

Clima controller

Temperature Controller



Clima Control in style.

Product Handbook.

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Any information inside this manual can be changed without advice.

Exclusion of liability:

Despite checking that the contents of this document match the hardware and software, deviations cannot be completely excluded. We therefore cannot accept any liability for this. Any necessary corrections will be incorporated into newer versions of this manual.

Symbol for relevant information



Symbol for warning



1. General Introduction

This manual is intended to be used by installers and describes functions and parameters of the device VM_IPxxAxxKNX and how is possible to change settings and configurations using ETS software tool.

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2. Product and functional overview

VM_IPxxAxxKNX module is designed to be installed in Home and Building installations (i.e. offices, hotels, private houses, etc...).

The module includes five capacitive touch buttons.

The capacitive buttons can be used to on/off commands, dimming, shutter control, scene recall and control, sequences of 3 objects.

The VM_IPxxAxxKNX can manage one zone thermoregulation with its temperature probe and/or with one KNX temperature probe (with On/Off threshold) or one thermostats to control heating and cooling equipments, valves, 2 and 4 pipes fan coils; etc..

The VM_IPxxAxxKNX can be also used as Control Panel.

Capacitive buttons main functions:

- 1 bit commands: load activation / deactivation commands (ON/OFF/TOGGLE) with short press or with differentiation of long and short press

- 1 byte commands (unsigned 0-255 or HVAC commands or value % commands).
- Sending of long action telegrams on the same address of short action or on a different group address
- Cyclic sending
- Sequences (3 commands mixing 1bit/1byte objects) with different group addresses
- Edges for 1 bit / 1 Byte / sequences
- Dimmer management (with single or double push-button)
- Blind / Roller Shutter management (with single or double push-button)
- Scene management
- Thermostat management

Device configured as Temperature sensor - main functions:

- 2 different temperature thresholds to trigger 1 bit telegrams alarm/warning
- Enable / disable of alarm / warnings via 1 bit object

Configured as Thermostat - main functions:

- Different control algorithms: 2 point on/off; PWM; Continuous Control / Fan Coil Control
- Different setting modes: via HVAC automatic / via HVAC Manual / via Setpoint
- Window contact function
- Additional external temperature sensors (optional)

Configured as Control Panel Main function

- Display the actual temperature or actual setpoint
- Permit to control a remote KNX thermostat
- Additional external temperature sensors (optional)

3. General Parameter Configuration

KNX PARAMETER	SETTINGS
Delay on Power-up	5 ÷ 15 seconds
<p>Through this parameter is possible to set the delay of transmission of telegrams after a power on by selecting the time by which the device is allowed to send telegrams.</p> <p>In large systems after a power failure or shutdown this delay avoids to generate excessive traffic on the bus, causing slow performance or a transmission block.</p> <p>If there are different devices requiring sending telegrams on the bus after a reset, these delays must be programmed to prevent traffic congestion during the initialization phase.</p> <p>The input detection and the values of objects are updated at the end of the transmission delay time</p> <p>At the end of ETS programming the device behaves like after a power on.</p>	
Probe Function	Temperature sensor Thermostat Control Panel
<p>Temperature Sensor": measures and sends temperature on the bus. See par. 6</p> <p>"Thermostat": controls different types of actuators regulating heating and cooling. See par. 7</p> <p>"Control Panel": permit to control a remote KNX thermostat. See Par. 21</p>	
Proximity function	Disable Enable
<p>This parameter permit to enable or disable the proximity funzjon of the glass panel</p>	
Standby Mode	Disable Enable
<p>This parameter permit di disable or enable the stanby mode of the glass panel</p>	
Acoustic signal on press	Disable Enable
<p>This parameter permit di disable or enable the Acoustic signal on press the glass panel.</p> <p>When this parameter is enabled an acoustic signal notify that one button is pressed</p>	

KNX PARAMETER	SETTINGS
Value associated with backlight ON mode [0..100%]	0-100%
<p>With this parameter, during the ETS configuration, you can set the brightness of backlight of the button when value is ON</p>	
Value associated with backlight OFF mode [0..100%]	0-100%
<p>With this parameter, during the ETS configuration, you can set the brightness of backlight of the button when value is OFF</p>	

4. Right button configuration

The right button of the glass room temperature controller can be configured to perform the “function mode” or “nothing”

KNX PARAMETER	SETTINGS
Function	nothing function mode
If function mode is selected, “number of byte values” parameter is displayed. When “function mode” is enable each press sends the next byte of the sequence set	
Number of byte values	2-9
Select the number of byte values used in the “function mode” function.	
Value <x> [1..9]	0-255
Select the corresponding value to be assigned to the value <x>	

5. Central / Left button

For each of the two button, present on the device, the selections are made through a configuration page.

