NEXTO

TAKE CONTROL OVER YOUR BUSINESS

ADVANCED AUTOMATION SYSTEM

NEXTO SERIES

- Aggregates DCS' typical elements
- Integration with most traditional SCADA systems
- Used for control systems in small, medium and high-end applications

ADVANCED AUTOMATION SYSTEM

NEXTO SERIES

STATE-OF-THE-ART PROGRAMMABLE CONTROLLER

- Wide variety of CPUs and I/O modules
- Redundancy of CPUs, power suppliers and communication modules
- Power supply, monitoring, control and field networks

MARKETS

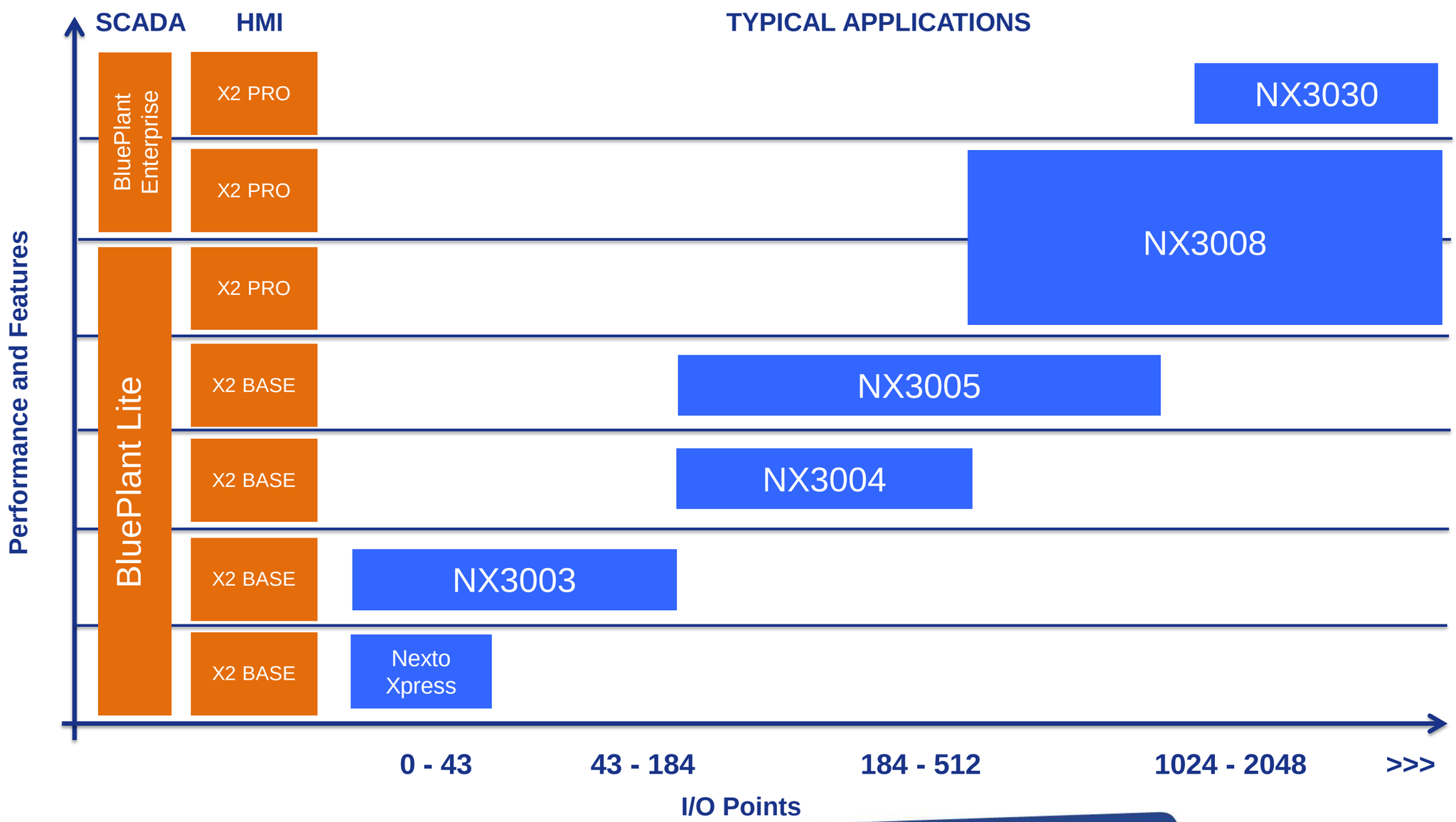
FLEXIBLE AND POWERFUL, NEXTO PLC IS SUITABLE FOR SEVERAL DIFFERENT MARKETS, SUCH AS

OIL & GAS | MACHINERY | AGROINDUSTRY | POWER | WATER & WASTEWATER

FOOD & BEVERAGE | TRANSPORTATION | BUILDING AUTOMATION | DISTRIBUTED PROCESS

PORTFOLIO

NEXTO SERIES



HIGHLIGHTS

NEXTO SERIES

INDUSTRY 4.0
OPC UA / MQTT
VPN / FTP
Docker
Cyber Security

PERFORMANCE
ARM 64-bits 1GHz
3x Ethernets
1000 PID loops in <2ms

FLEXIBLE
PROFINET
ETHERNET/IP
MODBUS
CANOpen
USB for Wifi and 3G/4G

SMART
Webserver
1MB Retentive
32MB Program Memory

MASTERTOOL
User friendly software, online changes and off-line simulation. Based on
CODESYS

SCALABLE
The Nexto Family covers small to large applications

SMART DESIGN

NEXTO SERIES

- Modular architecture
- Innovative design features and superior finishing, using materials such as aluminum, plastics and LCDs

AWARDED WITH “IF PRODUCT DESIGN AWARD” STAMP IN 2012, “INDUSTRY + SKILLED TRADES” CATEGORY

product
design award

2012

NEXTO SERIES

- Built-in compact graphical LCD displays in each module
- Allows direct and easy access to critical information:
  - System state (RUN, STOP, …), redundancy state (ACT, SBY, …), serial activities, forcing of variables, active diagnostics and more

NEXTO SERIES

ONE TOUCH DIAG – OTD

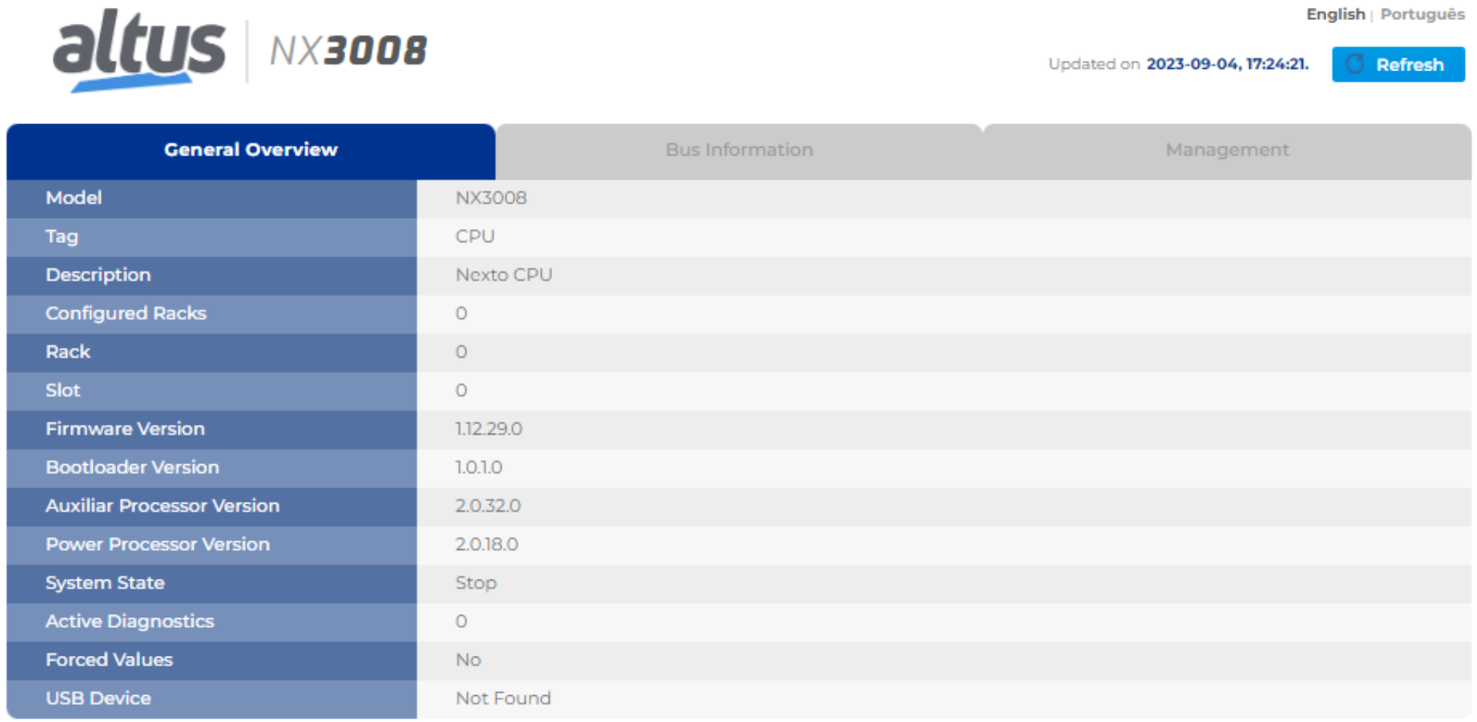
- Clear and accurate diagnostics accessible directly from the module, in real time

ELECTRONIC TAG ON DISPLAY

- Tags and description of all I/O points accessible directly from the PLC, in real time

NEXTO SERIES

- All diagnostics available in user application and remote web access
- Web page with password protection :
  - CPU firmware update
  - Configuring OpenVPN, Firewall, FTP server and USB devices
  - Changing the clock and IP address
  - Network analysis and logs



