

allowed to temperature stabilize for at least 15 minutes prior to calibrating. The minimum allowable temperature span is 100°C (212°F).

- b. Simultaneously press and release the “SEL” and “UP” keys to change the thermocouple type. When “SEL” and “UP” are pressed, the type will begin flashing. Pressing the “UP” or “DN” key will change the display to another type. When the correct value is flashing, quick tap “SEL” to lock in the selection.
- c. Simultaneously press and release the “SEL” and “UP” keys to change the temperature units. When “SEL” and “UP” are pressed, the units will begin flashing. Pressing the “UP” or “DN” key will change the units between degrees Fahrenheit and Celsius. When the correct units are flashing, quick tap “SEL” to lock in the selection.
- d. Simultaneously press and release the “SEL” and “UP” keys to change the temperature range upper limit. When “SEL” and “UP” are pressed, the upper limit will begin flashing. Pressing the “UP” or “DN” key will change the upper limit to another value. When the correct range value is flashing, quick tap “SEL” to lock in the selection. The upper limit of the range will not be able to be set below 100°C (250°F).
- e. Simultaneously press and release the “SEL” and “UP” keys to enter the voltage display mode. Simulate the upper limit temperature, and adjust the gain potentiometer on the module such that the voltage is between 4.200 and 4.700 volts on the display. Quick tap the “SEL” key to lock in the upper limit voltage.
- f. The value given with this display is the lower temperature limit and is shown to remind the technician of the temperature to use for the simulator. This value is fixed and not programmable.
- g. Simultaneously press and release the “SEL” and “UP” keys to enter the voltage display mode. Enter the lower limit temperature (either 0°C or 32°F) in the simulator. The resulting voltage reading will be displayed.

NOTE: Do not adjust the gain potentiometer in this step. Quick tap the “SEL” key to lock in the lower limit voltage.

19. Quick tap the “DN” key. Display will flash between “Cyt” and a cycle time reading.
20. Simultaneously press and release the “SEL” and “UP” keys. Actuator will automatically close and will then open to measure cycle time, displaying “PoC” at the clockwise position and “PoCC” at the counterclockwise position.

Calibration is now complete. Press and hold “SEL” key for two seconds. Controller returns to run mode.

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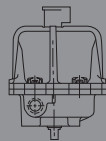


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FCD WCAIM2059-00 (Part 08943)

DataFlo C Smart Controller

Calibration Instructions

1. Remove cover and apply appropriate voltage to terminals 1 (neutral or negative) and 2 (hot or positive).
2. Connect setpoint and process input sources to terminal strip per appropriate wiring diagram.
3. The display should be flashing between “Pr:1” and a number.
4. Simultaneously press and hold the “SEL” and “DN” keys for three seconds. “CAL” will be displayed for two seconds, and the security code will be checked. If the required security code is not zero (“0000”), the display will begin alternating between “CodE” and “0000”.

If the required code is zero, it will not need to be entered, i.e., it will be bypassed and the display will automatically flash “SEtL”. In that case, skip to paragraph 8.
5. Enter the security code, if necessary, as follows. (If the code is forgotten, the special number 4800 can be used to gain entry.)
6. Quick tap “SEL” key once. First 0 will flash. Quick tap “UP” key until you reach the code number. Quick tap the “DN” key once. The second 0 will flash. Quick tap “UP” key until the next code number is reached. Continue this procedure as needed for the remaining code numbers. Quick tap “SEL” to accept code.
7. Quick tap “DN” key. Display will flash between “SEtL” and a value.



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8. Simultaneously press and release “SEL” and “UP” keys; then adjust setpoint signal to lower input value, e.g., 4 mA. Voltage reading should be less than 1 volt. Quick tap “SEL” to lock in value.
9. Quick tap “DN” key. Display will flash “SEtU” and a value.
10. Simultaneously press and release the “SEL” and “UP” keys; then adjust setpoint signal to higher input value, e.g., 20 mA. The voltage reading should be between 3.800 and 5.000 volts. Quick tap “SeL” to lock in value.
11. Quick tap “DN” key. Display will flash between “PoC” and a number between 0 and 5 volts.
12. Simultaneously press and release the “SEL” and “UP” keys. Using the “UP” or “DN” key, adjust so shaft is full clockwise. The display should read between .200 and .400 volts. If not, rotate feedback potentiometer face gear with your fingers. It is a friction fit. Quick tap “SEL” to lock in reading.
13. Quick tap “DN” key. Display will flash between PoCC and the feedback voltage value.
14. Simultaneously press and release the “SEL” and “UP” keys. Using the “UP” or “DN” key, adjust so shaft is full counterclockwise. The display should read greater than 3.000 volts. If not, recheck “PoC” and if correct, contact factory. Quick tap “SEL” to lock in reading.