Every single button can be configured to perform one of the following functions:

- Nothing
- Activation on press
- Activation on short and long press
- Dimming
- Shutter and blinds
- Scene
- Command in sequence (on short and long press)
- Command in sequence (toggle mode)

KNX PARAMETER	SETTINGS
Minimum time long press input	0,3 sec 0,5 sec 0,8 sec 1,0 sec 2,0 sec 3,0 sec 5,0 sec 10 sec
Determines how long must be a press to be considered long; if shorter than the selected value the press will be considered short.	
Function	Nothing Activation on press Activation on short and long press Dimming Shutter and blinds Scene Command in sequence (short/long press) Command in sequence (toggle mode)
<p>Nothing</p> <p>When the capacitive button is pressed no action are made</p> <p>Activation on press</p> <p>see par. 5.1- Activation on press</p> <p>Activation on short and long press</p> <p>see par. 5.2-Activation short/ long press</p> <p>Dimming</p> <p>see par. 5.3- Dimming</p> <p>Shutter and Blind</p> <p>see par. 5.4- Shutter and Blind</p> <p>Scene</p> <p>see par. 5.5 - Scene Management</p> <p>Command in sequence</p> <p>see par. 5.6 - Command in sequence</p>	

6. Activation on press / edge

The “Activation on edge” allows you to configure the sending of telegrams when the button is pressed or released

You can set to send a telegram with different values associated with different edges, or decide to send commands only one of the two edges

With the “Activation of the press” selection device can also be configured to send periodic messages with repetition period.

KNX PARAMETER	SETTINGS
Telegram Associated	1 byte 1 bit
It is possible to send 1 bit or 1 byte objects	

- On
- Off
- Toggle

Configurations for 1 bit object in events of pressing or releasing the button:

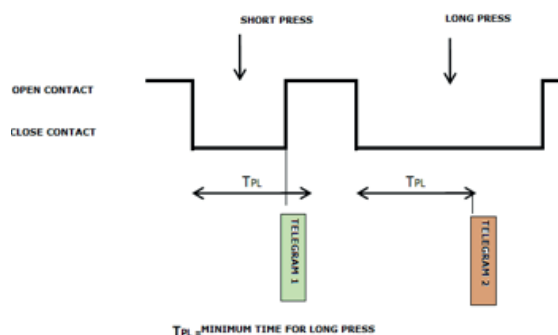
- Value 0-255 (generic signed int)
- Value 0-100% (scaling value in steps of 5%)
- HVAC Mode value (according to DPT_HVAC-Mode 20.102)
 - o AUTO
 - o COMFORT
 - o STANDBY
 - o ECONOMY
 - o BUILDING PROTECTION

Note 1:
If you enable the sending of the telegram for button where you have already set the cyclic sending ; then the cyclic sending will start automatically at power on; at the end of the first period.

Note 2:
If the command selected is "TOGGLE", the first value sent is always 1 because the CO value on power on is 0.

7. Activation short/ long press

The difference duration between short and long press is defined by the generic parameter "Minimum time for long press button central / left". You can set to send a telegrams with different values on short and long press or decide to send commands only on one of this events.



The parameters and mode of transmission of telegrams can be managed through "activation on long and short press" are the same set with the configuration "Activation of press" to the exclusion of the function of cyclic sending that is not provided here.

KNX PARAMETER	SETTINGS
Function	On press / release On press / release , cyclic if press On press / release , cyclic if release On press / release and always cyclic
<p>Note 1: When periodical sending is enabled for one only of the two edges, switching in the state where "no telegram" is associated causes the periodic sending stop.</p> <p>Note 2: If you want to handle both instant sending and periodic sending on only one of two fronts without performing an action on the other, for this you must select the option "no telegram".</p>	
Feedback object	Enabled Disable
Can be used when button is set as "1 bit - Toggle" in order to have always the status of actuator updated.	
Send Telegram on power up	Enabled Disable
With this parameter it is enabled the sending of the status of the button without having to wait for a change of front; a telegram is sent accordingly to the press/release state of the button.	

