

## Motion detector mini basic in connection with an individual hotel logic of the multistation

Using the direct connection to the multistation

It is becoming increasingly common to dispense with a classic keycard switch in hotel rooms. It is however known that the guest likes to be met with a welcome light or scene in their hotel room. As it is not possible to detect presence via the keycard switch if it has been omitted, there is the possibility to detect presence via a motion detector.

## Required products

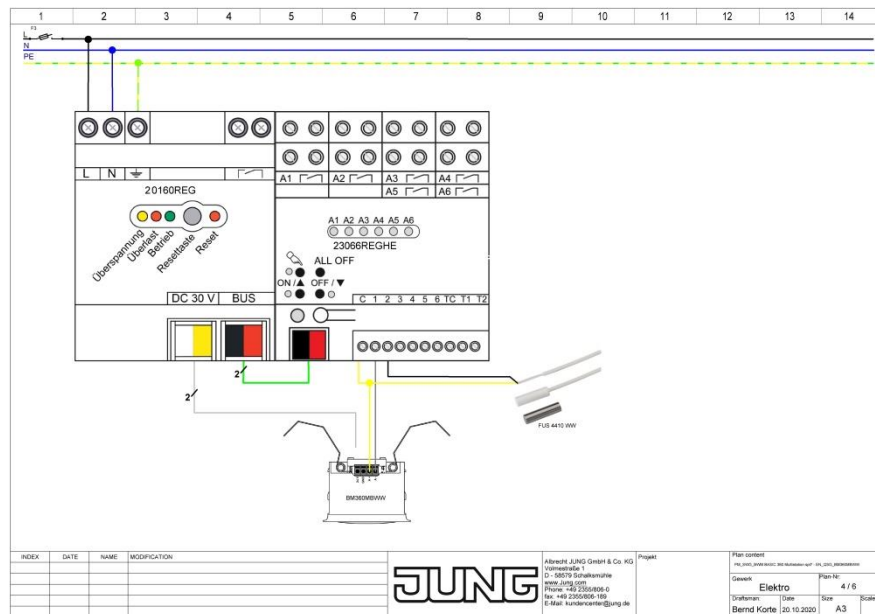
	Device	Ref. no.
	1 x KNX power supply ( 160mA / 320mA / 640mA / 1280mA )	<a href="#">20160 REG</a>
	1 x motion detector mini basic (BM360MBWW)	<a href="#">BM 360 MB WW</a>
	1 x KNX multistation (23066 REGHE)	<a href="#">23066 REGHE</a>
	1 x magnet contact (FUS4410WW/ FUS4410BR)	<a href="#">FUS 4410 WW</a>

## Contents

1. Anlagenaufbau und mögliche Varianten.....3
2. ETS Projekt öffnen / bearbeiten.....4
3. Parameterbearbeitung.....5
4. Gruppenadressen anlegen .....12
5. Gruppenadressen verbinden.....13

