

Recommended Periodic Maintenance Procedures **2503AH, 257xR**

Cleaning

If the external surfaces of the chassis become dirty then it is advised that the user clean these surfaces with a cloth manufactured out of Micro Fiber or a soft non-scratching material. We recommend a mild-cleaning agent (like Windex blue). The user should note that the front panel should not be cleaned with a Freon based cleaning solution, nor should excessive moisture be allowed to enter the chassis during cleaning) We recommend that you spray the cloth first and then wipe down the equipment)

Care must be taken when cleaning the LCD screens (257xR, 1500, 1596, 2551, 2553), do not spray directly on to the glass and only use a non scratching material.

For the 250xAH make sure that you use a non-scratching cloth. We still recommend that you do not spray directly on the front even though the VFD display is behind an overlay.

Fan Filters

Over time, dirt and dust particles can accumulate inside the instrument. Excessive build-up of these contaminants can lead to a degradation in the isolation barriers and cause shorting of high voltages or currents that otherwise would not occur. 250xAH fan filters can be wiped down, or can be cleaned off with a brush. We do not recommend that you use an air tool to blow the filter out, as you will blow the contaminants inside the chassis.

We do recommend that the inside of the units be blown out on a periodic basis, every 90 days to start. Adjust the cleaning date based on how much manufacturing dust has accumulated. If the amount is still excessive bring the date forward; if the amount of dust is acceptable then delay the cleaning for a month. Perform this until you have a time period that is optimized for your environment.

The 257xR family does not yet have these filters fitted. *Coming soon to a unit near you.*

Internal Calibration

We recommend that an *internal calibration* be performed periodically, for all products with this capability. Internal calibration capability is an integral part of most Xitron Technologies instruments. Internal calibration, performed periodically, insures that the instrument is fully operational and is providing results as accurately as possible. Internal calibration procedures typically adjust any offsets due to temperature or aging drift back to zero. It is important that the instrument is capable of passing an internal calibration procedure, especially when accurate results are required. Even if the internal calibration does not seem to directly affect the primary circuitry used in a particular test, i.e. internal DC calibration when running AC tests, it still guarantees that the instrument is fully operational and may affect the accuracy of some readings. This should be performed on a weekly basis, unless otherwise stated, as part of your ongoing maintenance routine.

For the 250xAH family, follow these instructions.

General Note: If you are not using Current Transformers or Hall Effect sensors, then you will need to short together the bottom Bypass terminal connections. It is ok to keep these terminals shorted when not in use.

Daily:

Press the “Calibrate/Test” key
Press the menu/select key for the “Internal Calibration”
The instrument will complete its calibration sequence

Weekly:

Disconnect all wires and individually short the bottom Bypass terminal connections.
Press the “Calibrate/Test” key
Press the menu/select key for the “Input Calibration”.

Note: the Input Calibration performs both an Internal and an Input zero calibration. While this is the preferred method for internal calibration, it does require disconnecting and reconnecting wires on a daily basis.

For the 257xR family, follow these instructions.

Weekly:

Press the NEXT key until you are on the configuration screen.
Press the EDIT soft key until the cursor has highlighted the date for DC Zero.
Press the PERFORM soft key, a DC Zero calibration is performed
Press the DONE soft key to exit from Edit mode.

System Grounding

A proper ground configuration is essential for any good data acquisition or signal measurement system. Most measurement systems allow for different types of ground configurations depending on the type of signal being acquired or measured.

A grounded signal source is one in which the voltage signals are referenced to a system ground, such as earth or building ground. The most common examples of grounded signal sources are devices, such as power supplies, oscilloscopes, and signal generators that plug into the building ground through a grounded wall outlet.

The grounds of two independently grounded signal sources generally will not be at the same potential. The difference in ground potential between two instruments connected to the same building ground system can be tens of millivolts (10mV) to hundreds of millivolts (200mV), or even more. The difference can be higher if power distribution circuits are not properly connected.

The main reason we ground a system is for safety. Proper grounding can prevent lethal shocks. The next reason for grounding a system that includes AC powered equipment is that proper grounding may reduce external noise pickup. A ground loop can occur when there is more than one ground connection path between two pieces of equipment. The duplicate ground paths form the equivalent of a loop antenna, which very efficiently picks up interference currents. Lead resistance transforms these currents into voltage fluctuations. As a consequence of ground loop induced voltages, the ground reference in the system is no longer a stable potential, so signals ride on the noise. The noise becomes part of the signal. This ground loop induced noise can affect the signal measurements of the instrument.



