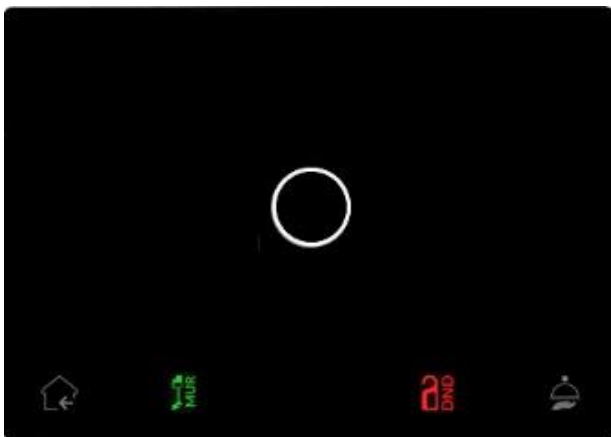# CHORUSMART

Transponder reading unit

Transponder holder unit

KNX
CE

GW16891 CB/CN/CL/CT

GW16892 CB/CN/CL/CT

Programming manual

1.   Contents

2.   Purpose of the manual

This manual is directed to professional KNX® installers and it describes the functions and the parameters of the following devices: **GW16891– Transponder reading unit** and **GW16892 –Transponder holder unit.** This manual illustrates how to change the settings and configurations using the ETS software too.

For the technical characteristics of the device, please refer to the datasheet of the device itself.

3.   Products overview

The devices dedicated to access control management are KNX® devices and they make use of RFID - MIFARE® technology.

Reader and transponder holder must be powered with an auxiliary voltage of 12-24V AC or 12-32V DC and must be connected to the KNX bus. The products are intended to be installed with the plexiglass covers.

The transponder is read by placing it in front of the reader, at a maximum distance of 20 mm; in the case of the transponder pocket, the card is inserted into a compartment from the top of the device.

The color of the RGB bar of the reader indicates that the card has been recognized and shows different colors (configurable) for signaling states or anomalies such as:

ACTION	DEFAULT COLOUR
Recognized card (welcome)	Green
Card removed (goodbye)	Blue
Wrong plant code	Orange
Card ID not recognized	Red
Incorrect date (expired validity)	Yellow
Wrong time of day (Time of entry prohibited)	Magenta
Incorrect day of the week (Day of entry forbidden)	Blue-Cyan
Invalid card access	White
No accesses (counter function)	Purple

These two devices can be mounted on round, square and rectangular flush-mounting boxes and these are compliant to the main Italian, German and British standards.

Gewiss suitable flush-mounting boxes' codes are the following:

- **Round boxes**: GW24234, GW24234PM
- **Square boxes**: GW24231
- **Rectangular 3 modules boxes**: GW24403, GW24403PM

Both devices include KNX communication interface, two input potential-free contacts and two relays:

- Relay 1 (OUT1): entry lock control or general use
- Relay 2 (OUT2): courtesy light or general use

4. Installation instructions

The device can be used for permanent internal installations in dry places.

WARNINGS:

Device must be installed keeping a minimum distance of 4 mm between electrical power line non-SELV (e.g.: mains) and input or KNX bus cables.

- The device must not be connected to 230V cables.
- The device must be mounted and commissioned by an authorized installer.
- The applicable safety and accident prevention regulations must be observed.
- The device must not be opened. Any faulty devices should be returned to manufacturer.
- For planning and construction of electric installations, the relevant guidelines, regulations and standards of the respective country are to be considered.
- KNX bus allows you to remotely send commands to the system actuators. Always make sure that the execution of remote commands do not lead to hazardous situations, and that the user always has a warning about which commands can be activated remotely.
- Plexiglass covers must be handled with care to prevent the plexiglass from being damaged or broken.
- Place the device away from metal parts that can compromise the radio signal.

5.   General parameters

Comunication objects involved:

"<Generale> Heartbeat"	1 Bit	CRT
"<General> Power On Event"	1 Bit	CRT
"<General> Input"	8 Bytes	CWTU / CW
"<General> Input date"	3 Bytes	CWTU / CW
"<General> Input hour"	3 Bytes	CWTU / CW

KNX PARAMETER	SETTINGS
Delay in sending telegrams on power-up	5 ÷ 15 seconds

Through this parameter it is possible to set the telegram transmission delay after switch-on by selecting the time beyond which the device is authorized to send telegrams.

In large systems after a power outage or shutdown, this delay avoids generating excessive traffic on the bus, causing slow performance or a transmission crash.

If there are several devices that require telegrams to be sent on the BUS after a reset, these delays must be programmed to prevent traffic congestion during the initialization phase.

Input detection and object values are updated at the end of the transmission delay time.

At the end of ETS programming, the device behaves as it did after it was switched on.

Heartbeat (periodic alive notification)	Nothing
	Periodic
	On request

The parameter allows you to notify a hierarchically superior control or supervision system of your existence / correct online activity. The notification can take place spontaneously (periodically - settable period value) or following a query (upon request). The value of the 1-bit notification telegram can be set.

Telegram value	OFF / ON / Toggle

It defines the value of the 1 bit notification telegram. The toggle value is not available for "on demand" configuration.

Period - time unit	Seconds / Minutes / Hours

It defines the unit of measurement of the notification's time interval. This parameter is not available for the "on request" configuration.

Period - time value	1 ... 255

It defines the notification interval time. This parameter is not available for the "on demand" configuration.

Date time format	Date and time / DateTime

The Date and Time format corresponds to 2 distinct 3 Byte objects / the DateTime format corresponds to 1 8 byte object.

Request time at power ON	No / Yes

By selecting "yes", the device will send the date and time update re-quest to the connected group address on the BUS.

Outputs	Individual / Coupled
It defines the configuration for the relay outputs: if "single" the two outputs are independent, if "combined" the relays are managed via interlock logic.	

Virtual holder	Disabled / Enabled
By setting this parameter, it is possible to enable a "virtual holder", i.e. a logical function that automatically recognizes the presence of a per-son in a room. This feature can be used in hotels or similar installations and requires connection to other devices (see "Virtual Holder" (par. 12))	

General alarms

Communication bojects involved:

"<General> Unsupported Card Alarm"   1 Bit   CRT
"<General> Alarm Reset"   1 Bit   CW

On this page you can configure the behavior of the device when using an unsupported card.

KNX PARAMETER	SETTINGS
Unsupported card alarm	Disabled / Enabled
It generates an alarm if a card not encoded with the **9025 RFID Mifare**® system approaches.	

Unsupported card telegram	Telegram "0"
	Telegram "1"
It establishes the one-bit telegram sent on the "<General>Not Supported Card Alarm" object in the event of an alarm.	

Unsupported card cyclic sending	Never / 1,5,10,30 min / 1,2,6,12 h
It defines the time interval for cyclical sending of the "<General>Not Supported Card Alarm" object.	

Reset alarm telegram	Telegram "0"
	Telegram "1"
It establishes the one-bit telegram sent on the "<General>Reset Alarm" object to reset the enabled general alarms.	

6. Access control parameter

6.1. Access control parameters

6.1.1. Configuration

Communication objects involved:

"<Access> System ID"	2 Bit	CW
"<Access> Legacy"	10 Bytes	CW
"<Access> Reset Legacy"	10 Bytes	CW
"<Access> Standard"	14 Bytes	CW
"<Access> Reset Standard"	14 Bytes	CW
"<Access> Transit"	4 Bytes	CT

KNX PARAMETER	SETTINGS
Card management	Standard / Legacy
The two methods differ in the length and format of the telegram used to set the passwords, validity, time slots and all the other information necessary for managing access via card. Depending on the mode selected, the related communication objects will be available. **Mifare® Legacy**: the 10B objects ("<Access> Legacy>" e "<Access> Reset Legacy") is used for compatibility with the previous transponder holder and reader group objects (**GW1x681** e **GW1x682**). **Standard**: the 14B objects ("<Access> Standard>" e "<Access> Reset Standard") are used to take advantage of the new functions of the **9025 RFID Mifare® system**: i.e. using 7 classes rather than the 3 expected.	

KNX PARAMETER	SETTINGS
Validity start	<hours>, <minutes>
Validity end	<hours>, <minutes>
Only in **Legacy** mode do these parameters define in which hour-minute of the day the start and end of validity must be understood to be.	

KNX PARAMETER	SETTINGS
Counter function	Disabled / Enabled
See paragrapher "Hour meter" (par. 6.1.4).	

KNX PARAMETER	SETTINGS
Date control	Disabled / Enabled
It enables or disables control by the device on the start/end validity date of the card. To manage the card without expiry date, deactivate the date control.	

KNX PARAMETER	SETTINGS
Day hour control	Disabled / Enabled
Enables or disables control by the device of the daily time slots. Activate the "**Day hour control**" to manage the entrances only during certain time slots (for example in communal areas).	

KNX PARAMETER	SETTINGS
Week day control	Disabled / Enabled
Similar to the previous parameter, it activates the control based on days of the week. Activate the "**Week day control**" to manage entrances only on certain days (for example in communal areas).	

Enables alarms	Disabled / Enabled

Activating the parameter, a page dedicated to managing the alarms associated with card reading is displayed. On the page it is possible to select which alarm to activate:

System ID: system code not recognised

Card ID: card code not recognised

Card date: card with incorrect validity interval

Card HOD: Card with incorrect hour of day

Card DOW: card with incorrect day of week

Card access: card with access

Counter: card with exhausted counter

For each alarm, it is possible to set a colour of the RGB bar, an action on the backlighting LEDs, an alarm deactivation time, a 1-Bit object dedicated to sending of the alarm status on BUS.

6.1.2. RGB / LED Top

For each element of the **Transponder holder unit device**, it is possible to set a different behaviour for the *Welcome* and for *Goodbye* events.

- *Welcome* Event: card inserted and recognised
- *Goodbye* Event: valid card extracted

RGB

KNX PARAMETER	SETTINGS
RGB temporary action	None
	Fixed
	500 ms flashing
	1 s flashing
This parameter defines the behaviour of the RGB LED.	

Colour	RGB/HSV
It is possible to set the desired colour by choosing between RGB or HSV colour method.	

LED Top

Warning: this function is NOT available for the Transponder holder unit device – GW16892Cx!

KNX PARAMETER	SETTINGS
Top LED action	None
	Temporary flashing
	Switches in OFF
	Switches in ON
This parameter defines the behaviour of the Top LED.	

6.1.3. Access control

For each command of the **Transponder holder unit device – GW16892Cx**, it is possible to set a different value for the Welcome event and for the Goodbye event.

KNX PARAMETER	SETTINGS
Command	No / Yes
Enabling the parameter makes visible a generic 1-Bit communication object, which sends a telegram at each access, regardless of the type of card read	

KNX PARAMETER	SETTINGS
Access types managed	Customer
	Service
	Maintenace
	Installer
	Safety
	Assistance
	Administrator
For each enabled access level (the customer level is always enabled) a 1-Bit command object and a 1-Bit enabling/disabling command object from the BUS can be associated. Furthermore, for each type of access enabled, a dedicated configuration page is shown.	

KNX PARAMETER	SETTINGS
Activation telegram	Telegram "0" / "1"
The parameter refers to the activation value of the disable object. If this parameter is set to the value "1", the command "1" on the enable/ disable object will cause activation of the command object.	

KNX PARAMETER	SETTINGS
Goodbye telegram delay	No delay
	1, 2, 3, 5, 10, 15, 30, 45 seconds
	1, 2, 5, 10, 15, 20, 30 minutes
With this parameter it is possible to set a delay time for sending of the *Goodbye* telegram.	

KNX PARAMETER	SETTINGS
Send transit even when card is removed	No / Yes
This parameter defines whether to send the "<Access> Transit" object for the *Goodbye* event.	

Access type <X>

The types of accesses available are:

- Customer
- Service
- Maintenance
- Installer
- Safety
- Assistence
- Administrator

This paragraph describes the parameters and objects present on the pages visible when the management of a certain type of access is activated.

Communication objects involved:

COMMON

"Scene <Access>"	1 Byte	CRT
"HVAC <Access>"	1 Byte	CRT
"Setpoint <Access>"	1 Byte	CRT
"Command <Access>"	1 Bit	CRT

ACCESS TYPE-SPECIFIC

"<Access> x - Command"	1 Bit	CRT
"<Access> x - Percentage/Angle/Relation/Rate/Pulses"	1 Byte	CRT
"<Access> x – Enable"	1 Bit	CW

WARNING: **all objects available for sending in each access type are subject to the ability to be enabled / disabled via the 1-Bit object, with the exception of the Admin access, which can never be disabled.**

For each command of the **Transponder holder device – GW16892Cx**, it is possible to set a different behaviour for the *Welcome* and for the *Goodbye* events.

- *Welcome* Event: card inserted and recognised
- *Goodbye* Event: valid card extracted

KNX PARAMETER	SETTINGS
State after download	Disabled / Enabled
Establishes whether after a download the user type is enabled or disabled.	

Common objects:	
Scene command	No / Yes
HVAC command	No / Yes
Setpoint command	No / Yes
There are three objects, one of the scene type, one of the HVAC type and one of the setpoint type, which can send telegrams on the BUS upon each access. For each type of access it is possible to enable or disable the use of this object and to define the value to be sent which may be different for each type of access.	

Common objects:	
Scene value	1… 64
HVAC value	Auto / Comfort / Standby / Economy / Protection
Setpoint value	-671088... 670760

It defines the value to be sent on the related common object.

Command	No / Yes

Used to enable the "<Access> x - Command" object.