## 1. System setup and possible variants

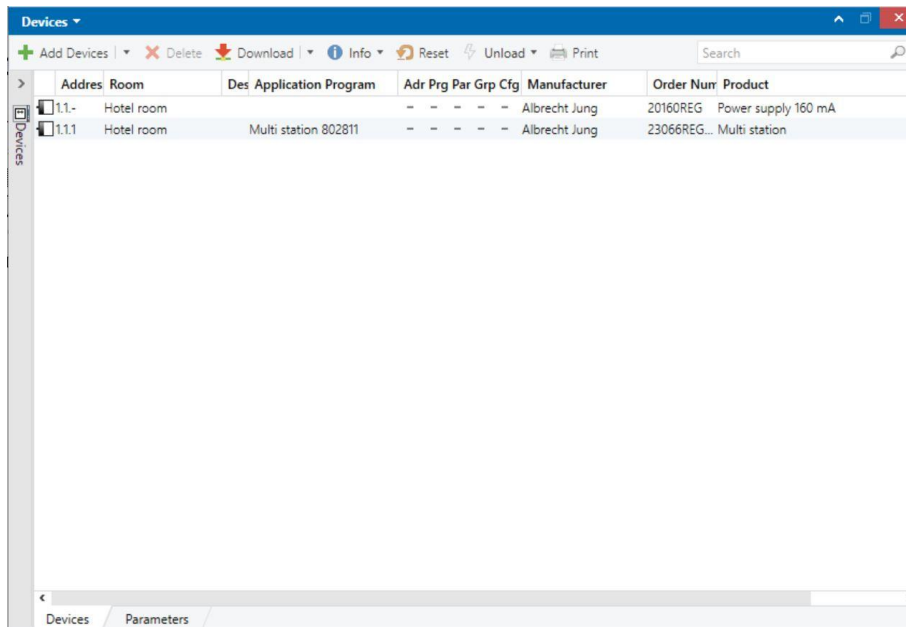
Wiring diagram



- Please use the 160mA variant as a KNX power supply ([20160 REG](#)). Alternatively, you can also use the larger variants. ([20320 REG](#) / [20640 REG](#) / [21280 REG](#))
- Please use the unchoked output of the above power supply to supply the motion detector mini basic.
- Use input 1 of the multistation ([23066 REGHE](#)) to record the switching state of the motion detector mini basic.
- Connect the motion detector mini basic to the multistation and the power supply according to the technical documentation.
- Likewise connect the door contact to input 2 of the multistation according to the technical documentation.

## 2. Open / edit ETS project

Open / edit ETS project



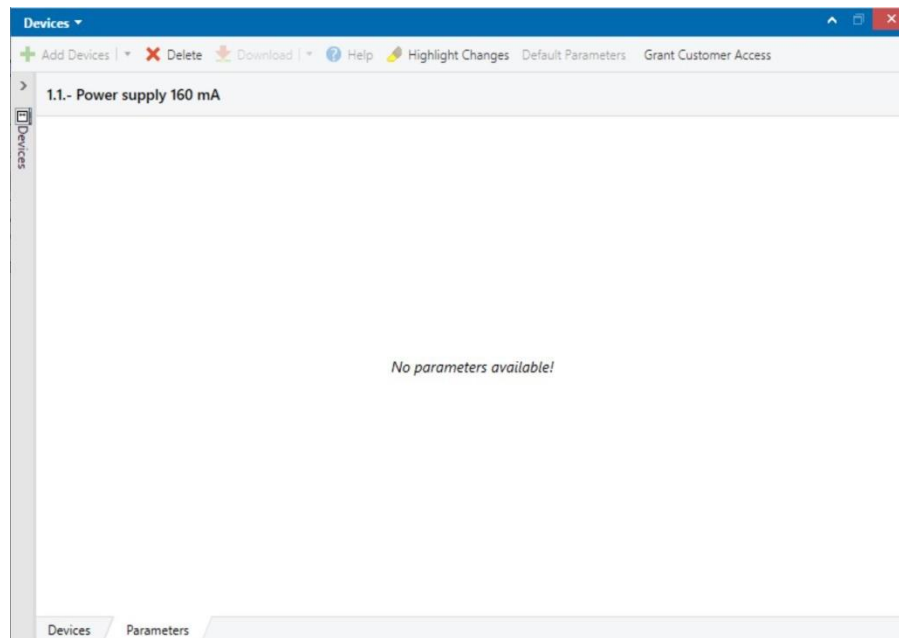
The screenshot shows the 'Devices' window in the ETS software. It contains a table with the following data:

Address	Room	Des	Application Program	Adr	Prg	Par	Grp	Cfg	Manufacturer	Order Num	Product
1.1.-	Hotel room			-	-	-	-	-	Albrecht Jung	20160REG	Power supply 160 mA
1.1.1	Hotel room		Multi station 802811	-	-	-	-	-	Albrecht Jung	23066REG...	Multi station

- Start the ETS and create a new project. Alternatively, use your previously created project and edit these devices
- Add the required devices to your project
  - [20160REG](#)
  - [23066REGHE](#)

### 3. Parameter processing

Parameters of the power supply



- The power supply application only serves for documentation purposes.

