Electrical installation solutions for buildings – Technical details
ABB i-bus® KNX

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ABB i-bus® KNX
Illumination and Light Sensors – DALI

The ABB DALI Gateways are used to interface between DALI (Digital Addressable Lighting Interface) and KNX installations. Four Gateways are available:
The DALI Gateway Basic DG/S 1.64.1.1 (1-fold) and DG/S 2.64.1.1 (2-fold) and on the other hand the DALI Gateway Premium DG/S 1.64.5.1 (1-fold) and DG/S 2.64.5.1 (2-fold).
All incorporate the DALI power supply.

Both basic Gateways are equipped with emergency lighting function, support the DALI standard EN 62386-202 that specifies DALI emergency lighting (self-contained).
The two DALI Gateways Premium are additionally equipped with colour temperature Tc (tunable white) function and supports the DALI standard EN 62386-209.
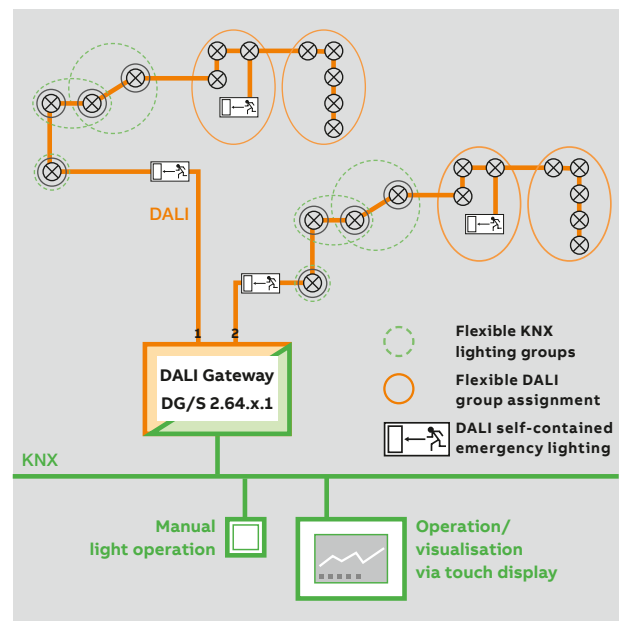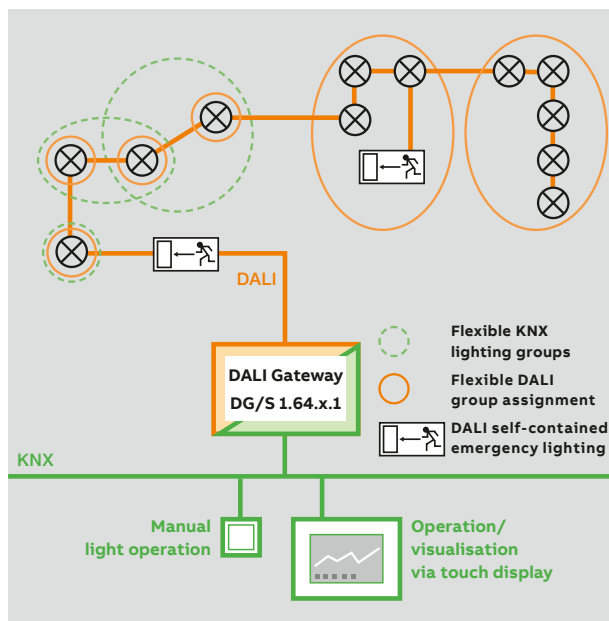
DALI Gateways DG/S 1.64.x.1
Flexibility by controlling light individually per device or in groups

The DALI Gateway (1-fold) Basic and Premium can install up to 64 DALI devices both via 16 flexible DALI (orange lined group) and KNX lighting groups (green dotted lined group), each with one or more DALI participants. Control and Monitoring via KNX. Control and status feedback can also be carried out via Broadcast. 16 independent Lighting scenes are available.

