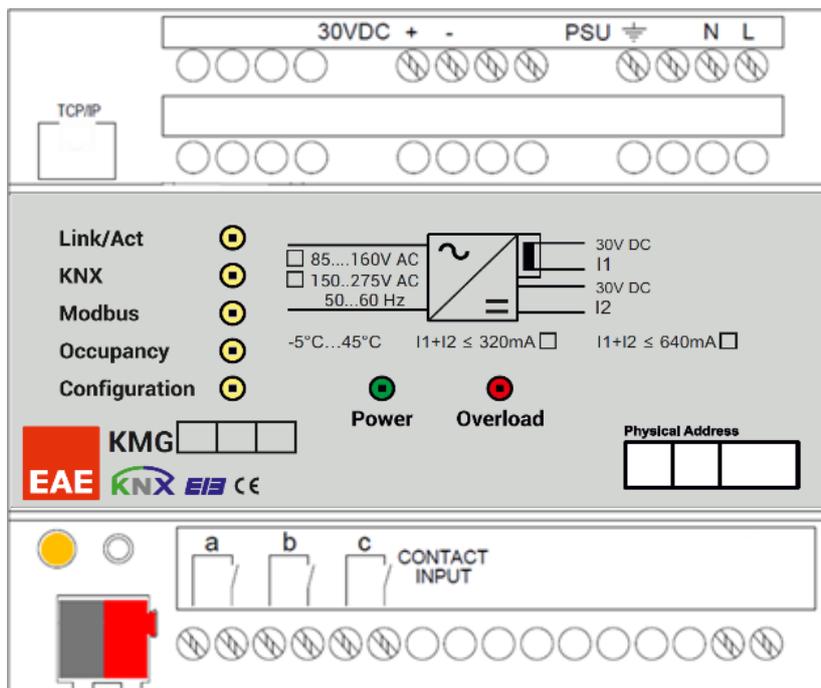


# EAE KNX-Modbus TCP Router & KNX PSU & Energy Saver without Card Holder



## Product Order Numbers

48192	KMG (KNX Modbus Gateway) 220V 640mA	48198	KMG (KNX Modbus Gateway) 220V 320mA
48193	KMG (KNX Modbus Gateway) 110V 640mA	48185	KMG (KNX Modbus Gateway) 110V 320mA



Table of Contents

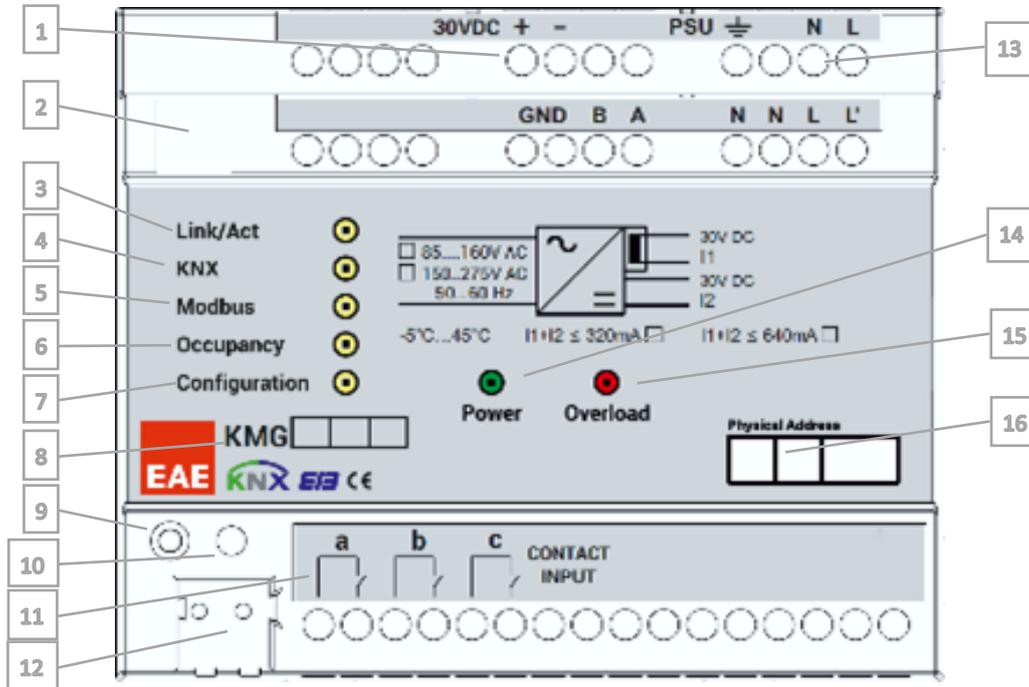
- 1.General Features ..... 3
- 2.Device Technology ..... 4
  - 2.1 Device Peripherals ..... 4
  - 2.2 Connection Diagram ..... 5
  - 2.3. Technical Data ..... 6
  - 2.4. Technical Drawing..... 7
- 3. Settings ..... 8
  - 3.1. Connect..... 9
  - 3.2. Device Management..... 10
    - 3.2.1. IP Change ..... 10
    - 3.2.2. Version Info..... 11
    - 3.2.3. Mode Settings..... 11
    - 3.2.4. Factory Reset ..... 12
  - 3.3. Object Table..... 13
  - 3.4. Scene Table ..... 15
    - 3.4.1. Scenes ..... 16
  - 3.5. KMG Input / IP Config ..... 18
  - 3.6. Import/Export ..... 21
    - 3.6.1. Import Project..... 21
    - 3.6.2. Export Project ..... 22
  - 3.7. Download / Upload..... 22
  - 3.8. Reset Workspace ..... 23

## 1. General Features

- EAE KMG103 can be used to control and monitor KNX installations via Modbus SCADA visualization software.
- IP address of device can be given by DHCP server or by manual configuration.
- EAE KMG103 includes patent-pending logic controller that enables room energy saver system without using card holder.
- Device has 3 physical inputs for door, window and presence sensing.
- EAE KMG103 has built-in 320 & 640 mA KNX bus power supply for KNX devices.
- KNX Power supply output is short-circuit and overload protected.
- Power, overload and reset statuses are indicated with three different LED indicators.
- Power supply can be restarted by pressing reset button on the device.

