

ORing



Guidebook

Industrial Networking Solutions



EN 50155
EN 50121



IEC 60945
EN 60945



IEC61850



Class I Division II
Hazardous



IRIS
Certification



www.ORingnet.com

About ORing

Value Proposition

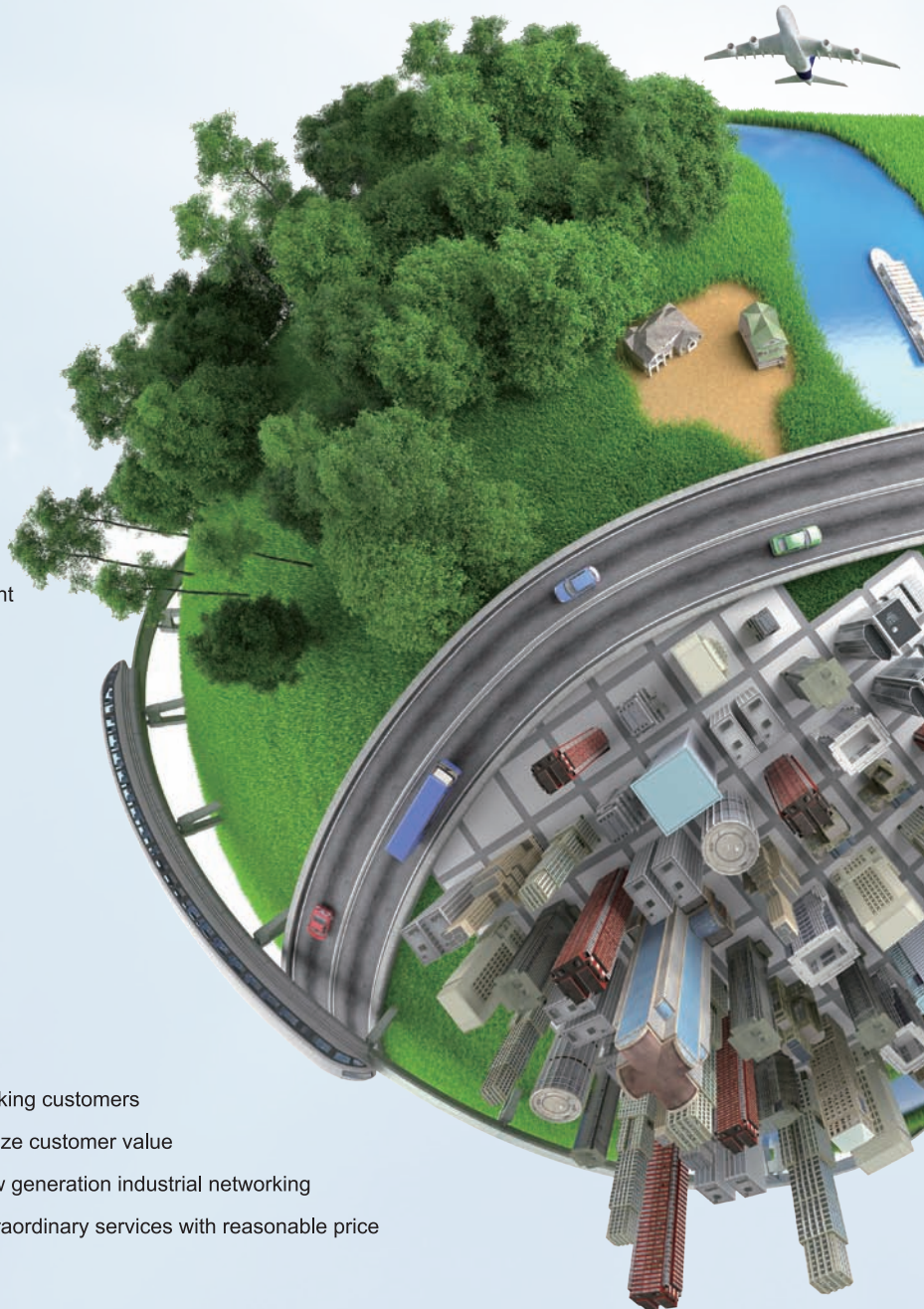
- Professional and excellent expertise in Industrial Ethernet network
- Wide selection of high quality and cost-effective products
- Customized solutions to meet customer's needs
- Superior technical support and service
- Trusted Long-term partnership
- Low TCO and high ROI

Core Value

- Customer-Oriented R&D
- Technology Innovation
- Premium Quality
- Proficiency, Reliability and Efficiency
- Swift Time-to-Market product development

Mission

- Satisfy specific needs of industrial networking customers
- Build up a trusted partnership and maximize customer value
- Become the best solution provider for new generation industrial networking
- Provide superior quality products and extraordinary services with reasonable price





Leading the Way for Industrial Networking

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.

ORing's products and solutions are characterized by 10 Gigabit-level bandwidth, industrial-grade ruggedness, high-power PoE+, POE++ up to 30W/90W support, advanced network redundancy abilities, multi-vendor compatibility, and visualized network management for ease of operation.

ORing has launched redundancy technologies and products to ensure fast recovery in the event of network failure such as the self-healing O-Ring and O-Chain (recovery time < 10 ms with up to 250 switches) technologies, active hardware-based hacker prevention (Device Binding), high compatibility with other vendors' products (Open-Ring), powerful network management software (Open-Vision, with Google map features) and centralized management controller (OCS-815).

For wireless communications, ORing has developed industrial-grade products conforming to IEEE 802.11n and IEEE 802.11ac standards, X-Roaming technology (cross-AP wireless roaming handoff time < 60 ms), X-Mesh technology for large-scale redundant wireless networks and many more. Other products include industrial M2M gateways and 4G LTE cellular routers featuring link aggregation (load balancing) and redundancy technologies.

In addition to serial signals, DIDO, Ethernet interfaces and powerful VPN in the M2M gateway to collect data from the SCADA system, ORing has released new-generation 1/ 2/ 4/ 8/ 16-port serial device servers and Modbus gateways with innovative product function.

ORing's products have obtained various certifications, including CE/FCC, UL 60950-1/UL508/C1D2/ ATEX/IECEX, IEC-61850-3 for power utilities, EN50155/50121-4 for railway applications, and IEC-60945 for marine environments. All of ORing's products are covered by a warranty for up to 5 years.

Company Overview

- Founded in 2005 as a system design house known as Supercom
- Provides a wide selection of industrial Ethernet products
- Headquartered in Taiwan
- Products with ease of use, high quality, reliability, open architecture, and advanced network technology
- Rugged industrial-grade products designed for harsh environments
- Technical expertise in:
 - Ethernet, Protocols, and Internet
 - PoE Solutions
 - Wireless communications
 - Optical Fiber networks
 - Serial Communications
 - Network Management Software

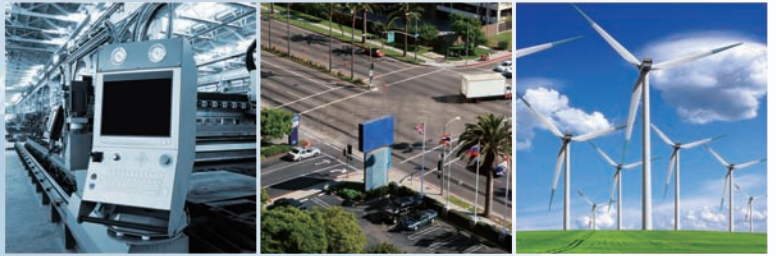


Table of Contents

About ORing	1
Table of Contents	2
Company Information	4
Product Overview	12
Vertical Market Applications	20



Industrial Ethernet Switch	
Overview	43
Key Technologies	43
Industrial Media Converter	
Overview	55
Key Technologies	55
Industrial Device Server	
Overview	56
Key Technologies	56
Industrial Wireless Access Point	
Overview	58
Key Technologies	58
Industrial Cellular VPN Router	
Overview	62
Key Technologies	62
Industrial M2M Gateway	
Overview	56
Key Technologies	56
Accessories	
Overview	67
Network Management Software	
Overview	67
Key Technologies	67
Industrial IOT Overview	
Overview	70
Key Technologies	70
ORing MagiCloud Overview	
Overview	71
Key Technologies	71
ORing MagiCity	74

Product Selection Guide	
Industrial Ethernet Switch	77
Industrial Media Converter	123
Industrial Device Server	130
Industrial Wireless Access Point	137
Industrial Cellular VPN Router	141
M2M Gateway	145
Accessories	146
Open-Vision v3.6	156
Industrial IOT Product	157

Company Information

Company Profile

As a global leading brand, ORing Industrial Networking Corp. was established by a group of experienced industrial software and hardware engineers in 2005. Since its establishment, ORing has focused on the innovation of Industrial networking products and has developed a complete product portfolio, such as industrial-grade media converters, Ethernet switches, wireless routers and device servers. ORing has passed the ISO9001:2008 Quality and Management System certification and been accredited with numerous international certifications, providing evidence of product quality and regulatory compliance. Our numerous products have been successfully deployed in various applications throughout the world, such as railway/highway monitoring, intelligent transportation systems, building automation, etc. ORing is committed to providing world-class products, strong technical support, and the best after-sale service.



Milestone

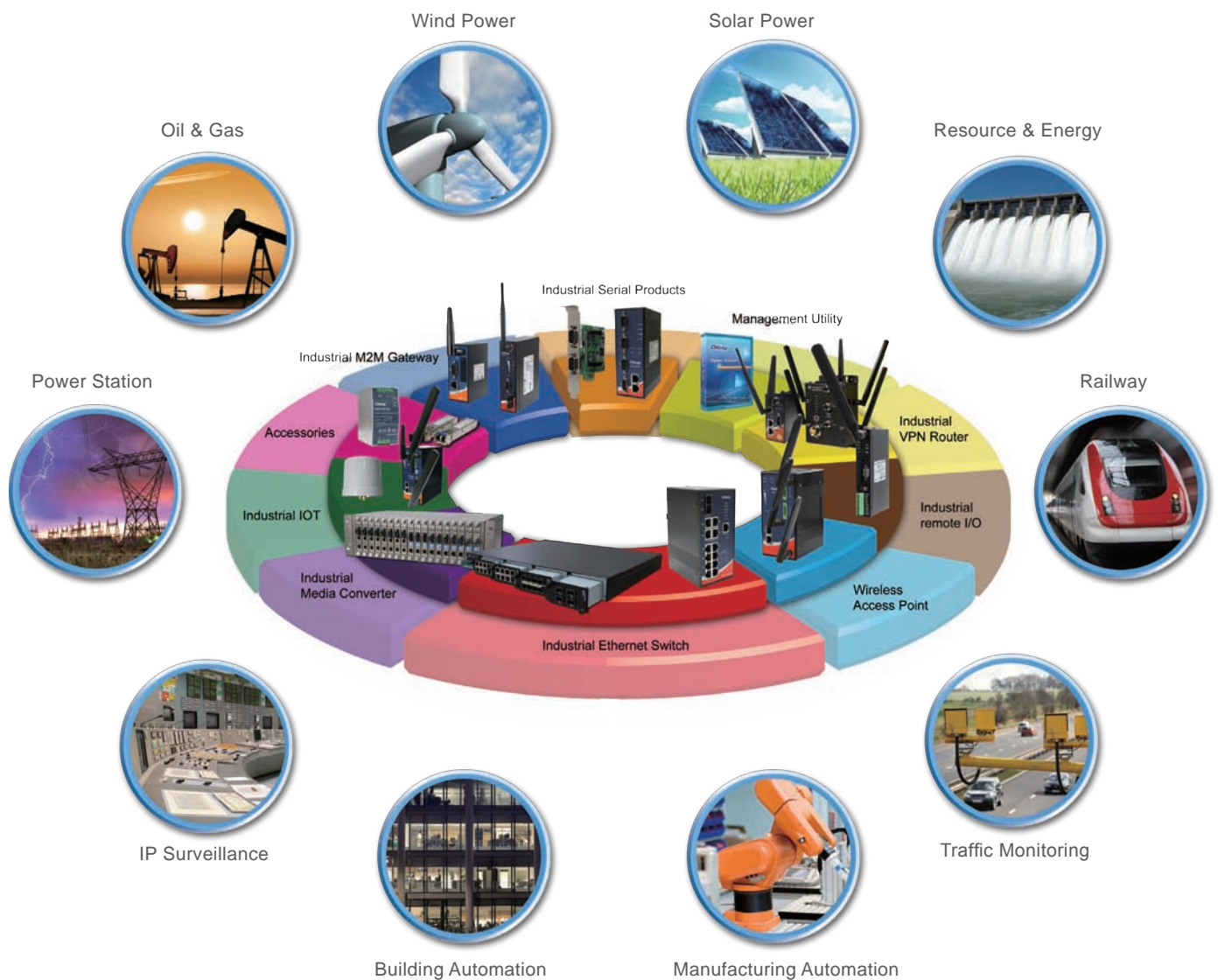


- | | |
|------|---|
| 2017 | ORIO + sensor passed NB-IoT testing conducted by Nokia/ Ericsson's lab
Launched ORing's first cloud platform |
| 2016 | ORing Launched the First Onboard 2.5G/10G Ethernet Switch with Copper Interface and PoE Functions |
| 2015 | ORing passes IRIS Certification
Launched Layer3 10G modular switches & din-rail switch with IEC-61850-3 compliance |
| 2014 | Reduced X-Roaming time to less than 60ms and launched IEC 60945 certified products for marine applications |
| 2013 | Passed C1D2 Certification in Q3 and integrated MRP and Modbus supporting into ORing switches. |
| 2012 | Launched IEC 61850-3 certified products for substations and introduced device servers supporting Windows 7 and 8. |
| 2011 | Launched EN50155 Transporter Series products and teamed up with AXIS Communication to develop the IP surveillance market. |
| 2010 | Launched industrial Gigabit Ethernet switches and high-power IEEE 802.3at PoE Gigabit switches. |
| 2009 | Introduced X-roaming technology and IPv6 products to the market. |
| 2008 | Established and developing ORing brand. |
| 2007 | Launched NMS(Open-Vision) technology. |

Product Coverage

ORing Industrial Networking Corp. offers a wide variety of products for all of your industrial networking needs. ORing's complete product portfolio consists of industrial Ethernet switches, industrial media converters, industrial device servers, industrial wireless access points, industrial cellular VPN routers, accessories, and network management software.

You can find the right products for you easily based on network speeds (Gigabit, fast, etc.), mounting options (rack-mount, DIN-rail, wall-mount, as well as other special-installation types), data transmission types (regular Ethernet, weatherproof Ethernet, PoE, wireless LAN, etc.), applications (railway, oil & gas, etc.), and many more.



Product Development

ORing places a high value on product quality and reliability during product planning and development processes with an ultimate goal to improve availability, minimize costs, and maximize product life cycle. As a result, ORing has set up a strict and systematic product development procedure from idea generation to planning and analysis, research & design, trial and test, pilot run, and massive production, to ensure the compatibility of different vertical markets. During the initial stages, highly skilled design engineers and experienced project managers from different departments work closely on innovative product design catering to the customer's needs and identify possible problems in order to minimize project risks, reduce product development costs, and guarantees consistent product quality and performance. Once the prototype is developed, serious tests will be conducted. All products will be tested and improved before entering pilot run and massive production. With in-house design engineering and manufacturing, we can ensure quality consistency and minimized risks.

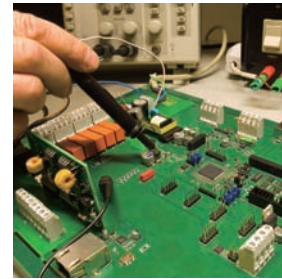
Idea Stage



Plan & Analysis



Research & Design



Trial & Test



Pilot Run



Massive Production



Customer-Oriented R&D Capability

ORing's innovations are geared to meet customers' needs. ORing's R&D team insists on developing stable, reliable, well-tested, and cost-effective industrial networking products. ORing R&D team accounts for one-third of the total workforce and has a vast knowledge and experience in the industry. ORing's R&D team work closely with project managers to develop innovative products based on customers' requirements. Apart from standard products, ORing's R&D team also conduct customized product design and in-house testing to ensure all products meet high quality requirements. Customers' feedback will be forwarded to our R&D team so they can make product improvements or develop new products that fulfill customers' expectations.

Quick Time-to-Market Product Solution

ORing has been known for its ability to provide products with a swift time-to-market as evidenced by the provisioning of the solution for the Beijing-Shanghai High-Speed Rail project, also known as the Jinghu High-Speed Rail, in 2010. The whole process from receiving the customer's requirements to product delivery took only three months. ORing's R&D team also possesses complete OEM/ODM capabilities and expertise in project planning, custom solution development, and technical support.

ODM Service

Besides own-brand products, ORing also offers ODM services to develop fully-customizable solutions for our customers. From design integration through prototyping to mass production, we apply our in-depth expertise on manufacturing, quality control, and new technology to provide the best, most reliable products for our partners.

ORing has provided ODM services for several major projects including the Beijing-Shanghai High-speed Rail project in 2010 and the Beijing Subway Line 8 project, to name a few. These successful projects have demonstrated ORing's ability to lead large-scale ODM projects with high-efficiency and excellence.

Customer Feedback

ORing takes customer feedback very seriously. In fact, customer needs are ORing's first priority. Customer feedback serves as valuable reference for making improvement in existing products as well as inspiration for future product innovation. Therefore, we have built a continuous customer feedback loop throughout the product development cycle in which customer feedback is collected before, during, and after product development. We not only listen for customer feedback but also identify customers' unmet needs proactively by engaging them during new product development to validate their requirements.

Technical Support and Quality Assurance

Comprehensive quality assurance tests are performed on all ORing products throughout the product development cycle to make sure the products achieve high quality standards. We have SMT lines that run with high speed mounting and dedicated staff for different QA procedures such as stencil cleaning, automatic optical inspection, burn-in testing, and RoHS compliance testing.

All ORing products are covered by a warrant for up to five years. To provide real-time services to customers, ORing has sales offices and distributors around the globe. The OCE (ORing Certification Engineer) training program enables ORing and its distributors to provide professional services and support for ORing customers.



N2 Generator



SMT Line



Stencil Cleaner



AOI Machine



Burning Room with temperature testing at 50 degrees Celsius



60 degrees Celsius Chamber



Micro Scope



RoHS X-ray Machine

Focused Vertical Markets with Industrial Grade Certifications

Over 100 models of ORing products have been deployed in a wide variety of applications and environments worldwide. Vertical markets have played a key role in ORing's business. As vertical markets adhere to standards and certification which can be complex, costly, and time-consuming, ORing has made sure all products are produced and tested in certificated labs and manufacturing stages. Also, ORing products are fully compliant with a variety of safety standards including EMC, IPv6, UL508, EN50155, and C1D2, indicating the ruggedness and durability of ORing products in harsh environments. To show our care for the environment, all of ORing's products are qualified with EU's WEEE and RoHS directives.

IRIS

IRIS (International Railway Industry Standard) is an extension of the internationally recognized ISO 9001 quality standard but is specific to the railway industry. The standard is developed by the UNIFE Group (the Association of the European Rail Industry) to attest to the quality and reliability of networks products and solutions for railway applications. ORing has been IRIS certified since 2015. ORing's partners and customers can rest assured that their ORing solutions meet the extremely rigorous requirements in the railway industry and that ORing will constantly improve its management, research, and development processes. The IRIS certification not only stands for topnotch quality, but also helps ORing partners save time and costs since they can directly use ORing's solutions to achieve higher safety, cost-effectiveness and quality of their railway appliances without undergoing additional qualifications. Optimal operational reliability and system availability can be guaranteed as comprehensive support ranging from development to production, servicing, and management will be provided.

EN50155

EN50155 is an international standard set for railway applications. EN50155 requires compliance with temperature, humidity, and electromagnetic interference. The standard guarantees the reliability of railway services by governing the operation, design, construction, and testing of electronic equipment.

EN50121-4

EN50121-4 is an European standard applies for emission and immunity of the signalling and telecommunications apparatus in railway applications. It specifies the limits of emission as well as immunity, and identifies products that can operate despite the extreme surge and emissions hazards of railway environments.

EN 45545

EN 45545 is a European standard that specifies the fire protection requirements for materials and products used on railway vehicles. EN 45545-1 includes regulations regarding the classification of rail vehicles in operational and design categories, as well as fire safety objectives. EN 45545-2, which will become mandatory in all European countries in 2016, defines the requirements for the fire behavior of materials and components.

EN 60945

EN60945 is a standard that specifies the use of maritime navigation and radio communication equipment on a ship. All such equipment must undergo various tests such as temperature, vibration, humidity, corrosion, water immersion, and electromagnetic emissions to prove their abilities to withstand severe conditions found across the world's oceans.

C1D2/ATEX/IECEX

C1D2, ATEX, and IECEX are three standards for equipment used in hazardous areas such as oil & gas, mining, energy detection systems. C1D2 is a US standard referring to situations in which ignitable concentrations of gases, vapors or liquids are present, but are contained. ATEX is a European standard that consists of two EU directives describing what equipment and working environment is allowed in a space with an explosive atmosphere. IECEX is an international standard regulating the use of electrical equipment and components in potentially explosive areas.

IEC/UL/EN 60950-1/UL 508

IEC/UL/EN 60950-1 are standards for the safety of mains-powered or battery-powered information technology equipment, including electrical business equipment and associated equipment, with a RATED VOLTAGE not exceeding 600 V and designed to be installed in accordance with the National Electrical Code, NFPA 70. UL 508 is the Underwriters laboratories (UL) safety standard for industrial control panels and internal components. Requirements of this standard cover devices rated 1500 volts.

IEEE 1613

IEEE-1613 is the IEEE standard specifying ratings, environmental performance, and testing requirements for communications networking devices installed in electric power substations. Within the standard, two classes (Class 1; Class2) of devices are defined, based on the outcome of a specific set of potentially destructive EMI type tests (EMI stress) designed to stimulate EMI phenomena in the substation.

IEC 61850-3

IEC 61850 is a standard for the design of electrical substation automation while “-3” signifies general requirements. Abstract data models defined in IEC 61850 can be mapped to a number of protocols that run over TCP/IP networks or substation LANs using high speed switched Ethernet to obtain the necessary response times below four milliseconds for protective relaying.

E-mark is a European standard specifying the safety requirements of vehicles and their components. To obtain an e-mark, the products must be tested by a Technical Service appointed by the VCA (Vehicle Certification Agency), which will issue the certificate and approval number to be marked on the product. E-mark is a mandatory requirement and all products installed on a vehicle must have an e-mark to be sold legally in Europe.

PTCRB is a US standard that ensures mobile devices are compliant with cellular network standards within the operators' networks so that operators can be sure the mobile devices will not harm their networks. Cellular devices to be sold in North America are required to have a PTCRB certificate because it is a requirement for launching cellular devices on the US operators such as AT&T, Verizon, etc.

Regulatory Compliance Mark is used to indicate the compliance of radio-communication, electrical and electronic equipment that are subject to the EMC arrangement, and equipment required to meet EME standards. Earlier this year (March 1st, 2013), RCM has been confirmed as the single compliance mark for all arrangements, including previous labels such as A-Tick and C-Tick.

ANATEL, created by the General Telecommunication Law in 1997, is the telecommunications sector regulator in Brazil. Anatel is responsible for implementing the national telecommunication policy; regulating, authorizing and enforcing operators on the provision of telecommunication services; Defining standards to be accomplished by operators on the provision of telecom services.

TELEC is a series of technical standards regulated by the Ministry of Internal Affairs and Communications of Japan. TELEC engages in the technical regulations conformity certification service for all kinds of specified radio equipment. It provides polished and professional services in a neutral and fair manner for the customers.

The CE marking is a mandatory European conformity marking for certain products sold within, manufactured in, or targeted at the European Economic Area (EEA) since 1993. It consists of the CE-Logo and, if applicable, the four digit identification number of the notified body involved in the conformity assessment procedure. The CE marking is the manufacturer's declaration that the product meets the requirements of the applicable EC directives.

