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THORSTEN REIBEL & JUERGEN SCHILDER – OCTOBER 2024

# **ABB i-bus® KNX – New Binary Inputs and Universal Interfaces**

## Webinar– Building Academy Smart Buildings

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# Agenda

- Introduction
- Range Overview
- Hardware Features
- Software Features and ETS Application
- KNX Data Secure 

# Introduction



## History of Binary Inputs



# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

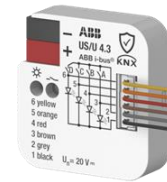
## Introduction

### ABB i-bus® KNX Inputs

- Inputs serve as an interface for
  - conventional push buttons and switches
  - floating contacts
  - processing binary and analogue signals
- Device Overview
  - Binary Input BE/S
  - Universal Interface US/U
  - Analogue Input AE/S
  - Weather Station WS/S
  - Devices with outputs and binary inputs  
e.g. Room Master RM/S, Room Controller RC/A, Shutter Actuator JRA/S, FanCoil Controller FCC/S, ...



Binary Input



Universal Interface



Analogue Input



Room Master  
with Binary Inputs



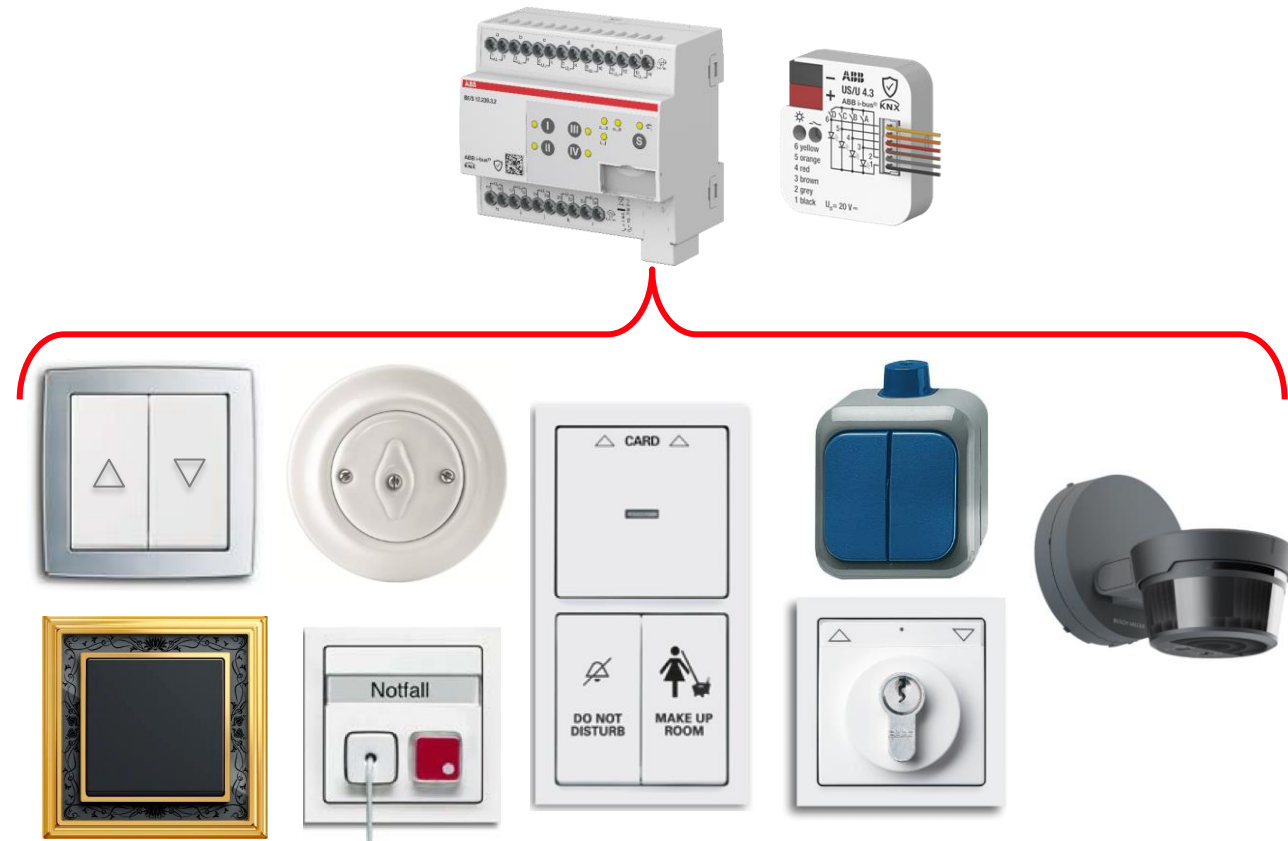
Shutter Actuator  
with Binary Inputs

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Introduction

### ABB i-bus® KNX Inputs

- Binary Inputs and Universal Interfaces serve as an interface for conventional push buttons and switches
  - Familiar and easy operation
  - Cost-effective solution  
e.g. in combination with Room Master RM/S for guest room solutions
  - More design and operation elements
    - Key card reader in hotel rooms
    - Key switch in a classroom (lights can only be switched on with a key)
  - Harsh environmental conditions
  - Industrial areas
  - Outside buildings (security reasons – do not install KNX cables outdoors)
  - Sensitive indoor areas, no access to bus cable
  - ...

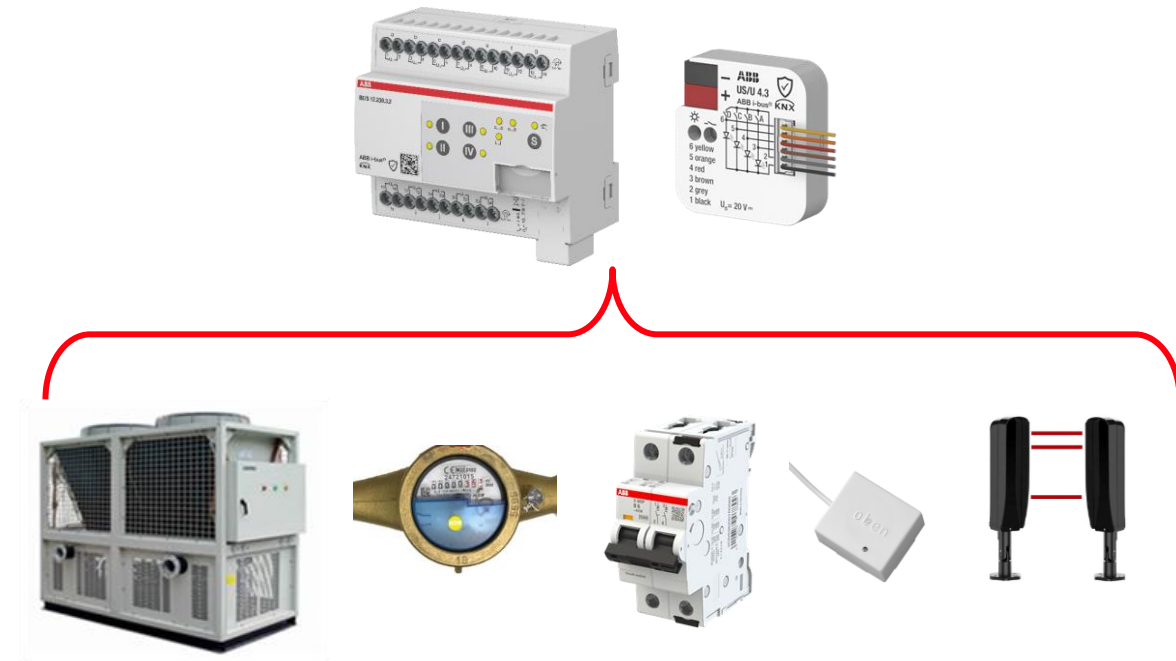


# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Introduction

### ABB i-bus® KNX Inputs

- Binary Inputs and Universal Interfaces serve as an interface for floating contacts (potential free) and binary signals
  - Fault or alarm signal relay, e.g. in hospitals
  - System status, whether a circuit breaker or residual current device has tripped
  - Monitoring contacts (technical sensors like water detector)
  - On and off state of a machine
  - Signal transfer from third-party systems (digital I/O)
  - Counting (S0)-pulses of meters
  - Special sensors, e.g. light barrier, limit value switch
  - ...



# Range Overview



# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Current devices – to be discontinued

- Binary Inputs, 10 – 230 V
  - 4-fold BE/S 4.230.2.1
  - 8-fold BE/S 8.230.2.1
- Binary Inputs, Contact Scanning
  - 4-fold BE/S 4.20.2.1
  - 8-fold BE/S 8.20.2.1
- Universal Interface, flush-mounted (FM)
  - 2-fold US/U 2.2
  - 4-fold US/U 4.2
  - 12-fold US/U 12.2 – still available

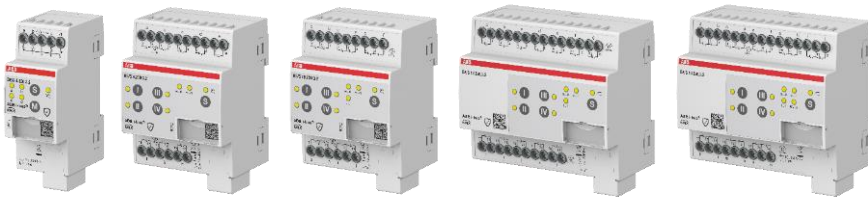


# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### New Binary Inputs with 10 ... 230 V

- BE/S x.230.3.2
- 4, 8, 10, 12 and 16 inputs
- Keypad for status indication and manual operation
- Optimized functionality, e.g. templates, 2-button operation, logical functions
- KNX Data Secure ✓



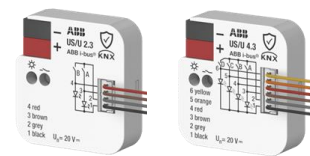
### New Binary Inputs with Contact Scanning

- BE/S x.20.3.2
- 4, 10 and 16 inputs
- Keypad for status indication and manual operation
- Optimized functionality e.g. templates, 2-button operation, logical functions
- KNX Data Secure ✓



### New Universal Interfaces

- US/U x.3
- 2 and 4 inputs/outputs
- Output for LED control
- Optimized functionality, e.g. templates, 2-button operation, logical functions
- KNX Data Secure ✓



A larger portfolio with a uniform ETS application across all devices

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Product name description

#### Abbreviation BE/S x.y.3.2

- BE Binary Input
  - /S MDRC
    - x. 4 = 4-fold  
8 = 8-fold  
10 = 10-fold  
12 = 12-fold  
16 = 16-fold
    - y. 20 = with Contact Scanning  
230 = for voltage range from 12 ... 230 V
      - 3. = with Manual operation
        - 2 = Version number

#### Abbreviation US/U x.3

- US Universal Interfaces
  - /U FM (flush mounting)
    - x. 2 = 2-fold  
4 = 4-fold
    - 3 = Version number

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Binary Inputs BE/S x.y.3.2

**Traceability with 2D code**  
Implementing digital service features  
and diagnostics

**Combi screw-head terminals**

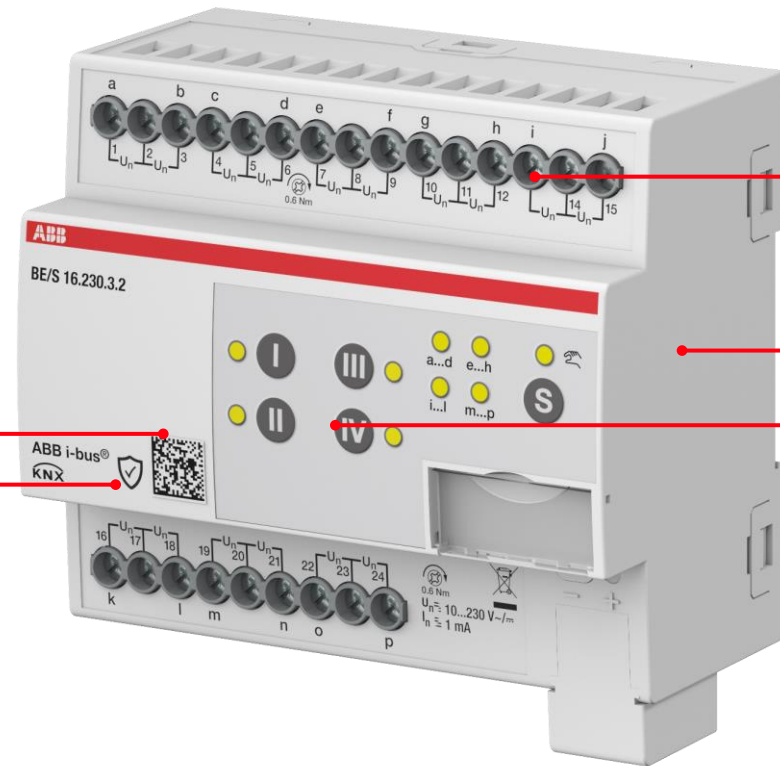
**Comprehensive Portfolio**  
A larger portfolio that meets  
all requirements



**KNX Data Secure**  
Excellent security of the KNX installation  
with KNX Data Secure

**New Keypad**


Harmonized look and feel  
over the newest portfolios

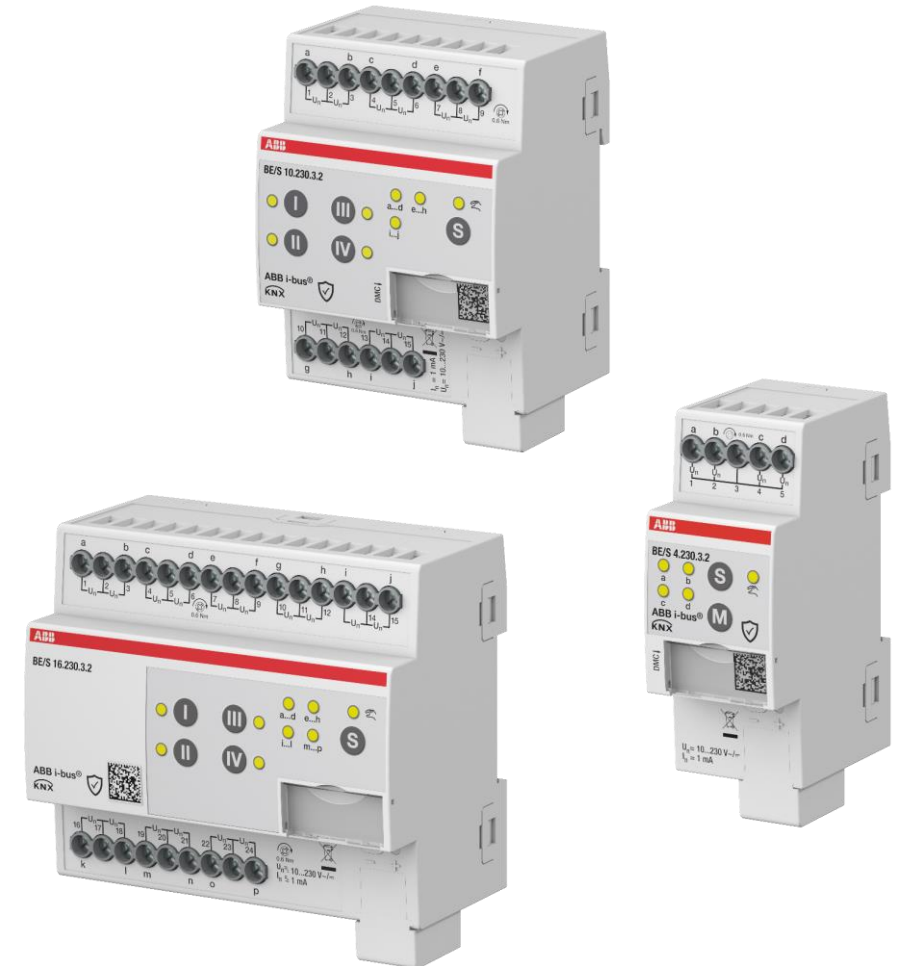


# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Binary Inputs BE/S x.y.3.2 – device description

- The devices are modular installation devices (MDRC) in proM design
- They are designed for installation in electrical distribution boards and small housings with a 35 mm mounting rail (according to EN 60715)
- The connections at the inputs are made via screw terminal with universal head (PZ1)  
→ connection diagram is on the housing
- LEDs indicate the input status
- The devices can be operated manually using the keypad
- Secure through KNX Data Secure 
- 2D code for traceability (digital services, diagnostics, ...)
- The devices are powered via KNX and requires no additional auxiliary voltage



