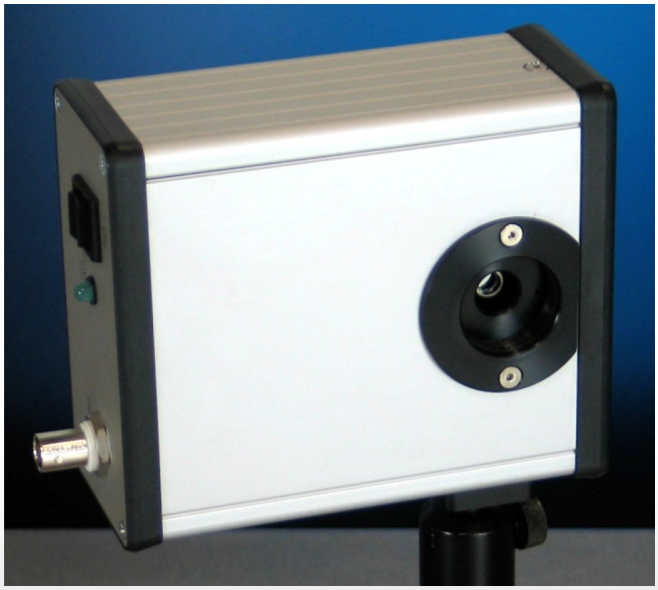
TECHNICAL NOTE

QS-I-TEST SPECIFICATIONS



Our **QS-I-TEST Evaluation Test Box** is a handy device that supports the use of our family of QS-IL, QS-IF and QS-THZ Hybrid Pyroelectric Detectors. It includes two 9V batteries that provide low noise power to the current mode circuit in the detector and a convenient analog BNC voltage output. It also includes SM1 threaded front bezel and removable aperture for the addition of optical components like IR windows. Note that the cover must be in place to provide EMI shielding and hold the batteries in place.

It is designed to allow you to plug in one of our many current mode pyroelectric detectors, large or small, add a window or filter, and mount it in your optical set up. You can select one of 6 feedback resistors to change the voltage responsivity and/or response time of the detector simply by moving a jumper between pins. You can add a small capacitor to convert the detector and test box into a Joulemeter (see Application Note 201925 and the picture below).

FEATURES

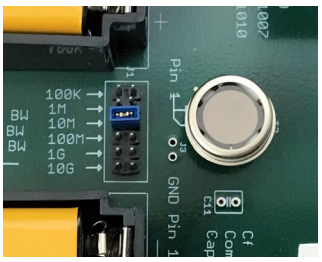
- Designed for use with our broadband pyroelectric detectors: QS-IL, QS-IF and QS-THZ
- Provides power to the detectors and an analog output
- Includes power ON/OFF switch and power on lamp
- Has a 1 inch diameter, threaded front bezel (1.035-40) for easy addition of windows and filters
- Includes a removable, 11 mm front aperture plate
- Bench mount ¼-20 threaded adaptor
- Includes 6 decades of feedback resistors from 100 kΩ to 10 MΩ
- Can add capacitor (C11) to create a Joulemeter or to prevent oscillation in radiometer mode

APPLICATIONS

- Measure Power, nW to mW
- Measure Energy, nJ to mJ
- Use with some of our THz probes
- Measure from 0.1 to 3000 μm with our QS sensors

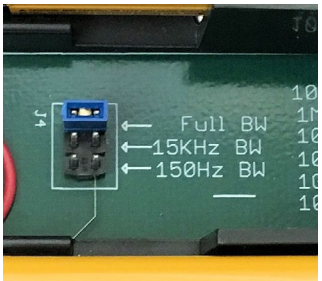
CREATE A JOULEMETER

Add a small (~1.0 pF) capacitor to the PCB at C11 to create and control the Rv in V/J of the test box. Move jumper to select Rf to achieve desired fall time.



MODIFY THE Rv OF THE PYRO DETECTOR

QS-I-TEST includes 6 resistors from 100 KΩ to 10 GΩ which can be selected by moving the blue jumper between the pins provided.

