

SE Devices - FMS01

Modular Z-Wave Devices

Installation Manual

Introduction

The SE Devices Modular Z-Wave Devices is a series of components which can be combined to cover several different installation scenarios. Installing a unit consist of combining a Front Unit and Back Unit in a wall mountable frame. The Front Unit provides the User Interface and Z-Wave communication, and the Back Unit provides the Electrical functionality (like Relay or Dimmer). The Devices also support connecting a Room Temperature sensor, to use the device as a Thermostat. Most of the back units also have an NTC temperature input terminal which can be used for Floor Temperature thermostat control.

DISCLAIMER and WARNING

The SE Devices Modular Z-Wave Devices are powered from Mains voltage (230V), and **MUST ONLY** be installed by authorized electricians. Mains Voltage is very dangerous and can cause serious injury or death if mishandled. If the devices are not correctly installed, the devices can in the worst case pose a fire hazard.

SE Devices can **NOT** be held responsible for injuries or accidents resulting from incorrect installation and configuration, or installations performed by unauthorized installers.

The SE Devices units provide a Floor Max temperature setting. This is a safety feature used for protecting wooden floors from overheating, as excessive floor heat can cause wooden floors to warp and eventually crack. **ALWAYS** use a Floor Temperature sensor in installations controlling floor heating for wooden floors, and configure the Floor MAX temperature according to the floor manufacturer recommendation. Due to the fact that the location of a floor sensor may make it impossible to get representable temperature readings for the entire floor surface, it is highly recommended to never set the MAX higher than 25 degrees unless it is absolutely necessary. Due to this same fact, SE Devices can not be held responsible for any damage to heated floors controlled by the thermostat functionality of the devices, even when configuration and installation is technically correct. Always hire professionals to install floors and floor heating, to reduce the risk of damage caused by the heating system.

Device Components

A functioning Z-Wave device is assembled using at least 4 separate parts:

- **Front Units** – Provides the Userinterface
- **Mounting Frame** – Fixes the Front Unit to the wall
- **Back Unit** – Provides the Electrical interface (dimmer or relay), and power for the Front Unit
- **Back Unit Mounting Bracket** – Used to mount the Back Unit in a Wall-box

Optionally the following components can be used for additional functionality:

- **Room Sensor** – Can be fitted to the bottom of a frame, to provide a Room Temperature sensor for the lower Front Unit.
- **Floor Sensor** – Can be fitted to all Back Units except the 1-10V dimmer
- **Cascade Power Connector** – Can be used to power a Front Unit from an adjacent Front Unit, in stead of from a Back Unit.

Front Units

There are currently two Front Units available:

FMS-01 – Multifunction Switch Z-Wave

The Multifunction Switch provides four push buttons which can be configured in 1, 2 or 4-way mode. This allows for controlling up to 4 external Light Zones via the Z-Wave network, In addition to controlling the Local Back Unit functionality. The Front Cover comes in several variants, indicating different use-case scenarios. The Multifunction Switch can also be used as a Room or Floor thermostat, controllable exclusively over Z-Wave.



FWC-01 – Wheel Controller Z-Wave

The Wheel Controller provides a wheel interface backed by four (4) pushbuttons, which can be used to control Light and Dimming. In addition the wheel can be used to manually operate the built in Thermostat functionality. In the center of the wheel there is an LCD display, which provides information about Light and Temperature to the user.



Assembly and Installation

Before assembling and installing a Modular Z-Wave device, you need the following parts available:

- One or more Front Units (FMS-01, FWC-01)
- A Mounting Frame (1, 2, 3 or 4 slots)
- One or more Back Unit with Wall-Box mounting Bracket
- ... or a Cascade Connector to connect to an adjacent unit

Frames available for Installations

There are currently Four (4) different Mounting Frames available from SE Devices. The difference between the Frames is the number of Front Units (Multifunction Switch and Wheel Controller) which can be fitted in one frame. Frames are available for fitting 1, 2, 3 and 4 Units in the same frame.

