

TVA1000B Quick Start and Calibration Guide

1. Install filled hydrogen tank, attach probe/readout assembly, turn on analyzer and hydrogen supply valve.
2. Wait 4-5 minutes for proper hydrogen flow, then press **1 = Run**. The unit will ignite and display readings. If flame out message appears, clear the message (press **Exit**), wait another minute and repeat step 2. If the unit has not been properly calibrated, a bad calibration parameter error appears – go to step 3 below.
3. Press **Exit** until the Main Menu appears. Calibration can now be performed. For best results, allow unit to warm up for 20 minutes, then press **2 = Setup**.
4. Press **1 = Calib**.
5. Press **2 = SpanConc**.
6. Select the detector that the span concentration is for, then press the \uparrow or \downarrow arrow to select the correct unit of measure for the span gas. Enter the span calibration value, and press the **Enter** key. Repeat steps 5 & 6 for the second detector. Typically, the calibration gases are methane (FID) and isobutylene (PID).
7. Next zero the instrument. Press **3 = Zero** to start this process.
8. Press **1 = Both** for dual detector units, or **Enter** for single detector units.
9. Introduce zero gas (< 1 ppm total hydrocarbon) into the analyzer through the probe.
10. Press **Enter** to start (this assumes manual mode, the factory default).
11. Wait for minimal change in values (about 15 seconds). Typically, the sample is stable when the first 2 digits of the reading do not change for 4-5 seconds.
12. Press **Enter** to accept, then press **1** to save.
13. Next calibrate with the span gas. Press **4 = Span**.
14. Select the detector to be calibrated, and press **Enter** to start. Follow the screen prompts. Wait for the readings to stabilize (typically 10-15 seconds). Enter **1** to save and repeat steps 13 & 14 for the second detector.
15. Press **5 = RF** to verify proper response factor.
16. Confirm that response factor says “RF0: DEFAULT”. If not, set to this value.
17. Press **Exit** twice to return to MAIN MENU.
18. Press **1 = Run**.

This completes the primary calibration, and the instrument is in the survey mode.

Daily TVA-1000B Maintenance Procedure Checklist

I.D. Number: [_____]

Date: _____

- With pump off, orient analyzer so that sample line connections face down
- Remove from sidepack and visually inspect sample line fitting for blockage
- Check sidepack filter cup and probe filter cup or WATERTRAP Probe membrane. Replace as necessary and clean debris from sample line adapter fitting.
- Check sample line and readout cable for visible damage and contamination
- Calibrate analyzer in the manual mode and record the following after warm-up (or calibrate in the Auto mode and return to manual mode to record data):
 - FID:**
 - Zero counts _____ (should be < 5000 counts)
 - Span counts _____ (must = 175-250 counts/PPM Methane)
 - PID:**
 - Zero counts _____ (should be <20000 counts)
 - (10.6 eV)* Span counts _____ (must = 3500-6000 counts/PPM Isobutylene)

Example:
$$\frac{\text{Span Counts} - \text{Zero Counts}}{\text{Span Concentration (PPM)}} = \frac{25500 - 4100}{102 \text{ (PPM)}} = 210 \text{ Counts/ppm}$$

Note: If TVA-1000 is used in logging mode, this data is also included in header information. Retain this data for trend analysis. Although the values may change daily, the data can be a valuable resource for trend analysis.

At the end of the day or shift:

- Remove the FID endcap. Blow-out with dry air and replace insert if discolored
- Remove FID capsule. If visibly wet, shake-out excess water and let air-dry overnight
- Perform visual inspection for signs of damage

Weekly Maintenance Checklist:

- Replace sidepack and probe filter cups and clean sample line adapter fitting
- For all PID lamps except the 11.8 eV: Remove the PID capsule according to the instructions in the Maintenance section of the manual. Clean the lamp with a cotton swab and isopropyl alcohol. Dry the cartridge with a heat gun for 60 seconds to evaporate the alcohol. Reinstall the cartridge and cap. *Note: Refer to MI 611-183 in the instruction book on cleaning techniques for the 11.8 eV lamp.*
- Check and tighten strain-relief screws on readout assembly and screws securing three connectors on sidepack
- If possible, store the unit in a dry environment when not in use.