DALI Gateways DG/S 2.64.x.1
Maximum flexibility combined with highest amount of DALI participants and groups, to meet all customer needs

The DALI Gateway (2-fold) Basic and Premium can install up to 2 x 64 DALI devices both via 2 x 16 flexible DALI (orange lined group) and KNX lighting groups (green dotted lined group), each with one or more DALI participants. Control and Monitoring via KNX. Control and status feedback can also be carried out via Broadcast. 2 x 16 independent Lighting scenes are available.

Flexible KNX lighting groups

Flexible DALI group assignment

DALI self-contained emergency lighting

Manual light operation

Operation/ visualisation via touch display

Flexible KNX lighting groups

Flexible DALI group assignment

DALI self-contained emergency lighting

Manual light operation

Operation/ visualisation via touch display
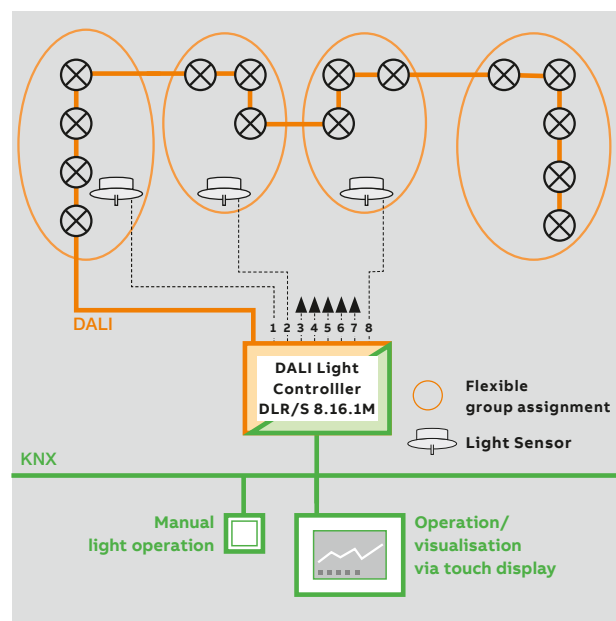
ABB i-bus® KNX

Illumination and Light Sensors – DALI

DALI Light Controller DLR/S 8.16.1M
Energy through constant lighting control

Control via 16 lighting groups. Up to 8 lighting groups can be controlled with 8 light sensors. Master-slave, staircase light and Scene mode round off the functions.

DALI

1 2 3 4 5 6 7 8

DALI Light Controlller DLR/S 8.16.1M

Flexible group assignment

Light Sensor

KNX

Manual light operation

Operation/ visualisation via touch display

DALI Light Controller DLR/A 4.8.1.1
Decentralized Constant Lighting Control

The new DALI Light Controller DLR/A 4.8.1.1 is a surface mounting device for switching and dimming of 8 independent lighting groups. A maximum of 64 DALI devices can be connected. The device can be used for 4-fold constant lighting control in connection with 4 Light Sensors LF/U 2.1. Furthermore staircase lighting and master / slave functions are provided. Fault feedback messages, e.g. concerning ballast or lamp failures, can be programmed and activated via KNX. The compact surface-mounted housing allows the decentralized installation in the underfloor or in false ceilings – optimal for the use with Room Controller RC/A.
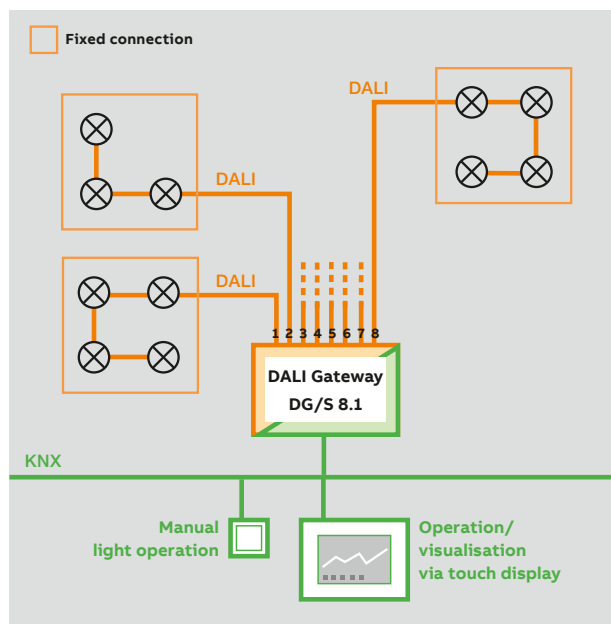
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ABB i-bus® KNX
Illumination and Light Sensors – DALI

