

MYNXG Process Automation

Process Automation for remote and secure handling of industrial assets like tanks. Digital workflows provide cost optimizations and fast return of investments.

Industrial processes are an important part of the daily operation routine of an industrial plant. Processes include the handling of fill levels, over fill alarms, control of pumps and flow meters, as well as critical measurements like pH values. In many companies such processes are carried out and controlled manually, resulting in error prone operations. MYNXG Process Automation enables the digitalization of process execution via digital workflows and ISA/IEC 62443 certified secure devices as well as services. This allows the customer a significant acceleration and cost optimization in the operation of his plant.

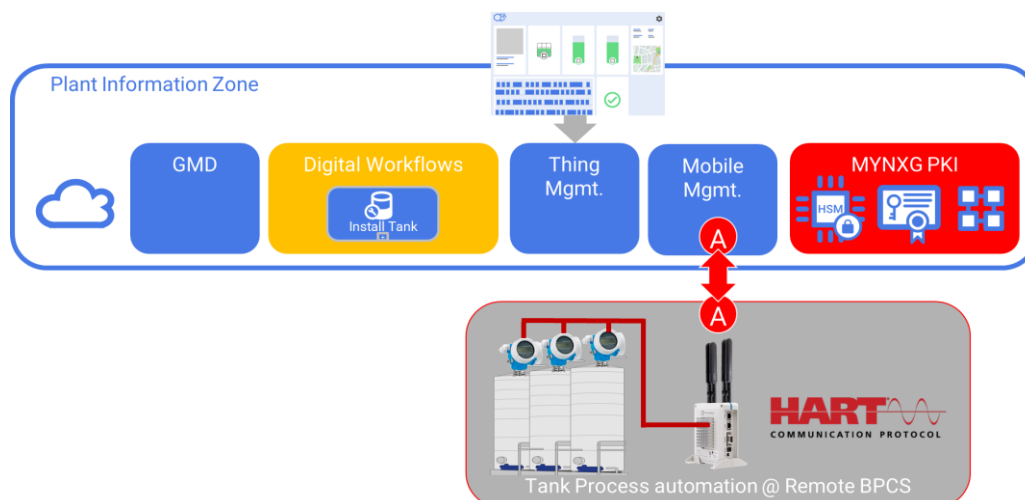
Process Automation for Industrial Tanks

Industrial tanks and related processes are used for the storage of a wide range of products (liquids, bulk materials) in various industries like the chemical industry. The tank processing includes filling, storage and emptying as well as safety operations, measurements, and control. MYNXG Smallest Possible Cell (SPC) technology provides a highly effective and certified industrial zoning solution, where the cloud is the Plant Information Zone (PIZ), and the gateways are located at the Remote Business Process Control System (BPCS). The PIZ and the BPCS communicate via the secure channel (A-A).

MYNXG collects data from process sensors onsite and forwards them via gateways to the cloud. Secure digital workflows allow the effective tank and fluid processing and enable new business models e.g., tank sharing.

Customer Benefits

- Digital workflows to automate processes for industrial tanks
- Improved asset utilization via integrated secure processes combining commercial and industrial operations





Process Digitalization for Industrial Tanks

A typical process cycle for an industrial tank is started by its filling, e.g., after a truck or ship delivery, followed by successive process consumption and/or filling of the goods into suitable containers. When the tank is empty or reaches a certain threshold, the cycle will start again with a new filling. There are several business processes associated with such a cycle. This includes supplier processes for ordering, filling and payment of a new delivery or the customer delivery process of providing smaller amounts to the customer including transport and invoicing.

Many of these processes are associated with tank parameters like the fill level, which can be accessed through controlled monitoring of the industrial tank. MYNXG provides tools to implement the technical process automation like control, monitoring, calibration, and maintenance with the correlated business processes such as ordering, delivery, and quality control. Digital workflows enable new business models like the rent of tank capacity to third parties and improve the asset utilization as well as turnover per industrial tank.

