

Lorenzoni Srl
Soc. Unipersonale
Via Molini 98/3
36055 Nove (VI) Italy
P.IVA e C.F. 02872270240
R.I. 02872270240 – R.E.A. 280950

CAVI SCALDANTI – RESISTENZE ELETTRICHE – TERMOREGOLAZIONE
HEATING CABLES- HEATING ELEMENTS – TERMOREGULATION

Tel. +39 0424 502042
Fax + 39 0424 502043
info@lorenzoni-srl.it
www.lorenzoni-srl.it

INSTRUCTION MANUAL

LOR-THERM 355

Cod. 523.0000.100



For the guarantee to be valid, the product must be installed and handled as indicated in this manual. This means it is extremely important that you read the manual. This applies both to the person installing The thermostat and the person who will use it. You will also find technical specifications and information on troubleshooting.



Important The underfloor heating system is an electrical power installation and must therefore be installed in accordance with the current regulations and under the supervision of a qualified electrician.

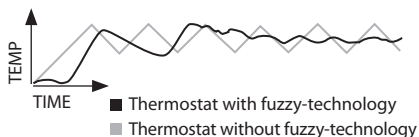
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This is your thermostat

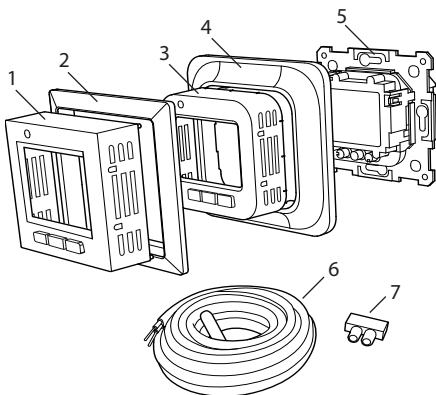
This is a microprocessor-controlled thermostat with LCD display. The display is backlit and stays lit for 30 seconds after the last push of a button. The front is fitted with an LED and three control buttons.

There are a number of temperature reduction programs to choose between for energy-smart heating. There is also the option of basing the programming entirely on your own heating requirements.

Temperature control is done with help of an algorithm that uses fuzzy technology. The technology entails the thermostat testing and collecting data from start-up, and based on this, calculating when to turn on and off. This technology reduces temperature variations and thus provides a more constant temperature and lower energy consumption. The floor temperature varies less than ± 0.3 degrees.



In the box



-
1. Front for Elko and Gira
 2. Adapter for Strömfors frame system
 3. Front for Eljo Trend, Merten
 4. Frame
 5. Thermostat
 6. Floor sensor
 7. Connection clip
- Manual
Quick guide

Installing the thermostat

Important The thermostat must *not* be located somewhere it is exposed to the following:

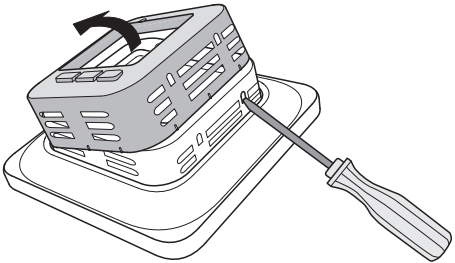
- direct sunlight and draughts.
- extreme fluctuations in temperature or high air humidity.

The floor sensor should be mounted in a spiral hose laid in the floor. The hose endings should be sealed so that the floor sensor can easily be replaced. All tubes leading into the appliance box must be sealed so that the air temperature sensor cannot be affected by draughts.

Installation

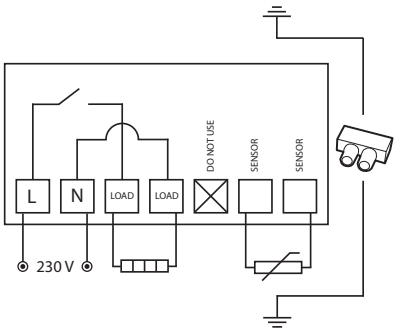
Mount the thermostat in a 65 mm standard appliance box.

1. Make sure the box is level with the wall.
2. Take off the front and frame by pressing in the latch on the right-hand side with a chisel or similar tool, as shown in the illustration.
3. Connect power, voltage 230 VAC, load and any floor sensor cable. Extension to the floor sensor cable must be done with separate cable for power current. Protective conductor for incoming feed and for heating cable



is connected with a connection clip in the box. See wiring diagram below.

