

MEET CHANGING INDUSTRY DEMANDS WITH HIGH RELIABILITY SOLUTIONS

Despite facing obstacles such as the ongoing COVID-19 pandemic, Smiths Interconnect has responded to the growing demands for interconnection technologies in markets such as medical, and provided solutions for the semiconductor test and aerospace industries. Rachael Morling finds out more from **Roberta Rebora**, product marketing and communications director, Smiths Interconnect

COVID-19 has had an impact on all businesses, from supply chain issues to changes in market demand, as Roberta Rebora, product marketing communications director at Smiths Interconnect, explains: “We have maintained business continuity throughout the year with no interruption to our market support. While we have seen somewhat weaker demand across some of our markets, this has been offset by the growth in others.”

There are a number of sectors that have relied on Smiths Interconnect’s solutions over the past year, with the medical sector, understandably, one of those areas which has seen growth. “Our products and services are instrumental to the continued operation of essential industries such as medical/healthcare, aerospace, defence, rail, communications and digital infrastructure,” says Rebora. “We’ve long been a trusted partner to key ventilator manufacturers, providing high reliability connectors renowned for their durability and unfaltering performance in critical environments. As a global organisation with design and manufacturing locations in North Africa, APAC, the Americas and Europe, we have worked across nations, time zones and cultures to rapidly produce the connectivity solutions needed to support medical programmes around the globe. It is at the forefront of our operating model and at the heart of how we

support our customers – especially in times of extreme crisis.

“In particular, we’ve delivered board-to-board connectors with Hypertac hyperboloid technology (KNB series) utilised within a French-made portable ventilator found in ambulances, ambulatory helicopters and hospitals; push-pull, hyperboloid circular connectors (D series) used to provide power to a US-developed, Asia-manufactured, ventilator system; and finally board-to-board connectors (custom interposers) with spring probe contacts used for mating with replaceable battery packs in a UK developed breathing system.”

In fact the medical industry relies heavily on the company’s products for a wide range of applications. “There are growing technology needs in the medical industry so it is a considerable market segment for us,” explains Rebora. “Smiths Interconnect designs and manufactures high-reliability connectors and cable assemblies, RF components and sub-systems that ensure optimal performance, durability and safety to a number of medical applications, including surgical and monitoring systems, imaging systems and disposables applications.

“Our interconnect solutions comply with regulatory and application specific requirements and have established a reputation for excellence in the marketplace. An example of the innovation that we bring to the medical industry is the high-performance edge card technology for disposable medical applications that allows for quick and reliable connections for a broad range of critical medical devices, the Eclipta connector series. For electrophysiology catheter applications, these connectors bridge the gap between the catheter and



the extension cable. A standout feature of Eclipta is the fact that the PCB acts as the contact in the connector. Since the board is often part of the disposable device, it eliminates the need for an additional contact system on that side, thereby reducing costs to the customer. In addition, its plug and play design provides easier termination and virtually eliminates the potential contact damage associated with the termination process.”

Medical demands, however, need to be met with reliable solutions that can be supplied on time. “COVID-19 has highlighted the importance of ensuring rapid delivery of the systems and components that are essential to treat patients. The quality and reliability of these systems and components remains paramount, for obvious reasons, particularly in the medical market segment,” Rebora states.

As a result, the company closely monitored the potential impact that this unprecedented situation could have on its supply chain and took the appropriate measures to minimise any effect on product manufacture and delivery to customers. “This has resulted in minimal disruption of our operations and limited impact on our customer base,” Rebora adds.

Outside of the medical industry, there has been growing demand in other industries for Smiths Interconnect solutions, according to Rebora: “While the pandemic has affected the

An example of the innovation that the company brings to the medical industry is the high-performance edge card technology for disposable medical applications that allows for quick and reliable connections for a broad range of critical medical devices, the Eclipta connector series



D series connectors have been used in a ventilator system



commercial aviation industry globally, the semiconductor industry has seen a robust growth, supported by the demand for graphic cards for games consoles, laptops, and smart phones.

“The increasing acceleration of the digital age is creating a huge demand for new consumer/commercial electronics to incorporate expanding functional needs into reduced space in a cost-effective manner. This has resulted in a huge growth in Wafer Level Packages and Known Good Dies. To address this demand, Smiths Interconnect has recently launched an advanced WLCSP test solution, Volta 180 Series, that expands its Volta product line to include the compact 180um pitch, allowing for a higher number of chips to be tested on each wafer. It allows for a fast and reliable testing of wafers to ensure that they meet specifications and perform as they should, which translates into higher quality end products.”

