

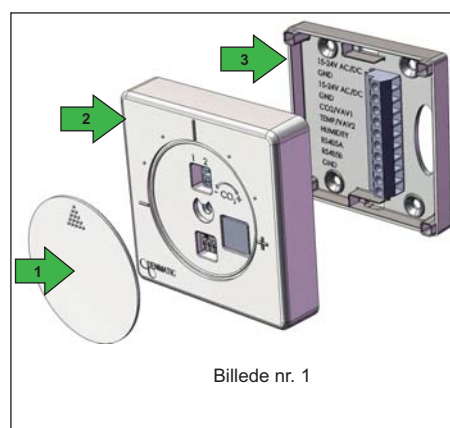
InClimate - Installation and mounting instructions

InClimate is used as stand-alone transmitter or via Modbus to CTS, for measurement of room temperature, CO2 and relative humidity.

Description (*)	Item number	Description (**)	Item number
Temp-CO2-RH-(Digital input)	307-051	Temp-CO2-RH	307-001
Temp-CO2-(Digital input)	307-052	Temp-CO2	307-002
Temp-RH-(Digital input)	307-053	Temp-RH	307-003
Temp-(Digital input)	307-054	Temp	307-004
(*) 2 x 0-10 V outputs and 1 digital input		(**) 3 x 0-10 V outputs.	
Programming tool	307-009	Blind cover	307-007

InClimate consists of a mounting base, a scale button and a controller/transmitter: (See image no. 1)

1. Scale button is dismounted as shown in image 2 using a screwdriver max. 4 mm.
2. Controller/transmitter features a CO2 potentiometer and a DIP switch for setting of Mode under the temperature scale button.(see image no. 3).
3. Monting base includes 10 pcs 1.5 mm² terminal screws.



Installation:

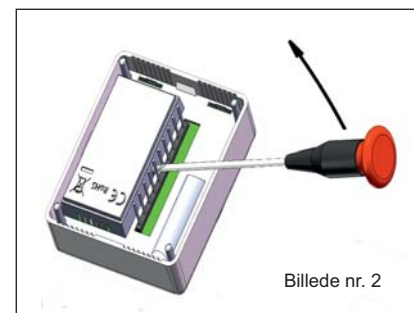
Installation of InClimate should only be done by qualified persons. The thermostat is placed on an even wall min. 150 cm above the floor. Avoid draught and thermal radiation. Do not place in niches or in bookcases or behind curtains, above or close to heat sources. Do not expose to direct sun radiation.

Connection of cable:

Cables can be connected from the back or the top or the bottom via knockout blanks.

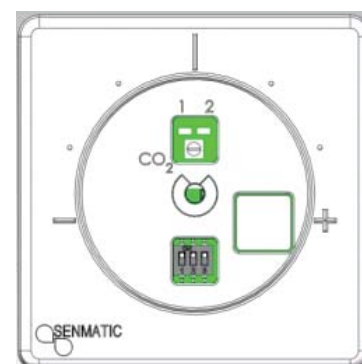
Description of function (see Description of mode, page 2):

1. Select function/mode
2. Temperature adjustment:
The required temperature is adjusted on the scale button.
3. CO2 adjustment (factory adjustment 800 ppm):
The required CO2 is adjusted by turning the inside potentiometer. (See image 2).
4. Humidity:
The value is read off. The set point is not adjustable or readable. Is only used in connection with BMS-systems.



InClimate has 2 LED light diodes which indicate the current status of the temperature and CO2 value (Image no. 3):

1. LED1 lights, if the room temperature is higher than the set point.
2. LED2 lights, if the content of CO₂ is higher than the set-point. Both LEDs are automatically switched off after 5 minutes. When changing the set-points, the LEDs are activated..



Teknisk information:

Operating voltage:	24V AC / DC
Power consumption:	1.0 W
Dimensions:	80 x 80 x 23 mm
IP-class (EN60529):	IP 54
Colour:	White (RAL 9010)
Installation:	Wall-mounted
Weight:	85 g
Certification:	CE
Bus communication:	RS485/Modbus RTU, Data (+A), (-B)

Temperature measurement:

Measuring range:	0°C - 50°C
Set-point function:	5°C – 30°C (fully scalable)
Accuracy:	<+/- 1°C of full scale
Linear output:	0-10 V min. load 10kΩ (Image no. 3)

CO2 measurement:

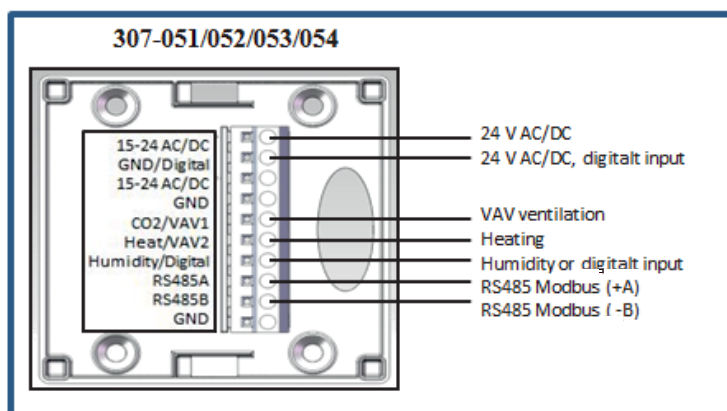
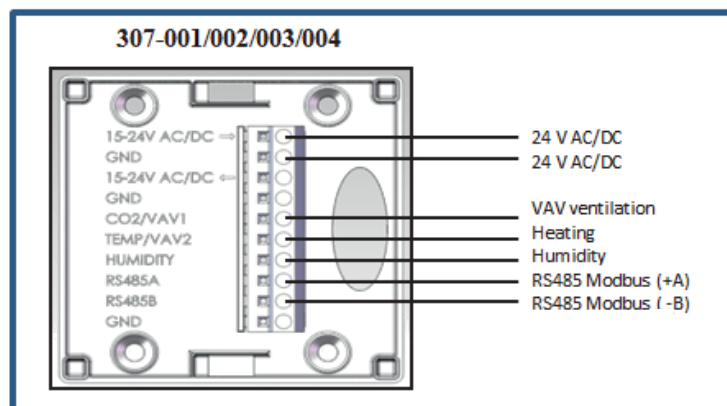
Measuring range:	0-2000 ppm
Set-point function:	600 – 1200 ppm (fully scalable)
Accuracy:	50 ppm ved 20°C, ABC self-calibrating
Linear output:	0-10 V min. load 10kΩ








Relative humidity measurement:

Measuring range:	0-100% RH
Accuracy:	+/-5% RH (20% - 95%)
Linear output:	0-10 V min. load 10kΩ (**)

Digital input:

Programmable for: PIR sensor, window relay or extended operation

Connection diagram - digital input:**Connection diagram 3x10V output:**

Mode Switch Pos.	Mode description	InClimate functions and various functions are changed via Modbus or InClimate programming tool (ordering number 307-009)	CO ₂ VAV1 0-10V	Temp VAV2 0-10V	Humidity 0-10V
0 	Transmitter-mode	a. No adjustment options for temperature, CO2 and RH. <i>Pure transmitter-mode.</i>	CO2 0-2000 PPM	Temp. 0-50°C	Humidity 0-100% Only 307-001/003
1 	Transmitter mode with setup function.	a. No adjustment options for temperature and CO2. <i>Pure transmitter-mode.</i> b. Scale button can be used for the setup function <i>0-10V is read off Humidity/VAV3., only applies for 307-001/003</i>	CO2 0-2000 PPM	Temp. 0-50°C	Setup function only 307-001/002/003/004
2 	Standalone <i>Three PI regulators control VAV1 and VAV2. There are PI parameters for CO2 and temperature for VAV1 and there are PI parameters for VAV2 temperature for the heat valve adjustment.</i>	a. Fixed set point of 21 °C. The temperature can be adjusted +/- 3 °C. b. CO2 is adjustable from 600 to 1200 ppm on the internal potentiometer. <i>Standard setting 800 PPM</i> c. Options for VAV1 control parameter: <i>0=Vout1 (standard) is controlled through CO and temperature, the highest calculated PI value is deciding.</i> <i>1=Vout 1 is controlled solely through temperature. CO2 set point is ignored.</i> <i>2= Vout1 is controlled solely through CO2. Temperature set point is ignored.</i> d. VAV1 minimum voltage 0 to 10V for ventilation damper is possible. <i>0=Standard 0V, 20=2V, 55=5,5V, etc.</i> e. Options of window functionality: The window function works by means of the sensor constantly checking the temperature change over a period of 5 minutes. If for example the temperature has dropped more than five degrees during this period, the sensor will shut off the heat (VAV2). The heat will be turned off for 20 minutes. The desired temperature change can be set, <i>standard 5°C.</i> f. Possibility of choosing dead zone functionality: <i>Standard 0°C, can be activated and changed up to ±10 °C.</i>	VAV control	Temp. control	No output
3 	Stand-alone PI-adjustment <i>See mode 2.</i>	a. The temperature can be adjusted between 5 °C and 30 °C. Other setting options – see mode 2.	VAV control	Temp. control	No control
4 	Modbus <i>(Also as Stand-alone)</i> <i>Data is sent to the BMS terminal</i>	a. Possible to choose digital input etc. Standard setting is "0" for register 40003 = AC. See program guide page 4 b. Standard fixed set-point is 21°C. The temperature is adjustable ±3°C. Set-point (temp og CO2) can be local or be changed by Modbus or Local Temperature set-point and CO2 via Modbus. 0=Standard local, 1=via Modbus, 2 Local Temperature set-point and CO2 set-point via Modbus. c. Possibility of adjustment of centre point and ± span on the temperature potentiometer. Standard 21°C, +/-3°C. d. Lokal PI regulator. PI regulators control VAV1 and VAV2. There are PI parameters for CO2 and temperature for VAV1, and PI parameters for VAV2 temperature for the <i>heat valve regulation.</i> e. Options for choice of VAV1 control-parameters: <i>0=Vout1 (standard) is controlled through CO2 and temperature, where the highest calculated PI-value is deciding.</i> <i>1=Vout1 is controlled solely through temperature. CO2 set-point is ignored.</i> <i>2=Vout 1 is controlled solely through CO2 Temperature set-point is ignored.</i> f. VAV minimum voltage 0 to 10V for ventilation damper. <i>0=Standard 0V, 20=2V, 55=5,5V, etc.</i> g. Forced opening of VAV1: <i>0=Standard, 1=Forced opening of VAV1 in Unoccupied mode.</i> h. Optional choice of window function: <i>The window function works through the sensor constantly checking the temperature change over a period of 5 minutes. If for example the temperature has dropped more than five degrees during this period, the sensor will shut off the heat. (VAV2). The heat will be turned off for 20 minutes.</i> <i>The required temperature change can be set, standard 5°C.</i> i. Optional choice of 3 full dead zone functionalities: <i>0=Occupied, standard ±1 °C.</i> <i>1=Standby, standard ±3 °C.</i> <i>2=Unoccupied, standard ±6°C, possibility of forced opening of VAV1 damper.</i> j. Possibility of choosing downdraft function: Possibility of opening the VAV2 heat valve percentage-wise depending on the outdoor temperature.	VAV control	Temp. control	No control
5 	Modbus is controlled from the BMS system only. <i>Humidity output only applicable for 307-001</i>	a. Possibility of choosing digital input etc. Standard setting is "0" for register 40003 = AC. See program guide page 3 b. No adjustment options for temperature, RH and CO2. <i>All sensor values are read via Modbus and output voltages from InClimate are controlled from BMS central unit.</i>	Controlled from CTS	Controlled from CTS	Humidity output Only 307-01/002/003/004
7 	Forced control	a. Forced opening (VAV1, VAV2, VAV3) 10V VAV3, cannot be used for InClimate with digital input.	VAV1	VAV2	VAV3