INNOVATIVE FEATURES

NEXTO SERIES

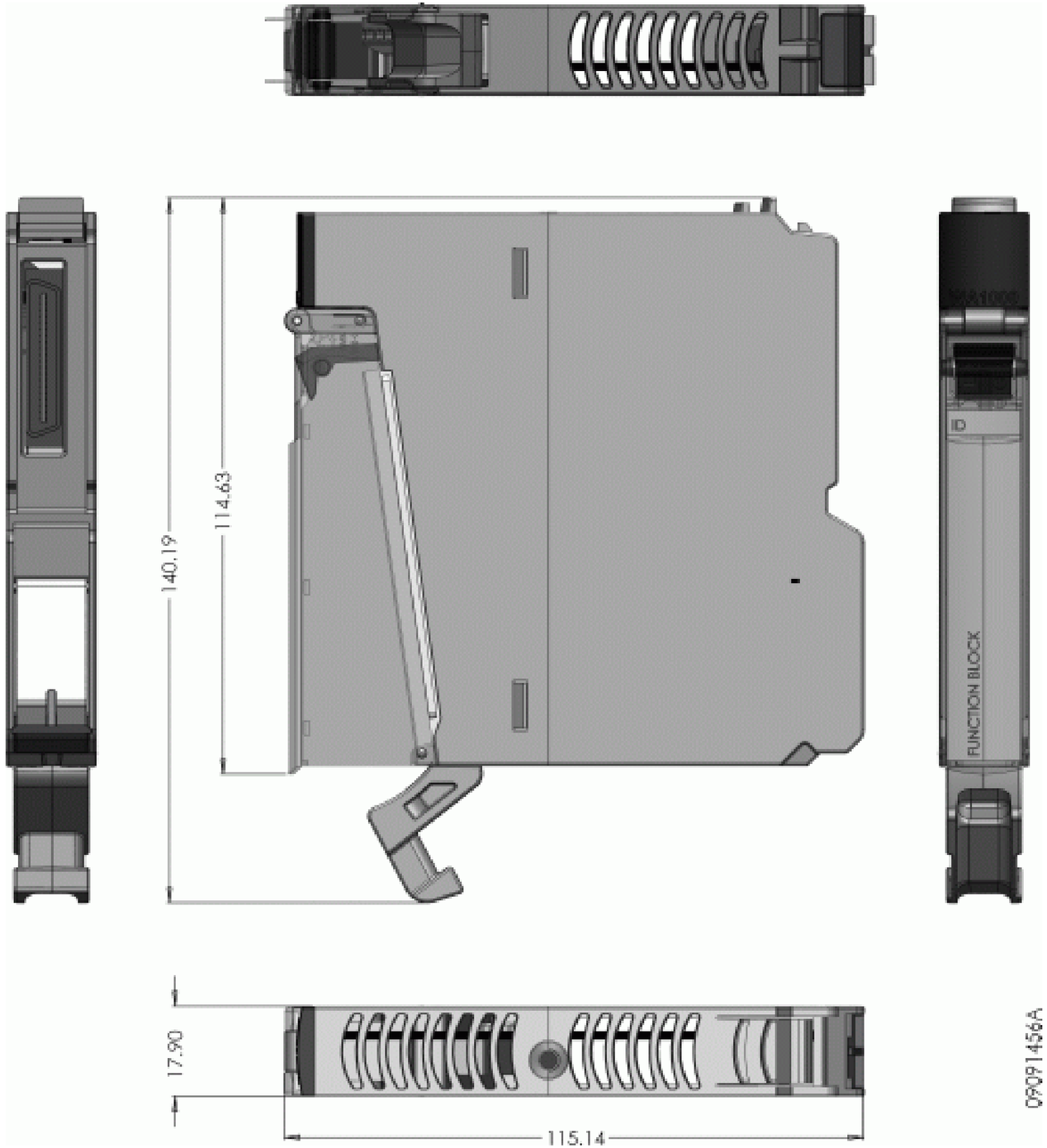
DUAL HARDWARE WIDTH

- High flexibility delivering several different sets of I/Os
- Compact and robust
- Absence of screw and tools for installation and maintenance
- Spring-type connector