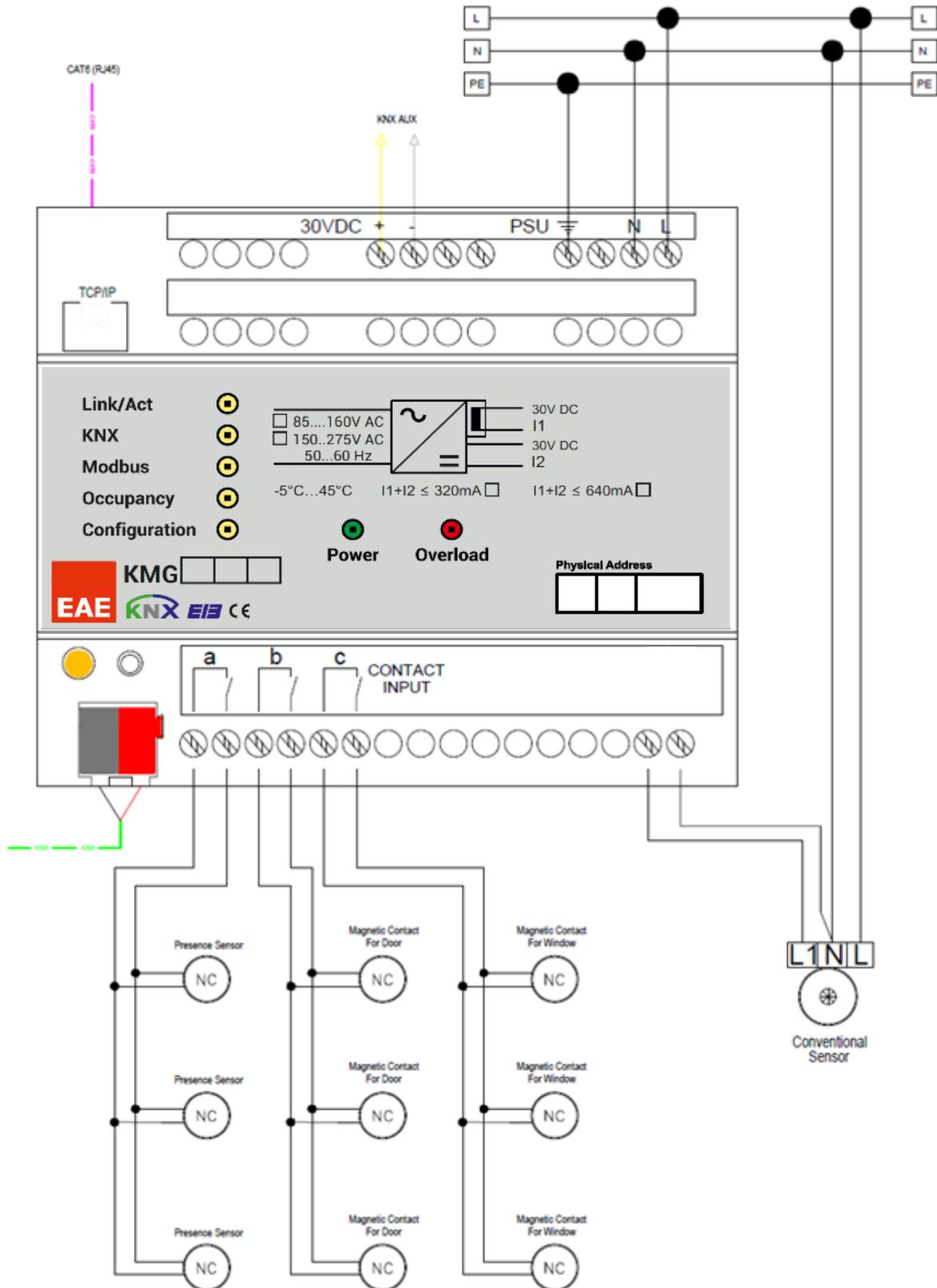
## 2. Device Technology

### 2.1 Device Peripherals



No	Function	No	Function
1	KNX Auxiliary Output - 30V	10	Reset / Factory Reset Button
2	CAT6 Modbus TCP/IP Connection	11	Dry Contact Inputs ( a, b, c)
3	Ethernet Connection/Transmission LED	12	KNX Connection Terminal
4	KNX Connection/Transmission LED	13	Power Supply Input
5	Modbus Connection/Transmission LED	14	Power LED
6	Occupancy State LED	15	Overload LED
7	PC Configurator Software Connection LED	16	Physical address label
8	Model Name Label		
9	KNX Reset LED		

## 2.2 Connection Diagram

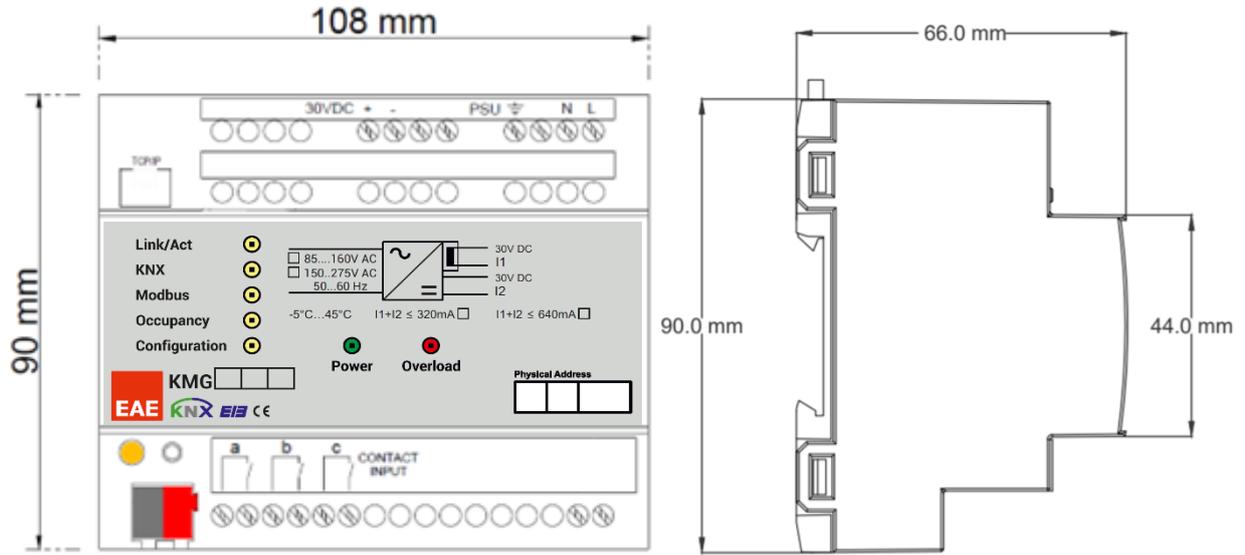


### 2.3. Technical Data

<b>Type of protection</b>	IP 20	EN 60 529
<b>Safety class</b>	II	EN 61 140
<b>Over voltage category</b>	III	EN 60 664-1
<b>Pollution degree</b>	2	EN 60 664-1
<b>Main supply</b>	Input voltage	150-275V AC, 50-60Hz
	Power consumption	7 W
<b>Output</b>	KNX BUS	30 VDC +1/-2 V, (choke)
	KNX AUX	30 VDC
	BUS + AUX Total Current	640 mA / 320mA
	Short-circuit current	0.5 A
<b>Connections</b>	IP Line	RJ45 socket for 10/100BaseT
	KNX Line	Bus connection terminal
<b>Display elements</b>	Link/Act	Ethernet Connection
	KNX	KNX Connection
	Modbus	Modbus Connection
	Occupancy	Occupancy Status
	Configuration	Configuration Software Connection Status
<b>Operating elements</b>	Reset Button – for KNX Line reset	
<b>Installation</b>	35mm DIN rail mount	EN 60 715 TH 35-75
<b>Temperature range</b>	Operation	-5° C + 45° C
	Storage	-20° C + 60° C
<b>Humidity</b>		Max. 93 % non condense
<b>Dimensions</b>	h x W x L	66 mm x W x 90 mm
	Width W in mm	108 mm
	Width W in units (18 mm modules)	6 modules
<b>Box</b>	Plastic PA66 housing grey	
<b>CE</b>	in accordance with EMC and low voltage guidelines	
	Device complies with, EN 50090-2-2, IEC 60664-1	

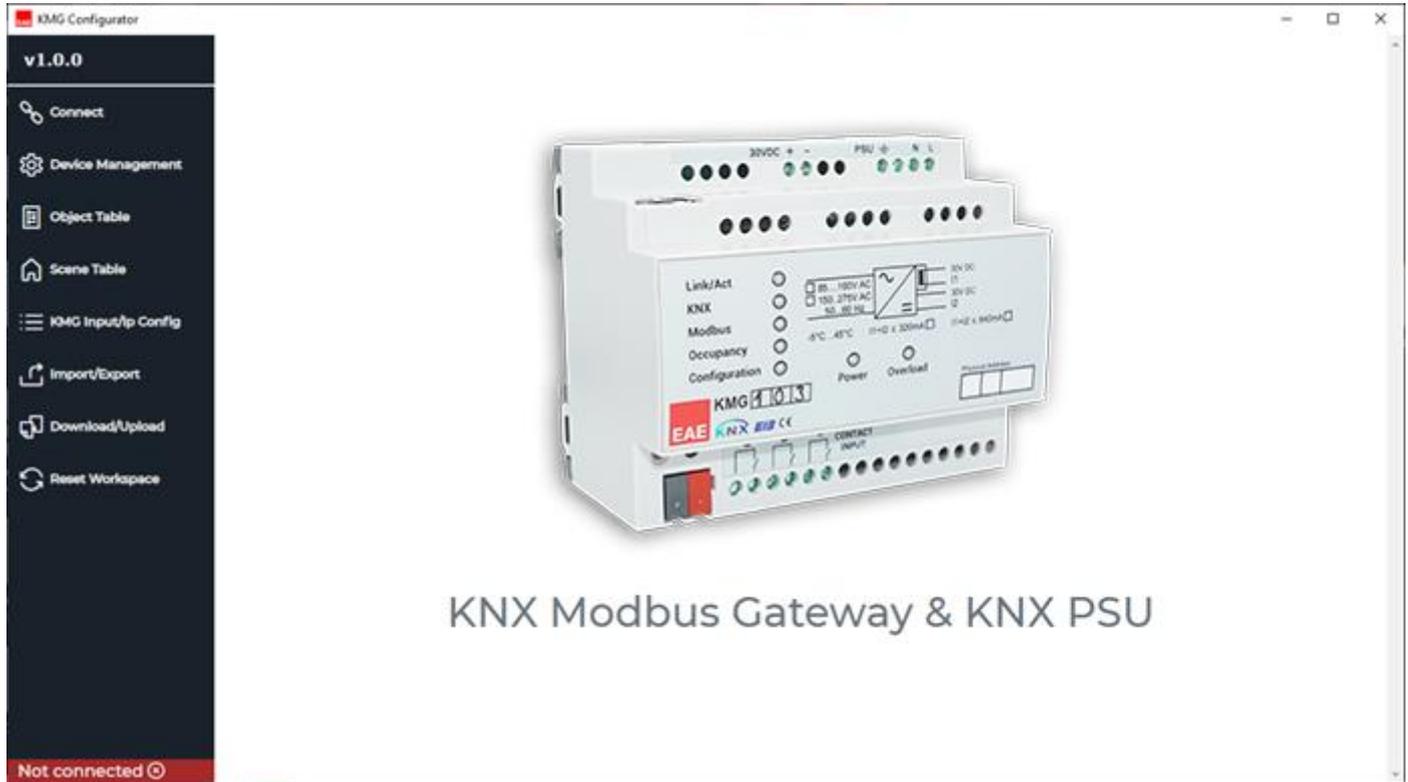
**NOTE:** The device can be configured via KMG Configurator software only. IP Config, Object Table, Hotel State Machine and Device Management settings can be set by own configurator only. Software can be downloaded from EAE Technology website.

