

HEAVY DUTY CONNECTORS RAILWAY APPLICATIONS

Booklet





ABOUT US

Radiall's and VanSystem's comprehensive range of connectors are designed for harsh environments in the railway market (rolling stock, signaling and infrastructures). The range includes innovative multisignal I/O solutions for optical, high speed data signals, such as cat. 7, MVB, Ethernet, power or RF coaxial.



VanSystem was founded in Lombardy, Italy, and it has been operating since 1985 in the industrial market. Besides connectors with screw or bayonet coupling that complies with the Mil-C-5015 standard, VanSystem designs and manufactures non-standard products for special applications.

One of VanSystem's strong points is an agile and dynamic organizational structure that enables direct and constant interaction with customers in order to meet all their requirements and build solid, long-term partnerships. The team's professionalism, skill and commitment are here to help you achieve the solution you are looking for. VanSystem's Quality System is qualified according to ISO 9001 and IRIS (International Railway Industry Standard).

Since 2015, VanSystem is a Radiall company.



Radiall is a global leader in designing and manufacturing innovative interconnect solutions, including multipin connectors for transportation markets. Headquartered in Paris, France, Radiall is a trusted supplier of leading edge products whose global presence includes nine plants and an international sales network.

As a trusted supplier to leading brands, Radiall provides worldwide coverage with local support.



INTERNATIONAL STANDARD

Radiall VanSystem products are developed according to the following standards.^[1]

- IEC 61373: Railway applications - Rolling stock equipment - Shock and vibration tests
- IEC 60077-1: Railway applications - Electric equipment for rolling stock - General service conditions and general rules
- EN 50124-1: Railway applications - Insulation coordination
- EN 50467: Railway applications - Rolling stock electrical connectors, requirements and test methods
- EN 45545-2: Railway applications - Fire protection on railway vehicles
- NFPA 130 (ASTME 162, ASTM E 662): Standard for Fixed Guideway Transit and Passenger Rail Systems
- UNI CEI 11170-3: Guidelines for railway vehicle protection for tramways and with guided rail
- NFF 16-102: Railway rolling stock - Fire behavior
- NFF 61-030: Railway rolling stock electrical connectors - Generalities (KVBS series)
- IEC 60529: Degrees of protection provided by enclosures (IP Code)
- Mil-DTL-5015: Circular threaded electrical connectors with solder or removable crimp contacts (both front and rear release)
- VG 95234: Electrical connectors and plug-and-socket devices, connectors with coupling pressure-water tight, up to 245A
- Mil-C-26482 Series 1: Miniature connectors, bayonet coupling, solder or front release crimp removable contacts
- European Directive 2011/65UE: RoHS compliant

1. According to the products series, please consult our Sales office

| *We tailor solutions to suit your needs.*

CIRCULAR CONNECTORS

VanSystem designs and produces circular connectors for harsh environments. This series, deriving from Mil-DTL-5015 and VG95234 specs, has become a popular standard among railway connection applications. Its success is mainly due to the bayonet coupling system composed of three ramps machined on the external side of the receptacle connector and three stainless steel studs mounted inside the plug connector's coupling nut.

MODULAR CONNECTORS

VanSystem GM modular connectors are designed for accepting modules for many different applications: Ethernet and data transmission, coaxial connections, fiber optics, power cables and signals up to 14 wires. It is a flexible solution for data and signal transmissions in harsh railway environments. It can be used for passenger control, display, internet connection, networking, light control, diagnostic support for brakes, motors and doors.

DATA CONNECTORS

VanSystem completes its product range with data connectors cat. 7A / 7 / 6A. EVBS-C7 bayonet connector for Ethernet cat. 7A is vibration and shock resistant. EVBS-C7 is the definitive alternative for Ethernet static interconnections inside railway vehicles. Standard EVBS connectors can be applied in sensors and Ethernet connection cat. 6 / 5E.

POWER CONNECTORS

Besides connectors with screw or bayonet coupling, VanSystem develops non-standard products for special applications (Railways, Atex Environment and Automation). PWBS single-pole bayonet connector (size 40 or 32 shells) has been developed for motor connection in railway applications up to 1000A. CP rectangular power connectors have 3, 4 or 5 poles, and are ideal for motor-to-vehicle connections in railway applications.

MULTIPIN CONNECTORS

Radiall is a global leader in designing and manufacturing high reliability multipin connectors for transportation applications. For more than 40 years, major airframers have trusted Radiall's NSX (Arinc 600) and DSX (Arinc 404) rack and panel connector series, along with its modular solutions such as the EPX™ (EN4644), QuickFusio™ and QM series.

