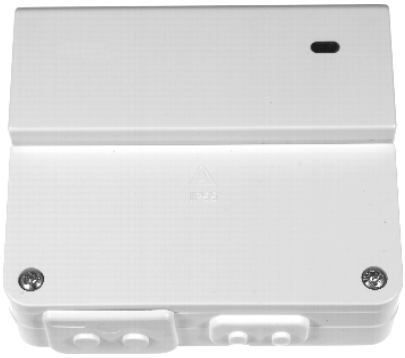
Radio receiver
75630004

Technical Documentation



The EIB Radio Receiver AP is used to connect radio bus sensors to the EIB instabus. All radio telegrams received are converted to the relevant EIB telegrams. Data transmission is unidirectional. The following radio bus products are supported:

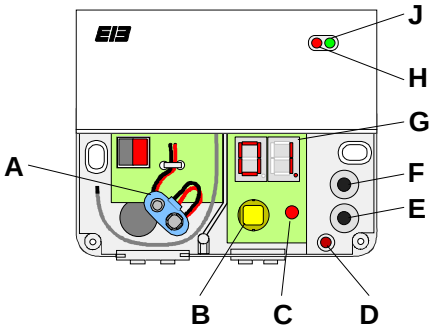
- -radio bus hand-held transmitter (with light scene, standard and mini transmitter)
- -radio bus wall transmitter (1gang, 2gang and 4gang)
- -radio bus universal transmitter-
- -radio bus standard movement contoller

Up to 50 channels can be set with a total of 100 memory locations for buttons (e.g. buttons on hand-held transmitters) and other devices (e.g. standard movement controllers).

Technical Specification	
Protection class:	IP 20
Test marks:	EIB, CE
Ambient temperature:	-5 °C to +45 °C
Storage / transportation temperature:	-25 °C to +70 °C (Storage above 45 °C will reduce working life of device.)
EIB instabus power supply	
Voltage:	24 V DC (+6 V / -4 V)
Power consumption:	
Connection:	via instabus supply terminal and branch terminal
Reaction to voltage failure:	
Bus voltage only:	no reaction
Reaction when reconnected:	
Bus voltage only:	no reaction
Input:	
Number of channels:	50
Transmission medium:	Radio
Reception frequency:	433.42 MHz
Modulation:	ASK (Amplitude Shift Keying)
Output:	---
Weight:	
Width / Height / Thickness:	110 mm / 94 mm / 38 mm

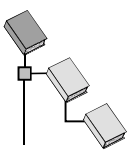
Notes on hardware:

For improved radio reception the radio antenna can be pulled outwards through the relevant cable entrance sleeve.



A: Battery clip
B: Acknowledge button
C: Programming LED (red)
D: Programming button
E: Channel selector button (Down)
F: Channel selector button (Up)
G: Channel and status indicator
H: Reception indication LED (red) for non-learned telegrams: flashes when non-learned telegrams are received.
J: Operating indication LED (green): is lit during operation and flashes when learned telegrams are received.

Product management



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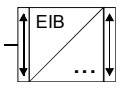
⌦ Communication
⌦ Radio
⌦ Radio receiver