### 2.4. Technical Drawing



### 3. Settings

KMG103 can be programmed by its own configurator software only. Here is the configurations below.



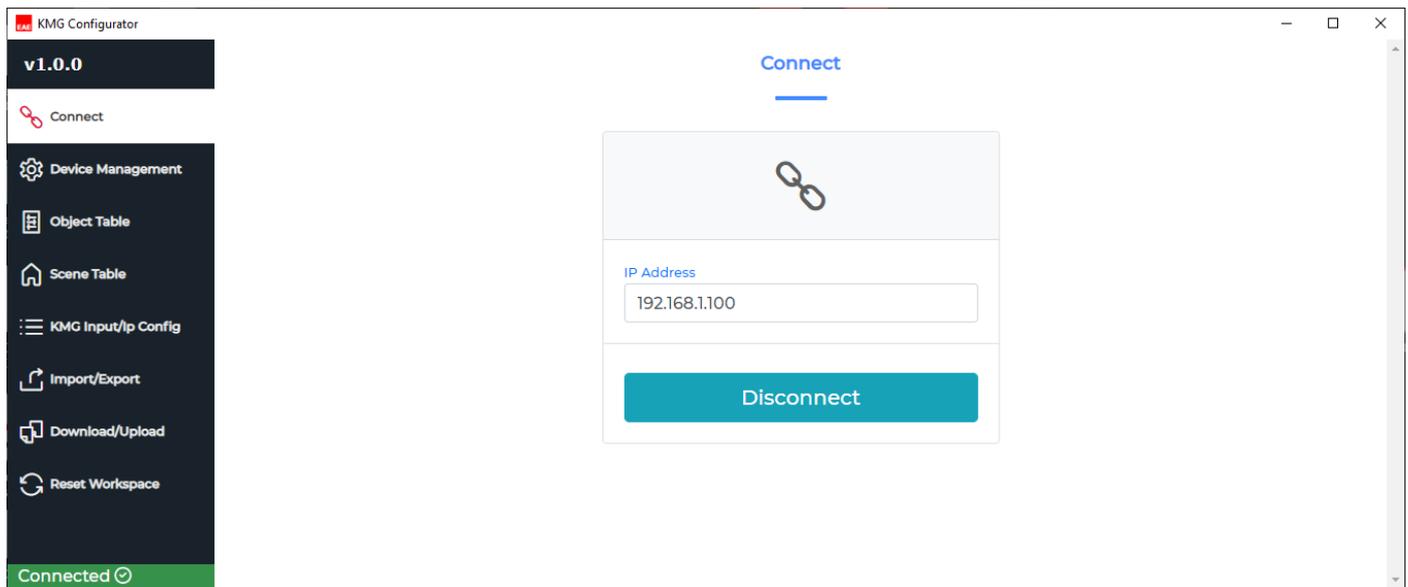
### 3.1. Connect

This page is used to connect KMG device to execute operations.

Default device IP address is **192.168.1.100**

**IP Address:** Device local IP address should be entered here.

**NOTE:** If device IP address not known and not reachable through 192.168.1.100, please press and hold the programming button for 20 seconds approx. Device will be rebooted with factory defaults.



If the connection is successful Connection Success information will be taken from configurator.



If device IP address entered wrong and if it is disconnected from configurator/ network, the information will be as shown as below.



### 3.2. Device Management

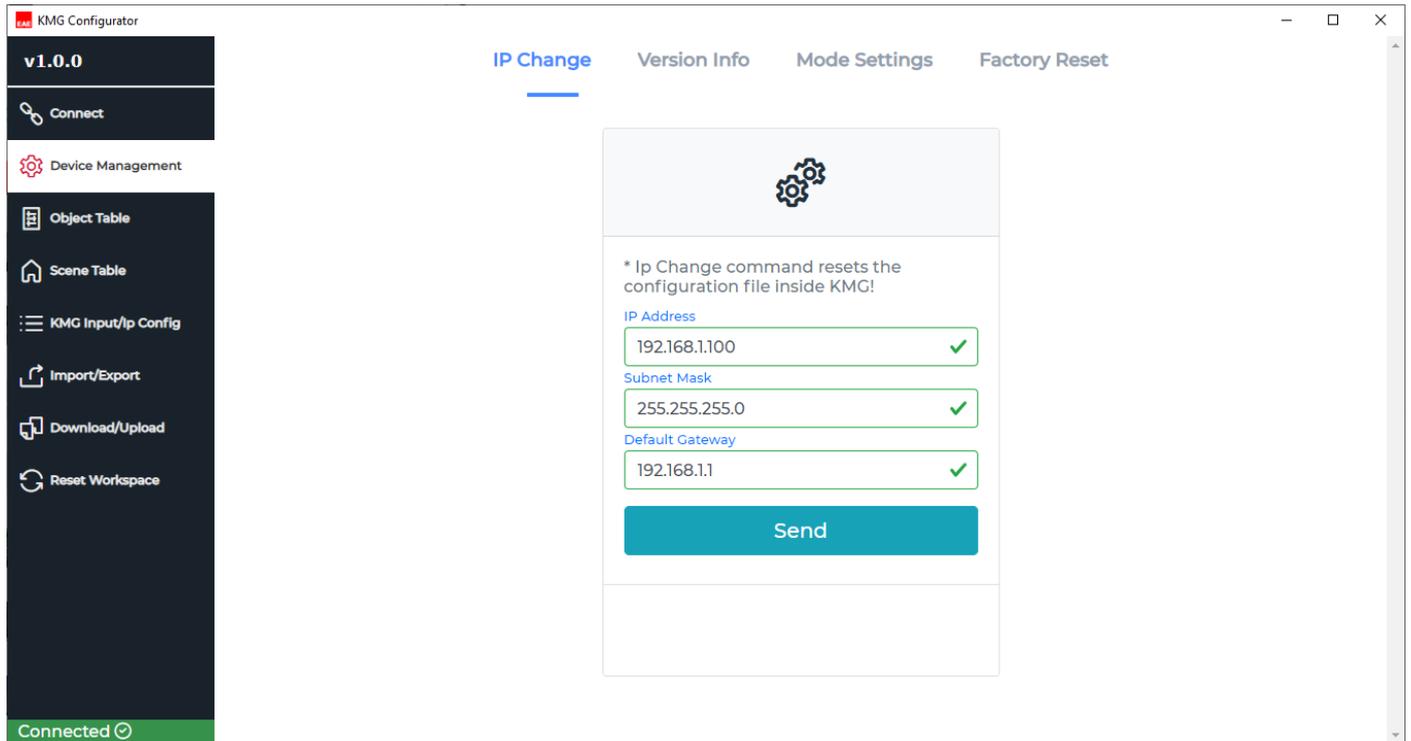
In this page, following functions can be used interactively.