The RoHS directive aims to restrict certain dangerous substances commonly used in electronic and electronic equipment. Any RoHS compliant component follows EU Directive 2011/65/EC and 2015/863/EU, with respect to the following six substances: Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE).

The FCC Declaration of Conformity or the FCC label or the FCC mark is a certification mark employed on electronic products manufactured or sold in the United States which certifies that the electromagnetic interference from the device is under limits approved by the Federal Communications Commission

Shanghai Electric Laboratories Special Testing Lab

ORING Industrial Networking Corp.

Product: *ORING Industrial Networking*
Material: *PPA*
Company: *ORING*

Issuing Period: *Q3 11, Q4 11, Annual Conference and International Filing*
Unit: *1000000, 10000000, 100000000, 1000000000*
Unit Symbol: *1000000, 10000000, 100000000, 1000000000*
Unit Value: *1000000, 10000000, 100000000, 1000000000*
Appointed Date: *December 27, 2009*

with all the *ORING* and *ORING* products and services.
price of *ORING* Industrial Networking Corp. (ORING) is *1000000, 10000000, 100000000, 1000000000*

Yan-Hong, Li

Shanghai Electric Laboratories Special Testing Lab

ORING International Networking Corp.
 中國國際網路有限公司

Products: Ethernet, ATM, ISDN, and various routers, switches, and modems.

ISO 9001 **ISO 14001** **ISO 18001**

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Global Sales Offices and Services



ORing-USA

E-mail: sales_us@oringnet.com

Technical support: support@oringnet.com

Toll Free number: 800-815-4321

Headquartered in Taiwan, ORing currently has two overseas sales offices, one in the US and one in China. ORing has also worked with regional distributors to provide products, customer services, and technical support in real time. Besides a complete understanding of our products and solutions, ORing's well-trained sales representatives and channel partners have solid knowledge of different industries to help our customers choose the right products and solutions based on their needs. Customers can access our sales team for any questions or problems as they are backed by research and marketing experts.

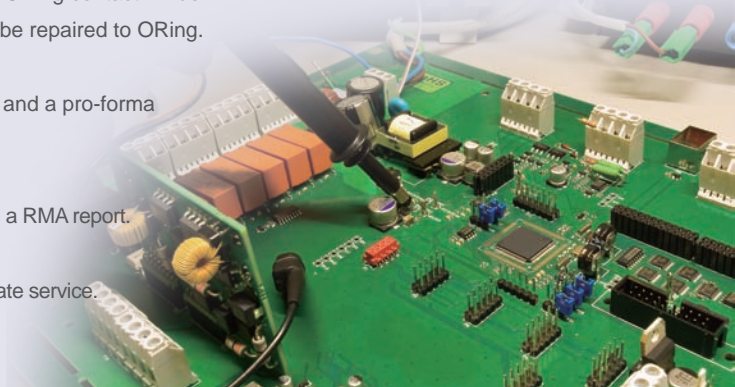
Customers can contact ORing directly by email at sales@oring-networking.com or through our worldwide distributors. For more contact information, please visit ORing's website at www.oring-networking.com

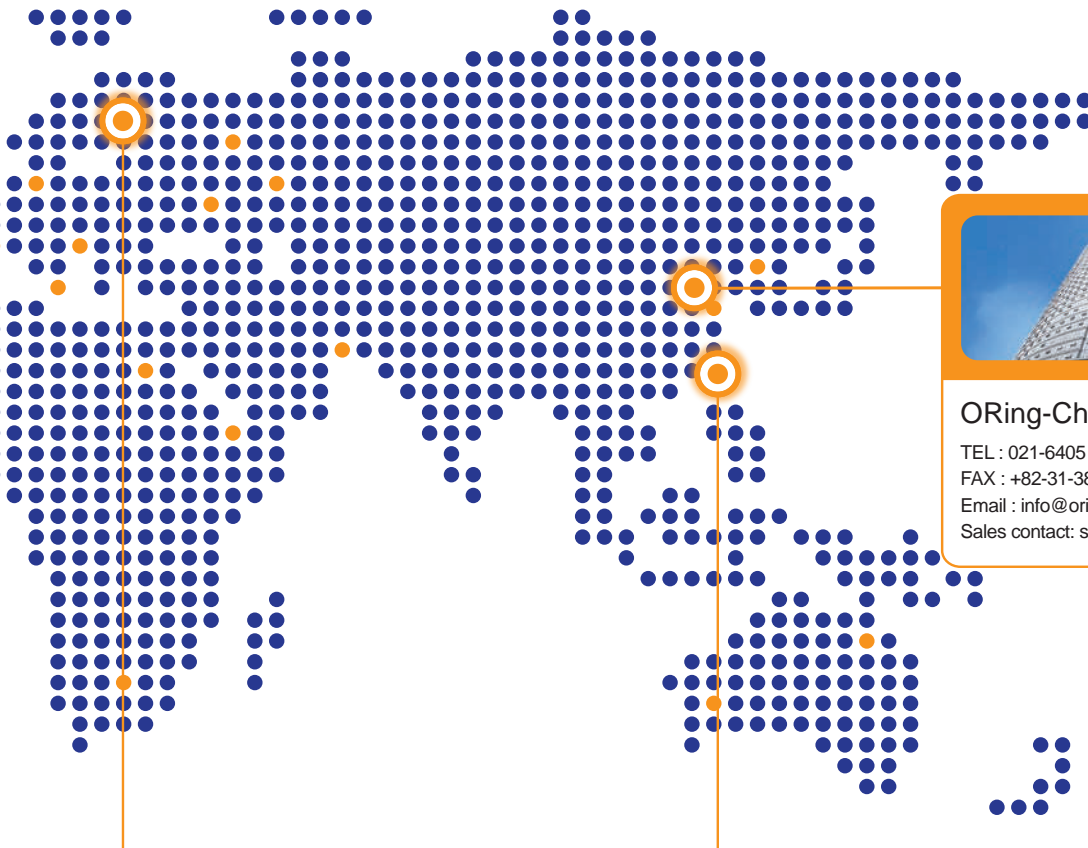
RMA Service

ORing provides maintenance and repair services for both warranty and out-of-warranty products. RMA items to be repaired or replaced will be defined in the following procedures:

- 1) The customer completes the RMA request form and submits to an ORing contact window.
- 2) Upon receiving a RMA number, the customer ships the product to be repaired to ORing.
- 3) ORing checks the product and identify the problem.
- 4) A service charge will be requested if the product is out of warranty and a pro-forma invoice will be issued to the customer.
- 5) ORing repairs or replaces the product.
- 6) The repaired or replaced product is shipped back to the customer with a RMA report.
- 7) ORing marks the RMA request as closed.

We are available at any time to provide you the most friendly and immediate service.





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Technical support : support@oringnet.com



ORing-Headquarters ORing Industrial Networking Corp.

Tel : +886-2-2218-1066
Fax : +886-2-2218-1014
Email : sales@oringnet.com

Product Warranty



ORing products are provided with a warranty for up to five years.

ORing Online Forum



ORing members are able to access the monthly forum to learn about the latest product information, application solutions, and events. Please visit ORing website and register now!

Product Overview

▪ Industrial Ethernet Switch

- Rack-Mount (Non-PoE)
- DIN-Rail Gigabit (DIN-Rail / Wall-Mount, Non-PoE)
- DIN-Rail Fast (DIN-Rail / Wall-Mount, Non-PoE)
- PoE (Rack-Mount / DIN-Rail / Wall-Mount)
- IP-67
- PCI/PCIe-Card
- EN50155
- C1D2
- Optical & PoE Network Accessories

▪ Industrial Media Converter

- Rack-Mount Ethernet-To-Fiber
- DIN-Rail Ethernet-To-Fiber (DIN-Rail / Wall-Mount)
- PoE Ethernet-To-Fiber (DIN-Rail / Wall-Mount)
- USB-To-Serial
- Serial-To-Serial

▪ Industrial Serial Products

- Rack-Mount Serial Device Server
- Serial Device Server
- EN50155 Device Server
- Wireless Serial Device Server
- Serial USB Converters
- Serial Media Converters
- PC Cards

▪ Industrial Wireless Access Point

- WLAN Access Point (DIN-Rail)
- WLANIP-67 Access Point
- EN50155 WLAN Access Point

▪ Industrial Cellular VPN Router

- 3.5G Cellular VPN Router
- 3.5G WLAN Cellular VPN Router
- EN50155 3.5G WLAN Cellular VPN Router
- 4G LTE Cellular VPN Router
- 4G LTE WLAN Cellular VPN Router
- EN50155 4G LTE WLAN Cellular VPN Router

▪ Accessories

- RF Antenna, RF/ Optical Fiber Patch Cord/ M-Series Cables, Power Supplies
- Gigabit / Fast Ethernet SFP/ BIDI-SFP modules

▪ Management Utility/Controller

- Open-Vision v3.6

▪ Industrial M2M Gateway

- Din-Rail M2M Gateway

▪ Industrial IOT Product

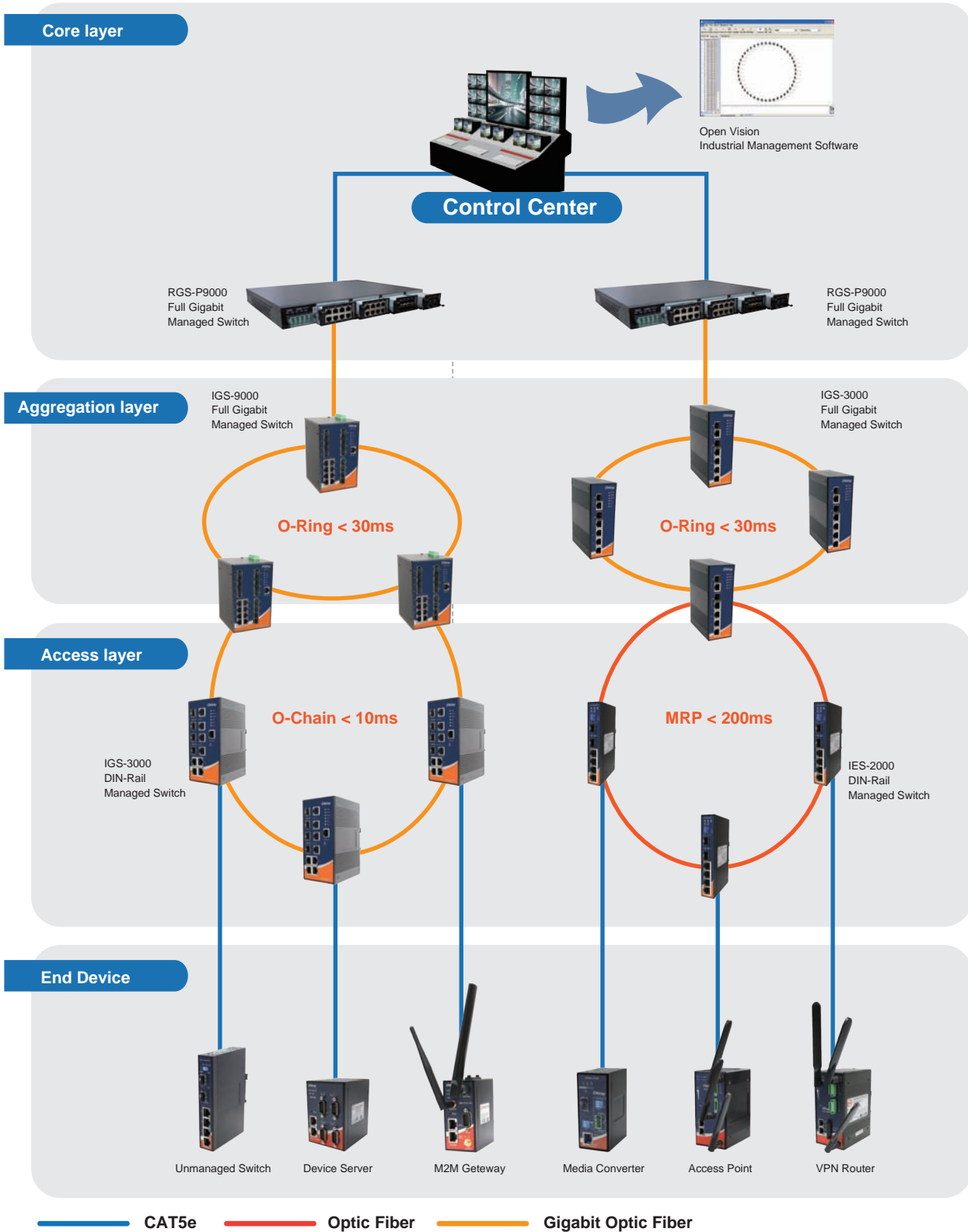
- Wireless Remote I/O (ORIO)
- Smart Meter (ORGate)
- Street Light Controller (Zigbee/LoRa/NB-IoT/CMS 1.0)

▪ ORing MagiCloud

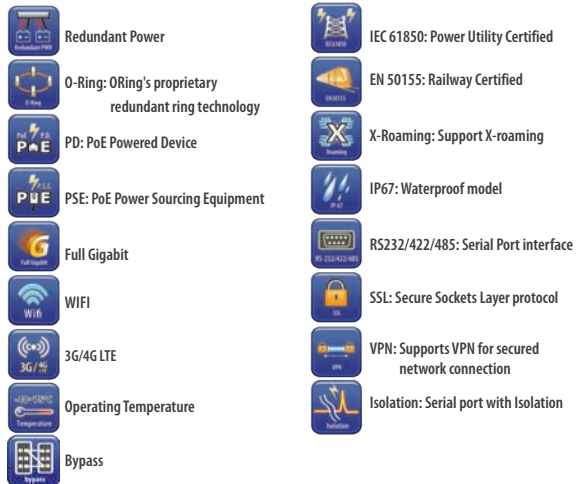
- ORing PaaS Products
- ORing SaaS Product



ORing Product Topology



ORing Highlight Products



Rack-Mount Ethernet Switch

RGS-PR9000-A Series

Layer-3 IEC 61850-3 modular rack mount managed Gigabit Ethernet switch up to 24 1G ports plus 4 10G ports



RGS-P9000/PR9000

Layer-2/Layer-3 IEC 61850-3 modular rack mount managed Gigabit Ethernet switch with 4 slots



RGS-P9160M1 Series

IEC 61850-3 16-port modular rack mount managed Gigabit Ethernet switch



Rack-Mount Ethernet Switch

RGPS-R9244GP+-P

Layer-3 24G P.S.E.+4 1G/10G SFP Ports Managed Gigabit Ethernet Switch



RGPS-9222GCP-NP Series

22G P.S.E.+2G Combo P.S.E.+2G SFP Ports Managed Gigabit Ethernet Switch



RGS-9168GCP Series

24-port rack mount managed Gigabit Ethernet switch



Gigabit PoE Ethernet Switch

IGPS-1082GP/24V

10-port unmanaged Gigabit PoE Ethernet switch with



ORing Highlight Products

EN50155 Ethernet Switch

IGS-9122GPM

EN50155 modular managed Gigabit Ethernet switch with 12x10/100/1000Base-T(X) and 2x100/1000Base-X, SFP socket, 3 module extender slots



EN50155 Ethernet Switch

TPS-3162GT-M12-BP1 Series

EN50155 16 P.S.E.+2G Ports, 1xBypass, Managed Ethernet Switch



TES-3162GT-M12-BP1

EN50155 16+2G Ports, 1xBypass, Managed Ethernet Switch



TPS-3882GT-M12-BP1 Series

EN50155 8 P.S.E.+8+2G, Ports, Managed Ethernet Switch



TES-180-M12

EN50155 8-Ports Unmanaged Ethernet Switch



TGPS-9084GT-M12X-BP2 Series

EN50155 8G P.S.E.+4G Ports, 2xBypass, Managed Gigabit Ethernet Switch



TXPS-141XT-M12 Series

EN50155 5-port unmanaged PoE Ethernet switch



TGPS-9164GT-M12X-BP2 Series

EN50155 16G P.S.E.+4G Ports, 2xBypass, Managed Gigabit Ethernet Switch



ORing Highlight Products

Industrial Wireless Access Point

IAP-420/420+

IEEE 802.11 b/g/n Wireless AP with 2x10/100Base-T(X)



Industrial Wireless Access Point

IAP-W420+/W422+

Outdoor IEEE 802.11 b/g/n Wireless AP with 2x10/100Base-T(X) PoE P.D., IP-67 Grade



IGAP-6620+

Dual RF in IEEE 802.11 a/b/g/n Wireless AP with 2x10/100/1000Base-T(X)



IAP-W520+/522+

Outdoor IEEE 802.11 a/n Wireless AP with 2x10/100Base-T(X) PoE P.D., IP-67 Grade



IGAP-820+

IEEE 802.11 ac/g/n Wireless AP with 2x10/100/1000Base-T(X)



TGAP-W610+-M12

Outdoor IEEE 802.11 a/b/g/n AP with 1x10/100/1000Base-T(X) PoE P.D., M12 connector, IP-67 Grade



TGAP-620+-M12

EN50155 IEEE 802.11 a/b/g/n Wireless AP with 2x10/100/1000Base-T(X), M12 connector



TGAP-W6610+-M12

EN50155 Dual RF in IEEE 802.11 a/b/g/n Wireless AP with 2x10/100/1000Base-T(X) PoE P.D., M12 connector, IP-67 Grade



ORing Highlight Products

Industrial VPN Router

IQR-20/20+

Industrial VPN Router with 2x10/100/1000Base-T(X)



Industrial VPN Router

IGAR-2062+-4G

IEEE 802.11 a/b/g/n Dual 4G Cellular Router with 2x10/100/1000Base-T(X)



IAR-142(+)-3G/4G Series

IEEE 802.11 b/g/n 3G/4G Cellular Router with 2x10/100Base-T(X)



IGAR-1062+-4G

IEEE 802.11 a/b/g/n 4G Cellular Router with 2x10/100/1000Base-T(X)



TGAR-W1061+-3G/4G-M12

EN50155 IEEE 802.11 a/b/g/n 3G/4G Cellular Router with 1x10/100/1000Base-T(X), PoE P.D.



TGAR-1662-3GS/4GS-M12 series

EN50155 Dual IEEE 802.11 a/b/g/n 3G/4G LTE Cellular Router With 2x10/100/1000Base-T(X), M12 connector



TGAR-1062+-3GS/4GS-M12

EN50155 IEEE 802.11 a/b/g/n 3G/4G Cellular GPS Router with 2x10/100/1000Base-T(X), M12 connector



TGAR-2062+-3GS/4GS-M12

EN50155 IEEE 802.11 a/b/g/n Dual 3G/4G Cellular GPS Router with 2x10/100/1000Base-T(X), M12 connector



ORing Highlight Products

Industrial M2M Gateway

IMG-6322GT Series

Industrial Cellular M2M Gateway with IEEE 802.11 a/b/g/n and 1 Port RS-422/485, 1 port RS-232/422/485 & 2x10/100/1000Base-T(X) Gateway



IMG-W6121+-3G/4G-M12

Industrial Cellular M2M Gateway with IEEE802.11 a/b/g/n, 1G PoE P.D. and 2xRS-232



ORing Management Server

DMG-S15

Industrial 6-port Rack-mount multi-functional Management Server



Industrial Media Converter

IGMC-111GP/IGPMC-111GP

Industrial Gigabit PoE Ethernet to fiber media converter with 1x10/100/1000Base-T(X) P.S.E. and 1x100/1000Base-X, SFP socket



Industrial PoE Ethernet Accessories

INJ-101GT++-60W

Industrial 1-port Gigabit High Power PoE++ Injector



SPL-101GT++

Industrial 1-port Gigabit PoE Splitter, 60Watts Output



PET-102GT++

Industrial 2-port Gigabit High Power PoE++ Extender



Industrial Media Converter

IPMC-111PB+-60W

Industrial mini type Ethernet to fiber High power PoE++ media converter with 1x10/100Base-T(X) P.S.E. and 1x100Base-FX, SFP socket



ORing Highlight Products

Industrial Serial Products

IDS-312/312+, IDS-322/322+, IDS-342/342+

1/2/4xRS-232/422/485 to 2x10/100Base-T(X), 1-port PoE P.D. Device Server



Industrial Media Converter

ISC-1310FR

Industrial Serial Media Converter 1-port RS-232/422/485 to Fiber



RDS-3166G

16xRS-232/422/485 to 4x10/100/1000Base-T(X)+2x100/1000Base-X SFP Socket Device Server



Wireless Remote I/O

ORIO-G30218

Support two Serial Ports for RS232/RS422/4W-RS485/2W-RS485



RDS-P3000

IEC 61850-3 Modular Rack-mount Device Server with 4 Serial Slots and 1 Ethernet Slot



Smart Lighting

LoRa Street Light Controller

Lighting System, corresponding with LPWAN technology, LoRa module and antenna (Gateway & Cell Controller)



PCard-E1041L-S-D4/PCard-E1041L-D4

Industrial 4-Ports RS-232 PCI Express Card With Low Profile and 6KV Surge Protection



NB-IoT Street Light Controller

Lighting System, corresponding with LPWAN technology, NB-IoT mPCIe module and antenna design



Vertical Market Applications

Intelligent Transportation System

Building Secure Surveillance Systems with Gigabit backbone Network

Intelligent transportation systems must handle massive real-time transportation video and statistics data to ensure effective management of public transportation, traffic signals, freeways, tunnels, and parking lots. Therefore, the backbone network must be reliable. In order to be dependable long distance high-bandwidth data transmission under tough outdoor conditions would be industrial-grade Gigabit Ethernet backbone network infrastructure along with fiber-optics, wired, and/or wireless networks. With such networks, traffic control centers can benefit from vastly improved timeliness and accuracy of real-time traffic information. ORing, with many years of experience of industrial Ethernet networking know-how and innovative network management technologies, provides rugged and durable industrial Gigabit networking products, the most suitable for intelligent transportation systems.