Order no.: 75630004

Radio converter

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Application:		Radio receiver			
Operable with cap version (or higher):		7.1			
Number of addresses (max):		113	**Dynamic list management**	Yes☒	No ☐
Number of allocations (max):		113	**Maximum length of list**	226	
Communication objects:		109			
Object	**Function**	**Name**	**Type**	**Flag**	
Channel 1: Function: Switching					
0	Switching	Channel 1	1-bit	C, W, T	
Channel 1: Function: Toggle					
0	Toggle	Channel 1.1	1-bit	C, W, T	
1	Toggle	Channel 1.2	1-bit	C, W, T	
Channel 1: Function: Dimming					
0	Dimming: switch object	Channel 1	1-bit	C, W, T	
1	Dimming: dim object	Channel 1	4-bit	C, W, T	
Channel 1: Function: Shutter control					
0	Shutter: step operation	Channel 1	1-bit	C, W, T	
1	Shutter: move operation	Channel 1	1-bit	C, W, T	
Channel 1: Function: Value transmitter					
0	Value transmitter	Channel 1.1	1-byte	C, W, T	
1	Value transmitter	Channel 1.2	1-byte	C, W, T	
Channel 1: Function: Light scene extension unit					
0	: Light scene extension unit	Channel 1.1	1-byte	C, W, T	
1	: Light scene extension unit	Channel 1.2	1-byte	C, W, T	
Channel 1: Function: Movement controller					
0	Movement controller: switching	Channel 1	1-bit	C, W, T	
Channel 1: Function: Movement controller: value transmitter					
0	Movement contr.: value transmitter	Channel 1	1-byte	C, W, T	
Channel 1: Function: Universal transmitter as a switch					
0	Universal transmitter as a switch	Channel 1.1	1-bit	C, W, T	
1	Universal transmitter as a switch	Channel 1.2	1-bit	C, W, T	
The objects for Channel 2 (objects 2 and 3) to Channel 50 (objects 98 and 99) correspond to objects 0 and 1 from Channel 1.					

Object	**Function**	**Name**	**Type**	**Flag**
Channel X: function: Light scene Object type: Output Y switching (1-bit)				
100	Light scene: switching	Output 1	1-bit	C, W, T
101	Light scene: switching	Output 2	1-bit	C, W, T
102	Light scene: switching	Output 3	1 bit	C, W, T
103	Light scene: switching	Output 4	1-bit	C, W, T
104	Light scene: switching	Output 5	1-bit	C, W, T
105	Light scene: switching	Output 6	1-bit	C, W, T
106	Light scene: switching	Output 7	1-bit	C, W, T
107	Light scene: switching	Output 8	1-bit	C, W, T
108	Light scene extension unit	Input	1-byte	C, W, T

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Object	Function	Name	Type	Flag
Channel X: Function: lighting scene Object type: Output Y brightness value (1-byte)				
100	Light scene: brightness value	Output 1	1-byte	C, W, T
101	Light scene: brightness value	Output 2	1-byte	C, W, T
102	Light scene: brightness value	Output 3	1-byte	C, W, T
103	Light scene: brightness value	Output 4	1-byte	C, W, T
104	Light scene: brightness value	Output 5	1-byte	C, W, T
105	Light scene: brightness value	Output 6	1-byte	C, W, T
106	Light scene: brightness value	Output 7	1-byte	C, W, T
107	Light scene: brightness value	Output 8	1-byte	C, W, T
108	Light scene extension unit	Input	1-byte	C, W, T

Description of object

Switching:	1-bit object for load switching (dual area operation)
Toggle:	1-bit object for load switching in toggle-mode (single area operation)
Dimming (switch):	1-bit object for load switching in dimmer mode
Dimming (dim):	4-bit object for adjustment of relative brightness between 0 and 100 %
Shutter (step operation):	1-bit object for short-phase shutter operation to stop and adjust a lamella
Shutter (move operation):	1-bit object for shutter move operation to open or close the shutter
Value transmitter:	1-byte object for use of value transmitter (0...255)
Light scene extension unit:	1-byte object for transmission of light scene numbers to call up and store light scenes
Movement controller (switch):	1-bit movement switch object for load switching
Movement controller (value transmitter):	1-byte movement switch object for transmission of value telegrams
Universal transmitter as switch:	1-bit universal transmitter object for load switching
Light scene :switching:	1-bit light scene object for transmission of switch telegrams
Light scene: brightness value	1-byte light scene object for transmission of dimmer value telegrams
Light scene extension unit:	1-byte light scene object for transmission of light scene numbers

