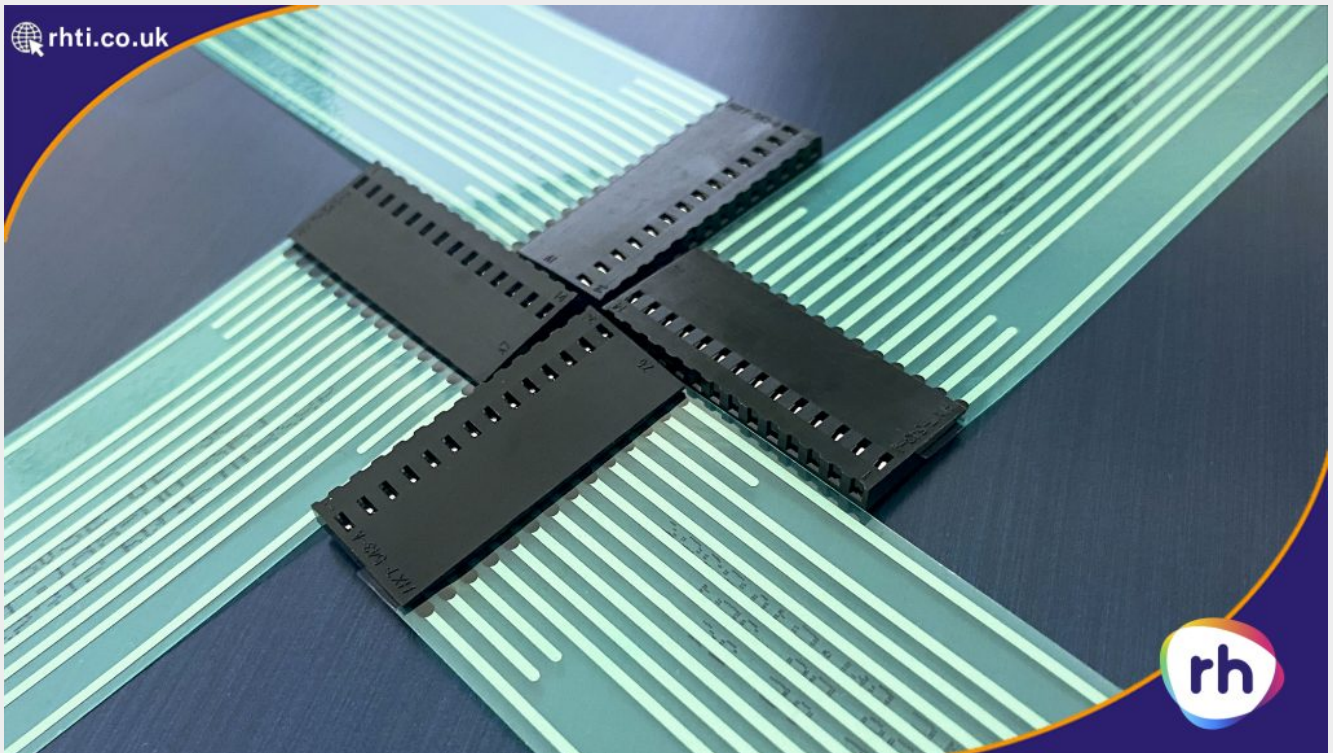


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How to Choose the Best PCB Connectors for Your Membrane Switch

Designing a membrane switch? Don't leave the PCB connector as an afterthought. Discover how to choose the right connection for space, durability, and cost.