8. Input: Dimming

Through the dimming function it's possible to control a light dimmer using short & long press of a button. Each button uses 2 communication objects:

- 1 bit dimension for ON /OFF command associated to short press operation
- 4 bit dimension for brightness regulation associated to long press operation

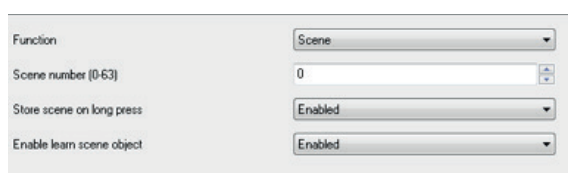
9. Input: Shutter and Blind

Through the Shutter and Blind function it's possible to control Roller Shutters or Blinds using short & long press of a button.

Each button uses 2 communication objects:

- 1 bit dimension for STEP /STOP command associated to short press operation
- 1 bit dimension for UP / DOWN command associated to long press operation

10. Input: Scene Management



In this configuration page it's possible to set the button for scene management: learn and recall scene commands.

These different behavior (recall and learn) are performed through two different actions (short and long press) of butto.

Learn scene on long press action is enabled by a parameter.

KNX PARAMETER	SETTINGS
Scene Number	Number of the scene: 0 ÷ 63
This parameter sets the value of the scene you intend to learn / recall (one per button). Remember that output devices (i.e. actuators, etc.) generally can manage several scenes, each identified by a value (that varies from 0 to 63); therefore is important to set this parameter correctly and matching the number set on the actuators.	
Store scene on long press	Disable Enable
If disable, long press action is ignored and no telegram is sent to the bus; if enable on long press action a learn scene telegram is sent to the bus.	
Enable learn scene object	Disable Enable
If this parameter is enabled you have a communication object (size = 1 bit). When this object receives a telegram "1" then the function associated to the long press of the button (send the telegram storage scenario) is enabled, when it receives a telegram "0" the command associated with the long press is not sent.	

11. Commands in sequence

The function allows you to associate to short and long press, sequences of different commands on the bus.

For inputs this function is available for short and long press or for toggle evaluation.

The sequence consists of 2 or 3 commands which can each be sized as 1 bit or 1 byte.

Once defined the number of elements in the sequence (2 or 3) and their size (1-bit / 1 byte), you can associate different commands to each element of the sequence or decide to send commands only on one of the two events.

The waiting time between a command and the next is fixed in 1 second.

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

For example it is possible to define a sequence:

Com.	Dim.	Command on short press (edge)	Command on long press (edge)
A	1 bit	ON (to actuators)	OFF (to actuators)
B	1 byte	100% (to a dimmer)	0% (to a dimmer)
C	1 byte	COMFORT (to a thermostat)	ECONOMY (to a thermostat)

12. Temperature sensor Function

The temperature probe allows a reading of the temperature within its range with resolution 0.1 °C.

KNX PARAMETER	SETTINGS
Temperature sensor calibration	-5,0°C ÷ +5,0°C with resolution, 0,1°C
It's 'possible to add an offset to the temperature value measured by the probe before it is sent on the bus or made available for reading.	
Temperature sensor calibration	Disable Enable
It's 'possible to enable the periodic sending of measured temperature value, if this option is disabled, reading can be done only on read-request.	
Sending interval	1 min 30 min 5 min 1 h 10 min 4 h 15 min 12 h 45 min 24 h
If you enable the periodic sending the sending interval is set by this parameter.	
KNX PARAMETER	SETTINGS
Enable threshold T1 (low)	Disable Enable
You can also enable two thresholds for temperature and, for each thresholds, send a telegram of attention (of size 1 bit) whenever the measured temperature exceeds or falls below the threshold. For each threshold can be set whether to send the telegram "1" when the measured temperature "T" exceeds the threshold temperature "Tx" and then send the telegram "0" when the measured temperature "T" becomes less than the threshold temperature "Tx" or vice versa.	
Enable threshold T2 (high)	Disable Enable
See description of "Enable threshold T1 (low)".	
Value threshold T1	-15°C ÷ +55°C
Value threshold T2	-15°C ÷ +55°C
Telegram to send when T < T1	Telegram "0" Telegram "1"
Telegram to send when T < T2	Telegram "0" Telegram "1"
Object enable for Trigger 1 and 2	Hide Show

It's 'possible to enable/disable the remote temperature sensor with a communication object. When this object is enabled and receives a telegram "1" the temperature probe is active and sends trigger telegrams according to thresholds T1 and T2 values; otherwise only temperature value is periodically sent.

Initial value enable object

0
1

Allows to initialize enable object as active (1) or inactive (0) after power on, reset or download.

