

Manual Calibration sequence for mA-2000

Notes:

**Use TP0 as ground reference for electrical measurements.
Make sure probe cores are clean and moving / closing freely.**

1. Set pots to initial positions in **DC mode, 2000mA range**;
 - a. RV109 fully CCW
 - b. Center the Zero controls (RV102 & RV103), RV104 and RV111.
2. Adjust RV100 for 11kHz ± 0.10 kHz excitation (frequency adjust at TP4)
3. Remove clip from TP4
4. Adjust RV104 for low AC noise 0 ± 200 mV at analog output (with DC offset = 0 ± 80 mV)
5. Check offsets in DC & AC Hi modes, 0 ± 100 mVdc
6. Adjust RV111 for LoBatt indicator threshold ~ 14.5 Vdc (on at 14, off at 14.6)
7. Adjust RV110 for 998.5 ± 1.5 at 1000 mAdc (gain for DC & AC-low) at analog output
8. Adjust RV106 to match display to analog output (adjusts voltage into A/D chip) at 1.8Adc & check at 1Adc. Readjust if needed.
9. Check 200/2000mA range error at 100mAdc (switch between ranges)
10. **Switch to AC-High** frequency mode
11. Adjust RV107 for 0.0 (TRMS offset)
12. Adjust RV108 to match outputs ± 2 mA at 700mA, 200Hz and 2kHz (high filter circuit)
13. Adjust RV105 for correct output ± 1 mA at 700mA, 10kHz (gain for AC-high mode)
14. Checks output at 200Hz, $180 \pm 1\% + 0.2$ mA and $1500 \pm 1\% + 2$ mA
15. Check 700mA, 40kHz ± 7 mA
16. Switch **to AC-LOW** frequency mode
17. Adjust RV104 for 1510 ± 20 mA at 1500, 200Hz (gain AC-low mode)
18. Adjust RV109 for 1500 ± 10 mA at 200Hz (gain for DC & AC-low)
19. Check for < 200 μ V AC noise at 0mA

Performance Test (short version)

1. Low battery indicator & zero pot span tests
2. DC offset test, 0 ± 1 mA
3. DC range noise test, 200 μ Vac max
4. Ranging test at 100mA, ± 1 mA
5. Display vs output at 1000mA, ± 4 mA
6. DC Linearity
 - a. 9 and 12mA, $0.3\% + 0.3$ mA
 - b. 100 and 190mA, $0.3\% + 0.5$ mA
 - c. 1000 and 1900mA, $0.3\% + 1.5$ mA
7. AC High mode, 200Hz Linearity
 - a. 7 and 33mA, $2\% + 0.2$ mA
 - b. 350, 500 and 1500mA, $2\% + 2$ mA
8. AC high mode, 2kHz Linearity
 - a. 7 and 33mA, $1.5\% + 0.2$ mA
 - b. 350, 500 and 1500mA, $1.5\% + 2$ mA
9. AC High mode 40kHz Linearity
 - a. 7 and 34mA, $1.5\% + 0.2$ mA
 - b. 500mA, $1.5\% + 2$ mA
10. AC High mode, Freq. Response
 - a. 350mA at 200Hz, $2\% + 0.2$ mA
 - b. 350mA at 5kHz, $1.5\% + 0.2$ mA
 - c. 325mA at 40kHz, $2\% + 0.2$ mA
 - d. 125mA at 100kHz, $2\% + 0.2$ mA
11. AC Low mode 200Hz Linearity
 - a. 7 and 33mA, $1.5\% + 0.2$ mA
 - b. 1000mA, $1.5\% + 2$ mA

