

# 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.

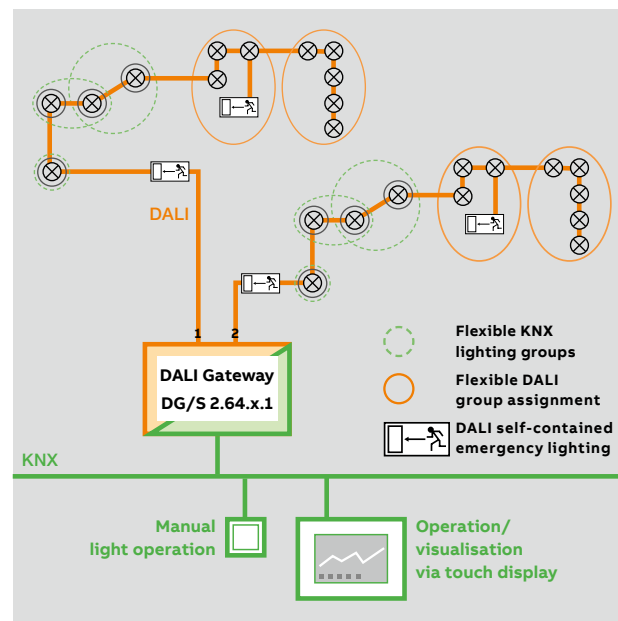
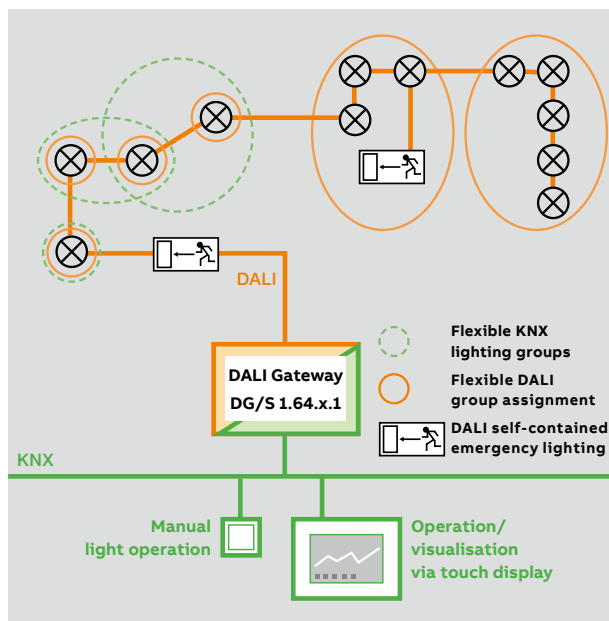
**DALI Gateways DG/S 1.64.x.1**  
**Flexibility by controlling light individually per device or in groups**

**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 (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.

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.



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## ABB i-bus® KNX

### Illumination and Light Sensors – DALI

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

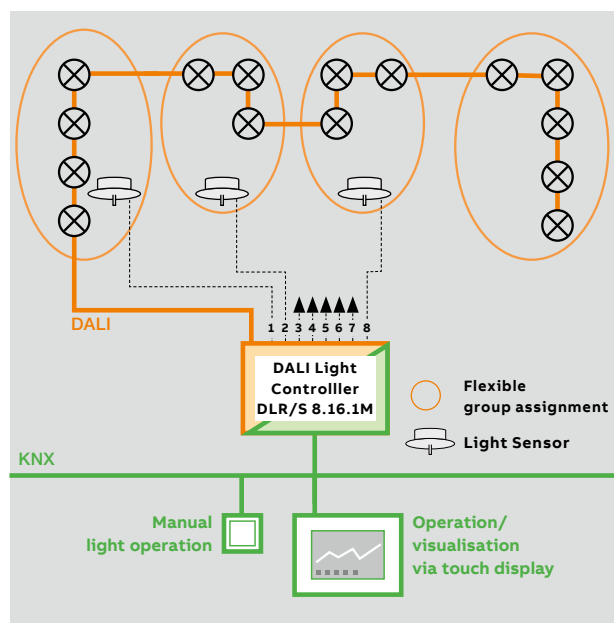


Control via 16 lighting groups. Up to 8 lighting groups can be controlled with 8 light sensors. Master-slave, staircase light and Scene mode round off the functions.