Digital input

Selection guide for digital input in register 40004

Digital input, choice of below options:

1. Extended operation
(normally open or normally closed switch)
2. Pir Sensor or window relay
(normally open or normally closed switch)

Register 40004 - Selection guide digital input table		
0	Operation switch	NO
1	Operation switch	NC
2	Pir sensor / window relay	NO
3	Pir sensor / window relay	NC

InClimate selection guide in register 40003

Following set-up options are available in register 40003:

1. AC or DC (Default "0" = AC)
2. CO2
3. RH
4. Digital input
5. Blind cover, temperature offset for blind cover to be done according to the mounting instructions for blind cover in register 40035.

InClimate selection guide in register 40003											
Parameter description				With digital input with 2 x 0-10V				Without digital input with 3 x 0-10V			
Item	Description	Value	Description	307-051 Temp-Co2-RH	307-052 Temp-Co2	307-053 Temp-RH	307-054 Temp	307-001 Temp-Co2-RH	307-002 Temp-Co2	307-003 Temp-RH	307-004 Temp
0	AC (standard)	100	DC								X
1	AC + CO2	101	DC + CO2						X		
2	AC + CO2 + RH	102	DC + CO2 + RH					X			
3	AC + RH	103	DC + RH							X	
4	AC + Digital input	104	DC + Digital input				X				
5	AC + CO2 + Digital input	105	DC + CO2 + Digital input		X						
6	AC + CO2 + RH + Digital input	106	DC + CO2 + RH + Digital input	X							
7	AC + RH + Digital input	107	DC + RH + Digital input			X					
8	AC + blind cover	108	DC + blind cover								X
9	AC + CO2 + blind cover	109	DC + CO2 + blind cover						X		
10	AC + CO2 + RH + blind cover	110	DC + CO2 + RH + blind cover					X			
11	AC + RH + blind cover	111	DC + RH + blind cover							X	
12	AC + Digital input + blind cover	112	DC + Digital input + blind cover				X				
13	AC + CO2 + Digital input + blind cover	113	DC + CO2 + Digital input + blind cover		X						
14	AC + CO2 + RH + Digital input + blind cover	114	DC + CO2 + RH + Digital input + blind cover	X							
15	AC + RH + Digital input + blind cover	115	DC + RH + Digital input + blind cover			X					

For further information: www.senmatic.dk/sensorer/inclimate