INNOVATIVE FEATURES

NEXTO SERIES

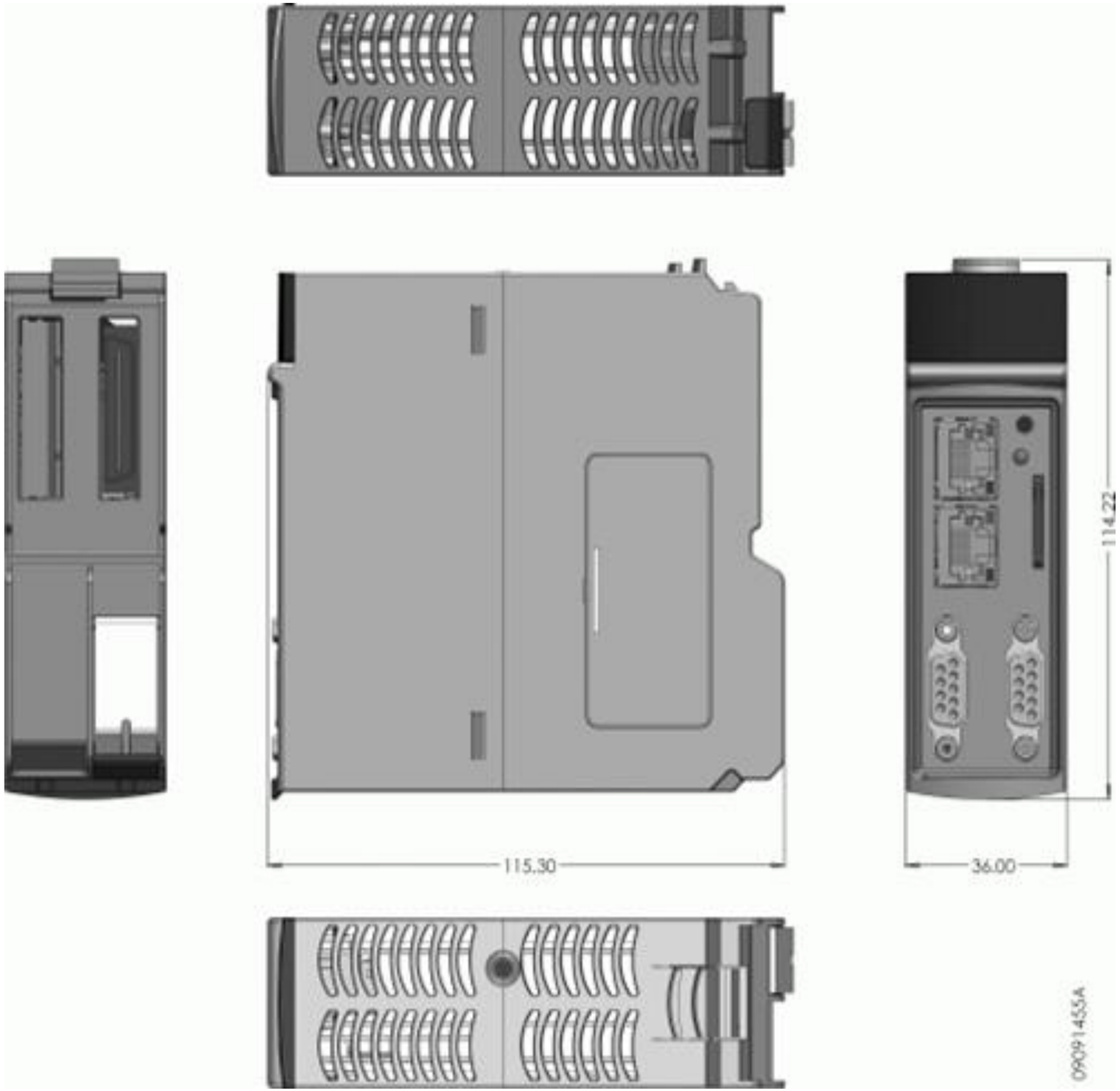
DIMENSIONS – 18 MM MODULE



INNOVATIVE FEATURES

NEXTO SERIES

DIMENSIONS – 36 MM MODULE

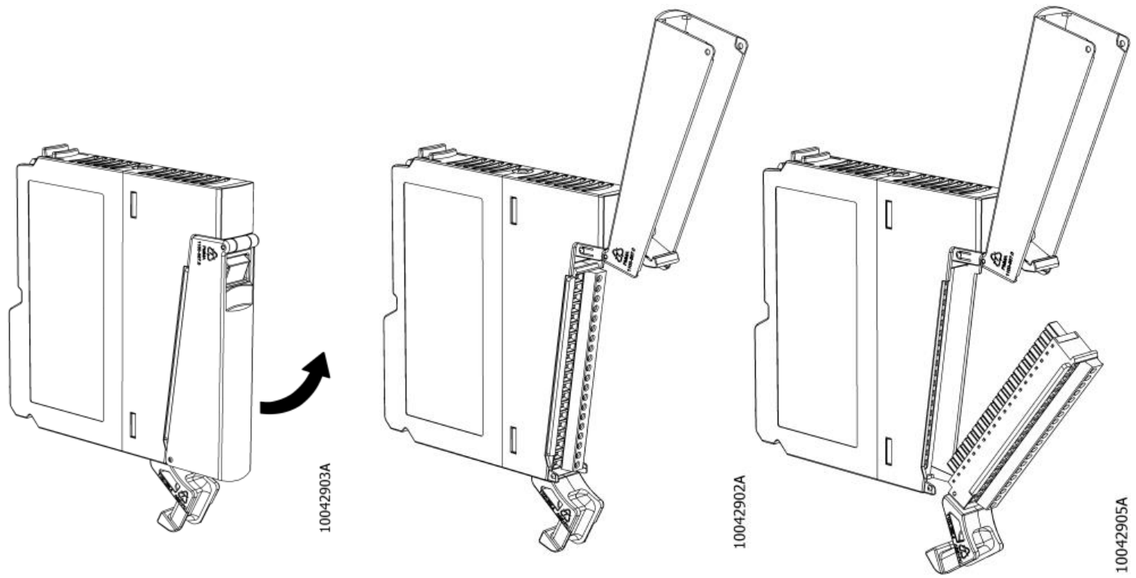


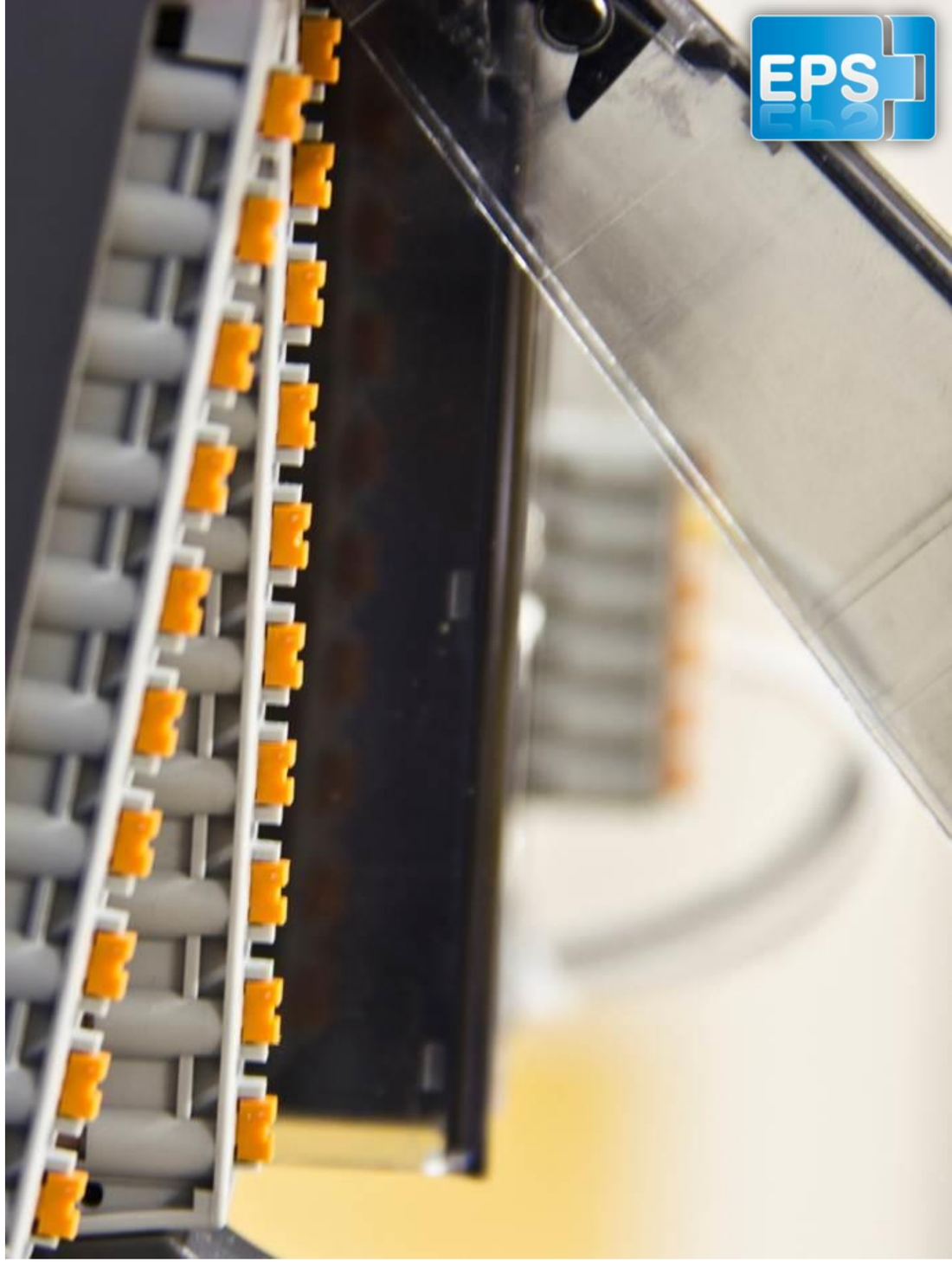
INNOVATIVE FEATURES

NEXTO SERIES

EASY PLUG SYSTEM - EPS

- Practical insertion & extraction mechanism for I/O terminal blocks using a lever on the front of the modules





INNOVATIVE FEATURES

NEXTO SERIES

BATTERY FREE OPERATION

- No battery
- Eco-friendly
- Data retention of 20 years
- RTC time backup (up to 15 days)

ON-BOARD FULL DOCUMENTATION

- Project files can be easily stored and accessed during engineering, commissioning and maintenance tasks

IP PROTECTION AND LOGIN PASSWORD

- Password management to protect access to the project or controller

HIGH RELIABILITY

- Low consumption and no moving parts (cooling fans)

NEXTO SERIES

MULTIPLE BLOCK STORAGE

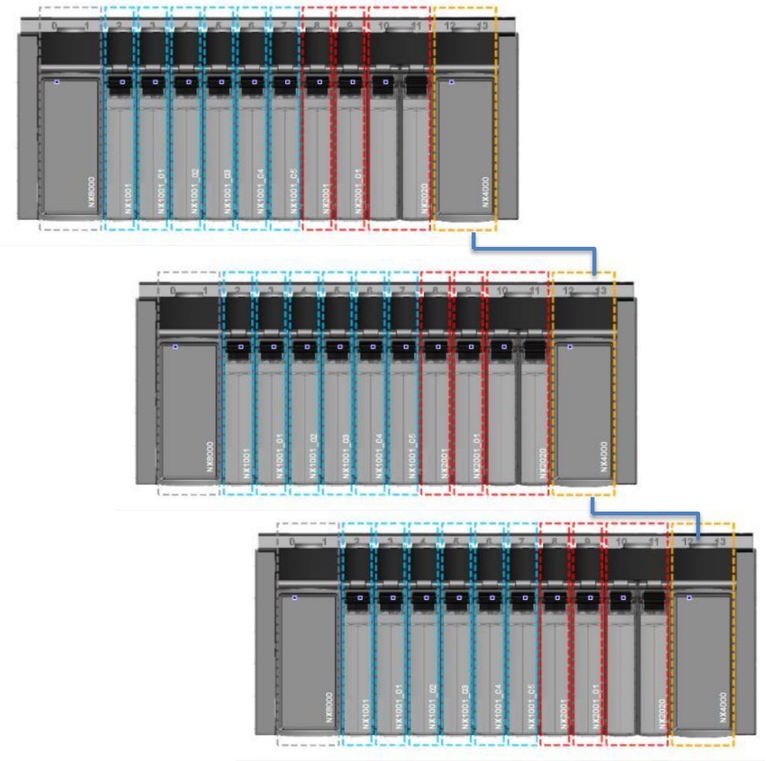
- High memory capacity for applications
- Many variable types:
  - %I, %Q, %M, symbolic variable, persistent variable, retain variable
- User memory for project files:
  - .PDF, .DOC, .JPG, others
- System and user events registry memory (log)
- miniSD memory card (up to 8GB)

INNOVATIVE FEATURES

NEXTO SERIES

MAIN FEATURES – I/O SYSTEM

- Hot-swapping of any module
- Up to 320 I/Os in one rack
- Supports bus interruptions triggered by digital inputs events
- Expansion of up to 24 remote racks using bus coupler modules and power supply modules
- Optional redundancy if using two bus coupler modules
- Special functions: counters, period measurement and pulse capture



HIGH-SPEED BACKPLANE

NEXTO SERIES

FEATURES

- Based on deterministic Ethernet technology (100 Mbps)
- Up to 25 racks (1 local + 24 remote racks)
- 100 m of distance between racks (cable) or longer using fiber optic converters

PERFORMANCE

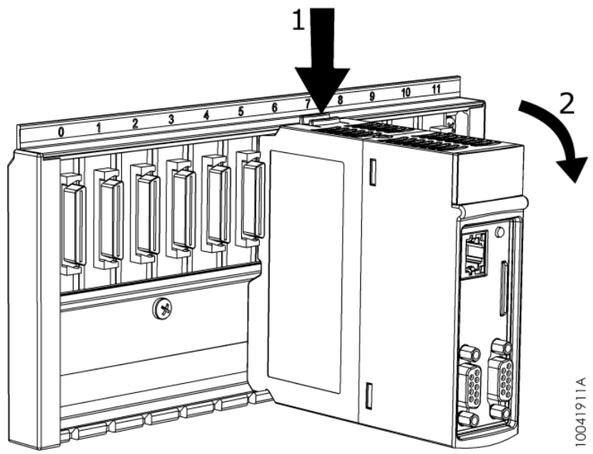
- High performance with low latencies for interruptions
- High I/O update rate (2,048 I/Os @ 10 ms)

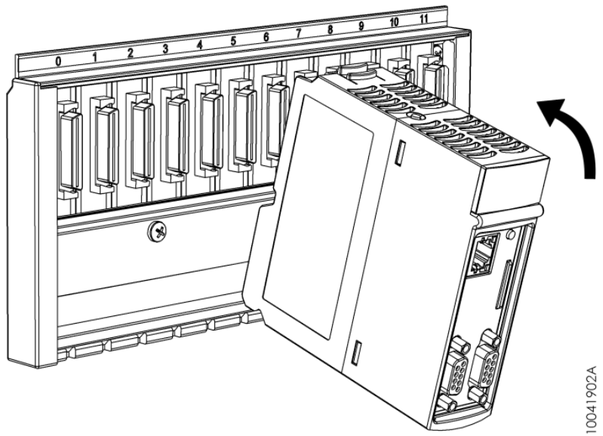
HOT-SWAPPING

NEXTO SERIES

FULL HOT-SWAP SUPPORT

- Easy insertion and extraction system without stopping the application (no need for screws or tools)