Command value	Telegram "0" / Telegram "1"

It defines the value to be sent on the "<Access> x - Command" object.

1 Byte command	No / Yes

For each type of access it is also possible to activate a further 1 Byte object, distinct for each type, for which to define a data format (DPT) and a value using the following parameters:

Datapoint type:

- DPT 5.001 percentage (0 ... 100%)
- DPT 5.003 angle (Degrees)
- DPT 5.004 percentage (0 ... 255%)
- DPT 5.005 ratio (0 ... 255)
- DPT 5.006 rate (0 ... 255)
- DPT 5.010 pulse counter (0 ... 255)

1 Byte command value

0 ... 255

6.1.4. Hour meter

Communication object involved:

"<Access> Counter A – Enable"	1 Bit	CW
"<Access> Counter A – Feedback"	1 Byte	CRT
"<Access> Counter B – Enable"	1 Bit	CW
"<Access> Counter B – Feedback"	1 Byte	CRT
"<Access> Counter C – Enable"	1 Bit	CW
"<Access> Counter C – Feedback"	1 Byte	CRT
"<Access> Counter D – Enable"	1 Bit	CW
"<Access> Counter D – Feedback"	1 Byte	CRT

KNX PARAMETER	SETTINGS
Activation telegram	Telegram "0" / Telegram "1"
It defines which 1-Bit telegram value activates the counter function.	

Counter to be decreased after download	None
	Counter A
	Counter B
	Counter C
	Counter D
It defines the counter enabled upon device download.	

| **Inhibition time [s]** | 1, 5, 10, 30 |
| With this parameter it is possible to choose a card reading inhibition time. | |

| **Enable feedback objects** | Disabled / Enabled |
| It defines whether to send the state with a 1 Byte object. | |

6.1.5. Alarms

Communication objects involved:

"<Access> System ID Alarm"	1 Bit	CRT
"<Access> Card ID Alarm"	1 Bit	CRT
"<Access> Card Date Alarm"	1 Bit	CRT
"<Access> Card HOD Alarm"	1 Bit	CRT
"<Access> Card DOW Alarm"	1 Bit	CRT
"<Access> Card Access Alarm"	1 Bit	CRT
"<Access> Counter Alarm"	1 Bit	CRT
"<Access> Alarm Reset"	1 Bit	CW

This paragraph describes the parameters present on the pages visible when an alarm is activated (System ID, Card ID, Card Date, Card HOD, etc.).

KNX PARAMETER	SETTINGS
Activation telegram	Telegram "0" / Telegram "1"
Defines which 1-Bit telegram value triggers the Alarm function.	
System ID alarm Monitors the correspondence between the System ID of the card and that of the device, set via the "<Access> System ID" object.	
Card ID Alarm It monitors the correspondence between the card number and the list of cards registered on the device.	
Card Date Alarm It monitors the correspondence between the validity window and the card reading date.	
Card HOD Alarm It monitors the correspondence between the validity hours and the card reading hour. There are 24 time slots and these are defined statically (e.g.: 00:00-00:59; 01:00-01:59 etc.).	
Card DOW Alarm It monitors the correspondence between the validity days and the card reading day.	
Card Access Alarm It monitors the correspondence between the access types enabled and the access type configured for the card.	
Counter Alarm It monitors the number of accesses permitted on the card.	
N.B. The alarms are listed in order of control	

KNX PARAMETER	SETTINGS
RGB colour action	None
	Fixed
	500 ms flashing
	1 s flashing

Enabling the parameter makes visible a generic 1-Bit communication object, which sends a telegram at each access, regardless of the type of card read.

KNX PARAMETER	SETTINGS
Colour	RGB/HSV

it is possible to set the desired colour by choosing between RGB or HSV colour method.

KNX PARAMETER	SETTINGS
Top LED action	None
	Temporary flashing
	Switches in OFF
	Switches in ON

This parameter defines the behaviour of the Top LED.

KNX PARAMETER	SETTINGS
Alarm switch off when a valid "System ID, Card ID etc." is detected	No / Yes

It defines whether to stop the alarm when a card correspondence is detected.

KNX PARAMETER	SETTINGS
Automatic alarm deactivation [min] (0=never)	No / Yes

It enables automatic deactivation of the alarm.

KNX PARAMETER	SETTINGS
Enables alarm object	Disabled / Enabled

Used to enable the specific alarm object.

7. LEDs-RGB LED

7.1. LEDs

> **WARNING: function is NOT available for the Transponder holder unit device - GW16892Cx!**

Communication object involved:

"<LED x> Command"	1 Bit	CW
"<LED x> Flashing command"	1 Bit	CW

KNX PARAMETER	SETTINGS
LED- configuration	Always OFF
	Always ON
	BUS-controlled

Always OFF

The LED is always OFF.

Always ON

The LED is always ON.

BUS-controlled

The LED turns ON or OFF when a telegram is received from the BUS; the initial state and behaviour of the LED (flashing or steady) can be configured via parameter.

KNX PARAMETER	SETTINGS
LED - activation telegram	Telegram "0" / Telegram "1"

It defines the sent 1-Bit telegram for turning on of the LED.

KNX PARAMETER	SETTINGS
LED – initial state	OFF / ON / Last

It defines the state of the LED upon start-up. The "last" configuration is not always available. Check the presence of the function for the LED in question.

KNX PARAMETER	SETTINGS
LED - flashing	Fixed
	1 s flashing
	500 ms flashing
	250 ms flashing

It defines the flashing time of the LED.

KNX PARAMETER	SETTINGS
LED turn off after a certain time	Disabled / Enabled

Used to enable an automatic switch-off time for the LED set in minutes or seconds.

7.2.   RGB LED

7.2.1. Main function RGB

Not all the functions listed are available on the devices. To find out about the functions on the device, refer to the specific manual.

KNX PARAMETER	SETTINGS
Main function RGB	No action
	Classic RGB
	Feedback from KNX BUS
	Access control

None: no function.

Classic RGB: with this option it is possible to change the colour of the RGB bar with 3 1-Byte objects or with 1 3-Byte object. It is also possible to set the RGB LED in flashing mode or turn it ON / OFF via BUS.

Feedback from KNX BUS: with this option it is possible to display up to five 1-Bit objects on which to send ON / OFF telegrams. When the value "0" or "1" is received (based on the parameter settings), it is possible to bring the colour of the RGB bar to a defined, fixed or flashing value. Receiving of a new telegram on another 1 Bit object of the KNX feedback function causes the RGB bar to activate a new colour.

Physical size: with this option, it is possible to use the RGB bar to display the value associated with a physical size. The colour of the RGB bar will change based on the received value to provide a visual indication. It is possible to choose a standard size (temperature, energy, etc.) or a generic datapoint (1, 2 and 4 bytes available) and to assign one colour to the minimum value and another to the maximum value. Intermediate values between minimum and maximum will be displayed in the colours of the selected ones, according to the colour wheel-clockwise (CW) or counter-clockwise (CCW). If the minimum and maximum values are exceeded, the RGB bar flashes to indicate alarms or malfunctions.

Colour loop: this function activates an automatic colour change sequence; the range of colours (warm / cool colours or all colours) and the transition time between two colours is definable. With the object "<RGB> Stop Colour Loop" the loop can be interrupted with telegram "0" and then restarted with telegram "1". When the cycle is stopped it is possible to define a fixed colour for this state. In order to have more than one 9025 device running with demo colour loops and to keep them synchronised, it is necessary to select one device as "master" by setting the flag "T" = 1 in the "<RGB> Stop Colour Loop" object and connect it with all other "<RGB> Stop Colour Loop" objects of the other 9025s (which will act as slaves). Every time the master changes colour, the other device is synchronised. It is also necessary to set all the "colour led" and "time of colour change" parameters to the same value and to start them at the same time.

Internal sensor feedback[1]: with this option, the RGB bar will display a colour related to the sensor and defined by the "Internal sensor feedback" parameter.

Access control: with this configuration it is possible to establish the RGB colour associated with the action of card inserted and card not inserted in a "Tasca Transponder" device. Not available for the transponder reader GW16681Cx.

7.2.1.1. CLASSIC RGB

Communication objects involved:

"<RGB> On/Off "	1 Bit	CW
"<RGB> Red Component"	1 Byte	CW
"<RGB> Green Component"	1 Byte	CW
"<RGB> Blue Component"	1 Byte	CW
"<RGB> RGB Components"	3 Bytes	CW

KNX PARAMETER	SETTINGS
Activation telegram	Telegram "0" / Telegram "1"
Establishes the telegram to be sent on the "<General>Alarm Reset" object to reset the enabled general alarms.	

KNX PARAMETER	SETTINGS
Initial value configuration	Colour list
	Colour panel
It defines the methodology for choosing the initial colour.	

KNX PARAMETER	SETTINGS
LED ON Behaviour	Fixed
	1 s flashing
	500 ms flashing
	250 ms flashing
It defines the flashing frequency of the RGB bar.	

KNX PARAMETER	SETTINGS
RGB LED initial state	OFF / ON
It defines whether the initial state of the RGB LED is ON or OFF.	

KNX PARAMETER	SETTINGS
ON/OFF object	Disabled / Enabled
Used to enable the "<RGB> On/Off" object.	

KNX PARAMETER	SETTINGS
Type of communication object	None
	3 objects of 1 Byte
	1 object of 3 Bytes
	Both
With this parameter it is possible to choose which colour objects to enable.	

Communication objects involved:

"<RGB> Feedback KNX x"	1 Bit	CW

KNX PARAMETER	SETTINGS
LED ON Behaviour	Fixed
	1 s flashing
	500 ms flashing
	250 ms flashing
It defines the flashing frequency of the RGB bar.	

KNX PARAMETER	SETTINGS
Feedback number from KNX	1... 5
It defines the number of 1-Bit objects received as feedbacks.	

KNX PARAMETER	SETTINGS
KNX feedback x - ON telegram action	No action
	Switch OFF
	Fixed colour
It defines the action of the RGB bar upon receipt of the ON telegram.	

KNX PARAMETER	SETTINGS
KNX feedback x - ON colour	red, orange, yellow, green-yellow, green, green-cyan, cyan, blue-cyan, blue, blue-magenta, magenta, red-magenta, white
In fixed colour mode, it defines the colour of the RGB bar upon receipt of the ON telegram.	

KNX PARAMETER	SETTINGS
KNX feedback x - OFF telegram action	No action
	Switch OFF
	Fixed colour
It defines the action of the RGB bar upon receipt of the OFF telegram.	

KNX PARAMETER	SETTINGS
KNX feedback x - OFF colour	red, orange, yellow, green-yellow, green, green-cyan, cyan, blue-cyan, blue, blue-magenta, magenta, red-magenta, white
In fixed colour mode, it defines the colour of the RGB bar, upon receipt of the OFF telegram.	

7.2.2. RGB step-marker mode

Communication objects involved:

"<RGB> Step-Marker Mode   1 Bit   CW

KNX PARAMETER	SETTINGS
Step marker mode RGB	Disabled / Enabled
Enabling this function shows a 1 Bit communication object. It has the highest priority in setting the colour of the RGB bar. When an activation telegram is received on this object, the RGB bar assumes the colour set for the parameter and this value does not change until a deactivation telegram is received.	

8. Single relay

8.1. Single relay - General parameters

KNX PARAMETER	SETTINGS
Relay type, normally closed or open	Normally open
	Normally close
With this parameter it is possible to set the operating mode of the relay. The relay can be used as "open contact" or "closed contact"; this distinction is only logical because the relay has only one pole and a terminal connected to the NC contact is not available.	

Command (Relay status)	Normally open	Normally close
ON (activate)	Contact close	Contact open
OFF (deactivated)	Contact open	Contact close

KNX PARAMETER	SETTINGS
Command activation telegram	Activate with ON
	Activate with OFF
It determines whether the function is activated with a telegram "1" (i.e. off = "0") or is activated with telegram "0" (i.e. off = "1")	
Scene sources	Do not use scene objects
	Enable local scene object
	Enable global scene object
	Enable local and global scene object
With this parameter it is possible to enable the local or global scene object. See paragraph "Single relay - Scene" (par. 8.3).	
Addition object type	Do not use
	Use for logic function
	Use for locking function
With this parameter it is possible to enable two additional functions.	
Global command object	Do not use global command object
	Use global command object as command
	Use global command object as logic
This parameter refers to the management of Global objects (par. 13). Please refer to the user manual of the device for more information. See paragraph "Global command object" (par. 8.6).	
Relay state at power on	No action
	Go ON
	State before power OFF"
Set this parameter to determine the status that the relay must take when the BUS voltage when it is restored.	

Feedback enable/disable	Disabled
	Always
	On variation

Disabled: the relay status is never sent.

Always: status is transmitted each time the relay receives an actuation command.

On variation: the relay status is only transmitted when its status changes.

Counter Type	Nothing
	Instant power
	Count energy
	Count ON or OFF time
	Count ON/OFF toggle

The device allows to send on the BUS one of the following counters:

Instant power:

Instantaneous power absorbed (presumed); it is not possible to measure the absorbed power but it is possible to send the presumed value (in Wh or KWh) based on the ETS parameter set as energy consumed in Watt or Kilowatt.

Count energy:

Energy consumed (presumed); it is not possible to measure the energy consumed but it is possible to send the presumed value based on the ETS parameter set as energy consumed in Watt or Kilowatt.

Count ON or OFF time:

It counts the ON or OFF time of the relay in hours [2 bytes - dpt 7.007 time (h)]

Count ON/OFF toggles:

It counts the number of relay commutations [4 bytes – dpt 12.001 counter pulses]

Timing function type	No timing function
	ON/OFF with timing and delay
	Continuos switching

No timing function:

No time function.