## Parameters of the multistation

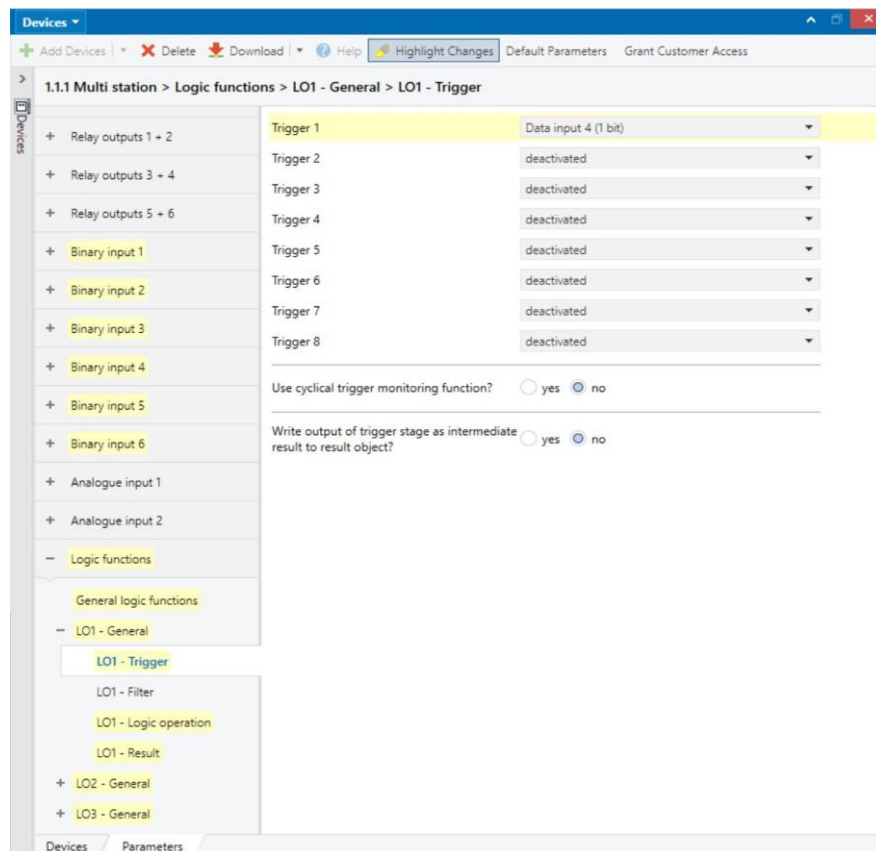
The screenshot shows the 'Devices' window in the Jung Multistation configuration software. The left sidebar shows a tree view with '1.1.1 Multi station > Binary input 2 > BI2 - Function' selected. The main area displays the 'General' tab for 'Binary input 2'. The parameters are as follows:

Parameter	Value
Name of binary input	Door contact
Function	Switching
Command on rising edge Switching object 1	no reaction
Command on falling edge Switching object 1	ON
Command on rising edge Switching object 2	ON
Command on falling edge Switching object 2	no reaction
Behaviour on bus voltage return	no reaction

The left sidebar also shows other options like 'General', 'Relay outputs', 'Binary input 1', 'BI2 - Function', 'Binary input 3', 'Binary input 4', 'Binary input 5', 'Binary input 6', 'Analogue input 1', 'Analogue input 2', and 'Logic functions'.