- 1. IP Change
- 2. Version Info
- 3. Mode Settings
- 4. Factory Reset

#### 3.2.1. IP Change

Configurator must be connected to device to change local IP Address.

IP Change command resets the configuration file inside KMG!

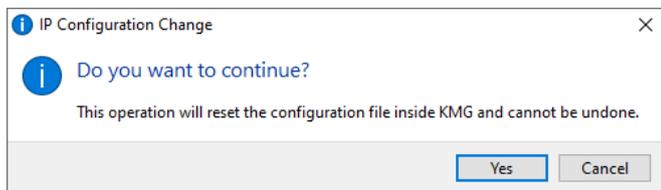


**IP Address** : It is an address used in order to uniquely identify a device on an IP network

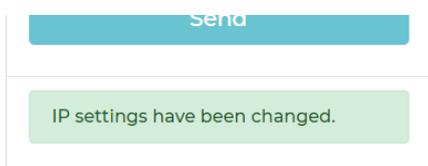
**Subnet Mask** : It should be **255.255.255.0** by default.

**Default Gateway** : IP address of the network router/access point.

If the **Send** button is pressed, following warning pop-up will be shown as below.

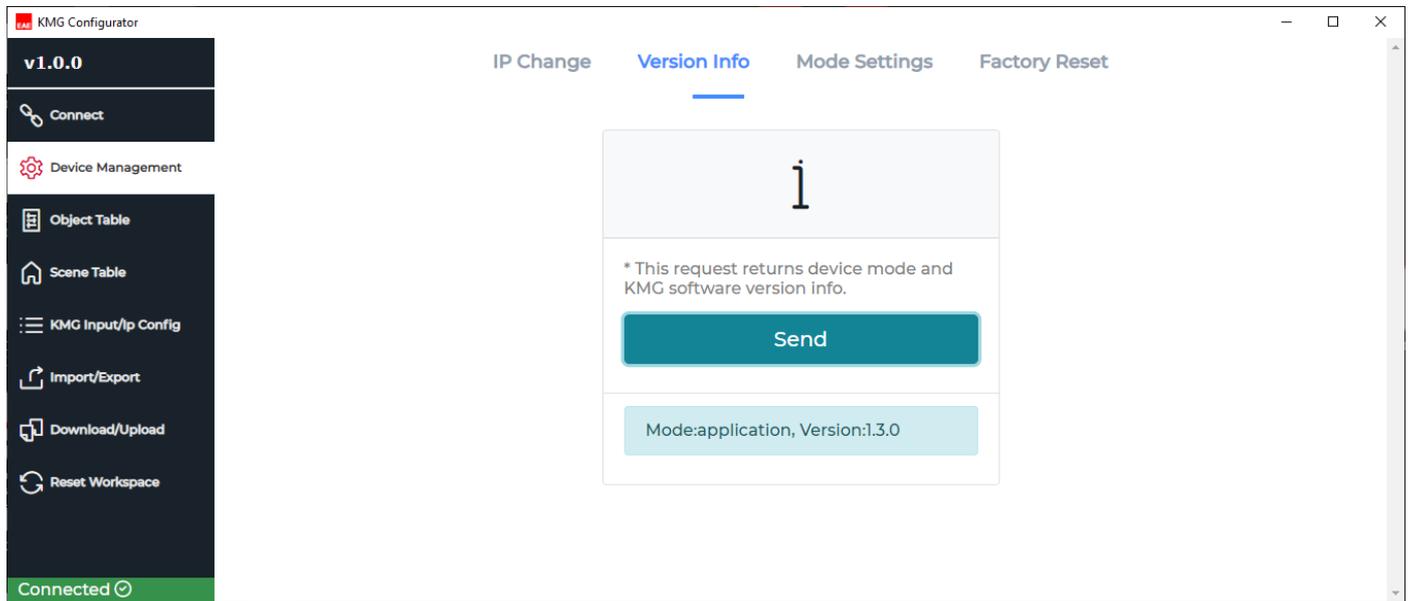


If **Yes** button pressed, following indication will be appeared as below. A



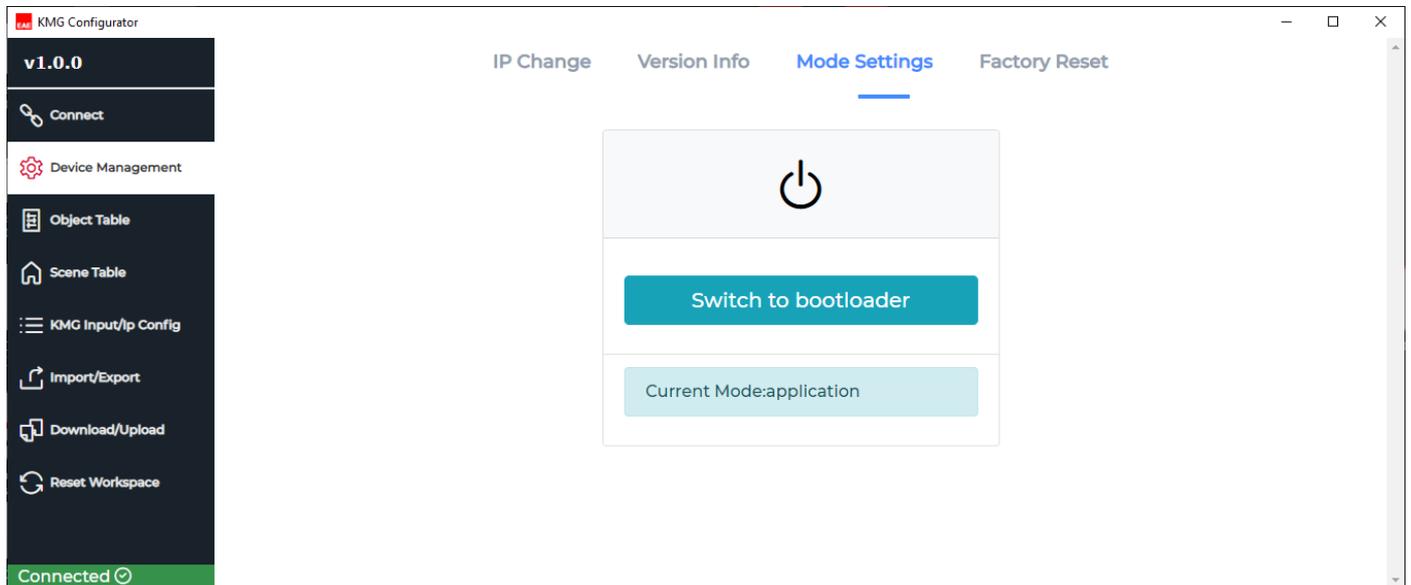
### 3.2.2. Version Info

Configurator must be connected to device to read mode and firmware version of device.

