



User's Guide

DH E RS /BW

Smart Non Programmable
Digital Thermostat for Heated Floors



For further information or to consult this guide online,
please visit www.schluter.com

**WARNING****WARNING**

*Before installing and operating this product, the owner and/or installer must read, understand and follow these instructions and keep them handy for future reference. If these instructions are not followed, the warranty will be considered null and void and the manufacturer deems no further responsibility for this product. **Moreover, the following instructions must be adhered to in order to avoid personal injuries or property damages, serious injuries and potentially fatal electric shocks.** All electric connections must be made by a qualified electrician, according to the electrical and building codes effective in your region. Do NOT connect this product to a supply source other than 120 VAC, 208 VAC or 240 VAC, and do not exceed the specified load limits. Protect the heating system with the appropriate circuit breaker or fuse. You must regularly clean dirt accumulations on or in the thermostat. Do NOT use fluid to clean thermostat air vents. Do NOT use where exposed to water.*

1. Description

The DH E RS /BW non programmable digital thermostat can be used to control heating floors with electrical current – with a resistive load – ranging from 0 A to 16 A at 120/208/240 VAC. It has an easy user interface. It keeps the temperature of a room ( mode) and a floor ( mode) at a requested set point with a high degree of accuracy.

Floor Mode (factory setting)

This control method is ideal in areas where you want a warm floor at any time and when the temperature of the ambient air can be high without causing discomfort. For example, in a bathroom.

Ambient Mode / (you only have to press down the A/F button to switch from one mode to the other)

This control method is ideal when you want a stable ambient air temperature (without fluctuation). Usually, this mode is used in large and often occupied rooms where temperature variations can be uncomfortable. For example, in a kitchen, a living room or a bedroom.

Some factors cause variations in ambient air temperature. They include large windows (heat losses or gains due to outside temperature) and other heat sources such as a central heating system, a fireplace, etc. In all these cases, the  mode will ensure a uniform temperature.

This thermostat is not compatible with the following installations:

- electrical current higher than 16 A with a resistive load (3840 W @ 240 VAC, 3330 W @ 208 VAC and 1920 W @ 120 VAC);
- inductive load (presence of a contactor or relay); and
- central heating system.

Parts supplied:

- one (1) thermostat;
- two (2) mounting screws;
- four (4) solderless connectors suitable for copper wires;
- one (1) floor temperature sensor.

2. Installation

Thermostat selection and sensor location

The thermostat must be mounted on a connection box, at around 1.5 m (5 feet) above the floor level, on a section of the wall exempt from pipes or air ducts.

Do not install the thermostat in a location where temperature measurements could be altered. For example:

- close to a window, on an external wall, or close to a door leading outside;
- exposed directly to the light or heat of the sun, a lamp, a fireplace or any other heat source;
- close or in front of an air outlet;
- close to concealed ducts or a chimney;
- in a location with poor air flow (e.g. behind a door), or with frequent air drafts (e.g. head of stairs).

To install the sensor, refer to the installation guide of your heating floor.

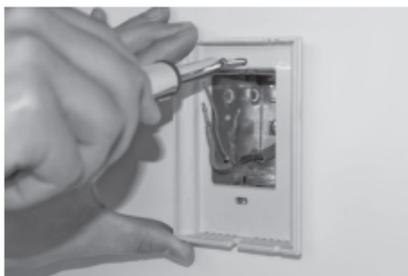
Thermostat mounting and connection

1.  **Cut off power supply on lead wires at the electrical panel in order to avoid any risk of electric shock. Ensure that the thermostat will be installed on a junction box located in an uninsulated wall.**
2. Ensure that the air vents of the thermostat are clean and clear of any obstructions.
3. Using a screwdriver, loosen the screw retaining the mounting base and front part of the thermostat. Remove

the front part of the thermostat from the mounting base by tilting it upward.



