

INTRODUCTION

This document describes how to convert the FLP/FLK thermostat for use in a master thermostat and expansion unit system designed for large floor heating applications exceeding 15 A. This is achieved as follows: The floor heating system is separated into zones (15 A or less). An expansion unit is responsible for each zone. The master unit controls the temperature and signals the expansion units when to start or stop heating. You can connect up to 10 expansion units to the master thermostat.

Master Thermostat

The master thermostat is an FLP/FLK control module mounted on a 12 VDC power base. The master unit receives its power from one of the expansion units.

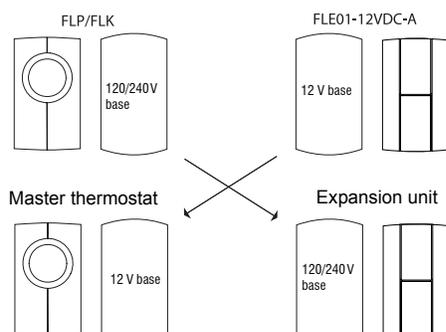
Expansion Unit

An expansion unit is an FLE01 control module mounted on a 120/240 VAC power base. The expansion unit is equipped with a ground fault circuit interrupt (GFCI) and an ON/OFF switch. The expansion units can operate on 120 V and 240 V within the same setup.

Kits

To build a master/expansion system, you need the following:

- **FLP or FLK thermostat**
- **FLE01-12VDC-A (conversion unit)**
The FLE01-12VDC-A consists of an FLE01 module and a 12 V base. This conversion kit converts the FLP/FLK thermostat into a master thermostat and the first expansion unit as shown in the following illustration.
- **FLE01-GA (expansion unit)**
FLE01-GA consists of an FLE01 module and a 120/240 V base. You need a FLE01-GA for each additional load of 15 A.



INSTALLATION

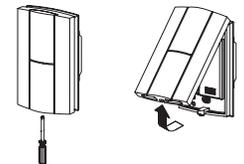
Installation guidelines

! To avoid electrical shock, turn off power to the heating system at the main electrical panel. The installation must be performed by qualified electrician.

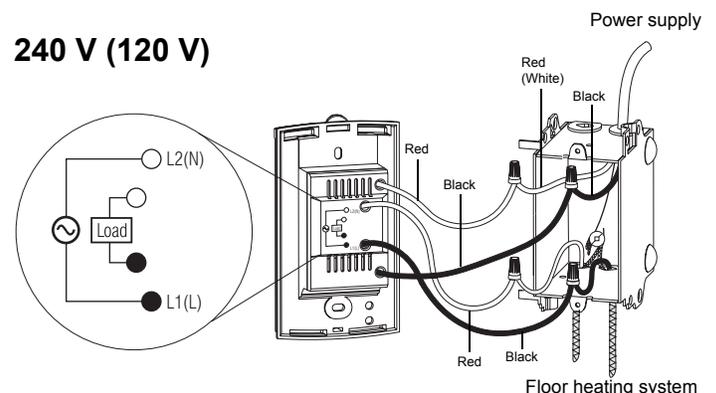
- ▶ A 3-wire 20 AWG cable is recommended to interconnect the master thermostat to the expansion units.
- ▶ The wire length between the master thermostat and the furthest expansion unit must not exceed 150 m (500 ft.).
- ▶ Each expansion unit must be mounted on an expanded electrical box.

Expansion Units

- 1 Loosen the screw and separate the control module from the power base. The screw remains captive on the power base.
- 2 Connect the thermostat to the floor heating system (load) and to the power supply using solderless connectors for copper wires. The floor heating braided shields or green wire as well as the power supply copper ground wires must be secured to the ground terminal.

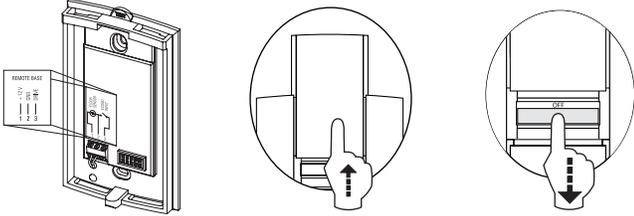


240 V (120 V)



- 3 Secure the power base to an expanded electrical box.

- 4 Affix the new wire designation sticker to the base.
- 5 Using 3-wire 20 AWG cable, interconnect the bases in a daisy-chain configuration as shown in the first illustration.
- 6 Install the control module on the base.
- 7 Place the expansion unit at OFF.



Master Thermostat

NOTE: Make sure all expansion units are OFF.

- 1 Connect the 12 V base of the master thermostat to the power base of an expansion unit as shown in the first illustration.
- 2 Connect the floor sensor to the 12 V base as shown in the first illustration. Refer to the FLP or FLK user manual for more details. Place the sensor in the zone of the expansion unit powering the master thermostat.
- 3 Push the excess wire into the wall, and secure the base using the provided screws and wall anchors.
- 4 Mount the FLP/FLK control module onto the 12 V base.
- 5 Once the thermostat is installed, return power to the heating system by switching the master thermostat and the expansion units On.

NOTE: If you do not turn On all expansion units, ensure the expansion unit powering the master thermostat is turned On.

GROUND FAULT CIRCUIT INTERRUPTER

Each expansion unit has a built-in Ground Fault Circuit Interrupter (GFCI). In the event of a ground fault, the GFCI on the thermostat trips and quickly stops the flow of electricity to prevent serious injury.

Definition of a ground fault

Instead of following its normal safe path, electricity passes through a person's body to reach the ground. For example, a defective floor heating mat can cause a ground fault.