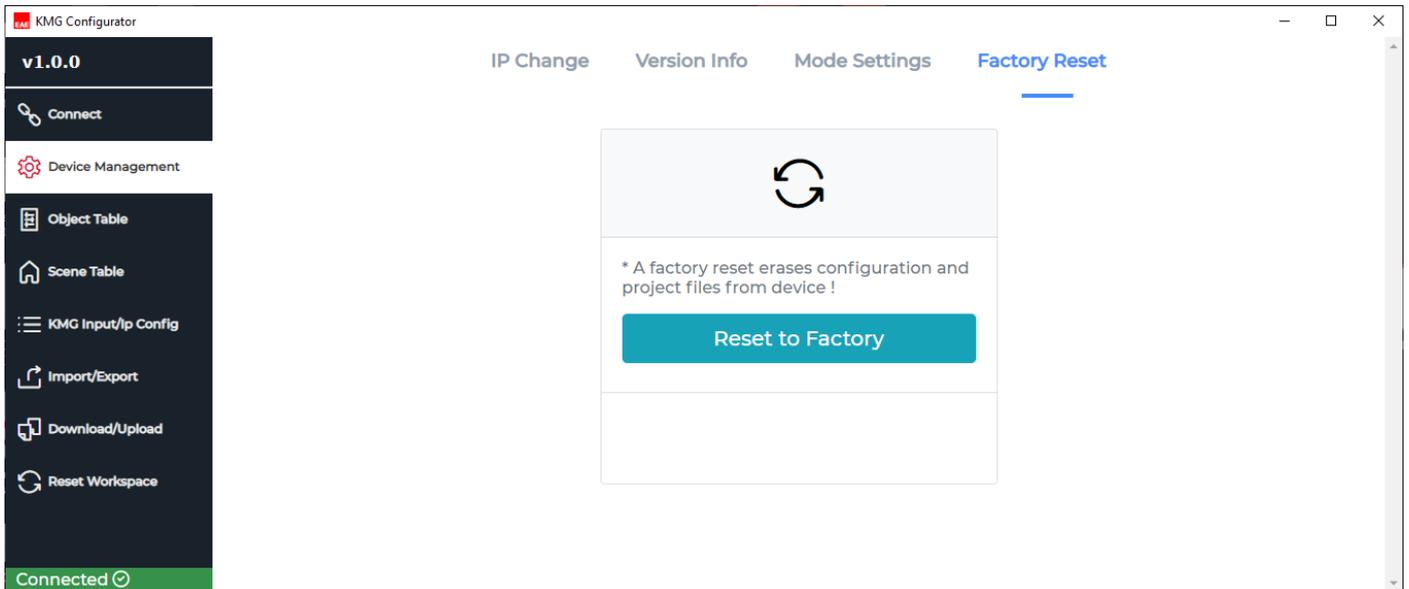


Device information will be taken if "Send" button pressed.

### 3.2.3. Mode Settings



### 3.2.4. Factory Reset



### 3.3. Object Table

This page is used to create new objects which it is KNX only or KNX with Modbus Register as well. They can be used in Scenes, Inputs, Checkin-out and Occupancy status.

Name	Register Type	Offset	HSM Property Type	Object Size	KNX C. Address
1 Presence Input	COIL REGISTER	0	PRESENCE INPUT	1 bit	1/0/1
2 Presence Activation	COIL REGISTER	1	NON-HSM	1 bit	1/0/2
3 Door Input 1	COIL REGISTER	2	DOOR INPUT	1 bit	5/0/5
4 Door Input 2	COIL REGISTER	3	DOOR INPUT	1 bit	5/0/6
5 Window Input 1	COIL REGISTER	4	WINDOW INPUT	1 bit	5/0/8
6 Window Input 2	COIL REGISTER	5	WINDOW INPUT	1 bit	5/0/9
7 Occupancy	COIL REGISTER	6	NON-HSM	1 bit	7/7/6
8 Check in-out	COIL REGISTER	7	NON-HSM	1 bit	5/0/10
9 HSM Activation	COIL REGISTER	8	NON-HSM	1 bit	7/7/0
10 Switch A1	COIL REGISTER	9	NON-HSM	1 bit	3/0/1, 3/0/2
11 Switch A2	COIL REGISTER	10	NON-HSM	1 bit	3/0/4, 3/0/5
12 Switch B1	COIL REGISTER	11	NON-HSM	1 bit	3/0/7, 3/0/8
13 Switch B2	COIL REGISTER	12	NON-HSM	1 bit	3/0/10, 3/0/11
14 Switch C1	COIL REGISTER	13	NON-HSM	1 bit	3/0/13, 3/0/14
15 Switch C2	COIL REGISTER	14	NON-HSM	1 bit	3/0/16, 3/0/17
16 Switch D1	COIL REGISTER	15	NON-HSM	1 bit	3/0/19, 3/0/20
17 Switch D2	COIL REGISTER	16	NON-HSM	1 bit	3/0/22, 3/0/23

**Name:** Object names can be defined in this field.

**Register Type:** 4 types of register can be set in this field. Modbus register specifications are shown on the table below.

NOTE: Modbus function of relevant object can be disabled if Modbus Register Type is selected as “None”.

Modbus Register Type	Access	Size	Modbus Address Prefix	Device Modbus Address Range
Coil Register	Write/Read	1 bit	00xxx	0 – 999 for each reg. type
Discrete Input	Read-only	1 bit	10xxx	
Input Register	Read-only	8, 16, 32 bits (1, 2, 4 Byte)	30xxx	
Holding Register	Write/Read	8, 16, 32 bits (1, 2, 4 Byte)	40xxx	

**Offset:** Written value will be added to Modbus address regarding to modbus register type.

e.g. 2 Holding Register > Offset 12

This object will be writable and readable through **40012** modbus address on ModBus.

NOTE: 4 Byte Modbus Registers require 2 address.

e.g. If a Holding Register 60 is selected for 4 Byte use. Then 60<sup>th</sup> and 61<sup>st</sup> addresses will be used. Next address should begin from 62<sup>nd</sup> address.

**Object Size:** Selected size must be compatible with the Modbus Register and KNX Group Address. Please refer the table above.

**KNX Group Address:** Allowed range 0/0/1 to 31/7/255.

Control and Status group addresses should be written into one object as well as this prefix= x/y/z, a/b/c, d/e/f

**HSM Property Type:** It is used to determine the object If it is KNX Input for Hotel State Machine or just control element.

Presence, Door and Window Inputs: 10 objects can be assigned to each Input.

Register Type must be NONE, DISCRETE INPUT or COIL REGISTER

*Table Properties for Object Table*

7	Occupancy	COIL REGISTER	6
8	Check in-out	COIL REGISTER	7
9	HSM Active	COIL REGISTER	8
10	Switch A1	COIL REGISTER	9
11	Switch A2	COIL REGISTER	10
12	Switch B1	COIL REGISTER	11
13	Switch B2	COIL REGISTER	12
14	Switch C1	COIL REGISTER	13

- If any rows right clicked:
- 1- New row(s) can be added
  - 2- Row(s) can be deleted

- If any row or cell right clicked
- 1- Cell(s) or Row(s) can be copied
  - 2- Cell(s) or Row(s) can be pasted

	Name	Register
55	Change Setpoint 2-Byte	HOLDII
56	Blind E - Move Pos. 1-Byte	HOLDII
57	Blind E - Move Slat 1-Byte	HOLDII

Single or multiple cells can be multiplied via left click and drag up/down and release.

NOTE: Offset Numbers will be increased if the cell drag down, if the cell decreased if drag up.

### 3.4. Scene Table

Scenes	Object Name	Value	Object Size	KNX G. Address	
144	1-Welcome Scene	2 Byte Unsigned-HR-15	65535	2 byte unsigned	7/1/4
145	1-Welcome Scene	2 Byte Signed-HR-16	32767	2 byte signed	7/1/5
146	1-Welcome Scene	2 Byte Float-HR-17	67760	2 byte KNX float	7/1/6
147	2-Pre-Welcome Scene	1 Byte Percentage-HR-12	50	1 byte percentage	7/1/1
148	2-Pre-Welcome Scene	1 Byte Unsigned-HR-13	128	1 byte unsigned	7/1/2
149	2-Pre-Welcome Scene	1 Byte Signed-HR-14	-128	1 byte signed	7/1/3
150	3-Leave Scene Primary	2 Byte Unsigned-HR-15	32767	2 byte unsigned	7/1/4
151	3-Leave Scene Primary	2 Byte Signed-HR-16	-32768	2 byte signed	7/1/5
152	3-Leave Scene Primary	2 Byte Float-HR-17	-273	2 byte KNX float	7/1/6
153	3-Leave Scene Primary	1 Byte Percentage-HR-12	0	1 byte percentage	7/1/1
154	3-Leave Scene Primary	1 Byte Unsigned-HR-13	0	1 byte unsigned	7/1/2
155	4-Leave Scene Secondary	1 Byte Signed-HR-14	0	1 byte signed	7/1/3
156	4-Leave Scene Secondary	2 Byte Unsigned-HR-15	0	2 byte unsigned	7/1/4
157	4-Leave Scene Secondary	2 Byte Signed-HR-16	0	2 byte signed	7/1/5
158	4-Leave Scene Secondary	2 Byte Float-HR-17	0	2 byte KNX float	7/1/6
159	5-Window Open Scene	1 Byte Percentage-HR-12	1	1 byte percentage	7/1/1
160	5-Window Open Scene	1 Byte Unsigned-HR-13	1	1 byte unsigned	7/1/2
161	5-Window Open Scene	1 Byte Signed-HR-14	1	1 byte signed	7/1/3
162	6-Checkout Scene	2 Byte Unsigned-HR-15	1	2 byte unsigned	7/1/4
163	6-Checkout Scene	2 Byte Signed-HR-16	1	2 byte signed	7/1/5
164	6-Checkout Scene	2 Byte Float-HR-17	1	2 byte KNX float	7/1/6
165	7-Service Entry Scene	1 Byte Percentage-HR-12	50	1 byte percentage	7/1/1
166	7-Service Entry Scene	1 Byte Unsigned-HR-13	50	1 byte unsigned	7/1/2
167	7-Service Entry Scene	1 Byte Signed-HR-14	50	1 byte signed	7/1/3
168	7-Service Entry Scene	2 Byte Unsigned-HR-15	50	2 byte unsigned	7/1/4

This menu is used to set the parameters for hotel logic functions. Various scenes can be applied to KNX and ModBus according to presence, window or door states.

