

► ORing's Networking Solution for Railway Applications

Reliability is the top priority for railway networks due to high levels of vibration and EMI in the environment. In addition, deploying railway networks is increasingly complicated and difficult since modern railway systems are experiencing more traffic, higher speeds, and longer trains. Operators not only have to ensure uninterrupted connections during train movement but also reconfigure networks as soon as possible when changing train carriages. As an approved partner for highly available data communication solutions on trains and along railroad tracks, ORing's railway networking solution offers the following advantages.

■ Benefits from ORing Industrial Networking



IRIS Certified

Meets the railway industry's extremely rigorous demands on quality



PoE

Simplifies installation and maintenance while reducing deployment costs



Versatile Options

Offers a wide variety of interface including 10GbE, 2.5GbE, GbE, FE, fiber and wireless



5G NR

Enables high performance and low latency communications



Wi-Fi Connectivity

Provides fast, reliable and secure 802.11n/ac Wi-Fi connections on trains



Wide Voltage

Power range 24-110VDC, providing maximum flexibility for using the EN50155 products

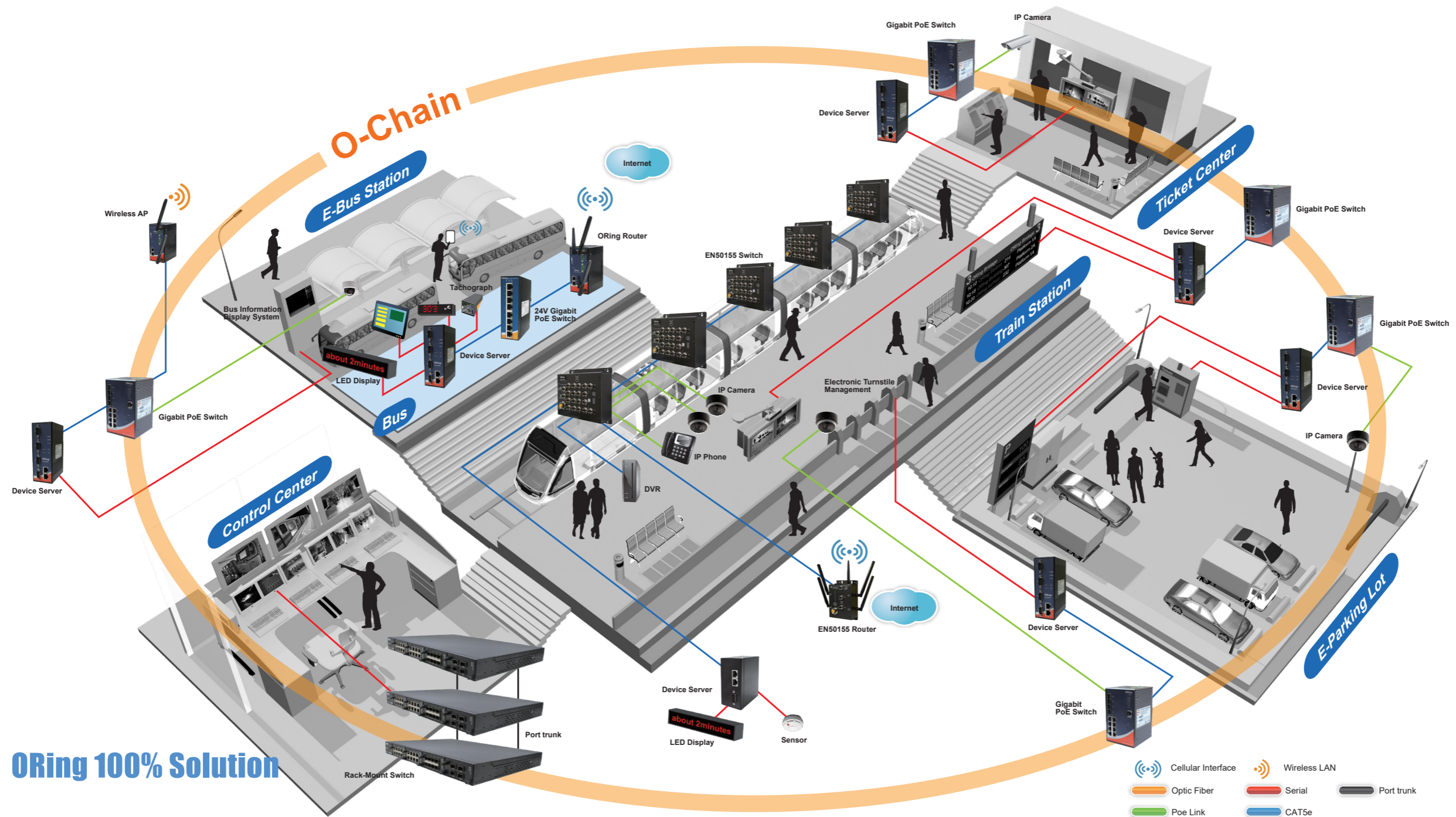
RELIABILITY AND SIMPLICITY: THE BEST OF BOTH WORLDS FOR RAILWAY OPERATORS

IRIS Certification   **Transporter Series**

Member of
ITXPT

ORing
www.ORingnet.com

■ Railway Application



ORing 100% Solution



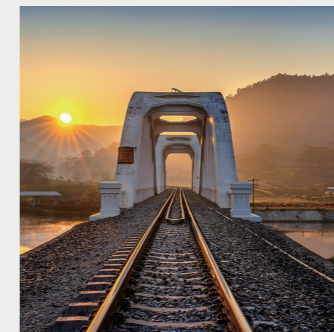
Onboard

ORing's Transporter-series complies with EN50155 standard and is a perfect fit for building TCN (Train Communication Network), CCTV, PIS (Passenger Information System) and passenger Wi-Fi networks.



Train to Ground

Data transmission between the train and ground facility is realized via wireless connectivity. When a train approaches or stops at the station, the wireless router's transmission mode will shift from cellular to Wi-Fi to save data transmission costs.



Wayside

Trackside and onboard devices need to exchange data in real time via wayside networks, so building a secure and reliable wayside network is necessary.

Success Story

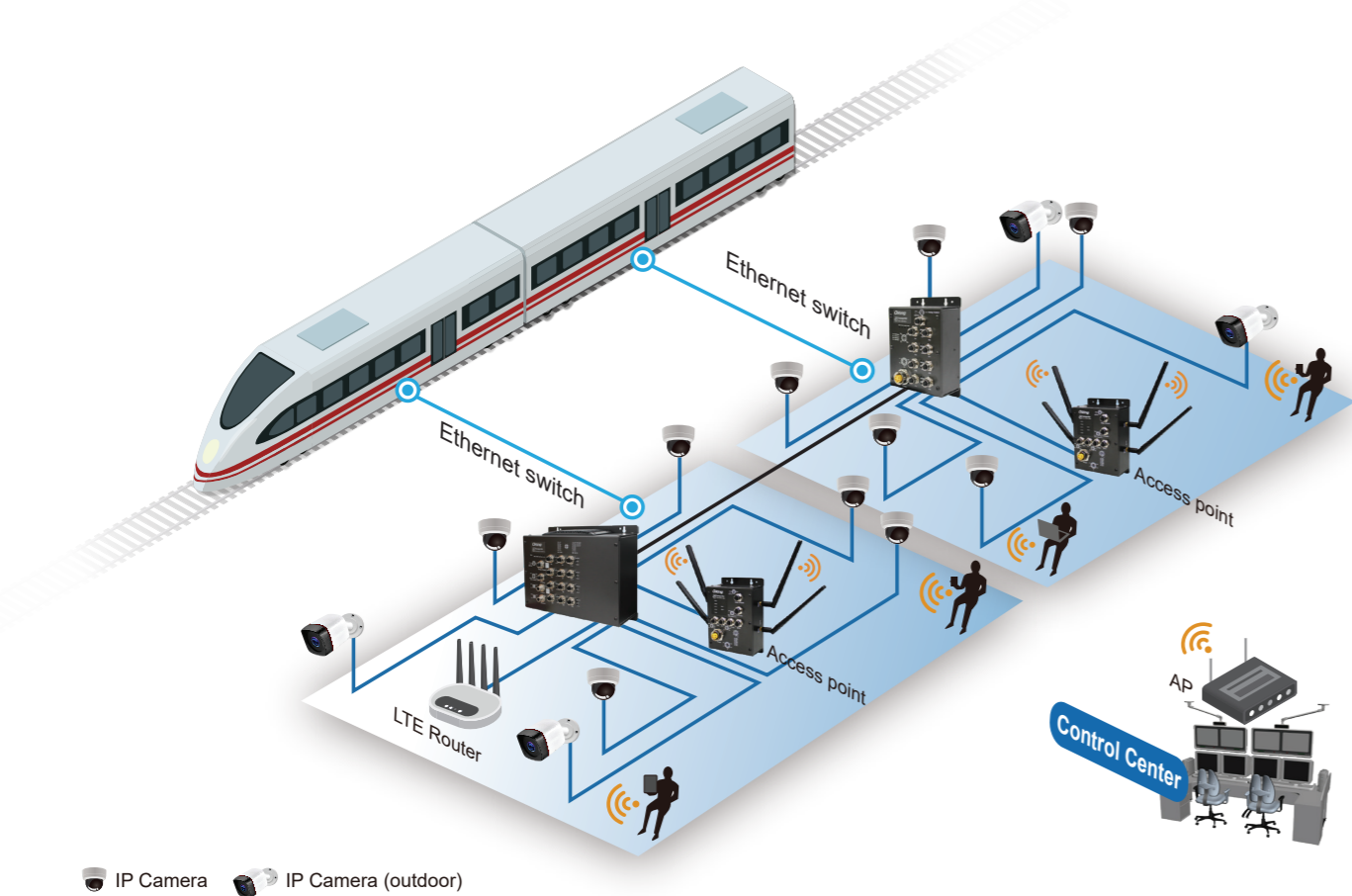
Slovakian Railway Company Improves Travel Experience with ORing's Networking Solutions