15. Calibrating Analog Process #1 Lower Input Signal

This procedure is followed only if an analog process module is used.

Quick tap “DN” to select the lower input parameter “Pr1L”. Simultaneously press and release “SEL” and “UP”, then adjust process input signal to lower value of 4.0 mA. The voltage on the display should be less than 1 volt. Quick tap “SEL” to lock in this value.

16. Calibrating Analog Process #1 Upper Input Signal

This procedure is followed only if an analog process module is used.

Quick tap “DN” to select the upper input parameter “Pr1U”. Simultaneously press and release “SEL” and “UP”, then adjust process

input signal to upper value of 20 mA. The voltage on the display should be greater than 3.000 volts. Quick tap “SEL” to lock in value.

17. Calibrating Single Channel RTD Process Module

This procedure is followed only if a single channel RTD process module is used. This step calibrates both the lower and upper process limits.

Quick tap “DN” to select either the “Pr1L” or “Pr1U” input parameter. Simultaneously press and release “SEL” and “UP” to begin calibrating the parameter.

- a. Attach a calibrated resistance type RTD simulator to the process input.
- b. Simultaneously press and release “SEL” and “UP” keys to change the temperature units. When “SEL” and “UP” are pressed, the units will begin flashing. Pressing the “UP” or “DN” key will change the units between degrees Fahrenheit and Celsius. When the correct units are flashing, quick tap “SEL” to lock in the selection.
- c. Simultaneously press and release “SEL” and “UP” keys to change the temperature range upper limit. When “SEL” and “UP” are pressed, the upper limit will begin flashing. Pressing the “UP” or “DN” keys will change the upper limit to another value. When the correct range value is flashing, quick tap “SEL” to lock in the selection. The upper limit of the range will not be able to be set to a value that is less than 50°C (100°F) above the lower limit, i.e., there must be at least 50°C (100°F) between limits.
- d. Simultaneously press and release “SEL” and “UP” keys to enter the voltage display mode. Simulate the upper limit temperature, and adjust the span potentiometer on the module such that the voltage is between 4.200 and 4.700 volts on the display. Change the RTD simulator to simulate the lower limit temperature, and adjust the zero potentiometer on the module such that the voltage is between 0.200 and 0.800 volts. Repeat

the above process until the upper and lower voltages are within the stated limits. When completed, be sure that the simulator is simulating the upper limit temperature. Quick tap the “SEL” key to lock in the upper limit voltage.

- e. Simultaneously press and release “SEL” and “UP” keys to change the temperature range lower limit. When “SEL” and “UP” are pressed, the lower limit will begin flashing. Pressing the “UP” or “DN” keys will change the lower limit to another value. When the correct range value is flashing, quick tap “SEL” to lock in the selection. The lower limit of the range will not be able to be set to a value that is greater than 50°C (100°F) below the upper limit, i.e., there must be at least 50°C (100°F) between limits.
- f. Simultaneously press and release “SEL” and “UP” keys to enter the voltage display mode. Enter the lower limit temperature (either 0°C or 32°F) in the simulator. The resulting voltage reading will be displayed.

NOTE: Do not adjust either the zero or span potentiometers in this step.

Quick tap the “SEL” key to lock in the lower limit voltage. Note that zero adjustments are made in the procedure for the upper limit. This step is just used to record the lower limit voltage.

18. Calibrating Thermocouple Process Module

This procedure is followed only if a thermocouple process module is used. This step calibrates both the lower and upper process limits.

Quick tap “DN” to select either the “Pr1L” or “Pr1U” input parameter. Simultaneously press and release “SEL” and “UP” to begin calibrating the parameter.

- a. Attach a calibrated thermocouple simulator to the process input.

NOTE: For greatest accuracy, the thermocouple simulator should be connected to the controller input module; and the simulator and the controller board should be turned on and