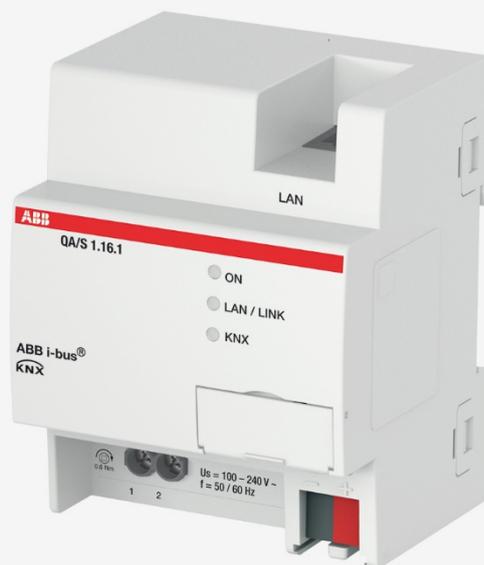

PRODUCT MANUAL

ABB i-bus[®] KNX

QA/S 1.16.1

Energy Analyzer



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1 General

1.1 Using the product manual

This manual provides detailed technical information on the function, installation and programming of the ABB i-bus[®] KNX device.

1.2 Legal disclaimer

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1.3 Explanation of symbols

1.	Instructions in specified sequence
2.	
▶	Individual actions
a)	Priorities
1)	Processes run by the device in a specific sequence
•	1st-level list
○	2nd-level list

Table 1: Explanation of symbols

Notes and warnings are represented as follows in this manual:



DANGER –

This symbol is a warning about electrical voltage and indicates high-risk hazards that will definitely result in death or serious injury unless avoided.



DANGER –

Indicates high-risk hazards that will definitely result in death or serious injury unless avoided.



WARNING –

Indicates medium-risk hazards that could result in death or serious injury unless avoided.



CAUTION –

Indicates low-risk hazards that could result in slight or moderate injury unless avoided.



ATTENTION –

Indicates a risk of malfunctions or damage to property and equipment, but with no risk to life and limb.

Example:

For use in application, installation and programming examples

 **Note**

For use in tips on usage and operation

2 Safety

2.1 General safety instructions

- ▶ Protect the device from moisture, dirt and damage during transport, storage and operation.
- ▶ Operate the device only within the specified technical data.
- ▶ Operate the device only in a closed housing (distribution board).
- ▶ Mounting and installation must be carried out by qualified electricians.
- ▶ Disconnect the device from the electrical power supply before mounting.

2.2 Proper use

The product must be installed centrally in an electrical distribution board.

The device is a modular DIN rail component for quick installation in distribution boards on 35 mm mounting rails according to EN 60715.

2.3 Cyber security (network security)

The industry is increasingly faced with cyber security risks. To increase the stability, security and robustness of its solutions, ABB has introduced official robustness tests for internet security as part of the product development process.

In addition, the information below includes guidelines and mechanisms that you can use to improve the security of KNX systems.

2.4 Preventing access to the various media

The basis for any protection concept is the careful shielding of the system against unauthorized access. Only authorized persons (installers, janitors and users) should have physical access to a KNX system. During planning and installation, the critical points of each KNX medium must be protected as effectively as possible.

In general, applications and devices should be permanently installed to prevent them from being easily removed, allowing unauthorized access to the KNX system. Sub-distributions with KNX devices should be closed, or in rooms to which only authorized persons have access.

2.5 Twisted pair cabling

- ▶ The ends of KNX twisted pair cables should not be visible or protrude from the wall either inside or outside the building.
- ▶ If available, use the anti-theft devices on the application modules.
- ▶ Bus cables outdoors represent an elevated risk. Ensure that physical access to KNX twisted pair cables is especially difficult here.
- ▶ For extra security, devices installed in areas with limited protection (outdoor areas, underground parking lots, restrooms, etc.) can be designed as a separate line. Enabling the filter tables in the line coupler (KNX only) prevents attackers from gaining access to the whole system.

2.6 IP cabling inside the building

For building automation, use a separate LAN or WiFi network with its own hardware (routers, switches, etc.).

Regardless of the KNX system, apply the usual security mechanisms for IP networks. These are examples:

- MAC filter
- Encryption of wireless networks
- Usage of strong passwords and protection of these against access by unauthorized persons

Note

The device cannot be reached during IP, TCP or UDP flooding (access from the internet). To prevent this reaction, set a data rate limit at network level.
Please discuss this with your network administrator

2.7 Connection to the internet

The device is not intended for use on the public internet. For this reason router ports in the direction of the internet must not be opened.

Systems can be accessed via the internet in the following ways:

- Access to (KNX) installations via VPN connections. However, this requires a router with VPN server functionality or a server.
- Use of manufacturer-specific solutions or visual display systems, e.g. access via https.

2.8 Open IP network ports

The device uses the following network ports for data communication in the IP network. It is to be ensured that only authorized systems have access to these network ports.

Port	Type/Protocol	Preset value	Limitation	Remark
2730	SSH	Closed	20/minute	Only if SSH access has been activated
22	SSH	Closed	10/minute	Only during production
80, 443	http, https	Open	15/second	Web user interface
123	NTP	Closed	20/second	Only if NTP is activated
1900	i-bus [®] Tool	Open	1/second	1900 - UDP - IP discovery
502	Modbus TCP	Closed	10/second	Only if Modbus TCP is activated
-	ICMP Echo Request	Open	1/second	PING Device

Table 2: Network ports

2.9 Systems hardening

Today's energy measurement and monitoring systems are often IT-based, which means that certain rules apply in terms of reducing security risks. It is important to use a comprehensive information security plan that protects every layer of the automation system. When planning system protection, take account of the following:

- Remove unnecessary communication connections in the system
- Increase system security by removing or disabling unused processes, com ports and services
- Remove unnecessary user accounts
- Change default passwords and ensure that passwords are strong enough
- Separate the public network from the technical one
- Use a firewall
- Carry out regular system checks and maintenance
- Use antivirus software

ABB i-bus[®] KNX

Product overview

3 Product overview

3.1 Product overview

The device is a modular DIN rail component (MDRC) in proM design. The module width of the device is four space units. It is designed for installation in distribution boards on 35 mm mounting rails.

The device is powered via the ABB i-bus[®] KNX and requires an additional 110/230 V AC supply voltage.

The device connects to the ABB i-bus[®] KNX via the front bus connection terminal.

The Engineering Tool Software (ETS) application is used for physical address assignment and for setting the parameters.

The device is ready for operation when the green LED lights up after connecting the bus voltage and the supply voltage.

Abbreviation	Description
Q	EQmatic
A	Analyzer
/S	MDRC
X	1 = KNX TP
X	16 = Maximum number of workable meters
X	X = Version number (x = 1, 2 etc.)

Table 3: Product name description

3.2 Ordering details

Description	MB	Type	Order No.	Packaging unit [pcs.]	Weight 1 pc. [g]
Energy Analyzer	4	QA/S 1.16.1	2CDG110224R0011	1	150

Table 4: Ordering details

3.3 Energy Analyzer QA/S 1.16.1

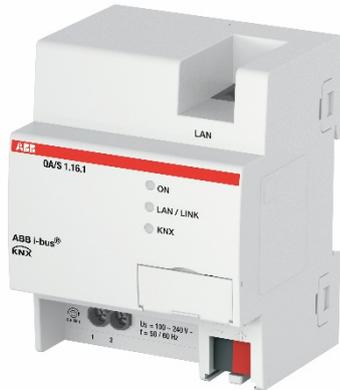


Fig. 1: Energy Analyzer QA/S 1.16.1 device illustration

The Energy Analyzer QA/S 1.16.1 is a Modular installation device (MDRC) in proM design. The module width of the device is four space units. It is designed for installation in distribution boards on 35 mm mounting rails.

The Energy Analyzer QA/S 1.16.1 is a compact web-based standalone device for energy management applications in ABB i-bus® KNX networks. It captures, stores, charts and analyzes consumer data from up to 16 electricity, gas, water or heating meters. Used in conjunction with additional sensors, it can also display variables such as temperature and humidity. The device's user interface (UI) is accessed via a web browser.

The UI provides graphic analysis features such as

- A configurable dashboard
- Display and evaluation of historical data
- Analysis of instantaneous values
- Period comparison (before/after)
- Comparison of up to 5 consumers
- Display of cost/consumption figures by consumer groups
- Prioritized load management
- Alarm function
- Sensor value display (e.g. temperature, humidity)

ABB i-bus[®] KNX Product overview

3.3.1

Dimension drawing

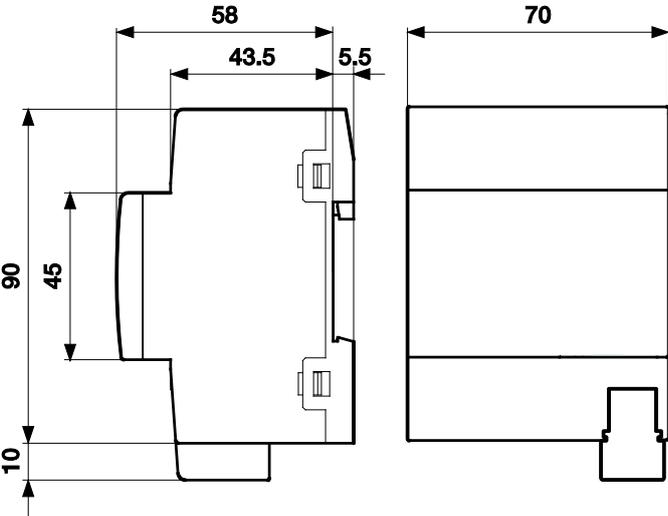


Fig. 2: Dimension drawing

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ABB i-bus[®] KNX

Product overview

3.3.2

Connection diagram

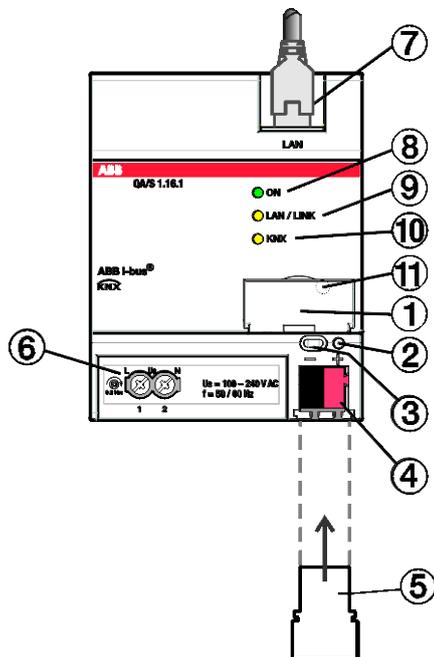


Fig. 3: Connection diagram

Legend

- | | | | |
|---|--|----|-------------------------------------|
| 1 | Label carrier | 7 | Ethernet/LAN connection |
| 2 | KNX programming LED (red) | 8 | ON LED (green) |
| 3 | KNX programming button | 9 | LAN/LINK LED (yellow) |
| 4 | KNX connection | 10 | KNX telegram LED (yellow) |
| 5 | Cover cap | 11 | Reset button (behind label carrier) |
| 6 | U _s supply voltage connection | | |

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ABB i-bus[®] KNX

Product overview

3.3.3

Operating and display elements

Button/LED	Description	LED indicator
	Assignment of the physical KNX address	On: Device is in KNX programming mode
	ON	Off: No supply voltage available On: System initialized Flashing (1 Hz): System startup Flashing (3 Hz): Network settings reset and device restart. Flashing (10 Hz): Factory reset; internal error.
	LAN/LINK	On: Supply voltage and Ethernet connection available Flickering: Data traffic via LAN
	KNX telegram	On: Supply voltage and KNX connection available Flickering: Data traffic via KNX
	Reset (behind label carrier)	Press for less than 2 seconds: no reaction. Press for 2 to 10 seconds: restarts the device and resets the network settings. Retains configuration and last states. Only possible when voltage supply and KNX bus voltage available. Press for more than 20 seconds: factory reset. Deletes configuration and all states. Only possible when voltage supply and KNX bus voltage available.

Table 5: Operating and display elements

ABB i-bus® KNX

Product overview

3.3.4 Technical data

3.3.4.1 General technical data

Supply	Bus voltage	21...32 V DC
	Current consumption, bus	< 12 mA
	Power loss, bus	Maximum 250 mW
	Power loss, device	< 3 W
	Supply voltage U _s	110/230 V AC
Connections	Current consumption, supply voltage	< 50 mA
	KNX connection	0.25 W
	KNX	Via bus connection terminal
	Supply voltage	Via screw terminals
	LAN	RJ45 socket for 10/100BaseT, IEEE 802.3 networks, AutoSensing
Connection terminals	Screw terminal	Screw terminal with universal head (PZ1) 0.2...2.5 mm ² stranded, 2 x (0.2...2.5 mm ²) 0.2...4 mm ² solid, 2 x (0.2...4 mm ²)
	Ferrule with plastic sleeve	0.25...2.5 mm ²
	Ferrule without plastic sleeve	0.25...4 mm ²
	TWIN ferrules	0.25...4 mm ²
	Tightening torque	Maximum 0.6 Nm
Degree of protection and protection class	Grid	6.35
	Degree of protection	IP 20 to EN 60529
Isolation category	Protection class	II according to EN 61140
	Overvoltage category	III according to EN 60664-1
SELV	Pollution degree	II according to EN 60664-1
	KNX safety extra low voltage	SELV 24 V DC
Temperature range	Operation	-5...+45 °C
	Transport	-25...+70 °C
	Storage	-25...+55 °C
Ambient conditions	Maximum air humidity	93 %, no condensation allowed
	Atmospheric pressure	Atmosphere up to 2,000 m
Design	Modular installation device (MDRC)	Modular installation device
	Design	pro M
	Housing/color	Plastic, gray
Dimensions	Dimensions	90 x 70 x 63.5 mm (H x W x D)
	Mounting width in space units	4x 17.5 mm modules
Mounting	35 mm mounting rail	According to EN 60715
	Mounting position	Any
	Weight	0.15 kg
Approvals	Fire classification	Flammability V-0 as per UL94
	KNX certification	According to EN 50491
CE conformity		In accordance with the EMC and Low Voltage Directives

Table 6: Technical data

ABB i-bus[®] KNX

Product overview

3.3.4.2

Device type

Device type	Energy Analyzer	QA/S 1.16.1
	Application	Energy Analyzer 16f/ ...*
	Maximum number of group objects	1630
	Maximum number of group addresses	2000
	Maximum number of KNX meters	16
Web server and device properties	Number of users	Unlimited
	Simultaneous access to web server	Max. 10 users
	Retrieval/storage of meter data	Every 5 minutes
	IP security	HTTPS, SSL
	Data export	JPG, PNG, CSV, XLSX, PDF
	Data sharing	Modbus TCP, REST API
	Report	FTP or e-mail
	Storage capacity	Min. 3 years (8GB EMMC)

* ... = Current version number of the application. Please refer to the software information on our homepage.

Table 7: Device type

4 Function

4.1 Functional overview

Energy Analyzers are a simple solution for building energy management applications. They are typically used in sub-metering installations. They use KNX to capture and store consumption and measurement data from up to 16 electricity, gas, water or heating meters. This data is provided via the integral web server for further processing and analysis. The Energy Analyzers are particularly suitable for recording meter data from the ABB devices SE/S 3.16.1, EM/S 3.16.1, ZS/S 1.1 and SA/S X.16.6.2. Together with the load control function an efficient operation is ensured.

Energy analyzers help those operating purpose-built premises or commercial enterprises to implement energy management systems such as ISO 50001 or to put in place low-voltage installations compliant with VDE 0100-801. They have a plug and play commissioning system that automatically detects meters pre-configured in ETS.

The device's user interface (UI) is accessed via a web browser. The UI provides graphical analysis functions such as a dashboard, historical data, instantaneous values, comparison functions, cost allocation by consumer group, and much more, making energy flows and costs in the building transparent.

Functions

- Storage of at least 3 years' metering data from up to 16 meters
- Display and evaluation of historical consumption and measured data via configurable charts
- Customizable dashboard with predefined widgets
- User addition and administration functions (simultaneous access for up to 10 users)
- Cost and consumption analysis for media such as electricity, water, heat and gas
- Display and evaluation of costs by consumer group
- Addition of cost centers and virtual meters
- Benchmarks and comparisons by periods and consumers
- Load profile display at 5 minute intervals
- Real-time data
- CO2 emissions display
- Energy Performance Indicators (EnPIs)
- Manual data export, e.g., to xls, csv, pdf, etc.
- Cyclic (e.g. monthly) export of reports to FTP server or email recipients
- Provision of the data to higher-level systems via Modbus TCP or REST API
- Addition of favorites
- Notification on the failure of connected meters
- Support for ISO 50001-compliant energy management
- Prioritized load management
- Alarm function
- Sensor value display (e.g. temperature, humidity)

ABB i-bus[®] KNX

Function

4.1.1 User interface

The device has a web-based graphic UI for commissioning and operating purposes. To access the UI there must be a connection to the device. Access is via standard web browser (e.g. Chrome, Internet Explorer, Firefox, Safari).

4.2 Input functions

This section is not relevant for this device.

4.3 Output functions

This section is not relevant for this device.

4.4 Integration in the i-bus[®] Tool

The device features an interface to the i-bus[®] Tool in order to identify and access the device in the local network (see also [6.5, Connecting to the device](#)).

You can download the i-bus[®] Tool free of charge from our homepage (www.abb.com/knx).

The functions are described in the i-bus[®] Tool online help.

4.5 Special operating states

4.5.1 Reaction on bus voltage failure/recovery, download and ETS reset

The device's reaction on bus voltage failure/recovery, download and ETS reset can be set in the device parameters.

4.5.1.1 Bus voltage failure

Bus voltage failure means the sudden drop in/failure of the bus voltage, e.g. due to a power failure.

4.5.1.2 Bus voltage recovery

Bus voltage recovery is the device state after bus voltage is restored following a bus voltage failure.

4.5.1.3 ETS reset

Generally an ETS reset is defined as a reset of the device via ETS. To trigger an ETS reset, go to the ETS *Commissioning* menu and select *Reset device*. This stops and restarts the application.

4.5.1.4 Download

Downloading means loading a modified or updated application onto the device with ETS.

Note

The device will no longer function after the application is uninstalled or after an interrupted download.

4.5.2 Device restart

When the mains voltage is connected, the operating system starts and the yellow LAN/LINK or KNX telegram LED lights up.

When the operating system has finished loading, the yellow LED goes off and the green ON LED starts to flash while the application is loaded.

When loading is finished, the green ON LED lights up permanently. Initialization is complete and the device is ready for operation.

4.5.3 Resetting the device

There are several ways to reset the device:

- Restart (see [3.3.3, Operating and display elements](#)) or switch supply voltage off and on again
- Restart and reset the network settings (see [3.3.3, Operating and display elements](#))
- Reset to factory settings with the Reset button (see [3.3.3, Operating and display elements](#)) or UI (see [7.5.5.8, Erase data](#))

4.5.4 Erase data

To perform a factory reset, an administrator needs access to the UI. To perform a factory reset, go to *System > Erase data* (see [7.5.5.8, Erase data](#)) or use the Reset button (see [3.3.3, Operating and display elements](#)).



ATTENTION –

This function allows you to delete all data and user-specific information from the system. The system is reset to its supplied state. The most recently installed system update is retained. The following data are reset to the factory settings or deleted:

- Devices/meters added to the system, and stored meter data
- Meter configurations and metering structure configured
- Users and associated information (users and passwords are reset to the factory settings)
- All system settings
- SSL certificates (if any)
- ETS parameter setting and group addresses
- Physical address

ABB i-bus[®] KNX

Mounting and installation

5 Mounting and installation

5.1 Information about mounting

The device can be mounted in any position as required on a 35 mm mounting rail.

The electrical connection is made using screw terminals. The connection to the ABB i-bus[®] KNX is established via the supplied bus connection terminal. The terminal assignment is located on the housing.

The device is ready for operation when the green LED lights up after connecting the bus voltage and the supply voltage.

① Note

The maximum permissible current on a KNX line must not be exceeded.
During planning and installation ensure that the KNX line is correctly dimensioned.
The device has a maximum current consumption of 12 mA.



DANGER – Severe injuries due to touch voltage

Feedback from differing phase conductors can produce touch voltages and lead to severe injuries. Operate the device only in a closed housing (distribution board). Disconnect all phases before working on the electrical connection.

5.2 Mounting on DIN rail

The device is fitted and removed without auxiliary tools.

Make sure the device is accessible for operation, testing, visual inspection, maintenance and repair.

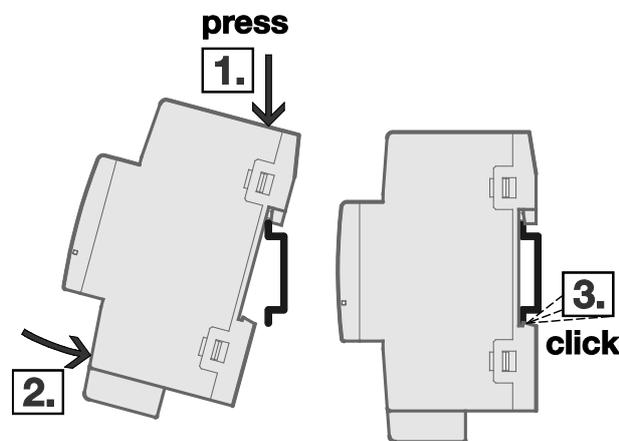


Fig. 4: Mounting on DIN rail

1. Place the DIN rail holder on the upper edge of the DIN rail and push down.
2. Push the lower part of the device toward the DIN rail until the DIN rail holder engages.
⇒ The device is now mounted on the DIN rail.
- ▶ Relieve the pressure on the top of the housing.

ABB i-bus[®] KNX

Mounting and installation

5.3 **Supplied state**

The device is supplied with the physical address 15.15.255. The application is preloaded.

IP address assignment is set to automatic addressing (DHCP/AutoIP) in the factory.

Language: dependent on the language setting in the browser used

Currency: EUR

The complete application can be reloaded if required. Downloads may take longer after an application is uninstalled or when changing applications.

ABB i-bus[®] KNX Commissioning

6 Commissioning

6.1 Commissioning requirements

To commission the device, a PC/laptop with ETS is required along with a connection to the ABB i-bus[®], e.g. via a KNX interface.

The device is ready for operation when the green LED lights up after connecting the bus voltage and the supply voltage.

6.2 Commissioning overview

The *Energy Analyzer 16f/ ...* application is available for the Energy Analyzer QA/S 1.16.1. The version 4 (or higher) of ETS is required in order to parametrize the device.

The ETS can be purchased at www.knx.org.

For information on how to use the i-bus[®] Tool, see [4.4 Integration in the i-bus[®] Tool](#)

6.2.1 Commissioning requirements

- PC/laptop with latest version of ETS and a web browser (Chrome, Firefox, etc.)
- QA/S is ready for operation and LAN connection is established.
- PC/laptop and QA/S are on the same network.
- Meters are operational and installed on the same KNX line as the QA/S.
- ABB i-bus[®] KNX devices are connected and configured according to manufacturer's instructions (e.g. transformer ratios).
- ABB i-bus[®] KNX devices comply with the latest KNX standard.
- System settings (date, time, network etc.) have been made.

6.2.2 Quick commissioning

To display and process the QA/S values of KNX meters, both the QA/S and the KNX meters must first be configured and parametrized in ETS. We recommend proceeding as follows:

ETS commissioning

1. Import the ETS application into ETS and add the QA/S to the project concerned
2. Parametrize and configure the QA/S
3. Assign group addresses

i Note

To display a meter's measured values in the QA/S UI, the corresponding group objects from the QA/S and the meter must be linked by a group address.

4. When parametrization and group address assignment are complete, the application downloads.

i Note

After the download, the list of connected devices will be updated. This operation can take up to 1 minute. A note appears on the UI during the update.

Configuration via the UI

1. Log into the UI and follow the instructions in the commissioning wizard

6.3 Physical address assignment

The physical address is assigned in ETS.

The device features a *Programming* button for physical address assignment. The red *Programming* LED lights up after the button has been pressed. It goes off once ETS has assigned the physical address or the *Programming* button is pressed again.

The device performs an ETS reset during physical address programming. This resets all states.

Note

The first time the physical address is programmed after the device is added to an ETS project, the connection to the device must be made using the KNX twisted pair (TP).

6.3.1 Network settings

DHCP ("Obtain an IP address automatically") is enabled on the device as standard. So the device obtains its IP address from a DHCP server which is often integrated into a network switch or router. If there is no DHCP server available, the device starts an AutoIP procedure and automatically assigns itself an IP configuration:

IP address from the auto IP range: 169.254.1.0 to 196.254.254.255

Subnet mask: 255.255.0.0

Default gateway: 0.0.0.0

The IP configuration (by DHCP or AutoIP) received on startup is retained until the next restart (switching off/on or reprogramming) or until a DHCP server is available again.

6.4 Software/application

6.4.1 Download behavior

Depending on the PC used, the progress bar for the download may take up to 90 seconds before it appears.

6.4.2 Copying, exchanging and converting

The *ABB Update Copy Convert* ETS application can be used to copy or exchange parameter settings and to convert the application version. The application is available free of charge from the KNX online shop.

It also provides the following functions:

- *Update*: Changes the application program to a later or earlier version while retaining current configurations
- *Convert*: Transfers/adopts a configuration from an identical or compatible source device
- *Channel Copy*: Copies a channel configuration to other channels on a multichannel device
- *Channel Exchange*: Exchanges configurations between two channels on a multichannel device
- *Import/Export*: Saves and reads device configurations as external files

ABB i-bus[®] KNX Commissioning

6.5 Connecting to the device

6.5.1 Access via ABB i-bus[®] Tool

To access the device for initial commissioning, use the ABB i-bus[®] Tool. You can download the i-bus[®] Tool free of charge from our homepage (www.abb.com/knx).

1. Start ABB i-bus[®] Tool.
2. Click *Connect*, then *IP devices*.
The ABB i-bus[®] Tool automatically searches for known IP devices in the local network. Click *Refresh* to restart the process if necessary.
3. Select the relevant QA/S device from the table of devices found.
4. Select "Open website."
The web browser opens and the Start screen appears.
5. Enter the username and password.
Default user name and password on delivery:
User: admin
Password: admin

You are now connected to the web server for the device. Follow the instructions in the commissioning wizard to proceed with commissioning.

6.5.2 Commissioning wizard

Once a connection to the device is established, the commissioning wizard starts. This wizard takes you through the steps and basic settings required for initial commissioning.

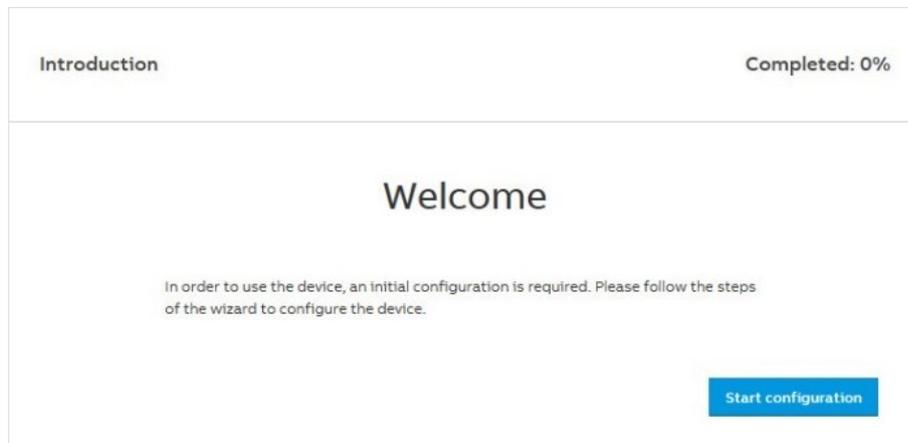


ABB i-bus[®] KNX Commissioning

1. Read and accept the terms and conditions.

Terms & conditions Completed: 14%

b. Licensor obtains knowledge of an unauthorized end use after consenting or knowledge of any previously unknown person involved in the business and cannot perform the contract due to any export control or intra-group regulations;

c. the items or services are intended for military end use, civil nuclear use or for use in connection with weapons of mass destruction or for missiles capable of delivering such weapons; substantive evidence shall be sufficient to prove this intent; or

d. a possibly illegal or unlicensed export or an infringement of embargo rules cannot be fully ruled out.

Amendments to these Terms of Use shall require a written agreement between the Parties hereof. If individual conditions of these Terms of Use are or become void or unenforceable, the effectiveness and enforceability of all the remaining clauses shall not be affected. The invalid or unenforceable provision shall be replaced with a valid and enforceable provision which comes as close as possible to the economic purpose of the invalid or unenforceable one, respectively.

Third Party Software (components, notices and licenses)

The Software contains Open Source Software for which license terms apply, both of which are set out below.

Open Source Software

ABB does not assume any liability or provide a warranty for this software.

To the extent the relevant open source terms (e.g. such as GPLv2) request the making available of the source code of the OSS, the source code for the OSS in the Software can be obtained by you and any third party from ABB STOTZ-KONTAKT GmbH, Eppelheimer Str. 82, 69123 Heidelberg/Germany or via the e-mail address info.stotz@de.abb.com. This offer is valid for three years after making available of the Software by ABB STOTZ-KONTAKT GmbH.

The software contains open source software components as follows:

[Load Open Source Software Licenses](#)

[I agree](#)

2. Change your password. This is important for device and data security.

Password reset Completed: 29%

* New password ?

* Confirm new password

[Next step](#)

ABB i-bus[®] KNX Commissioning

3. Change the network settings if necessary.

Network Completed: 43%

Proxy URL ?