4. Insert the thermostat into the appliance box and screw tight with the existing screws.
5. Fit the frame and front.
6. If the thermostat is mounted in a multi-compartment frame, the internal corners of this frame must be removed.



Getting started

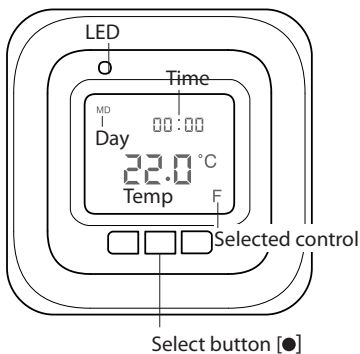
After installation, wait 2-4 weeks before starting the underfloor heating. Exactly how long you wait depends on the type of floor you have and the instructions for the floor putty. Then increase the heat gradually.

There is a quick guide so that you can easily get started with the thermostat. You will find it in the box. The guide describes the most important functions and settings.

In order to adapt the underfloor heating system to your own heating requirements as much as possible, it is important that you read the entire manual.

How the thermostat works

This section describes all you need to know about how the thermostat works. To learn how to enter settings to suit your own requirements, read the section *How to set the thermostat*.



Display

Turn on the LCD display's backlight by pressing any button. The display stays lit for 30 secs after the last push of a button.

When the thermostat is started for the first time the display shows the factory settings as in the illustration. How to

enter personal settings is described in the section *How to set the thermostat*.

There is an explanation of the symbols on the display in the section *Symbols*.

Using the buttons

The buttons are used to raise and lower the temperature as well as navigating the menus.

You access the menus by pressing the select button [●]. Use the arrows to navigate to a menu option and then confirm with ● to select it. The menu system is a scrolling system, in other words you come to all submenus regardless of the direction you start from.


If you want to exit a menu, navigate until the display shows END. Then press the select button ●. You can also wait for 30 secs and the menu will end automatically. How to navigate the menus is described in the section *How to set the thermostat*.

Turning the thermostat off and on

To enter standby mode, keep the select button [●] depressed for 4 seconds. Return to normal mode by depressing ● for another 4 seconds.

The heating is not controlled in stand-by mode. The clock runs as normal and programmed times and temperatures remain in the memory.

Locking the keypad

The keypad can be deactivated to prevent anyone touching the buttons by mistake. This is shown with the lock symbol  in the display.

Press ● and navigate to LOCK. Confirm with ● to lock.

Unlock by holding down both arrows until the key symbol has disappeared.

Temperature

Displaying current temperature (actual value)

Lock the keypad first. Press ●. The light will come on and the current temperature in *the floor* (F) is displayed in small numbers above the desired temperature. This applies if the control function is set on *Floor thermostat*, otherwise the current temperature in *the room* (R) is displayed instead.

The temperature is shown for 30 secs after the last push of a button.

Time and date

Time can be shown in 12- or 24-hour format. The correct day of the week is worked out automatically. The calendar resets itself in leap years and adapts to DST. Read how to set the correct time and date in the section *How to set the thermostat/Time and date*.

Adaptive function

The thermostat has a function which works out when the heating should start to give the correct temperature at the correct time. It is activated on delivery, but can be turned off:

Press ● and navigate to SET. Select with ●. Navigate to AF, select with ●. Navigate between ON/OFF, then confirm with ●.

Ventilation mode

If the room temperature falls by more than 3°C in a single minute, e.g. when airing the room, the ventilation mode is activated. The thermostat will then stop heating for 15 minutes before returning to normal mode. This function is always active.

Delay between turning off and on

There is a built-in delay in order to avoid unnecessary wear and tear on internal components and to extend the life of the thermostat. If you raise the desired temperature so that the thermostat comes on, and then lower it shortly afterwards, it takes 30 sec before it goes off again.

Operation time

The thermostat can display the operation time as a percentage for the last 24 hours and 7/30/365 days.

Press ● and navigate to UTIL. Press ● to select. The display now shows the operation time as a percentage for the last 24 hours. You can then navigate between the operation time as a percentage for the last 7/30/365 days.

LED

The LED allows you to see the current status of the thermostat.

Green light – the thermostat is on and the underfloor heating is switched off.

Red light – the thermostat is on and the underfloor heating is activated.

Flashing green and red light – error indication. The underfloor heating is turned off. The thermostat shows error messages until it is switched off. Find out more under *Error codes*.

