KLIC-MITT v3

KNX - IT Terminal Gateway for Mitsubishi Electric A/C Units

ZCLMITTV3

Application program version: [1.4]
User manual edition: [1.4]_a

www.zennio.com

USER MANUAL

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DOCUMENT UPDATES

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[1.3]_a	**Changes in the application program:** • Horizontal flap control. • 5-speed fan control. • Code optimisation and dependencies update.	-
[1.2]_a	**First version of the device derived from the KLIC-MITT v2**	-

1 INTRODUCTION

1.1 KLIC-MITT V3

KLIC-MITT v3 from Zennio is a new gateway that provides full-duplex communication between the KNX home automation system and **Mitsubishi Electric air-conditioning** systems through the IT Terminal interface provided by Zennio.

Because of this **bidirectional** communication, the air conditioning system can be controlled from the home automation system in the same manner as it is through its own controls. Moreover, the actual status of the unit can be monitored and periodically sent to the KNX bus to inform other devices.

The most outstanding features of KLIC-MITT v3 are:

- Bidirectional control of Mitsubishi Electric HVAC units through their **IT Terminal connector** (CN105/CN92).
- Control of the main functions of the A/C unit: On/Off, temperature, mode of operation, fan speed, position of the flaps, etc…
- **I-See** mode compatibility.
- **Error management** to handle specific error codes from the A/C unit itself as well as any communication issues that may arise.
- Up to **five scenes**.
- **Two analogue-digital inputs**, for the connection of temperature probes, motion detectors or binary pushbuttons or switches.
- **Ten** customisable, multi-operation **logic functions**.
- **Heartbeat** or periodic “still-alive” notification.

Important: *if intending to control the A/C unit both through its incorporate wired remote control and through KLIC-MITT v3, it must be considered that orders sent from the wired control will have a higher priority than those sent through the KLIC-MITT v3. In addition, certain parameterisations made in the device can be ignored.*

1.2 START-UP AND POWER LOSS

Depending on the configuration, some specific actions will be performed during the device start-up. The integrator may set up an initial status to be sent to the A/C unit after the bus power recovery, and whether certain objects should be sent to the bus after the power recovery, as described in later sections.

On the other hand, when a bus power failure takes place, the device will interrupt any pending actions and will save its state so it can be recovered once the power supply is restored.

2 CONFIGURATION

2.1 GENERAL

After importing the corresponding database in ETS and adding the device into the topology of the desired project, the configuration process begins by entering the Parameters tab of the device.

ETS PARAMETERISATION

The first parameterisable screen available by default is "General". From this screen all necessary functions can be activated/deactivated:

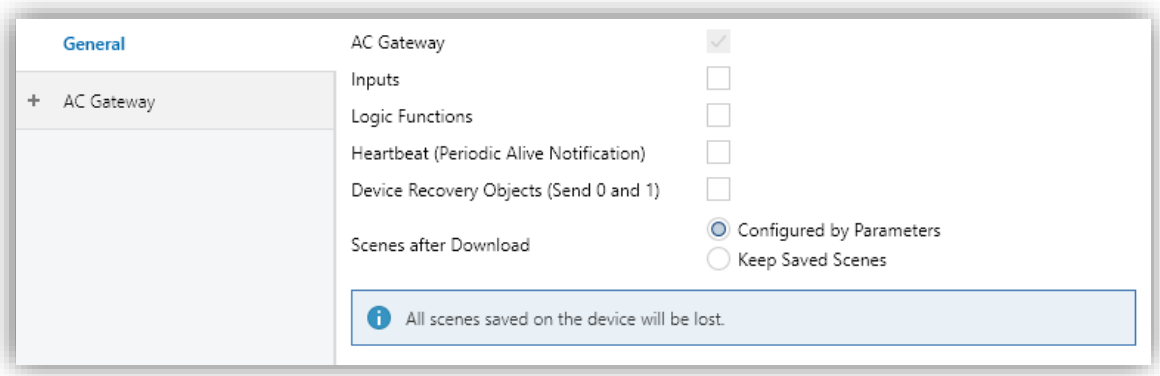

Figure 1. General

- **AC Gateway** [*enabled*][1]: entails all functions specific to KLIC-MITT v3, relating to communication with the A/C unit and management of the climate control system. For more information, see section 2.2.

- **Inputs** [*disabled / enabled*]: enables or disables the “Inputs” tab in the tree on the left. For more information, see section 2.3.

- **Logic Functions** [*disabled / enabled*]: enables or disables the “Logic Functions” tab in the tree on the left. For more information, see section 2.4.

- **Heartbeat (Periodic Alive Notification)** [*disabled / enabled*]: this parameter lets the integrator incorporate a one-bit object to the project (“**[Heartbeat]**

[1] The default values of each parameter will be highlighted in blue in this document, as follows: [*default / rest of options*].

Object to Send '1'") that will be sent periodically with value "1" to notify that the device is still working (*still alive*).

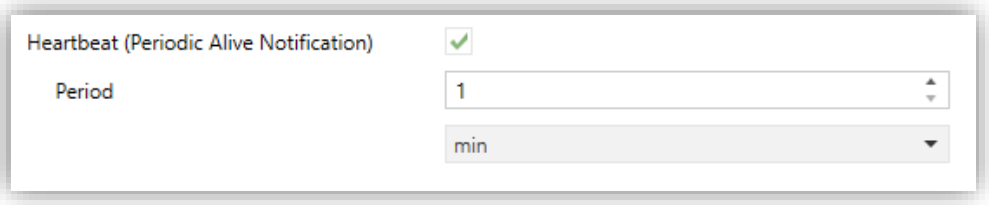

Figure 2. Heartbeat

Note: *the first sending after download or bus failure takes place with a delay of up to 255 seconds, to prevent bus overload. The following sendings match the period set.*

- **Device recovery objects (send 0 and 1)**: [*disabled / enabled*] enables or disables the 1-bit objects ("[Heartbeat] Device Recovery") which will send a '0' or a '1' after bus (or programming) failure or voltage recovery on the KNX bus respectively.

  - **Delay**: [*0...255*][*s*] allows you to set the delay time for sending the values '0' or '1' by the 1-bit objects ("[Heartbeat] Device recovery") after bus or programming failure.

- **Scenes after download** [*Configured by parameters / Keep saved scenes*]: allows you to define whether the value of the scenes is the one configured by parameter or whether the previously saved value is kept after download.

  Note: *if the "Keep Saved Scenes" option has been configured, but this is the first download of the device or a different version than the current one. The values configured by parameter will be adopted. If new scenes are added in subsequent downloads, it will be necessary to perform a download by checking the option 'Configured by parameters' to ensure the correct operation of these scenes.*

Regardless of the above parameters, the following objects are available by default:

- "**[AC] On/Off**" and "**[AC] On/Off (Status)**": allow switching on (value "1") and off (value "0") the A/C unit or reading the current status, respectively.

- "**[AC] Temperature Setpoint**" and "**[AC] Temperature Setpoint (Status)**": allow setting the desired temperature setpoint or reading the current value, respectively. See section 2.2.1 for further information.

- "**[AC] Mode**" and "**[AC] Mode (Status)**": allow setting the desired operation mode (either Automatic, Heating, Cooling, Fan or Dry) or reading the current mode, respectively. See section 2.2.1 for further information.

- Various **error objects**. See section 2.2.6.

2.2 AC GATEWAY

2.2.1 CONFIGURATION

KLIC-MITT v3 allows controlling and monitoring an air-conditioning unit in the same way it would be through the wired remote control it is provided with.

Through the KNX bus, KLIC-MITT v3 can be sent orders to control the following basic functions of the air conditioning unit:

- **On/Off** switch of the air-conditioning unit.

- **Operation mode**: automatic, heating, cooling, fan and dry.

- **Temperature setpoint**, which can be modified within a specific range of values, depending on the capabilities of the specific A/C unit being controlled.

- **Fan speed**: either 2, 3 or 4, automatic mode and quiet mode depending on the model of the A/C unit.

- **Position of the flaps**: horizontal, vertical or both depending on the model of the A/C unit.

Moreover, KLIC-MITT v3 allows configuring several advanced functions:

- **External reference temperature**: which allows enabling an object to use an external reference temperature, provided by a temperature probe.

- **Temperature measured by the AC unit:** allows enabling an object which provides the value of the internal temperature probe. The automatic sending

can be configured based on: a period of time, a change in value or a combination of both.

- **Initial configuration**, which allows establishing the desired initial parameters for the state of the A/C unit after programming or restarting the device.
- **Setpoint limits**, to restrict the range for the temperature setpoint.
- **Operating time**: provides the A/C unit operating time in hours and/or seconds.
- **Automatic off**, which allows an automatic and temporary switch-off of the unit (after a pre-established delay, if desired) when the communication object associated to this function is triggered due to a certain event.
- **Scenes**, which allows defining specific climate control presets, to be sent to the machine on the reception of scene orders from the KNX bus.

These functionalities imply changes in the state of the A/C unit, which therefore notifies KLIC-MITT v3 periodically about the current state. When KLIC-MITT v3 is notified about a change, it updates the **status objects** and sends them to the KNX bus.

In addition, KLIC-MITT v3 provides an **error management** function (see section 2.2.6), which allows sending messages to the KNX bus in case the A/C unit reports any errors.

ETS PARAMETRIZATION

The “Configuration” tab under AC Gateway provides the following parameters:

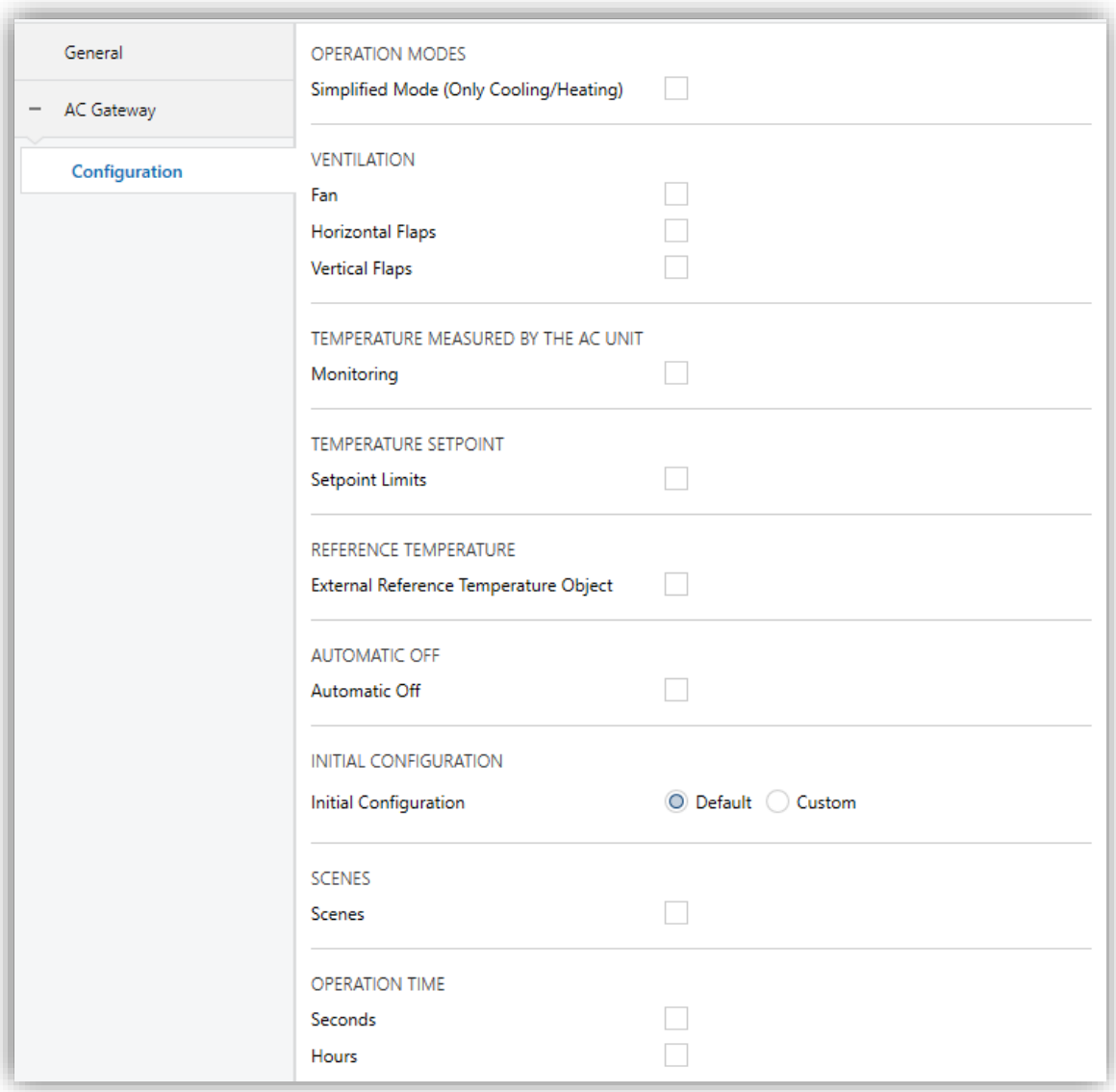

Figure 3. AC Gateway Configuration

OPERATION MODES

KLIC-MITT v3 allows controlling the A/C unit operating mode through the following objects, available by default:

- **"[AC] Mode"**: 1-Byte object which allows selecting the A/C unit operation mode. There will be only taken in account values that are appropriated with some of available modes in Mitsubishi Electric units, which are represented in Table 2.

