

Virtual Holder

USER MANUAL

Version: **3.0**

Date: **25/06/2025**

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VERSION	DATE	CHANGES
3.0	25/06/2025	Parameters added

Translation of the Original Instructions


Any information in this manual is subject to change without notice.


This handbook can be download freely from the website:
www.eelectron.com

Exclusion of liability:

Despite checking that the contents of this document match the hardware and software, deviations cannot be completely excluded. We therefore cannot accept any liability for this.

Any necessary corrections will be incorporated into newer versions of this manual.

Symbol for relevant information 

Symbol for warning 



1. Virtual holder

Virtual holder is activated by enabling corresponded parameter in page “General Settings”.

The application field is typically the hotel room where, by using this feature, you can remove the Holder for access control.

This logical module provides a set of parameters and communication objects that, suitably configured, allow you to set up whether a person is occupying the room.

Definitions:

- VH = Virtual Holder
- CO = Communication Object
- Welcome = event triggered when someone enters the room which was not occupied
- Goodbye = event triggered when the room goes in status “unoccupied”

How it works

When one or more people enter the room, that event is recognized by the door opening and if, after it is closed, the customer’s presence is still identified, then the logical module decides that the client is in the room otherwise it determines that he is out of the room. The minimum set of sensors requested for this logic to work properly is:

- one door contact for each door of the room, this contact must be detected by a KNX device to send on the bus the value “0” when door is closed and value 1 when door is opened
- at least one presence detector for each area; this presence detector can be KNX or conventional with dry contact output to be connected a KNX input. This device must send on the bus the value “1” when presence is detected and value 0 when presence is not detected.

Communication Objects

<VH> Room Booked	1 bit	CW
By setting this CO to “1” the status of the VH is set to “room booked”; when set to “0” the status is “room not booked”. The VH module can have different behavior if the room is booked or not; default value for this status can be set using the “Booked state after download” parameter.		
<VH> Signal for guest (Type1)	1 bit	CW
<VH> Signal for service (Type2)	1 bit	CRT
<VH> Signal for maintenance (Type3)	1 bit	CW
These COs can be used to communicate to the VH module who is entering the room. This can be achieved by using a KNX Access Control Reader (Synchronicity by eelectron) or by interfacing other access systems with KNX bus		
<VH> Presence for guest (Type1)	1 bit	CRT
<VH> Presence for service (Type2)	1 bit	CRT
<VH> Presence for maintenance (Type3)	1 bit	CRT
These COs can be used to send from VH module information about who entered the room to a supervisor or similar sw.		
<VH> Remote Inputs Enabled (Global Enable)	IN	1 bit
See paragraph Remote Sensor inputs (Global Enable).		
<VH> Presence Output	1 bit	CW

This CO send “1” when someone is detected inside the room (presence) and “0” when nobody is detected inside the room and the “presence wait time” has expired (absence).		
<VH> HVAC Output	1 byte	CRT
This CO is used to send HVAC commands in event of presence and absence. Commands can be set different if the room is booked or not and if the person who enter the room is guest, service or maintenance.		
<VH> Additional Output	1 byte	CRT
This CO is used to send commands in event of presence and absence. Commands can be set different if the room is booked or not and if the person who enter the room is guest, service or maintenance.		
<VH> Presence Wait Time	2 bytes	CW
This CO is used to modify the time of presence detection wait time (in minutes), while the device is running by writing the desired value on the object.		

General

Communication objects involved:

“<VH> Room Booked”	1 bit	CW
“<VH> Presence Output”	1 bit	CW
“<VH> HVAC Output”	1 byte	CRT
“<VH> Additional Output”	1 byte	CRT
“<VH> Presence Wait Time”	2 bytes	CW

KNX PARAMETER	SETTINGS
Presence wait time	1 min to 4 hours
This parameter set the “wait time” for the VH module. The “wait time” is the time triggered by the opening and consequent closing of the door. During this time the room is in “wait” mode and after this can go in “occupied” or “non occupied” status. Use values for this parameter that are not too small to avoid not recognizing people in the room and not too big to avoid to keep room service active for too long after customers leave. You can change the time of presence detection wait time while the device is running, by typing the desired time on the object “<VH> Presence detection waiting time”.	
Cyclic presence send time	No cyclic send, 1 min to 1 hour
Object <VH> Presence Output can be send cyclically if this parameter is set different from “No cyclic send”. This CO send “1” when someone is detected inside the room (presence) and “0” when nobody is detected inside the room and the “presence wait time” has expired (absence).	
Presence sensor OFF latency [min. + sec.]	0 to 63 min./sec.
This parameter is related to the time set on the presence detector. The most of presence detectors keep the presence status for a configurable amount of seconds; set this parameter to the same value. It’s recommended to set this time duration at the minimum. If the presence detector is a conventional one (dry contact output connected to a KNX input) this time duration is the relay time. If the knob of the conventional presence detector is set to 10 sec. then set this parameter to 10 sec. as well.	
Send welcome on unexpected presence	do not send / send
This parameter defines the behaviour when the VH module detects a presence inside the room and is in “not occupied” status (unexpected presence). It’s possible to send or not the welcome event.	