Key Products

20



IGPS-1080-24V

Industrial 8-port Unmanaged Gigabit PoE Ethernet Switch

- Supports 8x10/100/1000Base-T(X) PoE (P.S.E.) ports; up to 30 watts per port
- Rigid IP-30 housing design
- -40° to 70°C operating temperature range



IGPS-9084GP

Industrial 12-port Managed Gigabit PoE Ethernet Switch

- 8 ports P.S.E. fully compliant with IEEE802.3at standard, provide up to 30 watts per port
- Supports IEEE 1588v2 clock synchronization
- Supports standard IEC 62439-2 MRP*NOTE (Media Redundancy Protocol) function



IGS-9042GP Series

Industrial 6-port Managed Gigabit Ethernet Switch

- Supports IEEE 802.3az energy-efficient Ethernet technology
- Supports Modbus TCP protocol
- Supports standard IEC 62439-2 MRP*NOTE (Media Redundancy Protocol) function



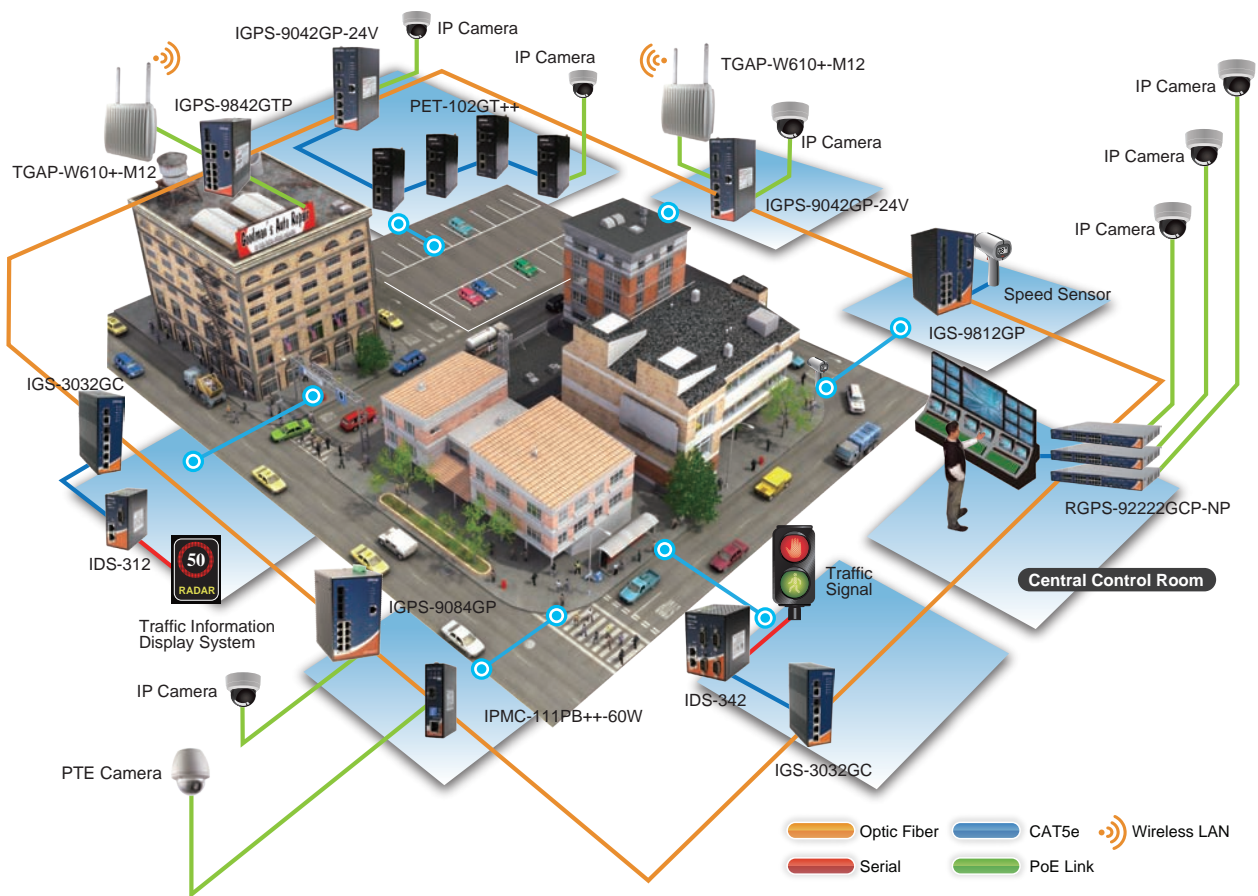
DGS-9812GP-AIO_S

Industrial 20-port Desktop Managed Gigabit Bypass Ethernet Switch

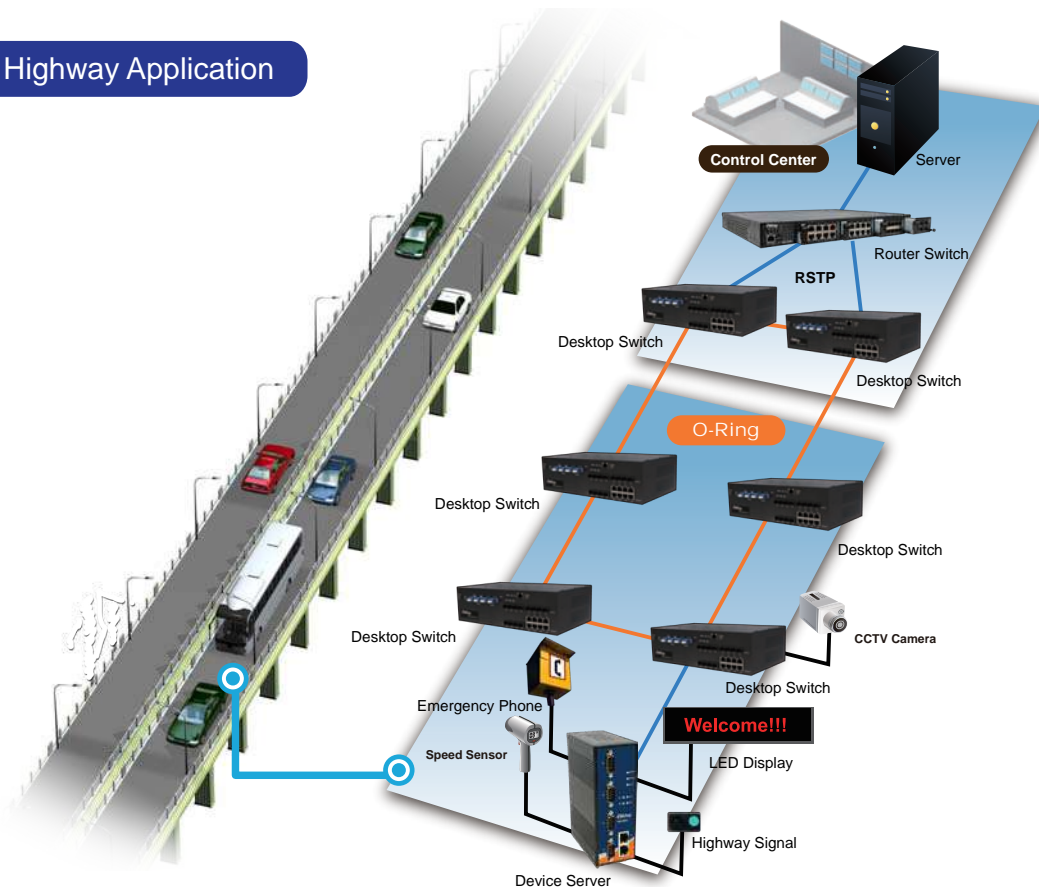
- Supports 8x10/100/1000Base-T(X) ports and 12x100/1000Base-X SFP ports
- Supports Jumbo frame up to 9.6K bytes
- Supports O-Ring (recovery time < 30ms over 250 units of connection), MSTP/RSTP/STP (IEEE 802.1s/w/D) for Ethernet redundancy

*NOTE: This function is available by request only

Intelligent Transportation System



Highway Application



City Surveillance

Improve City Safety with ORing's Advanced Network Technologies

To help the law enforcement to fight against criminal activities and to help the emergency personnel to respond swiftly to emergency situations, city surveillance is an indispensable aid of modern city. With the rapid digitization of video surveillance systems, video quality has vastly improved with capability of long distance transmission without quality degradation. However, in relaying such critical video information, the network connections involved need to stay uninterrupted in critical situations and to have the toughest security features to guard against hacker attacking. For these purposes, ORing's PoE+, Gigabit and Optical Ethernet switches would ensure continuous and well-protected surveillance video network traffic at all times. Additionally, secure industrial-grade ORing wireless APs can be used for venues where implementation of network cables would be difficult and/or costly.



Key Products

RGS-PR9000

Industrial Layer-3 IEC 61850-3 Modular Rack Mount Managed Gigabit Ethernet Switch with 4 Slots



- Design for power substation and fully compliant with the requirement of IEC 61850-3 and IEEE 1613
- Modular design makes network planning easy
- Supports Layer 3 static routing, RIP and VRRP function
- Supports GRE (Generic Routing Encapsulation) tunneling protocol

IGPS-9042GP-24V

Industrial 6-port Managed Gigabit PoE Ethernet Switch



- 4 port P.S.E. fully compliant with IEEE802.3at standard, provide up to 30 watts per port
- Supports IEEE 802.3az energy-efficient Ethernet technology
- Supports Modbus TCP protocol

RGPS-9084GP-P

Industrial 12-port Rack Mount Managed Gigabit PoE Ethernet Switch



- Supports IEEE 802.3at compliant PoE 30 watts per port
- Supports PoE schedule configuration and PoE alive check function
- Supports IEEE 1588v2 clock synchronization

IGPS-9842GTP-24V

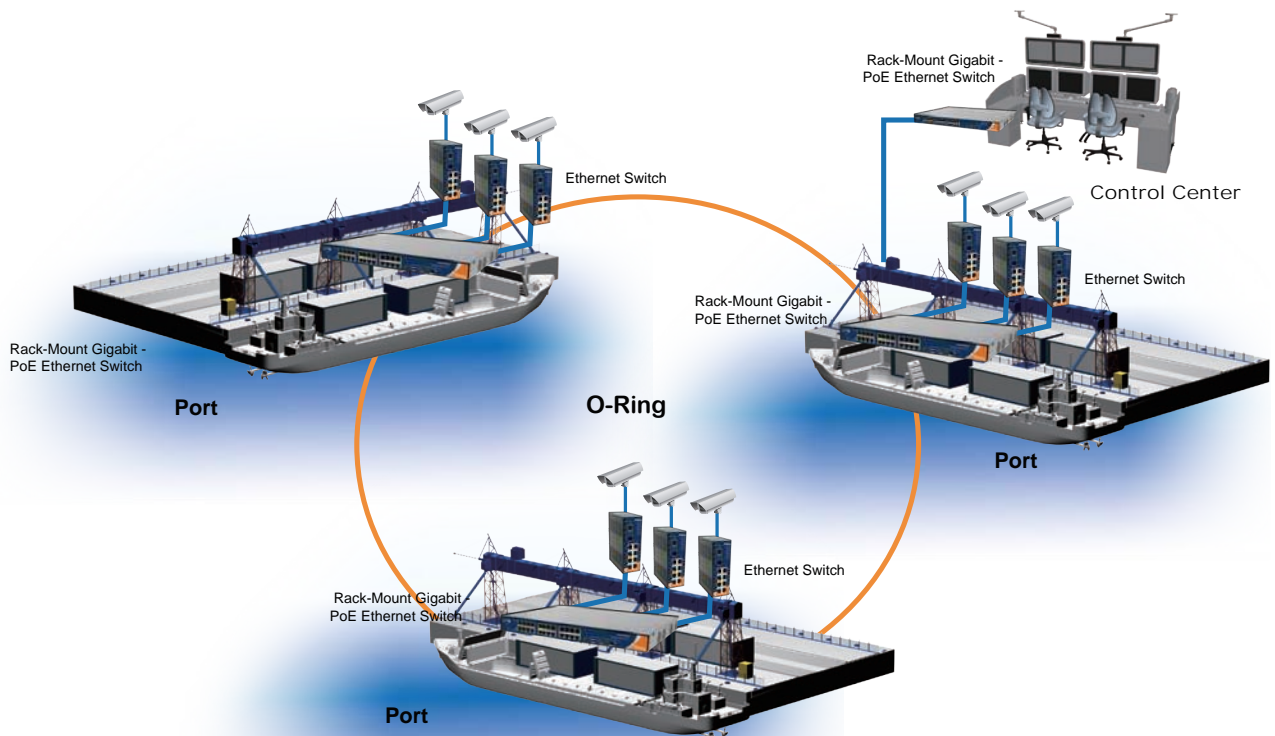
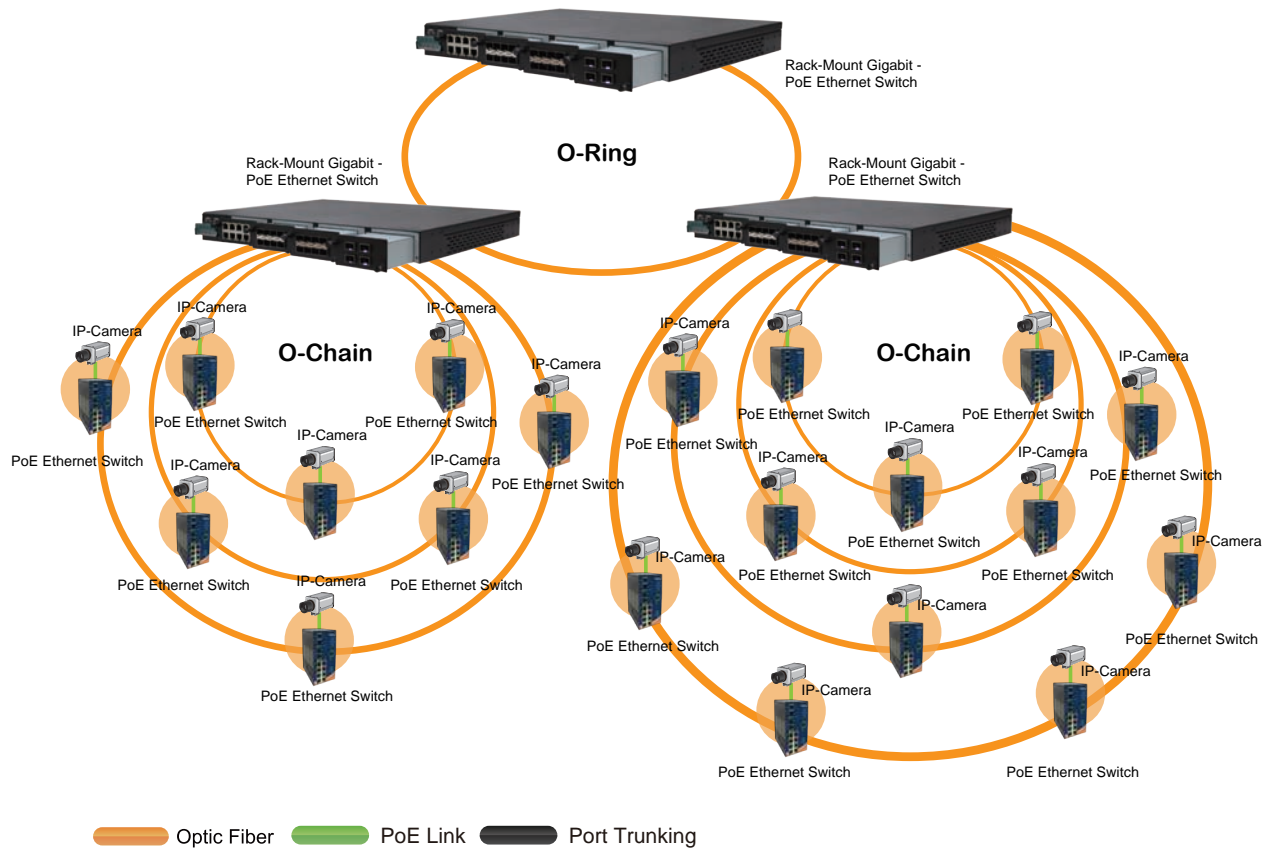
Industrial 14-port Managed Gigabit PoE Ethernet Switch



- Supports standard IEC 62439-2 MRP*^{NOTE} (Media Redundancy Protocol) function
- Supports IEEE 802.3at compliant PoE with maximum 30 watts per port
- Supports PoE schedule configuration and PoE alive check function

*NOTE: This function is available by request only

City Surveillance



Railway

Establish Robust and Secure Railway Networking Solutions

Rolling stock, including trains, high-speed rail, and community trains, is the most important transport between cities and towns. These vehicles not only connect people in different places, but also bring convenience and efficiency to our life. With such important rolling stock industry, dependable safety management of railway traffic is absolutely necessary, calling for the need of rugged networking capable of handling massive real-time traffic information accurately without interruptions. As a leading network solution provider for rolling stock, ORing has developed the complete railway network solutions featuring PoE, outdoors and bypass function with EN50155/50121-4/IRIS compliance. The devices are perfect for complex and distributed railway applications.



Key Products



IGPS-9084GP

Industrial 12-port Managed Gigabit PoE Ethernet Switch

- 8 ports P.S.E. fully compliant with IEEE802.3at standard, provide up to 30 watts per port
- Supports IEEE 1588v2 clock synchronization
- Supports standard IEC 62439-2 MRP*NOTE (Media Redundancy Protocol) function



RGPS-R9244GP+-P

Industrial Layer-3 28-port Managed Gigabit PoE Ethernet Switch

- Supports standard IEC 62439-2 MRP*NOTE (Media Redundancy Protocol) function
- 24 port P.S.E. fully compliant with IEEE802.3at standard, provide up to 30 watts per port
- Supports PoE scheduled configuration and PoE auto-ping check function



TPS-3162GT-M12-BP1

Industrial EN50155 18-port Managed PoE Ethernet Switch

- Leading EN50155-compliant Ethernet switch for rolling stock application
- 16 ports P.S.E. fully compliant with IEEE802.3af standard, provide up to 15.4 watts per port
- World's Fastest Redundant Ethernet ring: O-Ring (recovery time < 10ms over 250 units of connection)
- HW Bypass with two Gigabit ports



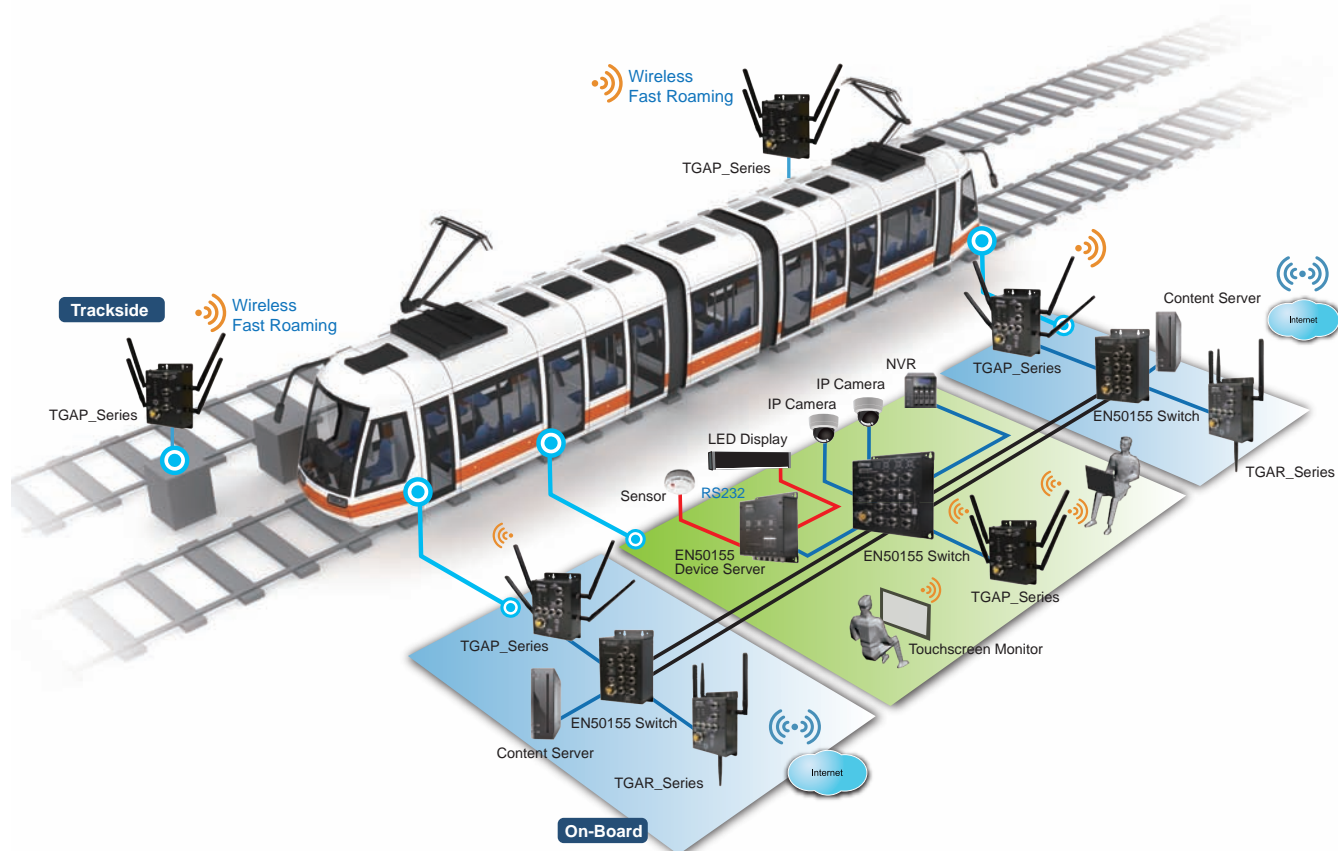
TGAR-2062+-3GS/4GS-M12

Industrial EN50155 IEEE 802.11 a/b/g/n Dual 3G Cellular GPS Router/4G LTE GPS Cellular Router

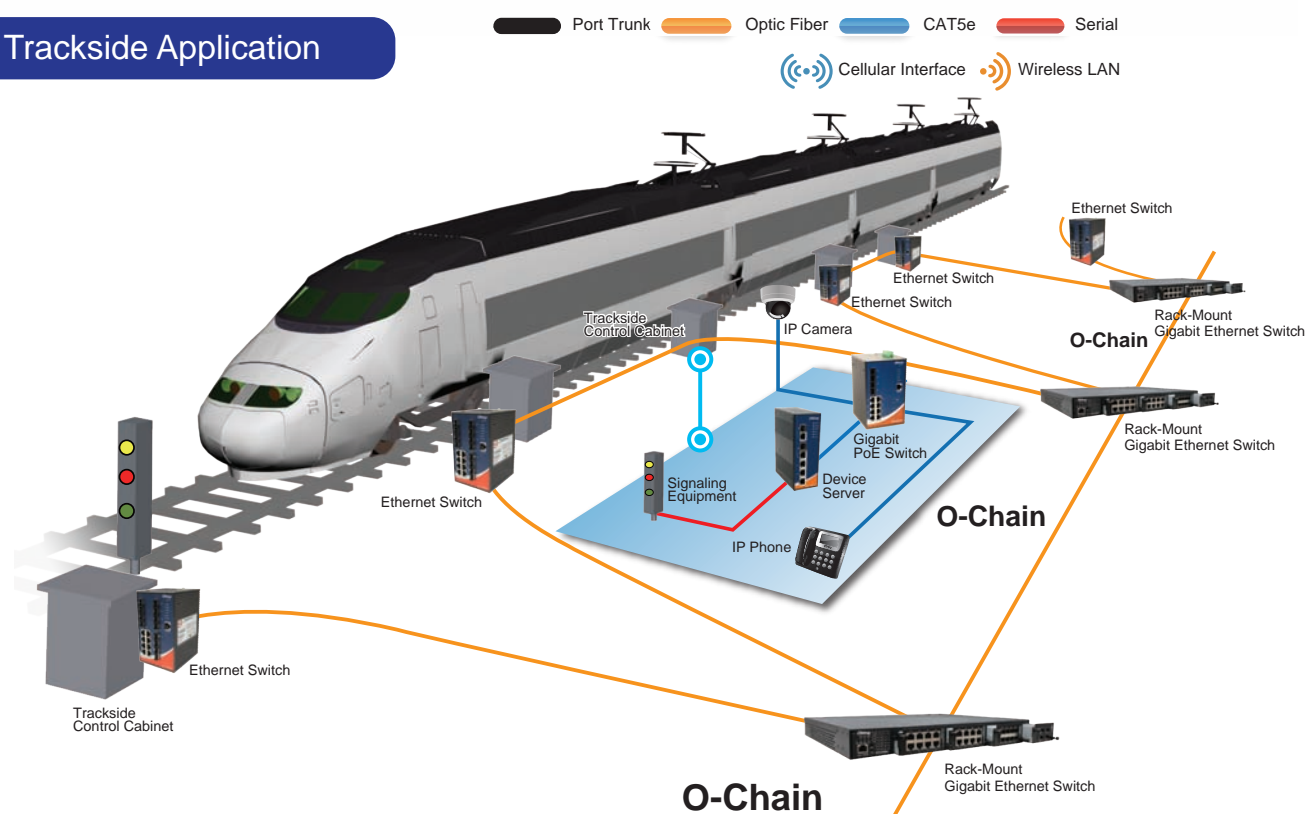
- EN50155-compliant wireless access point for rolling stock application
- High Speed Air Connectivity: WLAN interface support up to 300Mbps link speed
- GPS model supports GPS function

*NOTE: This function is available by request only

Railway Application



Trackside Application



In-Vehicle Surveillance

Construct Reliable & Efficient Network Monitoring Systems

IP surveillance technologies are on the rise in the video surveillance industry, thanks to convenience and cost-effectiveness of Ethernet networks. Hence IP surveillance systems can be implemented on buses for passenger safety, bus fleet management, or traffic monitoring, allowing the driver and the transportation control center to get real-time driving status at any time. Additionally, wireless AP can be implemented on buses to provide passengers with wireless internet service. For use on moving vehicles, networking equipment must adapt to tough conditions on moving vehicles. ORing products, with ruggedized design and industrial-grade wide temperature tolerance, ensure vehicle network reliability and thus are the best choice for vehicle surveillance and network systems.



