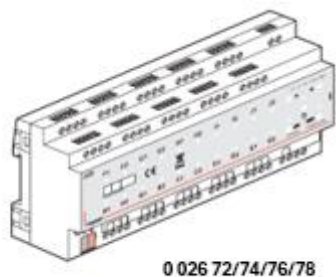


# 2-pipes temperature control 1-ON/OFF valve 3 points with manual change over 3-ON/OFF speed ventilation

Cat. No(s): 281027BB  
0 026 72/74/76/78



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## 1. USAGE SCENARIO

Meeting room, hotel, home



## 2. Description

The thermostat combined with an RCU actuator is used to control a fan coil equipped with 2 pipes, 1-ON/OFF valve3 points and 3 - ON/OFF fan.

Manual change over to switch between Heating/Cooling mode.

The system will regulate the temperature of an office around the set

Using the thermostat's touch-sensitive buttons, the user can:

- Change the temperature setpoint.
- Adjust the fan speed.
- Change the mode (Comfort, Eco, Standby and protection).

Using the thermostat's push buttons, the user can:

- Send Lighting commands (Switching, Dimming, Blind and value
- Launch scenario (i.e.: Welcome, Exit , Master OFF ...).

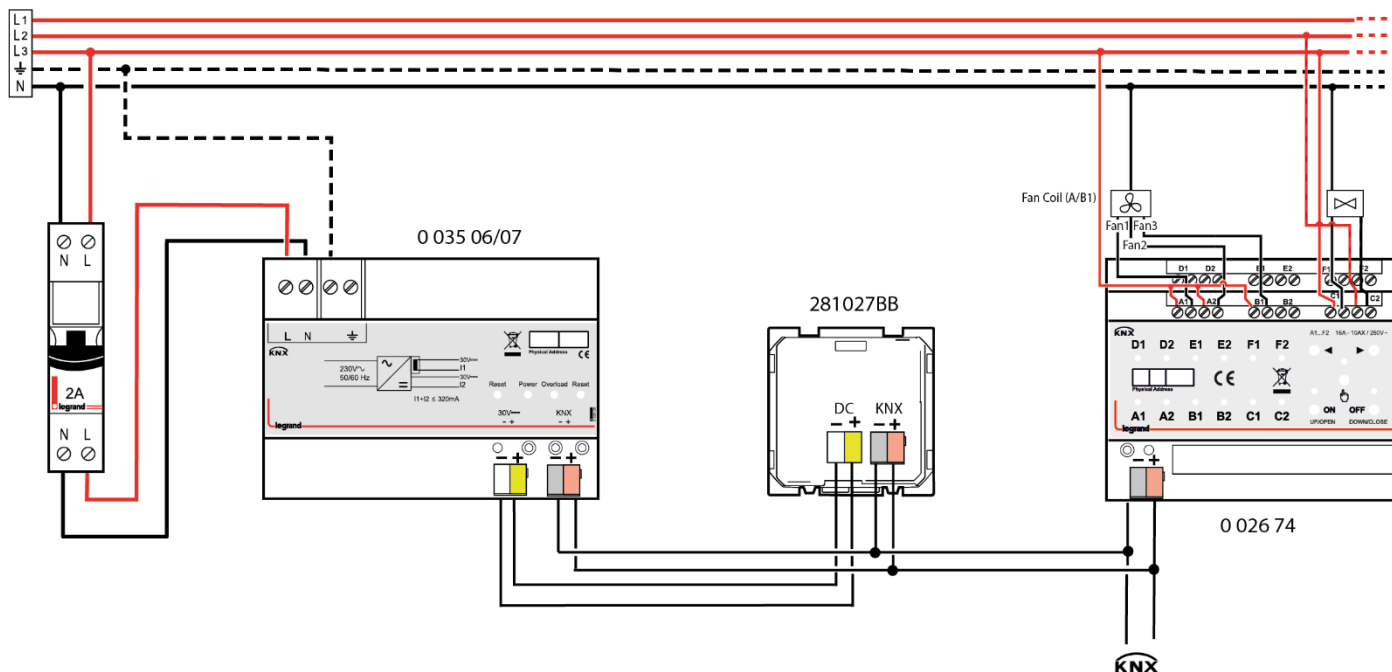
Here is a table of compatible Malia thermostats.