Global enable state after download	disabled / enabled
See paragraph Remote Sensor inputs (Global Enable).	
Booked status after download	not booked / booked
Set the initial value for the object "<VH> Room Booked". By setting this CO to "1" the status of the VH is set to "room booked"; when set to "0" the status is "room not booked". The VH module can have different behavior if the room is booked or not; default value for this status can be set using the "Booked state after download" parameter.	
Absence with door open (deny= if door open presence is active)	allow / deny
This parameter defines the behavior when the VH module detects the open port. If the door remains open longer than the wait time, this parameter defines whether to keep the room in "occupied" state or not.	
Additional output type	value 0-255 value 0-100% scene
It is possible to enable an additional CO to transmit on the bus a command linked to presence or absence events.	

Behaviour At Power Up

KNX PARAMETER	SETTINGS
Restart wait time if presence was active before power down	no / yes
This parameter defines whether the room is in "wait" mode after power up. This condition applies only if room state was 'occupied' before power down.	
Presence output	no / yes
This parameter defines whether to send presence state through object '<VH> Presence Output' after power up.	
HVAC output	no / yes
This parameter defines whether to send HVAC state through object '<VH> HVAC Output' after power up.	
Additional output	no / yes
This parameter defines whether to send additional output state through object '<VH> Additional Output' after power up.	
Presence for types	no / yes
This parameter defines whether to send presence output states through objects '<VH> Presence for Guest (Type1)', '<VH> Presence for Service (Type2)' and '<VH> Presence for Maintenance (Type3)' after power up.	

Remote inputs

Communication objects involved:

Object	Bit	CO
"<VH> Remote Input x Door"	1 bit	CW
"<VH> Remote Input x Presence"	1 bit	CW
"<VH> Remote Input x Sniffer"	1 bit	CW

In this page the installer must set which type of sensor are linked to the VH module

KNX PARAMETER	SETTINGS
Remote input <x>	disabled door presence bus sniffer
disabled:non used door:set this option if the communication object <VH> Remote Input x Door is linked to a door contact KNX input. presence:set this option if the communication object <VH> Remote Input x Presence is linked to a presence detector KNX communication object. Bus sniffer: set this option if the communication object <VH> Remote Input x Sniffer is linked to a generic CO used in the room.	



Usage of the Bus Sniffer Option.

When a person occupies a room interacts with it. Turning on or off a light in the main room or in the bathroom gives indication of the presence of people inside the room. To reduce the risk of not correctly identifying the "occupied room" status, it is recommended to connect a "bus sniffer" input to all the 1 bit objects that can be sent to the bus only by the presence of a person in the room such as bathroom or mirror lights or window contact or bedside light, etc .



WARNING ON REMOTE INPUT <X> CO

- a Remote Input CO (type door) must be connected only to one single door contact on/off telegram;
- a Remote Input CO (type presence) must be connected only to one single device with presence on/off telegram;
- a Remote Input CO (type bus sniffer) can be connected to more than one devices.

Guest (Type 1), Service (Type 2), Maintenance (Type 3)

Communication objects involved:

Object	Bit	CO
"<VH> Signal for guest (Type1)"	1 bit	CW
"<VH> Signal for service (Type2)"	1 bit	CRT
"<VH> Signal for maintenance (Type3)"	1 bit	CW
"<VH> Presence for guest (Type1)"	1 bit	CRT
"<VH> Presence for service (Type2)"	1 bit	CRT
"<VH> Presence for maintenance (Type3)"	1 bit	CRT

KNX PARAMETER	SETTINGS
HVAC booked goodbye	do not send comfort standby economy building protection
Defines the type of HVAC command to be sent via the "<VH> HVAC output" object for the Goodbye booked status.	
HVAC non-booked goodbye	do not send comfort standby economy building protection
Defines the type of HVAC command to be sent via the "<VH> HVAC output" object for the Goodbye not booked status.	

