Nexans

Multipair hybrid energy/telecom cables for reliability, upgradeability, interoperability

Nexans, worldwide leader in cables and cabling systems

As a global expert in cables and cabling systems, Nexans brings an extensive range of advanced copper and optical fiber solutions to three key sectors of the economy: **infrastructure, industry and buildings.**

Its cables and systems can be found in every area of people's lives, from rolling stock and railway infrastructure to telecommunications and energy networks, aeronautics, aerospace, automobiles, petrochemicals, windmills, medical applications, etc.

The presence of Nexans in over 65 countries gives it a full mastery of both national and international standards. Its 10 Competence Centers and International Research Center work closely with customers to constantly improve its standard range of products and technologies and to develop customized, country and industry-specific solutions.

Multipair hybrid energy/telecom cables to assure your infrastructure growth

The efficiency of any train system is dependent on an infrastructure which provides reliable energy for rolling stock, and data and telecommunications for train management and control. Whether for a tramway, subway or high-speed train, operators are anxious to streamline costs, future-proof their systems, upgrade customer services, and assure a high level of public safety.

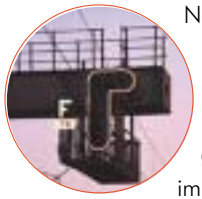
Nexans produces a wide range of energy and telecommunication cables and components specifically adapted to the various rail environments, many with enhanced fire-performance characteristics. We also give expert advice about network architecture and evolving standards, and can provide customized engineering, installation and maintenance worldwide.

Today's trains are moving ever faster, while train, tram and metro headways are getting shorter to increase throughput on the line. These factors create the challenge of having secure and safe signaling systems, supported by ultra-reliable cabling. For economic reasons, and their ability to power trackside equipment and provide low frequency telecommunications, copper conductors and quads are used for signaling and control.

To help you achieve this, Nexans offers reliable and safe **multipair hybrid energy/telecom cables** for train signaling and control.

Multipair hybrid energy/telecom cables
for signaling and control

Multipair hybrid energy/telecom cables: reliable control and signaling cables for a safer infrastructure



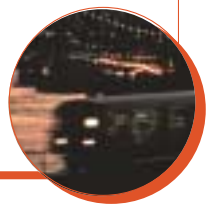
Nexans multipair hybrid energy/telecom cables have a number of important features. They guarantee electromagnetic immunity for critical telecommunications from catenaries and current rails. They are designed to survive along the tracks, resisting extreme temperatures, humidity, oil and ultraviolet light. They have high dielectric strength, and come in Halogen-Free, Fire-Retardant versions for tunnels, stations and platforms. Nexans' signaling and control cables display exceptional performance characteristics because of a reliable manufacturing process and appropriate sheathings for the railway environment.

This Nexans solution gives you:

- High safety levels because of constant energy and secure data flows
- Reliability in terms of system integrity
- Remote traffic management capability for all kinds of rail networks
- Exceptionally long life, good for 30 years and more
- Low-voltage energy for the feeding of sensors, servos and trackside equipment
- Easy connectivity through traditional copper connectors
- Full compatibility with a host of other train control functions
- Special shielding for the train environment, including Halogen-Free, Fire-Retardant (HFFR) designs for public safety

Nexans supplies Spanish high-speed AVE lines and Far Eastern metros

For the Spanish railway company G.I.F., Nexans provided more than 50% of the signaling and control cables for several new AVE high-speed trains: between Madrid-Lerida-Barcelona, Zaragoza-Huesca, and now three current projects. In Singapore, we are providing similar cables for the Marina Circle Metro Line. For the latter project, cables were customized to provide a different reduction factor, special fire-performance sheathing, and specific color-coding.



Multipair hybrid energy/telecom cables for signaling and control

Product families	Product family names	Standards / Specs
Copper multicore cables, armoured	**Signaling cable for trackside** **K22**	• NF F55 622
	Signaling cable for trackside **RT/E/PS 00005**	• B Type Railtrack
	Signaling cable for trackside	• C Type Railtrack
	Signaling cable for trackside **EAPSP, EAPSP-R, EAPSP-8**	• RENFE E.T. 03.365.051.6
	Signaling cable for trackside **SW**	• SBB/CFF/FFS 3001.82.1000
	Signaling cable for trackside	• Dlk1.013.107 y & 108 y
	Signaling cable for trackside **CCPSSP**	• RENFE E.T. 03.365.051.6
Copper multipair/ multiquad cables, armoured, to be laid along trackside	**Digicode cable signaling** **K23** **K24**	• NF F55 623 • NF F55 624
	Track signaling **ZPAU** **ZPFU**	
	Rail switching signaling **ZCO3**	
	Track signaling **CCPSSP**	• RENFE E.T. 03.365.051.6
	Track signaling **EAPSP, EAPSP-R, EAPSP-8**	• RENFE E.T. 03.365.051.6
	Signaling cable for trackside	• Dlk1.013.109 y


SW cable


Digicode signaling K23

Product families	Product family names	Standards / Specs
Copper multipair/ multiquad cables, for outdoor plant  Twisted pairs or quads	**Communication** **Series 88 copper local** **TS0888 - RT/E/PS/00015**	• PE sheath
Copper multiquad cables, armoured, to be laid along trackside  Paper insulated long distance cable	**Communication and PCM operation** **Paper insulated long distance cables**	• Dlk1.01.106 y Paper insulated trunk cables • VDE 0816 part 3 Paper insulated VF cables • Dlk1.010.010 y Paper (HF) • Dlk1.010.011 y Paper (HF) • Dlk1.010.020 y Coaxial pairs
	Communication **Paper insulated long distance cables**	• CT 227 Paper • CT 237 Paper • CT 295 Paper • CT 2005 Metallic and plastic sheathing and armouring
Copper multipair/ multiquad cables, for indoor plant  Copper Plus cable	**PVC indoor cables** **HFFR-LS indoor cables**	• IEC or EN relevant fire behaviour
	Track signaling **EATST** **BR 1916 - RT/E/PS/00015**	• RENFE E.T. 03.365.051.6 • LSZH

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