- Change to the multistation application
  - Open the "General" menu
    - Set the parameter "Use binary/analogue inputs?" to "yes"
    - Set the parameter "Use logic functions?" to "yes"
- Open the menu "Binary input 1"
  - Assign a unique name in the parameter "Designation of the binary input". For example "Motion detector"
- Open the menu "Binary input 2"
  - Assign a unique name in the parameter "Designation of the binary input". For example "Door contact"
  - Set the parameter "Command on rising edge of switch object 1" to "no reaction"
  - Set the parameter "Command on falling edge of switch object 1" to "ON"
  - Set the parameter "Command on rising edge of switch object 2" to "ON"
- Open the menu "Binary input 3"
  - Set the "Function" parameter to "no function"
- Carry out the previous steps for binary inputs 4-6
- Adjust the other parameters according to your requirements (not necessary for this example)

## Parameters of the multistation



- Open the "Logic functions" tab
  - Specifically the "General logic functions" tab
    - Set the parameter "Number of logic functions" to "3"
- Open the tab "LO1 – General"
  - Assign a unique name in the parameter "Designation of the logic function". For example "Presence"
- Open the tab "LO1 – Trigger"
  - Set the parameter "Trigger 1" to "Data input 4 (1 bit)"
- Open the tab "LO1 - Logic Operation"
  - Assign a unique name in the parameter "Designation of the operation". For example "NOR function"
  - Set the parameter "Logic operation" to "inverted OR (NOR)"
  - Set the parameter "Operand 1 (x)" to "Input object"
  - Set the parameter "Operand 2 (y)" to "Input object"
  - Set the parameter "Selection of input object" to "Data input 2 (1 bit)"
- Adjust the other parameters according to your requirements (not necessary for this example)

## Parameters of the multistation

The screenshot shows the 'LO1 - Result' configuration tab in the Jung Multistation software. The left sidebar lists the configuration hierarchy: 1.1.1 Multi station > Logic functions > LO1 - General > LO1 - Result. The main configuration area is divided into several sections:

- First type conversion for 1-bit result:**
  - Data format for result evaluation: 1 bit switching (DPT 1.xxx)
  - Selection of result object: Result output 1 (1 bit)
  - Check result (filter)?: ☐ yes ☒ no
  - First type conversion for 1-bit result: only for ON results
  - Target data format for type conversion: 1 byte scene extension (DPT 18.001)
  - Output value for type conversion ON: recall scene 1 (0)
  - Selection of result object for output value of type conversion: Result output 1 (1 byte)
- Second type conversion for 1-bit result:**
  - Second type conversion for 1-bit result: only for ON results
  - Target data format for type conversion: 1 byte operating mode switchover (DPT 20.102)
  - Output value for type conversion ON: comfort mode (1)
  - Selection of result object for output value of type conversion: Result output 2 (1 byte)
- Third type conversion for 1-bit result:**
  - Third type conversion for 1-bit result: inactive
- Fourth type conversion for 1-bit result:**
  - Fourth type conversion for 1-bit result: inactive
- Result transmission criteria:**
  - Result transmission criteria: send on every trigger
  - Transmission delay for sending the result:
    - hours: 0 (0..99)
    - minutes: 0 (0..59)
    - seconds: 0 (0..59)
    - milliseconds: 1 (1..9 x 100)

- Open the tab "LO1 - Result"
  - Set the parameter "First type conversion for 1-bit result" to "only for ON results"
  - Set the parameter "Target data format of type conversion" to "1-byte scene extension (DPT18.001)"
  - Set the parameter "Second type conversion for 1-bit result" to "only for ON results"
  - Set the parameter "Target data format of type conversion" to "1-byte mode conversion (DPT 20.102)"
  - Set the parameter "Output value for type conversion ON" to "Comfort mode (1)"
  - Set the parameter "Selection of event object for output value of type conversion" to "Event output 2 (1 byte)"
- Adjust the other parameters according to your requirements (not necessary for this example)



## Parameters of the multistation

The screenshot shows the 'LO2 - Result' configuration tab in the JUNG Multistation software. The left sidebar lists various components: Manual operation, Relay outputs 1+2, 3+4, 5+6, Binary inputs 1-6, Analogue inputs 1-2, Logic functions (General logic functions, LO1 - General, LO2 - General, LO2 - Trigger, LO2 - Filter, LO2 - Logic operation, LO2 - Result), and LO3 - General. The 'LO2 - Result' tab is selected. The main area contains the following parameters:

- Data format for result evaluation:** 1 bit switching (DPT 1.xxx)
- Selection of result object:** Result output 2 (1 bit)
- Check result (filter)?** ☐ yes ☒ no
- First type conversion for 1-bit result:** inactive
- Second type conversion for 1-bit result:** inactive
- Third type conversion for 1-bit result:** inactive
- Fourth type conversion for 1-bit result:** inactive
- Result transmission criteria:** send on every trigger
- Transmission delay for sending the result:**
  - hours: 0 (0..99)
  - minutes: 1 (0..59)
  - seconds: 0 (0..59)
  - milliseconds: 1 (1..9 x 100)

- Open the tab "LO2 - General"
  - Assign a unique name in the parameter "Designation of the logic function". For example "Time delay door contact"
  - Open the tab "LO2 – Trigger"
    - Set the parameter "Trigger 1" to "Data input 5 (1 bit)"
  - Open the tab "LO2 – Logic Operation"
    - Assign a unique name in the parameter "Designation of the operation". For example "Time delay"
    - Set the parameter "Type of logic operation" to "Type conversion"
    - Set the parameter "Operand 1 (x)" to "Input object"
    - Set the parameter "Selection of input object" to "Data input 5 (1 bit)"
    - Set the parameter "Selection of event object" to "Event output 2 (1 bit)"
  - Open the tab "LO2 – Event"
    - Set the parameter "Selection of event object" to "Event object 2 (1 bit)"
    - Set the "Minutes" parameter to "1" This means a delay of 1 minute (adapt this time to your requirements)
- Adjust the other parameters according to your requirements (not necessary for this example)

## Parameters of the multistation

The screenshot shows the JUNG software interface for configuring a multistation. The left sidebar displays a tree view of the configuration, with 'LO3 - Logic operation' selected. The main area shows the parameters for this operation, including a table of operands and a selection of the result object.

Parameter	Value
Use logic operation 1?	<input checked="" type="radio"/> yes <input type="radio"/> no
Name of operation	Absence
Type of logic operation	logic
Logical operation	inverted OR (NOR)
Data format of logical operation	1 bit switching (DPT 1.xxx)
Operand 1 (x)	input object
Selection of input object	Data input 1 (1 bit)
Operand 2 (y)	input object
Selection of input object	Data input 2 (1 bit)
Operand 3 (z)	deactivated
Operand 4 (a)	deactivated
Operand 5 (b)	deactivated
Operand 6 (c)	deactivated
Operand 7 (d)	deactivated
Operand 8 (e)	deactivated
Selection of result object	Result output 3 (1 bit)
Use logic operation 2?	<input type="radio"/> yes <input checked="" type="radio"/> no
Use logic operation 3?	<input type="radio"/> yes <input checked="" type="radio"/> no
Use logic operation 4?	<input type="radio"/> yes <input checked="" type="radio"/> no

- Open the tab "LO3 - General"
  - Assign a unique name in the parameter "Designation of the logic function". For example "Absence"
  - Open the tab "LO3 – Trigger"
    - Set the parameter "Trigger 1" to "Data input 6 (1 bit)"
  - Open the tab "LO3 – Logic Operation"
    - Assign a unique name in the parameter "Designation of the operation". For example "Absence"
    - Set the parameter "Type of logic operation" to "inverted OR (NOR)"
    - Set the parameter "Operand 1 (x)" to "Input object"
    - Set the parameter "Operand 2 (y)" to "Input object"
    - Set the parameter "Selection of input object" to "Data input 2 (1 bit)"
    - Set the parameter "Selection of event object" to "Event output 3 (1 bit)"
- Adjust the other parameters according to your requirements (not necessary for this example)

## Parameters of the multistation

The screenshot displays the JUNG software interface for configuring a multistation. The sidebar on the left shows a tree view with the following structure:

- 1.1.1 Multi station > Logic functions > LO3 - General > LO3 - Result
- Manual operation
- Relay outputs 1 + 2
- Relay outputs 3 + 4
- Relay outputs 5 + 6
- Binary input 1
- Binary input 2
- Binary input 3
- Binary input 4
- Binary input 5
- Binary input 6
- Analogue input 1
- Analogue input 2
- Logic functions
  - General logic functions
    - LO1 - General
    - LO2 - General
    - LO3 - General
      - LO3 - Trigger
      - LO3 - Filter
      - LO3 - Logic operation
      - LO3 - Result (selected)

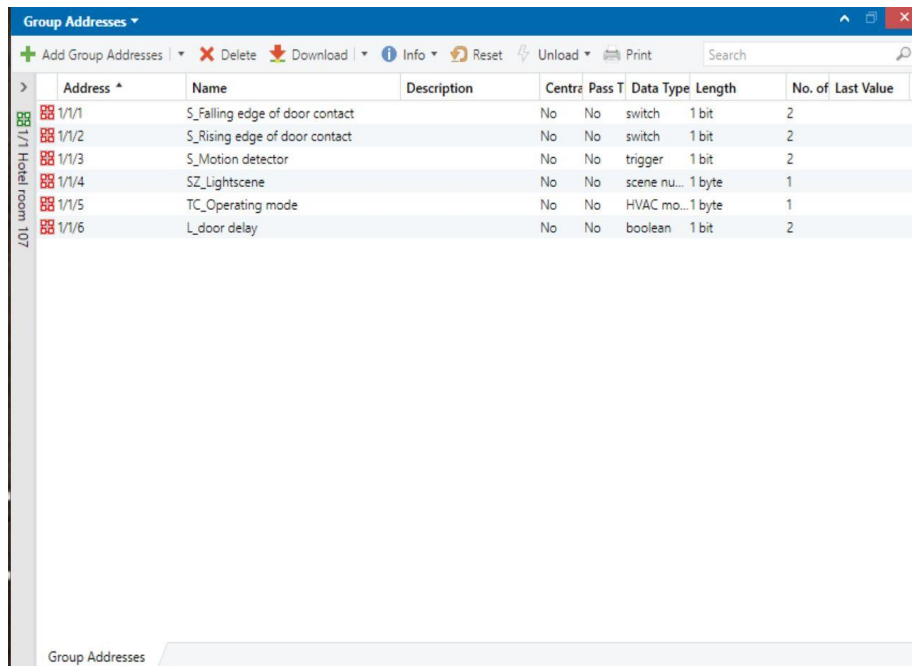
The main configuration area for the LO3 - Result tab includes the following parameters:

- Data format for result evaluation: 1 bit switching (DPT 1.xxx)
- Selection of result object: Result output 3 (1 bit)
- Check result (filter)?: ☐ yes ☒ no
- First type conversion for 1-bit result: only for ON results
- Target data format for type conversion: 1 byte scene extension (DPT 18.001)
- Output value for type conversion ON: recall scene 2 (1)
- Selection of result object for output value of type conversion: Result output 1 (1 byte)
- Second type conversion for 1-bit result: only for ON results
- Target data format for type conversion: 1 byte operating mode switchover (DPT 20.102)
- Output value for type conversion ON: standby mode (2)
- Selection of result object for output value of type conversion: Result output 2 (1 byte)
- Third type conversion for 1-bit result: inactive
- Fourth type conversion for 1-bit result: inactive
- Result transmission criteria: send on every trigger
- Transmission delay for sending the result
  - hours: 0 (0...99)
  - minutes: 0 (0...59)
  - seconds: 0 (0...59)
  - milliseconds: 1 (1...9 x 100)

- Open the tab "LO3 - Event"
  - Set the parameter "Selection of event object" to "Event object 3 (1 bit)"
  - Set the parameter "First type conversion for 1-bit event" to "only for ON events"
  - Set the parameter "Target date format of type conversion" to "1-byte scene extension (DPT18.001)"
  - Set the parameter "Output value for type conversion ON" to "Retrieve scene 2 (1)"
  - Set the parameter "Second type conversion for 1-bit event" to "only for ON results"
  - Set the parameter "Target date format of type conversion" to "1-byte mode conversion (DPT 20.102)"
  - Set the parameter "Output value for type conversion ON" to "Standby mode (2)"
  - Set the parameter "Selection of event object for output value of type conversion" to "Event output 2 (1 byte)"
- Adjust the other parameters according to your requirements (not necessary for this example)