Back Units for Local Control functionality

Each Front Unit can be combined with ONE back unit, where each back-unit type provides a specific functionality. Back Units also provide Power to the Front unit, and up to 3 Front Units can be powered from 1 single Back unit (using a Front Unit Cascade connector). Currently the Following Back Units are available:

- **BMD01** – SE Devices – Mosfet Dimmer Back Unit
- **BD1-10V01** – SE Devices - 1-10V Dimmer Back Unit
- **BR1P01** – SE Devices – 1-Pole Relay Back Unit (3000W)
- **BR2P01** – SE Devices – 2-Pole Relay Back Unit (1500W)

All available Back Units are compatible with the Multifunction Switch Front unit. The Front Unit will automatically adapt to control the fitted Back Unit device.

Optional Components

Optionally the installation can also include Temperature Sensors and Cascade Power Connectors. The following components can be used in an installation:

- **Room Sensor** – Each frame supports ONE Room Sensor, which is mounted at the bottom of the Frame. The Temperature readings can only be accessed by the lowest Front Unit, which should be considered when installing more than one Front Unit in one Frame.
- **Floor Sensor** – All but one Back Unit supports an NTC temperature sensor to be connected via the Connection Terminal. This can be used to measure the Floor Temperature in setups which controls floor heating. Note that BOTH a floor and room temperature sensor can be used on one and the same device.
- **Cascade Power Connector** – Used to install Front Units without a Back Unit. The Front Unit then gets power via the Cascade Connector. This makes it possible to fit more Front Units than there is room for in the Wall Box. Note that cascaded Front Units can only control external devices via Z-Wave.

Before Installation Begins

Please consider the following before starting the Physical installation:

- If a Room Temperature sensor will be fitted, this **MUST** be connected to the Bottom Unit in a frame. Take this into consideration when mounting devices for Thermostat use.
- If any front Units will be mounted without a Back Unit, these **SHOULD** be placed at the Top part of the Frame. Aligning a Front Unit without a Back Unit in the middle of a frame can be very challenging and should be avoided.
- Up to 3 Front Units can be powered from one Back Unit, by adding a cascade connector between the Front Units. **DO NOT** exceed this number of cascaded devices.
- If both a Room and Floor sensor is to be used in one common room, both sensors **MUST** be connected to the **SAME** unit (Floor sensor to Back Unit, and Room Sensor to corresponding Front Unit).

Installing Back Units

Select a Mounting Frame appropriate for the number of devices which will be installed at one single location (1,2, 3 or 4 unit frame. Make sure all Back Units which should be placed behind the frame is at hand.

Before installation begins, make sure the Mains Power is switched off in the fuse box. Then continue installing each Back Unit in to the wall box, using the following procedure:

1. Attach the metal mounting bracket to the Back Unit. This is done by clipping the Back Unit into the metal bracket. **Make sure the frame attachment hooks are facing outwards.**
2. Pull out the Cable Terminal Plug from the Back Unit.
3. Connect the two terminals marked MAINS to the L and N mains wires. The devices must have constant power in to these two terminals in order to operate.
4. Connect the Load wires to the two terminals marked LOAD. Please note that the N terminal is a pass through from the MAINS N connection in all Back Units except the 2-Pole Relay (which breaks both the N and L wires).
5. Then depending on the Back Unit Type:
 - a. **1 - Pole Relay (3000W) and MOSFET Dimmer:**
Optionally connect an Analog NTC External Floor Sensor to the NTC input terminals.
 - b. **2 – Pole Relay (1500W)**
Optionally connect a Digital External Floor Sensor to the DIG input terminals. Make sure the polarity is correct.
 - c. **1-10V Dimmer**
Connect the 1-10V output terminals to the 1-10V inputs of the controlled 1-10V light fixtures. Make sure the polarity is correct.
6. Plug the terminal connector back into the Back Unit, and place the device in to the wall box. The 16-pin connector should be at the TOP of the Unit. Fix the unit in place using the mounting screws in the Wall box.

