

## Installation Guide

# DEVIreg™ Smart

Intelligent Electronic Timer Thermostat or Timer  
Switch with Wi-Fi connectivity and App control

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

**DEVI**®   
by Danfoss

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## 1 Introduction

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DEVIreg™ Smart is an electronic programmable timer thermostat used for controlling electrical floor heating elements. The thermostat is designed for fixed installation only and can be used for both direct heating of the entire room and for comfort heating of the floor. Among others, the thermostat has the following features:

- A touchscreen display with light.
- An easy-to-follow menu-driven programming and operation (requires an app).

- An installation wizard with room/floor type-specific setup (requires an app).
- Support for multiple frame systems.
- Compatible with several 3rd party NTC sensors.
- Thermostat settings can be specified before installation and imported to the thermostat using a web-generated code (For DEVIreg™ Touch), or copied from a thermostat in a similar installation. This includes DEVIreg™ Touch thermostats.
- Smart access via app to thermostat settings after installation, for easy access, setup or remote troubleshooting. Thermostat/timer will continuously be updated with newest version of software.
- DEVIreg™ Smart can be used as a switch for On/Off systems

#### Regarding Connectivity:


- 10 smart devices (like Smartphone or Tablet) can be connected to 1 thermostat/switch.
- 2 smart devices can be in contact with the thermostat/switch at the same time.

**DEVIREG™ SMART REQUIRES WORKING Wi-Fi TO FUNCTION .**

More information on this product can also be found at:  
[devismart.com](http://devismart.com)

## 2 Technical Specifications

|  |   |
|--|---|
| Operation voltage  | 220–240 V~, 50/60 Hz  |
| Standby power consumption  | Max. 0,40 W   |
| Relay:<br>Resistive load<br>Inductive load                       | Max. 16 A / 3680 W @ 230 V<br>Max. 1 A $\cos \varphi = 0,3$   |
| Sensing units*   | NTC 6,8 kOhm at 25 °C<br>NTC 10 kOhm at 25 °C<br>NTC 12 kOhm at 25 °C<br>NTC 15 kOhm at 25 °C (Default)<br>NTC 33 kOhm at 25 °C<br>NTC 47 kOhm at 25 °C |
| Sensing values*:<br>(Default NTC 15 K)<br>0 °C<br>20 °C<br>50 °C | 42 kOhm<br>18 kOhm<br>6 kOhm  |
| Control*   | PWM (Pulse Wide Modulation)   |
| Ambient temperature  | 0 °C to 30 °C   |
| Frost protection temperature*                                    | 5 °C to 9 °C (default 5 °C)   |

|                                |  |
|--------------------------------|--|
| Temperature range*             | Room temperature: 5 °C to 35 °C.<br>Floor temperature: 5 °C to 45 °C.<br>Max. floor: 20 °C to 35 °C (if unrecoverable seal is broken then up to 45 °C).<br>Min. floor: 10 °C to 35 °C, only with combination of room and floor sensor. |
| Sensor failure monitoring*     | The thermostat has a built-in monitoring circuit, which will switch off the heating if the sensor is disconnected or short-circuited.  |
| Timer functions                | 2 periods per day for DEVIweb™.<br>5 periods per day for DEVIsmart App.<br>All clock/date/schedule settings are updated from the cloud.<br>Set-point resolution of timer is 30 minutes.  |
| Cable specification max.       | 1x4 mm <sup>2</sup>  |
| Ball pressure test temperature | 75 °C  |
| Pollution degree               | 2 (domestic use)   |
| Controller type                | 1C   |
| Software class                 | A  |
| Storage temperature            | -20 °C to +65 °C   |
| IP class                       | 21   |
| Protection class               | Class II -    |

|            |  |
|------------|--|
| Dimensions | 85 x 85 x 20-24 mm<br>(in-wall depth: 22 mm) |
| Weight     | 127 g  |

*\* not relevant for switch function*

Electrical safety and Electro-Magnetic Compatibility for this product is covered by the compliance with the EN/IEC Standard "Automatic electrical controls for household and similar use":

- EN/IEC 60730-1 (general)
- EN/IEC 60730-2-7 (timer)
- EN/IEC 60730-2-9 (thermostat)

### **3 Safety Instructions**

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Make sure the mains supply to the thermostat/switch is turned off before installation.

