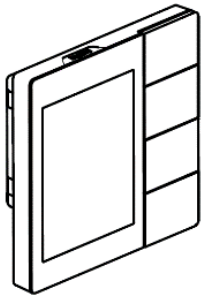
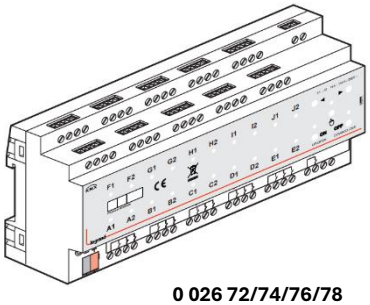
4-pipes temperature control
2-ON/OFF valves 3 points with automatic change over
3-ON/OFF speed ventilation

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



281027BB



0 026 72/74/76/78

CONTENTS **PAGE**

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 4 pipes, 2-ON/OFF 3 points valves and 3 - ON/OFF fan.

Automatic change over to switch between Heating/Cooling mode.

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

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 ...).

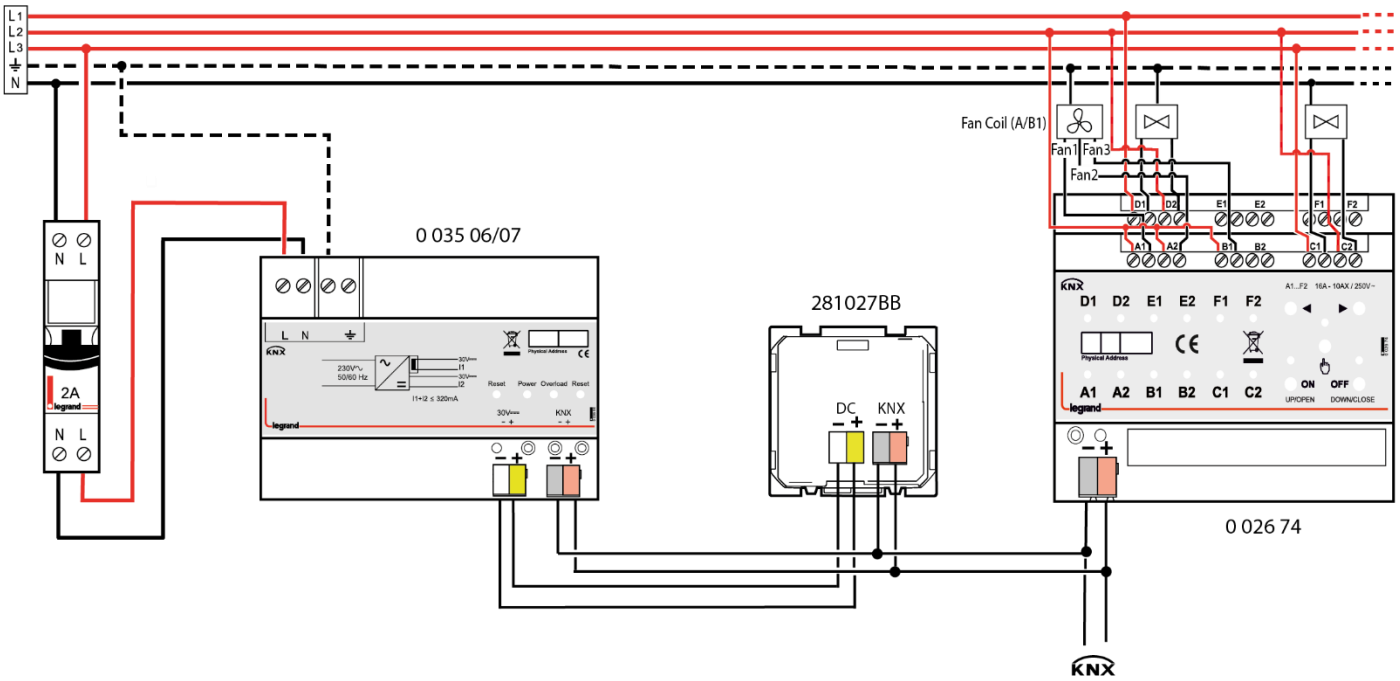
Here is a table of compatible Malia thermostats.

