

Pelnox Evaluates Conductive Adhesive for Grounding Connections Inside Electronic Devices

Pelnox is exploring conductive adhesive for grounding, GND, and EMI shielding connections where conventional joining methods may present design challenges.

HADANO-SHI, KANAGAWA, JAPAN, August 19, 2026 /EINPresswire.com/ -- PELNOX, Ltd. today announced that it is evaluating ONE-HAND MIXING®, a mixer-integrated two-part conductive adhesive, for ground (GND) connections, EMI shield bonding, and related conductive bonding applications inside electronic devices.

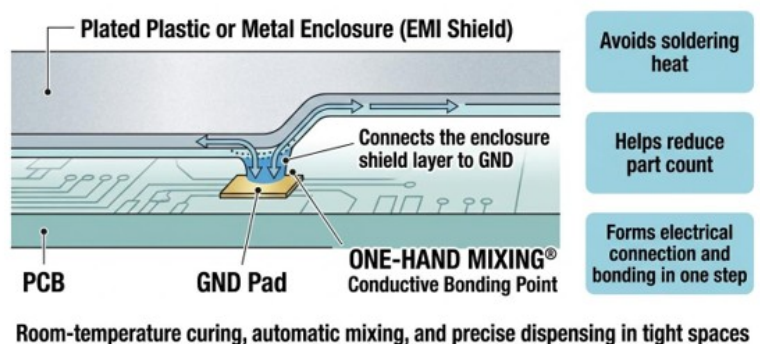
Ground connections inside electronic devices play a critical role in product design by electrically connecting enclosures, shielding components, PCB ground planes, cable shields, and other conductive parts. Beyond providing a current return path, grounding helps support EMI/EMC performance, electrostatic discharge (ESD) protection, and stable reference potential—factors that can influence signal quality in medical, industrial, measurement, and communications equipment.

Traditionally, these connections have been made using soldering, screws or studs, spring contacts, and conductive gaskets. These established methods will continue to serve as primary solutions. However, the trend toward



ONE-HAND MIXING® pre-measured two-part system: no weighing or manual mixing; cures and stores at room temperature; strong adhesion with excellent flexibility and resistance to scratching, twisting, and bending.

GND Connection Inside an Electronic Device



Conceptual illustration of a grounding connection using ONE-HAND MIXING® conductive adhesive to electrically bond an enclosure shield to PCB GND without soldering.

smaller and lighter electronic products, greater use of plastic and plated-plastic enclosures, and wider adoption of heat-sensitive components such as flexible printed circuits (FPCs) and sensors has created connection points where conventional approaches can be difficult to apply.

For example, plated-plastic housings may not provide conductive paths comparable to metal enclosures. Soldering heat can affect plastic components, FPCs, or plated surfaces. Adding screws or studs can increase weight, part count, and assembly time, while spring contacts and conductive gaskets require careful control of contact pressure, alignment, and long-term contact stability. In compact corners, curved surfaces, or ultra-thin enclosures, design options for mechanical fastening may be limited.

Against this background, Pelnox is evaluating conductive adhesives as a potential complement to soldering and mechanical fastening for grounding, GND connections, and EMI shield bonding inside electronic devices.

A conductive adhesive can provide electrical connection and mechanical bonding in a single step, without applying soldering heat, making it a candidate for locations where conventional joining methods are difficult to use.

During this evaluation, Pelnox identified a practical challenge that is especially important in small bonding areas: consistency of preparation and application.

Ground connections inside electronic devices often require only a small amount of adhesive applied to a precise location. As a result, slight variations in mixing ratio or incomplete mixing can appear as variations in contact resistance. The weighing and manual mixing steps required for conventional two-part conductive adhesive systems can therefore become a burden not only on production lines, but also during prototyping, maintenance, and repair work.

To address these challenges, Pelnox proposes ONE-HAND MIXING[®], a two-part conductive adhesive built around a mixer-integrated cartridge.

The cartridge is pre-filled with resin and hardener, which are automatically mixed inside the static mixer during dispensing. This design eliminates weighing and manual mixing, helps reduce operator-dependent variation, and allows the adhesive to be dispensed in dots or continuous beads only where needed. Because the material cures at room temperature, it can also be evaluated for components where exposure to soldering heat is undesirable.

Conductive adhesives are not intended to replace every grounding method. For applications governed by product safety standards, including protective grounding or safety grounding, conductive adhesive alone does not ensure compliance with applicable requirements. Verification should be performed with the actual device structure and, where required, in combination with mechanical fastening and redundant grounding paths.

Application-specific evaluation remains essential. Key items include contact resistance, adhesion strength, long-term stability under temperature, humidity, and vibration, and system-level EMC performance in the finished product.

Pelnox plans to continue building evaluation data for plated-plastic housings, metal enclosures, PCB ground connections, shielding components, and cable shield terminations. The company intends to share these findings as application-specific technical information to support product development.

Although ground connections inside electronic devices are rarely visible, they form a fundamental part of product quality and performance. If the designer's toolbox expands beyond soldering and mechanical fastening to include a third option—dispense and bond—engineers may gain greater flexibility when designing the next generation of electronic devices.

About Pelnox, Ltd.

Pelnox, Ltd. manufactures and supplies epoxy, polyurethane, silicone, and conductive resin products for electrical and electronic components, serving customers in Japan, Asia, and markets worldwide.

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