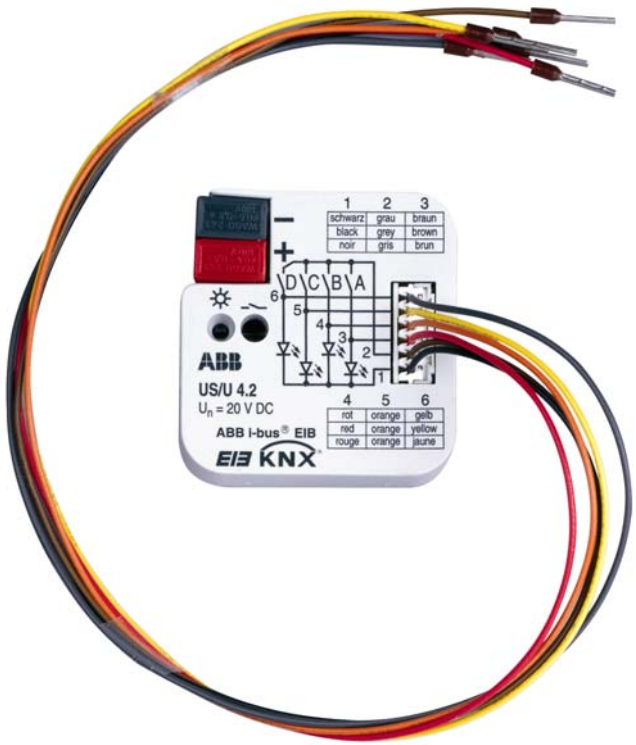
Universal Interface, 4-fold, FM, US/U 4.2



Universal Interface US/U 4.2

- 4 input/output channels
- 6 wires, appr. 30cm,
  can be extended up to 10m
- Inputs:
  - scanning voltage: 20V impulses
  - Input current: 0,5 mA
- Outputs:
  - Output voltage: 5V DC
  - Output current: max. 2 mA
    limited via a series resistor
- Dimensions (HxBxT):
  39x40x12mm

Universal Interface, 2-fold, FM, US/U 2.2

Universal Interface US/U 2.2

- 2 input/output channels
- 4 wires, appr. 30cm,
  can be extended up to 10m
- Inputs:
  - scanning voltage: 20V impulses
  - Input current: 0,5 mA
- Outputs:
  - Output voltage: 5V DC
  - Output current: max. 2 mA
    limited via a series resistor
- Dimensions (HxBxT):
  39x40x12mm

Programming

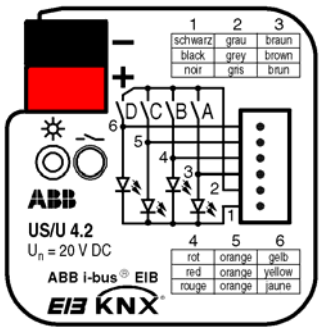
- Only one Application-Software with many functions:
  - Reaction on pulse edge (rising on, falling off ...)
  - Sending Switch- or Dimming Telegrams
  - Shutter/Blind control
  - Control of Light-scenes incl. storing
  - Sending any Values and Data types
  - Counter for Impulses
  - Signals for Heat control
  - Indication (LED)
  - ....

Universal Interfaces, FM, US/U 2.2 and US/U 4.2

One device – all feasibilities

standard operation in office buildings

individual operation in private homes

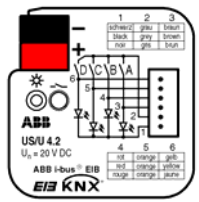


LED-outputs: convenient operation requires feedback

„Convenient operation is crucial for the valency of the system“

Universal Interfaces, FM, US/U 2.2 and US/U 4.2

Overview of the Functions



Light switching and dimming

Operating shutters and blinds

Send fix values, e.g. temperature values forced operation

Count pulses

Control scenes

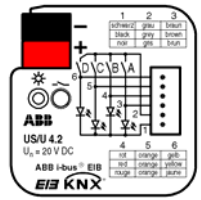
Operating several groups with one push-button

Control electrothermal valve drives (via ER/U 1.1)

Control LEDs

Universal Interfaces, FM, US/U 2.2 and US/U 4.2

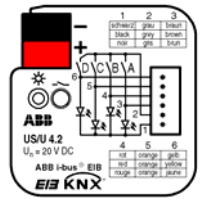
Important Extra-Functions



- **Disabling of inputs**
  Every input can be disabled by an object. A disabled input behaves as if it is not operated.
- **Logical seperation of inputs**
  Example dimming: Every input executes its own functionality (brighter and/or darker). The inputs are not concentrated into groups. This means higher flexibility.
- **Debounce time and min. operation time**
  can be adapted for every input seperately.