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

4-pipes temperature control
2-ON/OFF valves 3 points with automatic change over
3-ON/OFF speed ventilation

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

3. WIRING DIAGRAM



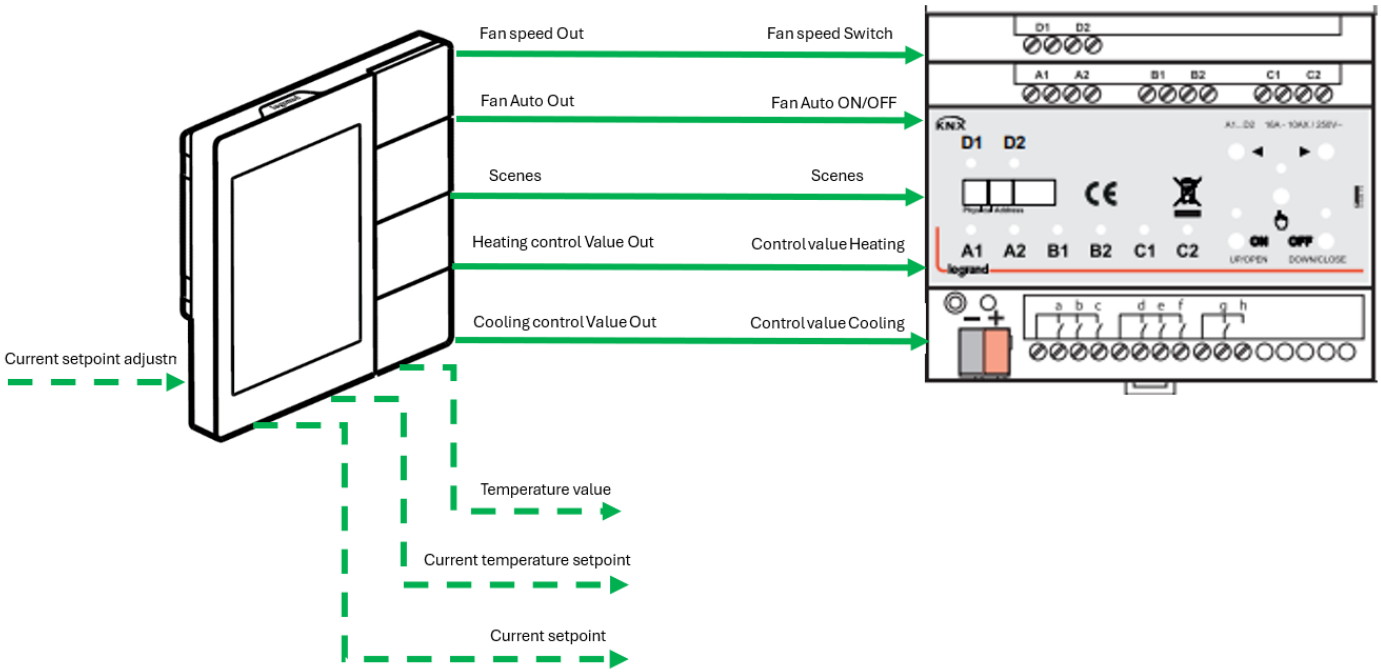
NB:
For more information about wiring each device, refer to the instructions on site.

www.legrand.com

4-pipes temperature control
2-ON/OFF valves 3 points with automatic change over
3-ON/OFF speed ventilation

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

4. KNX DIAGRAM



5. KNX PROJECT

This project **002674-Malia_Thermoregulation 4P ON-OFF 3 points** is available on www.legrand.com and can be imported into ETS5.

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
  - General setting
  - Proximity setting
- + Button
- + Internal sensor
- + HVAC controller

Normal day backlight [10..100]	70 %
Normal night backlight [10..100]	50 %
Normal standby backlight [0..10]	5 %
Normal to standby delay time [1..255]	30 s
Buzzer volume level [0..5, 0=inactive]	5
Touch button vibration feedback	☐
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
- Proximity setting
- − Button
  - Button setting
  - Button 1

Delay time for no operation [0..255, 0=inactive]	0 s
LED status object read request after restart	☐
Initial LED status	◉ No ○ As status as object value "0"

Brightness setting

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
- Proximity setting
- − Button
  - Button setting
  - Button 1

Function of button	Scene control
Distinction between short and long operation	◉ No ○ Yes
Reaction on short operation or closing the contact	Recall scene
8 bit scene number	Scene NO.1
Reaction on long operation or opening the contact	No reaction

