

## **NETx BMS Server**

OPC Server with data base, web server and BACnet/IP server

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# Functions

## Integration of different protocols and technologies (multi-protocol gateway)

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- Bi-directional data exchange between different protocols and technologies
- Integration of open protocols like KNX, BACnet, Modbus, OPC, and SNMP
- Integration of application-specific systems like MICROS Fidelio, Opera, Protel, VingCard, Kaba or Salto
- Other interfaces via embedded script engine or .NET API possible
- Automatic conversion for different data types
- Manual conversion via integrated Xlogic engine

## Web based visualization

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- Web server for web based visualization integrated by default (NETx BMS Clients)
- Visualization creation in NETx BMS Client Editor
- Central management and actualization in NETx BMS Studio
- Web server uses HTML and JavaScript only
- All current web browsers are supported as clients (no additional plug-ins or add-ons)
- Extended controls (link area, multi-picture, multi-internet and RGB controls) besides graphical standard elements
- Displaying of the visualization on smartphones, tablets, touch panels and other embedded devices possible
- Auto-Scale on different screen resolutions
- Visualization of historical data with Historical Data Chart and smart metering data
- Definition of timers and events within server calendar possible
- NETx Touch App for iOS and Android for free
- Up to 1,000 NETx BMS clients possible (depending on the network connection and complexity of the visualization)

## Server calendar

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- Definition of time-based events
- Triggering of events according to start and end time
- Data point changes during run-time allowed
- Periodic events possible

## Monitoring and Analysis

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- NETx BMS Server runs as Windows service
- Configuration and maintenance within NETx BMS Studio
- Displaying data points (incl. values and properties) as item tree
- Changing data points during run-time possible

- Telegram monitor for monitoring field devices and for analyzing network traffic

## **Trending**

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- MS SQL database (10 GB data limit) included by default – unlimited storage with MS SQL standard license possible (not included)
- Recording of selected data points possible
- Trend analysis of selected data points is supported
- Storing meta information like time stamp or source of data change (client and device address, visualization user, ...)

## **Smart Metering**

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- Analyzing consumption values of smart meters with Metering Module
- Displaying of consumption values in web and/or PC based visualizations
- Optional: NETx MaRS Modul (separate license necessary)
  - Creating extensive consumption and cost calculations
  - Hierarchical cost center structures possible
  - Results shown as diagram, graph or table

## **Adding extended control functionality**

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- Adding new functionalities with graphical function block programming (XLogic Editor) or embedded LUA Script engine
- Access to functions of the NETx BMS Server as well as further processing of the data from the server e.g.
  - Reading and writing values of data points
  - Performing mathematical operations and calculations
  - Sending e-mails
  - Retrieving the server status
- Ready for use control logics included
- Creating virtual data points and specific data structure possible

## **Clustering**

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- Defining a NETx BMS Server hierarchy
- Exchange of data points between sub servers via Wide Area Network (WAN) possible
- Integration of sub data points in a central main server is supported
- Integration in main/backup solution possible

## **Main/Backup**

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- Integration of main/backup structure as Hot-Standby solution

- Real-time synchronization of data points between main/backup server
- Communication of management clients with main/backup server
- Automatic activation of the backup server after interruption of the communication with the main server
- Automatic data synchronization with the backup server when restoring the main server
- Automatic switch without interruption of the application (e.g. visualization)

## **Extension Manager**

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- Allows installation and/or update of drivers and modules on demand by using an online repository.
- No need of updating the Core of the NETx BMS Server
- Following extensions are available:
  - Salto plugin: allows the integration of online Salto door locks.
  - Kaba plugin: allows the integration of online Kaba door locks.
  - Support tool plugin: provides different modules for simplifying BMS Server diagnostic (memory profiler, network sniffer)
  - OPC UA
  - oBIX and KNX WS
  - HTTP

# Data import

## Import from ETS of the KNX Association

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### NETx BMS App Secure

- Import of the whole KNX project incl. all meta information with NETx BMS App Secure
- Export file contains:
  - KNX group addresses
  - KNXnet/IP router and interfaces
  - Security information for secure KNXnet/IP routers and interfaces
  - ETS project structure incl. network topology (areas, lines, devices and communication objects)
  - Building and trade view
  - Export of all KNX data point types (KNX DPTs)
  - Export of the configuration of KNX/DALI gateways for NETx LaMPS Module
- NETx BMS App Secure recognizes the configured IP addresses of the KNXnet/IP routers and interfaces
- Automatic assignment of KNX group addresses to KNXnet/IP routers and interfaces
- Integration of multiple ETS projects in one project possible
- Multiple use of the same group addresses is supported (extension of the group address by the IP address of the KNXnet/IP router or interface)
- Available for ETS5
- The NETx BMS App Secure can be downloaded separately (<http://www.netxautomation.com/netx/en/products/tools>)