- **"[AC] Mode (Status)"**: 1-Byte object which allows knowing the A/C unit operating mode status.

Object Value	A/C unit mode
0	Auto
1	Heating
3	Cooling
9	Fan only
14	Dry

Table 1. A/C unit operating modes.

Additionally, a simplified mode can be configured to select Cooling and Heating mode.

- **Simplified Mode** [*disabled / enabled*]: in addition to the "**[AC] Mode**" and "**[AC] Mode (Status)**" one-byte objects, available by default, it is possible to commute and to verify the current operation mode through the following one-bit objects, which get enabled after activating this parameter:

  - "**[AC] Simplified Mode**", which allows switching to the Cooling mode by sending it a "0" and to the Heating mode by sending it a "1".

  - "**[AC] Simplified Mode (Status)**", which will send a value of "0" when the mode switches to Cooling or to Dry, or a value of "1" when it switches to Heating. The Fan mode is not reflected in the value of this object.

VENTILATION

- **Fan** [*disabled / enabled*]: enables the Fan function. See section 2.2.2.

- **Horizontal Flaps** [*disabled / enabled*]: enables the fan Flaps function. See section 2.2.3.

- **Vertical Flaps** [*disabled / enabled*]: enables the fan Flaps function. See section 2.2.3.

TEMPERATURE MEASURED BY THE A/C UNIT

- **Monitoring** [*disabled / enabled*]: enables the "**[AC] AC Unit Measured Temperature**" two-byte object, which provides the value of its internal temperature sensor, which is used by the AC machine to execute the control loop. Once enabled, a secondary parameter will show:

  - **Sending Type** [*Variation / Periodic / Periodic + Variation*]: sets whether the above object should be sent only in case of a change in the value,

periodically in both cases, respectively. The latter two options bring entail one more parameter:

- **Period** [*1…3600*][*s*] [*1…15…1440*][*min*] [*1…24*][*h*]: sets the cycle time for the periodic sending.

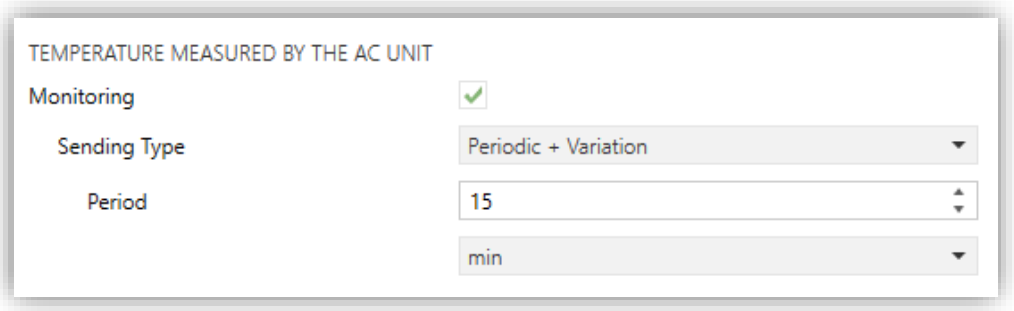

Figure 4. AC Gateway. Configuration. Temperature measured by the AC unit.

TEMPERATURE SETPOINT

The following objects are enabled by default for temperature setpoint control:

- **"[AC] Temperature Setpoint":** 2-Byte object that allow selecting decimal temperature values that belong to the range [10ºC - 31ºC].
- **"[AC] Temperature Setpoint (Status)"**: 2-Byte object that provides the Temperature setpoint status.

Note: *A X.Y value will be rounded to X.0 if [Y < 5] or to X.5 if [Y ≥ 5].*

Status object will be updated to the last setpoint temperature value received by the A/C unit after a complete communication cycle and will be sent to KNX bus every time that its value changes.

Setpoint limits can be configured by parameter:

- **Setpoint Limits** [*disabled / enabled*]: allows restricting the range of the temperature setpoint (from below in the Cooling, Dry and Auto modes and from above in the Heating and Auto modes), provided that the limits are still within the predefined limits of the A/C unit. When KLIC-MITT v3 receives an order to send the A/C unit a setpoint which is greater or lower than the configured limits, it will send the limit value.
  - **Minimum (Cooling / Dry / Auto Mode)** [*10…18…31*][*ºC*]: sets the lower limit.

➢ **Maximum (Heating / Auto Mode)** [*10…30…31*][*ºC*]: sets the upper limit.

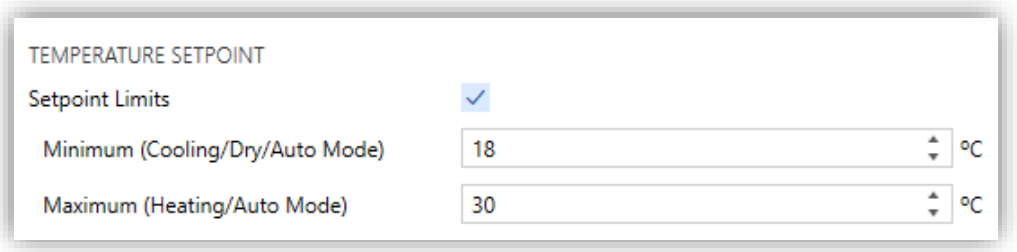

Figure 5. AC Gateway. Configuration. Temperature setpoint.

Note: *if the maximum limit is lower than or equal to the minimum limit, the limits will not be considered under the Auto mode*.

Once these limits are enabled, several objects to modify them at run time will be available. The values of these objects will be restricted to an interval which is defined by the absolute limits established by the A/C unit (10ºC to 31ºC).

- **"[AC] Temperature Setpoint: Lower Limit"**: 2-Byte object that allows changing the lower limit at run time.
- **"[AC] Temperature Setpoint: Lower Limit (Status)"**: 2-Byte object with the lower limit current value.
- **"[AC] Temperature Setpoint: Upper Limit"**: 2-Byte object that allows changing the upper limit at run time.
- **"[AC] Temperature Setpoint: Upper Limit (Status)"**: 2-Byte object with the upper limit current value.

Notes:

- *If [Minimum] ≥ [Maximum], limits will not be taken in account in Auto mode due to the incongruity. In this case, default values will be used.*
- *These parameters only can be set as integer values in ETS. However, at run time the associated objects allow decimal values.*
- *Some recent models extend the typical 16 – 31ºC range allowing temperatures to be lowered to 10°C. This range depends on the machine's operating mode. In FAN mode, the range will be limited to the classic 16 – 31°C.*

Example 1: *Machine with classic range (16–31ºC) in any mode:*

- *If the user sends 10ºC through the "[AC] Temperature Setpoint" object, the temperature sent to the AC will be 16ºC.*
- *If the user sends 31ºC, the temperature sent to the AC will be 31ºC.*

Example 2: *Machine with extended range (e.g. MSZ-LN):*

- *In COOL, DRY and AUTO modes (range 16 -31ºC): If the user sends 10ºC through the "[AC] Temperature Setpoint" object, the temperature sent to the AC will be 16ºC.*
- *In HEAT mode (extended range 10 -31ºC): If the user sends 10ºC through the "[AC] Temperature Setpoint" object, the temperature sent to the AC will be 10ºC.*

Example 3: *Machine with variable range (e.g. PLA_M50EA):*

- *In COOL and DRY modes (range 19 – 30ºC): If the user sends 10ºC through the "[AC] Temperature Setpoint" object, the temperature sent to the AC will be 19ºC. If 31ºC is sent, 30ºC will be sent.*
- *In HEAT mode (range 17 – 28ºC): If the user sends 10ºC through the "[AC] Temperature Setpoint" object, the temperature sent to the AC will be 17ºC. If 31ºC is sent, 28ºC will be sent.*

In AUTO mode (range 19 – 28ºC): If the user sends 10ºC through the "[AC] Temperature Setpoint" object, the temperature sent to the AC will be 19ºC. If 31ºC is sent, 28ºC will be sent.

REFERENCE TEMPERATURE

To control the temperature setpoint, the following objects are enabled by default:

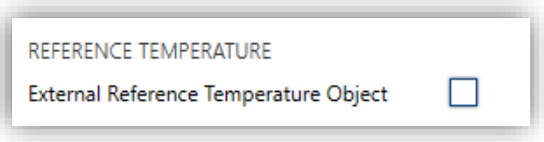

Figure 6. AC Gateway. Configuration. Reference temperature.

- **External Reference Temperature Object** [*disabled / enabled*]: enables the "**[AC] External Reference Temperature**" 2-Byte object, which provides the value of an external temperature sensor, which is used by the AC machine as the reference to execute the control loop.

  If after 3 minutes, no temperature values are received, the control will be done with the internal sensor of the machine as if this option had not been enabled. If an external temperature value is received again, the control will be performed with the external reference temperature again. The allowed range of values is [0-70] ºC, if a value outside the allowed range is received for the external reference temperature, it will be ignored.

The machine will continue executing its control loop with the same reference temperature, but KLIC-MITT v3 will send an adjusted temperature setpoint following the following formula:

Adjusted setpoint temperature = Setpoint temp. + [AC measured temp. – External reference temp.]

Important: *If the external reference temperature is enabled, it is recommended not to use the wired remote control or, failing that, not to change the setpoint from it.*

AUTOMATIC OFF

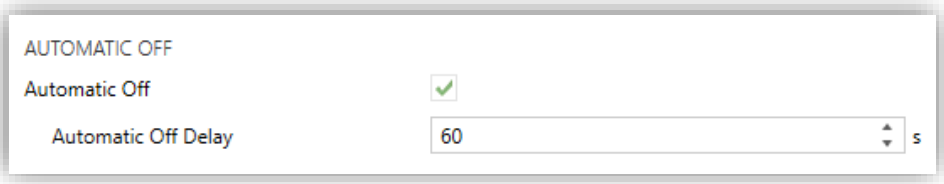

Figure 7. AC Gateway. Configuration. Automatic Off.

- **Automatic Off** [*disabled / enabled*]: enables the "**[AC] Automatic Off**" and the **"[AC] Automatic Off (Status)"** binary objects, which lets performing a

temporary switch-off of the A/C unit or reading the current status. This object will be typically linked to a window sensor or a similar event trigger.

During the temporary switch-off state, KLIC-MITT v3 will still monitor any control orders being received (setpoint, fan speed, etc.), so they can be applied once it leaves such state.

- **Automatic Off Delay** [*1…60…3600*][*s*]: sets the time, in seconds, KLIC-MITT v3 waits before switching the A/C machine off. Any switch-off order received during the delay will abort the time count. This delay can be modified at runtime through the object **"[AC] Automatic Off Delay"**. The sending of the value "0" disables the automatic off functionality.

Note: *switch-on orders sent to the A/C unit from a wired remote control have a higher priority than the Auto Off mode.*

INITIAL CONFIGURATION

- **Initial Configuration** [*Default / Custom*] sets the initial state that the KLIC-MITT v3 will send to the A/C machine after a download or a restart of the device. See section 2.2.4.

SCENES

- **Scenes** [*disabled / enabled*]: allows setting up different scenes (up to 5), consisting each of them in a set of orders to be sent to the A/C unit upon the reception of scene trigger values through the KNX bus. See section 2.2.5.