Range of functions

General

- Unidirectional conversion of radio telegrams received to corresponding instabus telegrams
- Facility for setting parameters and various channel functions for up to 50 channels
- Total of 100 memory locations for push-keys (e.g. buttons on hand-held transmitter) and devices (e.g. standard contollers)

Channel function: switching

- Option for setting parameters for function of left-hand / top button and of right-hand / bottom button

Channel function: toggle

- Alternate transmission of ON and OFF telegrams with each button

Channel function: dimming

- Adjustable dimmer settings
- Option for repeat transmission of telegrams and for stopping telegrams

Channel function: shutter control

- Button function (UP, DOWN) and time setting adjustable for step and move operation
- Selectable lamella adjustment time (time during which move command can still be cancelled by releasing button)

Channel function: value transmitter

- Option for setting parameters for value (0...255) of left-hand / top and right-hand / bottom buttons

Channel function: light scene extension unit

- Option for setting parameters for light scene number (1...8) of left-hand / top and right-hand / bottom buttons
- Option for store light scene function

Channel function: light scene

- Recall and storage of up to 5 **light scenes** each with 8 outputs using buttons or extension unit
- Option for setting parameters per output for switching (1-bit) or brightness value (1-byte) object types

Channel function: movement controller

- Transmission of 1-bit switch or 1-byte value telegrams depending on daylight value set
- Telegram can be modified both at start and end of recognition
- Option for setting parameters for delayed transmission at end of recognition and lock-out time

Channel function: universal transmitter as a switch

- Transmission of ON and OFF telegrams according to received universal transmitter telegrams

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Description of functions

Operating modes

The EIB Radio receiver features 3 operating modes:

1. Operating Mode (For conversion of learned radio telegrams to EIB telegrams, normal operation)
2. Learning Mode (For programming buttons and devices)
3. Delete Mode (For deleting buttons and devices)

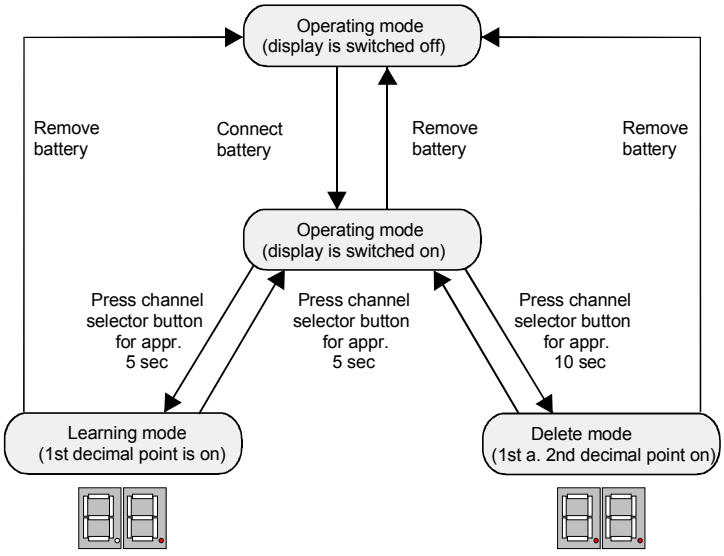
Switching between operating modes

1. Switching from “Operating Mode” ⇔ to ”Learning Mode”

- Connect battery to activate display.
- “Operating Mode” ⇔ “Learning Mode”: While in Operating Mode, press both channel selector buttons simultaneously for approx. 5 seconds.
  (“Learning Mode” is indicated by illumination of the first decimal point in the display.)
- “Learning Mode” ⇔ “Operating Mode”: While in “Learning Mode”, press both channel selector buttons simultaneously for approx. 5 seconds.
  (In “Operating Mode” the two decimal points in the display are turned off.)
- Remove battery again upon completion of all learning procedures.

