# **IntesisBox**® PA-AC-KNX-1i v1.2

# User's Manual

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# Gateway for integration of Panasonic air conditioners into KNX TP-1 (EIB) control systems. Compatible with Etherea line air conditioners commercialized by Panasonic.

Application's Program Version: 1.2

Order Code: PA-AC-KNX-1i



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# 1. Presentation



PA-AC-KNX-1i allows a complete and natural integration of PANASONIC air conditioners with KNX control systems.

Compatible with all Etherea models commercialized by PANASONIC.

Main features:

- Reduced dimensions, quick installation.
- Multiple objects for control and status (bit, byte, characters...) with KNX standard datapoint types.
- Status objects for every control available.
- Timeout for Open Window and Occupancy. Sleep function also available.
- Control of the AC unit based in the ambient temperature read by the own AC unit, or in the ambient temperature read by any KNX thermostat.
- AC unit can be controlled simultaneously by the IR remote control of the AC unit and by KNX.
- Total Control and Monitoring of the AC unit from KNX, including monitoring of AC unit's state of internal variables, running hours counter (for filter maintenance control), and error indication and error code.
- Up to 5 scenes can be saved and executed from KNX, fixing the desired combination of Operation Mode, Set Temperature, Fan Speed, Vane Position and Remote Controller Lock in any moment by using a simple switching.
- Four potential-free binary inputs provide the possibility to integrate many types of external devices. Also configurable from ETS, they can be used for switching, dimming, shutter/blind control, and more



# 2. Connection

The interface comes with a cable (1,9 meters long) for direct connection to the internal control board of the AC indoor unit.

• Connection of the interface to the AC indoor unit:

Disconnect mains power from the AC unit. Open the front cover of the indoor unit in order to have access to the internal control board. In the control board locate the socket connector marked as:

**CN-CNT** in Etherea line units.

Using the cable that comes with the interface, insert one of its connectors, the one installed in the shortest uncovered part, into the socket of the PA-AC-KNX-1i marked as **AC Unit**, and the other connector, the one in the largest uncovered part, into the socket **CN-CNT** of the AC unit's control board. Fix the PA-AC-KNX-1i inside or outside the AC indoor unit depending on your needs, remember that PA-AC-KNX-1i must be also connected to the KNX bus. Close the AC indoor unit's front cover again.

- ▲ **Important**: Do not modify the length of the cable supplied with the interface, it may affect to the correct operation of the interface
- <u>Connection of the interface to the KNX bus:</u>

Disconnect power of the KNX bus. Connect the interface to the KNX TP-1 (EIB) bus using the KNX standard connector (red/grey) of the interface, respect polarity. Reconnect power of the KNX bus.

• Connections diagram:



Figure 2.2 Connection diagram



### 3. Configuration and setup

This is a fully compatible KNX device which must be configured and setup using standard KNX tool ETS.

ETS database for this device can be downloaded from:

http://www.intesis.com/down/eib/PA-AC-KNX-1i.zip

Please consult the README.txt file, located inside the downloaded zip file, to find instructions on how to install the database.

▲ **Important**: Do not forget to select the correct settings of AC indoor unit being connected to the PA-AC-KNX-1i (Fan speed and Vanes), this is in "Parameters" of the device in ETS.



# 4. ETS Parameters

When imported to the ETS software for the first time, the gateway shows the following default parameter configuration:

De	Device: 1.1.1 PA AC Interface				
	General	Download Intest database entry for this	http://www.interig.com		
	Mode Configuration	product and its User Manual from:	http://www.intesis.com		
	Special Modes Configuration	F			
	Fan Speed Configuration	Send READs for Control_ objects on bus	No		
	Vanes Up-Down Configuration	recovery (I and U flags must be active)			
	Vanes Left-Right Configuration	Scene to load on bus recovery / startup	(none) 🔹		
	Temperature Configuration	(needs to define vals for that scene)			
	Scene Configuration	Disallow control from remote controller	No		
	Switch-Off Timeouts Configuration				
	Binary Input 1 Configuration	> Enable comm obj "Ctrl_ Remote Lock"	No		
	Binary Input 2 Configuration				
	Binary Input 3 Configuration	Enable func "Control_ Lock Control Obj"	No		
	Binary Input 4 Configuration	Enable func "Operating Hours Counter"	No		
		Enable object "Error Code [2byte]"	No		
		Enable object "Error Text Code [14byte]" (3 ASCII-char Error Code)	Yes 🔹		

Figure 4.1 Default parameter configuration

With this configuration it's possible to send On/Off (*Control\_ On/Off*), change the AC Mode (*Control\_ Mode*), the Fan Speed (*Control\_ Fan Speed*) and also the Setpoint Temperature (*Control\_ Setpoint Temperature*). The Status\_ objects, for the mentioned Control\_ objects, are also available to use if needed. Also objects *Status\_ AC Setpoint Temp* and *Status\_ Error/Alarm* are shown.

4	1.1.1 PA AC Interface
	■之0: Control_ On/Off [DPT_1.001 - 1bit] - 0-Off;1-On
	■ズ 3: Control_ Mode [DPT_20.105 - 1byte] - 0-Aut;1-Hea;3-Coo;9-Fan;14-Dry
	■ズ 13: Control_ Fan Speed / 5 Speeds [DPT_5.010 - 1byte] - Speed values: 1,2,3,4,5
	21: Control_ Vanes Up-Down / 5 pos [DPT_5.010 - 1byte] - Position values: 1,2,3,4,5
	■ズ 29: Control_ Vanes L-R / 5 pos [DPT_5.010 - 1by - Position values 1,2,3,4,5
	■之 37: Control_ Setpoint Temperature [DPT_9.001 - 2byte] - (°C)
	■之 64: Status_ On/Off [DPT_1.001 - 1bit] - 0-Off;1-On
	■之 67: Status_ Mode [DPT_20.105 - 1byte] - 0-Aut;1-Hea;3-Coo;9-Fan;14-Dry
	■ズ 75: Status_ Fan Speed / 5 Speeds [DPT_5.010 - 1byte] - Speed Values: 1,2,3,4,5
	■2 83: Status_ Vanes Up-Down / 5 pos [DPT_5.010 - 1byte] - Position values 1,2,3,4,5
	■2 91: Status_ Vanes L-R / 5 pos [DPT_5.010 - 1byte] - Position values 1,2,3,4,5
	■\$ 99: Status_ AC Setpoint Temp [DPT_9.001 - 2byte] - (°C)
	■之 100: Status_ Error/Alarm [DPT_1.005 - 1bit] - 0-No alarm;1-Alarm
	■ 2 102: Status Error Text Code [DPT 16.001 - 14byte] - 3 char PA Error;Empty-None

#### Figure 4.2 Default communication objects



#### 4.1 General dialog

Inside this parameter's dialog it is possible to activate or change the parameters shown in the **Figure 4.1**.

The first field shows the URL where to download the database and the user manual for the product.

4.1.1 Send READs for Control\_ objects on bus recovery

When this parameter is enabled, PA-AC-KNX-1i will send READ telegrams for the group addresses associated on its *Control\_* objects on bus recovery or application reset/start-up.

- If set to **"no"** the gateway will not perform any action.
- If set to **"yes"** all *Control\_* objects with both Transmit **(T)** and Update **(U)** flags enabled will send READs and their values will be updated with the response when received.

Send READs for Control_objects on bus recovery (T and U flags must be active)	yes 🔹
> Delay before sending READs (sec)	30

#### Figure 4.4 Parameter detail

> Delay before sending READs (sec):

With this parameter, a delay can be configured between 0 and 30 seconds for the READs sent by the *Control\_* objects. This is to give time enough to other KNX devices on the bus to start-up before sending the READs.

#### 4.1.2 Scene to load on bus recovery / startup

This parameter executes a selected scene on bus recovery or startup, only if the selected scene has an enabled preset or values previously saved from KNX bus (see Scene Configuration dialog).

If the gateway is disconnected from the indoor unit the scene will not be applied, even when connecting to the indoor unit again.

to load on bus recovery / startup	scene 2 🔹
s to define vals for that scene)	

#### Figure 4.5 Parameter detail

#### 4.1.3 Disallow control from remote controller

Scene (need:

This parameter allows:

- 1- Having the remote controller always locked, or
- 2- Decide through a new communication object if the RC is locked or not.
- If set to "yes" all the actions performed through the remote controller will be disabled.



• If set to **"no"** the remote controller will work as usually. It also appears a new parameter and the communication object *Control\_ Lock Remote Control*.

43: Control\_Lock Remote Control [DPT\_1.002 - 1bit] - 0-Unlocked;1-Locked

Disallow control from remote controller	no
> Enable comm obj "Ctrl_ Remote Lock"	yes 🔹

Figure 4.6 Communication object and parameter detail

#### Enable comm obj "Ctrl Remote Lock":

If set to "**no**" the object will not be shown.

If set to "yes" the Control\_ Lock Remote Control object will appear.

- When a "1" value is sent to this communication object, the remote controller is locked. To be unlocked a "0" value must be sent. The gateway remembers the last value received even if a KNX bus reset/failure happens.
- ▲ **Important:** If an initial scene is enabled and it has as Value for Remote Lock (unchanged) or unlocked, this would unlock the remote controller because the initial scene has priority over the Control\_ Lock Remote Control communication object.

#### 4.1.4 Enable func "Control\_ Lock Control Obj"

This parameter shows/hide the *Control\_ Lock Control Obj* communication object which, depending on the sent value, locks or unlocks ALL the *Control\_* communication objects except itself.

44: Control\_Lock Control Objects [DPT\_1.002 - 1bit] - 0-Unlocked;1-Locked

- If set to **"no"** the object will not be shown.
- If set to "**yes**" the *Control\_ Lock Control Objects* object will appear.
  - When a **"1**" value is sent to this communication object, all the *Control*\_ objects will be locked. To unlock a **"0**" value must be sent, as the gateway remembers the last value received even if a KNX bus reset/failure happens.

#### 4.1.5 Enable func "Operating Hours Counter"

This parameter shows/hides the *Status\_ Operation Hour Counter* communication object which counts the number of operating hours for the PA-AC-KNX-1i.

107: Status\_ Operation Hour Counter [DPT\_7.001 - 2byte] - Number of operating hours

 $\circ$   $\;$  If set to ``no" the object will not be shown.



- If set to **"yes"** the *Status\_ Operation Hour Counter* object will appear.
  - This object can be read and sends its status every time an hour is counted. The gateway keeps that count in memory and the status is sent also after a KNX bus reset/failure. Although this object is marked as a *Status*\_ object it also can be written to update the counter when needed. To reset the counter should be written a **"0**" value.
  - ▲ **Important:** This object comes by default without the write **(W)** flag activated. If is necessary to write on it, this flag must be activated.
  - ▲ **Important:** This object will also return its status, every time a value is written, only if it's different from the existing one.
  - ▲ **Important:** If the stored value is 0 hours, the gateway will not send the status to KNX.

#### 4.1.6 Enable object "Error Code [2byte]"

This parameter shows/hides the *Status\_ Error Code* communication object which shows the indoor unit errors, if occurred, in numeric format.

■ 101: Status\_ Error Code [2byte] - 0-No error /Any other see man.

- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Status\_ Error Code [2byte]* object will appear.
  - This object can be read and also sends the indoor unit error, if occurred, in numeric format. If a "O" value is shown that means no error.
- 4.1.7 Enable object "Error Text Code [14byte]"

This parameter shows/hides the *Status\_ Error Text Code* communication object which shows the indoor unit errors, if occurred, in text format.

■之102: Status\_ Error Text Code [DPT\_16.001 - 14byte] - 3 char PA Error;Empty-None

- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Status\_ Error Text Code* object will appear.
  - This object can be read and also sends the indoor unit error, if occurred, in text format. The errors shown have the same format as at the remote controller and at the error list from the indoor unit manufacturer. If the object's value is empty that means no error.



#### 4.2 Mode Configuration dialog

)e\	vice: 1.1.1 PA AC Interface		
	General	Tede en unit han UEAT annua	V
	Mode Configuration	(see docum, for your indoor unit)	res
	Special Modes Configuration	(see abcann for your motor anny	
	Fan Speed Configuration	Indoor unit has FAN mode	Yes
	Vanes Up-Down Configuration	(see docum. for your indoor unit)	
	Vanes Left-Right Configuration	When mode is AUTO Status_ objs report	No
	Temperature Configuration	actual operating status (HEAT/COOL/)	
	Scene Configuration	Enable use of Mode Cool/Heat bit ture	No
	Switch-Off Timeouts Configuration	object	
	Binary Input 1 Configuration		
	Binary Input 2 Configuration	Enable PID-Compat. Scaling Mode Objects	No
	Binary Input 3 Configuration	Enable use of 1 / object for Mode	Na
	Binary Input 4 Configuration	Enable use of +/- object for Mode	No
		Enable use of bit-type Mode objects	No
		(for control)	
		Enable use of hit-type Mode objects	No
		(for status)	
		<b>..</b>	
		Enable use of Text object for Mode	No

Figure 4.7 Default Mode Configuration dialog

All the parameters in this section are related with the different mode properties and communication objects.

2: Control\_ Mode [DPT\_20.105 - 1byte] - 0-Aut;1-Hea;3-Coo;9-Fan;14-Dry

The byte-type communication object for Mode works with the DTP\_20.105. Auto mode will be enabled with a "**0**" value, Heat mode with a "**1**" value, Cool mode with a "**3**" value, Fan mode with a "**9**" value and Dry mode with a "**14**" value.

#### 4.2.1 Indoor unit has HEAT mode

This parameter has to be used to indicate if the indoor unit has the *heating mode operation* available.

- If set to **"no"**, the indoor unit doesn't have the *heating mode operation* available.
- If set to **"yes"**, the infoor unit has the *heating mode operation* available.
- ▲ **Important:** Read the documentation of your indoor unit to check if it has HEAT mode available.

#### 4.2.2 Indoor unit has FAN mode

This parameter has to be used to indicate if the indoor unit has the *fan mode* available.

- If set to **"no"**, the indoor unit doesn't have the *fan mode* available.
- If set to **"yes"**, the infoor unit has the *fan mode* available.
- ▲ **Important:** Read the documentation of your indoor unit to check if it has FAN mode available.



#### 4.2.3 When mode is AUTO Status\_ objs report actual operating status

This parameter shows the real status of the indoor unit when Auto mode is enabled.

- If set to **"no"**, when the indoor unit is set to Auto mode, all the *Status*\_ objects concerning mode will only show Auto enabled.
- If set to "yes", when the indoor unit is set to Auto mode, all the Status\_ objects concerning mode will show the real mode which the machine is working (Cool, Heat, Dry, Fan). In case of the bitfield objects, also the Status\_ Mode Auto will be shown enabled with a "1" value.
- 4.2.4 Enable use of Heat / Cool bit-type obj

This parameter shows/hides the *Control\_* and *Status\_ Mode Cool/Heat* communication objects.