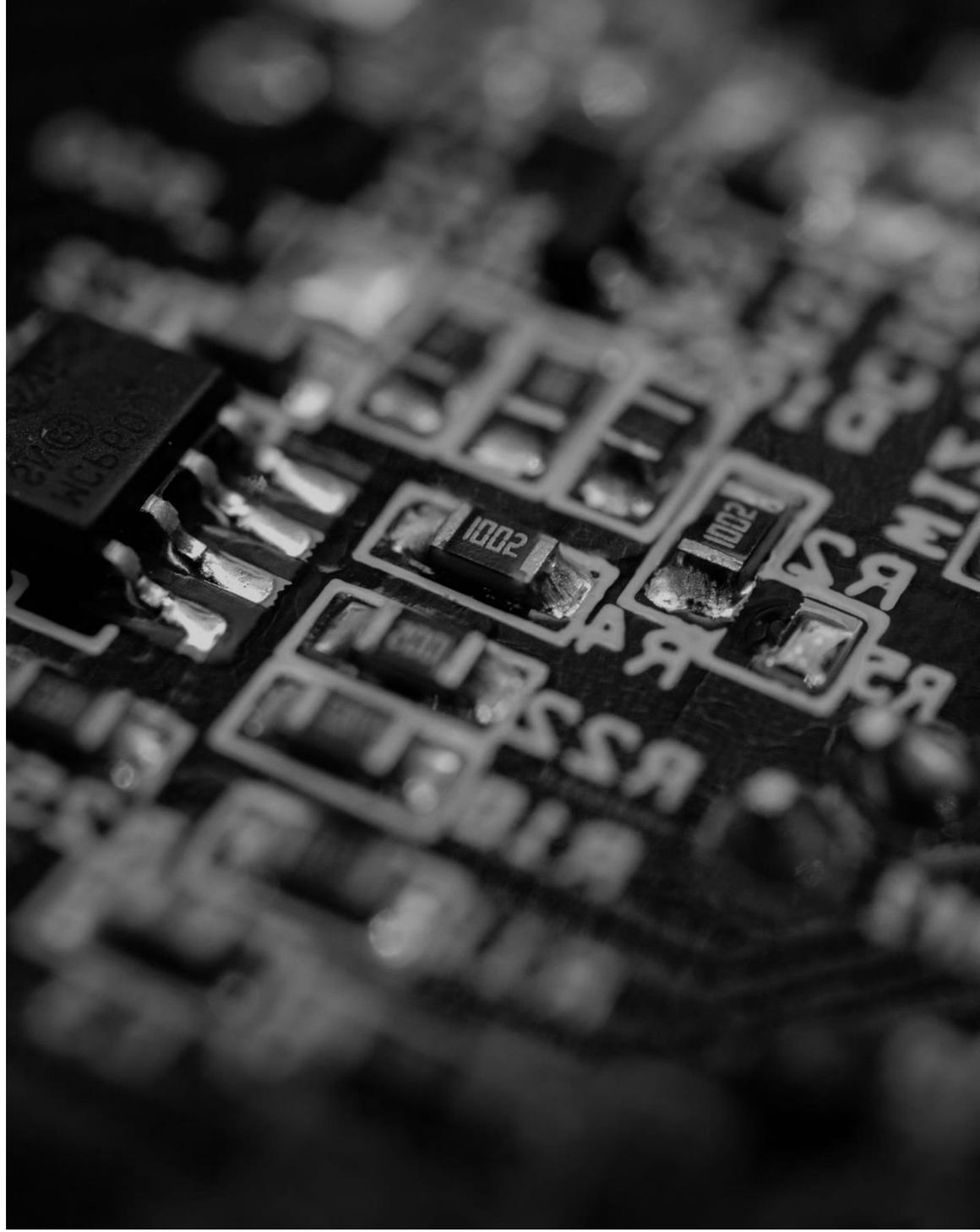


CONFORMAL COATING

NEXTO SERIES

PROTECTION AGAINST HAZARDOUS SUBSTANCES IN INDUSTRIAL ENVIRONMENTS

- Many industrial environments have hazardous substances on the air for printed circuit boards such as chemical components, air and moisture.
- In the conformal coating process a thin layer of nonconductive material is applied to protect against corrosion, extreme temperatures, sea air, humidity, among others.



NEXTO SERIES

ROHS DIRECTIVE - RESTRICTION OF CERTAIN HAZARDOUS SUBSTANCES

- Nexto Series was developed according to European eco-design requirements

IT IS AN EUROPEAN DIRECTIVE WHICH PROHIBITS THAT CERTAIN HAZARDOUS SUBSTANCES ARE USED IN MANUFACTURING PROCESSES

- Cadmium (Cd)
- Mercury (Hg)
- Hexavalent Chromium (Cr6+)
- Polybrominated Biphenyls (PBBs)
- Polybrominated Diphenyl Ethers (PBDEs)
- Lead (Pb)

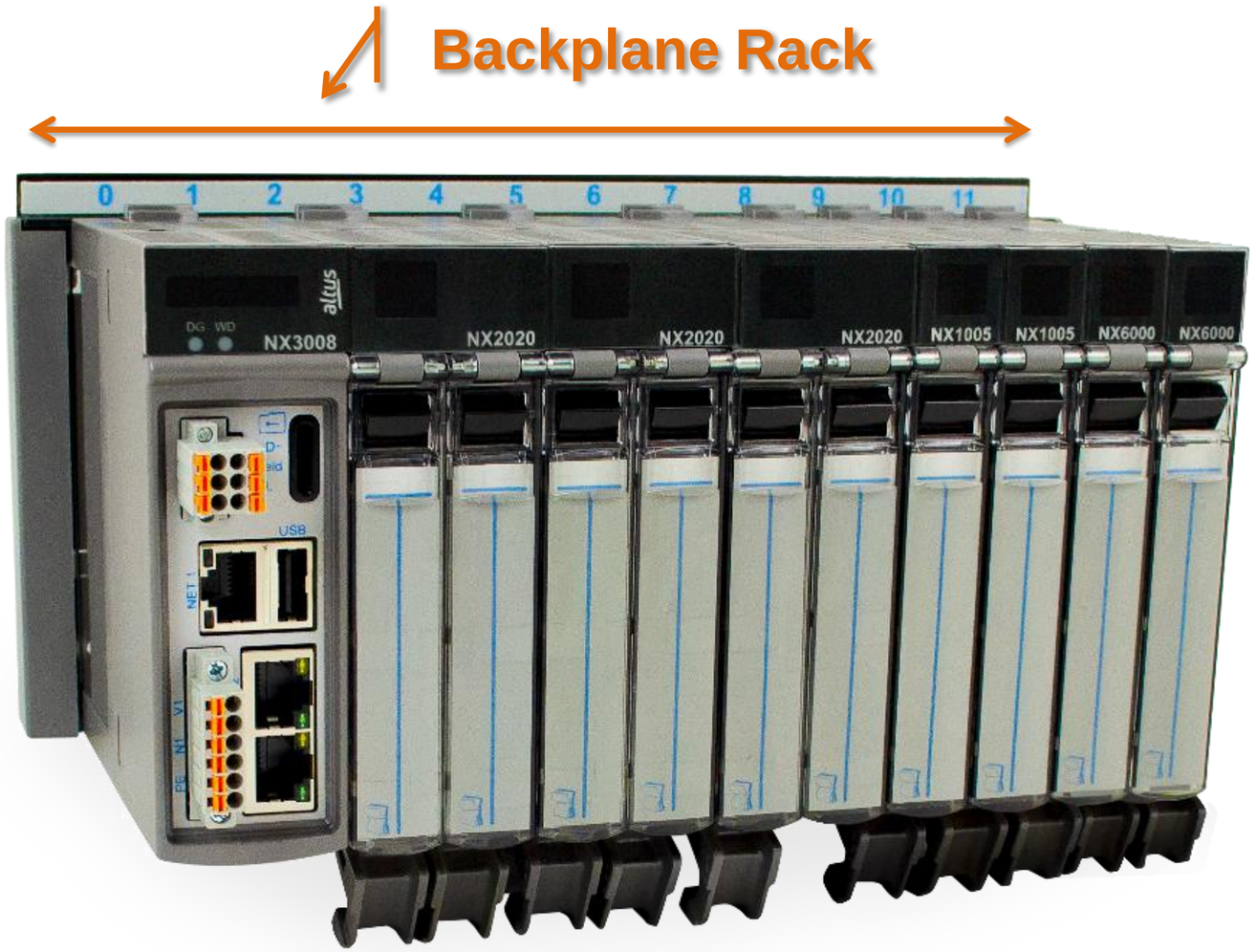
NEXTO SERIES

HIGH QUALITY

- The high quality of Nexto controllers is accredited by renowned world-class technological institutes
  - **CE** – European directives
  - **UL** – NRAQ category (UL61010-1 and UL61010-2-201)
  - **DNV-GL** – Type Approval Category for Marine applications
  - **EAC** – TR004/TR020 Russian directives

NEXTO SERIES

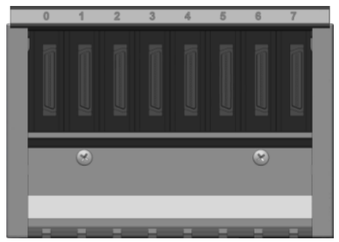
NEXTO SERIES

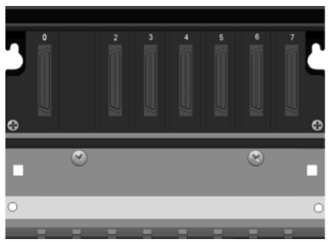


NEXTO SERIES

NX9020 - 2-slot backplane rack (for stand-alone CPUs)

*applications with NX3003, NX3004 and NX3005 CPUs



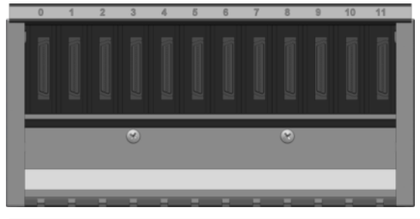


8-slot backplane racks:

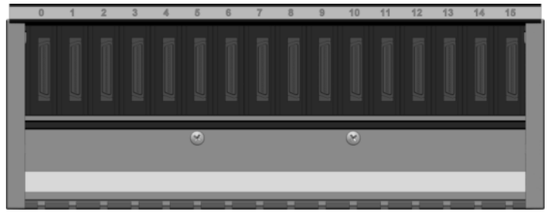
NX9000 – with hot-swapping

NX9010 – without hot-swapping

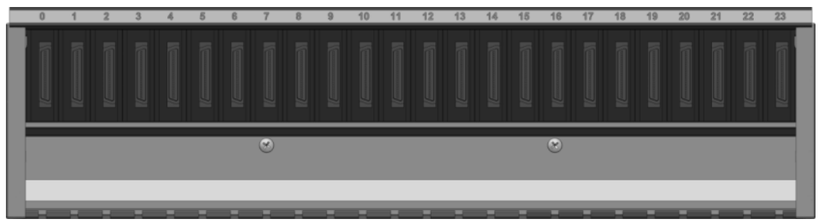
NEXTO SERIES



NX9001 – 12-slot hot-swap backplane rack



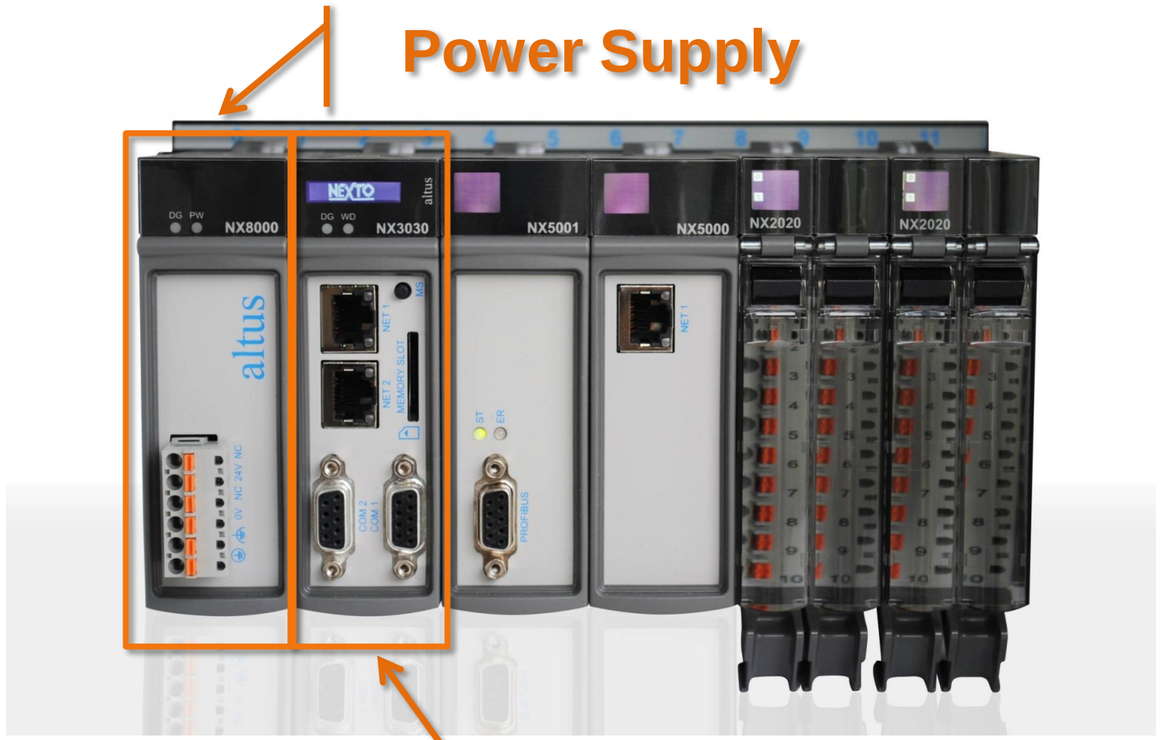
NX9002 – 16-slot hot-swap backplane rack