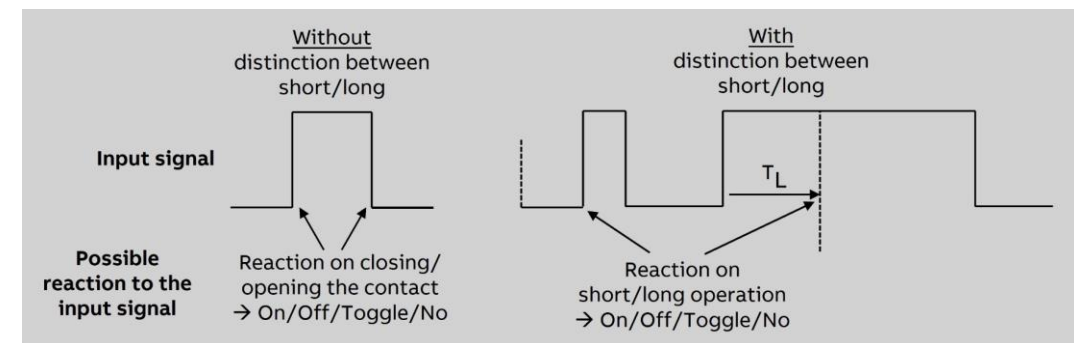


# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Binary Inputs BE/S x.y.3.2 – device functions

- They are used as an interface for operating KNX systems via conventional buttons/switches or for coupling floating binary signals
- Device type BE/S x.**230**.3.2 is intended to be used for the acquisition of **10-230 V AC/DC signals**
- Device type BE/S x.**20**.3.2 is intended to be used for the acquisition of **floating binary signals (potential-free)** with contact scanning
- When the contacts connected to the device inputs are operated, the devices send telegrams on the KNX bus
  - Rising edge (closing the contact ) and falling edge (opening the contact)
  - Short and long operation
  - Multiple operation



# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Binary Inputs BE/S x.y.3.2

The following applications are available for each input

- Switch (1-button operation)
- Switch (2-button operation)
- Blind/shutter (1-button operation)
- Blind/shutter (2-button operation)
- Switch/dim (1-button operation)
- Switch/dim (2-button operation)
- Scenes
- Send value/multiple operation
- Fault indicator/logic input
- Switching sequence (1-button operation)
- Switching sequence (2-button operation)
- Pulse counter

1.1.5 BE/S16.230.3.2 Binary Input, 16-fold, 230V AC/DC, MDRC > Configuration

Configuration

	Application	Templ...	Description
Input a	Switch	✓	
Input b	Blind/shutter	✓	
Input c+d	Switch (2-button)	✓	
Input e+f	Blind/shutter (2-button)	✓	
Input g	Switch/dim	✓	
Input h	Scenes	✓	
Input i+j	Switch/dim (2-button)	✓	
Input k	Send value/multiple operation	✓	
Input l	Fault indicator/logic input	✓	
Input m+n	Switching sequence (2-button)	✓	
Input o	Switching sequence	✓	
Input p	Pulse counter	✓	

Enable Logic

Logic 1-4 ☒

Logic 5-8 ☒

Logic 9-12 ☒

Logic 13-16 ☒

*In order to use the inputs for logic, the fault indicator/logic input application must be active.*

Switch  
Switch (2-button)  
Blind/shutter  
Blind/shutter (2-button)  
Switch/dim  
Switch/dim (2-button)  
Scenes  
Send value/multiple operation  
Fault indicator/logic input  
Switching sequence  
Switching sequence (2-button)  
Pulse counter  
Deactivated

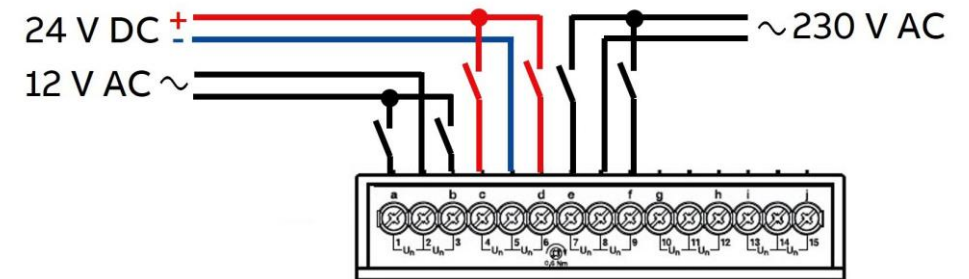
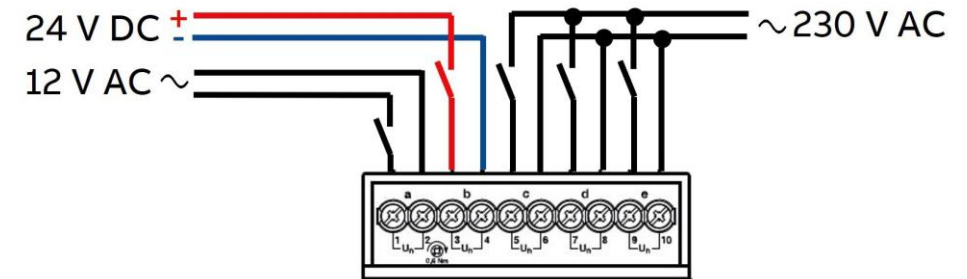
# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Binary Inputs BE/S x.230.3.2 – mixing signal types at device inputs

On the following device types, each device input can acquire another 10-230 V signal (mixed AC/DC)

- Each input can have a different signal type
  - BE/S 8.230.3.2
  - BE/S 12.230.3.2
  - Example
    - Input a: 12 V AC
    - Input b: 24 V DC
    - Input c: 230 V AC
    - Input x: ...
- On two neighboring inputs, the same signal type must be present
  - BE/S 10.230.3.2
  - BE/S 16.230.3.2
  - Example
    - Input a and b: 12 V AC
    - Input c and d: 24 V DC
    - Input e and f: 230 V AC



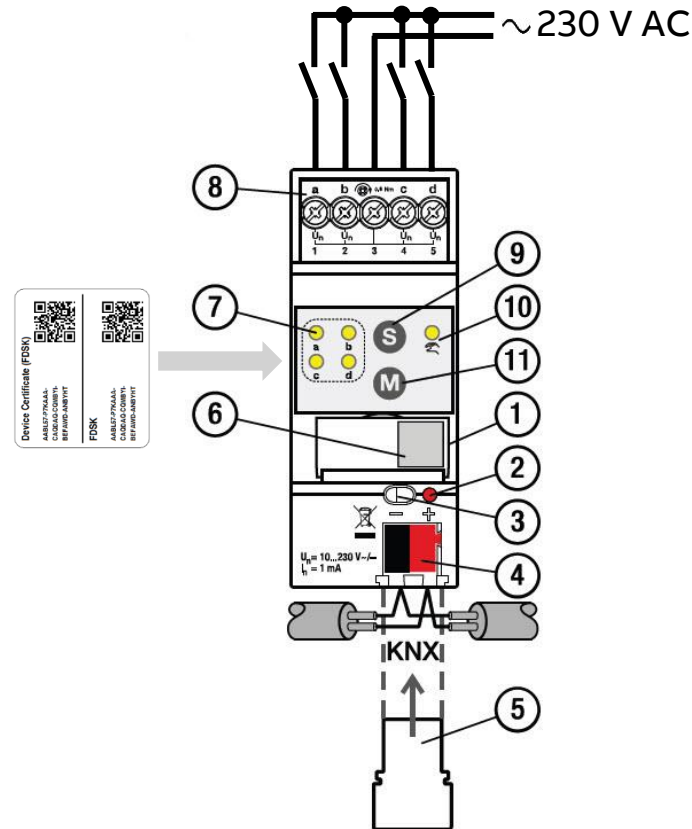
# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Binary Inputs BE/S 4.230.3.2 with 10-230 V AC/DC

Connection diagram

1. Label carrier
2. Programming LED
3. Programming button
4. KNX bus connection terminal
5. Cover cap
6. 2D code
7. Input status LEDs
8. Binary inputs
9. “S” button
10. LED manual operation
11. “M” input button



The device inputs can acquire different 10-230 V signals (AC or DC); on all four inputs, the same signal type must be present

#### Example

Input a, b, c and d: 230 V AC

or

Input a, b, c and d: 24 V DC

#### Note:

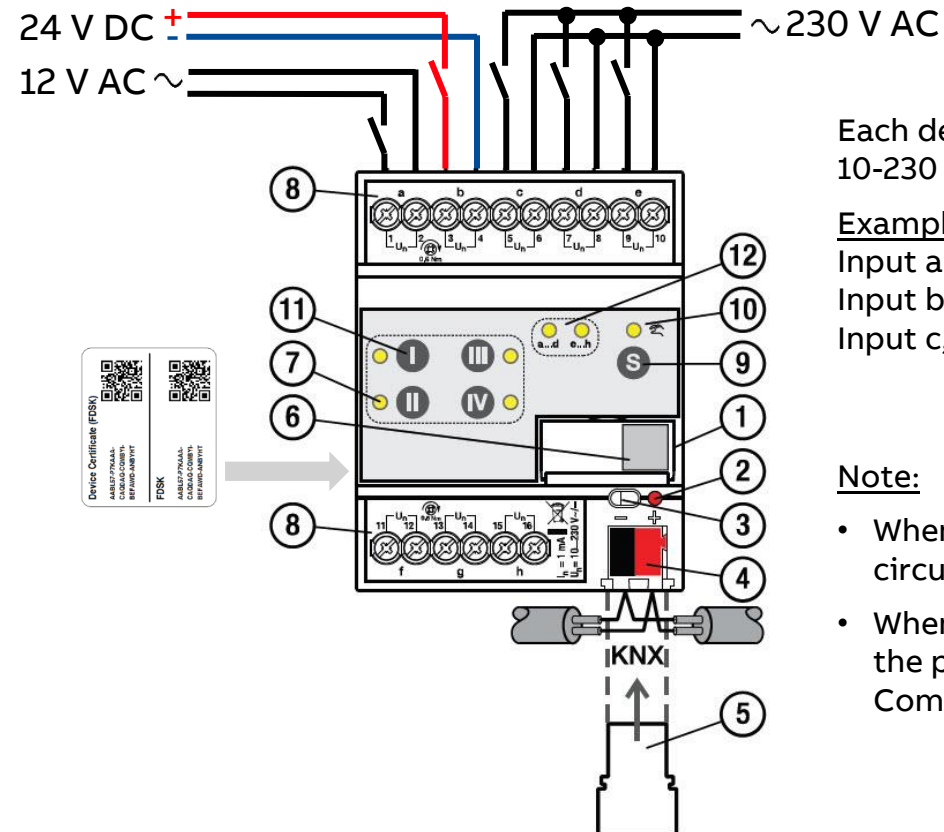
- 4 inputs per common connection
- When acquiring AC signals, an RCD circuit can be connected
- When acquiring DC signals, make sure the polarity is correct  
Common: Minus (-), Input: Plus (+)

# Range Overview

## Binary Inputs BE/S 8.230.3.2 with 10-230 V AC/DC

## Connection diagram

1. Label carrier
2. Programming LED
3. Programming button
4. KNX bus connection terminal
5. Cover cap
6. 2D code
7. Input status LEDs
8. Binary inputs
9. "S" button
10. LED manual operation
11. "Input" buttons
12. Group status LEDs



Each device input can acquire another 10-230 V signal (mixed AC/DC)

### Example

Input a: 12 V AC

Input b: 24 V DC

Input c, d and e: 230 V AC

Note:

- When acquiring AC signals, up to 8 RCD circuits can be connected
- When acquiring DC signals, make sure the polarity is correct  
Common: Minus (-), Input: Plus (+)



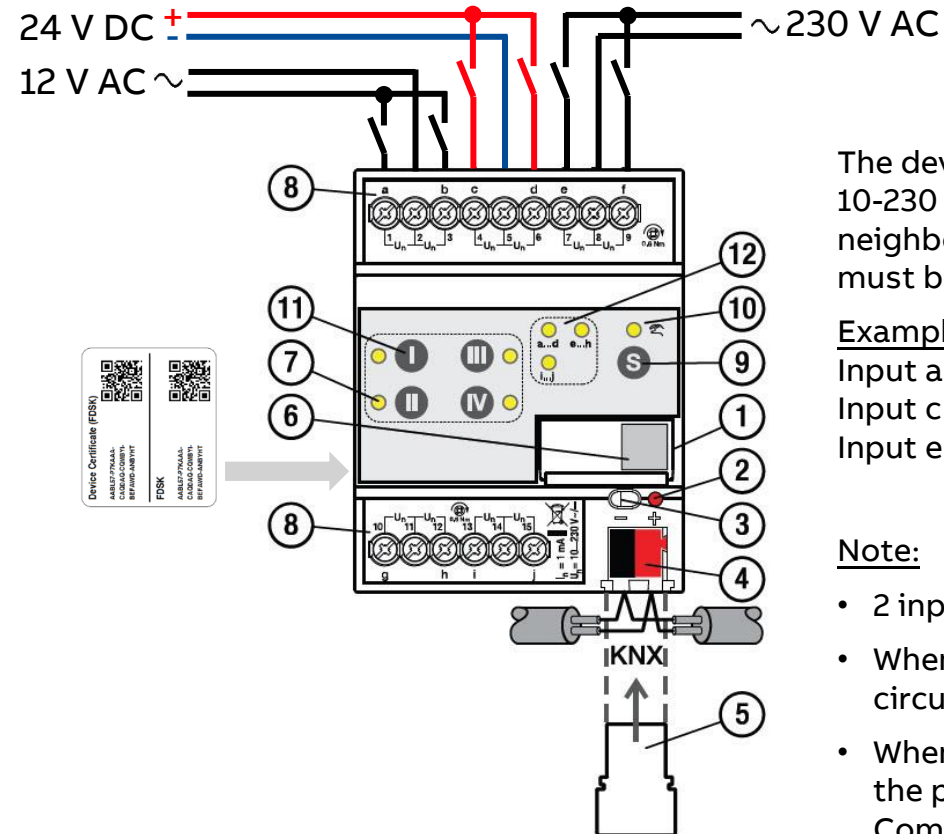
# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Binary Inputs BE/S 10.230.3.2 with 10-230 V AC/DC

Connection diagram

1. Label carrier
2. Programming LED
3. Programming button
4. KNX bus connection terminal
5. Cover cap
6. 2D code
7. Input status LEDs
8. Binary inputs
9. “S” button
10. LED manual operation
11. “Input” buttons
12. Group status LEDs



The device inputs can acquire different 10-230 V signals (mixed AC/DC); on two neighboring inputs, the same signal type must be present

#### Example

Input a and b: 12 V AC  
Input c and d: 24 V DC  
Input e and f: 230 V AC

#### Note:

- 2 inputs per common connection
- When acquiring AC signals, up to 5 RCD circuits can be connected
- When acquiring DC signals, make sure the polarity is correct  
Common: Minus (-), Input: Plus (+)