6. DEVICE PARAMETERS WITH ETS5 (continued)

6.1 Thermostat 281027BB (continued)

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

- General
  - General setting
  - Proximity setting

Room temperature control function as	FCU control
Ventilation function	☐
Floor heating function	☐

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

- General
  - General setting
  - Proximity setting
- Button
- Internal sensor
- HVAC controller
  - Controller setting
  - FCU setting
    - Setpoint
    - Heating/Cooling control
    - Fan

Work mode	◉ Master ○ Slave
Room temperature reference from	◉ Internal sensor ○ External sensor
Control value after temp. error [0..100] (if 2-point control, set value '0'=0, set value '>0'=1)	0 %
Interface display temperature	○ Setpoint temperature ◉ Actual temperature
Setpoint temperature adjustment step	◉ 0.5K ○ 1K
Min. setpoint temperature [5..37]	16 °C
Max. setpoint temperature [5..37]	32 °C
Power on/off status after download	◉ OFF ○ ON
Power on/off status after voltage recovery	As before voltage failure
Low temperature protection when power off	☐
Room temperature control mode	Heating and Cooling
Heating/Cooling switchover	○ Only via object ◉ Automatic changeover
Heating/Cooling status after download	○ Heating ◉ Cooling
Heating/Cooling status after voltage recovery	As before voltage failure
Room temperature control system	○ 2 pipes system ◉ 4 pipes system
Room temperature operation mode	☑
Controller status after download	Standby mode
Controller status after voltage recovery	As before voltage failure
Extended comfort mode [0..255,0=inactive]	0 min
Window contact input function	☐
Bus presence detector function	☐

6. DEVICE PARAMETERS WITH ETS5 (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
  - General setting
  - **Proximity setting**
- Button
  - Button setting
  - Button 1
  - Button 2
  - Button 3
  - Button 4
  - LED function
- Internal sensor
- HVAC controller
  - Controller setting
  - FCU setting
    - Setpoint

Setpoint method for operating mode	Relative / Absolute
Heating	
Setpoint temperature in comfort mode [5..37]	21 °C
Setpoint temperature in standby mode [5..37]	19 °C
Setpoint temperature in economy mode [5..37]	17 °C
Setpoint temperature in frost protection [5..10]	7 °C
Cooling	
Setpoint temperature in comfort mode [5..37]	23 °C
Setpoint temperature in standby mode [5..37]	25 °C
Setpoint temperature in economy mode [5..37]	27 °C
Setpoint temperature in heat protection [30..37]	35 °C

Note: The heating setpoint must be always less than the cooling setpoint.

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

- General
  - General setting
  - Proximity setting
- Button
  - Button setting
  - Button 1
  - Button 2

Type of heating/cooling control	Continuous control(use PI control)
Invert control value	☐
Heating speed	Hot water heating(5K/150min)
Cooling speed	Cooling ceiling(5K/240min)
Send control value on change by [0..100,0=inactive]	4 %
Cyclically send control value[0..255]	0 min