**Scenes:** It is used to select scene types. More detailed information is written at chapter “3.4.1. Scenes”

**Object Name:** It is used to select objects for scenes which are created on Object Table page.

**Value:** It is used to determine the object value of the relevant scene.

**Object Size:** It is used to show object size which it is taken from Object Table page. Object Size change not allowed.

**KNX Group Address:** It is used to show knx group address of relevant object. KNX Group address change not allowed.

Table Properties for object are the same as Object Table.

### 3.4.1. Scenes

Scenes contain objects which it can be added by integrator. Each scenes can be triggered according to window, door and presence actions.

#### 3.4.1.1. Pre-Welcome

This scene can be activated if the room is **not occupied** and **checked-in**. This scene will be executed if following actions are done below.

Door opened > Pre-Welcome Scene

#### 3.4.1.2. Welcome

This scene can be activated if the room is **not occupied** and **checked-in**. This scene will be executed if following actions are done below.

This scene is used to execute if following actions are done below.

Door opened > Pre-Welcome Scene > Door closed > Presence waiting > Movement in PRESENCE WAIT TIME > Welcome Scene

#### 3.4.1.3. Leave Primary

This scene can be activated if the room is **occupied/not occupied** and **checked-in**. This scene will be executed if following actions are done below.

##### **Not occupied:**

Door opened > Pre-Welcome Scene > Door closed > Presence waiting > NO Movement in PRESENCE WAIT TIME > Leave Scene

##### **Occupied:**

Door opened > Door closed > Presence waiting > NO movement in PRESENCE WAIT TIME > Leave Scene

#### 3.4.1.3. Leave Secondary

This scene can be activated if the room is **occupied/not occupied** and **checked-in**. This scene will be executed if following actions are done below.

##### **Not occupied:**

Door opened > Pre-Welcome Scene > Door closed > Presence waiting > NO Movement in PRESENCE WAIT TIME > Leave Scene

##### **Occupied:**

Door opened > Door closed > Presence waiting > NO movement in PRESENCE WAIT TIME > Leave Scene

#### 3.4.1.4. Window Open

This scene can be activated if the room is **occupied** and **checked-in**. This scene will be executed if following actions are done below.

Window opened > Save the last state before window open > Window Open Scene > Window closed > The last state before window open

#### 3.4.1.5. Checkout

This scene can be activated if the checked-in room is **not occupied** and it has received “**0**” from checkin-out object or **occupied** and **checked-out**. This scene will be executed if following actions are done below.

**NOT occupied:** Checkin-out Object: **0** > Checkout Scene

**Occupied:** Checkin-out Object: **0** > Waiting for door open > Door opened > Door closed > Presence waiting > No movement in PRESENCE WAIT TIME > Checkout Scene

#### 3.4.1.6. Service Entry

This scene can be activated if the room is **not occupied** and **checked-out**. This scene will be executed if following actions are done below.

- When door opened > Service Entry Scene > Door closed > Presence waiting > Movement in PRESENCE WAIT TIME > Stay on scene

- When door opened > Service Entry Scene > Door closed > Presence waiting > NO movement in PRESENCE WAIT TIME > Checkout Scene

Presence Input information can be received in one of three ways below.

1. Dry Contact Input\*
2. AC Input\*
3. KNX Input

Window and Door Input informations can be received in one of two ways above. (1 and 3)

Check IN/OUT states can be controlled and received via 1-bit object only. (ModBus and KNX)

Occupancy state can be received via 1-bit object only. (ModBus and KNX)

**\*NOTE:** Multiple sensors can be connected for each Dry Contact Input or AC Input.

### 3.5. KMG Input / IP Config

#### KMG Input

In this page, sensing inputs can be selected.

Also, check-in, occupancy and hotel state machine(HSM) state activation/deactivation can be selected.

Active state can be changed which they are shown Blue Table for Presence, Window and Door Inputs. (KNX)

On the other hand, Leave Primary and Secondary Scene delays, Presence Wait Time can be selected.

Input Name	Input Type	Object Name	Active State
1 PRESENCE INPUT	KNX Input		
2 PRESENCE DISABLE INPUT		Presence Activation-CR-1	
3 WINDOW INPUT	KNX Input		
4 DOOR INPUT	KNX Input		
5 CHECK IN/OUT STATUS OBJECT	Enabled	Check in-out-CR-7	1
6 OCCUPANCY STATUS OBJECT	Occupation Enabled	Occupancy-CR-6	
7 OCCUPANCY AFTER RESET	Last Known		
8 HSM DISABLE INPUT OBJECT	HSM Disable Enabled	HSM Activation-CR-8	0
9 HSM STATE AFTER RESET	Enabled		

Delay/Timeout Type	Time (Seconds)
1 LEAVE SCENE PRIMARY DELAY	0
2 LEAVE SCENE SECONDARY DELAY	10
3 PRESENCE WAIT TIME	20

Object Name	Active State
1 Presence Input-CR-0	1

Object Name	Active State
1 Window Input 1-CR-4	1
2 Window Input 2-CR-5	1

Object Name	Active State
1 Door Input 1-CR-3	1
2 Door Input 2-CR-4	1

**Presence Input:** Presence input type can be selected. (Dry Contact, AC Input or KNX) If input type is selected as KNX Input, Presence Disable Input function will be shown. Presence Disable Input object should be selected.

**Window Input:** Window sensing input type can be selected. (Dry Contact or KNX)

**Door Input:** Door sensing input type can be selected. (Dry Contact or KNX)

**Check IN/OUT State:** It is used to enable/disable Check IN/OUT function. If disable selected, Device will react on Checked-IN mode and Check-out and Service Entry scenes will not be executed. Active state may be 1 or 0.

**Occupancy Status Object:** It is used to enable/disable Occupancy Status from KNX and/or Modbus object.

**Occupancy After Reset:** It is used to select the occupancy state after mains voltage return. (Occupied, Vacant and Last Known)

**HSM Disable Input Object:** It is used to enable/disable HSM Deactivation. If Disabled, HSM function will never be disabled. HSM disable function allows the device work as KNX-Modbus Gateway mode. Thus, all scenes according to inputs will not be executed.

**HSM State After Reset:** It is used to select the HSM state after mains voltage return. (Enabled, Disabled and Last Known)



If the inputs are selected as DRY contact or If Window/Door as Dry Contact, Presence AC Input;

- 1. Object Name can be selected to transmit sensor state
- 2. Active State can be selected on the table above as Normally Closed or Normally Open