Key Products



IGPS-1080-24V ^{E24}

Industrial 8-port Unmanaged Gigabit PoE Ethernet Switch

- 8x10/100/1000Base-T(X) PoE (P.S.E.) ports; up to 30 watts per port and totally 120 watts; dual 24~36 VDC power inputs
- Rigid IP-30 housing design
- -40~70°C operating temperature range



IGAR-1062+-4G

Industrial IEEE 802.11 a/b/g/n 4G LTE Cellular Router with 2x10/100/1000Base-T(X)

- High Speed Air Connectivity: WLAN interface support up to 300Mbps link speed
- Provide 2 port 10/100/1000Base-T(X) port and 1 sim card slot
- 4G LTE Modem dial up included
- Provide HNAT enhance LAN to WAN routing performance



TGAR-W1061+-4G-M12

Industrial EN50155 IEEE 802.11 a/b/g/n 4G LTE Cellular Router with 1x10/100/1000Base-T(X) PoE P.D., IP-67

- EN50155-compliant wireless access point for rolling stock application
- High Speed Air Connectivity: WLAN interface supports up to 300Mbps link speed
- Highly Security Capability: WEP/WPA/WPA-PSK(TKIP,AES)/WPA2/WPA2-PSK(TKIP,AES)/802.1X authentication supported



IGPS-9042GP-24V

Industrial 6-port Managed Gigabit PoE Ethernet Switch

- 4 ports P.S.E. ,fully compliant with IEEE802.3at standard, provide up to 30 watts per port
- Supports IEEE 802.3az energy-efficient Ethernet technology
- Supports Modbus TCP protocol

In-Vehicle Surveillance



CAT5e PoE Link Cellular Interface Wireless LAN

Building Automation

Strengthen BA Systems with ORing Advanced Network Technologies

Rapid development of digital contents and networks, building surveillance systems also have evolved as intelligent digital active surveillance systems. As a result, overall video surveillance quality has vastly improved while labor and security costs are minimized. Therefore digital networks are used in important public buildings – airports, train stations, office buildings, banks, etc. – to provide connections for door access control, temperature control, lighting monitoring, security system, etc. With ORing Gigabit Ethernet switches and ORing optical Fiber Switches, high quality surveillance video can be transmitted from high-resolution IP surveillance cameras to applicable surveillance systems reliably and securely without interruptions. Additionally, secure industrial-grade ORing wireless APs can be used for building locations where implementation of network cables would be difficult and/or costly.



Key Products



IGS-150B

Industrial 5-port Mini Type Unmanaged Gigabit Ethernet Switch

- Supports auto-negotiation and auto-MDI/MDI-X
- Supports Jumbo frame up to 9.6 K bytes
- Supports store-and-forward transmission
- Supports flow control



IGAP-620+

Industrial IEEE 802.11 a/b/g/n Wireless Access Point with 2x10/100/1000Base-T(X)

- High speed Air Connectivity: WLAN interface supports up to 300Mbps link speed
- Supports 2x10/100/1000Base-T(X) ports
- Supports PoE P.D. feature on ethernet port which is fully compliant with IEEE802.3af PoE P.D. specification
- Dual redundant Ethernet port support redundant mode (Recovery time < 10ms)



RGPS-92222GCP-NP-P

Industrial 26-port Rack-Mount Managed Gigabit PoE Ethernet Switch

- Supports P.S.E. based on IEEE 802.3at standard
- Supports IPv6 new Internet protocol version
- Supports Modbus TCP protocol
- Supports IEEE 802.3az energy-efficient Ethernet technology

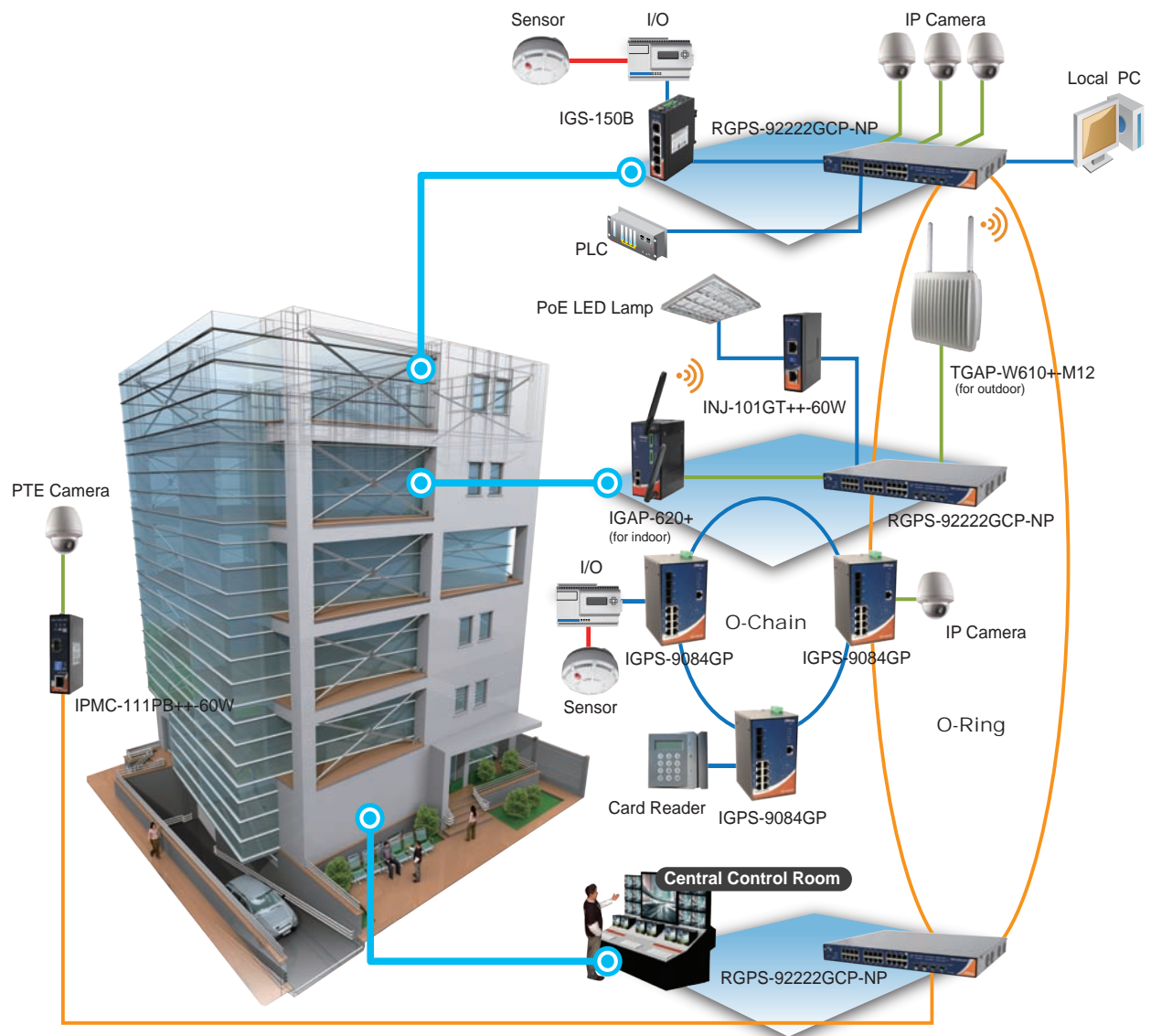
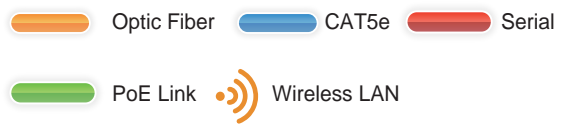


TGAP-W610+-M12

Industrial IEEE 802.11 a/b/g/n wireless Access Point

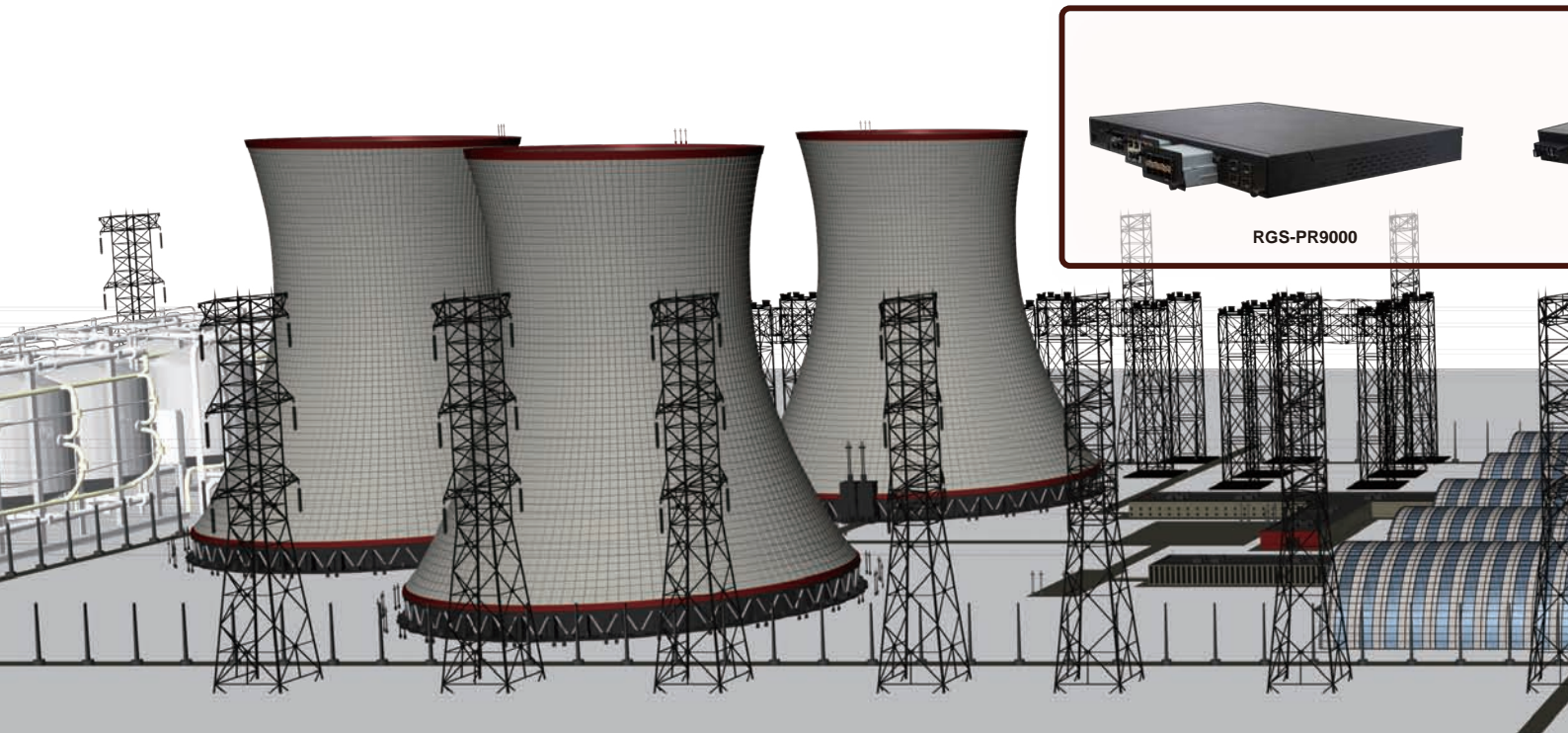
- Supports X-Roaming < 60 ms
- Supports 1KV isolation for PoE P.D.
- Supports up to 300Mbps link speed
- Supports AP/Bridge/Client/AP-Client Mode

Building Automation



Power Substation Solution

Fully compliant with IEC 61850-3



ORing's industrial Ethernet managed switches offer users possibility to draw maximum benefits from IEC 61850-3. Our products both meet IEC 61850-3 and IEEE 1613. Many of ORing products are tailor-made for applying in substation automation system and also support the IEEE 1588v2 standard (PTPv2). The IEC 61850-3 standard is not just the Ethernet-based substation automation protocol but serving the whole solution of power networks. ORing's commitment from developing the standard and implementing the products into solutions are the key reasons why brings users to next stage of reliability and efficiency.

Key Products

RGS-PR9000 Series

Industrial Layer-3 IEC 61850-3 Modular Rack Mount Managed Gigabit Ethernet Switch with 4 slots



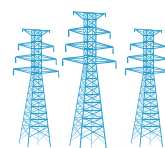
- Design for power substation and fully compliant with the requirement of IEC 61850-3 and IEEE 1613
- Modular design makes network planning easy
- Supports Layer 3 static routing, RIP and VRRP function

IGS-P9164GF Series

Industrial IEC 61850-3 20-port Managed Gigabit Ethernet Switch



- Supports O-Ring (recovery time < 30ms over 250 units of connection) and MSTP(RSTP/STP compatible) for Ethernet Redundancy
- Design for power substation / railway application and fully compliant with the requirement of IEC 61850-3 and IEEE 1613
- Supports Device Binding security function



IEC61850
IEEE1613



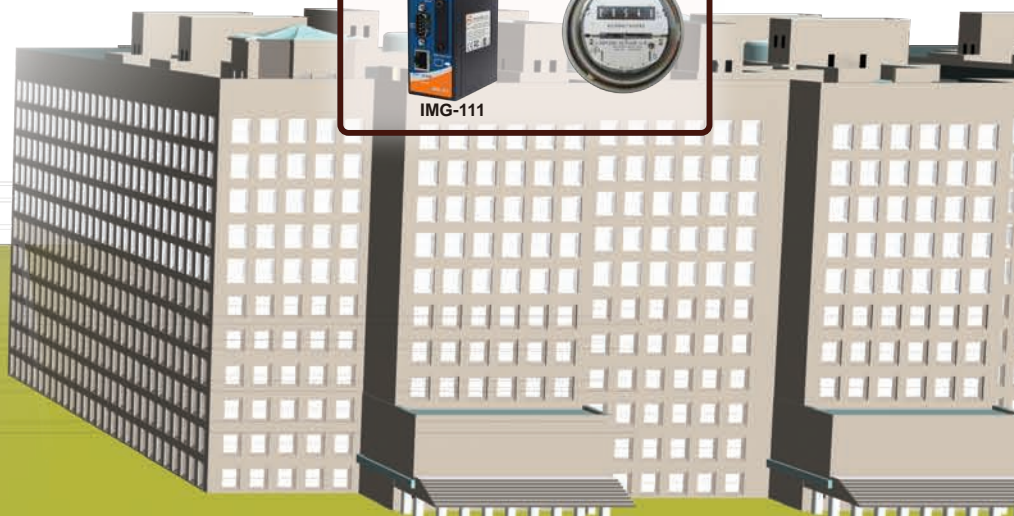
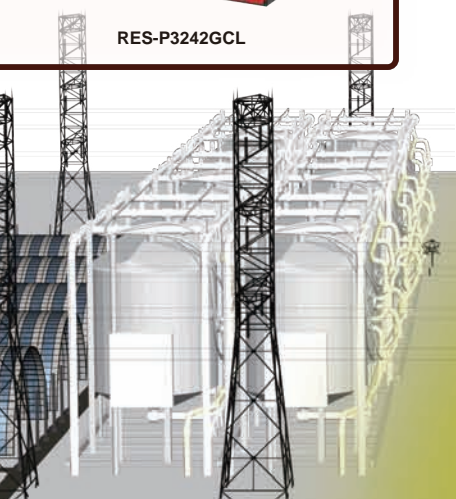
IEEE 1588_v2



RES-P3242GCL



IMG-111



IGS-P9812GP Series

Industrial IEC 61850-3 20-port Managed Gigabit Ethernet Switch

- Design for power substation / railway application and fully compliant with the requirement of IEC 61850-3 and IEEE 1613
- EN50155-compliant Ethernet switch for rolling stock application
- Supports standard IEC 62439-2 MRP^{NOTE} (Media Redundancy Protocol) function



IMC-P111FX

Industrial IEC 61850-3 Ethernet to Fiber Media Converter

- Supports 1 x 10/100 Base-T(X) port to 1x100Base-FX fiber/ 1x100Base-FX SFP socket
- Design for Railway application and fully compliant with the requirement of IEC 61850-3 and IEEE 1613
- EN50155-compliant Ethernet switch for rolling stock application
- Supports auto-negotiation and auto-MDI/MDI-X



IMG-W6121+3G/4G/M12

Industrial Outdoor Cellular M2M Gateway with IEEE802.11 a/b/g/n

- Supports 1x10/100/1000Base-T(X) port with PoE P.D.
- 3.5G HSUDPA or 4G LTE modem included
- Supports 2xRS-232 serial ports

Natural Resources & Energy

ORing Empowers You with Rugged Excellence

If we ever pay attention to natural energy cultivation, we may notice that they are often exposed in tough environments of great dangers. To ensure industrial safety, ORing Corp. has come up with series of industrial-grade networking products that operate flexibly in wide temperatures and harsh environments. With ruggedized designs and reliable certifications, ORing's surveillance systems and information network are presented as dustproof, waterproof, and shockproof. Benefit from such high-end products, supervisors or control centers can get timely work data and communicate effectively on high-bandwidth and reliable industrial networks through the process of energy acquisition and production. ORing's products are the best choice that proves to be beneficial for energy production and large-scale network applications: mining, oil & gas, power plants, steel factory, power management system, etc.



Key Products



IES-A3080/A3062

Industrial C1D2/ATEX 8-port Managed Ethernet Switch

- World's fastest redundant Ethernet ring: O-Ring (recovery time < 10ms over 250 units of connection)
- Open-Ring supports the other vendor's ring technology in open architecture
- Supports standard IEC 62439-2 MRP*^{NOTE} (Media Redundancy Protocol) function
- Supports Auto Negotiation Speed



IES-A1080/A1062 Series

Industrial C1D2/ATEX 8-port Unmanaged Ethernet Switch

- IES-A1080 supports 8x10/100Base-T(X) ports
- IES-A1062 series provided 6x10/100Base-T(X) and 2x100FX or 2 x1000X fiber ports
- Supports store and forward transmission
- Supports auto-negotiation and auto-MDI/MDI-X



IGPS-R9084GP

Industrial Layer-3 12-port Managed Gigabit PoE Ethernet Switch

- Supports Layer 3 static routing, RIP and VRRP function
- Supports standard IEC 62439-2 MRP*^{NOTE} (Media Redundancy Protocol) function
- 8 ports P.S.E. fully compliant with IEEE802.3at standard, provide up to 30 watts per port



RGPS-R9244GP+-P

Industrial Layer-3 28-port Managed Gigabit PoE Ethernet Switch

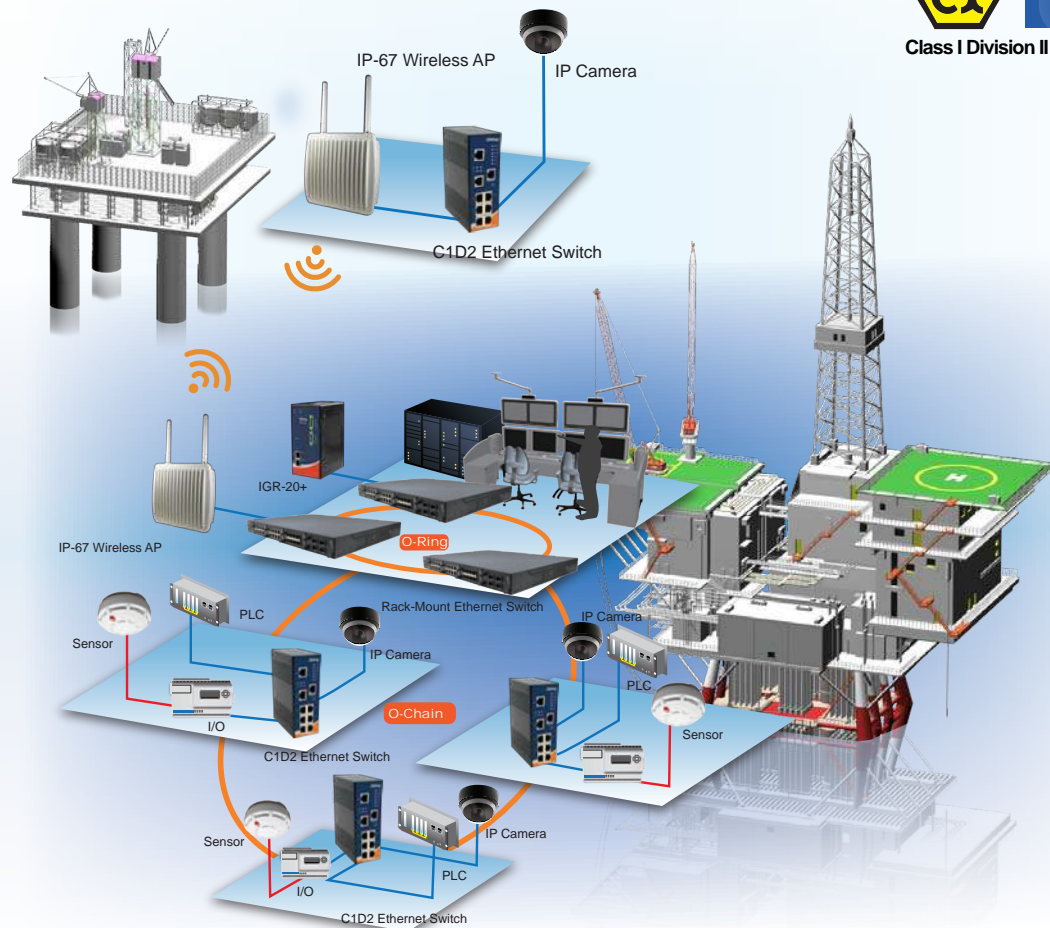
- Supports Layer 3 static routing, RIP and VRRP function
- Supports standard IEC 62439-2 MRP*^{NOTE} (Media Redundancy Protocol) function
- 24 ports P.S.E. fully compliant with IEEE802.3at standard, provide up to 30 watts per port
- Supports PoE schedule configuration and PoE auto-ping check function

*NOTE: This function is available by request only

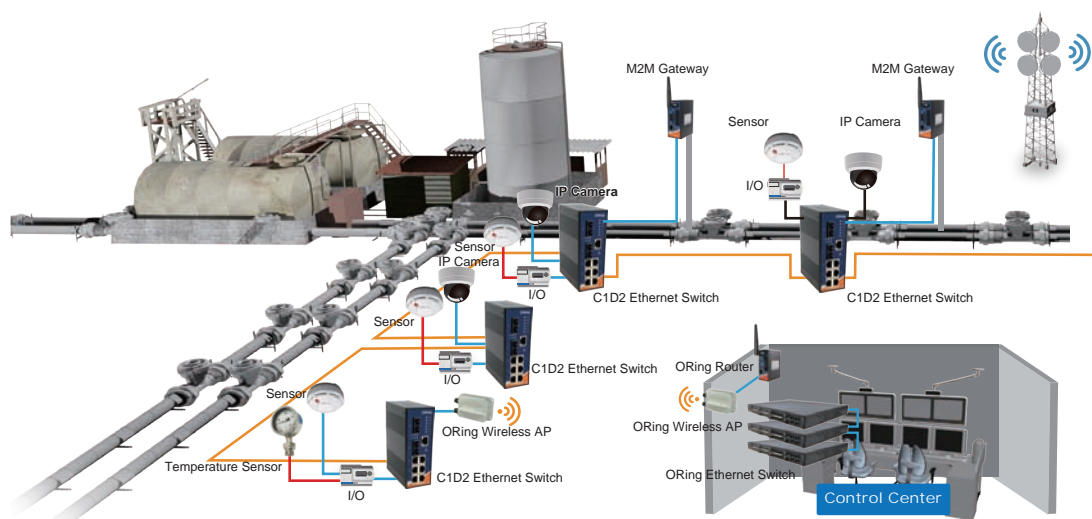
Oil Field Application



Class I Division II Hazardous



Oil Pipe Application



Renewable Energy

Featuring Reliable Performance with Non-Stop Connectivity

With global warming, green energy development and energy conservation have become the global trend. ORing, with industry-leading expertise of industrial networking, has significantly contributed to this green movement by helping PV solar electricity and wind electricity power plants to set up complete industrial-grade long-range Ethernet communication systems for green power production surveillance. Certified by rigorous industrial-grade tests, ORing products can withstand tough outdoor conditions while providing outstanding network performance reliably at all times, ensuring stable and uninterrupted data transmission of real-time information to and from the control center. Also, industrial Ethernet networks are easily expandable without sacrificing ruggedness, saving time and cost in the long run. Together with many governments and corporations, ORing is helping the world in the fight against global warming.