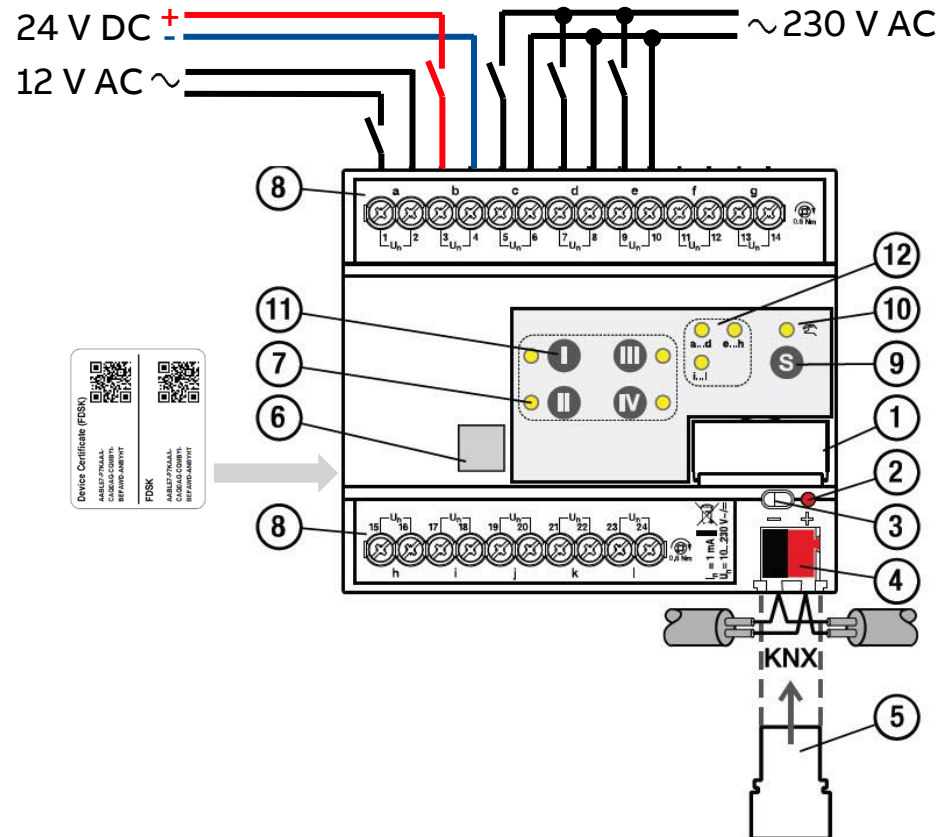
# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Binary Inputs BE/S 12.230.3.2 with 10-230 V AC/DC

Connection diagram

1. Label carrier
2. Programming LED
3. Programming button
4. KNX bus connection terminal
5. Cover cap
6. 2D code
7. Input status LEDs
8. Binary inputs
9. “S” button
10. LED manual operation
11. “Input” buttons
12. Group status LEDs



Each device input can acquire another 10-230 V signal (mixed AC/DC)

#### Example

Input a: 12 V AC  
Input b: 24 V DC  
Input c, d and e: 230 V AC

#### Note:

- When acquiring AC signals, up to 12 RCD circuits can be connected
- When acquiring DC signals, make sure the polarity is correct  
Common: Minus (-), Input: Plus (+)

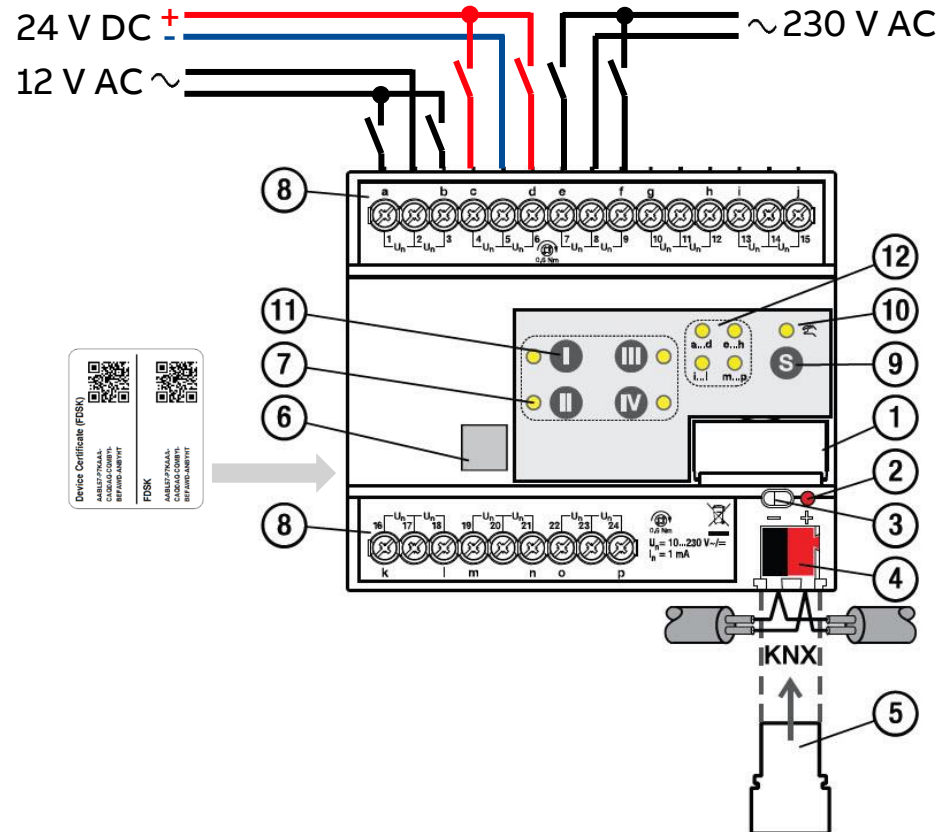
# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Binary Inputs BE/S 16.230.3.2 with 10-230 V AC/DC

Connection diagram

1. Label carrier
2. Programming LED
3. Programming button
4. KNX bus connection terminal
5. Cover cap
6. 2D code
7. Input status LEDs
8. Binary inputs
9. “S” button
10. LED manual operation
11. “Input” buttons
12. Group status LEDs



The device inputs can acquire different 10-230 V signals (mixed AC/DC); on two neighboring inputs, the same signal type must be present

#### Example

Input a and b: 12 V AC  
Input c and d: 24 V DC  
Input e and f: 230 V AC

#### Note:

- 2 inputs per common connection
- When acquiring AC signals, up to 8 RCD circuits can be connected
- When acquiring DC signals, make sure the polarity is correct  
Common: Minus (-), Input: Plus (+)

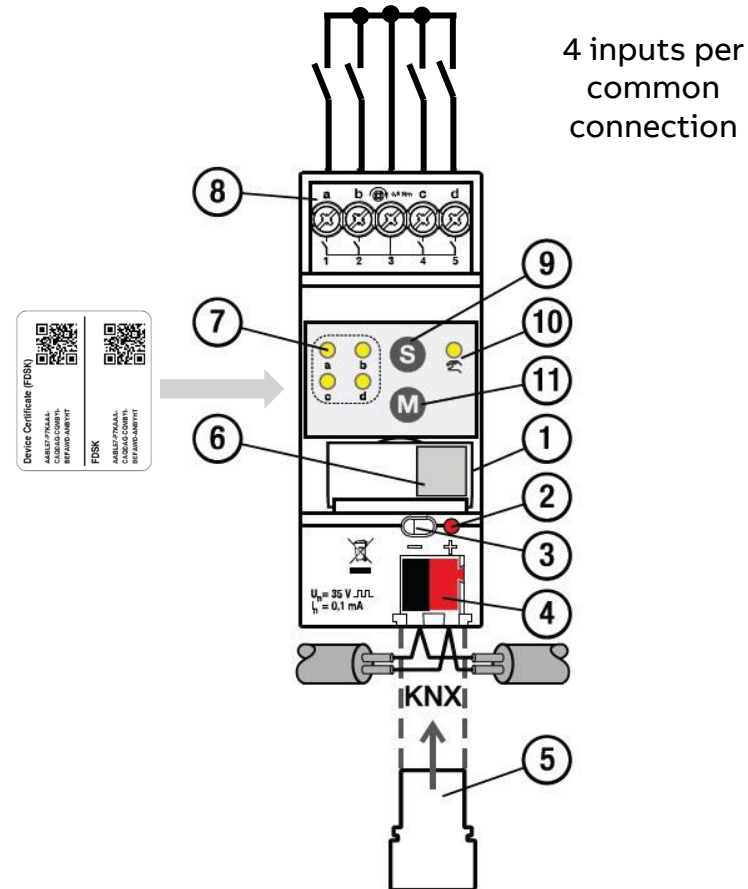
# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Binary Inputs BE/S 4.20.3.2 with Contact Scanning

Connection diagram

1. Label carrier
2. Programming LED
3. Programming button
4. KNX bus connection terminal
5. Cover cap
6. 2D code
7. Input status LEDs
8. Binary inputs
9. “S” button
10. LED manual operation
11. “M” input button



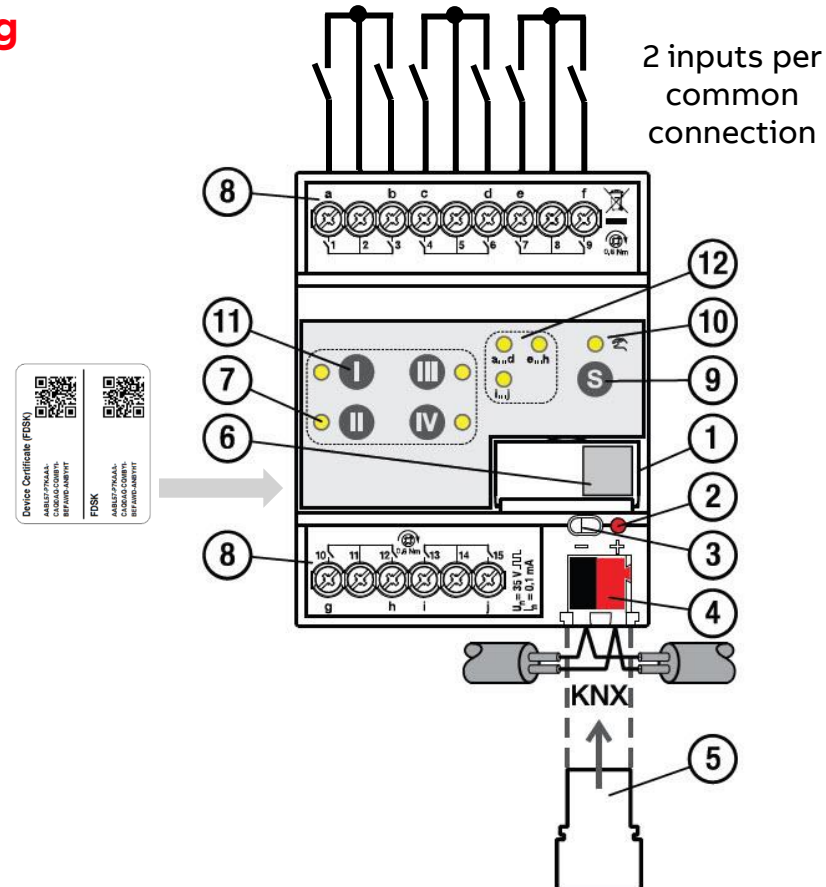
# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Binary Inputs BE/S 10.20.3.2 with Contact Scanning

Connection diagram

1. Label carrier
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7. Input status LEDs
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9. “S” button
10. LED manual operation
11. “Input” buttons
12. Group status LEDs










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# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Binary Inputs BE/S x.y.3.2 – Operating and display elements




- Programming button  
 Assignment of the individual address
- Programming LED  
 LED On: Device in programming mode
- Note
  - The Binary Inputs are KNX Data Secure devices 
  - The individual address can also be programmed via the serial number

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Binary Inputs BE/S 4.y.3.2 – Operating and display elements

#### KNX operation




Operating control/LED	Description/function	Display
 “S” button / Manual operation LED	Short button push < 2 s: Selection of input Button push 2 ... 5 s: Changeover to <i>Manual operation</i>	LED on: <i>Manual operation</i> active LED off: <i>KNX operation</i> active LED flashing (1 Hz) while button pressed: <i>Manual operation</i> not enabled or blocked
 X Input status LEDs		LED on: Contact closed LED off: Contact open
 “M” input button	Button without function	

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Binary Inputs BE/S 4.y.3.2 – Operating and display elements

#### Manual operation





Operating control/LED	Description/function	Display
 “S” button / Manual operation LED	Short button push < 2 s: Selection of input Button push 2 ... 5 s: Change to <i>KNX operation</i>	LED on: <i>Manual operation</i> active LED off: <i>KNX operation</i> active
 X Input status LEDs	LED briefly flashes once (< 1 Hz): Input was selected via the “S” button	LED on: Contact closed LED off: Contact open LED flashing (1 Hz): Input blocked; Manual operation not possible.
 “M” input button	Switching of inputs (simulation of opening/closing the contact)	

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Binary Inputs BE/S 8/10/12/16.x.3.2 – Operating and display elements

#### KNX operation

Operating control/LED	Description/function	Display
 “S” button / Manual operation LED	Short button push < 2 s: Selection of group Button push 2 ... 5 s: Change to <i>Manual operation</i> Long button push > 5 s: Selection of all Inputs	LED on: <i>Manual operation</i> active LED off: <i>KNX operation</i> active LED flashing (1 Hz) while button pressed: <i>Manual operation</i> not enabled or blocked
 X...Y LED group Input		LED on: Group selected LED off: Group not selected
 Input button	Button without function	
 Input status LEDs		LED on: Contact closed LED off: Contact open







# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Binary Inputs BE/S 8/10/12/16.x.3.2 – Operating and display elements

#### Manual operation

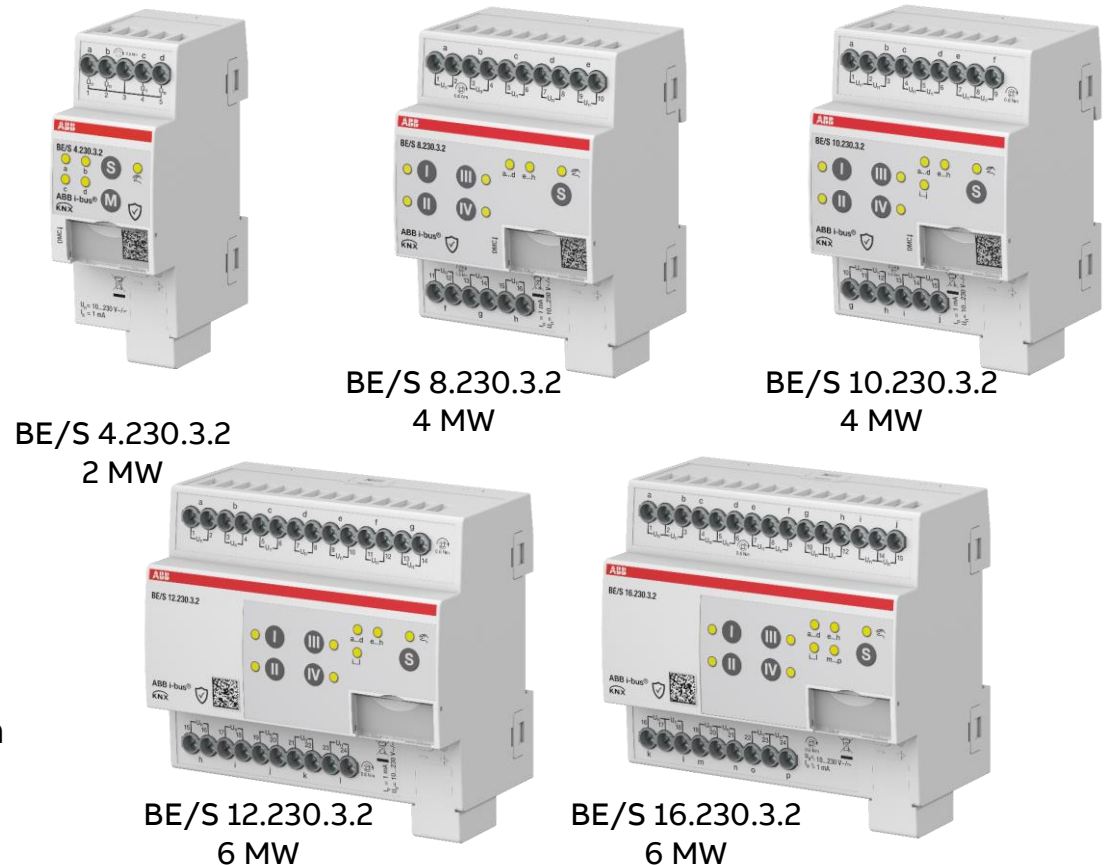
Operating control/LED	Description/function	Display
 “S” button / Manual operation LED	Short button push < 2 s: Selection of group Button push 2 ... 5 s: Change to <i>KNX operation</i> Long button push > 5 s: Selection of all Inputs	LED on: <i>Manual operation</i> active LED off: <i>KNX operation</i> active
 X...Y LED group Input		LED on: Group selected LED off: Group not selected
 Input button	Switching of inputs (simulation of opening/closing the contact) Button I: First input of group (a/e/i/m) Button II: Second input of group (b/f/j/n) Button III: Third input of group (c/g/k/o) Button IV: Fourth input of group (d/h/l/p)	
 Input status LEDs		LED on: Contact closed LED off: Contact open