ON/OFF with timing and delay:

This parameter enables an object dedicated to managing the timed output "<Output Ax | xx> Timing" with which to set a delay on activation, deactivation or the staircase lighting function.

Continuous switching:

Function that switches the relay ON / OFF continuously.

8.2. Single relay - Timing

Communication object involved:

"<Output Axx | xx> Timing   1 Bit   CW

8.2.1. ON/OFF with timing and delay (staircase)

KNX PARAMETER	SETTINGS
Timing function activation telegram	Activate on OFF telegram
	Activate on ON telegram
It defines the telegram function on which the timing function is activated.	

KNX PARAMETER	SETTINGS
Timing unit measure	Seconds / Minutes / Hours
It sets the unit of measure for the following timing parameters.	

KNX PARAMETER	SETTINGS
Switch ON delay (0 = no switch ON delay)	0... 255
It sets the delay between receiving the ON command and activating the corresponding output (if this parameter is set to 0 there will be no delay and execution will be immediate).	

KNX PARAMETER	SETTINGS
ON state retention time (0 = never switch OFF)	0... 255
It sets the automatic switch-off time (staircase lights); if this parameter is set to 0, it must be turned off by an OFF command.	

KNX PARAMETER	SETTINGS
Behaviour when receiving deactivation telegram during timing	Ignore command
	Go to retention end (switch OFF)
	Go to OFF state after time
Ignore command: The OFF command is ignored. **Go to retention end (switch OFF)**: The OFF command is executed immediately. **Go to OFF state after time**: The OFF command is executed at the end of the time defined by the Switch OFF delay parameter.	

KNX PARAMETER	SETTINGS
Switch OFF delay (0 = switch OFF immediately)	0… 255
It sets the delay between receiving the OFF command and activating the corresponding output (if this parameter is set to 0, there will be no delay and execution will be immediate).	

EXAMPLE 1:
SET THE STAIRCASE LIGHT TO AUTOMATICALLY SWITCH OFF AFTER 5 MINUTES WITHOUT THE POSSIBILITY OF MANUAL SWITCH-OFF

PARAMETER	VALUE
Timing unit measure	Minutes
Switch ON delay	0
ON state retention time	5
Behaviour when receiving deactivation telegram during timing	Ignore command

EXAMPLE 2:
SET THE AUTOMATIC STAIRCASE LIGHT OFF AFTER 50 SECONDS WITH THE POSSIBILITY OF MANUAL SWITCH-OFF

PARAMETER	VALUE
Timing unit measure	Seconds
Switch ON delay	0
ON state retention time	50
Behaviour when receiving deactivation telegram during timing	Stop the timer and switch off the output

EXAMPLE 3:
SET LIGHT ON WITH 5 SECONDS DELAY AND OFF WITH 60 SECONDS DELAY

PARAMETER	VALUE
Timing unit measure	Seconds
Switch ON delay	5
ON state retention time	0
Behaviour when receiving deactivation telegram during timing	Go to OFF state after time
Switch OFF delay	60

KNX PARAMETER	SETTINGS
Behaviour when receiving telegram during timing	Ignore
	Restart ON state retention timing
	Extend time

Sets the behaviour of the device when ON command is received while the timing is running:

Ignore:

The reception of an ON command is ignored and the timing continues.

Restart ON state retention timer:

When an ON command is received, the device restarts the timing.

Extend time:

Upon receiving an ON command, the device extends the timing.

Warning signal before switch OFF	Do not signal
	15 seconds
	30 seconds
	1 minute
	2 minutes
	5% retention time
	10% retention time
	15% retention time

Set the warning time before the end of the timed function; the device signals the imminent end of the timing with a short power OFF.

Do not signal:

No warning signal is executed

15 s / 30 s / 1 min / 2 min:

It indicates how much time before the end of the timing the warning signal is executed

5% / 10% / 15% retention time:

It indicates how much time before the end of the timing (in percentage) the prevision takes place (if the timing is 60 seconds setting 10% of retention time the warning takes place 6 seconds before the end).

Behaviour on command reception during timing	Actuate command and reset timing function
	Ignore command

It determines the behaviour in case of receiving an ON or OFF command during the timing execution.

Actuate command and reset timing function:

It executes the command received and cancels the timing in progress.

Ignore command:

Ignore the command received.

Timing behaviuor at power ON	No action
	Restore the timing state before power OFF

Only when the parameter "Relay state at power ON" is set on "No action". It defines if, after the power is switched ON, the relay restores its timing state or not.

8.2.2. Continuos switching

KNX PARAMETER	SETTINGS
Timing unit measure	Seconds / Minutes / Hours
It sets the unit measure for the following timing parameters.	

KNX PARAMETER	SETTINGS
Continuous switching ON time	1... 255
Relay ON time during continuous switching.	

KNX PARAMETER	SETTINGS
Continuous switching OFF time	1... 255
Relay OFF time during continuous switching.	

8.3. Single relay – Scene

Communication object involved:

| "<Output Axx \| xx> Scene" | 1 Byte | CW |

By enabling the scenario management, it is possible to associate up to 12 KNX scenarios and up to 64 dynamic scenarios to each output (See: Single relay – Dynamic scenes (par. 8.4)).

You can send 2 commands to the scene object:

Recall scene: : it is a command used to start execution of a scenario.

Save scene: it is a command used to save the current status of the relays (when the command is received), this status is restored when the "Recall scene" telegram is received.

KNX PARAMETER	SETTINGS
Scene source	Do not use scene objects
	Enable local scene objetcs
	Enable global scene objects
	Enable global and local scene objetcs
This parameter refers to the management of Global objects (par. 13). **Do not use scene objects:** Scenes are disabled for this ouput. **Enable local scene objects:** For this output the scenes are enabled and are recalled by CO <Output Axx | xx> Scenes. **Enable global scene objects:** For this output the scenes are enabled and are called via global CO<Global All> Scene (See par.: Global objects (par. 13)). **Enable global and local scene objects:** For this output the scenes are enabled both with local CO and with global CO.	

The "<Output Ax> Scene" page will show the following parameters::

KNX PARAMETER	SETTINGS
Enable scene learning	Disabled / Enable
If disabled, the output cannot execute "Save Scenario" commands.	
Enable dynamic scene learning	Disabled / Enable
See par.: Single relay – Dynamic scenes (par. 8.4).	
Keep or override scene values after download	Override / Keep
It determines whether the scenarios saved with the "save scene" commands are restored at the value defined in the ETS or not when a download is performed.	
Scene counter	1... 12
It defines how many KNX scenarios are associated with the output.	
Scene x - Index	1... 64
It defines which index is associated with the x scenario.	
Scene x - Value	OFF / ON
It defines whether the status associated with the x scenario is ON or OFF after the first download, for subsequent dowloads check how the "Keep or override scenes values after download" parameter is set.	

## 8.4.	Single relays – Dynamic scenes

Communication object involved:

"<Output Axx | xx> Scene"	1 Byte	CW

DESCRIPTION

The dynamic scene function is compatible with the standard KNX scenario and the actuators can use both at the same time. The dynamic scene function uses the same 1-Byte communication object (DPT 18.001) of the standard KNX scenario while maintaining the same structure and meaning.

To activate the dynamic scene function, the "Global Dynamic Scene" parameter on the "Global Objects" page must be set as "enabled", in this way the "<Global All> Dyn Scene" object is visible. This 1-Bit communication object, one for each actuator, is used to enable / disable runtime the saving of the dynamic scenario value according to the value received on the "<Output Axx \| xx> Scenes".

HOW IT WORKS

When the object value "<Global All> Dyn Scene" is 0 the dynamic scene function is disabled, it is possible to learn and execute the standard KNX scenarios as set by the ETS parameter.

When the value of the object "<Global All> Dyn Scene" is 1, the dynamic scene function is enabled, during this condition any command sent to the relay is executed and also saved in the memory. When a learning command is sent on the object 1-Byte "<Out- put Axx \| xx> Scene" the device saves the new status in the memory and associates it with the number of the scenario just received.

If a learning command is sent to the 1-Byte object "<Output Axx \| xx> Scenes" without having previously updated the output status, the actuators consider this as a command to "disconnect" this output to the scenario number "n" and from this moment onwards, after receiving a recall scenario for the number of scenario "n", the output does not react.

In this way, it is possible to associate up to 64 scene numbers on each actuator output channel.

When the object "<Global All> Dyn Scene" returns to 0, the learning of the dynamic scenario is completed.

The scenario call operation works in the same way as the standard KNX scenario.

8.5. Single relay – Additional function

Communication object involved:

"<Output Axx | xx> Logic"	1 Bit	CW
"<Output Axx | xx> Lock"	1 Bit	CW

2 additional functions can be enabled:

KNX PARAMETER	SETTINGS
Additional object type	Do not use
	Use for logic function
	Use for locking function

Logic function:

This function allows to control the load, through the result of a logic operation, the logic function consists of two logical inputs: the operation is performed between the logic input and the relay command object.

Block function:

Locks the relay in a specific position, this state is maintained until is received a specific command to exit the block status; any command received during the period in which the lock mode is active is not executed.

Block and **Logic function** cannot be activated at the same time.

8.5.1. Single relay – Logic

When the logic operation is enabled, the output command is the result of a logical operation between the communication object "<Output Axx | xx> Logic "and the object" "<Output Axx | xx> Command ".

Using ETS, you can select the logical operation: whenever a telegram is received on the logical object or command object, the logic operation is recalculated and the result is interpreted as a command for the relay.

KNX PARAMETER	SETTINGS	
Additional command activation telegram	Activate with OFF	
	Activate with ON	
It defines the telegram function on which the timing function is activated.		
Additional command logic value after download	Start in OFF state	
	Start in ON state	
This parameter allows to select the initial value of the logical operator. By setting "Last received value" the last value before switching OFF is considered valid.		
Logic function for command and additional	AND	NAND
	OR	NOR
	XOR	NXOR
It defines the logical operation to execute between local command and local logic.		
Delay logic output [s]	0... 7	
This parameter inserts a delay between the recalculation of the resulting logic function (which occurs after the update of the objects "<Output Axx | xx> Logic" or the object "<Output Axx | xx> Command") have been updated and the relay status update. The insertion of a delay allows to "filter" too frequent updates on the status of the outputs due to the recalculation of the resulting logic. The delay is in seconds.		

8.5.2. Singole relay – Lock function

When the lock function is enabled, it forces the relay to be switched into a defined state by a BUS telegram and forces it to retain this status even if it receives BUS commands on other switching objects.

WARNING: When the lock function is active, the local keys, also if enabled, do not work!

KNX PARAMETER	SETTINGS
Lock sources	Do not use lock object [1]
	Enable local lock object [1]
	Enable global lock object [2]
	Enable local and global lock objects [2]

[1]: visible only if additional object is set for logic or not used
[2]: visible only if additional object is set for lock

This parameter refers to the management of Global objects (par. 13). Please refer to the user manual of the device for more information.

Do not use lock object

Lock function is not used.

Enable local lock object

The block function is activated / deactivated only via the object "<Out- put Axx | xx> Lock".

Enable global lock object

The block function is only activated / deactivated via the object "<Glob- al All> Lock".

Enable local and global lock objects

The block function is activated / deactivated via the object "<Output Axx | xx> Lock" or the "<Global All> Lock" object.

On the <Output Axx> Lock page, the following parameters are set:
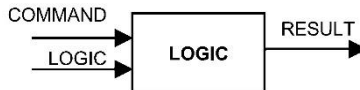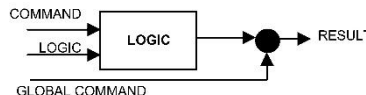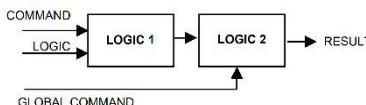
KNX PARAMETER	SETTINGS
Lock state after download	Locked / Unlocked
It sets the value of the block function after download.	

KNX PARAMETER	SETTINGS
Telegram for lock activation	Activate on OFF telegr.
	Activate on ON telegr.
It defines which telegram is to lock and which one is to unlock.	

KNX PARAMETER	SETTINGS
Automatic unlock after time (0 = never unlock automatically)	0… 255
Lock can be set as a timed function; the lock function is deactivated at the end of the blocking time.	
If the lock function is set with automatic deactivation, the timeout time is reloaded each time a new lock activation telegram is received.	

KNX PARAMETER	SETTINGS
Output value when locked	Switch OFF
	Switch ON
This parameter selects the state that the relay must assume when the "lock" function is activated.	

Output value when unlocked	Switch OFF
	Switch ON
	Switch to the last value received
	Switch to the last value received before the lock

Switch OFF:

Relay in OFF.

Switch ON:

Relay in ON.

Switch to the last value received:

The relay returns to the position corresponding to the last command received.

Switch to the last value received before the lock:

The relay returns to the position prior to activation of the lock.

8.6.   Global command object

This parameter refers to the management of global object.

"<Global Single> Command"   1 Bit   CW

KNX PARAMETER	SETTINGS
Global command object	Do not use global command object
	Use global command object as command
	Use global command object as logic

Do not use global command object

The result of the logic function is calculated without taking into account the values received on the global object.

Use global command object as command

The global command is considered as a command that overlaps with the result of the logical operation.

Delay global command object [s]	No delay / 1… 7

With this parameter it is possible to set the time delay for the activation of global command.

Use global command object as logic

The global command is put into logic with the result of the main logic; the 2 logical operators can be different.