13. Thermostat Function

The temperature sensor can be configured as a thermostat to control the temperature of a room or area by driving heating or cooling equipment / air conditioning fan coils / valves or through commands on / off to heating /cooling elements such as radiators, heat pumps, split, etc. ..

- The thermostat operates temperature in a range from -50 °C to + 100 °C with 0.1 ° resolution.
- Setpoint values sent to the device on the bus are accepted in a range from 10°C to 50°C
- Setpoint accepted in SETPOINT MODE are in a range from 10°C to 50 °C

14. Target Setpoint Settings

The temperature sensor can be configured as a thermostat to control the temperature of a room or area by driving heating or cooling equipment / air conditioning fan coils / valves or through commands on / off to heating /cooling elements such as radiators, heat pumps, split, etc. ..

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SETPOINT MODE object

When "Thermostat control mode" parameter is selected with the value SETPOINT MODE, object HVAC Mode is no longer visible. Each time the thermostat receives a value on object SETPOINT MODE (2 byte size), it is used as setpoint for temperature control.

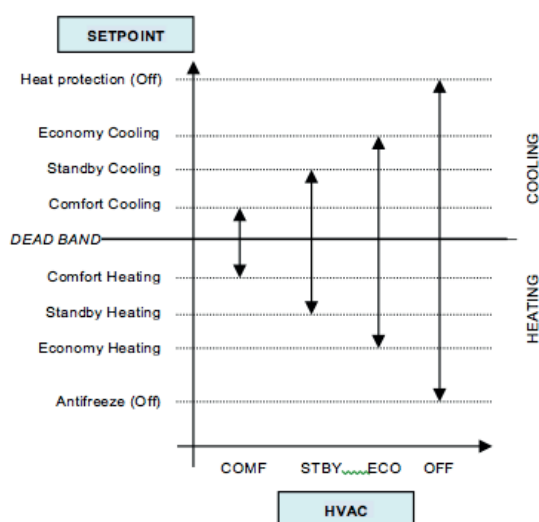
HVAC MODE object (switched heat / cool)

Using the object HVAC MODE (1 byte size), you can set the thermostat in one of the following modes: OFF; ECONOMY; STANDBY; COMFORT; each mode is associated with a setpoint set by a ETS parameter. OFF mode is associate to setpoint antifreeze in heating mode and high temperature protection in cooling mode.

HVAC MODE object (automatic heat / cool)

Behaviour for this value of parameter "Thermostat control mode" is the same as above described but the switching from heating to cooling mode and vice versa is automatic. With this setting it is necessary to set an insensitive zone as in parameter "Dead zone".

Whenever temperature becomes greater than : Setpoint comfort heating + (Dead Band / 2) active control is cooling; when temperature becomes less than: Setpoint comfort cooling - (Dead Band / 2) active control is heating.



SETPOINT COMFORT object
 SETPOINT STANDBY object
 SETPOINT ECONOMY object

These 2 byte objects are used to set the setpoint values for COMFORT, STANDBY, ECONOMY mode. Whenever change, the setpoint are in saved in memory. After download these setpoint are reset to values according to ETS parameter; on power up these object are set according to last values before power down.

- Use these communication objects to change current setpoint for every HVAC Mode according to the current active control (heating or cooling)

SETPOINT OBJECTS	
Telegram received on:	Setpoint changed:
COMFORT (OBJ # 25)	Setpoint comfort heating
STANDBY (OBJ # 24)	Setpoint comfort heating
ECONOMY (OBJ # 23)	Setpoint economy heating
COMFORT (OBJ # 28)	Setpoint comfort cooling
STANDBY (OBJ # 27)	Setpoint standby cooling
ECONOMY (OBJ # 26)	Setpoint economy cooling

COMFORT object

COMFORT object (1 bit size) is visible only when "Thermostat control mode" parameter is selected with the value HVAC MODE.

When a telegram "1" is received thermostat goes in COMFORT mode (it applies for both heating and cooling)

On receipt of a telegram "0", thermostat returns to the mode set by HVAC MODE object.

COMFORT mode can be set also with timing: after a time set by a parameter thermostat returns in the previous mode.

KNX PARAMETER	SETTINGS
Comfort Object	Time limited Time unlimited
Comfort Overwrite Time	1.. 255 (minutes)

WINDOW CONTACT object

This object, if enabled, has higher priority than HVAC MODE, SETPOINT MODE, COMFORT objects.