IP Address

Subnet

Default Gateway

4. Configure the date and time.

Date & time Completed: 50%

Automatic date and time

* Timezone [Detect timezone](#)

* Date and time

ABB i-bus[®] KNX Commissioning

5. Configure the tariffs and units.

Default system settings Completed: 67%

[Edit](#)

Currency

Euro (EUR) ▼

Medium	Unit	Cost per consumption unit [EUR]	CO ₂ per consumption unit [kg]
Electricity	kWh	0	0
Water	m ³	0	0
Gas	m ³	0	0
Heat	kWh	0	0

[Skip](#) [Next step](#)

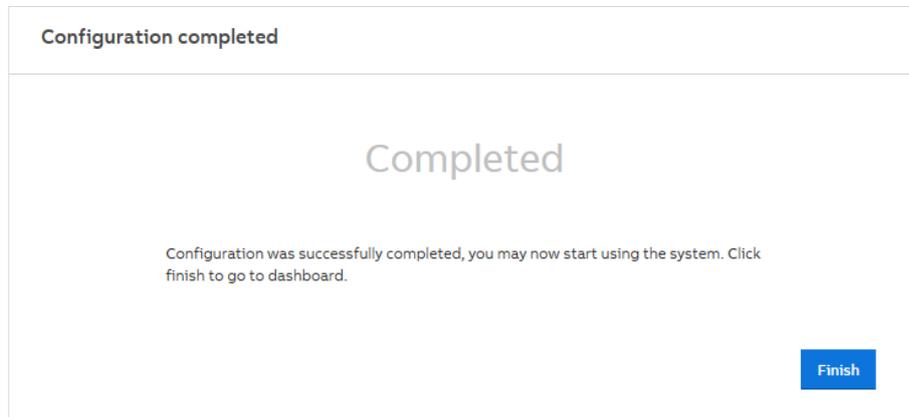
6. Meters previously configured in ETS are listed in a table.

Overview ?

METER NUMBER	STATUS	PRODUCT TYPE	MEDIUM	PLACE OF INSTALLATION	METER NAME	SERIAL NUMBER	ACTION
1	OK	ZS/S	Electricity	Office 228 (B21 + ZS/S)	Meter 1: ZS/S - Active energy (direct)		
2	OK	ZS/S	Electricity	-	Meter 2: ZS/S - Active energy (transformer)		

ABB i-bus[®] KNX Commissioning

7. Done.



For more information on commissioning, see [7.5.4.1, Meter Management](#).

ABB i-bus[®] KNX Parameters

7 Parameters

7.1 General

ETS (Engineering Tool Software) is used to parametrize the device.

KNX device settings appear in the device's parameter windows. Settings for the web UI are made in the UI itself, and are described in [7.5. User interface](#).

In ETS, the application is located in the *Catalogs* window under *Manufacturers/ABB/Energy Management/Energy Analyzer*.

The following chapters describe the device parameters based on the parameter windows. Parameter windows are structured dynamically. Parameters are shown or hidden based on the parametrization and function of the outputs.

The default values of the parameters are underlined, e.g.:

Options: No

7.2 General parameter window

General	Device name	<input type="text"/>
Load Control	Send delay after bus voltage recovery	<input type="text" value="2"/> s
+ Meter 1	Enable Group object "In operation"	<input type="text" value="No"/>
+ Meter 2	Limit number of telegrams	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Meter 3	Date and time source	<input checked="" type="radio"/> KNX <input type="radio"/> User Interface

Device name

In this field, you can enter a unique name for the device. It is used for identification purposes, for example, if there are several identical energy analyzers in a single installation. The name entered here appears in the i-bus[®] Tool and UI under *System Information* (see also [7.5, User interface](#)).

i Note

Special characters cannot be displayed in the user interface.

Send delay after bus voltage recovery

Options: 2...255 s

During the send delay, telegrams are only received. No telegrams are sent to the bus. The state of the outputs does not change.

Telegram sending starts again after the send delay. The state of the outputs is set based on parametrization or on group object values.

If group objects are read out via the bus during the send delay (e.g. by a visual display system), these requests are stored and a response is sent once the delay time has elapsed.

An initialization time of about two seconds is included in the send delay. The initialization time is the time that the processor requires before it is ready to function.

After a bus voltage recovery, no telegrams are sent to the bus until the send delay has elapsed.

ABB i-bus[®] KNX

Parameters

Enable group object "In operation"

Options: No
Yes – send with value 0
Yes – send with value 1

This parameter enables the *In operation* group object. This group object signals the presence of the device on KNX and can be monitored by an external device. If no telegrams are received, the device may be defective or the bus cable to the transmitting device may be interrupted. Using the dependent parameter *Cycle time*, you can set the interval at which the group object sends a telegram.

- *No*: The group object is not enabled.
- *Yes – send with value 0*: Enables the group object and sends 0 cyclically.
- *Yes – send with value 1*: Enables the group object and sends 1 cyclically.

—

Dependent parameter

Cycle time

Options: 1...60...65535 s

This parameter determines the interval at which the *In operation* group object sends a telegram.

Note

After bus voltage recovery, the group object sends its value after the set send delay has elapsed.

Limit number of telegrams

Options: No
Yes

This parameter determines whether the number of telegrams the device sends to the bus is limited (telegram rate limitation). Limiting the number of telegrams sent limits the bus load generated by the device. This limit applies to all telegrams sent by the device.

—

Dependent parameter

Max. number of sent telegrams

Options: 1...20...255

This parameter determines how many telegrams are sent within a user-defined period.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

In period

Options: 100 ms
 200 ms
 500 ms
 1 s
 2 s
 5 s
 10 s
 30 s
 1 min

This parameter sets the period during which telegrams are sent. The telegrams are sent as quickly as possible at the start of the period.

Date and time source

Options: KNX
 User Interface

This parameter determines how the device's system time is received.

- *KNX*: The system time is received via a clock in the KNX installation.
- *User Interface*: The system time has to be set via the UI in *System > Date and Time* (see [7.5.4.2, Date and Time](#)).

7.3 Load Control parameter window

General	Enable load control	<input checked="" type="radio"/> No <input type="radio"/> Yes
Load Control		

Enable load control

Options: No
Yes

This parameter enables the *Load Control* function. Enabling the function shows the parameters and associated group objects.

- *No*: The *Load Control* function is not enabled.
- *Yes*: The *Load Control* function is enabled in ETS and in the UI.

Note

When using ABB type SE/S and EM/S meters, select *Yes* in their *Enable load control function slave* parameter.

—

Dependent parameter

Number of load shedding stages

Options: 1...2...8

This parameter determines how many load shedding stages are used. Each slave assigned to load control is assigned, according to priority, to a shedding stage. If the load limit is exceeded, load control sends shedding stages to the bus. Starting with stage 1, the shedding stage is increased until the load is back within the limit. If the load drops below the limit, the shedding stage is reduced again.

—

Dependent parameter

Load limit

Options: 1.000...5000...200000.000 W

This parameter defines the load limit for the overall system.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Change load limit via Group object

Options: No
 Yes

This parameter enables the *Send/receive load limit* group object, which changes the load limit parametrized in ETS.

- *No*: The load limit can only be changed in ETS.
- *Yes*: The *Send/receive load limit* group object is enabled.

—

Dependent parameter

Reaction time when exceeding load limit

Options: 2...60 s

This parameter determines at what point load control starts sending load shedding stages if the load limit is exceeded. If the sum of the power values exceeds the set load limit, load control sends shedding stages to the bus based on the time set here. The shedding stage increases until the power falls below the load limit. The reaction time restarts before each stage increase.

—

Dependent parameter

Reaction time when falling below load limit

Options: 30...300...65535 s

This parameter determines at what point load control starts reducing the shedding stages if the power falls below the load limit. If the power falls back below the limit (i.e. if enough slaves were switched off), load control waits for the length of time set here and then starts reducing the shedding stages in reverse order until it reaches stage 0 (i.e. all slaves are enabled) or the load limit is exceeded again.

Note

Give careful consideration to how quickly the system should react. Depending on the number of shedding stages and the set reaction times, it can take a long time for all the slaves to be re-enabled. If the selected reaction times are too short and the system is frequently overloading (exceeding the load limit), it may reach the maximum number of relay switching cycles (lifetime) prematurely.

—

Dependent parameter

Hysteresis at restart attempt in % of load limit

Options: 0...100 %

This parameter determines the hysteresis for an attempted restart. If the system is often overloaded during operation, the hysteresis can prevent a shedding stage from repeatedly switching on and off. The hysteresis is subtracted from the load limit. The shedding stage is not reduced again until the system falls below the load limit minus the hysteresis.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Change load limit, hysteresis and reaction times via user interface

Options: No
 Yes

This parameter determines whether the load limit, hysteresis and reaction times can be changed via the UI (see [7.5.3, Management](#)).

—

Dependent parameter

Overwrite load limit, hysteresis and reaction times with download

Options: No
 Yes

This parameter determines whether the values entered in the UI for load limit, hysteresis and reaction times are applied in ETS when there is a download.

—

Dependent parameter

Value Group object "Deactivate load control" at restart

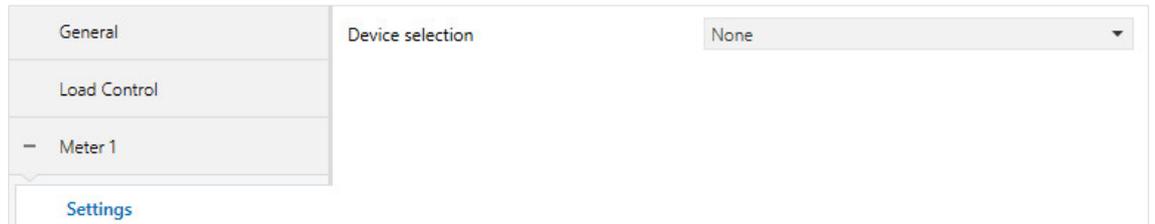
Options: 0 = Load control activated
 1 = Load control deactivated

This parameter determines the value written to the "Deactivate load control" group object after a device restart.

7.4 Meter parameter window

Note

Parameter windows Meter 1 to Meter 16 are identical. For the purposes of explaining the parameters we shall use meter 1.



The screenshot shows a software interface for configuring meter parameters. On the left is a sidebar with three main sections: 'General', 'Load Control', and 'Meter 1'. The 'Meter 1' section is expanded, showing a 'Settings' link. The main content area is titled 'Device selection' and contains a dropdown menu currently set to 'None'.

Device selection

Options: None
ABB: ZS/S Meter Interface Module
ABB: SE/S Energy Actuator
ABB: EM/S Energy Module
Electricity (generic)
Gas (generic)
Water (generic)
Heat (generic)
Measurement

This parameter determines which type of meter is read. It shows meter-specific parameter windows according to the option selected. These are explained in the sections that follow.

ABB i-bus[®] KNX Parameters

7.4.1 ABB: ZS/S Meter Interface Module

Selecting *ABB: ZS/S Meter Interface Module* provides the following parameters:

General	Device selection	ABB: ZS/S Meter Interface Module
Load Control	Name	
- Meter 1	Location	
	Serial number	
ZS/S	Enable Group object "Request meter/sensor reading"	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Meter 2	Monitor "In Operation" Group object	No
+ Meter 3	Meter type	A4x (A-Series), B2x (B-Series)
+ Meter 4	Version	Active energy meter (direct connected)
+ Meter 5	Voltage network	4-Wire (L1, L2, L3, N)
+ Meter 6	Tariffs	<input checked="" type="radio"/> No tariffs <input type="radio"/> 4 tariffs
+ Meter 7	Register for exported energy	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Meter 8	Send power values to load control	No

Name

This field lets you enter a unique name for the meter interface module or the meter you wish to read. It is used for identification purposes, for example, if there are several identical meter interface modules in a single installation. The name you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

Location

Here you can enter the installation location for the meter interface module. It is used for location purposes, for example, if there are several identical meter interface modules in a single installation. The installation location you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

Serial number

This field lets you enter a serial number or ID number for the meter interface module. This is another way to identify it if there are several identical meter interface modules in a single installation. The serial number you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

Enable Group object "Request meter/sensor reading"

Options: No Yes

This parameter determines whether meter readings are received via a separate group object.

- **Yes:** Shows the *Request meter reading* group object, which enables active reading of the present meter readings. Readings from connected meters are requested one after the other roughly every 60 seconds.

ABB i-bus[®] KNX Parameters

Monitor "In Operation" Group object

Options: No
 Yes, value 0
 Yes, value 1
 Yes, both values

This parameter determines whether the *In operation* group object monitors the presence of the ZS/S on the bus.

- *No*: No monitoring
- *Yes, value 0*: Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 0 telegram from the ZS/S within the cycle time.
- *Yes, value 1*: Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 1 telegram from the ZS/S within the cycle time.
- *Yes, both values*: Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 0 or 1 telegram from the ZS/S within the cycle time.

Note

If you enable the *In operation* function, you also need to enable it on the meter you wish to monitor and link the corresponding objects using a group address. Otherwise, power values will not be taken into account when using load control.

—

Dependent parameter

Cycle time

Options: 1...60...65535 s

This parameter determines the interval at which the *In operation* group object expects a cyclic telegram from the ZS/S. If the telegram fails to arrive within the set time, operation is interrupted. In this case, check that the monitored device is working correctly.

Note

To ensure the ZS/S is correctly monitored, the cycle time entered here should always be longer than the one set for the ZS/S.

To show the correct group objects, the settings for the following meter configuration parameters must be identical to the settings for the ZS/S.

Meter type

A4x (A-series), B2x (B-series)

Note

The Energy Analyzer QA/S can only be used in conjunction with type A4x (A-Series) and B2x (B-Series) meters. The meters must be parametrized in the ZS/S.

ABB i-bus[®] KNX Parameters

Version

Options: Active energy meter (direct connected)
 Active energy meter (transformer rated)
 Combination meter (direct connected)
 Combination meter (transformer rated)

Note

The parameter settings here must match those in the ZS/S.

Voltage network

Options: 2-Wire (L, N)
 3-Wire (L1, L2, L3)
 4-Wire (L1, L2, L3, N)

Note

The parameter settings here must match those in the ZS/S.

Tariffs

Options: No tariffs
 4 tariffs

Note

The parameter settings here must match those in the ZS/S.

Register for exported energy

Options: No
 Yes

Note

The parameter settings here must match those in the ZS/S.

ABB i-bus[®] KNX Parameters

Send power values to load control

Options: No
 Sum of all phases
 Phase 1
 Phase 2
 Phase 3
 Phase 1, 2
 Phase 1, 3
 Phase 2, 3

This parameter determines which power value from the connected meter is sent to load control and taken into account in the calculation.

- *No*: No power value is sent; the meter is not taken into account in the load control calculation.
- *Sum of all phases*: Sends the total power/sum of all phases.
- *Phase 1*: Sends the phase L1 power value.
- *Phase 2*: Sends the phase L2 power value.
- *Phase 3*: Sends the phase L3 power value.
- *Phase 1, 2*: Sends the (sum of the) phase L1 and L2 power value.
- *Phase 1, 3*: Sends the (sum of the) phase L1 and L3 power value.
- *Phase 2, 3*: Sends the (sum of the) phase L2 and L3 power values.

ABB i-bus[®] KNX Parameters

7.4.1.1 Group objects

ETS numbers group objects dynamically and based on how the meter is parametrized. The numbering in the table below provides a better overview. It only applies if the meter described in this section is the only one connected and if it is parametrized as *Meter 1*.

The group object name also depends on parametrization; it is made up of the meter number and the name of the meter selected in *Device selection*.

No.	Object function	Name	DPT	Length	Flags				
					C	R	W	T	U
31	In operation	Meter x: ZS/S	1.001	1 bit	X	X	X	X	X
32	Request meter reading	Meter x: ZS/S	1.017	1 bit	X	X		X	
35	Request status values	Meter x: ZS/S	1.017	1 bit	X	X		X	
36	Status byte	Meter x: ZS/S	Non DPT	1 byte	X		X	X	X
37	Meter type	Meter x: ZS/S	Non DPT	1 byte	X		X	X	X
38	False meter type	Meter x: ZS/S	1.005	1 bit	X		X	X	X
39	Send power failures	Meter x: ZS/S	5.010	1 byte	X		X	X	X
40	Reset power failures	Meter x: ZS/S	1.017	1 bit	X		X	X	X
42	Active energy	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X		X	X	X
42	Total active energy	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X		X	X	X
43	Active energy tariff 1	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X		X	X	X
44	Active energy tariff 2	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X		X	X	X
45	Active energy tariff 3	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X		X	X	X
46	Active energy tariff 4	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X		X	X	X
47	Reactive energy	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X		X	X	X
47	Total reactive energy	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X		X	X	X
48	Reactive energy tariff 1	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X		X	X	X
49	Reactive energy tariff 2	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X		X	X	X
50	Reactive energy tariff 3	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X		X	X	X
51	Reactive energy tariff 4	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X		X	X	X
52	Active energy exported	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X		X	X	X
52	Active energy exported total	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X		X	X	X
53	Active energy exported trf. 1	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X		X	X	X
54	Active energy exported trf. 2	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X		X	X	X
55	Active energy exported trf. 3	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X		X	X	X
56	Active energy exported trf. 4	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X		X	X	X
57	Reactive energy exported	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X		X	X	X
57	Reactive energy exported total	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X		X	X	X

ABB i-bus[®] KNX Parameters

No.	Object function	Name	DPT	Length	Flags				
					C	R	W	T	U
58	Reactive energy exported trf. 1	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X	X	X	X	
59	Reactive energy exported trf. 2	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X	X	X	X	
60	Reactive energy exported trf. 3	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X	X	X	X	
61	Reactive energy exported trf. 4	Meter x: ZS/S	Configuration-dependent	Configuration-dependent	X	X	X	X	
62	Active Power	Meter x: ZS/S	14.056	4 bytes	X	X	X	X	
62	Active Power Total	Meter x: ZS/S	14.056	4 bytes	X	X	X	X	
63	Active Power L1	Meter x: ZS/S	14.056	4 bytes	X	X	X	X	
64	Active Power L2	Meter x: ZS/S	14.056	4 bytes	X	X	X	X	
65	Active Power L3	Meter x: ZS/S	14.056	4 bytes	X	X	X	X	
66	Reactive Power	Meter x: ZS/S	14.056	4 bytes	X	X	X	X	
66	Reactive Power Total	Meter x: ZS/S	14.056	4 bytes	X	X	X	X	
67	Reactive Power L1	Meter x: ZS/S	14.056	4 bytes	X	X	X	X	
68	Reactive Power L2	Meter x: ZS/S	14.056	4 bytes	X	X	X	X	
69	Reactive Power L3	Meter x: ZS/S	14.056	4 bytes	X	X	X	X	
70	Apparent power	Meter x: ZS/S	14.056	4 bytes	X	X	X	X	
70	Apparent power total	Meter x: ZS/S	14.056	4 bytes	X	X	X	X	
71	Apparent power L1	Meter x: ZS/S	14.056	4 bytes	X	X	X	X	
72	Apparent power L2	Meter x: ZS/S	14.056	4 bytes	X	X	X	X	
73	Apparent power L3	Meter x: ZS/S	14.056	4 bytes	X	X	X	X	
74	Phase angle power	Meter x: ZS/S	14.055	4 bytes	X	X	X	X	
74	Phase angle power total	Meter x: ZS/S	14.055	4 bytes	X	X	X	X	
75	Phase angle power L1	Meter x: ZS/S	14.055	4 bytes	X	X	X	X	
76	Phase angle power L2	Meter x: ZS/S	14.055	4 bytes	X	X	X	X	
77	Phase angle power L3	Meter x: ZS/S	14.055	4 bytes	X	X	X	X	
78	Power factor	Meter x: ZS/S	14.057	4 bytes	X	X	X	X	
78	Power factor total	Meter x: ZS/S	14.057	4 bytes	X	X	X	X	
79	Power factor L1	Meter x: ZS/S	14.057	4 bytes	X	X	X	X	
80	Power factor L2	Meter x: ZS/S	14.057	4 bytes	X	X	X	X	
81	Power factor L3	Meter x: ZS/S	14.057	4 bytes	X	X	X	X	
82	Current	Meter x: ZS/S	14.019	4 bytes	X	X	X	X	
82	Current L1	Meter x: ZS/S	14.019	4 bytes	X	X	X	X	
83	Current L2	Meter x: ZS/S	14.019	4 bytes	X	X	X	X	
84	Current L3	Meter x: ZS/S	14.019	4 bytes	X	X	X	X	
85	Current N	Meter x: ZS/S	14.019	4 bytes	X	X	X	X	
86	Voltage	Meter x: ZS/S	14.027	4 bytes	X	X	X	X	
86	Voltage L1-N	Meter x: ZS/S	14.027	4 bytes	X	X	X	X	
87	Voltage L2-N	Meter x: ZS/S	14.027	4 bytes	X	X	X	X	
88	Voltage L3-N	Meter x: ZS/S	14.027	4 bytes	X	X	X	X	
89	Voltage L1-L2	Meter x: ZS/S	14.027	4 bytes	X	X	X	X	
90	Voltage L2-L3	Meter x: ZS/S	14.027	4 bytes	X	X	X	X	
91	Voltage L1-L3	Meter x: ZS/S	14.027	4 bytes	X	X	X	X	
92	Frequency	Meter x: ZS/S	14.033	4 bytes	X	X	X	X	
93	Phase angle current	Meter x: ZS/S	14.055	4 bytes	X	X	X	X	
93	Phase angle current L1	Meter x: ZS/S	14.055	4 bytes	X	X	X	X	

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No.	Object function	Name	DPT	Length	Flags				
					C	R	W	T	U
94	Phase angle current L2	Meter x: ZS/S	14.055	4 bytes	X	X	X	X	
95	Phase angle current L3	Meter x: ZS/S	14.055	4 bytes	X	X	X	X	
96	Phase angle voltage	Meter x: ZS/S	14.055	4 bytes	X	X	X	X	
96	Phase angle voltage L1	Meter x: ZS/S	14.055	4 bytes	X	X	X	X	
97	Phase angle voltage L2	Meter x: ZS/S	14.055	4 bytes	X	X	X	X	
98	Phase angle voltage L3	Meter x: ZS/S	14.055	4 bytes	X	X	X	X	
99	Quadrant	Meter x: ZS/S	Non DPT	1 byte	X	X	X	X	
99	Quadrant total	Meter x: ZS/S	Non DPT	1 byte	X	X	X	X	
100	Quadrant L1	Meter x: ZS/S	Non DPT	1 byte	X	X	X	X	
101	Quadrant L2	Meter x: ZS/S	Non DPT	1 byte	X	X	X	X	
102	Quadrant L3	Meter x: ZS/S	Non DPT	1 byte	X	X	X	X	

No.	Object function	Name	Data type	Flags
31	In operation	Meter x: ZS/S	1 bit DPT 1.001	C, R, W, T, U
<p>This group object is enabled if <i>Monitor "In Operation" Group object</i> is set to any option other than <i>No</i>. To monitor the presence of the ZS/S regularly on the bus, an In operation telegram is sent cyclically to the bus and monitored by the Energy Analyzer. The ZS/S is working correctly if the <i>Status</i> column in the <i>Management > Meter Management > Overview</i> table in the UI is displaying <i>OK</i>. As long as the group object is activated, it receives a parametrizable In operation telegram. The telegram value depends on the option selected in the <i>Monitor "In Operation" Group object</i> parameter. If the telegram fails to arrive within the set send cycle time, the group object is written with 0 (no operation).</p>				
32	Request meter reading	Meter x: ZS/S	1 bit DPT 1.017	C, R, T
<p>This group object is enabled if <i>Enable Group object "Request meter/sensor reading"</i> is set to <i>Yes</i>. This group object requests the present meter readings for the ZS/S by sending a value 1 telegram. The request applies to group objects 11–30 of the ZS/S. Depending on the meter used, the present meter readings are sent to the bus after the send delay time (if parametrized). Telegram value 0 = No function 1 = Request meter reading</p>				
35	Request status values	Meter x: ZS/S	1 byte DPT 1.017	C, R, T
<p>This group object is always enabled. If this group object receives a value 0 or 1 telegram, the ZS/S sends to the bus all <i>Status</i> group objects that are set to <i>On request</i>.</p>				
36	Status byte	Meter x: ZS/S	1 byte Non DPT	C, W, T, U
<p>This group object is always enabled and indicates the present state of the ZS/S. It indicates whether the ZS/S is working normally or has a fault. In the UI, this information is shown in the <i>Status</i> column in the <i>Management > Meter Management > Overview</i> table. This group object maps the following information:</p> <ul style="list-style-type: none"> • End value of active energy meter reading reached (only with 4 byte value) • End value of reactive energy meter reading reached (only with 4 byte value) • Internal or hardware error in meter • IR communication error with meter • Current I1, I2 and/or I3 outside of the specification limit* • Power is negative (total power or one of three phases) • No voltage or undervoltage/overvoltage on phase 1, 2 or 3 • Installation fault: L and N transposed <p>The group object is also sent after a bus voltage recovery, download or ETS reset.</p>				

ABB i-bus[®] KNX Parameters

No.	Object function	Name	Data type	Flags
37	Meter type	Meter x: ZS/S	1 byte Non DPT	C, W, T, U
<p>This group object is always enabled and indicates the meter type connected to the meter interface module.</p> <p>Telegram value 0 = DELTAplus 1 = DELTAsingle 2 = ODIN 3 = ODINsingle 4 = A-series, B-series Other = Reserved 254 = Unknown meter 255 = No meter connected</p> <p>To obtain the currently connected meter, the group object value can be read via <i>Value_Read</i>, e.g. with the help of ETS. In addition, the group object is sent after a change, bus voltage recovery, programming or ETS reset.</p>				
38	False meter type	Meter x: ZS/S	1 bit DPT 1.005	C, W, T, U
<p>This group object is always enabled. In the UI (<i>Management > Meter Management > Select meter in table</i> and click <i>Edit</i> ) it indicates whether the ETS parametrization matches the properties of the meter connected to the ZS/S.</p>				
39	Send power failures	Meter x: ZS/S	1 byte DPT 1.010	C, W, T, U
<p>This group object is always enabled and sends the number of power failures via KNX. This is for future applications and therefore is not currently shown or used in the UI.</p>				
40	Reset power failures	Meter x: ZS/S	1 bit DPT 1.017	C, W, T, U
<p>This group object is always enabled and resets the power failures via KNX. This is for future applications and therefore is not currently shown or used in the UI.</p>				
42	Active energy	Meter x: ZS/S	Configuration- dependent	C, W, T, U
<p>This group object is enabled if</p> <ul style="list-style-type: none"> • <i>Version</i> is set to <i>Active energy meter (direct connected)</i> or <i>Combination meter (direct connected)</i>, and <i>Tariffs</i> is set to <i>No tariffs</i>: DPT 13.010, 4 bytes The 4-byte group object receives the ZS/S meter reading for active energy up to a maximum of 2,147,483,647 Wh (2.147 GWh) and a resolution of 1 Wh. • <i>Version</i> is set to <i>Active energy meter (transformer rated)</i> or <i>Combination meter (transformer rated)</i>, and <i>Tariffs</i> is set to <i>No tariffs</i>: DPT 29.010, 8 bytes With transformer rated meters, the reading for active energy is received as a primary value. An 8-byte group object is shown for this purpose. 				
42	Total active energy	Meter x: ZS/S	Configuration- dependent	C, W, T, U
43	Active energy tariff 1			
44	Active energy tariff 2			
45	Active energy tariff 3			
46	Active energy tariff 4			
<p>These group objects are enabled if</p> <ul style="list-style-type: none"> • <i>Version</i> is set to <i>Active energy meter (direct connected)</i> or <i>Combination meter (direct connected)</i>, and <i>Tariffs</i> is set to <i>4 tariffs</i>: DPT 13.010, 4 bytes The 4-byte group object receives the ZS/S meter reading for total or tariff 1–4 active energy up to a maximum of 2,147,483,647 Wh (2.147 GWh) and a resolution of 1 Wh. • <i>Version</i> is set to <i>Active energy meter (transformer rated)</i> or <i>Combination meter (transformer rated)</i>, and <i>Tariffs</i> is set to <i>4 tariffs</i>: DPT 29.010, 8 bytes With transformer rated meters, the readings for total or tariff 1–4 active energy are received as primary values. An 8-byte group object is shown for this purpose. <p>The <i>Total active energy</i> group object indicates the sum of the meter readings of tariff 1 + 2 or tariff 1 + 2 + 3 + 4.</p>				