**DALI 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.



## ABB i-bus® KNX

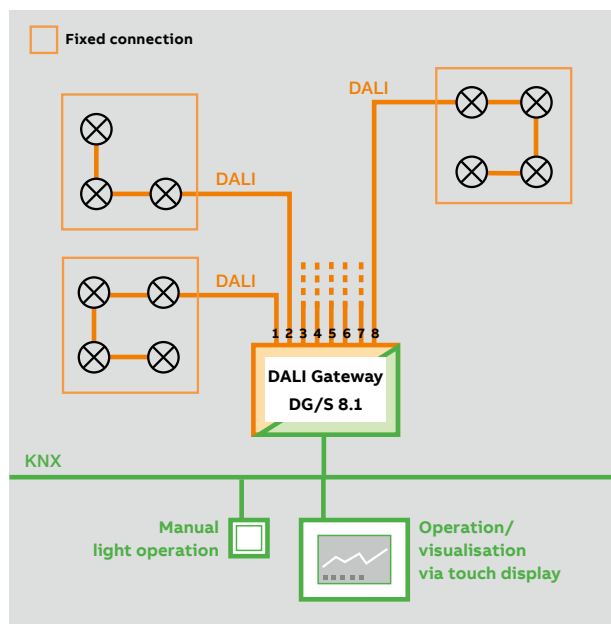
### Illumination and Light Sensors – DALI

#### 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.

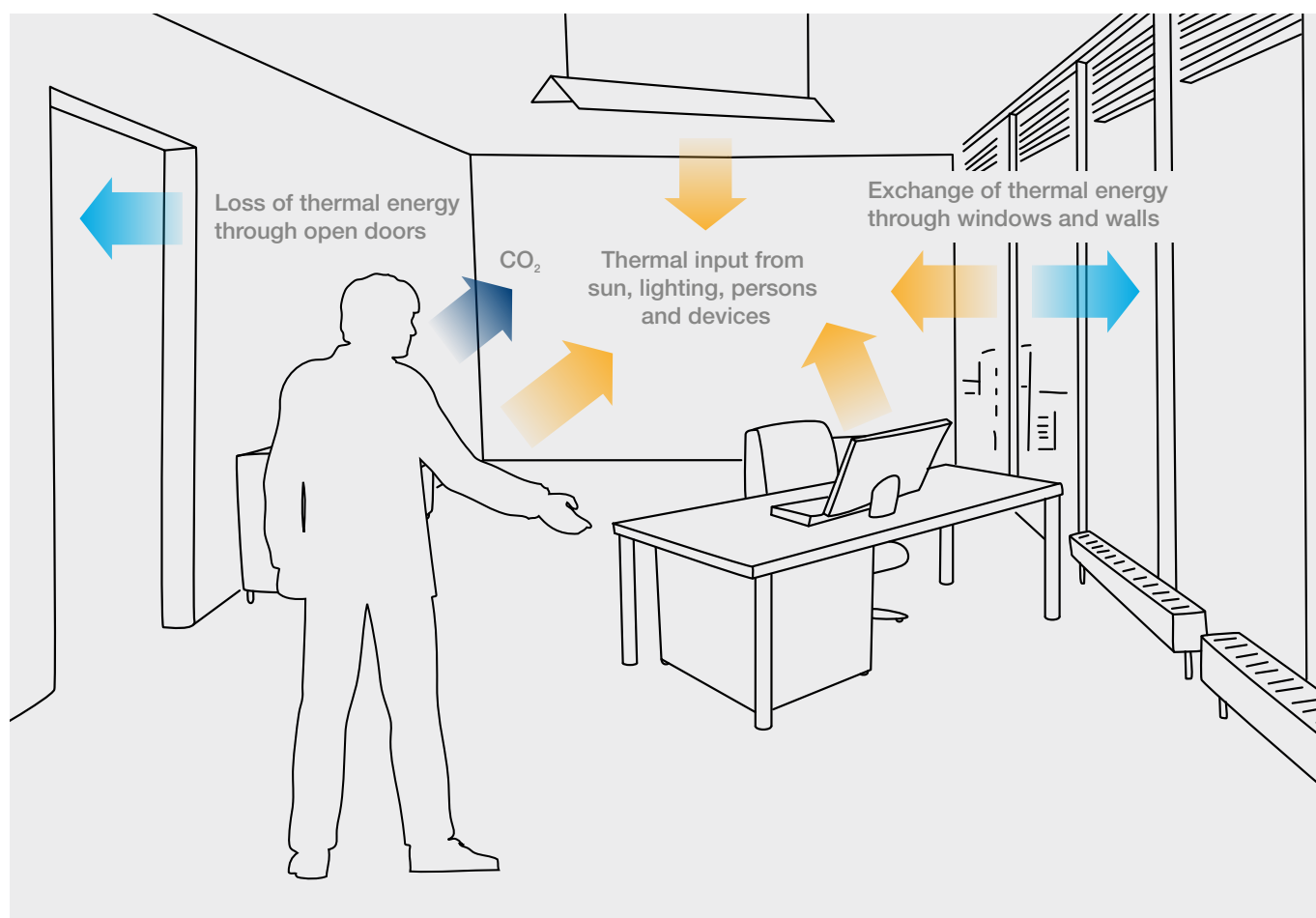
Depending on the intensity, all this interactions influence also the energy efficiency of a building and have therefore to be optimised.