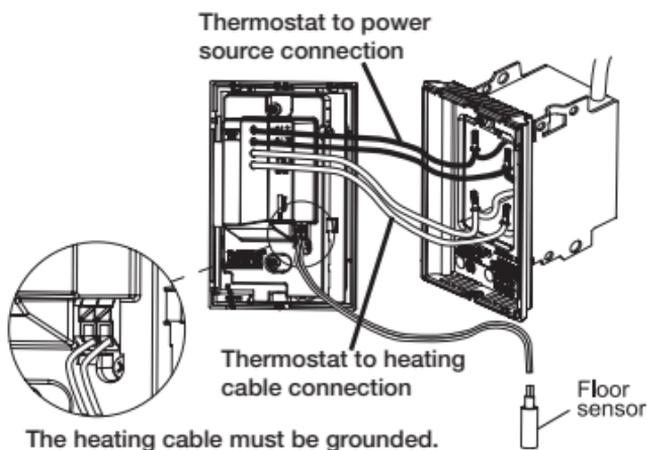
4. Align and secure the mounting base to the connection box using the two screws supplied.



5. Route wires coming from the wall through the hole of the mounting base and make the required connections using the “Four-wire installation” figure, and using the supplied solderless connectors. A pair of wires (black) must be connected to the power source (120-208-240 VAC) and another pair (yellow) must be connected to the heating cable (refer to the drawings displayed on the back of the thermostat). For connections with aluminum wires, you must use CO/ALR connectors. Please note that thermostat wires do not have polarity, meaning that any wire can be connected to the other. Then, connect the wires of the floor temperature sensor at the indicated location behind the thermostat. Two floor temperature sensors are provided - one with the DITRA-HEAT-E-RS thermostat and one with the DITRA-HEAT-E-HK heating cables. Both floor temperature sensors are installed within the tile assembly. One sensor is connected to the thermostat, while the other is stored in the

thermostat electrical box. The second sensor can be easily connected in case of damage to the first sensor.

Four-wire installation

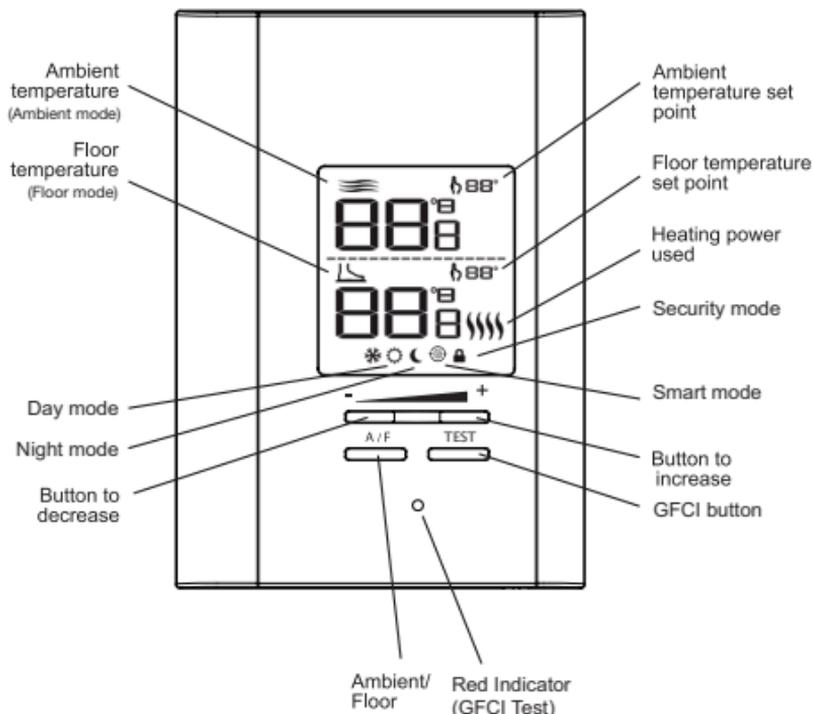


6. Reinstall the front part of the thermostat on the mounting base and tighten the screw at the bottom of the unit.
7. Turn on the power.