## 4. Assign group addresses

### Parameters of the multistation



Address	Name	Description	Centre	Pass T	Data Type	Length	No. of	Last Value
1/1/1	S_Falling edge of door contact		No	No	switch	1 bit	2	
1/1/2	S_Rising edge of door contact		No	No	switch	1 bit	2	
1/1/3	S_Motion detector		No	No	trigger	1 bit	2	
1/1/4	SZ_Lightscene		No	No	scene nu...	1 byte	1	
1/1/5	TC_Operating mode		No	No	HVAC mo...	1 byte	1	
1/1/6	L_door delay		No	No	boolean	1 bit	2	

- Create new group addresses for
  - falling edge of door contact
  - rising edge of door contact
  - motion detector
  - operating mode
  - lightscene
  - door delay

## 5. Link group addresses

### Parameters of the multistation

Group Addresses									
+ Add Group Addresses   - Delete   Download   Info   Reset   Unload   Print   Search									
Object	Device	Send	Data Type	C	R	W	T	U	Product
1/1/1 S_Falling edge of door contact									
346: Binary input 2 (Door contact) - output - Switching object 1	1.1.1 Multi station	S	switch	C	-	W	T	U	Multi station
381: Logic functions - input - Data input 4 (1 bit)	1.1.1 Multi station	S	boolean	C	-	W	-	U	Multi station
1/1/2 S_Rising edge of door contact									
354: Binary input 2 (Door contact) - output - Switching object 2	1.1.1 Multi station	S	switch	C	-	W	T	U	Multi station
382: Logic functions - input - Data input 5 (1 bit)	1.1.1 Multi station	S	boolean	C	-	W	-	U	Multi station
1/1/3 S_Motion detector									
345: Binary input 1 (Motion detector) - output - Switching object 1	1.1.1 Multi station	S	switch	C	-	W	T	U	Multi station
378: Logic functions - input - Data input 1 (1 bit)	1.1.1 Multi station	S	boolean	C	-	W	-	U	Multi station
1/1/4 SZ_Lightscene									
514: Logic functions - output - Result output 1 (1 byte)	1.1.1 Multi station	S	percentage (0..100%)	C	R	-	T	U	Multi station
1/1/5 TC_Operating mode									
515: Logic functions - output - Result output 2 (1 byte)	1.1.1 Multi station	S	percentage (0..100%)	C	R	-	T	U	Multi station
1/1/6 L_door delay									
383: Logic functions - input - Data input 6 (1 bit)	1.1.1 Multi station	S	boolean	C	-	W	-	U	Multi station
467: Logic functions - output - Result output 2 (1 bit)	1.1.1 Multi station	S	boolean	C	R	-	T	U	Multi station

- Link the object "346: Binary input 2 (door contact) - Output - Switch object 1" and the object "381: Logic functions – Input – Data input 4 (1 bit)" of the multistation, with the group address for the falling edge of the door contact
- Link the object "354: Binary input 2 (door contact) – Output – Switch object 2" and the object "382: Logic functions – Input – Data input 5 (1 bit)" of the multistation, with the group address for the rising edge of the door contact
- Link the object "345: Binary input 1 (motion detector) – Output – Switch object 1" and the object "378 Logic functions – Input – Data input 1 (1 bit)" of the multistation, with the group address of the motion detector
- Link the object "514: Logic functions – Output – Event output 1 (1 byte)" of the multistation, with the group address of the lightscene
- Link the object "515: Logic functions – Output – Event output 2 (1 byte)" of the multistation, with the group address of the operating mode
- Link the object "383: Logic functions – Input – Data input 6 (1 bit)" and the object "467: Logic functions – Output – Event output 2 (1 bit)" of the multistation, with the group address of the door delay
- Adjust the other parameters according to your requirements (not necessary for this example)