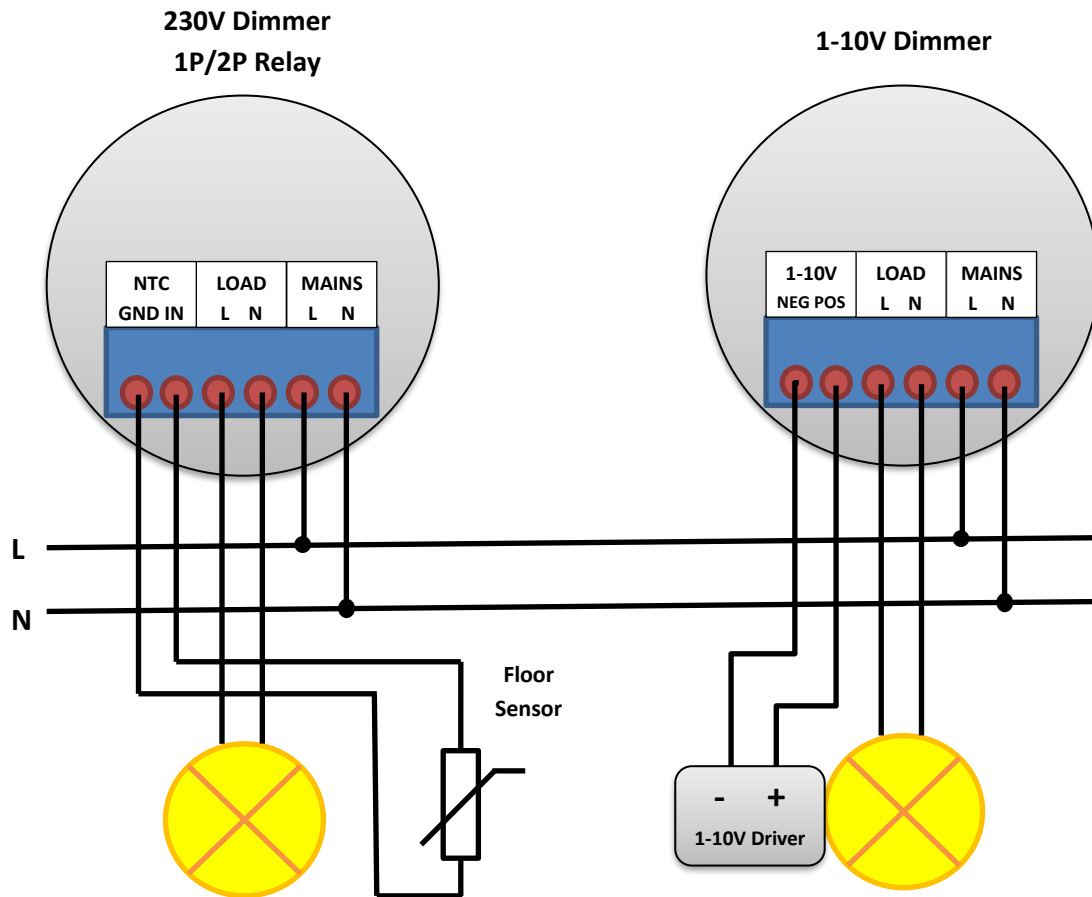
Repeat this procedure for all Back Units.

When all Back Units are fitted in their respective wall boxes, clip the frame in place. Make sure all Back Units are correctly aligned (the alignment notches are perfectly interconnected). The Frame will not click into place if one or more Back Units are out of alignment. Note that any Front Units without a Back Unit should be placed at the Top of the Frame if possible, as this is the easiest way to install them.

When the frame is in place, the Font Units can be fitted.

Wiring Diagram

The Back Units should be wired according to this diagram.



Installing Front Units

When the Back Units and Frame is in place, Front Units can be installed. If multiple Front Units are installed in the same frame, **always start with the lower Front unit first, and work your way upwards.**

Install Front Unit with a Room Sensor

If the first Front Unit will have a Room Sensor connected, begin with installing the sensor on the Frame:

1. Remove the Connector from the Room Sensor.
2. Click the Room Sensor in place at the bottom of the frame. The Black Part should face the wall.
3. Connect the Sensor Connector to the plug to the Left at the Lower Edge of the Front Unit. The 16-pin connector at the Back Should be at the Top part of the Unit.
4. Put the lower part of the Front Unit at a slight tilt angle in to the lower part of the frame, and push the unit down (keeping it slightly tilted) to connect it to the Room sensor. Make sure the front reaches the bottom of the frame inner rim.
5. Then push on the Center of the Front Unit to clip it into place in the frame. You should hear a click when the Front attaches to the Frame.