■之4: Control\_ Mode Cool/Heat [DPT\_1.100 - 1bit] - 0-Cool;1-Heat ■之68: Status\_ Mode Cool/Heat [DPT\_1.100 - 1bit] - 0-Cool;1-Heat

- If set to **"no"** the objects will not be shown.
- If set to "**yes**" the *Control\_* and *Status\_ Mode Cool/Heat* objects will appear.
  - When a "1" value is sent to the *Control\_* communication object, **Heat mode** will be enabled in the indoor unit, and the *Status\_* object will return this value.
  - When a "0" value is sent to the *Control* communication object, Cool mode will be enabled in the indoor unit, and the *Status* object will return this value.

#### 4.2.5 Enable PID-Compat. Scaling Mode Objects

This parameter shows/hides the *Control\_ Mode Cool & On* and *Control\_ Mode Heat & On* communication objects.

■之 5: Control\_ Mode Cool & On [DPT\_5.001 - 1byte] - 0%-Off;0.1%-100%-On+Cool ■之 6: Control\_ Mode Heat & On [DPT\_5.001 - 1byte] - 0%-Off;0.1%-100%-On+Heat

- If set to **"no"** the objects will not be shown.
- If set to "yes" the Control\_ Mode Cool & On and Control\_ Mode Heat & On objects will appear.
  - These objects provide compatibility with those KNX thermostats that control the demand of heating or cooling by using scaling (percentage) objects. In these thermostats, the percentage demand is meant to be applied on a fluid valve of the heating / cooling system.



- PA-AC-KNX-1i device does not provide individual control on the internal parts of the indoor unit (as can be its compressor, refrigerant valves, etc). Rather, it provides the same level of control as a (user) remote controller.
- Objects "Control\_ Mode Cool & On" and "Control\_ Mode Heat & On" intend to bring compatibility between thermostats oriented to the control of custom heating / cooling systems and ready-made AC indoor units, by applying the following logic:
  - Whenever a non-zero value (>0%) is received at "Control\_ Mode Cool & On", indoor unit will switch On in COOL mode.
  - Whenever a non-zero value (>0%) is received at "Control\_ Mode Heat & On", indoor unit will switch On in HEAT mode.
    - Lastest updated object will define the operating mode
  - Indoor unit will switch off only when both objects become zero (0%) or when an OFF is requested at object "0. On/Off [DPT\_1.001 - 1bit]"
- ▲ **Important:** These objects function is only to send On/Off and Cool/Heat to the indoor unit. The PID (Inverter system) is calculated by the indoor unit itself. Please consider introducing an appropriate PID configuration to the external KNX thermostat to not interfere the indoor unit PID.
- 4.2.6 Enable use of + / object for Mode

This parameter shows/hides the *Control\_ Mode* +/- communication object which lets change the indoor unit mode by using two different datapoint types.

■2 12: Control\_ Mode -/+ [DPT\_1.007 - 1bit] - 0-Decrease;1-Increase

- If set to **"no"** the object will not be shown.
- If set to **"yes**" the *Control\_ Mode* +/- object and a new parameter will appear.

Enable use of +/- object for Mode	yes 🔹
> DPT type for +/- Mode Object	0-Up / 1-Down [DPT_1.008]

Figure 4.8 Parameter detail

DPT type for +/- Mode Object

This parameter lets choose between the datapoints **0-Up / 1-Down [DPT\_1.008]** and **0-Decrease / 1-Increase [DPT\_1.007]** for the *Control\_ Mode* +/- object.



The sequence followed when using this object is shown below:



Up / IncreaseDown / Decrease

#### 4.2.7 Enable use of bit-type Mode objects (for control)

This parameter shows/hides the bit-type *Control\_ Mode* objects.

- Z 7: Control\_ Mode Auto [DPT\_1.002 1bit] 1-Set AUTO mode
   Z 8: Control\_ Mode Heat [DPT\_1.002 1bit] 1-Set HEAT mode
   Z 9: Control\_ Mode Cool [DPT\_1.002 1bit] 1-Set COOL mode
   Z 10: Control\_ Mode Fan [DPT\_1.002 1bit] 1-Set FAN mode
   Z 11: Control\_ Mode Dry [DPT\_1.002 1bit] 1-Set DRY mode
- If set to "**no**" the objects will not be shown.
- If set to "yes" the Control\_ Mode objects for Auto, Heat, Cool, Fan and Dry will appear. To activate a mode by using these objects a "1" value has to be sent.

#### 4.2.8 Enable use of bit-type Mode objects (for status)

This parameter shows/hides the bit-type *Status\_ Mode* objects.

Image: Status\_Mode Auto [DPT\_1.002 - 1bit] - 1-AUTO mode is active
Image: Formation of the status of the stat

- If set to "**no**" the objects will not be shown.
- If set to "yes" the Status\_ Mode objects for Auto, Heat, Cool, Fan and Dry will appear.
   When enabled, a mode will return a "1" through its bit-type object.

#### 4.2.9 Enable use of Text object for Mode

This parameter shows/hides the *Status\_ Mode Text* communication object.

■ 74: Status\_ Mode Text [DPT\_16.001 - 14byte] - ASCII String

#### $\circ$ If set to ``no" the object will not be shown.



 If set to "yes" the Status\_ Mode Text object will appear. Also, in the parameters, will be shown five text fields, one for each mode, that will let modify the text string displayed by the Status\_ Mode Text when changing mode.

> String when mode is AUTO	AUTO
> String when mode is HEAT	HEAT
> String when mode is COOL	COOL
> String when mode is FAN	FAN
> String when mode is DRY	DRY

Figure 4.9 Parameter detail

#### 4.3 Special Modes Configuration dialog

Dev	vice: 1.1.1 PA AC Interface		
	General Mode Configuration	Enable use of "POWERFUL" mode	Yes
	Special Modes Configuration	(AC realure)	
	Fan Speed Configuration	Enable use of "QUIET" mode	Yes 🗸
	Vanes Up-Down Configuration	(AC feature)	
	Vanes Left-Right Configuration	Enable use of POWER mode	No
	Temperature Configuration		
	Scene Configuration	Enable use of ECONOMY mode	No
	Switch-Off Timeouts Configuration		
	Binary Input 1 Configuration	Enable use of ADDITIONAL HEATING mode	No •
	Binary Input 2 Configuration	Enable use of ADDITIONAL COOLING mode	Ne
	Binary Input 3 Configuration		
	Binary Input 4 Configuration		

Figure 4.10 Default Special Modes Configuration dialog

The Special Modes can be parameterized through the ETS parameters dialog, and they can be used to give extra functionality.

- ▲ **Important:** When executing any of the Special Modes (excluding POWERFUL and QUIET modes), the real state of the indoor unit will NOT be shown in KNX.
- ▲ **Important:** When the predefined time for the Special Mode is finished or a "**0**" value is sent to stop it, the previous state will be recovered (excluding in POWERFUL and QUIET modes).
- ▲ Important: If a value concerning On/Off, Mode, Fan Speed or Setpoint Temperature is received from KNX while any Special Mode (excluding POWERFUL and QUIET modes) is running ("1"), the Special Mode will stop and the previous state will be recovered. The value received will be also applied then.
- ▲ **Important:** If a value concerning On/Off, Mode, Fan Speed or Setpoint Temperature is modified through the remote controller, the Special Mode (excluding POWERFUL and QUIET modes) will stop WITHOUT recovering the previous state. Then the real indoor unit state will be shown in KNX including the new value received through the remote controller.



#### 4.3.1 Enable use of "POWERFUL" mode (AC feature)

This parameter shows/hides the *Control\_ Powerful* and *Status\_ Powerful* communication objects.

 ■
 1: Control\_ Powerful [DPT\_1.002 - 1bit] - 1-Set POWERFUL

 ■
 65: Status\_ Powerful [DPT\_1.002 - 1bit] - 1-POWERFUL is active

- ▲ **Important:** The Powerful Mode is an internal AC feature. Please check the indoor unit user's manual to have more information about it.
- $\circ$  If set to ``**no**" the object will not be shown.
- If set to "**yes**" the *Control\_ Po1werful* and *Status\_ Powerful* objects will appear.
  - When a "1" value is sent to the *Control* communication object, Powerful Mode will be enabled, and the *Status* object will return this value.
  - When a **"O**" value is sent to the *Control*\_ communication object, Powerful Mode will be disabled, and the *Status*\_ object will return this value.

4.3.2 Enable use of "QUIET" mode (AC feature)

This parameter shows/hides the Control\_ Quiet and Status\_ Quiet communication objects.

■之2: Control\_Quiet [DPT\_1.002 - 1bit] - 1-Set QUIET ■之6: Status\_Quiet [DPT\_1.002 - 1bit] - 1-QUIET is active

- ▲ **Important:** The Quiet Mode is an internal AC feature. Please check the indoor unit user's manual to have more information about it.
- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Control\_ Quiet* and *Status\_ Quiet* objects will appear.
  - When a "1" value is sent to the *Control* communication object, Quiet Mode will be enabled, and the *Status* object will return this value.
  - When a "O" value is sent to the *Control* communication object, Quiet Mode will be disabled, and the *Status* object will return this value.

#### 4.3.3 Enable use of POWER mode

This parameter shows/hides the *Control\_ Power Mode* and *Status\_ Power Mode* communication objects. The Power Mode lets change the Setpoint Temperature and the Fan Speed within a given period of time.

■之 45: Control\_ Power Mode [DPT\_1.010 - 1bit] - 0-Stop;1-Start ■之 103: Status\_ Power Mode [DPT\_1.001 - 1bit] - 0-Off;1-On



- If set to "**no**" the objects will not be shown.
- If set to **"yes"** the *Control\_ Power Mode* and *Status\_ Power Mode* objects and new parameters will appear.

Enable use of POWER mode	yes 🔹
> Action time for this mode (minutes) (0 = permanent / unlimited)	2
<ul> <li>Setpoint delta increase (HEAT) or decrease (COOL) - in Celsius</li> </ul>	2.0°C •
> Fanspeed for this mode	SPEED 3 (if avail.)

Figure 4.11 Parameter detail

- When a **"1**" value is sent to the *Control*\_ communication object Power Mode will be enabled, and the *Status*\_ object will return this value.
- When a **"0**" value is sent to the *Control*\_ communication object, Power Mode will be disabled, and the *Status*\_ object will return this value.
- ▲ **Important:** This mode will ONLY work if the indoor unit is both turned on and in a Heat, Cool, Auto-Heat or Auto-Cool Mode.
- Action time for this mode (minutes):

Duration of Power Mode, in minutes, once started.

Setpoint delta increase (HEAT) or decrease (COOL) – in Celsius:

Number of degrees Celsius that will increase in Heat Mode, or decrease in Cool Mode, while in Power Mode.

> Fan Speed for this mode:

Fan Speed that will be set in the unit while in Power Mode.

#### 4.3.4 Enable use of ECONOMY mode

This parameter shows/hides the *Control\_ Econo Mode* and *Status\_ Econo Mode* communication objects. The Econo Mode lets change the Setpoint Temperature and the Fan Speed within a given period of time.

■之|46: Control\_ Econo Mode [DPT\_1.010 - 1bit] - 0-Stop;1-Start ■之|104: Status\_ Econo Mode [DPT\_1.001 - 1bit] - 0-Off;1-On

- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Control\_ Econo Mode* and *Status\_ Econo Mode* objects and new parameters will appear.



- When a **"1**" value is sent to the *Control*\_ communication object, EconoMode will be enabled, and the *Status*\_ object will return this value.
- When a "**0**" value is sent to the *Control*\_ communication object, EconoMode will be disabled, and the *Status*\_ object will return this value.
- ▲ **Important:** This mode will ONLY work if the indoor unit is both turned on and in a Heat, Cool, Auto-Heat or Auto-Cool Mode.
- > Action time for this mode (minutes):

Duration of EconoMode, in minutes, once started.

> <u>Setpoint delta increase (HEAT) or decrease (COOL) – in Celsius:</u>

Number of degrees Celsius that will increase in Heat Mode, or decrease in Cool Mode, while in EconoMode.

> Fan Speed for this mode:

Fan Speed that will be set in the unit while in EconoMode.

#### 4.3.5 Enable use of ADDITIONAL HEATING mode

This parameter shows/hides the *Control\_ Start Additional Heat Mode* and *Status\_ Additional Heat Mode* communication objects. The Additional Heating Mode lets change the Setpoint Temperature and the Fan Speed within a given period of time.

■之|47: Control\_Additional Heat [DPT\_1.010 - 1bit] - 0-Stop;1-Start ■之|105: Status\_Additional Heat [DPT\_1.001 - 1bit] - 0-Off;1-On

- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the Control\_ Start Additional Heat Mode and Status\_ Additional Heat Mode objects and new parameters will appear.
  - When a **"1**" value is sent to the *Control*\_ communication object, Additional Heating Mode will be enabled, and the *Status*\_ object will return this value.
  - When a **"O**" value is sent to the *Control*\_ communication object, Additional Heating Mode will be disabled, and the *Status*\_ object will return this value.
  - ▲ **Important:** This mode will ALWAYS turn on the indoor unit in Heat mode.
  - > Action time for this mode (minutes):

Duration of Additional Heating Mode, in minutes, once started.



Setpoint temp for this mode (°C):

Setpoint temperature that will be applied while in Additional Heating Mode.

> Fan Speed for this mode:

Fan Speed that will be set in the unit while in Additional Heating Mode.

#### 4.3.6 Enable use of ADDITIONAL COOLING mode

This parameter shows/hides the *Control\_ Start Additional Cool Mode* and *Status\_ Additional Cool Mode* communication objects. The Additional Heating Mode lets change the Setpoint Temperature and the Fan Speed within a given period of time.

■之48: Control\_Additional Cool [DPT\_1.010 - 1bit] - 0-Stop;1-Start ■之106: Status\_Additional Cool [DPT\_1.001 - 1bit] - 0-Off;1-On

- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the Control\_ Start Additional Cool Mode and Status\_ Additional Cool Mode objects and new parameters will appear.
  - When a **"1**" value is sent to the *Control*\_ communication object, Additional Cooling Mode will be enabled, and the *Status*\_ object will return this value.
  - When a **"O**" value is sent to the *Control*\_ communication object, Additional Cooling Mode will be disabled, and the *Status*\_ object will return this value.
  - ▲ **Important:** This mode will ALWAYS turn on the indoor unit in Cool mode.
  - > Action time for this mode (minutes):

Duration of Additional Cooling Mode, in minutes, once started.

Setpoint temp for this mode (°C):

Setpoint temperature that will be applied while in Additional Cooling Mode.

Fan Speed for this mode:

Fan Speed that will be set in the unit while in Additional Cooling Mode.