Key Products



IDS-322+

Industrial 2 Secure Serial Ports to Ethernet Device Server

- Operating Modes: Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP
- NAT-pass through: user can manage IDS-322+ through NAT router
- Event Warning by Syslog, Email, SNMP trap, Relay



IMC-111PB

Industrial Mini type Ethernet to fiber media converter

- Supports 1 port 10/100Base-T(X) auto-negotiation and auto-MDI/MDI-X
- Supports Ethernet to fiber or Ethernet to SFP port
- Supports LFP (Link Fault Pass-through) function



IGPS-9842GTP

Industrial 14-port Managed Gigabit PoE Ethernet Switch

- Supports standard IEC 62439-2 MRP*NOTE (Media Redundancy Protocol) function
- Supports IEEE 802.3at compliant PoE with maximum 30 watts per port
- Supports PoE schedule configuration and PoE auto-ping check function



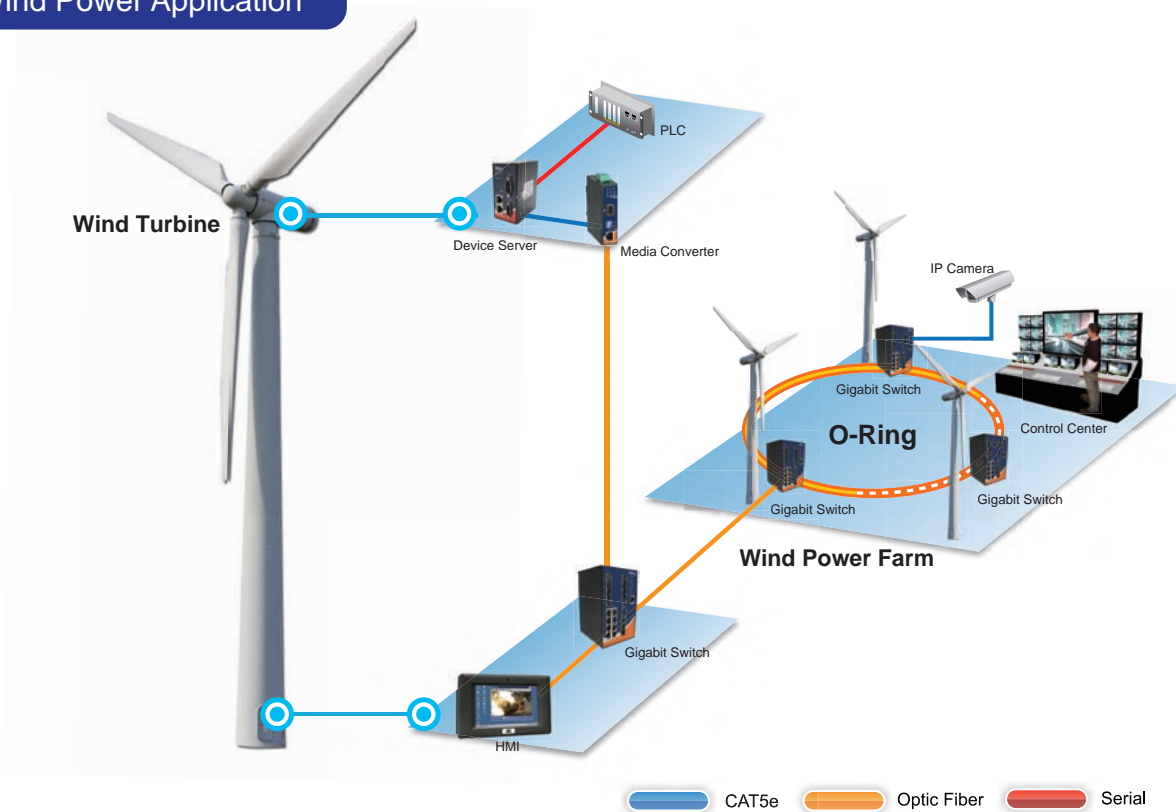
RGS-P9000

Industrial IEC 61850-3 Modular Rack Mount Managed Gigabit Ethernet Switch

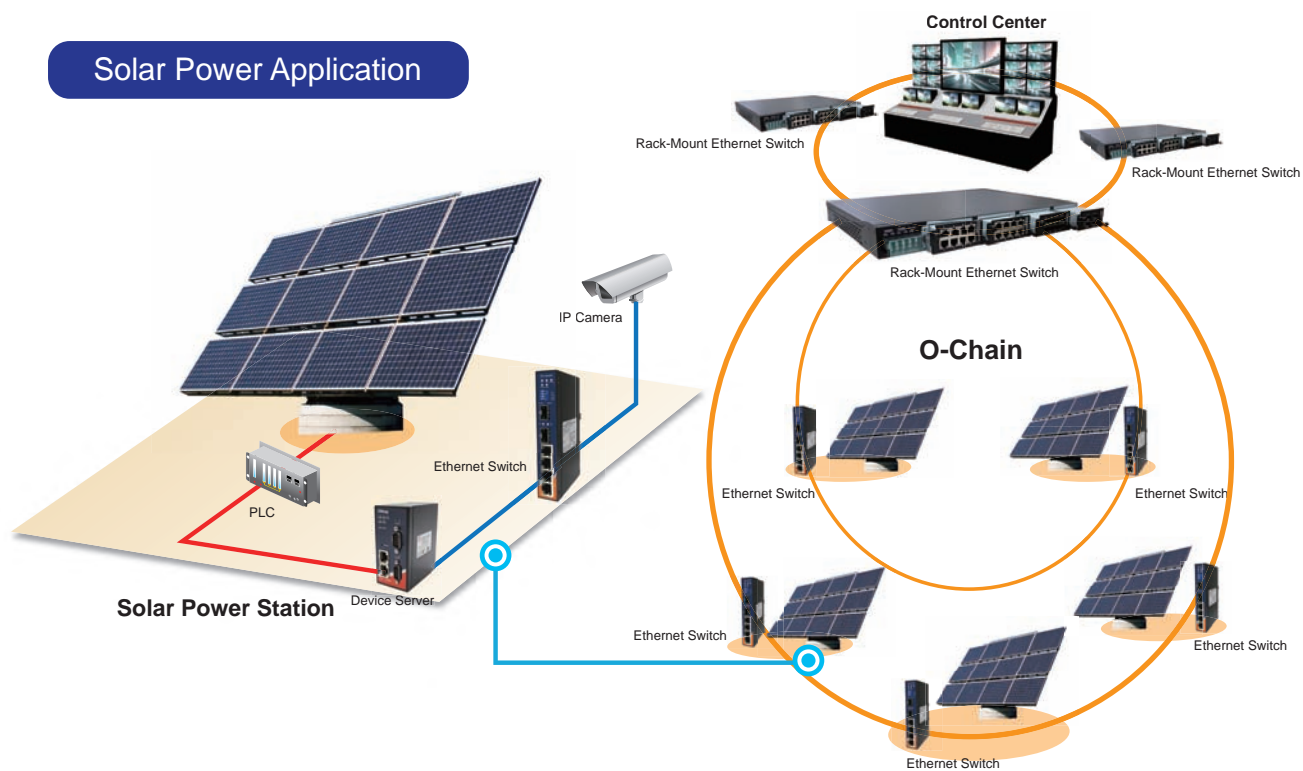
- Design for power substation / railway applications and fully compliant with the requirements of IEC 61850-3 and IEEE 1613
- Modular design makes network planning easy
- Supports IEEE 1588v2 clock synchronization

*NOTE: This function is available by request only

Wind Power Application



Solar Power Application



Mountain Surveillance

Ensure Reliable Data Transmission of IP Surveillance Systems for Mountainous Areas

Mountainous areas are prone to landslides, usually caused by torrential rain or earthquakes, posing serious threats to people's life. Although natural disasters are unavoidable, the consequences can be significantly reduced through preventive measures such as rainfall monitoring and alert systems. Furthermore, tunnels built in the mountains must be monitored at all times for rescue operations to be carried out efficiently when accidents occur. For this reason, mountainous areas must be furnished with a video surveillance system to help the remote control room keep an eye on these places and take action immediately whenever needed. Due to the harsh environment in the mountains, stable and secure data transmission is the top priority for surveillance systems. This is why ORing's reliable and cost-effective industrial solutions come into play.



Key Products



IAR-142-3G

IEEE 802.11 b/g/n 3G Cellular Router with 2x10/100Base-T(X)

- High Speed Air Connectivity: WLAN interface support up to 150Mbps link speed
- Provide 2 port 10/100Base-T(X) port and 1 sim card slot
- 3.5G HSDPA Modem dial up included



DGS-9812GP-AIO_S

Industrial 20-port Desktop Managed Gigabit Bypass Ethernet Switch

- Supports 8x10/100/100Base-T(X) ports and 12x10/100/100Base-X SFP ports
- Supports Jumbo frame up to 9.6K bytes
- Supports O-Ring (recovery time < 30ms over 250 units of connection), MSTP/RSTP/STP (IEEE 802.1s/w/D) for Ethernet redundancy



IGPS-9842GTP

Industrial 14-port Managed Gigabit PoE Ethernet Switch

- Supports standard IEC 62439-2 MRP*NOTE (Media Redundancy Protocol) function
- Supports IEEE 802.3at compliant PoE with maximum 30 watts per port
- Supports PoE schedule configuration and PoE auto-ping check function



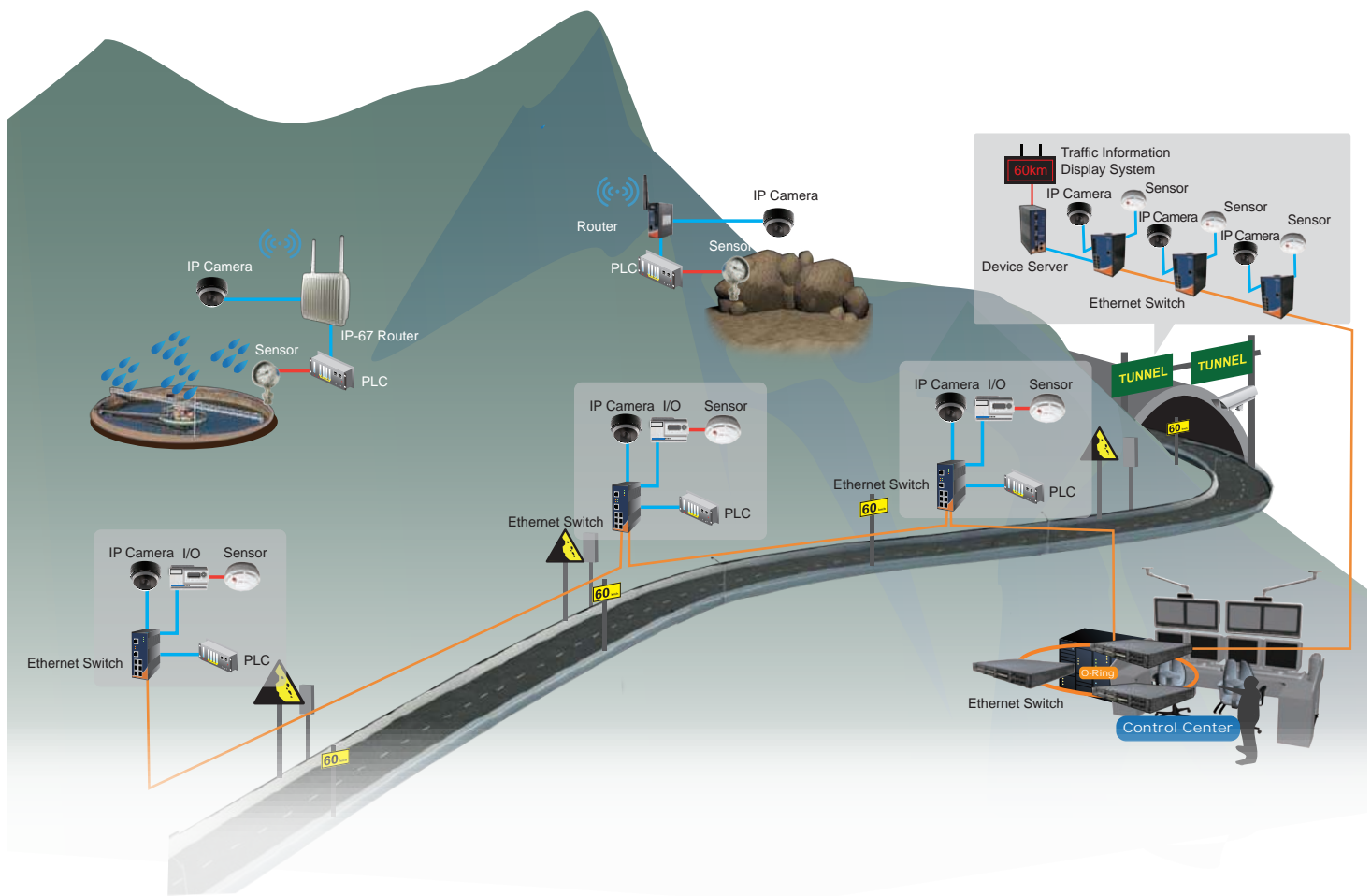
IBS-102FX

Industrial 2-port Optical Bypass Switch for Fiber Optical Network with 4xLC Duplex Connector

- Supports 100M/1G/10G optical bypass function of 2-port duplex or 4-port simplex fiber connection
- Different models support multi-mode or single-mode optical-fiber
- Throughput will not be affected and no extra delay

*NOTE: This function is available by request only

Mountain Surveillance



Optic Fiber CAT5e Serial

 PoE Link  Wireless LAN

Manufacturing Automation

Advance Industrial Communication into the Next Generation

For factory automation, it is necessary to have accurate real-time information of automated production-line at all times. Traditionally radio and serial connections are used for factory communications, but the integration of Ethernet and SCADA automation systems can make such communications even more effective. ORing has the right products for industrial network communications – e.g. PoE Ethernet Switch and Device Server – allowing traditional serial devices (including RS485 type) to be connected to more robust Ethernet networks. With such upgrade, factory supervisors can get real-time production data much faster and much more reliably, thanks to much higher data bandwidth along with stable and swift redundant ring backup protection. The overall result would be vastly improved work efficiency and lower costs.



Key Products



IDS-342GT

Industrial 4-port secure serial to Ethernet device server with 4xRS-232/422/485 and 2x10/100/1000Base-T(X)

- Operating Modes: Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP, Modbus Gateway
- Support Modbus Gateway : Modbus TCP, Modbus RTU, Modbus ASCII
- Security: SSL data encryption; secured management by HTTPS and SS



IGAP-6620+

Industrial Dual RF in IEEE 802.11 a/b/g/n Wireless Access Point

- High Speed Air Connectivity: WLAN interface supports up to 300Mbps link speed
- Highly Security Capability: WEP/WPA/WPA-PSK(TKIP,AES)/ WPA2/WPA2-PSK(TKIP,AES)/802.1X authentication supported
- Supports X-Roaming < 60 ms



IGAR-1062+-4G

Industrial IEEE 802.11 a/b/g/n 4G LTE Cellular Router with 2x10/100/1000Base-T(X)

- High Speed Air Connectivity: WLAN interface supports up to 300Mbps link speed
- Provide 2 port 10/100/1000Base-T(X) port and 1 SIM card slot
- 4G LTE Modem dial up included

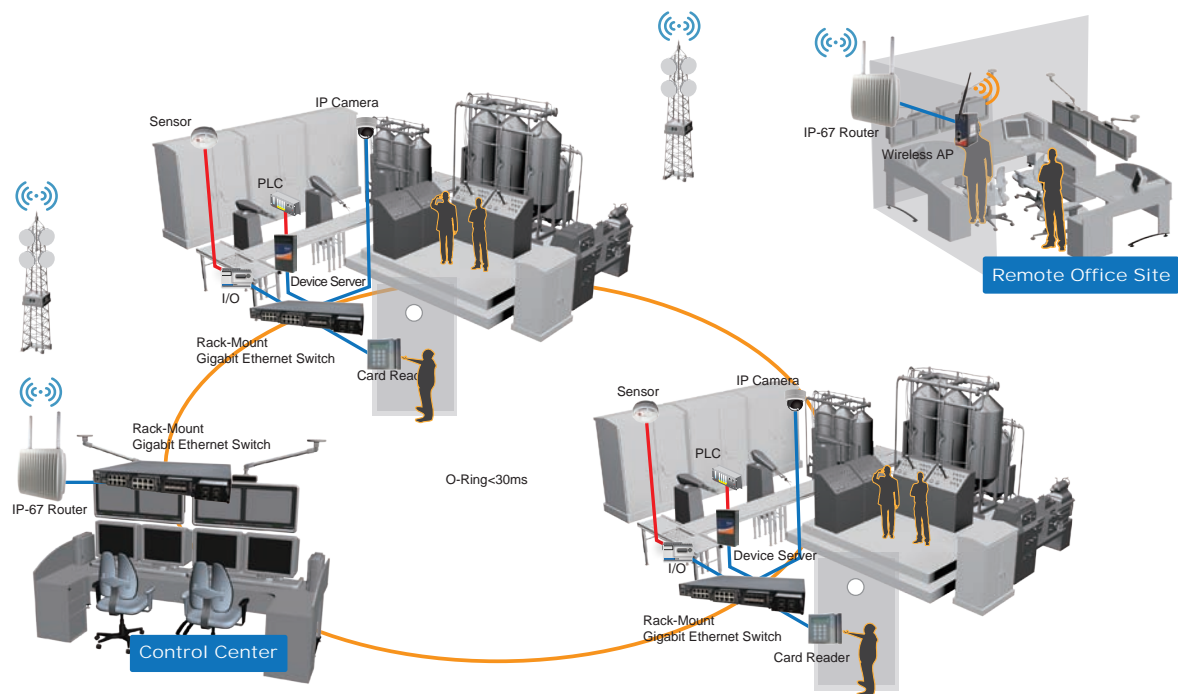
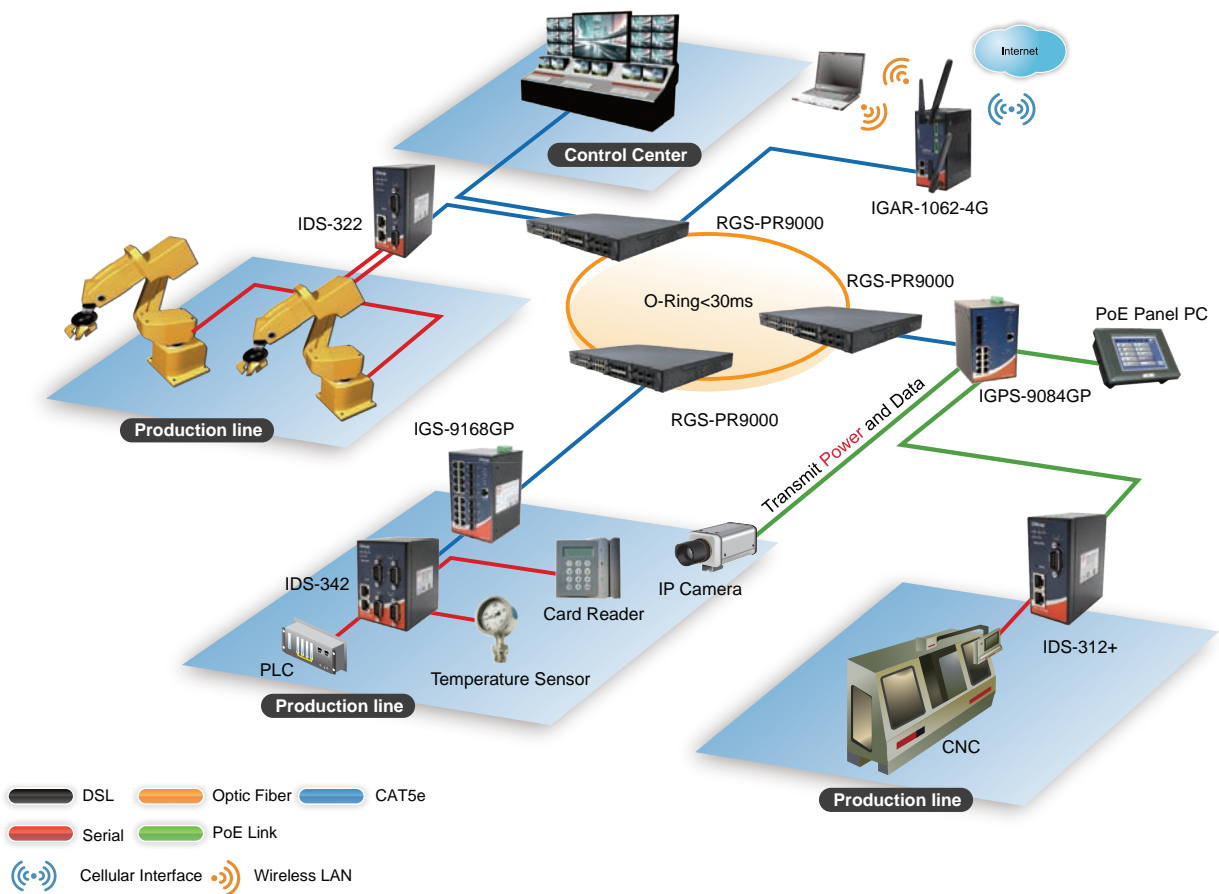


RGPS-R9244GP+-P

Industrial Layer-3 28-port Managed Gigabit PoE Ethernet Switch

- Supports Layer 3 static routing, RIP and VRRP function
- Supports standard IEC 62439-2 MRP*NOTE (Media Redundancy Protocol) function
- 24 ports P.S.E. fully compliant with IEEE802.3at standard, provide up to 30 watts per port
- Supports PoE schedule configuration and PoE auto-ping check function

*NOTE: This function is available by request only



Smart City

Upgrade Your City with Our IIoT Solution

From the forecast of Strategy Analytics 2015, urban living will contain 86% of the developed countries and 64% of developing countries by 2020.

The circumstance of global population shifting to urban centers is stimulating the development of "Smart Cities" which is to maximize the efficiency of crucial resources such as utilities, water supply and transportation services and so on. These cities in the future will combine and leverage Internet of Things (IoT) and Information and Communications (ICT).

