Devireg 700 series thermostats

Devireg 700 series thermostats are a universal control system used for the regulation of floor heating systems. By monitoring both the climatic conditions and floor temperatures only the exact amount of energy is delivered to charge the floor.

The 700 thermostats are designed to operate on low tariff periods. Alternatively they are supplied via a time clock simulating a low tariff period, this option enabling loads to be off-set reducing the maximum demand of the installation.

As these thermostats are self-learning and programming it is important that once the system is connected and livened no adjustments are made for a period of two to three days. This allows the thermostats to adjust themselves to the climatic conditions, learn what times the heating is set to operate and gives the floor a minimum of two charge periods. Remember, when a floor is activated for the first time it may take two to three charge periods to reach the set temperature for that room depending on the water content of the slab and surrounding temperatures.

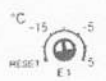
Once the system is operating the following are a basic list of adjustments for the thermostats. Please read these in conjunction with those supplied with the thermostats.

Adjustments

Moon adjustment.
This adjusts the amount of energy delivered to the floor during the longest charge period, usually the night, e.g. 11.00pm to 7.00am. This adjustment giving the desired temperature for the day.

Sun adjustment.
This adjusts the amount of energy delivered to the floor during the shortest charge period, usually the day, e.g. 2.00pm to 4.00pm. This adjustment giving the desired temperature for the remainder of the day and into the evening.

E6 Setting.
This is the maximum temperature of the floor. For example if set to 50°C the heating will shut down during the charge period when this temperature is reached or when the desired charge is delivered as decided by the setting of the moon or sun adjustment. This is **not** the actual floor temperature maintained.



E1 setting.
This is the setting which the charge to the floor is decided upon. For North Island applications this is set to +5°C. This setting should **not** be adjusted unless advised by Devi or a Devi representative.

Indication lamps

- ☾ This light is on when the controllers register the night charging period.
- ≋ Shines green when the heat in the floor is less than the E6 setting and a charge is not being delivered to the floor.
- ≋ Shines red when the heat in the floor is less than the E6 setting and the charge in the floor is being delivered. E.g. the heating is on.
- ≋ No light shows the heat in the floor is equal to or greater than the E6 setting.

- ☾ ≋ A blinking or flashing lamp indicates an alarm or possible fault. These are explained in the booklet supplied with the thermostats, please contact Devi or the installer.

Briefly

Should a warmer temperature be required increase the moon adjustment clockwise. If an afternoon charge is available and it is the evening temperature that is required to be warmer increase the sun adjustment.
Alternatively should a lower temperature be required lower the moon and/or sun setting by turning the dial counter-clockwise.

Remember, once any adjustments are made it will take a minimum of 24hrs before these alterations are met. **Do not continually adjust the thermostats daily**, they are a set and forget system.

devireg® 700/750/751/752/753/754/

General product description.

The **devireg®** 700 - 754 series is a universal control system used in the regulating of systems for floor storage heating.

The **devireg®** 700 - 754 series automatically adjusts itself to low tariff periods.

The **devireg®** 700 - 754 is a series of electronic controls designed to save energy and regulate floor heating during low tariff periods in connection with the outside temperature and the quantity of stored heat in the floor. As a result of this only the exact required amount of energy is used.

The **devireg®** 700- 754 series is designed to be mounted on DIN rails.

Areas of usage

DEVIREG® 700

devireg® 700 is a central control unit which via a sensor continuously measures the outdoor temperature and compensates for the wide variation of climatic conditions which are typical of Spring and Autumn. It uses the information it receives from the climatic conditions outside to make statistical calculations and regulate the other **devireg®** units in the 700 series with which it is connected.

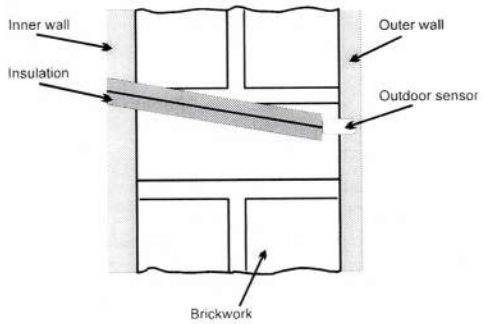
As **devireg®** 700 is the centre control unit, all other **devireg®** units in the 700 series are dependant on being connected with it.

The **devireg®** 700 can be connected with up to 100 **devireg®** 751 and/or 752 and/or 753 and/or 754 which means it has a total capacity of controlling up to 400 individual rooms.