KEYPADS & SWITCHES



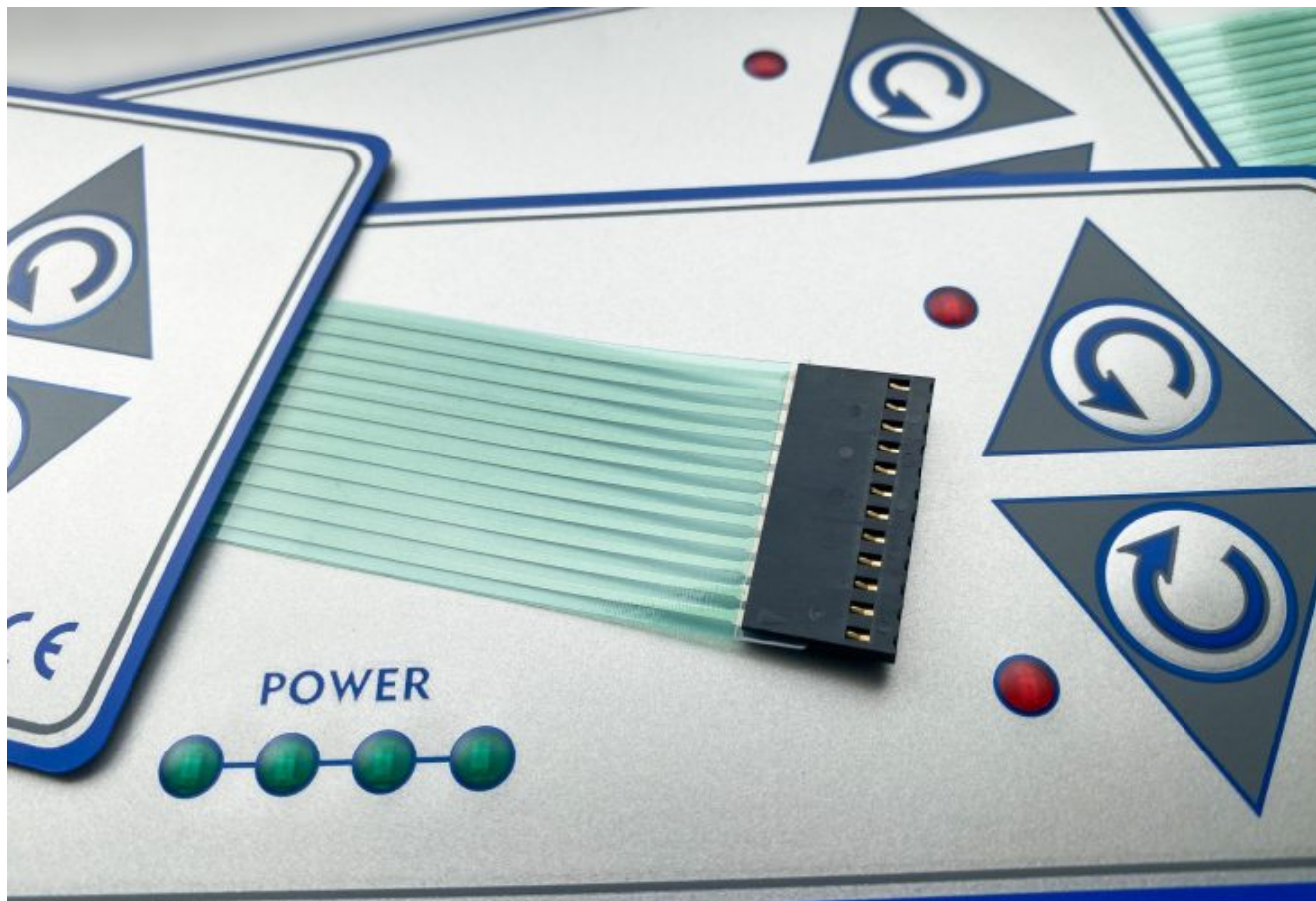
How to Choose the Best PCB Connectors for Your Membrane Switch

Choosing the best PCB connectors for your membrane switch keyboard can make the difference between a smooth product integration and a major design headache. When you develop a new electronic product, you spend countless hours perfecting the user experience. You choose the ideal tactile feedback, select brilliant backlighting, and carefully map out the user journey. However, a critical decision often happens too late in the process. How will your custom interface communicate with the printed circuit board (PCB)?

Whether your device utilises a [membrane keypad](#), a [silicone rubber keyboard](#), or a [capacitive switch](#), it needs a reliable bridge to its electronic brain. From compact consumer devices to rugged industrial equipment, you can pair your interface with a wide range of connection options. The ideal choice depends entirely on your specific application, operating environment, and factory assembly process.

At RH Technical Industries Ltd., we want to make your design journey as seamless as possible. In this guide, we break down the most common connection types. This will assist you in choosing the perfect fit for your project.

Here is a closer look at the most common options and exactly how they function:



ZIF Connectors for Compact, Low-Profile Assemblies

ZIF (Zero Insertion Force) Connectors handle delicate, flexible printed circuit (FPC) tails perfectly. A small, surface-mounted flip-lock lever on your PCB opens to receive the flexible tail, then snaps shut to grip it firmly. This mechanism secures the tail without scratching the conductive silver or copper tracks. Because these connectors sit nearly flat against the board surface, they offer the ultimate low-profile solution for slim, modern electronic enclosures.

Crimped Housings for Robust Cable-to-Board Connections

If your product must survive high-vibration environments, standard friction-fit connections might loosen over time. Crimped Housings solve this issue by introducing a strong mechanical link. Technicians crimp durable metal contacts directly onto the end of the polyester tail and snap them into a protective plastic housing. This housing clicks securely into standard header pins on your PCB, providing excellent mechanical retention and physical strength.

Male Header Pins for Straightforward PCB Integration

This classic approach simplifies the connection by removing the need for a secondary cable assembly. We can attach Male Header Pins directly to the flexible tail of the membrane switch. These rigid, perpendicular pins slide effortlessly into matching female sockets or through-holes on your main PCB. This creates a straightforward, highly reliable connection during final factory assembly.