Logic for global command	AND	NAND
	OR	NOR
	XOR	NXOR

It defines the logical operation to execute between result of local logic (if not present, local command is considered) and global command.

Delay global logic output [s]	No delay / 1… 7

With this parameter it is possible to set the time delay for sending of logic output.

8.7.   Single relay – Counter

When the counter function is enabled, it allows to estimate the consumption of a load connected to the relay or the number of relay movements.

8.7.1. Instant power

Communication object involved

"<Output Axx | xx> Counter"   4 Bytes   RCT

KNX PARAMETER	SETTINGS
Average power in ON state (Watt)	1 ÷ 65535
It indicates the (assumed) average value of absorbed power.	

KNX PARAMETER	SETTINGS
Datapoint type	W / kW
It allows you to choose the unit of measurement of the power sent to the communication object "<Output Axx | xx> Counter".	

KNX PARAMETER	SETTINGS
Cyclic send of counter	No cyclic send
	1, 2, 5, 10, 30 minutes
	1, 2 hours
It defines the cyclical sending time interval of the object "<Output Axx | xx> Counter ".	

8.7.2. Count ON or OFF time

Communication object involved

"<Output Axx | xx> Counter"   2 Bytes   RCT

KNX PARAMETER	SETTINGS
Counter reset	Disabled / Enabled
It allows you to enable the communication object "<Output Axx | xx> Counter Reset."	

KNX PARAMETER	SETTINGS
Keep or override counter after download	Override / Keep
It defines whether to keep or overwrite the value on the object "<Output Axx | xx>"after the download.	

KNX PARAMETER	SETTINGS
Counter type OFF/ON	Count OFF time / Count ON time
It defines whether to count the closing or opening time of the relay. The value is indicated through the object"<Output Axx | xx> Counter".	

KNX PARAMETER	SETTINGS
Ciclyc send of counter	No cyclic send
	1, 2, 5, 10, 30 minutes
	1, 2 hours
It defines the cyclical sending time interval of the object "<Output Axx | xx> Counter".	

8.7.3. Count ON /OFF toggles

Communication object involved

"<Output Axx | xx> Counter"   4 Bytes   RCT

KNX PARAMETER	SETTINGS
Counter reset	Disabled / Enabled
It allows you to enable the communication object "<Output Axx	xx> Counter Reset."	
Keep or override counter after download	Override / Keep
It defines whether to keep or overwrite the value on the object "<Output Axx	xx>"after the download.	
Counter type	Count ON to OFF transitions
	Count OFF to ON transitions
	Count all transitions
It defines whether to count the relay transitions from closed to open or vice versa or all transitions.	
Cyclic send of counter	No cyclic send
	1, 2, 5, 10, 30 minutes
	1, 2 hours
It defines the cyclical sending time interval of the object "<Output Axx	xx> Counter ".	

8.7.4. Count energy

Communication object involved

"<Output Axx | xx> Counter"   4 Bytes   RCT

KNX PARAMETER	SETTINGS
Counter reset	Disabled / Enabled
It allows you to enable the communication object "<Output Axx	xx> Counter Reset."	
Keep or override counter after download	Override / Keep
It defines whether to keep or overwrite the value on the object "<Output Axx	xx>"after the download	
Average power in ON state (Watt)	1 ÷ 65535
It indicates the (assumed) average value of absorbed power.	
Datapoint type	Wh/kWh
It allows you to choose the unit of measurement of energy sent to the object "<Output Axx	xx> Counter."	
Ciclyc send of counter	No cyclic send
	1, 2, 5, 10, 30 minutes
	1, 2 hours
It defines the cyclical sending time interval of the object "<Output Axx	xx> Counter ".	

9.   Relay with interlock

Communication object involved:

<Output B1> Command	1 Bit	CW
Use these 1-Bit commands to activate / deactivate the individual relay output		

<Output B1> Status	1 Byte	CW
Objects for sending relay output states.		

<Output B1> Command value	1 Byte	CW
Use these 1 byte commands to set the relay index to be activated: 1 = active relay first of the interlocking group 2 = active according to relay of the interlocking group 0 = deactivates all the relays of the group		

<Output B1> Value status	1 Byte	CW
Object for sending the group status of the interlocked outputs: 1 = first relay of the interlocking group active 2 = second relay of the interlocking group active 0 = all relays of the group deactivated		

The INTERLOCK function allows the use of relays in interlocked mode, so that it is possible to activate one relay at a time (or none). The interlock relay is usually send to interface other sub-systems (alarm, audio, entertainment, etc.) through the clean contact outputs of the relays.

Main parameters for the management of the interlocked relays:

KNX PARAMETER	SETTINGS
Contact type	Normally open
	Normally closed
The parameter is unique for the whole interlock relay group, if you choose "Normally closed" all the relays of the group will be closed except for the one that is activated that can remain open. If you choose "Normally open" all the relays of the group will be open except for the one that is activated that can remain closed.	
Contact delay [s]	1 ÷ 16 seconds
It defines the time of inhibition between the deactivation of a relay and the activation of another relay.	
Interlock activation telegram	Telegram 0
	Telegram 1
It defines the value of the 1-Bit relay activation telegram.	
Lock sources	Do not use lock object
	Enable local lock object
	Enable global lock object
	Enable local and global lock object
WARNING: this parameter refers to the management of Global objects. (par. 13).	
Do not use lock object Lock function is not used. **Enable local lock object** The block function is activated / deactivated only via the <Output Axx | object xx> Lock. **Enable global lock object** The block function is only activated / deactivated via the object the <Global All> Lock object. **Enable local and global lock object** The block function is activated / deactivated via the local object Lock or the <Global All> Lock object.	
In the page dedicated to the block function for the group of interlocked relays it is possible to set the behavior of the group in case of activation and deactivation of the block, after download, etc.	

10. Digital inputs

In Digital input mode each input can be configured to perform one of the following functions available in the drop-down menu on the corresponding page:

- Nothing (inactive and therefore ignored even if connected and receiving signals);
- Activation on closing contact;
- Activation on closing/opening contact;
- Activation on short and long contact closure;
- Dimming;
- Shutters and blinds;
- Scene;
- Commands sequences (short and long contact closure);
- Commands sequences (toggle);
- Commands sequences (1 bBt);
- Set RGB colour;
- MUR/DND (make room/do not disturb);
- Loop among values (1 Byte).

The setting is performed separately for each input from the page ETS Digital Inputs, by clicking on the corresponding name.

Each mode has a specific ETS page, as described below.

For each input in the respective ETS page it is possible, by typing it in the Input name box, to assign a name to the input itself, which can mnemonically facilitate th identification in the building (for example "entrance light button"). This box is present for all the modes associated with the digital inputs.

10.1. Object enable / disable

The communication object "enable/disable" is used to activate/ deactivate the reading of the input.

<div align="center">

"<Input x> Enable Input"   1 Bit   CW

</div>

Regardless of the function chosen, the relevant ETS page makes the Object enable/disable parameter available for each input; the setting allows activation of the object <Input x> Enable Input, 1 Bit, which allows enabling of the selected input within the scene.

KNX PARAMETER	SETTINGS
Object enable / disable	Disable / Enable
If enabled, this parameter makes available in the ETS page, below it, the items Initial enable state and Enable activation telegram. **Initial enable state** **Disabled** = after the configuration download, the initial status is "disabled" **Enabled** = after the configuration download, the initial status is "enabled" **Enable activation telegram** **Telegram "0"** = activation occurs at telegram "0" **Telegram "0"** = activation occurs at telegram "1"	

KNX PARAMETER	SETTINGS
Input type	Normally open
	Normally close

It defines how the device will manage the condition of the associated digital input.

Normally open

The input will be evaluated active on closing contact.

Normally close

The input will be evaluated active on opening contact.

Based on the function chosen for the input, additional items will appear under Input type which are:

- Alarm telegram
- Cyclical alarm sending

The following table applies to the Alarm telegram parameter.

KNX PARAMETER	SETTINGS
Alarm telegram	Telegram "0" / Telegram "1"

It is used to manage an alarm telegram in the event of an anomaly (line cut, cable interrupted) in the state of the input.

Telegram "0"

The occurrence of the anomaly will result in the sending of a telegram of value 0.

Telegram "1"

The occurrence of the anomaly will result in the sending of a telegram of value 1.

KNX PARAMETER	SETTINGS
Alarm cyclical sending	No cyclic sending
	1 minute – 12 hours

If active, it is used to send a status telegram cyclically, which can be "alarm" or "no alarm", according to the set periodicity.

No cyclic sending

It disables the cyclic sending function.

Cyclical sending

It determines the periodic sending of the telegram after:
1 minute
2 minutes
5 minutes
10 minutes
15 minutes
30 minutes
45 minutes
1 hour
2 hours
3 hours
4 hours
5 hours
6 hours
8 hours
12 hours

10.2. Activation on closing contact

Communication objects involved:

"<Intput x> Closure Action"	1 Byte	CRT
"<Intput x> Opening Action"	1 Byte	CRT
"<Intput x> Closure Action"	1 Bit	RWCT
"<Intput x> Opening Action"	1 Bit	RWCT
"<Intput x> Feedback"	1 Bit	CW

It is used to configure the sending of telegrams when the input is closed; the device can also be configured to send periodic messages with repeat.

In the box Input name it is possible to assign a name that will identify the input to the system: for example "input light button". This box is present for all the modes associated with the digital inputs.

KNX PARAMETER	SETTINGS
Contact type	Normally open
	Normally closed

It defines how the device will interpret the condition of the digital input.

Normally open

The input will be considered active if it is closed.

Normally closed

The input will be considered active if it is opened.

KNX PARAMETER	SETTINGS
Debounce time for inputs	0, 20, 40, 80, 100, 150, 200, 600, 1000 ms

For each digital input this function is used to avoid false switching, ignoring, after the first activation, for a period of time.

The telegram transmitted as a consequence of the activation of the input, is set with the associated **Telegram option**, according to the following table.

KNX PARAMETER	SETTINGS
Enable activation telegram	Telegram "0" / Telegram "1"

It defines which telegram value enables the activation telegram.

KNX PARAMETER	SETTINGS
Telegram associated	1 Bit
	1 Byte

1 Bit

The logic state 0 or 1 is transmitted.

1 Byte

1 Byte is transmitted containing the value that can be selected from the drop-down menu that appears under this option when it is selected, i.e.:

- Value 0÷255 (unsigned generic int)
- Value 0÷100% (percentage in steps of 5%)
- HVAC mode (DPT_HVACMode 20.102)

Note that for each item in the drop-down menu, the ETS page appears under a new setting which is Command associated with opening if the input is set as normally closed and Command associated with closure if the input is set as normally open. In all cases, the drop-down menu offers alternatives related to the setting made in the associated Telegram, according to the following table.

KNX PARAMETER	SETTINGS
Command associated with opening	
Command associated with closure	
Value 0 ÷ 255%	0 ÷ 255%
Value 0 ÷ 100%	0 ÷ 100%
Modalità HVAC	Auto
	Comfort
	Standby
	Economy
	Protecion (Antifreeze / High temperature)

From the ETS page it is possible, with the setting Command associated with closure, to define the action that the activation of the corresponding input determines.

KNX PARAMETER	SETTINGS
Command associated with closure/opening	OFF
	ON
	Toggle

The parameter is "Command associated with closure" if the input is set as "normally open" and becomes "Command associated with opening" if the input is instead set as "normally closed".

ON
It sends an activation telegram.

OFF
It sends a deactivation telegram.

Toggle
It sends a telegram that orders the inversion of the associated user's state

Choosing option toggle, in the ETS page it is possible to set parameter Feedback object, as described in the following table

KNX PARAMETER	SETTINGS
Feedback object	Disabled
	Enabled

If enabled, this parameter displays an additional communication object (<Input x> Feedback) which determines the sending, by the actuator receiving the command, of a feedback telegram to check whether the requested operation has been carried out or not. The telegram transmits the state of the actuator.

It is also possible to assign the cyclic (periodic) sending of telegrams to the digital inputs when they are active; as long as the input remains active, the telegram, with size and value selected on the same ETS page, is sent cyclically. The parameter setting defines the time interval between two consecutive submissions. The possible values are subject to the choice of the "short" or "long" option for the setting **Long** or **Short cyclic times**, according to the following table.

KNX PARAMETER	SETTINGS	
	LONG OR SHORT CYCLIC TIMES	
	SHORT	**LONG**
Cyclic sending when contact closed/opened	Never 0.3 s. 0.4 s. 0.5 s. 0.8 s. 1.0 s. 1.2 s. 1.5 s. 2.0 s. 3.0 s. 5.0 s. 8.0 s. 10 s.	Never 30 seconds 45 seconds 1 minutes 2 minutes 3 minutes 4 minutes 5 minutes 10 minutes 15 minutes 30 minutes 45 minutes 60 minutes 4 hours 12 hours 24 hours

The parameter shown on the ETS page is Cyclic sending when contact closed if Type of contact is "normally open" and **Cyclic sending when contact opened** if Type of contact is set as "normally closed".

10.3. Activation on closing/opening contact

Communication objects involved:

"<Intput x> Closure - Opening Action"	1 Byte	CRT
"<Intput x> Opening Action"	1 Byte	CRT
"<Intput x> Closure Action"	1 Byte	CRT
"<Intput x> Opening Action"	1 Byte	CRT
"<Intput x> Feedback"	1 Bit	CW
"<Intput x> Closure Action"	1 Bit	RWCT
"<Intput x> Opening Action"	1 Bit	RWCT
"<Intput x> Feedback"	1 Bit	CW

It is used to configure the sending of telegrams when the input is active, on both "open" and "closed" conditions and therefore following changes in state.

