NETx BMS Platform

Tender Specifications

Software solution for technical building management, which can integrate and visualize data points of heterogeneous building automation systems. The software consists of several components (Core Studio, Core Server, Web Manager, XLogic Editor, PC and Web Visualization) that collect, process and modify data point values. In addition, various building management functions can be realized.

The server uses IP networks to access field devices and their data points. The field/automation level supports the following technologies:

- KNX
- BACnet
- Modbus
- SNMP
- OPC Data Access (OPC DA)
- Oracle Fidelio/Opera
- Protel
- Infor
- Mews
- VingCard
- Kaba
- Salto
- oBIX & MQTT
- HTTP and Webservice Integration

KNXnet/IP tunneling, or KNXnet/IP routing is used for the connection to the KNX network. The KNXnet/IP Security extension is also supported. Access is via one or more KNXnet/IP routers and/or interfaces. All official KNX data point types (KNX DPTs) are supported. In addition, non-standardized DPTs can be added. The KNX configuration can be imported directly from ETS using an ETS app. Several ETS projects can be integrated in a single server. When using the ETS app, the entire ETS project is available in the server (group addresses, communication objects, KNX devices, topology, buildings and systems of vision). KNX devices can be monitored by heartbeat mechanism.

The BACnet interface uses BACnet/IP for communication with BACnet devices and their BACnet objects. Using BACnet/IP routers, BACnet devices can be integrated from any BACnet media (MS/TP, ...). An online discovery tool for searching BACnet devices and their objects is provided. In addition, the BACnet Server interface offers the possibility to create own BACnet objects in the server. Using this server interface, any data points (even non-BACnet data) can be mapped to BACnet objects and made available for access by third-party BACnet clients.

The Modbus interface uses Modbus/TCP to access Modbus devices and their data points. Using Modbus/TCP Gateways, Modbus/RTU devices can also be integrated. Configuration of manufacturer-dependent Modbus implementations (memory layout, register types, Modbus service types to be used, etc.) is possible. In addition, the Modbus interface supports the integration of native Modbus/RTU devices over TCP/IP or UDP/IP using standard IP-to-RS485 converters.

The SNMP interface supports SNMP version 1, 2, and 3. SNMP data points can be polled at a definable time interval. In addition, SNMP can be processed.

The Fidelio/Opera and Protel interface uses the FIAS protocol for the inclusion of property management systems. Information about hotel rooms (booking status, room status, ...) and hotel guests can be requested via this interface. Information such as room status and messages can be exchanged bidirectionally. The Fidelio/Opera interface is certified by ORACLE.

Additional interfaces to property management systems such as Infor and Mews are also available.

The interfaces like VingCard, Kaba or Salto offer the possibility to integrate electronic door lock systems. Using this interface, door events (guest entry, personnel entry, door open, door closed) can be received.

Also possible is the integration of data from HTTP servers and/or web service gateways. Thus, data and other information can be integrated by online services.

Data from IoT devices can be integrated via the MQTT interfaces. MQTT data publications ("publish") can also be queried ("subscribe").

Bidirectional data exchange with one or more Gira HomeServer/FacilityServer is also possible. This makes it possible to forward information about any supported technologies to the Gira HomeServer/FacilityServer.

In addition to these native interfaces, additional protocols such as DALI, DMX, EnOcean and M-Bus can be integrated via hardware gateways.

The modular design of the server allows the extension of the existing interfaces. This can be done using LUA programs or C# via a .NET API.

The processed data points can be made available to management clients via open interfaces. The following management interfaces are available:

• OPC DA and OPC UA
• BACnet/IP
• oBIX
• MQTT
• Web services
• Proprietary TCP/IP interface

Any number of management clients can be connected via these interfaces.

For large projects with different parts of buildings and projects with multiple buildings that are spread over a wide area, multiple servers can be connected via a Wide Area Network (WAN). By means of clustering, data and information between the servers can be exchanged bidirectionally. It is also possible to define a hierarchy of servers where the main server aggregates the data points from different sub-servers.

All integrated data points can be further processed in the server. It is possible to link data points - including automatic data type conversion. The following modules and functions are available for implementing building management functions:

Visualization

All components for creating and showing visualizations are included in the NETx BMS Platform. The Web Manager of the NETx BMS Platform is used to manage the visualization projects, the users and client connections. It also embeds a web server that provides the web-based visualizations to the web clients. The web engine only uses HTML and JavaScript for the visualization. So, each device with standard web browser can serve as a visualization client.

User administration

The user access rights can be restricted. In addition to the administrator, users with limited rights can be defined. Certain areas of the visualization can be shown individually or hidden for different users.

Control elements

For providing a visualization, you can use many different graphical control elements. In addition to labels, buttons, sliders and images, extended elements like analogue instruments, Link Area, Multi-Picture, Multi-Internet and RGB Controls can be used.

Usability

By drag & drop, data points can easily be linked with control elements. Within short time, you can generate and modify professional visualizations. Using self-created components and master pages, customer-specific layouts can be defined in order to define a customized look & feel. User-defined control elements can be grouped and saved as components in libraries. Using this concept, you can use these components again in other projects. Furthermore, the language of the editor can be changed.

Multiple views

The visualization supports the use of multiple views. These views help to present the visualization to the end user in a clear and structured way. Views can be shown in separated Window dialogs or browser tabs. The use of multiple screens is possible too. Views are available within web based and PC based visualizations.

