

# LHZ Series *Rack & Panel connector incorporating antenna link for GPS or ERTMS transmissions*



**PCB embedded  
within the connector**

The European Rail Traffic Management System (ERTMS) was originated by the European Community (EC) to create a unique Automatic Train Control and railways management system to enable interoperability throughout the European rail network. ERTMS is the combination of the new control-command system ETCS (European Train Control System) and the new GSM-R radio system for voice and data communication. The ERTMS project has been set up to ensure safe operation of the trains in the network and to deal with the traffic and infrastructure management issues enabling the optimisation of the capacity of the lines and the utilisation of the fleet. The ERTMS project involves six major suppliers in seven countries (UK, France, Spain, the Netherlands, Germany, Switzerland and Italy).

The project and solution itself represented a number of challenges as it needed to be retro-fitted to a wide variety of existing rolling stock and a unique identifier, used in conjunction with GPS tracking, was to be included. To meet these needs, Smiths Interconnect created the Nuloc custom connector. This uses Hyperboloid contact technology to achieve low contact resistance and robust electrical connection.

The device implements the identification function by integrating a recognition code on a printed circuit embedded within the connector receptacle. This code is programmed during the final manufacturing phase. The ERTMS interconnection system also integrates a coaxial cable assembly to link to the GPS/GSM-R antenna and each cable assembly must be dimensioned to the locomotive type. This is also done during the manufacturing process according to instructions specific to each order.

Like all connectors targeted for rail applications, strict governmental, EC and customer-specified standards exist, all of which must be met if not exceeded. These standards, such as the French NF F 61-030, mean connectors must have the appropriate plating and materials to withstand salt-spray, humidity and industrial gas tests.