2. Switching from “Operating Mode” to “Delete Mode”

- Connect battery to activate display.
- “Operating Mode” ⇔ “Delete Mode”: While in “Operating Mode”, press both channel selector buttons simultaneously for approx. 10 seconds.
  .
- “Delete Mode” is indicated by illumination of both first and second decimal points within the display.
- “Delete Mode” ⇔ “Operating Mode”: While in “Delete Mode”, press both channel selector buttons simultaneously for approx. 5 seconds. In “Operating Mode” the two decimal points in the display are turned off.
- Remove battery again upon completion of all delete procedures.



1. Operating Mode

In “Operating Mode” learned radio telegrams of radio bus sensors are received and analysed and converted into corresponding EIB telegrams.
Should a radio telegram from a learned sensor be received, this is indicated by a flashing green LED (Operating LED). If the sensor has not been learned in then the red LED will flash.
A learned radio telegram is converted to a corresponding EIB telegram, depending on the current parameters of the ETS channel function.
Any radio telegrams from non-learned sensors are deleted.

2. Learning Mode

In “Learning Mode” (For adjustment cf. "Switching between operating modes") the buttons and devices of radio bus products are set and referenced to an ETS channel number.

a.) Programming new buttons and devices:

- Set the required ETS channel number using channel selector buttons.
- Turn on radio bus transmitter and wait for 'LE' (LEARN) message to be displayed. (activation time: from 1 to 10 sec. :e.g. channel buttons 1 sec, ALL ON or ALL OFF buttons 10 seconds)
- Press Acknowledge button to assign device or button to the ETS channel already set. Channel number flashes momentarily indicating that the learning operation is in progress.
- Should the device have no more memory available, i.e. all 100 memory locations are already allocated, the message 'OF' (OVERFLOW) will be displayed.
- If the button or device is not to be configured to the pre-set ETS channel, the learning operation can be halted by pressing any channel selector button.

b.) Resetting a previously saved button or device to a new channel:

- Set the new ETS channel number required using channel selector buttons.
- Turn on radio bus sensor. The current channel number will flash within the display. (activation time: from 1 to 10 sec. :e.g. channel buttons 1 sec, ALL ON or ALL OFF buttons 10 seconds)
- To program device or button to new ETS channel the Acknowledge button must be pressed for approx. 3 seconds. The new channel number flashes momentarily to indicate that resetting of the device to the new ETS channel number is in progress .
- If the button or device is not to be configured to the pre-set ETS channel, the learning operation can be halted by pressing any channel selector button.

3. Delete Mode

The following can be cleared in Delete Mode (For adjustment cf. "Switching between operation modes")
a.) a button or device,
b.) all devices (buttons) of an ETS channel or
c.) total device memory

a.) Deleting a button or device

- Activate button or device to be deleted until corresponding ETS channel number flashes within display. (activation time: from 1 to 10 sec. :e.g. channel buttons 1 sec, ALL ON or ALL OFF buttons 10 seconds)
- Pressing the Acknowledge button for approx. 3 sec. will enable the button or device to be deleted from memory. During the delete process the symbol '- -' will appear in the display . When the process is completed the channel number will be displayed.
- If the button or device is not to be deleted the process can be halted by pressing a channel selector button.

b.) Deleting all buttons or devices of an ETS channel

- Set ETS channel to be deleted using channel selector buttons.
- Pressing the Acknowledge button for approx. 3 sec will start the process of deleting the ETS channel selected. The letters 'CE' (CLEAR ENTRY) will appear in the display. When the process is completed the ETS channel will again be displayed.

c.) Clearing the total device memory

- Pressing the Acknowledge button for approx. 15 sec will start the process of clearing the total device memory. The letters 'AC' (ALL CLEAR). will appear in the display.
- When the process is completed the digits 00 will be displayed.

