GENERAL

Types B100 and C100 (Immersion Stem)
Temperature variations are sensed by a liquid filled sensor which expands or contracts against a bellows which in turn actuates or deactuates a snap-action switch at a predetermined set point.

Types E100 and F100 (Bulb & Capillary)
Temperature variations of a liquid filled sensing bulb are hydraulically transmitted to a bellows or diaphragm which either actuates or deactuates a snap-acting switch at a predetermined set point.

MAXIMUM TEMPERATURE IS THE HIGHEST TEMPERATURE TO WHICH A SENSING ELEMENT MAY BE OCCASIONALLY OPERATED WITHOUT ADVERSELY AFFECTING SET POINT CALIBRATION AND REPEATABILITY. MAXIMUM TEMPERATURE LIMITS STATED IN LITERATURE MUST NEVER BE EXCEEDED, EVEN BY SURGES IN THE SYSTEM. OCCASIONAL OPERATION OF UNIT UP TO MAX. TEMPERATURE IS ACCEPTABLE (E.G. START-UP, TESTING). CONTINUOUS OPERATION SHOULD BE RESTRICTED TO THE DESIGNATED ADJUSTABLE RANGE.

Tools Needed
Adjustable wrench
Flathead screwdriver
Hammer (for alternate wire knockouts)

MOUNTING

INSTALL UNIT WHERE SHOCK, VIBRATION AND TEMPERATURE FLUCTUATIONS ARE MINIMAL. ORIENT UNIT SO THAT MOISTURE IS PREVENTED FROM ENTERING THE ENCLOSURE. SHOULD THE CONTROL BE INSTALLED WHERE HEAVY CONDENSATION OR WASHDOWN IS EXPECTED, VERTICAL MOUNTING IS RECOMMENDED (PRESSURE CONNECTION DOWN).

Do not mount unit in ambient temperatures exceeding published limits. 100 Series Temperature Controls can be mounted in any position, provided the electrical conduit is not facing up.

For remote mounting, mount the unit via the (2) 1/4” screw clearance holes on the enclosure. Fully immerse the bulb and 6” capillary in the control zone. For best control it is generally desirable to place the bulb close to the heating or cooling source in order to sense temperature fluctuations quickly. Be sure to locate the bulb so that it will not be exposed to temperatures beyond the instrument range limits.

WIRING

DISCONNECT ALL SUPPLY CIRCUITS BEFORE WIRING UNIT. ELECTRICAL RATINGS STATED IN LITERATURE AND NAMEPLATES MUST NOT BE EXCEEDED. OVERLOAD ON A SWITCH CAN CAUSE FAILURE ON THE FIRST CYCLE. WIRE UNITS ACCORDING TO NATIONAL AND LOCAL ELECTRICAL CODES. MAXIMUM RECOMMENDED WIRE SIZE IS 14 AWG.

Remove the two screws retaining the cover and cover gasket. Two cast-in 7/8” diameter knockouts for electrical conduit are located on the side and rear of enclosure. These can easily be knocked out by placing the blade of a screwdriver in the groove and rapping sharply with a hammer. A 1/2” NPT conduit connection is located on the side of the enclosure.

Connect conduit to the case and wire directly to the switch terminals according to local and national electrical codes. Bring the wires up to terminals from the rear of the case allowing enough slack so as not to affect switch movement when making setting adjustments. The three switch terminals are clearly labeled “common”, “norm open”, and “norm closed”. If lead wires are supplied, color coding is as follows:

<table>
<thead>
<tr>
<th>SPDT</th>
<th>DPDT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWT1</td>
<td>SWT2</td>
</tr>
<tr>
<td>Common</td>
<td>Violet</td>
</tr>
<tr>
<td>Normally Open</td>
<td>Blue</td>
</tr>
<tr>
<td>Normally Closed</td>
<td>Black</td>
</tr>
</tbody>
</table>

A grounding screw and clamp (cast in symbol) is provided which meets a 35 lb. pull test. Keep the wire as short as possible to prevent interference with the plunger and, when provided, the adjustable differential switch wheel.

Part II - Adjustments

Tools Needed
5/8” open end wrench

NOTE: For set point adjustments and recalibration, connect control to a calibrated temperature source and stabilize unit.
Part III - Replacements

**Tools Needed**
- Flathead screwdriver

**USE ONLY FACTORY AUTHORIZED REPLACEMENT PARTS AND PROCEDURES. ALWAYS DISCONNECT SUPPLY CIRCUITS BEFORE REMOVING COVER.**

**REPLACEMENT OF SWITCHES**
1. Remove cover, switch mounting screws, and switch insulator inside enclosure.
2. Disconnect switch wires at switch terminal.
3. Wire new switch per wiring instructions.
4. Mount switch and insulator inside enclosure and re-calibrate per PART II.

**Dimensions**

- **Models 120-121**
  - 10.44 inches (265.10 mm) Immersion stem
  - 8.75 inches (222.23 mm) Bulb & capillary

- **Types B100, C100, E100, F100**
  - 8.95 inches (227.30 mm) Dia. Knock-Out
  - 1.50 inches (38.10 mm) Dia. of Plate (E)
  - 4.00 inches (101.60 mm) Screw

- **Models 120-121**
  - 1/2 NPT Brass

- **Models 1BC-M9BB**
  - 1/2 NPT CONDUT

**LIMITED WARRANTY**

UE warrants that the product thereby purchased is, upon delivery, free from defects in material and workmanship and that any such product which is found to be defective in such workmanship or material will be repaired or replaced by UE (F.O.B. UE); provided, however, that this warranty applies only to equipment found to be so defective within a period of 12 months after installation by buyer but not to exceed 18 months after installation by buyer. The sole and exclusive remedy of buyer for any liability or seller whatsoever expressed or implied, (II) a breach of contract, (III) a negligent act or acts (or negligent failure to act) committed by seller, or (IV) an act for which strict liability will be imputed to seller, (III) a negligent act or acts (or negligent failure to act) committed by seller, or (IV) an act for which strict liability will be imputed to seller, is limited to the limited warranty or repair and replacement stated above, UE disclaims all warranties whatsoever with respect to the product, including all implied warranties of merchantability or fitness for any particular purpose.

**LIABILITY LIMITATION**

The sole and exclusive remedy of buyer for any liability or seller for any claim, including incurred in connection with (I) breach of any warranty whatsoever expressed or implied. (II) breach of contract, (III) a negligent act or acts (or negligent failure to act) committed by seller, or (IV) an act for which strict liability will be imputed to seller, is limited to the limited warranty or repair and replacement stated herein. In no event shall the seller be liable for any special, indirect, consequential or other damages of a like general nature, including, without limitation, loss of profits or production, or loss or expenses of any nature incurred by any third party.