Install Front Units with a Back Unit

Follow this procedure for any Front Units which will be installed with a Back Unit which provides power and local functionality. It assumes that the Back Unit(s) and Mounting frame is already mounted.

1. Place the Lower part of the Front Unit at a slight tilt angle into the frame. Make sure that it touches the lower part of the frame rim or any already mounted Front Units. The 16-pin connector at the Back should be at the Top part of the Unit.
2. Push the middle of the unit in to the frame until it clicks into place. You should hear two slight clicks when the unit attaches to the frame.
3. Make sure the device sits tightly in the frame, and that it does not move.

Install Front Unit without a Back Unit (using a Cascade connector)

To use this configuration, it is required that one Front Unit is already mounted with a Back Unit. Up to 3 devices can be powered from one Back Unit (including the device on top of the Back unit). Before you begin installing, make sure you have the necessary Cascade connectors available.

1. Connect the Cascade Connector to the plug to the Left at the Lower Edge of the Front Unit. The 16-pin connector at the Back Should be at the Top part of the Unit.
2. Put the lower part of the Front Unit at a slight tilt angle in to the lower part of the frame, and push the unit down (keeping it slightly tilted) to connect it to the existing Front Unit. Make sure the Front reaches the edge of the existing front Unit.
3. Then push on the Center of the Front Unit to clip it into place in the frame. You should hear a click when the Front attaches to the Frame.

Disassembling installed units

In case a part of the modular unit needs replacement or changes, it is necessary to disassemble the unit. Note that the following procedures should ONLY be executed by a certified electrician, as the unit is connected to mains voltage.

Before you begin disassembly, make sure the mains power is turned off in the fuse cabinet. Failing to do so may result in an electric shock, which may result in personal injury or death!

Disassembly is done by executing the following steps in order.

Remove the Front Unit

If more than one device is mounted in the same frame, always start with the Topmost Unit and work your way down. Attempting to remove lower units first may damage devices using a Cascade Power supply inter-connector.

To remove the Front Unit, you need a thin plastic card. Insert the short edge of the plastic card in between the Right edge of the Front Unit and the Frame, and push it down flat. The Front Unit mounting clip on the Right edge will unlock, and the Front Unit should detach when the card is slowly pulled out.

Then repeat the same procedure on the Left side of the Front Unit, to completely free it from the Frame mount.

If the Front Unit is attached to a Room Temperature Sensor or another Front Unit (via a Cascade Power Connector) at the bottom, the front Unit will still hang in the plug at the bottom. Pull the Top part of the Unit outwards until it clears the Top edge of the Frame. Then pull the front unit upwards to free it from the bottom connector.

Please note that if multiple Front Units are connected together using a Cascade Power Connector, the upmost Front Unit must be removed first. Then continue to remove Front Units from top to bottom as described above. Attempting to remove the lower Front Units first may cause the unit to be damaged if force is applied.

Remove the Frame

Using a small flat head screwdriver, gently lift the Lock hook found at the center of the lowest part of the frame. Then pull the frame gently upwards to free it from the mounting hooks in the underlying metal frames.

Remove the Back Unit from the wall box

Completely unscrew the mounting screws from the metal frame of the Back Unit to remove. Then gently pull the metal frame out from the wall box, making sure the connected wires comes free. If many devices are installed in the same wall box, it may be necessary to unscrew other units in order for the wires to be possible to reach.

Then pull the wires while holding the Back Unit and frame to disconnect the plug from the Back Unit.

Remove the Wires from the Mains Connector

Use a small flat head screwdriver, and firmly push down the orange release mechanism above the wire. Pull the wire gently to free it from the Connector. Repeat until all wires are free from the Connector.

Remove the Back Unit from the metal frame

Using a small flat head screwdriver, push the locking clips out from the metal frame and gently bend the frame to release it from the locking clip. Repeat the procedure for all 4 locking clips in order to free the back unit completely from the frame.