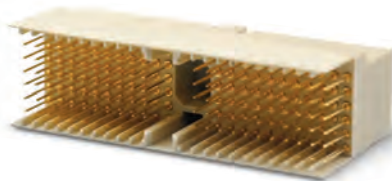
SPACE INDUSTRY SOLUTIONS

Smiths Interconnect has worked on a number of projects with NASA, but why did NASA select the company as a supplier? Reborra takes up the story: “From the early space flight heritage in 1968 (the Olympus satellite), through the first ESA qualification in 1975, up to today, Smiths Interconnect has provided connectivity products and expertise to a global customer base of esteemed prime and equipment contractors who produce the launch vehicles, payloads and ground systems. Our contribution can be traced from 1968 (Olympus) to date, and since then our solutions have been

Smiths Interconnect has recently launched an advanced WLCSP test solution, Volta 180 Series, that expands its Volta product line to include the compact 180um pitch



cPCI connectors



robotic spacecraft. Launched in 2018 with the objective of repeatedly probing and making observations of the outer most part of the Sun’s atmosphere, the spacecraft has just successfully completed its second close approach to the Sun, the closest any spacecraft has been in the history of space exploration.

“The company also supports the Mars Perseverance Rover, that uses advanced systems to explore the diverse geological landscape, discover ancient habitats, and gather rock and soil samples that will be returned to Earth, demonstrating cutting-edge technology for future human exploration. Smiths Interconnect provides Mars Perseverance Rover with high performance ruggedized cPCI 2mm connectors addressing NASA’s need for a high reliability connector solution to meet the mechanical, electrical and environmental performance

integrated into over 800 satellites and deep space probes. Over this five-decade journey the company has participated in international programmes that include missions to visit the Sun, Mars, Venus, Saturn and Jupiter. We could not have participated in these missions successfully without the confidence that our customers have in Smiths Interconnect.

“Decades of experience have positioned Smiths Interconnect well – both in designing and delivering active and passive connectivity solutions specifically engineered and optimised to mitigate the effects of heat, shock and vibration and to deliver unparalleled signal integrity, as well as reduced overall system size and weight, that are critical to space applications.

“Smiths Interconnect has supported several important NASA programmes with its products and technologies. A few examples include our microwave high power waveguide circulators, loads and transitions which are used in the data and control transmission systems of the Parker Solar Probe, a NASA

requirements. Rigorous testing was performed at the NASA Jet Propulsion Laboratory for extreme environmental conditions, including thermal excursions, corrosive atmospheres, excessive shock and vibration, contact engagement/separation cycling, and other key NASA requirements.

“Finally, Smiths Interconnect was recently awarded a contract by Boeing to design, manufacture and supply bespoke connectors for use aboard NASA’s Orion spacecraft and Lunar Gateway. Docking umbilical connectors will be used to transfer power, signal and communications to different modules on the space station.”

LOOKING TO THE FUTURE

There are a number of areas that will see growth in the coming years, as Reborra explains: “We believe that megatrends, such as increased digitisation, connectivity, mobility and globalisation, are likely to continue to generate demand for our products over the longer term. These trends are driving our experts to design the innovations that will satisfy our current and future customer base, with focus on high-speed data, smaller packaging, increased power needs, smart devices, and intelligent systems.”

So, having supplied high reliability solutions to a range of industries throughout the pandemic, protected its supply chain to ensure components are ready when needed, and kept its sites open while looking after the health and safety of its workers, the next obstacle is Brexit. The company, however, is ready for this: “With our global diversification and the preparatory mitigating actions we have undertaken, we expect to see minimal impact from the UK’s departure from the European Union. We remain confident in delivering for our customers and fulfilling responsibilities to suppliers and employees,” concludes Reborra.

Smiths Interconnect
www.smithsinterconnect.com



Roberta Reborra, product marketing and communications director

“Smiths Interconnect designs and manufactures high-reliability connectors and cable assemblies, RF components and sub-systems that ensure optimal performance, durability and safety to a number of medical applications, including surgical and monitoring systems, imaging systems and disposables applications”