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Parameters

No.	Object function	Name	Data type	Flags
47	Reactive energy	Meter x: ZS/S	Configuration-dependent	C, W, T, U
<p>This group object is enabled if</p> <ul style="list-style-type: none"> • <i>Version</i> is set to <i>Combination meter (direct connected)</i> and <i>Tariffs</i> is set to <i>No tariffs</i>. DPT 13.012, 4 bytes The 4-byte group object receives the ZS/S meter reading for reactive energy up to a maximum of 2,147,483,647 varh (2.147 Gvarh) and a resolution of 1 varh. • <i>Version</i> is set to <i>Combination meter (transformer rated)</i> and <i>Tariffs</i> is set to <i>4 tariffs</i>: DPT 29.012, 8 bytes With transformer rated meters, the reading for reactive energy is received as a primary value. An 8-byte group object is shown for this purpose. 				
47	Total reactive energy	Meter x: ZS/S	Configuration-dependent	C, W, T, U
48	Reactive energy tariff 1			
49	Reactive energy tariff 2			
50	Reactive energy tariff 3			
51	Reactive energy tariff 4			
<p>These group objects are enabled if</p> <ul style="list-style-type: none"> • <i>Version</i> is set to <i>Combination meter (direct connected)</i> and <i>Tariffs</i> is set to <i>4 tariffs</i>: DPT 13.012, 4 bytes The 4-byte group object receives the ZS/S meter reading for total or tariff 1–4 reactive energy up to a maximum of 2,147,483,647 varh (2.147 Gvarh) and a resolution of 1 varh. • <i>Version</i> is set to <i>Combination meter (transformer rated)</i> and <i>Tariffs</i> is set to <i>No tariffs</i>: DPT 29.012, 8 bytes With transformer rated meters, the reading for reactive energy is received as a primary value. An 8-byte group object is shown for this purpose. <p>The <i>Total reactive energy</i> group object indicates the sum of the meter readings of tariff 1 + 2 or tariff 1 + 2 + 3 + 4.</p>				
52	Active energy exported	Meter x: ZS/S	Configuration-dependent	C, W, T, U
<p>This group object is enabled if</p> <ul style="list-style-type: none"> • <i>Version</i> is set to <i>Active energy meter (direct connected)</i> or <i>Combination meter (direct connected)</i>, <i>Tariffs</i> is set to <i>No tariffs</i> and <i>Register for exported energy</i> is set to <i>Yes</i>: DPT 13.010, 4 bytes The 4-byte group object receives the meter reading from the ZS/S for exported active energy up to a maximum of 2,147,483,647 Wh (2.147 GWh) and a resolution of 1 Wh. • <i>Version</i> is set to <i>Active energy meter (transformer rated)</i> or <i>Combination meter (transformer rated)</i>, <i>Tariffs</i> is set to <i>No tariffs</i> and <i>Register for exported energy</i> is set to <i>Yes</i>: DPT 29.010, 8 bytes With transformer rated meters, the reading for exported active energy is received as a primary value. An 8-byte group object is shown for this purpose. 				
52	Active energy exported total	Meter x: ZS/S	Configuration-dependent	C, W, T, U
53	Active energy exported trf. 1			
54	Active energy exported trf. 2			
55	Active energy exported trf. 3			
56	Active energy exported trf. 4			
<p>These group objects are enabled if</p> <ul style="list-style-type: none"> • <i>Version</i> is set to <i>Active energy meter (direct connected)</i> or <i>Combination meter (direct connected)</i>, <i>Tariffs</i> is set to <i>4 tariffs</i> and <i>Register for exported energy</i> is set to <i>Yes</i>: DPT 13.010, 4 bytes The 4-byte group object receives the ZS/S meter reading for total or tariff 1–4 exported active energy up to a maximum of 2,147,483,647 Wh (2.147 GWh) and a resolution of 1 Wh. • <i>Version</i> is set to <i>Active energy meter (transformer rated)</i> or <i>Combination meter (transformer rated)</i>, <i>Tariffs</i> is set to <i>4 tariffs</i> and <i>Register for exported energy</i> is set to <i>Yes</i>: DPT 29.010, 8 bytes With transformer rated meters, the readings for total or tariff 1–4 exported active energy are received as primary values. An 8-byte group object is shown for this purpose. <p>The <i>Active energy exported total</i> group object indicates the sum of the meter readings of tariff 1 + 2 or tariff 1 + 2 + 3 + 4.</p>				

ABB i-bus[®] KNX Parameters

No.	Object function	Name	Data type	Flags
57	Reactive energy exported	Meter x: ZS/S	Configuration-dependent	C, W, T, U
<p>This group object is enabled if</p> <ul style="list-style-type: none"> • <i>Version</i> is set to <i>Combination meter (direct connected)</i>, <i>Tariffs</i> is set to <i>No tariffs</i> and <i>Register for exported energy</i> is set to <i>Yes</i>: DPT 13.012, 4 bytes The 4-byte group object receives the ZS/S meter reading for exported reactive energy up to a maximum of 2,147,483,647 varh (2.147 Gvarh) and a resolution of 1 varh. • <i>Version</i> is set to <i>Combination meter (transformer rated)</i>, <i>Tariffs</i> is set to <i>No tariffs</i> and <i>Register for exported energy</i> is set to <i>Yes</i>: DPT 29.012, 8 bytes With transformer rated meters, the reading for exported reactive energy is received as a primary value. An 8-byte group object is shown for this purpose. 				
57	Reactive energy exported total	Meter x: ZS/S	Configuration-dependent	C, W, T, U
58	Reactive energy exported trf. 1			
59	Reactive energy exported trf. 2			
60	Reactive energy exported trf. 3			
51	Reactive energy exported trf. 4			
<p>These group objects are enabled if</p> <ul style="list-style-type: none"> • <i>Version</i> is set to <i>Combination meter (direct connected)</i>, <i>Tariffs</i> is set to <i>4 tariffs</i> and <i>Register for exported energy</i> is set to <i>Yes</i>: DPT 13.012, 4 bytes The 4-byte group object receives the ZS/S meter reading for total or tariff 1–4 exported reactive energy up to a maximum of 2,147,483,647 varh (2.147 Gvarh) and a resolution of 1 varh. • <i>Version</i> is set to <i>Combination meter (transformer rated)</i>, <i>Tariffs</i> is set to <i>4 tariffs</i> and <i>Register for exported energy</i> is set to <i>Yes</i>: DPT 29.012, 8 bytes With transformer rated meters, the reading for reactive energy is received as a primary value. An 8-byte group object is shown for this purpose. <p>The <i>Reactive energy exported total</i> group object indicates the sum of the meter readings of tariff 1 + 2 or tariff 1 + 2 + 3 + 4.</p>				
62	Active Power	Meter x: ZS/S	4 bytes	C, W, T, U
62	Active Power Total		DPT 14.056	
63	Active Power L1			
64	Active Power L2			
65	Active Power L3			
<p>These group objects are enabled according to the network type setting once <i>Voltage network</i> is set to 2-, 3-, or 4-Wire. These group objects receive the instantaneous active power values of phases L1...L3 and the total active power.</p>				
66	Reactive Power	Meter x: ZS/S	4 bytes	C, W, T, U
66	Reactive Power Total		DPT 14.056	
67	Reactive Power L1			
68	Reactive Power L2			
69	Reactive Power L3			
<p>These group objects are enabled if <i>Version</i> is set to <i>Combination meter (direct connected)</i> or <i>Combination meter (transformer rated)</i> and <i>Voltage network</i> is set to 2-, 3- or 4-Wire. These group objects receive the instantaneous reactive power values of phases L1...L3 and the total reactive power.</p>				
70	Apparent power	Meter x: ZS/S	4 bytes	C, W, T, U
70	Apparent power total		DPT 14.056	
71	Apparent power L1			
72	Apparent power L2			
73	Apparent power L3			
<p>These group objects are enabled if <i>Version</i> is set to <i>Combination meter (direct connected)</i> or <i>Combination meter (transformer rated)</i> and <i>Voltage network</i> is set to 2-, 3- or 4-Wire. These group objects receive the instantaneous apparent power values of phases L1...L3 and the total apparent power.</p>				

ABB i-bus[®] KNX Parameters

No.	Object function	Name	Data type	Flags
74	Phase angle power	Meter x: ZS/S	4 bytes DPT 14.055	C, W, T, U
74	Phase angle power total			
75	Phase angle power L1			
76	Phase angle power L2			
77	Phase angle power L3			
<p>These group objects are enabled if <i>Version</i> is set to <i>Combination meter (direct connected)</i> or <i>Combination meter (transformer rated)</i> and <i>Voltage network</i> is set to 2-, 3- or 4-Wire.</p> <p>These group objects send the instantaneous phase angles of phases L1...L3 and the total phase angle in degrees (°).</p>				
78	Power factor	Meter x: ZS/S	4 bytes DPT 14.057	C, W, T, U
78	Power factor total			
79	Power factor L1			
80	Power factor L2			
81	Power factor L3			
<p>These group objects are enabled if <i>Version</i> is set to <i>Combination meter (direct connected)</i> or <i>Combination meter (transformer rated)</i> and <i>Voltage network</i> is set to 2-, 3- or 4-Wire.</p> <p>These group objects receive the power factors (cos phi) L1...L3 and the total power factor.</p>				
82	Current	Meter x: ZS/S	4 bytes DPT 14.019	C, W, T, U
82	Current L1			
83	Current L2			
84	Current L3			
<p>These group objects are enabled if <i>Voltage network</i> is set to 2-Wire (L, N), 3-Wire (L1, L2, L3) or 4-Wire (L1, L2, L3, N).</p> <p>These group objects receive the L1...L3 currents.</p>				
85	Current N	Meter x: ZS/S	4 bytes DPT 14.019	C, W, T, U
<p>This group object is enabled if <i>Version</i> is set to <i>Combination meter (direct connected)</i> or <i>Combination meter (transformer rated)</i> and <i>Voltage network</i> is set to 4-Wire (L1, L2, L3, N).</p> <p>This group object receives the current in the neutral conductor.</p>				
86	Voltage	Meter x: ZS/S	4 bytes DPT 14.027	C, W, T, U
86	Voltage L1-N			
87	Voltage L2-N			
88	Voltage L3-N			
89	Voltage L1-L2			
90	Voltage L2-L3			
91	Voltage L1-L3			
<p>These group objects are enabled if <i>Voltage network</i> is set to 2-Wire (L, N), 3-Wire (L1, L2, L3) or 4-Wire (L1, L2, L3, N).</p> <p>These group objects receive the voltages of the individual phases relative to neutral and to each other.</p>				
92	Frequency	Meter x: ZS/S	4 bytes DPT 14.033	C, W, T, U
<p>This group object is always enabled.</p> <p>This group object receives the instantaneous frequency [Hz] of the voltage network.</p>				
93	Phase angle current	Meter x: ZS/S	4 bytes DPT 14.055	C, W, T, U
93	Phase angle current L1			
94	Phase angle current L2			
95	Phase angle current L3			
<p>These group objects are enabled if <i>Version</i> is set to <i>Combination meter (direct connected)</i> or <i>Combination meter (transformer rated)</i> and <i>Voltage network</i> is set to 2-Wire (L, N), 3-Wire (L1, L2, L3) or 4-Wire (L1, L2, L3, N).</p> <p>These group objects receive the phase angles of currents L1...L3.</p>				

ABB i-bus[®] KNX Parameters

No.	Object function	Name	Data type	Flags
96	Phase angle voltage	Meter x: ZS/S	4 bytes DPT 14.055	C, W, T, U
96	Phase angle voltage L1			
97	Phase angle voltage L2			
98	Phase angle voltage L3			
<p>These group objects are enabled if <i>Version</i> is set to <i>Combination meter (direct connected)</i> or <i>Combination meter (transformer rated)</i> and <i>Voltage network</i> is set to <i>2-Wire (L, N)</i>, <i>3-Wire (L1, L2, L3)</i> or <i>4-Wire (L1, L2, L3, N)</i>. These group objects receive the phase angles of voltages L1...L3.</p>				
99	Quadrant	Meter x: ZS/S	1 byte Non DPT	C, W, T, U
99	Quadrant total			
100	Quadrant L1			
101	Quadrant L2			
102	Quadrant L3			
<p>These group objects are enabled if <i>Version</i> is set to <i>Combination meter (direct connected)</i> or <i>Combination meter (transformer rated)</i> and <i>Voltage network</i> is set to <i>2-Wire (L, N)</i>, <i>3-Wire (L1, L2, L3)</i> or <i>4-Wire (L1, L2, L3, N)</i>. These group objects send the quadrants in which the meter measures.</p>				

ABB i-bus[®] KNX Parameters

7.4.2 ABB: SE/S Energy Actuator or ABB: EM/S Energy Module

The parameters described below are identical for the SE/S Energy Actuator and the EM/S Energy Module. The parameters provided when you select *SE/S Energy Actuator* or *EM/S Energy Module* are as follows:

General	Device selection	ABB: SE/S Energy Actuator
Load Control	Name	
- Meter 1	Location	
SE/S	Serial number	
+ Meter 2	Enable Group object "Request meter/sensor reading"	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Meter 3	Monitor "In Operation" Group object	No
+ Meter 4	Send power values to load control	No

Note

The group object *Measurement circuit active* must be linked to a group address for proper operation.

Name

This field lets you enter a unique name for the SE/S Energy Actuator or EM/S Energy Module. It is used for identification purposes, for example, if there are several identical energy actuators or modules in a single installation. The name you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

Location

Here you can enter the installation location for the SE/S Energy Actuator or EM/S Energy Module. It is used for location purposes, for example, if there are several identical energy actuators or modules in a single installation. The installation location you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

Serial number

This field lets you enter a serial or ID number for the SE/S Energy Actuator or EM/S Energy Module. This is another way to identify it if there are several identical energy actuators or modules in a single installation. The serial number you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

Enable Group object "Request meter/sensor reading"

Options: No Yes

This parameter determines whether meter readings are received via a separate group object.

- **Yes:** Shows the *Request meter reading* group object, which enables active reading of the present meter readings. Readings from connected meters are requested one after the other roughly every 60 seconds.

ABB i-bus[®] KNX Parameters

Monitor "In Operation" Group object

Options: No
 Yes, value 0
 Yes, value 1
 Yes, both values

This parameter determines whether the *In operation* group object monitors the presence of the SE/S or EM/S on the bus.

- *No*: No monitoring
- *Yes, value 0*: Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 0 telegram from the SE/S or EM/S within the cycle time.
- *Yes, value 1*: Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 1 telegram from the SE/S or EM/S within the cycle time.
- *Yes, both values*: Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 0 or 1 telegram from the SE/S or EM/S within the cycle time.

Note

If you enable the *In operation* function, you also need to enable it on the meter you wish to monitor and link the corresponding objects using a group address. Otherwise, power values will not be taken into account when using load control.

Dependent parameter

Cycle time

Options: 1...60...65535 s

This parameter determines the interval at which the *In operation* group object expects a cyclic telegram from the SE/S or EM/S. If the telegram fails to arrive within the set time, operation is interrupted. In this case, check that the monitored device is working correctly.

Note

To ensure the SE/S or EM/S is correctly monitored, the cycle time entered here should always be longer than the one set for the SE/S or EM/S.

ABB i-bus[®] KNX Parameters

Send power values to load control

Options: No
 Total
 Channel A
 Channel B
 Channel C
 Channel A, B
 Channel A, C
 Channel B, C

This parameter determines which power value from the connected meter is sent to load control and taken into account in the calculation.

- *No*: No power value is sent; the meter is not taken into account in the load control calculation.
- *Total*: Sends the total power/sum of all channels
- *Channel A*: Sends the channel A power value
- *Channel B*: Sends the channel B power value
- *Channel C*: Sends the channel C power value
- *Channel A, B*: Sends the (sum of the) channel A and B power values
- *Channel A, C*: Sends the (sum of the) channel A and C power values
- *Channel B, C*: Sends the (sum of the) channel B and C power values

ABB i-bus[®] KNX Parameters

7.4.2.1 Group objects

The group objects described below are identical for the SE/S Energy Actuator and the EM/S Energy Module.

ETS numbers group objects dynamically and based on parametrization. The numbering in the table below provides a better overview. It only applies if the meter described in this section is the only one connected and if it is parametrized as *Meter 1*.

The group object name also depends on parametrization; it is made up of the meter number and the name of the meter selected in *Device selection*.

No.	Object function	Name	DPT	Length	Flags				
					C	R	W	T	U
31	In operation	Meter x: SE/S or EM/S	1.001	1 bit	X	X		X	
32	Request meter reading	Meter x: SE/S or EM/S	1.017	1 bit	X	X		X	
35	Request status values	Meter x: SE/S or EM/S	1.017	1 bit	X	X		X	
36	Measurement circuit active	Meter x: SE/S or EM/S	1.011	1 bit	X		X	X	X
41	Meter reading	Meter x: SE/S or EM/S	13.010	4 bytes	X		X	X	X
42	Active power	Meter x: SE/S or EM/S	14.056	4 bytes	X		X	X	X
43	Frequency	Meter x: SE/S or EM/S	14.033	4 bytes	X		X	X	X
51	A: Meter reading	Meter x: SE/S or EM/S	13.010	4 bytes	X		X	X	X
52	A: Active power	Meter x: SE/S or EM/S	14.056	4 bytes	X		X	X	X
53	A: Current	Meter x: SE/S or EM/S	14.019	4 bytes	X		X	X	X
54	A: Voltage	Meter x: SE/S or EM/S	14.027	4 bytes	X		X	X	X
55	A: Apparent power	Meter x: SE/S or EM/S	14.056	4 bytes	X		X	X	X
56	A: Power factor	Meter x: SE/S or EM/S	14.057	4 bytes	X		X	X	X
61	B: Meter reading	Meter x: SE/S or EM/S	13.010	4 bytes	X		X	X	X
62	B: Active power	Meter x: SE/S or EM/S	14.056	4 bytes	X		X	X	X
63	B: Current	Meter x: SE/S or EM/S	14.019	4 bytes	X		X	X	X
64	B: Voltage	Meter x: SE/S or EM/S	14.027	4 bytes	X		X	X	X
65	B: Apparent power	Meter x: SE/S or EM/S	14.056	4 bytes	X		X	X	X
66	B: Power factor	Meter x: SE/S or EM/S	14.057	4 bytes	X		X	X	X
71	C: Meter reading	Meter x: SE/S or EM/S	13.010	4 bytes	X		X	X	X
72	C: Active power	Meter x: SE/S or EM/S	14.056	4 bytes	X		X	X	X
73	C: Current	Meter x: SE/S or EM/S	14.019	4 bytes	X		X	X	X
74	C: Voltage	Meter x: SE/S or EM/S	14.027	4 bytes	X		X	X	X
75	C: Apparent power	Meter x: SE/S or EM/S	14.056	4 bytes	X		X	X	X
76	C: Power factor	Meter x: SE/S or EM/S	14.057	4 bytes	X		X	X	X

ABB i-bus[®] KNX Parameters

No.	Object function	Name	Data type	Flags
31	In operation	Meter x: SE/S or EM/S	1 bit DPT 1.001	C, R, T
<p>This group object is enabled if <i>Monitor "In Operation" Group object</i> is set to any option other than <i>No</i>. To monitor the presence of the SE/S or EM/S regularly on the bus, an In operation telegram is sent cyclically to the bus and monitored by the Energy Analyzer. The SE/S or EM/S is working correctly if the <i>Status</i> column in the <i>Management > Meter Management > Overview</i> table in the UI is displaying <i>OK</i>. As long as the group object is activated, it receives a parametrizable In operation telegram. The telegram value depends on the option selected in the <i>Monitor "In Operation" Group object</i> parameter. If the telegram fails to arrive within the set send cycle time, the group object is written with 0 (no operation).</p>				
32	Request meter reading	Meter x: SE/S or EM/S	1 bit DPT 1.017	C, R, T
<p>This group object is enabled if <i>Enable Group object "Request meter/sensor reading"</i> is set to <i>Yes</i>. This group object requests the present meter readings for the SE/S or EM/S by sending a value telegram. The request applies to group objects 42–76 of the SE/S or EM/S. The present meter readings are sent to the bus after the send delay time (if parametrized). Telegram value 0 = No function 1 = Request meter reading</p>				
35	Request status values	Meter x: SE/S or EM/S	1 byte DPT 1.017	C, R, T
<p>This group object is always enabled. If this group object receives a value 0 or 1 telegram, all <i>Status</i> group objects parametrized with the <i>On request</i> option are sent to the bus.</p>				
36	Measurement circuit active	Meter x: SE/S or EM/S	1 bit DPT 1.011	C, W, T, U
<p>This group object is always enabled and indicates whether the measurement electronics of the energy actuator or module are in operation. The group object's value is received with a change and when the <i>Request status values</i> group object receives a telegram. The measuring component is supplied by one of output circuits A...C. If a rated voltage is present on at least one of the outputs, measured values are acquired and then provided on the KNX system.</p> <p> Note</p> <p>The group object <i>Measurement circuit active</i> must be linked to a group address for proper operation.</p> <p>Telegram value 0 = None of the outputs has a rated voltage, so no measured values are acquired. 1 = At least one (any) of the outputs has a rated voltage, so measured values are acquired.</p>				
41	Meter reading	Meter x: SE/S or EM/S	4 bytes DPT 13.010	C, W, T, U
<p>This group object is always enabled and receives the total meter reading for active energy in watt hours. The group object's value is calculated by summing the main meters at outputs A...C.</p>				
42	Active power	Meter x: SE/S or EM/S	4 bytes DPT 14.056	C, W, T, U
<p>This group object is always enabled and receives the total active power in watts from outputs A...C.</p>				
43	Frequency	Meter x: SE/S or EM/S	4 bytes DPT 14.033	C, W, T, U
<p>This group object is always enabled and receives the frequency in hertz.</p>				
51 61 71	A: Meter reading B: Meter reading C: Meter reading	Meter x: SE/S or EM/S	4 bytes DPT 13.010	C, W, T, U
<p>These group objects are always enabled and receive the meter readings for active power from channels A, B and C in watt hours.</p>				
52 62 72	A: Active power B: Active power C: Active power	Meter x: SE/S or EM/S	4 bytes DPT 14.056	C, W, T, U
<p>These group objects are always enabled and receive the active power from channels A, B and C in watt hours.</p>				

ABB i-bus[®] KNX Parameters

No.	Object function	Name	Data type	Flags
53 63 73	A: Current B: Current C: Current	Meter x: SE/S or EM/S	4 bytes DPT 14.019	C, W, T, U
These group objects are always enabled and receive the values of the current from channels A, B and C in amperes.				
54 64 74	A: Voltage B: Voltage C: Voltage	Meter x: SE/S or EM/S	4 bytes DPT 14.027	C, W, T, U
These group objects are always enabled and receive the voltage relative to N from channels A, B and C in volts.				
55 65 75	A: Apparent power B: Apparent power C: Apparent power	Meter x: SE/S or EM/S	4 bytes DPT 14.056	C, W, T, U
These group objects are always enabled and receive the apparent power from channels A, B and C in VA.				
56 66 76	A: Power factor A: Power factor A: Power factor	Meter x: SE/S or EM/S	4 bytes DPT 14.057	C, W, T, U
These group objects are always enabled and receive the power factor from channels A, B and C.				

ABB i-bus[®] KNX Parameters

7.4.3 Electricity (generic)

Use this option if you wish to use other manufacturers' KNX meters alongside the Energy Analyzer. Selecting *Electricity (generic)* provides the following parameters:

General	Device selection	Electricity (generic) ▼
Load Control	Name	<input type="text"/>
– Meter 1	Location	<input type="text"/>
	Serial number	<input type="text"/>
Electricity	Enable Group object "Request meter/sensor reading"	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Meter 2	Communication monitoring	No ▼
+ Meter 3	Voltage network	4-Wire (L1, L2, L3, N) ▼
+ Meter 4	Tariffs	No tariffs ▼
+ Meter 5	Register for exported energy	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Meter 6	Data point type for active energy	13.010 Active Energy (Wh) 4 Byte ▼
+ Meter 7	Data point type for reactive energy	None ▼
+ Meter 8	Data point type for apparent energy	None ▼
+ Meter 9	Send power values to load control	No ▼

Name

In this field, you can enter a unique name for the meter. It is used for identification purposes, for example, if there are several identical meters in a single installation. The name you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

Location

Here you can enter the installation location for the meter. It is used for location purposes, for example, if there are several identical meters in a single installation. The installation location you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

Serial number

This field lets you enter a serial number or ID number for the meter. This is another way to identify it if there are several identical meters in a single installation. The serial number you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

ABB i-bus® KNX Parameters

Enable Group object "Request meter/sensor reading"

Options: No
Yes

This parameter determines whether meter readings are received via a separate group object.

- **Yes:** Shows the *Request meter reading* group object, which enables active reading of the present meter readings. Readings from connected meters are requested one after the other roughly every 60 seconds.

Note

The connected meter must support this function and provide a corresponding group object in order for the meter reading to be requested.

Communication monitoring

Options: No
Group object "In Operation", value 0
Group object "In Operation", value 1
Group object "In Operation", both values
General monitoring

This parameter determines whether the *In operation* group object monitors the presence of the meter on the bus.

Note

The connected meter must support the *In operation* function and be able to send a corresponding group object. Otherwise, select *General monitoring*.

- **No:** No monitoring
- **Yes, value 0:** Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 0 telegram from the meter within the cycle time.
- **Yes, value 1:** Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 1 telegram from the meter within the cycle time.
- **Yes, both values:** Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 0 or 1 telegram from the meter within the cycle time.
- **General monitoring:** If any telegram fails to reach an Energy Analyzer group object within the set cycle time, the meter will be flagged as "disconnected" in the meter management overview. Therefore the meter's group object must be linked with the corresponding KNX Energy Analyzer group object.

Note

If you enable the *In operation* function, you also need to enable it on the meter you wish to monitor and link the corresponding objects using a group address. Otherwise, power values will not be taken into account when using load control.

ABB i-bus[®] KNX Parameters

—
Dependent parameter

Cycle time

Options: 1...60...65535 s

This parameter determines the interval at which the monitoring function expects a telegram. If the telegram fails to arrive within the set time, operation is interrupted. In this case, check that the monitored device is working correctly.

Note

To ensure a meter is correctly monitored, the cycle time entered here should always be longer than the one set for the meter.

Voltage network

Options: 2-Wire (L, N)
3-Wire (L1, L2, L3)
4-Wire (L1, L2, L3, N)

This parameter determines whether the meter has a 2-, 3- or 4-wire connection and provides a corresponding tab. To use the tab, select the relevant option.

- *2-Wire (L, N)*: The meter is a 2-wire. The group objects for a 2-wire meter appear.
- *3-Wire (L1, L2, L3)*: The meter is a 3-wire. The group objects for a 3-wire meter appear.
- *4-Wire (L1, L2, L3, N)*: The meter is a 4-wire. The group objects for a 4-wire meter appear.

Tariffs

Options: No tariffs
2 tariffs
4 tariffs

This parameter determines whether the meter has a tariff tab. To use the tab, select the relevant option.

- *No tariffs*: The meter has no tariffs.
- *2 tariffs*: The meter has 2 tariffs. The group objects for 2 tariffs appear.
- *4 tariffs*: The meter has 4 tariffs. The group objects for 4 tariffs appear.

Register for exported energy

Options: No
Yes

This parameter determines whether the meter has an exported energy tab. To use the tab, select *Yes*.

- *Yes*: The group objects for exported energy appear.

ABB i-bus[®] KNX Parameters

Data point type for active energy

Options: 13.010 Active Energy (Wh) 4 Byte
 13.013 Active Energy (kWh) 4 Byte
 29.010 Active Energy (Wh) 8 Byte

This parameter determines the data type used to receive active energy. The corresponding group object appears when you make a selection.

Data point type for reactive energy

Options: None
 13.012 Reactive Energy (varh) 4 Byte
 13.015 Reactive Energy (kvarh) 4 Byte
 29.012 Reactive Energy (varh) 8 Byte

This parameter determines the data type used to receive reactive energy. The corresponding group object appears when you make a selection.

Data point type for apparent energy

Options: None
 13.011 Apparent Energy (VAh) 4 Byte
 13.014 Apparent Energy (kVAh) 4 Byte
 29.011 Apparent Energy (VAh) 8 Byte

This parameter determines the data type used to receive apparent energy. The corresponding group object appears when you make a selection.

Send power values to load control

Options: No
 Sum of all phases
 Phase 1
 Phase 2
 Phase 3
 Phase 1, 2
 Phase 1, 3
 Phase 2, 3

This parameter determines which power value from the connected meter is sent to load control and taken into account in the calculation.

- *No*: No power value is sent; the meter is not taken into account in the load control calculation.
- *Sum of all phases*: Sends the total power/sum of all phases
- *Phase 1*: Sends the phase L1 power value
- *Phase 2*: Sends the phase L2 power value
- *Phase 3*: Sends the phase L3 power value
- *Phase 1, 2*: Sends the (sum of the) phase L1 and L2 power values
- *Phase 1, 3*: Sends the (sum of the) phase L1 and L3 power values
- *Phase 2, 3*: Sends the (sum of the) phase L2 and L3 power values

ABB i-bus® KNX Parameters

7.4.3.1 Group objects

ETS numbers group objects dynamically and based on meter parametrization. The numbering in the table below provides a better overview. It only applies if the meter described in this section is the only one connected and if it is parametrized as *Meter 1*.

The group object name also depends on parametrization; it is made up of the meter number and the name of the meter selected in *Device selection*.