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Binary Inputs BE/S x.230.3.2 with 10-230 V AC/DC – technical data

- Number of inputs 4, 8, 10, 12 or 16
- Design MDRC in proM design
- KNX current consumption < 5mA
- Operation –5 ... +45 °C
- Connection type: Screw terminal with universal head (PZ1)
- Inputs with 10-230 V AC/DC signals
  - Voltage range 0 ... 265 V AC/DC
  - Input current ≤ 1 mA
  - Signal level for 0-signal 0 ... 2 V AC/DC
  - Signal level for 1-signal 9 ... 265 V AC/DC
  - S0-Puls (DC):  $t_{\text{OFF}} \geq 30 \text{ ms}$  and  $30 \text{ ms} \leq t_{\text{ON}} \leq 120 \text{ ms}$
  - Cable length between device input and contact (one-way) ≤ 100 m



# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Binary Inputs BE/S x.20.3.2 with Contact Scanning – technical data

- Number of inputs 4, 10 or 16
- Design MDRC in proM design
- KNX current consumption < 5mA
- Operation –5 ... +45 °C
- Connection type: Screw terminal with universal head (PZ1)
- Inputs with contact scanning
  - Scanning current  $\leq 0.1$  mA
  - Scanning voltage  $U_n \leq 30$  V DC (pulsed)
  - Cable length between device input and contact (one-way)  $\leq 100$  m at cross-section  $1.5 \text{ mm}^2$



BE/S 4.20.3.2  
2 MW



BE/S 10.20.3.2  
4 MW



BE/S 16.20.3.2  
6 MW

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Binary Inputs BE/S x.y.3.2 – ordering details


- BE/S x.230.3.2 (10-230 V AC/DC signals)
  - 4-fold BE/S 4.230.3.2 2CDG110279R0011
  - 8-fold BE/S 8.230.3.2 2CDG110280R0011
  - 10-fold BE/S 10.230.3.2 2CDG110281R0011
  - 12-fold BE/S 12.230.3.2 2CDG110282R0011
  - 16-fold BE/S 16.230.3.2 2CDG110283R0011
- BE/S x.20.3.2 (contact scanning )
  - 4-fold BE/S 4.20.3.2 2CDG110276R0011
  - 10-fold BE/S 10.20.3.2 2CDG110277R0011
  - 16-fold BE/S 16.20.3.2 2CDG110278R0011

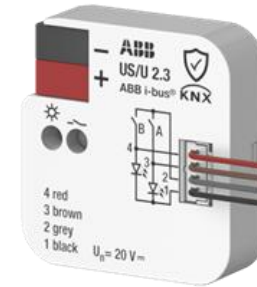


# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

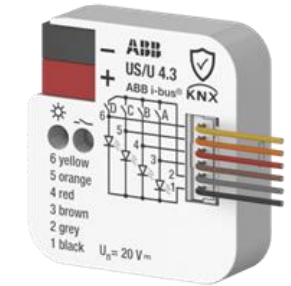
## Range Overview

### Universal Interfaces US/U x.3 – device description

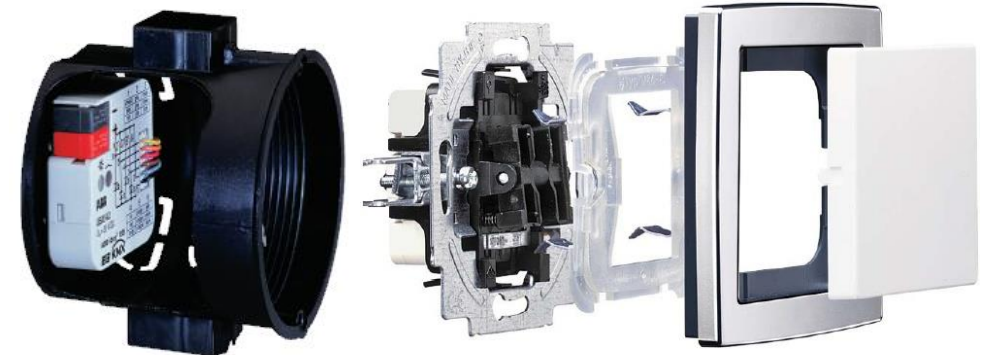
- The devices are flush mounting devices (FM)
- They are designed for installation in flush mounting box with a diameter of 60 mm
- The devices can be placed behind electrical equipment, e.g. pushbuttons
- The connections at the inputs or outputs are made via plug-in connection cables → connection diagram is on the housing
- The connection terminal and the colors are compatible with Universal Interfaces US/U x.2 (e.g. device replacement)
- The connection cables can be extended up to 10 m
- Secure through KNX Data Secure 
- 2D code for traceability (digital services, diagnostics, ...)
- The devices are powered via KNX and requires no additional auxiliary voltage



US/U 2.3



US/U 4.3

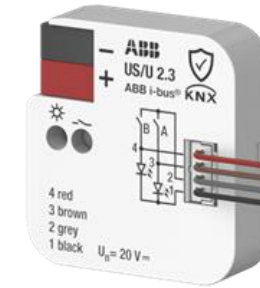


# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

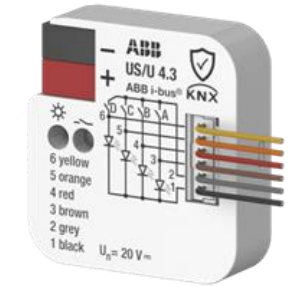
## Range Overview

### Universal Interfaces US/U x.3 – device functions

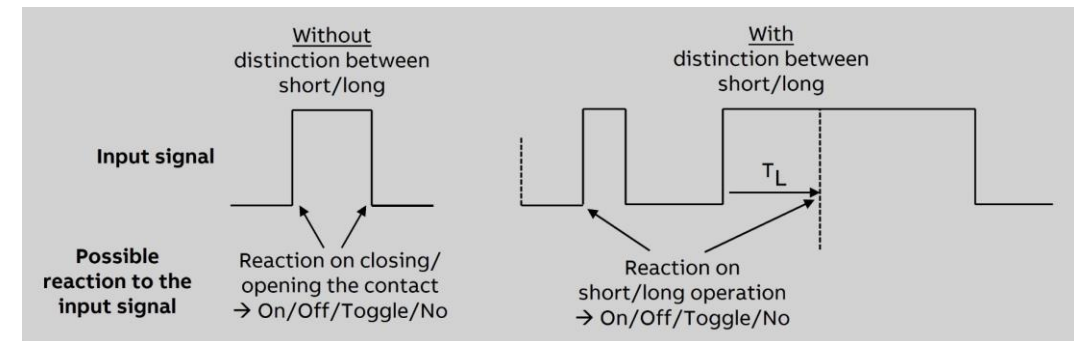
- Each channel can be used as either an input or an output
  - The inputs are used as an interface for operating KNX systems via conventional buttons/switches or for coupling floating binary signals (potential-free) with contact scanning
  - The outputs are used to control LEDs (3.3 V DC, max. 5 mA, limited by pre-resistor)
- When the contacts connected to the device inputs are operated, the devices send telegrams on the KNX bus
  - Rising edge (closing the contact ) and falling edge (opening the contact)
  - Short and long operation
  - Multiple operation



US/U 2.3



US/U 4.3





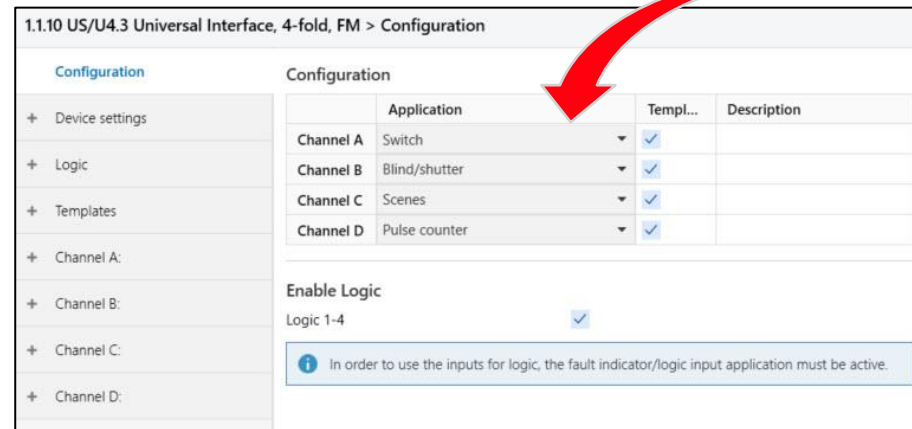
# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Universal Interfaces US/U x.3

The following applications are available for each input

- Switch (1-button operation)
- Switch (2-button operation)
- Blind/shutter (1-button operation)
- Blind/shutter (2-button operation)
- Switch/dim (1-button operation)
- Switch/dim (2-button operation)
- Scenes
- Send value/multiple operation
- Fault indicator/logic input
- Switching sequence (1-button operation)
- Switching sequence (2-button operation)
- Pulse counter
- LED control



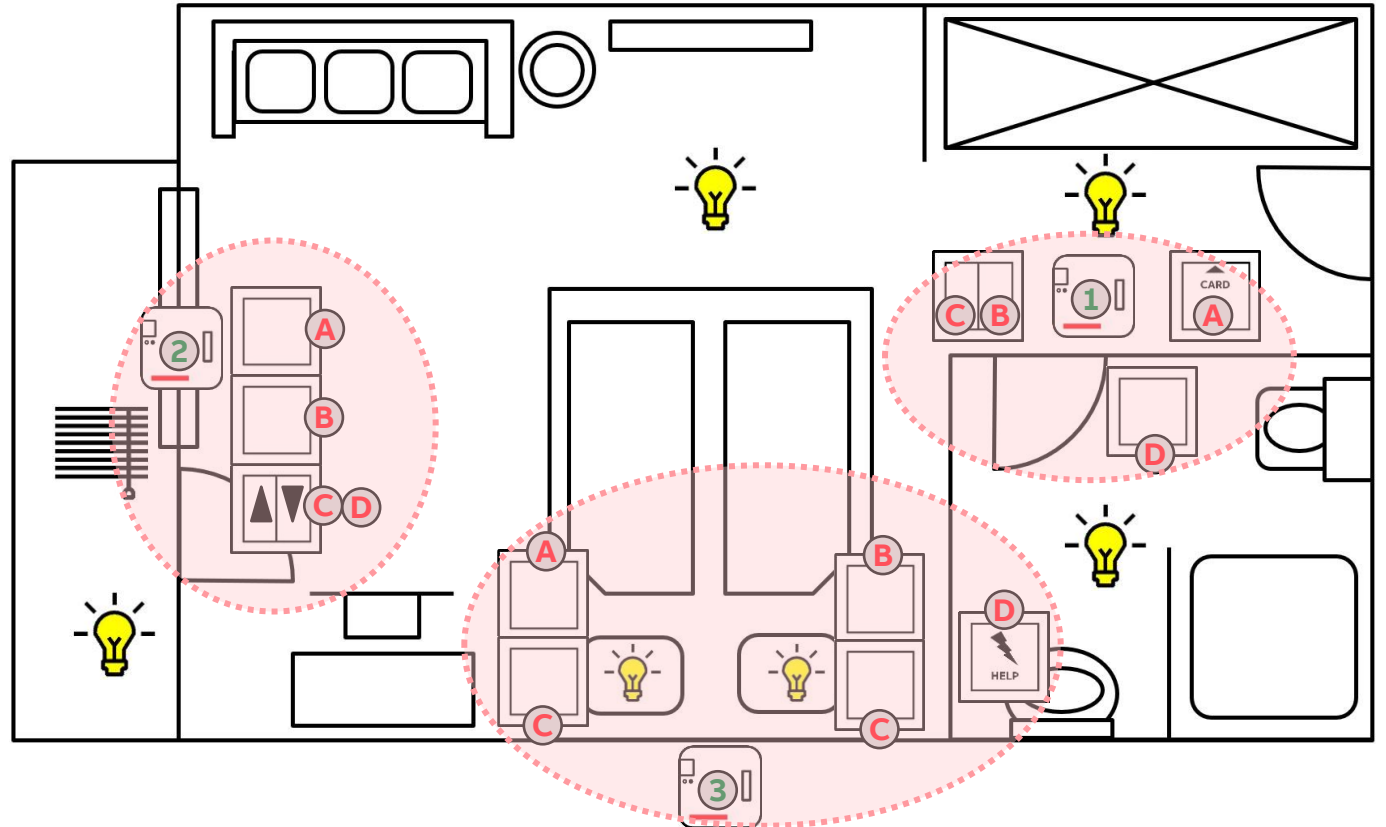
Switch  
Switch (2-button)  
Blind/shutter  
Blind/shutter (2-button)  
Switch/dim  
Switch/dim (2-button)  
Scenes  
Send value/multiple operation  
Fault indicator/logic input  
Switching sequence  
Switching sequence (2-button)  
Pulse counter  
LED control  
Deactivated

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Universal Interfaces US/U x.3 – device functions

- The channels can also be split between different rooms
- The connecting cables can be extended up to 10 m
- Example “Hotel room”
  - Universal Interfaces (1) – entrance
    - Channel “A” – Key card reader
    - Channel “B” – Lighting entrance area
    - Channel “C” – Lighting main room
    - Channel “D” – Lighting bathroom
  - Universal Interfaces (2) – balcony
    - Channel “A” – Lighting main room
    - Channel “B” – Lighting balcony
    - Channel “C&D” – Blinds balcony (2-button operation)
  - Universal Interfaces (3) - bedside
    - Channel “A” – Lighting bedside left
    - Channel “B” – Lighting bedside right
    - Channel “C” – Master switch
    - Channel “D” – Emergency call (bathroom)



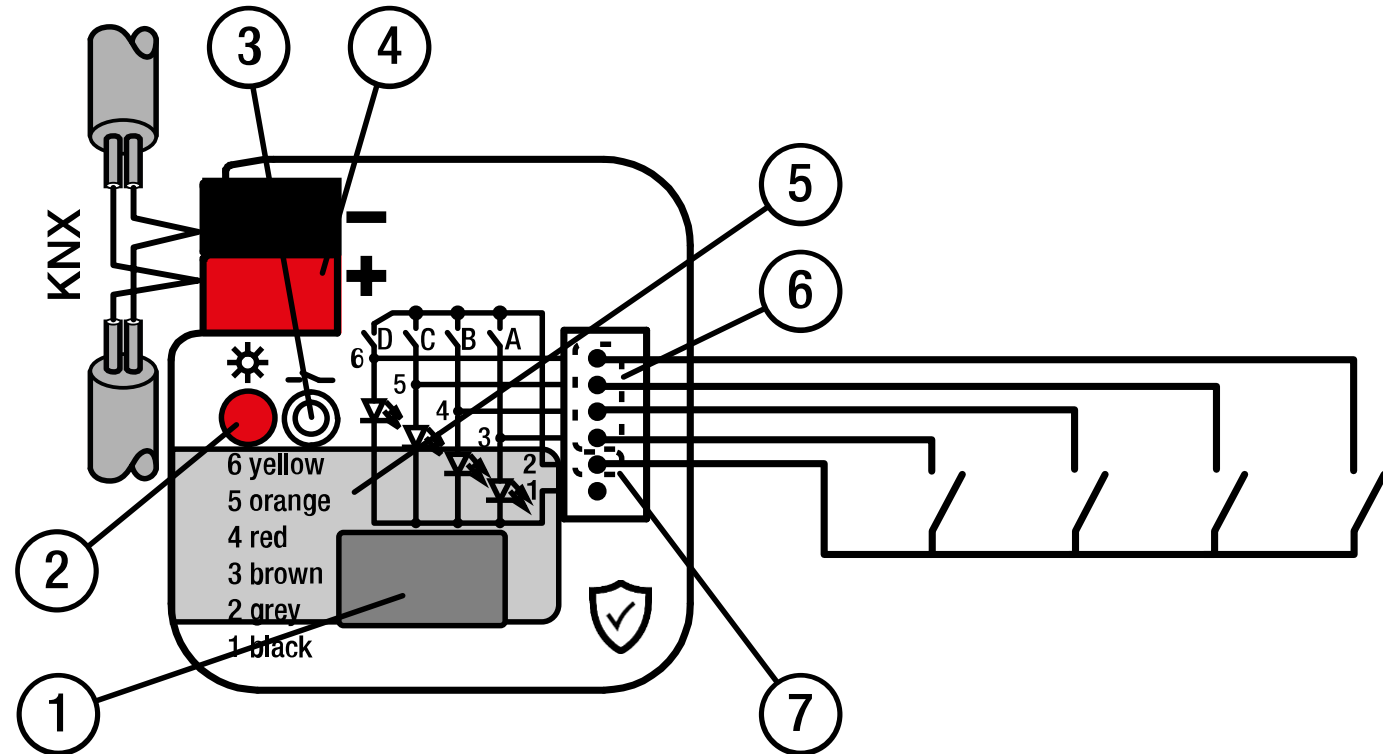
# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Universal Interfaces US/U x.3 – connection diagram