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<sub>2</sub> 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<sub>2</sub> concentration in the air influences the well-being as well as the performance and learning ability of people. Besides the normal CO<sub>2</sub> concentration in the air, human respiration is an important factor increasing the CO<sub>2</sub> concentration in a room. Therefore it is important to measure the CO<sub>2</sub> 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<sub>2</sub> concentration and sufficient supply of fresh air.





# ABB i-bus® KNX Busch-priOn®


## Operation – Planning aid for Busch-priOn®

### End strips without function

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

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

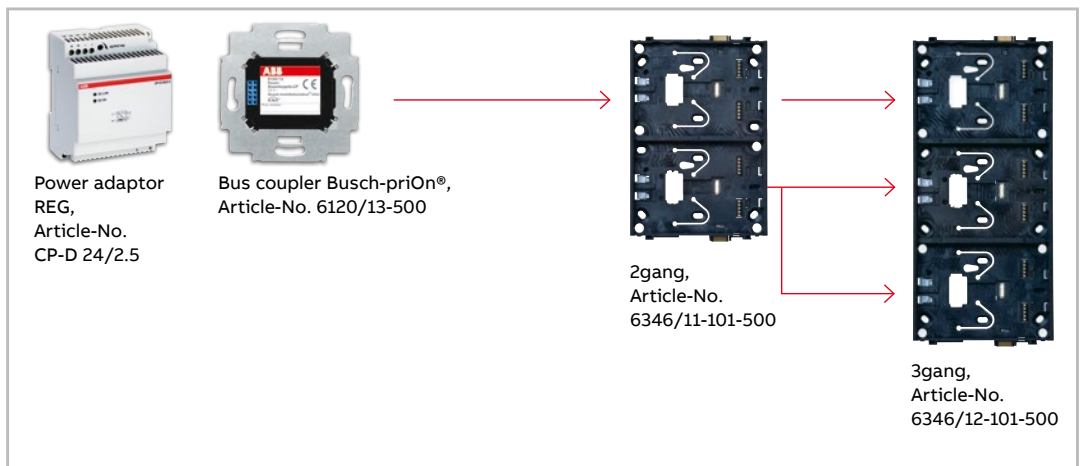
  
glass black,  
Article-No. 6348-825-101-500

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

### Support frame, bus coupler



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



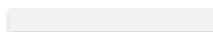
### FM actuators

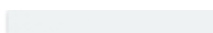
### End strip





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

## ABB i-bus® KNX Busch-priOn®

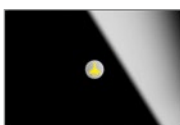
### End strip with IR proximity function