#### 4.4 Fan Speed Configuration dialog

Dev	rice: 1.1.1 PA AC Interface		
	General	Fachle "Fac Consid Manual (Auto") ability	
	Mode Configuration	for Control and Status DPT object type for fanspeed	105
	Special Modes Configuration		
	Fan Speed Configuration		Enumerated [DPT_5.010]
	Vanes Up-Down Configuration	Enable use of +/- object for Fan Speed	
	Vanes Left-Right Configuration		NO •
	Temperature Configuration	Enable use of hit-type Fan Speed objects	No
	Scene Configuration	(for Control)	
	Switch-Off Timeouts Configuration	Enable use of bit-type Fan Speed objects (for Status)	
	Binary Input 1 Configuration		NO V
	Binary Input 2 Configuration		
	Binary Input 3 Configuration	Enable use of Text object for Fan Speed	No
	Binary Input 4 Configuration		

Figure 4.12 Default Fan Speed Configuration dialog

All the parameters in this section are related with the Fan Speed properties and communication objects.

#### 4.4.1 Enable "Fan Speed Manual/Auto" objects for Control and Status

This parameter shows/hides the *Control\_ Fan Speed Manual/Auto* and *Status\_ Fan Speed Manual/Auto* communication objects.

I4: Control\_ Fan Speed Manual/Auto [DPT\_1.002 - 1bit] - 0-Manual;1-Auto
 I76: Status\_ Fan Speed Manual/Auto [DPT\_1.002 - 1bit] - 0-Manual;1-Auto

- $\circ$  If set to "**no**" the objects will not be shown.
- If set to **"yes"** the *Control\_ Fan Speed Manual/Auto* and *Status\_ Fan Speed Manual/Auto* objects will appear.
  - When a "1" value is sent to the *Control* communication object, Fan Speed will be in Auto mode, and the *Status* object will return this value.
  - When a "**0**" value is sent to the *Control*\_ communication object, Fan Speed will be in Manual mode and the first fan speed will be enabled. The *Status*\_ object will return this value.
  - ▲ **Important:** When in Auto Mode the indoor unit will choose the most appropriate fan speed, but this will be shown neither in KNX nor in the remote controller.

#### 4.4.2 DPT object type for fanspeed

With this parameter is possible to change de DPT for the *Control\_ Fan Speed* and *Status\_ Fan Speed* byte-type communication objects. Datapoints Scaling (DPT\_5.001) and Enumerated (DPT\_5.010) can be selected.



• When **"Enumerated [DPT 5.010]"** is selected, *Control\_ Fan Speed* and *Status\_ Fan Speed* communication objects for this DPT will appear.

I3: Control\_ Fan Speed / 5 Speeds [DPT\_5.010 - 1byte] - Speed values: 1,2,3,4,5

 Z75: Status\_ Fan Speed / 5 Speeds [DPT\_5.010 - 1byte] - Speed Values: 1,2,3,4,5

The first fan speed will be selected if a "1" is sent to the *Control\_* object. The second one will be selected sending a "2"; the third one will be selected sending a "3"; the fourth one will be selected sending a "4"; and the last one will be selected sending a "5".

The *Status*\_ object will always return the value for the fan speed selected.

- ▲ **Important:** If a "**0**" value is sent to the Control\_ object, the minimum fan speed will be selected. If a value bigger than "**5**" is sent to the Control\_ object, then the maximum fan speed will be selected.
- When **"Scaling [DPT 5.001]"** is selected, *Control\_ Fan Speed* and *Status\_ Fan Speed* communication objects for this DPT will appear.

■2|13: Control\_ Fan Speed / 5 Speeds [DPT\_5.001 - 1byte] - Thresholds:30%,50%,70% and 90%
 ■2|75: Status\_ Fan Speed / 5 Speeds [DPT\_5.001 - 1byte] - 20%, 40%, 60%, 80% and 100%

When a value between **0%** and **29%** is sent to the *Control*\_ object the first fan speed will be selected.

When a value between **30%** and **49%** is sent to the *Control*\_ object, the second speed will be selected.

When a value between **50%** and **69%** is sent to the *Control*\_ object, the third speed will be selected.

When a value between **70%** and **89%** is sent to the *Control*\_ object, the fourth speed will be selected.

When a value between **90%** and **100%** is sent to the *Control*\_ object, the fifth speed will be selected.

The *Status* object will return a **20%** when the first speed is selected, a **40%** for the second one, a **60%** for the third one, a **80%** for the fourth one, and a **100%** for the last one.



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#### 4.4.3 Enable use of +/- object for Fan Speed

This parameter shows/hides the *Control\_ Fan Speed* +/- communication object which lets increase/decrease the indoor unit fan speed by using two different datapoint types.

20: Control\_ Fan Speed -/+ [DPT\_1.007 - 1bit] - 0-Decrease;1-Increase

- If set to **"no"** the object will not be shown.
- If set to "**yes**" the *Control\_ Fan Speed* +/- object and a new parameter will appear.

Enable use of +/- object for Fan Speed	Yes
> DPT type for +/- Fan Speed object	0-Decrease / 1-Increase [DPT_1.007]
> Does +/- sequence include fan speed AUTO?	No
<ul> <li>Roll over Speed at upper/lower limit (when controlling with +/- obj)</li> </ul>	Yes 🔹

Figure 4.13 Parameter detail

> DPT type for +/- Fan Speed Object

This parameter lets choose between the datapoints **0-Up / 1-Down [DPT\_1.008]** and **0-Decrease / 1-Increase [DPT\_1.007]** for the *Control\_ Fan Speed* +/-object.

Does +/- sequence include fan speed AUTO?

This parameter lets choose if AUTO function is included (**"yes"**) or not (**"no"**) in the sequence when using *Control\_ Fan Speed* +/- object as shown in the discontinuous segment at the picture below.

Roll-over Speed at upper/lower limit

This parameter lets choose if roll-over will be enabled (**"yes"**) or disabled (**"no"**) for the *Control\_ Fan Speed* +/- object.





#### 4.4.4 Enable use of bit-type Fan Speed objects (for Control)

This parameter shows/hides the bit-type *Control\_ Fan Speed* objects.

If: Control\_ Fan Speed 1 [DPT\_1.002 - 1bit] - 1-Set Fan Speed 1
 If: Control\_ Fan Speed 2 [DPT\_1.002 - 1bit] - 1-Set Fan Speed 2
 If: Control\_ Fan Speed 3 [DPT\_1.002 - 1bit] - 1-Set Fan Speed 3
 It: Control\_ Fan Speed 4 [DPT\_1.002 - 1bit] - 1-Set Fan Speed 4
 If: Control\_ Fan Speed 5 [DPT\_1.002 - 1bit] - 1-Set Fan Speed 5

- If set to **"no"** the objects will not be shown.
- If set to "yes" the Control\_ Fan Speed objects for Speed 1, Speed 2, Speed 3, Speed 4 and Speed 5 will appear. To activate a Fan Speed by using these objects a "1" value has to be sent.

#### 4.4.5 Enable use of bit-type Fan Speed objects (for Status)

This parameter shows/hides the bit-type *Status\_ Fan Speed* objects.

 ■ 77: Status\_ Fan Speed 1 [DPT\_1.002 - 1bit] - 1-Fan in speed 1

 78: Status\_ Fan Speed 2 [DPT\_1.002 - 1bit] - 1-Fan in speed 2

 79: Status\_ Fan Speed 3 [DPT\_1.002 - 1bit] - 1-Fan in speed 3

 80: Status\_ Fan Speed 4 [DPT\_1.002 - 1bit] - 1-Fan in speed 4

 81: Status\_ Fan Speed 5 [DPT\_1.002 - 1bit] - 1-Fan in speed 5

- If set to **"no"** the objects will not be shown.
- If set to "yes" the Status\_ Fan Speed objects for Speed 1, Speed 2, Speed 3, Speed 4 and Speed 5 will appear. When a Fan Speed is enabled, a "1" value is returned through its bit-type object.

#### 4.4.6 Enable use of Text object for Fan Speed

This parameter shows/hides the *Status\_ Fan Speed Text* communication object.

2: Status\_ Fan Speed Text [DPT\_16.001 - 14byte] - ASCII String

- If set to **"no"** the object will not be shown.
- If set to "yes" the Status\_ Fan Speed Text object will appear. Also, in the parameters, will be shown five text fields, one for each Fan Speed, that will let modify the text string displayed by the Status\_ Fan Speed Text when changing a fan speed.



> String when fan speed is AUTO	AUTO
> String when fan speed is 1	SPEED 1
> String when fan speed is 2	SPEED 2
> String when fan speed is 3	SPEED 3
> String when fan speed is 4	SPEED 4
> String when fan speed is 5	SPEED 5

Figure 4.14 Parameter detail

#### 4.5 Vane Up-Down Configuration dialog

Device: 1.1.1 PA AC Interface		
General Mode Configuration Special Modes Configuration Fan Speed Configuration Vanes Up-Down Configuration	Indoor unit has Up-Down Vanes (see docum. for your indoor unit) Enable "Vanes Up-Down Manual/Auto" objects	Yes •
Vanes Left-Right Configuration Temperature Configuration	for Control and Status DPT object type for Vanes Up-Down	Enumerated [DPT_5.010]
Scene configuration Switch-Off Timeouts Configuration Binary Input 1 Configuration	Enable use of +/- object for Vanes Up- Down	No •
Binary Input 2 Configuration Binary Input 3 Configuration Binary Input 4 Configuration	Enable use of bit-type Vanes Up-Down objects (for Control)	No •
	Enable use of bit-type Vanes Up-Down objects (for Status)	No
	Enable use of Text object for Vanes Up- Down	No

Figure 4.15 Vane Up-Down Configuration dialog

All the parameters in this section are related with the Vane Up-Down properties and communication objects.

#### 4.5.1 Indoor unit has Up-Down Vanes

This parameter lets choose if the unit has Up-Down Vanes available or not.

Indoor unit has Up-Down Vanes	yes 🔹
(see docum. for your indoor unit)	

Figure 4.17 Parameter detail

- If set to **"no"** all the parameters and communication objects for the Up-Down Vanes will not be shown.
- If set to **"yes"** all the parameters and communication objects (if enabled in the parameters dialog) for the Up-Down Vanes will be shown.
- ▲ **Important:** Read the documentation of your indoor unit to check if Up-Down Vanes are available.



#### 4.5.2 Enable "Vanes Up-Down Manual/Auto" objects for Control and Status

This parameter shows/hides the *Control\_ Vanes Up-Down Man/Auto* and *Status\_ Vanes Up-Down Man/Auto* communication objects.

■之22: Control\_ Vanes Up-Down Man/Auto [DPT\_1.002 - 1bit] - 0-Manual/1-Auto ■之84: Status\_ Vanes Up-Down Manual/Auto [DPT\_1.002 - 1bi - 0-Manual/1-Auto

- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Control\_ Vanes Up-Down Man/Auto* and *Status\_ Vanes Up-Down Man/Auto* objects will appear.
  - When a "1" value is sent to the *Control*\_ communication object, Vanes Up-Down will be in Auto mode, and the *Status*\_ object will return this value.
  - When a "**0**" value is sent to the *Control*\_ communication object, Vanes Up-Down will be in Manual mode and the first position will be enabled. The *Status*\_ object will return this value.
  - ▲ **Important:** When in Auto Mode the indoor unit will choose the most appropriate vane up-down position, but this will be shown neither in KNX nor in the remote controller.

#### 4.5.3 DPT object type for Vane Up-Down

With this parameter is possible to change de DPT for the *Control\_ Vane Up-Down* and *Status\_ Vane Up-Down* byte-type communication objects. Datapoints Scaling (DPT\_5.001) and Enumerated (DPT\_5.010) can be selected.

• When **"Enumerated [DPT 5.010]"** is selected, *Control\_ Vane Up-Down* and *Status\_ Vane Up-Down* communication objects for this DPT will appear.

■2|21: Control\_ Vanes Up-Down / 5 pos [DPT\_5.010 - 1byte] - Position values: 1,2,3,4,5
 ■2|83: Status\_ Vanes Up-Down / 5 pos [DPT\_5.010 - 1byte] - Position values 1,2,3,4,5

To choose a vane position, values from **"1**" to **"5**" can be sent to the *Control*\_ object. Each value will correspond to the position (i.e. Value **"3**" = Position 3).

The *Status*\_ object will always return the value for the vane position selected.

- ▲ **Important:** If a "**0**" value is sent to the Control\_ object, the Position 1 will be selected. If a value bigger than "**5**" is sent to the Control\_ object, then the Position 5 will be selected.
- When **"Scaling [DPT 5.001]"** is selected, *Control\_ Vane Up-Down* and *Status\_ Vane Up-Down* communication objects for this DPT will appear.



■21: Control\_ Vanes Up-Down / 5 pos [DPT\_5.001 - 1byte] - Thresholds:30%,50%,70% and 90%
 ■2183: Status\_ Vanes Up-Down / 5 pos [DPT\_5.001 - 1byte] - 20%, 40%, 60%, 80% and 100%

When a value between **0%** and **29%** is sent to the *Control*\_ object the first vane position will be selected.

When a value between **30%** and **49%** is sent to the *Control*\_ object, the second vane position will be selected.

When a value between **50%** and **69%** is sent to the *Control* object, the third vane position will be selected.

When a value between **70%** and **89%** is sent to the *Control*\_ object, the fourth vane position will be selected.

When a value between **90%** and **100%** is sent to the *Control*\_ object, the fifth vane position will be selected.

The *Status* object will return a **20%** for the first vane position, a **40%** for the second one, a **60%** for the third one, an **80%** for the fourth one and a **100%** for the fifth and last one.



#### 4.5.4 Enable use of +/- obj for Vane Up-Down

This parameter shows/hides the *Control\_ Vane Up-Down* +/- communication object which lets change the indoor unit vane position by using two different datapoint types.

■28: Control\_ Vanes Up-Down -/+ [DPT\_1.007 - 1bit] - 0-Decrease;1-Increase

- If set to "no" the object will not be shown.
- If set to "yes" the Control\_ Vane Up-Down +/- object and a new parameter will appear.

Enable use of +/- object for Vanes Up- Down	Yes 🔹
> DPT type for +/- Vanes Up-Down obj	0-Decrease / 1-Increase [DPT_1.007]
> Does +/- sequence include vanes Up-Down AUTO?	No
> Roll over Vanes at upper/lower limit (when controlling with +/- obj)	¥es ▼





DPT type for +/- Vane Up-Down obj

This parameter lets choose between the datapoints **0-Up / 1-Down [DPT\_1.008]** and **0-Decrease / 1-Increase [DPT\_1.007]** for the *Control\_ Vane Up-Down* +/- object.

Does +/- sequence include vanes Up-Down AUTO?

This parameter lets choose if AUTO function is included (**"yes"**) or not (**"no"**) in the sequence when using *Control\_ Vane Up-Down* +/- object as shown in the discontinuous segment at the picture below.