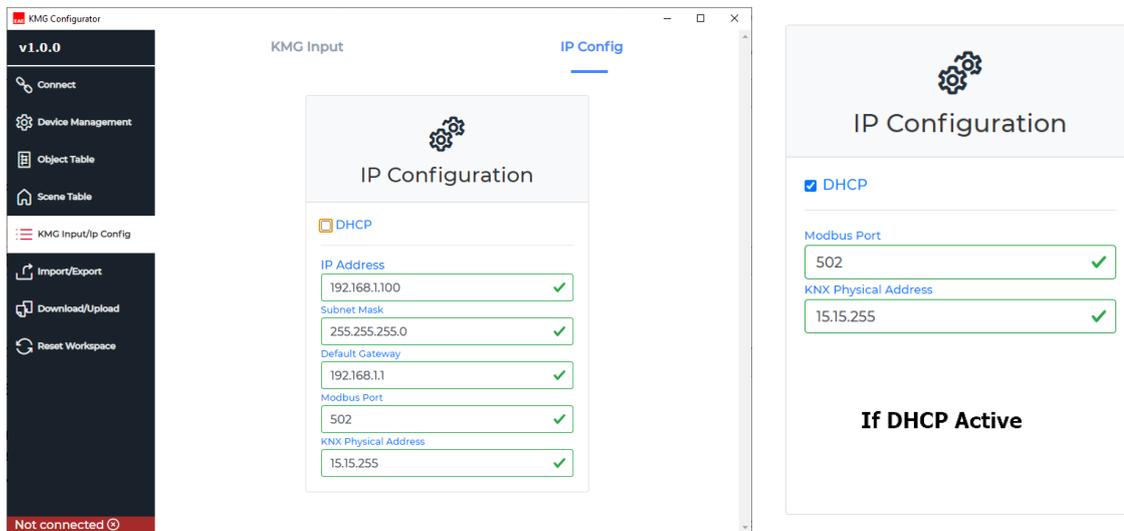
KMG Input

IP Config

	Input Name	Input Type	Object Name	Active State
1	PRESENCE INPUT	Dry Contact Input	Switch A-CR-29	Normally Open
2	WINDOW INPUT	Dry Contact Input	Switch B-CR-30	Normally Closed
3	DOOR INPUT	Dry Contact Input	Switch C-CR-31	Normally Closed
4	CHECK IN/OUT STATUS OBJECT	Enabled	Check in-out-CR-7	1

Multiple sensors can be connected for each Dry Contact Input or AC Input (Presence Sensor only).

## IP Config



**IP Address** : It is an address used in order to uniquely identify a device on an IP network.

**Subnet Mask** : It should be **255.255.255.0** by default.

**Default Gateway** : IP address of the network router/access point.

**Modbus Port** : It is used to define Modbus access port. Default is **502**.

**KNX Physical Address** : It is used to define device physical address on KNX network. Physical address can not be finished with zero. E.g. **15.15.0**

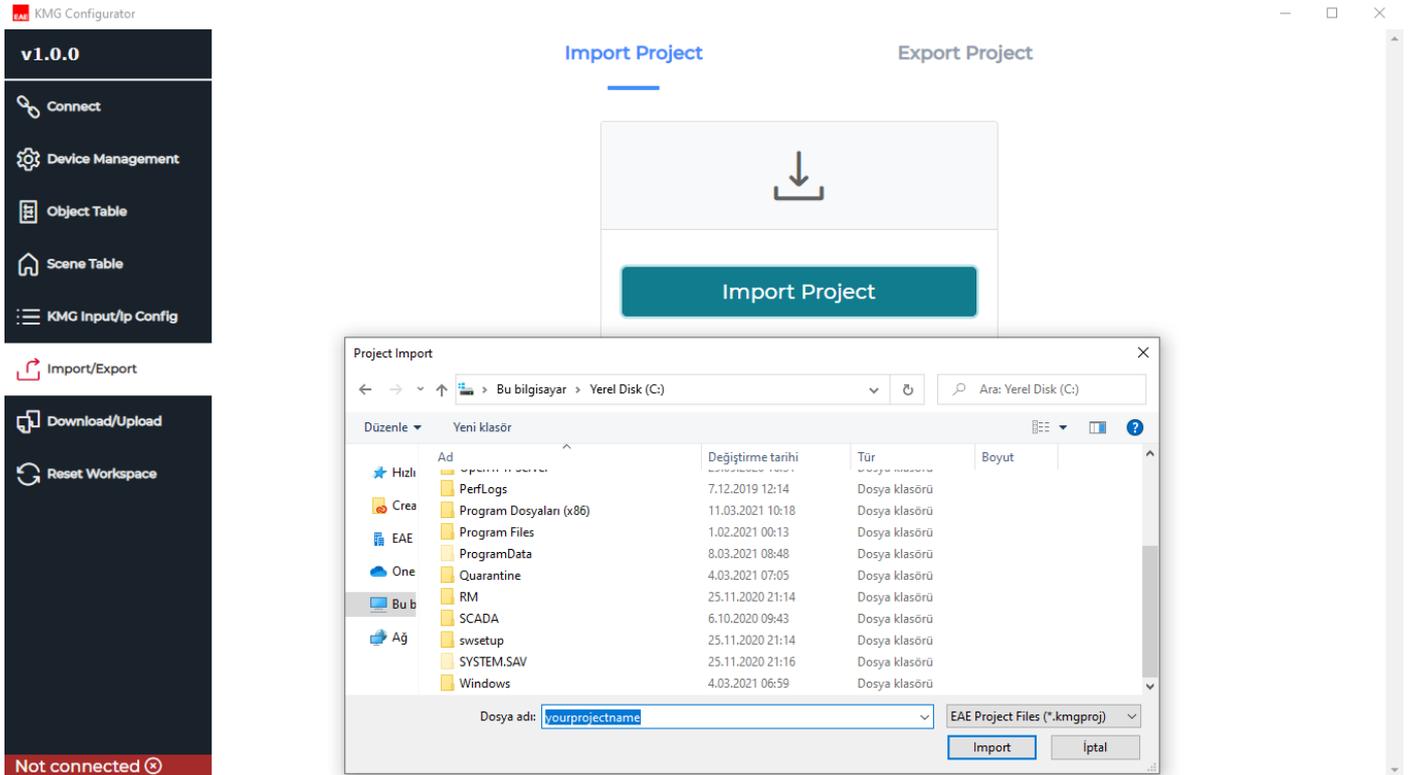
**DHCP** : If this option selected, device IP address will be obtained by DHCP server of router/access point.

### 3.6. Import/Export

Project Tab is used to import/exports projects. Project file extension must be ended with **.kmgproj** . Here is the Project Tab shown below.