From the forecast of Strategy Analytics 2015, urban living will contain 86% of the developed countries and 64% of developing countries. It makes resource allocation more critical for global development, especially in ICT and relative integrated IoT system. According to the report of "The Future of Smart Cities- Opportunities, solution and Players," ICT revenues from urban living will reach \$977 Billion by 2022. End to end systems such as cloud computing and data collection mechanism becomes essential to sustainably urban living in terms of how to make proper use of energy and further increase service quality of public infrastructure.



Key Products



LoRa Street Light Controller

Lighting System, corresponding with LPWAN technology, LoRa module and antenna

- LoRa module and antenna
- Wi-Fi and 3G/4G function are also included in Gateway Controller
- Wide Temp range -30 to +70°C



NB-IoT Street Light Controller

Lighting System, corresponding with LPWAN technology, NB-IoT mPCIe module and antenna design

- NB-IoT mPCIe module and antenna design
- NEMA ANSI C136.41 Standard
- IP54 NEMA Certification



ORIO-G30218

Support two Serial Ports for RS232/RS422/4W-RS485/2W-RS485

- Support two Serial Ports for RS232/RS422/4W-RS485/2W-RS485
- Support NB-IOT/CAT M1/CAT 1/ZigBee/BT (BLE3.0)/LoRa (by model)
- Support 4 Digital inputs (Dry/Wet) / 4 Digital outputs (Sink)



IOT Meter

- Standard product for variety meter application
- Support UART /TTL/RS-485
- Support NB-IOT



Product Overview & Selection Guide

Product Selection Guide

Industrial Rack-Mount Gigabit/Fast Ethernet Switch	77
Industrial Rack-Mount Ethernet Switch	79
Industrial Rack-Mount Modular Ethernet Switch	83
Industrial Din-Rail Gigabit Ethernet Switch	86
Industrial DIN-Rail Fast Ethernet Switch	92
Industrial Desktop Gigabit Ethernet Switch	98
Industrial Desktop Fast Ethernet Switch	99
Industrial Gigabit PoE Ethernet Switch	100
Industrial PoE Fast Ethernet Switch	104
Industrial IP-67 Ethernet Switch	105
Card-Type Ethernet Switch	105
Optical / PoE Network Accessories	109
Industrial EN50155 Ethernet Switch	110
Industrial EN50155 PoE Ethernet Switch	113
Industrial EN50155 Gigabit Ethernet Switch	116
Industrial EN50155 Gigabit PoE Ethernet Switch	117
Industrial C1D2 DIN-Rail Fast Ethernet Switch	122
Industrial Rack-Mount Ethernet to Fiber Media Converter	123
Industrial Ethernet to Fiber Media Converter	124
USB to Serial Media Converter	128
Serial to Serial Media Converter	129
Industrial Device Server	130
PCI Express Cards	134
DIN-Rail WLAN Access Point	137
Industrial IP-67 WLAN Access Point/EN50155 WLAN Access Point	139
EN50155 WLAN Access Point	139
DIN-Rail VPN Router	141
EN50155 WLAN Cellular VPN Router	143
EN50155 Outdoor Cellular VPN Router	144
Industrial Media Gateway	145

Product Selection Guide

Fiber Patch Cord(FPC)/ Fiber Patch Adapter(FCA)/ Fiber Attenuator(FAT)	146
DIN-Rail Power Supply	146
Power Cord with Ferrule terminal (For Din-Rail Power Supply)	147
Power Adapter/M-Series Cables and connectors	147
RF Antenna Base (Magnetic)/RF Cable	148
RF Surge Protector/WLAN RF Antenna (Outdoor Panel Type)	148
WLAN RF Antenna (Omni - Directional)	149
RF Antenna (Dome Type)/RF Antenna (Roof Type)	149
Accessories Fast Ethernet SFP modules	150
Accessories Gigabit Ethernet SFP modules	152
Accessories Gigabit Ethernet BIDI-SFP modules	153
Accessories 10G Ethernet SFP+ modules with Diagnostic Monitoring	154
Accessories Gigabit Ethernet SFP-RJ45 modules	155
Accessories 10G Ethernet SFP+ Copper Cable	155
Open-Vision v3.6	156
Smart Lighting Controller ZigBee Series	157
Smart Lighting Controller LoRa Series	158
Smart Lighting Controller NBloT Series	159

Industrial Ethernet Switch Overview

ORing provides a comprehensive line of fully managed, lite-managed, and unmanaged industrial Ethernet switches with industrial-grade ruggedness and network reliability. You can choose between different speeds (Gigabit, Fast Ethernet, optical fiber, etc.), mounting types, power supplies, and casing. The switches comply with a variety of safety standards such as IEC61850-3/EN50155/C1D2. The flagship Thunder Series (Thunder Rail, Thunder Rack, & Thunder PoE) feature advanced technologies (Gigabit speed, 9K Jumbo Frame support, Device Binding, and many more) to guarantee the best networking performance.

ORing's Ethernet switches also support optic fiber technology to provide long-haul transmission. Users can use advanced management software to configure various settings such as network redundancy, QoS, VLANs for network segregation, and IGMP for multicast filtering to achieve optimal network performance through. For handling harsh industrial applications, ORing also offers IP-67 grade waterproof Ethernet switches.

Industrial Modular Ethernet Switch

ORing's industrial modular Ethernet switch comes with 3 slots supporting up to total 24 of Gigabit ports and 1 slot supporting up to total 4 of 10G ports



RGS-P9000

Industrial Din-Rail Gigabit Ethernet Switch

ORing's full Gigabit Ethernet switch series includes unmanaged and managed models which support various technologies for transmitting Ethernet packets at a rate of a Gigabit per second, as defined by the IEEE 802.3-2005 standard.



IGS-9168GP

Industrial PoE Ethernet Switch

ORing's ruggedized industrial PoE (Power over Ethernet) switches By enabling alive checking, the switch will periodically communicate with end devices to monitor the real-time status of PDs. This reduces management burden and increases system reliability. Power scheduling will schedule provision of power to end devices. This enables PDs to be switched off at certain times when they are not needed.

By enabling alive checking, the switch will periodically communicate with end devices to monitor the real-time status of PDs. This reduces management burden and increases system reliability. Power scheduling will schedule provision of power to end devices. This enables PDs to be switched off at certain times when they are not needed.



IGPS-9842GTP-24V

Key Technologies

ORing products comply with several international global standards or protocols to provide better solutions in order to meet customers' high standard requirement.

MRP^{*NOTE}

Media Redundancy Protocol (MRP) is a data network protocol standardized for ring redundancy in industrial environment by the International Electrotechnical Commission as IEC 62439-2. MRP is compatible with redundant ring coupling, supports VLANs, and is distinguished by very short reconfiguration times. In the fault-free state of the network, this protocol provides reliable data communication, and preserves determinism of real-time data communication. In cases of fault, removal, and insertion of a component, it provides deterministic recovery times. This function is available by customer's request.

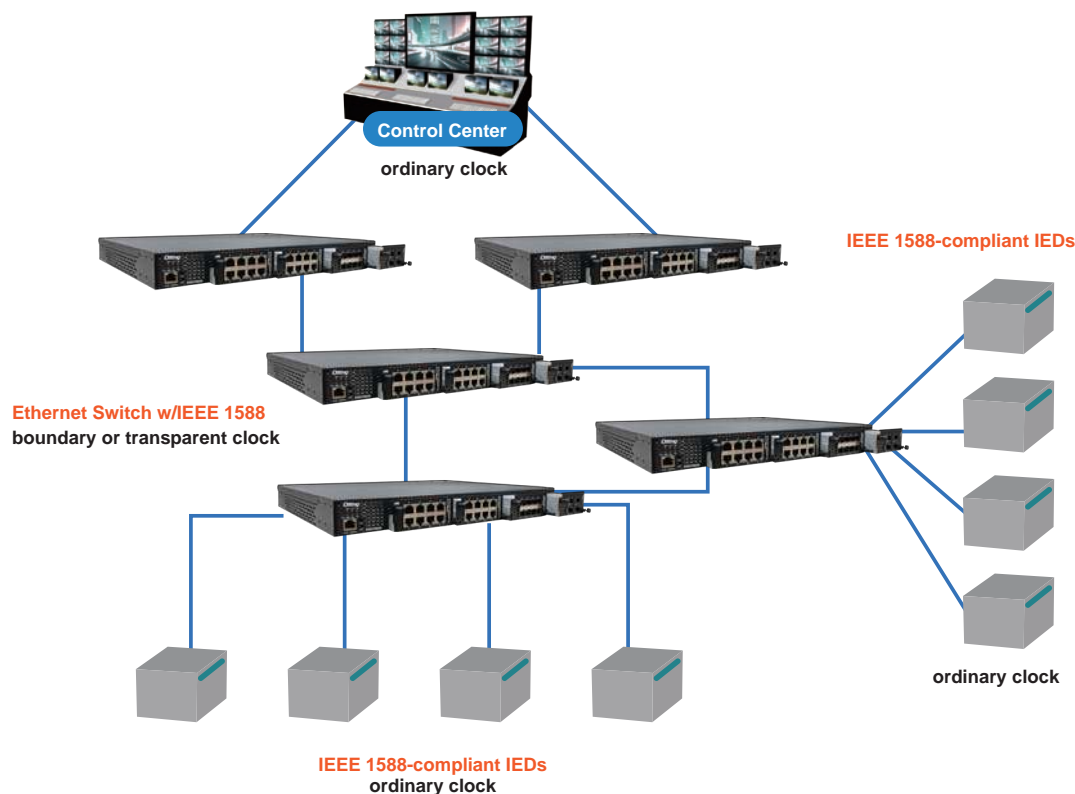
*NOTE: This function is available by request only

IEEE 802.3az

Energy-Efficient Ethernet is a set of enhancement to the twisted-pair and backplane Ethernet family of computer networking standards that allow for less power consumption during periods of low data activity. The intention was to reduce power consumption by 50% or more, while retaining full compatibility with existing equipment. The Institute of Electrical and Electronics Engineers (IEEE), through the IEEE 802.3az task force developed the standard. ORing's 9000 series products are all compliant with this standard.

IEEE 1588v2

A clock synchronization algorithm drafted by the Institute of Electrical and Electronics Engineers (IEEE). The algorithm provides a standard for clock synchronization based on data packet transmission. In 2001, with the support of the National Institute of Standards and Technology (NIST), the committee drafted the related standard, which has been used as the IEEE 1588 standard since the end of 2002. In the communications industry, the clock signal transmission technology of the PSN(Packet Switched Networks) develops fast. The revised IEEE 1588 standard was issued in June 2006 and the IEEE 1588v2 was revised in 2007. ORing's 9000 series products are all compliant with IEEE 1588v2 hardware-based standard.



IPv6

Internet Protocol version 6 (IPv6) is the latest revision of the Internet Protocol (IP) developed by the Internet Engineering Task Force (IETF). This protocol is for communication and the traffic across the internet.

Jumbo Frame

ORing's Gigabit Ethernet switches, with 10 times the bandwidth of 1000Base-T Ethernet switches, feature Jumbo frame support, which enables Jumbo Frame is useful for transmitting mega-pixel IP surveillance videos since the CPUs have fewer frames to process as a larger payload is put into each frame. This will increase data transmission efficiency, thereby improving network performance.

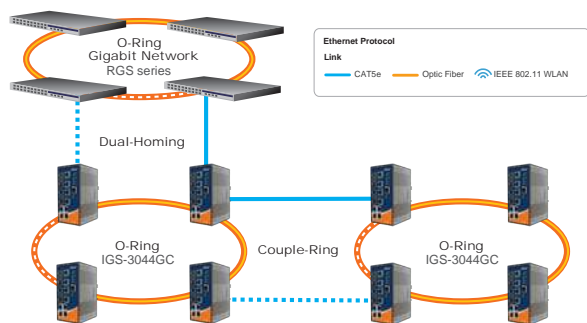
Network Redundancy Comparison Table

Recovery Technology	STP	RSTP	RSTP 2004	MSTP	Open-Ring	O-Ring	O-Chain
Recovery Time	10 ~ 50 Seconds	3 ~ 5 Seconds	< 100 ms	3 ~ 5 Seconds	-	< 10 ms	< 10 ms
Maximum Nodes	40	20 (Note: Recovery time is unpredictable if there are more than 9 nodes)	80 (Note: Recovery time is unpredictable if there are more than 9 nodes)	20 (Note: Recovery time is unpredictable if there are more than 9 nodes)	250	250	250
Per VLAN STP	NO	NO	NO	YES	NO	NO	NO

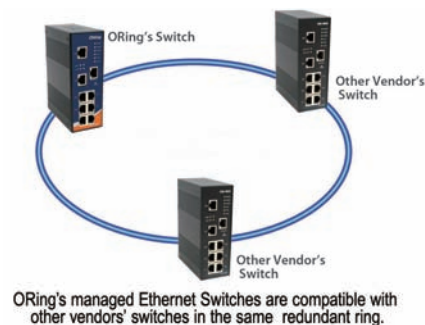
Comparison Table of Redundant Technologies

Benefits of ORing's Redundant Technologies

O-Ring : O-Ring is ORing's proprietary redundant ring technology, boasting a recovery time of less than 10 milliseconds and the ability to support up to 250 nodes. The O-Ring redundant ring technology can protect mission-critical applications from network interruptions or temporary malfunction.



Open-Ring : Open-Ring is an enhanced redundant technology that allows ORing's switches to work with other vendor's proprietary redundant ring technologies. It enables ORing's switches to form a single ring with other vendor's switches. In cases where the ring is deployed using proprietary technologies, ORing offers a compatibility service where ORing can make its switches compatible with your particular network requirements.



MRP*NOTE: All of ORing's Ethernet switches come with Media Redundancy Protocol (MRP) support. MRP is a data network protocol standardized as IEC 62439-2, allowing rings of Ethernet switches to overcome any single failure, providing deterministic recovery time and supporting seamless data transmission. Therefore, it is suitable to most Industrial Ethernet applications and in the same time assures the most reliable communication environment.

Modbus TCP : Modbus TCP is simply the Modbus RTU protocol with a TCP interface that runs on Ethernet. Specifically, it covers the use of Modbus messaging in an 'Intranet' or 'Internet' environment using the TCP protocols. The most common use of the protocols at this time are for Ethernet attachment of PLC's, I/O modules, and 'gateways' to other simple field buses or I/O networks. SCADA system can monitor / Control Industrial Ethernet Switch going through Modbus TCP.

RSTP 2004: RSTP-2004 is an enhanced version of RSTP designed to overcome the slow recovery time in certain situations which might take up to 30 seconds when using RSTP. To speed up the recovery time, some significant changes have been made and one of them is transmission of the Bridge Protocol Data Unit (BPDU). When a link in the topology is broken, the device will send out a topology change notice which is encapsulated in the BPDU. Since the notice is triggered by the event, it can be sent out at a much faster rate, making the protocol faster than RSTP standard. With a millisecond-level recovery time, RSTP-2004 can provide higher network availability.

*NOTE: This function is available by request only

O-Chain: O-Chain is a revolutionary network redundancy technology that provides an *add-on* network redundancy topology for any backbone network, providing ease-of-use while maximizing fault-recovery swiftness, flexibility, compatibility, and cost-effectiveness in one set of network redundancy topology.

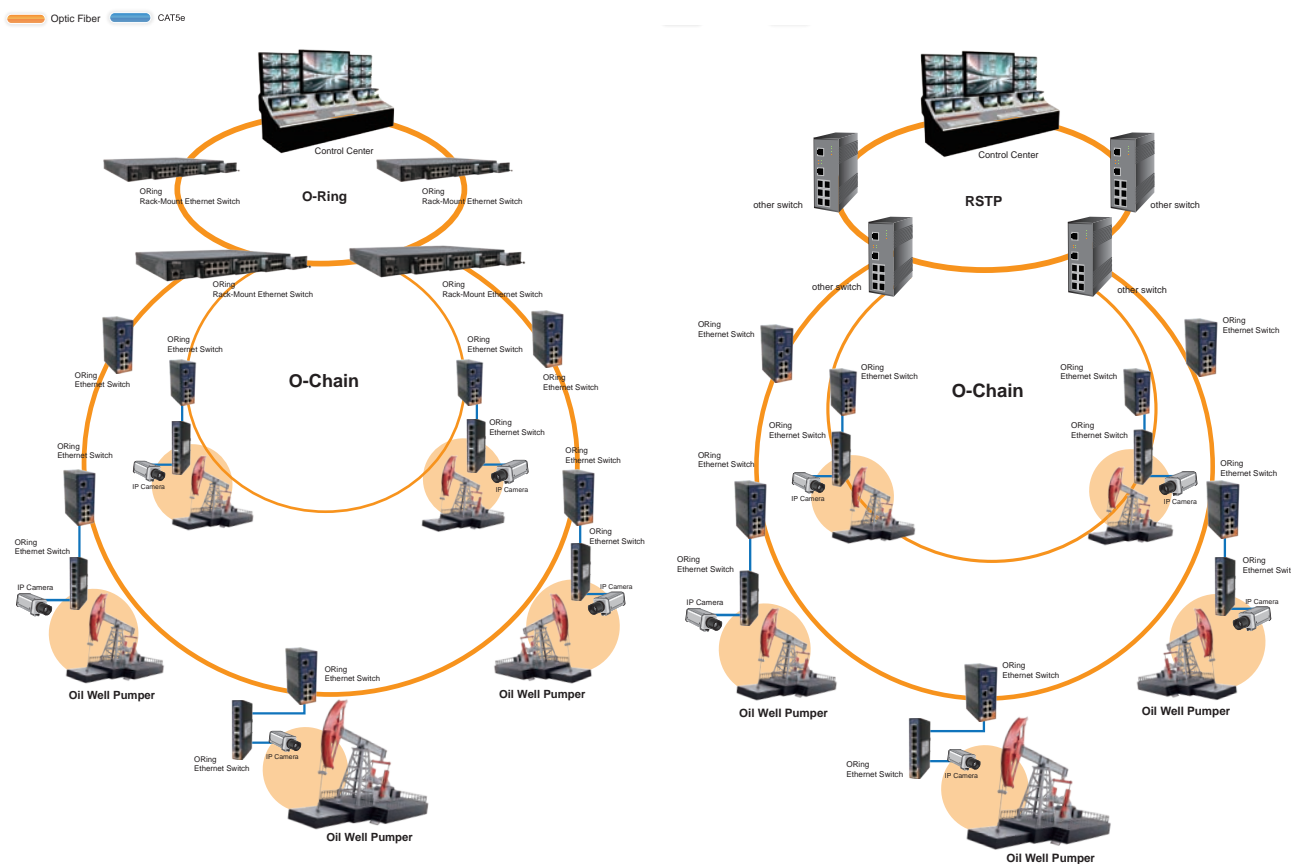
O-Chain allows multiple redundant network rings of different redundancy protocols to join and function together as a larger and more robust compound network topology, i.e. the creation of multiple redundant networks beyond the limitations of current redundant ring technology.

O-Chain is a highly flexible self-healing Ethernet technology designed for distributed and complex industrial networks. It allows our switches to be quickly and easily deployed in any type of complex redundant network and offer fast fault recovery, flexible construction, unlimited expansion, and cost-effective configuration. If at any time a segment of the chain fails, the network is able to recover in less than 10ms for up to 250 switches.

O-Chain is very easy to configure and manage. Simply define an edge port on the edge switch and enable the O-Chain function of other switches, O-Chain will be up and running.

O-Chain provides the following key advantages:

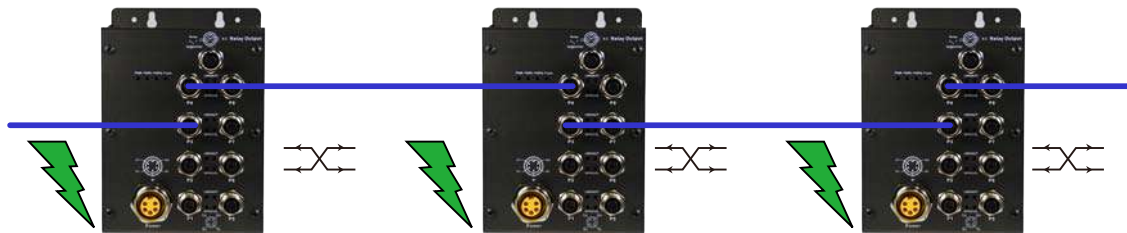
1. Outstanding recovery time (< 10ms) for up to 250 switches
2. Flexible, scalable redundant network topologies
3. Compatible with other redundant protocols (RSTP, STP, etc.)
4. Significant reduction in development costs (time and effort, cables, and Ethernet ports)



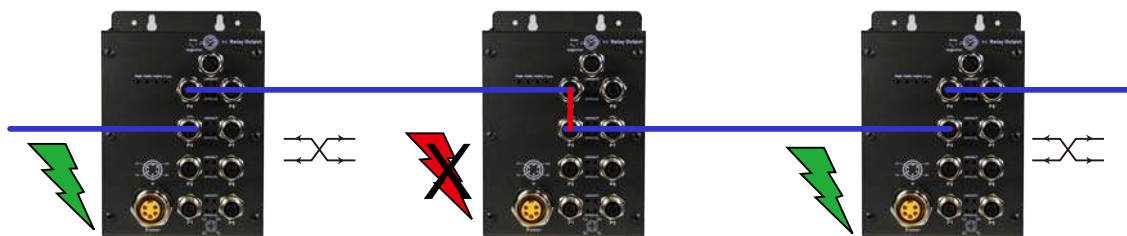
ORing's Hardware Bypass redundancy technology naturally and effectively avoids single-point power failure in daisy chain topology or multi-point power failures. For conventional wired Ethernet network, there is the Copper Interface Bypass. An ORing Ethernet switch with Copper Interface Bypass would have 2 of the Ethernet ports designated as the bypass path. Under normal circumstances, these ports would function just like any other ports. However, when one of the switches in the loop loses power, the internal bypass circuit will connect the two bypass ports to pass the traffic on to other active switches.

Copper Interface Bypass

► Normal communications



► Bypass activate during single point power failure



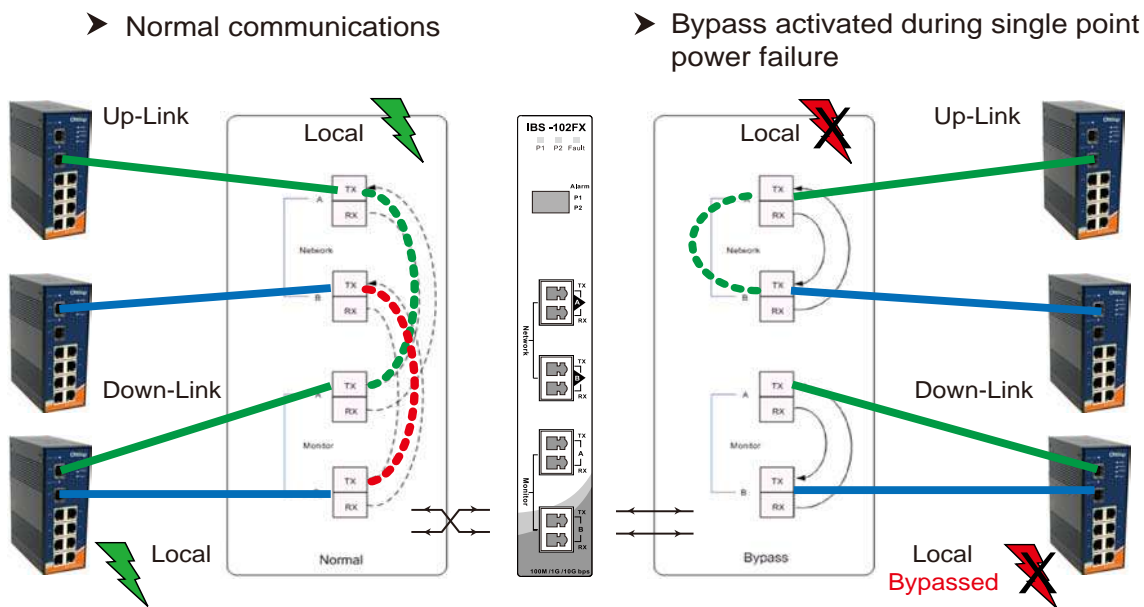
Hardware Bypass: Redundancy technologies are great for network topologies. When one node fails, the system quickly finds another path and continues to run again. However, if two or more nodes fail in a ring structure, or if one node fails in a daisy chain structure, the network will be irrecoverable until the node problems are solved.