No.	Object function	Name	DPT	Length	Flags				
					C	R	W	T	U
31	In operation	Meter x: Gen.El.	1.001	1 bit	X	X		X	
32	Request meter reading	Meter x: Gen.El.	1.017	1 bit	X	X		X	
42	Active energy	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
42	Total active energy	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
43	Active energy tariff 1	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
44	Active energy tariff 2	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
45	Active energy tariff 3	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
46	Active energy tariff 4	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
47	Reactive energy	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
47	Total reactive energy	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
48	Reactive energy tariff 1	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
49	Reactive energy tariff 2	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
50	Reactive energy tariff 3	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
51	Reactive energy tariff 4	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
52	Apparent energy	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
52	Total apparent energy	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
53	Apparent energy tariff 1	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
54	Apparent energy tariff 2	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
55	Apparent energy tariff 3	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
56	Apparent energy tariff 4	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
57	Active energy exported	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
57	Active energy exported total	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
58	Active energy exported trf. 1	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
59	Active energy exported trf. 2	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
60	Active energy exported trf. 3	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X
61	Active energy exported trf. 4	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X		X	X	X

ABB i-bus[®] KNX Parameters

No.	Object function	Name	DPT	Length	Flags				
					C	R	W	T	U
62	Reactive energy exported	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X	X	X	X	
62	Reactive energy exported total	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X	X	X	X	
63	Reactive energy exported trf. 1	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X	X	X	X	
64	Reactive energy exported trf. 2	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X	X	X	X	
65	Reactive energy exported trf. 3	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X	X	X	X	
66	Reactive energy exported trf. 4	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X	X	X	X	
67	Apparent energy exported	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X	X	X	X	
67	Apparent energy exported total	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X	X	X	X	
68	Apparent energy exported tariff 1	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X	X	X	X	
69	Apparent energy exported tariff 2	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X	X	X	X	
70	Apparent energy exported tariff 3	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X	X	X	X	
71	Apparent energy exported tariff 4	Meter x: Gen.El.	Configuration-dependent	Configuration-dependent	X	X	X	X	
72	Active power	Meter x: Gen.El.	14.056	4 bytes	X	X	X	X	
72	Active Power Total	Meter x: Gen.El.	14.056	4 bytes	X	X	X	X	
73	Active Power L1	Meter x: Gen.El.	14.056	4 bytes	X	X	X	X	
74	Active Power L2	Meter x: Gen.El.	14.055	4 bytes	X	X	X	X	
75	Active Power L3	Meter x: Gen.El.	14.055	4 bytes	X	X	X	X	
76	Reactive Power	Meter x: Gen.El.	14.056	4 bytes	X	X	X	X	
76	Reactive Power Total	Meter x: Gen.El.	14.056	4 bytes	X	X	X	X	
77	Reactive Power L1	Meter x: Gen.El.	14.056	4 bytes	X	X	X	X	
78	Reactive Power L2	Meter x: Gen.El.	14.056	4 bytes	X	X	X	X	
79	Reactive Power L3	Meter x: Gen.El.	14.056	4 bytes	X	X	X	X	
80	Apparent power	Meter x: Gen.El.	14.056	4 bytes	X	X	X	X	
80	Apparent power total	Meter x: Gen.El.	14.056	4 bytes	X	X	X	X	
81	Apparent power L1	Meter x: Gen.El.	14.056	4 bytes	X	X	X	X	
82	Apparent power L2	Meter x: Gen.El.	14.056	4 bytes	X	X	X	X	
83	Apparent power L3	Meter x: Gen.El.	14.056	4 bytes	X	X	X	X	
84	Phase angle power	Meter x: Gen.El.	14.055	4 bytes	X	X	X	X	
84	Phase angle power total	Meter x: Gen.El.	14.055	4 bytes	X	X	X	X	
85	Phase angle power L1	Meter x: Gen.El.	14.055	4 bytes	X	X	X	X	
86	Phase angle power L2	Meter x: Gen.El.	14.055	4 bytes	X	X	X	X	
87	Phase angle power L3	Meter x: Gen.El.	14.055	4 bytes	X	X	X	X	
88	Power factor	Meter x: Gen.El.	14.057	4 bytes	X	X	X	X	
88	Power factor total	Meter x: Gen.El.	14.057	4 bytes	X	X	X	X	
89	Power factor L1	Meter x: Gen.El.	14.057	4 bytes	X	X	X	X	
90	Power factor L2	Meter x: Gen.El.	14.057	4 bytes	X	X	X	X	
91	Power factor L3	Meter x: Gen.El.	14.057	4 bytes	X	X	X	X	
92	Current	Meter x: Gen.El.	14.019	4 bytes	X	X	X	X	
92	Current L1	Meter x: Gen.El.	14.019	4 bytes	X	X	X	X	
93	Current L2	Meter x: Gen.El.	14.019	4 bytes	X	X	X	X	
94	Current L3	Meter x: Gen.El.	14.019	4 bytes	X	X	X	X	

ABB i-bus[®] KNX Parameters

No.	Object function	Name	DPT	Length	Flags				
					C	R	W	T	U
95	Current N	Meter x: Gen.El.	14.019	4 bytes	X	X	X	X	
96	Voltage	Meter x: Gen.El.	14.027	4 bytes	X	X	X	X	
96	Voltage L1-N	Meter x: Gen.El.	14.027	4 bytes	X	X	X	X	
97	Voltage L2-N	Meter x: Gen.El.	14.027	4 bytes	X	X	X	X	
98	Voltage L3-N	Meter x: Gen.El.	14.027	4 bytes	X	X	X	X	
99	Voltage L1-L2	Meter x: Gen.El.	14.027	4 bytes	X	X	X	X	
100	Voltage L2-L3	Meter x: Gen.El.	14.027	4 bytes	X	X	X	X	
101	Voltage L1-L3	Meter x: Gen.El.	14.027	4 bytes	X	X	X	X	
102	Frequency	Meter x: Gen.El.	14.033	4 bytes	X	X	X	X	
103	Phase angle current	Meter x: Gen.El.	14.055	4 bytes	X	X	X	X	
103	Phase angle current L1	Meter x: Gen.El.	14.055	4 bytes	X	X	X	X	
104	Phase angle current L2	Meter x: Gen.El.	14.055	4 bytes	X	X	X	X	
105	Phase angle current L3	Meter x: Gen.El.	14.055	4 bytes	X	X	X	X	
106	Phase angle voltage	Meter x: Gen.El.	14.055	4 bytes	X	X	X	X	
106	Phase angle voltage L1	Meter x: Gen.El.	14.055	4 bytes	X	X	X	X	
107	Phase angle voltage L2	Meter x: Gen.El.	14.055	4 bytes	X	X	X	X	
108	Phase angle voltage L3	Meter x: Gen.El.	14.055	4 bytes	X	X	X	X	
109	Quadrant	Meter x: Gen.El.	Non DPT	1 byte	X	X	X	X	
109	Quadrant total	Meter x: Gen.El.	Non DPT	1 byte	X	X	X	X	
110	Quadrant L1	Meter x: Gen.El.	Non DPT	1 byte	X	X	X	X	
111	Quadrant L2	Meter x: Gen.El.	Non DPT	1 byte	X	X	X	X	
112	Quadrant L3	Meter x: Gen.El.	Non DPT	1 byte	X	X	X	X	

No.	Object function	Name	Data type	Flags
31	In operation	Meter x: Gen.El.	1 bit DPT 1.001	C, R, T
<p>This group object is enabled if <i>Communication monitoring</i> is set to <i>Group object "In Operation", value 0, Group object "In Operation", value 1 or Group object "In Operation", both values</i>.</p> <p>To monitor the presence of the meter regularly on the bus, an In operation telegram is sent cyclically to the bus and monitored by the Energy Analyzer. The meter is working correctly if the <i>Status</i> column in the <i>Management > Meter Management > Overview</i> table in the UI is displaying <i>OK</i>.</p> <p>As long as the group object is activated, it receives a parametrizable <i>In operation</i> telegram. The telegram value depends on the option selected in the <i>Communication monitoring</i> parameter. If the telegram fails to arrive within the set send cycle time, the group object is written with 0 (no operation).</p>				
32	Request meter reading	Meter x: Gen.El.	1 bit DPT 1.017	C, R, T
<p>This group object is enabled if <i>Enable Group object "Request meter/sensor reading"</i> is set to <i>Yes</i>. This group object requests the present meter readings by sending a value 1 telegram. The request applies for group objects 42–71. Depending on the meter used, the present meter readings are sent to the bus after the send delay time (if any has been enabled and set).</p> <p>Telegram value: 0 = No function 1 = Request meter reading</p>				

ABB i-bus[®] KNX Parameters

No.	Object function	Name	Data type	Flags
42	Active energy	Meter x: Gen.El.	Configuration-dependent	C, W, T, U
<p>This group object is enabled if <i>Tariffs</i> is set to <i>No tariffs</i>. The data point type depends on the option selected in the <i>Data point type for active energy</i> parameter.</p> <ul style="list-style-type: none"> • DPT 13.010, 4 bytes: The 4-byte group object receives the meter reading for active energy up to a maximum of 2,147,483,647 Wh (2.147 GWh) and a resolution of 1 Wh. • DPT 13.013, 4 bytes: The 4-byte group object receives the meter reading for tariff 1–4 active energy up to a maximum of 2,147,483,647 Wh (2.147 GWh) and a resolution of 1 kWh. • DPT 29.010, 8 bytes: The 8-byte group object receives the meter reading for active energy up to a maximum of 9,223,372,036,854,775,807 Wh. 				
42	Total active energy	Meter x: Gen.El.	Configuration-dependent	C, W, T, U
43	Active energy tariff 1			
44	Active energy tariff 2			
45	Active energy tariff 3			
46	Active energy tariff 4			
<p>These group objects are enabled if <i>Tariffs</i> is set to <i>2 tariffs</i> or <i>4 tariffs</i>. The data point type depends on the option selected in the <i>Data point type for active energy</i> parameter.</p> <ul style="list-style-type: none"> • DPT 13.010, 4 bytes: The 4-byte group object receives the meter reading for total or tariff 1–4 active energy up to a maximum of 2,147,483,647 Wh (2.147 GWh) and a resolution of 1 Wh. • DPT 13.013, 4 bytes: The 4-byte group object receives the meter reading for total or tariff 1–4 active energy up to a maximum of 2,147,483,647 kWh and a resolution of 1 kWh. • DPT 29.010, 8 bytes: The 8-byte group object receives the meter reading for total or tariff 1–4 active energy up to a maximum of 9,223,372,036,854,775,807 Wh. <p>The <i>Total active energy</i> group object indicates the sum of the meter readings of tariff 1 + 2 or tariff 1 + 2 + 3 + 4.</p>				
47	Reactive energy	Meter x: Gen.El.	Configuration-dependent	C, W, T, U
<p>This group object is enabled if <i>Data point type for reactive energy</i> is set to any option other than <i>None</i>, and <i>Tariffs</i> is set to <i>No tariffs</i>. The data point type depends on the option selected in the <i>Data point type for reactive energy</i> parameter.</p> <ul style="list-style-type: none"> • DPT 13.012, 4 bytes: The 4-byte group object receives the meter reading for reactive energy up to a maximum of 2,147,483,647 varh (2.147 Gvarh) and a resolution of 1 varh. • DPT 13.015, 4 bytes: The 4-byte group object receives the meter reading for reactive energy up to a maximum of 2,147,483,647 kvarh and a resolution of 1 kvarh. • DPT 29.012, 8 bytes: The 8-byte group object receives the meter reading for reactive energy up to a maximum of 9,223,372,036,854,775,807 varh. 				
47	Total reactive energy	Meter x: Gen.El.	Configuration-dependent	C, W, T, U
48	Reactive energy tariff 1			
49	Reactive energy tariff 2			
50	Reactive energy tariff 3			
51	Reactive energy tariff 4			
<p>These group objects are enabled if <i>Data point type for reactive energy</i> is set to any option other than <i>None</i>, and <i>Tariffs</i> is set to <i>2 tariffs</i> or <i>4 tariffs</i>. The data point type depends on the option selected in the <i>Data point type for reactive energy</i> parameter.</p> <ul style="list-style-type: none"> • DPT 13.012, 4 bytes: The 4-byte group object receives the meter reading for total or tariff 1–4 reactive energy up to a maximum of 2,147,483,647 varh (2.147 Gvarh) and a resolution of 1 varh. • DPT 13.015, 4 bytes: The 4-byte group object receives the meter reading for total or tariff 1–4 reactive energy up to a maximum of 2,147,483,647 kvarh and a resolution of 1 kvarh. • DPT 29.012, 8 bytes: The 8-byte group object receives the meter reading for total or tariff 1–4 reactive energy up to a maximum of 9,223,372,036,854,775,807 varh. <p>The <i>Total reactive energy</i> group object indicates the sum of the meter readings of tariff 1 + 2 or tariff 1 + 2 + 3 + 4.</p>				

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No.	Object function	Name	Data type	Flags
52	Apparent energy	Meter x: Gen.El.	Configuration-dependent	C, W, T, U
<p>This group object is enabled if <i>Data point type for apparent energy</i> is set to any option other than <i>None</i>, and <i>Tariffs</i> is set to <i>No tariffs</i>. The data point type depends on the option selected in the <i>Data point type for apparent energy</i> parameter.</p> <ul style="list-style-type: none"> • DPT 13.011, 4 bytes: The 4-byte group object receives the meter reading for apparent energy up to a maximum of 2,147,483,647 VAh (2.147 GVAh) and a resolution of 1 VAh. • DPT 13.014, 4 bytes: The 4-byte group object receives the meter reading for apparent energy up to a maximum of 2,147,483,647 kVAh and a resolution of 1 VAh. • DPT 29.011, 8 bytes: The 8-byte group object receives the meter reading for apparent energy up to a maximum of 9,223,372,036,854,775,807 VAh. 				
52 53 54 55 56	Total apparent energy Apparent energy tariff 1 Apparent energy tariff 2 Apparent energy tariff 3 Apparent energy tariff 4	Meter x: Gen.El.	Configuration-dependent	C, W, T, U
<p>These group objects are enabled if <i>Data point type for apparent energy</i> is set to any option other than <i>None</i>, and <i>Tariffs</i> is set to <i>2 tariffs</i> or <i>4 tariffs</i>. The data point type depends on the option selected in the <i>Data point type for apparent energy</i> parameter.</p> <ul style="list-style-type: none"> • DPT 13.011, 4 bytes: The 4-byte group object receives the meter reading for apparent energy up to a maximum of 2,147,483,647 VAh (2.147 GVAh) and a resolution of 1 VAh. • DPT 13.014, 4 bytes: The 4-byte group object receives the meter reading for apparent energy up to a maximum of 2,147,483,647 kVAh and a resolution of 1 kVAh. • DPT 29.011, 8 bytes: The 8-byte group object receives the meter reading for apparent energy up to a maximum of 9,223,372,036,854,775,807 VAh. <p>The <i>Total reactive energy</i> group object indicates the sum of the meter readings of tariff 1 + 2 or tariff 1 + 2 + 3 + 4.</p>				
57	Active energy exported	Meter x: Gen.El.	Configuration-dependent	C, W, T, U
<p>This group object is enabled if <i>Register for exported energy</i> is set to <i>Yes</i>, and <i>Tariffs</i> is set to <i>No tariffs</i>. This group object sends the meter reading for exported active energy (provided the meter supports this). The data point type depends on the option selected in the <i>Data point type for active energy</i> parameter.</p> <ul style="list-style-type: none"> • DPT 13.010, 4 bytes: The 4-byte group object receives the meter reading for exported active energy up to a maximum of 2,147,483,647 Wh (2.147 GWh) and a resolution of 1 Wh. • DPT 13.013, 4 bytes: The 4-byte group object receives the meter reading for tariff 1–4 active energy up to a maximum of 2,147,483,647 kWh and a resolution of 1 kWh. • DPT 29.010, 8 bytes: The 8-byte group object receives the meter reading for exported active energy up to a maximum of 9,223,372,036,854,775,807 Wh. 				

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No.	Object function	Name	Data type	Flags
57	Active energy exported total	Meter x: Gen.El.	Configuration-dependent	C, W, T, U
58	Active energy exported trf. 1			
59	Active energy exported trf. 2			
60	Active energy exported trf. 3			
61	Active energy exported trf. 4			
<p>These group objects are enabled if <i>Register for exported energy</i> is set to <i>Yes</i>, and <i>Tariffs</i> is set to <i>2 tariffs</i> or <i>4 tariffs</i>. These group objects send the meter reading for exported active energy (provided the meter supports this). The data point type depends on the option selected in the <i>Data point type for active energy</i> parameter.</p> <ul style="list-style-type: none"> • DPT 13.010, 4 bytes: The 4-byte group object receives the meter reading for total or tariff 1–4 exported active energy up to a maximum of 2,147,483,647 Wh (2.147 GWh) and a resolution of 1 Wh. • DPT 13.013, 4 bytes: The 4-byte group object receives the meter reading for total or tariff 1–4 exported active energy up to a maximum of 2,147,483,647 kWh and a resolution of 1 Wh. • DPT 29.010, 8 bytes: The 8-byte group object receives the meter reading for total or tariff 1–4 exported active energy up to a maximum of 9,223,372,036,854,775,807 Wh. <p>The <i>Active energy exported total</i> group object indicates the sum of the meter readings of tariff 1 + 2 or tariff 1 + 2 + 3 + 4.</p>				
62	Reactive energy exported	Meter x: Gen.El.	Configuration-dependent	C, W, T, U
<p>This group object is enabled if <i>Register for exported energy</i> is set to <i>Yes</i>, <i>Data point type for reactive energy</i> is set to any option other than <i>None</i>, and <i>Tariffs</i> is set to <i>No tariffs</i>. This group object sends the meter reading for exported reactive energy (provided the meter supports this). The data point type depends on the option selected in the <i>Data point type for reactive energy</i> parameter.</p> <ul style="list-style-type: none"> • DPT 13.012, 4 bytes: The 4-byte group object receives the meter reading for exported reactive energy up to a maximum of 2,147,483,647 varh (2.147 Gvarh) and a resolution of 1 varh. • DPT 13.015, 4 bytes: The 4-byte group object receives the meter reading for exported reactive energy up to a maximum of 2,147,483,647 kvarh and a resolution of 1 kvarh. • DPT 29.012, 8 bytes: The 8-byte group object receives the meter reading for exported reactive energy up to a maximum of 9,223,372,036,854,775,807 varh. 				
62	Reactive energy exported total	Meter x: Gen.El.	Configuration-dependent	C, W, T, U
63	Reactive energy exported trf. 1			
64	Reactive energy exported trf. 2			
65	Reactive energy exported trf. 3			
66	Reactive energy exported trf. 4			
<p>These group objects are enabled if <i>Register for exported energy</i> is set to <i>Yes</i>, <i>Data point type for reactive energy</i> is set to any option other than <i>None</i>, and <i>Tariffs</i> is set to <i>2 tariffs</i> or <i>4 tariffs</i>. These group objects send the meter reading for exported reactive energy (provided the meter supports this). The data point type depends on the option selected in the <i>Data point type for reactive energy</i> parameter.</p> <ul style="list-style-type: none"> • DPT 13.012, 4 bytes: The 4-byte group object receives the meter reading for exported reactive energy up to a maximum of 2,147,483,647 varh (2.147 Gvarh) and a resolution of 1 varh. • DPT 13.015, 4 bytes: The 4-byte group object receives the meter reading for exported reactive energy up to a maximum of 2,147,483,647 kvarh (2.147 Gvarh) and a resolution of 1 kvarh. • DPT 29.012, 8 bytes: The 8-byte group object receives the meter reading for exported reactive energy up to a maximum of 9,223,372,036,854,775,807 varh. <p>The <i>Reactive energy exported total</i> group object indicates the sum of the meter readings of tariff 1 + 2 or tariff 1 + 2 + 3 + 4.</p>				

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No.	Object function	Name	Data type	Flags
67	Apparent energy exported	Meter x: Gen.El.	Configuration-dependent	C, W, T, U
<p>This group object is enabled if <i>Register for exported energy</i> is set to <i>Yes</i>, <i>Data point type for apparent energy</i> is set to any option other than <i>None</i>, and <i>Tariffs</i> is set to <i>No tariffs</i>. This group object sends the meter reading for exported apparent energy (provided the meter supports this). The data point type depends on the option selected in the <i>Data point type for apparent energy</i> parameter.</p> <ul style="list-style-type: none"> • DPT 13.011, 4 bytes: The 4-byte group object receives the meter reading for exported apparent energy up to a maximum of 2,147,483,647 VAh (2.147 GVAh) and a resolution of 1 VAh. • DPT 13.014, 4 bytes: The 4-byte group object receives the meter reading for exported apparent energy up to a maximum of 2,147,483,647 kVAh and a resolution of 1 kVAh. • DPT 29.011, 8 bytes: The 8-byte group object receives the meter reading for exported apparent energy up to a maximum of 9,223,372,036,854,775,807 VAh. 				
67 68 69 70 71	Apparent energy exported total Apparent energy exported tariff 1 Apparent energy exported tariff 2 Apparent energy exported tariff 3 Apparent energy exported tariff 4	Meter x: Gen.El.	Configuration-dependent	C, W, T, U
<p>These group objects are enabled if <i>Register for exported energy</i> is set to <i>Yes</i>, <i>Data point type for apparent energy</i> is set to any option other than <i>None</i>, and <i>Tariffs</i> is set to <i>2 tariffs</i> or <i>4 tariffs</i>. These group objects send the meter reading for exported apparent energy (provided the meter supports this). The data point type depends on the option selected in the <i>Data point type for apparent energy</i> parameter.</p> <ul style="list-style-type: none"> • DPT 13.011, 4 bytes: The 4-byte group object receives the meter reading for exported apparent energy up to a maximum of 2,147,483,647 VAh (2.147 GVAh) and a resolution of 1 VAh. • DPT 13.014, 4 bytes: The 4-byte group object receives the meter reading for exported apparent energy up to a maximum of 2,147,483,647 kVAh and a resolution of 1 kVAh. • DPT 29.011, 8 bytes: The 8-byte group object receives the meter reading for exported apparent energy up to a maximum of 9,223,372,036,854,775,807 VAh. <p>The <i>Apparent energy exported total</i> group object indicates the sum of the meter readings of tariff 1 + 2 or tariff 1 + 2 + 3 + 4.</p>				
72 72 73 74 75	Active Power Active Power Total Active Power L1 Active Power L2 Active Power L3	Meter x: Gen.El.	4 bytes DPT 14.056	C, W, T, U
<p>These group objects are enabled according to the network type setting once <i>Voltage network</i> is set to <i>2-Wire (L, N)</i>, <i>3-Wire (L1, L2, L3)</i> or <i>4-Wire (L1, L2, L3, N)</i>. These group objects receive the instantaneous active power values [W] of phases L1...L3 and the total active power.</p>				
76 76 77 78 79	Reactive Power Reactive Power Total Reactive Power L1 Reactive Power L2 Reactive Power L3	Meter x: Gen.El.	4 bytes DPT 14.056	C, W, T, U
<p>These group objects are enabled if <i>Data point type for reactive energy</i> is set to any option other than <i>None</i> and <i>Voltage network</i> is set to <i>2-Wire (L, N)</i>, <i>3-Wire (L1, L2, L3)</i> or <i>4-Wire (L1, L2, L3, N)</i>. These group objects receive the instantaneous reactive power values of phases L1...L3 and the total reactive power.</p>				

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No.	Object function	Name	Data type	Flags
80	Apparent power	Meter x: Gen.El.	4 bytes DPT 14.056	C, W, T, U
80	Apparent power total			
81	Apparent power L1			
82	Apparent power L2			
83	Apparent power L3			
<p>These group objects are enabled if <i>Data point type for apparent energy</i> is set to any option other than <i>None</i> and <i>Voltage network</i> is set to <i>2-Wire (L, N)</i>, <i>3-Wire (L1, L2, L3)</i> or <i>4-Wire (L1, L2, L3, N)</i>. These group objects receive the instantaneous apparent power values of phases L1...L3 and the total apparent power.</p>				
84	Phase angle power	Meter x: Gen.El.	4 bytes DPT 14.055	C, W, T, U
84	Phase angle power total			
85	Phase angle power L1			
86	Phase angle power L2			
87	Phase angle power L3			
<p>These group objects are enabled if <i>Voltage network</i> is set to <i>2-Wire (L, N)</i>, <i>3-Wire (L1, L2, L3)</i> or <i>4-Wire (L1, L2, L3, N)</i>. These group objects receive the instantaneous phase angles [°] of phases L1...L3 and the total phase angle.</p>				
88	Power factor	Meter x: Gen.El.	4 bytes DPT 14.057	C, W, T, U
88	Power factor total			
89	Power factor L1			
90	Power factor L2			
91	Power factor L3			
<p>These group objects are enabled if <i>Voltage network</i> is set to <i>2-Wire (L, N)</i>, <i>3-Wire (L1, L2, L3)</i> or <i>4-Wire (L1, L2, L3, N)</i>. These group objects receive the instantaneous power factors of phases L1...L3 and the total power factor.</p>				
92	Current	Meter x: Gen.El.	4 bytes DPT 14.019	C, W, T, U
92	Current L1			
93	Current L2			
94	Current L3			
<p>These group objects are enabled if <i>Voltage network</i> is set to <i>2-Wire (L, N)</i>, <i>3-Wire (L1, L2, L3)</i> or <i>4-Wire (L1, L2, L3, N)</i>. These group objects receive the instantaneous L1...L3 phase currents [A].</p>				
95	Current N	Meter x: Gen.El.	4 bytes DPT 14.019	C, W, T, U
<p>This group object is enabled if <i>Voltage network</i> is set to <i>4-Wire (L1, L2, L3, N)</i>. This group object receives the instantaneous current [A] in the neutral conductor.</p>				
96	Voltage	Meter x: Gen.El.	4 bytes DPT 14.027	C, W, T, U
96	Voltage L1-N			
97	Voltage L2-N			
98	Voltage L3-N			
99	Voltage L1-L2			
100	Voltage L2-L3			
101	Voltage L1-L3			
<p>These group objects are enabled if <i>Voltage network</i> is set to <i>2-Wire (L, N)</i>, <i>3-Wire (L1, L2, L3)</i> or <i>4-Wire (L1, L2, L3, N)</i>. These group objects receive the voltages [V] of the individual phases relative to neutral and to each other.</p>				
102	Frequency	Meter x: Gen.El.	4 bytes DPT 14.033	C, W, T, U
<p>This group object is always enabled. This group object receives the instantaneous frequency [Hz] of the voltage network.</p>				

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No.	Object function	Name	Data type	Flags
103	Phase angle current	Meter x: Gen.El.	4 bytes DPT 14.055	C, W, T, U
103	Phase angle current L1			
104	Phase angle current L2			
105	Phase angle current L3			
These group objects are enabled if <i>Voltage network</i> is set to <i>2-Wire (L, N)</i> , <i>3-Wire (L1, L2, L3)</i> or <i>4-Wire (L1, L2, L3, N)</i> . These group objects receive the phase angles [°] of currents L1...L3.				
106	Phase angle voltage	Meter x: Gen.El.	4 bytes DPT 14.055	C, W, T, U
106	Phase angle voltage L1			
107	Phase angle voltage L2			
108	Phase angle voltage L3			
These group objects are enabled if <i>Voltage network</i> is set to <i>2-Wire (L, N)</i> , <i>3-Wire (L1, L2, L3)</i> or <i>4-Wire (L1, L2, L3, N)</i> . These group objects receive the phase angles [°] of currents L1...L3.				
109	Quadrant	Meter x: Gen.El.	1 byte Non DPT	C, W, T, U
109	Quadrant total			
110	Quadrant L1			
111	Quadrant L2			
112	Quadrant L3			
These group objects are enabled if <i>Voltage network</i> is set to <i>2-Wire (L, N)</i> , <i>3-Wire (L1, L2, L3)</i> or <i>4-Wire (L1, L2, L3, N)</i> . These group objects send the quadrants in which the meter measures.				

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7.4.4

Gas (generic)

Selecting *Gas (generic)* provides the following options:

General	Device selection	Gas (generic) ▼
Load Control	Name	<input type="text"/>
- Meter 1	Location	<input type="text"/>
	Serial number	<input type="text"/>
Gas	Enable Group object "Request meter/sensor reading"	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Meter 2	Communication monitoring	No ▼
+ Meter 3	Receive consumption	No ▼
+ Meter 4	Receive flow rate	No ▼

Name

In this field, you can enter a unique name for the meter. It is used for identification purposes, for example, if there are several identical meters in a single installation. The name you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

Location

Here you can enter the installation location for the meter. It is used for location purposes, for example, if there are several identical meters in a single installation. The installation location you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

Serial number

This field lets you enter a serial number or ID number for the meter. This is another way to identify it if there are several identical meters in a single installation. The serial number you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

Enable Group object "Request meter/sensor reading"

Options: No Yes

This parameter determines whether meter readings are received via a separate group object.

- **Yes:** Shows the *Request meter reading* group object. This group object enables active reading of the instantaneous meter readings. Readings from connected meters are requested one after the other roughly every 60 seconds.

Note

The connected meter must support this function and provide a corresponding group object in order for the meter reading to be requested.

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Communication monitoring

Options: No
Group object "In Operation", value 0
Group object "In Operation", value 1
Group object "In Operation", both values
General monitoring

This parameter determines whether the *In operation* group object monitors the presence of the meter on the bus.

Note

The connected meter must support the *In operation* function and be able to send a corresponding group object. Otherwise, select *General monitoring*.

- *No*: No monitoring
- *Yes, value 0*: Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 0 telegram from the meter within the cycle time.
- *Yes, value 1*: Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 1 telegram from the meter within the cycle time.
- *Yes, both values*: Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 0 or 1 telegram from the meter within the cycle time.
- *General monitoring*: If any telegram fails to reach an Energy Analyzer group object within the set cycle time, the meter will be flagged as "disconnected" in the meter management overview. Therefore the meter's group object must be linked with the corresponding KNX Energy Analyzer group object.

Dependent parameter

Cycle time

Options: 1...60...65535 s

This parameter determines the interval at which the monitoring function expects a telegram. If the telegram fails to arrive within the set time, operation is interrupted. In this case, check that the monitored device is working correctly.

Note

To ensure a meter is correctly monitored, the cycle time entered here should always be longer than the one set for the meter.

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Receive consumption

Options: No
14.076 (F32) Volume (m³)
12.xxx (U32) Volume (m³)
12.xxx (U32) Volume (l)

This parameter determines the data type used to receive gas consumption. The corresponding group object appears when you make a selection.

Receive flow rate

Options: No
14.077 (F32) Flow rate (m³/s)
12.xxx (U32) Flow rate (m³/h)
12.xxx (U32) Flow rate (l/h)
13.002 (S32) Flow rate (m³/h)

This parameter determines the data type used to receive flow rate. The corresponding group object appears when you make a selection.

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7.4.4.1 Group objects

ETS numbers group objects dynamically and based on meter parametrization. The numbering in the table below provides a better overview. It only applies if the meter described in this section is the only one connected and if it is parametrized as *Meter 1*.

The group object name also depends on parametrization; it is made up of the meter number and the name of the meter selected in *Device selection*.