NX9003 – 24-slot hot swap backplane rack

NEXTO SERIES

Power Supply



CPU

CPU with Integrated Power Supply

NEXTO SERIES

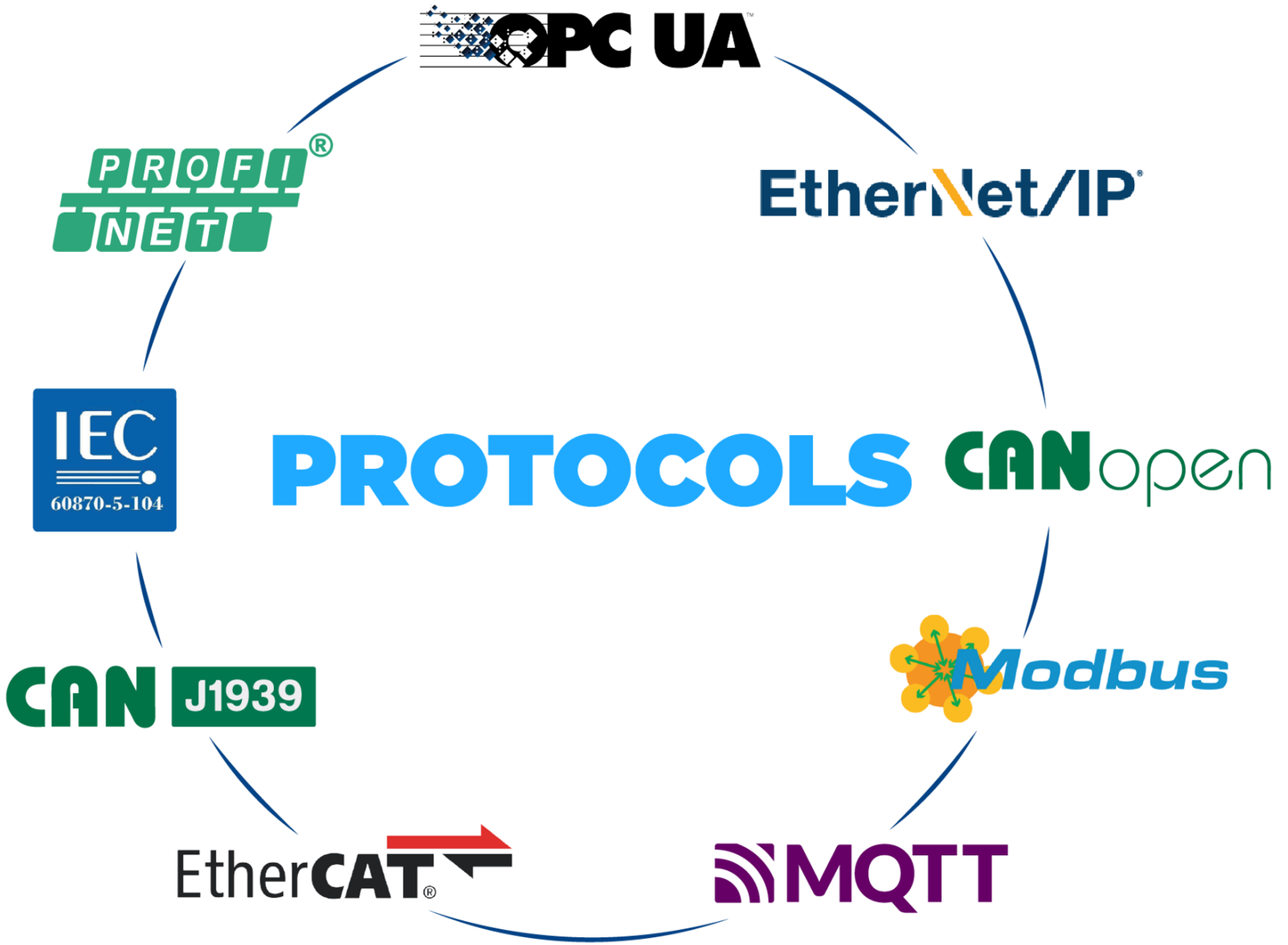
MAIN FEATURES – CPUs

- 1 GHz ARM 64-bit or PowerPC 32-bit processor
- Up to 2 serial interfaces (RS-232 and RS-485/RS-422)
- Up to 3 Ethernet interfaces 10/100/1000 Mbps
- CAN interface (NX3008)
- Various communication protocols
- On-board HTTP server for diagnostics
- Web page development for user applications (NX3005 and NX3008)
- SNTP: RTC clock synchronization
- SOE: event logging of binary inputs with time stamping (NX3030)
- SNMP: Ethernet network management
- Redundancy in half-clusters (NX3030)
- Memory card (NX3008, NX3010, NX3020 and NX3030)

SÉRIE NEXTO

COMMUNICATION PROTOCOLS

- PROFINET Controller
- PROFIBUS (additional module)
- CANOpen Manager
- CAN J-1939
- MODBUS RTU (master/slave)
- MODBUS TCP (client/server)
- OPC DA (server)
- OPC UA (server, with encryption)
- EtherCAT (master)
- EtherNet/IP (scanner/adapter)
- IEC 60870-5-104 (server)
- MQTT (client)
- SNTP (client)
- SNMP (client)



NX3008 CPU

SÉRIE NEXTO

- 1 GHz 64-bit ARM processor;
- 3 Ethernet interfaces, one of which is Gigabit and two of which can be configured to operate as PROFINET IO Controller, with support for closing the ring, both with MRP (Media Redundancy Protocol) acting as the ring manager (MRM - Media Redundancy Manager) in PROFINET networks, and with RSTP (Rapid Spanning Tree Protocol) in other protocols
- 1 isolated RS-485 serial interface
- 1 isolated CAN interface
- 1 microSD memory card for storage and mass memory
- 1 USB interface for storage, mass memory, USB-Serial converter, wireless and 4G modem
- Integrated power supply
- On-board HTTP server for diagnostics
- Web page development for user application (Webvisu)
- Extended operating temperature of -20 to 60ºC

TECHINAL FEATURES

NX3008

- Cybersecurity:
  - Through the resources available in the processor, at the application level of the Linux kernel and with resources provided by CODESYS
  - Firewall
- VPN tunnel support (P2P)
- FTP for file transfer
- “Embedded Linux" functionality, allowing the user to develop applications with direct access to CODESYS libraries, Docker, Python, among others.

NX3003 CPU

NEXTO SERIES

IDEAL FOR SMALL APPLICATIONS

- CPU with embedded power supply
- Support to up to 10 I/O modules
- 14 digital inputs (4 high-speed inputs)
- 10 digital outputs (4 high-speed outputs)
- One Ethernet port
- One serial port (MODBUS RTU/User)
- Protocols and services: MODBUS RTU, MODBUS TCP, MODBUS RTU/TCP, EtherNet/IP, SNTP, SNMP, MQTT, OPC DA and OPC UA

NX3004 CPU

NEXTO SERIES

IDEAL FOR HIGH-PERFORMANCE MACHINERY CONTROL AND SMALL APPLICATIONS

- CPU with embedded power supply
- Support to up to 32 I/O modules
- One Ethernet port
- Allows one bus expansion rack (with NX4000)
- Allows PROFIBUS-DP fieldbus expansion (with NX5001)
- Protocols and services: MODBUS RTU, MODBUS TCP, MODBUS RTU/TCP, EtherNet/IP, SNTP, SNMP, MQTT, OPC DA and OPC UA

NX3005 CPU

NEXTO SERIES

SOLUTION FOR APPLICATIONS WITH EMBEDDED WEB SUPERVISION

- CPU with embedded power supply
- Support to up to 64 I/O modules
- One Ethernet port
- Allows four bus expansion racks (with NX4000)
- Allows PROFIBUS-DP fieldbus expansion (with NX5001)
- One serial port (MODBUS RTU / User)
- Development of web pages embedded in the CPU
- Protocols and services: IEC 60870-5-104 Server, EtherNet/IP, WebServer, MODBUS RTU, MODBUS TCP, MODBUS RTU/TCP, SNTP, SNMP, MQTT, OPC DA and OPC UA

NX3005 CPU

NEXTO SERIES

- REMOTE ACCESS (WEB)
- SUPERVISION AND MONITORING
- TELEMETRY

NX3030 CPU

NEXTO SERIES

SOLUTION FOR CRITICAL AND HIGH AVAILABILITY APPLICATIONS

- CPU without integrated power supply
- Two Ethernet ports
- Two Serial ports
- MiniSD memory card slot
- Support to up to 128 I/O modules
- Expansion of up to 25 expansion racks (each one with capacity for up to 20 I/O modules)
- Architecture based on multiple racks with optional redundancy
- Protocols and services: IEC 60870-5-104 Server, EtherNet/IP, EtherCAT Master, MODBUS RTU, MODBUS TCP, MODBUS RTU/TCP, SNTP, SNMP, MQTT, OPC DA and OPC UA