DALI Gateway DG/S 8.1
The proven technology

Lighting groups are formed via "rigid" hardware wiring.
Fast commissioning as no addressing is necessary.
No readdressing when a ballast is exchanged. 8 x 16 DALI
devices.

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ABB i-bus® KNX
Heating and Cooling

Influencing Variables on Room Climate

Influencing Variables on Room Temperature

Internal and external factors have an effect on the thermal conditions in a room or a building. As an external factor the solar radiation is important for the indoor temperature – particularly with regard to modern architecture with glass fronts. Besides this, the room temperature is strongly affected by the exchange of thermal energy through windows and walls as well as the loss of thermal energy through open doors and windows.

Depending on the intensity, all this interactions influence also the energy efficiency of a building and have therefore to be optimised.
Internal thermal inputs from lighting, devices or persons have also an influence on the room climate. By planning a heating, ventilation or air conditioning system all this internal and external factors have to be considered.

Influencing Variables on Air Quality

The indoor climate in living and working areas has a scientifically proven impact on health, job performance and well-being of people. A suitable indicator for determination of the room air quality is the CO_2 concentration. In addition the values for room temperature and air humidity must be controlled to meet the requirements for a comfortable room climate.

Studies have shown, that high CO_2 concentration in the air influences the well-being as well as the performance and learning ability of people. Besides the normal CO_2 concentration in the air, human respiration is an important factor increasing the CO_2 concentration in a room. Therefore it is important to measure the CO_2 concentration in rooms where many persons are present (schools, conference rooms, open-plan offices). Monitoring of thresholds enables fans to be switched via ABB i-bus KNX allowing automatic control of the CO_2 concentration and sufficient supply of fresh air.

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Loss of thermal energy through open doors