Installing devireg® 700

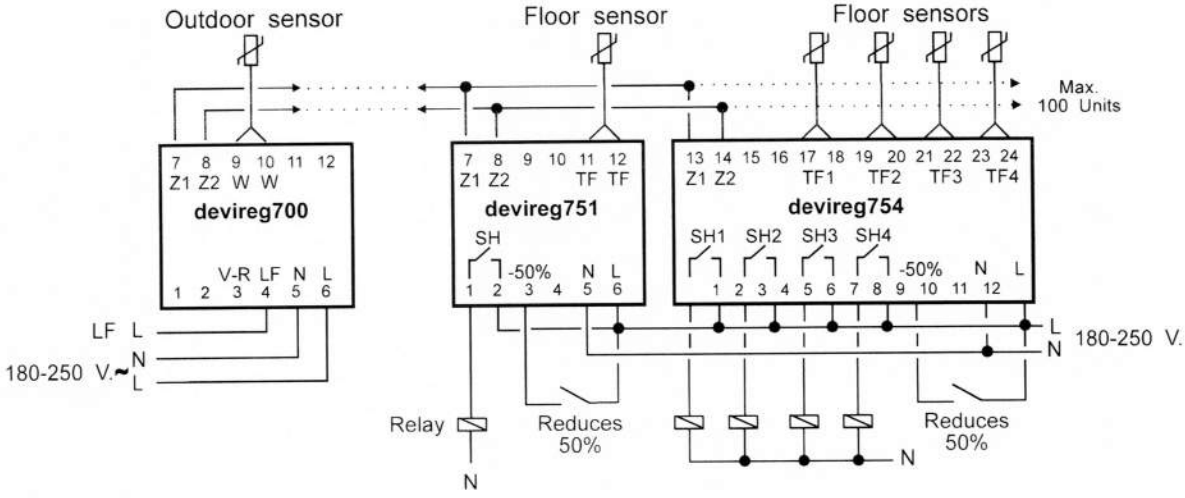
devireg® 700 can be mounted on a DIN rail, in a fuse box cupboard or similar place.
The outdoor sensor has a length of 4 m. and the indoor sensor has a length of 4 m. Both sensors can be extended up to 50 metres.

Installing the out-door sensor
The out door sensor should be mounted at a minimum height of 2.5 m. from the outside ground level. It is an advantage if it can be installed on the same side as the living room. If these are located in different positions of a building, one should choose between a North or a South facing wall, (Europe only).
The sensor should be installed flush on the surface of the outer wall.



Installing the indoor sensor
The indoor sensor,(which is provided with all units in the **devireg®** 700 series except the **devireg®** 700), should be positioned in the centre at the open end of a cable loop and on the same level as the cables. The sensor should be protected with conduit and the end of the conduit must be sealed to avoid any concrete entering during casting.

connecting devireg®



LF: The LF phase indicates the low tariff period. It is not important which wires are connected to which phase as long as there is a difference in voltage, between terminal 4 and 5.

V-R: The phase on terminal 3 is used to change to continual regulating during a low tariff period. It is not important which wires are connected to which phase as long as there is a difference in voltage, between terminal 4 and 5.

Comm. These are communication outputs to sub-units which can be coupled with **devireg®** 751, 752, 753, 754. With **devireg®** 700, up to 100 units can be connected.

The outward signal is a pulsating constant current of approx. 12 V. where the pulse varies from 0 to 25 seconds depending on the temperature, the E1 setting, the low tariff period and the time of the day.

devireg® controls

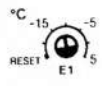
The consumption of energy during the night time can be changed from + - 30% with this control button.

The consumption of energy during the day-time can be changed from + - 30% with this control button.

End temperature: With this control button one sets the floor temperature so that the storage heat in the floor is kept at an appropriate temperature in accordance with the out side temperature.

A GUIDE FOR SETTING THE CONTROLS OF E6

Installed effect	Surface	E6 setting °C
120 to 149 W/m	Ceramic Carpet Well insulated	35 40 45
150 to 170 W/m²	Ceramic Carpet Well insulated	40 45 50
over 170 W/m²	Ceramic Carpet Well insulated	45 50 55



Fully charged: This is the control which is set to the outside temperature to ensure a full charge.
To start with, one sets the heating system to the designed temperature.
Example:-

E1 is set to -1°C This means that with an out side temperature of - 1°C and a tariff system of perhaps 8 + 2 hours, the indoor temperature will be maintained at 20°C.