OPERATING TIME

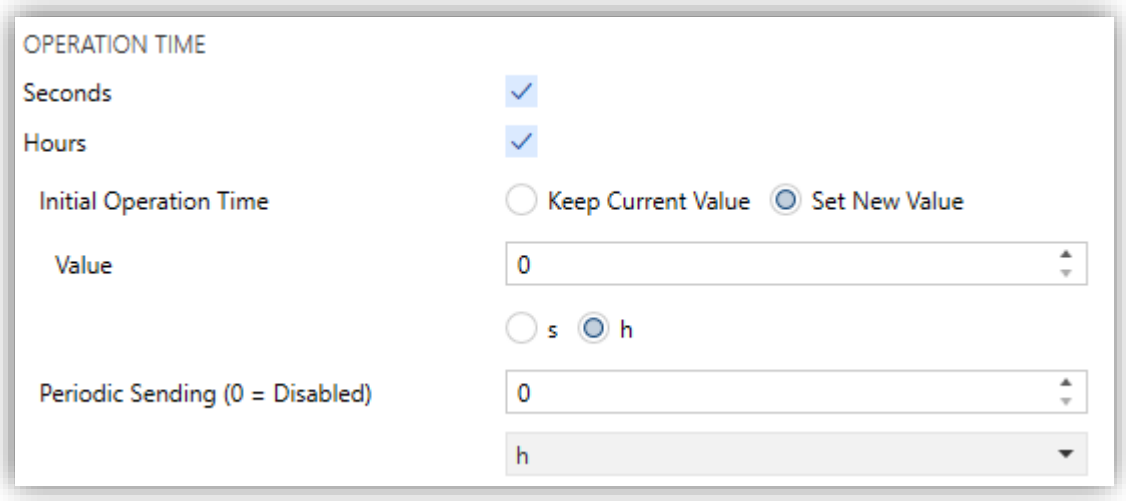

Figure 8. AC Gateway. Configuration. Operating time.

The operating time of the A/C machine in hours and/or seconds can be known.

The time that A/C unit has been operating, can be known through the 2-Byte object **"[AC] Operating time"**. This object can be read and overwritten during executing time.

The available parameters in ETS are:

- **Seconds** [*disabled / enabled*]: enables the 2-Byte object **"[AC] Operating time (s)"**. This object can be read and overwritten during executing time.
- **Hours** [*disabled / enabled*]**:** enables the 4-Byte object **"[AC] Operating time (h)"**. This object can be read and overwritten during executing time.
- **Initial Operation Time** [*Keep Current Value / Set New Value*]: before downloading allows to keep the value or to set an initial value for the operating time.
  - **Value** [*s / h*]: allows the value of the initial operating time and the magnitude of the initial operating time to be set.
- **Periodic Sending** [*0…65535*][*s*][*min*][*h*]: resending period of operating time If set to 0 the periodic send is disabled.

When the operation time object reaches its maximum value, it is sent over the bus (whether parameterised or not) and will be kept at that value until the user decides to reset it.

2.2.2 FAN

The Fan function allows sending the A/C unit orders to switch the ventilation speed along the available levels. To that end, KLIC-MITT v3 provides both a **percentage** control and a **binary** control.

In addition, The KLIC-MITT v3 also allows the activation of the automatic and/or silent ventilation control mode, if available on the machine.

Referring to the user manual of the A/C unit is advisable prior to setting up these options.

ETS PARAMETRISATION

After enabling this function, the menu on the left will show a new tab named Fan, containing the following parameters:

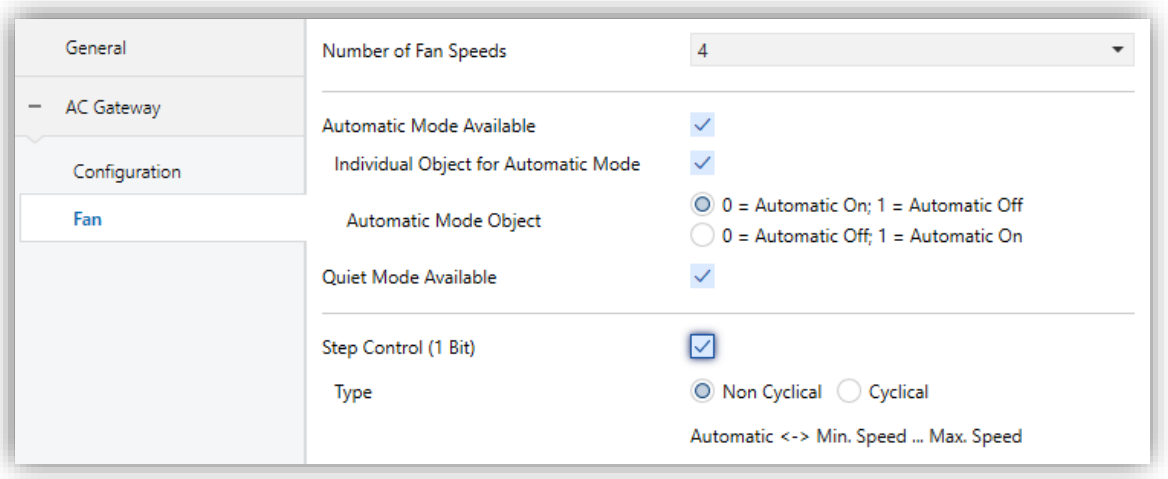

Figure 9. Fan

The parameters it contains are as follows:

- **Number of Fan Speeds** [*2 / 3 / 4*]: allows specifying the number of the fan levels distinguished by the A/C unit. This determines the values of the "**[AC] Fan: Percentage Control**" and "**[AC] Fan: Percentage Control (Status)**" one-byte objects, which allow setting and reading the fan speed, respectively. The following tables show the percentage values that correspond to each of the available fan speeds:

  - *Two levels*:

Control Values	Status Value	Level Sent to the Unit
1-50%	50%	1 (minimum)
51-100%	100%	2 (maximum)

Table 2. Fan speed (two levels)

  - *Three levels*:

Control Values	Status Value	Level Sent to the Unit
1-33%	33%	1 (minimum)
34-66%	66%	2
67-100%	100%	3 (maximum)

Table 3. Fan speed (three levels)

- *Four levels*:

Control Values	Status Values	Level Sent to the Unit
1-25%	25%	1 (minimum)
26-50%	50%	2
51-75%	75%	3
76-100%	100%	4 (maximum)

Table 4. Fan speed (four levels)

- **Automatic Mode Available** [*disabled / enabled*]: sets whether the A/C unit incorporates an automatic fan speed mode. If enabled, value "0%" of the **"[AC] Fan: Percentage Control**" and **"[AC] Fan: Percentage Control (Status)"** objects will be reserved for triggering or reporting such mode, respectively. Moreover, two more parameters will show:

  - **Individual Object for Automatic Mode** [*disabled / enabled*]: enables the "**[AC] Fan: Automatic**" and "**[AC] Fan: Automatic (Status)**" one-bit objects, which will let activating/deactivating the automatic mode or reading the current status, respectively.

    - **Automatic Mode Object** [*0 = Automatic On; 1 = Automatic Off / 0 = Automatic Off; 1 = Automatic On*]: sets the polarity of the above objects.

- **Quiet Mode Available** [*disabled / enabled*]**:** allows the minimum speed when entering silent mode to be set in the 1-byte object.

- **Step Control (1 Bit)** [*disabled / enabled*]: enables the "**[AC] Fan: Step Control**" one-bit object for increasing (value "1") or decreasing (value "0") the current speed level sequentially.

  - Type [*Non Cyclical / Cyclical*]: allows you to set the sequence to be followed when changing the fan speed.

  This sequence can be either "Cyclical" (a further step once reaching the maximum level activates the minimum level again) or "Non Cyclical".

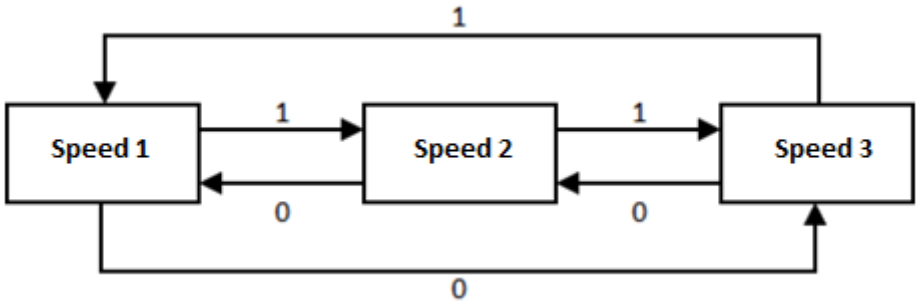

Figure 10. Cyclical fan step control (three fan speeds without automatic mode).

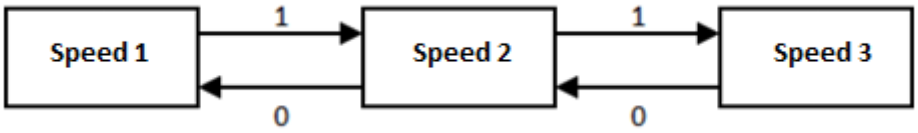

Figure 11. Non-cyclical fan step control (three fan speeds without automatic mode).

In case of having enabled the **automatic mode**, the control sequence will differ:

- **Non-cyclical**: the automatic mode will be placed before the minimum speed (speed 1): **Auto** ↔ **Minimum** ↔ **…** ↔ **Maximum**.
- **Cyclical**: the automatic mode will be placed between the maximum speed (speed n) and the minimum speed (speed 1): **Auto** ↔ **Minimum** ↔ **…** ↔ **Maximum** ↔ **Auto** ↔ **Minimum** ↔ **…**

2.2.3 FLAPS

The Horizontal Flaps and Vertical Flaps function allows sending the A/C unit orders to switch the position of the flaps (or vanes) that direct the air flow outwards. To that end, KLIC-MITT v3 provides both a **percentage** control and a **binary** control.

In addition, KLIC-MITT v3 allows activating the **automatic flap position mode** (only for horizontal flaps) and the **swing function** (so the flaps oscillate continuously for better distribution of the airflow), in case of being available in the unit. When the **I-See** mode is activated, the horizontal and vertical flaps will switch to automatic mode.

Referring to the user manual of the A/C unit is advisable prior to setting up these options.

ETS PARAMETRISATION

When this function is enabled, the horizontal and vertical flaps tabs containing the following parameters will appear in the left menu. In the case of vertical flaps, the parameter Automatic mode will not be available.

