

# ClimaECO Sensor – FCC/S 1.1.2.1

## Master/slave concept

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### GPG BUILDING AUTOMATION

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## Introduction

This document serves to illustrate a simple configuration between the Fan Coil Controller FCC/S and the ClimaECO Sensor using the new master/slave concept.

## Objectives of the document

The document is intended for all system administrators. It provides an overview and a rapid introduction to the new master/slave concept of the ABB i-bus® KNX devices.

### Task:

- Establishing master-slave communication between the FCC/S 1.1.2.1. and the ClimaECO Sensor
- Setting essential parameters
- Linking group objects

## Content

The sample project with the new Fan Coil Controller FCC/S 1.1.2.1 as the master and the ClimaECO Sensor SBR/U 6.0 as the slave forms the basis for the following screen shots.

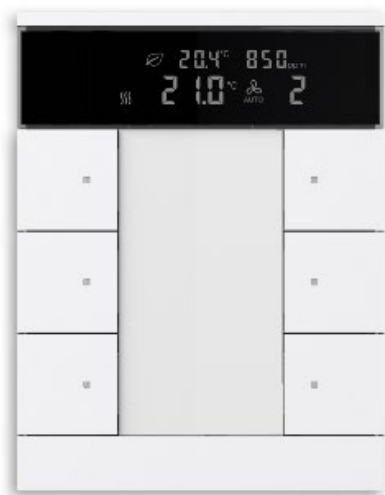


Fig. 1 ClimaECO Sensor



Fig. 2 FCC/S 1.1.2.1

The following HVAC system is assumed:

- 4-pipe heating/cooling (automatic changeover)
- Fan Coil Units for heating and cooling (valve A / valve B)
- Additional electrical heater (internal relay output F)

As the first step, the Fan Coil Controller is set as the master “controller” and the ClimaECO Sensor as the “slave.”

FCC: “Application” > “Application parameters”:

Device function	<input checked="" type="radio"/> Controller	<input type="radio"/> Actuator device
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ClimaECO Sensor: “RTC” > “General”:

Device function	Slave device
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### 1. Setting actual temperature measurement

The actual temperature for control is measured by the internal temperature sensor of the slave (ClimaECO Sensor) and processed by the master device FCC/S 1.1.2.1.

The following settings must be made to adapt the parameters to the described scenario.

FCC/S 1.1.2.1: “Application” > “Application parameters”:

Temperature input	Via group object
Number of temperature input objects	<input checked="" type="radio"/> 1 <input type="radio"/> 2

SBR/U 6.0: “RTC” > “Temperature reading”:

Inputs of temperature reading	<input checked="" type="radio"/> Internal measurement	<input type="radio"/> External measurement
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SBR/U 6.0: “Device settings” > “General”:

Display actual temperature value	<input type="radio"/> no <input checked="" type="radio"/> yes
Actual temperature value above	<input checked="" type="radio"/> Actual temperature value of controller
	<input type="radio"/> Communication object

### FCC/S 1.1.2.1:

Group object 75 is to be regarded as a status object. The actual temperature indicates the temperature that the controller of the FCC/S is currently using. The external temperature (object 76) is the transfer point between the temperature measuring device SBR/U and the master device FCC/S.

75	Actual temperature	Channel - Controller	Actual temperature	2/0/0	2 bytes	C R - T -	temperature (°C)	Low
76	External temperature 1	Channel - Controller	External temperature (from SBR/U)	2/0/13	2 bytes	C - W T U	temperature (°C)	Low

### SBR/U 6.0:

22	Output	RTC: Actual temperature	External temperature (from SBR/U)	2/0/13	2 bytes	C - - T -	temperature (°C)	Low
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## 2. New “setpoints/fans” master/slave concept

Once temperature measurement has been set up, the next step is to set manual setpoint adjustment and manual fan adjustment. The parameters are already set to the master/slave concept in the FCC/S and in the SBR/U 6.0 by default.

### 2.1 Setpoint and fan adjustment

FCC/S 1.1.2.1: “Setpoint adjustment” > “Setpoint adjustment”:

Manual setpoint adjustment via KNX with

Manual fan adjustment via KNX with  DPT 5.001 (percentage value)  DPT 5.010 (meter pulses)

SBR/U 6.0: “RTC” > “Changing set values”

Setpoint adjustment master/slave via communication object

SBR/U 6.0: “RTC” > “Fan Coil settings”

Fan speed data format Master-Slave  Counter values (e.g. 0 - 5)  Percentage values

### Manual setpoint adjustment:

#### FCC/S 1.1.2.1:

97	Setpoint display (master)	Channel - Controller	Setpoint display (master)	2/0/4	2 bytes	C	R	-	T	-	temperature difference...	Low
98	Request setpoint adjustment (master)	Channel - Controller	Request setpoint adjustment (master)	2/0/5	2 bytes	C	-	W	-	-	temperature (°C)	Low
99	Confirm setpoint adjustment (master)	Channel - Controller	Confirm setpoint adjustment (master)	2/0/6	2 bytes	C	R	-	T	-	temperature (°C)	Low