LG-281027MW	KNX-Mallia Senses command 4 push with thermostat white
LG-281028MW	KNX-Mallia Senses command 6 push with thermostat white
LG-281029MW	KNX-Mallia Senses command 8 push with thermostat white
LG-281027DS	KNX-Mallia Senses command 4 push with thermostat silver
LG-281028DS	KNX-Mallia Senses command 6 push with thermostat silver
LG-281029DS	KNX-Mallia Senses command 8 push with thermostat silver
LG-281027BB	KNX-Mallia Senses command 4 push with thermostat black
LG-281028BB	KNX-Mallia Senses command 6 push with thermostat black
LG-281029BB	KNX-Mallia Senses command 8 push with thermostat black

**2-pipes temperature control**  
**1-ON/OFF valve 3 points with manual change over**  
**3-ON/OFF speed ventilation**

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### 3. WIRING DIAGRAM



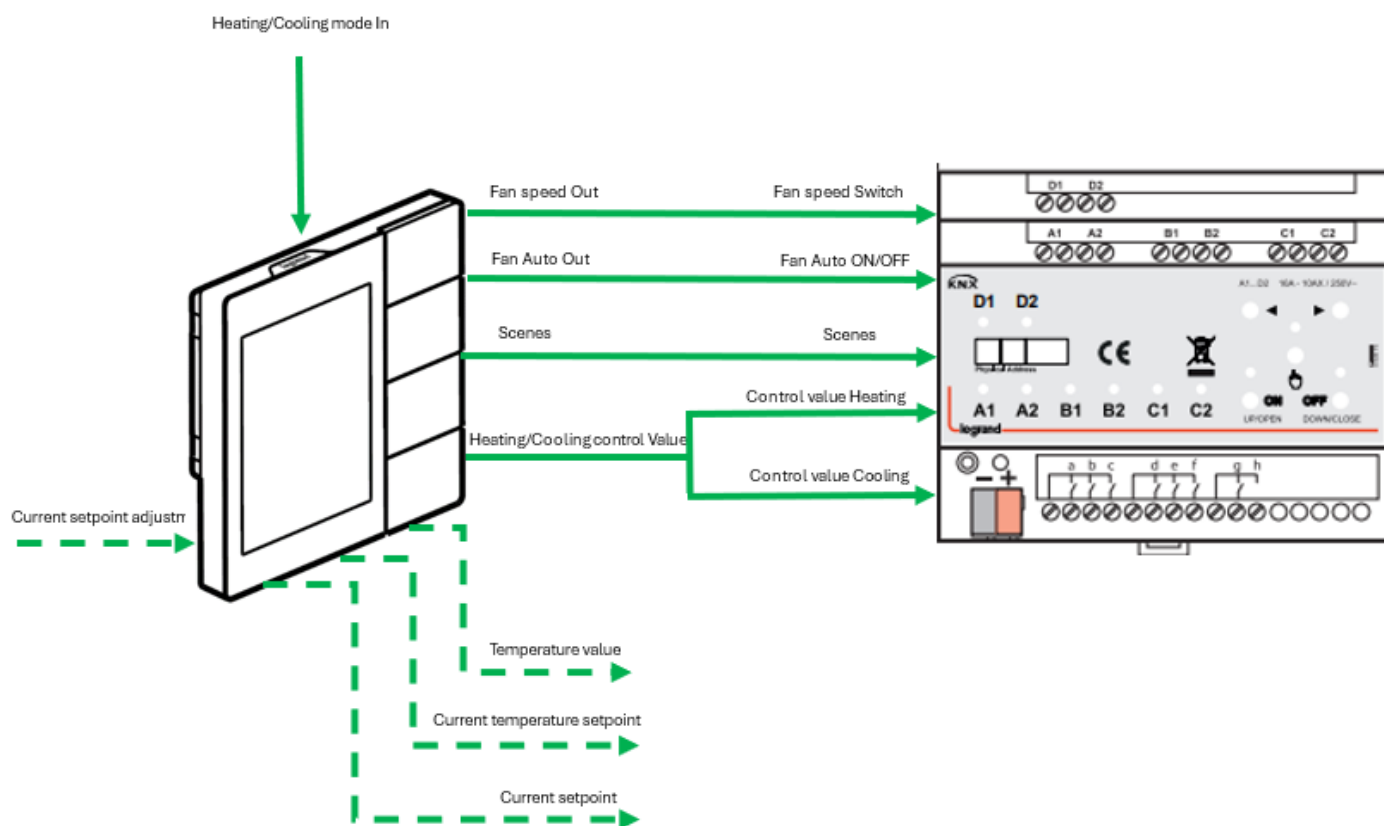
**NB:**

For more information about wiring each device, refer to the instructions on site.



[www.legrand.com](http://www.legrand.com)

#### 4. KNX DIAGRAM



#### 5. KNX PROJECT

This project 002674-Malia\_Thermoregulation 2P ON-OFF 3 points is available on [www.legrand.com](http://www.legrand.com) and can be imported into ETS5.

## 2-pipes temperature control 1-ON/OFF valve 3 points with manual change over 3-ON/OFF speed ventilation

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### 6. DEVICE PARAMETERS WITH ETS5

#### 6.1 Thermostat 281027BB

##### 1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black > General > General setting

General	Normal day backlight [10..100]	70	%
General setting	Normal night backlight [10..100]	50	%
Proximity setting	Normal standby backlight [0..10]	5	%
Button	Normal to standby delay time [1..255]	30	s
Internal sensor	Buzzer volume level [0..5, 0=inactive]	5	
HVAC controller	Touch button vibration feedback	<input type="checkbox"/>	
	Long operation for touch after	1.0	s

##### 1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black > Button > Button setting

General setting	Delay time for no operation [0..255, 0=inactive]	0	s
Proximity setting	LED status object read request after restart	<input type="checkbox"/>	
Button	Initial LED status	<input checked="" type="radio"/> No <input type="radio"/> As status as object value "0"	
Button setting	Brightness setting		
Button 1	Brightness of cool white LED	50	%
	Brightness of warm white LED	50	%

##### 1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black > Button > Button 1

General setting	Function of button	Scene control