**Important:** When the thermostat is used to control a floor heating element in connection with a wooden floor or similar material, always use a floor sensor and never set the maximum floor temperature to more than 35 °C.

**Please also note the following:**

- The installation of the thermostat/switch must be done by an authorized and qualified installer according to local regulations.

- The thermostat/switch must be connected to a power supply via an all-pole disconnection switch.
- Always connect the thermostat/switch to continuous power supply.
- Do not expose the thermostat/switch to moisture, water, dust, and excessive heat.
- This thermostat/switch can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge, if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved, by a person responsible for their safety.
- DEVIreg™ Smart can be modified to work as a timer on/off switch by downloading new software with new functionality.
- Children should be supervised to ensure that they do not play with the thermostat/switch.
- Switch is designed for permanent operation.
- Not for fluorescent lamps and filament lamps.
- Cleaning and user maintenance shall not be made by children without supervision.
- Updating to timer switch function may take up to 1 hour. Same time should be expected if function is to be rolled back to thermostat functionality.

## 4 Mounting Instructions

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**Please observe the following placement guidelines:**



Place the thermostat at a suitable height on the wall (typically 80–170 cm). Switch can be placed on free area on the wall.



The thermostat/switch should not be placed in wet rooms. Thermostat/switch must be placed outside zone 2. Place it in an adjacent room and use floor sensor only. Always place the thermostat/switch according to local regulation on IP classes.



Do not place the thermostat on the inner side of a poorly insulated exterior wall.



Always install the thermostat at least 50 cm from windows and doors, due to draft, when using regulation in: floor and room mode or room alone mode.



Do not place the thermostat in a way that it will be exposed to direct sunlight.



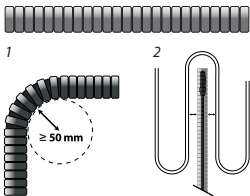


**Note for thermostat:** A floor sensor is recommended in all floor heating applications and **mandatory** to thin mats and under wooden floors to reduce the risk of over-heating the floor.

- Place the floor sensor in a protecting plastic conduit in the floor construction in an appropriate place, where the floor is not exposed to sunlight or draft from door openings.

- Equally distant and >2 cm from the heating cables on both sides.

- The conduit should be flush with the floor surface, countersink the conduit if necessary and possible.

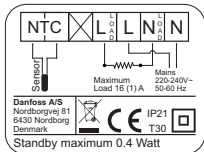


- Route the conduit to the connection box.
- The bending radius of the conduit must be min 50 mm.

## Follow the steps below to mount the thermostat/switch:

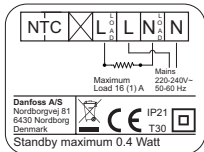
1. Unpack thermostat/switch.
- 2.1. Connect the thermostat according to the connection diagram.

The screen of the heating cable must be connected to the earth conductor of the power supply cable by using a separate connector.



**Note:** Always install the floor sensor in a conduit in the floor.

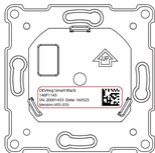
- 2.2. Connect the switch according to the connection diagram.



3. Fasten the thermostat/switch firmly to a flush mounted wall box or an exterior wall box by driving

the screws through the holes in each side of the thermostat/switch.

4. Add the frame before assembling of top part to the snap locks/bottom part.
5. Click the front part module in place. Pay attention, in relation to the female header, in not to bending the connectors. Press carefully until the frame is fixed against the rubber gasket.



**Important:** Do NOT press in the center of the display screen.

When mounting and reassembling the thermostat/switch.