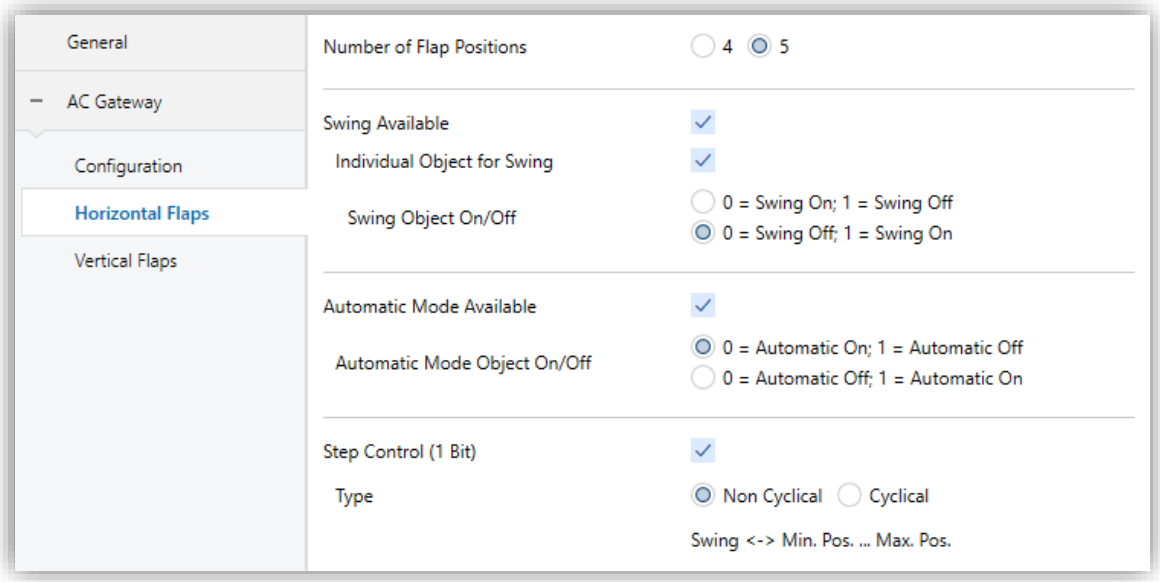

Figure 12. Horizontal Flaps

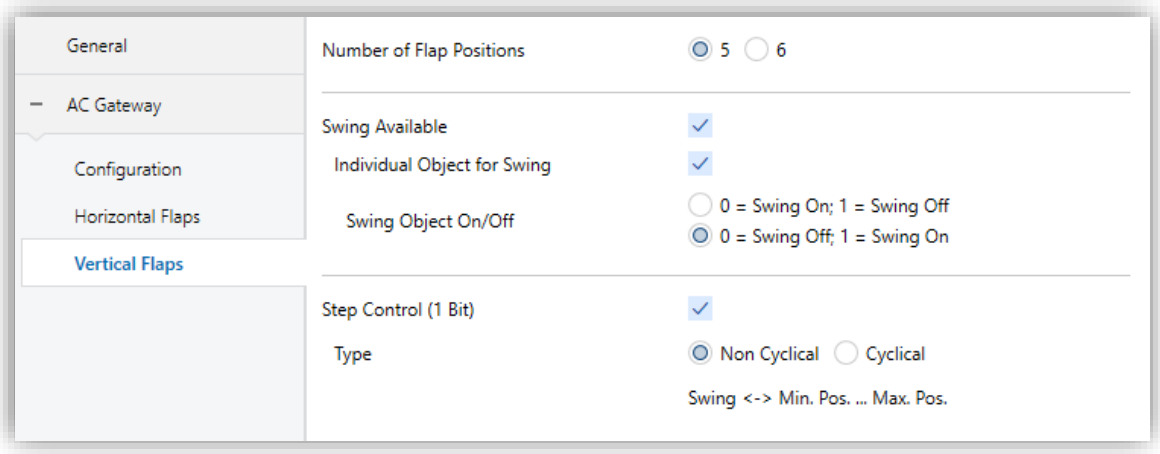

Figure 13. Vertical Flaps

- **Number of Flap Positions** [*4 / 5*] [*5 / 6*]: allows you to define the available flap positions (horizontal/vertical) in the A/C unit. This determines the values of the one-byte objects **"[AA] Flaps: percentage control"** and **"[AA] Flaps: percentage position (status)"**, which allow the position to be set and read, respectively. The following tables reflect the percentage values that correspond to the different positions.

- *Four positions*:

Control Values	Status Value	Position Sent to the Unit
1-25%	25%	Position 1
26-50%	50%	Position 2
51-75%	75%	Position 3
76-100%	100%	Position 4

Table 5. Flap position (four positions)

- *Five positions*:

Control Values	Status Value	Position Sent to the Unit
1-20%	20%	Position 1
21-40%	40%	Position 2
41-60%	60%	Position 3
61-80%	80%	Position 4
81-100%	100%	Position 5

Table 6. Flap position (five positions)

- *Six positions:*

Control Values	Status Value	Position Sent to the Unit
1-16,66%	16,66%	Position 1
16,66-33,33%	33,33%	Position 2
33,33-50%	50%	Position 3
50-66,66%	66,66%	Position 4
66,66-83,33%	83,33%	Position 5
83,33-100%	100%	Position 6

Table 7. Flap position (six positions)

- **Swing Available** [*disabled / enabled*]: sets whether the A/C unit incorporates a Swing function. If enabled, value "0%" of the **"[AC] Horizontal/Vertical Flaps: Percentage Control"** and **"[AC] Horizontal/Vertical Flaps: Percentage Control (Status)"** objects will be reserved for triggering such function and reporting whether it is currently active, respectively. Moreover, two more parameters will show:

  - **Individual Object for Swing** [*disabled / enabled*]: enables the "**[AC] Horizontal/Vertical Flaps: Swing**" and "**[AC] Horizontal/Vertical Flaps: Swing (Status)**" one-bit objects, which will let activating/deactivating the swing function or reading its current status, respectively.

- **Swing Object On/Off** [*0 = Swing On; 1 = Swing Off / 0 = Swing Off; 1 = Swing On*]: sets the polarity of the above objects.

- **Automatic Mode Available** [*disabled / enabled*]: sets whether the A/C unit incorporates an automatic flap position control. If enabled, the "**[AC] Horizontal Flaps: Automatic**" and "**[AC] Horizontal Flaps: Automatic (Status)**" binary objects are incorporated into the project topology to allow activating or deactivating such mode and consulting whether it is currently active, respectively. An additional parameter is also shown:

  - **Automatic Mode Object On/Off** [*0 = Automatic On; 1 = Automatic Off / 0 = Automatic Off; 1 = Automatic On*]: sets the polarity of the above objects.

  Note: *the device will leave the automatic mode if a manual request to set a specific flap position is received from the KNX bus.*

- **Step Control (1 Bit)** [*disabled / enabled*]: enables the "**[AC] Horizontal/Vertical Flaps: Step Control**" one-bit object to allow navigating along the available flap positions, either in one way (value "1") or another (value "0").

  - **Type** [*Non Cyclical / Cyclical*]: allows to set the sequence to be followed when changing the position of the flaps.

  This sequence can be either "Cyclical" (a further step once reaching the last position activates the first position again) or "Non Cyclical":

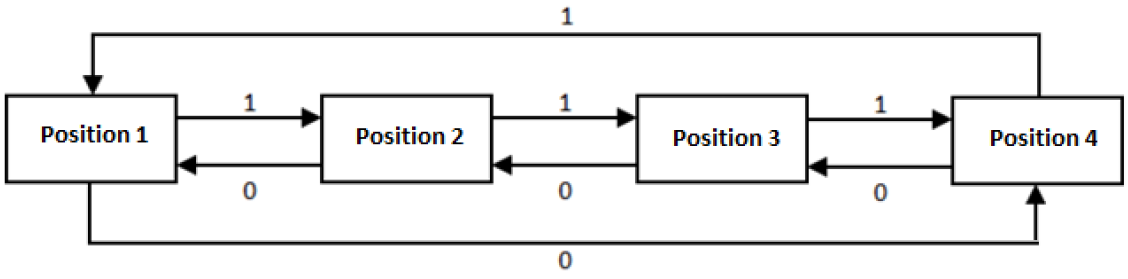

Figure 14. Cyclical flap step control (4 positions and no swing function)

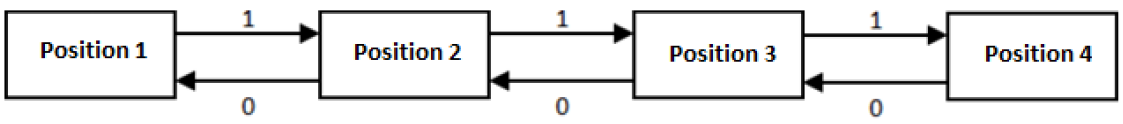

Figure 15. Non-cyclical flap step control (4 positions and no swing function)

In case of having enabled the **swing function**, the control sequence will differ:

- **Non-cyclical**: the swing function will be placed before the initial position: **Swing** ↔ **Position 1** ↔ **…** ↔ **Position n**.

- **Cyclical**: the swing function will be placed between the last position (position n) and the first position (position 1): **Swing** ↔ **Position 1** ↔ **…** ↔ **Position n** ↔ **Swing** ↔ **Position 1** ↔ **…**

Note: *on certain A/C unit models, some positions may not be available under the Cool mode, as a measure to prevent that a cold air flow is outputted directly to particular points of the room where people are supposed to stand. Analogously, other positions may not be permitted by the A/C unit under the Heat mode, to prevent hot air accumulation on the top of the room.*

2.2.4 INITIAL CONFIGURATION

The initial default configuration allows sending the initial state as the last known state of the KLIC-MITT v3.

The custom initial configuration allows setting the desired status that KLIC-MITT v3 will send the A/C unit after downloading or restarting the device. This status is defined in terms of on/off, mode, fan speed, flaps position and temperature setpoint.

In addition, it is possible to activate an initial sending of this status to the KNX bus.

ETS PARAMETRISATION

After selecting "Custom" for the **Initial Configuration** option under the "Configuration" tab (see section 2.2.1), a new tab named **Initial Configuration** is displayed with the following parameters:

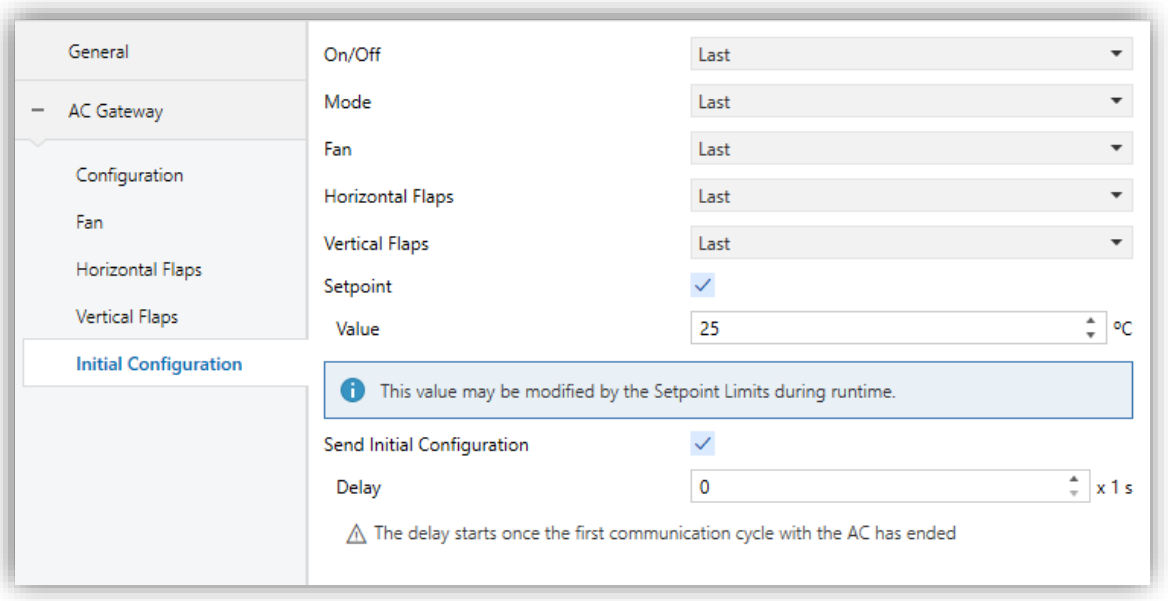

Figure 16. Initial configuration.

- **On/Off** [*Last / On / Off*], as "Last" is the state the machine was before it was restarted.

- **Mode** [*Last / Automatic / Heating / Cooling / Fan / Dry*]: as "Last" is the state the machine was before it was restarted.

- **Fan** [*Last / Automatic / 1 / 2 / 3 / 4*]: parameter only available if "Fan" is enabled in the configuration tab of AC gateway. The options will depend on the number of fan speeds set in **Number of fan speeds**, and the *Automatic* option will also be available if automatic ventilation mode is enabled.

- **Horizontal Flaps** [*Last / Swing / Automatic / 1 / 2 / 3 / 4 / 5*]**:** parameter only available if "Horizontal flaps" is enabled in the AA gateway configuration tab. The options will depend according to the parameterised in Number of flaps positions. The *Swing* option will appear if the swing function is enabled, and the *Automatic* option will also be available if automatic mode is enabled.

- **Vertical Flaps** [*Last / Automatic / 1 / 2 / 3 / 4 / 5 / 6*]**:** parameter only available if "Vertical flaps" is enabled in the AA gateway configuration tab. The options will depend according to the settings in **Number of flaps positions**, and the *Automatic* option will also be available if automatic mode is enabled.

- **Setpoint** [*disabled / enabled*]: parameter that will affect the **Value** parameter

- **Value** [*Last / 10 / … / 25 / … / 31*]**:** parameter that chooses the setpoint value at start-up. If the **Setpoint** parameter is disabled, *Last* will appear in the **Value** parameter, which will maintain the setpoint temperature value. Otherwise, a specific value in ºC can be chosen in the **Value** parameter.

- **Send initial configuration** [*disabled / enabled*]: if this option is enabled, the corresponding status objects are sent to the KNX bus with the specified delay.

  - **Delay** [*0…3600*][*s*]: allows you to choose the value in seconds of the delay for sending statuses to the KNX bus.

  Note: *even if this option is not enabled, the status objects may be sent to the KNX bus if the initial configuration differs from the current status of the A/C machine*.

2.2.5 SCENES

The Scenes function allows defining a set of statuses (in terms of On/Off, mode, fan speed, etc.) that KLIC-MITT v3 will send to the A/C unit whenever it receives the corresponding scene values from the KNX bus.