A Slovakian railway operator upgraded its trains and implemented a modern passenger information system to improve the travel experience. To ensure smooth network connections for passengers watching videos or listening to music during their journey, the operator deployed a combination of wired and wireless networking solutions.

They installed ORing industrial Ethernet switches, connected to IP surveillance cameras, an LTE router, and access points, providing on-board wireless services. These EN-50155 compliant switches and APs can withstand shock and vibration, ensuring reliable network connections at all times.

The Gigabit speed of the network allows bandwidth-heavy traffic like IP surveillance videos or streaming to be transmitted without delays. The X-roaming support of access points reduces handoff time between access points to less than 60 milliseconds, ensuring reliable wireless connectivity. Furthermore, the APs' PoE PD function simplifies deployment by eliminating the need for additional power cables, reducing complexity and costs.



IP Camera IP Camera (outdoor)

Project Requirement

- High speed and large bandwidth
- Uninterrupted connections during the entire journey
- Ease of deployment without too much extra costs
- Resistance to vibration and shocks

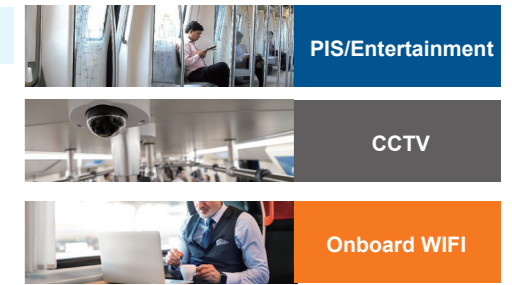
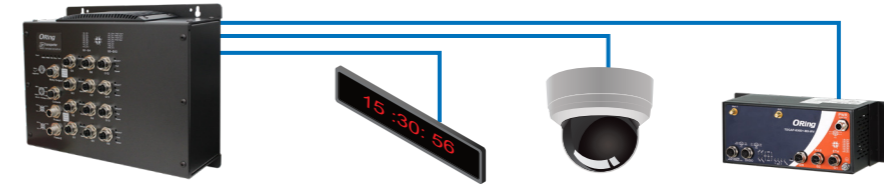
Why ORing