Press your fingers under the top of the front part and pull toward you until it releases from the snap lock:



To ensure that the batteries are fully charged, the thermostat/switch shall be connected to main supply for minimum 15 hours.

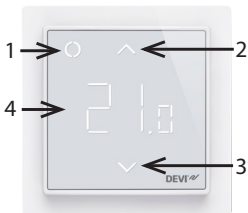
All other settings are stored permanently.

## 5 Display Symbols

Top part main functionalities are to support user interface through display and hold all the controller logic.

Display main functionalities are to show the current status of the thermostat/switch and recognize the user actions from the buttons. Display consists of different buttons, numbers and symbols.

### Thermostat



### Switch



| Nr. | Type          | Description   |
|-----|---------------|---|
| 1   | Button/Symbol | Control button  |
| 2   | Button/Symbol | Arrow Up button   |
| 3   | Button/Symbol | Arrow Down button   |
| 4   | Symbol        | Thermostat function: 3 digit 7 segment numbers with comma separator for temperature indication. Timer switch function: "On"/"Off" text. |

## Symbol indications

| Indication         | Mode/State        | Description  |
|--------------------|-------------------|--|
| Blue - blinking    | Access Point Mode | Thermostat/switch ready for set-up                             |
| Blue               | Access Point Mode | Smart phone connected directly to thermostat/switch for set-up |
| Red - blinking     | Fault state       | Displays Error code  |
| Red - slow pulsing | Active Mode       | Indicating heating the floor (Relay on)                        |
| Green - constant   | Active Mode       | Thermostat/switch active and connected to Wi-Fi (Relay off)    |

|  |                                 |  |
|--|---------------------------------|--|
| Green – blinking                       | Active Mode & Access Point Mode | Thermostat/switch waiting for confirmation of action |
| Arrows – blinking rapidly when touched | Active Mode                     | Safety lock is on                                    |

### Interaction directly on thermostat

| Function                   | Button  | Description   |
|----------------------------|---|---|
| Turn thermostat/switch on  | 1. Touch any button<br>2. Touch control button (1)          | Thermostat/switch turn on and display temperature or On/Off states                    |
| Turn thermostat/switch off | 1. Touch any button<br>2. Touch and hold control button (1) | Thermostat/switch display will turn on<br>Thermostat switch count down and switch off |
| Adjust set-point           | Up (2)  | Overrule timer and switch on/temporary set point                                      |
|                            | Down (3)  | Overrule timer and switch off/temporary set point                                     |

|                  |   |  |
|------------------|---|--|
| Frost protection | Touch and hold Control (1) for 1 sec.   | Deactivate frost protection            |
| Safety lock      | Touch and hold Up (2) + Down (3) for 3 sec.   | Activate/Deactivate safety lock        |
| Factory restore  | Touch and hold Control (1) + Up (2) for 5 sec.<br>After that touch Control (1) again to confirm | Activates factory restore state        |
| Away mode        | Touch and hold Control (1) for 1 sec. to deactivate Away mode                                   | Activate/Deactivate Away/Vacation mode |

## Error codes

When the error occurs and is resolved, the thermostat, in some cases, will require a restart to start heating again.



| <b>Error type</b>                   | <b>Nr.</b> | <b>Description</b>                                | <b>Solution</b>                  | <b>Need restart</b>  |
|-------------------------------------|------------|---|----------------------------------|--|
| <b>Floor Sensor disconnected</b>    | E1         | Connection to sensor is lost                      | Contact service                  | The thermostat requires a restart to operate again.  |
| <b>Floor Sensor short-circuited</b> | E2         | Sensor short-circuited                            | Contact service                  | The thermostat requires a restart to operate again.  |
| <b>Thermostat overheated</b>        | E3         | Thermostat is overheated, heating is turned off   | Wait until thermostat cools down | The thermostat requires no restart, but will start heating when the temperature is lowered |
| <b>Unrecoverable error</b>          | E4         | Room temperature sensor value too high or too low | Contact service                  | The thermostat requires a restart to operate again.  |

## Communication Error Codes

| <b>Communication error</b>    | <b>Nr.</b> | <b>Description</b>  |
|-------------------------------|------------|---|
| <b>Wrong SSID or password</b> | C1         | STA trying to connect to the AP                                       |
| <b>No IP address</b>          | C2         | STA - connection acquired, no IP yet, waiting for configuration data. |
| <b>No internet connection</b> | C3         | STA connected and has an IP from DHCP server.                         |

## 6 Configuring

### Download App

Download the DEVIsmart™ app from App Store or Google Play or at [devismart.com](http://devismart.com).