Roll over Vanes at upper/lower limit

This parameter lets choose if roll-over will be enabled (**"yes"**) or disabled (**"no"**) for the *Vane Up-Down* +/- object.



#### 4.5.5 Enable use of bit-type Vane U-D objects (for Control)

This parameter shows/hides the bit-type *Control\_ Vane Up-Down* objects.

Z 23: Control\_ Vanes Up-Down Pos 1 [DPT\_1.002 - 1bit] - 1-Set Position 1
Z 24: Control\_ Vanes Up-Down Pos 2 [DPT\_1.002 - 1bit] - 1-Set Position 2
Z 25: Control\_ Vanes Up-Down Pos 3 [DPT\_1.002 - 1bit] - 1-Set Position 3
Z 26: Control\_ Vanes Up-Down Pos 4 [DPT\_1.002 - 1bit] - 1-Set Position 4
Z 27: Control\_ Vanes Up-Down Pos 5 [DPT\_1.002 - 1bit] - 1-Set Position 5

- If set to "**no**" the objects will not be shown.
- If set to "yes" the Control\_ Vane Up-Down objects for each Position (1 to 5) will appear. To activate a Vane Position by using these objects, a "1" value has to be sent.

#### 4.5.6 Enable use of bit-type Vane U-D objects (for Status)

This parameter shows/hides the bit-type *Status\_ Vane Up-Down* objects.

I & Status\_ Vanes Up-Down Pos 1 [DPT\_1.002 - 1bit] - 1-Vanes in Position 1
I & Status\_ Vanes Up-Down Pos 2 [DPT\_1.002 - 1bit] - 1-Vanes in Position 2
I & Status\_ Vanes Up-Down Pos 3 [DPT\_1.002 - 1bit] - 1-Vanes in Position 3
I & Status\_ Vanes Up-Down Pos 4 [DPT\_1.002 - 1bit] - 1-Vanes in Position 4
I & Status\_ Vanes Up-Down Pos 5 [DPT\_1.002 - 1bit] - 1-Vanes in Position 5



- If set to "**no**" the objects will not be shown.
- If set to **"yes"** the *Status\_ Vane Up-Down* objects for each Position (1 to 5) will appear. When a Vane Position is enabled, a **"1"** value is returned through its bit-type object.

#### 4.5.7 Enable use of Text object for Vane U-D

This parameter shows/hides the *Status\_ Vane Up-Down Text* communication object.

■2 90: Status\_ Vanes Up-Down Text [DPT\_16.001 - 14byte] - ASCII String

- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Status\_ Vane Up-Down Text* object will appear. Also, in the parameters will be shown six text fields, five for the Vane Position and one for the Auto function, that will let modify the text string displayed by the *Status\_ Vane Up-Down Text* when changing a vane position.

> String when vanes U-D is in AUTO	U-D AUTO
> String when vanes U-D is in POS 1	U-D POS 1
> String when vanes U-D is in POS 2	U-D POS 2
Shine when when the D is in DOC 2	
> String when vanes U-D is in POS 3	0-0 POS 3
> String when vanes U-D is in POS 4	U-D POS 4
> String when vanes U-D is in POS 5	U-D POS 5

Figure 4.17 Parameter detail

#### 4.6 Vane Left-Right Configuration dialog

evice: 1.1.1 PA AC Interface		
General Mode Configuration Special Modes Configuration	Indoor unit has Left-Right Vanes (see docum. for your indoor unit)	Yes •
Fan Speed Configuration Vanes Up-Down Configuration Vanes Left-Right Configuration	objects for Control and Status	NO •
Temperature Configuration Scene Configuration	DPT object type for Vanes Left-Right	Enumerated [DPT_5.010]
Switch-Off Timeouts Configuration Binary Input 1 Configuration	Enable use of +/- object for Vanes Left- Right	No
Binary Input 2 Configuration Binary Input 3 Configuration Binary Input 4 Configuration	Enable use of bit-type Vanes Left-Right objects (for Control)	No
	Enable use of bit-type Vanes Left-Right objects (for Status)	No
	Enable use of Text object for Vanes Left- Right	No

Figure 4.18 Vane Left-Right Configuration dialog

All the parameters in this section are related with the Vane Left-Right properties and communication objects.

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#### 4.6.1 Indoor unit has Left-Right Vanes

This parameter lets choose if the unit has Left-Right Vanes available or not.

Indoor unit has Up-Down Vanes	yes 🔻	
(see docum. for your indoor unit)		

Figure 4.19 Parameter detail

- If set to **"no"** all the parameters and communication objects for the Left-Right Vanes will not be shown.
- If set to **"yes"** all the parameters and communication objects (if enabled in the parameters dialog) for the Left-Right Vanes will be shown.
- ▲ **Important:** Read the documentation of your indoor unit to check if Left-Right Vanes are available.
- 4.6.2 Enable "Vanes Left-Right Manual/Auto" objects for Control and Status

This parameter shows/hides the *Control\_ Vanes L-R Man/Auto* and *Status\_ Vanes L-R Man/Auto* communication objects.

■之 30: Control\_ Vanes L-R Man/Auto [DPT\_1.002 - 1bit] - 0-Manual/1-Auto ■之 92: Status\_ Vanes L-R Man/Auto [DPT\_1.002 - 1bit] - 0-Manual/1-Auto

- If set to **"no"** the objects will not be shown.
- If set to "yes" the Control\_ Vanes L-R Man/Auto and Status\_ Vanes L-R Man/Auto objects will appear.
  - When a **"1**" value is sent to the *Control*\_ communication object, Vanes Left-Right will be in Auto mode, and the *Status*\_ object will return this value.
  - When a "O" value is sent to the *Control\_* communication object, Vanes Left-Right will be in Manual mode and the first position will be enabled. The *Status\_* object will return this value.
  - ▲ **Important:** When in Auto Mode the indoor unit will choose the most appropriate vane left-right position, but this will be shown neither in KNX nor in the remote controller.

#### 4.6.3 DPT object type for Vane Left-Right

With this parameter is possible to change de DPT for the *Control\_ Vane L-R* and *Status\_ Vane L-R* byte-type communication objects. Datapoints Scaling (DPT\_5.001) and Enumerated (DPT\_5.010) can be selected.



• When **"Enumerated [DPT 5.010]"** is selected, *Control\_ Vane L-R* and *Status\_ Vane L-R* communication objects for this DPT will appear.

Z29: Control\_ Vanes L-R / 5 pos [DPT\_5.010 - 1by - Position values 1,2,3,4,5

 Z91: Status\_ Vanes L-R / 5 pos [DPT\_5.010 - 1byte] - Position values 1,2,3,4,5

To choose a vane position, values from **"1**" to **"5**" can be sent to the *Control*\_ object. Each value will correspond to the position (i.e. Value **"3**" = Position 3).

The *Status*\_ object will always return the value for the vane position selected.

- ▲ **Important:** If a "**0**" value is sent to the Control\_ object, the Position 1 will be selected. If a value bigger than "**5**" is sent to the Control\_ object, then the Position 5 will be selected.
- When **"Scaling [DPT 5.001]"** is selected, *Control\_ Vane L-R* and *Status\_ Vane L-R* communication objects for this DPT will appear.

■之 29: Control\_ Vanes Left-Right / 5 pos [DPT\_5.001 - 1by - Thresholds:30%,50%,70% and 90% ■之 91: Status\_ Vanes L-R / 5 pos [DPT\_5.001 - 1byte] - 20%, 40%, 60%, 80% and 100%

When a value between **0%** and **29%** is sent to the *Control*\_ object the first vane position will be selected.

When a value between **30%** and **49%** is sent to the *Control* object, the second vane position will be selected.

When a value between **50%** and **69%** is sent to the *Control* object, the third vane position will be selected.

When a value between **70%** and **89%** is sent to the *Control*\_ object, the fourth vane position will be selected.

When a value between **90%** and **100%** is sent to the *Control*\_ object, the fifth vane position will be selected.

The *Status*\_ object will return a **20%** for the first vane position, a **40%** for the second one, a **60%** for the third one, an **80%** for the fourth one and a **100%** for the fifth and last one.





#### 4.6.4 Enable use of +/- obj for Vane Left-Right

This parameter shows/hides the *Control\_ Vane Left-Right* +/- communication object which lets change the indoor unit vane position by using two different datapoint types.

■2 36: Control\_ Vanes Left-Right -/+ [DPT\_1.007 - 1bit] - 0-Decrease;1-Increase

- If set to **"no"** the object will not be shown.
- If set to "yes" the Control\_ Vane Left-Right +/- object and a new parameter will appear.

Enable use of +/- object for Vanes Left- Right	Yes 🔹
> DPT type for +/- Vanes Left-Right object	0-Decrease / 1-Increase [DPT_1.007]
> Does +/- sequence include vanes Left-Right AUTO?	Yes 🔹
<ul> <li>Roll over Vanes at upper/lower limit (when controlling with +/- obj)</li> </ul>	Yes 🔹

Figure 4.20 Parameter detail

DPT type for +/- Vane Left-Right obj

This parameter lets choose between the datapoints **0-Up / 1-Down [DPT\_1.008]** and **0-Decrease / 1-Increase [DPT\_1.007]** for the *Control\_ Vane Left-Right +/-*object.

> Does +/- sequence include vanes Left-Right AUTO?

This parameter lets choose if AUTO function is included (**"yes"**) or not (**"no"**) in the sequence when using *Control\_ Vane Left-Right* +/- object as shown in the discontinuous segment at the picture below.

Roll over Vanes at upper/lower limit

This parameter lets choose if roll-over will be enabled (**"yes"**) or disabled (**"no"**) for the *Vane Left-Right* +/- object.





#### 4.6.5 Enable use of bit-type Vane Left-Right objects (for Control)

This parameter shows/hides the bit-type *Control\_ Vane Left-Right* objects.

I Control\_ Vanes Left-Right Pos 1 [DPT\_1.002 - 1bit] - 1-Set Position 1
I 32: Control\_ Vanes Left-Right Pos 2 [DPT\_1.002 - 1bit] - 1-Set Position 2
I 33: Control\_ Vanes Left-Right Pos 3 [DPT\_1.002 - 1bit] - 1-Set Position 3
I 34: Control\_ Vanes Left-Right Pos 4 [DPT\_1.002 - 1bit] - 1-Set Position 4
I 35: Control\_ Vanes Left-Right Pos 5 [DPT\_1.002 - 1bit] - 1-Set Position 5

- If set to **"no"** the objects will not be shown.
- If set to **"yes"** the *Control\_ Vane Left-Right* objects for each Position (1 to 5) will appear. To activate a Vane Position by using these objects, a **"1"** value has to be sent.
- 4.6.6 Enable use of bit-type Vane Left-Right objects (for Status)

This parameter shows/hides the bit-type *Status\_ Vane Left-Right* objects.

Z 93: Status\_ Vanes Left-Right Pos 1 [DPT\_1.002 - 1bit] - 1-Vanes in Position 1
 Z 94: Status\_ Vanes Left-Right Pos 2 [DPT\_1.002 - 1bit] - 1-Vanes in Position 2
 P 95: Status\_ Vanes Left-Right Pos 3 [DPT\_1.002 - 1bit] - 1-Vanes in Position 3
 Z 96: Status\_ Vanes Left-Right Pos 4 [DPT\_1.002 - 1bit] - 1-Vanes in Position 4
 P 97: Status\_ Vanes Left-Right Pos 5 [DPT\_1.002 - 1bit] - 1-Vanes in Position 5

- If set to **"no"** the objects will not be shown.
- If set to "yes" the Status\_ Vane Left-Right objects for each Position (1 to 5) will appear.
   When a Vane Position is enabled, a "1" value is returned through its bit-type object.

4.6.7 Enable use of Text object for Vane Left-Right

This parameter shows/hides the *Status\_ Vane Left-Right Text* communication object.

■2 98: Status\_ Vanes L-R Text [DPT\_16.001 - 14byte] - ASCII String

- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Status\_ Vane Left-Right Text* object will appear. Also, in the parameters will be shown six text fields, five for the Vane Position and one for the Auto function, that will let modify the text string displayed by the *Status\_ Vane Left-Right Text* when changing a vane position.



> String when vanes L-R is in AUTO	L-R AUTO
> String when vanes L-R is in POS 1	L-R POS 1
> String when vanes L-R is in POS 2	L-R POS 2
> String when vanes L-R is in POS 3	L-R POS 3
> String when vanes L-R is in POS 4	L-R POS 4
> String when vanes L-R is in POS 5	L-R POS 5



#### 4.7 Temperature Configuration dialog

Dev	ice: 1.1.1 PA AC Interface		
	General Mode Configuration Special Modes Configuration	Periodic sending of "Status_ AC Setp" (in seconds;0=No periodic sending)	0
	Fan Speed Configuration Vanes Up-Down Configuration	Enable use of +/- object for Setpoint Temperature	Yes 🔹
	Vanes Left-Right Configuration	> DPT type for +/- Setp Temp object	0-Decrease / 1-Increase [DPT_1.007]
	Scene Configuration	Enable limits on Status_ Setpoint obj	No
	Switch-Off Timeouts Configuration Binary Input 1 Configuration Binary Input 2 Configuration	Ambient temp. ref. is provided from KNX (carefully read User Guide if enabled)	No 🔻
	Binary Input 2 Configuration Binary Input 3 Configuration Binary Input 4 Configuration		

Figure 4.22 Default Temperature Configuration dialog

All the parameters in this section are related with the Temperature properties and communication objects.

#### 4.7.1 Periodic sending of "Status\_ AC Setp"

. 1

This parameter lets change the interval of time (in seconds, from 0 to 255) at the end of which the AC setpoint temperature is sent to the KNX bus. For a **"0**" value, the AC setpoint temperature will ONLY be sent on change. The AC setpoint temperature is sent through the communication object *Status\_ AC Setpoint Temp.* 

■ <b>‡</b>  99: Status_	AC Setpoint Temp [DPT_9.001 - 2byte] - (°C)

Periodic sending of "Status_ AC Setp"	255	
(in seconds; 0 = No periodic sending)		



▲ **Important:** In case the ambient temperature is provided from KNX, the setpoint temperature returned from this object, will be the one resulting from the formula shown in the section "2.7.4 Ambient temp. ref. is provided from KNX".



#### 4.7.2 Enable use of +/- object for Setpoint Temperature

This parameter shows/hides the *Control\_ Setpoint Temp* +/- communication object which lets change the indoor unit setpoint temperature by using two different datapoint types.

■2 38: Control\_ Setpoint Temp -/+ [DPT\_1.007 - 1bit] - 0-Decrease;1-Increase

- If set to **"no"** the object will not be shown.
- If set to "**yes**" the *Control\_ Setpoint Temp* +/- object and a new parameter will appear.