No.	Object function	Name	DPT	Length	Flags				
					C	R	W	T	U
31	In operation	Meter x: Gas	1.001	1 bit	X	X		X	
32	Request meter reading	Meter x: Gas	1.017	1 bit	X	X		X	
41	Volume	Meter x: Gas	Configuration-dependent	4 bytes	X		X	X	X
42	Flow rate	Meter x: Gas	Configuration-dependent	4 bytes	X		X	X	X

No.	Object function	Name	Data type	Flags
31	In operation	Meter x: Gas	1 bit DPT 1.001	C, R, T
<p>This group object is enabled if <i>Communication monitoring</i> is set to <i>Group object "In Operation", value 0, Group object "In Operation", value 1 or Group object "In Operation", both values</i>.</p> <p>To monitor the presence of the meter regularly on the bus, an In operation telegram is sent cyclically to the bus and monitored by the Energy Analyzer. The meter is working correctly if the <i>Status</i> column in the <i>Management > Meter Management > Overview</i> table in the UI is displaying <i>OK</i>.</p> <p>As long as the group object is activated, it receives a parametrizable <i>In operation</i> telegram. The telegram value depends on the option selected in the <i>Communication monitoring</i> parameter. If the telegram fails to arrive within the set send cycle time, the group object is written with 0 (no operation).</p>				
32	Request meter reading	Meter x: Gas	1 bit DPT 1.017	C, R, T
<p>This group object is enabled if <i>Enable Group object "Request meter/sensor reading"</i> is set to <i>Yes</i>.</p> <p>This group object requests the present meter readings by sending a value 1 telegram. Depending on the meter used, the present meter readings are sent to the bus after the send delay time (if any has been enabled and set).</p> <p>Telegram value: 0 = No function 1 = Request meter reading</p>				
41	Volume	Meter x: Gas	4 bytes DPT configuration-dependent	C, W, T, U
<p>This group object is enabled if <i>Receive consumption</i> is set to any option other than <i>No</i>. The data point type is dependent on the option selected.</p> <p>The 4-byte group object receives the volume meter reading.</p> <ul style="list-style-type: none"> • DPT 14.076, 4 bytes, [m³] • DPT 12.xxx, 4 bytes, [m³] • DPT 12.xxx, 4 bytes, [l] 				
45	Flow rate	Meter x: Gas	4 bytes DPT configuration-dependent	C, W, T, U
<p>This group object is enabled if <i>Receive flow rate</i> is set to any option other than <i>No</i>. The data point type is dependent on the option selected.</p> <p>The 4-byte group object receives the flow rate.</p> <ul style="list-style-type: none"> • DPT 14.077, 4 bytes, [m³/s] • DPT 12.xxx, 4 bytes, [m³/h] • DPT 12.xxx, 4 bytes, [l/h] • DPT 13.002, 4 bytes, [m³/h] 				

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7.4.5

Water (generic)

Selecting *Water (generic)* provides the following options:

General	Device selection	Water (generic) ▼
Load Control	Name	<input type="text"/>
- Meter 1	Location	<input type="text"/>
	Serial number	<input type="text"/>
Water	Enable Group object "Request meter/sensor reading"	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Meter 2	Communication monitoring	No ▼
+ Meter 3	Receive consumption	No ▼
+ Meter 4	Receive flow rate	No ▼

Name

In this field, you can enter a unique name for the meter. It is used for identification purposes, for example, if there are several identical meters in a single installation. The name you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

Location

Here you can enter the installation location for the meter. It is used for location purposes, for example, if there are several identical meters in a single installation. The installation location you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

Serial number

This field lets you enter a serial number or ID number for the meter. This is another way to identify it if there are several identical meters in a single installation. The serial number you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

Enable Group object "Request meter/sensor reading"

Options: No Yes

This parameter determines whether meter readings are received via a separate group object.

- **Yes:** Shows the *Request meter reading* group object. This group object enables active reading of the instantaneous meter readings. Readings from connected meters are requested one after the other roughly every 60 seconds.

Note

The connected meter must support this function and provide a corresponding group object in order for the meter reading to be requested.

ABB i-bus[®] KNX Parameters

Communication monitoring

Options: No
Group object "In Operation", value 0
Group object "In Operation", value 1
Group object "In Operation", both values
General monitoring

This parameter determines whether the *In operation* group object monitors the presence of the meter on the bus.

Note

The connected meter must support the *In operation* function and be able to send a corresponding group object. Otherwise, select *General monitoring*.

- *No*: No monitoring
- *Yes, value 0*: Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 0 telegram from the meter within the cycle time.
- *Yes, value 1*: Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 1 telegram from the meter within the cycle time.
- *Yes, both values*: Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 0 or 1 telegram from the meter within the cycle time.
- *General monitoring*: If any telegram fails to reach an Energy Analyzer group object within the set cycle time, the meter will be flagged as "disconnected" in the meter management overview. Therefore the meter's group object must be linked with the corresponding KNX Energy Analyzer group object.

—
Dependent parameter

Cycle time

Options: 1...60...65535 s

This parameter determines the interval at which the monitoring function expects a telegram. If the telegram fails to arrive within the set time, operation is interrupted. In this case, check that the monitored device is working correctly.

Note

To ensure a meter is correctly monitored, the cycle time entered here should always be longer than the one set for the meter.

ABB i-bus[®] KNX Parameters

Receive consumption

Options: No
14.076 (F32) Volume (m³)
12.xxx (U32) Volume (m³)
12.xxx (U32) Volume (l)

This parameter determines the data type used to receive water consumption. The corresponding group object appears when you make a selection.

Receive flow rate

Options: No
14.077 (F32) Flow rate (m³/s)
12.xxx (U32) Flow rate (m³/h)
12.xxx (U32) Flow rate (l/h)
13.002 (S32) Flow rate (m³/h)

This parameter determines the data type used to receive flow rate. The corresponding group object appears when you make a selection.

ABB i-bus[®] KNX Parameters

7.4.5.1 Group objects

ETS numbers group objects dynamically and based on meter parametrization. The numbering in the table below provides a better overview. It only applies if the meter described in this section is the only one connected and if it is parametrized as *Meter 1*.

The group object name also depends on parametrization; it is made up of the meter number and the name of the meter selected in *Device selection*.

No.	Object function	Name	DPT	Length	Flags				
					C	R	W	T	U
31	In operation	Meter x: Water	1.001	1 bit	X	X		X	
32	Request meter reading	Meter x: Water	1.017	1 bit	X	X		X	
41	Volume	Meter x: Water	Configuration-dependent	4 bytes	X		X	X	X
42	Flow rate	Meter x: Water	Configuration-dependent	4 bytes	X		X	X	X

No.	Object function	Name	Data type	Flags
31	In operation	Meter x: Water	1 bit DPT 1.001	C, R, T
<p>This group object is enabled if <i>Communication monitoring</i> is set to <i>Group object "In Operation", value 0, Group object "In Operation", value 1 or Group object "In Operation", both values</i>.</p> <p>To monitor the presence of the meter regularly on the bus, an In operation telegram is sent cyclically to the bus and monitored by the Energy Analyzer. The meter is working correctly if the <i>Status</i> column in the <i>Management > Meter Management > Overview</i> table in the UI is displaying <i>OK</i>.</p> <p>As long as the group object is activated, it receives a parametrizable <i>In operation</i> telegram. The telegram value depends on the option selected in the <i>Communication monitoring</i> parameter. If the telegram fails to arrive within the set send cycle time, the group object is written with 0 (no operation).</p>				
32	Request meter reading	Meter x: Water	1 bit DPT 1.017	C, R, T
<p>This group object is enabled if <i>Enable Group object "Request meter/sensor reading"</i> is set to <i>Yes</i>.</p> <p>This group object requests the present meter readings by sending a value 1 telegram. Depending on the meter used, the present meter readings are sent to the bus after the send delay time (if any has been enabled and set).</p> <p>Telegram value: 0 = No function 1 = request meter reading</p>				
41	Volume	Meter x: Water	4 bytes DPT configuration-dependent	C, W, T, U
<p>This group object is enabled if <i>Receive consumption</i> is set to any option other than <i>No</i>. The data point type is dependent on the option selected.</p> <p>The 4-byte group object receives the volume meter reading.</p> <ul style="list-style-type: none"> • DPT 14.076, 4 bytes, [m³] • DPT 12.xxx, 4 bytes, [m³] • DPT 12.xxx, 4 bytes, [l] 				
45	Flow rate	Meter x: Water	4 bytes DPT configuration-dependent	C, W, T, U
<p>This group object is enabled if <i>Receive flow rate</i> is set to any option other than <i>No</i>. The data point type is dependent on the option selected.</p> <p>The 4-byte group object receives the flow rate.</p> <ul style="list-style-type: none"> • DPT 14.077, 4 bytes, [m³/s] • DPT 12.xxx, 4 bytes, [m³/h] • DPT 12.xxx, 4 bytes, [l/h] • DPT 13.002, 4 bytes, [m³/h] 				

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7.4.6

Heat (generic)

Selecting *Heat (generic)* provides the following options:

General	Device selection	Heat (generic) ▼
Load Control	Name	<input type="text"/>
- Meter 1	Location	<input type="text"/>
	Serial number	<input type="text"/>
Heat	Enable Group object "Request meter/sensor reading"	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Meter 2	Communication monitoring	No ▼
+ Meter 3	Data point type for heating energy	13.010 (V32) Active Energy (Wh) ▼
+ Meter 4	Data point type for cooling energy	No ▼
+ Meter 5	Receive volume consumption	No ▼
+ Meter 6	Receive active energy	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Meter 7	Receive flow rate	No ▼

Name

In this field, you can enter a unique name for the meter. It is used for identification purposes, for example, if there are several identical meters in a single installation. The name you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

Location

Here you can enter the installation location for the meter. It is used for location purposes, for example, if there are several identical meters in a single installation. The installation location you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

Serial number

This field lets you enter a serial number or ID number for the meter. This is another way to identify it if there are several identical meters in a single installation. The serial number you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

Enable Group object "Request meter/sensor reading"

Options: No Yes

This parameter determines whether meter readings are received via a separate group object.

- **Yes:** Shows the *Request meter reading* group object. This group object enables active reading of the instantaneous meter readings. Readings from connected meters are requested one after the other roughly every 60 seconds.

Note

The connected meter must support this function and provide a corresponding group object in order for the meter reading to be requested.

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Communication monitoring

Options: No
Group object "In Operation", value 0
Group object "In Operation", value 1
Group object "In Operation", both values
General monitoring

This parameter determines whether the *In operation* group object monitors the presence of the meter on the bus.

Note

The connected meter must support the *In operation* function and be able to send a corresponding group object. Otherwise, select *General monitoring*.

- *No*: No monitoring
- *Yes, value 0*: Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 0 telegram from the meter within the cycle time.
- *Yes, value 1*: Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 1 telegram from the meter within the cycle time.
- *Yes, both values*: Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 0 or 1 telegram from the meter within the cycle time.
- *General monitoring*: If any telegram fails to reach an Energy Analyzer group object within the set cycle time, the meter will be flagged as "disconnected" in the meter management overview. Therefore the meter's group object must be linked with the corresponding KNX Energy Analyzer group object.

—
Dependent parameter

Cycle time

Options: 1...60...65535 s

This parameter determines the interval at which the monitoring function expects a telegram. If the telegram fails to arrive within the set time, operation is interrupted. In this case, check that the monitored device is working correctly.

Note

To ensure a meter is correctly monitored, the cycle time entered here should always be longer than the one set for the meter.

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Data point type for heating energy

Options: 13.010 (V32) Active Energy (Wh)
13.013 (V32) Active Energy (kWh)
112.xxx (U32) Active Energy (kWh)
12.xxx (U32) Active Energy (MWh)

This parameter determines the data type used to receive heating energy meter readings. The corresponding group object appears when you make a selection.

Data point type for cooling energy

Options: No
13.010 (V32) Active Energy (Wh)
13.013 (V32) Active Energy (kWh)
12.xxx (U32) Active Energy (kWh)
12.xxx (U32) Active Energy (MWh)

This parameter determines the data type used to receive cooling energy meter readings. The corresponding group object appears when you make a selection.

Receive volume consumption

Options: No
14.076 (F32) Volume (m³)
12.xxx (U32) Volume (m³)
12.xxx (U32) Volume (l)

This parameter determines the data type used to receive accumulated volume. The corresponding group object appears when you make a selection.

Receive active energy

Options: No
Yes

This parameter determines the data type used to receive active energy. The corresponding group object appears when you make a selection.

- *No*: No action
- *Yes*: The group object for receiving heating energy appears.

Receive flow rate

Options: No
14.077 (F32) Flow rate (m³/s)
12.xxx (U32) Flow rate (m³/h)
12.xxx (U32) Flow rate (l/h)
13.002 (S32) Flow rate (m³/h)

This parameter determines the data type used to receive flow rate. The corresponding group object appears when you make a selection.

ABB i-bus[®] KNX Parameters

7.4.6.1 Group objects

ETS numbers group objects dynamically and based on meter parametrization. The numbering in the table below provides a better overview. It only applies if the meter described in this section is the only one connected and if it is parametrized as *Meter 1*.

The group object name also depends on parametrization; it is made up of the meter number and the name of the meter selected in *Device selection*.

No.	Object function	Name	DPT	Length	Flags				
					C	R	W	T	U
31	In operation	Meter x: Heat	1.001	1 bit	X	X		X	
32	Request meter reading	Meter x: Heat	1.017	1 bit	X	X		X	
41	Heating energy	Meter x: Heat	Configuration-dependent	4 bytes	X		X	X	X
42	Cooling energy	Meter x: Heat	Configuration-dependent	4 bytes	X		X	X	X
43	Volume	Meter x: Heat	Configuration-dependent	4 bytes	X		X	X	X
44	Active power	Meter x: Heat	14.056	4 bytes	X		X	X	X
45	Flow rate	Meter x: Heat	Configuration-dependent	4 bytes	X		X	X	X
46	Flow temperature	Meter x: Heat	9.001	2 bytes	X		X	X	X
47	Return temperature	Meter x: Heat	9.001	2 bytes	X		X	X	X
48	Temperature difference	Meter x: Heat	9.001	2 bytes	X		X	X	X

No.	Object function	Name	Data type	Flags
31	In operation	Meter x: Heat	1 bit DPT 1.001	C, R, T
<p>This group object is enabled if <i>Communication monitoring</i> is set to <i>Group object "In Operation", value 0</i>, <i>Group object "In Operation", value 1</i> or <i>Group object "In Operation", both values</i>.</p> <p>To monitor the presence of the meter regularly on the bus, an In operation telegram is sent cyclically to the bus and monitored by the Energy Analyzer. The meter is working correctly if the <i>Status</i> column in the <i>Management > Meter Management > Overview</i> table in the UI is displaying <i>OK</i>.</p> <p>As long as the group object is activated, it receives a parametrizable <i>In operation</i> telegram. The telegram value depends on the option selected in the <i>Communication monitoring</i> parameter. If the telegram fails to arrive within the set send cycle time, the group object is written with 0 (no operation).</p>				
32	Request meter reading	Meter x: Heat	1 bit DPT 1.017	C, R, T
<p>This group object is enabled if <i>Enable Group object "Request meter/sensor reading"</i> is set to <i>Yes</i>.</p> <p>This group object requests the present meter readings by sending a value 1 telegram. Depending on the meter used, the present meter readings are sent to the bus after the send delay time (if any has been enabled and set).</p> <p>Telegram value 0 = No function 1 = Request meter reading</p>				
41	Heating energy	Meter x: Heat	Configuration-dependent	C, W, T, U
<p>This group object is always enabled. The data point type depends on the option selected in the <i>Data point type for heating energy</i> parameter. This group object receives total active energy and total heating energy.</p> <p>13.010 (V32) Active Energy (Wh) 13.013 (V32) Active Energy (kWh) 12.xxx (U32) Active Energy (kWh) 12.xxx (U32) Active Energy (MWh)</p>				

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No.	Object function	Name	Data type	Flags
42	Cooling energy	Meter x: Heat	Configuration-dependent	C, W, T, U
<p>This group object is enabled if <i>Data point type for cooling energy</i> is set to any option other than <i>No</i>. The data point type is dependent on the option selected. This group object receives total cooling energy.</p> <p>13.010 (V32) Active Energy (Wh) 13.013 (V32) Active Energy (kWh) 12.xxx (U32) Active Energy (kWh) 12.xxx (U32) Active Energy (MWh)</p>				
41	Volume	Meter x: Heat	4 bytes DPT configuration-dependent	C, W, T, U
<p>This group object is enabled if <i>Receive volume consumption</i> is set to any option other than <i>No</i>. The data point type is dependent on the option selected. This group object receives the volume meter reading.</p> <p>14.076 (F32) Volume (m3) 12.xxx (U32) Volume (m3) 12.xxx (U32) Volume (l)</p>				
44	Active power	Meter x: Heat	4 bytes DPT 14.056	C, W, T, U
<p>This group object is enabled if <i>Receive active energy</i> is set to <i>Yes</i>. This group object receives the present total active heating/cooling power.</p>				
45	Flow rate	Meter x: Heat	4 bytes DPT configuration-dependent	C, W, T, U
<p>This group object is enabled if <i>Receive flow rate</i> is set to any option other than <i>No</i>. The data point type is dependent on the option selected. This group object receives the present (volume) flow rate.</p> <p>14.077 (F32) Flow rate (m3/s) 12.xxx (U32) Flow rate (m3/h) 12.xxx (U32) Flow rate (l/h) 13.002 (S32) Flow rate (m3/h)</p>				
46	Flow temperature	Meter x: Heat	2 bytes DPT 9.001	C, W, T, U
<p>This group object is always enabled. This group object receives the present supply flow temperature.</p>				
47	Return temperature	Meter x: Heat	2 bytes DPT 9.001	C, W, T, U
<p>This group object is always enabled. This group object receives the present return flow temperature.</p>				
48	Temperature difference	Meter x: Heat	2 bytes DPT 9.001	C, W, T, U
<p>This group object is always enabled. This group object receives the present temperature difference.</p>				

ABB i-bus[®] KNX Parameters

7.4.7 Measurement

The Energy Analyzer lets you capture up to ten different measured values and/or environmental parameters per configured sensor and display them on the UI. When combined with the alarm function, it can send an email notification whenever a threshold is exceeded.

Selecting *Measurement* provides the following options:

General	Device selection	Measurement
Load Control	Name	
- Meter 1	Location	
	Serial number	
Sensor	Enable Group object "Request meter/sensor reading"	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Meter 2	Communication monitoring	No
+ Meter 3	Value 1	Not used
+ Meter 4	Value 2	Not used
+ Meter 5	Value 3	Not used
+ Meter 6	Value 4	Not used
+ Meter 7	Value 5	Not used
+ Meter 8	Value 6	Not used
+ Meter 9	Value 7	Not used
+ Meter 10	Value 8	Not used
+ Meter 11	Value 9	Not used
	Value 10	Not used

Name

In this field, you can enter a unique name for the sensor. It is used for identification purposes, for example, if there are several identical sensors in a single installation. The name you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

Location

Here you can enter the installation location for the sensor. It is used for location purposes, for example, if there are several identical sensors in a single installation. The installation location you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

Serial number

This field lets you enter a serial number or ID number for the sensor. This is another way to identify it if there are several identical sensors in a single installation. The serial number you enter will appear in the UI in *Management > Meter Management* (see [7.5.4.1, Meter Management](#)).

ABB i-bus[®] KNX Parameters

Enable Group object "Request meter/sensor reading"

Options: No
Yes

This parameter determines whether meter readings/measured values are received via a separate group object.

- **Yes:** Shows the *Request meter/sensor reading* group object. This group object enables active reading of the present meter readings/measured values. Readings/measured values from connected meters/sensors are requested one after the other roughly every 60 seconds.

Note

The connected meter/sensor must support this function and provide a corresponding group object in order for the meter reading/measured value to be requested.

Communication monitoring

Options: No
Group object "In Operation", value 0
Group object "In Operation", value 1
Group object "In Operation", both values
General monitoring

This parameter determines whether the *In operation* group object monitors the presence of the sensor on the bus.

Note

The connected sensor must support the *In operation* function and be able to send a corresponding group object. Otherwise, select *General monitoring*.

- **No:** No monitoring
- **Yes, value 0:** Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 0 telegram from the sensor within the cycle time.
- **Yes, value 1:** Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 1 telegram from the sensor within the cycle time.
- **Yes, both values:** Shows the *In operation* group object and the *Cycle time* parameter. The group object expects a value 0 or 1 telegram from the sensor within the cycle time.
- **General monitoring:** If any telegram fails to reach an Energy Analyzer group object within the set cycle time, the sensor will be flagged as "disconnected" in the meter management overview. Therefore the sensor's group object must be linked with the corresponding KNX Energy Analyzer group object.

ABB i-bus[®] KNX Parameters

—
Dependent parameter

Cycle time

Options: 1...60...65535 s

This parameter determines the interval at which the monitoring function expects a telegram. If the telegram fails to arrive within the set time, operation is interrupted. In this case, check that the monitored device is working correctly.

Note

To ensure a sensor is correctly monitored, the cycle time entered here should always be longer than the one set for the sensor.

Value 1...Value 10

Options: Not used
9.001 (F16) Temperature (°C)
9.027 (F16) Temperature (°F)
5.001 (U8) Rel. Humidity
9.007 (U8) Rel. Humidity
9.008 (F16) CO2/Air Quality
7.001 (U16) PM2.5
7.001 (U16) PM10
9.005 (F16) Wind Speed
9.004 (F16) Brightness

This parameter defines which measured value is received. The corresponding group object appears based on your selection.

- *Not used*: No measured values are received.
- *9.001 (F16) Temperature (°C)*: The group object for receiving temperature in °C appears.
- *9.027 (F16) Temperature (°F)*: The group object for receiving temperature in °F appears.
- *5.001 (U8) Rel. Humidity*: The group object for receiving relative humidity in % (1-byte-value) appears.
- *9.007 (U8) Rel. Humidity*: The group object for receiving relative humidity in % (2-bytes-value) appears.
- *9.008 (F16) C CO2/Air Quality*: The group object for receiving air quality in ppm appears.
- *7.001 (U16) PM2.5*: The group object for receiving PM2.5 particulate matter appears.
- *7.001 (U16) PM10*: The group object for receiving PM10 particulate matter appears.
- *9.005 (F16) Wind Speed*: The group object for receiving wind speed in m/s appears.
- *9.004 (F16) Brightness*: The group object for receiving brightness in lux appears.

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Parameters

Note

Sensors (e.g. for temperature or CO₂), must send the measured values cyclically. Take account of this when parametrizing them. If a sensor is parametrized to send values after a change or on request, the system cannot be guaranteed to work correctly.

The value is updated on the UI according to the set cycle time.

Consequently, a sensor value may take time to appear on the UI after (initial) commissioning.

E.g.: If a temperature sensor has a cycle time setting of 60 minutes, it may take up to 60 minutes before the first temperature value appears on the UI. Thereafter, the value is updated every 60 minutes.

If no sensor value appears after the set time, check the configuration and installation.

- Check that the sensor's device and parameter settings are working correctly
- Check KNX communication

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7.4.7.1 Group objects

ETS numbers group objects dynamically and based on meter parametrization. The numbering in the table below provides a better overview. It only applies if the sensor described in this section is the only one connected and if it is parametrized as *Meter 1*.

The group object name also depends on parametrization; it is made up of the meter number and the name of the meter selected in *Device selection*.

No.	Object function	Name	DPT	Length	Flags				
					C	R	W	T	U
31	In operation	Meter x: Measurement	1.001	1 bit	X	X		X	
32	Request meter/sensor reading	Meter x: Measurement	1.017	1 bit	X	X		X	
41	Value 1	Meter x: Measurement	Configuration-dependent	Configuration-dependent	X		X	X	X
42	Value 2	Meter x: Measurement	Configuration-dependent	Configuration-dependent	X		X	X	X
43	Value 3	Meter x: Measurement	Configuration-dependent	Configuration-dependent	X		X	X	X
44	Value 4	Meter x: Measurement	Configuration-dependent	Configuration-dependent	X		X	X	X
45	Value 5	Meter x: Measurement	Configuration-dependent	Configuration-dependent	X		X	X	X
46	Value 6	Meter x: Measurement	Configuration-dependent	Configuration-dependent	X		X	X	X
47	Value 7	Meter x: Measurement	Configuration-dependent	Configuration-dependent	X		X	X	X
48	Value 8	Meter x: Measurement	Configuration-dependent	Configuration-dependent	X		X	X	X
49	Value 9	Meter x: Measurement	Configuration-dependent	Configuration-dependent	X		X	X	X
50	Value 10	Meter x: Measurement	Configuration-dependent	Configuration-dependent	X		X	X	X

No.	Object function	Name	Data type	Flags
31	In operation	Meter x: Measurement	1 bit DPT 1.001	C, R, T
<p>This group object is enabled if <i>Communication monitoring</i> is set to <i>Group object "In Operation", value 0</i>, <i>Group object "In Operation", value 1</i> or <i>Group object "In Operation", both values</i>.</p> <p>To monitor the presence of the sensor regularly on the bus, an <i>In operation</i> telegram is sent cyclically to the bus and monitored by the Energy Analyzer. The sensor is working correctly if the <i>Status</i> column in the <i>Management > Meter Management > Overview</i> table in the UI is displaying <i>OK</i>.</p> <p>As long as the group object is activated, it receives a parametrizable <i>In operation</i> telegram. The telegram value depends on the option selected in the <i>Communication monitoring</i> parameter. If the telegram fails to arrive within the set send cycle time, the group object is written with 0 (no operation).</p>				
32	Request meter/sensor reading	Meter x: Measurement	1 bit DPT 1.017	C, R, T
<p>This group object is enabled if <i>Enable Group object "Request meter/sensor reading"</i> is set to <i>Yes</i>.</p> <p>This group object requests the present measured values by sending a value 1 telegram. Depending on the sensor used, the present measured values are sent to the bus after the send delay time (if any has been enabled and set).</p> <p>Telegram value 0 = No function 1 = Request meter reading</p>				
41	Value 1...10	Meter x: Measurement	Configuration-dependent	C, W, T, U
<p>This group object is enabled if <i>Value 1...Value 10</i> is set to any option other than <i>Not used</i>. The data type depends on the option selected in the <i>Value 1...Value 10</i> parameter.</p>				

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7.5 User interface

Users can navigate around the system using the main menu at the top of the user interface screen. Depending on the selection, a submenu may be displayed.



No.	Heading	Description
①	Dashboard	Customizable dashboard for displaying the most important data and measured values.
②	Analytics	Detailed analysis of costs, consumption, instantaneous values, benchmarks and comparison functions by consumer. Further processing and export of data and analyses. Automatic report function via email or FTP.
③	Load control	Power dependent load control for switching loads and consumers on and off.
④	Management	Used to commission and manage the devices/meters, metering structures, users, tariffs/units and data transfer.
⑤	System	Basic device and system settings, e.g. date, time etc. as well as diagnostics.
⑥	Date and time	Displays the current system date and time. Clicking this field displays the date and time setting options.
⑦	Notifications	Displays notifications such as: <ul style="list-style-type: none"> • Available system updates • Errors from connected meters: timeouts/conflicts, short circuits, etc. • Alarm notification: threshold exceeded • Time synchronization: no connection to NTP server
⑧	Favorites	Quick access to previously configured analyses.
⑨	User profile	Displays user settings and information such as name, password and access rights. The user language as well as the log-out options can be set.
⑩	System information	Displays device information such as type, name, current firmware version, serial number, and terms and conditions of use.
⑪	Logout	Used to log out and end a session.

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7.5.1 Dashboard

The dashboard provides a rapid overview of costs and consumption figures in the building. Users can configure customized views using widgets. A widget is a configurable graphic display element. Widgets are configured in edit mode .

Note

Data for evaluation and analysis are not yet available after commissioning. This means that the dashboard is empty at that point. Make sure that connected devices are configured and that at least one meter is assigned to the metering structure.

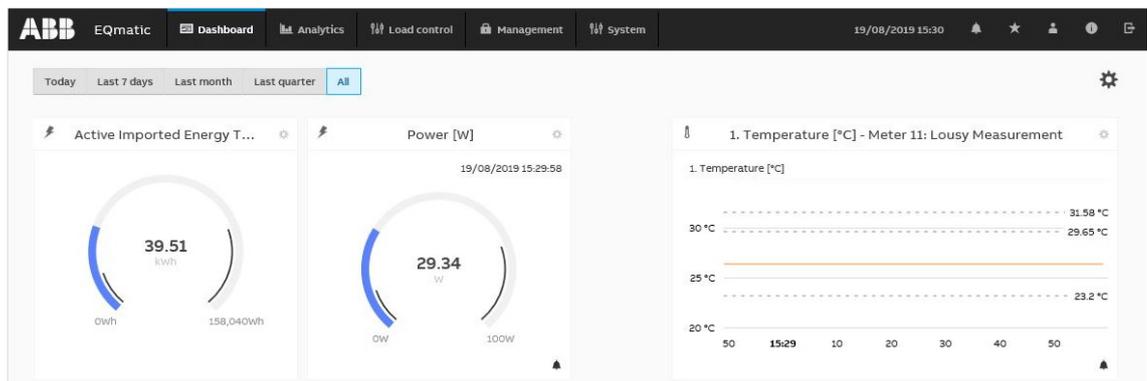
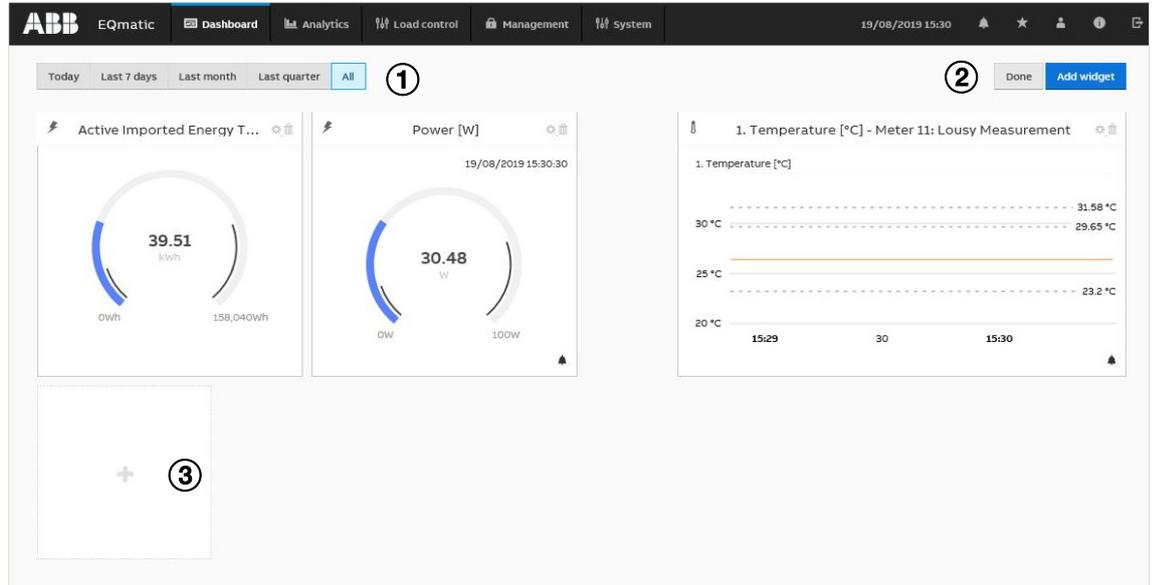


ABB i-bus[®] KNX Parameters

7.5.1.1

Edit mode

To enter edit mode, click the  button.



