

## Smiths Interconnect helps keep rail passengers informed

As sophisticated as rail services have become, the hyper-connected nature of this mode of travel means that even the slightest hitch with one train or line can have a knock-on effect on the overall timetable.

Train operators meticulously prepare for such eventualities. Part of their fastidious response in such a situation is to keep the passengers regularly informed. As a result, over the last couple of decades both network (infrastructure) and train (service) operators have invested greatly to advance Passenger Information Systems (PISs).

While the PIS at stations and transfer facilities provides visual and audio information to commuters, the PIS on-board the train updates passengers during their travel. The PIS on-board the train includes various devices e.g. cameras, display monitors, and signal control systems, all controlled from a few cabinets.



This is more than just useful information. It helps keep passengers informed about their journey and general safety – all of which are vital for the passengers' satisfaction, ultimately contributing towards the overall growth in increased use of rail.

It is, therefore, essential to the commercial success of a modern train manufacturer that they provide a reliable onboard PIS.

### The challenge

Although rail technology has progressed leaps and bounds, the operating environment for communication technologies still presents extreme challenges - with the ever-present dust, moisture, dirt, and oil as well as heat, electromagnetic interference, shock and vibration all vying to disrupt or fatally corrupt the connections.

In one such example, a China based manufacturer for high-speed train was struggling to establish stable communication signal. They identified the root cause being the connectors failing to withstand the continuous jarring movement of the train. This resulted in signal failure, a rapid deterioration of components and a high cost of maintenance.

Identified the need for more resilient interconnect technology they could incorporate into the design of their PIS cabinets. As well as being robust, lightweight and compact, they needed connectors that are easy to assemble, configurable for different applications and models.

After reviewing various products in the market products in the market, the customer found the ideal solution in Smiths Interconnect's M12 connectors.



## The solution

Based on the patented Hypertac® Hyperboloid innovation, these compact connectors might be small, but they are designed for challenging operating conditions. Their 'basket of wires' design provides continuous points of contact and a unique side-loading contact retention system minimises friction through even the roughest of rides. Meanwhile, an IP67 metal shell and 360° EMI shielding give them a comprehensive seal. All this enables them to provide unparalleled immunity to shock, vibration, and environmental impacts to ensure uninterrupted signal integrity.

Cleverly, the contact design is streamlined which minimises stocking requirements and allows for tool-free assembly for faster, cheaper production. Further, within a common housing design the M12 series includes up to eight insert options, with both crimp and solder contact terminations, which gives the customer maximum scope in the future.

The design complies to various global rail industry's requirements e.g. fire and smoke, and comes in A and D coded versions.

But it wasn't just Smiths Interconnect's superior technology that comforted the China based manufacturer for high-speed train.

The customer was also impressed with the project team's proactive and collaborative approach to service. The customer wanted to incorporate the M12 connectors into their cabinets quickly and Smiths Interconnect's sales and engineering teams responded promptly to requests for technical information, samples, and on-site support.

Further, the team drew on their market-leading knowledge of ruggedised connector technology to help the customer reconfigure their PIS cabinet to better meet their requirements and offered other valuable suggestions such as a colour mark identification and improved instructions to speed up their assembly process.

The win-win collaboration has given the China based manufacturer for high-speed train an important competitive advantage through a reliable and durable interconnect solution, and for the passengers a reliable information system to enable them to have a pleasant and satisfactory travelling experience.

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