Find Wi-Fi name and password for the Wi-Fi network, that you would like to connect your thermostat/switch to. If in doubt contact network administrator or internet service provider.

Identify your floor sensor type ( in kOhm).

Identify your installed output (in W), from label on the heating element/equipment.

Power on the thermostat, and it will show “-” in the display. Then it is ready to be configured using your iPhone and Android device.



Open the DEVIsmart™ App. Follow instructions and set-up flow in the App.

### DEVIreg™ Smart indication

The DEVIreg™ Smart shows “-” indicating that power is ON, but still need to be configured.

## 7 Settings

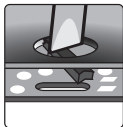
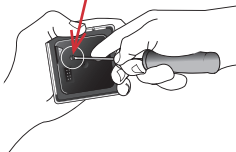


### IMPORTANT DURING THERMOSTAT SET-UP

Select whether only a floor sensor or a combination of room and floor sensor should be used.



A “room only” option is also available, but requires that you have to break the small plastic seal and the seal in the print board below, on the back of the display module, e.g. using a screwdriver; reset is needed; it will be possible to set the



maximum floor temperature up to 45 °C. Furthermore, it will be possible to use only a room sensor. However, this option is not recommended due to an increased risk of overheating the floor.

**IMPORTANT:** When the thermostat is used to control a floor heating element in connection with a wooden floor or similar material, always use a floor sensor and never set the maximum floor temperature to more than 35 °C.

**Note:** Please contact the floor supplier before changing the maximum floor temperature and be aware of the following:

- The floor temperature is measured there, where the sensor is placed.
- The temperature of the bottom of a wooden floor can be up to 10 °C higher than the top.
- Floor manufactures often specify the max. temperature on the top surface of the floor.

| <b>Thermal resistance<br/>[m<sup>2</sup>K/W]</b> | <b>Examples of<br/>flooring</b>                  | <b>Details<br/>kg/m<sup>3</sup></b> | <b>Approximate set-<br/>ting for 25°C floor<br/>temperature</b> |
|--|--|-------------------------------------|---|
| 0,05   | 8 mm HDF based laminate                          | > 800                               | 28 °C   |
| 0,10   | 14 mm beech parquet                              | 650 – 800                           | 31 °C   |
| 0,13   | 22 mm solid oak plank                            | > 800                               | 32 °C   |
| < 0,17   | Max. carpet thickness suitable for floor heating | acc. to EN 1307                     | 34 °C   |
| 0,18   | 22 mm solid fir planks                           | 450 – 650                           | 35 °C   |

## **IMPORTANT DURING SWITCH SET-UP**

To use the switch function, it requires that you have to break the small seals on the back of the display module, e.g. using a screwdriver, by the same actions as described for thermostat.

## 8 Warranty

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The products will, in the event of a fault that can be tracked back to a manufacturing defect in the DEVI product, be repaired or replaced free of charge. To apply for this warranty the installation must be performed by an authorized installer and the warranty certificate has to be stamped, signed and provided. For more details read our warranty terms and conditions.

## **9 Radio Equipment Directive**

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### **SIMPLIFIED EU DECLARATION OF CONFORMITY**

The simplified EU declaration of conformity referred to in article 10(9) shall be provided as follows:

Hereby, Danfoss A/S declares that the radio equipment type i.e. DEVIreg Smart is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address: **[devi.danfoss.com](http://devi.danfoss.com)**



## 10 Disposal Instruction

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