No.	Heading	Description
①	Presets	Selects and displays current day, week, month, year, all. Presets are shown dynamically, depending on the measuring period. The selection of the presets only relates to widgets that display consumption and/or historical data (Widget: Usage split, Historical data, Consumer ranking and Total values). Instantaneous values (e.g. power, voltage etc.) are excluded from this.
②	Edit	After activating the edit mode, the following options are available for the widgets: Add widget Place widget using drag & drop Enlarge/reduce widget Configure widget Delete widget Save
③	Add widget	After clicking the Add widget option, a selection of available widgets is displayed. Only displayed in edit mode. Depending on the desired size of the widget, a maximum of 24 widgets can be displayed in the dashboard.

ABB i-bus[®] KNX Parameters

7.5.1.2 Adding a widget

Widgets are used to configure and lay out the dashboard.

The following widgets are available:

- Instantaneous Values
- Usage Split
- Historical Data
- Consumer Ranking
- Total values (performance indicators)

To add a widget to the dashboard, activate edit mode  and click the "Add widget" button.

The window containing available widgets opens.

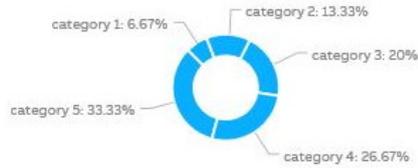
Select the widget you require and make your settings for the widget. Save the widget and settings using the "Save" button. The widget will now be displayed on the dashboard.

Add new widget

Instantaneous values



Usage Split



Historical Data



Consumer Ranking



Total values

DATA POINT	PREVIOUS VALUE	CURRENT VALUE	CHANGE
⚡ Electricity			
Cost	4.40 EUR	4.88 EUR	10.91% ↑
Totals			
Cost	4.40 EUR	4.88 EUR	10.91% ↑

Cancel

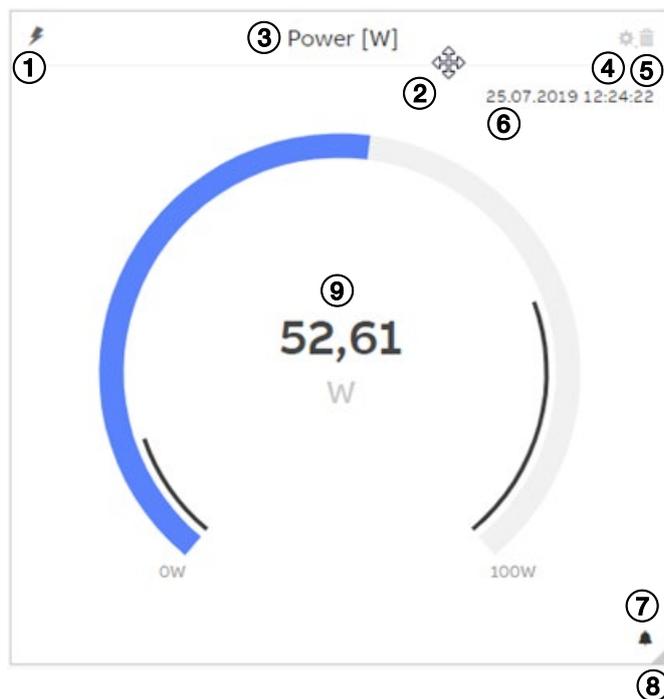
ABB i-bus[®] KNX Parameters

7.5.1.3 Configuring a widget

To configure widgets, activate edit mode using the  button.

Options:

- Place widget using drag & drop
- Enlarge/reduce widget
- Configure widget (opens a configuration window)
- Delete widget



No.	Heading	Description
①	Medium	This symbol indicates the selected medium in the widget.
②	Cross-hair 	Used to arrange the widget on the dashboard via drag & drop.
③	Widget Name	Using <i>Edit</i> , you can give the widget a unique name.
④	Edit 	Opens a window where you can configure the widget.
⑤	Delete 	Deletes widgets from the dashboard page.
⑥	Date/Time	Indicates the date and time when the widget was last updated. You can show/hide this with <i>Edit</i> .
⑦	Alarm	Indicates whether there is an alarm configured for the widget or measured value; this is only possible with widgets for instantaneous values. Clicking the icon opens the alarm configuration window.
⑧	Customize 	Used to enlarge/reduce the widget via drag & drop.
⑨	Value display	How the measured value appears in the display depends on how the widget is configured (as a gauge chart, serial chart or value).

ABB i-bus[®] KNX

Parameters

7.5.1.3.1 **Instantaneous values widget**

Used to display the present measured values, e.g. power, current and voltage, in real time.

The widget configuration options are as follows:

- **Building node:** Used to select the meter and/or building section depending on the metering structure configured.
- **Medium:** Used to select from the available media.
Options: Electricity
Water
Gas
Heat
- **Value to display:** Used to select from the available data points, depending on the assigned meter and its properties.
- **Alarm:** Lets you configure a threshold-exceeded alarm for one or more thresholds.
See also [7.5.2.7. Alarms](#).
- **Custom Name:** Used to enter an individual name for the widget.
- **Chart type:** Used to select the required chart type for instantaneous values in the widget.
Options: Serial chart
Gauge chart
Values

7.5.1.3.2 **Usage Split widget**

Used to display the relative distribution of total cost, income or CO2 emissions. The values are displayed according to the selected period (day, month, etc.) and available consumer groups.

The widget configuration options are as follows:

- **Building node:** Used to select the meter and/or building section depending on the metering structure configured.
- **Value to display:** Used to select from the available values.
Options: Cost
Income
CO₂
- **Custom Name:** Used to enter an individual name for the widget.

ABB i-bus[®] KNX Parameters

7.5.1.3.3 **Historical data widget**

Used to display historical total cost/consumption data for a selected node or meter, by medium. The values are displayed according to the selected period (day, month, etc.).

The widget configuration options are as follows:

- **Building node:** Used to select the meter and/or building section depending on the metering structure configured.
- **Value to display:** Used to select the required data type.

Options: Cost
Consumption
Generation
Income
CO₂
Load profile

- **Medium:** Used to select from the available media.

Options: Electricity
Heat
Gas
Water

- **Chart type:** Used to select the required chart type for the total cost.

Options: Line
Column
Smoothed line

- **Custom Name:** Used to enter an individual name for the widget.

7.5.1.3.4 **Consumer Ranking widget**

Used to display the highest consumers in an installation, by medium. Displays up to 5 consumers.

- **Value to display:** Used to select the required data type.

Options: Cost
Consumption
Generation
Income
CO₂

- **Medium:** Used to select from the available media.

Options: Electricity
Water
Gas
Heat

- **Custom Name:** Used to enter an individual name for the widget.

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Parameters

7.5.1.3.5 **Total values widget**

Used to display typical total values for a medium. Displays the values and relative changes between the current and previous period.

The widget configuration options are as follows:

- *Building node*: Used to select the meter and/or building section depending on the metering structure configured.

- *Medium*: Used to select from the available media.

Options: Electricity
 Water
 Gas
 Heat

- *Custom Name*: Used to enter an individual name for the widget.

- *Value to display*: Used to select the total values to be displayed in the widget.

Options: Cost
 Consumption
 Production
 Income
 CO₂ emissions

7.5.2 **Analysis**

The analysis functions are used for the detailed examination and representation of costs, consumption figures and other measured values. The analysis options are:

- Historical Data
- Usage Split
- Instantaneous Values
- Benchmark - Period
- Benchmark - Consumer
- Reports
- Alarms

ABB i-bus[®] KNX

Parameters

7.5.2.1

Historical data

Analysis and display of historical data.

① Note

Captures and displays total production/consumption values only for the various media. For electricity, it displays total energy produced/consumed and load profile. It does not display total reactive and apparent energy or active, reactive and apparent energy for tariffs 1–4.

① Note

To display measurement data, the following requirements must be met:

- Meters are configured and ready for operation and are sending measured values
- Building structure (see Management > Building structure) is configured and meters are assigned to the respective nodes in the building structure.

After the initial start-up, the system has no measurement data available for evaluation and display. The application waits for the first reception of measurement data from the sending meters. If at least one data record is received, the received value is displayed. This means that the respective data point is assigned to a group address. If no record is received, a "No data available" notification is displayed. The storage period of the device is 5 minutes, so that measurement data are available after 5 minutes at the earliest. It is recommended to configure the sending behavior of the sending devices / meters so that measurement data are sent cyclically with a time span of less than 5 minutes. Depending on the number of participants in a KNX installation, the cyclical sending must be adapted so that the bus load is kept as low as possible.

If the sending meters only send their values on change, gaps may occur in the historical data diagram. Example: The database is updated every 5 minutes. If the value is sent every 7 or 20 minutes when it changes, there may be gaps in the diagram because no values were previously recorded.

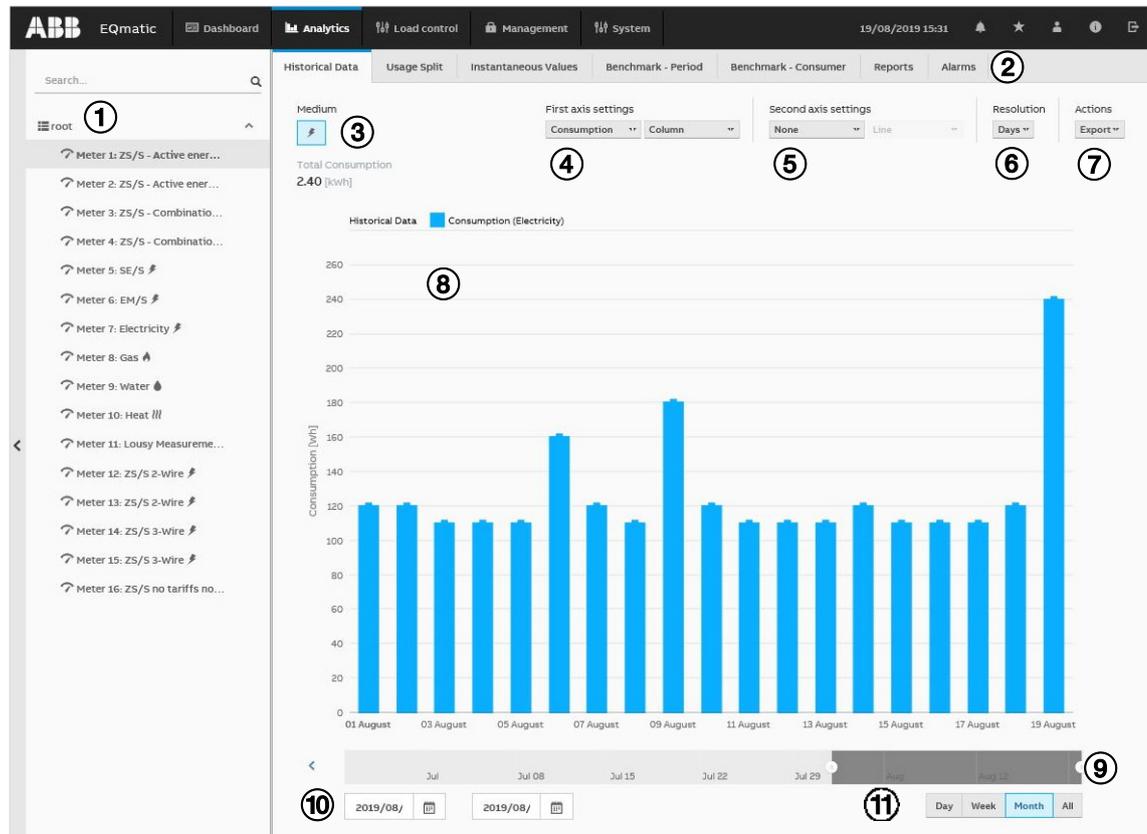
In order to achieve the best results when displaying data, it is recommended to configure the sending meters for cyclical sending AND sending on change.

Use the following parameter settings for ABB measuring devices (ZS/S, SE/S, EM/S):

- Send "Meter reading total / Active power" in s: Yes
- Cycle time in s: <300 sec

When fully expanded with a maximum of 16 meters, historical data can be stored for up to 3 years.

ABB i-bus[®] KNX Parameters



No.	Column header	Description
①	Metering structure	Used to navigate and select a consumer or node. The metering structure must first be configured in Management > Metering Structure. Click the  icon to show or hide the metering structure.
②	Analysis functions	Menu for selecting the required analysis function. Options: <ul style="list-style-type: none"> • Historical Data • Usage Split • Instantaneous Values • Benchmark - Period • Benchmark - Consumer • Reports • Alarms
③	Media	Displays the media available in the system. Depending on the connected devices, the utilities electricity, water, gas and heat are displayed here. The devices must be assigned to a metering structure for this purpose. If devices have been assigned to consumer groups (e.g. lighting, electrical sockets, air conditioning, etc.), they can be recalled via the submenu  .
④	First axis settings	Used to select the required unit (e.g. costs, consumption, load profile, etc.) and to display it on the chart (e.g. column chart, line chart, load profile, etc.).
⑤	Second axis settings	Used to select the required unit (e.g. costs, consumption, etc.) and to display it on the chart (e.g. column chart, line chart, etc.).
⑥	Resolution	Resolution setting for the chart display; dependent on the time unit (day, week, etc.) selected in Presets.
⑦	Actions	Used to select further data processing options (e.g. Save as image, Export to .xlsx, csv, Save as favorite, Create report).
⑧	Chart area	Displays the data graphically. Click and drag or click a value on the chart to zoom.
⑨	Slider	Used to limit and move the required period.
⑩	Calendar function	Used to enter the required period (from/to).

ABB i-bus[®] KNX Parameters

No.	Column header	Description
11	Presets	Selects and displays current day, week, month, year, all. Presets are shown dynamically, depending on the measuring period: Day: always visible; Week: after 2 days: Month: after 7 days: Year: after 6 months: All: Always visible

1 Note

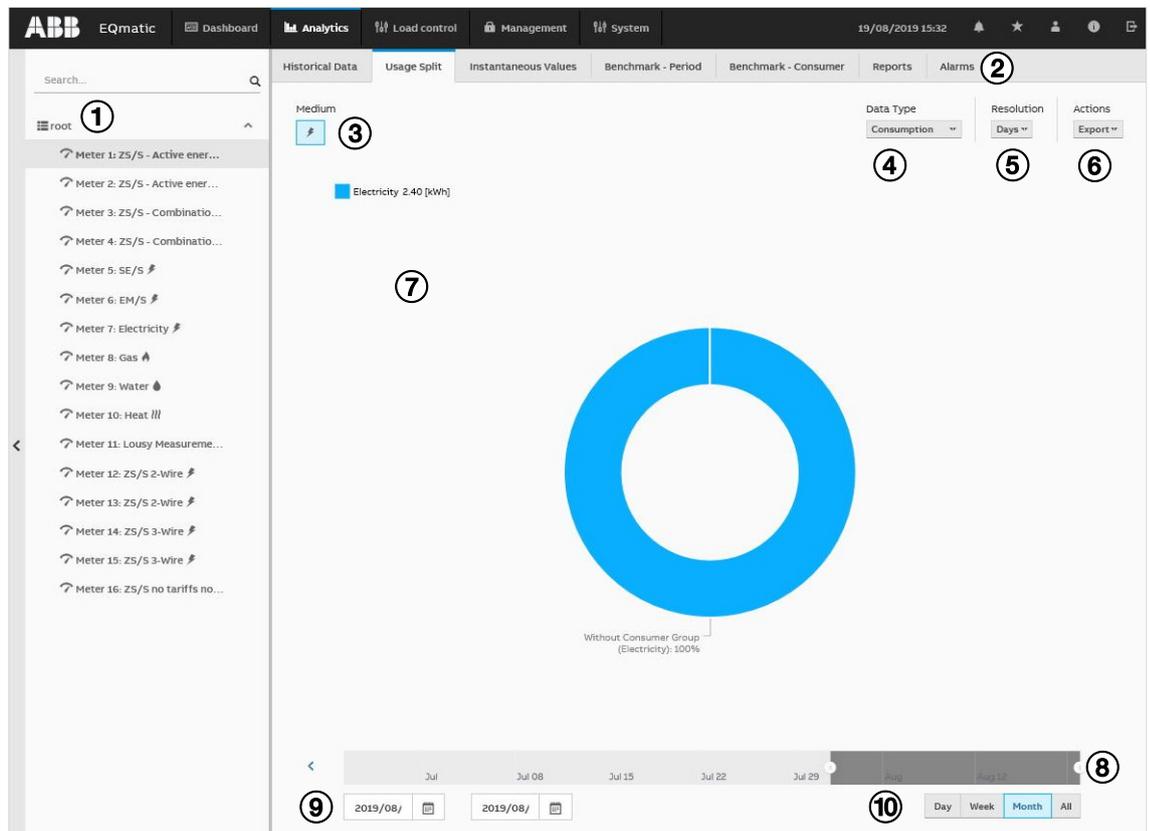
The values (e.g. costs, consumption) for the first and second axes are displayed based on the period set (using slider, calendar function or presets). The y-axis is scaled automatically according to the measured value or the unit (Wh, kWh, MWh, etc.).

7.5.2.2

Usage Split

Used to analyze and display costs and consumption, etc., by medium or consumer group. The data displayed and relative values refer to the selected period.

With the Costs data type, several media can be selected at the same time if they are available in the system.



No.	Column header	Description
1	Metering structure	Used to navigate and select a consumer or node. The metering structure must first be configured in Management > Metering Structure. Click the < icon to show or hide the metering structure.
2	Analysis functions	Menu for selecting the required analysis function. Options: <ul style="list-style-type: none"> Historical Data Usage Split Instantaneous Values Benchmark - Period Benchmark - Consumer Reports Alarms

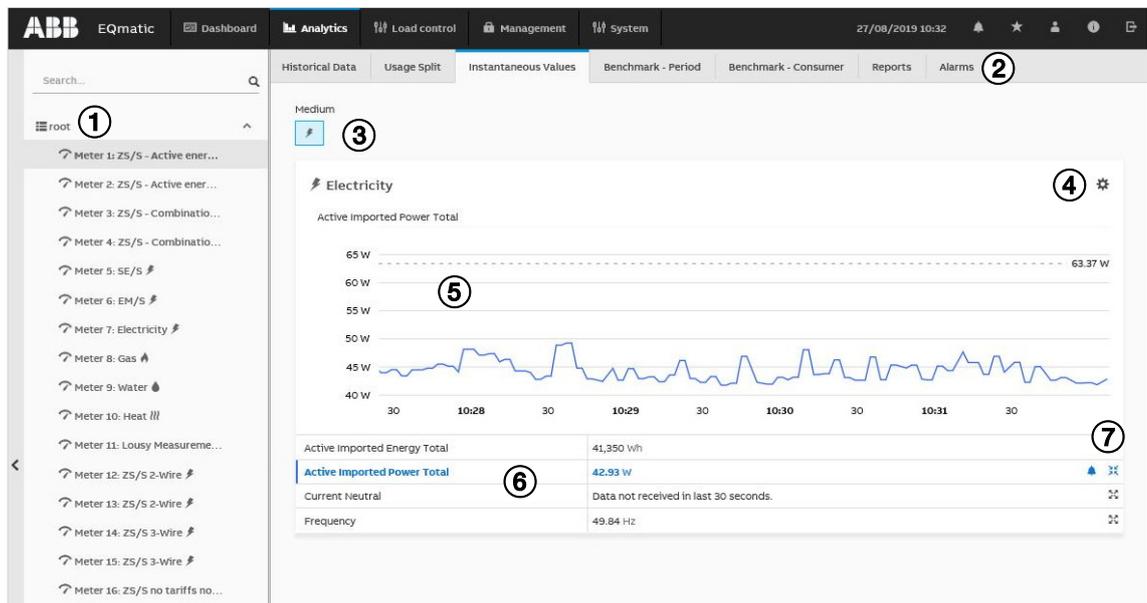
ABB i-bus[®] KNX Parameters

No.	Column header	Description
③	Media	Displays the media available in the system. Depending on the connected devices, the utilities electricity, water, gas and heat are displayed here. If devices have been assigned to consumer groups (e.g. lighting, electrical sockets, air conditioning, etc.), they can be recalled via the submenu  .
④	Data Type	Used to select the required data type (e.g. costs, consumption etc.).
⑤	Resolution	Resolution setting for the chart display; dependent on the time unit (day, week etc.) selected in Presets.
⑥	Actions	Used to select further data processing options (e.g. Save as image, Export to .xlsx, csv, Save as favorite, Create report).
⑦	Chart area	Displays the data graphically. Click and drag or click a value on the chart to zoom.
⑧	Slider	Used to limit and move the required period.
⑨	Calendar function	Used to enter the required period (from/to).
⑩	Presets	Selects and displays current day, week, month, year, all. Presets are shown dynamically, depending on the measuring period: Day: always visible; Week: after 2 days: Month: after 7 days: Year: after 6 months: All: Always visible

7.5.2.3 Instantaneous values

This function displays the instantaneous value for a single data point in real time. The value is displayed on a serial chart.

You must first select the required metering point or meter in the metering structure. Depending on the meter's functionality, various data points are available for display.



No.	Column header	Description
①	Metering structure	Used to navigate and select a consumer or node. Click the  icon to show or hide the metering structure.
②	Analysis functions	Menu for selecting the required analysis function.
③	Media	Displays the media available in the system. Depending on the connected devices, the utilities electricity, water, gas and heat are displayed here.
④	Edit	Opens the window for selecting and adding available data points to the table for subsequent display.
⑤	Chart area	Graphically displays the data point selected on a serial chart.

ABB i-bus[®] KNX Parameters

No.	Column header	Description
⑥	Table	The meter data points are listed in the table depending on the functionality and the available meter data points selected.
⑦	Display	Clicking the  icon displays the data point or measured value in the serial chart. If a data point is accompanied by the alarm icon  , an alarm has been configured for it. Clicking the icon opens the alarm configuration window.

① Note

The values in the diagram are updated depending on:

- Baud rate of the devices
- Number of devices in the system
- Data resolution and transmission behavior of the device

The minimum update time for a chart is 5 seconds.

7.5.2.4

Benchmark - Period

Compares a consumer or node over two intervals (e.g. current month/previous month). To add a benchmark:

- Select the period using the slider ⑧
- Enter the start and end date in the calendar ⑨

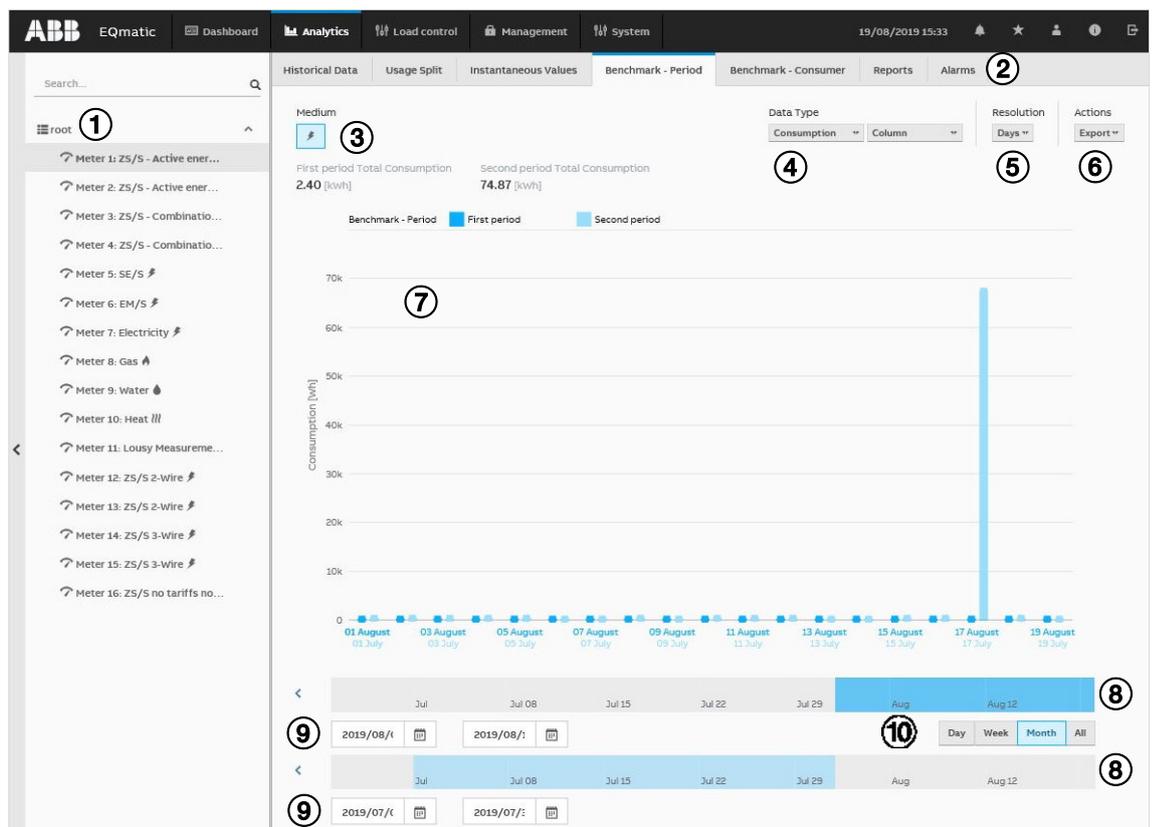


ABB i-bus[®] KNX Parameters

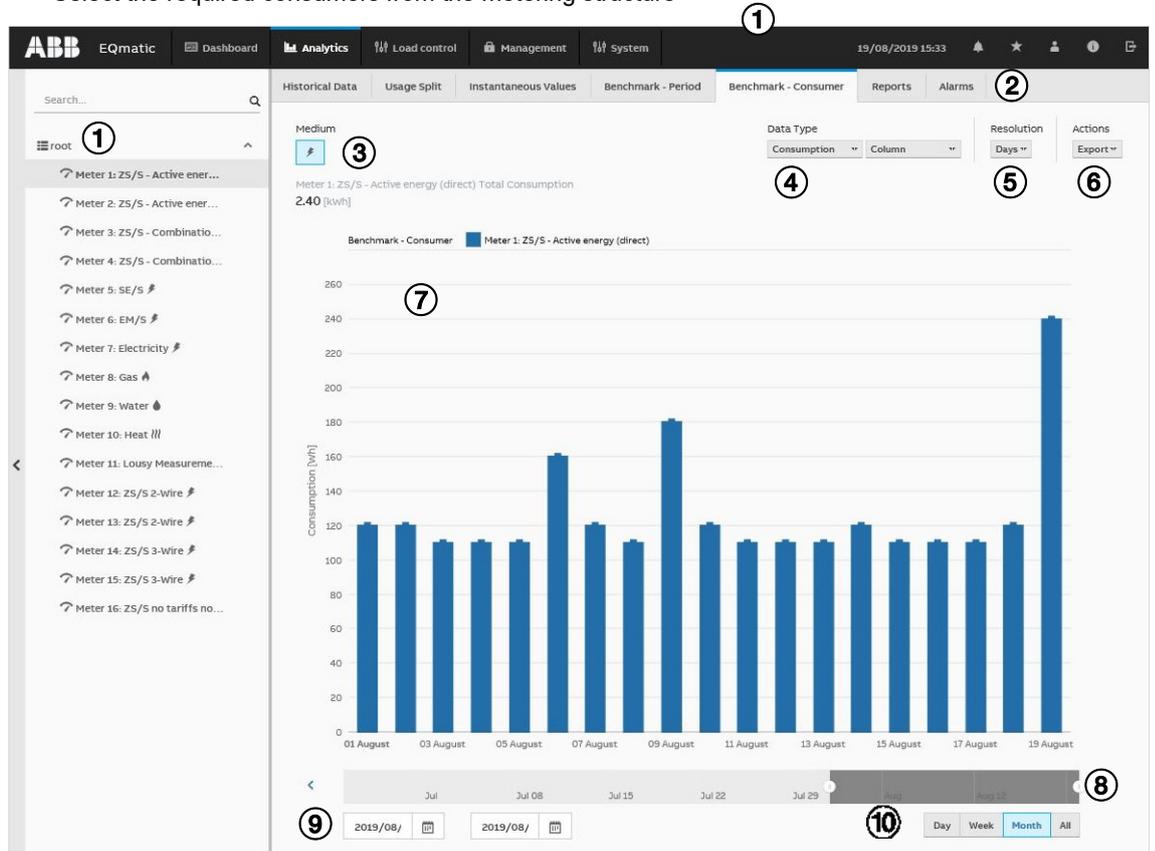
No.	Column header	Description
①	Metering structure	Used to navigate and select a consumer or node. The metering structure must first be configured in Management > Metering Structure. Click the  icon to show or hide the metering structure.
②	Analysis functions	Menu for selecting the required analysis function. Options: <ul style="list-style-type: none"> • Historical Data • Usage Split • Instantaneous Values • Benchmark - Period • Benchmark - Consumer • Reports • Alarms
③	Media	Displays the media available in the system. Depending on the connected devices, the utilities electricity, water, gas and heat are displayed here. If devices have been assigned to consumer groups (e.g. lighting, electrical sockets, air conditioning, etc.), they can be recalled via the submenu  .
④	Data type	Used to select the required data type (e.g. costs, consumption etc.).
⑤	Resolution	Resolution setting for the chart display; dependent on the time unit (day, week etc.) selected in Presets.
⑥	Actions	Used to select further data processing options (e.g. Save as image, Export to .xlsx, csv, Save as favorite, Create reportt).
⑦	Chart area	Displays the data graphically. Click and drag or click a value on the chart to zoom.
⑧	Slider	Used to limit and move the required period.
⑨	Calendar function	Used to enter the required period (from/to).
⑩	Presets	Selects and displays current day, week, month, year, all. Presets are shown dynamically, depending on the measuring period: Day: always visible; Week: after 2 days; Month: after 7 days; Year: after 6 months; All: Always visible

ABB i-bus[®] KNX Parameters

7.5.2.5 Benchmark - Consumer

Used to compare up to 5 consumers or nodes over an interval. To add a benchmark:

- Select the required consumers from the metering structure



No.	Column header	Description
①	Metering structure	Used to navigate and select a consumer or node. The metering structure must first be configured in Management > Metering Structure. Click the  icon to show or hide the metering structure.
②	Analysis functions	Menu for selecting the required analysis function. Options: <ul style="list-style-type: none"> • Historical Data • Usage Split • Instantaneous Values • Benchmark - Period • Benchmark - Consumer • Reports • Alarms
③	Media	Displays the media available in the system. Depending on the connected devices, the utilities electricity, water, gas and heat are displayed here. If devices have been assigned to consumer groups (e.g. lighting, electrical sockets, air conditioning, etc.), they can be recalled via the submenu  .
④	Data type	Used to select the required data type (e.g. costs, consumption etc.).
⑤	Resolution	Resolution setting for the chart display; dependent on the time unit (day, week etc.) selected in Presets.
⑥	Actions	Used to select further data processing options (e.g. Save as image, Export to .xlsx, csv, Save as favorite, Create report).
⑦	Chart area	Displays the data graphically. Click and drag or click a value on the chart to zoom.
⑧	Slider	Used to limit and move the required period.
⑨	Calendar function	Used to enter the required period (from/to).