8. Set the thermostat to the desired setting (see the following section).

3. Operation



First start-up

At the first start-up, the thermostat is initially in the Day and  modes. The temperature is displayed in degrees Fahrenheit and the standard factory set point adjustment is 25°C (77°F). The maximum floor temperature is limited to 28°C (82°F).

Maximum floor temperature limitation

At any time, the floor temperature (both in  and  modes) is maintained at less than 28°C (82°F) in order to avoid overheating caused by an excessive heating request, which could damage some materials or be detrimental for health.

Temperature set points

The figures beside the  icon indicate the temperature set points (both in  and  modes). They can be displayed in degrees Celsius or Fahrenheit (see “Display in degrees Celsius/Fahrenheit”).

Out of any adjustment mode, press down the + button to increase the set point, or the - button to decrease it. Set points can only be adjusted by increments of 1 degree. To quickly scroll through the set point values, press and hold down the button. Both in Manual and Smart modes, the  mode set points can range between 3 and 35°C and can only be adjusted by increments of 1°C (from 37 to 95°F; by increments of 1°F from the Fahrenheit mode). From  mode, the set points can range between 3 and 28°C (from 37 to 82°F).

In Day mode, you can turn off the thermostat by lowering the set point below 3°C (37°F). The set point value displayed will be --, and heating system start up will be impossible.

Day mode and Night mode

The thermostat includes a Day mode (represented by a sun) and a Night mode (represented by a moon), both of them having their own independently adjustable and recorded set point. When switching from one mode to the other, the system will automatically use the temperature set point corresponding to the Day/Night mode selected. The  and  temperature are displayed by the figures under the  and  icons, and the temperature set points are displayed by the figures beside the  icon, both in degrees Celsius or Fahrenheit. The standard factory set point adjustment is 25°C (77°F) for the Day/ mode (21°C – 70°F from the  mode), and 22°C (72°F) for the Night/ mode (18°C – 64°F from the  mode).

In order to manually switch from one mode to the other, simultaneously press down the + and - buttons and release them immediately.

Night mode timer

The Night mode features a timer that automatically returns to the Day mode after a selectable time period. This timer allows the temporary use of a temperature set point. The standard factory adjustment of the timer is 8 hours. With this adjustment, the thermostat automatically returns to Day mode 8 hours after being switched to the Night mode. You can switch from the  mode to the  mode without affecting the timer adjustment.

For example, if you want a night temperature lower than the day temperature, both Day/Night modes set points will first have to be set at the desired temperatures. Before bedtime, the Night mode temperature set point will be activated by switching manually to the Night mode. The timer is set for the duration of the night. The thermostat will automatically return to the Day mode at the end of the night, and the Day mode temperature set point, which is higher, will become effective at this time.

Night mode timer adjustment procedure

1. First, switch to the Night mode by simultaneously pressing down the + and - buttons and releasing them immediately.
2. From the Night mode, simultaneously press down the + and - buttons for more than 3 seconds until the  icon starts to blink, indicating that the adjustment of the Night mode timer is effective. The figures that replace the  mode temperature indicate the current adjustment of the timer and "hrs" replaces the  mode temperature.
3. If needed, adjust the timer by pressing down the + button to increase the value, or the - button to decrease it. The adjustment range is from 1 hour to 999 hours. To quickly scroll through timer values, press and hold down the button.
4. When the adjustment is completed, release the buttons and wait for 5 seconds to exit the adjustment function. The thermostat will then return to the Night mode.