Proximity setting	Distinction between short and long operation	<input checked="" type="radio"/> No <input type="radio"/> Yes
Button	Reaction on short operation or closing the contact	Recall scene
Button setting	8 bit scene number	Scene NO.1
Button 1	Reaction on long operation or opening the contact	No reaction

## 2-pipes temperature control

### 1-ON/OFF valve 3 points with manual change over

### 3-ON/OFF speed ventilation

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#### 6. DEVICE PARAMETERS WITH ET55 (continued)

##### 6.1 Thermostat 281027BB (continued)

#### 1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black > HVAC controller > Controller setting

General	Room temperature control function as	FCU control
General setting	Ventilation function	<input type="checkbox"/>
Proximity setting	Floor heating function	<input type="checkbox"/>

#### 1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black > HVAC controller > FCU setting

General	Control value after temp. error [0..100] (if 2-point control, set value '0'=0, set value '>0'=1)	0	%
General setting	Interface display temperature	<input type="radio"/> Setpoint temperature <input checked="" type="radio"/> Actual temperature	
Proximity setting	Setpoint temperature adjustment step	<input checked="" type="radio"/> 0.5K <input type="radio"/> 1K	
Button	Min. setpoint temperature [5..37]	16	°C
Button setting	Max. setpoint temperature [5..37]	32	°C
Button 1	Power on/off status after download	<input checked="" type="radio"/> OFF <input type="radio"/> ON	
Button 2	Power on/off status after voltage recovery	As before voltage failure	
Button 3	Low temperature protection when power off	<input type="checkbox"/>	
Button 4	Room temperature control mode	Heating and Cooling	
LED function	Heating/Cooling switchover	<input checked="" type="radio"/> Only via object <input type="radio"/> Automatic changeover	
Internal sensor	Heating/Cooling status after download	<input type="radio"/> Heating <input checked="" type="radio"/> Cooling	
HVAC controller	Heating/Cooling status after voltage recovery	As before voltage failure	
Controller setting	Room temperature control system	<input checked="" type="radio"/> 2 pipes system <input type="radio"/> 4 pipes system	
FCU setting	Room temperature operation mode	<input checked="" type="checkbox"/>	
Setpoint	Controller status after download	Standby mode	
Heating/Cooling control	Controller status after voltage recovery	As before voltage failure	
Fan	Extended comfort mode [0..255,0=inactive]	0	min