NX3030 CPU

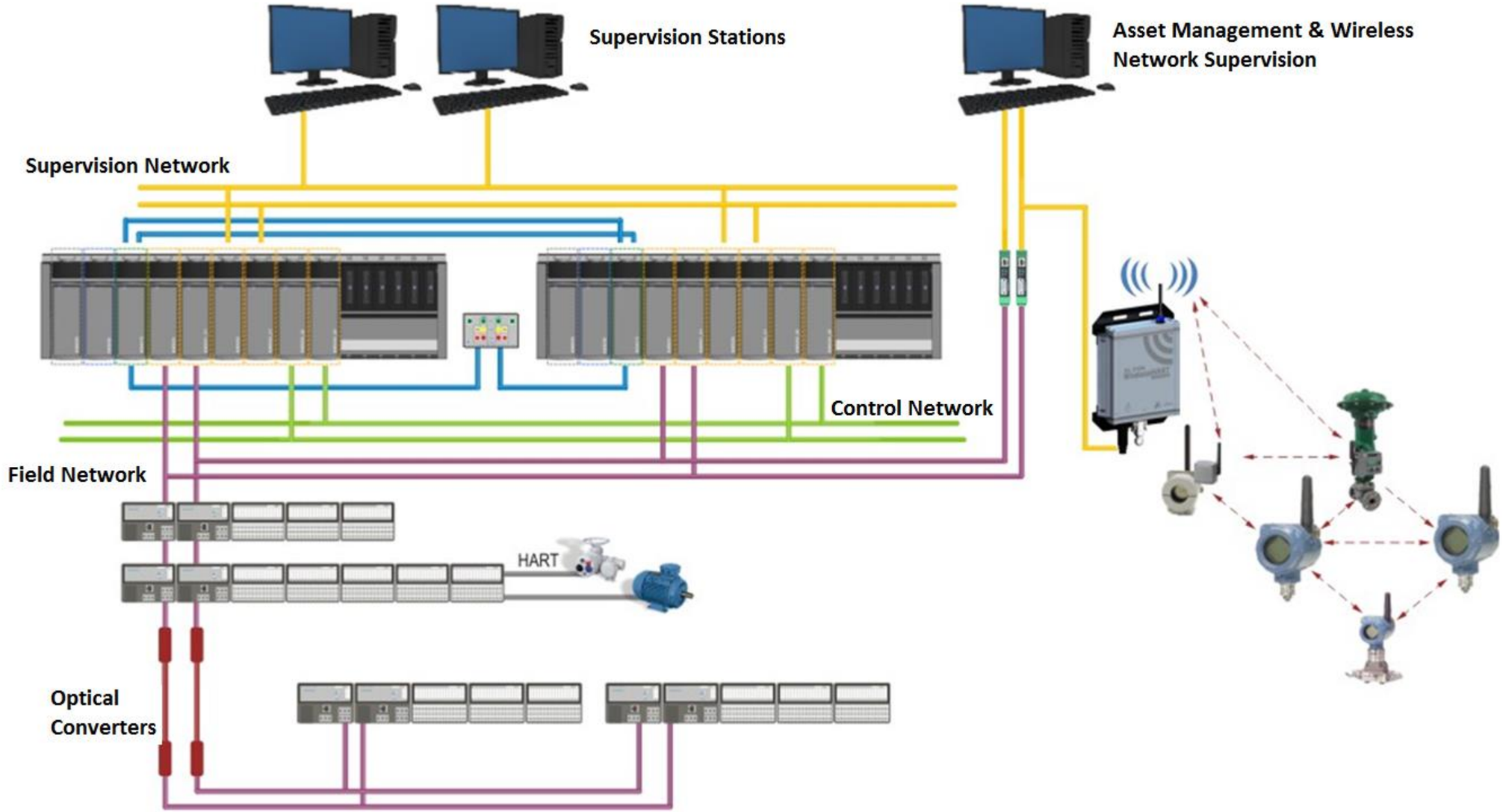
NEXTO SERIES

SOLUTION FOR CRITICAL AND HIGH AVAILABILITY APPLICATIONS

- Redundant CPUs are located in different racks (half clusters)
- In case of failure on the active CPU, the standby CPU switches over automatically (with an up-to-date data context)
- Easy to set up – no special programming is needed
- Automatic program synchronization and transfer between half-clusters
- Support to online changes and I/O expansion without stopping the process
- Critical processes are not affected by simple failure events
- Designed to deliver:
  - Increased productivity
  - Minimized process down times
  - Low maintenance and repair times (MTTR)

REDUNDANT ARCHITECTURE

NEXTO SERIES

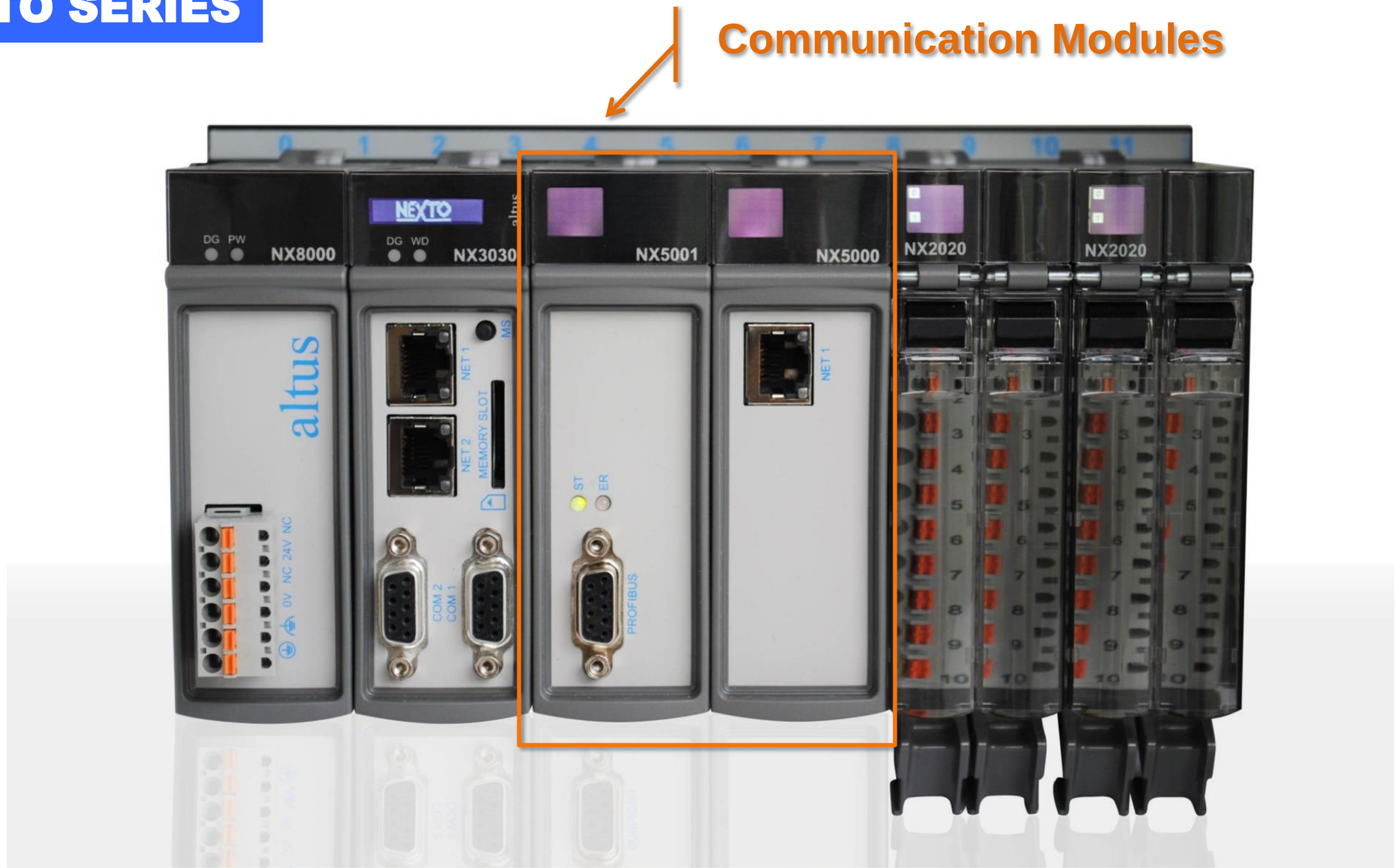


NEXTO SERIES

	NX3003	NX3004	NX3005	NX3008	NX3010	NX3020	NX3030
Program Memory	3 MB	3 MB	6 MB	32 MB	4 MB	6 MB	8 MB
Source-Code Memory	32 MB	32 MB	40 MB	256 MB	40 MB	80 MB	120 MB
Master PROFIBUS-DP Fieldbus	-	1	1	4	1	4	4
Ethernet Interfaces	1	1	2	3	1	4	8
Redundancy (Fieldbus/Ethernet)	-	-	-	Yes	-	Yes	Yes
Sequence of Events (SOE)	-	-	-	-	-	Yes	Yes
Memory Card Support	-	-	-	Yes	Yes	Yes	Yes
Supported Rack Expansions	-	1	4	Yes	8	24	24
Maximum Number of I/O Modules	10	32	64	128	128	128	128
Embedded Digital Inputs	14	-	-	-	-	-	-
Embedded Digital Outputs	10	-	-	-	-	-	-

NEXTO SERIES

Communication Modules



NEXTO SERIES

- PROFIBUS DP Master (Redundancy)
- 10/100 Mbps Ethernet Interface (Redundancy)

NEXTO SERIES

NX5100 – MODBUS TCP HEAD

NX5101 – MODBUS TCP HEAD (NO HOT-SWAP)

- Compatible with any MODBUS TCP client equipment
- Integrated power supply
- Support for up to 22 I/O modules
- Easy software configuration (through MasterTool IEC XE)