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



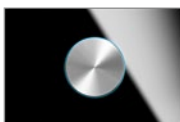
Single-line  
display and room  
thermostat,  
Article-No.  
6351/08-825



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



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

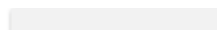


Rotary control  
element, 1gang,  
Article-No.  
6341-825-101-500

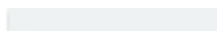


Busch-Watchdog,  
180 FM,  
Article-No.  
6345-825-101-500

### 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



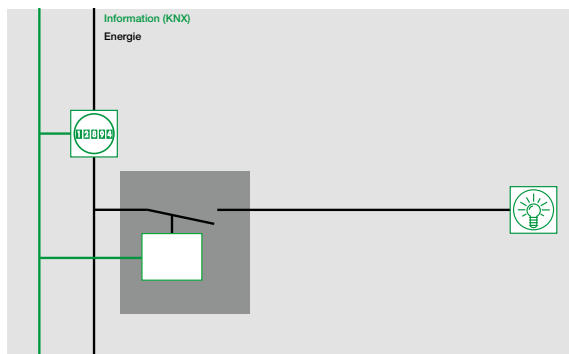
Labelling inserts for blinds, lighting,  
RTC and scene. The colours are repeated in the  
Busch-Jaeger colour concept.

# ABB i-bus® KNX

## Energy measurement

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

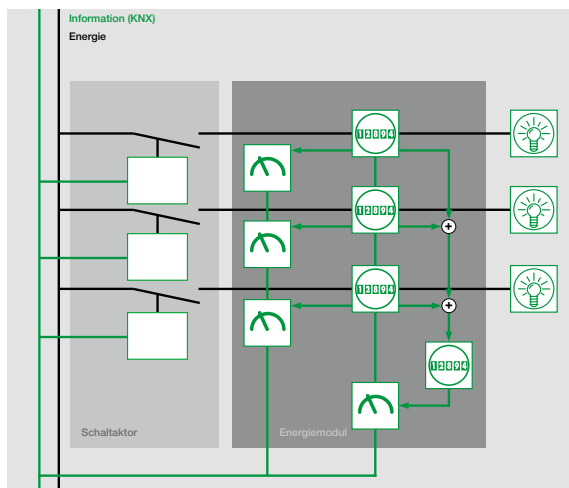
### Version 1



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.



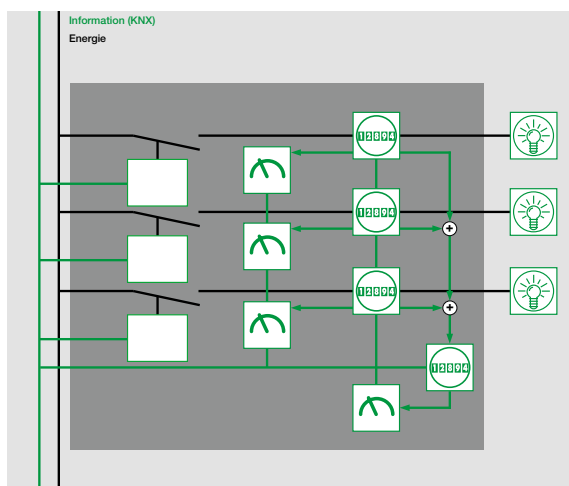
### Version 2



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.