## 2-pipes temperature control

### 1-ON/OFF valve 3 points with manual change over

### 3-ON/OFF speed ventilation

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#### 6. DEVICE PARAMETERS WITH ETSS (continued)

##### 6.1 Thermostat 281027BB (continued)

##### 1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black > HVAC controller > FCU setting > Setpoint

General	Setpoint method for operating mode	<input type="radio"/> Relative <input checked="" type="radio"/> Absolute
General setting	<b>Heating</b>	
Proximity setting	Setpoint temperature in comfort mode [5..37]	21 °C
Button	Setpoint temperature in standby mode [5..37]	19 °C
Button setting	Setpoint temperature in economy mode [5..37]	17 °C
Button 1	Setpoint temperature in frost protection [5..10]	7 °C
Button 2	<b>Cooling</b>	
Button 3	Setpoint temperature in comfort mode [5..37]	23 °C
Button 4	Setpoint temperature in standby mode [5..37]	25 °C
LED function	Setpoint temperature in economy mode [5..37]	27 °C
Internal sensor	Setpoint temperature in heat protection [30..37]	35 °C
HVAC controller	<div> <i>Note: The heating setpoint must be always less than the cooling setpoint.</i> </div>	
Controller setting		
FCU setting		
Setpoint		

##### 1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black > HVAC controller > FCU setting > Heating/Cooling control

General	Type of heating/cooling control	Continuous control(use PI control)
General setting	Invert control value	<input type="checkbox"/>
Proximity setting	Heating speed	Hot water heating(5K/150min)
Button	Cooling speed	Cooling ceiling(5K/240min)
Button setting	Send control value on change by [0..100,0=inactive]	4 %
Button 1	Cyclically send control value[0..255]	0 min
Button 2		

## 6. DEVICE PARAMETERS WITH ET55 (continued)

### 6.2 Actuator 0 026 74

#### 1.1.2 LG-002674 Room Control Unit, 12 Output > General

General		
Enable Output A...J	Enable manual operation	<input type="radio"/> disable <input checked="" type="radio"/> enable
A/B1 - Fan	Reset manual operation to KNX operation	<input checked="" type="radio"/> via push button <input type="radio"/> automatically and via push button
A/B1 - Status Message	Device alive operation active	<input type="radio"/> yes <input checked="" type="radio"/> no
A/B1 - Automatic Operation	First telegram send time in s[2...255]	2
A/B1 - Direct Mode	Telegram limit active	<input type="radio"/> yes <input checked="" type="radio"/> no
C/D - Control Input	Activate scene	<input checked="" type="radio"/> yes <input type="radio"/> no
	Weather alarm function	<input type="radio"/> yes <input checked="" type="radio"/> no

#### 1.1.2 LG-002674 Room Control Unit, 12 Output > Enable Output A...J

General		
Enable Output A...J	Output group A and B	fan coil
A/B1 - Fan	Output group C and D	valve control
A/B1 - Status Message	Output group E and F	individually
	Output group E	<input type="radio"/> shutter/blind AC <input checked="" type="radio"/> 2 x switch
	Output group F	<input type="radio"/> shutter/blind AC <input checked="" type="radio"/> 2 x switch

## 2-pipes temperature control

### 1-ON/OFF valve 3 points with manual change over

### 3-ON/OFF speed ventilation

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#### 6. DEVICE PARAMETERS WITH ETSS (continued)