Auto scaling

As every Windows PC and device with standard web browser is usable as a visualization client, the screen resolution may vary. Therefore, the PC and web based visualization supports auto scaling. You do not have to worry about the required resolution before creating your visualization. Your visualization is dynamically adjusted to the resolution of the utilized hardware.

Vector graphic

Within the visualization, vector graphic like SVG files can be included as background or images for defining the button appearance. In addition, AutoCAD files can be imported. Vector graphic elements have the advantage that they are scaling within showing graphical artifacts.

Web Manager for BMS functions and remote Diagnosis

The NETx BMS Platform provides a sophisticated web-based user interface for managing the BMS functions. The Web Manager can be accessed by any client with a web browser. To avoid a malicious use of this web interface TLS secured https and user authentication is available. After entering username and password, the Web Manager provides multiple so-called Web Manager Apps.

Visualization Manager

Within this app, the visualizations projects are managed, the available devices are configured, the current connections can be monitored, and the available visualization users can be managed. In addition, visualization configurations can be defined. A configuration contains dedicated parameters that influence the behaviour of the visualization runtime (e.g. how alarm notifications are handled) and the user access rights.

Alarms:

Within the alarm app, alarms as well as their conditions and actions can be created and managed. To get an overview of alarm states, all currently configured alarms can be visualized within an alarm list. The alarm list is divided into the new list, old list and the history. The presentation of these lists follows the standard VDI/VDE 3699.

Schedule

Within the scheduler, time based as well as so called conditional events can be defined. A time-based event can be a simple timer, a start-stop event or a cyclic event. A condition event triggers an action whenever a dedicated condition is fulfilled. All events can be presented in a list view called event program. Time based events can also be visualized within a calendar view.

Trending

A trend has the aim to store past values of a data point. The NETx BMS Platform stores these historical values within the SQL database. The trending app is responsible for creating and managing these trends. In addition to store all data point changes, other storing schemes like change of value (COV), sampling, ... are possible too. To analyse these historical values and to present them to the user, trending charts and tables are available. For a deeper analysis, different trends can be combined within a single chart. Comparing values of the same trend for different time periods is also possible.

Reporting

Using the reporting app, reports that show trending and historical data point values are managed. Based on predefined report templates, alarm and trending reports as well as reports for showing DALI testing results can be generated. In addition, so called report instances can be configured that can be triggered by the Scheduler to generate reports in a periodical interval. A sophisticated report designer is also included for generating your own report designs and templates.

Diagnosis

Monitoring the current state of your system is of utmost importance. Therefore, the Web Manager includes a Diagnosis app which can be used to check and observe the system behaviour. The gateway manager shows the connection state of all routers and interfaces used to access the building automation system. The embedded Item Tree can be used to take look at the current data point values and their properties. For analysing problematic and unexpected behaviour, the log files for the Core Server and other system components can be displayed and downloaded.

Templates

Implementing BMS functions for large building automation projects with lots of data points can be a time-consuming task. To speed up the integration process, templates can be used. A template is a generic definition which contains variables. A template does not provide a dedicated function, but it can be used to generate several instances in an automatic way. During the instantiation of a template, an Excel list that contains the values for the template variables must be provided. For each list entry, a definition is created where the variable values are substituted. Using this concept, it is possible to create hundreds or even thousands of alarms, time-based events, trends, ... with just a few clicks.

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Product:

NETx BMS Platform 2018

Version: ....

Software Protection: ....

Product ID: ....

Definition of the product version:

Number of data points and number of visualization clients

Licensed Data Points:

Number of KNX group addresses, BACnet objects, Modbus data points, SNMP data points.

Software Protection:

Hardlock (with USB dongle) or Softlock (hardware-dependent software code)

Optional modules:

LaMPs Module

Metering Module

Shutter Control

"mySmartSuite" - GRMS

Optional interfaces:

Interface LaMPS

Interface MaRS

Interface Fidelio/Opera

Interface Protel

Interface Infor

Interface Mews

Interface charPMS

Interface RMS Cloud

Interface VHP

Interface VingCard
Interface Salto
Interface Kaba

Optional extension:
Extension for HDL

Additional Services:
Transfer data from engineering tools
Configure server
Creation of ... .. NETx BMS client visualizations for specified clients with each ... page
with approx. ...... elements based on defined floor plans
Creation of functions in the logic editor or scripting language LUA
Change of a floor plan in the visualization
Changes of a graphic element in the visualization
Development of project-specific drivers, interfaces and modules

System Requirements:

Following operating systems are currently supported:

- Microsoft Windows 2008 R2 Server 32/64 bit
- Microsoft Windows 2012 Server 64 bit
- Microsoft Windows 2012 R2 Server 64 bit
- Windows 2016 64 bit
- Windows Server 2019 64 bit
- Windows Server 2022 64 bit
- Windows 7 32/64 bit
- Windows 8 64 bit
- Windows 8.1 64 bit
- Windows 10
- Windows 11

Other Requirements:

.NET Framework: 3.5
.NET Framework: 4.7 or higher

Hardware Requirements:

CPU: 1.8GHz Quad Core
Ram: 16 GB
Hard disk: 100 GB

The following server types are available:

Software	Product ID	max. Datapoints	NETx BMS Client Licenses included*
HOME	S12.04.0.00.0001	500	2
BASIC	S12.04.0.00.0002	2.000	2
STANDARD	S12.04.0.00.0003	5.000	2
PROFESSIONAL	S12.04.0.00.0004	10.000	3
ENTERPRISE	S12.04.0.00.0005	20.000	3

Larger licenses on request.

* Additional NETx BMS client licenses can be ordered with product ID S14.01.0.01.01.