#### Input

1. Labeling field
2. Programming LED
3. Programming button
4. KNX bus connection terminal
5. Device certificate sticker (KNX Data Secure)
6. Binary inputs/LED outputs  
Channel A – brown  
Channel B – red  
Channel C – orange  
Channel D – yellow
7. Binary input  
Common – grey



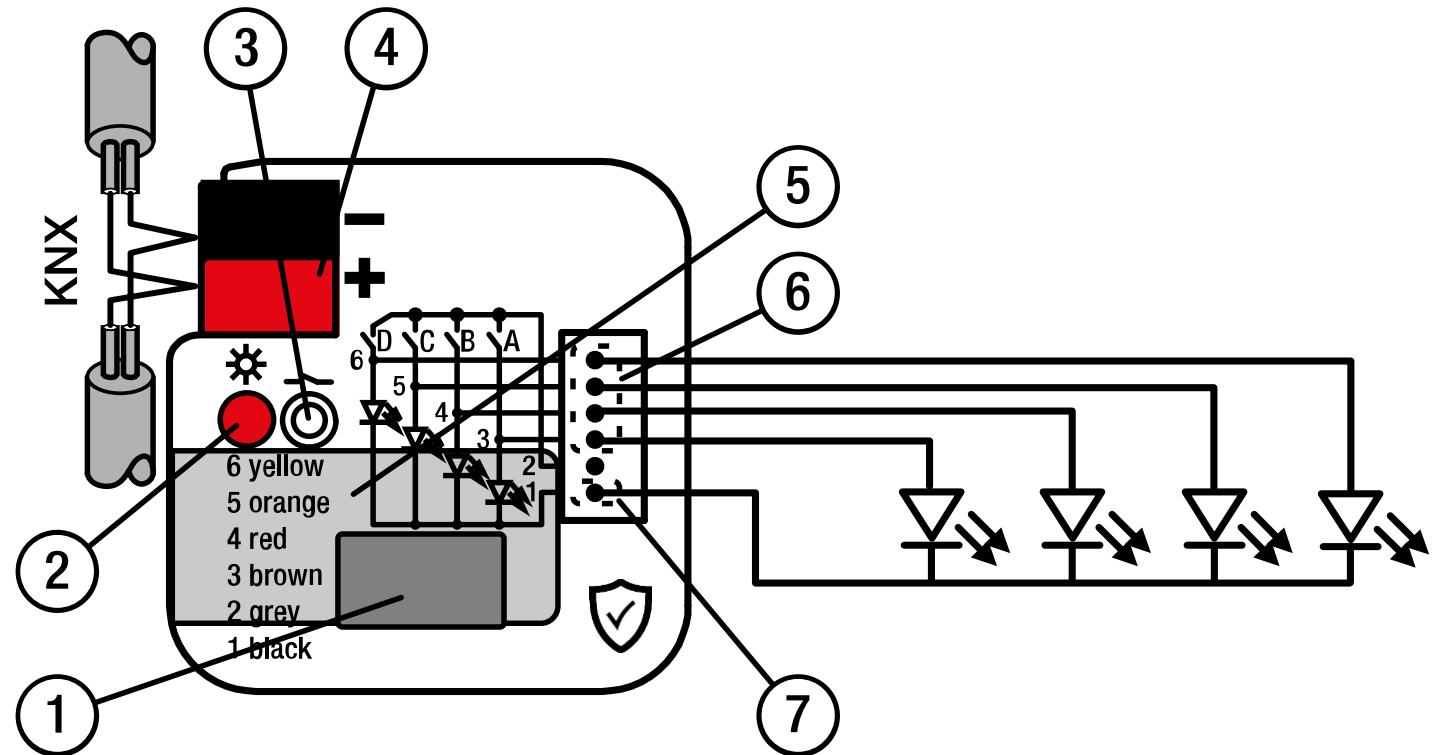
# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Universal Interfaces US/U x.3 – connection diagram

#### Output

1. Labeling field
2. Programming LED
3. Programming button
4. KNX bus connection terminal
5. Device certificate sticker (KNX Data Secure)
6. Binary inputs/LED outputs  
Channel A – brown  
Channel B – red  
Channel C – orange  
Channel D – yellow
7. LED output (-)  
Common – black



# Range Overview

## Input/Output

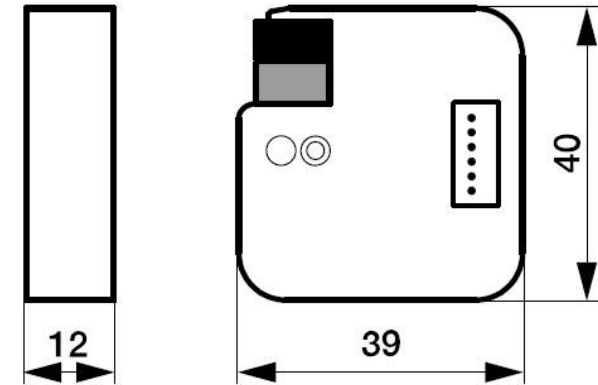
- 
- 1 black  
2 grey  
3 brown  
4 red  
5 orange  
6 yellow
- 6 yellow  
5 orange  
4 red  
3 brown  
2 grey  
1 black
- The channels can also be mixed and operated as inputs or outputs, for example: Channel A, B and C as input; Channel D as output

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Universal Interfaces US/U x.3 – technical data

- Design Flush Mounting
- Dimensions 39 x 12 x 40 mm (H x W x D)
- KNX current consumption < 12 mA
- Operation -5 ... +45 °C
- Input
  - Scanning current  $\leq 0.5$  mA
  - Scanning voltage  $U_n \leq 20$  V DC
  - Cable length between device input and contact (one-way)  $\leq 10$  m
- Output
  - Output voltage 3.3 V DC
  - Output current  $\leq 5$  mA, limited by a pre-resistor



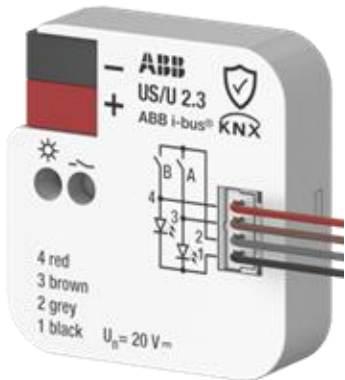


# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Universal Interfaces US/U x.3 – ordering details

- Universal interface US/U 2.3
  - 2-fold
  - 2CDG110308R0011
- Universal interface US/U 4.3
  - 4-fold
  - 2CDG110309R0011



# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Binary Inputs BE/S



Product Type	Product ID	Product Name	Description	MW
BE/S 4. <b>20</b> .3.2	✓ 2CDG110276R0011	Binary Input, 4-fold, Contact Scanning, Manual Operation, MDRC	<b>Scans floating contacts (potential-free)</b> with internally generated scanning voltage	2
BE/S 10. <b>20</b> .3.2	✓ 2CDG110277R0011	Binary Input, 10-fold, Contact Scanning, Manual Operation, MDRC		4
BE/S 16. <b>20</b> .3.2	✓ 2CDG110278R0011	Binary Input, 16-fold, Contact Scanning, Manual Operation, MDRC		6
BE/S 4. <b>230</b> .3.2	✓ 2CDG110279R0011	Binary Input, 4-fold, 10-230V, Manual Operation, MDRC	<b>Detects AC/DC signals</b> in the voltage range from 10 ... 230 V	2
BE/S 8. <b>230</b> .3.2	✓ 2CDG110280R0011	Binary Input, 8-fold, 10-230V, Manual Operation, MDRC		4
BE/S 10. <b>230</b> .3.2	✓ 2CDG110281R0011	Binary Input, 10-fold, 10-230V, Manual Operation, MDRC		4
BE/S 12. <b>230</b> .3.2	✓ 2CDG110282R0011	Binary Input, 12-fold, 10-230V, Manual Operation, MDRC		6
BE/S 16. <b>230</b> .3.2	✓ 2CDG110283R0011	Binary Input, 16-fold, 10-230V, Manual Operation, MDRC		6



# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Universal Interfaces US/U

Product Type	Product ID	Product Name	Description
US/U 2.3 	2CDG110308R0011	Universal Interface, 2-fold, FM	The Universal Interface can be parametrized as inputs or outputs.
US/U 4.3 	2CDG110309R0011	Universal Interface, 4-fold, FM	<b>Scans floating contacts (potential-free)</b> with internally generated scanning voltage. LEDs can be controlled.

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Range Overview

### Conversion List


Current devices (to be discontinued)		New devices		
Product type	Ident number	Product type	Ident number	Comments
BE/S 4.20.2.1	2CDG110090R0011	BE/S 4.20.3.2	2CDG110276R0011	-
BE/S 8.20.2.1	2CDG110092R0011	BE/S 10.20.3.2	2CDG110277R0011	No 1-to-1 replacement
-	-	BE/S 16.20.3.2	2CDG110278R0011	New device
BE/S 4.230.2.1	2CDG110091R0011	BE/S 4.230.3.2	2CDG110279R0011	-
BE/S 8.230.2.1	2CDG110093R0011	BE/S 8.230.3.2	2CDG110280R0011	-
-	-	BE/S 10.230.3.2	2CDG110281R0011	New device
-	-	BE/S 12.230.3.2	2CDG110282R0011	New device
US/U 2.2	GHQ6310074R0111	US/U 2.3	2CDG110308R0011	Output voltage is lower (3.3 V instead of 5 V)
US/U 4.2	GHQ6310070R0111	US/U 4.3	2CDG110309R0011	Output voltage is lower (3.3 V instead of 5 V)
US/U 12.2	2CDG110065R0011	-	-	No replacement


# Software Features and ETS Application

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### New Software Features

- Consistent ETS application across several portfolios (Binary Inputs, Universal Interfaces, Trevion Keypads)
- Improved usability
  - Templates & naming of channels and group objects
  - Reduced parameter texts & seldomly needed parameters are hidden
  - Parameterization in tables (e.g., Multiple operation)
- 12+1 different applications
  - Switch, Blind/Shutter, Switch/Dim, Scenes, Send value/Multiple operation, Fault indicator, Switching sequence, Pulse Counter
  - 1- and 2-button operation
  - LED control – only for Universal Interfaces US/U
- Logical functions (And, Or, Exclusive Or)
- Improved detection of input signals, even in the presence of interferences
- KNX Data Secure 

1.1.5 BE/S16.230.3.2 Binary Input, 16-fold, 230V AC/DC, MDRC > Configuration				
Configuration		Configuration		
		Application	Templ...	Description
+ Device settings	Input a	Switch	✓	
+ Manual operation	Input b	Blind/shutter	✓	
+ Logic	Input c+d	Switch (2-button)	✓	
+ Templates	Input e+f	Blind/shutter (2-button)	✓	
+ Input a:	Input g	Switch/dim	✓	
+ Input b:	Input h	Scenes	✓	
+ Input c+d:	Input i+j	Switch/dim (2-button)	✓	
+ Input e+f:	Input k	Send value/multiple operation	✓	
+ Input g:	Input l	Fault indicator/logic input	✓	
+ Input h:	Input m+n	Switching sequence (2-button)	✓	
+ Input i+j:	Input o	Switching sequence	✓	
+ Input k:	Input p	Pulse counter	✓	
+ Input l:	<strong>Enable Logic</strong>			
+ Input m+n:	Logic 1-4	✓		
+ Input o:	Logic 5-8	✓		
+ Input p:	Logic 9-12	✓		
	Logic 13-16	✓		
	 In order to use the inputs for logic, the fault indicator/logic input application must be active.			

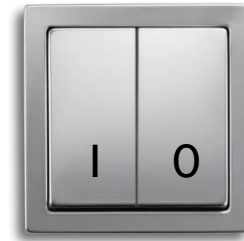


# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### New Software Feature “2-button operation”

- In 2-button operation, two adjacent inputs are combined
  - Easy operation for end user
  - No toggling, especially when dimming the light and moving the blinds
- For this reason, 2-button operation is only available for inputs “a+b”, “c+d”, “e+f”, “g+h”, “i+j”, “k+l”, ... (depending on the device variant)
- Available for
  - Switch application  
Left rocker side: Input “x” – *ON* and right rocker side: Input “y” – *OFF*
  - Blind/shutter application  
Left rocker side: Input “x” – *UP* and right rocker side: Input “y” – *DOWN*
  - Switch/dim application  
Left rocker side: Input “x” – *ON/brighter* and right rocker side: Input “y” – *OFF/darker*
  - Switching sequence application  
Left rocker side: Input “x” – *Next step* and right rocker side: Input “y” – *Previous step*



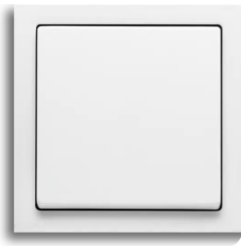
# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### Comparison “1-button” and “2-button operation”

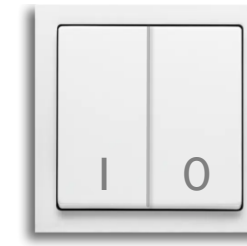
#### 1-button operation

- Switch/dim application
  - Input “x”
  - Short operation  
“Toggle” (on-off-on-off-on-...)
  - Long operation  
“Change dimming direction”  
“Change dimming direction, brighter when On”  
“Change dimming direction, darker when On”



#### 2-button operation

- Switch/dim application
  - Input “x+y”
  - Input “x” – left button
    - On short operation “On”
    - On long operation “Brighter”
  - Input “y” – right button
    - On short operation “Off”
    - On long operation “Darker”



# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### Parameter “Configuration”

- Overview of all inputs
  - Define application for each input
  - Usage of the template or set each parameter individually
  - Entering a text description (naming of channels and group objects)
- Additional logical functions
  - The number of logics depends on the number of inputs
  - “AND”, “OR” and “Exclusive OR”
  - The logics can be used
    - Internally for an input with the application “Fault indicator/logic input”
    - Externally independent of the inputs

1.1.5 BE/S16.230.3.2 Binary Input, 16-fold, 230V AC/DC, MDRC > Configuration

**Configuration**

	Application	Templ...	Description
Input a	Switch	<input checked="" type="checkbox"/>	Light ceiling
Input b	Blind/shutter	<input type="checkbox"/>	Blinds balcony
Input c+d	Switch (2-button)	<input checked="" type="checkbox"/>	Light entrance
Input e+f	Blind/shutter (2-button)	<input checked="" type="checkbox"/>	Terrace curtains
Input g	Switch/dim	<input type="checkbox"/>	Light wall dim
Input h	Scenes	<input type="checkbox"/>	Scene control
Input i+j	Switch/dim (2-button)	<input type="checkbox"/>	Light reading chair dim
Input k	Send value/multiple operation	<input checked="" type="checkbox"/>	Light wall values
Input l	Fault indicator/logic input	<input checked="" type="checkbox"/>	FCU fault
Input m+n	Switching sequence (2-button)	<input checked="" type="checkbox"/>	Garden sequences
Input o	Switching sequence	<input checked="" type="checkbox"/>	XYZ sequences
Input p	Pulse counter	<input checked="" type="checkbox"/>	Meter SO Pulses

**Enable Logic**

Logic 1-4 ☒

Logic 5-8 ☒

Logic 9-12 ☒

Logic 13-16 ☐

**i** In order to use the inputs for logic, the fault indicator/logic input application must be active.

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### Parameter “Device Settings”

- Sending delay after KNX voltage recovery
- Set telegram rate limit
  - Maximum number of telegrams in a period
- Enable group object “In Operation”
  - Send “0” or “1” cyclically