ORing also has the optical solution for hardware bypass network redundancy – Optical Interface Bypass in a dedicated optical bypass switch such as one from the IBS-102FX series. In normal operations, the Bypass switch diverts data from the Network ports to the Monitor ports. When power failure occurs, the Network data traffic is routed directly to the other Network port. Moreover, the Bypass switch has relay output for power failure warning. For different optical data transmission modes, IBS-102FX series comes in two variations – IBS-102FX-MM-LC for multi-mode optical links and IBS-102FX-SS-LC for single-mode optical links.

Optical Interface Bypass - IBS-102FX

- Same as copper Interface but uses optical fiber for bypass.



Supporting Product(s):

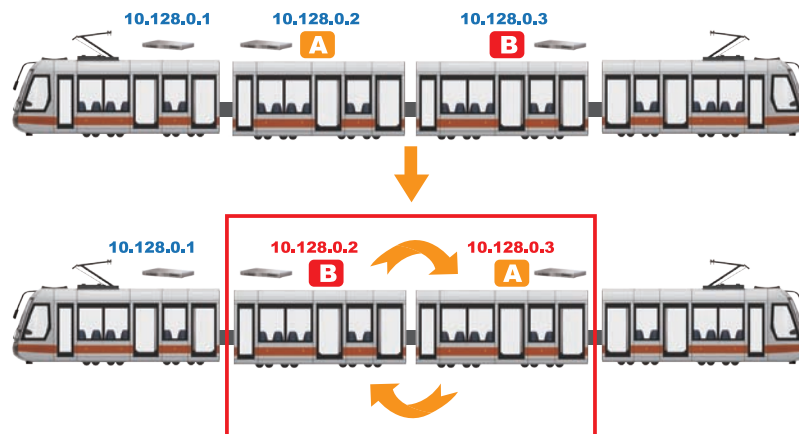
All of ORing's industrial managed and lite-managed Ethernet switch products support O-Ring, Open-Ring, and redundancy technologies. Ethernet switches with the -BP2 suffix support Cooper Interface Bypass, while the IBS-102FX Series support Optical Interface Bypass.

TTDP(Train Topology Discovery Protocol)

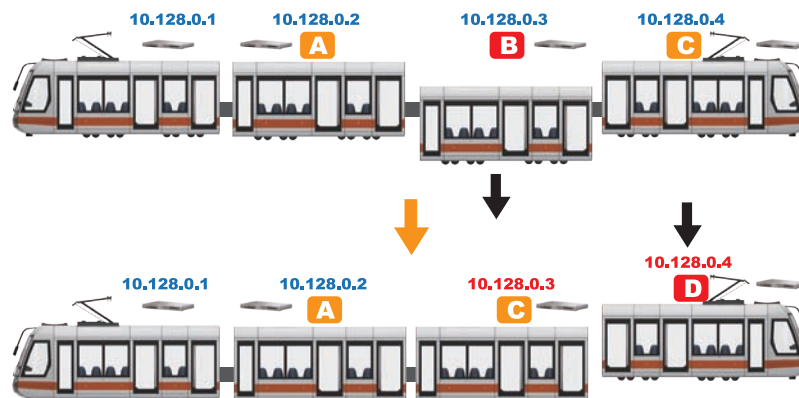
Train topology is dynamic and frequently changes since carriages are constantly added, removed, or replaced. Every time the order of the carriages changes, the network must be reconfigured, which is very time-consuming and prone to errors if it's done manually.

TTDP (Train Topology Discovery Protocol) protocol has thus been developed to enhance the efficiency of railway network reconfiguration. The protocol enables Ethernet switches to negotiate automatically with other network devices after the network topology is changed and will reassign an IP address to the network devices based on the new order of the carriages. Therefore IT staff or operators do not need to reconfigure the network devices manually at all. With this technology, train operators can vastly improve their operational efficiency and minimize configuration errors.

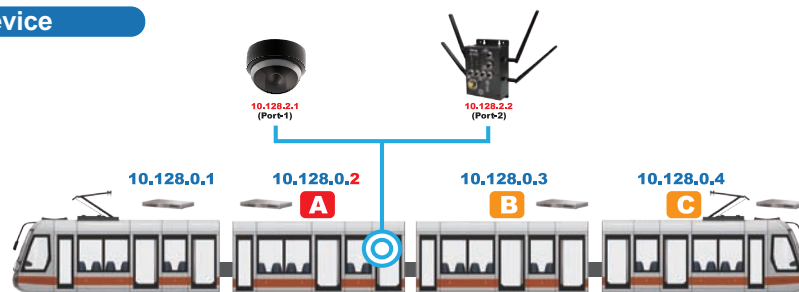
Exchange



Remove & Add

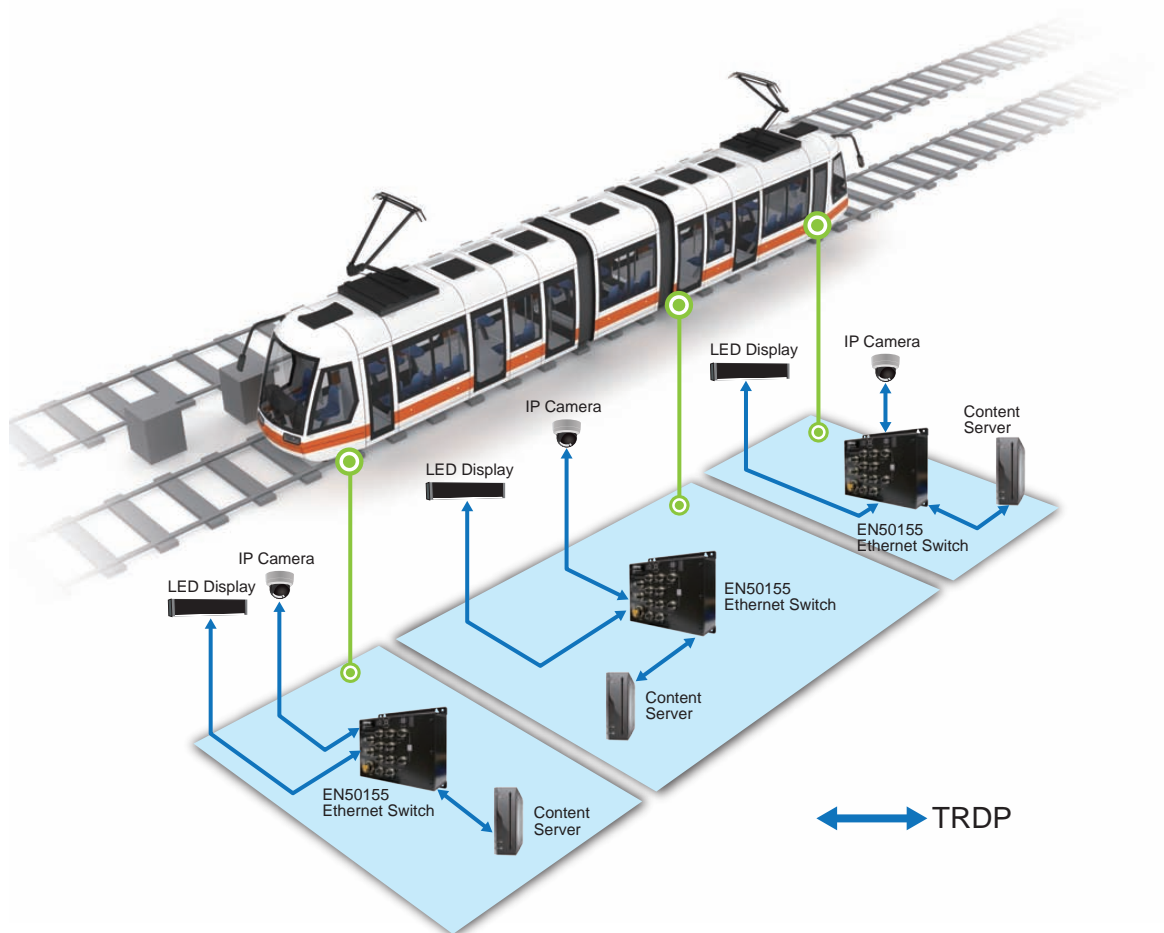


Add Device



TRDP(Train Real-time Data Protocol)-IEC 61375-2-3

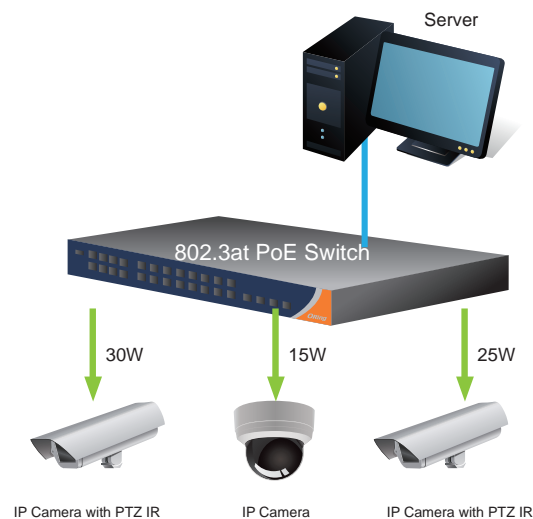
Train Real-time Data Protocol (TRDP) is a protocol for communication and control solutions on board of rolling stock. Railway industries created this new protocol with the aim to improve data communication on board of trains.



Power over Ethernet with Power Management

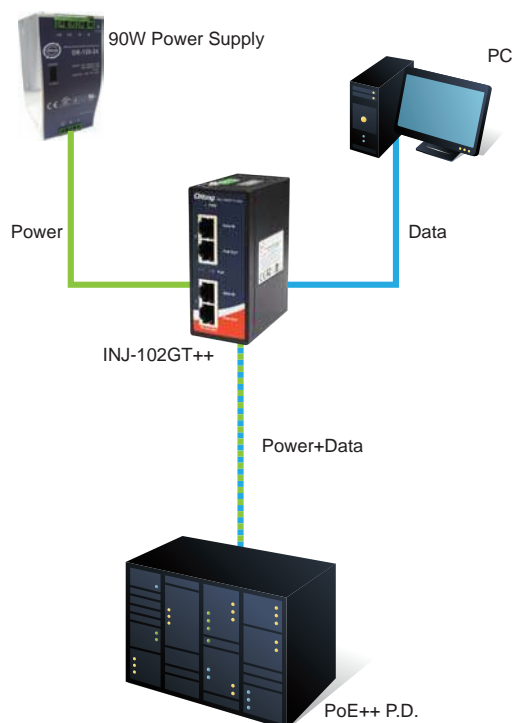
Power over Ethernet (IEEE 802.3at) with PoE+

PoE provides numerous benefits in terms of network efficiency and cost-effectiveness, such as flexible network designs, simplified, faster, and lower-cost installation, easy and fast rearrangement of existing deployments, and centralized power management. The IEEE has ratified two PoE standards, the IEEE 802.3af and the IEEE 802.3at. The former provides up to 15.4W of DC power to each device and the latter, also known as PoE+ or PoE plus, provides up to 30W of power. The IEEE 802.3at technology delivers 30W of power via two twisted pairs — a significant boost from the IEEE 802.3af standard.



Power over Ethernet with PoE++

PoE has been widely used in IP surveillance applications with constant addition of new features in IP cameras such as PTZ, IR, and WDR, and hence requiring more power. With the introduction of more power-hungry devices, a new proprietary standard known as LTPoE++ has been developed which extends the PoE and PoE+ specifications to up to 90W of power. With complete interoperability with the IEEE PoE standards, LTPoE++ is backward compatible and interoperable with existing PoE devices. ORing INJ-102GT++ power injector is an advanced high power PoE injector capable of providing 90W of power to a PD device.



Green Power Scheduling

Power schedule allows the administrator to set up power supply schedules based on their operation modes such as power on, power off, restart, or sleep needs so that network devices will be powered at a specified time, instead of consuming power around the clock even when not in use. For example, if the factory wireless PoE access point only needs to be powered on during work hours, the network administrator can enable power output for the device from 6a.m to 10p.m and disable power output from 10p.m to 6a.m.

Power over Ethernet - Schedule

Schedule on **Port.01**

Schedule mode **Disable**

☐ Select all

Time	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
00:00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
01:00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
02:00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
03:00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
04:00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
05:00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
06:00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
07:00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
08:00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
09:00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10:00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11:00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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23:00	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Apply NOTE:SNTP must enable.

Alive Checking

ORing's managed/lite-managed PoE switches could be configured to monitor the real-time status of connected powered devices (PD). ORing's managed/lite-managed PoE switches could send alive-checking packets to assure the connected PDs are in working state. If the connected PDs fail to response, ORing's managed/lite-managed PoE switches would reactivate the connected PDs to assure the reliability of the network.



- 3 steps of alive checking

ORing Launched the First Onboard 2.5G/10G Ethernet Switch with Copper Interface and PoE Functions

The demand of bandwidth for data transmission is dramatically increased nowadays. Those applications include popular deployed wireless network(Wi-Fi) for internet access, video streaming for IP surveillance, and network distribution/data concentrator in control center. Thus, the 10G/40G/100G standards or higher data rate technologies were developed for those demands.

Feature	IEEE 802.11ac Wave 1	IEEE 802.11ac Wave 2			
Data Rate	1.3 Gbps	1.3 Gbps	1.73 Gbps	2.6 Gbps	3.5 Gbps
# of Spatial Streams	3	3	4	3	4
Modulation	256 QAM	256 QAM	256 QAM	256 QAM	256 QAM
Channel Bandwidth	20, 40, 80 MHz	20, 40, 80 MHz	20, 40, 80 MHz	20, 40, 80 MHz 80+80, 160 MHz	20, 40, 80 MHz 80+80, 160 MHz
MIMO IEEE	Single User	Single User Multi User	Single User Multi User	Single User Multi User	Single User Multi User
802.11 protocol support	a, n, ac	a, n, ac	a, n, ac	a, n, ac	a, n, ac

Just take the application of wireless(Wi-Fi) access as the example, the technology of IEEE802.11ac is matured and very popular for huge amount of multimedia data access in these years. Existing 1Gb backbone Ethernet network can not fulfill the demands but become the bottleneck since the data rate of wireless technology already exceed 1Gbps. Then how to upgrade and increase the bandwidth of existing network cable become an important task.

As you know, new wired technology for higher transmission data rate may need new physical cable with better quality and higher data bandwidth. But the problem is the Cat5e Ethernet cable is so popular and already deployed all over the world in past tens of years. It will be very costly and difficult to replace the cable for new technology. The 10GBase-T technology was already proven which is not possible to operate on existing Cat5e cable but need Cat6a or Cat7 cable. Even though, it is still suitable for network distribution/data concentrator application.

For field side application, we need to find out a solution to increase the data rate on existing Cat5e Ethernet cable to save cost and time. Therefore, the new standard of 2.5GBase-T was defined and developed for faster Ethernet data transmission up to 100 meters like traditional 1Gb Ethernet network did. In addition, the PoE(Power over Ethernet) technology is also possible to be implemented to deliver power and data within the same Ethernet cable.

ORing launched a new series of 2.5G/10G Industrial (PoE) Ethernet switch products for these applications. They are the first 2.5G/10G Industrial grade Ethernet switch products with copper interface and PoE functions for industrial applications with requirement of very high speed data transmission.

Industrial Media Converter Overview

ORing offers Serial to Serial, USB to Serial, Fiber to Ethernet, and Gigabit Fiber to Ethernet media converters. Also, ORing's serial converters allow devices to communicate effortlessly across different serial interfaces and offer convenient, intelligent features.

Key Technologies

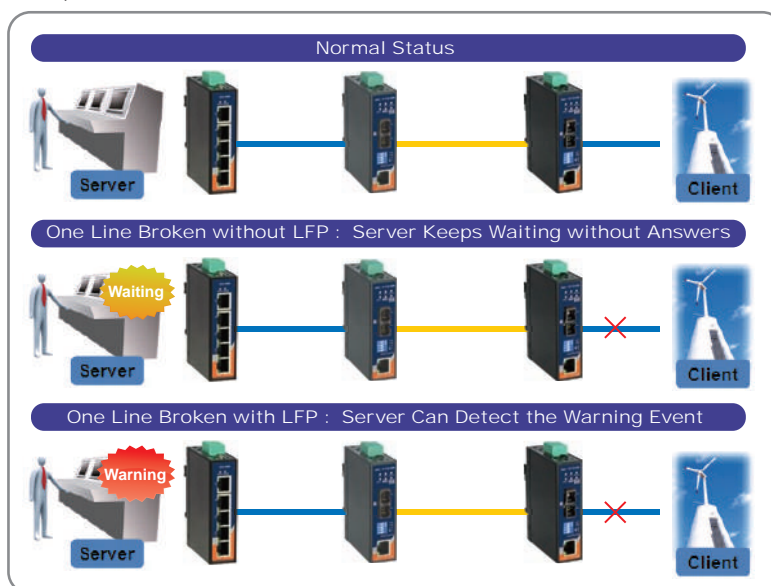
LFP (Link Fault Pass-Through)

Technology Description

Link Fault Pass-Through is the technology that actively “passes” any link failure of one side of the media converter to the other side, enabling subsequent devices connected to the other side to respond properly.

Traditional media converters usually suffer from inability to transfer link failure from one side to another. In other words, when link failure occurs on one side, the other side is still transmitting packets without actual data, causing subsequent devices of the link to wait for a response that will never arrive.

Link Fault Pass-Through effectively solves such problem of media converters by actively relaying link failures from one side to another. For example, if the links on the Ethernet side of the media converter fails, the media converter reinitiates auto-negotiation on the Ethernet side but stays in the link failure state. Additionally, the converter actively stop transmitting on links of the optical fiber side so subsequent devices connected to the optical fiber link would respond to network failure properly. With Link Fault Pass-Through technology, link failure would be noticed swiftly, minimizing data loss caused by such failure.



Supporting Product(s): ORing's IMC-111 series and RMC-111 series support this feature.

Hot Plug

Technology Description

ORing RMC-1000 media converter chassis features the revolutionary rack-mount design for hosting up to 18 card-type ORing media converters. For user convenience, RMC-1000 is equipped with Hot Plug technology. This technology enables the user to install or remove a media converter card for each slot without having to power off RMC-1000

Supporting Product(s):



RMC-1000

Industrial Device Server/M2M Gateway Overview

ORing's serial-to-Ethernet device servers offer up to 8 serial ports along with different interfaces of copper, optic fiber, or wireless LAN, plus support for various operation modes: TCP server, TCP client, UDP, and Virtual COM. All device server models include free-bundled management utility, plus DS-Tool with Virtual COM drivers

Key Technologies

SSL Data Encryption

Technology Description

Handshaking

The client asks the server to identify itself. The server hands a "digital certificate" (public encryption key included) to the client. If the "digital certificate" is trustworthy, the client sends confirmation to the server. Now the client and server have "shaked hands".

Data Transmission

The client encrypts data with a public encryption key and sends the encrypted data to the server. The server then decrypts the received data with its secret private decryption key and retrieves the data. With strong encryption (128-bits or higher), the required decipher time & effort may far exceed any hacker's lifetime.

SSL Data Encryption Benefits

SSL data encryption provides several benefits. It enforces data privacy via strongly designed data encryption schemes. Additionally, it allows identity establishment, i.e. each client has his or her own unique "digital certificate". Moreover, SSL data encryption is a trust-based data communication scheme. Data communications exist if and only if the server and the client formally trust each other.

Supporting Products:



Modbus Gateway

Technology Description

ORing also offers a Modbus gateway product portfolio which serves as a converter between Modbus TCP and Modbus RTU/ASCII devices. ORing's Modbus gateways allow Modbus RTU/ASCII devices to be easily connected with network-based Modbus TCP devices without changing existing structure. ORing Modbus gateways are able to support dozens of RTU/ASCII devices through the serial ports, connecting a high density of Modbus nodes to the same network. Apart from Web configuration support, ORing Modbus gateways also provide a wide range of functions such as Master/Slave mode support, a wide range of operating temperature, and rugged design.

Supporting Products:



IDS- 342GT



RDS- 3086G



RDS- 3166G

Multiple-OS Support

For maximum compatibility and versatility, ORing's device servers support many different Windows Operating systems: Windows NT, 2000, XP, 2003, VISTA(32/64-bit), and Windows 7(32/64-bit).

PPPoE and DDNS for Internet Connection

Technology Description

PPPoE (Point-to-Point Protocol over Ethernet) is a network protocol for encapsulating Point-to-Point Protocol (PPP) frames inside Ethernet frames. It is used mainly with DSL services where individual users connect to the xDSL modem over Ethernet. IDS series products feature PPPoE to build up a connection a network through xDSL modem from Intranet to Internet without routers.

DDNS (Dynamic Domain Name Server) is a method, protocol, or network service that provides the capability for a networked device using the Internet Protocol Suite, such as an IP router or computer system, to notify a domain name server to change, in real time, the active DNS configuration of its configured hostnames, addresses or other information stored in DNS. When getting the connection through PPPoE and the IP address is floated, end users may not configure device servers. However, through DDNS, it's easy for different IP domain users to connect to IDS series device servers.

PPPoE Benefits

PPPoE enables clients to adopt the traditional dial-up access mode, which allows end users to use the familiar hardware and similar software to access the Internet. Moreover, clients can also use Ethernet adapters to connect PCs and xDSL modems so that PCs can share xDSL lines and thus saves investment.

DDNS Benefits

With DDNS, the administrator does not need to set up the static IP address for each PC every time the network infrastructure changes. Moreover, you only need addresses that would be used simultaneously, rather than having one for every possible user of IP.

Supporting Products:



IDS- 5011



IDS- 5011F



IDS- 5012



IDS- 5042- I +



IDS- 5042/5042+



IDS- 5042- IWG



IDS- 5042- WG

Industrial Wireless Access Point Overview

ORing's industrial Wireless Access Points are made for rugged and seamless long distance wireless and wireless redundant roaming networks. All of ORing's industrial wireless products feature long communication range with X-Roaming technology, support for IEEE 802.11 standard, and AP/bridge/repeater/AP-client/client operation modes. Some of these Wireless Access Points are even waterproof (the IP-67 models) – perfect for outdoor use. Additionally, some Wireless Access Points are EN50155-certified Transporter series models, making them especially suitable for rolling stock applications.

Key Technologies

X-Roaming

Technology Description

IEEE 802.11 networks can only transmit data within a few hundred meters. As for mobile data application, the devices should handoff from one access point to another. ORing's X-Roaming technology, which is available in all of ORing's new wireless access point models, reduces the handoff time between two different access points to less than 100 milliseconds, and makes seamless wireless communication possible.

With ORing's X-Roaming technology, the client can roam seamlessly among different access points. ORing also provides the feature of load balance — to prevent traffic jam of mobile data transmission while roaming, i.e. to limit the total amount of AP clients that connected to the products of ORing APs.



Benefits of X-Roaming

The main benefits of X-Roaming are that it reduces the handoff time between two different access points to less than 100 milliseconds, and therefore it makes seamless wireless communication possible. With ORing's X-Roaming technology, the client can roam seamlessly among different access points.

Supporting Products: ORing's full AP Series products support X-Roaming feature .



Security: 802.1x Authentication

Technology Description

ORing's IAP/IGAP product series support IEEE 802.1x to enhance security for wireless connections. ORing's IAP/IGAP series act as authenticator and the clients (supplicants) could get authentications from RADIUS (Remote Authentication Dial In User Service) server.