The parameters are identical to the choice "**Activation on closing contact**"; "Contact type" is missing and the "**Command associated with closure**" and "**Command associated with opening**" settings are simultaneously present because activation will occur following the occurrence of both conditions. For the settings, what has already been explained applies.

The page also makes available the parameter Feedback object already explained in "**Activation on closing contact**" and parameter Communication object on opening described as follows.

| KNX PARAMETER	SETTINGS
Communication object on opening	Disabled
	Enabled
If enabled, this parameter allows to send closure and opening command with two different objects, respectively "<Input x> Closure Action" and "<Input x> Opening Action".	

10.4. Activation on short and long contact closure

Communication objects involved:

"<Intput x> Short Closure"	1 Byte	CRT
"<Intput x> Short Closure"	1 Bit	RWCT
"<Intput x> Short - Long Closure"	1 Byte	CRT
"<Intput x> Short - Long Closure"	1 Bit	RWCT
"<Intput x> Long Closure"	1 Byte	CRT
"<Intput x> Long Closure"	1 Bit	RWCT
"<Intput x> Feedback"	1 Bit	CW

With this input mode of operation, it is possible to differentiate the actions based on the activation duration of the input itself. The distinction between "**short closure**" and "**long closure**" is defined by the parameter Minimum time long closure, according to the following table.

KNX PARAMETER	SETTINGS
Minimum time long closure	0.3 s 0.4 s 0.5 s 0.8 s 1 s 1.2 s 1.5 s 2 s 3 s 5 s 8 s 10 s
The time set from the drop-down menu is the time after which the device believes that activation is to be considered long.	

It is possible to set the sending of telegrams with different values on the short and long print or to decide to send commands only on one of these events.
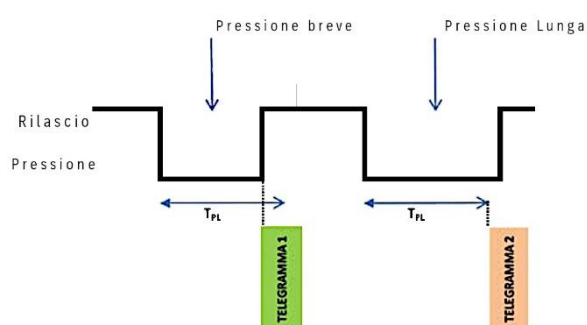
When the input is closed, the time count starts; if the input is opened before the time exceeds the time TPL, the device executes the command associated with the "**short closure**" event and if, instead, the timeout TPL expires and the input is still being closed, the command associated with the "**long closure**" event is executed.

The parameters and transmission modes of the telegrams that can be managed through the "**Command associated with short closure**" and "**Command associated with long closure**" settings are the same as those relating to the "**activation on closing/opening contact**" configuration except for the cyclical send function, which is not foreseen here.

10.5.   Dimming

Communication objects involved:

"<Intput x> Dimming On/Off"	1 Byte	RWCT
"<Intput x> Dimming Control"	1 Bit	CRT
"<Intput x> Feedback"	1 Byte	CW

With this mode of operation of the inputs it is possible to control adjustment of the light through a dimmer module using the short and long press of buttons connected to the input itself.

Each button uses 2 communication objects:

- **1-Bit objects** for ON/OFF commands associated with short pressing.
- **4-Bit objects** for brightness adjustment associated with long pressing.

The "**Minimum time long closure**" parameter is the same as explained for "**Activation on short and long contact closure**" and for it and for the setting "**Feedback object**" what has already been explained applies. Two further settings are available on the page. According to the table, set the minimum duration of the prolonged pressing. "**Dimming mode**" and "**Dimming step**" define the behaviour associated with the prolonged pressing.

KNX PARAMETER	SETTINGS
Dimming mode	Brighter
	Darker
	Brighter / Darker

Brighter

Each time the input is activated, the dimmer controls the increase in brightness according to the setting of **Dimming step**.

Darker

Each time the input is activated, the dimmer controls the decrease in brightness according to the setting of **Dimming step**.

Brighter / Darker

Each time the input is activated, the dimmer reverses the progression of brightness by one step or in full according to the parameter setting.

Dimming step	Minimum / Maximum brightness
	1/2 brighter / darker ÷ 1/64 brighter / darker

Minimum / Maximum brightness

It sets the progressive adjustment from minimum to maximum and vice-versa depending on whether "**Dimming mode**" is "brighter" or "darker".

1/2 brighter / darker ÷ 1/64 brighter / darker

It sets the precision of the variation, which will occur depending on whether "**Dimming mode**" is "brighter" or "darker".

EXAMPLE 1: SET THE DIMMER CONTROL SO THAT WHEN THE BUTTON IS PRESSED THE BRIGHTNESS GRADUALLY GOES FROM MINIMUM TO MAXIMUM.	
PARAMETER	**VALUE**
Dimming mode	Brighter
Dimming step	Minimum / Maximum brightness

EXAMPLE 2: SET THE DIMMER CONTROL SO THAT WHEN THE BUTTON IS PRESSED, THE BRIGHTNESS INCREASES BY 1/4.	
PARAMETER	**VALUE**
Dimming mode	Brighter
Dimming step	1/4 brighter / darker

10.6. Shutters and Blinds

Communication objects involved:

"<Intput x> Shutter - Up/Down"	1 Bit	RWCT
"<Intput x> Shutter - Step/Stop"	1 Bit	CRT
"<Intput x> Feedback"	1 Bit	CW

Through this function it is possible to control motorised roller shutters using the short and long press of the buttons. Each input uses 2 communication objects:

- **1-Bit STEP/STOP** objects associated with short pressing;
- **1-Bit UP/DOWN** objects associated with long pressing.

For the settings common to all the other input operating modes, what has already been explained applies. The following table applies to the Command drive shutter parameter.

KNX PARAMETER	SETTINGS
Command drive shutter	Move up
	Move down
	Move up / Move down

It defines the movement direction of the roller shutter associated with the prolonged closing of the input.

Move up

Each time the input is activated, the module commands the total opening of the roller shutter.

Move down

Each time the input is activated, the module commands the roller shutter to close.

Move up / Move down

Each time the input is activated, the module moves the roller shutter in the direction preceding the one performed following the last activation: if the previous closing of the input raised the roller shutter, further activation will lower it and vice-versa.

10.7. Scene

Communication objects involved:

"<Intput x> Recall/Learn Scene"	1 Byte	CRT
"<Intput x> Send Learn Scene Trigger"	1 Bit	WC

In this configuration page it is possible to set the button for the management of the scenarios: storage and execution of the scenarios.

These two behaviours (storage and execution) are performed through two different actions: short closing and long closing of the input.

Saving by long closing can be enabled through the parameter Minimum time long closure and the related drop-down menu common to the other modes that is used to set the minimum activation duration of the input to be considered as long closure (activation).

The following table applies to the scenario settings.

KNX PARAMETER	SETTINGS
Scene number	1 ÷ 64
This parameter sets the value of the scene to be stored/executed (one per channel). As the output devices (i.e. the actuators, etc.) can generally manage different scenes, each identified by a value (which varies from 0 to 63) it is crucial to set this parameter correctly so that it corresponds to the number set on the actuators.	
Store scene on long closure	Disabled / Enabled
If disabled, the long closure is ignored and no telegram is sent on the BUS; if enabled, when long closure occurs, a scene storage telegram is sent on the BUS.	
Object enable scene learning from BUS	Disabled / Enabled
If this parameter is enabled, there is a communication object (size = 1 bit) in order to enable / disable runtime from BUS the sending of the "**learn scene telegram**". When this object receives a telegram "1", the function associated with the long closure of the input (sending of telegram for scenario storage) is enabled, while when it receives a telegram "0" with prolonged closing no command is sent.	

10.8.   Commands Sequences

Communication objects involved:

"<Intput x> Sequence Command A 0-255"	1 Byte	CRT
"<Intput x> Sequence Command A 0-100%"	1 Byte	CRT
"<Intput x> Sequence Command A HVAC Mode"	1 Byte	CRT
"<Intput x> Sequence Command A Off/On"	1 Bit	CRT
"<Intput x> Sequence Command B 0-255"	1 Byte	CRT
"<Intput x> Sequence Command B 0-100%"	1 Byte	CRT
"<Intput x> Sequence Command B HVAC Mode"	1 Byte	CRT
"<Intput x> Sequence Command B Off/On"	1 Bit	CRT
"<Intput x> Sequence Command C 0-255"	1 Byte	CRT
"<Intput x> Sequence Command C 0-100%"	1 Byte	CRT
"<Intput x> Sequence Command C HVAC Mode"	1 Byte	CRT
"<Intput x> Sequence Command C Off/On"	1 Bit	CRT
"<Intput x> Sequence Command A 0-255 - Toggle"	1 Byte	CRT
"<Intput x> Sequence Command A 0-100% - Toggle"	1 Byte	CRT
"<Intput x> Sequence Command A HVAC Mode - Toggle"	1 Byte	CRT

"<Intput x> Sequence Command A Off/On - Toggle"	1 Bit	CRT
"<Intput x> Sequence Command B 0-255 - Toggle"	1 Byte	CRT
"<Intput x> Sequence Command B 0-100% - Toggle"	1 Byte	CRT
"<Intput x> Sequence Command B HVAC Mode - Toggle"	1 Byte	CRT
"<Intput x> Sequence Command B Off/On - Toggle"	1 Bit	CRT
"<Intput x> Sequence Command C 0-255 - Toggle"	1 Byte	CRT
"<Intput x> Sequence Command C 0-100% - Toggle"	1 Byte	CRT
"<Intput x> Sequence Command C HVAC Mode - Toggle"	1 Byte	CRT
"<Intput x> Sequence Command C Off/On - Toggle"	1 Bit	CRT

This function is used to associate sequences of different commands on the bus.

For each input, this function can be associated with the combination "**Short and long closure**" or with the "toggle" function. The sequence consists of 3 commands (A-B-C) which can each be sized as 1-Bit or 1-Byte. Once the size (1-Bit / 1-Bbyte) of elements in the sequence has been defined, it is possible to associate different values to each element of the sequence or to decide to send commands only on one of the two events. The waiting time between one command and the next is defined through parameter **Delay** between commands.

Each communication object can be linked to a different group address.

For example, it is possible to define a sequence as proposed in the following table.

Object	Dimension	Short closure (Switching 1)	Long closure (Switching 2)
A	1-Bit	ON (towards actuator)	OFF (towards actuator)
B	1-Byte	100% (toward dimmer)	0% (towards dimmer)
C	1-Byte	COMFORT (towards thermostat)	ECONOMY (towards thermostat)

10.9. Command Sequences (1-Bit)

Communication objects involved:

"<Intput x> Object A"	1 Bit	CRT
"<Intput x> Object B"	1 Bit	CRT
"<Intput x> Object C"	1 Bit	CRT

This function is used to send 1-Bit command sequences on multiple objects. The sequence can be defined on 2 or 3 objects. Each time the button connected to the input is pressed, the next step of the defined sequence is sent.

KNX PARAMETER	SETTINGS
Number of objects	2, 3

This parameter sets and defines the number of 1-Bit objects that will be visible and that will send the values 0 or 1 on the BUS.

KNX PARAMETER	SETTINGS
Number of steps in the sequence	2 ÷ 4 for 2 objects
	2 ÷ 8 for 3 objects

It indicates the number of steps that compose the sequence.

KNX PARAMETER	SETTINGS
Long closure to restart sequence	Disabled / Enabled

It is used to associate the restart of the sequence at step zero with the long closure of the input.

KNX PARAMETER	SETTINGS
Restart function	Restart and send first
	Send long step and restart

Restart and send first
The long press determines the sending of step 1.

Send long step and restart
The long press causes the next step to be sent and brings the sequence to the initial step.

KNX PARAMETER	SETTINGS
Value step long	<Different combinations of values of objects a, b, c>

It defines what happens when a long press is performed (it depends on the "Restart function" parameter)

KNX PARAMETER	SETTINGS
Send only changed objects	Disabled / Enabled

This parameter defines whether, in the passage from one step to the next, all the values associated with 1-Bit objects must always be sent or only those that change.

KNX PARAMETER	SETTINGS
Value step <x>	Combinations of ON and OFF on 2 or 3 1-Bit objects

It determines the combination associated with a step in the sequence using 2 or 3 1-Bit objects.

10.10. Set RGB colour

Communication objects involved:

"<Intput x> RGB"	3 Bytes	CRT
"<Intput x> Red"	1 Byte	CRT
"<Intput x> Green"	1 Byte	CRT
"<Intput x> Blue"	1 Byte	CRT

This function is used to briefly press the button connected to the corresponding input with a command on the BUS to set an RGB colour through an RGB driver for LED lighting.

KNX PARAMETER	SETTINGS
Set Value	red/orange / yellow / green-yellow / green / green-cyan / cyan blue cyan / blue / blue-magenta magenta / red-magenta / white
With this parameter it is possible to set the RGB colour.	

KNX PARAMETER	SETTINGS
Long closure to change color	Long closure disabled
	0.5 s / 1 s / 1.5 s / 2 s
With this parameter it is possible to enable a function associated with the long press that is used to change the colour associated with the short press. During the long press, a colour transition takes place which is sent on the BUS and upon release, the selected colour is stored; this means that from now on, every time a short press is performed, the new colour is sent on the BUS. When the device is turned OFF, the last selected colour is kept in memory.	

KNX PARAMETER	SETTINGS
Enable sending colors during transitions	Disabled / Enabled
With this parameter is possible to send all colour transitions during a long press so that each colour can be viewed on another device.	