ETS PARAMETRISATION

When this function is enabled, a new tab named Scenes will appear in the tab tree, from which up to five different scenes can be configured, each consisting of a combination of commands that will be sent to the AC machine when received by the KNX bus, using the object '[AC] Scene', **a value to activate scene [1...64]. If, on the other hand, a value for saving scene [128…191] is received, the current values will be saved. Saving does not apply to parameters with a value of 'Do not change' or 'Not available'.**

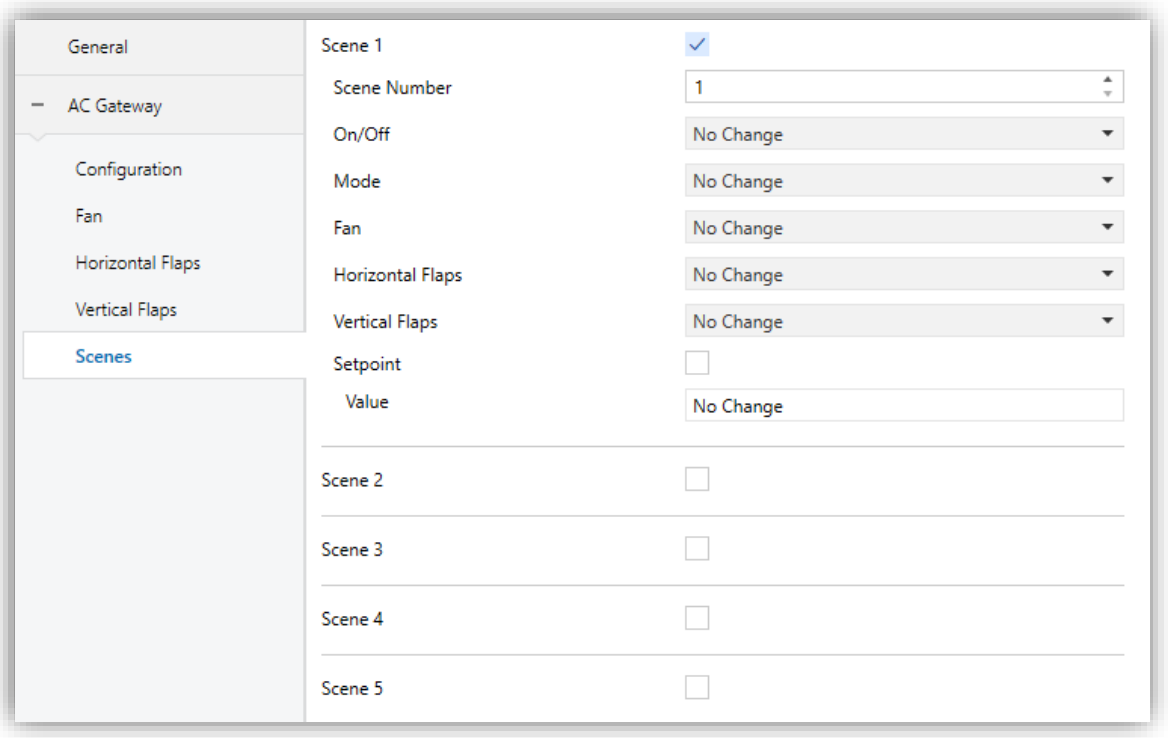

Figure 17. Scenes

For every enabled scene, the particular parameters that should be configured are:

- **Scene number** [*1…64*]: sets the scene number that, upon reception through the "**[AC] Scenes**" object, will trigger the corresponding orders, as defined next:
  - **On/Off** [*No Change / On / Off*], if "No Change" is selected, the machine will keep the last state it was in before the scene reception.
  - **Mode** [*No Change / Automatic / Heating / Cooling / Fan / Dry*]: If "Do not change" is selected, the machine will retain the last state it was in before scene reception.
  - **Fan** [*No change / Automatic / 1 / 2 / 3 / 4*]: parameter only available if "Fan" is enabled in the configuration tab of the AC gateway. The options will depend according to the parameterised in **Number of fan speeds**, the *Automatic* option will also be available if automatic fan mode is enabled.
  - **Horizontal Flaps** [*No change / Swing / Automatic / 1 / 2 / 3 / 4 / 5*]**:** parameter only available if 'Horizontal flaps' is enabled in the configuration tab of the AC gateway. The options will depend according to the parameterised in **Number of flaps positions**. The *Swing* option will appear

if the swing function is enabled, and the *Automatic* option will also be available if automatic mode is enabled.

- **Horizontal Flaps** [*No change / Automatic / 1 / 2 / 3 / 4 / 5*]**:** parameter only available if 'Vertical flaps' is enabled in the configuration tab of the AC gateway. The options will depend according to the parameterised in **Number of flaps positions**. The *Automatic* option will also be available if automatic mode is enabled.

- **Setpoint** [*disabled / enabled*]: parameter that will affect the **Value** parameter.

  - **Value** [*No Change / 10 / … / 25 / … / 31*]: parameter that chooses the setpoint value when sending the corresponding scene. If the **Setpoint** parameter is disabled, the **Value** parameter will show *Do not change*, which will maintain the setpoint temperature value. Otherwise, a specific value in ºC can be chosen in the **Value** parameter.

2.2.6 ERROR HANDLING

KLIC-MITT v3 can manage two error types that do not entail any previous parameter configuration:

- **Communication (or internal) errors**: errors in the communication process between KLIC-MITT v3 and the A/C unit. These types of errors are notified by the green LED as indicated below:

  - **Communication error**: KLIC-MITT v3 is not able to establish communication with the A/C machine. The green LED remains on.

  - **No response (time out)**: KLIC-MITT v3 received no response after sending a request to the A/C unit. The green LED blinks twice and stays off during 3 seconds.

  - **Wrong acknowledgement**: KLIC-MITT v3 received an unexpected response after sending a request to the A/C unit. The green LED blinks three times and stays off during 3 seconds.

  In case any of the above errors is detected, the corresponding object will be sent periodically (with a value of "1") to the KNX bus. Once the error is over, it the object will be sent (once) with a value of "0".

The object associated with each error will be, respectively:

- "**[AC] Internal Error: Communication**" (1-Bit).
- "**[AC] Internal Error: Timeout**" (1-Bit).
- "**[AC] Internal Error: Wrong Acknowledgement**" (1-Bit).

- **Errors in the A/C unit**: errors reported by the A/C unit itself. KLIC-MITT v3 can notify the KNX bus about the reported error code, although referring to the specific documentation of the A/C machine is advisable in order to obtain further information.

  In case the A/C unit reports an error, the binary object "**[AC] AC Unit Error: Active Error**" will be sent with value "1", while the 14-bytes object "**[AC] AC Unit Error: Error Code**" will report the corresponding error code. Once the error is over, the binary object will send a value of "0" and error code object will update its value to "0". Please, refer to Mitsubishi error codes documentation for details about the error codes.

  Notes:

  - *If there is no wired remote control in the installation, and control is only executed by KLIC-MITT v3, in order to deactivate an error, it is necessary, once the cause that has produce the error has been solved, to do an off order of A/C unit.*
  - *To deactivate a control error, it is necessary to remove the power of A/C unit, later connect the correct number of controllers and finally recover the power.*

2.3 INPUTS

KLIC-MITT v3 incorporates two analogue-digital input ports. Each of them has three possible configurations which are explained below.

2.3.1 BINARY INPUT

Configuration for the connection of a push button or a switch/sensor. Please refer to the specific manual **'Binary Inputs'**, available in the product section at www.zennio.com.

2.3.2 TEMPERATURE PROBE

Configuration to connect a Zennio temperature sensor. Please refer to the specific manual **'Temperature probe'**, available in the product section at www.zennio.com.

2.3.3 MOTION DETECTOR

Configuration for the connection of a motion and luminosity detector. It is possible to connect motion detectors from Zennio to the input ports of KLIC MITT v3.

Please refer to the **'Motion Detector'** user manual, available in the product section at www.zennio.com, for detailed information about the functionality and the configuration of the related parameters.

2.4 LOGIC FUNCTIONS

This module makes it possible to perform numeric and binary operations with incoming values received from the KNX bus, and to send the results through other communication objects specifically enabled for this purpose.

KLIC-MITT v3 allows enabling and fully customising up to **ten different logic functions** with their corresponding input objects, whose size can be 1 bit, 1 byte, 2 bytes or 4 bytes

The execution of each function can depend on a configurable **condition**, which will be evaluated every time the function is **triggered** through specific, parameterisable communication objects. The result after executing the operations of the function can also be evaluated according to certain **conditions** and afterwards sent (or not) to the KNX bus, which can be done every time the function is executed, periodically or only when the result differs from the last one.

Please refer to the "**Logic Functions**" user manual available in the KLIC-MITT v3 product section at the Zennio homepage www.zennio.com, for detailed information about the functionality and the configuration of the related parameters.

ANNEX I. COMMUNICATION OBJECTS

- **"Functional range"** shows the values that, with independence of any other values permitted by the bus according to the object size, may be of any use or have a particular meaning because of the specifications or restrictions from both the KNX standard or the application program itself.

Number	Size	I/O	Flags	Data type (DPT)	Functional Range	Name	Function
1	1 Byte	I/O	C R W T U	DPT_SceneControl	0-63; 128-191	[AC] Scene	0 - 63 (Execute 1 - 64); 128 - 191 (Save 1 - 64)
2	1 Bit	I	C - W - -	DPT_Switch	0/1	[AC] On/Off	0 = Off; 1 = On
3	1 Bit	O	C R - T -	DPT_Switch	0/1	[AC] On/Off (Status)	0 = Off; 1 = On
4	2 Bytes	I	C - W - -	DPT_Value_Temp	-273.00º - 670433.28º	[AC] Temperature Setpoint	[10 ... 31] ºC
5	2 Bytes	O	C R - T -	DPT_Value_Temp	-273.00º - 670433.28º	[AC] Temperature Setpoint (Status)	[10 ... 31] ºC
6	2 Bytes	I	C - W - -	DPT_Value_Temp	-273.00º - 670433.28º	[AC] Temperature Setpoint: Upper Limit	[10 ... 31] ºC
7	2 Bytes	O	C R - T -	DPT_Value_Temp	-273.00º - 670433.28º	[AC] Temperature Setpoint: Upper Limit (Status)	[10 ... 31] ºC
8	2 Bytes	I	C - W - -	DPT_Value_Temp	-273.00º - 670433.28º	[AC] Temperature Setpoint: Lower Limit	[10 ... 31] ºC
9	2 Bytes	O	C R - T -	DPT_Value_Temp	-273.00º - 670433.28º	[AC] Temperature Setpoint: Lower Limit (Status)	[10 ... 31] ºC
10	1 Byte	I	C - W - -	DPT_HVACContrMode	0=Auto 1=Heat 3=Cool 9=Fan 14=Dry	[AC] Mode	0 = Automatic; 1 = Heating; 3 = Cooling; 9 = Fan; 14 = Dry
11	1 Byte	O	C R - T -	DPT_HVACContrMode	0=Auto 1=Heat 3=Cool 9=Fan 14=Dry	[AC] Mode (Status)	0 = Automatic; 1 = Heating; 3 = Cooling; 9 = Fan; 14 = Dry
12	1 Bit	I	C - W - -	DPT_Heat_Cool	0/1	[AC] Simplified Mode	0 = Cooling; 1 = Heating
13	1 Bit	O	C R - T -	DPT_Heat_Cool	0/1	[AC] Simplified Mode (Status)	0 = Cooling; 1 = Heating
14	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[AC] Fan: Percentage Control	[0]% = Automatic; [0.4...50.2]% = S1; [50.6...100]% = S2
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[AC] Fan: Percentage Control	[0.4...50.2]% = S1; [50.6...100]% = S2
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[AC] Fan: Percentage Control	[0]% = Automatic; [0.4...33.3]% = S1; [33.7...66.7]% = S2; [67.1...100]% = S3
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[AC] Fan: Percentage Control	[0.4...33.3]% = S1; [33.7...66.7]% = S2; [67.1...100]% = S3