6. DEVICE PARAMETERS WITH ETS5 (continued)

6.2 Actuator 0 026 74

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

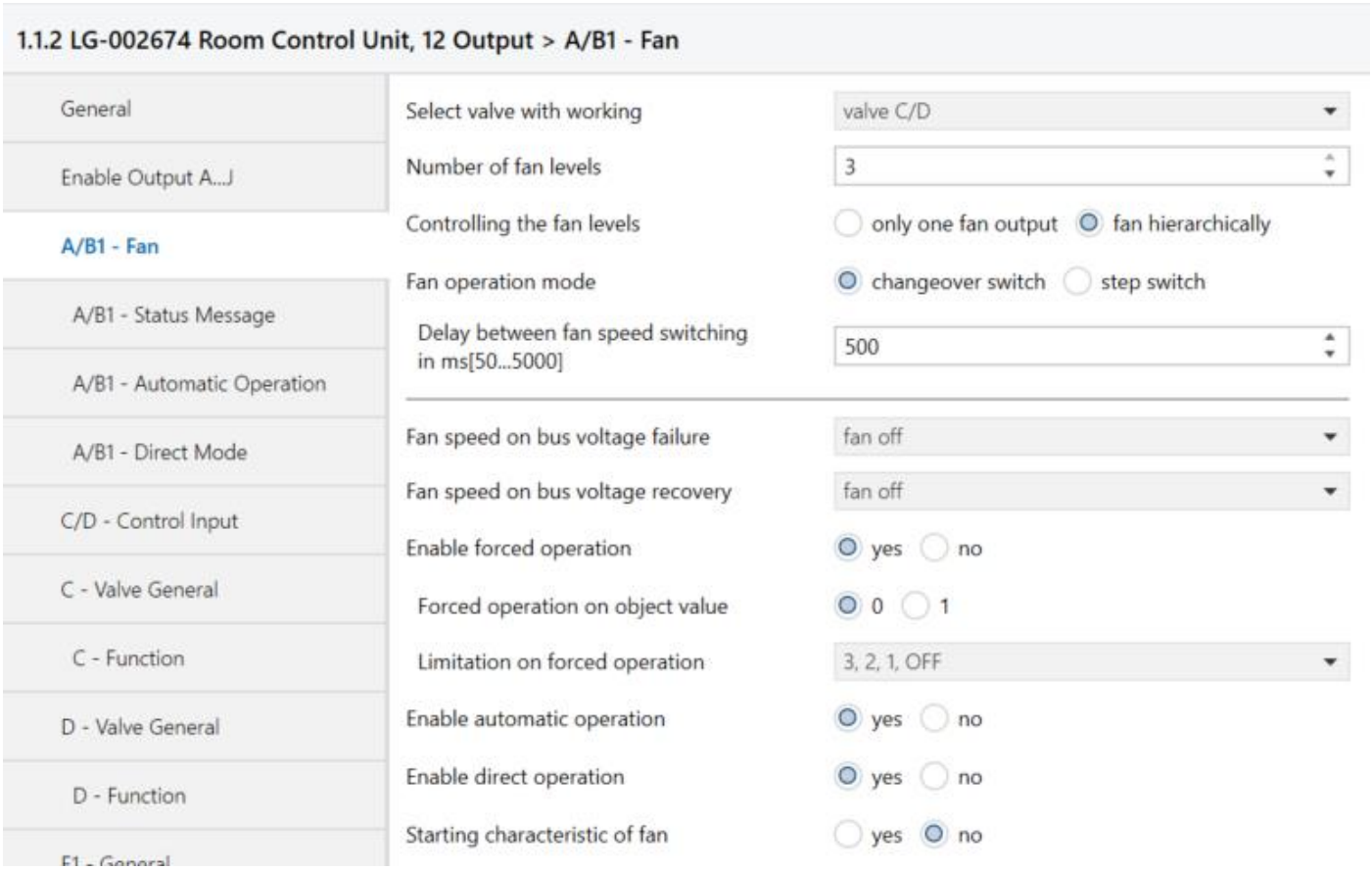
General	Enable manual operation	○ disable ◉ enable
Enable Output A...J	Reset manual operation to KNX operation	◉ via push button ○ automatically and via push button
A/B1 - Fan		
A/B1 - Status Message	Device alive operation active	○ yes ◉ no
A/B1 - Automatic Operation	First telegram send time in s[2...255]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

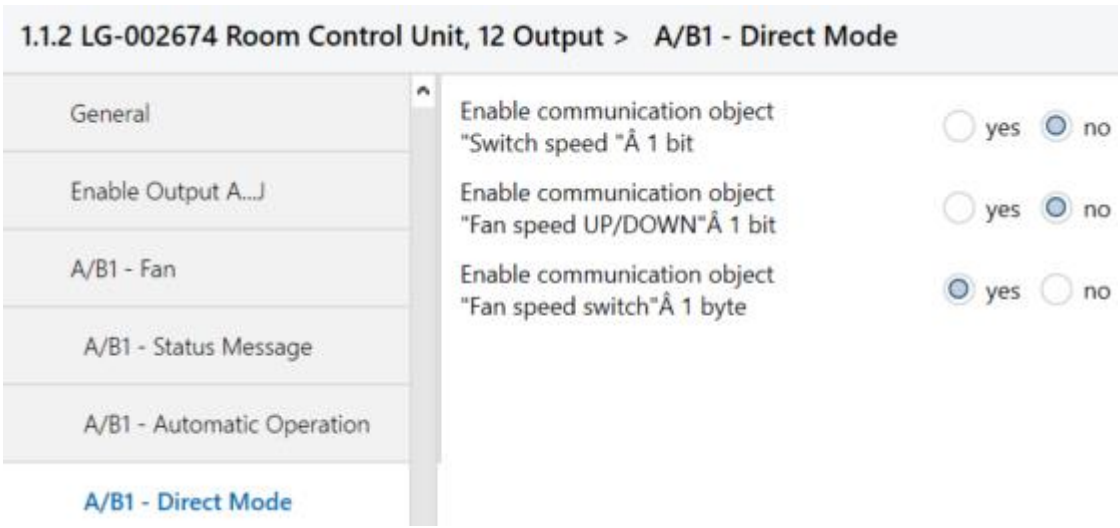
1.1.2 LG-002674 Room Control Unit, 12 Output > Enable Output A...J