KNX PARAMETER	SETTINGS
RGB objects type	3 objects of 1 byte
	1 object of 3 bytes
It defines whether the command is sent with a single 3-Byte object or with 3 1-Byte objects.	

10.11. MUR/DND

Communication object involved:

"<Intput x> Make Up Room"	1 Bit	RWCT
"<Intput x> Do not Disturb"	1 Bit	RWCT
"<Intput x> Additional Object RGB"	1 Byte	CRT

This function is used to configure an input to send 1-Bit commands with DND (do not disturb), MUR (make up room) or to restore both base signals. The action is set through the drop- down menu Associated command which is made available on the ETS page.

The choice of the "**Associated command**" parameter ("cmd" column of the following table) defines which values are sent on the 2 1-Bit objects.

KNX PARAMETER	SETTINGS
Condition of increase counter	Rising edge
	Falling edge
	Rising and falling edge
It is used to set at which event the counter will be triggered.	

Cdm	Action	DND	MUR	Note
MUR	Enable	0	1	Ogg. MUR sand "1"
				Ogg. DND sand "0"
MUR disab.		-	0	Ogg. MUR sand "0"
MUR	Toggle	MUR enable/disable. In sequence.		
DND	Enable	1	0	Ogg. MUR sand "0"
				Ogg. DND sand "1"
DND	Disable	0	-	Ogg. DND sand "0"
DND	Toggle	DND enable/disable. In sequence.		
Loop		0	1	Loop in sequence between these 3 sets of values.
1		0		
0		0		

The setting Reset all (default) sends a reset command to the related actuators.

The parameter is also available on the ETS page **Additional object,** which is used to associate a colour to each of the 3 states (active DND, active MUR, inactive MUR and DND). This colour is sent on the BUS, using a 3-Byte DPT 232.600 RGB value 3x object (0...255), and will be reproduced by RGB lighting bodies associated with the device.

The following table summarizes the parameter setting.

KNX PARAMETER	SETTINGS
Additional object	None
	RGB

None does not activate any additional objects, while clicking on **RGB,** the setting appears on the page **Colour associated with…** in whose box it is possible to write the hexadecimal equivalent of the colour to be associated with the action, for which the additional object has been enabled (MUR, DND, loop), or to select the colour from the palette, that appears by clicking on the button, with the four coloured squares. The setting Colour associated with "reset all" is also made available where, in the same way as those just described, the colour of the light displayed following the reset command is set.

10.12. Loop among values

Communication object involved:

"<Intput x> Loop Value Output"   1 Byte   CRT

This object is dedicated to sending the step-by-step sequence.

"<Intput x> Loop Value Feedback"   1 Byte   CW

This object is made to receive a value from the BUS; if it corresponds to a value set in the sequence, it takes it to the corresponding step.

"<Intput x> Enable Input"   3 Bit   CW

This behavior stems from the fact that if the fan- coil's internal connections is set, the thermostat module associated with the Temperature 1 Function is reserved for the "internal" Fan coil management.

With this function it is possible to configure an input to send a 1-Byte value in sequence.

KNX PARAMETER	SETTINGS
Active edge	Send on closing
	Send on opening
It defines whether to enable the input on closing or opening.	

KNX PARAMETER	SETTINGS
Number of values	3, 4, 5, 6, 7, 8, 9
It defines the number of values sent.	

KNX PARAMETER	SETTINGS
Value A… I	0… 255
Each time the input is activated (according to the "active front" setting), a value is sent following the order set in ETS: from the first (A) to the last (I).	

11. Logic

Logic functions are organized in groups of three objects: two inputs and one output, except the one called "logical expression" which will be described later. The logic scheme is as follows:

Inputs

The input data type can be bit, byte, float, etc. based on the chosen logic.

IN1 is always present. IN2 may be not present.

Delay

The logic output can be delayed according to the ETS parameter, if a new value is received, the output is overwritten and the delay is reset.

Retransmission

The delayed output can be retransmitted n times according to the ETS parameters.

Logic

Each logic block can be configured to perform one of the following functions available in the drop-down menu on the corresponding page:

- Disabled (no logic function);
- Bit no transfer function;
- Byte no transfer function;
- NOT, AND, OR, NAND, NOR, XOR, XNOR;
- Bit to byte conversion;
- Byte to bit conversion;
- Byte threshold;
- 2-Bytes float threshold;
- 4-Bytes float threshold;
- Proportional fancoil;
- Proportional / speed fancoil conversion;
- Dew point humidistat;
- Surveillance;
- Constant illuminance;
- Expression

The setting is performed separately for each logic from the ETS "Logics" page, by clicking on the corresponding name.

11.1. Bit and Byte no transfer functions

Communication object involved:

"<Logic x> Output"	1 Bit / 1 Byte	CRT
"<Logic x> Input"	1 Bit / 1 Byte	CW

KNX PARAMETER	SETTINGS
Logic name	
This parameter defines the name of the module; the name can be used to rapidly identify the functionality.	

KNX PARAMETER	SETTINGS
Logic delay	0, 100, 200, 500 ms
	1, 2, 5, 10, 20, 30 s
	1, 5, 10, 15, 30 min, 1 h
This parameter defines the delay to send output on the BUS after calculation.	

KNX PARAMETER	SETTINGS
Number of transmissions on output	1, 2, 3, 4, 5, 10, 15, 20, 30, 60
This parameter defines the number of Output transmissions on the BUS.	

KNX PARAMETER	SETTINGS
Retransmission time	Long / Short
This parameter defines the size of the delay between retransmissions: • **Short**: from 250 ms to 1 min • **Long**: from 1 minutes to 24 hours	

KNX PARAMETER	SETTINGS
Retransmission delay	250 ms... 24h
This parameter defines the time interval to send the Output object cyclically on the BUS.	

11.2. NOT-AND-OR-NAND-NOR-XOR-XNOR

Communication object involved:

"<Logic x> Output"	1 Bit	CRT
"<Logic x> Input A"	1 Bit	CW
"<Logic x> Input B"	1 Bit	CW

The logic gates perform the Logicl conjunction between the two inputs.

The ETS parameters are the same as the logic function de- scribed above.

11.3. Bit to Byte conversion

Communication object involved:

"<Logic x> Output"	1 Byte	CRT
"<Logic x> Input"	1 Bit	CW

The ETS parameters are the same as the transfer Bits and Bytes function to which are added:

KNX PARAMETER	SETTINGS
Value sent when 0 is received	0… 255
This parameter defines the name of the module; the name can be used to quickly identify functionality.	

KNX PARAMETER	SETTINGS
Value sent when 1 is received	0… 255
This parameter defines the delay to send the Output on the BUS after the calculation.	

11.4. Conversion from Byte to Bit

Communication object involved:

"<Logic x> Output"	1 Bit	CRT
"<Logic x> Input"	1 Byte	CW

The ETS parameters are the same as the transfer Bits and Bytes function to which are added:

KNX PARAMETER	SETTINGS
Byte value	0… 255
This parameter defines the value to be considered for conversion	

KNX PARAMETER	SETTINGS
Output bit when byte is received	0… 255
This parameter defines the value to be sent on object "<Logic xx> Output" when the value received on the object "<Logic xx> Input" corresponds to the one set by parameter "Byte value".	

KNX PARAMETER	SETTINGS
Output bit otherwise	0… 255
This parameter defines the value to be sent on object "<Logic xx> Output" when the value received on the object "<Logic xx> Input" does not correspond to the one set by parameter "Byte value".	

11.5. Threshold for Byte / 2-Bytes float / 4-Bytes float

Communication object involved:

"<Logic x> Output"	1 Bit	CRT
"<Logic x> Input"	1 Bit / 2 Bytes / 4 Bytes	CW

The ETS parameters are the same as the transfer Bits and Bytes function to which are added:

KNX PARAMETER	SETTINGS
Threshold value	0… 255
This parameter defines the value of the threshold of the logic.	

KNX PARAMETER	SETTINGS
Output bit when input > threshold	None
	0
	1
This parameter defines the value to be sent on object "<Logic xx> Output" when the value received on the object "<Logic xx> Input" is higher than the one set by parameter "Threshold value".	

KNX PARAMETER	SETTINGS
Output bit when input ≤ threshold	None
	0
	1
This parameter defines the value to be sent on object "<Logic xx> Output" when the value received on the object "<Logic xx> Input" is lower or equal to the one set by parameter "Threshold value".	

11.6. Proportional fancoil

Communication object involved:

"<Logic x> Input Temperature"	2 Bytes	CW
"<Logic x> Input Setpoint"	2 Bytes	CW
"<Logic x> Input HVAC"	1 Byte	CW
"<Logic x> Input Heat / Cool"	1 Bit	CW
"<Logic x> Output Valve %"	1 Byte	CRT
"<Logic x> Output Heat Valve %"	1 Byte	CRT
"<Logic x> Output Cool Valve %"	1 Byte	CRT

KNX PARAMETER	SETTINGS
Logic name	
This parameter defines the name of the module; the name can be used to rapidly identify the functionality.	

Logic delay	0, 100, 200, 500 ms
	1, 2, 5, 10, 20, 30 s
	1, 5, 10, 15, 30 min, 1 h
This parameter defines the delay to send output on the BUS after calculation.	

Control mode	Setpoint
	HVAC mode

This parameter defines the mode of the control:
- **Setpoint**: set value of the setpoint through object
- **HVAC mode**: set value of the setpoint through object HVAC

Dead band [0.1°C]	0… 255

This parameter defines the value of the dead band around the setpoint.

The limits of the dead band are:
- Difference of setpoint and half of the dead band
- Sum of setpoint and half of the dead band

If the value of the object "<Logic xx> Input Temperature" is included between the limits, the output value is 0%.

Proportional band [Bp] [0.1°C]	0… 255

This parameter defines the value of the proportional band.

In heating control, the limits of the band are:
- Difference of setpoint and half of the dead band
- Difference of setpoint, half of the dead band and proportional band

In cooling control, the limits of the band are:
- Sum of setpoint and half of the dead band
- Sum of setpoint, half of the dead band and proportional band

If the value of the object "<Logic xx> Input Temperature" is included between the limits, a percentage control from 0% to 100% is set on output object.

Control type	Proportional
	Integral

This parameter defines the type of the control:
- **Proportional**: only proportional contribution to output value
- **Integral**: proportional and integral contribution to output value

Integration time [min] [Ti]	5... 250

This parameter defines the time to consider for integral contribution to output.

System type	2 pipes
	4 pipes

This parameter defines the number of output valves:
- **2 pipes**: only 1 valve for heating and cooling mode
- **4 pipes**: 2 different valves for heating and cooling mode

11.6.1. Setpoint mode

KNX PARAMETER	SETTINGS
Heat/Cool object after download	0 = Cooling
	1 = Heating

This parameter defines the value of object "<Logic xx> Input Heat/Cool" after a download.

Setpoint after download [°C]	-300... 300

This parameter defines the value of the setpoint after a download.

11.6.2. HVAC mode

KNX PARAMETER	SETTINGS
HVAC object after download	Comfort
	Standby
	Economy
	OFF (Frost / High temperature protection)

This parameter defines the value of object "<Logic xx> Input HVAC" after a download.

Heat/Cool object after download	0 = Cooling
	1 = Heating

This parameter defines the value of object "<Logic xx> Input Heat/Cool" after a download.

Heating

KNX PARAMETER	SETTINGS
Setpoint frost protection [°C]	-300... 300
This parameter defines the protection-mode-setpoint-value for the Heating / Cooling mode.	

KNX PARAMETER	SETTINGS
Setpoint economy heating [°C]	-300... 300
This parameter defines the value of the setpoint in economy mode for Heating mode.	

KNX PARAMETER	SETTINGS
Setpoint standby heating [°C]	-300... 300
This parameter defines the value of the setpoint in standby mode for Heating mode.	

KNX PARAMETER	SETTINGS
Setpoint comfort heating [°C]	-300... 300
This parameter defines the value of the setpoint in comfort mode for Heating mode.	

Cooling

The same parameters apply as in the heating mode for cooling.

11.7. Proportional / Speed fan coil converion

Communication objects involved:

"<Logic x> Output Value %"	1 Byte	CRT
"<Logic x> Input Speed 1"	1 Bit	CW
"<Logic x> Input Speed 2"	1 Bit	CW
"<Logic x> Input Speed 3"	1 Bit	CW
"<Logic x> Input Value %"	1 Byte	CW
"<Logic x> Output Speed 1"	1 Bit	CRT
"<Logic x> Output Speed 2"	1 Bit	CRT
"<Logic x> Output Speed 3"	1 Bit	CRT
"<Logic x> Input Enable / Disable"	1 Bit	CW

KNX PARAMETER	SETTINGS
Logic name	
This parameter defines the name of the module; the name can be used to rapidly identify the functionality.	

KNX PARAMETER	SETTINGS
Logic delay	0, 100, 200, 500 ms
	1, 2, 5, 10, 20, 30 s,
	1, 5, 10, 15, 30 min, 1 h
This parameter defines the delay to send output on the BUS after calculation.	

Proportional conversion	Bit to proportional
	Proportional to Bit

This parameter defines the conversion done by the module:
- From Bit to Byte
- From Byte to Bit

Initial enable state	Disabled / Enabled

Set this parameter to "enabled" to activate logic after a download.

Enable activation telegram	Telegram "o"
	Telegram "1"

This parameter defines the telegram value to enable activation of the logic function.

Lower limit value	0… 255

This parameter defines the threshold value for change between "no speed" and speed 1.

