Xpress PLCs to be connected to wireless networks, corporate or mobile operators, wherever they are.
- This feature makes it possible, for example, for the controller to use the wireless network available on site to transmit data from process units far from the command centers, without the need for a dedicated physical structure.
- Communication via MQTT protocol, remote access via MasterTool software and visualization of screens embedded in the Webserver.



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SOFTWARE

MASTERTOOL IEC XE

- An easy-to-use software environment for all your automation needs
- Friendly User Interface
- Control platform with modern programming environment
- 6 programming languages
- Online programming
- FREE version for TB340!

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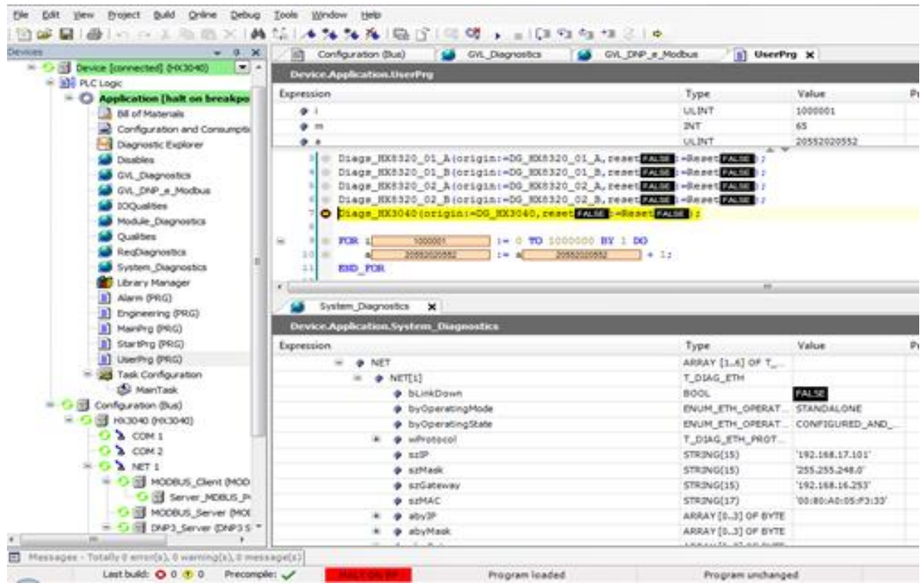
SOFTWARE

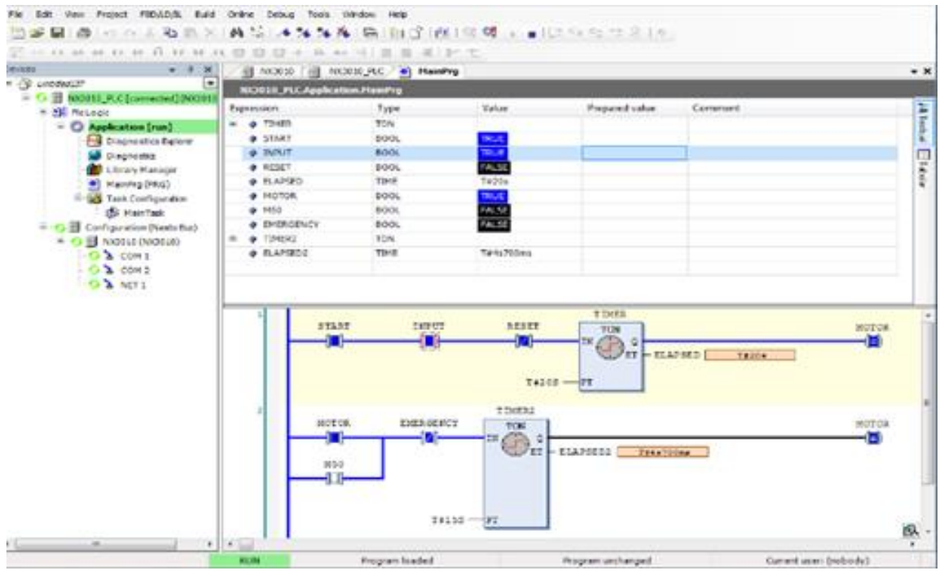
ENGINEERING FEATURES

- Online debugging and monitoring
- Online changes
- Offline simulation
- Symbolic variables
- Easy hardware configuration
- System diagnostics
- Global variable lists

BACKUP FEATURES

- Memory area for source code

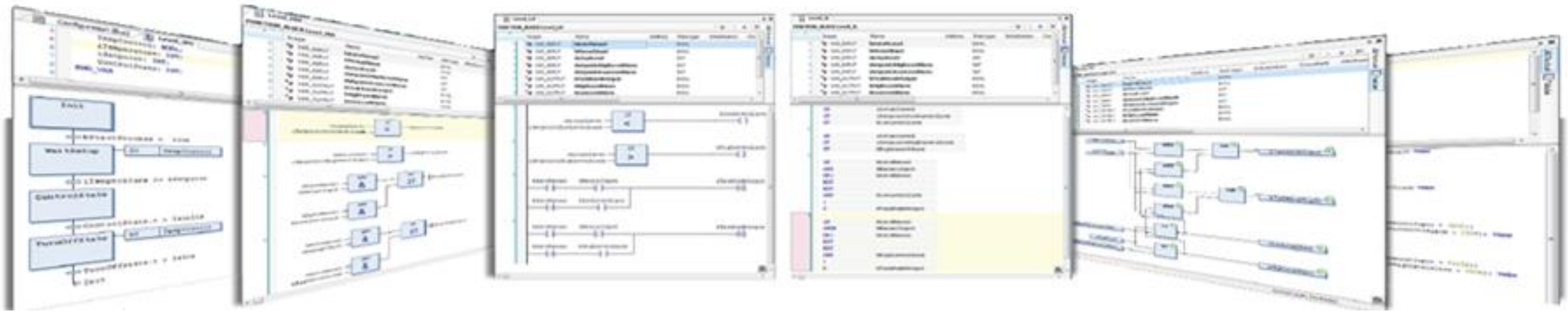




SOFTWARE

IEC 61131-3 – PROGRAMMING LANGUAGES

- Structured Text (ST)
- Sequential Function Chart (SFC)
- Function Block Diagram (FBD)
- Ladder Diagram (LD)
- Instruction List (IL)
- Continuous Function Chart (CFC)
- Support for different languages in the same project



WEBSERVER

- System that enables the creation of supervision and monitoring screens without the use of SCADA software;

- Embedded in the controller's memory, it is possible to access the screens through a web browser directly on the computer, tablet or smartphone;

- Control and supervision application in a single programming software.

DEMONSTRATION APPLICATION

- The Training Box is delivered with a demo application developed in the MasterTool IEC XE software;

- The project implements the following functionalities: PID control, Web Server, MQTT (Dashboard + Telegram) and tests for inputs and outputs;

- Click on the image to the right side and access the TB340 features demo video (Portuguese).

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