



Flush-mounted room thermostat with RS485 Modbus communications

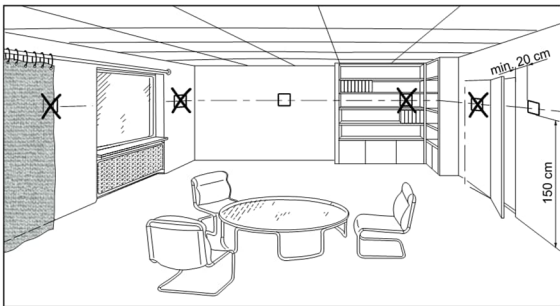


Installation video



Datasheet

Mounting location



Factory setting	
RDF660MB	
X1	3 = Window contact (DI)
X2	1 = External temperature sensor (AI)
RDF660MB/MM	
B1	9 = H/C changeover (DI)
S1	3 = Window contact (DI)

Wiring diagrams

Application		
2-pipe fan coil, on/off valve output with DC fan		
2-pipe fan coil, on/off valve, and electric heater outputs with DC fan		
4-pipe fan coil, on/off valve outputs with DC fan		
2-pipe fan coil, 3-pos valve outputs with DC fan		

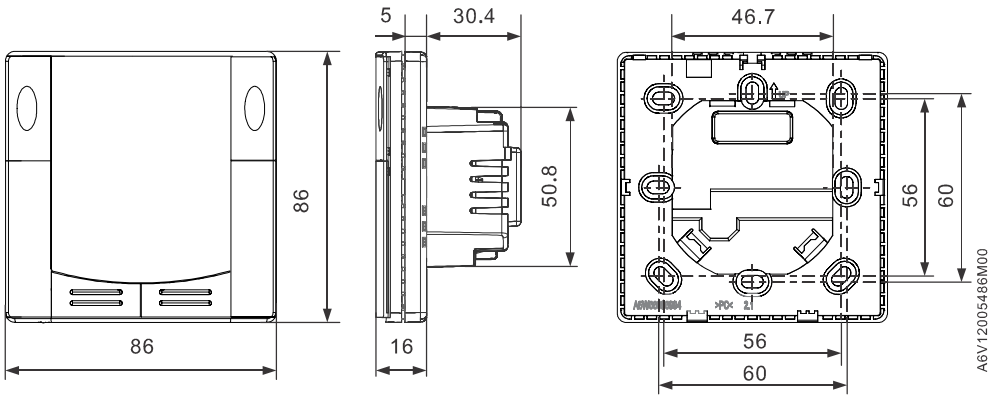
No function DIP switches				
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Application