Limit value speed 1/2	0… 255

This parameter defines the threshold value for change between speed 1 and speed 2.

Limit value speed 2/3	0… 255

This parameter defines the threshold value for change between speed 2 and speed 3.

Limit value speed 1	0… 255

This parameter defines the Output value when Speed 1 is activated.

Limit value speed 2	0… 255

This parameter defines the Output value when Speed 2 is activated.

Limit value speed 3	0… 255

This parameter defines the Output value when Speed 3 is activated.

11.8. Dew point humidistat

Communication objects involved:

"< Logic x> Input Temperature"	2 Bytes	CW
"< Logic x> Input Relative Humidity"	2 Bytes	CW
"< Logic x> Input Regulation Temperature"	2 Bytes	CW
"< Logic x> Output Dew Point Temperature"	2 Bytes	CRT
"< Logic x> Output Command"	1 Bit	CRT
"< Logic x> Output Value %"	1 Byte	CRT

KNX PARAMETER	SETTINGS
Logic name	
This parameter defines the name of the module; the name can be used to rapidly identify the functionality.	

KNX PARAMETER	SETTINGS
Logic delay	0, 100, 200, 500 ms
	1, 2, 5, 10, 20, 30 s,
	1, 5, 10, 15, 30 min, 1 h
This parameter defines the delay to send output on the BUS after calculation.	

KNX PARAMETER	SETTINGS
Bandgap [0.1°C]	-128... 127
This parameter defines the offset to be added to the dew point temperature for the algorithm controls.	

KNX PARAMETER	SETTINGS
Altitude (tens of meters above sea level)	0… 255
This parameter defines the altitude of the system.	

KNX PARAMETER	SETTINGS
Output type	ON / OFF
	Value 0 – 100%
This parameter defines if the output object is 1 bit OFF/ON or 1-Byte 0-100%.	

Proportional band [Bp] [0.1°C]	0… 255

This parameter defines the value of the proportional band.

In heating control, the limits of the band are:

- Difference of setpoint and half of the dead band
- Difference of setpoint, half of the dead band and proportional band

In cooling control, the limits of the band are:

- Sum of setpoint and half of the dead band
- Sum of setpoint, half of the dead band and proportional band

If the value of the object "<Logic xx> Input Temperature" is included between the limits, a percentage control from 0% to 100% is set on output object.

Inverted control	No / Yes

This parameter allows to invert the limit values of the proportional band (OFF-ON or ON-OFF if output 1-Bit / 0%-100% or 100%-0% if output 1-Byte).

11.9. Surveillance

Communicaton objects involved:

"<Logic x> Input Surveillance"	1 Bit... 4 Bytes	CW
"<Logic x> Input Status"	1 Bit... 4 Bytes	CW
"<Logic x> Input Reset"	1 Bit	CW
"<Logic x> Output Alarm"	1 Bit	CRT

KNX PARAMETER	SETTINGS
Logic name	

This parameter defines the name of the module; the name can be used to rapidly identify the functionality.

Logic delay	0, 100, 200, 500 ms
	1, 2, 5, 10, 20, 30 s,
	1, 5, 10, 15, 30 min, 1 h

This parameter defines the delay to send output on the BUS after calculation.

Surveillance time [min]	1… 255

It defines the time (in minutes) of the surveillance control before activating the alarm.

DPT Surveillance/status	1 Bit
	1 Byte signed
	1 Byte unsigned
	2 Bytes signed
	2 Bytes unsigned
	2 Bytes float
	4 Bytes signed
	4 Bytes unsigned
	4 Bytes float

This parameter defines the DPT of the surveillance object.

The telegram can be:

1-Bit
1-Byte (signed, unsigned)
2-Byte (signed, unsigned, float)
4-Byte (signed, unsigned, float)

Status control	Any value
	Fixed value
	Last surveillance value

This parameter defines the condition to match for object "<Logic xx>Input Status" to restart the surveillance time. Control can be:

- **Any value**: it considers any value of the object to restart time
- **Fixed value**: it sets a value for the object to restart the time
- **Last surveillance value**: it matches the value of object "<Logic xx> Input Surveillance" to restart the time

Status value	0… 255

This parameter defines the value of object "<Logic xx> Input Status" to restart the surveillance time.

Status also clears alarm	No / Yes

This parameter defines if object "<Logic xx> Input Status" clears active alarm.

Alarm telegram	Telegram "0"
	Telegram "1"

This parameter defines the telegram of object "<Logic xx> Output Alarm" when alarm is active.

Alarm cyclic sending	Nothing
	1, 2, 5, 10, 30 min
	1, 2 hours

This parameter defines the time interval to send cyclically on the BUS the object "<Logic xx> Output Alarm".

Reset telegram	Telegram "0"
	Telegram "1"

This parameter defines the telegram to reset alarm through object "<Logic xx> Input Reset".

11.10. Costant lighting

Communication objects involved:

"<Logic x> Command for Semiautomatic"	1 Bit	CW
"<Logic x> Command for Presence"	1 Bit	CW
"<Logic x> Illuminance Measured"	2 Bytes	CW
"<Logic x> Illuminance Setpoint"	2 Bytes	CW
"<Logic x> Output Brightness"	1 Byte	CRT

KNX PARAMETER	SETTINGS
Logic name	
This parameter defines the name of the module; the name can be used to rapidly identify the functionality.	

Logic delay	0, 100, 200, 500 ms
	1, 2, 5, 10, 20, 30 s,
	1, 5, 10, 15, 30 min, 1 h
This parameter defines the delay to send output on the BUS after calculation.	

Algorithm type	Constant illuminance, presence depending
	Constant illuminance, presence depending, semi-automatic
This parameter defines the algorithm to be applied. If semi-automatic, control can be activated by object "<Logic xx> Command for Semi-Automatic".	

Manual command activation telegram	Telegram "0"
	Telegram "1"
This parameter defines which telegram activates manual command.	

FOLLOW-UP TIME	
Hours	0… 24
This parameter defines the time (in hours) for follow-up. The follow-up time defines how long, after the detection of a presence, the "presence" status is valid even if presence is not detected anymore. At the end of the follow-up time, the new status is "absence".	

| **Minutes** | 0… 59 |
| This parameter defines the time (in minutes) for follow-up. The follow-up time defines how long, after the detection of a presence, the "presence" status is valid even if presence is not detected anymore. At the end of the follow-up time, the new status is "absence". | |

Standby function	Disabled / Enabled
Set this parameter to "enabled" to activate the standby function.	

STANDBY TIME	
Hours	0… 24
This parameter defines the time (in hours) for standby that can be considered between the status of "presence" and "absence". The standby time defines how long, after the end of the follow-up time, the "presence" status is kept active before entering the "absence" status. It is generally applied to control the lights with reduced brightness to avoid the area to be completely in the dark. At the end of the standby time, the new status is "absence".	

| **Minutes** | 0… 59 |
| This parameter defines the time (in minutes) for standby that can be considered between the status of "presence" and "absence". The standby time defines how long, after the end of the follow-up time, the "presence" status is kept active before entering the "absence" status. It is generally applied to control the lights with reduced brightness to avoid the area to be completely in the dark. At the end of the standby time, the new status is "absence". | |

Standby value	0… 100 %
This parameter defines the value set for object "<Logic xx> Output Brightness" when the status is "standby".	

Setpoint after download [* 10 Lux]	0… 255
This parameter defines the value set for object "<Logic xx> Illuminance Setpoint" after a download.	

Speed regulation	Very fast
	Fast
	Normal
	Slow
	Very Slow
This parameter defines the speed for the algorithm to react to changes of illuminance level. The "very fast" configuration can lead to very frequent switching on/off of the light while the "very slow" configuration can introduce delays in the switching on/off of the light.	

Minimum output telegram delay	2, 3, 4, 5, 8, 10, 15, 20 s
This parameter defines the minimum time that must elapse between sending of a telegram on object "<Logic xx> Output Brightness" and the next one.	

Initial brightness on presence	0… 100%
This parameter defines the initial value set for object "<Logic xx> Out- put Brightness" when the status is "presence".	

Send initial brightness when over setpoint	No / Yes
This parameter defines if the brightness control is activated for "presence" status even if the value of object "<Logic xx> Illuminance Measured" is higher than the value of object "<Logic xx> Illuminance Setpoint".	

Absence value	0… 100%
This parameter defines the value to be sent for "absence" status.	

Minimum value	0… 50%
This parameter defines the minimum value that can be set for object "<Logic xx> Output Brightness".	

Maximum value	0… 100%
This parameter defines the maximum value that can be set for object "<Logic xx> Output Brightness".	

| Cyclic sending for brightness	No cyclic sending
	1, 2, 3, 4, 5, 10, 15, 20, 30, 45 min
	1, 1.30, 2, 3, 4 h
This parameter defines the time interval to send cyclically on the BUS the object "<Logic xx> Output Brightness".	

11.11. Expression

WARNING: the logic expression can contain a maximum of 24 characters!

Communication objects involved:

"<Logic x> Output"	1 Bit... 4 Bytes	CRT
"<Logic x> Input A"	1 Bit... 4 Bytes	CW
"<Logic x> Input B"	1 Bit... 4 Bytes	CW
"<Logic x> Input C"	1 Bit... 4 Bytes	CW
"<Logic x> Input D"	1 Bit... 4 Bytes	CRT

Logic expression can be used to implement custom logic and arithmetic operation between values received on the KNX bus. The logic expression has 5 objects: 4 inputs and 1 output. The scheme of logic expression is as follows:
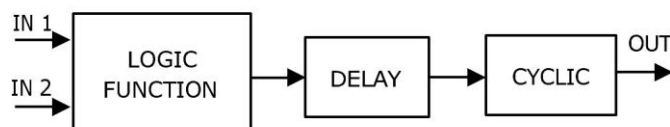
Configurable through an ETS parameter of 24 (maximum) character string. The output of the logic is the arithmetic evaluation of this expression.

Inputs objects can be accessed through their letters (A, B, C, D), the result is sent to the delay block.

PERMITTED OPERANDS	
"+"	Arithmetic sum
"-"	Arithmetic subtraction
"*"	Arithmetic multiplication
"/"	Arithmetic division
"&"	Logic AND
"|"	Logic OR
"^"	Logic XOR
"!"	Logic NOT
"<"	Greater than
">"	Less than
"="	Equal to
"?" ":"	Ternary conditional
"(" and ")"	Grouping operands

TERNARY CONDITIONAL:

<condition> ? <expression1> : <expression2>

Where:

- Condition is the expression to be evaluated
- Expression1 is evaluated when condition is TRUE
- Expression2 is evaluated when condition is FALSE
- Expression1 or Expression2 can be "N" when "no expression has to be evaluated"

Expressions example:

- "(A+B+C)/3" calculate the mean of the A, B, C objects.
- "A*9/5+32" converts object A Celsius degree to Fahrenheit degrees.
- "A*1000" convert object A KW to W
- "A*3.6" convert object A m/s to Km/h

Quotation marks must not be included in expressions. If wrong or unrecognized characters are used in the expression then this will be not processed and will be discarded.

KNX PARAMETER	SETTINGS
Logic name	
This parameter defines the name of the module; the name can be used to rapidly identify the functionality.	

KNX PARAMETER	SETTINGS
Logic delay	0, 100, 200, 500 ms
	1, 2, 5, 10, 20, 30 s,
	1, 5, 10, 15, 30 min, 1 h
This parameter defines the delay to send output on the BUS after calculation.	

KNX PARAMETER	SETTINGS
Number of transmissions on output	1, 2, 3, 4, 5, 10, 15, 20, 30, 60
This parameter defines the number of Output transmissions on the BUS.	

KNX PARAMETER	SETTINGS
Retransmission time	Short / Long
This parameter defines the size of the delay between retransmissions: • **Short**: 250 ms to 1 min • **Long**: from 1 minute to 24 hours	

KNX PARAMETER	SETTINGS
DPT Output	1 Bit
	1 Byte signed
	1 Byte unsigned
	2 Bytes signed
	2 Bytes unsigned
	2 Bytes float
	4 Bytes signed
	4 Bytes unsigned
	4 Bytes float
This parameter defines the DPT of the output. The telegram can be: • 1 Bit • 1 Byte (signed, unsigned) • 2 Byte (signed, unsigned, float) • 4 Byte (signed, unsigned, floa)	

KNX PARAMETER	SETTINGS
DPT Input A / B / C / D	1 Bit
	1 Byte signed
	1 Byte unsigned
	2 Bytes signed
	2 Bytes unsigned
	2 Bytes float
	4 Bytes signed
	4 Bytes unsigned
	4 Bytes float
This parameter defines the DPT of "Input A". The telegram can be: • 1 Bit • 1 Byte (signed unsigned) • 2 Byte (signed, unsigned, float) • 4 Byte (signed, unsigned, float)	

KNX PARAMETER	SETTINGS
Trigger on Input A / B / C / D	Trigger / No trigger

This parameter defines if when a value is received on the object "Input A", the calculated value for the output is sent on the bus or not.

12. Virtual holder

WARNING: if the "Virtual holder" function is activated, the logic functions from 1 to 4 are not available!

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, if suitably configured, allow you to determin if 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 recog- nized 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.

12.1. Communication objects

Communication objects involved:

<VH> Room Booked	1 Bit	CW

By setting this Communication Object to "1" the status of the Virtual Holder is set to "Room booked". When the Communication Object's status is set to "0" the Virtual Holder is set to "Room not booked".

The Virtual Holder module can have different behaviour if the room is booked or not; the default value for this status can be set using the "Booked status after download" paramenter.