HVAC booked welcome	do not send comfort standby economy building protection
Defines the type of HVAC command to be sent via the "<VH> HVAC output" object for the Welcome booked status.	
HVAC non-booked welcome	do not send comfort standby economy building protection
Defines the type of HVAC command to be sent via the "<VH> HVAC output" object for the Welcome not booked status.	
Send additional booked goodbye	do not send / send
With this parameter it is possible to enable the sending via the object "<VH> Additional Output" of an additional scenario for the Goodbye status booked.	
Value additional booked goodbye	0...255 0-100% 1...64
Defines the value to be sent on the "<VH> Additional Output" object for the booked Goodbye status.	
Send additional non-booked goodbye	do not send / send
With this parameter it is possible to enable the sending via the object "<VH> Additional Output" of an additional scenario for the Goodbye status not booked.	
Value additional non-booked goodbye	0...255 0-100% 1...64
Defines the value to be sent on the "<VH> Additional Output" object for the non-booked Goodbye status.	
Send additional booked welcome	do not send / send
With this parameter it is possible to enable the sending via the object "<VH> Additional Output" of an additional scenario for the Welcome status booked.	
Value additional booked welcome	0...255 0-100% 1...64
Defines the value to be sent on the "<VH> Additional Output" object for the booked Welcome status.	
Send additional non-booked welcome	do not send / send
With this parameter it is possible to enable the sending via the object "<VH> Additional Output" of an additional scenario for the Welcome status not booked.	
Value additional non-booked welcome	0...255 0-100% 1...64
Defines the value to be sent on the "<VH> Additional Output" object for the non-booked Welcome status.	

both as singles or as a single appurtenance (double room).

This possibility must be considered during installation, so communication objects must be connected as described below if you want to switch runtime from one configuration (2 single rooms) to another (one double room) and vice versa.

- It is necessary to activate and configure both "Virtual Holder" modules of the 2 single rooms.
- The principle is to connect the sensors (door, presence, and sniffer) of room 1 to room 2 and vice versa; however, the "Subordinate to Remote Inputs Enable" parameter for each single Remote Input should be properly configured.
- For sensors located in Room 1, this parameter must be set to "not subordinate" on room 1 "Virtual Holder" while should be "subordinated" to room 2 Virtual Holder
- The same principle must be applied to room 2 sensors that are "subordinate" only for the connections to room 1.
- Setting the value "1" on the "Remote Inputs Enable" object for the "Virtual Holder" of each room each module will consider all sensors connected to it; by setting this CO to "0" each "Virtual Holder" only
- considers the sensors connected to its "remote inputs" set as "not subordinate"

For a connection diagram of this function see "Fig. 2"

Remote Sensor Inputs (Global Enable)

Communication objects involved:

"<VH> Remote Inputs Enabled (Global Enable)"	1 bit	CW
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This CO is used when there is a need to consider two adjacent rooms