ON OFF

1 2 3

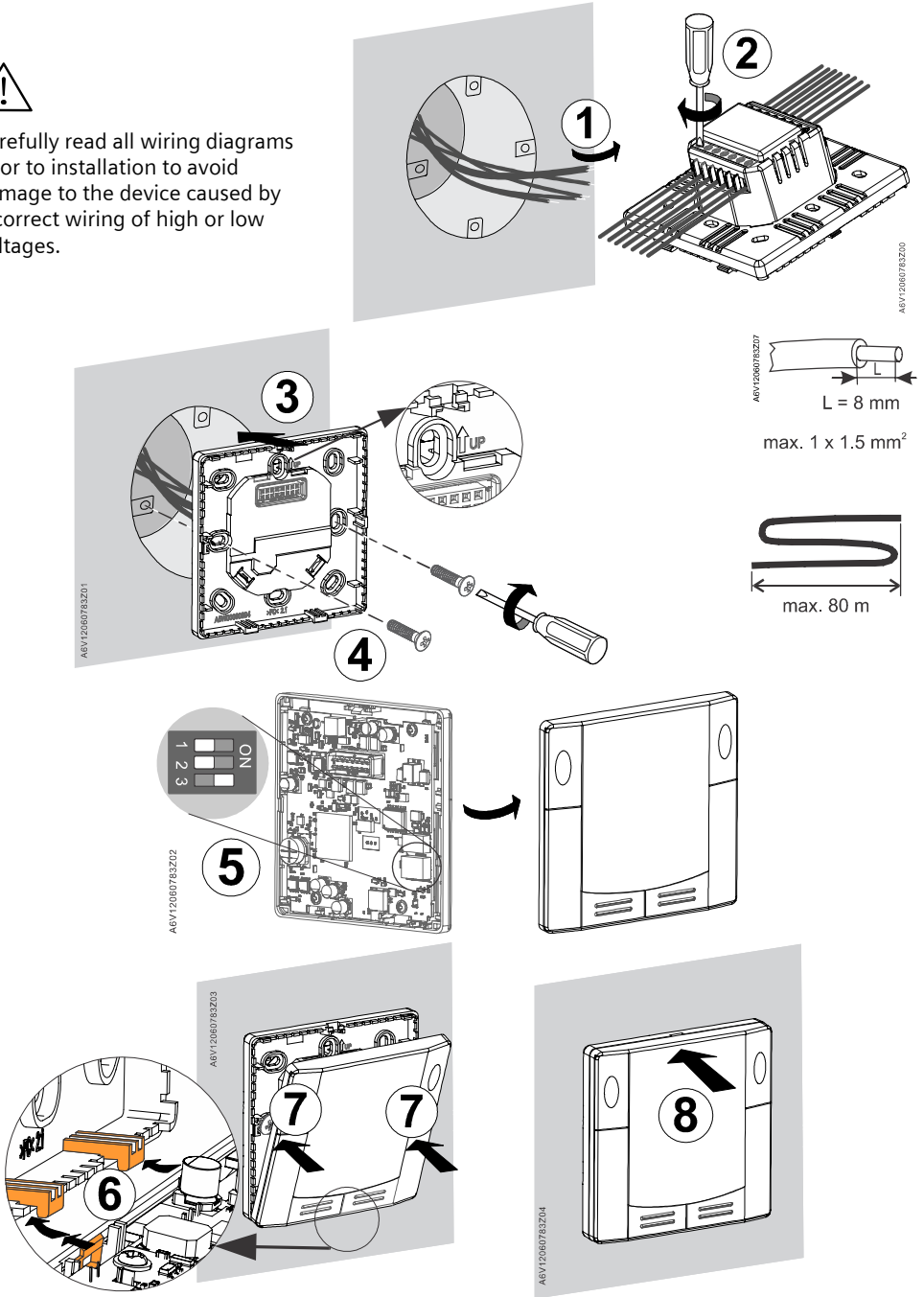
Dimensions (mm)