RESET E1 is turned to the right.
The built in 24 hour clock and all of the controls are set to zero. The next low tariff period will be registered as a night period. The reset function is delayed by approximately 2 seconds. When the system is in RESET, the control light ☾ blinks on and off.

☾ The control light is on when the built in clock registers the night period.

♨ The control light shines green when the heat in the floor is less than 100% and the out-put relay is not activated.
The temperature for 100% is set with E6.

♨ The control light shines red when the warmth in the floor is less than 100% and the out-put relay is activated.

♨ The control light is turned off when the heat in the floor is 100%.

Alarm function

Floor sensor

When short circuited or disconnected, ♨ flashes rapidly and the relay is cut off.

Outdoor sensor

When short circuited or disconnected, ☾ flashes rapidly and the relay is cut off.

Comm.:

When the communications wire short circuits, ☾ flashes rapidly and the relay is cut off.

Low tariff guard.

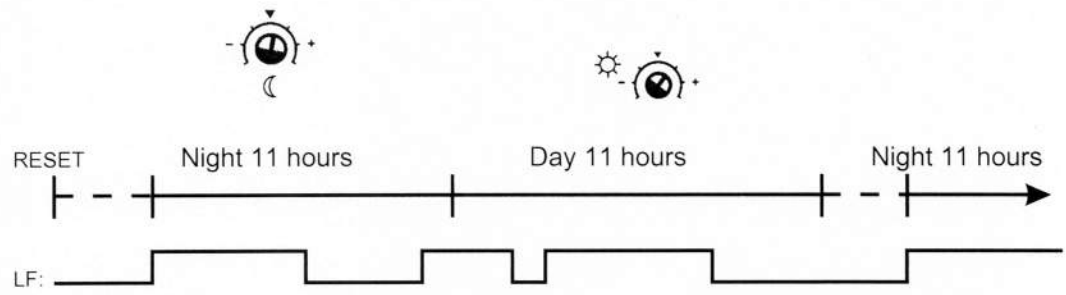
If the LF signal lasts more than 16 hours without pause or if the low tariff period differs with more than two hours from the previous day, the relay will be cut off and ☾ will blink rapidly.

Function

Continual regulating.
When continual regulating has been chosen, the floor temperature will be regulated during the whole low tariff period. The heat will be turned on at the same time as the low tariff period starts. Depending on the out side temperature and the floors storage heat ,the heat will be turned off. Continual regulating is used when low tariff periods vary in time and length from day to day or when the night and day time tariffs are identical.

The reset function is used to synchronise the 24 hour inbuilt clock. After resetting, the night period will start, lasting 11 hours. After this the day period starts which also lasts 11 hours. The remaining 2 hours are used to wait for the low tariff period which will synchronise the inbuilt clock.

V-R = Continual control



Set back

When the set back has been chosen, the time at which the heating would otherwise be turned on is delayed so that it is turned off at the same time as the low tariff period ends. The charging up of the floor and the de-charging are time controlled in ramp form.

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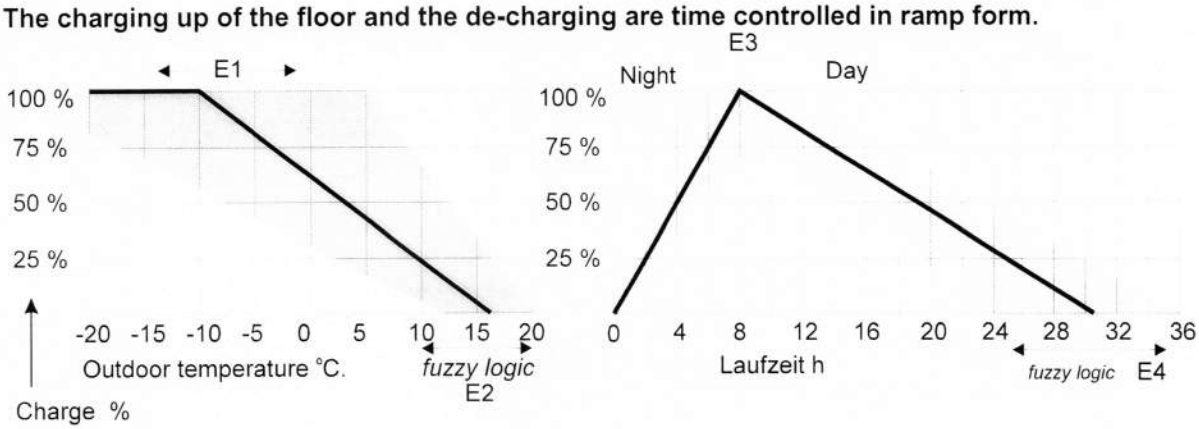