Key Features

- Full control over the complete process for industrial tanks
- Continuously remote monitoring of tanks
- Remote access to tank data and automated alarm management
- Easy installation and linking of sensor, tank, and gateway with minimal coding

Digital Workflows and GMD Data Model

To facilitate the automatic execution of digital workflows with its various business processes, MYNXG has created the Global Master Data (GMD) for industrial tanks including all relevant data collected by sensors.

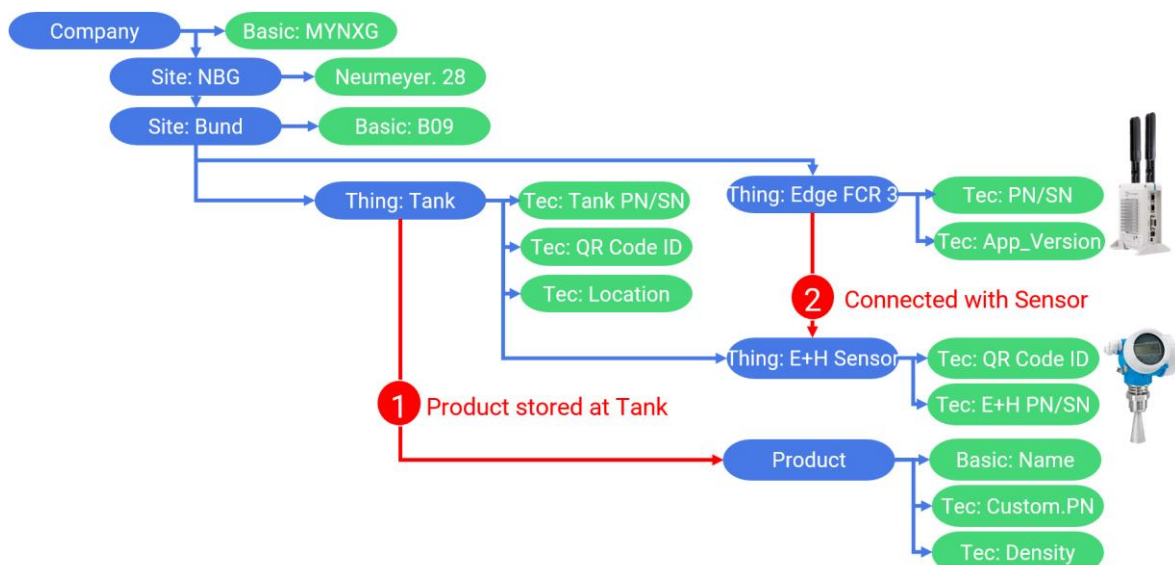
Business data like the company, the site and bund of the tanks are logically linked with the Edge FCR 3 gateway and all its software (SW) parameters. Most industrial tanks are complex and contain installations, mixers, and service installations, which may impact fill level measurements. GMD data contain information about the tank and all further technical attributes.

Sensors installed at the tanks monitor the fill levels and control over fill levels to protect in terms of safety and security.

Finally, products, stored inside tanks, are specified by its attributes like product names, density, concentration, and others.

Key Features

- Global Master Data model to combine business and IoT data
- Easy implementation of digital workflows with predefined GMD data models
- Best practice based on monitoring hundreds of large industrial tanks





Functions

Sensor Installation at tank



- Easy and self-explaining installation of sensors and gateways at tanks using QR codes
- Automatic registration at MYNXG cloud
- Supported by MYNXG SMART app

Calibration



- Automatic calibration of measurements
- Ensure lifecycle data of tanks and internal installations
- Calibration of filled tanks during operation
- Additional manual calibration via SMART app

Product Commissioning



- Register new products to be filled into tanks
- Record all product characteristics
- Operate safety and security checks

