Solder three brass connectors in a solar panel junction box

Objective  Solder three brass connectors one at a time in a solar panel junction box without affecting the components in the junction box.

Material  Solar panel junction box, brass connectors, solder wire.

Temperature  700 ºF (371 ºC)

Frequency  344 kHz

Equipment  
- Ambrell 4.2 kW induction heating system, equipped with a remote workhead containing one 1.0 µF capacitor.
- An induction heating coil designed and developed specifically for this application.

Process  A three turn oval shaped helical coil is used to heat the connectors. A piece of solder wire is placed onto the joint area and each joint is heated separately for 5 seconds to solder the connector. The total process time is 15 seconds for the three joints.

Results/Benefits  Induction heating provides:
- Pinpoint accuracy deliver heating only to joint; does not affect surrounding components.
- Localized heat produces neat and clean joints.
- Produces high quality, repeatable results.
- Even distribution of heating.
Brass connector in place prior to soldering

Soldering brass connector

Finished product