

APPLICATION NOTE

HOW THEY WORK: QS-I-TEST AND QS-V-TEST EVALUATION TEST BOX

The purpose of this Application Note is to help you use our Detector Evaluation Test Box when it first arrives. We've made a short list of important facts and tips that will help you get set up and running in a hurry. Here they are:

1. We normally ship the Test Box with the 9V batteries installed. We added foam pads to the lid to hold the batteries in place.
2. To reinstall the batteries, if necessary, remove two black thumb screws in the endplate and remove the endplate.
3. Slip the Test Box cover off by sliding it toward the open end. This gives you access to the PC Board and battery mounting brackets.
4. Carefully install the 9V batteries, make sure they're fully seated in the holder and that the polarity matches that noted on the board.
5. Turn power off, before plugging our Pyroelectric Detector into the PC board (note that we might have already plugged your device in), make sure the power switch is in an OFF position and that the Green Power On light is off.
6. With power off you may insert the detector pins into the PC board receptacle. Be careful to align the TAB on the TO5 or TO8 header with the white TAB printed on the PC Board.

CAUTION: For QS-IL or QS-THZ devices, do not plug PIN 2 into the PCB unless you plan on using the "external resistor" in the test box. PIN 2 should be bent out when inserting the other pins. This will give you the best possible performance. Plugging PIN 2 in will lower the R_v and increase the bandwidth of the detector. For QS-VL series devices, leave PIN 8 out unless you are going to use the "external resistors" to modify performance. This will give you the optimum noise performance.

7. If you want to add an external feedback (R_f) or load resistor (R_L) to the circuit simply place the "jumper" provided across the pins of connector "J1" on the board at the resistor value desired.
8. If you're using the QS-I-TEST and need to add an external compensation capacitor, to avoid amplifier oscillation, take a look at our Application Note 121D-201925 which will help you select the capacitor value. Now select a capacitor and install it by inserting its pins into C11 holes on the PC board. If the pins don't make good contact then soldering to the pins is an option.
9. That should do it. You're ready to slide the cover back into the box and attach it securely with the six screws you removed initially.

CAUTION: Do not over drive the self tapping screws. Just tighten them gently.

10. Optical Front End and Windows?
 - a. When using our High Voltage Response, Sensitive QS-VL and QS-IL series of hybrid pyroelectric detectors, we strongly suggest you buy and use an Infrared Window with the test box. This will isolate the Pyroelectric from laboratory air current which can cool or heat the detector, resulting in a large voltage output.
 - a. If you need to utilize the full broad spectral response of our detector, in the high voltage output mode, we suggest you consider adding a "light tube" to the front aperture. Take a look at the ThorLabs SM1L10 or SM1L20 Lens Tube for this. It threads into our front aperture.

If you've followed all these steps and incorporated some of the tips, you are ready to power up and explore the full capability of the Pyroelectric Hybrid(s) you've chosen to evaluate.

