SERIES FM 437 TEMPERATURE CONTROL
INSTALLATION AND OPERATING INSTRUCTIONS

TYPES FM 437, FM 437SS

Series FM 437 Back Angle Immersion Controls are operated by a bimetallic element within an immersed well which is detachable from the instrument, thus making it possible to remove the instrument if necessary at any time after installation without draining the system. The detachable feature also provides greater convenience at time of the control installation.

Two adjustments are provided for setting the operating range at any desired temperature over the operating scale. The operating differential may be set as close as 15° Fahrenheit or may be widened to as much as 120° Fahrenheit.

Basic Types are:
FM 437: Standard well (copper) 200 psi. 300°F.
FM 375SS: Stainless steel well, 900 psi, 300°F.

Adjustments:
FM 437 types have adjustments inside of case.

Variations in contact operation are designated by Type Suffix -2, -3, -26, -36, etc., and. temperature operating range and well dimensions, by Specification Numbers as shown below and included in Type marking.

CONTACT SUFFIX (On Temperature Rise):
-2 or -36 contact opens
-3 or -26 contact closes
-152 SP-DT 4 wire
-153 SP-DT 3 wire

SPECIFICATION NUMBER
3510 Range 80-240°F. Dim “A” 2-7/8” Dim “B” 2-3/8”
3511 Range 80-240°F. Dim “A” 4-1/2” Dim “B” 3-4/8”
3515 Range 40-200°F. Dim “A” 2-7/8” Dim “B” 2-3/8”
3516 Range 40-200°F. Dim “A” 4-1/2” Dim “B” 3-4/8”
3520 Range 160-300°F. Dim “A” 2-7/8” Dim “B” 2-3/8”
3529 Range 160-300°F. Dim “A” 4-1/2” Dim “B” 3-4/8”

ELECTRICAL CAPACITY
Contact Suffix -2 and -3: 10 Amp. 120V. 2-Amp. 240V. AC or DC.
Contact Suffix -3: 10 Amp. 120V, 2-Amp. 240V. AC or DC. 2 Amp. 240V. AC or DC.
Contact Suffix -26, -36: 15 Amp. 120V. 240V. AC. 300V. AC.

CHOOSING A LOCATION: A location must be chosen where the water or air temperature will be 70° Fahrenheit. The well “Illustration No. 3” will be fully immerged into freely circulating liquid at all times. Locations where air pockets could occur should be avoided and for that reason nipples must not be used. Under all circumstances should the well touch the inner walls of a boiler. Check for clearance before insertion. Standard bulbs are 2.7-8 long and have a 3/4 threaded connection.

DETACHING INSTRUMENT FROM WELL: Remove cover after loosening the two brass screws on the cover face, backing each screw out a little at a time—first one then the other. Next, loosen the hexagon head screw “G” (Illustration No. 1). Note that the locking assembly which fastens the instrument to the immersed well consists of the hexagon head screw “G” inside of the instrument case (Illustrations 1 and 2, and attached to it is the clamp “J” at the back edge of the case). After loosening the hexagon screw a couple of turns, it may drop down to the bottom of the slot “H” (Illustration No. 2). If it should stick, force it down with the screwdriver or pull the clamp down over the case. After releasing the clamp, the instrument may be removed from the well.

RECLAMING INSTRUMENT TO WELL: When inserting the bimetal coil “K” (Illustration No. 2) of the instrument into the well section (Illustration No. 3) with the loops loosened, see that the teeth on the two sections mesh in such a way that the control will be horizontally level. Be sure to move the clamp “J” and the hexagon screw “G” up to the top of the slot “H” before tightening the hexagon screw “G”.

LEVELING: Instrument must be in a perfectly horizontal level position. It may be necessary to turn the well one or two degrees with a wrench if the teeth do not mesh so that the control will be in a level position. When the control is level the control must be set to the right “A” (Illustration No. 1) or to the left “B”, when mounted tightly with the fingers after first separating the pointers “C” and “D”. Pointer “C” is put into position by pushing knob “E” inward and then turning it as far as it will go to the left. Pointer “D” is put into position by pulling knob “E” outward and at the same time turning it to the right as far as it will go.

WIRING: Scrape and clean the wires and carefully place around the terminal screws and in the groove provided in instrument. Rigid conduit must not be attached directly to the instrument case. Use a short piece of BX between the rigid conduit and the control so that it will not be subjected to conduit expansion and contraction.

Where the control is connected directly into the load circuit, it must be connected into the hot side of the line.

TO SET CONTROLS FOR DESIRED OPERATING RANGE
FM Models must be removed. The various types of the controls described above, have a calibrated dial indicating a temperature range. The pointer “C” (Illustration No. 1) to the left, the pointers “E” and “F” point to the right, determines the “high” temperature setting at which the control will operate.

To eliminate the setting, press knob “E” (Illustration No. 1) and at the same time turn it to move the pointer to the desired “low” temperature setting. To adjust for the “high” temperature setting, pull knob “E” and at the same time turn it to move the other pointer to the desired “high” temperature setting, which completes the fixed operating range at which the control will operate.

CAUTION: Control movement must not be oiled. Do not overload—note electrical rating on name plate and be sure total current passing through switch is within specified rating as noted under caption “Electrical Capacity.” Do not tamper with switch wires. Position of these wires is essential to proper operation. Tampering with these wires will void warranty.

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