1.1.5 BE/S16.230.3.2 Binary Input, 16-fold, 230V AC/DC, MDRC > Device settings

Configuration	Device settings
– Device settings	Sending delay after KNX voltage recovery 2 s
<b>Device settings</b>	Telegram rate limit <input checked="" type="checkbox"/>
+ Manual operation	Maximum number of sent telegrams 20
+ Logic	In period 1 s
+ Templates	Enable Group Object "In operation" Yes, send value 0 cyclically
+ Input a: Light ceiling	Sending cycle 00:10:00 hh:mm:ss
+ Input b: Blinds balcony	

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### Parameter “Manual Operation” → only Binary Inputs

- Enable operating state *Manual operation*
- Automatically reset the device to operating state *KNX operation*
  - Automatic reset after time

1.1.5 BE/S16.230.3.2 Binary Input, 16-fold, 230V AC/DC, MDRC > Manual operation

Configuration	Manual operation	
+ Device settings	Enable manual operation <input checked="" type="checkbox"/>	
- Manual operation	Automatic reset from manual operation to KNX operation <input checked="" type="checkbox"/>	
Manual operation	Automatic reset after	00:05:00 hh:mm:ss
+ Logic		
+ Templates		
+ Input a: Light ceiling		
+ Input b: Blinds balcony		

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### Parameter “Logic”

- The number of logics depends on the number of inputs
  - 4 logic functions: BE/S 4.x.3.2, US/U x.3
  - 8 logic functions: BE/S 8.230.3.2
  - 12 logic functions: BE/S 10.x.3.2, BE/S 12.230.3.2
  - 16 logic functions: BE/S 16.20.3.2
- Logical functions
  - “AND”
  - “OR”
  - “Exclusive OR”
- The logics can be used
  - Internally for an input with the application “Fault indicator/ logic input”
  - Externally independent of the inputs

1.1.5 BE/S16.230.3.2 Binary Input, 16-fold, 230V AC/DC, MDRC > Logic > ...

Configuration

Logic 1-4

	Logic 1	Logic 2	Logic 3
Logic function	AND	OR	Exclusive OR
"Connection A"	Apply value	Deactivated	Deactivated
Default setting "Connection A"	Read value		
"Connection B"	Invert value	Deactivated	Deactivated
Default setting "Connection B"	0		
Input b	Apply value	Apply value	Apply value
Input I	Apply value	Deactivated	Deactivated
Block logic	Deactivated	Deactivated	Deactivated
Invert result	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Send "Status Result"	On change or on request	On change	On change

*In order to use the inputs for logic, the fault indicator/logic input application must be active.*

Number	Name	Object Function	Link	Out	Length	C	R	W	T	U	Data Type	Prio
9	Logic – Connection 1:	Connection A			1 bit	C	-	W	T	U	boolean	Low
10	Logic – Connection 1:	Connection B			1 bit	C	-	W	T	U	boolean	Low
11	Logic – Result 1:	Status Result			1 bit	C	R	-	T	-	boolean	Low
13	Logic – Request 1:	Request status values			1 bit	C	-	W	-	-	trigger	Low
89	Input a – Switch: Light ceiling	Switch			1 bit	C	-	W	T	U	switch	Low
98	Input b – Fault indicator/logic input: Logic Summer	Status Fault			1 bit	C	R	W	T	-	state	Low



# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### Parameter “Templates”

- The templates enable faster parameterization, especially for multi-channel devices with the same settings
- For each input you have the choice between using
  - The template settings
  - Individual parameter settings
- The parameterization options in the template and in the parameter windows are identical
- In most cases, the templates are suitable for the most common applications
- The template is divided into parameter menus for each of the 12 applications

1.1.5 BE/S16.230.3.2 Binary Input, 16-fold, 230V AC/DC, MDRC > Configuration

Configuration

- + Device settings
- + Manual operation
- + Logic
  - + Templates
- + Input a: Light ceiling
- + Input b: Blinds balcony
- + Input c+d: Light entrance
- + Input e+f: Terrace curtains
- + Input g: Light wall dim
- + Input h: Scene control
- + Input i+j: Light reading chair dim
- + Input k: Light wall values
- + Input l: FCU fault
- + Input m+n: Garden sequences
- + Input o: XYZ sequences
- + Input p: Meter SO Pulses

	Application	Templ...	Description
Input a	Switch	<input checked="" type="checkbox"/>	Light ceiling
Input b	Blind/shutter	<input type="checkbox"/>	Blinds balcony
Input c+d	Switch (2-button)	<input checked="" type="checkbox"/>	Light entrance
Input e+f	Blind/shutter (2-button)	<input checked="" type="checkbox"/>	Terrace curtains
Input g	Switch/dim	<input type="checkbox"/>	Light wall dim
Input h	Scenes	<input type="checkbox"/>	Scene control
Input i+j	Switch/dim (2-button)	<input type="checkbox"/>	Light reading chair dim
Input k	Send value/multiple operation	<input checked="" type="checkbox"/>	Light wall values
Input l	Fault indicator/logic input	<input checked="" type="checkbox"/>	FCU fault
Input m+n	Switching sequence (2-button)	<input checked="" type="checkbox"/>	Garden sequences
Input o	Switching sequence	<input checked="" type="checkbox"/>	XYZ sequences
Input p	Pulse counter	<input checked="" type="checkbox"/>	Meter SO Pulses

Enable Logic

Logic 1-4 ☒

Logic 5-8 ☒

Logic 9-12 ☒

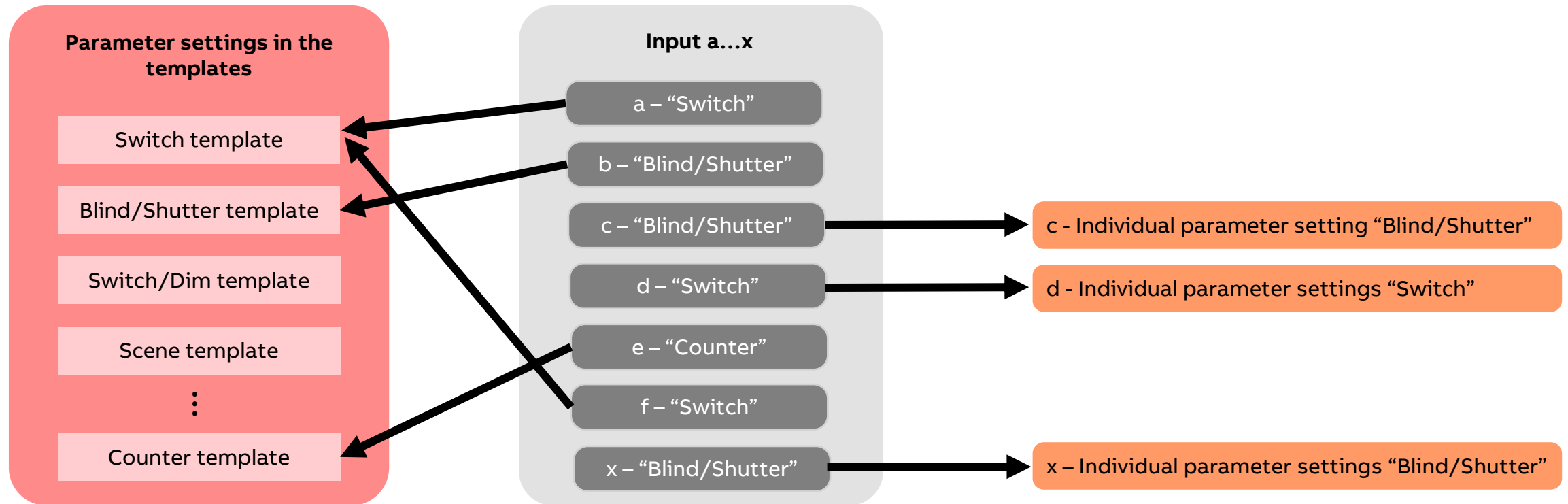
Logic 13-16 ☐

**i** In order to use the inputs for logic, the fault indicator/logic input application must be active.

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

**Parameter “Templates” – using the template settings or individual parameter settings**



# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### Parameter “Input x – Extended settings”

Available at all inputs

- Contact type
- Signal type
  - Define which signal type (AC 50Hz, 60Hz, DC) is present on the input
  - Setting the signal type ensures accurate signal evaluation when different 10-230 V signals (mixed AC/DC) are acquired on the inputs
- Interference suppression filter
  - This parameter is used to define the time for suppressing interference on the input
  - An operation is only detected if the signal received on the input remains constant for the time defined
  - In this way, interfering signals or undesirable, multiple edges (e.g. due to the contact bouncing) are detected and filtered out
- Block input
- Manual operation button

1.1.5 BE/S16.230.3.2 Binary Input, 16-fold, 230V AC/DC, MDRC > Input a: > ...

Configuration	Switch
+ Device settings	Distinction between short and long operation <input checked="" type="checkbox"/>
+ Manual operation	Reaction on short operation On
+ Logic	Reaction on long operation Off
+ Templates	Extended settings <input checked="" type="checkbox"/>
- Input a:	Enable function Switch 2 <input checked="" type="checkbox"/>
Switch	
Switch 2	
+ Input b:	
+ Input c:	
+ Input d:	
+ Input e:	
+ Input f:	
+ Input g:	
+ Input h:	

Contact type ☒ NO contact ☐ NC contact

Long operation after 00.4 ss.f

Signal type Automatic

Interference suppression filter 60 ms

Block input On value 1

State after ETS download or KNX voltage recovery Last state

Manual operation button I

Input button ☐ Blocked ☒ Push button reaction

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### Parameter “Input x – Switch”

Parameterize input as a switch sensor input in ”1-button operation”

- Distinction between long and short operation
- Reaction on opening/closing the contact or short/long operation
- Send input status after ETS download or KNX voltage recovery
- Extended settings
  - Enable function “Switch 2” (same parameter as “Switch”) → separate group object
- Signal type
- Interference suppression filter
- Block input
- Manual operation button

1.1.5 BE/S16.230.3.2 Binary Input, 16-fold, 230V AC/DC, MDRC > Input a: > ...

Configuration	Switch
+ Device settings	Distinction between short and long operation <input checked="" type="checkbox"/>
+ Manual operation	Reaction on short operation On
+ Logic	Reaction on long operation Off
+ Templates	Extended settings <input checked="" type="checkbox"/>
+ Input a:	Enable function Switch 2 <input checked="" type="checkbox"/>
Switch	
Switch 2	
+ Input b:	Contact type <input checked="" type="radio"/> NO contact <input type="radio"/> NC contact
+ Input c:	Long operation after 00.4 ss.f
+ Input d:	Signal type Automatic
+ Input e:	Interference suppression filter 60 ms
+ Input f:	Block input On value 1
+ Input g:	State after ETS download or KNX voltage recovery Last state
+ Input h:	Manual operation button I
	Input button <input type="radio"/> Blocked <input checked="" type="radio"/> Push button reaction

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### Parameter “Input x – Switch 2-button”

Parameterize input as a switch sensor input in “2-button operation”

- In 2-button operation, two adjacent inputs are combined (e.g. a+b)
- For this reason, 2-button operation is only available for inputs a, c, e, g, i, k, m and o (depending on the device variant)
- Reaction on operation
- Extended settings
  - Contact type
  - Signal type
  - Interference suppression filter
  - Block input
  - State after ETS download or KNX voltage recovery
  - Manual operation button

1.1.5 BE/S16.230.3.2 Binary Input, 16-fold, 230V AC/DC, MDRC > Input a+b: > Switch

Configuration	Switch (2-button)
+ Device settings	
+ Manual operation	
+ Logic	
+ Templates	
+ Input a+b:	
Switch	
+ Input c:	
+ Input d:	
+ Input e:	
+ Input f:	
+ Input g:	
+ Input h:	

**Input a**

Reaction on operation On

**Input b**

Reaction on operation Off

Extended settings ☒

Contact type ☒ NO contact ☐ NC contact

Signal type Automatic

Interference suppression filter 60 ms

Block input On value 1

State after ETS download or KNX voltage recovery Last state

**Manual operation button I + II**

Input button ☐ Blocked ☒ Push button reaction

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### Parameter “Input x – Blind/Shutter”

Parameterize input for blind or shutter control in “1-button operation”

- Operating mode: Blind or shutter
- Blind/Shutter operation (short/long)
- Extended settings
  - “Movement and Slat” direction change
  - Contact type
  - Long operation after
  - Signal type
  - Interference suppression filter
  - Block input
  - State after ETS download or KNX voltage recovery
  - Manual operation button

1.1.5 BE/S16.230.3.2 Binary Input, 16-fold, 230V AC/DC, MDRC > Input a: > ...

Configuration	Blind/shutter
+ Device settings	Operating mode: <input checked="" type="radio"/> Blind <input type="radio"/> Shutter
+ Manual operation	Blind operation: <input checked="" type="radio"/> Short: step/stop, long: move <input type="radio"/> Short: move, long: step/stop
+ Logic	
+ Templates	Extended settings: <input checked="" type="checkbox"/>
+ Input a:	"Movement" direction change after: 00.0 ss.f
Blind/shutter	"Slat" direction change after: 05.0 ss.f
+ Input b:	Contact type: <input checked="" type="radio"/> NO contact <input type="radio"/> NC contact
+ Input c:	Long operation after: 00.4 ss.f
+ Input d:	Signal type: Automatic
+ Input e:	Interference suppression filter: 60 ms
+ Input f:	Block input: On value 1
+ Input g:	State after ETS download or KNX voltage recovery: Last state
+ Input h:	
+ Input i:	Manual operation button I: <input type="radio"/> Blocked <input checked="" type="radio"/> Push button reaction

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### Parameter “Input x – Blind/Shutter 2-button”

Parameterize input for blind or shutter control in “2-button operation”

- In 2-button operation, two adjacent inputs are combined (e.g. a+b)
- For this reason, 2-button operation is only available for inputs a, c, e, g, i, k, m and o (depending on the device variant)
- Operating mode: Blind or shutter
- Input “x” and “y: Direction of movement
- Extended settings
  - Blind/Shutter operation and stop movement
  - Contact type
  - Long operation after
  - Signal type
  - Interference suppression filter
  - Block input
  - State after ETS download or KNX voltage recovery
  - Manual operation button

1.1.5 BE/S16.230.3.2 Binary Input, 16-fold, 230V AC/DC, MDRC > Input a+b: > Blind/shutter

Configuration	Blind/shutter (2-button)
+ Device settings	Operating mode: <input checked="" type="radio"/> Blind <input type="radio"/> Shutter
+ Manual operation	Input a
+ Logic	Direction of movement: <input checked="" type="radio"/> Up <input type="radio"/> Down
+ Templates	Input b
+ Input a+b:	Direction of movement: Down
Blind/shutter	Extended settings: <input checked="" type="checkbox"/>
+ Input c:	Blind operation: Short: step/stop, long: move
+ Input d:	<i>Short operation: step/stop, long operation: move up/down.</i>
+ Input e:	Contact type: <input checked="" type="radio"/> NO contact <input type="radio"/> NC contact
+ Input f:	Long operation after: 00.4 ss.f
+ Input g:	Signal type: Automatic
+ Input h:	Interference suppression filter: 60 ms
+ Input i:	Block input: Deactivated
+ Input j:	Manual operation button I + II
+ Input k:	Input button: <input type="radio"/> Blocked <input checked="" type="radio"/> Push button reaction



# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### Parameter “Input x – Switch/Dim”

Parameterize input as a switch/dim sensor input in “1-button operation”

- On short operation
- On long operation
- Extended settings
  - Dimming process
  - Contact type
  - Long operation after
  - Signal type
  - Interference suppression filter
  - Block input
  - State after ETS download or KNX voltage recovery
  - Manual operation button

1.1.5 BE/S16.230.3.2 Binary Input, 16-fold, 230V AC/DC, MDRC > Input a: > Switch/dim

Configuration	Switch/dim	
+ Device settings	On short operation	Toggle
+ Manual operation	On long operation	Change dimming direction, darker when On ▼
+ Logic	Extended settings <input checked="" type="checkbox"/>	
+ Templates	Dimming process	<input checked="" type="radio"/> Start-stop-dimming <input type="radio"/> Step dimming
+ Input a:	Contact type	<input checked="" type="radio"/> NO contact <input type="radio"/> NC contact
Switch/dim	Long operation after	00.4 ss.f
+ Input b:	Signal type	Automatic ▼
+ Input c:	Interference suppression filter	60 ms
+ Input d:	Block input	On value 1 ▼
+ Input e:	State after ETS download or KNX voltage recovery	Last state ▼
+ Input f:	Manual operation button I	
+ Input g:	Input button	<input type="radio"/> Blocked <input checked="" type="radio"/> Push button reaction
+ Input h:		