Enable use of +/- obj for Setp Temp	yes 🔹
> DPT type for +/- Setp Temp object	0-Up / 1-Down [DPT_1.008]

Figure 4.24 Parameter detail

> DPT type for +/- Setp Temp object

This parameter lets choose between the datapoints **0-Up / 1-Down [DPT\_1.008]** and **0-Decrease / 1-Increase [DPT\_1.007]** for the *Control\_ Setpoint Temp +/-*object.

(Lower limit) <b>16°C</b>	$\rightarrow$	17ºC ≓		$\rightarrow$	31ºC	-	32°C(	Upper lir	nit)
		<ul> <li>Up /</li> </ul>	Increa	ase					
		Dowi	n / De	crease					

#### 4.7.3 Enable limits on Control\_ Setpoint obj

This parameter enables to define temperature limits for the *Control\_ Setpoint Temperature* object.



Figure 4.25 Parameter detail

- If set to **"no"** the setpoint temperature limits for the *Control\_ Setpoint Temperature* object will be the default: 16°C for the lower limit and 32°C for the upper limit.
- If set to **"yes"** it is possible to define temperature limits for the *Control\_ Setpoint Temperature* object.
  - Control Set Temp Lower limit (°C)

This parameter lets to define the lower limit for the setpoint temperature.



Control Set Temp Upper limit (°C)

This parameter lets to define the upper limit for the setpoint temperature.

- ▲ **Important:** If a setpoint temperature above the upper defined limit (or below the lower defined limit) is sent through the Control\_ Setpoint Temperature object, it will be ALWAYS applied the limit defined.
- ▲ **Important:** When limits are enabled, any setpoint temperature sent to the AC (even through scenes, special modes, etc.) will be limited.
- 4.7.4 Ambient temp. ref. is provided from KNX

This parameter shows/hides the *Control\_ Ambient Temperature* communication object which lets use an ambient temperature reference provided by a KNX device.

■2 39: Control\_ Ambient Temperature [DPT\_9.001 - 2byte] - (°C)

- If set to **"no"** the object will not be shown.
- If set to **"yes"** the *Control\_ Ambient Temperature* object will appear. Meant to be enabled when you want the temperature provided by a KNX sensor to be the reference ambient temperature for the air conditioner. Then, the following formula applies for calculation of real *Control\_ Setpoint Temperature* sent to the AC unit:

"AC Setp. Temp." = "KNX Setp. Temp." - ("KNX Amb. Temp." - "KNX Setp. Temp.")/2

- AC Setp. Temp.: AC indoor unit setpoint temperature
- KNX Amb. Temp.: Ambient temperature provided from KNX
- KNX Setp. Temp.: Setpoint temperature provided from KNX

As an example, consider the following situation:

User wants: **19°C** ("KNX Setp. Temp.") User sensor (a KNX sensor) reads: **21°C** ("KNX Amb Temp.")

In this example, the final setpoint temperature that PA-AC-KNX-1i will send out to the indoor unit (shown in "AC Setp. Temp.") will become  $19^{\circ}C - (21^{\circ}C - 19^{\circ}C)/2 = 18^{\circ}C$ . This is the setpoint that will actually be requested to Panasonic unit.

This formula will be applied as soon as the *Control\_ Setpoint Temperature* and *Control\_ Ambient Temperature* objects are written at least once from the KNX installation. After that, they are kept always consistent.

Note that this formula will always drive the AC indoor unit demand in the *right* direction, regardless of the operation mode (Heat, Cool or Auto).



#### 4.8 Scene Configuration dialog

)e	vice: 1.1.1 PA AC Interface		
	General Mode Configuration	Enable use of scenes	Yes 🔻
	Special Modes Configuration Fan Speed Configuration	Scenes can be stored from KNX bus	No
	Vanes Up-Down Configuration Vanes Left-Right Configuration	Enable use of bit objects for scene execution	No
	Temperature Configuration Scene Configuration	Scene 1 preset	No
	Switch-Off Timeouts Configuration	Scene 2 preset	No
	Binary Input 2 Configuration	Scene 3 preset	No 🗸
	Binary Input 3 Configuration Binary Input 4 Configuration	Scene 4 preset	No
		Scene 5 preset	No

Figure 4.26 Parameter detail

All the parameters in this section are related with the Scene properties and communication objects. A scene contains values of: On/Off, Mode, Fan speed, Vane position, Setpoint Temperature and Remote Controller Disablement.

#### 4.8.1 Enable use of scenes

This parameter shows/hides the scene configuration parameters and communication objects.

<b>₽</b> ‡3	6: Control_	Exec Scene	[DPT_18.001	- 1byte] -	04-Exec 1-5
-------------	-------------	------------	-------------	------------	-------------

Enable use of scenes	yes	•
Enable ase of secres	,	

Figure 4.27 Parameter detail

- If set to **"no"** the scene parameters and communication objects will not be shown.
- If set to "yes" the scene parameters and communication objects will be shown. To execute a scene through the byte-type object, a value from "O" to "4" has to be sent, correponding each one to a different scene (i.e. "0" = Scene 1;... "4" = Scene 5).

#### 4.8.2 Scenes can be stored from KNX bus

This parameter shows/hides the *Control\_ Save/Exec Scene* and all the *Control\_ Store Scene* (if enabled) communication objects.

236: Control\_ Save/Exec Scene [DPT\_18.001 - 1byte] - 0.4-Exec 1-5;128-132-Save 1-5
37: Control\_ Store Scene1 [DPT\_1.002 - 1bit] - 1-Store Scene
38: Control\_ Store Scene2 [DPT\_1.002 - 1bit] - 1-Store Scene
39: Control\_ Store Scene3 [DPT\_1.002 - 1bit] - 1-Store Scene
40: Control\_ Store Scene4 [DPT\_1.002 - 1bit] - 1-Store Scene
41: Control\_ Store Scene5 [DPT\_1.002 - 1bit] - 1-Store Scene



- If set to **"no"** the communication objects will not be shown.
- If set to "yes" the communication objects and a new parameter will appear. To store a scene through the byte-type object, a value from "128" to "132" has to be sent to the object, correponding each one to a different scene (i.e. "128" = Scene 1;... "132" = Scene 5).

Scenes can be stored from KNX bus	yes 🔹
<ul> <li>Enable use of bit objects for storing scenes (from bus)</li> </ul>	yes 🔹

Figure 4.28 Parameter detail

> Enable use of bit objects for storing scenes (from bus)

If set to "**no**" the objects will not be shown.

If set to **"yes"** the *Control\_ Store Scene* objects for storing scenes will appear. To store a scene by using these objects, a **"1"** value has to be sent to the scene's object we want to store (i.e. to store scene 4, a "1" has to be sent to the *Control\_ Store Scene 4* object).

#### 4.8.3 Enable use of bit objects for scene execution

This parameter shows/hides the *Control\_ Execute Scene* bit-type communication objects.

Image: Application of the second seco

Enable use of bit objects	yes 🔹
for scene execution	

Figure 4.29 Parameter detail

- If set to **"no"** the communication objects will not be shown.
- If set to "yes" the communication objects will appear. To execute a scene by using these objects, a "1" value has to be sent to the scene's object we want to execute (i.e. to execute scene 4, a "1" has to be sent to the *Control\_ Execute Scene 4* object).

#### 4.8.4 Scene "x" preset

This parameter lets define a preset for a scene (the following description is valid for all the scenes).

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Scene 1 preset	yes (scene will NOT be modifiable from KNX bus)
Scene 1 preset	yes (scene will NOT be modifiable from KNX bus)

#### Figure 4.30 Parameter detail

- o If set to **"no"** the preset for the scene "x" will be disabled.
- If set to **"yes"** the preset will be enabled. When a scene is executed the values configured in the preset will be aplied.
- ▲ **Important:** If a scene's preset is enabled, will not be possible to modify (store) the scene from the KNX bus.

> Scene 1 / Value for On-Off	OFF
> Scene 1 / Value for Mode	AUTO
> Scene 1 / Value for Fan Speed	(unchanged)
> Scene 1 / Value for Vane Up-Down (if indoor unit has Vane U-D)	POSITION 4
> Scene 1 / Value for Setp Temp (°C)	25.0°C •
> Scene 1 / Value for Remote Lock	(unchanged)

Figure 4.31 Parameter detail

Scene "x" / Value for On-Off

This parameter lets choose the power of the indoor unit when the scene is executed. The following options are available: "ON", "OFF" or "(unchanged)".

Scene "x" / Value for Mode

This parameter lets choose the mode of the indoor unit when the scene is executed. The following options are available: "AUTO", "HEAT (if available)", "COOL", "FAN (if available)", "DRY", or "(unchanged)".

Scene "x" / Value for Fan Speed

This parameter lets choose the fan speed of the indoor unit when the scene is executed. The following options are available: "SPEED 1", "SPEED 2", "SPEED 3", "SPEED 4", "SPEED 5", or "(unchanged)".

Scene "x" / Value for Vane Up-Down (if available)

This parameter lets choose the vane position of the indoor unit when the scene is executed. The following options are available: **"POSITION 1"**, **"POSITION 2"**, **"POSITION 3"**, **"POSITION 4"**, **"POSITION 5"**, **"AUTO"** or **"(unchanged)"**.

Scene "x" / Value for Vane Left-Right (if available)

This parameter lets choose the vane position of the indoor unit when the scene is executed. The following options are available: **"POSITION 1"**, **"POSITION 2"**, **"POSITION 3"**, **"POSITION 4"**, **"POSITION 5"**, **"AUTO"** or **"(unchanged)"**.



Scene "x" / Value for Setp Temp (°C)

This parameter lets choose the setpoint temperature of the indoor unit when the scene is executed. The following options are available: from "16°C" to "32°C" (both included), or "(unchanged)".

Scene "x" / Value for Remote Lock

This parameter lets choose the remote controller status of the indoor unit when the scene is executed. The following options are available: "locked", "unlocked", or "(unchanged)".

- ▲ **Important:** If any preset value is configured as "(unchanged)", the execution of this scene will not change current status of this feature in the AC unit.
- ▲ **Important:** When a scene is executed, Status\_ Current Scene object shows the number of this scene. Any change in previous items does Status\_ Current Scene show "**No Scene**". Only changes on items marked as "(unchanged)" will not disable current scene.

#### 4.9 Switch-Off Timeouts Configuration dialog

Figure 4.32 Default Switch-Off Timeouts Configuration dialog

All the parameters in this section are related with the timeout properties and communication objects.

#### 4.9.1 Enable use of Open Window / Switch off timeout function

This parameter shows/hides the *Control\_ Switch Off Timeout* communication object which lets Start/Stop a timeout to switch off the indoor unit.

■2]27: Control\_ Window Contact Status [DPT\_1.009 - 1bit] - 0-Open;1-Closed
 ■2]27: Control\_ Switch Off Timeout [DPT\_1.010 - 1bit] - 0-Stop;1-Start

- If set to **"no"** the object will not be shown.
- If set to "yes" the Control\_ Switch Off Timeout object and new parameters will appear.
   If a "1" value is sent to this object, and the indoor unit is already turned on, the switch-



off timeout will begin. If a ``0'' value is sent to this object, the switch-off timeout will stop.

Enable use of Open Window / Switch off timeout function	yes •
> AC switch-off timeout (min)	2
> DPT for Window / Switch-off timeout	0-Open / 1-Closed Window [DPT_1.009]
> Reload last On/Off val once window is closed	no
<ul> <li>&gt; Disallow On/Off operation while window is Open</li> </ul>	yes 🗸

Figure 4.33 Parameter detail

#### AC switch-off timeout (min)

This parameter lets select how much time (in minutes) to wait before switching off the indoor unit.

#### > DPT for Window / Switch-off timeout

This parameter lets choose between the datapoints **0-Open / 1-Closed Window [DPT\_1.009]** and **0-Stop / 1-Start Timeout [DPT\_1.010]** for the *Control\_ Switch Off Timeout*.

#### Disallow On/Off operation while window is Open

If set to **"no"**, On/Off commands while the window is open will be accepted.

- If a "1" value is sent to the *Control\_ Switch Off Timeout* object the switch-off timeout period will begin again.
- If a "O" value is sent to the *Control\_ Switch Off Timeout* object, no action will be performed.

If set to **"yes"**, On/Off commands, while the window is open, will be saved (but not applied). These commands will be used in the next parameter if set to **"yes"**.

#### Reload last On/Off val once window is closed?

If set to "**no**", once the switch-off timeout is stopped, any value will be reloaded.

If set to  $``{\it yes''},$  once the switch-off timeout is stopped, the last On/Off value sent will be reloaded.

- If a "1" value is sent to the *Control\_ Switch Off Timeout* object after the timeout period, the indoor unit will **turn on**.
- If a "O" value is sent to the *Control\_ Switch Off Timeout* after the timeout period, no action will be performed.



#### 4.9.2 Enable use of Occupancy function

This parameter shows/hides the *Control\_ Occupancy* communication object which lets apply different parameters to the indoor unit depending on the presence/no presence in the room.

■2 28: Control\_ Occupancy [DPT\_1.018 - 1bit] - 0-Not Occupied;1-Occupied

- If set to **"no"** the object will not be shown.
- If set to "yes" the Control\_ Occupancy object and new parameters will appear. If a "1" value is sent to this object (no room occupancy), the timeout will begin. If a "0" value is sent to this object, the timeout will stop.

Enable use of Occupancy function	yes 🔹
> Timeout to apply action (minutes)	2
> Action after timeout elapsed	Apply Preset Delta 🔹

Figure 4.34 Parameter detail

Timeout to apply action (minutes)

This parameter lets choose how much time to wait (in minutes) before executing the action specified in the next parameter ("Action after timeout elapsed").

> <u>Action after timeout elapsed</u>

When **Switch-Off** is selected, once the timeout has elapsed, the indoor unit will be turned off.

When **Apply Preset Delta** is selected, once the timeout has elapsed, a delta temperature will be applied in order to save energy (decreasing the setpoint when in Heat mode, or increasing the setpoint when in Cool mode). Also new parameters will appear.

> Temp delta decrease (HEAT) or increase (COOL) (°C)	2.0°C •
> Enable secondary timeout	yes 🔹

Figure 4.35 Parameter detail

> <u>Temp delta decrease (HEAT) or increase (COOL) (°C)</u>

This parameter lets configure the delta temperature (increase or decrease) that will be applied when the timeout has elapsed.

▲ **Important:** When there is occupancy again after the application of a delta, the same delta will be applied inversely. (i.e. In a room with AC in cool mode and 25°C setpoint temperature, a **+2°C** delta is applied after the occupancy timeout, setting the setpoint at 27°C because there is no occupancy in the room. If the setpoint is raised to 29°C during that period, when the room is



occupied again, a **-2°C** delta will be applied and the final setpoint temperature will then be 27°C).

Enable secondary timeout

If set to **"no"** nothing will be applied.

If set to "yes", a new timeout will be enabled and two new parameters will appear.