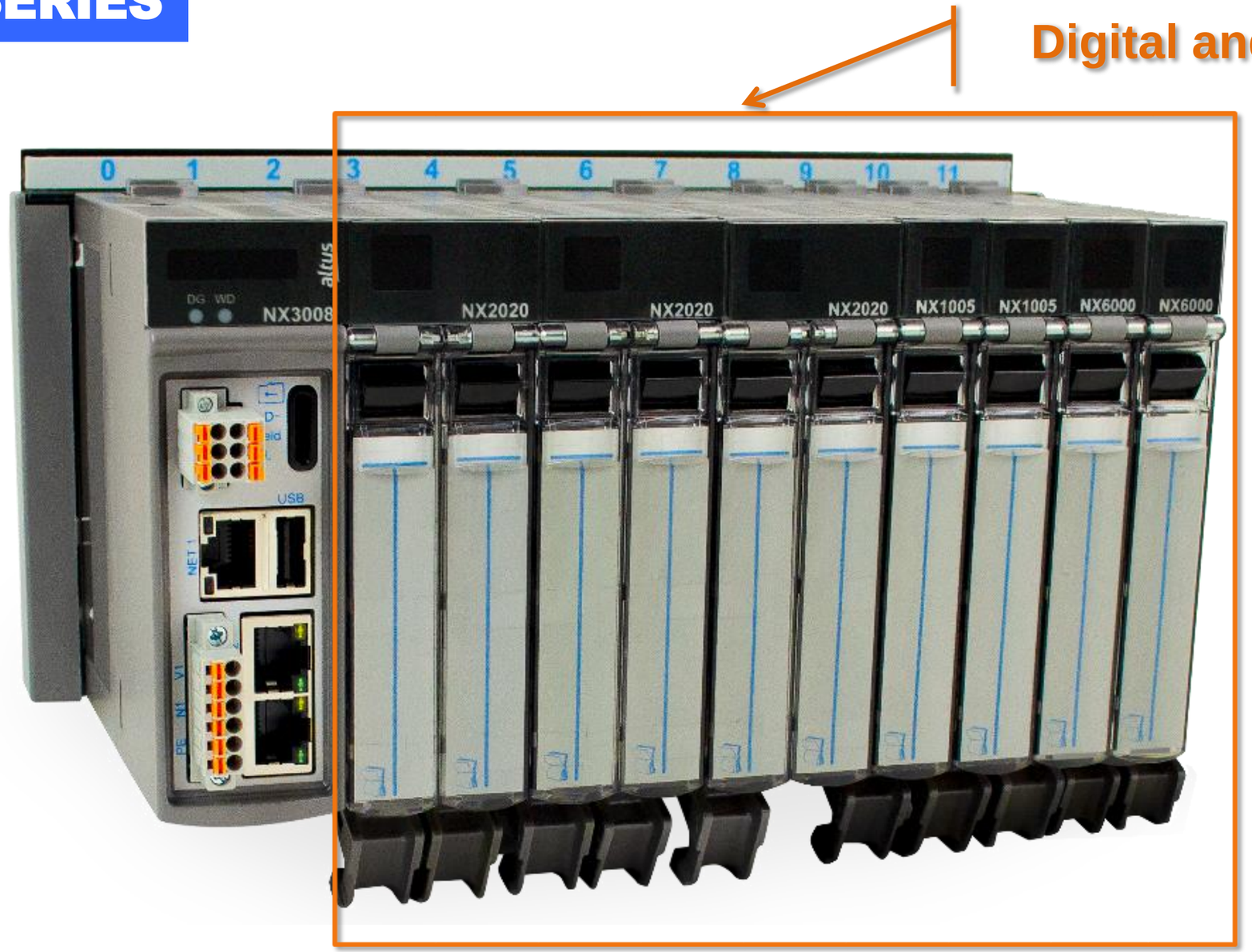
NEXTO SERIES

NX5110 – PROFIBUS-DP HEAD

NX5210 – PROFIBUS-DP REDUNDANT HEAD

- Compatible with any PROFIBUS-DP master (EN 50170)
- Integrated power supply
- Up to 22 I/O modules support
- Auto-parameterization and configuration of I/O modules via PROFIBUS-DP master (class 1)

NEXTO SERIES



NEXTO SERIES

NX1001

- 16 Digital Inputs 24 Vdc Module
- opto-isolated Input (sink/source)

NX1005

- Mix of 8 Digital Inputs and 8 Digital Outputs Transistor Module
- Mixed features of NX1001 and NX2001

SPECIAL FEATURES

- **COUNTERS**
  - Input for signal of 20 kHz and 2 kHz
- **PERIOD MEASUREMENT**
  - Input for signal of 200 us to 1 second
- **PULSE CATCH**
  - Detection of pulses shorter than the application cycle

NEXTO SERIES

NX2001

- 16 Transistor Digital Output Module
- Grouped outputs in 2 isolated groups between them and logic

NX2020

- 16 Relay Digital Outputs Module
- Grouped outputs in 2 groups

LOAD SPECIFICATIONS

	NX2001	NX2020
Output type	Transistor isolated source type	Relay isolated dry contact
Maximum current per output	1 A @ 30 Vdc	2 A @ 30 Vdc 2 A @ 250 Vac

NEXTO SERIES

NX6000

- 8 Analog Inputs Voltage/Current Module 16-bit
- Isolated inputs from logic
- 24 Vdc internal protection
- Selectable scales by software (0 to 10 V, -10 V to +10 V, 0 to 20 mA, 4 to 20 mA and -20 to 20 mA)

NX6100

- 4 Analog Voltage/Current Outputs Module 16-bit
- Isolated outputs from logic
- Selectable scales by software (0 to 10 V, -10 V to +10 V, 0 to 20 mA, 4 to 20 mA and -20 to 20 mA)

NEXTO SERIES

NX6010

- 8 Thermocouple Analog Inputs Module
- Isolated inputs from logic
- 24 Vdc internal protection
- Supported thermocouples: J, K, B, E, T, R, S and N
- Individual configuration per input
- 24 bits converter resolution and 16 bits data format in two’s complement

NEXTO SERIES

NX6020

- 8 RTD Analog Inputs Module
- Isolated inputs from logic
- Supported RTD sensors types: Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500, Ni1000 and Cu10
- Supported resistance ranges: 0 Ω to 400 Ω and 0 Ω to 4000 Ω
- Individual configuration per input
- 24 bits converter resolution and 16 bits data format in two’s complement

NEXTO SERIES

NX6014

- 8 Analog Current Input Module with HART support
- Inputs isolated from logic
- Internal protection for 24 Vdc
- Software-selectable scales (0 to 20 mA and 4 to 20 mA)
- Software-selectable filters

NX6134

- Module with 4 Current Analog Outputs with HART support
- Outputs isolated from logic
- Protection against voltage surges
- Software-selectable scales (0 to 20 mA and 4 to 20 mA)
- Filtros parametrizáveis por software

NEXTO XPRESS

NEXTO SERIES

- Compact Programmable Controller with embedded I/Os, ideal for machines and small applications
- High density of I/Os (up to 43 points in only one product) and Real Time Clock (RTC)
- Ethernet interface, Serial port, CANopen and USB. Supports MODBUS RTU and TCP client/server, EtherNet/IP Scanner, MQTT, OPC DA and OPC UA protocols

NEXTO XPRESS

- Compact Programmable Controller with user webpage embedded I/Os, ideal for machines and small applications;
- High density of I/Os (up to 43 points in only one product) and Real Time Clock (RTC);
- Ethernet, RS 485, CAN and USB interfaces. Support for MODBUS TCP and RTU, EtherNet/IP, CANopen e J-1939, IEC 60870-5-104, OPC DA, OPC UA, MQTT (TLS 1.2) and PROFINET.

NEXTO XPRESS

- 3G/4G modem and Wifi adapter support through USB interface;
- Support for PLCopen Motion Control Part 1 function blocks in the XP350 model;
- Datalogger function block for historical data record;
- WebServer support for development of supervision screens in the XP340 model;
- Options for input and output expansion modules via CAN interface.

NEXTO JET

NEXTO SERIES

- High speed I/O modules
- Ideal for small and medium applications
- Cost effective for either machines or distributed systems

PROGRAMMING ENVIRONMENT

MASTERTOOL IEC XE

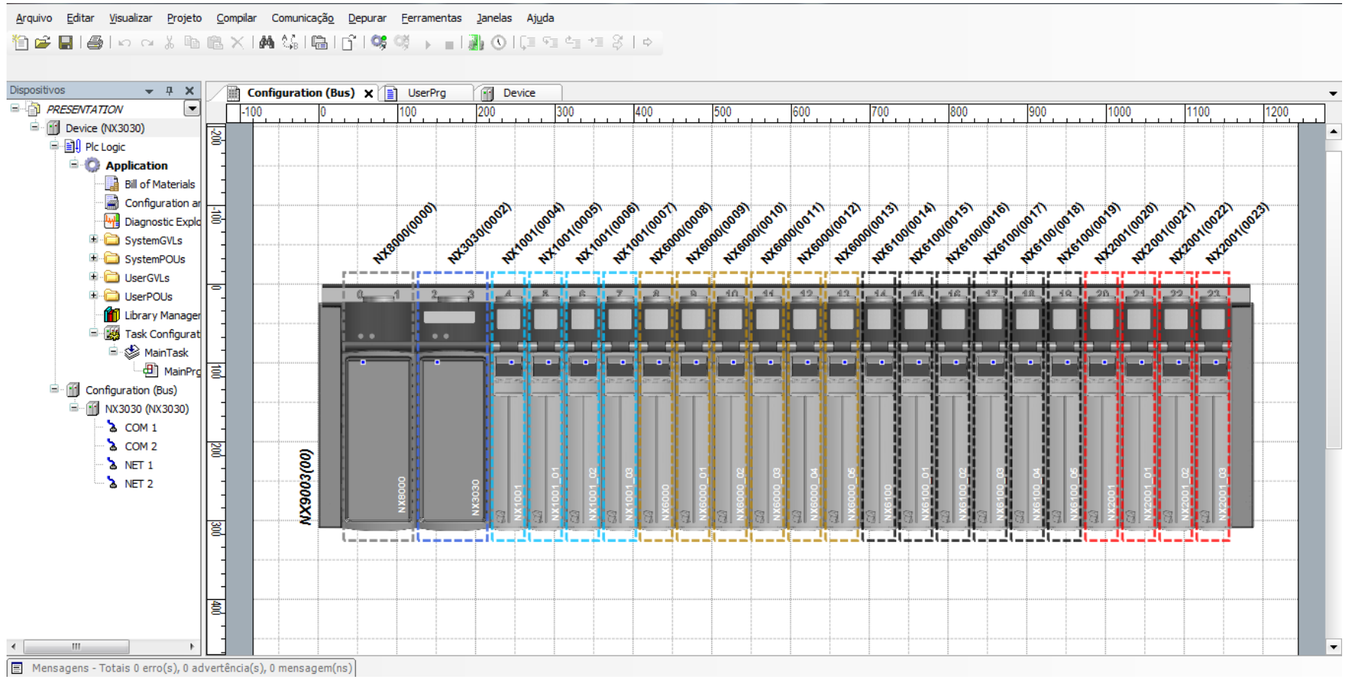
- An easy-to-use software for all your automation needs
- 6 programming languages
- Friendly user interface and easy to use
- Single control platform with modern programming environment
- Online programming
- Offline simulation