General	Output group A and B	fan coil
Enable Output A...J	Output group C and D	valve control
A/B1 - Fan	Output group E and F	individually
A/B1 - Status Message	Output group E	○ shutter/blind AC ◉ 2 x switch
	Output group F	○ shutter/blind AC ◉ 2 x switch

6. DEVICE PARAMETERS WITH ETS5 (continued)

6.2 Actuator 0 026 74





6. DEVICE PARAMETERS WITH ETS5 (continued)

6.2 Actuator 0 026 74

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

- General
- Enable Output A...J
- A/B1 - Fan
- A/B1 - Status Message
- A/B1 - Automatic Operation
- A/B1 - Direct Mode
- C/D - Control Input

HVAC system	two control two pipe with switch
Operation HEATING/COOLING after bus voltage recovery	unchanged bus return
Object value for HEATING the object "Toggle HEATING/COOLING"	○ 0 ◉ 1
Monitoring control valves	○ yes ◉ no

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

- General
- Enable Output A...J
- A/B1 - Fan
- A/B1 - Status Message
- A/B1 - Automatic Operation
- A/B1 - Direct Mode
- C/D - Control Input
- C - Valve General

Valve control	○ two point on/off ◉ three point open/close
Observe reversing time	no
Valve position after bus voltage return	◉ unchanged ○ selected
Value control duration from 0...100% in s [10...6000]	180
Automatically adjust valve position	○ yes ◉ no
Valve limitation	○ yes ◉ no

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

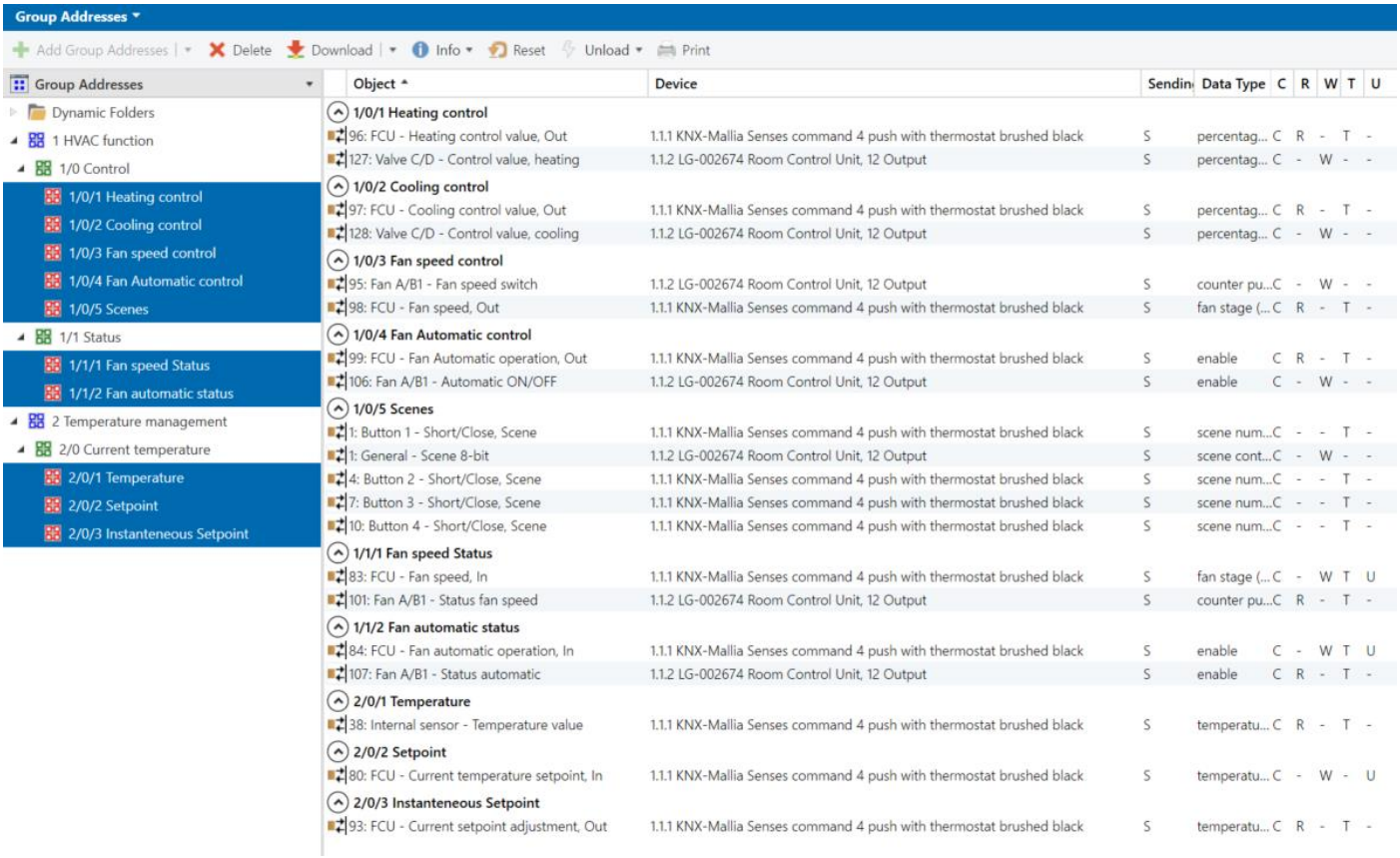
- General
- Enable Output A...J
- A/B1 - Fan
- A/B1 - Status Message
- A/B1 - Automatic Operation
- A/B1 - Direct Mode
- C/D - Control Input

