

Providing Trains with Better Connections



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Trains are increasingly undergoing modernization. The rail industry is experiencing a growing embrace of the Internet of Things, cloud computing and Big Data analytics. Internet of things enables railways to employ sensors. Cloud computing and other technologies are used to gather information from many sources and data streams. It is becoming more important to utilize these developments to heighten efficiency and improve the management of operations. More data connections are being added to accommodate increasingly sophisticated systems. Secure, robust, reliable and space-saving connectors are essential to this process.

Why is space saving necessary for rail systems?

Increased data rates and rising amounts of information required to run a train mean that a higher number of connections must be incorporated into the train's systems. Operational additions include Ethernet train control. As rail operators place more emphasis on the improvement of the customer experience, digital signage will deliver timely and targeted messages. While many trains offer Wi-Fi, presently available bandwidth may be insufficient to support streaming music or videos and the downloading of large files. As train service operators work toward providing expanded internet and other enhanced services, the connectors needed to offer these services will have to be accommodated in limited space.

Why are current circular connectors becoming outdated?

The use of the circular design in arrays results in a loss of panel space. The circular area around them is not conducive to mating and unmating by hand, and these connectors may require the use of specialized tools for placement or removal. As the need for data grows and new connection points are continually added, space limitations become more burdensome.

Rectangular Connectors are the better solution

Rectangular connectors can be mounted flush to one another, conserving space. They offer better visual mating and many other advantages. A key feature of these connectors is off-the-shelf modularity, combining multiple connections into one. While hybrid circular connectors are available, they don't offer the type of mix and match connections possible with the rectangular, modular design. The modularity allows for user-designed customization, whereas with a circular connector, the manufacturer will have to specially design a connector for a similar purpose. Typically, a hybrid circular connector will have only two types of connection whereas a modular system can have many more.



HARTING's Han® rectangular and modular connectors conserve space.

Other advantages offered by rectangular connectors are more termination options encompassing crimp, solder

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and screw terminals. More locking options, such as single or double-lever are available. The design also allows for greater cabling flexibility. Entry can be from the top or side, dual or angled. These connectors may be either surface or panel mounted and provide cable to cable compatibility.

Electrical benefits include protected earth (PE) or ground connection as a standard safety feature. Designers can mix male and female contacts on the same side allowing for flexibility in the choice of wire gauge as well as the handling of shields.

Conclusion

Rectangular connectors offer the rail industry savings in space, time and money. As technology continues to expand, these advantages become even more significant for designers and engineers. HARTING is the gold standard in rail connectivity. Their time-tested and robust connectors have been trusted by leading train manufacturers for decades. HARTING has connectors designed specifically for conditions on the railroad and offers detailed solutions for **supplying** customers dependable service and a comfortable, inviting ride.

If you have any questions or want to talk about your solution in more detail, please contact our technical experts at techsupportus@harting.com or via phone at 847-741-1500.

At HARTING, we are as invested in our customers as we are in our products.

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