	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[AC] Fan: Percentage Control	[0]% = Automatic; [0.4...25.1]% = S1; [25.5...50.2]% = S2; [50.6...75.3]% = S3; [75.5...100]% = S4
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[AC] Fan: Percentage Control	[0.4...25.1]% = S1; [25.5...50.2]% = S2; [50.6...75.3]% = S3; [75.5...100]% = S4
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[AC] Fan: Percentage Control	[0.4...20]% = S1; [20.4...40]% = S2; [40.4...60]% = S3; [60.4...80]% = S4; [80.4...100] = S5
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[AC] Fan: Percentage Control	[0]% = Automatic; [0.4...20]% = S1; [20.4...40]% = S2; [40.4...60]% = S3; [60.4...80]% = S4; [80.4...100] = S5
15	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[AC] Fan: Percentage Control (Status)	Automatic = 0%; S1 = 50.2%; S2 = 100%
	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[AC] Fan: Percentage Control (Status)	S1 = 50.2%; S2 = 100%
	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[AC] Fan: Percentage Control (Status)	Automatic = 0%; S1 = 33.3%; S2 = 66.7%; S3 = 100%
	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[AC] Fan: Percentage Control (Status)	S1 = 33.3%; S2 = 66.7%; S3 = 100%
	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[AC] Fan: Percentage Control (Status)	Automatic = 0%; S1 = 25.1%; S2 = 50.2%; S3 = 75.3%; S4 = 100%
	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[AC] Fan: Percentage Control (Status)	S1 = 25.1%; S2 = 50.2%; S3 = 75.3%; S4 = 100%
	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[AC] Fan: Percentage Control (Status)	S1 = 20%; S2 = 40%; S3 = 60%; S4 = 80%; S5 = 100%
	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[AC] Fan: Percentage Control (Status)	Automatic = 0%; S1 = 20%; S2 = 40%; S3 = 60%; S4 = 80%; S5 = 100%
16	1 Bit	I	C - W - -	DPT_Enable	0/1	[AC] Fan: Automatic	0 = Automatic On; 1 = Automatic Off (Speed 1)
	1 Bit	I	C - W - -	DPT_Enable	0/1	[AC] Fan: Automatic	0 = Automatic Off (Speed 1); 1 = Automatic On
17	1 Bit	O	C R - T -	DPT_Enable	0/1	[AC] Fan: Automatic (Status)	0 = Automatic On; 1 = Automatic Off
	1 Bit	O	C R - T -	DPT_Enable	0/1	[AC] Fan: Automatic (Status)	0 = Automatic Off; 1 = Automatic On
18	1 Bit	I	C - W - -	DPT_Step	0/1	[AC] Fan: Step Control	0 = Step Up; 1 = Step Down
19	1 Bit	I	C - W - -	DPT_Switch	0/1	[AC] Horizontal Flaps: Swing	0 = Swing On; 1 = Swing Off
	1 Bit	I	C - W - -	DPT_Switch	0/1	[AC] Horizontal Flaps: Swing	0 = Swing Off; 1 = Swing On
20	1 Bit	O	C R - T -	DPT_Switch	0/1	[AC] Horizontal Flaps: Swing (Status)	0 = Swing On; 1 = Swing Off
	1 Bit	O	C R - T -	DPT_Switch	0/1	[AC] Horizontal Flaps: Swing (Status)	0 = Swing Off; 1 = Swing On
21	1 Bit	I	C - W - -	DPT_Enable	0/1	[AC] Horizontal Flaps: Automatic	0 = Automatic On; 1 = Automatic Off

	1 Bit	I	C - W - -	DPT_Enable	0/1	[AC] Horizontal Flaps: Automatic	0 = Automatic Off; 1 = Automatic On
22	1 Bit	O	C R - T -	DPT_Enable	0/1	[AC] Horizontal Flaps: Automatic (Status)	0 = Automatic On; 1 = Automatic Off
	1 Bit	O	C R - T -	DPT_Enable	0/1	[AC] Horizontal Flaps: Automatic (Status)	0 = Automatic Off; 1 = Automatic On
23	1 Bit	I	C - W - -	DPT_Step	0/1	[AC] Horizontal Flaps: Step Control	0 = Step Up; 1 = Step Down
24	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[AC] Horizontal Flaps: Percentage Control	[0]% = Swing; [0.4...25.1]% = P1; [25.5...50.2]% = P2; [50.6...75.3]% = P3; [75.5...100]% = P4
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[AC] Horizontal Flaps: Percentage Control	[0.4...25.1]% = P1; [25.5...50.2]% = P2; [50.6...75.3]% = P3; [75.5...100]% = P4
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[AC] Horizontal Flaps: Percentage Control	[0]% = Swing; [0.39...20]% = P1; [20.39...40]% = P2; [40.39...60]% = P3; [60.39...80]% = P4; [80.39...100]% = P5
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[AC] Horizontal Flaps: Percentage Control	[0.39...20]% = P1; [20.39...40]% = P2; [40.39...60]% = P3; [60.39...80]% = P4; [80.39...100]% = P5
25	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[AC] Horizontal Flaps: Percentage Control (Status)	Swing = 0%; P1 = 25.1%; P2 = 50.2%; P3 = 75.3%; P4 = 100%
	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[AC] Horizontal Flaps: Percentage Control (Status)	P1 = 25.1%; P2 = 50.2%; P3 = 75.3%; P4 = 100%
	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[AC] Horizontal Flaps: Percentage Control (Status)	Swing = 0%; P1 = 20%; P2 = 40%; P3 = 60%; P4 = 80%; P5 = 100%
	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[AC] Horizontal Flaps: Percentage Control (Status)	P1 = 20%; P2 = 40%; P3 = 60%; P4 = 80%; P5 = 100%
26	1 Bit	I	C - W - -	DPT_Switch	0/1	[AC] Vertical Flaps: Swing	0 = Swing On; 1 = Swing Off
	1 Bit	I	C - W - -	DPT_Switch	0/1	[AC] Vertical Flaps: Swing	0 = Swing Off; 1 = Swing On
27	1 Bit	O	C R - T -	DPT_Switch	0/1	[AC] Vertical Flaps: Swing (Status)	0 = Swing On; 1 = Swing Off
	1 Bit	O	C R - T -	DPT_Switch	0/1	[AC] Vertical Flaps: Swing (Status)	0 = Swing Off; 1 = Swing On
28	1 Bit	I	C - W - -	DPT_Enable	0/1	[AC] Vertical Flaps: Automatic	0 = Automatic On; 1 = Automatic Off
	1 Bit	I	C - W - -	DPT_Enable	0/1	[AC] Vertical Flaps: Automatic	0 = Automatic Off; 1 = Automatic On
29	1 Bit	O	C R - T -	DPT_Enable	0/1	[AC] Vertical Flaps: Automatic (Status)	0 = Automatic On; 1 = Automatic Off
	1 Bit	O	C R - T -	DPT_Enable	0/1	[AC] Vertical Flaps: Automatic (Status)	0 = Automatic Off; 1 = Automatic On
30	1 Bit	I	C - W - -	DPT_Step	0/1	[AC] Vertical Flaps: Step Control	0 = Step Left; 1 = Step Right
31	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[AC] Vertical Flaps: Percentage Control	[0.39...20]% = P1; [20.39...40]% = P2; [40.39...60]% = P3; [60.39...80]% = P4; [80.39...100]% = P5
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[AC] Vertical Flaps: Percentage Control	[0]% = Swing; [0.39...20]% = P1; [20.39...40]% = P2; [40.39...60]% =

							P3; [60.39...80]% = P4; [80.39...100]% = P5
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[AC] Vertical Flaps: Percentage Control	[0.39...16.86]% = P1; [17.25...33.33]% = P2; [33.72...50.20]% = P3; [50.59...66.67]% = P4; [67.06...83.53]% = P5; [83.92...100]% = P6
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[AC] Vertical Flaps: Percentage Control	[0]% = Swing; [0.39...16.86]% = P1; [17.25...33.33]% = P2; [33.72...50.20]% = P3; [50.59...66.67]% = P4; [67.06...83.53]% = P5; [83.92...100]% = P6
32	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[AC] Vertical Flaps: Percentage Control (Status)	P1 = 20%; P2 = 40%; P3 = 60%; P4 = 80%; P5 = 100%
	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[AC] Vertical Flaps: Percentage Control (Status)	Swing = 0%; P1 = 20%; P2 = 40%; P3 = 60%; P4 = 80%; P5 = 100%
	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[AC] Vertical Flaps: Percentage Control (Status)	P1 = 16.86%; P2 = 33.33%; P3 = 50.20%; P4 = 66.67%; P5 = 83.53%; P6 = 100%
	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[AC] Vertical Flaps: Percentage Control (Status)	Swing = 0%; P1 = 16.86%; P2 = 33.33%; P3 = 50.20%; P4 = 66.67%; P5 = 83.53%; P6 = 100%
33	2 Bytes	O	C R - T -	DPT_Value_Temp	-273.00º - 670433.28º	[AC] AC Unit Measured Temperature	Temperature from the internal sensor (ºC)
34	2 Bytes	I	C - W - -	DPT_Value_Temp	-273.00º - 670433.28º	[AC] External Reference Temperature	[0 ... 70] ºC
35	1 Bit	I	C - W - -	DPT_Switch	0/1	[AC] Automatic Off	0 = Deactivate; 1 = Activate
36	1 Bit	O	C R - T -	DPT_Switch	0/1	[AC] Automatic Off (Status)	0 = Inactive; 1 = Active
37	2 Bytes	I	C - W - -	DPT_TimePeriodSec	0 - 65535	[AC] Automatic Off: Delay	[0 ... 3600] s (0 = Disabled)
38	4 Bytes	I/O	C R W T -	DPT_LongDeltaTimeSec	-2147483648 - 2147483647	[AC] Operating Time (s)	Time in seconds
39	2 Bytes	I/O	C R W T -	DPT_TimePeriodHrs	0 - 65535	[AC] Operating Time (h)	Time in hours
40	1 Bit	O	C R - T -	DPT_Alarm	0/1	[AC] Internal Error: Communication	Unable to Set AC Communication
41	1 Bit	O	C R - T -	DPT_Alarm	0/1	[AC] Internal Error: Timeout	No Acknowledgement Received from AC
42	1 Bit	O	C R - T -	DPT_Alarm	0/1	[AC] Internal Error: Wrong Acknowledgement	Acknowledgement Received with Errors
43	1 Bit	O	C R - T -	DPT_Alarm	0/1	[AC] AC Unit Error: Active Error	AC Unit Error
44	14 Bytes	O	C R - T -	DPT_String_ASCII		[AC] AC Unit Error: Error Code	See AC Unit Manual
45, 49	2 Bytes	O	C R - T -	DPT_Value_Temp	-273.00º - 670433.28º	[Ix] Current Temperature	Temperature Sensor Value
46, 50	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Overcooling	0 = No Alarm; 1 = Alarm
47, 51	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Overheating	0 = No Alarm; 1 = Alarm
48, 52	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Probe Error	0 = No Alarm; 1 = Alarm

53, 62	1 Bit	I	C - W - -	DPT_Enable	0/1	[Ix] Input Lock	0 = Unlock; 1 = Lock
54, 63	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Short Press] 0	Sending of 0
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Short Press] 1	Sending of 1
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Ix] [Short Press] 0/1 Switching	Switching 0/1
	1 Bit	O	C - - T -	DPT_UpDown	0/1	[Ix] [Short Press] Move Up Shutter	Sending of 0 (Up)
	1 Bit	O	C - - T -	DPT_UpDown	0/1	[Ix] [Short Press] Move Down Shutter	Sending of 1 (Down)
	1 Bit	I	C - W T -	DPT_UpDown	0/1	[Ix] [Short Press] Move Up/Down Shutter	Switching 0/1 (Up/Down)
	1 Bit	O	C - - T -	DPT_Step	0/1	[Ix] [Short Press] Stop/Step Up Shutter	Sending of 0 (Stop/Step Up)
	1 Bit	O	C - - T -	DPT_Step	0/1	[Ix] [Short Press] Stop/Step Down Shutter	Sending of 1 (Stop/Step Down)
	1 Bit	I	C - W T -	DPT_Step	0/1	[Ix] [Short Press] Stop/Step Shutter (Switched)	Switching of 0/1 (Stop/Step Up/Down)
	4 Bit	O	C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Short Press] Brighter	Increase Brightness
	4 Bit	O	C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Short Press] Darker	Decrease Brightness
	4 Bit	I	C - W T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Short Press] Brighter/Darker	Switch Bright/Dark
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Short Press] Light On	Sending of 1 (On)
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Short Press] Light On/Off	0/1
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Short Press] Light Off	Sending of 0 (Off)
	1 Byte	O	C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Short Press] Run Scene	Sending of 0 - 63
	1 Byte	O	C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Short Press] Save Scene	Sending of 128 - 191
	1 Byte	O	C - - T -	DPT_Value_1_Ucount	0 - 255	[Ix] [Short Press] Constant Value (Integer)	0 - 255
	1 Byte	O	C - - T -	DPT_Scaling	0% - 100%	[Ix] [Short Press] Constant Value (Percentage)	0% - 100%
	2 Bytes	O	C - - T -	DPT_Value_2_Ucount	0 - 65535	[Ix] [Short Press] Constant Value (Integer)	0 - 65535
	2 Bytes	O	C - - T -	9.xxx	-671088.64 - 670433.28	[Ix] [Short Press] Constant Value (Float)	Float Value
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Rising Edge] 0	Sending of 0
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Rising Edge] 1	Sending of 1
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Rising Edge] 0/1 Switching	Switching 0/1
	1 Bit	O	C - - T -	DPT_UpDown	0/1	[Ix] [Switch/Sensor] [Rising Edge] Move Up Shutter	Sending of 0 (Up)
	1 Bit	O	C - - T -	DPT_UpDown	0/1	[Ix] [Switch/Sensor] [Rising Edge]	Sending of 1 (Down)