### NETx BMS App

- Predecessor version of NETx BMS App Secure
- Also available for ETS4
- Export of secure KNXnet/IP router and interfaces and KNX/DALI gateways for NETx LaMPS Module are not supported
- The NETx BMS App can be downloaded separately (<http://www.netxautomation.com/netx/en/products/tools>)

## Import of BACnet devices

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- The BACnet Explorer is an online discovery tool for discovering BACnet devices and their objects
- Easy import of BACnet configuration data
- The BACnet Explorer is included in the NETx BMS Server by default

## Import of OPC data

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- Import of OPC data with integrated Cluster Explorer from other OPC servers or other NETx BMS Servers
- Data point synchronization per mouse click without deeper understanding of the internal data structure of the server

# Interfaces to management level

## OPC

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- OPC DA and OPC UA interface for connection to any clients for management and visualization tasks
- Access of the clients to homogeneous data point view of the NETx BMS Server

## BACnet

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- BACnet/IP interface for creating BACnet objects
- Access of (third party) BACnet/IP clients to data points (e.g. KNX, Modbus, ...) of the NETx BMS Server
- Transfer of data point values to foreign BMS systems
- COV subscription is supported
- Automatic or manual selection of objects possible

## VNET

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- Alternative for all NETx Client to OPC DA
- Interface developed by NETxAutomation
- Protocol based on TCP/IP
- Easy configuration and flexible use
- No Windows DCOM configuration necessary

## oBIX and other Web Service Interfaces for IoT

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- Standardized, open web service interface for home and building automation
- RESTful web service based on http and XML
- Connection to third party systems
- oBIX 1.1 interface supporting HTTP binding and XML encoding
- Supports HTTPS (TLS 1.2) and HTTP basic authentication
- Support for oBIX watches
- Conform to KNX Web Services which provide the possibility to use the NETx BMS Server as a standard conform KNX Web Service gateway

## Web interface

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- http interface for NETx BMS Clients
- Supports https
- Standard web browser for displaying web based visualizations is sufficient – HTML5 and JavaScript only

# Interfaces to field and automation level

## KNX

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- Integration of KNX data points over KNXnet/IP tunneling protocol
- Integration of KNX networks using any KNXnet/IP routers and interfaces
- All KNX DPTs are supported
- Easy import from ETS 4 and 5 using the NETx BMS
- ESF-import-export for older ETS3 projects

## BACnet

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- Integration of BACnet data points over BACnet/IP client protocol
- Integration of other BACnet media (e.g. BACnet MS/TP devices) over BACnet/IP router possible
- Automatic discovery of BACnet devices via BACnet Explorer
- Besides standard functions COV, BBMD and proprietary BACnet object types are supported
- More details – BACnet PIC at [www.netxautomation.com](http://www.netxautomation.com)

## Modbus

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- Integration of Modbus data points (coils, discrete inputs, holding registers, input registers) over Modbus/TCP client interface
- Additionally, native Modbus/RTU over TCP and UDP is supported
- Connection to Modbus RTU devices with IP network over IP-to-RS485 converters possible

## SNMP

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- Support of SNMP V1, V2 and V3
- Cyclic polling over OID,
- Support of SNMP Traps
- Writing of SNMP objects and SNMP device monitoring
- Monitoring hardware (e.g. printer and servers) in offices or computing centers

## OPC DA

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- Integration of data points of third party OPC servers (e.g. fire detection)
- Explorer for simple data import available
- Data exchange with different systems possible

## **Gira HomeServer/FacilityServer**

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- Extension of Gira HomeServer/FacilityServer projects by systems, that are supported by the NETx BMS Server
- Bi-directional data exchange between Gira HomeServer/FacilityServer and NETx BMS Server
- No hardware gateways needed
- Unlimited number of connections
- Transfer of name, structure and data type via import wizard

## **HTTP Server and other Web Service Gateways**

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- For integration of web content from HTTP servers
- NETx BMS Server acts as HTTP client

## **DALI, DMX, EnOcean, M-Bus**

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- Integration via hardware gateway

## **Your own interface**

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- Development and adaption of own drivers via LUA Script Engine or free .NET API

## **Customer specific interfaces**

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- Further interfaces on request
- Development of an interface as project work on request

# Interfaces to hotel management and door lock systems

The NETx BMS Server allows the combination of data from different systems like hotel management or door lock systems. Accordingly, high saving potentials can be realized in hotel projects. For example the check-in/check-out information of the hotel management system can be used to control HVAC system of a single room – the check-in signal starts the comfort mode of the air condition, the check-out signal changes to standby mode.