Note: *The Night mode timer will be automatically reinitialized to the latest recorded value when switching from the Day mode to the Night mode. It is not necessary to readjust the timer every time you switch to the Night mode. The timer is also reinitialized when this value is adjusted. Once the timer has completed its cycle and when the thermostat is in the Day mode, you must manually return to the Night mode. If you want to automatically return to the Night mode, the Smart mode must be selected.*

Smart mode

The Smart mode, which is associated to the Night mode timer, allows alternating between the Day/Night modes and the two corresponding set points over a 24-hour period. Once activated, this mode allows an automatic return to the Night mode after 24 hours. The Smart mode allows you to define two periods in a single day with different set points.

For example, if the Smart mode is activated and the Night mode timer is set at 8 hours, the thermostat will be operating in the Night mode for 8 hours at the night temperature set point. Then, it will return to the Day mode for 16 hours operating at the day temperature set point. At the end of the 24-hour cycle, the thermostat will return to the Night mode, and the cycle will start again. The 24-hour cycle starts with the Night mode as soon as the Smart mode is activated. The Smart mode activation should be made when you want to return to the Night mode. The normal course of a cycle in the Smart mode is as follows:

- 1- Night mode: activated for the duration of the Night mode timer cycle. It returns to the Day mode when the timer cycle is completed.
- 2- Day mode: activated for the remaining time of the 24-hour cycle. It returns to the Night mode at the end of the 24-hour cycle.

Adjustment procedure of the Smart mode:

1. First, switch to the Night mode by simultaneously pressing down the + and - buttons and releasing them immediately.
2. From the Night mode, simultaneously press down the + and - buttons for more than 3 seconds, until the  icon starts to blink, indicating that the adjustment of the Night mode timer is effective. The figures that replace the ambient temperature indicate the current timer adjustment. If needed, adjust the timer by pressing down the + button to increase the value, or the - button to decrease it. The Night mode timer adjustment range is from 1 hour to 23 hours in the Smart mode. To quickly scroll through the timer values, press and hold down the button.

Note: *If you set the timer to any value exceeding 23 hours, it will be impossible to activate the Smart mode and if it was activated, the Smart mode will be deactivated.*

3. Activate the Smart mode by simultaneously pressing down the + and - buttons for at least 3 seconds. The  icon will appear. If the Smart mode was already activated, the same procedure should be used to deactivate it.
4. When the adjustment is completed, release the buttons and wait for 5 seconds to exit the adjustment function.

Note: It is always possible to manually change the Day/Night mode during a 24-hour cycle. In all cases, at the end of the 24-hour cycle, the thermostat will return to the Night mode and start a new cycle. It is thus not necessary to readjust the Smart mode when a manual change is made to the Day/Night mode. If the thermostat is set off (--), the Smart mode will be deactivated.

When the power is restored after a power failure for example, the Smart mode is deactivated and its corresponding icon will blink. The icon will stop blinking as soon as you press down a button.

Display in degrees Fahrenheit/Celsius

The thermostat can display the ambient temperature and the set point in degrees Fahrenheit (standard factory setting) or Celsius.

Adjustment procedure for degrees Fahrenheit/Celsius display:

1. To switch from degrees Fahrenheit to degrees Celsius, and conversely, the thermostat must be in the Day mode. If so, simultaneously press down the + and - buttons for more than 3 seconds until the  icon blinks.
2. Press down the + button to switch from degrees Fahrenheit to degrees Celsius, and conversely. The degree Celsius or Fahrenheit symbol is displayed.
3. When the adjustment is completed, do not press down any button for 5 seconds to exit the adjustment function.

/ Mode

To switch from the  mode to the  mode, or conversely, press down the A/F button (when you are not in any adjustment mode). Then, the temperature set point will become the same as the  or  mode temperature, as applicable.

Safe mode

If the thermostat fails to detect the presence of a floor sensor, it will automatically revert to  mode at a setpoint of 21°C (70°F) (with a maximum set point temperature of 24°C – 75°F).

Sensor selection

If you want to use the DH E RS /BW thermostat of Schluter®-Systems with a temperature sensor already installed in the floor (other than the sensor supplied with this thermostat), you must contact Schluter®-Systems' customer service to validate the compatibility between the sensor and the thermostat. You must know the serial number and name of the installed sensor.