> Timeout to apply action	2	(*   *
(1111)		
> Action after timeout elapsed	Apply Preset Delta	•
> Temp delta dec (HEAT) / or inc (COOL) (°C)	2.0°C	•

Figure 4.36 Parameter detail

Timeout to apply action (minutes)

This parameter lets choose how much time to wait (in minutes) before executing the action specified in the next parameter ("Action after timeout elapsed").

Action after timeout elapsed

When **Switch-Off** is selected, once the timeouthas elapsed, the indoor unit will turn off.

When **Apply Preset Delta** is selected, once the timeout configured is extinguished, a delta temperature will be applied (decreasing the setpoint when in Heat mode, or increasing the setpoint when in Cool mode). Also new parameters will appear.

Temp delta decrease (HEAT) or increase (COOL) (°C)

This parameter lets configure the delta temperature that will be applied when the timeout is extinguished.

- ▲ **Important:** When there is occupancy again after the application of a delta, the same delta will be applied inversely as explained above.
- Disallow On/Off operation while not Occupied

If set to "no", On/Off commands while the window is open will be accepted.

- If a "1" value is sent to the *Control\_ Occupancy* object the switch-off timeout period will begin again.
- If a "O" value is sent to the *Control\_ Occupancy* object, no action will be performed.



If set to **"yes"**, On/Off commands while not occupied will be saved (but not applied). These commands will be used in the next parameter if set to **"yes"**.

<ul> <li>Reload last On/Off value when Occupied</li> </ul>	yes 🔹
<ul> <li>&gt; Disallow On/Off operation while not Occupied</li> </ul>	yes 🔻

Figure 4.37 Parameter detail

Reload last On/Off value when Occupied

If set to "**no**", once the switch-off timeout has elapsed, any value will be reloaded.

If set to "**yes**", once the switch-off timeout has elapsed, the last On/Off value will be reloaded.

- If a "1" value is sent to the *Control\_ Occupancy* object after the timeout period, the indoor unit will **turn on**.
- If a "O" value is sent to the *Control\_ Occupancy* after the timeout period no action will be performed.
- 4.9.3 Enable use of SLEEP timeout

This parameter shows/hides the *Control\_ Start Sleep Timeout* communication object which lets start a timeout to automatically turn off the indoor unit.

```
■2 29: Control_ Start Sleep Timeout [DPT_1.010 - 1bit] - 0-Stop;1-Start
```

- If set to **"no"** the object will not be shown.
- If set to "yes" the Control\_ Start Sleep Timeout object and a new parameter will appear. If a "1" value is sent to this object the switch-off timeout will begin. If a "0" value is sent to this object, the switch-off timeout will stop.

Enable use of SLEEP timeout	yes 🔹
> Sleep function switch-off timeout	1

Figure 4.38 Parameter detail

Timeout to apply action (minutes)

This parameter lets select how much time (in minutes) to wait before switching off the AC unit.



#### 4.10 Binary Input "x" Configuration dialog

Device: 1.1.1 PA AC Interface			
General	Enable use of Input 1	Yes	•
Mode Configuration			
Special Modes Configuration	> Contact type	NO: Normally Open	•
Fan Speed Configuration			)
Vanes Up-Down Configuration	> Debounce time	50 ms	•
Vanes Left-Right Configuration			
Temperature Configuration	> Disabling function	No	•
Scene Configuration	. Emerica	Curitathia a	
Switch-Off Timeouts Configurat	ion > Function	Switching	•
Binary Input 1 Configuration	> Send telegram after	No action	•
Binary Input 2 Configuration	bus recovery		
Binary Input 3 Configuration		No Mar	
Binary Input 4 Configuration	> Value on raising edge (contact activated)	INO action	•
	> Value on falling edge	No action	•
	(contact deactivated)		
	> Cyclical sending	Never	•
	,		

Figure 4.39 Binary Input Configuration dialog

All the parameters in this section are related with the binary inputs properties and communication objects.

#### 4.10.1 Enable use of Input "x"

This parameter enables the use of the Input "x'' and shows/hides the *Status\_ Inx* communication object(s) which will act as configured in the "Function" parameter.

 I109: Status\_ In1 - Switching [DPT\_1.001 - 1bit] - 0-Off;1-On

 I11: Status\_ In2 - Switching [DPT\_1.001 - 1bit] - 0-Off;1-On

 I13: Status\_ In3 - Switching [DPT\_1.001 - 1bit] - 0-Off;1-On

 I15: Status\_ In4 - Switching [DPT\_1.001 - 1bit] - 0-Off;1-On

- If set to **"no"** the objects will not be shown.
- If set to "**yes**" the *Status\_ Inx* object(s) and new parameters will appear.

#### 4.10.2 Contact type

This parameter lets choose the behavior that will have the binary input depending on if the contact is normally open or normally closed.

• There are two possible options to configure the contact type: "NO: Normally Open" and "NC: Normally Closed".

#### 4.10.3 Debounce time

This parameter lets choose a debounce time (in milliseconds) that will be applied to the contact.



#### 4.10.4 Disabling function

This parameter shows/hides the *Control\_ Disable Input* x communication object which will let disable/enable the input x.

■之60: Control\_ Disable Input 1 [DPT\_1.003 - 1bit] - 0-Disable;1-Enable;
 ■之60: Control\_ Disable Input 1 [DPT\_1.002 - 1bit] - 0-Enable;1-Disable

- If set to **"no"** any object will be shown.
- When **"DPT 1.003: 0-Disable; 1-Enable"** is selected, the input can be disabled using the value **"0"** and enabled using the value **"1"**.
- When **"DPT 1.002: 0-Enable; 1-Disable"** is selected, the input can be disabled using the value **"1"** and enabled using the value **"0"**.

#### 4.10.5 Function

This parameter lets choose the function that will have the binary input. There are 7 different functions available: Switching, Dimming, Shutter/Blind, Value, Execute Scene (internal), Occupancy (internal) and Window Contact (internal).

 $\circ~$  When "Switching" is selected the communication object and new parameters for the Input "x" will appear as shown below.

> Function	Switching •
<ul> <li>Send telegram after bus recovery</li> </ul>	No action 🔹
> Value on raising edge (contact activated)	Toggle (On/Off)
<ul> <li>Value on falling edge (contact deactivated)</li> </ul>	No action 🔹
> Cyclical sending	Never

■2 109: Status\_ In1 - Switching [DPT\_1.001 - 1bit] - 0-Off;1-On

Figure 4.40 Parameter detail

#### > <u>Send telegram after bus recovery</u>

This parameter lets select if the Binary Input "x'' will send a telegram, or not, after a bus recovery, and the type of telegram sent (if enabled).

- When "No action" is selected, no telegram will be sent after a bus recovery.
- When "Current status" is selected, the binary input will send a telegram with its current status after a bus recovery. Also a new parameter will appear (see below).



- When "**On**" is selected, the binary input will send a telegram with a "**1**" value after a bus recovery. Also a new parameter will appear (see below).
- When **"Off"** is selected, the binary input will send a telegram with a **"0"** value after a bus recovery. Also a new parameter will appear (see below).

> Sending delay after	10	
bus recovery (seconds)		

#### Figure 4.41 Parameter detail

Sending delay after a bus recovery (seconds)

This parameter lets configure a delay (in seconds) that will be applied after a bus recovery and, after which, a telegram will be sent.

#### > <u>Value on rising edge</u>

This parameter lets select the value that the Binary Input "x'' will send on a rising edge (contact activated).

- When "On" is selected, the binary input will always send telegrams with a "1" value.
- When "Off" is selected, the binary input will always send telegrams with a "O" value.
- When "Toggle (On/Off)" is selected, the binary input will send a "1" value after a "0" value and viceversa.
- When "No action" is selected, the binary input will not perform any action.

#### Value on falling edge

This parameter lets select the value that the Binary Input "x'' will send on a falling edge (contact deactivated).

- When "On" is selected, the binary input will always send telegrams with a "1" value.
- When "Off" is selected, the binary input will always send telegrams with a "O" value.
- When "Toggle (On/Off)" is selected, the binary input will send a "1" value after a "0" value and viceversa.
- When "No action" is selected, the binary input will not perform any action.



#### Cyclical sending

This parameter lets enable/disable cyclical sending when a determined condition is met.

- When **"When output value is On"** is selected, everytime a **"1"** value is sent, it will be sent cyclically. Also a new parameter will appear (see below).
- When **"When output value is Off"** is selected, everytime a **"0"** value is sent, it will be sent cyclically. Also a new parameter will appear (see below).
- When "Always" is selected, the binary input will send any value cyclically. Also a new parameter will appear (see below).
- When "Never" is selected, cyclical sending will be disabled.
- Period for cyclical sending (seconds)

This parameter lets configure a time (in seconds) for the cyclical sending.

<ul> <li>Period for cyclical sending</li> </ul>	2	
(seconds)		

Figure 4.42 Parameter detail

 $\circ~$  When "Dimming" is selected the communication objects and new parameters for the Input "x" will appear as shown below.

■↓111: Status\_ In2 - Dimming - On/Off [DPT\_1.001 - 1bit] - 0-Off;1-On ■↓112: Status\_ In2 - Dimming - Step(%) [DPT\_3.007 - 4bit] - Dimming step

> Function	Dimming 🔹
> Send telegram after bus recovery	No action 💌
> Mode for short (long) operation	Toggle: On/Off (increase/decrease)
> Increasing step	+ 100 %
> Decreasing step	- 100 %
> Short/long operation limit (x100ms)	10
<ul> <li>Cyclical sending period (x100ms) (0-No cyclical sending)</li> </ul>	0

Figure 4.43 Parameter detail

> <u>Send telegram after bus recovery</u>

This parameter lets select if the Binary Input "x'' will send a telegram, or not, after a bus recovery, and the type of telegram sent (if enabled).

• When "No action" is selected, no telegram will be sent after a bus recovery.



- When "**On**" is selected, the binary input will send a telegram with a "**1**" value after a bus recovery. Also a new parameter will appear (see below).
- When **"Off"** is selected, the binary input will send a telegram with a **"O"** value after a bus recovery. Also a new parameter will appear (see below).

> Sending delay after	10	
bus recovery (seconds)		

Figure	4.44	Parameter	detail
--------	------	-----------	--------

> <u>Sending delay after a bus recovery (seconds)</u>

This parameter lets configure a delay (in seconds) that will be applied after a bus recovery and, after which, a telegram will be sent.

> Mode for short (long) operation

This parameter lets select the value that the Binary Input "x'' will send on a rising edge (contact activated), for a short and a long operation.

- When "On (increase)" is selected, the binary input will always send telegrams with a "1" value for a short operation, and an "increase step" for a long operation.
- When "Off (decrease)" is selected, the binary input will always send telegrams with a "O" value for a short operation, and an "decrease step" for a long operation.
- When "Toggle: On/Off (increase/decrease)" is selected:
  - For the short operation the binary input will send a **"1"** value after a **"0"** value and viceversa.
  - For the long operation the binary input will send an **"increase step"** after a **"decrease step"** and viceversa.
- ▲ **Important:** Note that the first long operation in toggle depends on the last short operation, meaning that after a "1" value will be sent a "decrease step" and after a "0" value will be sent an "increase step".
- ▲ **Important:** The time period between a short and a long operation is defined in the parameter "Short/long operation limit (x100ms)".
- Increasing step

This parameter lets select the increasing step value (in %) that will be sent for a long operation.



#### Decreasing step

This parameter lets select the decreasing step value (in %) that will be sent for a long operation.

#### Short/long operation limit (x100ms)

This parameter lets introduce the time period difference for the short and the long operation.

#### > Cycl. send. period in long oper. (x100ms)

This parameter lets configure a time (in seconds) for the cyclical sending of a long operation.

• When **"Shutter/Blind"** is selected the communication objects and new parameters for the Input "x" will appear as shown below.

■之 113: Status\_In3 - Shut/Blind - Step [DPT\_1.023 - 1bit] - 0-Step Up;1-Step Down ■之 114: Status\_In3 - Shut/Blind - Move [DPT\_1.023 - 1bit] - 0-Move Up;1-Move Down

Shutter/Blind 🔹
No action 🔹
Toggle (Up/Down)
Step-Move-Step
10
10

#### Figure 4.45 Parameter detail

#### > <u>Send telegram after bus recovery</u>

This parameter lets select if the Binary Input "x'' will send a telegram, or not, after a bus recovery and the type of telegram sent (if enabled).

- When "No action" is selected, no telegram will be sent after a bus recovery.
- When "Move Up" is selected, the binary input will send a telegram with a "O" value after a bus recovery. Also a new parameter will appear (see below).
- When "Move Down" is selected, the binary input will send a telegram with a "1" value after a bus recovery. Also a new parameter will appear (see below).

> Sending delay after	10 {	-
bus recovery (seconds)		

#### Figure 4.46 Parameter detail



#### > <u>Sending delay after a bus recovery (seconds)</u>

This parameter lets configure a delay (in seconds) that will be applied after a bus recovery and, after which, a telegram will be sent.

> Operation

This parameter lets select the value that the Binary Input "x'' will send on a rising edge (contact activated).

- When "Up" is selected, the binary input will always send telegrams with a "O".
- When "Down" is selected, the binary input will always send telegrams with a "1" value.
- When "Toggle (Up/Down)" is selected the binary input will send a "0" value after a "1" value and viceversa.

#### Method

This parameter lets select the working method for the shutter/blind.

• When "Step-Move-Step" is selected: On a rising edge (contact activated) a step/stop telegram will be sent and will begin a time called **T1**. If a falling edge occurs (contact deactivated) during the **T1**, no action will be performed.

If the rising edge is maintained longer than **T1**, a move telegram will be sent and will start a time called **T2**. If a falling edge occurs during the **T2**, a step/stop telegram will be sent. If a falling edge occurs after **T2** no action will be performed.

- When "Move-Step" is selected: On a rising edge a move telegram will be sent and will begin the T2 time. If a falling edge occurs during the T2, a step/stop telegram will be sent. If a falling edge occurs after T2 no action will be performed.
- ▲ **Important:** The **T1** time have to be defined in the "Short/long operation limit (x100ms)" parameter. Also the **T2** time have to be defined in the "Vanes adjustment time (x100ms)" parameter.
- Short/long operation limit (x100ms)

This parameter lets introduce the time period difference for the short and the long operation (T1 time).

Vanes adjustment time (x100ms)

This parameter lets introduce the time period for the vanes adjustment/blind movement (T2 time).



 When "Value" is selected the communication objects and new parameters for the Input "x" will appear as shown below.

■2 116: Status\_ In4 - Value [DPT\_5.010 - 1byte] - 1-byte unsigned value

> Function	Value 🗸
<ul> <li>Send telegram after bus recovery</li> </ul>	Fixed value -
<ul> <li>Sending delay after bus recovery (seconds)</li> </ul>	10
> DPT to be sent	DPT 5.010 (1byte)
<ul> <li>Value on raising edge (when contact activated)</li> </ul>	234

Figure 4.47 Parameter detail

Send telegram after bus recovery

This parameter lets select if the Binary Input "x'' will send a telegram, or not, after a bus recovery and the type of telegram sent (if enabled).