No light – the thermostat is switched off or is not getting any power.

Control functions

The thermostat can regulate the temperature in three different ways. This enables the comfort temperature and any flooring temperature requirements to be combined. How you select the function you want is described in the section *How to set the thermostat/Control functions*.

Floor thermostat – A sensor in the floor measures the temperature and then regulates the heating accordingly. If the floor sensor is connected when the thermostat is turned on for the first time, this function is selected automatically. Preset value is 22°C.

Room thermostat – The thermostat has two built-in sensors for measuring the room's temperature and controlling the heating. The control function cannot be selected when the floor sensor is connected.

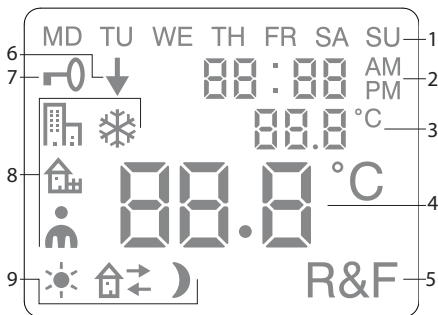
Room and floor thermostat – The built-in sensors regulate the room temperature and the sensor in the floor functions as a floor temperature limiter. The limitation can be set to between 5°C and 45°C. The factory setting of 35°C gives a surface temperature of approx. 27°C. The cut-out temperature can be changed, see the section *How to set the thermostat/Temperature*.

Important

In rooms with large windows that are exposed to solar insolation, we recommend the function *Room and floor thermostat*.

In rooms with wooden flooring, the function *Room and floor thermostat* must always be used.

Symbols on the display



1. Day of the week
2. Time and date
3. Selected menu/Current temp
(*actual value*) °C
4. Set temp (*set point*) °C
5. Selected control
6. Shows that a program is running
7. Lock symbol
8. Program
9. Event functions for personal settings

How to set the thermostat

This section describes how to set your thermostat to suit your requirements. By entering these settings you can adapt the underfloor heating system to your own heating requirements as much as possible.

If you want to find out more on how to navigate the menus or use the keypad, read the section *How the thermostat works*.

Reset

You use the Reset function to make your thermostat revert to default factory settings. All your personal settings will be deleted.

Press and navigate to SET. Select with ●. Navigate to RST and select with ●. Navigate between YES/NO, then confirm with ●. YES deletes the settings, NO returns to the menu.

Light and contrast

Set the light intensity of the LED

Press ● and navigate to SET. Select with ●. Navigate to LED and select with ●.

Navigate between LED L (weak light) and LED H (strong light). Confirm with ●.

Set display contrast

Press ● and navigate to CONT. Press ● to select. The display shows a number between 1 and 8 depending on the current setting. Navigate to regulate the contrast. Confirm with ● when you have achieved the correct level.

Time and date

Set time and date

Press ● and navigate to SET. Select with ●. Navigate to CLK and select with ●.

First set the hours by navigating to the correct time and confirm with ●.

Set the minutes in the same way and confirm with ●.

Set the day, month and year in the same way. Confirm with ●. The correct day of the week is set automatically.

Set time format

Press ● and navigate to SET. Select with ●. Navigate to DISP and select with ●.

Navigate between 12- and 24-hour format. Confirm with ●.

Turn off DST

The calendar switches to DST automatically. This function can be turned off.

Press ● and navigate to SET. Select with ●. Navigate to S and select with ●.

Navigate between ON/OFF, then confirm with ●.

Temperature

Change desired temperature (set point)

Each press of the up or down arrow increases or decreases the temperature by 0.5°C.

Control functions

These are described in more detail in the section *How your thermostat works/Control functions*.

Select control function

Press ● and navigate to SET. Select with ●. Navigate to RNF and select with ●.

The icon for the current function (R, F or R&F) flashes. Navigate between the different options and confirm with ●.

Important R cannot be selected if the floor sensor is connected.

Change cut-out temperature for room and floor thermostat (R&F)

Press ● and navigate to SET. Select with ●. Navigate to OH and select with ●.

The set temperature now flashes on the display. Navigate to the desired temperature and confirm with ●.





Energy saving programs

A smart way to save energy is to adapt the heating to your actual daily requirements and, for example, lower the temperature when the house is empty. There are four program options for temperature reduction in your thermostat: two preset programs for home and office environments, one program which is based entirely on personal settings, and one frost protection program.