CO_2

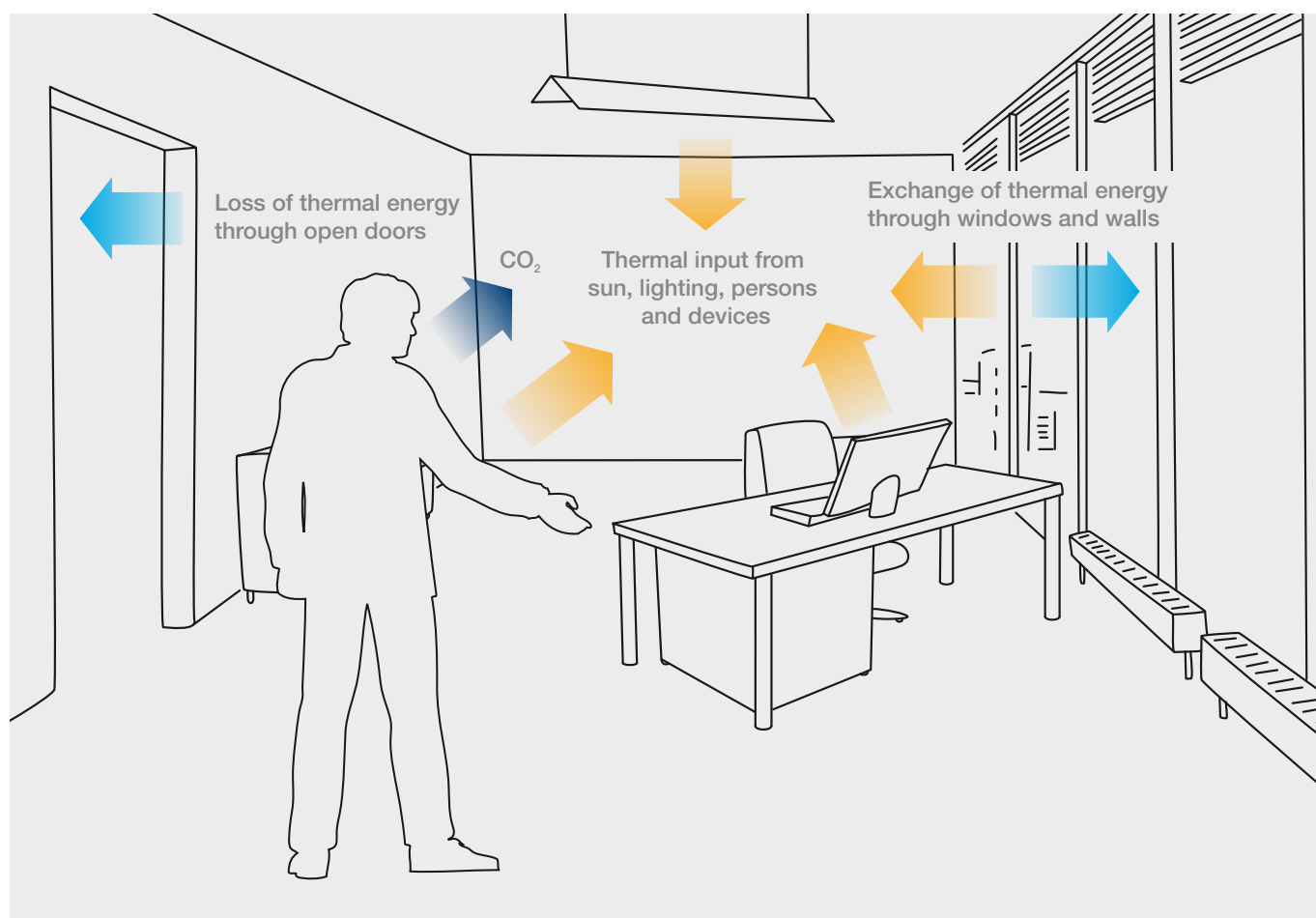Thermal input from sun, lighting, persons and devices

Exchange of thermal energy through windows and walls

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ABB i-bus® KNX
Busch-priOn®

Operation – Planning aid for Busch-priOn®

End strips without function

studio white,
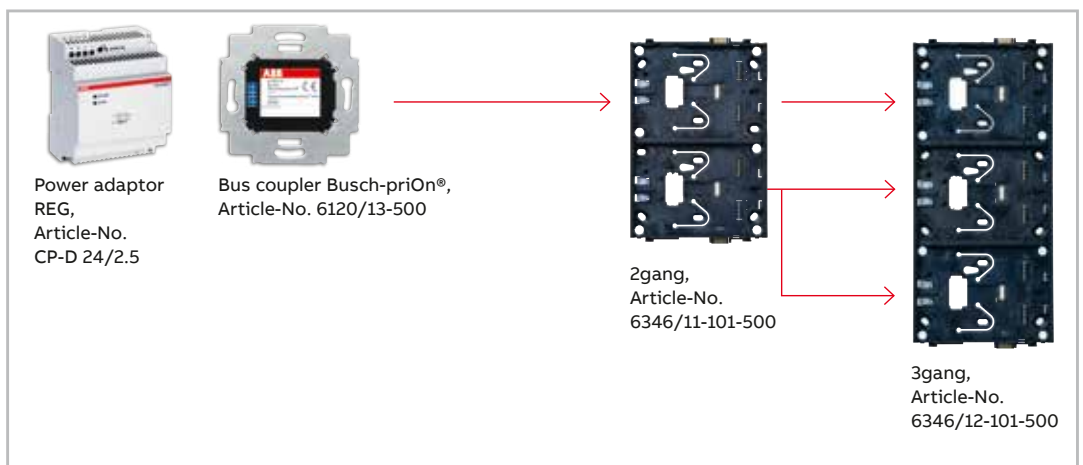Article-No. 6348-24G-101-500