## MICROS Fidelio/Opera

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- Exchange of data points between management system and NETx BMS Server
- NETx BMS Server has a certified MICROS Fidelio/Opera interface
- Certification covers the following functions:
  - Guest Check-In/Check-Out/GuestDataChange with room move
  - Guest message handling online/on request
  - Room Equipment/Room maid status/Do not disturb-mode
- For MICROS Opera PMS V5 or higher, MICROS-Fidelio Suite 8.8 or higher, Fidelio FO 6.20 and Fidelio Suite 7.13

## Protel

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- Exchange of information between hotel management system Protel and NETx BMS Server

## VingCard

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- Connection of NETx BMS Server to VisiOnline server software
- Retrieving of the following events possible:
  - Guest entrance (incl. card number)
  - Staff entrance
  - Inside open
  - Deadbolt thrown
  - Deadbolt released
- All Events are available as data points in the NETx BMS Server
- Combination with other supported technologies (e.g. KNX, BACnet, Modbus, SNMP, MICROS Fidelio) possible

## Salto

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- Connection of NETx BMS Server to Salto server software
- Retrieving door events and further information about door locks (e.g. battery alert, ...)
- Events and other information as data points within the NETx BMS Server
- Combination with other technologies (e.g. KNX, BACnet, Modbus, SNMP, MICROS Fidelio) possible

## Kaba

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- Connection of the NETx BMS Servers to Kaba software via „Messenger LENS web service interface“
- Retrieving of door events and further information about Kaba devices (e.g. battery alert, hub status, ...)
- All information available as data points within the NETx BMS Server
- Combination with other technologies (e.g. KNX, BACnet, Modbus, SNMP, MICROS Fidelio) possible

# System requirements

## Hardware

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- PC: Intel or AMD - 1.8 GHz (multi-core recommended)
- RAM: 2048 MB
- Hard disk: 32 GB (64 GB recommended)
- Ethernet interface: 100 MBit/s
- Resolution: 1280 x 1024

## Supported operating systems

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- Windows 7 – SP1 (32 bit | 64 bit)
- Windows 8 (64 bit) | Windows 8.1 (64 bit)
- Windows 10
- Windows Server 2008 R2 (32 bit | 64 bit)
- Windows Server 2012 | 2012 R2 (64 bit)
- Windows Server 2016 (64 bit)

## Order information

Software	Max. number of data points	Incl. BMS Client licenses	Product-ID
BMS Server STARTER	250	1	S06.02.0.00.01
BMS Server HOME	1,000	3	S06.02.0.00.02
BMS Server BASIC	2,500	5	S06.02.0.00.03
BMS Server PROFESSIONAL	10,000	10	S06.02.0.00.04
BMS Server ENTERPRISE	25,000	10	S06.02.0.00.05
BMS Server CUSTOMIZED	> 25,000	> 10	S06.02.0.00.06
additional BMS Client			S08.01.0.01.01

Interfaces	License based on	Product-ID
MICROS Fidelio		E03.03.5.01.00
Protel		E06.02.0.00.03
VingCard	5 data points per door lock	E06.02.0.02.02
Kaba	5 data points per door lock	E06.02.0.02.05
Salto	5 data points per door lock	E06.02.0.02.04
Gira HomeServer/FacilityServer	Number of licensed data points in BMS Server	E06.02.0.02.00

USB Dongle	Free USB port necessary	H00.00.0.00.04
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Extension for efficient management of KNX/DALI devices

Software	Data points	Product-ID
LaMPS Module	1 per DALI device	S06.02.0.00.09

Extension for metering

Software	Mesurement data points	Product-ID
MaRS Module STARTER	15	S69.02.0.03.001
MaRS Module HOME	50	S69.02.0.03.002
MaRS Module BASIC	100	S69.02.0.03.003
MaRS Module PROFESSIONAL	250	S69.02.0.03.004
Only softlock version. Higher amount of measurement data points on request.		

- To ease the order process please announce the number of data points/group addresses as well as the number of BMS Clients when ordering.
- Basically, all interfaces are already included in the NETx BMS Server. Nevertheless, some have to be licensed separately – MICROS Fidelio, Protel, VingCard, Kaba, Salto, Gira HomeServer/FacilityServer.
- All versions are available as Softlock (license code) or Hardlock (USB-Dongle). Hardlock version is recommended, as by changing the hardware or the operating system no re-licensing is necessary.
- Licensed data points: Number of KNX telegram definitions, KNX device definitions, KNX Gateway definitions, BACnet objects and Modbus data points.
- NETx BMS Clients are part of the NETx BMS Servers and therefore not available separately.

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