APPENDIX - DIAGRAM OF LOGICAL CONNECTIONS FOR VIRTUAL HOLDER LOGIC MODULE

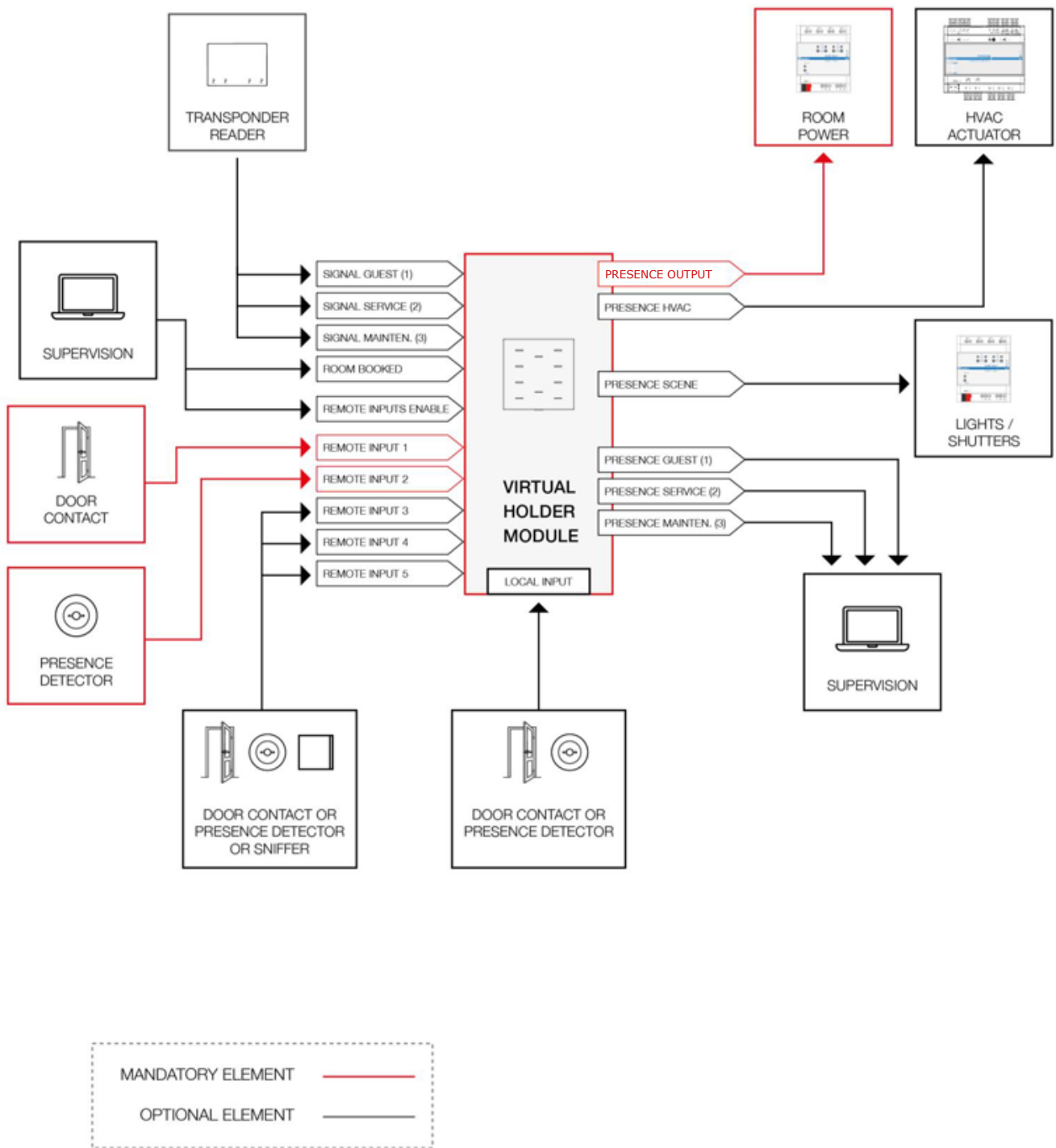


Fig. 1

APPENDIX - DIAGRAM OF LOGICAL CONNECTIONS FOR REMOTE SENSOR INPUT ENABLE (GLOBAL ENABLE)

