



Product Guide

RF Power Sensor Connector Care



Taking performance to a new peak

P/N 98407200A

Boonton Power Sensor Connectors

Boonton peak and average power sensors have either an “N” or “K” type RF signal connector depending on the sensor frequency range shown in Figures 1 and 2. Newer sensor models have a ten-pin connector for signal and data communication connection to the power meter base module.(see Figure 3) Average power sensors have a two-pin signal connector for use with existing Boonton meters, but can be purchased or matched with a ten-pin data adapter that allows connection to newer power meter models. (See Figure 5).



CAUTION

When selecting a sensor, be sure of the maximum peak and average RF input power value. RF signal inputs above the sensor’s specified upper power limit may result in permanent damage to the detector circuitry.



Figure 1. Sensor with N(m) RF connector



Figure 2. Sensor with K(m) RF connector



Figure 3. Peak sensor with ten-pin connector for signal and communications



Figure 4. Average sensor with two-pin connector



Figure 5. Data adapter for average sensor models

Sensor Connection & Recommendations

Ten-Pin Connection

- 1) Connect the peak sensor's ten-pin connector to the sensor cable by aligning the red mark on the cable connection with the mark on the sensor connector and pressing the connectors together until they engage. (See Figure 7)
- 2) Connect the other end of peak sensor cable to the Channel 1 or 2 input in a similar manner.
- 3) The instrument will download the factory installed calibration data from the sensor memory while the sensor is connected to the power meter and display "Sensor Data Loading".
- 4) Do not hold the sensor body while taking measurements. This can result in measurement error due to temperature increase.
- 5) Before making measurements with Boonton power meters, the sensor should be connected to the instrument's built-in calibrator and calibrated. This applies for units with an on-board or optional external calibrator. The calibration is required for peak sensors.



Figure 6. Circular ten-pin connector

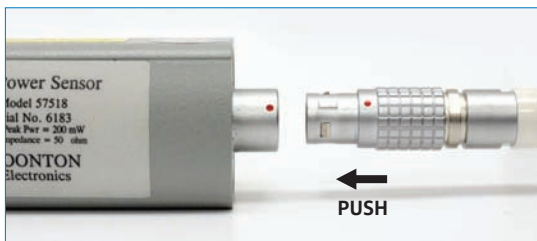


Figure 7. Peak sensor connector and the sensor cable (open)



Figure 8. Peak sensor connector and the sensor cable (closed)

Two-Pin Connection to Data Adapter

- 1) Connect the sensor to the cable by pressing both two-pin connectors together being careful to align the pins and ONLY hand-tighten the connector nut without cross threading.
- 2) Instruments with ten-pin input connectors will download the factory installed calibration data from the sensor adaptor memory while the sensor is connected to the power meter and display "Sensor Data Loading."
- 3) If the sensor is disconnected during the download process or an error message appears on the power meter display, disconnect and reconnect the sensor and press the "CLR" button.
- 4) Do not hold the sensor body while taking measurements. This can result in measurement error due to temperature increase.
- 5) Before making measurements with Boonton power meters, the sensor must be connected to the instrument's built-in-calibrator and calibrated. This applies for units with an on-board or optional external calibrator. The calibration is required for peak sensors.



Figure 9. Two-pin connector



Figure 10. Average sensor connector and sensor cable (open)

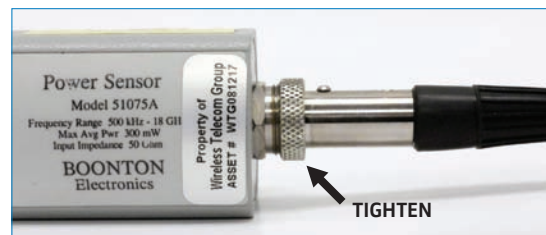


Figure 11. Average sensor connector and sensor cable (closed)

Preventing Test Port Connector Damage

- Keep connectors clean and protect using the plastic end caps provided with each sensor.
- Inspect connectors regularly, and look for metal debris, scratches or dents.
- Clean contact surface and threads with clean & dry compressed air.
- Align connectors first and only rotate the connector nut.
- Always follow MIL-C-39012 standards for making a connection
- A MIL-C-39012 or precision type "N" connector is recommended for the RF line signal source connection
- After proper alignment, rotate the connector nut by hand to connect, or disconnect the connector of the sensor from a signal source or power meter.
- If "N" connector is not equipped with a hex, it is recommended to use a specified mating torque.
- Do not over-tighten the connector by using the sensor body for additional leverage

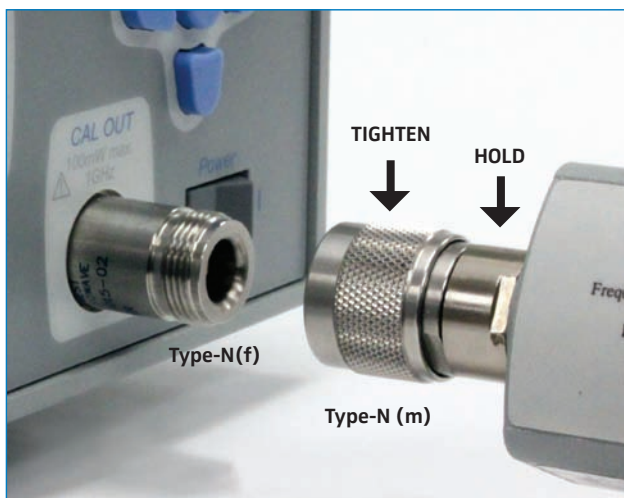
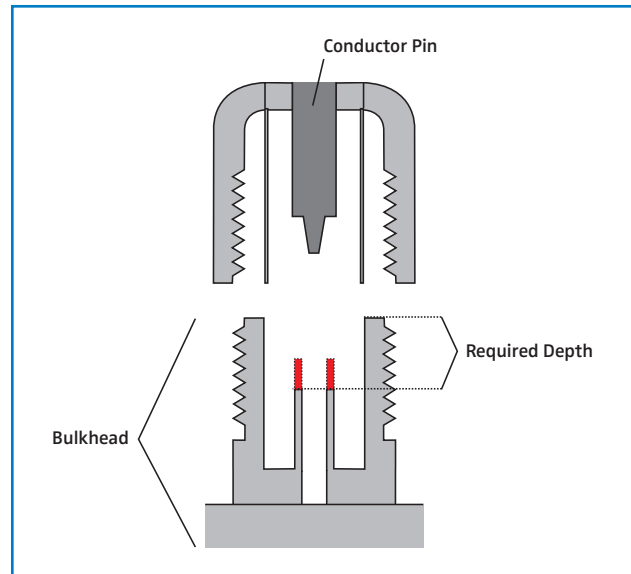


Figure 12.



NOTE: A common cause for "N" Type Connector damage is a bulk-head without the required mating connector depth (Red Projection).

Safety Recommendations

- 1) *Only rotate the connector nut, DO NOT use the sensor body or device to tighten the connector.*
- 2) *Do not use a torque wrench to tighten the connector.*
- 3) *Do not use a connector with deformed threads, or a bent or broken conductor.*
- 4) *Do not touch mating-plane surfaces with oily, or wax-like non-conductive substances*
- 5) *Do not apply a lateral force to the center conductor*

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