- EN50155 compliance
- PoE functionality
- X-roaming technology
- Gigabit speed

Feature Highlight

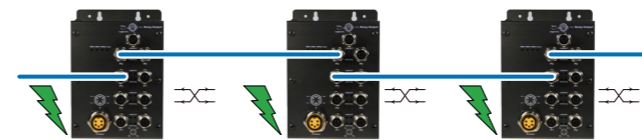
IEEE 802.3at/af PoE

Up to 30W per port

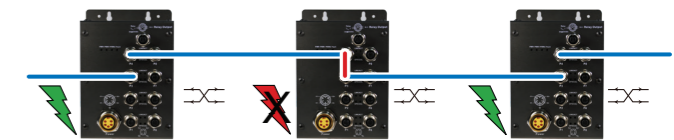


Hardware Bypass

When power failure occurs, the internal bypass circuit connects these 2 ports together, effectively letting the network ride through this Ethernet switch that has lost power to operate.



Normal Communication



Single point power failure activate mechanism

500Mb/s over 4-wire Ethernet

Fast Ethernet Switch with 500Mbps per port. Cost-Effective retrofit with Low-Cost implementation!



Q-ODC Interface

Long range fiber connectivity.

	Copper	Fiber Optics
Distance	100 meters	>500 meters
Immunity to EMI & RFI	Low	Completely immune
Security	Susceptible to tapping	Hard to tap

Configuration Backup Unit

The DBU-01 is a Plug-and-Play configuration backup unit. The purpose of the unit is to quickly backup or restore the configuration file.



Highlighted EN50155 Products

Unmanaged Ethernet Switch



TGXS-1080-M12

- 8x 10/100/500/1000Base-T(X)
- Provide 8x10/100/500/1000Base-T(X) ports
- 24VDC power input



TGXPS-1080-M12-BP2 Series

- 8x 10/100/500/1000Base-T(X) PSE
- 2-pair hardware bypass
- Built-in relay output for warning system
- Provided power isolated protection
- 110VDC power input

Managed Ethernet Switch



TPS-3082GT-M12X-BP1-MV

- 8x 10/100Base-T(X) PSE and 2x 10/100/1000Base-T(X)
- 1-pair hardware bypass
- Support STP/RSTP/MSTP and O-Ring
- 110VDC power input



TGPS-9080-M12A-MV

- 8 x 10/100/1000Base-T(X) PSE
- Support STP/RSTP/MSTP, MRP, G.8032 and O-Ring
- IP40 housing design
- 110VDC power input



TGPS-W9082GF-MM-M12X-QS-MV-IP54

- 8x 10/100/1000Base-T(X) PSE and 2x 1000Base-SX Q-ODC
- Multi-mode fiber, 0.55km
- Support STP/RSTP/MSTP, MRP, G.8032 and O-Ring
- IP54 housing design
- 110VDC power input



TINJ-101GT-M12-24V

- 1-port gigabit PoE Injector
- Auto protection for over voltage power input and over current output
- 24VDC power input

TRGPS-9084TG-M12X-BP2-MV

- 8x 10/100/1000Base-T(X) PSE and 4x 10GBase-T
- 2-pair hardware bypass
- 110VDC power input



5G NR Router

TDGAR-1083D+-D5GS-M12X-WV

- IEEE 802.11n/ac plus 5G Cellular Router
- 3x 10/100/1000Base-T(X)
- Provide SNAT/PAT/1:1 NAT
- Support GPS connection
- 24-110VDC power input



Highlighted EN50121-4 Products

RGPS-92222GCP-NP

- 22x 10/100/1000Base-T(X) P.S.E., 2x gigabit combo P.S.E. and 2x 100/1000Base-X, SFP socket
- Fully compliant with IEEE802.3at standard
- 50-57VDC power input



RGS-92222GCP-NP

- 22x 10/100/1000Base-T(X), 2x gigabit combo and 2x 100/1000Base-X, SFP socket
- Support IEEE 802.3az Energy-Efficient Ethernet technology
- 100-240VAC power input



About ORing

As an IRIS certificated company, ORing has played a leading role in the network industry, and has been devoted to the development of next-generation network communications products and innovative industrial solutions. ORing has developed a comprehensive product portfolio designed to meet customers' various needs.

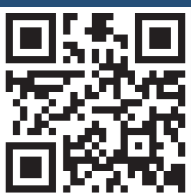


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