Overwrite scene on download	◉ yes ○ no
1...64 scene number (0 = no assignment)	1
Value	○ OFF ◉ ON
1...64 scene number (0 = no assignment)	2
Value	◉ OFF ○ ON
1...64 scene number (0 = no assignment)	3
Value	○ OFF ◉ ON
1...64 scene number (0 = no assignment)	4

4-pipes temperature control
2-ON/OFF valves 3 points with automatic change over
3-ON/OFF speed ventilation

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

7. GROUP ADDRESSES



Object	Device	Sendin	Data Type	C	R	W	T	U
1/0/1 Heating control								
96: FCU - Heating control value, Out	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	percentag...	C	R	-	T	-
127: Valve C/D - Control value, heating	1.1.2 LG-002674 Room Control Unit, 12 Output	S	percentag...	C	-	W	-	-
1/0/2 Cooling control								
97: FCU - Cooling control value, Out	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	percentag...	C	R	-	T	-
128: Valve C/D - Control value, cooling	1.1.2 LG-002674 Room Control Unit, 12 Output	S	percentag...	C	-	W	-	-
1/0/3 Fan speed control								
95: Fan A/B1 - Fan speed switch	1.1.2 LG-002674 Room Control Unit, 12 Output	S	counter pu...	C	-	W	-	-
98: FCU - Fan speed, Out	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	fan stage (...	C	R	-	T	-
1/0/4 Fan Automatic control								
99: FCU - Fan Automatic operation, Out	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	enable	C	R	-	T	-
106: Fan A/B1 - Automatic ON/OFF	1.1.2 LG-002674 Room Control Unit, 12 Output	S	enable	C	-	W	-	-
1/0/5 Scenes								
1: Button 1 - Short/Close, Scene	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	scene num...	C	-	-	T	-
1: General - Scene 8-bit	1.1.2 LG-002674 Room Control Unit, 12 Output	S	scene cont...	C	-	W	-	-
4: Button 2 - Short/Close, Scene	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	scene num...	C	-	-	T	-
7: Button 3 - Short/Close, Scene	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	scene num...	C	-	-	T	-
10: Button 4 - Short/Close, Scene	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	scene num...	C	-	-	T	-
1/1/1 Fan speed Status								
83: FCU - Fan speed, In	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	fan stage (...	C	-	W	T	U
101: Fan A/B1 - Status fan speed	1.1.2 LG-002674 Room Control Unit, 12 Output	S	counter pu...	C	R	-	T	-
1/1/2 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	temperatu...	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	temperatu...	C	-	W	-	U
2/0/3 Instanteneous Setpoint								
93: FCU - Current setpoint adjustment, Out	1.1.1 KNX-Mallia Senses command 4 push with thermostat brushed black	S	temperatu...	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 t o 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.