OUTDOOR CONNECTORS

Radiall's comprehensive product range of outdoor connectors are designed for severe outdoor conditions, mainly in wireless communication infrastructure applications. The range includes high power RF coaxial connectors to link between microwaves, antennas, radio units, and innovative multisignal I/O solutions for optical, Ethernet, power or coaxial. Our innovative solutions are based on both Physical Contact (PC) and Expanded Beam (EB) technologies to cover the various types of applications.



SIGNAL & POWER



BOGIES, AXLE, ENGINES

Power installation, highly dynamic applications

Product Solutions
CP Power Connectors



PROTECTED ELECTRICAL AREA

Driver cabin, windscreen wipers, lights

Product Solutions
KVBS Bayonet Connectors



TRACKS

Train checkpoint, interlocking, signaling, trackside safety systems, switch heaters

Product Solutions
CT Bayonet Connectors



INFRASTRUCTURES

Signaling, communications cabinet

Product Solutions
CVBS Bayonet Connectors



TRAIN CONTROL

Security systems, control cabinets, engine monitoring

Product Solutions
GM Modular Connectors



OUTDOOR APPLICATIONS

Roof, pantograph, air conditioning system

Product Solutions
PWBS Power Connectors



UNDERCAR

Battery chargers, auxiliary converters, inverters, brake control systems

Product Solutions
GVJ Oversize Connectors



INTERVEHICLE

Wagon connection, door controls, passenger information, outdoor dynamic applications

Product Solutions
H-Lever Connectors



DATA TRANSMISSION



A
OUTDOOR APPLICATIONS
 Controlling pantograph, air conditioning system, internal train bus (MVB)
Product Solutions
 EVBS Data Connectors and Signals



B
DATA COMMUNICATION
 Passenger information and entertainment system, control unit with Ethernet
Product Solutions
 EVBS Data Connectors up to cat. 7A



C
INTERVEHICLE
 Wagon connection, door controls, passenger information, outdoor dynamic applications
Product Solutions
 GM Modular Connectors



D
BOGIES, AXLE, ENGINES
 Measurement and sensor system
Product Solutions
 GVJ Oversize Connectors



E
TRAIN CONTROL
 Security systems, control cabinets, engine monitoring, video and other data transmission
Product Solutions
 CVBS Bayonet Connectors



F
PROTECTED ELECTRICAL AREA
 Driver desk control, current converter, electrical cabinet, low voltage supply and digital signals
Product Solutions
 KVBS Bayonet Connectors



G
UNDERCAR
 Brake control systems, speed sensor, sub-floor distribution box
Product Solutions
 GM Modular Connectors



H
TRACKS
 Axle counter system
Product Solutions
 Sensor Connectors



SIGNAL & DATA



TRAIN CONTROL
 Security systems, control cabinets, engine monitoring
Product Solutions
 I/O RUGGEDIZED INTERCONNECT: OCTIS™, Quick Install, QuickFusio, RXF, QuickMate, MMC



HIGH SPEED DATA & RADIO COMMUNICATION
 Passenger information and entertainment system, control unit with Ethernet
Product Solutions
 RXF/EB-Luxis/38999, QuickFusio FO, Octis, RF coaxial cable assemblies



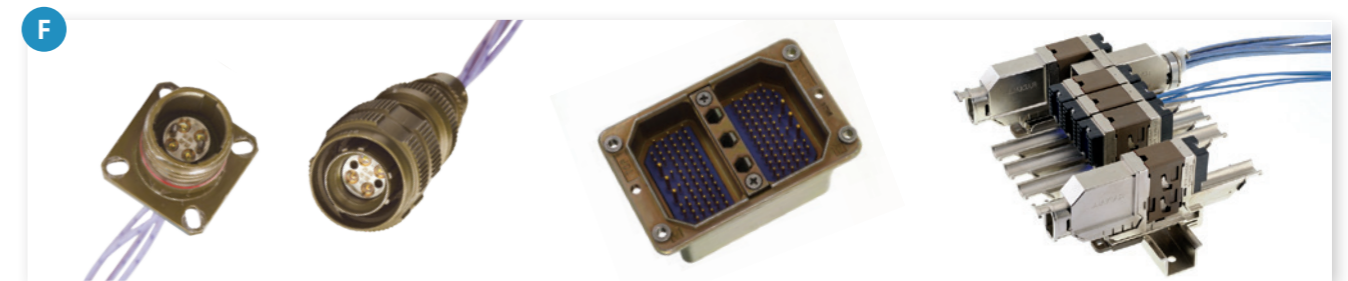
TRAINS / INFRASTRUCTURES
 Communication cabinet, train checkpoint, signaling, trackside safety systems
Product Solutions
 Outdoor FO cable assemblies and RF coaxial cable assemblies, OCTIS, Quick Install, QuickFusio, RXF



FIBER OPTICS
 Roof, pantograph, digital signal
Product Solutions
 EB-Luxis/38999, QuickFusio FO, Octis



RACK & PANEL SOLUTION PROTECTED ELECTRICAL AREA
 Driver cabin
Product Solutions
 Arinc 404, Quick Install, QuickFusio, MMC



CABIN
 Electrical cabinet
Product Solutions
 Arinc 404, MMC, Quick Install, QuickFusio, QMATE



HEAVY DUTY CONNECTORS



RF CVBS SERIES

The success of CVBS series is mainly due to the bayonet coupling system composed of three ramps machined on the external side of the receptacle connector and three stainless steel studs mounted inside the plug connector's coupling nut.