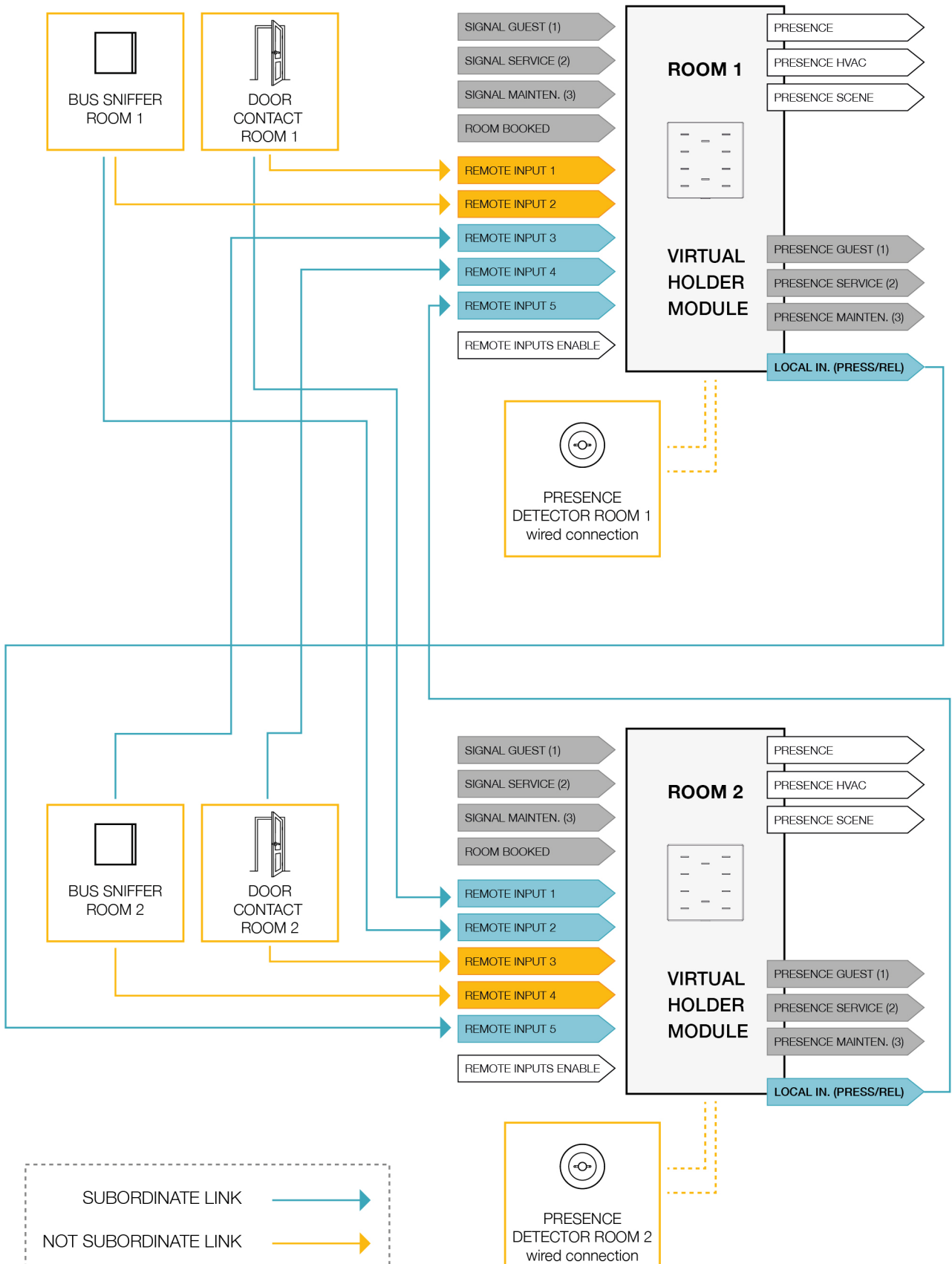


Fig. 2

APPENDIX - INSTALLATION SUGGESTIONS

In ETS®, on the **Virtual Holder > General** page, you need to configure:

1. Presence wait time. This setting determines how long the logic should wait before declaring the room as unoccupied. It is recommended to use short times for testing, then set a duration of no less than 15-20 minutes.
2. Presence sensor OFF latency: this value should be set as the sum of the follow-up time of the room's presence sensor plus the time set on the sensor detecting the door opening/closing. (For example, if the KNX sensor has a follow-up time of 10 seconds and the door sensor has a relay closing time of 10 seconds, then this value should be set to 21 seconds.)
3. Leave the other parameters as indicated below:

Virtual holder name	<input type="text"/>
Presence Wait Time	15 min ▼
Cyclic Presence Send Time	no cyclic send ▼
Presence sensor OFF latency [min]	0 ▲▼
Presence sensor OFF latency [s]	10 ▲▼
Send welcome on unexpected presence	<input checked="" type="radio"/> do not send <input type="radio"/> send
Global Enable state after download	<input checked="" type="radio"/> disabled <input type="radio"/> enabled
Booked state after download	<input checked="" type="radio"/> not booked <input type="radio"/> booked
Absence with door open (deny=if door open presence is active)	<input checked="" type="radio"/> allow <input type="radio"/> deny
Additional output type	value 0-255 ▼
Send status at power up	<input checked="" type="radio"/> no <input type="radio"/> yes

- Virtual Holder
- Virtual Holder
 - General
 - Local Inputs
 - Remote Inputs
 - Guest (Type1)
 - Service (Type2)
 - Maintenance (Type3)

On the **Local Inputs** page, you need to configure:

1. Local input 1 (which will be physically connected to the relay of the IR sensor near the door) as “door”. The parameter “Contact type 1” should be set to “contact closed with door open” if the sensor relay closes when detecting a person passing through.
2. On the Inputs page, all inputs used for the virtual holder should remain configured as “nothing”; the others can be used as desired.

