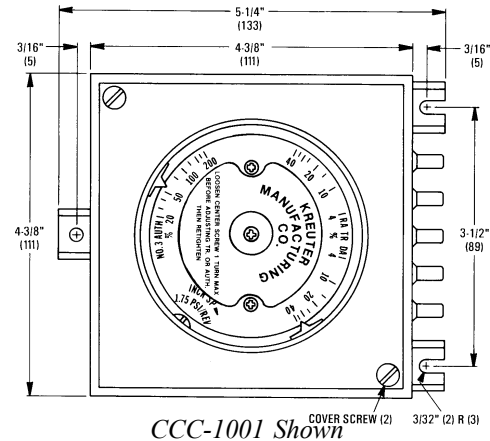


Installation Guide

Mounting

The CCC-1001 and CCC-1002 are not position sensitive, but they must be calibrated and mounted in the same orientation.

1. Locate the three mounting ears (flanges) on the unit.
2. Place the controller on the mounting surface and mark the locations of the two top ears.
3. Partially install two mounting screws (#8 or #10) on the marks. These should be 3-1/2" (89 mm) apart.
4. Slide the top ears under the screws.
5. Install the third mounting screw in the bottom ear and tighten all three screws.



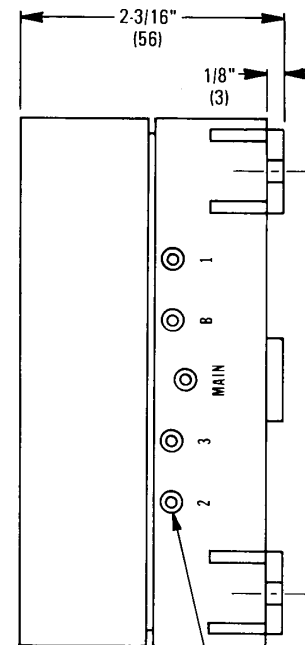
Connections

The units are supplied as Direct Acting (DA). If Reverse Acting (RA) is required:

1. Locate the tubing connections on the back of the controller.
2. Cut the branch tubing at the DA connection (lower right corner)
3. Remove tubing from the two-prong guides
4. Connect branch tubing to the RA connection (upper right corner) using brass fittings (provided)
5. Secure extra tubing in the two-prong guides.

The CCC-1001 and CCC-1002 each have five 3/16" (5 mm) ports to accept 1/4" (6 mm) O.D. polyethylene tubing. Use only clean, dry air with these controllers. Connect the controller to other units as follows:

1. Main control air to "M". This should be 20 psig (137 kPa), 30 psig (207 kPa) max.
2. Primary input, 3 to 15 psig, to "Port 1"
3. Remote setpoint adjustment, 3 to 15 psig with a +/- 10% offset, "Port 2"
4. Secondary input, "Port 3"



3/16" (5) DIA. NIPPLES FOR
1/4" (6) O.D. FR TUBING (5)

Adjustments and Calibration

CCC-1001 Controller

1. Remove cover before making any adjustments.
2. Set the desired throttling range:
 - a. Loosen large center screw (1 turn maximum)
 - b. Remove main control air from "M"
 - c. Move the setpoint indicator to the desired % throttling range (4 to 40%) on the DA or RA scale.
 - d. Connect main air to "M"
3. Set the desired authority:
 - a. Complete the authority calculation using the formula below
 - b. Set the authority indicator to the desired value.
 - c. tighten center screw
4. Adjust the setpoint output by turning the setpoint screw (located at the lower right of the unit). Each complete clockwise rotation, of the screw, is equivalent to a 1.75 psi increase in Port "1" pressure.
5. Replace cover

CCC-1002 Controller

Follow the steps 1 through 4 for adjusting the CCC-1001 then continue with steps 5 through 8.

5. Turn the face dial until the desired input signal (Port 1) pressure value lines up with the clear arrow indicator.
6. Carefully slide the cover straight down so the cover gear teeth and the setpoint adjustment shaft mesh.
7. Tighten cover
8. Apply the adhesive dial face if required.

Authority Calibration:

A secondary input, with the ability to change the control points based on its readings, may be connected to Port 3. This process is referred to as a Reset Schedule or % Authority.

The formula is as follows:

$$\frac{(\text{Temperature Range at Port 1 in degrees}) (\text{Port 1's Transmitter Sensitivity (see data sheet)})}{(\text{Temperature Range at Port 3 in degrees}) (\text{Port 3's Transmitter Sensitivity (see data sheet)})} \times 100\% = \% \text{ Authority}$$

Example: Given, a hot water supply (port 1) with a temperature range of 100°-180°F (38°-82°C), two transmitters with .06 psi/degree sensitivity, and an outside temperature range (Port 3) of 0° to 70°F (-18° to 21°C) the calculation would be: $(80)(.06)/(70)(.06) = 4.8/4.2 = 1.14$, $1.14 \times 100\% = 114\%$ authority.

Maintenance

No routine maintenance is required.

Each component is designed and manufactured for reliability and performance. Careful installation will ensure long term dependability.

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