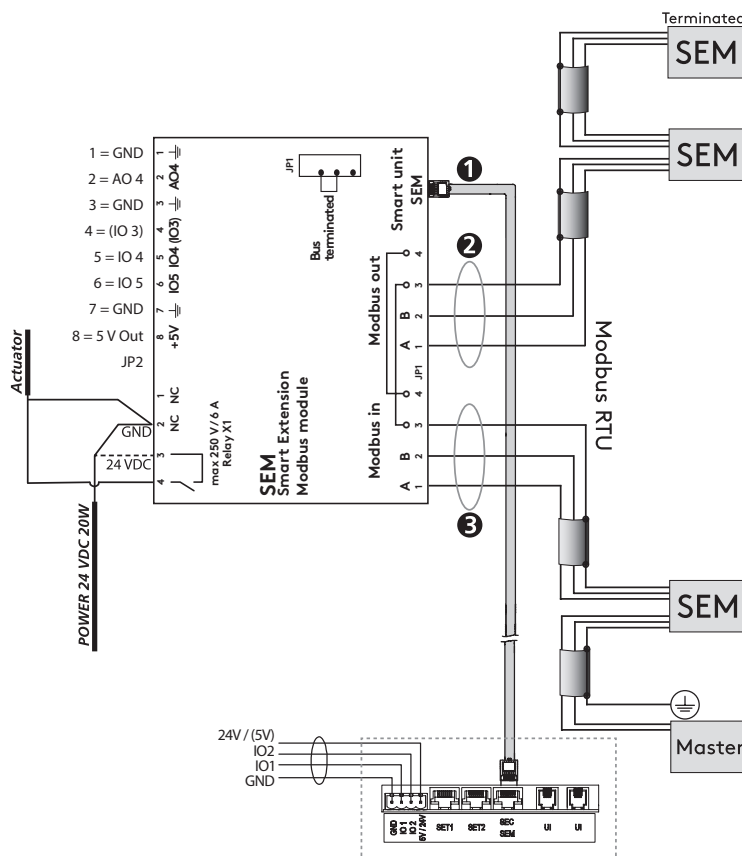
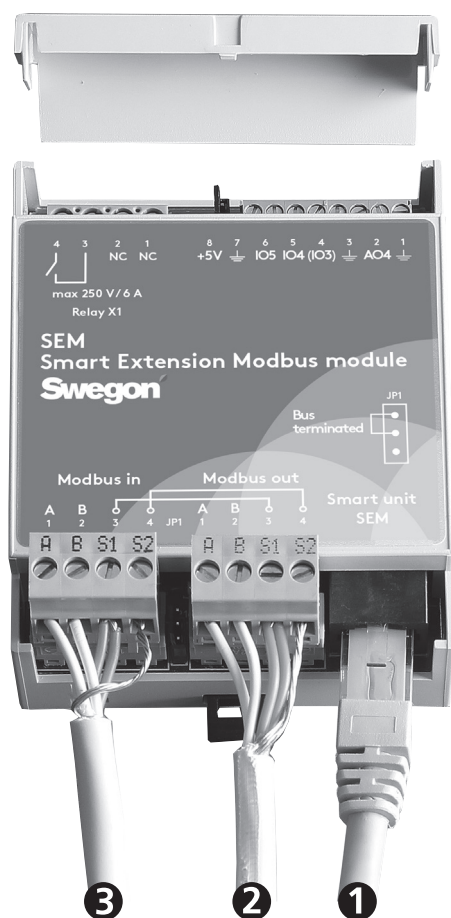


# SEM – Smart Modbus Extension Module



## Description

The product offers the possibility to easily install external control functions and accessories for the CASA Smart ventilation unit.

There is a built-in Modbus RTU connection on the CASA Smart ventilation unit, that can be connected with the help of the SEM Smart Modbus extension module. The SEM module is designed for connection of the unit to an automation network. The module has removable connectors for incoming and outgoing cables (A, B and two protective and ground connections). The SEM module contains a Modbus termination resistance (JP1).