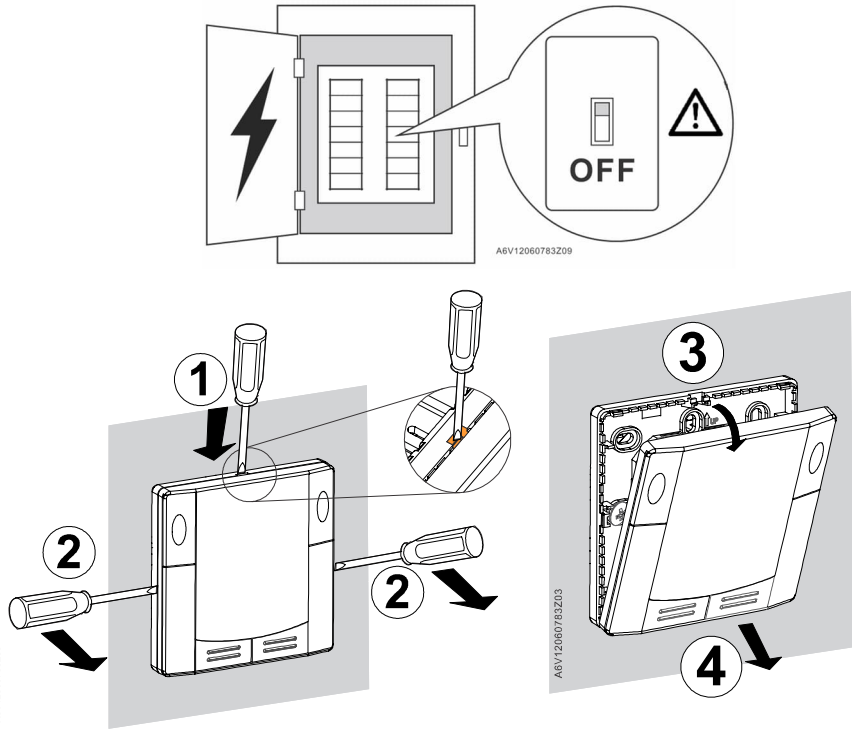
Mounting

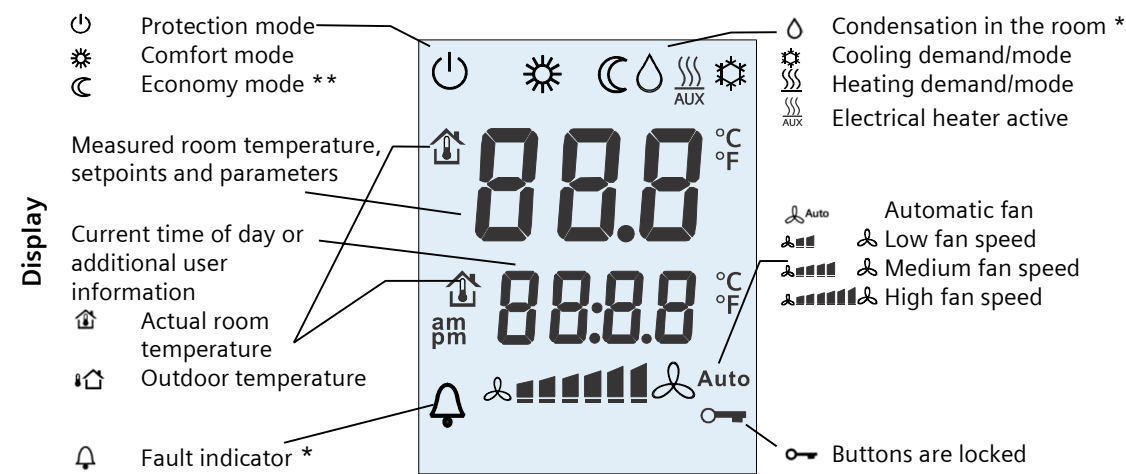


Carefully read all wiring diagrams prior to installation to avoid damage to the device caused by incorrect wiring of high or low voltages.



Dismounting





* Needs to be configured by your HVAC installer
** Needs to be enabled via parameter P02

Change room temperature setpoint

Press + or – buttons to increase or decrease the current room temperature setpoint for **Comfort** mode. The thermostat changes to Comfort .
The setting range is 5...35 °C, unless limited by parameters P09 and P10.

Adjust fan speed/fan mode

Press the button to adjust the fan mode and fan speed.
In Auto mode , the thermostat automatically selects the fan speed based on setpoint and actual room temperature.
In manual mode, the fan always runs at the speed that user selects:
Low fan speed
Medium fan speed
High fan speed

Change thermostat operating mode

Press operating mode button to change the operating mode display.
In Comfort mode , the thermostat maintains the room temperature at the setpoint which can be readjusted using the + and – buttons.
In Economy mode , the room temperature is maintained at a lower or higher fixed setpoint (factory-set: 15 °C, 30 °C) to save energy. Adjust parameters P11 and P12 to change the preselected setpoints. The availability of Economy mode depends on parameter P02 or via an external signal (switch or Modbus command) such as keycard or presence detector.
In Protection mode , the thermostat stops operating. However, it will operate if the room temperature is below 8 °C (heating application) against frost (P65) and the value is adjustable.
In Protection mode, press any button to activate the screen, then press the mode button to change to another operating mode.
 Important: User can set Protection setpoints to **OFF**; the thermostat then is inactive, i.e. no protective heating or cooling function. **Risk of frost!**