ABB i-bus[®] KNX Parameters

No.	Column header	Description
10	Presets	Selects and displays current day, week, month, year, all. Presets are shown dynamically, depending on the measuring period: Day: always visible; Week: after 2 days; Month: after 7 days; Year: after 6 months; All: Always visible

7.5.2.6

Reports

This function allows you to send analyses and evaluations to various recipients automatically. You can send data either by email or to an FTP server.

Example: send saved consumption figures or costs for a meter once a month to a recipient by email in the file format .xlsx for further evaluation and archiving.

Reports configured are displayed and managed in an overview table.

Configuring a report

There are various parameters available to help you configure reports. Enter the required values and parameters in the window and save the report.

Note

If data or reports sent or exported from the Energy Analyzer are to be used for further processing, users must ensure that third-party software (e.g. MS Excel, Adobe Acrobat) is always up to date.

ABB i-bus[®] KNX Parameters

Report
?

*** Name**

①

*** Recipients**

②

*** Values**

③

*** Period**

⑨

*** Nodes**

④

*** Send on**

⑩

*** Medium**

⑤

End on

⑪

*** Resolution**

⑥

*** Format**

⑦

*** Filename**

⑧

No.	Parameters	Description
①	Name	Enter report name.
②	Recipients	Configure report recipients (email or FTP).
③	Values	Select the values to be sent in the report (e.g. consumption, costs). Multiple selection possible.
④	Nodes	Select the required node or meter. Multiple selection possible.
⑤	Medium	Select the medium (e.g. electricity, gas, water, heat). Multiple selection possible.
⑥	Resolution	Select the data resolution for the report (e.g. hourly, daily).
⑦	Format	Select the file format for the report (e.g. XLSX, CSV).
⑧	Filename	Enter the filename. The date of the first day of a reporting period is automatically added to the file name.
⑨	Period	Select the sending interval or period for the report (e.g. if "3 day" is configured, the report will be sent every 3 days).
⑩	Send on	Set when the report is to be sent for the first time.
⑪	End on	Set when the report is to be sent for the last time.

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Parameters

7.5.2.7

Alarms

General

This feature lets you configure one or more thresholds for each measured value. You can also configure an alarm and a variety of actions to select from if the threshold is exceeded. If an alarm occurs, the configured action is carried out and the alarm is written to the event log.

Configured alarms are displayed and managed in the *Alarms* overview table. You can add as many alarms as necessary. Existing alarms are managed in the *Alarm Events* overview table.

Configuring alarms

There are two ways to configure alarms:

- Via the analysis function
- Via the dashboard

ABB i-bus[®] KNX Parameters

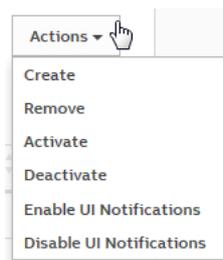
Configuring alarms via the analysis function

Analysis > Alarms > Actions > Add new

This opens the overview for configuring and managing alarms.

<input type="checkbox"/>	NAME	VALUE TYPE	NODE	STATE	UI NOTIFICATIONS	E-MAIL NOTIFICATIONS	ACTION
<input type="checkbox"/>	Temp Alarm	1. Temperature [°C]	Meter 11: Lousy Measurement	Active	Disabled	Disabled	
<input type="checkbox"/>	Test	Active imported Power Total	Meter 1: ZS/S - Active energy (direct)	Active	Enabled	Disabled	

The *Actions* button provides the following options:



- *Create*: Opens the alarm configuration window
- *Remove*: Deletes the alarms selected using the check boxes in the overview table, removing them from the overview and the system.
- *Activate*: Primes the alarms selected using the check boxes in the overview table.
- *Enable UI Notifications*: Switches on UI pop-up notifications for the alarms selected using the check boxes in the overview table.
- *Disable UI Notifications*: Switches off UI pop-up notifications for the alarms selected using the check boxes in the overview table.

ABB i-bus[®] KNX Parameters

Configuring alarms via the dashboard

Dashboard > Configure widget > Alarm > Create

- **Create:** Opens the alarm configuration window

Alarm configuration

General

* Name **①** **④** Alarm enabled

Test

Schedule **⑤**

* Building node **②** * Start date

Meter 1: ZS/S - Active energy (direct)

Stop date

* Value Type **③** Active days **⑥**

Active Imported Power Total

Mo. Tu. We. Th. Fr. Sa. Su.

Alarm limits

⑦ Auto Scale

Value [W] Reaction time when value is above limit [s] Reaction time when value is below limit [s]

3000	1	
4000	1	1

Precise edit

Notifications

* Severity **⑨**

High

Send UI notifications **⑩**

Send E-Mail notifications

⑪

No.	Parameters	Description
①	Name	Enter a name for the alarm.
②	Building node	Select the building node or associated meter/device.
③	Value Type	Select the data point (e.g. active power) for the alarm configuration.
④	Alarm enabled	Prime the alarm using the slider.
⑤	Schedule	Configure a period (start and stop dates) during which you want the alarm to be active. Leaving the stop date empty leaves the alarm enabled indefinitely.
⑥	Active days	Select the weekdays when you want the alarm to be active.
⑦	Auto Scale	Where there are several threshold values configured, clicking this distributes them evenly along the threshold line.

ABB i-bus[®] KNX Parameters

No.	Parameters	Description
⑧	Alarm limits	<p>Clicking a point (threshold value) on the line provides additional parameters for entering the threshold value and reaction times.</p> <p>A threshold can be moved along the line using drag & drop. You can add as many thresholds as necessary by mousing over the line. A new point (threshold) appears; click to configure it.</p> <p>Each threshold value or range must be assigned an alarm category by clicking</p>  <ul style="list-style-type: none"> • Error (red) • Warning (orange) • Note (blue) <p>The alarm category color codes are carried over to the widget display and Alarm Events table.</p> <p>If you choose a serial chart as a widget, the configured alarm thresholds are displayed as broken lines in the chart.</p>
⑨	Severity	<p>Alarm priority specification. Options:</p> <ul style="list-style-type: none"> • High • Medium • Low
⑩	Send UI notifications Send E-mail notifications	<p>To activate the relevant notification(s), select the check boxes.</p> <p>If an alarm occurs, the pop-up notification appears in the Information icon. </p> <p>To receive email notifications you need to enter SMTP settings. You can enter a custom message for each notification. Aside from this, the email will contain details about the alarm:</p> <ul style="list-style-type: none"> • Date/Time • Building node • Value Type • Threshold exceeded • Alarm category and severity
⑪	Save	<p>Saves the current configurations. The configured alarm appears in the Alarms overview table.</p>

ABB i-bus® KNX Parameters

Alarm events

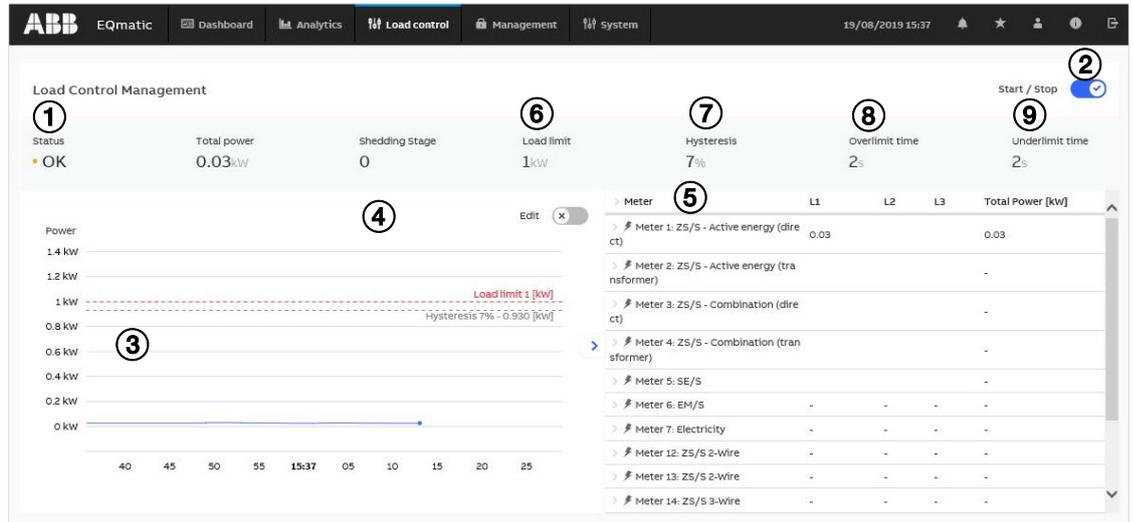
Alarm events are managed and displayed in an overview table showing when each alarm occurred and when it was cleared. The alarms overview can be exported in various formats (.xlsx, .csv, .JSON) for further processing.

Alarms							
Alarms		Alarm Events					
Actions ▾							
Search... <input type="text"/>							
<input type="checkbox"/>	CATEGORY	SEVERITY	ALARM NAME	VALUE TYPE	VALUE	NODE	CREATED ON
<input type="checkbox"/>	Warning	Mid	Temp Alarm	1. Temperature [°C]	25.999999418854713 °C	Meter 11: Lousy Measurement	19/08/2019 14:55:27
<input type="checkbox"/>	Ok	Low	Test	Active Imported Power Total	0 W	Meter 1: ZS/S - Active energy (direct)	19/08/2019 14:54:55
<input type="checkbox"/>	Ok	Mid	Temp Alarm	1. Temperature [°C]	0 °C	Meter 11: Lousy Measurement	19/08/2019 14:54:54
<input type="checkbox"/>	Warning	Mid	Temp Alarm	1. Temperature [°C]	25.739999424666166 °C	Meter 11: Lousy Measurement	19/08/2019 14:44:48
<input type="checkbox"/>	Ok	Low	Test	Active Imported Power Total	0 W	Meter 1: ZS/S - Active energy (direct)	19/08/2019 14:44:37
<input type="checkbox"/>	Ok	Mid	Temp Alarm	1. Temperature [°C]	0 °C	Meter 11: Lousy Measurement	19/08/2019 14:44:36
<input type="checkbox"/>	Warning	Mid	Temp Alarm	1. Temperature [°C]	23.19999948143959 °C	Meter 11: Lousy Measurement	19/08/2019 09:16:33

ABB i-bus[®] KNX Parameters

7.5.3 Load control management

The *Load Control Management* function lets you prioritize load shedding sequences based on electrical power values received from electricity meters. To display and operate load control via the UI, you first need to enable it in ETS with the *Enable load control* parameter.



No.	Parameters	Description
①	Load control status overview	<p>Displays the load control status options and present measured values or settings.</p> <ul style="list-style-type: none"> Status <ul style="list-style-type: none"> Disabled Load control is not enabled via ETS Stopped Load control has been stopped (via ETS or the UI) Ideal Total power is within the load limit and no shedding stage is active Over Limit Total power is above the load limit Under Limit Total power is within the load limit and at least one shedding stage is active Between Total power is above the load limit minus the hysteresis and at least one shedding stage is active Error Unknown Total power <ul style="list-style-type: none"> Displays the total power (in kW) of the meters/slaves sending their values to load control Shedding Stage <ul style="list-style-type: none"> Displays the present shedding stage (0–8) Load limit <ul style="list-style-type: none"> Displays the upper load limit currently set Hysteresis <ul style="list-style-type: none"> Displays the % hysteresis currently set Overlimit time <ul style="list-style-type: none"> Displays the currently set reaction time in seconds if the load exceeds the limit Underlimit time <ul style="list-style-type: none"> Displays the currently set reaction time in seconds if the load falls below the limit
②	Start/Stop	Slider for activating load control
③	Chart of current power	<p>Blue line: current power Red line: load limit Broken gray line: hysteresis</p>
④	Edit	The values for <i>Load limit</i> , <i>Hysteresis</i> and <i>Overlimit/Underlimit time</i> can be changed with the <i>Edit</i> function. The load limit and hysteresis in the chart can be changed using drag & drop.
⑤	Meter/slave overview	<p>The meters listed here are sending their power values for inclusion in the total power calculation and are taken into account in load control.</p> <p>Click the  icon to show or hide the table.</p>

ABB i-bus[®] KNX Parameters

No.	Parameters	Description
⑥	Load limit	Enter the desired load limit here
⑦	Hysteresis	If the system is often overloaded during operation, the hysteresis can prevent a shedding stage from repeatedly switching on and off. The hysteresis is subtracted from the load limit. The shedding stage is not reduced again until the system falls below the load limit minus the hysteresis.
⑧	Overlimit time	If the sum of the power values exceeds the set load limit, load control sends shedding stages to the bus based on the time set here. The shedding stage increases until the power falls below the load limit. The reaction time restarts before each stage increase.
⑨	Underlimit time	If the power falls back below the limit (i.e. if enough slaves were switched off), the master waits for the length of time set here and then starts reducing the shedding stages in reverse order until it reaches stage 0 (i.e. all slaves are enabled) or the load limit is exceeded again.
	Save	Saves the settings after you edit the following parameters: <ul style="list-style-type: none"> • Load limit • Hysteresis • Overlimit time • Underlimit time

7.5.4 Management

The *Management* menu is used to make the following settings:

- Meter view/configuration
- Metering structure set up
- User administration
- Tariff and unit settings
- Consumer group set up
- Data transfer to higher-level systems

7.5.4.1 Meter Management

The *Meter Management* menu contains a table of all the devices or meters that send values to the QA/S.

ABB i-bus[®] KNX Parameters

7.5.4.1.1

Meter management overview

Devices and meters are displayed in the meter management *Overview* table once they are configured in ETS and assigned group addresses.

①	②	③	④	⑤	⑥	⑦	⑧
METER NUMBER	STATUS	PRODUCT TYPE	MEDIUM	PLACE OF INSTALLATION	METER NAME	SERIAL NUMBER	ACTION
1	OK	ZS/S	Electricity	Office 228 (B21 + ZS/S)	Meter 1: ZS/S - Active energy (direct)		
2	OK	ZS/S	Electricity	-	Meter 2: ZS/S - Active energy (transformer)		

No.	Heading	Description
①	Meter Number	Indicates the meter number as configured in ETS.
②	Status	<p>OK Meter configured and connected. Reading enabled.</p> <p>NOT CONFIGURED Depending on the meter used, the data point for active energy (tariff 1, 2, 3, 4) or volume is not linked to a group address via the ETS.</p> <p>ERROR Possible causes:</p> <ul style="list-style-type: none"> • Installation error (L and N transposed) • IR communication error (only with ZS/S) • Hardware fault • Reading disabled (only with SE/S and EM/S) <p>DISCONNECTED: Device not connected to bus, has no power supply or no data has yet been received from the meter. The status remains until the first data has been received from the meter.</p>
③	Product Type	Displays the product in use (e.g. ZS/S) depending on the selection made in ETS
④	Medium	Displays the medium to be measured on the device
⑤	Place of installation	The installation location must be entered in ETS. This is recommended so that the device is easier to identify and assign when configuring the metering structure. Duplicate names are allowed.
⑥	Meter Name	The meter name must be entered in ETS. This is recommended so that the device is easier to identify and assign when configuring the metering structure. Duplicate names are allowed.
⑦	Serial Number	The serial number must be entered in ETS. This is recommended so that the device is easier to identify and assign when configuring the metering structure.
⑧	Action	<p>A view of the available data points for the meter.</p> <p> Opens the information and table view for the available data points. All of the meter's data points are listed in the table even if the meter is not linked with a group address via ETS, in which case the data point is shown as "0" in the table.</p>

① Note

The serial number of ABB meters is on the nameplate on the front of the device, e.g. 00019468.

① Note

During operation, if a meter exchange or re-parametrization in ETS is required, the changes (e.g. nodes in the metering structure) must be updated in the UI.

ABB i-bus® KNX Parameters

7.5.4.2 Metering structure

The *Metering Structure* menu is used to specify the required metering structure for the building or infrastructure. This makes navigation easier during subsequent analysis. Data aggregation or totals settings are also made here. There are two options available:

- Manual structure
- Automatic structure

7.5.4.2.1 Manual structure

The manual structure allows you to set up a custom topology. With a manual structure, physical meters are assigned to a logical metering structure. This structure can be used, for example, to display consumption figures and costs for a cost center or organization. The *virtual meter* and *metering point* structural elements are provided for this purpose.

Virtual meter (group)

A virtual meter summarizes consumption and/or measurement data from meters assigned below the first level in the tree structure. Data points and values that can be physically added together (e.g. energy in kWh, power in W) are added together in the root node. This means that you can display the overall consumption and costs for all the sub-meters via the root node.

A virtual meter cannot be assigned to a meter.

Example:

Total 1.0 = 1.1 + 1.2

500 kWh = 350 kWh + 150 kWh

Metering point

A metering point only ever consists of one device which is assigned to it. An icon indicates the medium of the assigned device. Several metering points can be assigned to a virtual meter.

If a higher-level metering point is serving as a main meter, the nodes assigned below it must belong to the same medium.

Difference

A difference meter is a mathematical meter. No physical meters can be assigned to a difference meter. It calculates the difference between a higher-level metering point and one or more lower-level metering points. It is only shown if a structure has a metering point (higher-level node) with one or more lower-level metering points as well as physical meters assigned to the metering points. To enable it, use the *Edit* submenu. Once enabled, the node is shown in the *Analytics* menu in the structure added, and is available for the analysis function with its calculated data.

Medium

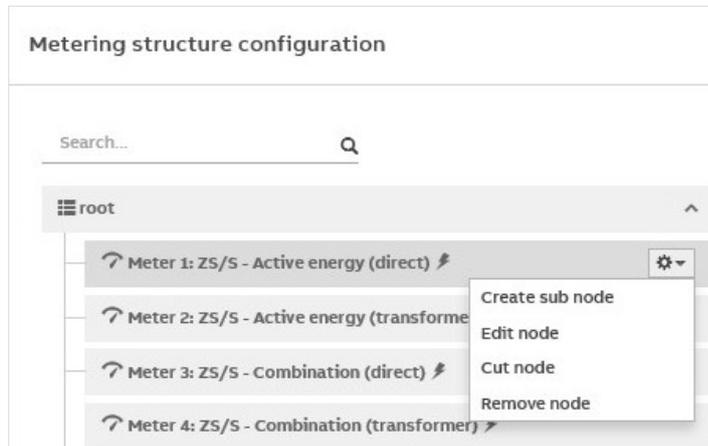
This symbol indicates which meter for a particular medium is assigned to the node. If the symbol is light gray, there is a medium assigned to the node, but no physical meter as yet. If the symbol is dark gray, there is no physical meter assigned to the node as yet.

-  Electricity
-  Water
-  Gas
-  Heat

ABB i-bus[®] KNX Parameters

7.5.4.2.2 Configuring a manual structure

Move your cursor over the nodes to show the  button. Click the button to display the node configuration options.



- *Create sub node*: Creates a sub node for the current node. Clicking this submenu opens the node creation window. Here you can enter the node type and name.

ABB i-bus[®] KNX Parameters

- *Edit node*: Clicking this submenu opens the node editing window.

Edit node - Meter 1: ZS/S - Active energy (direct)

i Node is related to nodes that are bound to medium of type - Electricity. Only meters of that medium can be assigned to the node.

* Node type
Metering point

* Node name
Meter 1: ZS/S - Active energy (direct)

* Medium
Electricity

Meter
⚡ Electricity, ABB, Meter 1: ZS/S - Active e..., Office 228 (B21 + ZS/S)

Consumer group
Demo Case (Electricity)

Meter data points

TARIFF	METER TARIFF DATA POINT	ASSIGNED TARIFF
0	Active Imported Energy Tariff 1	default tariff
1	Active Imported Energy Tariff 2	default tariff
2	Active Imported Energy Tariff 3	default tariff
3	Active Imported Energy Tariff 4	default tariff
4	Active Exported Energy Tariff 1	default tariff
5	Active Exported Energy Tariff 2	default tariff
6	Active Exported Energy Tariff 3	default tariff
7	Active Exported Energy Tariff 4	default tariff

Cancel
Save

No.	Heading	Description
①	Node type	Used to select node type (Virtual meter or Metering point).
②	Node name	Used to enter a name for the node.
③	Meter	This parameter links the node to a physical meter. Meters are only displayed for selection if they have been added to the system in Meter Management and correctly configured. You can only ever assign one meter to a node.
④	Medium	Used to enter and set the medium you want to acquire via the metering point.
⑤	Consumer group	Used to select and assign a consumer group (see 7.5.4.5, Consumer groups). You can either select a consumer group (provided it was added previously) or create a new one.
⑥	Meter data points	Used to select and assign a data point (consumption/production) to a tariff. You can either select a tariff (provided it was added previously) or create a new one.

ABB i-bus[®] KNX Parameters

- **Cut node:** You can cut a node from the structure and paste it at a different place in the structure (or drag and drop it). The node in the metering structure is disconnected from the device assigned to it. Previously saved data for the meter can be transferred with it.
- **Move node with data:** Transfers the node to the required position in the structure, with all the previously saved data, and pastes it in a new position via the "Paste" window.
- **Move node without data:** Transfers the node without any of the previously saved data. An image of the original node with the date at the time of moving is created and the node is shut down. The node and the previously saved meter data are therefore available for the analysis of historical data up to the time the node was moved. You can no longer assign devices to a node that has been moved or shut down.



ATTENTION –

Once you move a node, the data is no longer available.

- **Remove node:** Deletes the node from the system. Previously saved data for the meter is deleted.
- **Remove node with data:** Deletes the node from the system along with any previously saved data.



ATTENTION –

Once you delete a node, the data is no longer available. The data are permanently deleted.

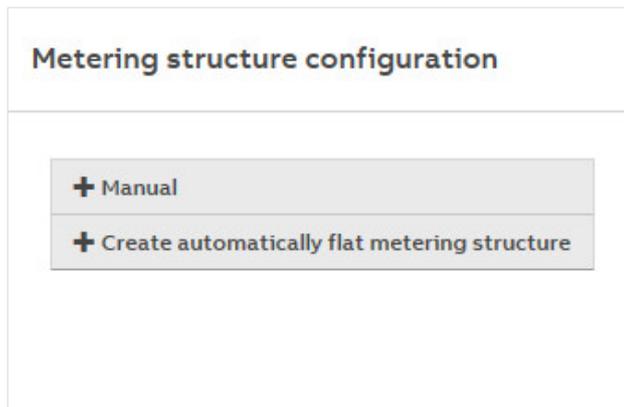
- **Remove node without data:** Deletes the node but does not delete the previously saved data. An image of the original node with the date at the time of deletion is created and the node is shut down. The node and the previously saved meter data are therefore available for the analysis of historical data up to the time the node was deleted. You can no longer assign devices to a node that has been deleted or shut down.

ABB i-bus[®] KNX Parameters

7.5.4.2.3 Automatic structure

This option only appears during initial commissioning using the commissioning wizard. The automatic structure is suitable if only sub-meters are used. If you select this option, a window for configuring the root node opens.

Here, you must enter e.g. the name of the building to which the meters are assigned.



Detected and configured devices are then automatically displayed in a list under the root node.

Note

The root node is a virtual meter. Data points or values that can be physically added together (e.g. energy in kWh, power in W) are added together in the root node. So the root node can display the overall consumption and costs for all the sub-meters in a building.

The automatic structure does not take the logical and/or electrical installation of the meters into account. Use the manual structure if you are using both main and sub-meters.

Clicking a node opens the *Edit* window so that you can add to its configuration.

The system is ready for operation and the analysis functions and dashboard can be used.

ABB i-bus[®] KNX Parameters

7.5.4.3 User management

In the *User Management* menu you can add, configure and delete users. You can also assign users different access rights. This function limits user access to the areas authorized. You can add as many users as you wish. Up to 10 users can access the system at any one time.

Users list ⑤ +			
NAME ①	E-MAIL ②	ADMINISTRATOR ③	ACTION ④
admin		yes	 
user	user@user.com	no	  

No.	Heading	Description
①	Name	Displays the name of the user. The software is supplied with the "admin" user, which cannot be deleted or renamed.
②	E-mail	Displays the user's email address. This is required to send users a message about resetting the password if the "password is forgotten."
③	Administrator	Indicates whether the user has administrator rights (full access).
④	Edit	Used to edit and configure users: <ul style="list-style-type: none">  Opens the configuration dialog. Here you can change user email addresses and languages as well as assigning system administration rights.  Opens the window for changing the password.  Deletes the user from the system. The "admin" user cannot be deleted.
⑤	Add new	Opens a window where you can add a new user

Note

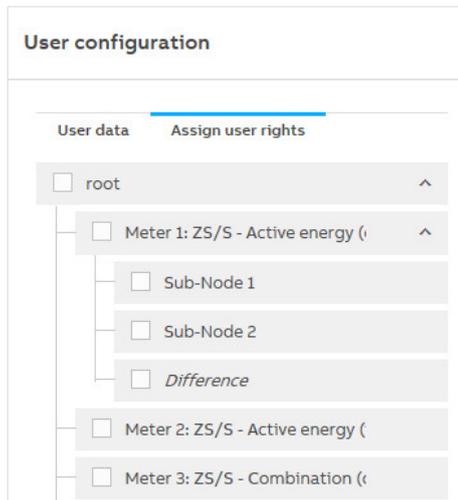
You can also change user passwords, email addresses and languages straight from the UI main menu with the *user profile*  button.

ABB i-bus[®] KNX Parameters

Administrator

Full access to device settings. You can add several administrators. Administrators can add users and assign them access rights to parts of the metering structure.

When assigning access rights within the metering structure, you need to select the required nodes so that the user concerned can access them.



User

Restricted device access via the *Dashboard* and *Analytics* menus and parts of the metering structure that the administrator has enabled for the user concerned. The dashboard widgets from existing nodes will not be taken over and must be created by the user as required.

ABB i-bus[®] KNX Parameters

7.5.4.4

Tariffs and units

The *Tariffs and units* menu is used to configure tariffs for subsequent calculation and display.

One tariff per medium is pre-configured at from the factory; the costs per unit are set to "0."

You can add further tariffs.

Existing tariffs overview 				
NAME ①	MEDIUM ②	COST PER UNIT ③	CO ₂ FACTOR ④	ACTION ⑤
Default tariff	Electricity	0 [EUR / kWh]	0 [CO ₂ kg / kWh]	
Default tariff	Water	0 [EUR / m ³]	0 [CO ₂ kg / m ³]	
Default tariff	Gas	0 [EUR / m ³]	0 [CO ₂ kg / m ³]	
Default tariff	Heat	0 [EUR / kWh]	0 [CO ₂ kg / kWh]	

No.	Heading	Description
①	Name	Displays the name of the tariff configured.
②	Medium	Displays the medium for the tariff configured.
③	Cost Per Unit	Displays the configured cost of each unit for the tariff.
④	CO ₂ factor	Displays the configured CO ₂ conversion factor for the medium and unit. Conversion factors are provided by e.g. environment agencies and industry associations.
⑤	Action	Used to edit and configure a new tariff.  Opens the configuration window  Deletes the tariff from the system
⑥	Add new	Opens a window where you can add a new tariff.

ABB i-bus[®] KNX Parameters

7.5.4.5 Consumer groups

Consumer groups are used to evaluate costs and consumption by application in the *Analytics > Usage Split* menu. For example, you can display electrical energy costs by consumer groups such as lighting, sockets and air conditioning. To use this feature, a separate meter must be installed and assigned to a consumer group via the *Management > Metering Structure* menu.