Universal Interfaces, FM, US/U 2.2 and US/U 4.2

Reliability of communication

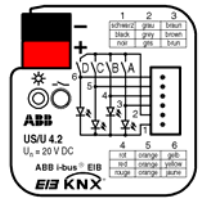


- **Initialization time**
  reduziert spikes of the telegram load after bus voltage recovery
- **Flexible limitation of telegram rates**
  prevents a high telegram rate because of defective contacts

"Functionality provides safety for the planning"

Universal Interfaces, FM, US/U 2.2 and US/U 4.2

Pre-programmed Application Software



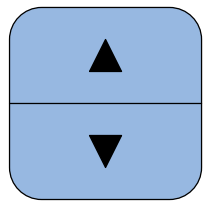
- One standard application program per device
- Devices are delivered pre-programmed
- Only partial download is necessary
  (short download times)
- The ETS-environment does not change for the user

Functions in detail

- **Switch sensor and scanning contacts**
  - User-defined reaction on opening/closing of the contact
    ON, OFF, TOGGLE, no reaction
  - Transmitting different values on long or short operation
    (also via separate objects)
  - Cyclical transmission of values
  - Example:
    short operation: on/off of lighting
    long operation: central off

Functions in detail

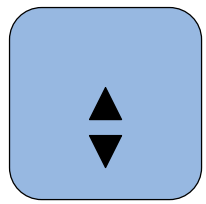
- **Switching and dimming of lighting**
  - operation via 2 push-buttons



brighter

darker

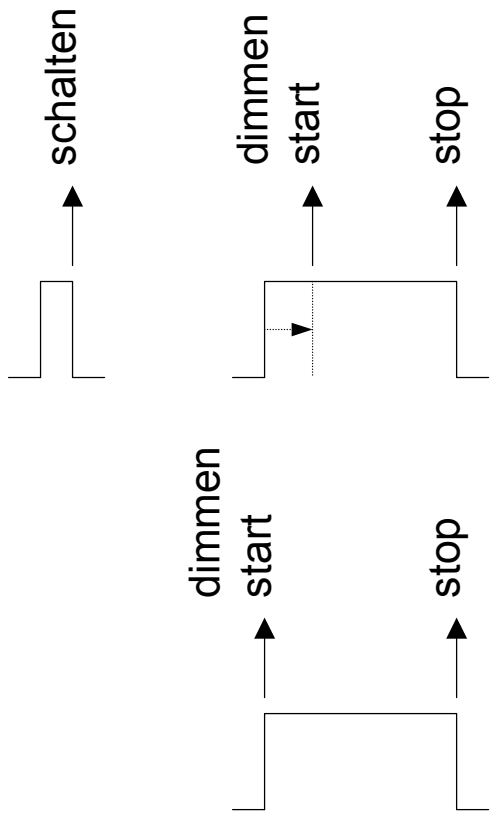
  - operation via 1 push-button



alternating
brighter/darker

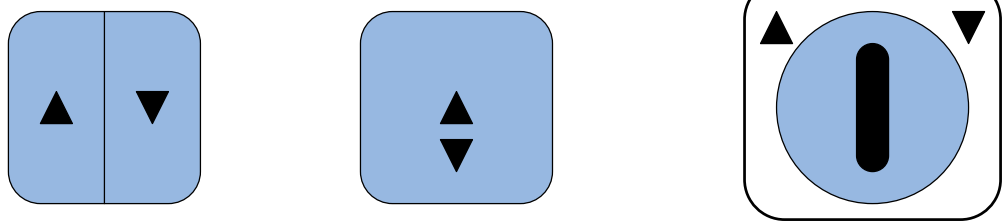
Functions in detail

- **Switching and dimming of lighting**
  - „Dimming and switching“
    short operation: switching
    long operation: dimming
  - „Only dimming“:
    no waiting for detection of long operation necessary