#### SBR/U 6.0:

54	Input	RTC: Setpoint display (slave)	Setpoint display (master)	2/0/4	2 bytes	C	-	W	T	U	temperature (°C)	Low
55	Output	RTC: Request setpoint (slave)	Request setpoint adjustment (master)	2/0/5	2 bytes	C	-	-	T	-	temperature (°C)	Low
56	Input	RTC: Confirm setpoint (slave)	Confirm setpoint adjustment (master)	2/0/6	2 bytes	C	-	W	T	U	temperature (°C)	Low

## Manual fan adjustment:

### FCC/S 1.1.2.1:

101	Request fan manually (master)	Channel - Controller	Request fan manually (master)	2/0/8	1 bit	C - W - -	switch	Low
102	Confirm fan manually (master)	Channel - Controller	Confirm fan manually (master)	2/0/2	1 bit	C R - T -	switch	Low
103	Request fan speed (master)	Channel - Controller	Request fan speed (master)	2/0/9	1 byte	C - W - -	percentage (0..100%)	Low
104	Confirm fan speed (master)	Channel - Controller	Confirm fan speed (master)	2/0/10	1 byte	C R - T -	percentage (0..100%)	Low

### SBR/U 6.0:

36	Input	RTC: Fan coil manual confirmation (Slave)	Confirm fan manually (master)	2/0/2	1 bit	C - W T U	switch	Low
58	Output	RTC: Request fan speed level manual (slave)	Request fan manually (master)	2/0/8	1 bit	C - - T -	switch	Low
59	Output	RTC: Request fan speed level (slave)	Request fan speed (master)	2/0/9	1 byte	C - - T -	percentage (0..100%)	Low
60	Input	RTC: Confirm fan speed level slave	Confirm fan speed (master)	2/0/10	1 byte	C - W T U	percentage (0..100%)	Low

## 2.2 HVAC status

Important: the slave must operate synchronously with the master to ensure a correct display (e.g., Eco, On/Off state, heating/cooling) on the slave. The following two HVAC status objects are used for synchronization:

### FCC/S 1.1.2.1:

106	Controller HVAC status (master)	Channel - Controller	Controller HVAC status (master)	2/0/11	1 byte	C R - T -	percentage (0..100%)	Low
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### SBR/U 6.0:

62	Input	RTC: Controller status HVAC (slave)	Controller HVAC status (master)	2/0/11	1 byte	C - W T U	percentage (0..100%)	Low
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## 2.3 Activating/deactivating the controller

The Request On/Off and Confirm On/Off group objects are used to switch the controller on or off.

### FCC/S 1.1.2.1:

95	Request On/Off (master)	Channel - Controller	Request On/Off (master)	2/0/3	1 bit	C - W - -	switch	Low
96	Confirm On/Off (master)	Channel - Controller	Confirm On/Off (master)	2/0/12	1 bit	C R - T -	switch	Low

### SBR/U 6.0:

21	Input	RTC: On/off confirmation (Slave)	Confirm On/Off (master)	2/0/12	1 bit	C - W T U	switch	Low
53	Output	RTC: On/off request (slave)	Request On/Off (master)	2/0/3	1 bit	C - - T -	switch	Low

### 3. Communication on the KNX bus

This basic configuration can now be expanded. Additional functions can be activated and adapted one by one.

#### Principle:

The slave (SBR/U) sends a “request” telegram to the master. The master device replies with a value and sends a “confirm” telegram. This process is a type of acknowledgment. The master and its slaves are synchronized this way.

#### Example based on manual setpoint adjustment:

Low	3.8.4	SBR/U6.0 HVAC device, 6gang E	Request setpoint adjustment (ma... 6	GroupValueWrite	9.001 temperature (... 0C 35	21.54 °C
Low	3.8.3	FCC/S1.1.2.1 Fan Coil Controller,F	:s...Setpoint display (master)	6	GroupValueWrite	9.002 temperature... 19 0D   21.52 K
Low	3.8.3	FCC/S1.1.2.1 Fan Coil Controller,F	:s...Confirm setpoint adjustment (ma... 6	GroupValueWrite	9.001 temperature (... 19 0D	21.52 °C
Low	3.8.4	SBR/U6.0 HVAC device, 6gang E	Request setpoint adjustment (ma... 6	GroupValueWrite	9.001 temperature (... 0C 4D	22.02 °C
Low	3.8.3	FCC/S1.1.2.1 Fan Coil Controller,F	:s...Setpoint display (master)	6	GroupValueWrite	9.002 temperature... 19 13   22 K
Low	3.8.3	FCC/S1.1.2.1 Fan Coil Controller,PWM,3-s...	Confirm setpoint adjustment (ma... 6	GroupValueWrite	9.001 temperature (... 19 13	22 °C

#### References to other documents

- [FAQ Home and Building Automation](#)
- [FAQ Master/slave concept](#)
- [Engineering Guide Database](#)