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### Parameter “Input x – Switch/Dim 2-button”

Parameterize input as a switch/dim sensor input in “2-button operation”

- In 2-button operation, two adjacent inputs are combined (e.g. a+b)
- For this reason, 2-button operation is only available for inputs a, c, e, g, i, k, m and o (depending on the device variant)
- Input “x” and “y”: Reaction on short and long operation
- Extended settings
  - Dimming process
  - Contact type
  - Long operation after
  - Signal type
  - Interference suppression filter
  - Block input
  - State after ETS download or KNX voltage recovery
  - Manual operation button

1.1.5 BE/S16.230.3.2 Binary Input, 16-fold, 230V AC/DC, MDRC > Input a+b: > Switch/dim

Configuration	Switch/dim (2-button)
+ Device settings	
+ Manual operation	
+ Logic	
+ Templates	
+ Input a+b:	
Switch/dim	
+ Input c:	
+ Input d:	
+ Input e:	
+ Input f:	
+ Input g:	
+ Input h:	
+ Input i:	
+ Input j:	
+ Input k:	
+ Input l:	

**Input a**

On short operation: On

On long operation: ☒ Brighter ☐ Darker

**Input b**

On short operation: Off

On long operation: Darker

**Extended settings** ☒

Dimming process: ☒ Start-stop-dimming ☐ Step dimming

Contact type: ☒ NO contact ☐ NC contact

Long operation after: 00.4 ss.f

Signal type: Automatic

Interference suppression filter: 60 ms

Block input: On value 1

State after ETS download or KNX voltage recovery: Last state

**Manual operation button I + II**

Input button: ☐ Blocked ☒ Push button reaction

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### Parameter “Input x – Scenes”

Parameterize input to recall or store scenes

- Distinction between long and short operation
- On short operation: Scene number
- Reaction on long operation
- Extended settings
  - Contact type
  - Long operation after
  - Signal type
  - Interference suppression filter
  - Block input
  - State after ETS download or KNX voltage recovery
  - Manual operation button

1.1.5 BE/S16.230.3.2 Binary Input, 16-fold, 230V AC/DC, MDRC > Input a: > Scenes

Configuration	Scenes
+ Device settings	Distinction between short and long operation <input checked="" type="checkbox"/>
+ Manual operation	On short operation: Scene number <input type="text" value="1"/>
+ Logic	Reaction on long operation <input type="radio"/> Recall another scene <input checked="" type="radio"/> Save scene
+ Templates	Extended settings <input checked="" type="checkbox"/>
+ Input a: <a href="#">Scenes</a>	Contact type <input checked="" type="radio"/> NO contact <input type="radio"/> NC contact
+ Input b:	Long operation after <input type="text" value="03.0"/> <input type="text" value="ss.f"/>
+ Input c:	Signal type <input type="text" value="Automatic"/>
+ Input d:	Interference suppression filter <input type="text" value="60"/> ms
+ Input e:	Block input <input type="text" value="On value 1"/>
+ Input f:	State after ETS download or KNX voltage recovery <input type="text" value="Last state"/>
+ Input g:	Manual operation button I
+ Input h:	Input button <input type="radio"/> Blocked <input checked="" type="radio"/> Push button reaction

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### Parameter “Input x – Send value/Multiple operation”

Parameterize input to send values

- Send value on
  - 1-fold operation (value 1 and 2)
  - Short/long operation (value 1 and 2)
  - Multiple operation (max 4-fold operation)
- Data types
  - Switch (DPT 1.001)
  - Forced operation (DPT 2.001)
  - Percent (DPT 5.001)
  - 1 byte unsigned (DPT 5.010)
  - 1 byte signed (DPT 6.010)
  - 2 bytes unsigned (DPT 7.001)
  - 2 bytes signed (DPT 8.001)
  - 4 bytes unsigned (DPT 12.001)
  - Temperature (DPT 9.001)
  - Color (DPT 232.600)
  - HVAC mode (DPT 20.102)

Send value/multiple operation

Send value on: 1-fold operation

Toggle value: ☒

	Send on	Data Type	Value
Value 1	Toggle	HVAC mode [DPT 20.102]	Comfort
Value 2	Toggle		Standby

Send value/multiple operation

Send value on: Short/long operation

Toggle value: ☒

	Send on	Data Type	Value
Value 1	Short operation	Percent [DPT 5.001]	30
Value 1	Short operation		50
Value 2	Long operation	Switch [DPT 1.001]	Toggle

Send value/multiple operation

Send value on: Multiple operation

Maximum time between two operations: 00.5 ss.f

Send values on every operation: ☐

	Send on	Data Type	Value
Value 1	1-fold operation	Percent [DPT 5.001]	30
Value 2	2-fold operation	Temperature [DPT 9.001]	25
Value 3	3-fold operation	Color [DPT 232.600]	#2CF3E0
Value 4	<input type="radio"/> Long operation <input checked="" type="radio"/> 4-fold operation	1 byte unsigned [DPT 5.010]	241

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### Parameter “Input x – Fault indicator/logic input”

Parameterize input as fault indicator/logic input

- Reaction on opening the contact
- Reaction on closing the contact
- Send value of Group Object “Status Fault”
- Send “Status Fault” after ETS download or KNX voltage recovery
- Extended settings
  - Contact type
  - Activate minimum signal duration when opening/closing the contact
  - Signal type
  - Interference suppression filter
  - Block input
  - State after ETS download or KNX voltage recovery
  - Manual operation button

1.1.5 BE/S16.230.3.2 Binary Input, 16-fold, 230V AC/DC, MDRC > Input a: > Fault indicator/logic input

Configuration	Fault indicator/logic input
+ Device settings	Reaction on opening the contact Off
+ Manual operation	Reaction on closing the contact On
+ Logic	Send value of Group Object “Status Fault” On change
+ Templates	<div><div>The wording “On change” refers to a change in the state of the input (contact open or closed).</div></div>
+ Input a:	Send “Status Fault” after ETS download or KNX voltage recovery <input checked="" type="checkbox"/>
	Fault indicator/logic input
+ Input b:	Extended settings <input checked="" type="checkbox"/>
+ Input c:	Contact type <input checked="" type="radio"/> NO contact <input type="radio"/> NC contact
+ Input d:	Activate minimum signal duration <input checked="" type="checkbox"/>
+ Input e:	On opening the contact 00:00:01.0 hh:mm:ss:f
+ Input f:	On closing the contact 00:00:01.0 hh:mm:ss:f
+ Input g:	Signal type Automatic
+ Input h:	Interference suppression filter 60 ms
+ Input i:	Block input On value 1
+ Input j:	State after ETS download or KNX voltage recovery Last state
+ Input k:	Manual operation button I
	Input button Blocked

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### Parameter “Input x – Switching sequence”

Create and parameterize switching sequence in “1-button operation”

- Function GO 1 ... 5 (switch, percent, byte, scene, color or HVAC mode)
- Enable step 1 ... 6
- Reaction on long operation
- Reaction after last step
- Send values after evaluation period
- Evaluation period
- Enable Group Object “Reset switching sequence”
- Extended settings
- Contact type
- Long operation after
- Signal type
- Interference suppression filter
- ...

1.1.5 BE/S16.230.3.2 Binary Input, 16-fold, 230V AC/DC, MDRC > Input a: > Switching sequence

Configuration	Switching sequence											
+ Device settings	Function of Group Objects											
+ Manual operation	GO 1	GO 2	GO 3	GO 4	GO 5							
+ Logic	Function	Switch	Percent	Scene	Color	HVAC mod						
+ Templates	Configuration											
+ Input a:	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6						
Switching sequence	Enable	✓	✓	✓	✓	✓						
+ Input b:	GO 1	Off	On	No reaction	On	No reaction	Off					
+ Input c:	GO 2	10	%	56	%	0	%	66	%	100	%	73
+ Input d:	GO 3	6	%	23	%	61	%	21	%	45	%	11
+ Input e:	GO 4	#000000	#000000	#000000	#000000	#000000	#000000	#000000	#000000	#000000	#000000	#000000
+ Input f:	GO 5	Comfort	Economy	Building protection	Standby	Comfort	Autorm					
+ Input g:	Reaction on long operation						Corresponds to a short operation					
+ Input h:	Reaction after last step						<input type="radio"/> Direction change <input checked="" type="radio"/> Step 1					
+ Input i:	Send values after evaluation period						<input checked="" type="checkbox"/>					
+ Input j:	Evaluation period						02.0 ss.f					
+ Input k:	Enable Group Object “Reset switching sequence”						<input checked="" type="checkbox"/>					
	Extended settings						<input checked="" type="checkbox"/>					
	Contact type						<input checked="" type="radio"/> NO contact <input type="radio"/> NC contact					



# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### Parameter “Input x – Switching sequence 2-button”

Create and parameterize switching sequence in “2-button operation”

- In 2-button operation, two adjacent inputs are combined (e.g. a+b)
- For this reason, 2-button operation is only available for inputs a, c, e, g, i, k, m and o (depending on the device variant)
- Function GO 1 ... 5 (switch, percent, byte, scene, color or HVAC mode)
- Enable step 1 ... 6
- Reaction on long and short operation
- Reaction after last step
- Send values after evaluation period
- Evaluation period
- Enable Group Object “Reset switching sequence”
- Extended settings
  - Contact type
  - ...

1.1.5 BE/S16.230.3.2 Binary Input, 16-fold, 230V AC/DC, MDRC > Input a+b: > ...

Configuration

Switching sequence (2-button)

Function of Group Objects

	GO 1	GO 2	GO 3	GO 4	GO 5
Function	Percent	Scene	Color	HVAC mode	Byte

Configuration

	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
Enable	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
GO 1	23 %	56 %	48 %	17 %	9 %	0 %
GO 2	18	23	45	7	64	12
GO 3	#000000	#000000	#000000	#000000	#000000	#000000
GO 4	Standby	Standby	Building protection	Comfort	Standby	Buildin protect
GO 5	129	5	0	248	111	0

Reaction on long operation ☒ Corresponds to a short operation ☐ Step 1

Input a  
Reaction on short operation ☒ Next step ☐ Previous step

Input b  
Reaction on short operation ☐ Previous step

Send values after evaluation period ☒

Evaluation period 02.0 ss.f

Enable Group Object "Reset switching sequence" ☒

Extended settings ☒



# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### Parameter “Input x – Counter”

Parameterize input as pulse counter input

- Counter type (1 byte signed/unsigned, 2 bytes signed/unsigned, 4 bytes signed/unsigned)
- Generate input pulse (on closing, on opening, on closing or opening, \*S0 counter)
- Enable pulse counter 2
- Extended settings (minimum signal duration, ...)
- Pulse counter 1 and 2
  - Send value of group object
  - Value is sent from a change of
  - Counter specific settings (initial value, ...)
  - Evaluate limit value (limit, reaction on reaching limit value,...)

\*only BE/Sx.230.3.2

1.1.5 BE/S16.230.3.2 Binary Input, 16-fold, 230V AC/DC, MDRC > Input a: > Counter settings

Input a:	Pulse counter
Counter settings	Counter type: 4 bytes unsigned [DPT 12.001]
Pulse counter 1	Generate input pulse: S0 counter
Pulse counter 2	Enable pulse counter 2: <input checked="" type="checkbox"/>
+ Input b:	Extended settings: <input checked="" type="checkbox"/>
- Input c:	Minimum signal duration: 30 ms

1.1.5 BE/S16.230.3.2 Binary Input, 16-fold, 230V AC/DC, MDRC > Input a: > Pulse counter 1

Input a:	Pulse counter 1
Counter settings	Send value of Group Object "Counter value 1": On change
Pulse counter 1	Value is sent from a change of: 100
Pulse counter 2	Counter-specific settings: <input checked="" type="checkbox"/>
+ Input b:	Initial value: 0
- Input c:	Number of input pulses per counting pulse: 1
Switch	Counter reading change per counting pulse: 1
+ Input d:	Evaluate limit value: <input checked="" type="checkbox"/>
+ Input e:	Limit value: 100000
+ Input f:	Reaction on reaching limit value: <input checked="" type="radio"/> Reset to initial value <input type="radio"/> Stop counting

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

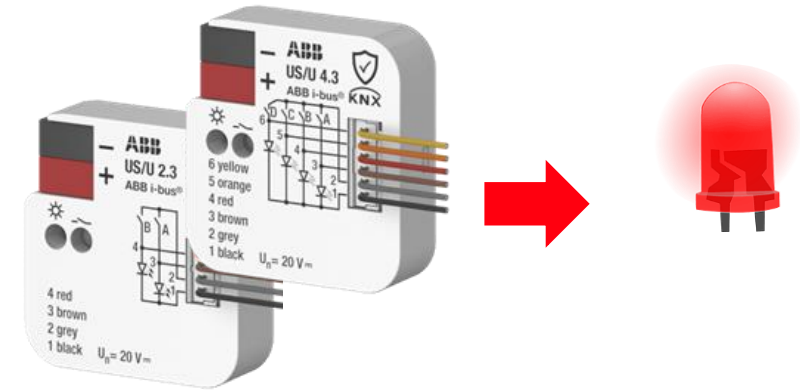
### Parameter “Channel x – LED control” → only Universal Interfaces

Parameterize an output to control an LED

- LED function (on/off or flashing)
- Reaction on telegram value 0/1
- Flashing (time for on and off)
- LED activation time limit
- Send value of Group Object “Status”
- State after ETS download or KNX voltage recovery

1.1.10 US/U4.3 Universal Interface, 4-fold, FM > Channel A: > LED control


Configuration	LED control
+ Device settings	LED function <input checked="" type="radio"/> On/off <input type="radio"/> Flashing
+ Logic	Reaction on telegram value <input checked="" type="radio"/> 1: on, 0: off <input type="radio"/> 1: off, 0: on
+ Templates	LED control time limit <input checked="" type="checkbox"/>
+ Channel A:	Duration 00:01:00 hh:mm:ss
LED control	Send value of Group Object “Status” <input checked="" type="checkbox"/>
+ Channel B:	State after ETS download or KNX voltage recovery <input checked="" type="radio"/> LED off <input type="radio"/> LED on