RF GVJ SERIES

RF GVJ series has completed the bayonet range with oversized, thicker shells to guarantee resistance against impact and harsh environments. The increased dimension permits installing insulators with more contacts or larger contacts.



RF KVBS SERIES

Compliant with NFF-61030, the new bayonet KVBS series is derived from the standard CVBS. In this new series, the insert is in hermoplastic resin. The most important advantages are the simpler and faster cable assembly; when mated, it guarantees a better sealing and creepage distance between the contacts.



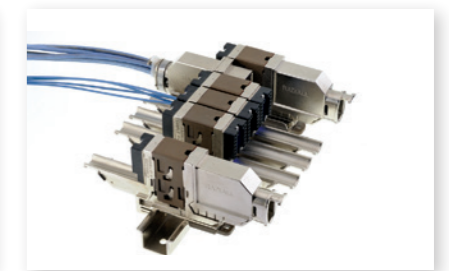
EVBS SERIES

VanSystem EVBS connectors have been developed for sensors and Ethernet connections cat. 6 / 5E. This series, derived from modular series, is vibration and shock resistant as required in transportation applications.



EVBS-C7 SERIES

VanSystem completes their product range with data connectors cat. 7A / 7 / 6A. EVBS-C7 bayonet connector for Ethernet cat. 7A is vibration and shock resistant.



QUICKMATE SERIES

To simplify wiring in cable-to-cable or PCB-to-cable applications, Radiall developed a range of quick mating connectors with a unique slide lock system. Quick installation systems and simplified termination features will simplify connector installation.



CP POWER-BOX SERIES

CP Power Box has been developed for motor connection in railway applications. Derivation and connection are the most important features.



CP MOTOR TO BOGIE SERIES

CP rectangular power connectors with 3, 4 or 5 poles have been studied for motor-to-vehicle connections in railway applications.



PWBS 1000A SERIES

PWBS single-pole bayonet connector (size 40 or 32 shells) has been developed for motor connections in railway applications up to 1000A.



HEAVY DUTY CONNECTORS CONTINUED



GM SERIES
GM modular connectors are designed for accepting modules for many different applications: Ethernet and data transmission, coaxial connections, fiber optics, power cables and signals up to 14 wires.



H-LEVER SERIES
H-LEVER connectors are derived from GM modular connector, PWBS single-pole power connector and CVB standard circular connector. H-LEVER joins the advantages of VanSystem circular connectors with a lever that is easy to open and close.



CT SERIES
CT series has been designed according to Mil-C-26482 series 1 and is compliant with its requirements as far as materials and features are concerned. It is fully intermateable with all connectors of the same type produced by other manufacturers.



QUICK INSTALL SERIES
Designed for through-panel mounting disconnect for harsh environments, Quick Install has many functions in a single piece. Four ramps reduce mating effort and create a "gearing down" function. It also features a low friction coefficient, various insert types and screw washers for the fixing process.



RXF SERIES
Dedicated to outdoor optical connections, RXF is designed and manufactured by Radiall to provide a secure and sealed connection. RXF connectors are available in 2, 4 and 6 channels, in MultiMode or SingleMode UPC versions.



OCTIS™ SERIES
Specifically designed to address the interconnect challenges associated with the deployment of 4G+, LTE+ and future 5G in the Telecom market, OCTIS™ provides a robust I/O solution that can operate in outdoor and harsh environments.



EXPANDED BEAM SERIES
Radiall offers a wide range of interconnect solutions based on Expanded Beam (EB) technology. The advantages of EB technology will enable communication links that are reliable, easy to deploy and easy to maintain.



FIBER OPTIC CABLE ASSEMBLIES
Radiall offers high performance and cost-effective cable assemblies for outdoor environments. Outdoor cable assemblies can sustain unstable environmental conditions and broad operating temperature ranges, energy distribution networks, smart grids and security and industrial applications.



QUICKFUSIO™ SERIES
QuickFusio™'s versatile range covers any wiring system: harness to harness or equipment to harness. The range offers four different shell styles that allow you to install the miniature connector in panel mount, box mount, bundle mount or structure mount configurations.



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