Temperature control

The thermostat controls the  /  temperature (according to the  /  mode) with a high degree of accuracy. When the heating starts or stops, it is normal to hear a “click” sound. It is the noise of the relay which opens or closes, as applicable.

Backlighting

The screen lights up when you press down a button. If you do not press down any button for more than 15 seconds, the screen turns off.

Note: *If you press down the + or - button once when the backlight is off, it will light up without changing the set point value. The set point value will change only if you press down one of these buttons again.*

Ground Fault Circuit Interrupter (GFCI)

The GFCI is designed to reduce the risk of electric shock. It can detect a leakage current of 5 mA. If a defect is detected, the GFCI device lights up, and both screen and heating system circuit are deactivated. The GFCI can be reinitialized either by pressing down the Test button or by disconnecting the thermostat at the electrical panel.

Ground Fault Circuit Interrupter (GFCI) verification

It is important to verify the Ground Fault Circuit Interrupter installation and operation on a monthly basis.

GFCI verification procedure:

- 1- Increase the temperature set point until the heating power bars are displayed (displayed beside the floor temperature).
- 2- Press down the Test button.
- 3- The following two cases can occur:
 - a) Successful test: The red indicator of the thermostat lights up. In this case, press down the Test button to reinitialize the Ground-Fault Circuit Interrupter, the red indicator turns off.
 - b) Failed test: The red indicator does not light up and the entire display blinks for 5 seconds. In this case, disconnect the heating system at the electrical panel.

Security mode

This mode imposes a maximum temperature set point which is impossible to exceed regardless of the mode in progress. However, it is still possible to lower the set point at your discretion. Please note that when the Security mode is activated, it is impossible to switch from the  mode to the  mode, and conversely.

Procedures to activate Security mode:

1. To activate the Security mode, the thermostat should be in Day mode. Exit any adjustment mode to manually adjust the set point at the desired maximum value.
2. Simultaneously press down the + and - buttons for 10 seconds (note that after 3 seconds, the  icon starts to blink and the software version and date are displayed. Continue to press down these buttons).
3. After 10 seconds, the  icon is displayed indicating that the Security mode is activated. Then, release the buttons.

Procedures to deactivate Security mode:

1. To deactivate the Security mode, cut off the power supply of the thermostat at the electrical panel and wait at least 20 seconds.

2. Restore the power supply to the thermostat. The  icon will blink for a maximum of 5 minutes, indicating that you can deactivate the Security mode.
3. In Day mode, simultaneously press down the + and - buttons for more than 10 seconds. The  icon will then be hidden indicating that the Security mode is deactivated.

Parameter backup and power failures

The thermostat saves some parameters in its nonvolatile memory in order to recover them when power is restored (e.g. after a power failure). These are the four set points (Day/Night//) , the Smart mode, the Security mode, the maximum set point of the Security mode, the Celsius/Fahrenheit mode, the remaining time of the timer and the maximum floor temperature. These parameters are saved every minute when a change occurs, except for the Day/Night mode and the remaining time of the timer, which are saved only if the Smart mode was not activated.

Please note that the Smart mode is not automatically reactivated when the power is restored, the  icon blinks to indicate that this mode was activated before the power failure and that is now deactivated. Moreover, when the power is restored, the Day/Night mode is recovered only if the Smart mode was deactivated before. If not, the Day mode is automatically reactivated. The Security mode is also reactivated if it was activated before the failure. However, its icon blinks for 5 minutes and you can deactivate this mode by simultaneously pressing down the + and - buttons for 10 seconds. The Security mode stays activated if you don't follow this process and the icon stops blinking.

