

6. Connect the DVM to the X output on the rear panel.
7. Connect the DVM to the CH1 OUTPUT on the front panel again.

Press [Channel 1 Output] to select Display.

Press [Channel 1 Display] to select R.

turn on the OVLD indicator in the Channel 1 display.

With offset and expand, the output voltage gain and offset can be programmed to provide control of feedback signals with the proper bias and gain for a variety of situations.

Offsets add and subtract from the displayed values while expand increases the resolution of the display.

The X and Y outputs on the rear panel always provide voltages proportional to X and Y (with offset and expand). The X output voltage should be 10 V, just like the CH1 output.

The front panel outputs can be configured to output different quantities while the rear panel outputs always output X and Y.

NOTE:

Outputs proportional to X and Y (rear panel, CH1 or CH2) have 100 kHz of bandwidth. The CH1 and CH2 outputs, when configured to be proportional to the displays (even if the display is X or Y) are updated at 512 Hz and have a 200 Hz bandwidth. It is important to keep this in mind if you use very short time constants.

CH1 OUTPUT can be proportional to X or the display. Choose Display. The display is X so the CH1 output should remain 10.0 V (but its bandwidth is only 200 Hz instead of 100 kHz).

Let's change CH1 to output R.

The X and Y offset and expand functions are output functions, they do NOT affect the calculation of R or θ . Thus, Channel 1 (R) should be 0.5V and the CH1 output voltage should be 5V (1/2 of full scale).

The Channel 1 offset and expand keys now set the R offset and expand. The X offset and expand are still set at 40% and x10 as reflected at the rear panel X output.

See the DC Outputs and Scaling discussion in the Lock-In Basics section for more detailed information on output scaling.