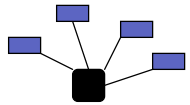


Functions in detail

- **Operate shutters and blinds**
  - 8 pre-defined operation modes
  - 1- and 2-push-button-mode
  - Push-button and switch can be used



Functions in detail

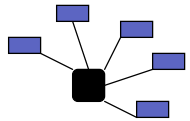


- **Transmitting number values / forced operation**
  - data types:

1 Bit	switching values
2 Bit	forced operation
1 Byte	brightness, positioin, counter values
2 Byte	temperature, counter values
4 Byte	counter values

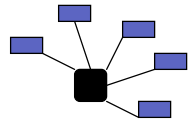
  - Different data types and values are feasible on long or short operation

Functions in detail

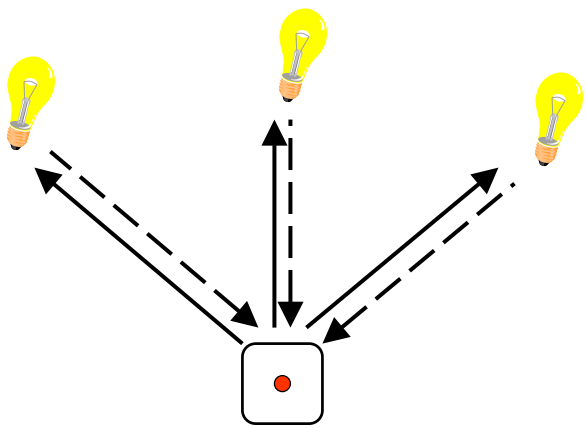


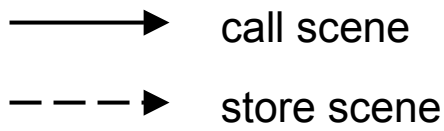
- **Control of scenes**
  - „operation like the car radio“:
    short operation: call scene
    long operation: store scene
  - Two options of controlling a scene:
    1. scene via seperate objects
       The storing of a scene reads the current values out of the actuators
    2. „8-bit-scene“
       The storing of a light scene is executed by the actuator. Only possible, if supported by the actuator.

Scene I: Control via seperate objects

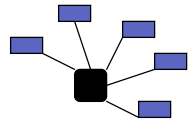


- 5 objects (1 bit or 8 bits) control up to 5 actuator groups
- A scene can be stored by long keypress
- The storing of a scene is communicated on the bus (e.g. for LED-display)

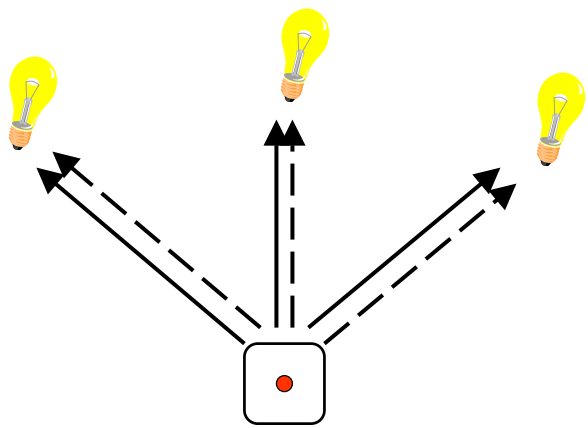


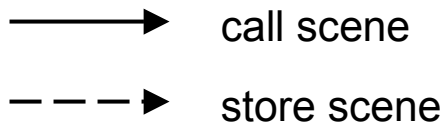


Scene II: „8-bit-scene“



- 8-bit-object transmits scene number (0..63) and a storing-command (storing yes/no)
- Actuators can be assigned to several scenes
- A storing-command can be triggered by a long keypress. This evokes the storing of the current actuator-value.
- Does only work with actuators that support 8-bit-scenes.