						Move Down Shutter	
	1 Bit	I	C - W T -	DPT_UpDown	0/1	[Ix] [Switch/Sensor] [Rising Edge] Move Up/Down Shutter	Switching 0/1 (Up/Down)
	1 Bit	O	C - - T -	DPT_Step	0/1	[Ix] [Switch/Sensor] [Rising Edge] Stop/Step Up Shutter	Sending of 0 (Stop/Step Up)
	1 Bit	O	C - - T -	DPT_Step	0/1	[Ix] [Switch/Sensor] [Rising Edge] Stop/Step Down Shutter	Sending of 1 (Stop/Step Down)
	1 Bit	I	C - W T -	DPT_Step	0/1	[Ix] [Switch/Sensor] [Rising Edge] Stop/Step Shutter (Switched)	Switching of 0/1 (Stop/Step Up/Down)
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Rising Edge] Light On	Sending of 1 (On)
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Rising Edge] Light Off	Sending of 0 (Off)
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Rising Edge] Light On/Off	0/1
	4 Bit	O	C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Switch/Sensor] [Rising Edge] Brighter	Increase Brightness
	4 Bit	O	C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Switch/Sensor] [Rising Edge] Darker	Decrease Brightness
	4 Bit	I	C - W T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Switch/Sensor] [Rising Edge] Brighter/Darker	Switch Bright/Dark
	1 Byte	O	C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Switch/Sensor] [Rising Edge] Run Scene	Sending of 0 - 63
	1 Byte	O	C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Switch/Sensor] [Rising Edge] Save Scene	Sending of 128 - 191
	1 Byte	O	C - - T -	DPT_Value_1_Ucount	0 - 255	[Ix] [Switch/Sensor] [Rising Edge] Constant Value (Integer)	0 - 255
	1 Byte	O	C - - T -	DPT_Scaling	0% - 100%	[Ix] [Switch/Sensor] [Rising Edge] Constant Value (Percentage)	0% - 100%
	2 Bytes	O	C - - T -	DPT_Value_2_Ucount	0 - 65535	[Ix] [Switch/Sensor] [Rising Edge] Constant Value (Integer)	0 - 65535
	2 Bytes	O	C - - T -	9.xxx	-671088.64 - 670433.28	[Ix] [Switch/Sensor] [Rising Edge] Constant Value (Float)	Float Value
	1 Bit	O	C - - T -	DPT_Ack	0/1	[Ix] [Pulse Counter] Counter	Send 1
	1 Byte	O	C R - T -	DPT_Value_1_Ucount	0 - 255	[Ix] [Pulse Counter] Counter	Number of Pulses
	2 Bytes	O	C R - T -	DPT_Value_2_Ucount	0 - 65535	[Ix] [Pulse Counter] Counter	Number of Pulses
	2 Bytes	O	C R - T -	DPT_Power	-671088.64 - 670433.28 kW	[Ix] [Pulse Counter] Counter	Power (kW)
	2 Bytes	O	C R - T -	DPT_Value_Volume_Flow		[Ix] [Pulse Counter] Counter	Flow (l/h)
	4 Bytes	O	C R - T -	DPT_Value_4_Ucount	0 - 4294967295	[Ix] [Pulse Counter] Counter	Number of Pulses
	4 Bytes	O	C R - T -	1.xxx	0/1	[Ix] [Pulse Counter] Counter	Flow Rate (m3/h)
	4 Bytes	O	C R - T -	DPT_ActiveEnergy	0 - 2147483647	[Ix] [Pulse Counter] Counter	Energy (Wh)

	4 Bytes	O	C R - T -	DPT_ActiveEnergy_kWh	0 - 2147483647	[Ix] [Pulse Counter] Counter	Energy (kWh)
	4 Bytes	O	C R - T -	DPT_Value_Power	-3.4E+38 W - 3.4E+38 W	[Ix] [Pulse Counter] Counter	Power (W)
	4 Bytes	O	C R - T -	DPT_Value_Volume		[Ix] [Pulse Counter] Counter	Volume (m3)
	1 Bit	I/O	C R W T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] Edge	0/1
55, 64	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Short Press] Shutter Status (Input)	0% = Top; 100% = Bottom
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Short Press] Dimming Status (Input)	0% - 100%
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Switch/Sensor] [Rising Edge] Dimming Status (Input)	0% - 100%
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Switch/Sensor] [Rising Edge] Shutter Status (Input)	0% = Top; 100% = Bottom
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Rising Edge] 0/1 Switching (Immediate Object)	Switching 0/1
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Rising Edge] 0 (Immediate Object)	Sending of 0
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Rising Edge] 1 (Immediate Object)	Sending of 1
	1 Bit	I/O	C R W T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] Edge (Immediate Object)	0/1
56, 65	1 Bit	I	C - W - -	DPT_Reset	0/1	[Ix] [Pulse Counter] Reset	0 = No Action; 1 = Reset
	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] [Switch/Sensor] Alarm: Breakdown or Sabotage	1 = Alarm; 0 = No Alarm
57, 66	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Double Press] 0	Sending of 0
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Double Press] 1	Sending of 1
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Ix] [Double Press] 0/1 Switching	Switching 0/1
	1 Bit	O	C - - T -	DPT_UpDown	0/1	[Ix] [Double Press] Move Up Shutter	Sending of 0 (Up)
	1 Bit	O	C - - T -	DPT_UpDown	0/1	[Ix] [Double Press] Move Down Shutter	Sending of 1 (Down)
	1 Bit	I	C - W T -	DPT_UpDown	0/1	[Ix] [Double Press] Move Up/Down Shutter	Switching 0/1 (Up/Down)
	1 Bit	O	C - - T -	DPT_Step	0/1	[Ix] [Double Press] Stop/Step Up Shutter	Sending of 0 (Stop/Step Up)
	1 Bit	O	C - - T -	DPT_Step	0/1	[Ix] [Double Press] Stop/Step Down Shutter	Sending of 1 (Stop/Step Down)
	1 Bit	I	C - W T -	DPT_Step	0/1	[Ix] [Double Press] Stop/Step Shutter (Switched)	Switching of 0/1 (Stop/Step Up/Down)
	4 Bit	O	C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Double Press] Brighter	Increase Brightness
	4 Bit	O	C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Double Press] Darker	Decrease Brightness
	4 Bit	I	C - W T -	DPT_Control_Dimming	0x0/0x8 (Stop)	[Ix] [Double Press] Brighter/Darker	Switch Bright/Dark

					0x1...0x7 (Dec.) 0x9...0xF (Inc.)		
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Double Press] Light On	Sending of 1 (On)
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Double Press] Light Off	Sending of 0 (Off)
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Double Press] Light On/Off	0/1
	1 Byte	O	C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Double Press] Run Scene	Sending of 0 - 63
	1 Byte	O	C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Double Press] Save Scene	Sending of 128 - 191
	1 Byte	O	C - - T -	DPT_Value_1_Ucount	0 - 255	[Ix] [Double Press] Constant Value (Integer)	0 - 255
	1 Byte	O	C - - T -	DPT_Scaling	0% - 100%	[Ix] [Double Press] Constant Value (Percentage)	0% - 100%
	2 Bytes	O	C - - T -	DPT_Value_2_Ucount	0 - 65535	[Ix] [Double Press] Constant Value (Integer)	0 - 65535
	2 Bytes	O	C - - T -	9.xxx	-671088.64 - 670433.28	[Ix] [Double Press] Constant Value (Float)	Float Value
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Falling Edge] 0	Sending of 0
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Falling Edge] 0/1 Switching	Switching 0/1
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Falling Edge] 1	Sending of 1
	4 Bit	O	C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Switch/Sensor] [Falling Edge] Brighter	Increase Brightness
	4 Bit	I	C - W T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Switch/Sensor] [Falling Edge] Brighter/Darker	Switch Bright/Dark
	2 Bytes	O	C - - T -	9.xxx	-671088.64 - 670433.28	[Ix] [Switch/Sensor] [Falling Edge] Constant Value (Float)	Float Value
	2 Bytes	O	C - - T -	DPT_Value_2_Ucount	0 - 65535	[Ix] [Switch/Sensor] [Falling Edge] Constant Value (Integer)	0 - 65535
	1 Byte	O	C - - T -	DPT_Value_1_Ucount	0 - 255	[Ix] [Switch/Sensor] [Falling Edge] Constant Value (Integer)	0 - 255
	1 Byte	O	C - - T -	DPT_Scaling	0% - 100%	[Ix] [Switch/Sensor] [Falling Edge] Constant Value (Percentage)	0% - 100%
	4 Bit	O	C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Switch/Sensor] [Falling Edge] Darker	Decrease Brightness
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Falling Edge] Light Off	Sending of 0 (Off)
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Falling Edge] Light On	Sending of 1 (On)
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Falling Edge] Light On/Off	0/1
	1 Bit	O	C - - T -	DPT_UpDown	0/1	[Ix] [Switch/Sensor] [Falling Edge]	Sending of 1 (Down)

						Move Down Shutter	
	1 Bit	O	C - - T -	DPT_UpDown	0/1	[Ix] [Switch/Sensor] [Falling Edge] Move Up Shutter	Sending of 0 (Up)
	1 Bit	I	C - W T -	DPT_UpDown	0/1	[Ix] [Switch/Sensor] [Falling Edge] Move Up/Down Shutter	Switching 0/1 (Up/Down)
	1 Byte	O	C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Switch/Sensor] [Falling Edge] Run Scene	Sending of 0 - 63
	1 Byte	O	C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Switch/Sensor] [Falling Edge] Save Scene	Sending of 128 - 191
	1 Bit	O	C - - T -	DPT_Step	0/1	[Ix] [Switch/Sensor] [Falling Edge] Stop/Step Down Shutter	Sending of 1 (Stop/Step Down)
	1 Bit	I	C - W T -	DPT_Step	0/1	[Ix] [Switch/Sensor] [Falling Edge] Stop/Step Shutter (Switched)	Switching of 0/1 (Stop/Step Up/Down)
	1 Bit	O	C - - T -	DPT_Step	0/1	[Ix] [Switch/Sensor] [Falling Edge] Stop/Step Up Shutter	Sending of 0 (Stop/Step Up)
58, 67	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Double Press] Shutter Status (Input)	0% = Top; 100% = Bottom
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Double Press] Dimming Status (Input)	0% - 100%
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Switch/Sensor] [Falling Edge] Dimming Status (Input)	0% - 100%
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Switch/Sensor] [Falling Edge] Shutter Status (Input)	0% = Top; 100% = Bottom
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Falling Edge] 0 (Immediate Object)	Sending of 0
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Falling Edge] 1 (Immediate Object)	Sending of 1
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Ix] [Switch/Sensor] [Falling Edge] 0/1 Switching (Immediate Object)	Switching 0/1
59, 68	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Long Press] 0	Sending of 0
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Long Press] 1	Sending of 1
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Ix] [Long Press] 0/1 Switching	Switching 0/1
	1 Bit	O	C - - T -	DPT_UpDown	0/1	[Ix] [Long Press] Move Up Shutter	Sending of 0 (Up)
	1 Bit	O	C - - T -	DPT_UpDown	0/1	[Ix] [Long Press] Move Down Shutter	Sending of 1 (Down)
	1 Bit	I	C - W T -	DPT_UpDown	0/1	[Ix] [Long Press] Move Up/Down Shutter	Switching 0/1 (Up/Down)
	1 Bit	O	C - - T -	DPT_Step	0/1	[Ix] [Long Press] Stop/Step Up Shutter	Sending of 0 (Stop/Step Up)
	1 Bit	O	C - - T -	DPT_Step	0/1	[Ix] [Long Press] Stop/Step Down Shutter	Sending of 1 (Stop/Step Down)
	1 Bit	I	C - W T -	DPT_Step	0/1	[Ix] [Long Press] Stop/Step Shutter (Switched)	Switching of 0/1 (Stop/Step Up/Down)
	4 Bit	O	C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.)	[Ix] [Long Press] Brighter	Long Pr. -> Brighter; Release -> Stop

