



**TELEDYNE
INSTRUMENTS**

Advanced Pollution Instrumentation

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Service Note

95-023 Rev B
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M152/252 4-20 mA CALIBRATION

1. Install the 4-20mA current output chip in U9 on the control card assembly.
2. Switch the jumpers JP4, JP5 to 1-2 position on the control card assembly
3. Input zero air. Once the unit has stabilized, adjust R8 of the control board for 0.00 ± 0.005 v at TP3 of control board.
4. Connect the DVM (switched to current input) in series with a 200-600 Ω resistor to the DAS output.
5. Adjust the front panel "Zero" pot for 4.00 mA output at the DAS output.
6. Adjust R10 on the control card to zero the front panel meter.
7. Input approximately 90% of the range span gas. Allow to stabilize.
8. Check if TP24 agrees with the calibration chart (For 152: 3.6 vdc @ TP24. For 252: 4.5 vdc @TP24). If not, readjust R2 on the mixer card. For M152, make sure TP25 reads 3.5 vdc. If not, readjust R3 on the mixer card.
9. Calculate using the following equation the output current.

$$\text{Output current} = \frac{\text{Gas conc (ppb)} \times 16.00 \text{ (mA)}}{\text{Analyzer range (ppb)}} + 4.00 \text{ (mA)}$$

For example: the analyzer range = 500 ppb
 input span gas = 450 ppb

$$\text{The output current} = \frac{450 \text{ (ppb)} \times 16.00 \text{ (mA)}}{500 \text{ (ppb)}} + 4.00 \text{ (mA)} = 18.40 \text{ (mA)}$$

10. Adjust the "Span" pot on the front panel to achieve the precalculated current value.
11. Adjust R9 on control card for the correct reading on the front panel meter.