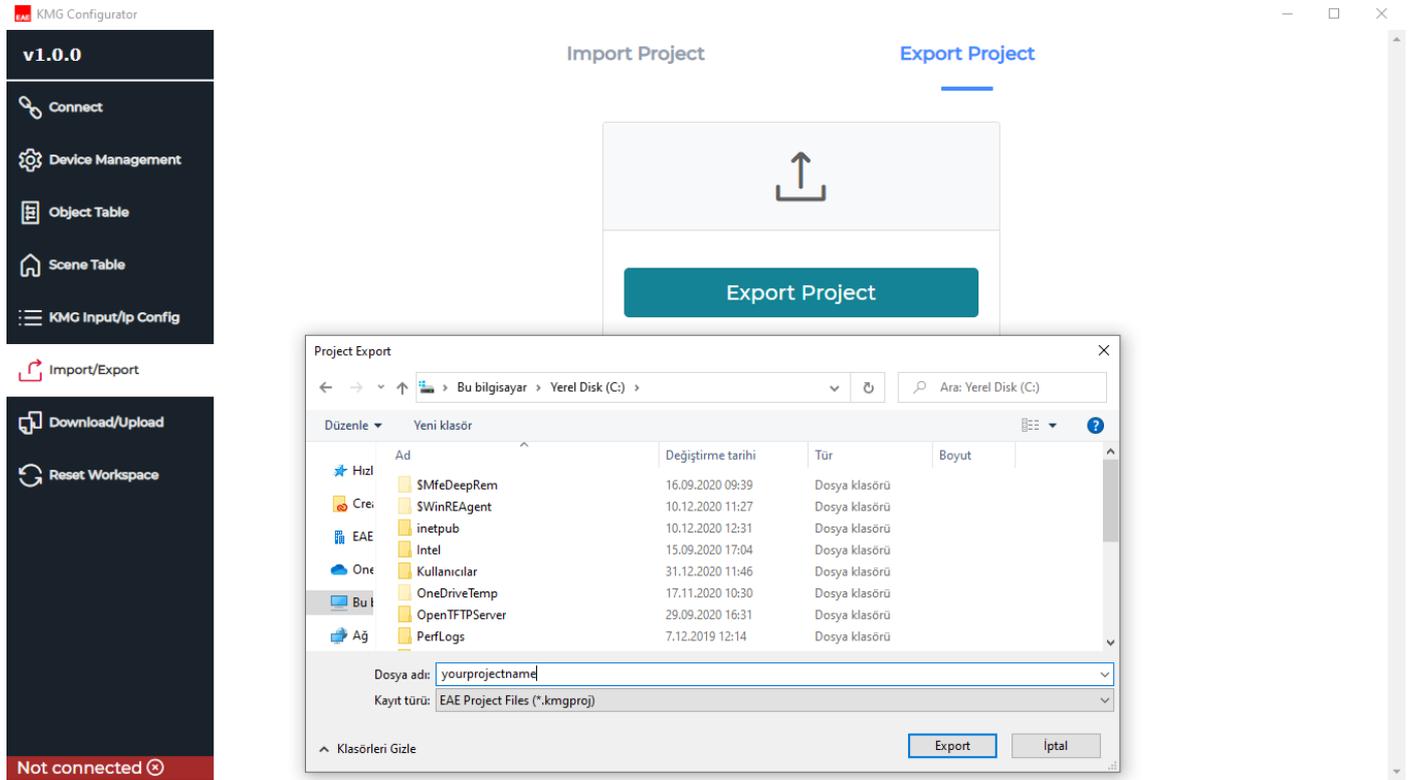
#### 3.6.1. Import Project

It is used to import projects which it is exported from configuration software before. Project Import screen will be popped-up after clicking left to the “Import Project” button. Then, relevant project file must be selected on this window and clicked to Import button of the screen.



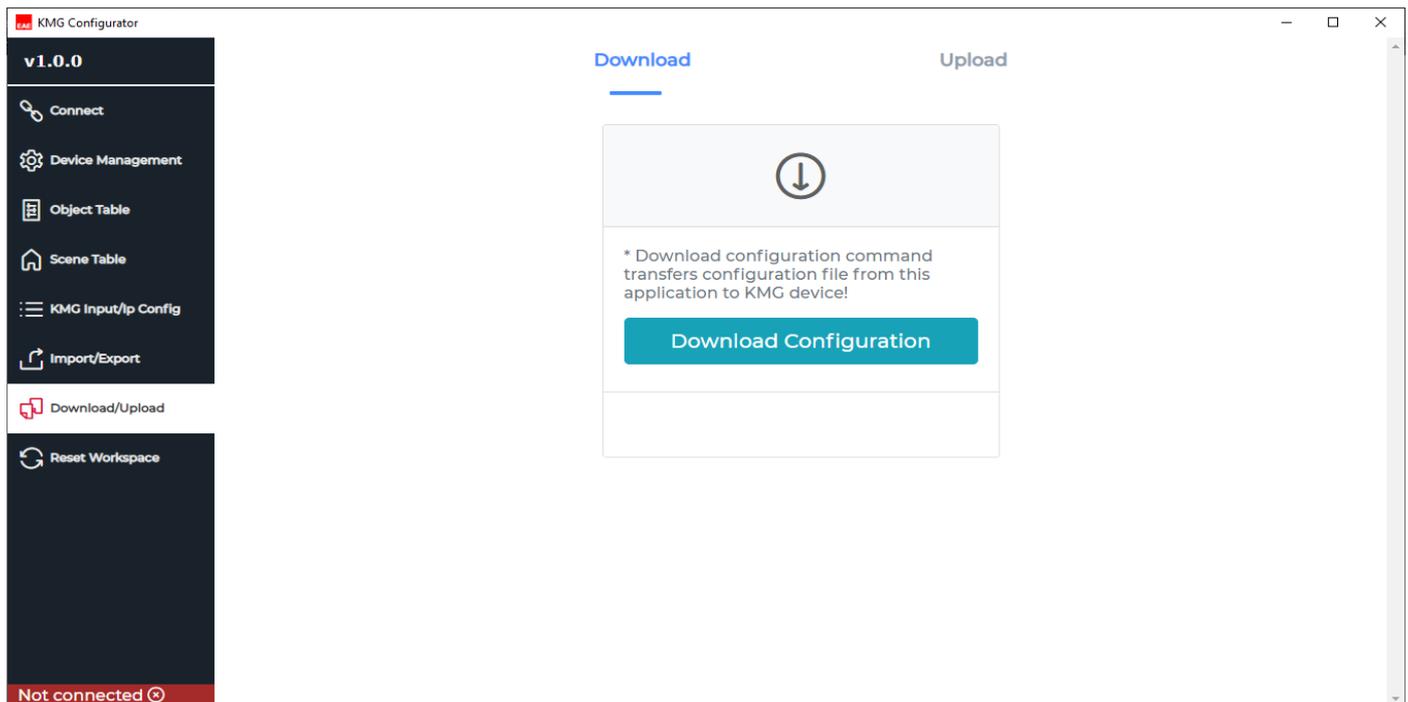
### 3.6.2. Export Project

It is used to export projects which it is created from configurator software before. Project Export screen will be popped-up after clicking left to the “Export Project” button. Then, desired name must be given on this window and clicked to Export button of the screen to save the project file.

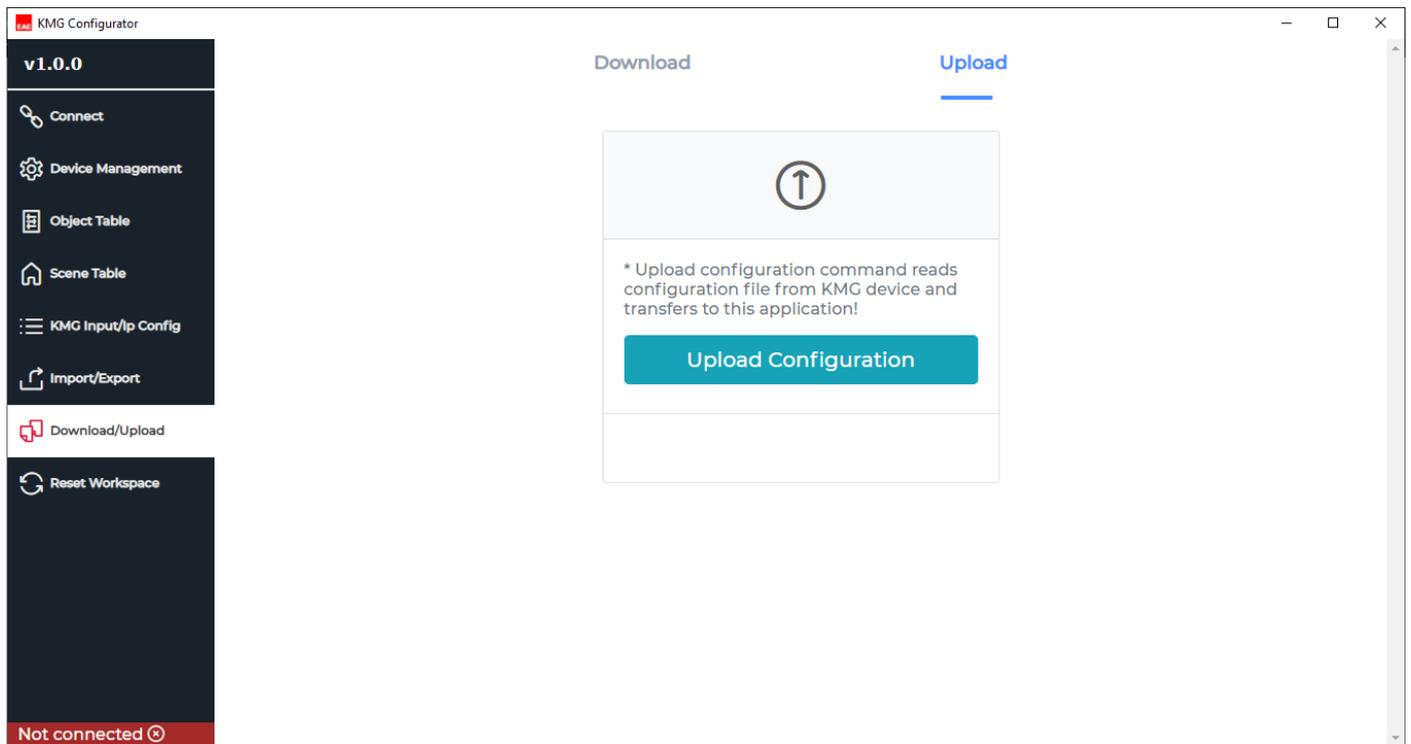


### 3.7. Download / Upload

#### Download



## Upload



## 3.8. Reset Workspace