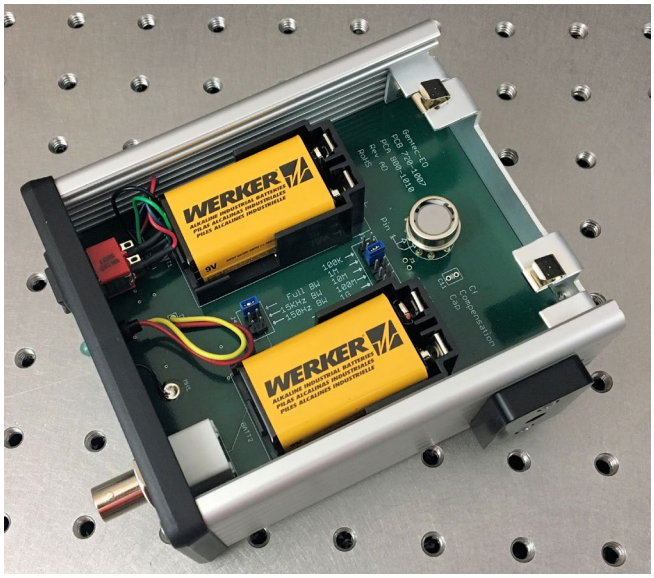


MODIFY THE BANDWIDTH OF THE PYRO DETECTOR

QS-I-TEST includes three bandwidth choices:
150 Hz, 15 kHz, or Full. This is selected by moving the blue jumper on the PC board to the desired position. The jumper must be placed for the testbox to function.

TECHNICAL NOTE

QS-I-TEST WITH TOP REMOVED



To open the QS-I-TEST simply remove the two thumb screws from the end cap and slide the top off. This gives you access to replace batteries and to plug your pyro detector into the PCB. It also lets you get at the "blue jumpers" when modifying the bandwidth and Rv or when adding a capacitor (C11). PIN 2 should be plugged into the PCB when using the jumpers, but left out when not, to achieve the best radiometric performance. When done, slide the top back into the box and add the end cap and screws.

DESCRIPTION	SPECIFICATION
Battery Power	± 9 V
Selectable Rf	10^5-10^{10} Ω
Front Bezel	SM1 thread (1.035-40)
Optical Mounting	¼ -20 threaded hole
Detector Position	1.0 inch from top of the black front bezel
Size	101.6H x 127W x 58.4D mm

COMPATIBLE DETECTORS

Here are the Hybrid Detectors that can be used with **QS-I-TEST**:

- QS1-IL, QS2-IL, QS3-IL, QS5-IL, QS9-IL
- QS1-IF, QS2-IF, QS3-IF, QS5-IF, QS9-IF
- QS2-THZ-BL, QS5-THZ-BL, QS9-THZ-BL

TYPICAL SYSTEM SETUPS

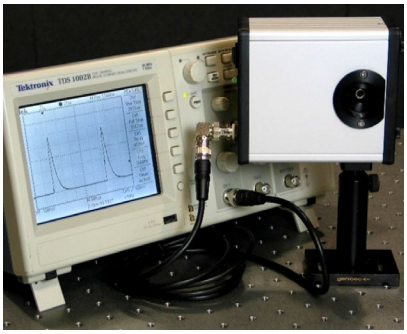


Fig. 1
QS-I-TEST and detector setup in Joulemeter mode for pulse energy measurement (J) of a pulsed source.

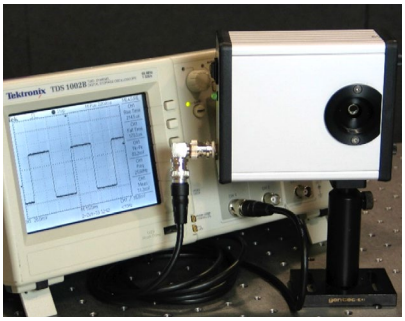


Fig. 2
QS-I-TEST and detector setup in the Radiometric mode for power measurement (W) of a chopped or modulated source.

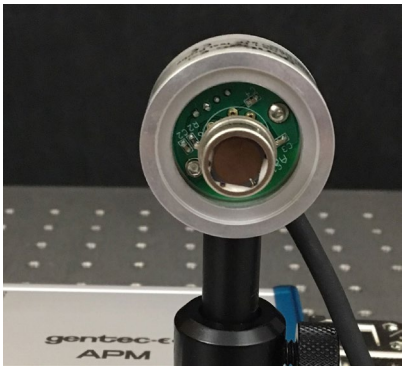


Fig. 3
QS-I-TP Test Probe is an option if the QS-I-TEST is too large for your set up. Notice that it is used with the APM power supply. For more info request a copy of the QS-I-TP data sheet.