4. Troubleshooting

Problem	Solution
The thermostat is hot.	In normal operating conditions, the thermostat housing can reach nearly 40°C (104°F) at maximum load. It is normal and will not affect the operation of the thermostat.
Heating is always on.	Check if the thermostat is properly connected. Refer to the installation section.
Heating does not run even if the thermostat indicates it is on.	Check if the thermostat is properly connected and make sure the red indicator is not lit. Refer to the installation section.
The display does not come on.	Check if the thermostat is properly connected. Refer to the installation section. Check the power supply at the electrical panel.
The red indicator lights up frequently.	Contact customer service.
The displayed ambient temperature is incorrect.	Check the presence of an air stream or a heat source near the thermostat, and correct the situation.
The display indicates E1*, E2** or E3***.	Faulty thermal sensor. Contact customer service.
Weak luminosity of the display.	Possibility of a bad contact. Check thermostat wirings. Refer to the installation section.

* E1: Faulty ambient exterior sensor (open circuit) - written in the ambient section

** E2: Faulty interior sensor (open circuit) - written in the ambient section

*** E3: Faulty floor sensor (open circuit) - written in the floor section

Note: If you do not solve the problem after checking these points, cut off the power supply at the main electrical panel and contact customer service (see page 20 for contact information).

5. Technical Specifications

Supply voltage:

120/208/240 VAC, 50/60 Hz

Maximum electrical current with a resistive load:

16 A

3840 W @ 240 VAC

3330 W @ 208 VAC

1920 W @ 120 VAC

Temperature Display Range:

0 °C to 35 °C (32 °F to 95 °F)

Temperature display resolution:

1 °C (1 °F)

Range of the temperature set points:

3 °C to 35 °C (37 °F to 95 °F)

Temperature set point increments:

1 °C (1 °F)

Storage:

-30 °C to 50 °C (-22 °F to 122 °F)

Certification:



Schluter®-DITRA-HEAT Thermostat

3-Year Limited Warranty

COVERAGE AND CONDITIONS: Subject to the conditions and limitations as stated hereinafter, Schluter®-Systems* warrants that the Schluter®-DITRA-HEAT thermostat (the "Product")** will be free of manufacturing defects for a period of three (3) years from the date of purchase only when the Product is used and installed in accordance with the terms and conditions of the Schluter®-DITRA-HEAT Thermostat User's Guide and industry standard guidelines that are not in conflict with User's Guide in effect at the time of installation. This warranty is conditioned and will be considered null and void and Schluter®-Systems will have the right to refuse any claims if : (a) resulting from faulty installation or improper storage, (b) any Schluter product comprising the system has been altered or otherwise modified in any way without the prior written authorization of Schluter®-Systems, (c) an abusive or abnormal use, lack of maintenance, improper maintenance or use other than that for which the Product was manufactured. It is the responsibility of the owner/ builder/ installer to ensure the suitability of all building materials and all associated building materials for the owner's intended use. It is recommended that the owner consult with an experienced and professional installer and qualified electrician.

RESOLUTION: If the Product fails to meet this warranty, then the owner's exclusive remedy and the sole obligation of Schluter®-Systems, at its election, shall be to repair or replace the Product. This warranty does not cover the cost of disconnection, transport, and installation. If at any time during the warranty period the unit becomes defective, you must cut off the power supply at the main electrical panel and contact 1) your installer or distributor or 2) Schluter®-Systems' customer service department.

DISCLAIMER: THERE ARE NO WARRANTIES BEYOND THIS EXPRESSED WARRANTY AS STATED ABOVE. ALL OTHER WARRANTIES, REPRESENTATIONS OR CONDITIONS, EXPRESSED OR IMPLIED, ARE DISCLAIMED AND EXCLUDED, INCLUDING WARRANTIES, REPRESENTATIONS OR CONDITIONS OF **MERCHANTABILITY** OR FITNESS FOR A PARTICULAR PURPOSE ARISING BY STATUTE OR OTHERWISE BY LAW OR FROM A COURSE OF DEALING OR USAGE OF TRADE. SCHLUTER-SYSTEMS EXCLUDES AND IN NO EVENT SHALL HAVE ANY LIABILITY FOR LOST PROFITS OR ANY OTHER INDIRECT, SPECIAL,

