

# Innovative Connectivity for Greater Safety and Mobility

**S**oldiers need equipment that's tough yet versatile, to ensure they perform well in any environment or situation. Their gear gets knocked about, shaken and corroded, so has to withstand extremes of vibration, temperature, humidity and contamination. Most importantly, soldiers' lives depend on reliable equipment. Only the most rugged, sealed connectors specially designed and tested for defence applications make the grade. Innovation trends like ultra-resistance, miniaturization and portability aim to make soldiers' lives safer and easier by making their equipment smaller, lighter and smarter.

Performance requirements for defence and security equipment are rapidly evolving and becoming very high-tech to counter new threats. Connectivity solutions therefore need to be constantly improved to modernise equipment and customize it for people working in the most demanding and critical situations. By teaming up with the world's military, and its defence suppliers and contractors, Fischer Connectors has created a vast range of state-of-the-art interconnection products for all types of Aerospace,



*Fischer Connectors' products are perfectly suited for Aerospace, Defence and Security applications. Photo: © Fischer Connectors.*

Defence and Security applications. Fischer's rugged, sealed circular connectors meet rigorous requirements for soldier equipment. They are used in almost all aspects of the soldier system, e.g. CPU's, radios, battery packs, and helmet- and weapon-mounted systems. Beyond the soldier system, they are also integrated into security and surveillance systems, unmanned vehicles, simulation training equipment, secure data transfer, and anything else that requires connectors that can withstand harsh environments.

Soldiers rely heavily on the functionality of their equipment each day in life-threatening situations, and need total confidence that their equipment will stay connected in the most challenging situations. The versatile Fischer Core Series line and cable assembly solutions are well known and have been relied upon by military forces worldwide over the last sixty years, e.g. in the U.S. Military's Future Force Warrior Program, the UK Ministry of Defence's Future Infantry Soldier Technology (FIST) Programme and France's FELIN equipment. They have a proven track record of high performance in harsh environments, including mountains, deserts, jungles and swamps.

With waterproof sealing to IP68/IP69 mated and unmated plus three independent sealing barriers, they withstand shocks, vibrations, immersion, corrosion and extreme temperatures. This ensures long-term reliability. Manufactured under the most stringent quality conditions, they have been tested to strict IEC standards, comparable to MIL-Specs. These secure push-pull connections can easily be combined with other product lines that reduce the soldier's fighting load and power requirements, improve the soldier's protection, effectiveness, and environmental and situational awareness.

Ultra-resistance combined with ultra-lightness is increasingly in demand. The durable **Fischer UltiMate™ Series** connectors are best for tough applications when

▶ weight matters. Rugged, compact and lightweight, they have extremely robust mechanical keying, IP68/69K sealing even unmated (tested on request up to 120m submersion for 24 hours), 360° EMC shielding using a grounding contact ring. They therefore offer exceptional shock, vibration and corrosion resistance, and can operate at temperatures from -55°C to +135°C. To meet security needs, they also have locking push pull or emergency release, robust keying with 4 different codes, blind mating, anti-reflective and conductive body coating in grey anthracite. Designed to be highly configurable, they offer a choice of crimp, solder or PCB contacts, plus bend relief and color overmolding. This means they can readily be adapted to equipment manufacturers' specific needs, and integrated into specialized products for all types of Aerospace, Defence and Security applications.

Miniaturization is the key to powering the modern soldier and packing more functionality into smaller devices. For example, the high-density **Fischer MiniMax™ Series** is a unique miniature signal and power solution suited to applications when density, signal & power, and size matter. It is now available as a standalone connector, or as a complete pre-cabled solution, in both in 19 and 24 pin configurations. The 24 pin configuration has 4 power and 20 signal contacts, with the option of two advanced contacts for USB power connections within the signal contacts. They're tough too, with IP68 (2m/24h) sealing, both mated and unmated, an unbreakable keying system that withstands over 4 Nm of torque, and over-molded assemblies able to withstand 40 kg of pull (break-away) force. Replacing multiple connectors with a single connector saves space and weight, giving designers more flexibility and soldiers greater agility.

Portability, wearability and usability are also key considerations when designing defence and security equipment. Miniature solutions such as MiniMax are ideal for hand-held or body-worn applications, as well as for unmanned land- and air-based vehicles, and High-Definition Multimedia Interface (HDMI) products. Push-pull and quick release locking systems make MiniMax ideal for disassembling equipment and exiting quickly, and the screw locking system withstands the most severe vibration conditions. In addition, it is especially user-friendly, being easy to operate, clean and maintain. *"It's exciting to reach the next level of miniaturization, making the Fischer MiniMax™ Series even easier to use. We've just added the last missing piece of the puzzle with the new cable receptacle version for the three different locking systems. The MiniMax connectors can be plugged and unplugged quickly and easily, even with one hand or wearing gloves, which is essential when you need to move fast"*, says Wim Vanheertum, MiniMax Product Manager at Fischer Connectors.

Speed is also key when it comes to communications and data transfer. The integration of fiber optics is a continuing trend in military technology, enabling faster and more reliable communications. The state-of-the-art **Fischer FiberOptic Series** connectors enable large transfer of data in harsh environments. They combine high-quality optical performance indoors and outdoors with ease of use, field cleaning and maintenance. There's a choice of fiber optic



Fischer Connectors lightens soldiers' load. Photo: © Fischer Connectors.

solutions (with two or four optical channels), and fiber optic hybrid solutions (with two fiber channels and two power contacts). IP67 sealing unmated and IP68 mated provides unmatched device protection.

Quick and easy connecting and disconnecting is assured, even in the dark and with one hand, thanks to the FiberOptic Series' push-pull locking system. Quick deployment is possible due to pre-cabling. New accessories and pre-configured reels simplify technical support teams' lives by facilitating fiber optic deployment and transmission testing in the field. Fast and in-depth cleaning of equipment, required on most missions, saves a lot of maintenance time and avoids accidental damage to equipment. The FiberOptic Series removable sleeve holder (monobloc mate adapter) enables users to clean end faces easily in the field, and so keep their kit in top condition.

Data portability and security are other important factors to bear in mind.

The dependable **Fischer Rugged Flash Drive** is compact, lightweight and easy to carry around, securing data on the go. Its unbreakable housing with IP68 sealing keeps data safe in all circumstances. The data can be accessed quickly and securely via the Fischer UltiMate™ connector interface. The device also allows users to integrate their own encryption for specific and covert operations.

All of the products in Fischer Connectors' extensive portfolio can easily be combined to design a unique solution for any Aerospace, Defence or Security application. ■

Fischer Connectors' primary design and manufacturing facilities are located in Saint-Prex, Switzerland, with subsidiaries and distributors located worldwide. Its worldwide cable assembly network, located in Europe, North America and Asia Pacific, ensures short lead times and high quality standards, helping you design and implement the cable assembly solution that best meets your specific needs. [www.fischerconnectors.com](http://www.fischerconnectors.com)