You don't need to think about the heating time when you are programming because your thermostat has an adaptive function which takes this into account automatically. Read more about this in the section *How the thermostat works/Adaptive function*.

Start a program

Press ● and navigate to PROG. Select with ●.

The icons , , ,  are displayed. The current program icon flashes. If none of the icons are flashing, no program has been selected. Navigate between the icons.

Select with ● and the program starts. When a program is running the icon is displayed together with ↓.

Stop a program

Press ● and navigate to PROG. Select with ●.

The current program icon flashes. Navigate until none of the icons are flashing and confirm with ●.

Important This does not delete the settings, just starts/stops the program.

Different program options

The two preset programs are suitable for most home and office environments.

Program for home environment

The temperature is automatically reduced by 5°C during the following periods:

Mon – Fri 08:30 – 15:00

Mon – Sun 23:00 – 05:00

Program for office environment

The temperature is automatically reduced by 5°C at all times except for:

Mon – Fri 6:00 – 18:00

Personal settings

Tailor the heating by programming the thermostat yourself.

You can set four events for every day: *wakeup* ☀️, *out* 🏠➔, *home* 🏠← and *night* 🌙). When programming you specify the desired time and temperature for every event.

Preset means that the program runs every day, but you can also programme each day individually.

Press ● and navigate to SET. Select with ●. Navigate to 4E, select with ●. Now you will see ^{MD TU WE TH FR SA SU}. Press ●.


Wakeup ☀️ is shown together with the current time and temperature.

The time flashes. Navigate until you reach the time you want the *wakeup* event to occur. Set hours first and confirm with ●, then repeat for minutes and confirm with ●.

Navigate to the desired temperature for *wakeup*. Confirm with ●.

Out 🏠➔ is shown. Repeat the steps above to set time and temperature.

Home 🏠← is shown. Repeat the steps above to set time and temperature.

Night  is shown. Repeat the steps above to set time and temperature.

If one of the days of the week requires different settings, do as follows:

Press ● and navigate to SET. Select with ●. Navigate to 4E, select with ●. Now you will see ^{MD TU WE TH FR SA SU}. Navigate to the day with the different requirements. Confirm with ●.

Programme the day's four events as per the instructions for *personal settings*. If there are additional days with different requirements, repeat the steps set out above.

Important During the time that the program is active it is still possible to change the desired temperature (set point). When the next programmed event starts, the thermostat reverts to the programmed temperature.

Frost protection program ❄️

This program is ideal for when you want to protect against frost damage in premises which are standing empty or unused for long periods, such as holiday homes and warehouses, or when you will be away from your main home for longer than usual. You set a desired value (set point) and the thermostat

regulates the temperature in line with this. The normal settings remain in the memory and the thermostat reverts to them when the frost protection program is deactivated.

Temperature can be set to a level between 5°C and 15°C, the factory setting is 10°C.

Press ● and navigate to SET. Select with ●. Navigate to FP, select with ●.

The set temperature will flash; navigate to the desired temperature and confirm with ●.

Troubleshooting

Important The underfloor heating system is an electrical power installation and any faults must therefore be remedied by a qualified electrician.

Error codes

When an error occurs, the thermostat will turn off the heating. The LED flashes alternately in red and green. The LCD display shows a flashing error code, while the display shows the following texts:

Error 1: Short circuit room sensor.

Error 2: Interruption room sensor.

Error 3: Short circuit floor sensor.

Error 4: Interruption floor sensor.

Test values for floor sensor

The following values apply when the floor sensor's measurements are checked.

Temperature	Resistance
10°C	18,0 kΩ
15°C	14,7 kΩ
20°C	12,1 kΩ
25°C	10,0 kΩ
30°C	8,3 kΩ

Technical specifications

Voltage	230 VAC-50 Hz
Air temp. range	5-37°C
Floor temp. range	5-37°C
Temp. limiter	5-45°C
Breaking capacity	3600 W/16 A/230 VAC
Main switch	single-pole
Connection cable	max 2.5 mm ²
Load	cosφ= 1
Hysteresis	+/- 0.3°C
Protection class	IP21
Back up time	36 h
Max. length sensor cable	50 m, 2x1.5 mm ²

Approval: CE ©

Accessories

Article	Dimensions (mm)
Extension frame	81x81x29
Sensor cable 3 m (included)	
Back plate, polar white	86x86x6