Description of function

Allocating radio products to radio receiver functions

The 9 functions available in ETS may be allocated to the various buttons and devices as follows:

- ● Device or button supported by this function.
- \- Device or button not supported by this function

ETS function / Radio devices or buttons	Hand-held transmitter - ALL ON button	Hand-held and wall transmitters - ALL OFF button	Hand-held and wall transmitters -channel buttons (rocker switches)	Hand-held and wall transmitters - light scene buttons	Hand-held transmiter - Master button (rocker switch)	Universal transmitter - (Function.: button/shutter)	Universal transmitter - (Function.: switch)	Movement controller
Switching	● 1)	●	●	● 1)	● 3)	●	-	-
Toggle	-	-	● 4)	● 5)	● 3)	●	-	-
Dimming	-	-	● 6)	-	● 3)	●	-	-
Shutter control	-	-	●	-	● 3)	●	-	-
Value transmitter	-	-	● 4)	● 5)	● 3)	●	-	-
Light scene extension unit	-	-	● 4)	● 5)	● 3)	●	-	-
Light scenes (internal)	-	-	-	● 7)	-	-	-	-
Movement controller	-	-	-	-	-	-	-	●
Universal transmitter as a switch	-	-	-	-	-	-	●	-

1) Value transmitted has parameters set under "function of left-hand / upper button“.
2) Value transmitted has parameters set under "function of right-hand / lower button".

3) The Master button can be used like an extra channel button.
4) left-hand / upper button: output via object n (n = 0, 2, 4, ... , 98)
   right-hand / lower button: output via object m (m = 1, 3, 5, ... , 99)
5) output via object n (n = 0, 2, 4, ... , 98)
6) left-hand / top button: ON / increase brightness
   right-hand / bottom button: OFF/ reduce brightness
7) The light scene for button numbers 1-5 are given.

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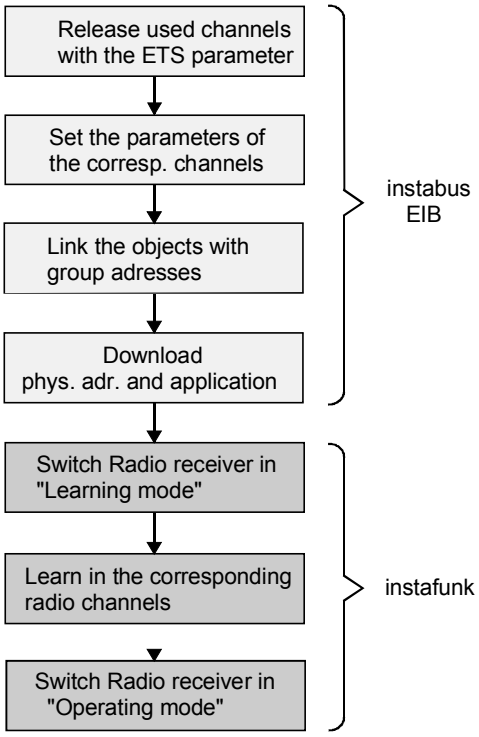
Description of function

Aid to configuration

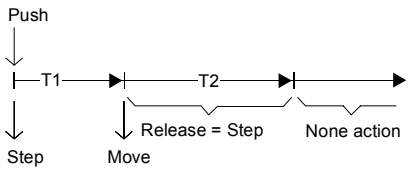
Prior to operating the Radio receiver it is a good idea to keep a good record of the whole process from configuration through to operation. The following points should be noted:

- Selection of channel number
- Allocation of function
- Selection of group address
- Exact description of transmitter (e.g. hand-held transmitter, light scene model, button 1)
- Learning process completed ?