glass black,
Article-No. 6348-825-101-500

white glass,
Article-No. 6348-811-101-500

stainless steel,
Article-No. 6348-860-101-500

Support frame, bus coupler

Bus coupler Busch-priOn®,
Article-No. 6120/12-101

1gang,
Article-No.
6346/10-101-500

Note:
This power adaptor can supply up to 15 power bus couplers with current.

Power adaptor REG,
Article-No.
CP-D 24/2.5

Bus coupler Busch-priOn®,
Article-No. 6120/13-500

2gang,
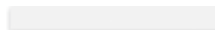Article-No.
6346/11-101-500

3gang,
Article-No.
6346/12-101-500
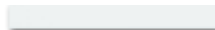
FM actuators

End strip

Commissioning adaptor,
Article-No. 6149/21-500

End strips without function

studio white,
Article-No. 6349-24G-101-500

white glass,
Article-No. 6349-811-101-500

glass black,
Article-No. 6349-825-101-500

stainless steel,
Article-No. 6349-860-101-500

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ABB i-bus® KNX
Busch-priOn®

End strip with IR proximity function

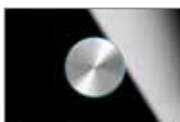glass black,
Article-No.
6350-825-101-500

Single-line
display and room
thermostat,
Article-No.
6351/08-825

Control element,
1gang,
Article-No.
6340-825-101-500

Control element,
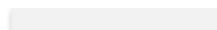3gang, Article-No.
6342-825-101-500

Rotary control
element, 1gang,
Article-No.
6341-825-101-500

Busch-Watchdog,
180 FM,
Article-No.
6345-825-101-500

End strips with temperature sensor.

studio white,
Article-No. 6352-24G-101-500

white glass,
Article-No. 6352-811-101-500

glass black,
Article-No. 6352-825-101-500

stainless steel,
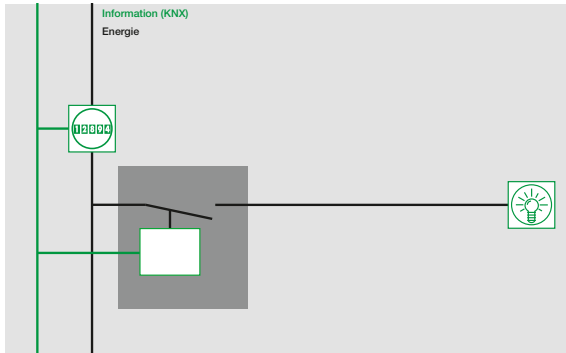Article-No. 6352-860-101-500

Labelling symbols

Labelling inserts for blinds, lighting,
RTC and scene. The colours are repeated in the
Busch-Jaeger colour concept.

ABB i-bus® KNX
Energy measurement

ABB offers various solutions for decentral energy measurement on the basis of the KNX standard.
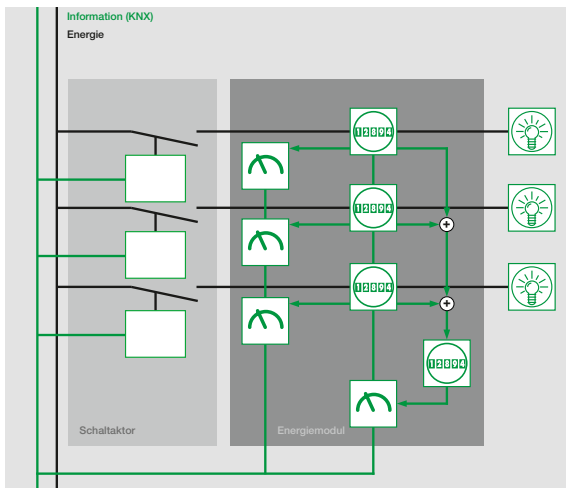
Version 1