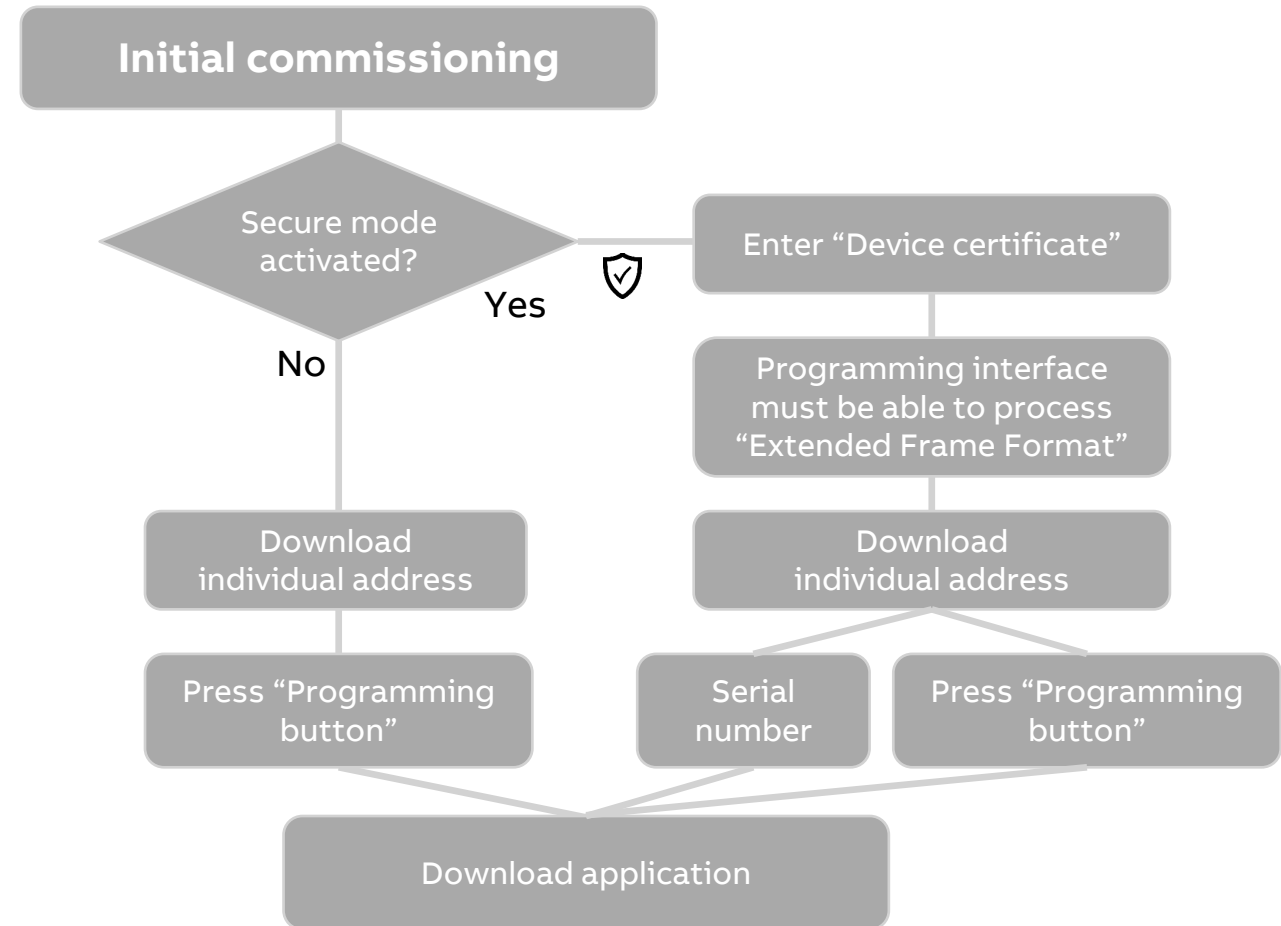


# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### Commissioning

- Scope of delivery
  - Installation and operating instructions
  - KNX bus connection terminal (red/black)
  - Cover cap (only BE/S)
- Delivery state
  - Individual address 15.15.255
  - Current ETS application is preloaded
  - Manual operation is enabled
- Download
  - Secure mode activated   
The programming interface (USB or IP) must be able to process “Extended Frame Format” (long frames)
  - Individual address
    - Press “Programming button” or
    - Serial number



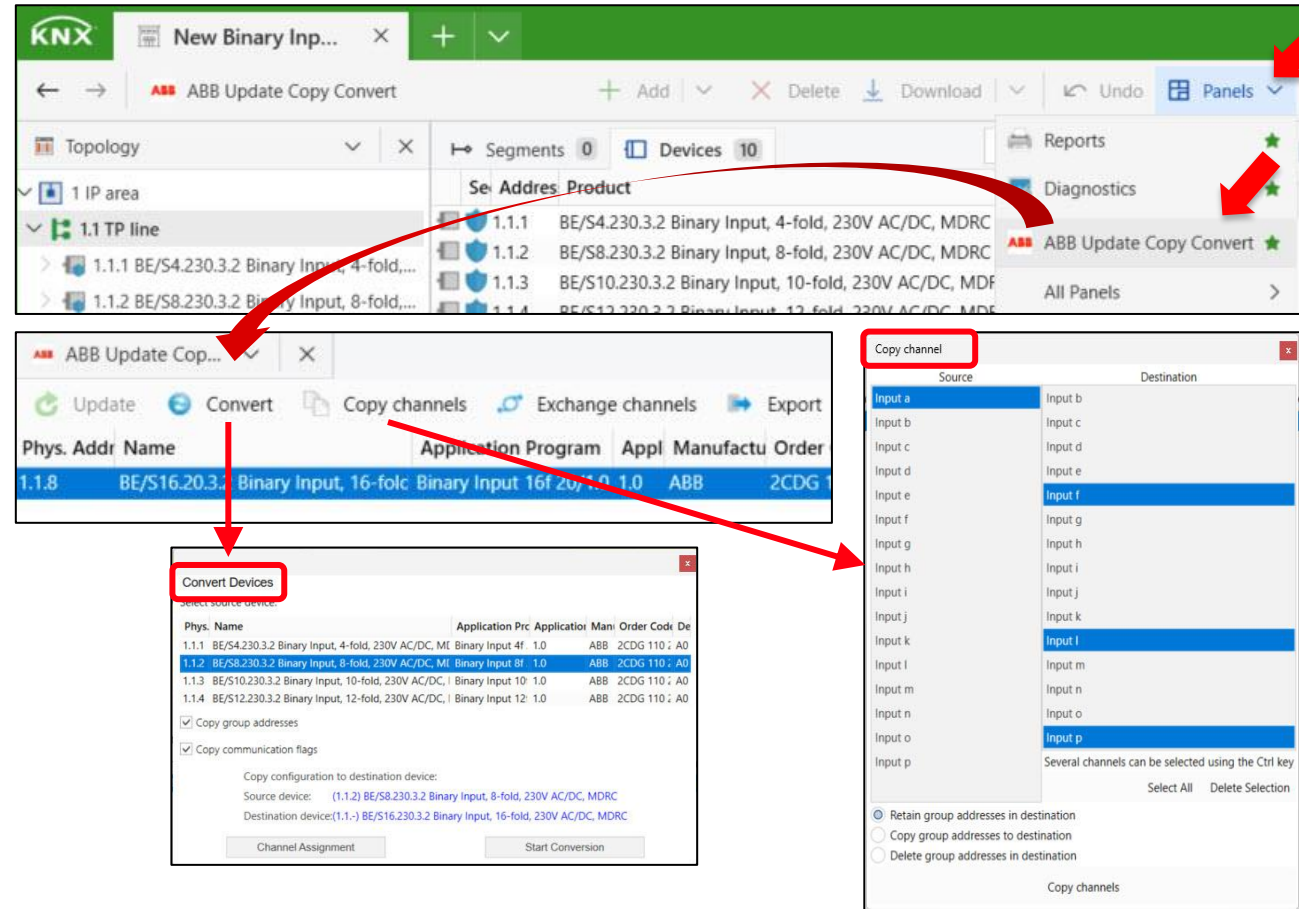
# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Software Features and ETS Application

### ABB ETS App: “Update Copy Convert”

ETS App (free of charge) with a series of useful 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, e.g. 4-fold to 10-fold
- **Copy Channels**  
Copies a channel configuration to other channels on a multichannel device, e.g. “a” to “f”, “l” and “p”
- **Exchange Channels**  
Exchanges configurations between two channels on a multichannel device
- **Import/Export**  
Saves and reads device configurations as external XML files



# KNX Data Secure

# KNX Data Secure

- KNX Data Secure ensures the encryption of telegrams on twisted pair (TP)
- Each individual group telegram can be encrypted
- Communication between sensors and actuators is secure
- KNX Data Secure is mandatory for KNX RF and recommended for KNX TP
- In a KNX TP/RF system, secure and plain devices can be used in parallel  
→ Not all devices have to be secure
- KNX Secure is an upwardly compatible extension and can be seamlessly integrated into existing systems  
→ existing devices ignore KNX Secure telegrams
- Secure commission (download of individual address and application)
- Secure devices are protected against unauthorized programming
- A secure device is delivered with a “Device Certificate”: Combination of a unique Factory Device Setup Key FDSK and serial number  
→ The installer enters this Device Certificate into the ETS





# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## KNX Data Secure

### Further information



- <https://knxsecure.knx.org>
  - KNX Secure Position Paper
  - KNX Secure Solutions
  - KNX Secure Checklist
- YouTube <https://www.youtube.com/@KNXAssociation>
- ABB Training & Qualification Database: <https://go.abb/ba-training>  
The database contains extensive training content  
Webinar, Learning Sessions, ... slides and videos
  - KNX Secure and ABB IP Interface Secure IPS/S 3.5.1 → [Link PDF](#) → [Link Video](#)
  - KNX Secure and ABB IP Router Secure IPR/S 3.5.1 → [Link PDF](#) → [Link Video](#)
  - KNX Data Secure → [Link PDF](#) → [Link Video](#)
  - KNX Data Secure in practice → [Link PDF](#) → [Link Video](#)
  - Training Presentation “KNX Data Secure” → [Link PDF](#)





# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces


KNX Data Secure 








Device type	Max. number of group addresses	 Max. number of secure group addresses	 Max. number of secure partners
BE/S 4.20.3.2	2000	2000	400
BE/S 10.20.3.2	2000	2000	400
BE/S 16.20.3.2	2000	2000	400
BE/S 4.230.3.2	2000	2000	400
BE/S 8.230.3.2	2000	2000	400
BE/S 10.230.3.2	2000	2000	400
BE/S 12.230.3.2	2000	2000	400
BE/S 16.230.3.2	2000	2000	400
US/U 2.3	2000	2000	400
US/U 4.3	2000	2000	400



# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Summary

- Comprehensive portfolio – the choice of uniformly designed devices makes it easier to meet all requirements
- More functionality – the extended range of functions is displayed in a simplified form despite the comprehensive functions in the ETS
- More security – with KNX Data Secure , the Binary Inputs and Universal Interfaces enable secure communication on the KNX bus
- Faster commissioning – templates and the same application for all variants significantly reduce the commissioning time
- Cost savings – thanks to faster commissioning and devices with 16 inputs
- Consistency – a consistent ETS application across several portfolios (Binary Inputs, Universal Interfaces, Trevion keypads)
- New hardware platform and digital ready components  
→ allows in future feature extensions
- Designed and produced in Germany  
→ highest quality standard

	Device	Inputs	Signal	Paired Inputs	M W
	BE/S 4.230.3.2 BE/S 4.20.3.2	4	12 ... 230 V AC/DC Contact Scanning	All inputs All inputs	2
	BE/S 8.230.3.2	8	12 ... 230 V AC/DC	No	4
	BE/S 10.230.3.2 BE/S 10.20.3.2	10	12 ... 230 V AC/DC Contact Scanning	Yes All inputs	4
	BE/S 12.230.3.2	12	12 ... 230 V AC/DC	No	6
	BE/S 16.230.3.2 BE/S 16.20.3.2	16	12 ... 230 V AC/DC Contact Scanning	Yes All inputs	6
	US/U 2.3	2	Contact Scanning	All inputs	-
	US/U 4.3	4	Contact Scanning	All inputs	-

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## Product webpage

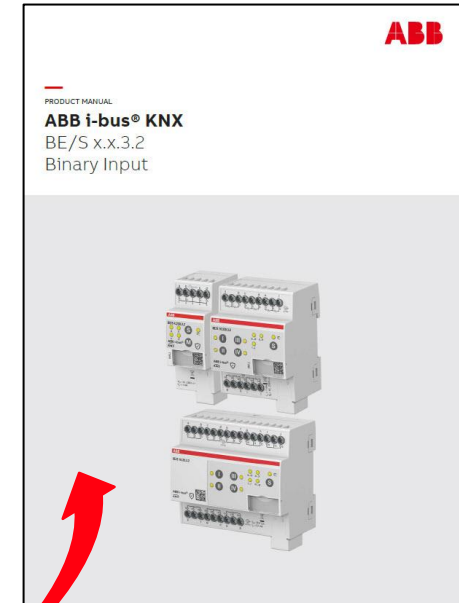
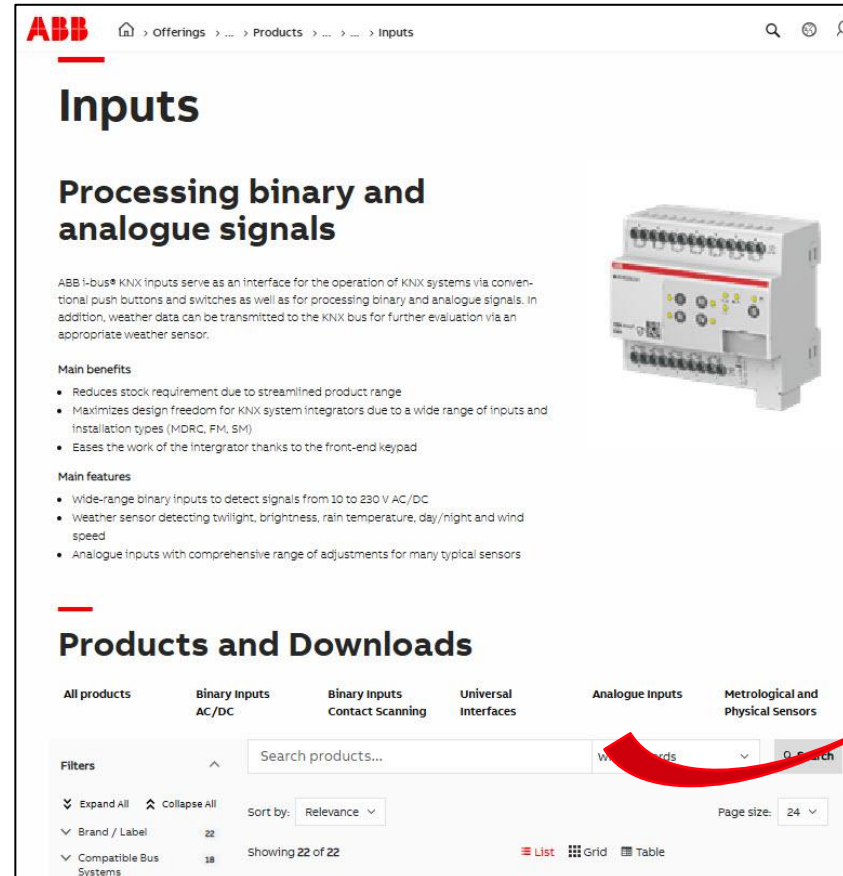
[www.abb.com/KNX](http://www.abb.com/KNX)

→ Product portfolio

→ Inputs

→ Products and Downloads

- ETS Application
- Product Manual
- Installation and Operating Instructions
- Specification Text
- ...



USU\_x3\_VD-TP\_XX\_V1-0\_9AKK108464A0965.knxprod  
BES\_xy32\_VD-TP\_XX\_V1-0\_9AKK108464A0964.knxprod

# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

## 2D code

- The packaging and the front of the device are labeled with a 2D code
- These codes are used for unique identification of the device and include the following information:
  - Link to the product page
  - Order code
  - Device serial number
- The 2D codes can be read using any mobile device with an appropriate 2D code reader
- By scanning the 2D codes with the [ABB Product Scanner](#) (available as Android and iOS App), you can open additional digital services



# ABB i-bus® KNX – New Binary Inputs and Universal Interfaces

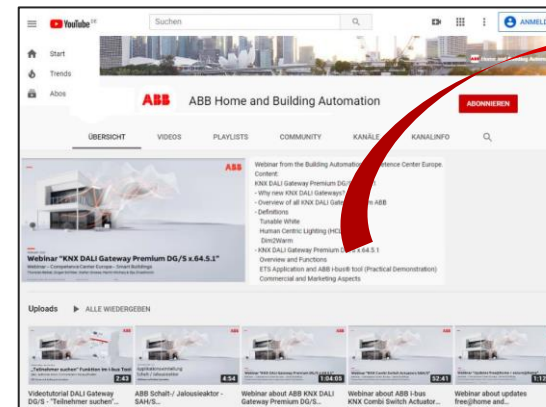
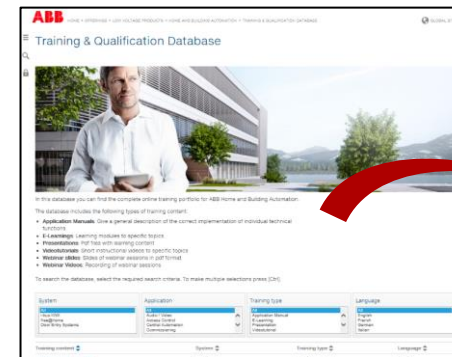
## Training Material

### Training & Qualification Database

- The database contains extensive training content
  - Presentations
  - Video tutorials
  - Webinar slides and videos
  - and more ...
- <https://go.abb/ba-training>
- [www.abb.com/knx](http://www.abb.com/knx) ( → Services & Tools → Training and Qualification → Training Database)

### YouTube

- Channel “ABB Home and Building Automation”
- <https://www.youtube.com/user/ABBibusKNX>



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