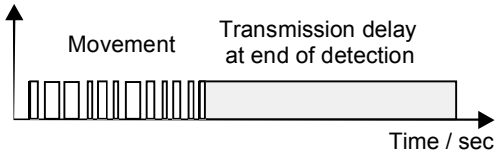
When configuring and first operating the Radio receiver, configuration of the EIB instabus should be undertaken initially and prior to setting / configuring the radio receivers.
This results in the following process:



Parameters		
Description:	**Values:**	**Notes:**
General		
Channels 1-5	**released**	The appropriate channels (1-5 here) are released and parameters can be set for them.
	locked	The appropriate channels (1-5 here) are locked.
Channels 6-10	released	The appropriate channels are clear and parameters can be set for them
	locked	The appropriate channels (6-10 here) are locked.
Channels 11-15	released / **locked**	
Channels 16-20	released / **locked**	
Channels 21-25	released / **locked**	
Channels 26-30	released / **locked**	
Channels 31-35	released / **locked**	
Channels 36-40	released / **locked**	
Channels 41-45	released / **locked**	
Channels 46-50	released / **locked**	
Channel x (x = 1...50)		
Function	No function **Switching** Toggle Dimming Shutter control Value transmitter Light scene extension unit Light scene Movement controller Universal transmitter as a switch	Range of functions for Channel x.
Channel x: "Switching" function sets parameters:		
Function	**Switching**	Selected function for channel x
Function of left / upper push button	**ON**	An ON telegram is activated.
	OFF	An OFF telegram is activated.
	No function	No telegram is activated.
Function of right / lower push button	ON	An ON telegram is activated.
	OFF	An OFF telegram is activated.
	No function	No telegram is activated.
Channel x: "Toggle" function sets no parameters:		

Parameters		
Description:	**Values:**	**Notes:**
Channel x: "Dimming" function sets parameters:		
Function	**Dimming**	Selected function for channel x
Dimming brighter / darker by	**100 %** 6 % 50 % 3 % 25 % 1.5 % 12.5 %	Using a dim telegram brightness can be increased or decreased by a maximum of x %.
Send a stop telegram ?	**YES** NO	Releasing button will transmit / not transmit a stop telegram.
Telegram repetition	**None** 700 msec 200 msec 800 msec 300 msec 900 msec 400 msec 1 sec 500 msec 1.5 sec 600 msec 2 sec	Cyclic repetition of dim telegram after button is pressed. A new dim telegram is activated each time after parametered time set has elapsed .
Channel x: "Shutter control" function sets parameters:		
Function	**Shutter control**	Selected function for channel x
Time between step and move operation (3...127) x 100 msec	3...127, **3**	Time after which function of extended key press is executed.
Push button function	**left / upper = UP;** **right / lower = DOWN** left / upper = DOWN; right / lower = UP	Allocation of shutter functions to buttons.
Lamella adjust time (0...255) x 100 msec	0...255, **3**	Time during which a MOVE telegram for lamella adjustment can be completed by releasing button (For T2 see diagram below).  T1 = Time between Step and Move operation Pressing the button transmits a STEP and starts T1 time. If released again during T1 no further telegrams are transmitted. This STEP is used for halting operations currently in progress. If button remains pressed for longer than T1 a MOVE will automatically be transmitted when T1 has elapsed and T2 time will commence. If the button is again released before T2 elapses then a STEP is transmitted. This function is used for lamella adjustment (T2). T2 should equal the time taken for the lamella to rotate by 180°.