- When "No action" is selected, no telegram will be sent after a bus recovery.
- When "Fixed value" is selected, the binary input will send a telegram with the same value configured in the "Value on rising edge" parameter. Also a new parameter will appear (see below).

> Sending delay after	10	
bus recovery (seconds)		

Figure 4.49 Parameter detail

Sending delay after a bus recovery (seconds)

This parameter lets configure a delay (in seconds) that will be applied after a bus recovery and, after which, a telegram will be sent.

DPT to be sent

This parameter lets select the DPT type for the value that will be defined in the next parameter. This value will be sent on a rising edge (contact activated).



Value on rising edge (when contact activated)

This parameter lets define a value for the DTP type configured in the "DPT to be sent" parameter. This value will be sent on a rising edge (contact activated).



• When **"Execute Scene (internal)"** is selected, the binary input "x" will activate the scene defined in the next parameter, on a rising edge (contact activated).

> Function	Execute Scene (internal)		
<ul> <li>Scene when contact is activated (needs to be defined)</li> </ul>	Scene 1 🔹		

Figure 4.49 Parameter detail

Scene when contact is activated

This parameter lets choose the scene that will be activated on a rising edge. This scene MUST be defined in the "Scene Configuration" dialog as a preset.

 When "Occupancy (internal)" is selected, the binary input "x" will have the same behavior as configured in the parameter "Enable use of Occupancy function" inside the "Switch-Off Timeouts Configuration" dialog.

> Function	Occupancy (internal)



 When "Window Contact (internal)" is selected, the binary input "x" will have the same behavior as configured in the parameter "Enable use of Open Window / Switch off timeout function" inside the "Switch-Off Timeouts Configuration" dialog.

> Function	Window Contact (internal) 🔹

Figure 4.51 Parameter detail



# 5. Specifications

Envelope	ABS (UL 94 HB). 2,5 mm thickness		
Dimensions	59 x 45 x 21 mm		
Weight	35g		
Colour	Light Grey		
Power supply	29V DC, 7mA		
	Supplied through KNX bus.		
LED indicators	1 x KNX programming.		
Push buttons	1 x KNX programming.		
Binary inputs	4 x Potential-free binary inputs. Signal cable length: 5m uschielded, may be extended up to 20m with twisted. Compliant with the following standards: IEC61000-4-2 : level 4 - 15kV (air discharge) - 8kV (contact discharge) MIL STD 883E-Method 3015-7 : class3B		
Configuration	guration Configuration with ETS.		
Operating Temperature	From -25°C to 85°C		
Storage Temperature	From -40°C to 85°C		
Isolation Voltage	oltage 4000V		
RoHS conformity	Compliant with RoHS directive (2002/95/CE).		
Certifications         CE conformity to EMC directive (2004/108/EC) and Low-voltage (2006/95/EC)           EN 61000-6-2; EN 61000-6-3; EN 60950-1; EN 50491-3; EN 50090-2-EN 50428; EN 60669-1; EN 60669-2-1			





# 6. AC Unit Types compatibility.

A list of Panasonic indoor unit models compatible with PA-AC-KNX-1i and their available features can be found in:

http://www.intesis.com/pdf/IntesisBox PA-AC-xxx-1 AC Compatibility.pdf



# 7. Error Codes

Error Code KNX Object	Error in RC	Abnormality / Protection control	Abnormality Judgment	Problem	Check Location
0	H00	—	—	No error	—
65535 (-1 if signed)	_	_	_	Error in the communication of PA-AC-KNX-1i device with the AC unit	Indoor/gateway connection wire
8209	H11	Indoor/outdoor abnormal communication	After operation for 1 minute	Indoor/outdoor communication not establish	<ul> <li>Indoor/outdoor wire terminal</li> <li>Indoor/outdoor PCB</li> <li>Indoor/outdoor connection wire</li> </ul>
8210	H12	Indoor unit capacity unmatched	90s after power supply	Total indoor capability more than maximum limit or less than minimum limit, or number of indoor unit less than two.	<ul> <li>Indoor/outdoor connection wire</li> <li>Indoor/outdoor PCB</li> <li>Specification and combination table in catalogue</li> </ul>
8212	H14	Indoor intake air temperature sensor abnormality	Continuous for 5s	Indoor intake air temperature sensor open or short circuit	<ul> <li>Indoor intake air temperature sensor lead wire and connector</li> </ul>
8213	H15	Compressor temperature sensor abnormality	Continuous for 5s	Compressor temperature sensor open or short circuit	Compressor temperature sensor lead     wire and connector
8214	H16	Outdoor current transformer (CT) abnormality	_	Current transformer faulty or compressor faulty	Outdoor PCB faulty or compressor faulty
8217	H19	Indoor fan motor merchanism lock	Continuous happen for 7 times	Indoor fan motor lock or feedback abnormal	<ul> <li>Fan motor lead wire and connector</li> <li>Fan motor lock or block</li> </ul>
8227	H23	Indoor heat exchanger temperature sensor abnormality	Continuous for 5s	Indoor heat exchanger temperature sensor open or short circuit	Indoor heat exchanger temperature sensor lead wire and connector
8229	H25	Indoor E-Ion abnormality	Port is ON for 10s during E-lon off	_	• E-Ion PCB
8231	H27	Outdoor air temperature sensor abnormality	Continuous for 5s	Outdoor air temperature sensor open or short circuit	Outdoor air temperature sensor lead wire and connector
8232	H28	Outdoor heat exchanger temperature sensor 1 abnormality	Continuous for 5s	Outdoor heat exchanger temperature sensor 1 open or short circuit	Outdoor heat exchanger temperature sensor 1 lead wire and connector
8240	H30	Outdoor discharge pipe temperature sensor abnormality	Continuous for 5s	Outdoor discharge pipe temperature sensor open or short circuit	Outdoor discharge pipe temperature sensor lead wire and connector
8242	H32	Outdoor heat exchanger temperature sensor 2 abnormality	Continuous for 5s	Outdoor heat exchanger temperature sensor 2 open or short circuit	Outdoor heat exchanger temperature sensor 2 lead wire and connector
8243	H33	Indoor / outdoor misconnection abnormality	_	Indoor and outdoor rated voltage different	Indoor and outdoor units check
8244	H34	Outdoor heat sink temperature sensor abnormality	Continuous for 2s	Outdoor heat sink temperature sensor open or short circuit	Outdoor heat sink sensor
8246	H36	Outdoor gas pipe temperature sensor abnormality	Continuous for 5s	Outdoor gas pipe temperature sensor open or short circuit	Outdoor gas pipe temperature sensor lead wire and connector
8247	H37	Outdoor liquid pipe temperature sensor abnormality	Continuous for 5s	Outdoor liquid pipe temperature sensor open or short circuit	Outdoor liquid pipe temperature sensor lead wire and connector

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8248	H38	Indoor/Outdoor mismatch (brand code)	_	Brand code not match	Check indoor unit and outdoor unit.
8249	H39	Abnormal indoor operating unit or standby units	3 times happen within 40 minutes	Wrong wiring and connecting pipe, expansion valve abnormality, indoor heat exchanger sensor open circuit	<ul> <li>Check indoor/outdoor connection wire and connection pipe</li> <li>Indoor heat exchanger sensor lead wire and connector</li> <li>Expansion valve and lead wire and connector</li> </ul>
8257	H41	Abnormal wiring or piping connection	_	Wrong wiring and connecting pipe, expansion valve abnormality	<ul> <li>Check indoor/outdoor connection wire and connection pipe</li> <li>Expansion valve and lead wire and connector.</li> </ul>
8280	H58	Indoor gas sensor abnormality	Continuous for 6 hours	Indoor gas sensor open or short circuit	<ul><li>Indoor gas sensor</li><li>Indoor PCB</li></ul>
8281	H59	ECO patrol sensor abnormality	Continuous for 70s	ECO patrol sensor open or short circuit	<ul> <li>ECO patrol sensor</li> <li>ECO patrol and Indoor PCB</li> </ul>
8292	H64	Outdoor high pressure sensor abnormality	Continuous for 1 minutes	High pressure sensor open circuit during compressor stop	<ul><li>High pressure sensor</li><li>Lead wire and connector</li></ul>
8343	H97	Outdoor fan motor mechanism lock	2 times happen within 30 minutes	Outdoor fan motor lock or feedback abnormal	<ul> <li>Outdoor fan motor lead wire and connector</li> <li>Fan motor lock or block</li> </ul>
8344	H98	Indoor high pressure protection	_	Indoor high pressure protection (Heating)	<ul> <li>Check indoor heat exchanger</li> <li>Air filter dirty</li> <li>Air circulation short circuit</li> </ul>
8345	H99	Indoor operating unit freeze protection	_	Indoor freeze protection (Cooling)	Check indoor heat exchanger     Air filter dirty     Air circulation short circuit
12305	F11	4-way valve switching abnormality	4 times happen within 30 minutes	4-way valve switching abnormal	<ul><li> 4-way valve</li><li> Lead wire and connector.</li></ul>
12311	F17	Indoor standby units freezing abnormality	3 times happen within 40 minutes	Wrong wiring and connecting pipe, expansion valve leakage, indoor heat exchanger sensor open circuit	<ul> <li>Check indoor/outdoor connection wire and pipe</li> <li>Indoor heat exchanger sensor lead wire and connector</li> <li>Expansion valve lead wire and connector.</li> </ul>
12432	F90	Power factor correction (PFC) circuit protection	4 times happen within 10 minutes	Power factor correction circuit abnormal	Outdoor PCB faulty
12433	F91	Refrigeration cycle abnormality	2 times happen within 20 minutes	Refrigeration cycle abnormal	Insufficient refrigerant or valve close
12435	F93	Compressor abnormal revolution	4 times happen within 20 minutes	Compressor abnormal revolution	Power transistor module faulty or compressor lock
12436	F94	Compressor discharge pressure overshoot protection	4 times happen within 30 minutes	Compressor discharge pressure overshoot	Check refrigeration system
12437	F95	Outdoor cooling high pressure protection	4 times happen within 20 minutes	Cooling high pressure protection	<ul><li>Check refrigeration system</li><li>Outdoor air circuit</li></ul>
12438	F96	Power transistor module overheating protection	4 times happen within 30 minutes	Power transistor module overheat	<ul><li>PCB faulty</li><li>Outdoor air circuit (fan motor)</li></ul>
12439	F97	Compressor overheating protection	3 times happen within 30 minutes	Compressor overheat	Insufficient refrigerant
12440	F98	Total running current protection	3 times happen within 20 minutes	Total current protection	Check refrigeration system     Power source or compressor lock
12441	F99	Outdoor direct current (DC) peak detection	Continuous happen for 7 times	Power transistor module current protection	Power transistor module faulty or compressor lock

In case you detect an error code not listed, contact your nearest Panasonic technical support service for more information on the error meaning.

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# Appendix A – Communication Objects Table

ΤΟΡΙΟ	OBJECT	NAME	LENGTH	DATAPOINT TY		FLA	٩GS	5	FUNCTION	
	NUMBER			DPT_NAME	DPT_ID	R	w	т	U	
On/Off	0	Control_ On/Off	1 bit	DPT_Switch	1.001		w	т		0 - Off; 1-On
	1	Control_ Powerful	1 bit	DPT_Bool	1.002		w	т		1 – Set Powerful
AC reatures	2	Control_ Quiet	1 bit	DPT_Bool	1.002		w	т		1 – Set Quiet
	3	Control_ Mode	1 byte	DPT_HVACContrMode	20.105		w	т		0 - Auto; 1 - Heat; 3 - Cool; 9 - Fan; 14 - Dry
	4	Control_ Mode Cool/Heat	1 bit	DPT_Heat/Cool	1.100		w	Т		0 - Cool; 1 - Heat;
	5	Control_ Mode Cool & On	1 byte	DPT_Scaling	5.001		w	Т		0% - Off; 0.1%-100% - On + Cool
	6	Control_ Mode Heat & On	1 byte	DPT_Scaling	5.001		w	т		0% - Off; 0.1%-100% - On + Heat
	7	Control_ Mode Auto	1 bit	DPT_Bool	1.002		w	т		1 - Auto
Mode	8	Control_ Mode Heat	1 bit	DPT_Bool	1.002		w	Т		1 - Heat
	9	Control_ Mode Cool	1 bit	DPT_Bool	1.002		w	Т		1 - Cool
	10	Control_ Mode Fan	1 bit	DPT_Bool	1.002		w	Т		1 - Fan
	11	Control_ Mode Dry	1 bit	DPT_Bool	1.002		w	т		1 - Dry
	12	Control_ Mode +/-	1 bit	DPT_Step	1.007		w			0 - Decrease; 1 - Increase
		Control_ Mode +/-	1 bit	DPT_UpDown	1.008		w			0 - Up; 1 - Down
Fan Speed	13	Control_ Fan Speed / 5 Speeds	1 byte	DPT_Scaling	5.001		w	т		0%-29% - Speed 1; 30%-49% - Speed 2; 50%-69% - Speed 3; 70%-89% - Speed 4; 90%-100% - Speed 5.