Trouble shooting

1. Check the mains voltage (fuses and HFI circuit breaker).

2. Connect the LF- signal, can be done by short circuiting clamp 5 and 6.

3. Day and night are set to middle.

4. E1 is set to RESET. Then the inbuilt clock is set to 0 and the calculated energy consumption is set to 50%.

5. E6 is set to maximum, (60°C.). If the floor temperature is less than 40°C. ≡ must flash red and the out-put relay should be activated. If the relay will not activate, adjust NIGHT to maximum. Ensure that there is a voltage to the heating cables.

6. E6 is set to a minimum (20°C.)
If the floor temperature is more 20°C. ≡ flash red and the out-put relay must be de-activated. If the relay does not de- activate adjust NIGHT to a minimum. Ensure that there is no voltage to the heating cables.

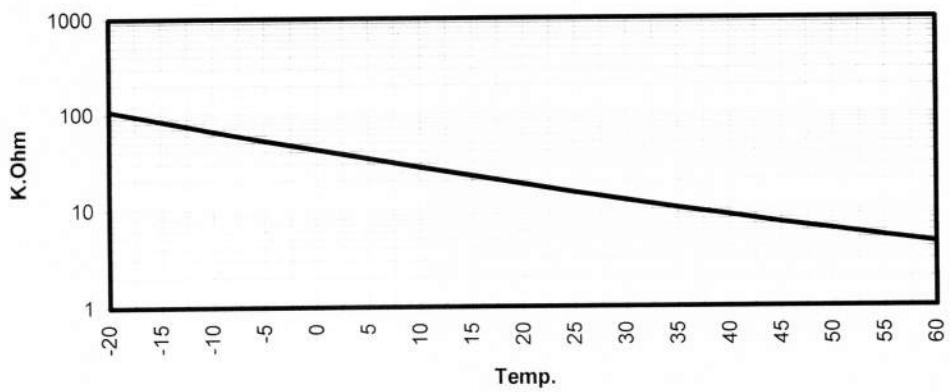
7. The floor temperature can be controlled by setting NIGHT and DAY to their middle positions and turning E1 away from the RESET position. Locate the point at which ≡ changes from off to a green light by adjusting E6. The floor temperature can be seen on the E6 scale. The floor temperature can be seen on the E6 dial.

8. Checking the Comm. out-put:
Measure the voltage between clamps 7 and 8 with a normal voltammeter. The voltage should change between 0V and approximately. 12 V. When E1 is set to RESET there should be about. 12V. for 8 seconds and. 0V. for 18 seconds.

9. The sensor can be checked with an Ohmmeter in accordance with the below diagram. When short circuited or disconnected the alarm will go off.

Technical data.

NTC Sensor



DEVIREG® 751/750

Voltage	180 - 250 V. ~ 50 - 60 Hz.
Load Inductive I (cos. ϕ = 0.3):	250V. ~ 10 A. 1 A.
Moisture proof:	IP 20
Sensor type	NTC 15 /25°C
Operational temperature	-10 to +45°C
Mounting	DIN rail 35 mm. DIN - EN 50022
Comm. Z1-Z2	0 - ca. 12V. DC. pulsating Max. 100 units

DEVIREG® 700
The same technical specifications as a 750 but without the out-put relay.

DEVIREG® 752
The same technical specifications as a 751 but with an adapter for 2 floor sensors with a load capacity of 8 A. per out-put.

DEVIREG® 753
The same technical specifications as a 752 but with an adapter for 3 floor sensors with a load capacity of 8 A. per out put but with a Max. combined load of 16 A for all three out-puts.

DEVIREG® 754
The same technical specifications as a 753 but with an adapter for 4 floor sensors with a load capacity of 8 A. per out-put but with a Max. combined load of 16 A for all four out-puts.
devireg® 750 is designed to control a single room.
devireg® 750 is a combination of **devireg®** 700 and a **devireg®** 751 which are described in section.....
It can be connected with a floor sensor and an outdoor sensor.