Universal Interfaces, FM, US/U 2.2 and US/U 4.2

Functions in detail

- **Control electrothermal valve drives**

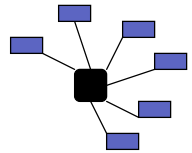
Control value from room thermostat
1 Bit or
8 Bit (continuous)

US/U x.2

ER/U 1.1
(1 per channel)

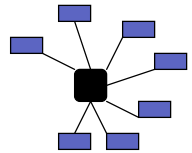
Electrothermal valve drive

Functions in detail

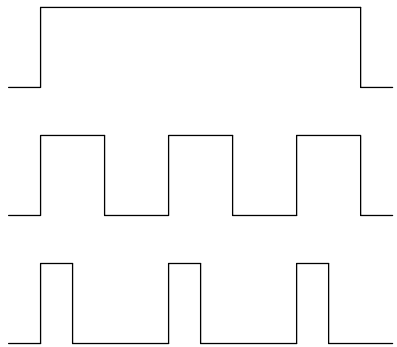


- **Control electrothermal valve drives**
  - Addressing by room thermostat via 1-bit- or 8-bit-object („continuous control“)
  - Automatic valve purge
  - Cyclic supervision of room thermostat
    - on failure fault operation is executed and error message is sent.
  - Forced operation
    (e.g. for opening valves to exhaust the air from the heaters)

Functions in detail

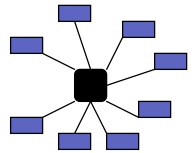


- **Control LEDs**
  - Switching and flashing
  - On-off-times are adaptable
  - Time limitation of output signals (can be optionally disabled by „Permanent On“



  - Interesting applications:
    - Flashing LED warns (e.g. of armed security system)
    - Warning of expiry of staircase lighting
    - Confirmation after storing a light scene

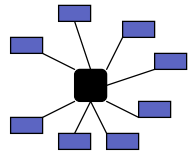
Functions in detail

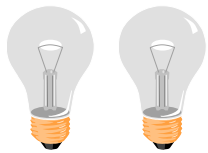
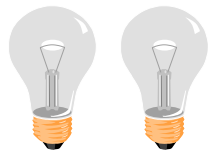
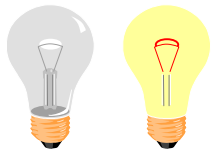
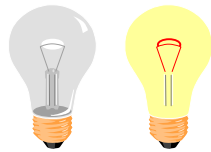
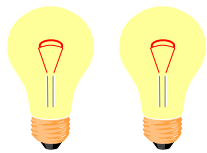
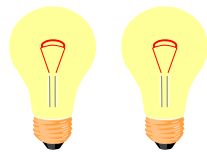
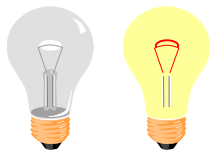
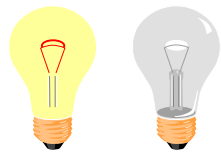
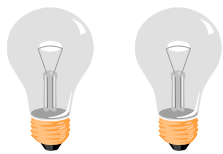
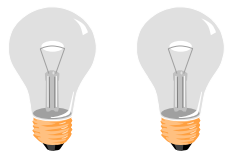


- **Operating severalt actuator groups via switching sequences**
  - One push-button controls several actuator groups in a selectable sequence
  - Up to 5 actuator groups are possible

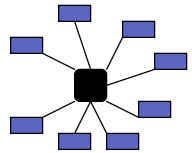
Universal Interfaces, FM, US/U 2.2 and US/U 4.2

Functions in detail



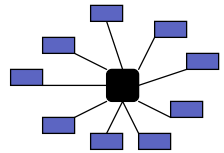
	normal sequence	„Gray-code“
Initial state		
1x keypress		
2x keypress		
3x keypress		
4x keypress		

Functions in detail



- **Operating severalt actuator groups via multiple operation**
  - Number of operations in succession is counted
  - According to the number an object can be transmitted
  - 4 separate objects are available
  - On long operation an additional object can be transmitted
  - Application example:
    1 keypress: 1st lighting group is switched on
    2 keypresses: 2nd lighting group is swiched on
    long keypress: complete lighting off

Functions in detail



- **Counting pulses**
  - Data width of the counter: 1, 2 or 4 bytes
  - Compatible to S_0-pulse output (energy meters)
  - Adjustable factor / devider
  - Counter values can be sent cyclically or by request
  - Additional differential counter, e.g. for measuring of daily consumption