The GFCI **does not protect** against circuit overloads, short circuits, or electrical shocks. For example, you can still receive an electrical shock if you touch bare wires while standing on a non-conducting surface such as a wood floor.

GFCI Reset

When the GFCI trips, the **TEST** button at the top of the expansion illuminates (red). To reset the GFCI, switch the expansion to **OFF** and back to **ON**. The **TEST** button light will go off.

If the **TEST** button illuminates during normal operation, check if the fault has been caused by an external interference such as a halogen light or an electric motor. In this case, reset and test the GFCI. However, if the fault occurs again for unknown reasons, cut power to the floor heating system from the main electrical panel and have the installation verified by an electrician.

GFCI Test

Test the GFCI of each expansion unit at the end of the installation and once a month thereafter to ensure it is always in working order.

- 1 Increase the temperature on the master thermostat sufficiently to start heating.
- 2 Wait for about 5 seconds to ensure heating is activated.
- 3 Press the **TEST** button at the top of the expansion unit.

- If the **TEST** button does NOT illuminate, **the test has failed**. Cut power to the heating system at the main electrical panel, have an electrician verify the installation and, if necessary, replace the expansion unit.
 - If the **TEST** button illuminates, continue to step 4.
- 4 Switch the expansion unit to **OFF**, then back to **ON**.
 - If the **TEST** button light goes off, **the test has passed**. Set the thermostat back to the desired temperature and ignore the remaining steps. The test is now completed.
 - If the **TEST** button light remains on, **the test has failed**. Continue to step 5.
 - 5 Switch the circuit breaker (at the service panel) of the heating system to off, then back to on.
 - 6 Repeat the test. If the test fails again, cut power to the heating system at the main electrical panel, have an electrician verify the installation and, if necessary, replace the expansion unit.

TECHNICAL SPECIFICATIONS

Power supply FLE01-12VDC-A: 12 V (via expansion unit)
FLE01-GA: 120/240 V

Maximum load per expansion unit: 15 A

Maximum number of expansion units: 10

WARRANTY AND SERVICE

FLEXTHERM LIMITED WARRANTY

Flextherm Canada Inc. (hereinafter "FLEXTHERM") warrants to the purchaser that the FLEXTHERM THERMOSTAT (hereinafter the "Product") and once installed in conformity with the instructions of FLEXTHERM, shall be free of defects, in either materials or workmanship as described in this document.

COVERAGE PERIOD: This Limited Warranty becomes effective on the date of the original purchase of the Product as supplied by FLEXTHERM and shall remain effective for a period of one (1) year (twelve (12) consecutive months) from such date. This Limited Warranty is valid for products purchased and installed in Canada only.

CONDITIONS: This Limited Warranty is only applicable to new and unused Products purchased from FLEXTHERM, or its authorized re-sellers, provided the Installation Requirements contained herein are met. Claims made for coverage under this Limited Warranty must be addressed in writing, within seventy-two (72) hours from an event giving rise to a claim, or the appearance of a defect, to: Flextherm Canada Inc. 1-800-353-9843. Any parts replaced under the terms of this Limited Warranty become the property of FLEXTHERM. Persons making claims for coverage must present FLEXTHERM with proof of purchase as well as any documents FLEXTHERM may require.

WHAT FLEXTHERM WILL/WILL NOT DO: FLEXTHERM's obligations under this Limited Warranty are limited to, at its sole discretion, repairing or replacing the thermostat originally supplied in the Product that FLEXTHERM has determined to be defective in materials or workmanship. FLEXTHERM shall replace the defective thermostat goods free of charge "ex works" after the originals have been returned to us postage/freight prepaid. Replacement will only be made for defective parts; and no allowance or reimbursement shall be made for wages, labour and freight costs. With respect to the parts not manufactured by ourselves, we shall only warrant for these to the same extent as our suppliers undertake a warranty obligation towards ourselves.

Because of our ongoing commitment to product quality and innovation, FLEXTHERM reserves the rights, at any time and without incurring any obligations, to revise, change, modify or discontinue any specifications, features, designs or components.

INSTALLATION REQUIREMENTS: In addition to the requirements included in the current FLEXTHERM Installation Guide, which is incorporated herein by this reference, the Product must be installed in accordance with accepted standards.



WARNING: Failure to install the Product in conformity with your local electrical Codes, as well as the Installation Guide, may cause fires. Failure to install the Product according to the directives in the installation guide may damage the cables/wiring and lead to Product failures, which are not covered under the Limited warranty.

EXCLUSIONS, ARE NOT WARRANTED: Failures resulting from improper installation; Damage caused by abuse, improper installation, repairs, service, maintenance and/or storage, modifications or use of parts not manufactured or supplied by FLEXTHERM; Damage caused by abuse or neglect; regarding the Product; Damage caused by water, submersion, accident, fire or any act of God; Incidental, consequential or other damages (including labor costs, towing, inconvenience, loss of time or loss of income).

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Neither FLEXTHERM re-sellers, installers or any other person in entitled or authorized to make any affirmation, representation or warranty other than those contained in this Limited Warranty. If the ownership of the Product is transferred during the Limited warranty Coverage period, the terms and conditions of the Limited Warranty shall apply to the new owner, provided the new owner has proof, satisfactory to FLEXTHERM, of the date of first purchase of the Product.

FLEXTHERM Canada Inc.

2400 de la Province Street
Longueuil, Quebec J4G 1G1 Canada



1 800 FLEXTHERM (353-9843) / 450-442-9990



1 877 FLEXTHERM (353-9843) / 450-442-1099



info@flextherm.com



www.flextherm.com