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		Control_ Fan Speed / 5 Speeds	1 byte	DPT_Enumerated	5.010	W	т	1 - Speed 1; 2 - Speed 2; 3 Speed 3; 4 - Speed 4; 5 Speed 5
	14	Control_ Fan Speed Manual/Auto	1 bit	DPT_Bool	1.002	W	т	0 - Manual; 1 - Auto
	15	Control_ Fan Speed 1	1 bit	DPT_Bool	1.002	W	т	1 - Fan Speed 1
	16	Control_ Fan Speed 2	1 bit	DPT_Bool	1.002	W	т	1 - Fan Speed 2
	17	Control_ Fan Speed 3	1 bit	DPT_Bool	1.002	W	т	1 - Fan Speed 3
	18	Control_ Fan Speed 4	1 bit	DPT_Bool	1.002	W	т	1 - Fan Speed 4
	19	Control_ Fan Speed 5	1 bit	DPT_Bool	1.002	W	т	1 - Fan Speed 5
	20	Control_ Fan Speed +/-	1 bit	DPT_Step	1.007	W		0 - Decrease; 1 - Increase
		Control_ Fan Speed +/-	1 bit	DPT_UpDown	1.008	W		0 - Up; 1 - Down
	24	Control_ Vane Up-Down / 5 pos	1 byte	DPT_Scaling	5.001	w	т	0%-29% - Pos1; 30%-49% - Pos2; 50%-69% Pos3; 70%-89% - Pos4; 90%-100% - Pos5
	21	Control_ Vane Up-Down / 5 pos	1 byte	DPT_Enumerated	5.010	W	т	1 - Pos1; 2 - Pos2; 3 - Pos3; 4 - Pos4; 5 - Pos5
	22	Control_ Vane Up-Down Man/Auto	1 bit	DPT_Bool	1.002	W	т	0 – Manual; 1 - Auto
Vanes	23	Control_ Vane Up-Down Pos1	1 bit	DPT_Bool	1.002	W	т	1 - Position 1
p-00011	24	Control_ Vane Up-Down Pos2	1 bit	DPT_Bool	1.002	W	т	1 - Position 2
-	25	Control_ Vane Up-Down Pos3	1 bit	DPT_Bool	1.002	W	т	1 - Position 3
	26	Control_ Vane Up-Down Pos4	1 bit	DPT_Bool	1.002	W	т	1 - Position 4
	27	Control_ Vane Up-Down Pos5	1 bit	DPT_Bool	1.002	W	т	1 - Position 5
	28	Control_ Vane Up-Down +/-	1 bit	DPT_Step	1.007	W		0 - Decrease; 1 - Increase

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		Control_ Vane Up-Down +/-	1 bit	DPT_UpDown	1.008	w		0 - Up; 1 - Down
	20	Control_ Vane Left-Right / 5 pos	1 byte	DPT_Scaling	5.001	w	т	0%-29% - Pos1; 30%-49% - Pos2; 50%-69% Pos3; 70%-89% - Pos4; 90%-100% - Pos5
	29	Control_ Vane Left-Right / 5 pos	1 byte	DPT_Enumerated	5.010	w	т	1 - Pos1; 2 - Pos2; 3 - Pos3; 4 - Pos4; 5 - Pos5
	30	Control_ Vane Left-Right Man/Auto	1 bit	DPT_Bool	1.002	w	Т	0 – Manual; 1 - Auto
Vanac	31	Control_ Vane Left-Right Pos1	1 bit	DPT_Bool	1.002	w	т	1 - Position 1
Left-Right	32	Control_ Vane Left-Right Pos2	1 bit	DPT_Bool	1.002	w	Т	1 - Position 2
	33	Control_ Vane Left-Right Pos3	1 bit	DPT_Bool	1.002	w	Т	1 - Position 3
	34	Control_ Vane Left-Right Pos4	1 bit	DPT_Bool	1.002	w	т	1 - Position 4
	35	Control_ Vane Left-Right Pos5	1 bit	DPT_Bool	1.002	w	т	1 - Position 5
	36	Control_ Vane Left-Right +/-	1 bit	DPT_Step	1.007	w		0 - Decrease; 1 - Increase
		Control_ Vane Left-Right +/-	1 bit	DPT_UpDown	1.008	w		0 - Up; 1 - Down
	37	Control_ Setpoint Temperature	2 byte	DPT_Value_Temp	9.001	w	Т	16°C to 32°C
	20	Control_ Setpoint Temp +/-	1 bit	DPT_Step	1.007	w		0 - Decrease; 1 - Increase
Temperature	30	Control_Setpoint Temp +/-	1 bit	DPT_UpDown	1.008	w		0 - Up; 1 - Down
	39	Control_ Ambient Temperature	2 byte	DPT_Value_Temp	9.001	w	т	°C value in EIS5 format
	40	Control_ Switch Off Timeout	1 bit	DPT_OpenClose	1.009	w	т	0 - Open; 1 - Closed
	40	Control_ Switch Off Timeout	1 bit	DPT_Start	1.010	w	т	0 - Stop; 1 - Start
Timeout	41	Control_ Occupancy	1 bit	DPT_Occupancy	1.018	w	т	0 - Not Occupied; 1 - Occupied
	42	Control_ Sleep Timeout	1 bit	DPT_Start	1.010	w	Т	0 - Stop; 1 - Start

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Locking	43	Control_ Lock Remote Control	1 bit	DPT_Bool	1.002	w	т	0 - Unlocked; 1 - Locked
Locking	44	Control_ Lock Control Objects	1 bit	DPT_Bool	1.002	w	т	0 - Unlocked; 1 - Locked
	45	Control_ Power Mode	1 bit	DPT_Start	1.010	w	т	0 - Stop; 1 - Start
Special Medec	46	Contorl_ Econo Mode	1 bit	DPT_Start	1.010	w	т	0 - Stop; 1 - Start
Special modes	47	Control_ Additional Heat	1 bit	DPT_Start	1.010	w	т	0 - Stop; 1 - Start
	48	Control_ Additional Cool	1 bit	DPT_Start	1.010	w	т	0 - Stop; 1 - Start
	49	Control_ Save/Exec Scene	1 byte	DPT_SceneControl	18.001	w	т	0 to 4 - Exec. Scene 1 to 5; 128 to 132 - Save Scene 1 to 5
	50	Control_ Store Scene1	1 bit	DPT_Bool	1.002	w		1 - Store Scene
	51	Control_ Store Scene2	1 bit	DPT_Bool	1.002	w		1 - Store Scene
	52	Control_ Store Scene3	1 bit	DPT_Bool	1.002	w		1 - Store Scene
	53	Control_ Store Scene4	1 bit	DPT_Bool	1.002	w		1 - Store Scene
Scenes	54	Control_ Store Scene5	1 bit	DPT_Bool	1.002	w		1 - Store Scene
	55	Control_ Execute Scene1	1 bit	DPT_Bool	1.002	w	т	1 - Execute Scene
	56	Control_ Execute Scene2	1 bit	DPT_Bool	1.002	w	т	1 - Execute Scene
	57	Control_ Execute Scene3	1 bit	DPT_Bool	1.002	w	т	1 - Execute Scene
	58	Control_ Execute Scene4	1 bit	DPT_Bool	1.002	w	т	1 - Execute Scene
	59	Control_ Execute Scene5	1 bit	DPT_Bool	1.002	w	т	1 - Execute Scene
Disphling	60	Control_ Disable Input 1	1 bit	DPT_Bool	1.002	W	т	0 - Enable; 1 - Disable
Disabling	00	Control_ Disable Input 1	1 bit	DPT_Enable	1.003	W	т	0 - Disable; 1 - Enable

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	~	Control_ Disable Input 2	1 bit	DPT_Bool	1.002		w	т	0 - Enable; 1 - Disable
	01	Control_ Disable Input 2	1 bit	DPT_Enable	1.003		w	т	0 - Disable; 1 - Enable
	67	Control_ Disable Input 3	1 bit	DPT_Bool	1.002		w	Т	0 - Enable; 1 - Disable
_	02	Control_ Disable Input 3	1 bit	DPT_Enable	1.003		w	Т	0 - Disable; 1 - Enable
	67	Control_ Disable Input 4	1 bit	DPT_Bool	1.002		w	т	0 - Enable; 1 - Disable
	03	Control_ Disable Input 4	1 bit	DPT_Enable	1.003		w	Т	0 - Disable; 1 - Enable
On/Off	64	Status_ On/Off	1 bit	DPT_Switch	1.001	R		т	0 - Off; 1-On
	65	Status_ Powerful	1 bit	DPT_Bool	1.002	R		т	1 - Powerful active
AC realures	66	Status_ Quiet	1 bit	DPT_Bool	1.002	R		т	1 – Quiet active
	67	Status_ Mode	1 byte	DPT_HVACContrMode	20.105	R		т	0 - Auto; 1 - Heat; 3 - Cool; 9 - Fan; 14 - Dry
	68	Status_ Mode Cool/Heat	1 bit	DPT_Heat/Cool	1.100	R		т	0 - Cool; 1 - Heat
	69	Status_ Mode Auto	1 bit	DPT_Bool	1.002	R		т	1 - Auto
Mada	70	Status_ Mode Heat	1 bit	DPT_Bool	1.002	R		Т	1 - Heat
Mode	71	Status_ Mode Cool	1 bit	DPT_Bool	1.002	R		т	1 - Cool
	72	Status_ Mode Fan	1 bit	DPT_Bool	1.002	R		т	1 - Fan
	73	Status_ Mode Dry	1 bit	DPT_Bool	1.002	R		Т	1 - Dry
	74	Status_ Mode Text	14 byte	DPT_String_8859_1	16.001	R		Т	ASCII String
Fan Speed	75	Status_ Fan Speed / 5 Speeds	1 byte	DPT_Scaling	5.001	R		Т	20% - Speed 1; 40% - Speed 2; 60% - Speed 3; 80% - Speed 4; 100% - Speed 5
		Status_ Fan Speed / 5 Speeds	1 byte	DPT_Enumerated	5.010	R		т	1 - Speed 1; 2 - Speed 2; 3 Speed 3; 4 - Speed 4; 5 Speed 5

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	76	Status_ Fan Speed Manual/Auto	1 bit	DPT_Bool	1.002	R	-	Г	0 – Manual; 1 - Auto
-	77	Status_ Fan Speed 1	1 bit	DPT_Bool	1.002	R	-	Г	1 - Speed 1
	78	Status_ Fan Speed 2	1 bit	DPT_Bool	1.002	R	-	Г	1 - Speed 2
	79	Status_ Fan Speed 3	1 bit	DPT_Bool	1.002	R	-	Г	1 - Speed 3
	80	Status_ Fan Speed 4	1 bit	DPT_Bool	1.002	R	-	Γ	1 - Speed 4
	81	Status_ Fan Speed 5	1 bit	DPT_Bool	1.002	R	-	Г	1 - Speed 5
	82	Status_ Fan Speed Text	14 byte	DPT_String_8859_1	16.001	R	-	Г	ASCII String
	02	Status_ Vane Up-Down / 5 pos	1 byte	DPT_Scaling	5.001	R	-	Г	20% - Pos1; 40% - Pos2; 60% - Pos3; 80% - Pos4; 100% - Pos5
	65	Status_ Vane Up-Down / 5 pos	1 byte	DPT_Enumerated	5.010	R	-	Г	1 - Pos1; 2 - Pos2; 3 - Pos3; 4 - Pos4; 5 - Pos5
	84	Status_ Vane Up-Down Man/Auto	1 bit	DPT_Bool	1.002	R	-	Г	0 – Manual; 1 - Auto
Vanes Un-Down	85	Status_ Vane Up-Down Pos1	1 bit	DPT_Bool	1.002	R	-	Г	1 - Position 1
op-bown	86	Status_ Vane Up-Down Pos2	1 bit	DPT_Bool	1.002	R	-	Г	1 - Position 2
	87	Status_ Vane Up-Down Pos3	1 bit	DPT_Bool	1.002	R	-	Г	1 - Position 3
	88	Status_ Vane Up-Down Pos4	1 bit	DPT_Bool	1.002	R	-	Г	1 - Position 4
-	89	Status_ Vane Up-Down Pos5	1 bit	DPT_Bool	1.002	R	-	Г	1 - Position 5
	90	Status_ Vane Up-Down Text	14 byte	DPT_String_8859_1	16.001	R	-		ASCII String
Vanes Left-Right	91	Status_ Vane Left-Right / 5 pos	1 byte	DPT_Scaling	5.001	R	-		20% - Pos1; 40% - Pos2; 60% - Pos3; 80% - Pos4; 100% - Pos5

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		Status_ Vane Left-Right / 5 pos	1 byte	DPT_Enumerated	5.010	R	Т	1 - Pos1; 2 - Pos2; 3 - Pos3; 4 - Pos4; 5 - Pos5
	92	Status_ Vane Left-Right Man/Auto	1 bit	DPT_Bool	1.002	R	Т	0 – Manual; 1 - Auto
	93	Status_ Vane Left-Right Pos1	1 bit	DPT_Bool	1.002	R	Т	1 - Position 1
	94	Status_ Vane Left-Right Pos2	1 bit	DPT_Bool	1.002	R	Т	1 - Position 2
	95	Status_ Vane Left-Right Pos3	1 bit	DPT_Bool	1.002	R	Т	1 - Position 3
	96	Status_ Vane Left-Right Pos4	1 bit	DPT_Bool	1.002	R	Т	1 - Position 4
	97	Status_ Vane Left-Right Pos5	1 bit	DPT_Bool	1.002	R	Т	1 - Position 5
	98	Status_ Vane Left-Right Text	14 byte	DPT_String_8859_1	16.001	R	Т	ASCII String
Temperature	99	Status_ AC Setpoint Temp	2 byte	DPT_Value_Temp	9.001	R	Т	16ºC to 32ºC
	100	Status_ Error/Alarm	1 bit	DTP_Alarm	1.005	R	Т	0 - No Alarm; 1 - Alarm
Error	101	Status_ Error Code	2 byte	Enumerated		R	Т	0 - No Error; Any other see user's manual
	102	Status_ Error Text code	14 byte	DPT_String_8859_1	16.001	R	Т	3 char Panasonic Error; Empty - none
	103	Status_ Power Mode	1 bit	DPT_Switch	1.001	R	Т	0 - Off; 1-On
	104	Status_ Econo Mode	1 bit	DPT_Switch	1.001	R	Т	0 - Off; 1-On
Special Modes	105	Status_ Additional Heat	1 bit	DPT_Switch	1.001	R	Т	0 - Off; 1-On
	106	Status_ Additional Cool	1 bit	DPT_Switch	1.001	R	Т	0 - Off; 1-On
Counter	107	Status_ Operation Hour Counter	2 byte	DPT_Value_2_Ucount	7.001	R	Т	Number of operating hours
Scene	108	Status_ Current Scene	1 byte	DPT_SceneNumber	17.001	R	т	0 to 4 - Scene 1 to 5; 63 - No Scene

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		Status_ Inx - Switching	1 bit	DPT_Switch	1.001	R	т	0 - Off; 1-On
		Status_ Inx - Dimming - On/Off	1 bit	DPT_Switch	1.001	R	т	0 - Off; 1 - On
	109	Status_ Inx - Shut/Blind - Step	1 bit	DPT_ShutterBlinds	1.023	R	т	0 – Step Up; 1 – Step Down
	111	Status_ Inx - Value	1 byte	DPT_Value_1_Ucount	5.010	R	т	1 byte unsigned value
	113	Status_ Inx - Value	2 byte	DPT_Value_2_Ucount	7.001	R	т	2 byte unsigned value
	115	Status_ Inx - Value	2 byte	DPT_Value_2_Count	8.001	R	т	2 byte signed value
Binary Inputs		Status_ Inx - Value	2 byte	DPT_Value_Temp	9.001	R	т	Temperature (°C)
		Status_ Inx - Value	4 byte	DPT_Value_4_Ucount	12.001	R	т	4 byte unsigned value
	110 112	Status_ Inx – Dimming – Step(%)	1 bit	DPT_Control_Dimm.	3.007	R	Т	Dimming step
	114 116	Status_ Inx - Shut/Blind -Move	1 bit	DPT_ShutterBlinds	1.023	R	Т	0 – Move Up; 1 – Move Down
		1 I I I I I I I I I I I I I I I I I I I				1		

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