Hot Bar Soldered Tails Where Space is at a Premium

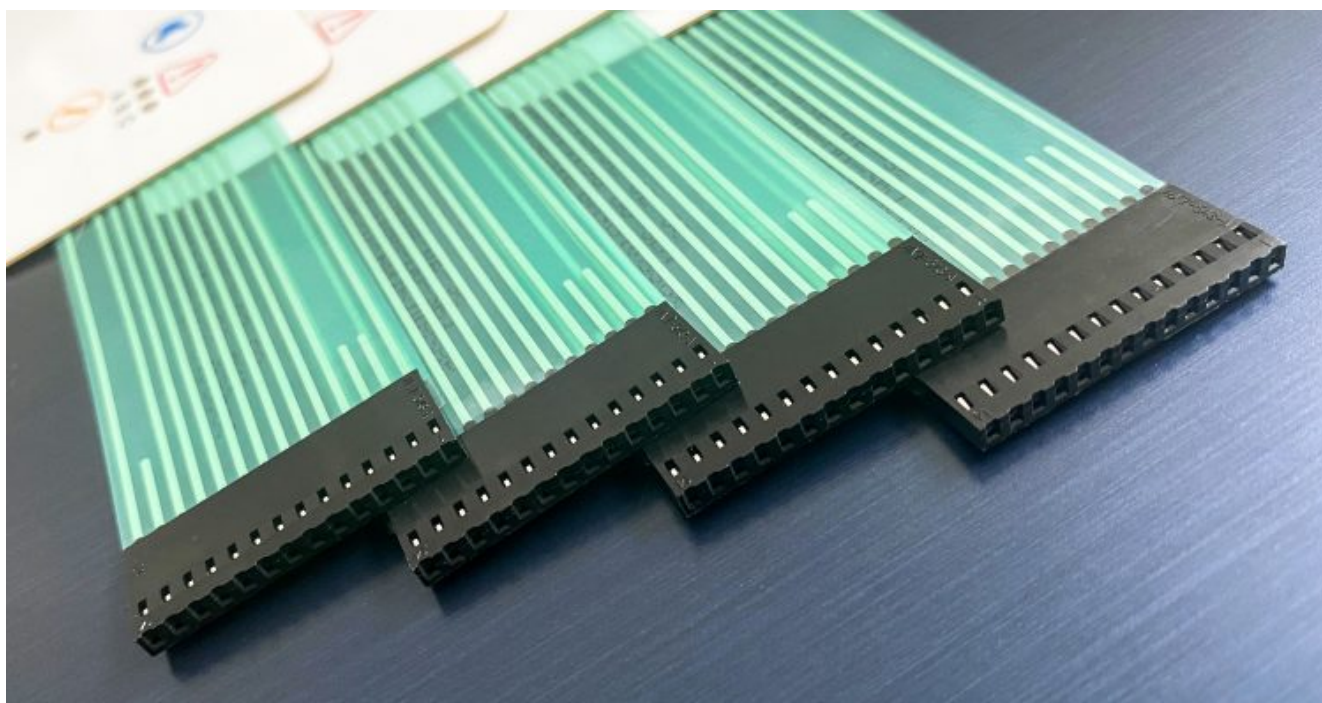
When your enclosure leaves absolutely no room for a plastic connector housing, Hot Bar Soldering provides the answer. In this process, a specialised thermode tool applies precise heat and pressure. The result is a permanent direct bond between the flexible tails and the PCB pads. This eliminates the physical connector entirely, saving both vertical space and component costs while creating a permanent bond.

Anisotropic Film Bonding for High-Density Applications

As electronics shrink, circuit lines become incredibly fine and tightly packed. Anisotropic Conductive Film (ACF) Bonding uses a specialised adhesive layer embedded with microscopic conductive particles. When we apply heat and pressure, the film conducts electricity vertically between the tail and the PCB pads, but remains completely insulating horizontally. It enables ultra-fine pitch connections for high-density capacitive switches.

Custom Cable Assemblies Tailored to Unique Installation Requirements

Sometimes, the physical distance or pathway between your user interface and the main [PCB](#) requires a non-standard layout. We can integrate Custom Cable Assemblies, such as wire harnesses, woven ribbon cables, or shielded bundles, directly into the membrane switch design. This allows you to route signals around internal obstacles, navigate tight corners, or bridge long distances within complex machinery.



Each option brings its own balance of durability, assembly speed, serviceability, and cost efficiency. The “best” choice depends entirely on how and where the product will be used.

At RH Technical Industries Ltd, we work closely with customers from the early design stages to help select the most suitable connector solution for both performance and manufacturability. Think of it as choosing the right bridge between user and machine... some are tiny suspension bridges; others are industrial steel viaducts.

If you're developing a new membrane interface switch and would like guidance on the best PCB connectors selection, feel free to get in touch with our expert team today.

WE CAN HELP!