

CDF CEM Source Operation Technical Guideline

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Abstract

This document describes three methods for operating the CDF CEM Source drives. The first uses a bench-top voltage supply, and the others use the CDF CEM calibration card.

1 Bench-top Voltage Supply Operation

In order to operate the source drive using a Voltage Supply, the following steps are necessary:

- 1) Remove the source drive cover plate, replacing the Lead Garage immediately after the cover plate is removed.
- 2) Connect one wire from each side of the voltage supply to one motor voltage lead, using the terminal block on the source drive.
- 3) Monitor the location of the source using a portable radiation meter (for when the source is outside of the wedge) in conjunction with a calorimeter readout program (for when the source is inside the wedge). QIETEST, as well as other calorimeter readout programs, exist and the appropriate documentation should be consulted if the operator is unfamiliar with that software.
- 4) Increase the voltage supplied by the Voltage Supply in order to move the source. This voltage should not exceed 30 volts.
- 5) If the source moves in the wrong direction, reverse the leads on the voltage supply.
- 6) When the monitoring software indicates that the source has reached the inside limit of the calorimeter, reverse the leads and bring the source back to the garage.
- 7) Use a portable radiation meter to verify that the source is in the center of the garage.

2 Calibration Card Front-Panel Operation

The Front-Panel of each Calibration Card has two key switches and three buttons. Each key switch has three positions. The top key switch selects the mode

of source operation (software control, front-panel control, or disabled) and the second selects which source drive will be controlled, if front-panel control is enabled. Only one source drive at a time can be operated in front-panel mode. The three buttons are monetary on buttons. The top button starts the source, the middle button pauses the source, and the bottom button toggles the direction of motion of the source.

In addition to the switches and buttons on the front-panel, there are also lights which indicate which limit the source is at, it will or is moving in, and if it is enabled. These LED's are labeled.

In order to operate the source in front-panel mode, the following steps should be followed:

- 1) Set the top key switch to front-panel mode
- 2) Select the source drive using the lower key switch
- 3) Set the source speed by using the VISIONdemo program on the VME crate controller to write the speed (from 0-255) in to memory location 0x20 on the calibration card. For wedge A, the speed is contained in bits [15:8], for wedge B in [23:16], and for wedge C in bits [31:24].
- 4) Press the direction toggle button until the direction LED indicates that the source will move in the correct direction.
- 5) Press the start source button.
- 6) Wait until the Source Location LEDs indicate that the source has reached a limit.
- 7) Press the start source button again to return the source to the garage.

3 Calibration Card Operation using Run Control

As the Run Control software is currently under development, only an expert should operate the sources using Run Control. This section will be updated once the CEM Source Drive portion of the software is stable and well tested.