Change from heating to cooling mode

Changeover between cooling and heating is either automatic using a heating/cooling changeover sensor or a remote changeover switch or via instruction from the central management station via Modbus, or manual by pressing operating mode button .
No changeover is possible if the thermostat is configured for cooling only or heating only (see parameter P01).
Meaning of cooling and heating symbols when displaying on LCD:

- For automatic changeover or heating only/cooling only:
 - Heating valve is open
 - Cooling valve is open
- For manual changeover only:
 - Thermostat is in heating mode
 - Thermostat is in cooling mode

Parameter	Description	Factory setting	Setting range
P01	Control sequence	2-pipe = 1 [selection: 0...3] 4-pipe = 4 [selection: 2, 4]	0 = Heating only; 1 = Cooling only; 2 = H/C changeover manual 3 = H/C Changeover auto; 4 = Heating and cooling
P02	Mode selection by user via operating mode button	3	3 = Comfort – Protection; 4 = Comfort - Economy - Protection
P04	Unit	0	0 = °C (Celsius); 1 = °F (Fahrenheit)
P05	Measured value correction (for built-in/external sensor)	0	-5 K...5 K
P06	Standard display	0	0 = Room temperature; 1 = Setpoint; 2 = Temperature value via bus
P07	Additional display information	0	0 = No display; 1 = Room temperature °C or °F; 2 = Outside temperature (via bus) 3 = Time of day (12 h) via bus; 4 = Time of day (24 h) via bus
P08	Comfort basic setpoint	21 °C	5...40 °C
P09	Minimum Comfort setpoint	5 °C	5...40 °C
P10	Maximum Comfort setpoint	35 °C	5...40 °C
P11	Economy heating setpoint (Wheat _{Eco})	15 °C	OFF, 5 °C...Wcool _{Eco}
P12	Economy cooling setpoint (Wcool _{Eco})	30 °C	OFF, Wheat _{Eco} ...40 °C
P13 ***	Electrical heater in cooling mode	1	0 = Disabled; 1 = Enabled
P14	Key lock	0	0 = Unlock; 1 = Lock (all lock); 2 = Setpoint adjustable; 3 = Setpoint lock; 4 = Fan lock; 5 = Operating mode lock

All temperature settings are in increments of 0.5 °C. *** Parameter P13 is only displayed for application "2-pipe with electric heater".

Key lock

The key symbol indicates buttons are locked.
Key lock can be configured via parameter P14.

Reminder to clean filters and for external faults

FIL *This message reminds user to clean HVAC equipment filters.

Recalibrating the sensor

After installation for at least one hour, the displayed room temperature can be recalibrated via parameter P05.

Commissioning

User can adjust several different control parameters to adapt the thermostat to your system and optimize control performance. User can do this during operation either via the buttons on the thermostat or using a commissioning tool via Modbus.

Baud rate and parity

The Baud rate can be adjusted to 9600 bps, 19200 bps (factory setting), 38400 bps or 57600 bps. The Parity can be set to none, odd or even (factory setting). Your HVAC installer can set them through additional parameters.
 Important: Once making any changes on the baud rate or parity, user must reset the power before the changes take effect.

Control parameters

Proceed as follows to change the most important control parameters

- Press the – and + buttons simultaneously for more than 6 seconds.
Release, and within 2 seconds, press + again for more than 3 seconds. "P01" is displayed.
- Repeatedly press the + or – button to select the required parameter.
- Press + and – simultaneously once to enter EDIT mode. Then press + or – button to change the value of the selected parameter and press + and – simultaneously to save the change.
- Repeat steps 2 to 3 to display and change additional parameters.
- Press + or – until "End" is displayed, and then press + and – simultaneously to exit parameter entry mode.