

Application note

QA-ES III Electrosurgery Analyzer Connections Quick Guide



Contact Quality Monitor Testing (CQM)

- CQM is the IEC recognized term (REM™ is a commonly used term)
- Enter CQM Function on QA-ES III
- Available Range is 1 to 475 Ohms
- Utilize the Blue, Dual Foil Cable with Black and Red connectors. The cable will have the Din pin that connects the ESU.
- On the QA-ES III, insert the Black Connector Variable Low, and Red Connector Variable High into the CQM port
- Connect CQM Adapter to ESU
- Typical Test Range is 7 to 135 ohms



CQM Safety Lead (Part# 4635171)

CQM Cable Configuration for Energy Output Testing

Single Foil Configuration

Used by older model ESUs, the return electrode only has one conductor, or foil to contact the patient.

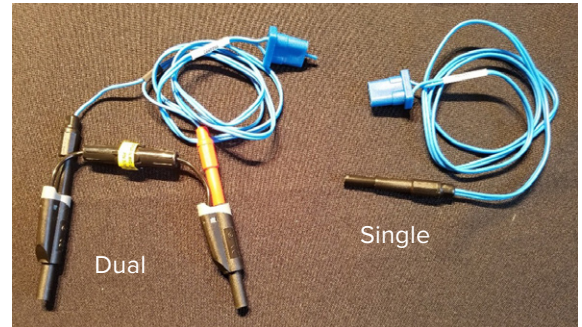
- There is no center pin on the ESU side of connector
- On some modern ESU models, Single Foil Configuration can only be tested in service mode

Dual Foil configuration

On most modern ESUs, there are two conductors/foils that contact the patient. The ESU monitors the resistance between the conductors to ensure patient safety. Notice this cable has two conductors and a center identifying pin on the ESU side connector.

In order to satisfy CQM requirements you must utilize with the REM Disabling cable as shown on the right.

- Connect only one side of the REM Disabling connector to the Variable Low port on the QA-ES III. Utilizing the Black Connector is recommended.
- The Blue Connector goes into the CQM Port of the ESU



RECM alarm disabling lead (Part #4635253)



Monopolar Energy Output Testing

- Enter Generator Output on the QA-ES III
- Connect 20” Red Lead between QA-ES III Variable High Port, and Energy output port of ESU Monopolar output
- Typical ESU configuration will have 3 similar size connections in the Monopolar port. Two of the connections are side by side, and one separated by itself. The isolated connection is the energy output.
- Utilizing the Dual Foil CQM configuration, connect one side (prefer black) to the QA-ES III Variable low. The Blue connector goes to the CQM port of the ESU.
- Enter QA-ES III Generator Output
- Follow OEM Service manual to determine required test resistances. Typical Resistances are:
 - Cut 300 Ohms
 - Coag 500 Ohms
- Press “Start Continuous” on the QA-ES III. Activate the ESU with foot switch. Upon completion press “Stop” on the QA-ES III to end test.



Monopolar 2 Cut/Coag Handpiece Connection

- Requires use of the Hand Piece adapter that is supplied by the ESU manufacture
- Connect the Red 20” test lead between the Hand Piece Adapter and the QA-ES III Variable High
- The Hand Piece Adapter may require the Black Bi-Polar activation cable to make good contact
- The Hand Piece Adapter will be inserted into the ESU Hand Piece port
- Test Procedure is the same as Monopolar Energy Output Testing



Monopolar Cut/Coag Automated Connection/ No Foot Switch

- Follow the Monopolar Energy Output setup for Ports 1 and/or 2
- On the QA-ES III use “Switch Section” on the top left of the analyzer
- Blue Lead from Coag port to Center port on the ESU
- Yellow Lead from Cut port to right port on the ESU
- Connect a Black Jumper lead from the QA-ES III Common to the back of the Red Variable High
- Set the QA-ES III on Generator Output
 - Set “F2 Foot Switch” to Cut or Coag
 - Utilize Start Single “F3” on the QA-ES III
 - If utilizing Start Continuous, beware of ESU Duty Cycle
 - If foot switch activates Cut/Coag, swap Blue and Yellow cables on the ESU, try again



Bi-Polar Connection

- Red Lead from RED Variable high to either of the larger ports on the ESU Bi-Polar port
- Black Lead from Black Variable Low to other larger ESU Bi-Polar port
- Set the QA-ES III to Generator Output Mode
- Set Resistance as per OEM Service manual (Typical 50 to 100 Ohms)
- Press Start Continuous on the QA-ES III
- Activate DUT with the Bi-Polar foot pedal
- If no reading or low reading Swap Red and Black Leads on the ESU



Bi-polar Cut/Coag Automated Connection/ No Foot Switch

- Follow Bi-Polar set-up
- On the QA-ES III use the “Switch Section” on the top left of the analyzer
- Then utilize the Bi-Polar Activation Lead. (the cable is black and looks like the banana pin broken)
- Connect Bi-Polar Activation lead from the QA-ES III Cut to small hole in the ESU Bi-Polar port, usually located between output ports
- Connect Black Jumper Lead from the QA-ES III Common to Red Activation port
- Select Cut on the QA-ES III Foot Switch selection
- Press “Start Continuous” on the QA-ES III. Activate ESU with the Foot Switch
- Upon completion press “Stop” on the QA-ES III to end test
- If no reading or low reading Swap the Red and Black Leads on the ESU



Bipolar Activation Cable (Part# 4635266)

Ligature Connection

- Utilize cable sets. Retractable pin covers with no piggyback
 - PN 4911A-36-0 and 4911-36-2
- Connect Red to Variable high port, far right on the ESU Ligature
- Connect Black to Variable low, far left port on the ESU Ligature
- Utilize Vessel Sealing Function on the QA-ES III
- You must activate service mode on the ESU to perform Vessel Sealing
- Set the QA-ES III Resistance as per ESU OEM Manual (Typical 200 Ohms)
- Utilize “Start Continuous” on the QA-ES III
- Active Ligature from the ESU Service Screen



Cross Coupling and High Frequency Leakage

- Connect Variable Low to Green cable and then to a known ground reference on the ESU
- Connect Red cable from specified output port to Variable High
- For Cross Coupling, the Green cable will stay on the ground pin. Refer to the ESU Service manual for the Red output cable location. Utilize the Blue CQM cable for REM port testing. Connect one side at a time to Variable High
- Utilize HF Leakage from the home screen; it will automatically apply a 200 Ohms load
- Ensure both devices are placed on non-conductive surfaces. Do not stack the ESU and QA-ES III on each other, and do not cross leads, if possible.
- Follow the OEM specifications, as set ups can vary

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