

## Receptacle Installation – Board Test

Smiths' Board Test Receptacles are designed to be installed into G-10, FR-4, or some glass-filled insulative plastic material. They are designed to house Smiths probes. The press fit feature of the receptacles allows easy removal and installation of probes and provides an excellent electrical connection.

For each product series on our website, receptacles, installation tools, and drilling information is found on the accompanying receptacle page. Smiths offers four types of receptacle terminations:

- SC "Solder Cup" Receptacles: Are designed for soldering a wire directly to the receptacle. For small volume.
- CR "Crimp" Receptacles: Are designed to be terminated using Crimp Tools. See website for Crimp Tool part numbers. Best for medium volume.
- WW "Wire Wrap" Receptacles: Are designed for use with a wire wrap gun. Used in highest volume.
- PW "Pre-Attached Wire" Receptacles: Are receptacles sold with 12" or 36" wire. Not all receptacles are offered with PW option. Where customers don't want to deal with wire or connecting wire.

Installing receptacles properly is important to an effective test fixture. Receptacles will follow drilled holes, so perpendicular holes will result straight perpendicular probes giving users best probe pointing accuracy.

Once holes are drilled to the proper size, they are seated or installed with insertion tools. Drop the receptacle in the drilled hole. It will easily fall until it interferes with the press ring. Use an insertion tool to press the receptacle until it is flush with the top of the fixture surface. **IMPORTANT NOTE:** Use a light hammer and several light taps to seat receptacles. The press ring will remain intact and cause an interference fit and hold for the life of the fixture. If the press ring collapses, the receptacle will not retain in the drilled hole. Probes can now be installed into receptacles. Usually the probe barrel will be flush with the top of the receptacle after insertion. Insertion tool part numbers are noted at each receptacle page on our website.

For ease of use, we recommend:

SC Receptacles: Solder the wire before receptacle installation.

CR Receptacles: Crimp wires before receptacle installation.

WW Receptacles: Attach wires after receptacle installation.

**Soldering Receptacles:** Some users solder receptacles directly to via in PCBs in their fixture designs. There is no need for press fit when soldering. In these cases, Smiths recommends:

- Solder the receptacles before probe installation to keep heat away from probes. Excessive heat will anneal springs and can lead to probe failure.
- Suggest using CR receptacles. They are least expensive and have a thru hole to allow easier post-soldering cleaning.
- Receptacles should be held in a fixture to ensure perpendicular installation when soldering. Considering the plunger extension of some of Smiths probes - up to ½" (12.7mm), non-perpendicular receptacles may result in missing pad or test targets.
- The receptacle press rings are very consistent in location and are a good method of "setting" Z height.



Receptacle Installation – continued...

Offset Receptacles: Some applications call for offset receptacles where the top of the receptacle is above the surface of the fixture or PCB.

- For press fit applications, note that the press ring needs to be completely in the fixture base to ensure a good press fit. Smiths does not offer “offset insertion tools”, but they are easily made.
- For solder applications, use a soldering fixture to provide offset distances and perpendicularity.

Contact us thru [www.smithsinterconnect.com](http://www.smithsinterconnect.com) for questions and help.

All of our catalogued Board Test Products are available at:

[www.mouser.com](http://www.mouser.com)

[www.alliedelc.com](http://www.alliedelc.com)

Regards,

Smiths Technical Team



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