##### 6.2 Actuator 0 026 74

#### 1.1.2 LG-002674 Room Control Unit, 12 Output > A/B1 - Fan

General	Select valve with working	valve C/D
Enable Output A...J	Number of fan levels	3
<b>A/B1 - Fan</b>	Controlling the fan levels	<input type="radio"/> only one fan output <input checked="" type="radio"/> fan hierarchically
A/B1 - Status Message	Fan operation mode	<input checked="" type="radio"/> changeover switch <input type="radio"/> step switch
A/B1 - Automatic Operation	Delay between fan speed switching in ms[50...5000]	500
A/B1 - Direct Mode	Fan speed on bus voltage failure	fan off
C/D - Control Input	Fan speed on bus voltage recovery	fan off
C - Valve General	Enable forced operation	<input checked="" type="radio"/> yes <input type="radio"/> no
C - Function	Forced operation on object value	<input checked="" type="radio"/> 0 <input type="radio"/> 1
D - Valve General	Limitation on forced operation	3, 2, 1, OFF
D - Function	Enable automatic operation	<input checked="" type="radio"/> yes <input type="radio"/> no
E1 - General	Enable direct operation	<input checked="" type="radio"/> yes <input type="radio"/> no
	Starting characteristic of fan	<input type="radio"/> yes <input checked="" type="radio"/> no

#### 1.1.2 LG-002674 Room Control Unit, 12 Output > A/B1 - Direct Mode

General	Enable communication object "Switch speed" Å 1 bit	<input type="radio"/> yes <input checked="" type="radio"/> no
Enable Output A...J	Enable communication object "Fan speed UP/DOWN" Å 1 bit	<input type="radio"/> yes <input checked="" type="radio"/> no
<b>A/B1 - Fan</b>	Enable communication object "Fan speed switch" Å 1 byte	<input checked="" type="radio"/> yes <input type="radio"/> no
A/B1 - Status Message		
A/B1 - Automatic Operation		
<b>A/B1 - Direct Mode</b>		

## 2-pipes temperature control

### 1-ON/OFF valve 3 points with manual change over

### 3-ON/OFF speed ventilation

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#### 6. DEVICE PARAMETERS WITH ET55 (continued)

##### 6.2 Actuator 0 026 74

#### 1.1.2 LG-002674 Room Control Unit, 12 Output > C/D - Control Input

General	HVAC system	two control two pipe with switch
Enable Output A...	Operation HEATING/COOLING after bus voltage recovery	unchanged bus return
A/B1 - Fan	Object value for HEATING the object "Toggle HEATING/COOLING"	<input type="radio"/> 0 <input checked="" type="radio"/> 1
A/B1 - Status Message	Monitoring control valves	<input type="radio"/> yes <input checked="" type="radio"/> no
A/B1 - Automatic Operation		
A/B1 - Direct Mode		

[C/D - Control Input](#)

#### 1.1.2 LG-002674 Room Control Unit, 12 Output > C - Valve General

General	Valve control	<input type="radio"/> two point on/off <input checked="" type="radio"/> three point open/close
Enable Output A...	Observe reversing time	500ms
A/B1 - Fan	Valve position after bus voltage return	<input checked="" type="radio"/> unchanged <input type="radio"/> selected
A/B1 - Status Message	Value control duration from 0...100% in s [10...6000]	180
A/B1 - Automatic Operation	Automatically adjust valve position	<input type="radio"/> yes <input checked="" type="radio"/> no
A/B1 - Direct Mode	Valve limitation	<input type="radio"/> yes <input checked="" type="radio"/> no

[C - Valve General](#)

#### 1.1.2 LG-002674 Room Control Unit, 12 Output > E1 - Scene

General	Overwrite scene on download	<input checked="" type="radio"/> yes <input type="radio"/> no
Enable Output A...	1...64 scene number (0 = no assignment)	1
A/B1 - Fan	Value	<input type="radio"/> OFF <input checked="" type="radio"/> ON
A/B1 - Status Message	1...64 scene number (0 = no assignment)	2
A/B1 - Automatic Operation	Value	<input checked="" type="radio"/> OFF <input type="radio"/> ON
A/B1 - Direct Mode	1...64 scene number (0 = no assignment)	3
C/D - Control Input	Value	<input type="radio"/> OFF <input checked="" type="radio"/> ON
	1...64 scene number (0 = no assignment)	4