When a telegram is received ("0" or "1") on the communication object WINDOW CONTACT thermostat enters a power saving mode:

- BUILDING PROTECTION (if running in HVAC MODE)
- Setpoint antifreeze / high temperature protection (if running in SETPOINT MODE)

If the telegram received indicates that the window is opened thermostat change its mode or setpoint after 1 minute from the reception of the telegram. When it receive a telegram corresponding to state "window closed" it restores the previous mode, always with a delay of 1 minute. The value of SETPOINT ADJUSTMENT (if enabled) is always restored.

SETPOINT ADJUSTMENT object

The object SETPOINT ADJUSTMENT allows you to temporarily change the setpoint value used by the thermostat applying an offset to the current value. If the thermostat is operating in "HVAC MODE" the offset value is applied from the time of receipt of a valid telegram on object SETPOINT ADJUSTMENT until this value does not change, even in case of change of the active mode (Comfort and Standby only); this does not happen with regard to Economy mode and Building Protection: in this modes the value of object SETPOINT ADJUSTMENT is forced to 0. Similarly, if the thermostat is operating in SETPOINT MODE the offset value is applied also when the setpoint value received on this object changes.

ADDITIONAL TEMPERATURE object

It is possible to enable the reading of a second external probe which sends the measurement data to the thermostat via the communication object ADDITIONAL TEMPERATURE of size 2 bytes.

KNX PARAMETER	SETTINGS
Ratio between internal and additional sensor	90 % internal–10 % external 80 % internal–20 % external 70 % internal–30 % external 60 % internal–40 % external 50 % internal–50 % external 40 % internal–60 % external 30 % internal–70 % external 20 % internal–80 % external 10 % internal–90 % external Additional sensor only
This parameter set the "weight" to assign to internal and additional temperature;	

Surveillance time for additional sensor	10..255 (min)
Whenever the thermostat receive a valid data from additional temperature sensor it consider this value in the calculation of the measured temperature and reset the internal time (monitoring time), if the surveillance time expires without receiving any valid data thermostat start considering only the internal probe (at 100%) until it receives a new valid data. (see paragraph 10 "Temperature probe failure / out of range measurement")	

- If external probe is enabled the monitoring time is used to check if the additional temperature sensor periodically sends valid data to the thermostat. This mechanism avoids to consider as valid some data which can be old hours or days, for example if the additional sensor should fail or the thermostat could not receive data for long time.
- ⚠ It is strongly recommended to set a value for surveillance time of the additional sensor more than twice of the period set for the cyclical sending of the additional sensor.
- If the external probe is weighted at 100% (Parameter Ratio between internal and external = external sensor only) then when the monitoring time expires the thermostat switch off all controlled loads until the reception of a valid telegram

ACTUAL SETPOINT object

The ACTUAL SETPOINT object send the setpoint in use and is sent every time:

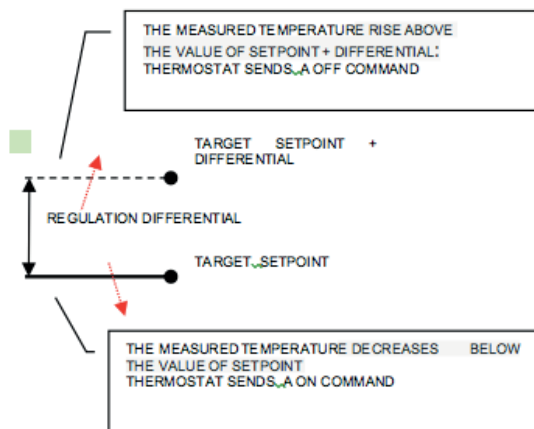
- The value of HVAC mode object changes
- The value BASE SETPOINT changes
- The value of SETPOINT ADJUSTMENT object changes
- After download
- One minute after power on

15. Two points on/off

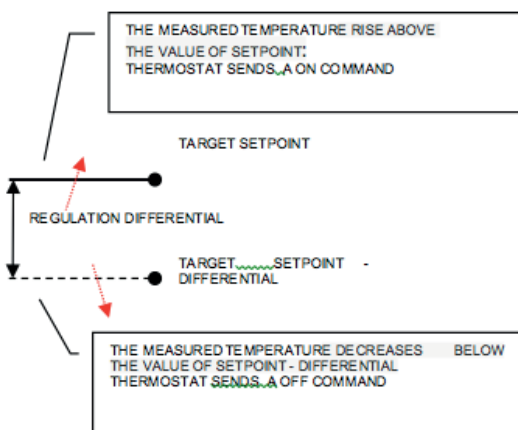
Control algorithm "2 points on / off" is used to control heating or cooling elements that can be controlled by switching on and off of the same elements, radiators, underfloor heating with on-off valves, boilers, etc. .. When the thermostat switches to "winter mode" (heat mode) sends a off command on object ON/OFF COOLING and operates the control only through the object ON/OFF HEATING (the object ON/OFF COOLING is therefore not updated anymore until it returns in "cooling mode").