					0x9...0xF (Inc.)		
	4 Bit	O	C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Long Press] Darker	Long Pr. -> Darker; Release -> Stop
	4 Bit	I	C - W T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Long Press] Brighter/Darker	Long Pr. -> Brighter/Darker; Release -> Stop
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Long Press] Light On	Sending of 1 (On)
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Long Press] Light Off	Sending of 0 (Off)
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Long Press] Light On/Off	0/1
	1 Byte	O	C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Long Press] Run Scene	Sending of 0 - 63
	1 Byte	O	C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Long Press] Save Scene	Sending of 128 - 191
	1 Byte	O	C - - T -	DPT_Value_1_Ucount	0 - 255	[Ix] [Long Press] Constant Value (Integer)	0 - 255
	1 Byte	O	C - - T -	DPT_Scaling	0% - 100%	[Ix] [Long Press] Constant Value (Percentage)	0% - 100%
	2 Bytes	O	C - - T -	DPT_Value_2_Ucount	0 - 65535	[Ix] [Long Press] Constant Value (Integer)	0 - 65535
	2 Bytes	O	C - - T -	9.xxx	-671088.64 - 670433.28	[Ix] [Long Press] Constant Value (Float)	Float Value
	1 Bit	O	C - - T -	DPT_Step	0/1	[Ix] [Triple Press] Stop/Step Up Shutter	Sending of 0 (Stop/Step Up)
	1 Bit	I	C - W T -	DPT_Step	0/1	[Ix] [Triple Press] Stop/Step Shutter (Switched)	Switching of 0/1 (Stop/Step Up/Down)
	1 Bit	O	C - - T -	DPT_Step	0/1	[Ix] [Triple Press] Stop/Step Down Shutter	Sending of 1 (Stop/Step Down)
	1 Byte	O	C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Triple Press] Save Scene	Sending of 128 - 191
	1 Byte	O	C - - T -	DPT_SceneControl	0-63; 128-191	[Ix] [Triple Press] Run Scene	Sending of 0 - 63
	1 Bit	I	C - W T -	DPT_UpDown	0/1	[Ix] [Triple Press] Move Up/Down Shutter	Switching 0/1 (Up/Down)
	1 Bit	O	C - - T -	DPT_UpDown	0/1	[Ix] [Triple Press] Move Up Shutter	Sending of 0 (Up)
	1 Bit	O	C - - T -	DPT_UpDown	0/1	[Ix] [Triple Press] Move Down Shutter	Sending of 1 (Down)
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Triple Press] Light On/Off	0/1
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Triple Press] Light On	Sending of 1 (On)
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Triple Press] Light Off	Sending of 0 (Off)
	4 Bit	O	C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Triple Press] Darker	Decrease Brightness
	1 Byte	O	C - - T -	DPT_Scaling	0% - 100%	[Ix] [Triple Press] Constant Value (Percentage)	0% - 100%
	2 Bytes	O	C - - T -	DPT_Value_2_Ucount	0 - 65535	[Ix] [Triple Press] Constant Value (Integer)	0 - 65535
	1 Byte	O	C - - T -	DPT_Value_1_Ucount	0 - 255	[Ix] [Triple Press] Constant Value	0 - 255

						(Integer)	
	2 Bytes	O	C - - T -	9.xxx	-671088.64 - 670433.28	[Ix] [Triple Press] Constant Value (Float)	Float Value
	4 Bit	I	C - W T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Triple Press] Brighter/Darker	Switch Bright/Dark
	4 Bit	O	C - - T -	DPT_Control_Dimming	0x0/0x8 (Stop) 0x1...0x7 (Dec.) 0x9...0xF (Inc.)	[Ix] [Triple Press] Brighter	Increase Brightness
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Triple Press] 1	Sending of 1
	1 Bit	I	C - W T -	DPT_Switch	0/1	[Ix] [Triple Press] 0/1 Switching	Switching 0/1
	1 Bit	O	C - - T -	DPT_Switch	0/1	[Ix] [Triple Press] 0	Sending of 0
60, 69	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Long Press] Dimming Status (Input)	0% - 100%
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Long Press] Shutter Status (Input)	0% = Top; 100% = Bottom
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Triple Press] Shutter Status (Input)	0% = Top; 100% = Bottom
	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix] [Triple Press] Dimming Status (Input)	0% - 100%
61, 70	1 Bit	O	C - - T -	DPT_Trigger	0/1	[Ix] [Long Press/Release] Stop Shutter	Release -> Stop Shutter
71	1 Byte	I	C - W - -	DPT_SceneNumber	0 - 63	[Motion Detector] Scene Input	Scene Value
72	1 Byte	O	C - - T -	DPT_SceneControl	0-63; 128-191	[Motion Detector] Scene Output	Scene Value
73, 110	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[Ix] Luminosity	0 - 100%
74, 111	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Open Circuit Error	0 = No Error; 1 = Open Circuit Error
75, 112	1 Bit	O	C R - T -	DPT_Alarm	0/1	[Ix] Short Circuit Error	0 = No Error; 1 = Short Circuit Error
76, 113	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[Ix] Presence State (Scaling)	0 - 100%
77, 114	1 Byte	O	C R - T -	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Ix] Presence State (HVAC)	Auto, Comfort, Standby, Economy, Building Protection
78, 115	1 Bit	O	C R - T -	DPT_Switch	0/1	[Ix] Presence State (Binary)	Binary Value
	1 Bit	O	C R - T -	DPT_Start	0/1	[Ix] Presence: Slave Output	1 = Motion Detected
79, 116	1 Bit	I	C - W - -	DPT_Window_Door	0/1	[Ix] Presence Trigger	Binary Value to Trigger the Presence Detection
80, 117	1 Bit	I	C - W - -	DPT_Start	0/1	[Ix] Presence: Slave Input	0 = Nothing; 1 = Detection from slave device
81, 118	2 Bytes	I/O	C R W - -	DPT_TimePeriodSec	0 - 65535	[Ix] Presence: Waiting Time	0 - 65535 s
82, 119	2 Bytes	I/O	C R W - -	DPT_TimePeriodSec	0 - 65535	[Ix] Presence: Listening Time	1 - 65535 s
83, 120	2 Bytes	I/O	C R W - -	DPT_TimePeriodMin	0 - 65535	[Ix] Presence: Safety Time	0 - 1440 min
84, 121	1 Byte	I/O	C R W - -	DPT_Value_1_Ucount	0 - 255	[Ix] Presence: Number of Detections of the Filter	2 - 5

85, 122	1 Byte	I/O	C R W - -	DPT_Value_1_Ucount	0 - 255	[Ix] Presence: Filter Detection Window	15 - 60 s
86, 123	1 Bit	I	C - W - -	DPT_Enable	0/1	[Ix] Presence: Enable	0 = Disable; 1 = Enable
	1 Bit	I	C - W - -	DPT_Enable	0/1	[Ix] Presence: Enable	0 = Enable; 1 = Disable
87, 124	1 Bit	I/O	C R W - -	DPT_DayNight	0/1	[Ix] Presence: Day/Night	0 = Day; 1 = Night
	1 Bit	I/O	C R W - -	DPT_DayNight	0/1	[Ix] Presence: Day/Night	0 = Night; 1 = Day
88, 125	1 Bit	O	C R - T -	DPT_Occupancy	0/1	[Ix] Presence: Occupancy State (Master Output)	0 = Not Occupied; 1 = Occupied
	1 Bit	I	C - W - -	DPT_Occupancy	0/1	[Ix] Presence: Occupancy State (Master Input)	0 = Not Occupied; 1 = Occupied
89, 126	1 Bit	I	C - W - -	DPT_Switch	0/1	[Ix] Presence: Access Guest/Employee	0 = Guest; 1 = Employee
	1 Bit	I	C - W - -	DPT_Switch	0/1	[Ix] Presence: Access Guest/Employee	0 = Employee; 1 = Guest
90, 127	1 Bit	I	C - W - -	DPT_Bool	0/1	[Ix] Presence: Sold/Unsold Room	0 = Unsold; 1 = Sold
	1 Bit	I	C - W - -	DPT_Bool	0/1	[Ix] Presence: Sold/Unsold Room	0 = Sold; 1 = Unsold
91, 128	1 Bit	I	C - W - -	DPT_Start	0/1	[Ix] External Motion Detection	0 = Nothing; 1 = Motion detected by an external sensor
92, 98, 104, 129, 135, 141	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[Ix][Cx] Detection State (Scaling)	0 - 100%
93, 99, 105, 130, 136, 142	1 Byte	O	C R - T -	DPT_HVACMode	1=Comfort 2=Standby 3=Economy 4=Building Protection	[Ix][Cx] Detection State (HVAC)	Auto, Comfort, Standby, Economy, Building Protection
94, 100, 106, 131, 137, 143	1 Bit	O	C R - T -	DPT_Switch	0/1	[Ix][Cx] Detection State (Binary)	Binary Value
95, 101, 107, 132, 138, 144	1 Bit	I	C - W - -	DPT_Enable	0/1	[Ix][Cx] Enable Channel	According to parameters
96, 102, 108, 133, 139, 145	1 Bit	I	C - W - -	DPT_Switch	0/1	[Ix][Cx] Force State	0 = No Detection; 1 = Detection
97, 103, 109, 134, 140, 146	1 Byte	I	C - W - -	DPT_Scaling	0% - 100%	[Ix][Cx] Luminosity Threshold	1 - 100%
147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178	1 Bit	I	C - W - -	DPT_Bool	0/1	[LF] (1-Bit) Data Entry x	Binary Data Entry (0/1)
179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194	1 Byte	I	C - W - -	DPT_Value_1_Ucount	0 - 255	[LF] (1-Byte) Data Entry x	1-Byte Data Entry (0-255)
195, 196, 197, 198, 199,	2 Bytes	I	C - W - -	DPT_Value_2_Ucount	0 - 65535	[LF] (2-Byte) Data Entry x	2-Byte Data Entry

200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210	2 Bytes	I	C - W - -	DPT_Value_2_Count	-32768 - 32767	[LF] (2-Byte) Data Entry x	2-Byte Data Entry
	2 Bytes	I	C - W - -	9.xxx	-671088.64 - 670433.28	[LF] (2-Byte) Data Entry x	2-Byte Data Entry
211, 212, 213, 214, 215, 216, 217, 218	4 Bytes	I	C - W - -	DPT_Value_4_Count	-2147483648 - 2147483647	[LF] (4-Byte) Data Entry x	4-Byte Data Entry
219, 220, 221, 222, 223, 224, 225, 226, 227, 228	1 Bit	O	C R - T -	DPT_Bool	0/1	[LF] Function x - Result	(1-Bit) Boolean
	1 Byte	O	C R - T -	DPT_Value_1_Ucount	0 - 255	[LF] Function x - Result	(1-Byte) Unsigned
	2 Bytes	O	C R - T -	DPT_Value_2_Ucount	0 - 65535	[LF] Function x - Result	(2-Byte) Unsigned
	4 Bytes	O	C R - T -	DPT_Value_4_Count	-2147483648 - 2147483647	[LF] Function x - Result	(4-Byte) Signed
	1 Byte	O	C R - T -	DPT_Scaling	0% - 100%	[LF] Function x - Result	(1-Byte) Percentage
	2 Bytes	O	C R - T -	DPT_Value_2_Count	-32768 - 32767	[LF] Function x - Result	(2-Byte) Signed
	2 Bytes	O	C R - T -	9.xxx	-671088.64 - 670433.28	[LF] Function x - Result	(2-Byte) Float
229	1 Bit	O	C R - T -	DPT_Trigger	0/1	[Heartbeat] Object to Send '1'	Sending of '1' Periodically
230	1 Bit	O	C R - T -	DPT_Trigger	0/1	[Heartbeat] Device Recovery	Send 0
231	1 Bit	O	C R - T -	DPT_Trigger	0/1	[Heartbeat] Device Recovery	Send 1

Join and send us your inquiries about Zennio devices:

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