Existing consumer groups 			
NAME 	MEDIUM 	ACTION 	

No.	Heading	Description
	Name	Displays the names of the configured consumer groups.
	Medium	Displays the medium of the configured user groups.
	Action	Used to edit and configure a new consumer group.  Opens the configuration window  Deletes a consumer group from the system
	Add new	Opens a window where you can add a new tariff.

7.5.4.6 Data sharing

The data sharing functions below are used to forward and utilize measured data in higher-level systems (e.g. building management systems, SCADA or web services).

- Modbus TCP
- REST API

Both communication interfaces can be used at once.

Note

Using Modbus TCP and REST API requires IT programming expertise.

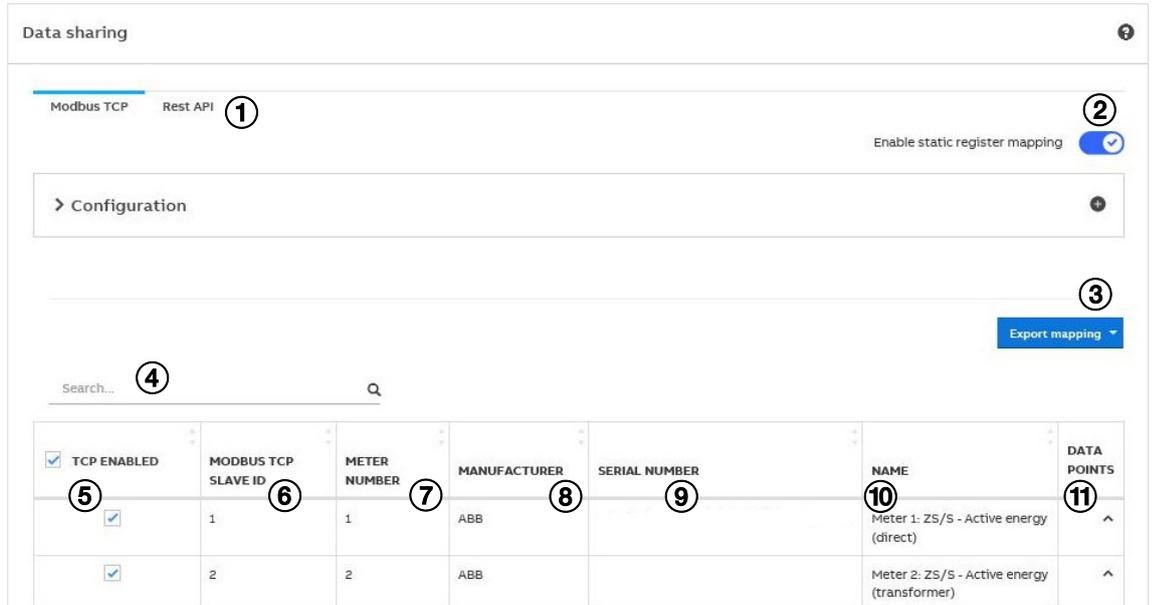
ABB i-bus[®] KNX Parameters

Modbus TCP

Client-server communication is established via Modbus TCP. This communication requires a TCP connection to be set up between a client (e.g. a PC) and the server (e.g. the Energy Analyzer QA/S 1.16.1). The devices must be in the same address range. The TCP port 502 reserved for Modbus is used for communication. The port is enabled if at least one device is selected in the *Management > Data sharing* menu by selecting the box in the table.

Note

If there is a firewall between the server and client, it must be ensured the TCP port configured is opened.



TCP ENABLED	MODBUS TCP SLAVE ID	METER NUMBER	MANUFACTURER	SERIAL NUMBER	NAME	DATA POINTS
<input checked="" type="checkbox"/>	1	1	ABB		Meter 1: ZS/S - Active energy (direct)	^
<input checked="" type="checkbox"/>	2	2	ABB		Meter 2: ZS/S - Active energy (transformer)	^

No.	Heading	Description
①	Data sharing options	Data sharing via Modbus TCP or REST API
②	Static register mapping	Static register mapping is an option if the higher-level system meets the requirements. It allows you to <ul style="list-style-type: none"> Standardize units, resolution and data size. Transfer certain permitted or required data points. Enabling static register mapping with the toggle switch  displays the individual data points in a table view. If necessary you can add data points with  or configure and adjust them using the edit function  .
③	Modbus TCP Export	Modbus TCP assignment can be exported to other systems in JSON, XML or XLSX format.
④	Search	The search function lets you filter e.g. by manufacturer, address, serial number or name.
⑤	TCP enabled	Click the check box (check mark appears) to enable shared use of data via Modbus TCP. If you want only certain meters to communicate via Modbus TCP, make sure you enable/disable meters as appropriate using the check boxes.
⑥	Modbus TCP slave ID	Modbus TCP address; assigned automatically
⑦	Meter Number	Device address of meter (as configured in meter)
⑧	Manufacturer	Meter manufacturer
⑨	Serial number	Serial number of meter as entered in ETS
⑩	Name	Name/type of meter as entered in ETS
⑪	Data points	Click the button to display all available data points for the related meter

ABB i-bus[®] KNX Parameters

REST API

An API (Application Programming Interface) enables two programs to communicate with each other. REST (Representational State Transfer) is mainly used by web browsers and is a common programming style for web services. REST API provides easier access to lots of web services, e.g. If you need to set up your own cloud server or create a customer-specific application.

Data can be accessed using HTTP commands such as GET, PUT, POST, DELETE.

No.	Column header	Description
①	Data sharing options	Data sharing via Modbus TCP or REST API
②	Allow API token authentication	Enabling token authentication with the toggle switch  displays options for generating and managing tokens.
③	Create auth token	Clicking this button opens a window where you need to confirm token generation with a user password and enter a name for the token.
④	Token name	Displays previously entered names for the token, and the token code
⑤	Copy	Clicking this button copies the new token; it can then be added to the external software or the web service to enable the API.
⑥	Remove	Clicking this button deletes the token from the system.

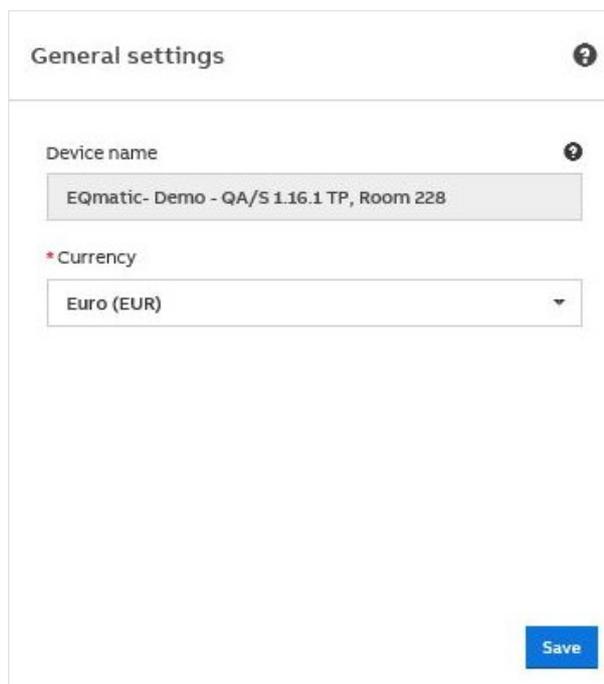
ABB i-bus[®] KNX Parameters

7.5.5 System

Basic settings are made in the system settings. The following settings are available:

- General settings
- Date and Time
- Network
- Update
- SMTP configuration
- SSL certificate
- Erase data
- System log
- System diagnostics

7.5.5.1 General settings



General settings

Device name

EQmatic- Demo - QA/S 1.16.1 TP, Room 228

* Currency

Euro (EUR)

Save

Device name

Entered in ETS.

Currency

For setting the currency for cost calculation or display.

ABB i-bus[®] KNX Parameters

7.5.5.2 Date and time

Date and time can either be received via KNX (see also [7.2, General parameter window](#)) or via the settings of the user interface. If the date and time are received via KNX, the settings in the user interface are not available. You can select whether the date and time are set automatically or manually via the user interface.

The image shows two side-by-side screenshots of the 'Date and time' configuration window. The left window has the 'Automatic date and time' toggle switched on (blue), and the right window has it switched off (grey). Both windows show a 'Timezone' dropdown menu set to 'Europe/Berlin (UTC+2:00)' and a 'Detect timezone' link. The left window also shows a 'Time synchronization server (NTP)' field with the value '10.3.3.20' and a 'Change the server' link. The right window shows a 'Date and time' section with a date field containing '19/08/2019' and a time field containing '15:46'. Both windows feature a blue 'Save' button at the bottom right.

Automatically Off

Automatically On

Automatic date and time (Off/On)

Options: $\frac{\text{Off}}{\text{On}}$

- *Off*: For setting the time manually. Enter the required time in the date and time field and save the settings.
- *On*: Automatically synchronizes with a time synchronization server. Use "Change the server" to change the server. Enter the new address/URL for the time server in the Time synchronization server (NTP) field and save the settings.

Time zone

To set the time zone in which the device is located, select the required time zone from the menu. Optionally, the device can detect and set the time zone itself. Use "Detect timezone" to detect the time zone. The time zone will be set automatically.

ABB i-bus[®] KNX Parameters

7.5.5.3

Network

System network settings ?

i For KNX all network configuration, except from proxy configuration, is only possible via ETS.

Proxy URL ?
type proxy server address if any...

IP Address
10.49.121.107

Subnet
255.255.255.0

Default Gateway
10.49.121.1

DNS Server
10.51.16.9

Save

The system network settings are made in ETS, so they are displayed here but not editable. If you are using a proxy server, enter the URL here.

7.5.5.4

Update

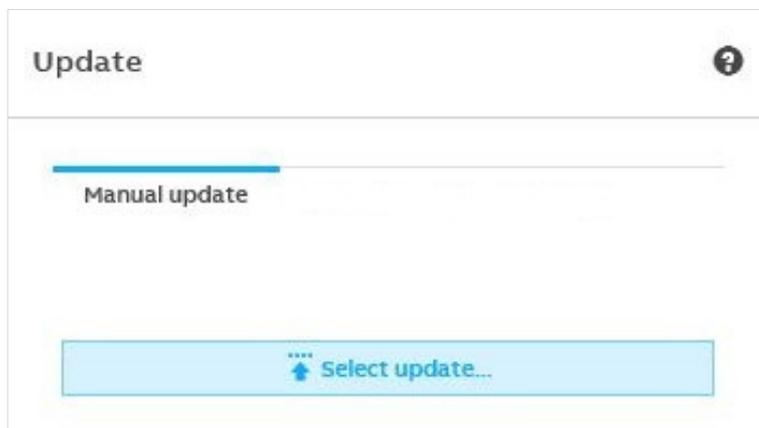
Use the manual update function for updating the device or the firmware to the latest version.

- Manual update
- Automatic update

The current version and other device-specific information can be retrieved using the **i** *About* command in the main menu.

ABB i-bus® KNX Parameters

Manual update



- You can download update packages free of charge from our homepage (www.abb.com/knx).
- Save the latest firmware version to your PC/laptop.
- Open the user interface
- Go to *System > Update > Manual update > Select update*
- Follow the instructions
- The device will be rebooted after the update. This may take a few minutes. As soon as the process is complete, you will have to log in again.

7.5.5.5

SMTP configuration

These settings configure the SMTP server. These settings are required so that the device can send messages, notifications (e.g. when the password is reset) and automatic reports via email to users or recipients.

Configuration can be performed manually or by pre-selecting the email service providers.

i Note

The settings you need are available from the related provider.

ABB i-bus[®] KNX Parameters

7.5.5.6

SSL certificate

SSL stands for "secure sockets layer." Using an SSL certificate will encrypt the data transmitted to the computer on opening a website, for example.

The data connection between the terminal device (computer, tablet etc.) and the device on opening the web user interface is, by default, not protected against access or changes by others.

Activate this function to establish a secure data connection. For this purpose the https protocol is used instead of the http protocol. This protocol will encrypt the data connection and it will no longer be possible for others to read and change the data. Encryption first requires that both communication partners (terminal device and Energy Analyzer) authenticate themselves using certificates. For this purpose both communication partners must have a certificate that the other accepts as valid.

You can create a new certificate on the device and then install it as trusted on all terminal devices to be used to access the device's web user interface. If you do not install the certificate on the terminal devices (browsers), then you will receive a warning that the data connection is not secure due to the lack of authentication and it is not trusted.

The following options are available for handling SSL certificates:

- Generate certificate
- Upload certificate
- Delete certificate

The screenshot shows the 'SSL Certificate' configuration window. It has two tabs: 'Generate certificate' (active) and 'Upload certificate'. A warning message is displayed in a box: 'Right after a successful certificate installation all users of the system would be redirected to HTTPS version of the system. The users that do not have an uploaded certificate installed would be presented with a warning about untrusted/unknown certificate (including the current user; that usually can be bypassed in a few clicks depending on the browser, though assumes the user is an "experienced" one). It's highly recommended to pre-install the uploaded certificate to the users' systems/browsers to avoid confusion.' Below the warning, there is a toggle switch for 'Enable for whole subnet' which is currently turned off. Underneath is a text input field for 'Additional host names / IPs to include into the certificate' with an 'Add' button. At the bottom right, there is a blue 'Generate' button.

In the "Additional host name / IPs" field you can specify additional addresses that can be used to communicate with the device and for which the certificate is to be used. By default the device IP address set in ETS is always added to the certificate.

Alternatively, you can also create a certificate externally or buy a certificate and install it in the device in the .pem file format.

ABB i-bus[®] KNX Parameters



As soon as you have activated the secure data connection, the web user interface is refreshed with the secure connection. Unencrypted access to the device is then no longer possible.

The "admin" user can delete the SSL certificate again at any time. The *Delete certificate* button is shown once an SSL certificate is installed on the device.

7.5.5.7

Erase data

This function allows you to delete all saved data and user-specific information from the system. The system is reset to its supplied state. The most recently installed system update is retained. The following data are reset to the factory settings or deleted:

- Devices and meters
- All meter data saved
- Meter configurations and metering structure configured
- Users and associated information (users and passwords are reset to the factory settings)
- All system settings
- SSL certificates (if any)
- ETS parameter setting and group addresses
- Physical address

Press the "Erase user-sensitive data" button to reset the device to its supplied state.



ATTENTION –

This action cannot be undone. All data will be permanently deleted.

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7.5.5.8 System log

This function logs and timestamps all relevant information about the system and connected devices:

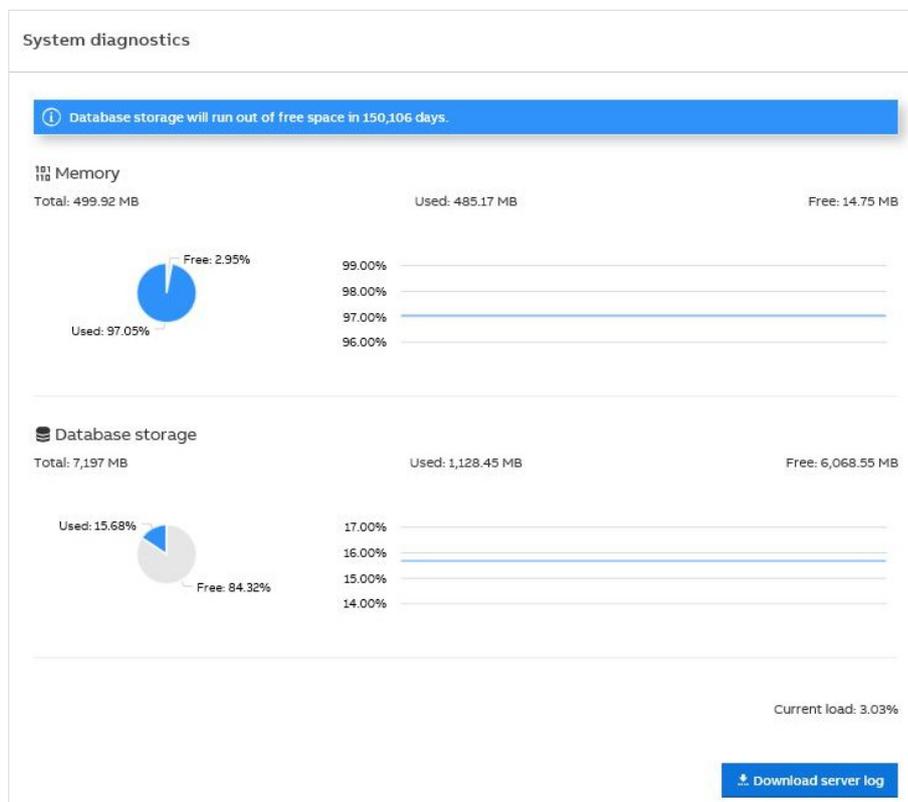
- IP network settings
- Date/time (Manual | Automatic)
- Reset to factory settings
- Device restart
- Firmware update
- Meter/device has been assigned to a new node
- Node has been deleted/added from/to metering structure
- User added/deleted
- User logged in/logged out

The System Log can also be restricted to a period using the calendar settings and exported as a file (e.g. xlsx).

7.5.5.9 System diagnostics

This function provides information on device performance and current device status and is used for general diagnostics. The following information is available:

- Memory
- Database storage
- CPU utilization



8 Group objects

8.1 Summary of group objects

Note

This section only describes the General, Device clock and Load control group objects. The tables and descriptions for meter-specific group objects are given in section 7.4 in the relevant meter description.

No.	Object function	Name	DPT	Length	Flags				
					C	R	W	T	U
1	In operation	General	1.001	1 bit	X	X			X
5	Request time	Device clock	1.017	1 bit	X	X			X
6	Date	Device clock	11.001	3 bytes	X	X	X	X	X
7	Time	Device clock	10.001	3 bytes	X	X	X	X	X
8	Date/Time	Device clock	19.001	8 bytes	X	X	X	X	X
11	Deactivate load control	Load control	1.003	1 bit	X	X	X		X
12	Load limit exceeded	Load control	1.005	1 bit	X	X			X
13	Send sum power values	Load control	14.056	4 bytes	X	X			X
15	Send/receive load limit	Load control	14.056	4 bytes	X	X			X
15	Send load limit	Load control	14.056	4 bytes	X	X			X
16	Send load shedding stage	Load control	236.001	1 byte	X	X			X
17	Send load shedding stage 1	Load control	1.001	1 bit	X	X			X
18	Send load shedding stage 2	Load control	1.001	1 bit	X	X			X
19	Send load shedding stage 3	Load control	1.001	1 bit	X	X			X
20	Send load shedding stage 4	Load control	1.001	1 bit	X	X			X
21	Send load shedding stage 5	Load control	1.001	1 bit	X	X			X
22	Send load shedding stage 6	Load control	1.001	1 bit	X	X			X
23	Send load shedding stage 7	Load control	1.001	1 bit	X	X			X
24	Send load shedding stage 8	Load control	1.001	1 bit	X	X			X

8.2 General group objects

No.	Object function	Name	Data type	Flags
1	In operation	General	1 bit DPT 1.001	C, R, T
<p>This group object signals the presence of the device on KNX and can be monitored by an external device. If no telegrams are received, the device may be defective or the bus cable to the transmitting device may be interrupted. Using the dependent parameter <i>Cycle time</i>, you can set the interval at which the group object sends a telegram. The telegram value depends on the option selected in the <i>Enable "In operation" group object</i> parameter.</p>				

8.3 Device clock group objects

No.	Object function	Name	Data type	Flags
5	Request time	Device clock	1 bit DPT 1.017	C, R, T
<p>This group object is enabled if <i>Date and time source</i> is set to <i>KNX</i>. This group object queries the date/time from a time master after device start-up; 30 seconds after startup it sends the value 1.</p>				
6	Date	Device clock	3 bytes DPT 11.001	C, R, W, T, U
<p>This group object is always enabled. This group object receives the date from KNX if KNX is selected as the clock synchronization source. In all other cases the device date can be sent to the bus on this group object.</p>				
7	Time	Device clock	3 bytes DPT 10.001	C, R, W, T, U
<p>This group object is always enabled. This group object receives the time from KNX if KNX is selected as the clock synchronization source. In all other cases the device time can be sent to the bus on this group object. Only time information is evaluated. Day of the week information is not taken into account.</p>				
8	Date/Time	Device clock	8 bytes DPT 19.001	C, R, W, T, U
<p>This group object is always enabled. This group object receives the combined time and date from KNX if KNX is selected as the clock synchronization source. In all other cases the combined device date can be sent to the bus on this group object. Only date and time is evaluated. Other information provided by this data point (e.g. year or weekday) is not taken into account.</p>				

8.4 Load control group objects

No.	Object function	Name	Data type	Flags
11	Deactivate load control	Load control	1 bit DPT 1.003	C, R, W, T
<p>This group object is enabled if <i>Enable load control</i> is set to <i>Yes</i>. This group object disables the <i>Load control</i> function on receipt of a corresponding telegram. Telegram value: 0 = The <i>Load control</i> function is enabled. 1 = The <i>Load control</i> function is disabled. Sending the <i>Send load shedding stage</i> group object with the value "Shedding stage 0" enables all slaves. Group object 16, <i>Send load shedding stage</i> is written and sent with the value 128 (load shedding stage 0, load control disabled). The value of the group object after bus voltage recovery can be set in the <i>Load control</i> parameter window.</p>				
12	Load limit exceeded	Load control	1 bit DPT 1.005	C, R, T
<p>This group object is enabled if <i>Enable load control</i> is set to <i>Yes</i>. The group object's value is sent with a change and when the <i>Request status values</i> group object receives a telegram. The master adds the received power values to <i>Send sum power values</i> (group object 13). If this total is larger than the set permitted load limit, the group object's value changes to 1 and is displayed in the UI <i>Load control > Status</i> menu. If the total falls below the permitted load limit again (minus the hysteresis), the group object's value changes back to 0.</p>				
13	Send sum power values	Load control	4 bytes DPT 14.056	C, R, T
<p>This group object is enabled if <i>Enable load control</i> is set to <i>Yes</i>. The group object's value is internally calculated from the sum of the received power values for all load-control-enabled slaves/meters and displayed in the UI <i>Load control > Status</i> menu.</p>				
15	Send load limit	Load control	4 bytes DPT 14.056	C, R, T
<p>This group object is enabled if <i>Enable load control</i> is set to <i>Yes</i>. This group object sends the active load limit.</p>				
15	Send/receive load limit	Load control	4 bytes DPT 14.056	C, R, T
<p>This group object is enabled if both <i>Enable load control</i> and <i>Change load limit via Group object</i> are set to <i>Yes</i>. This group object sends the active load limit, which can also be sent via the bus.</p>				

ABB i-bus[®] KNX

Operation

9 **Operation**

9.1 **Manual operation**

This chapter is not relevant for this device.

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Maintenance and cleaning

10 Maintenance and cleaning

10.1 Maintenance

The device is maintenance-free. In the event of damage, e.g. during transport and/or storage, repairs are not allowed to be made.

10.2 Cleaning

Disconnect the device from the electrical power supply before cleaning. If devices become dirty, they can be cleaned using a dry cloth or a cloth dampened with a soapy solution. Never use corrosive agents or solutions.

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Disassembly and disposal

11 Disassembly and disposal

11.1 Removal

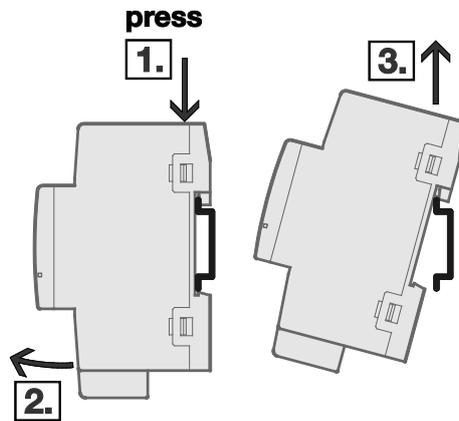


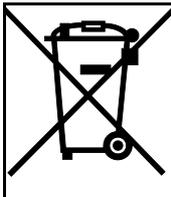
Fig. 5: Removal from the DIN rail

8. Press on the top of the device.
9. Release the bottom of the device from the DIN rail.
10. Lift the device up and off the DIN rail.

11.2 Environment

Consider environmental protection.

Used electrical and electronic devices must not be disposed of as domestic waste.



The device contains valuable resources that can be recycled. Therefore, please take the device to a suitable recycling center. All packaging materials and devices are provided with markings and test seals for proper disposal. Always dispose of packaging material and electrical devices or their components at collection points or disposal companies authorized for this purpose. The products comply with the statutory requirements, particularly the law on electrical and electronic equipment and the REACH regulation. (EU directive 2012/19/EU WEEE and 2011/65/EU RoHS) (EU REACH regulation and the law implementing the regulation (EC) no.1907/2006)

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ABB i-bus[®] KNX Planning and application

12 Planning and application

12.1 Introduction

In this chapter you will find some tips and application examples for practical use of the device.

12.2 Load control

Load control is a function that enables an Energy Analyzer to manage an electrical installation energy-efficiently based on an adjustable load limit, by sending switching commands to the bus. The Energy Analyzer (master) ① receives power values from up to 16 energy meters (slaves, e.g. SE/S, EM/S, ZS/S) ② ③. The values are then internally added to the total power value. If the sum of the power values exceeds the user-defined load limit setting, the device sends shedding stages ④ to the bus. All ABB devices (e.g. Energy Actuator SE/S 3.16.1) featuring the *Receive shedding stages* group object (DPT 236.001) are suitable for use with the load shedding function. The Energy Actuator ③ features power measurement and a switch actuator function. As a result, it can send power values to the load control function and at the same time, receive shedding stages to switch connected consumers on and off. This means you can set a shedding stage in the Energy Actuator for each output. The slave receives the shedding stage and switches all outputs set with this stage. The master increases the shedding stage until the sum of the power values falls back below the load limit.

Devices ⑥ (e.g. switch actuators) without the *Receive shedding stages* group object can still be integrated in load control using the 1-bit group objects ⑤ *Send load shedding stage 1...8*.

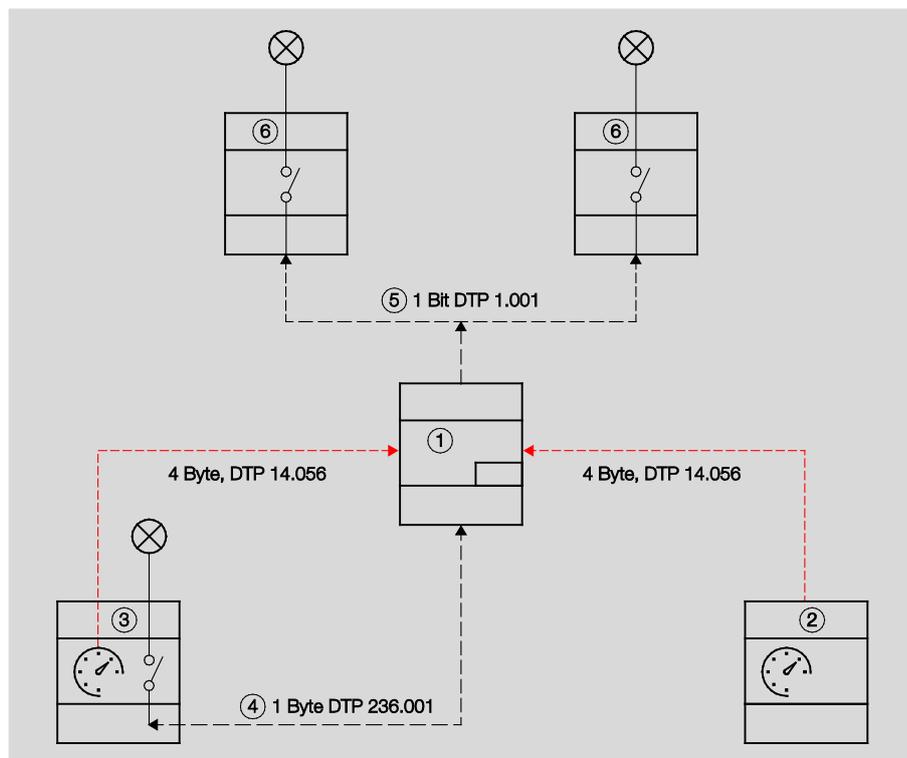


ABB i-bus[®] KNX

Planning and application

How load control works

The number of shedding stages that load control (the master) can send is defined based on the number of priority stages to be switched on the meters (slaves). For instance, if a system has only two priority stages (where priority 1 is always on and priority 2 can be switched off as necessary), one load shedding stage is enough.

In the master, you can set a load limit that must not be exceeded. Alternatively there is a load limit that can be changed via the bus.

As a rule, the power values received from the slaves should be sent with a change. When the master then receives a new power value, the sum of the values is recalculated and if applicable, a shedding stage sent to the bus. You can also set a cyclic monitoring time.

Set the over/underlimit reaction times according to how quickly you wish the system to react. If the load limit is exceeded, shedding stage 1 is sent to the bus after the overlimit reaction time. If the load then exceeds the limit again, the next shedding stage up is sent after the reaction time, and so on, until the load falls back below the limit. Once the reaction time has run after the load falls below the limit, the master reduces the shedding stage (attempted restart).

Take account of relay lifetime when setting reaction times. Set up the system so that load control is only active at peak times, or set long enough over/underlimit reaction times to prevent excessive switching.

13 Appendix

13.1 Scope of delivery

The Energy Analyzer is supplied with the following parts. The items delivered should be checked against the list below

- 1 x QA/S 1.16.1 Energy Analyzer
- 1 x installation and operating instructions
- 1 x bus connection terminal (red/black)
- 1 x KNX connection cover cap
- 1 x labeling sheet for label carrier

13.2 Notes



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