

MYNXG PLC Automation

Programmable Logic Controller (PLC) are the backbone of the industrial automation. Connect PLCs securely with MYNXG Smallest Possible Cells (SPC) technology and create digital workflows including remote monitoring and control functions. Manage operation technology as simple as your IT.

MYNXG SPC PLC changes the industrial paradigm by providing secure by design PLC Connectors with industrial grade security compliant to ISA/IEC 62443. Connect your existing brownfield operations and drive factory automation with digital workflows. The MYNXG PLC automation solution provides the smartest, securest, and minimal-invasive solution for the most factory automation systems based on PROFINET, PROFIBUS, Ethernet IP, Modbus TCP and OPC UA.

PLC Automation Technology

The MYNXG OT cloud provides all means to remotely configure (1), control (2) and provide lifecycle management and SW updates (3) to PLC systems.

MYNXG SPC technology has created a highly effective and certified industrial zoning solution, where the cloud is the Plant Information Zone (PIZ), and the PLC is located at the Remote Business Process Control System (BPCS). The PIZ and the BPCS communicate via the secure channel (A-A).

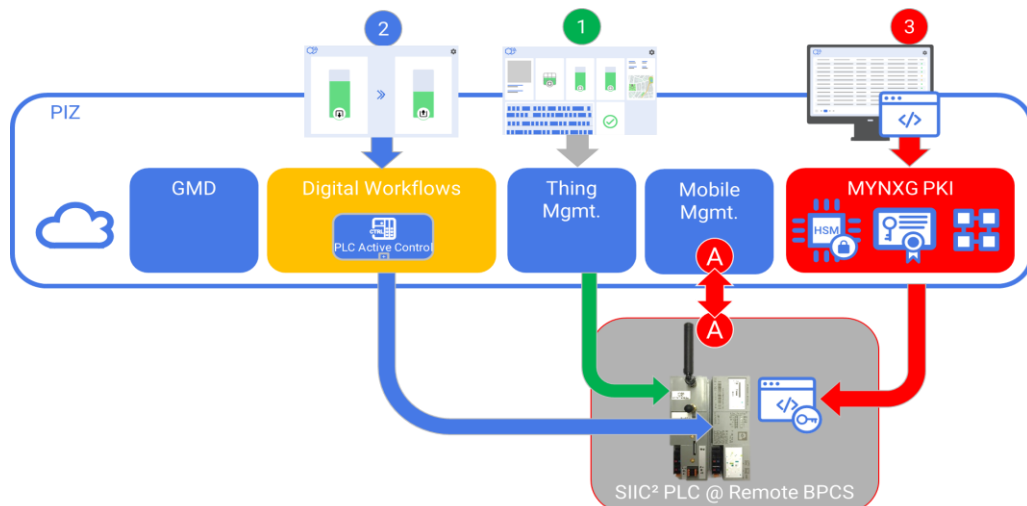
This solution is the secure and effective way to connect any PLC automation solution to MYNXG OT cloud and to exchange data with IT-based systems like ERP, CRM, and OFFICE solutions.

Benefits

- Cloud-based digital workflows monitor and control securely PLC automation solutions
- Minimal-invasive installation into existing brownfield systems with secure-by-design devices
- Faster and more secure lifecycle management of PLC automation systems

Compliant to ISA/IEC 62443:

- 2-4 service provider
- 3-3 system security
- 4-1 product lifecycle
- CTIA IoT cybersecurity level 3 devices

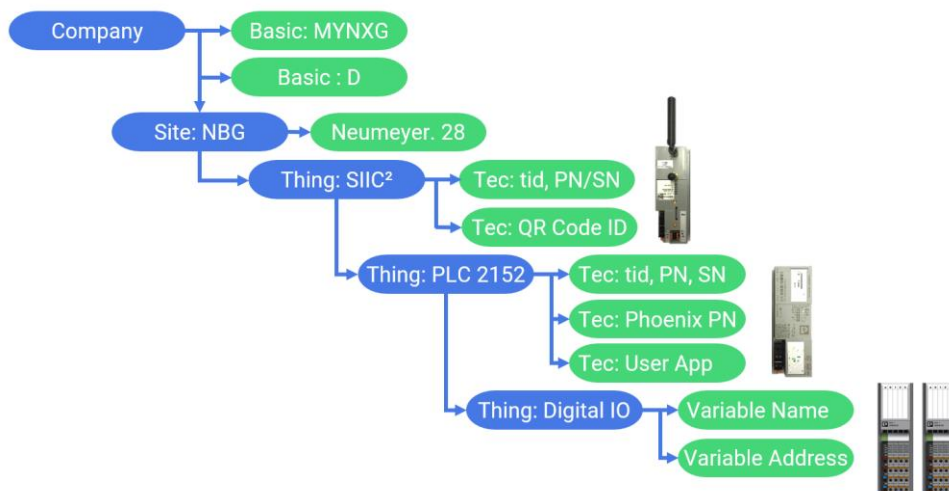


Global Master Data structure for PLC

MYNXG uses the GMD structure to create the logical link between physical implementations at site and the operations. The example shows the MYNXG IOT LAB. The SIIC² PLC Connector is communicating via 5G, LTE, 3G, or GSM with the MYNXG cloud.

The SIIC² PLC Connector is connected via the system bus (backbone) with the Phoenix Axioline 2152 PLC. Additionally, the both devices contain Trusted Platform Modules (TPM) and are security-wise tightly coupled to each other by means of mutual authentication.