Parameters		
Description:	**Values:**	**Notes:**
Channel x: "Value transmitter" function sets parameters:		
Function	**Value transmitter**	Selected function for channel x
x.1: Value of the left / upper push button (0...255)	0...255, **0**	Value transmitted when left / upper push button is pressed.
x.2: Value of the right / lower push button (0...255)	0...255, **255**	Value transmitted when right / lower push button is pressed
Channel x: "Light scene extension unit" function sets parameters:		
Function	**Light scene extension unit**	Selected function for channel x
x.1: Value of the left / upper push button (1...8)	1...8, **1**	Light scene number transmitted when left / upper push button is pressed
x.2: Value of right / lower push button (1...8)	1...8, **8**	Light scene number transmitted when right / lower push button is pressed
Memory function?	YES	Light scenes can be saved by keeping button pressed for longer periods (radio bus transmitter: > 3 s).
	NO	Light scenes cannot be saved.
Channel x: "Light scene" function sets parameters:		
Memory function?	YES	Light scenes can be saved by keeping button pressed for longer periods (radio bus transmitter: > 3 s).
	NO	Light scenes cannot be saved.
Channel x: "Movement controller" function sets parameters:		
Function	**Movement controller**	Selected function for channel x
Movement controller function	**Switching**	1-bit switching telegrams are transmitted.
	Value transmitter	1-byte value telegrams are transmitted.
Value at begin of detection	**ON** OFF	*only during the "Movement controller function: Switching":* An ON or OFF telegram is transmitted at the start of detection.
Value at end of detection	ON **OFF** No telegram	*only during the " Movement controller function: Switching":* An ON or OFF telegram (or no telegram) is transmitted at the end of detection.
Value at begin of detection (0...255)	0...255, **255**	*only during the " Movement controller function: Value transmitter":* At the start of detection a value telegram (0...255) is transmitted.
Value at end of detection (0...255)	0...255, **0**	*only during the " Movement controller function: Value transmitter":* At the end of detection a value telegram (0...255) is transmitted

Parameters		
Description:	**Values:**	**Notes:**
Twilight value	3,1; 3,5; 3,8; 4,3; 4,8; 5,3 Lux 5,9; 6,5; 7,3; 8,1; 9; 10 Lux 11,1; 12,3; 13,7; 15,2 Lux 16,9; 18,7; 20,8; 23,1 Lux 25,6; 28,5; 31,6 35; 39 Lux 43; 48; 53; 60; 73; 80; **80-200 Lux**	When no light is displayed telegrams will only be activated if brightness level is below the parametered value set.
Transmission delay at end of detection	**10 sec**, 20 sec, 30 sec, 1 min, 2 min, 5 min, 10 min, 20 min, 30 min 1 h	At the end of detection (no discernable heat agitation) there is a delay in transmission after which the "value at end of detection" is transmitted. 
Interlock time	None 1 sec, 2 sec, **3 sec**, 4 sec, 5 sec	After the delayed transmission time has elapsed a interlock time can be activated which uses a cooling process to prevent users reconnecting.
Object types		
Output 1	**Not used** Switching (1 Bit) Brightness value (1 Byte)	Selection of object type using "Light scene" function for the 8 outputs. Depending on the lights at is possible to control switchable (Switching) or dimable (Brightness value) loads with a light scene.
Output 2	**Not used** Switching (1 Bit) Brightness value (1 Byte)	
Output 3	**Not used** Switching (1 Bit) Brightness value (1 Byte)	
Output 4	**Not used** Switching (1 Bit) Brightness value (1 Byte)	
Output 5	**Not used** Switching (1 Bit) Brightness value (1 Byte)	
Output 6	**Not used** Switching (1 Bit) Brightness value (1 Byte)	
Output 7	**Not used** Switching (1 Bit) Brightness value (1 Byte)	
Output 8	**Not used** Switching (1 Bit) Brightness value (1 Byte)	
Extension unit input	released **locked**	Recalling and saving light scenes is also possible with an instabus sensor via an extension input.

Parameters		
Description:	**Values:**	**Notes:**
Light scene x		
Output 1	**ON** OFF	Value of telegrams with "Switching (1-bit)" object type-parameter setting for the appropriate output.
Output 2		
Output 3	OFF Basic brightness 10 %, 20 %, 25 %, 30 %, 40 % ,50 %, 60 %, 70 %, 75 %, 80 %, 90 %, **100 %**	Value of telegrams with "Brightness value (1-byte)" object type-parameter setting for the appropriate output.
Output 4		
Output 5		
Output 6		
Output 7		
Output 8		
Notes on software		
To enable all parameters to be calculated, parameter processing must be set to "Full access“ (FA).		