Therefore in the transition from "winter" to "summer" mode sends a off command on ON/OFF HEATING commands and activates the control through the object ON/OFF COOLING.

on/off control in heating mode:



on/off control in cooling mode:



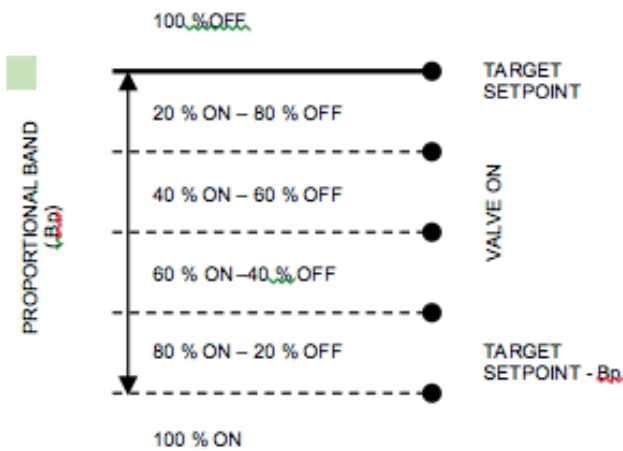
16. On/off with PWM control

On/off with PWM control is an algorithm that reduces the effects of hysteresis around the set point value by adjusting the controls on the values ranging from 0% to 100% where 0% means “control off” and 100% means “maximum control action”.

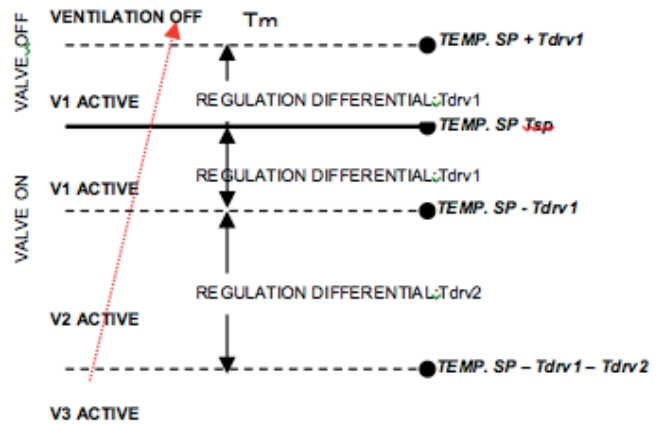
Once a cycle time is defined the thermostat sets the actuator to ON for a fraction of the cycle time and OFF for the remaining part. Driving the actuator with the control value of 80% means that it is active (i.e., ON) for 80% of cycle time and OFF for the remaining 20%.

KNX PARAMETER	SETTINGS
Cycle time (TCp)	10, 20, 30, 60 min
It defines the time interval.	
Proportional band (Bp)	0.8, 1.2, 1.6, 2.0 °C
<p>The proportional band BP is a range of temperatures between “Setpoint” and “Setpoint-Bp” in heating mode and between “Setpoint” and “Setpoint+Bp” in cooling mode, within this interval thermostat controls the temperature using the proportional algorithm; outside it drives actuator always in ON or OFF.</p> <p>When temperature is inside this range device wait the end of the cycle time before calculating the duty cycle of the next cycle.</p> <p>When temperature is outside of this range : below “Setpoint-Bp” in heating mode or above “Setpoint+Bp” in cooling mode it starts a new cycle as soon as temperature enters the Bp</p>	

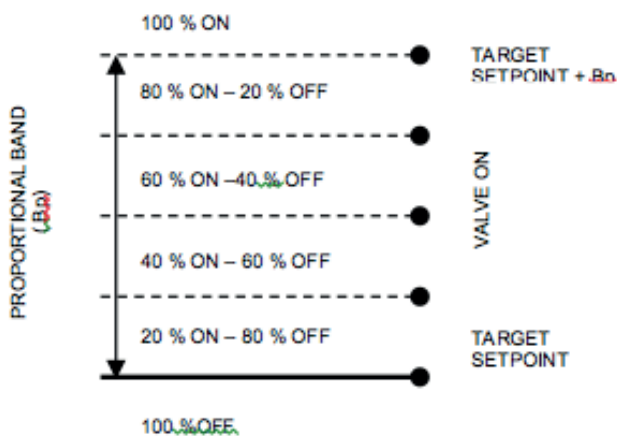
PWM control in heating mode:



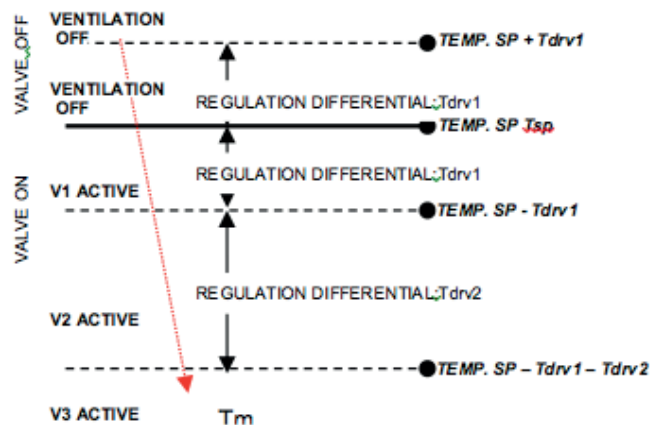
Control logic for a 3 speed fan coil in heating:
When temperature increasing



PWM control in cooling mode :



When temperature decreasing



17. Fan coil on/off

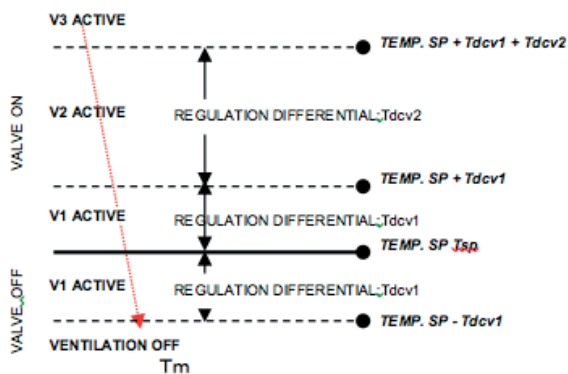
Fan coil is a device that controls the flow of cooling / heating liquid driving a valve (2-pipe fan coil) or two valves (4-pipe fan coil).

Liquid exchanges heat/cool with the environment through a ventilation system controlled by a fan. The fan is driven by an engine that typically has 3 windings that can be enabled at 3 distinct speeds.

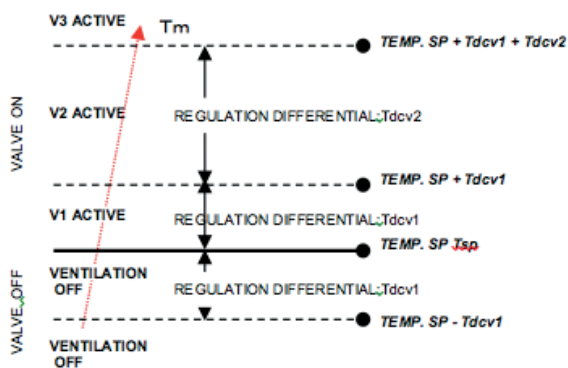
Where:

- Tsp : Target setpoint temperature
- Tdrv1 : regulation differential in heating for V1 Speed
- Tdrv2 : regulation differential in heating for V2 Speed
- Tm : Actual measured temperature

Control logic for a 3 speed fan coil in cooling:
When temperature decreasing



When temperature increasing



Where:

- Tsp : Target setpoint temperature
- Tdcv1 : regulation differential in cooling for V1 Speed
- Tdcv2 : regulation differential in cooling for V2 Speed
- Tm : Actual measured temperature

18. Fan coil control % (or generic continuous control)

Logic and parameters are the same used in On/off with PWM control mode; the difference is that now the proportional value is sent to the bus via a 1 byte object format as a % value from 0% to 100%.

This mode is useful to control fan coils (selecting 2 or 4 pipes) or generic proportional actuators as valve drivers only linking the 1 byte communication object and avoiding to link the valve objects.



CONTINUOUS CONTROL object

This 1 Byte object send % control value to actuator.

SET MAN/AUTO MODE object

SET MAN/AUTO MODE Objects is a CO for changing the calculation mode for CONTINUOUS CONTROL object; in AUTO Mode the calculation is carried out via a proportional algorithm (Δ temperature between actual temp. and Setpoint Temp) and a integral correction (Cycle Time); in MAN mode the output value control is set by the value send to the object FORCE VALUE IN MANUAL MODE object.