Local input type 1	door
Contact type 1	<input type="radio"/> contact closed with door closed <input checked="" type="radio"/> contact closed with door open
Local input type 2	disabled
Local input type 3	disabled
Local input type 4	disabled

— Virtual Holder

- General
- Local Inputs
- Remote Inputs
- Guest (Type1)
- Service (Type2)
- Maintenance (Type3)

On the **Remote Inputs** page, set:

1. Remote Input 1 as a “presence sensor”, and connect it to communication object “<VH> Remote Input 1 Presence” with a KNX group address linked to the presence object of the sensor, setting a latency time of 10 seconds.
2. Remote Input 2 as a “bus sniffer”, and connect it to communication object “<VH> Remote Input 2 Sniffer” with all the necessary group addresses of all buttons that turn on lights or other devices in the apartment. Turning a light on or off in the apartment provides an indication of the presence of people in the room. To reduce the risk of incorrectly identifying the “room occupied” state, it is recommended to connect a “bus sniffer” input to all 1-bit objects that can be sent to the bus only when a person is present in the room, such as the bathroom light or the window contact, etc...

<ul style="list-style-type: none"> General Local Inputs <li style="background-color: #e0e0e0;">Remote Inputs Guest (Type1) Service (Type2) Maintenance (Type3) 	Remote input type 1	presence sensor
	Subordinate to Remote Inputs Enable	<input checked="" type="radio"/> not subordinate <input type="radio"/> subordinate
	Remote input type 2	bus sniffer
	Subordinate to Remote Inputs Enable	<input checked="" type="radio"/> not subordinate <input type="radio"/> subordinate
	Remote input type 3	disabled
	Remote input type 4	disabled
	Remote input type 5	disabled

On the **Guest (Type1)** page, if you want to manage the HVAC system through a virtual holder, you need to set:

1. The “HVAC non-booked - welcome” parameter to send the mode associated with presence (e.g., comfort).
2. The “HVAC room non-booked - goodbye” parameter to send the mode associated with absence (e.g., economy).
3. The communication object “<VH> HVAC Output” must be connected to the apartment thermostat.

Similarly, the above settings should be replicated on the **Service (Type2)** and **Maintenance (Type3)** pages if you also want to manage these components.

<ul style="list-style-type: none"> — Virtual Holder General Local Inputs Remote Inputs <li style="background-color: #e0e0e0;"> Guest (Type1) Service (Type2) Maintenance (Type3) 	HVAC booked goodbye	do not send ▼
	HVAC non-booked goodbye	economy ▼
	HVAC booked welcome	do not send ▼
	HVAC non-booked welcome	comfort ▼
	Send additional booked goodbye	<input checked="" type="radio"/> do not send <input type="radio"/> send
	Send additional non-booked goodbye	<input checked="" type="radio"/> do not send <input type="radio"/> send
	Send additional booked welcome	<input checked="" type="radio"/> do not send <input type="radio"/> send
	Send additional non-booked welcome	<input checked="" type="radio"/> do not send <input type="radio"/> send

Among the group objects:

- The communication object "<VH> Presence Output" must be addressed and connected to the apartment's general relay.

Name	Object Function	Description	Group Address	Length	C	R	W	T	U
<General> Power On Event	Power On Event			1 bit	C	R	-	T	-
<VH > Room Booked	Room Booked			1 bit	C	-	W	-	-
<VH > Remote Inputs Enable (Global Enable)	Remote Inputs Enable (Global Enable)			1 bit	C	-	W	-	-
<VH > Presence Output	Presence Output			1 bit	C	R	-	T	-
<VH > HVAC Output	HVAC Output			1 byte	C	R	-	T	-
<VH > Additional Output	Additional Output			1 byte	C	R	-	T	-
<VH > Presence for Guest (Type1)	Presence for Guest (Type1)			1 bit	C	R	-	T	-
<VH > Signal Guest (Type1)	Signal Guest (Type1)			1 bit	C	-	W	-	-
<VH > Presence for Service (Type2)	Presence for Service (Type2)			1 bit	C	R	-	T	-
<VH > Signal Service (Type2)	Signal Service (Type2)			1 bit	C	-	W	-	-
<VH > Presence for Maintenance (Type3)	Presence for Maintenance (Type3)			1 bit	C	R	-	T	-
<VH > Signal Maintenance (Type3)	Signal Maintenance (Type3)			1 bit	C	-	W	-	-
<VH > Remote Input 1 Presence	Remote Input 1 Presence			1 bit	C	-	W	-	-
<VH > Remote Input 2 Sniffer	Remote Input 2 Sniffer			1 bit	C	-	W	-	-
<VH > Presence Wait Time	Time (min)			2 bytes	C	-	W	-	-

apartment's energy command

connect all groups used on light buttons, etc... of the apartment

connect with on/off KNX presence sensor

connect to input thermostat comfort/economy, if used