<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 Communication Objects can be used to communicate to the Virtual Holder module who is entering the room. This can be achieved by using a KNX Access Control Reader 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 Communication Objects can be used to send information about who entered the room, from the Virtual Holder module to a supervisor or similar software.

<VH> Remote inputs enabled (Global enable)	IN	1 Bit

See paragraph Remote Sensor Inputs (Global Enable) (par. 12.5).

<VH> Presence output	1 Bit	CW

This Communication Object sends the telegram "1" when someone is detected inside the room (presence) and it sends the telegram "0" when no one is detected inside the room and "presence wait time" has expired (absence).

<VH> HVAC Output	1 Byte	CRT

This Communication Object is used to send HVAC commands when the presence or absence events are triggered. The command executed can be set to be alternative if the room is booked or not and if the person who enters it is a guest, is the service or is someone from the maintenance.

<VH> Additional Output	1 Byte	CRT

This Communication Object is used to send commands when the presence or absence events are triggered.

The command executed can be set to be alternative if the room is booked or not and if the person who enters it is a guest, is the service or is someone from the maintenance.

12.2. General

Communication object involved:

"<VH> Room Booked"	1 Bit	CW
"<VH> Presence Output"	1 Bit	CRT
"<VH> HVAC Output"	1 Byte	CRT
"<VH> Additional Output"	1 Byte	CRT

KNX PARAMETER	SETTINGS
Presence wait time	1 min to 3 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 occupaied" 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.

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	10 to 63 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 behaviuor when the VH module detects a presence inside the room and is in "not occupied" status (unexpected presence). It's possibile to send or not the welcome event.

Global enable state after download	Disabled / Enabled

See paragraph Remote Sensor inputs (Global Enable) (par. 12.5).

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 addititional CO to transmit on the BUS a command linked to presence or absence events.

12.3. Remote inputs

Communication objects involved:

"<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:

Not 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 contant 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

Local input	Disabled
	Door
	Presence

Local input can be connected either to a door contact or conventional presence detector; by setting this input as "digital input" and "activation press/release" it's possible to send also telegram on the KNX BUS for other purposes.

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

Communication object involved:

"<VH> Signal for guest (Type1)"	1 Bit	CW
"<VH> Signal for service (Type2)"	1 Bit	CW
"<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 use
	Comfort
	Standby
	Economy
	Building protection (antifreeze / high temperature)
It defines the type of HVAC command to be sent via the "<VH> HVAC output" object for the Goodbye booked status.	

KNX PARAMETER	SETTINGS
HVAC non-booked Goodbye	Do not use
	Comfort
	Standby
	Economy
	Building protection (antifreeze / high temperature)
It defines the type of HVAC command to be sent via the "<VH> HVAC output" object for the Goodbye not booked status.	

KNX PARAMETER	SETTINGS
HVAC booked Welcome	Do not use
	Comfort
	Standby
	Economy
	Building protection (antifreeze / high temperature)
It defines the type of HVAC command to be sent via the "<VH> HVAC output" object for the Welcome not booked status.	

KNX PARAMETER	SETTINGS
HVAC non-booked Welcome	Do not send
	Comfort
	Standby
	Economy
	Building protection (antifreeze / high temperature)
It defines the type of HVAC command to be sent via the "<VH> HVAC output" object for the Welcome not booked status.	

KNX PARAMETER	SETTINGS
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.	

KNX PARAMETER	SETTINGS
Value additional booked Goodbye	0… 255
	0 – 100%
	1… 64
It defines the value to be sent on the "<VH> Additional Output" object for the booked Goodbye status.	

KNX PARAMETER	SETTINGS
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.	

KNX PARAMETER	SETTINGS
Value additional non-booked Goodbye	0… 255
	0 – 100%
	1… 64
It defines the value to be sent on the "<VH> Additional Output" object for the non-booked Goodbye status.	

KNX PARAMETER	SETTINGS
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

It 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

It defines the value to be sent on the "<VH> Additional Output" object for the non-booked Welcome status.

12.5. Remote Sensor Inputs (Global Enable)

Communication objects involved:

"<VH> Remote Inputs Enabled (Global Enable)"   1 Bit   CW

This CO is used when there is a need to consider two adjacent rooms both as singles or as a single appurtenance (double room).

This possibility must be considered during installation, hence 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 con- sider 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.

12.6.   DIAGRAM OF LOGICAL CONNECTIONS FOR VIRTUAL HOLDER LOGIC MODULE

Mandatory element

Optional element
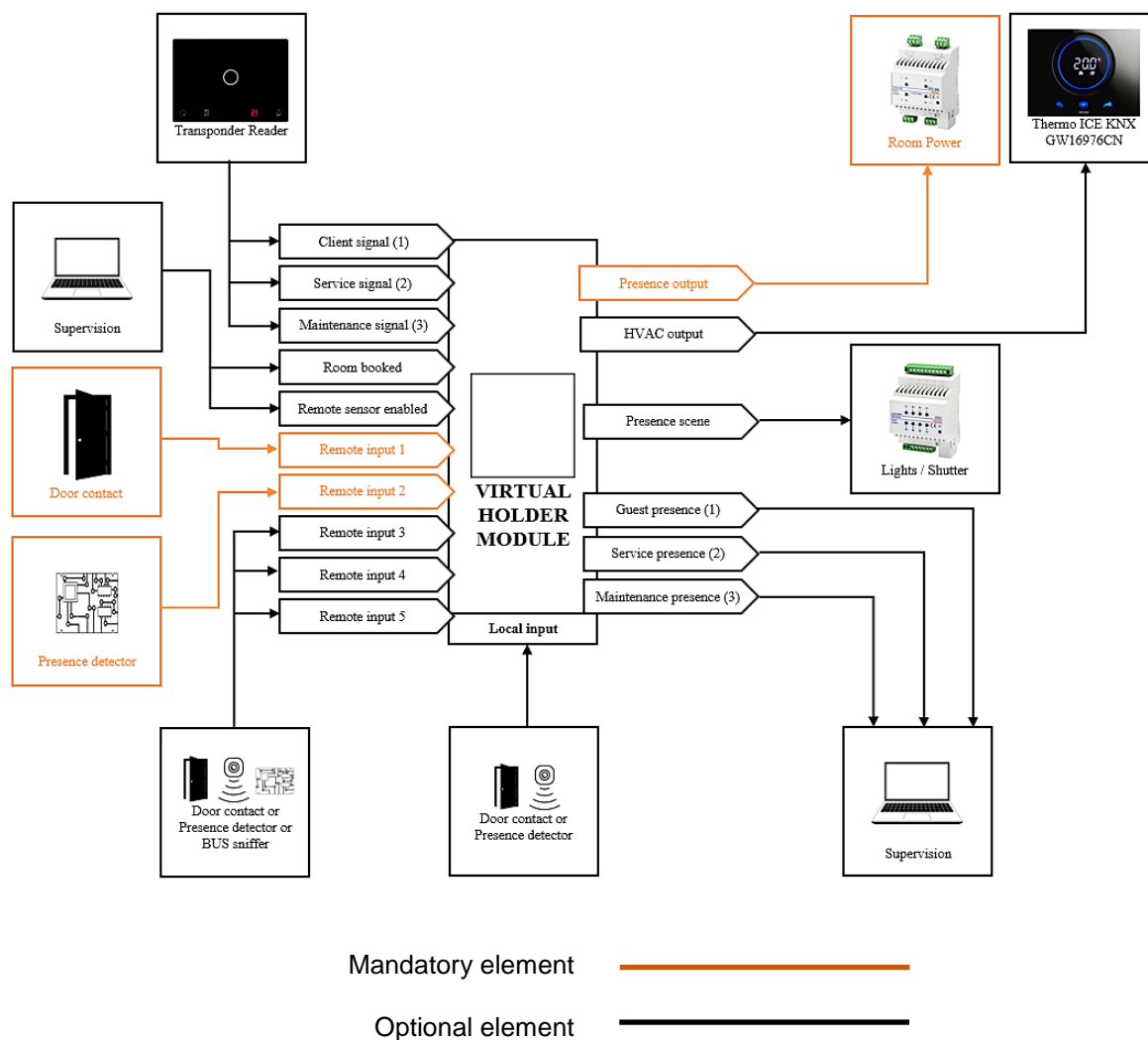
12.7. DIAGRAM OF LOGICAL CONNECTIONS FOR VIRTUAL HOLDER LOGIC MODULE IN A TWO ACCESS SCHEME (I.E. TWO INTERCONNECTING ROOMS RENT TOGETHER)
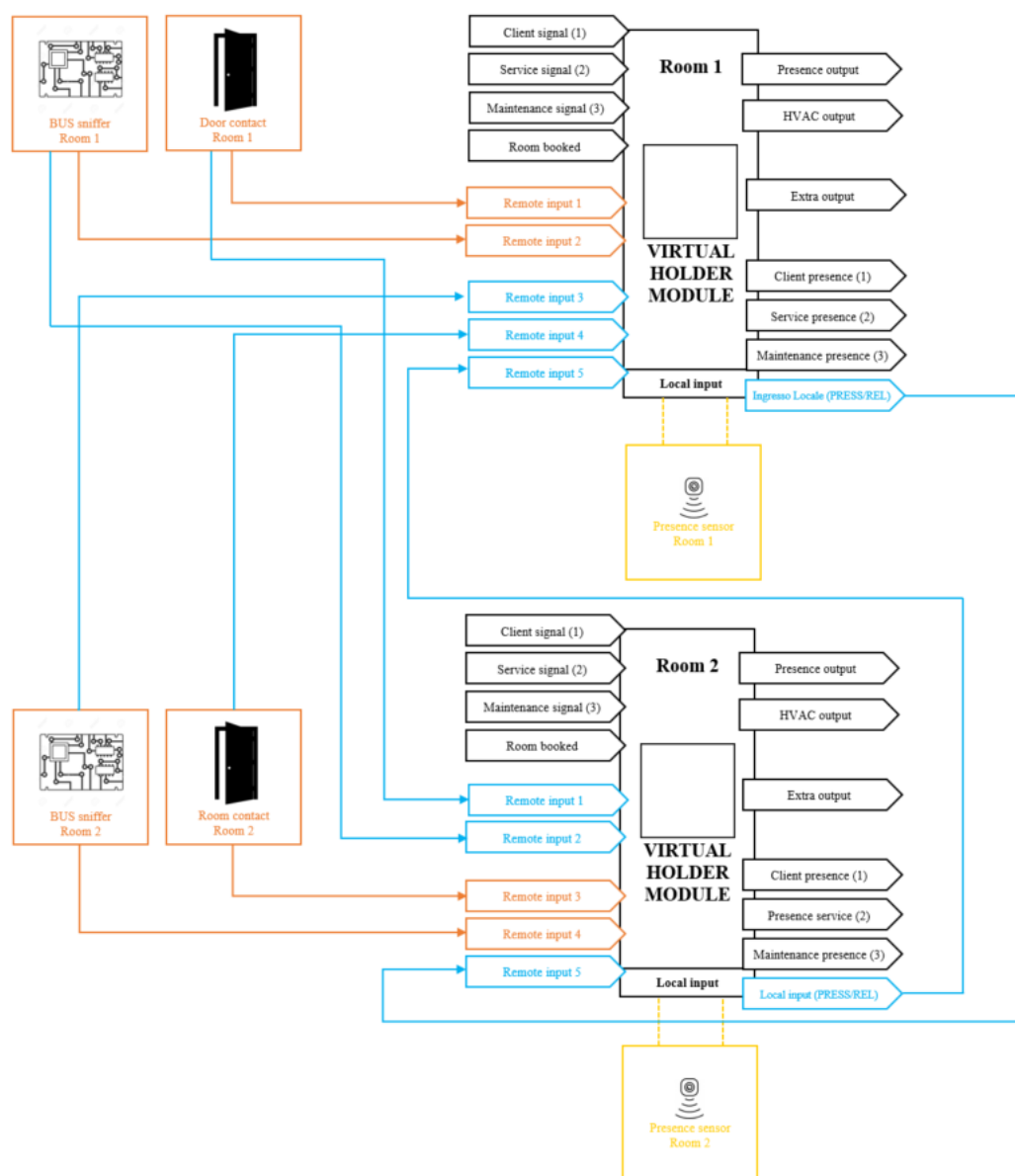
13.   Global objects

The following communication objects are available for global functions:

OBJECTS RELATING TO ALL OUTPUTS		
"<Global General> Lock"	1 Bit	CW
This parameter can be used to manage the block function for multiple outputs, subordinating the different blocks to this global function.		
"< Global General> Scene"	1 Byte	CW
This parameter can be used to manage the scene function for multiple outputs, subordinating the different blocks to this global function.		
"Global General> Dinamyc Scene"	1 Bit	CW
This parameter enables or disables dynamic scenarios.		

OBJECTS RELATING TO SINGLE RELAY OUTPUTS		
"<Global Single> Command"	1 Bit	CW
Parameter to manage global ON / OFF commands on single relays; in the parameters of every single output is possible to define if the received telegram will be used as global command or logic function.		

14.   Behaviour on BUS failure, recovery and download

14.1.   Behaviour on BUS voltage failure

On failure of BUS voltage no actions are executed by the device; behaviour of controlled actuators must be set using their own parameters.

14.2.   Behaviour on BUS voltage recovery

On BUS voltage recovery all the communication objects are set to 0 except for objects for which a parameter is defined for the initial value

14.3.   Wrong application download

If the wrong ETS application is downloaded then KNX LED starts fast blinking and device is not operative on the bus. A power reset must be done or the correct ETS application must be downloaded.

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