Electronic energy meters make the current energy values available on the KNX bus system in conjunction with a KNX interface. The measured data can be intermediately stored, evaluated and visualized from here.


Version 2

The Energy Module can record the energy consumption for the individual devices. It is used particularly when upgrading existing KNX systems and wherever energy measurement is required without switch functions. It facilitates a detailed and transparent insight into the energy consumption of a building. The current meter values can be sent and evaluated.

Version 3
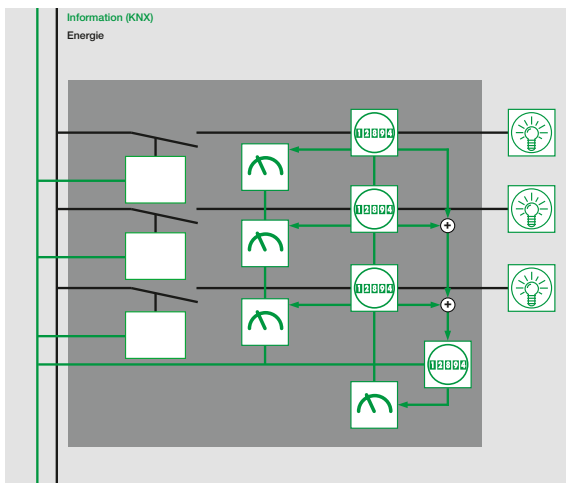
The Energy Actuator facilitates control of the connected consumer loads via the ABB i-bus® KNX. For each of the three switch channels, the individual consumption can be measured in the same way as for the Energy Module. For every channel, the proven functionality of the ABB i-bus® KNX Switch Actuators are available.

Intermediate meter for electrical energy	**Electrical consumer (load)**	**Energy meter**