## 2-pipes temperature control 1-ON/OFF valve 3 points with manual change over 3-ON/OFF speed ventilation

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### 7. GROUP ADDRESSES

Group Addresses									
<a href="#">Add</a>   <a href="#">Delete</a>   <a href="#">Download</a>   <a href="#">Info</a>   <a href="#">Reset</a>   <a href="#">Unload</a>   <a href="#">Print</a>									
Group Addresses	Object	Device	Sendin	Data Type	C	R	W	T	U
Dynamic Folders	1/0/1 Heating/Cooling mode control								
1 HVAC function	81: FCU - Heating/Cooling mode, In	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	cooling/heating	C	-	W	-	U
1/0 Control	1/0/2 Heating/Cooling control								
1/0/1 Heating/Cooling mode control	96: FCU - Heating/cooling control value, Out	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	percentage (0..100%)	C	R	-	T	-
1/0/2 Heating/Cooling control	127: Valve C/D - Control value, heating	1.1.2 LG-002674 Room Control Unit, 12 Output	S	percentage (0..100%)	C	-	W	-	-
1/0/3 Fan speed control	128: Valve C/D - Control value, cooling	1.1.2 LG-002674 Room Control Unit, 12 Output	S	percentage (0..100%)	C	-	W	-	-
1/0/4 Fan Automatic control	1/0/3 Fan speed control								
1/0/5 Scenes	95: Fan A/B1 - Fan speed switch	1.1.2 LG-002674 Room Control Unit, 12 Output	S	counter pulses (0..255)	C	-	W	-	-
	98: FCU - Fan speed, Out	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	fan stage (0..255)	C	R	-	T	-
1/1 Status	1/0/4 Fan Automatic control								
1/1/1 Mode Heating/Cooling Status	99: FCU - Fan Automatic operation, Out	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	enable	C	R	-	T	-
1/1/2 Fan speed Status	106: Fan A/B1 - Automatic ON/OFF	1.1.2 LG-002674 Room Control Unit, 12 Output	S	enable	C	-	W	-	-
1/1/3 Fan automatic status	1/0/5 Scenes								
2 Temperature management	1: Button 1 - Short/Close, Scene	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	scene number	C	-	-	T	-
2/0 Current temperature	1: General - Scene 8-bit	1.1.2 LG-002674 Room Control Unit, 12 Output	S	scene control	C	-	W	-	-
	4: Button 2 - Short/Close, Scene	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	scene number	C	-	-	T	-
	7: Button 3 - Short/Close, Scene	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	scene number	C	-	-	T	-
	10: Button 4 - Short/Close, Scene	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	scene number	C	-	-	T	-
2/0/1 Temperature	1/1/2 Fan speed Status								
2/0/2 Setpoint	83: FCU - Fan speed, In	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	fan stage (0..255)	C	-	W	T	U
2/0/3 Instantaneous Setpoint	101: Fan A/B1 - Status fan speed	1.1.2 LG-002674 Room Control Unit, 12 Output	S	counter pulses (0..255)	C	R	-	T	-
	1/1/3 Fan automatic status								
	84: FCU - Fan automatic operation, In	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	enable	C	-	W	T	U
	107: Fan A/B1 - Status automatic	1.1.2 LG-002674 Room Control Unit, 12 Output	S	enable	C	R	-	T	-
	2/0/1 Temperature								
	38: Internal sensor - Temperature value	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	temperature (°C)	C	R	-	T	-
	2/0/2 Setpoint								
	80: FCU - Current temperature setpoint, In	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	temperature (°C)	C	-	W	-	U
	2/0/3 Instantaneous Setpoint								
	93: FCU - Current setpoint adjustment, Out	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	temperature (°C)	C	R	-	T	-

### 8. NOTES

The whole HVAC system is managed by thermostat 281027BB (heating/cooling regulation, setpoint mode and automatic ventilation).

When the customer arrives in the room, can set the temperature to comfort mode, and when they leave the temperature returns to economy mode or standby mode. (touch “M” button on the thermostat 281027BB to switch each mode)

The HVAC and FAN valve is connected to controller 0 026 74 (A, B1 and C connector), The room controller 0 026 74 provide ON/OFF to switch or shut valve.

The setpoint value can be altered on thermostat 281027BB by touching the buttons “+” and “-”.

The fan speed can be altered by touching the button on the bottom of the thermostat. There are 3 manual fan speed levels and an automatic mode run by the thermostat.