There are three configurable connections (IO3, IO4, IO5), one external relay (IO3) and one analogue output (AO4) in the SEM module.

## Delivery contents

- SEM extension module
- RJ45 cable, 2 m
- Installation instructions

## Accessories

- Power supply 24 VDC 20 W (only for control of actuators) POWER 24 VDC 20 W

## Technical data

### External dimensions:

70 x 90 x 32 mm

## Installation

- Mount the SET module in an appropriate position using screws or on a 35 mm DIN-rail. Connect the SEM module to the ventilation unit's SEC/SEM connection with the supplied RJ45 cable (max. cable length 3 m).
- Connect the Modbus and IO cables to the SEM module as illustrated above.
- Install the termination resistance in the chain's last unit (Modbus termination resistance JP1).
- Ground the Modbus cable screen to a point (in the master). In SEM there are two internally connected plugs for protection and grounding.

**NOTE!** According to national regulations only a qualified electrician may carry out electrical installations.

**NOTE!** If the SET module's relay is used for 230 VACcontrol, the module, according to the electrical safety directives must be installed in a separate enclosure.

**NOTE!** Make sure that the strain relief is arranged for the connections according to the electrical safety directives.

**NOTE!** If the IO3 connection is used as a digital or analogue input, the jumper JP2 must be moved to position IO3.

## Settings for the Modbus connection

The Modbus settings can be modified from the menu. *Settings/(1234)/Modbus.*

Modbus	
Address	1
Baud	38 400
Data bits	8
Stop bits	1
Parity	None
Smart Access	<input type="checkbox"/>

- **Address:** 1...247
- **Baud:** 2 400, 4 800, 9 600, 19 200, 38 400, 57 600, 115 200, 230 400.
- **Data bits:** 8
- **Stop bits:** 1, 2
- **Parity:** None, Odd, Even
- **Smart Access:** Smart Access connected to the SEC/ SEM connection (SEM module not used).

## Use of Modbus

It is possible, via the Modbus interface, to control all functions in the ventilation unit and change its settings. You can also read measurement values and control status in the unit.

Data and control functions can be controlled by means of Modbus registers.

### Register

Some Modbus registers can be used without a password. All predefined registers are PLC addresses (base 1). The registers used most often are listed below. A comprehensive list can be downloaded from Swegon's website.

**Complete list of registers:**

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



## Holding control registers

4x5001	Operating mode	0 = Stop 1 = Away 2 = Home 3 = Boost 4 = Travelling
4x5018	Emergency stop	0 = Disabled 1 = Active 2 = Over pressurising
4x5101	Temperature setpoint	°C
4x5406	Reset all alarms	1 = Reset

## Input registers

3x6201	Fresh air temperature	0,1 °C
3x6203	Supply air temperature	0,1 °C
3x6204	Extract air temperature	0,1 °C
3x6213	CO2	PPM
3x6214	RH	%
3x6217	VOC	PPM eqv.
3x6205	Supply fan RPM	1/s
3x6206	Extract fan RPM	1/s
3x6301	Unit state	0 = Ext. stop 1 = User stop 2 = Start 3 = Normal 4 = Commissioning
3x6302	Operating mode	0 = Stop 1 = Away 2 = Home 3 = Boost 4 = Travelling
3x6136	Combined alarm	See full list
3x6137	Combined info	See full list

## Configuring IO connections

IO connections are configured according to the ventilation unit's Installation, commissioning and service instruction, from the menu *Settings/(1234)/IO-option.*

### Control of the SEM module's relay

The SEM module has a relay for external control functions. Control of the relay occurs by configuring IO3 as a relay output. You choose between the function relay (X1) and IO3 connection using the SEM module's jumper JP2.

**NOTE!** If the IO3 connection is used as a digital or analogue input, the jumper JP2 must be moved to position IO3.