The GMD structure contains the Digital IO devices. Each device can be specified by several attributes (green boxes) such as serial number, address, utilized user applications. In addition, each IO channel can be assigned to a logical channel. The channels can be named, or existing naming convention can be imported from GSD (Global Station Description) files.



GMD Features

- Create zero code digital twins with the MYNXG Configurable Dashboard (CD) technology
- Create the GMD data structures and assign PLC and IO Modules
- Complete the GMD data structures by importing GSD files with TIA and STEP 7 tools

Functions

Secure-by-design PLC



- Capability to operate securely within a non-secure environment
- Trusted Compute Base including TPM 2.0
- Secure boot, signed SW, end-2-end encryption with individual keys, locking, intrusion detection

Hardware-based PLC Security



- Trusted Platform Module TPM 2.0
- Secret keys stored inside TPM
- Generation of TPM objects
- Cryptographic algorithms e.g., elliptic curve

Key Features

- User and role-based administration of the SPC according to ISA/IEC 62443-2-4
- Configurable Dashboard (CD) technology supports the zero-code creation of Digital Twins



Security PLC IO Controller



- SIIC² PLC and Phoenix Axioline IO Controller are tightly coupled and contain both TPMs
- Mutually authentication between both devices
- Encryption of all communication at system bus
- The SIIC² PLC Connector manages the PLC SW



Configuration of SIIC² PLC Connector



- Configurable Dashboard technology enables the remote configuration of the SIIC² PLC Connector
- Configure status- and data heartbeats
- Setting of communication parameters (intervals)

Configuration of PLC IO Controller



- Configurable Dashboard technology enables the remote configuration of the Axioline PLC
- Assign and define the fieldbus configuration
- Definition of data alarm messages
- Add and remove IO modules
- Download/configure the firmware of the Axioline IO Controller
- Download/configure your PLCnext SW at the Axioline IO Controller
- Add and configure IO modules/IO channels

Monitoring of PLCs



- Secure remote monitoring of PLC Systems
- Collect defined data out of any PLC system
- Monitor PLC Systems via configurable Digital Twins including KPI and Utilization reports
- Create data for digital workflows
- Alarm management with Syslog based alarms

Active control of PLC



- Controlling PLC actively remote out of the Plant Information Zone (PIZ)
- Remote control, which is protected by dual factor and / or dual approval mechanisms
- Remote control actions are locked with auditable security trails at MYNXG blockchain

Over the Air patching and changing of PLC Software



- SW can be written by customers and partners
- MYNXG PKI will be used to sign & whitelist SW
- Only whitelisted and signed SW will be deployed
- SW will be validated at the secure-by-design devices

- CD technology creates the correct settings and configurations inside the SPC without human interaction and failures

- CD technology is logged with auditable security trails at the MYNXG blockchain

- Digital workflows with secure OT process interaction via Method Building Blocks (MBB), MYNXG blockchain-based audit logs

- Secure access to SPC device information is provided via SMART and the scanning of the QRC product labels

- The SIIC² PLC Connector has been developed in tight cooperation with



- The PLCnext technology with all benefits is fully supported by MYNXG.



MYNXG SPC PLC Configurations & Products

Available MYNXG Smallest Possible Cell PLC solutions:

- SPC 1 PROFINET/PROFIBUS (Siemens, Yaskawa, etc.)
- SPC 2 PROFINET/Ethernet IP (Rockwell, Allen-Bradley)
- SPC 3 PROFINET/Modbus TCP (Rotork Pakscan)
- SPC 4 PROFINET with Phoenix Axioline AXC F 2152 IO
- SPC 5 PROFINET with Phoenix Axioline AXC F 3152 IO
- SPC with OPC UA Client SW to connect larger setups

Each PLC solution is supported with the configuration tools. We support for example the readout of Siemens GSD (Global Station Description) via TIA and Step 7. The MYNXG PLC configurator provides the possibility to assign and label IO Channels and assign physical channels to MYNXG Global Master Data.

PLC SPC 1-3 Brownfield Solutions

For the challenging digitalization of existing automation solution, MYNXG offers a small electrical cabinet, which can be connected to PLCs in the minimal-invasive way – with just one cable.

Each SPC electrical cabinet contains:

- MYNXG SIIC² PLC connector (5G, LTE, 3G, GSM)
- Phoenix Axioline AXC F 2152 IO-Controller
- Modular bus coupler interface (Wachendorff)
- Power supply
- IP 66 electrical cabinet 400 x 300 x 210 mm.

PLC Automation Starter Kits

MYNXG offers starter kits to experience the MYNXG PLC automation with configurable digital twins:

- MYNXG SIIC² PLC Connector (LTE, 3G, GSM)
- Phoenix Axioline AXC F 2152 IO-Controller or
- Phoenix Axioline AXC F 3152 IO Controller
- Digital IO with switches for simulation
- Analog IO with potentiometers for simulation

About MYNXG

MYNXG is a secure industrial IoT architecture to protect assets, infrastructure, and their data to the highest cybersecurity standards. MYNXG is the technology of choice to securely connect operational devices in highly regulated industries and the people interacting with them. The platform supports all industrial interfaces at the device level, provides cloud platform APIs and provides digital workflow support for BPMN 2.0.

The MYNXG platform sets the de-facto security standard for operational technology and is fully ISA/IEC 62443 certified.

Supported Standards



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