CONFIGURATION TOOL

MASTERTOOL IEC XE

ALLOWS A FAST AND COMPREHENSIVE WAY TO CONFIGURE THE SYSTEM

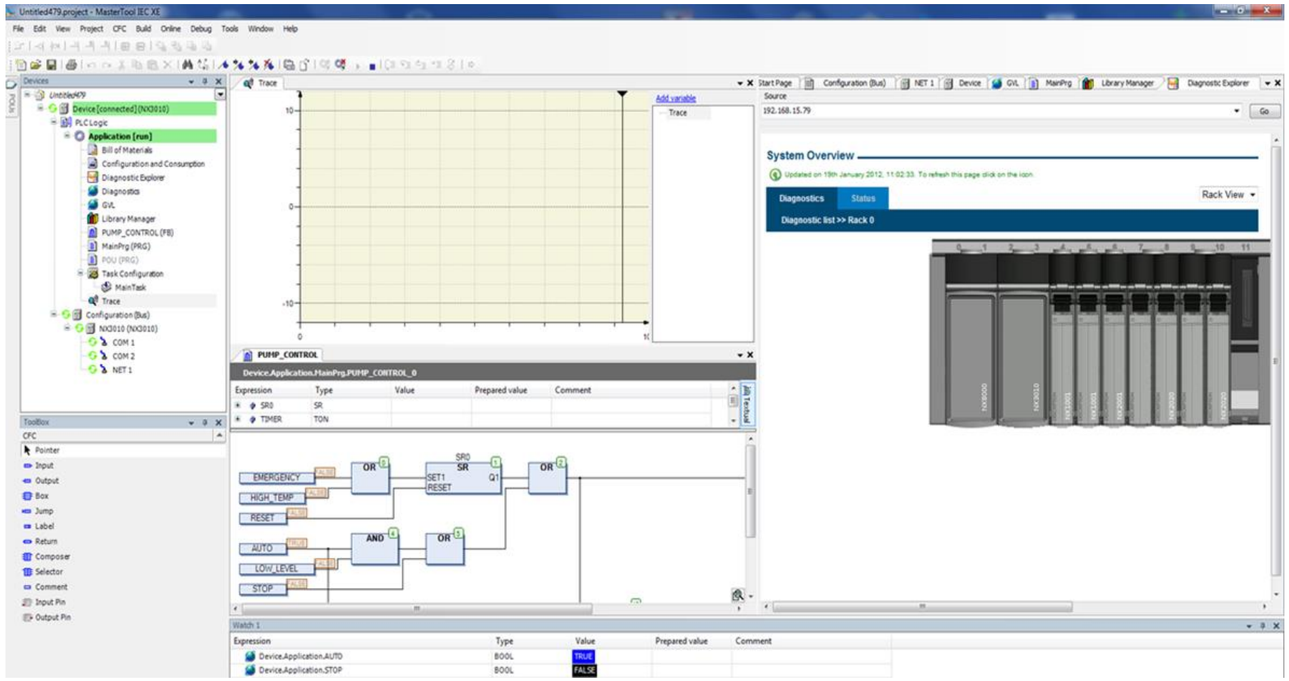
- Advanced edition resources integrating standard communication protocols and fieldbus networks in the same programming tool
- Graphical bus configuration
- Auto-complete features and integrated help files for easy programming



PROGRAMMING TOOL

MASTERTOOL IEC XE

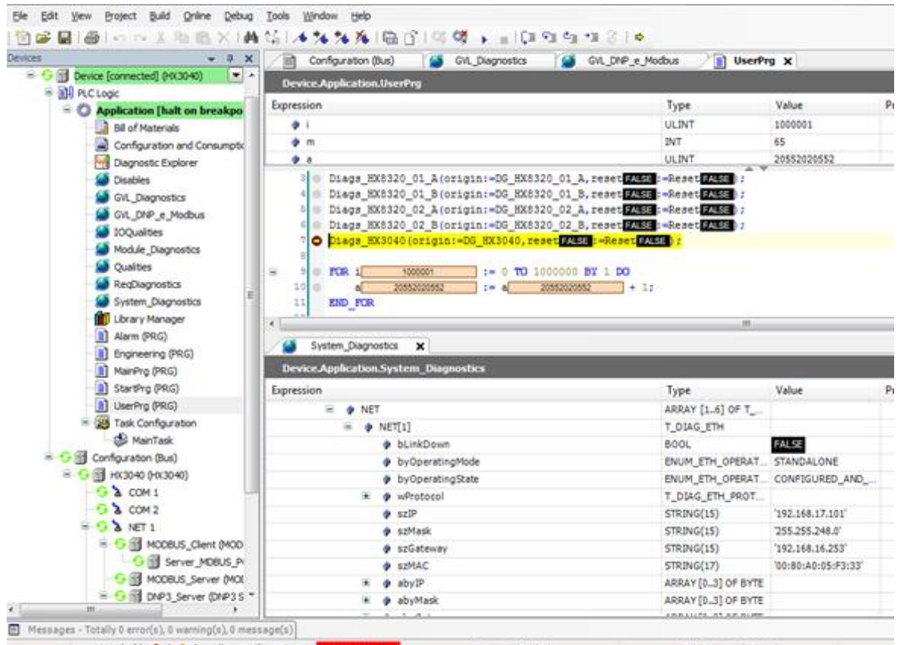
- Object-oriented programming
- Simulation tool
- Print outs of user application documents
  - Bill of materials (BOM)
  - POUs
  - Configuration parameters, tags and description lists
- Docking view (friendly user interface allows to customize MasterTool IEC XE environment)

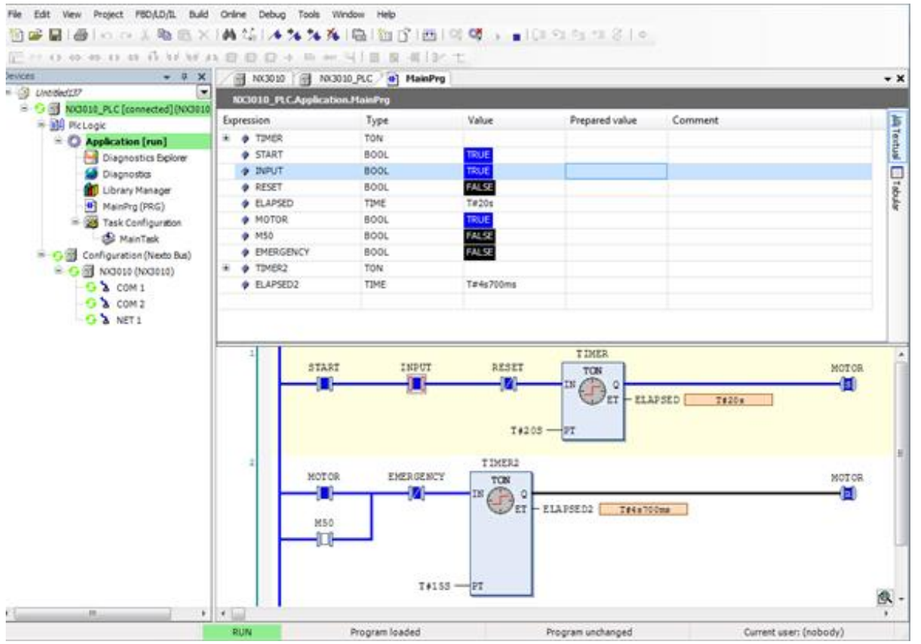


PROGRAMMING TOOL

MASTERTOOL IEC XE

- Offline application simulation
- Online application debbuging
- Monitoring
  - I/O variables
  - Symbolic variables
  - System diagnostics
  - Modules diagnostics
- Use of breakpoint and step by step execution
- Communication with SCADA and HMI simulation using OPC DA

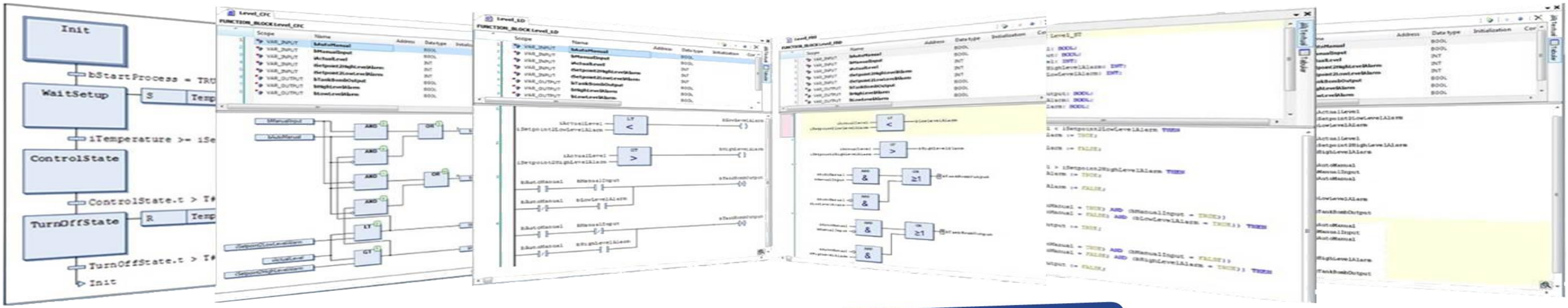




MASTERTOOL IEC XE

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 on the same application



MASTERTOOL IEC XE

Features	Lite	Basic	Pro	Adv
Free Version	YES	NO	NO	NO
CPUs	XPRESS NX3003 NX3004 NX3005 NX3008 NX3010	XPRESS NX3003 NX3004 NX3005 NX3008 NX3010 NX3020	ALL	ALL
Bus Expansion Support	NO	YES	YES	YES
Redundancy of Bus Expansion	NO	NO	YES	YES
Additional Ethernet Modules	NO	YES	YES	YES
Redundancy of Aditional Ethernet Modules	NO	NO	YES	YES

MASTERTOOL IEC XE

Features	Lite	Basic	Pro	Adv
PROFIBUS-DP Fieldbus Interfaces	NO	NX3004 NX3005 NX3008 NX3010 NX3020	NX3004 NX3005 NX3008 NX3010 NX3020 NX3030	NX3004 NX3005 NX3008 NX3010 NX3020 NX3030
Redundancy of PROFIBUS-DP Fieldbus Interfaces	NO	NO	NX3020 NX3030	NX3020 NX3030
Half-Clusters Redundancy	NO	NO	NO	YES
Maximum Number of I/O Points	320	2048	UNLIMITED	UNLIMITED

NEXTO SERIES

TECHNICAL FEATURES

- Every Nexto module has a set of documents available in Portuguese, English and Spanish

USER MANUALS

- Large technical documentation available in Portuguese and English
- More than 1,000 pages, covering:
  - Nexto Series User Manual
  - MasterTool IEC XE User Manual
  - IEC 61131-3 Programming Manual
  - Nexto CPUs User Manual
  - PROFIBUS-DP Master User Manual

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