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ABB i-bus® KNX

Security and Surveillance – The new KNX Security Panel

Magnet reed contacts

Glass break sensors

Water detector

Gas detector

Smoke detector

Zone modules for security bus

Motion detectors for security bus

SafeKey setting device

and

SafeKey Evaluation Module

Alarming

Security bus

KNX

Bus for keypads

Ethernet
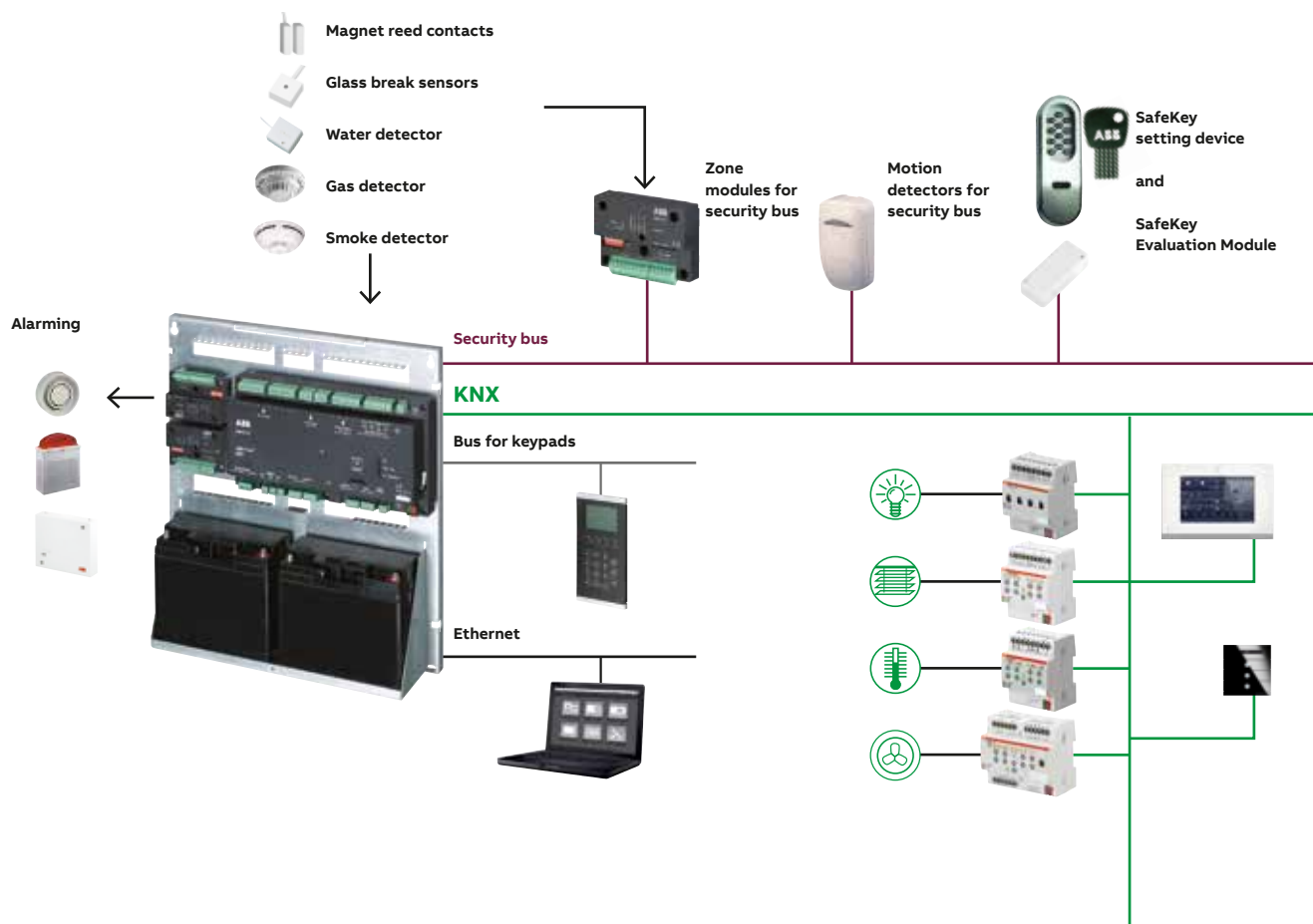
A complete product product portfolio: One system – all interfaces

To fulfill the project requirements ABB provides the user besides the new panel and keypad a complete product portfolio for professional alarm technology as well as known solutions for all trades of KNX building automation.

The KNX Security Panel is for universal usage for all kinds of hazardous situations in buildings like intrusion, personal attack, smoke, gas- and water leakage.

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ABB i-bus® KNX

Security and Surveillance – The new KNX Security Panel

Ethernet connection for programming, diagnostics and operation via a standard webbrowser

Direct inputs for security sensors

Keypads

Internal, external or remote alarming

Security bus for security sensors, zone modules and setting devices

KNX interface to display alarm states via displays of building automation and to control automatic building functions with support of security sensors.

KNX Security Panel without cover, integrated zone modules and batteries

The KNX Security Panel provides all needed system interfaces: An ethernet connection is used for programming, diagnostics and operation via a standard webbrowser as well as integration into the building network. The security sensors will be connected directly to the panel inputs or via the security bus, where the setting device for the system is also connected. Furthermore the panel provides interfaces for the also newly developed keypads and for internal, external or remote alarming. Finally the integrated KNX interface allows on the one hand to display alarm states via displays of building automation and on the other to control automatic building functions with support of security sensors.