19. Temperature probe failure / out of range measurement

-  If the temperature probe is disconnected or in short circuit the control action is interrupted and the controlled actuators are switched off.
-  The value of temperature sent on the bus in case of probe disconnection or short circuit or for out of range measured value is 0 °C (according to KNX DPT_Value_Temp 9.001)

TEMPERATURE SENSOR ALARM object

In event of temperature probe failure / out of range measurement a telegram from 1 bit communication object - obj #33: "Temperature sensor alarm" - is sent on the bus with value 1. As soon the temperature sensor works good again a value "0" is transmitted.

To correctly manage the use of internal and/or additional refers to the following possible configuration modes:

CONFIGURATION MODE 1	
Internal probe	Used
Additional probe	Disabled
Ratio between probes	NA. (100% internal)
<p>Measure of temperature is performed every 60 seconds; if the temperature probe is disconnected or in short circuit the control action is interrupted and the controlled actuators are switched off.</p> <p>probe disconnection / short circuit / out of range measurement:</p> <p>Obj #15 "Actual temperature" transmits 0 °C Obj #33 "Temperature sensor alarm transmits "1"</p>	

CONFIGURATION MODE 3	
Internal probe	Not used
Additional probe	Connected or by bus
Ratio between probes	100% external
<p>If the additional temperature is out of range or the surveillance time expires without any message received, thermostat stops the control action and the controlled actuators are switched off.</p> <p>If internal probe is anyway connected (but not used until additional probe is working good) then in event of failure of the additional probe the internal probe is used (see behaviour of configuration mode 1).</p> <p>When additional probe begin to measure a "in-range" value thermostat start again its control action and return to consider the additional probe.</p>	

CONFIGURATION MODE 2	
Internal probe	Used
Additional probe	Received by bus
Ratio between probes	10 % to 90%
<p>Measure of internal temperature is performed every 60 seconds; the additional temperature is read every 60 considering last value received on Obj #16 "Additional temperature".</p> <p>The value of temperature sent on the bus is the pounded average between internal and additional probes value.</p> <p>If the additional temperature is out of range or the surveillance time expires without any message received, thermostat start considering only the internal probe until it receives a new valid value from the additional probe; in this case the additional value is taken in count again.</p> <p>Anyway, if the internal temperature is out of range or probe is disconnected / short circuit then the control action is interrupted and the controlled actuators are switched off:</p> <p>Obj #15 "Actual temperature" transmits 0 °C regardless the value received from additional sensor. Obj #33 "Temperature sensor alarm transmits "1"</p> <p>When internal probe starts again to measure a "in-range" value thermostat start again its control action.</p>	

20. Behavior of Thermostat on voltage failure, recovery and commissioning.

Behavior on bus voltage failure


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

Behavior on bus voltage recovery

On bus voltage recovery all the communication objects are set to 0 except for objects for which a parameter is defined for the initial value. Thermostat keeps these values in memory and restore them after recovery:

- Heat / Cool mode (if enabled)
- HVAC Mode (if enabled)
- Base Setpoint (if enabled)
- Force value in manual mode (if enabled)

Control values (i.e. commands to actuators) are calculated on the base of actual setpoint and measured temperature.

-  After power on device recalculates the commands to actuators and switch them on, if necessary, otherwise does not carry out any action; you are recommended to set the behavior of actuator in order to switch the heating / cooling equipment off after bus power on.

Behaviour on commissioning (ETS Download)

After download it is possible to set initial value of:

- Heat / Cool mode (if enabled)
- HVAC Mode (if enabled)

For other communications objects the behavior is identical to bus voltage recovery.

Wrong application download

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

21. Control Panel

The operator panel mode is used when the device behaves as a user interface while the temperature control function is delegated to another device or to a subsystem that communicates with the operator panel via the KNX bus

Communication object what can be written on the KNX bus (can be used all or some):

- Temperature Alarm
- Actual Temperature
- Actual Setpoint

In this Mode the three capacitive buttons continue to work normally. [1]

[1]: functions freely configurable can be used to manage the type HVAC controls, the speed of the fan coil, or various commands such as ECO; DND, MUR, OFF; etc ..

Communication object what can be read on the KNX bus (can be used all or some):

- Actual Temperature (from another KNX device)
- Setpoint Adjustment (1 bit or 1 byte object that permits the adjustment “-“/“+“ of the setpoint)

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