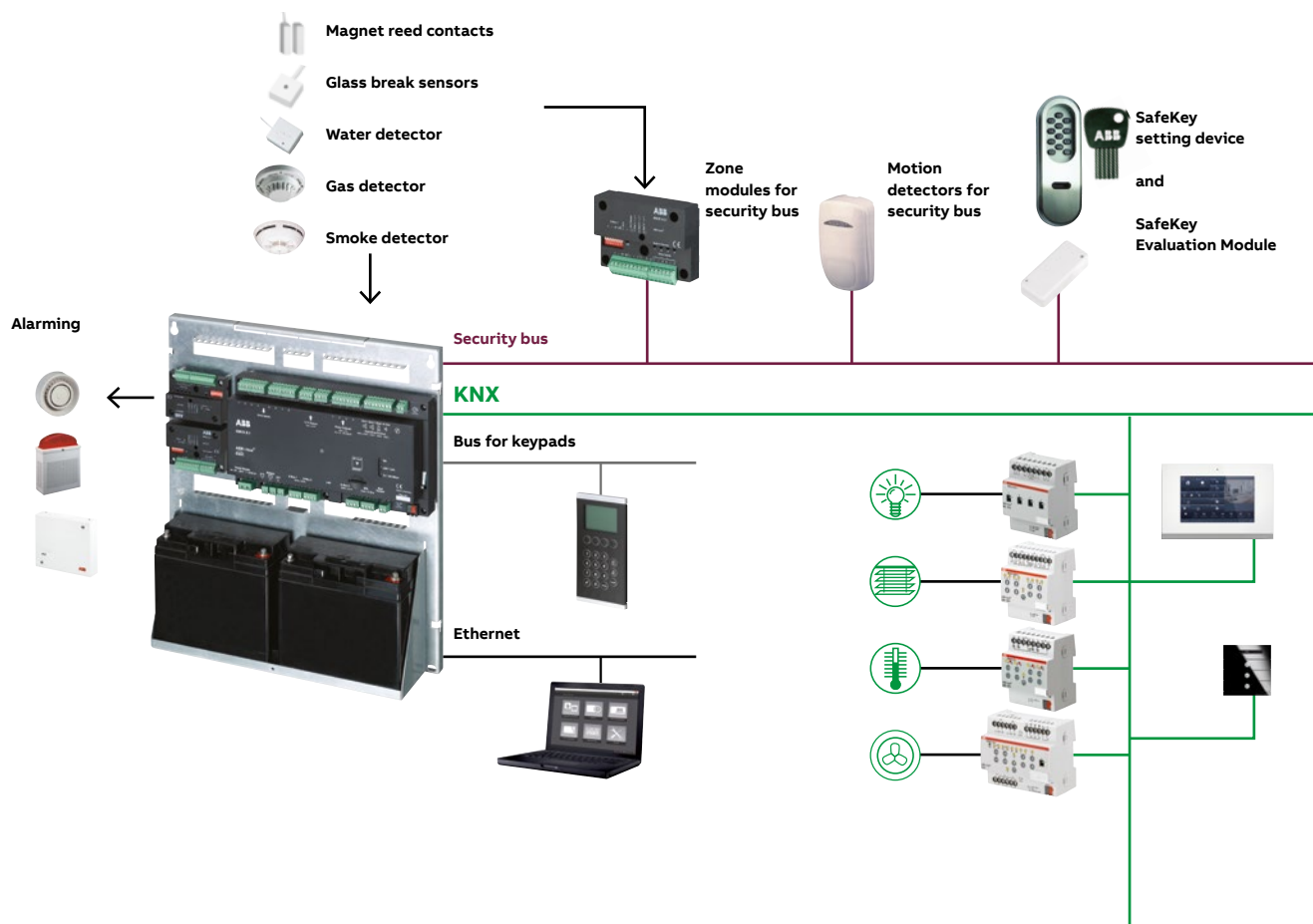


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## ABB i-bus® KNX

### Security and Surveillance – The new KNX Security Panel



#### A complete 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.

## 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.