INCIDENTAL, PUNITIVE, EXEMPLARY, OR CONSEQUENTIAL DAMAGES, ARISING OUT OF OR OTHERWISE CONNECTED TO FAILURE OF THE PRODUCT OR FLOORING SYSTEM OF WHICH THEY ARE PART, NOR MISUSE OF THE PRODUCT OR FLOORING SYSTEM, REGARDLESS OF ANY STRICT LIABILITY, ACTIVE OR PASSIVE NEGLIGENCE OF SCHLUTER SYSTEMS, AND REGARDLESS OF THE LEGAL THEORY (CONTRACT OR TORT OR EXTRA-CONTRACTUAL OR OTHER), NOR FROM ACTS OF WAR, TERRORISM, OVERVOLTAGE, FAULTY AND NEGLIGENT PENETRATION OF THE SYSTEM, FIRES, EXPLOSIONS, ACTS OF GOD, INTENTIONAL ACTS OF DESTRUCTION OR ANY LOSSES DUE TO STRUCTURAL FAILURE OR OTHER CAUSES UNRELATED TO THE PRODUCT OR DELAYS, OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES. THIS WARRANTY IS GIVEN IN LIEU OF ANY OTHER WARRANTY EXPRESSED OR IMPLIED. THE REMEDIES CONTAINED HEREIN ARE THE ONLY REMEDIES AVAILABLE FOR BREACH OF THIS WARRANTY. THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS; SOME STATES AND PROVINCES DO NOT ALLOW DISCLAIMERS OR OTHER RESTRICTIONS OF IMPLIED WARRANTIES, SO SOME OF THE ABOVE DISCLAIMERS MAY NOT APPLY TO YOU.

TRANSFERABILITY: This Limited Warranty extends ONLY to the original end user (defined as original intended owner and user of the property/unit in which the installation is incorporated - herein referred to as "Owner") and is not transferable or assignable, unless approved in writing by the Technical Director or an Officer of Schluter®-Systems or otherwise prohibited by specific state or provincial law.

MODIFICATIONS TO WARRANTY: No changes or modification of any terms or conditions of this warranty are allowed unless authorized by written agreement and signed by the Technical Director or an Officer of Schluter®-Systems

EFFECTIVE DATE: This warranty shall supersede and replace any and all prior oral or written warranties, agreements, or other such representations made by or on behalf of Schluter®-Systems relative to the Product or the application of the Product and shall apply to any installation occurring on or after January 1, 2014.

CLAIMS ON THIS LIMITED WARRANTY: To make a claim under this Limited Warranty, the Owner must provide Schluter®-Systems with written notice within 30 days of any alleged defect in the Product covered by this Limited Warranty, together with date and proof of purchase of the Product, and name and address of all installers, failing which this Limited Warranty shall be of no legal effect. Schluter®-Systems reserves the right at its election and as a condition of this Limited Warranty to inspect the alleged defective Product.

All U.S. claims shall be sent to:

Schluter Systems L.P.
Attn: Warranty Claims Dept.
194 Pleasant Ridge Road
Plattsburgh, NY 12901

All Canadian claims shall be sent to:

Schluter Systems (Canada), Inc.
Attn: Warranty Claims Dept.
21100 chemin Ste-Marie
Ste-Anne-de-Bellevue, QC H9X 3Y8

*For the purpose of this warranty **Schluter Systems, L.P.** shall provide the warranty for all products for end users located in the United States, and **Schluter Systems (Canada) Inc.** shall provide the warranty for all products for end users located in Canada. This warranty is limited to sales of the Products made in and intended for use in the United States and Canada.

**Schluter®-DITRA-HEAT Thermostat ("the Product"): The product is defined to be the Programmable (DH E RS D/BW) Thermostat and/or the Non-Programmable (DH E RS /BW) Thermostat.

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