Remote Tank Monitoring



- Monitor hundreds of tanks at the Electronic Inventory
- Create views per bund, site, region, worldwide
- MYNXG Configurable Dashboard (CD) technology to create individual technical and commercial views

Electronic Inventory Tanks



- Electronic inventories provide real time status
- Capture all tank relevant data
- Basis for remote tank monitoring

Alarm Management



- Detection of alarm conditions at tanks
- Based on sensor input like fill levels, overfill, temperature
- Define alarms and create automatic notifications to staff

Security



- Industrial grade security via Smallest Possible Cell (SPC) technology, ISA/IEC 62443 certified
- Non-manipulative audit trails for business decisions using MYNXG blockchain

Edge Gateway Technology



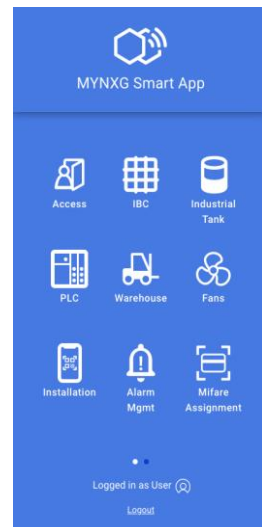
- HART FieldComm interfaces for fill level-, flow and industrial process sensors of E+H, Siemens, Vega etc.
- Solutions for hazardous ATEX / UL 500/505 environment
- Cellular 5G/LTE/3G communication
- Remote Over-the-Air (OTA) software updates

Benefits

- MYNXG SPC technology for fast and secure worldwide aggregation of data across sites
- QR codes for tanks, cabinets and gateways provide fast and easy installation and remote maintenance



- MYNXG SMART app to enable easy people interaction



- Remote, secure, and highly reliable management of gateways, sensors and tanks saves IT experts and cost



MYNXG

Product Information

The **MYNXG Edge FCR 3 Industrial** gateway provides the secure connection between the sensors installed at the industrial tank and the MYNXG cloud. The Edge FCR 3 gateway is “secure by design” with integrated TPM chip and MYNXG cipher suite.

- Intel ATOM based Edge Computing
- MYNXG Edge Gateway OS for multi applications
- Cellular communication: 5G, LTE, 3G, GSM
- Wireless communication: Wi-Fi host and client
- ISM band support for up to 1500 ISM band sensors
- Up to 4 x HART FieldComm interfaces
- 2 x Gigabit Ethernet for wired Host and Client solutions
- Gyro sensor for acceleration and orientation
- Security based on BSI certified TPM, MYNXG cipher suite and MYNXG blockchain
- Certified: CE/FCC and CTIA Crypto Level 3.

The **MYNXG Edge FCR 3 Cabinet** provides an industrial outdoor housing for the Edge FCR 3 Industrial gateway. Besides the Edge FCR 3 Industrial gateway, it contains additional components that depend on the specific connection between the gateway and the sensors. Variants offered:

- **Edge FCO 3 Standard Cabinet** for non-hazardous environments
- **Edge FCE 3 ATEX Cabinet**, with safety barriers,
- **Edge FCO 3 PLC Cabinet**, for aggregation via the PLC and the collection of Modbus TCP and/or PROFIBUS related data.

The MYNXG Edge FCR Industrial gateway supports a variety of HART FieldComm sensors. MYNXG has teamed with sensor specialist **Endress+Hauser** to provide professional sensors including

- E+H fill level sensors Micropilot FMR 6x and 5x Series
- E+H overflow sensors Liquiphant series
- E+H Pro Line /Pro Mass flow meters
- E+H Liquiline sensors

MYNXG is **HART FieldComm member** and supports the integration of process sensors including E+H, Siemens, Vega, and other sensor brands.

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.

Tank Process Products



MYNXG Headquarters
*High Tech Center
Neumeyerstraße 28 -34
90411 Nuremberg
Germany*

For more information call
+49 911 990 876 00
or visit us @
www.mynxg.com