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TB102 Technical Brief

These current loops can also allow for excessive noise or potential spikes in the communications paths from one instrument to another. This can lead to communication errors or, in extreme cases, cause instruments to lock up entirely. Eliminating such multiple ground paths can insure communications integrity and consistent results.

All of Xitron Technologies' products are ground referenced, so one must ensure that the best possible ground to the unit is achieved. This can be done through the supplied three-prong power cord.

Note: In many applications, additional grounding straps are required to maintain a proper system ground.

On the back of the 250xAH family there is a Green ground terminal for each input section. This is Chassis ground. It is recommended that when using external current sensors in conjunction with the Bypass input, that the Low terminal of the CT is connected to the Ground terminal. This keeps the CT from floating away from ground and causing common mode spikes to disrupt the system.

The 257xR is grounded through the power cord. In many applications, the need to ground the chassis arises. We recommend that you remove the side cover plate and attach a Ground strap to the rear screw. Connect this strap to earth ground. We would recommend that the ground strap be made out of 10 to 12 AWG wire, and that the other end be attached to a solid earth ground that is close by.

If a 1500 chassis, or a 1596, or an AC/DC source is used, then it is recommend that the units be daisy-chained together. The units should be tied to the ground point located on the chassis of the AC/DC source. This connection is then attached to earth ground. The ground wires must be kept as short as possible, and as thick as possible.

External Calibration

It is Xitron's recommendation that this is performed on an annual basis for the 250xAH, 2551, and 257xR units. It is highly recommended that a calibration firm with the correct equipment and technical knowledge be utilized for this step.

If internal requirements dictate that these units are calibrated on a different schedule, a 90 day or 6 month interval can also be performed.

250xAH **Recommended Periodic Maintenance**

DAILY

➤ INTERNAL CALIBRATION

- Press the “Calibrate/Test” key.
- Press the menu/select key for the “Internal Calibration”.
- The instrument will complete its calibration sequence.

WEEKLY

➤ INTERNAL CALIBRATION

- Disconnect all wires and individually short the bottom Bypass terminal connections.
- Press the “Calibrate/Test” key.
- Press the menu/select key for the “Input Calibration”.

ANNUALLY

➤ EXTERNAL CALIBRATION

- Return the unit to Xitron Technologies, or other qualified calibration facility for a complete external calibration and adjustment.

AS NEEDED

➤ General Cleaning

- Clean all external surfaces with a cloth manufactured out of Micro Fiber or a soft non-scratching material. A mild-cleaning agent (like Windex blue) is recommended.

Note: the front panel should not be cleaned with a Freon-based cleaning solution, nor should excessive moisture be allowed to enter the chassis during cleaning. Spray the cloth first and then wipe down the equipment.

➤ Fan Filter Cleaning

- The filters should be wiped down, or cleaned off with a dry brush. It is not recommended that an air tool be used to blow the filter out, as it will blow the contaminants inside the chassis.

➤ Chassis Inside Cleaning

- It is recommended that the inside of the units be blown out on a periodic basis.

257xR **Recommended Periodic Maintenance**

WEEKLY

➤ **INTERNAL DC ZERO CALIBRATION**

- Press the NEXT key until you are on the configuration screen.
- Press the EDIT soft key until the cursor has highlighted the date for DC Zero.
- Press the PERFORM soft key, a DC Zero calibration is performed
- Press the DONE soft key to exit from Edit mode.

ANNUALLY

➤ **EXTERNAL CALIBRATION**

- Return the unit to Xitron Technologies, or other qualified calibration facility for a complete external calibration and adjustment.

AS NEEDED

➤ **General Cleaning**

- Clean all external surfaces with a cloth manufactured out of Micro Fiber or a soft non-scratching material. A mild-cleaning agent (like Windex blue) is recommended.

Note: the front panel should not be cleaned with a Freon-based cleaning solution, nor should excessive moisture be allowed to enter the chassis during cleaning. Spray the cloth first and then wipe down the equipment.

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