Security Benefits

ORing's IAP/IGAP series provide client-only authentication or, more appropriately, strong mutual authentication using protocols such as EAP-TLS. Thus, un-authorized/un-authenticated client are not possible to connect to ORing's IAP/IGAP and IAR/IGAR series.

802.1x authentication

>> Authentication success, allow to access network
>> Authentication failed, block to access network



Supporting Products: ORing's full IAP/IGAP Series products support security functions.

Dual RF Wireless Redundancy

Technology Description

Network redundancy is vital for Ethernet network reliability – as one network link fails, the alternative network path can be activated to keep the network functional. The same redundancy concept can also be applied to wireless networks. By simultaneously providing 2 different wireless access paths, with different RF frequencies and SSIDs, the user can set up 2 wireless connections and have both simultaneously connected, ensuring that the wireless network stays uninterrupted when one of the two connections fails.

Supporting Products:

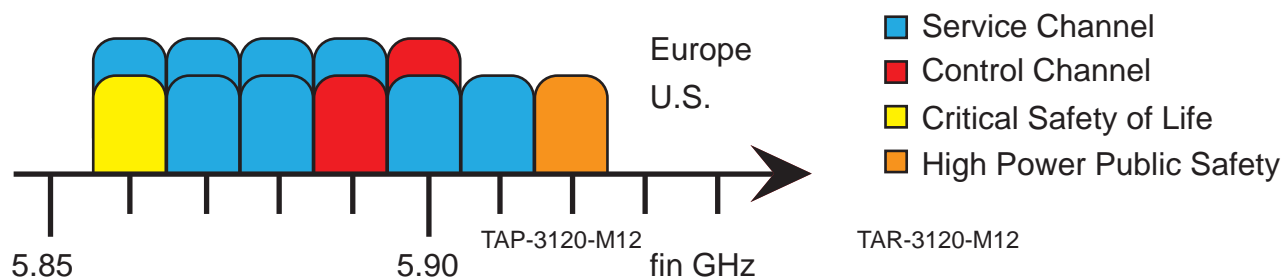
Dual Wifi : IGAP-6620+, TGAP-6620-M12 , TGAP-W6610+-M12 , TGAR-1662-3G/4G-M12 , IGAR-1662+-3G

Dual Cellular : TGAR-2062-3G-M12 , TGAR-2062-4G-M12 , IGAR-2062+-3G

802.11P

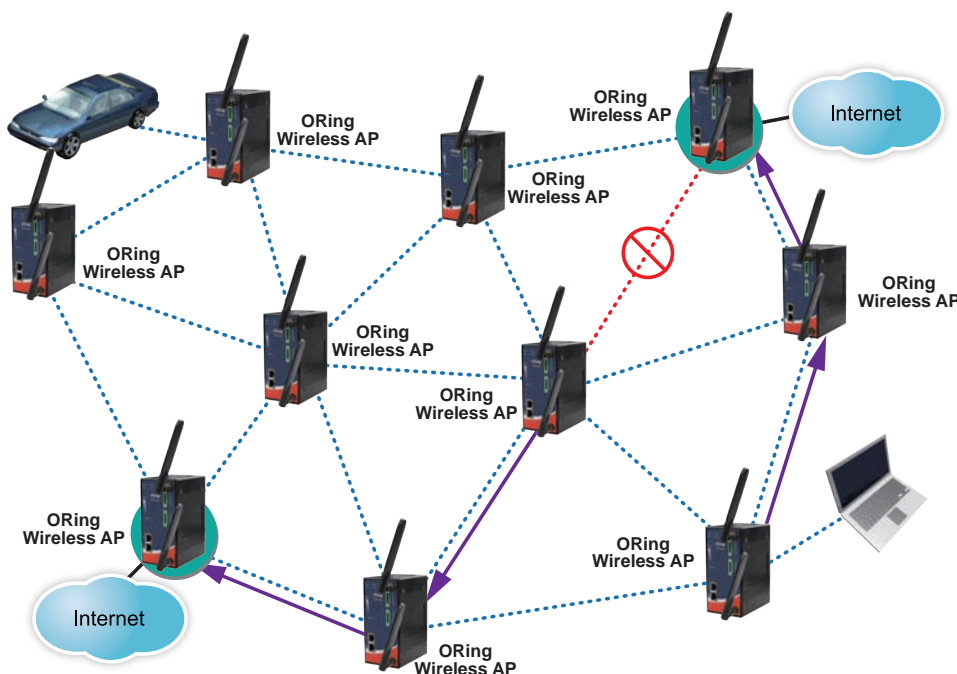
Technology Description

Modified from 802.11a, 802.11p is a standard development to ensure secure wireless communications while in a vehicular environment. Also known as WAVE, 802.11p covers communications from vehicle to infrastructure, vehicle to vehicle, and vehicle to pedestrian. This standard works in 5.9GHz band with seven channels of 10MHz, one for control and six for data services. As there is no need to associate with base stations, data can be transmitted more quickly. Furthermore, receivers have better noise rejection abilities due to no adjacent interference. The standard enables fast wireless communications in the urban road environment as well as higher transportation safety and communications reliability for moving vehicles.



Wireless X-Mesh

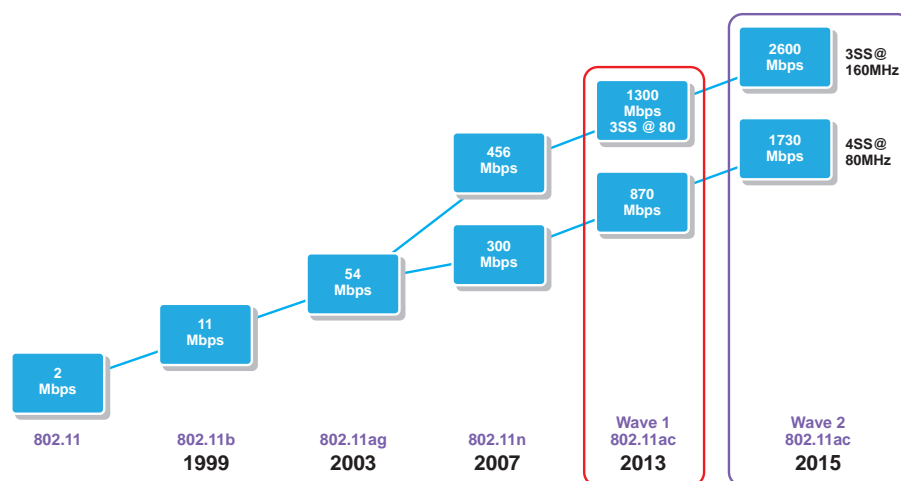
A wireless mesh network consists of several radio nodes in a mesh topology where nodes can communicate with each other even when one node ceases to operate. When a link is down, back-end system will find an available route automatically to ensure signals are transmitted to the destination. Wireless Mesh network has self-configuring and self-healing capabilities. When an AP receives signals, it will determine an optimal route to pass the signals to the next node. If the route encounters interference or hardware problems, the AP will use another route. Compared with traditional star topology, wireless mesh network can reduce traffic congestion and delays.



ORing Has Introduced Our Brand New Industrial 802.11 ac APs

Growing data traffic has led to a dramatic increase in wireless network bandwidth. The data rate in 1999 when 802.11a took place was only 54 Mbps. The speed surged to 300 Mbps in 2009 as 802.11n 2x2 MIMO technology was unveiled and further onto to 2.6 Gbps in 2014 after 3x3 MIMO 802.11ac came into being. The enhancement in data speed boils down to the development of several key technologies, such as multi-streaming, advanced modulation, increased bandwidth, and the transition from single-user to multi-user. As these technologies mature, an increasing number of 802.11ac products have emerged to meet enormous data demand.

ORing has introduced industrial 802.11ac APs with an operating temperature between $70 \sim -25^{\circ}\text{C}$. Equipped with 3x3 external antennas, the APs can provide a data rate of up to 1.3Gbps at 80MHz. To ensure reliable operation in harsh environments, the APs are housed in an IP30- or IP40-rated metal enclosure.



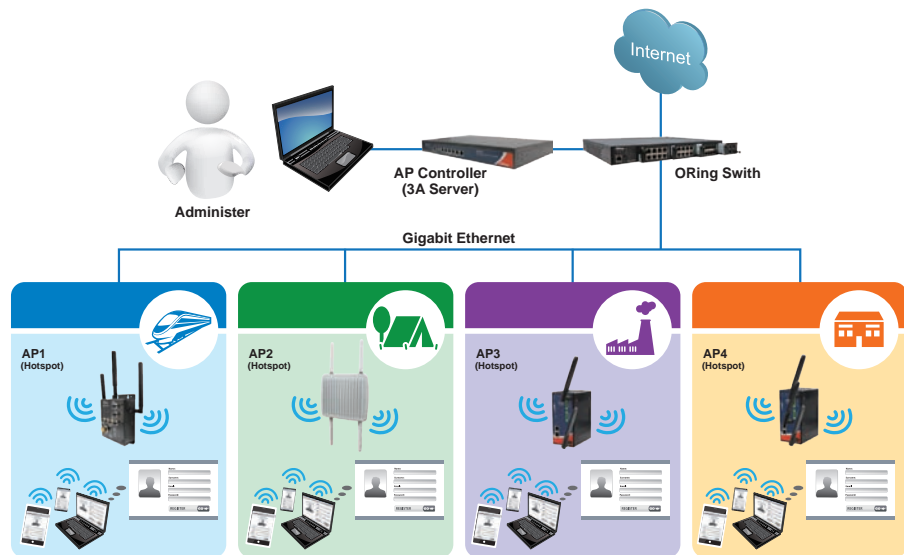
Access Point Controller

Traditionally, managing a large number of wireless APs is time-consuming. Without the ability to manage wireless APs centrally, you usually end up spending a lot of time configuring the APs one by one.

With increased coverage of wireless networks, the number of projects requiring more than 20 wireless APs is on the rise. To deploy and manage the large number of wireless APs easily, AP controllers have emerged.

An AP controller can control multiple APs at the same time with central management, configuration, and connection arrangement. Combined with hotspot and 3A authentication, the controller makes the entire wireless network more secure, convenient, scalable.

ORing's AP controllers can control many APs and configure the APs centrally, while managing firmware version and supporting hotspots and 3A servers, making Wi-Fi network deployment and management a piece of cake.



Industrial Cellular VPN Overview

ORing's wired, wireless, and wireless EN50155 Industrial Cellular VPN Routers are reliable and cost-effective routers for redirecting wired or wireless network connections to wired or wireless 3.5G modems – very useful for mobile internet connection.

All of ORing's industrial Cellular VPN Routers feature highly advanced security features for internet connection. The wireless models, with support of IEEE 802.11 wireless standard, additionally feature long communication range. Additionally, there are EN50155-certified Transporter series wireless models, making them especially suitable for rolling stock applications.

Key Technologies

SSL VPN

Technology Description

Secure Sockets Layer virtual private network (SSL VPN) is a kind of VPN that runs on Secure Socket Layers technology and is accessible via https over web browsers. It permits users to establish safe and secure remote access sessions from any Internet connected browser. SSL functions between the Transmission Control Protocol (TCP) layer and application layer protocols. Traditional VPN requires the installation of IPsec client software on a client machine before a connection is established whereas SSL VPN has no such requirement. Corporate users are able to access confidential applications or share files on standard web browsers.

SSL VPN Benefits

The main benefit of SSL VPN technology is that since it is user-based, not device-based. Any authorized user can login from web-enabled PCs for secure, remote access of confidential files. The safety issues are similar to SSL-based credit card online transactions through standard web browsers.

Supporting Products:

ORing's full router series products support SSL VPN function



IGAR-2062+-4GIGR-20+ IAR-142-3G IAR-142+-4G



TGAR-1062-4G-M12 TGAR-W1061-3G/4G-M12

IPsec VPN

Technology Description

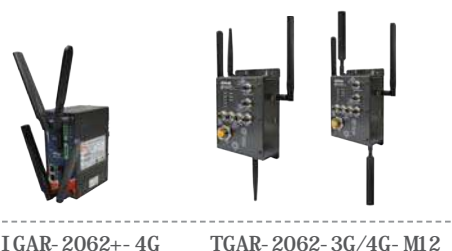
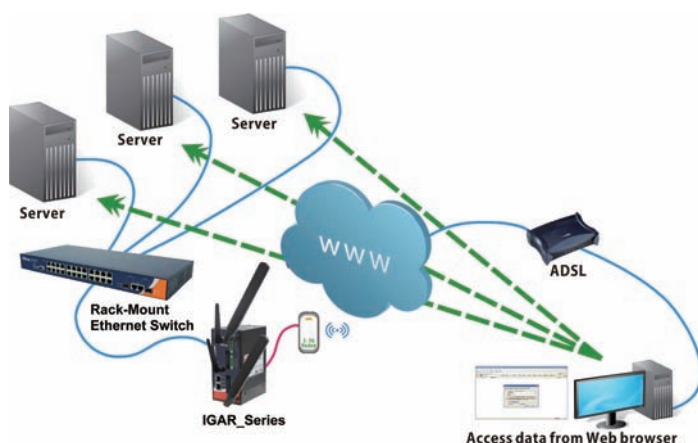
Internet Protocol Security (IPsec) is a protocol suite for securing Internet Protocol (IP) communications by authenticating and encrypting each IP packet of a data stream. IPsec also includes protocols for establishing mutual authentication between agents at the beginning of the session and negotiation of cryptographic keys to be used during the session. IPsec can be used to protect data flows between a pair of hosts (e.g. computer users or servers), between a pair of security gateways (e.g. routers or firewalls), or between a security gateway and a host.

IPsec VPN Benefits

IPsec is a dual mode, end-to-end, security scheme operating at the Internet Layer of the Internet Protocol Suite or OSI model Layer 3. IPsec can be used for protecting any application traffic across the Internet.

Supporting Products:

ORing's full AR series products support IPsec VPN Benefits function



PPPoE and DDNS for Internet Connection

Technology Description

PPPoE (Point-to-Point Protocol over Ethernet) is a network protocol for encapsulating Point-to-Point Protocol (PPP) frames inside Ethernet frames. It is used mainly with DSL services where individual users connect to the xDSL modem over Ethernet. to build up network connection.

DDNS (Dynamic Domain Name Server) is a method, protocol, or network service that provides the capability for a networked device using the Internet Protocol Suite, such as an IP router or computer system, to notify a domain name server to change, in real time, the active DNS configuration of its configured hostnames, addresses or other information stored in DNS. When getting the connection through PPPoE and the IP address is floated, end users may not configure device server. However, through DDNS method, it's easy for different IP domain users to connect to IR/IAR/TAR series device servers.

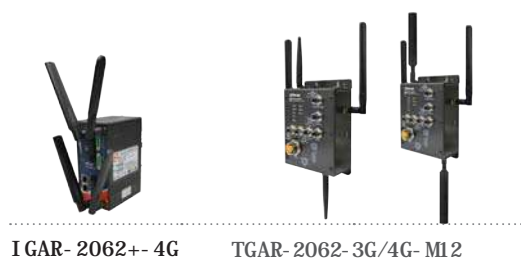
PPPoE Benefits

PPPoE enables clients to adopt the traditional dial-up access mode, which allows end users to use the familiar hardware and similar software to access the Internet. Moreover, clients can also use Ethernet adapters to connect PCs and xDSL modems, which allow PCs to share xDSL lines and thus saves investment.

DDNS Benefits

With DDNS, there is no need to go from PC to PC setting up static addresses every time your network infrastructure changes. Moreover, you only need the addresses that would be used simultaneously, rather than having one for every possible user of IP.

Supporting Products: ORing's full AR series products support PPOE and DDNS for Internet Connection function



Networking Protection

Technology Description

ORing's industrial routers offer comprehensive security features to keep the network well-protected. First of all, ORing routers support the following data encryption schemes:

WEP/WPA/WPA-PSK(TKIP,AES)/ WPA2/WPA2 Personal/WPA2 Enterprise

These encryption schemes prevent hackers from deciphering data (and hence steal the contents) during wireless transmission.

HTTPS

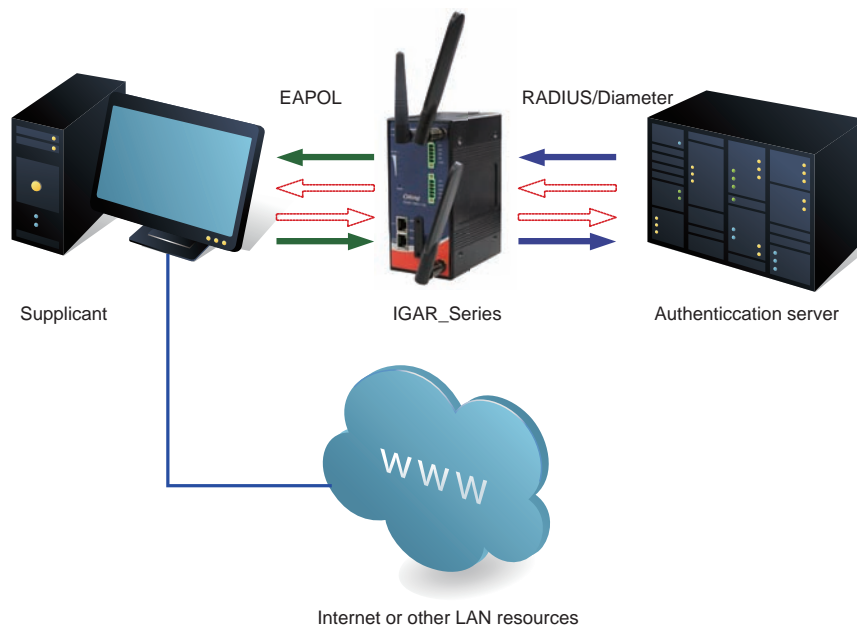
Provides encrypted communication and secure identification of a network web server. HTTPS is very useful for secure network management as well as transmission of sensitive data.

IP Table

Prevents access from unauthorized IP address.

PSK(TKIP,AES)/802.1X Authentication

These schemes act as security guards to the network, supporting service identification and optional point to point encryption over the local LAN segment.



Supporting Products:



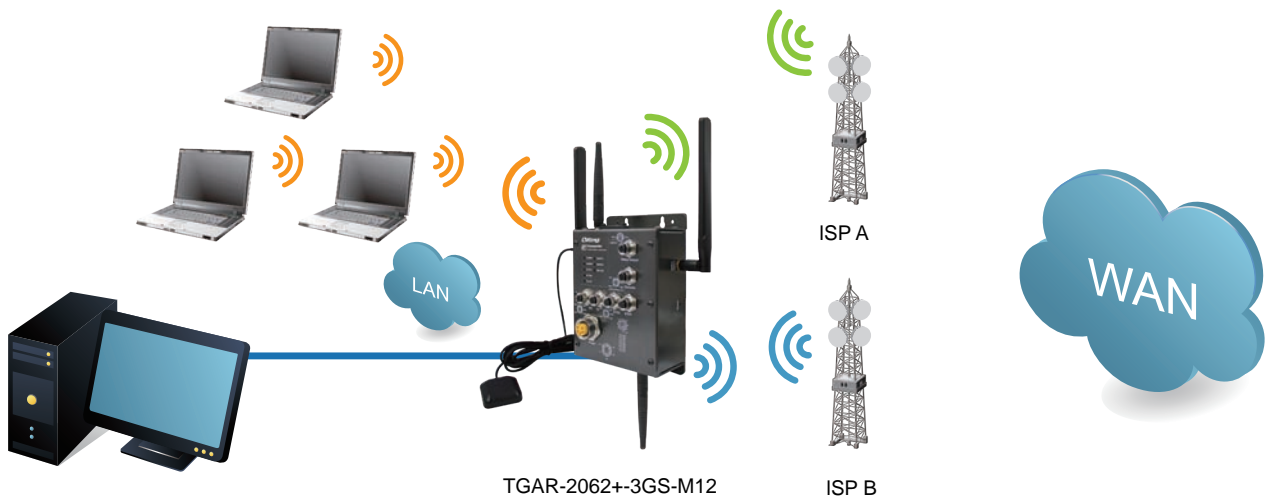
IGAR-2062+- 4G

TGAR-2062- 3G/4G- M12

Load balance

Technology Description

Load balancing distributes traffic across multiple broadband connections such as multiple 3G/4G links when a single resource is overloaded to enhance the scalability and availability of mission critical, IP-based services. Load balancing can also achieve redundancy when one or more connections fail and hence increase network reliability. Session Load Balancing assigns each session to one of the cellular connections. Normally, all connections are used simultaneously. When one of the connections fails, all traffic is sent over the remaining connections. Once the failed connection recovers, traffic will be returned to that connection.



GPS Function

Technology Description

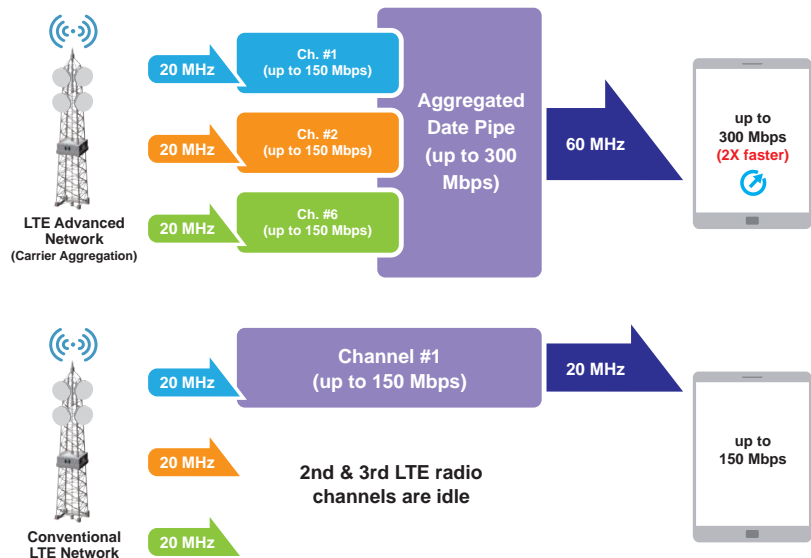
- Supports GPS position function
- Works on 1575.42MHz
- No transmission, only receive
- Three or more satellites obtain an accurate result
- Active GPS antenna



ORing Launches New Generation 4G LTE Router

LTE has become the mainstream mobile communications standard in many countries. The technology is used not only in mobile devices but also in network communications equipment. Mobile communications technology has moved from the earliest 2G GSM to 3G HSPA, LTE, and the most recent LTE-Advanced (LTE-A), resulting in massive data traffic. In terms of data rate, existing UE (User Equipment) Category 1 – 5 are for LTE standard and UE Category 6 with a uplink/downlink speed of 300/50Mbps are for LTE-A. The key technology of LTE-A is CA (Carrier Aggregation) which aggregates multiple LTE carriers to increase data capacity.

ORing has launched a new generation 4G LTE router featuring a rugged design and 802.11a /b/g/n support. As a Category 6 UE, the router guarantees a faster data rate.



Accessories Overview

ORing has all the industrial networking components for all the small but indispensable industrial networking needs: antennas, cables, fiber patch cords and adapters, connectors, power supplies and adapters, surge protectors, plus Ethernet SFP and BIDI-SFP modules.

Network Management Software & Controller Overview

For facilitated and user-friendly network administration, ORing proudly presents the powerful Network Management Software — Open-Vision, which is the outstanding suite of 3 humanized network management tools: ORing Commander, ORing Topology View (with integrated ORing MAP), and ORing Host Monitoring.

With Open-Vision, the network administrator can enjoy centralized configuration, visualized management, and complete network monitoring with early warning system, as these features help the network administrator maintain stable and reliable industrial network.

Key Technologies

Centralized Management

Technology Description

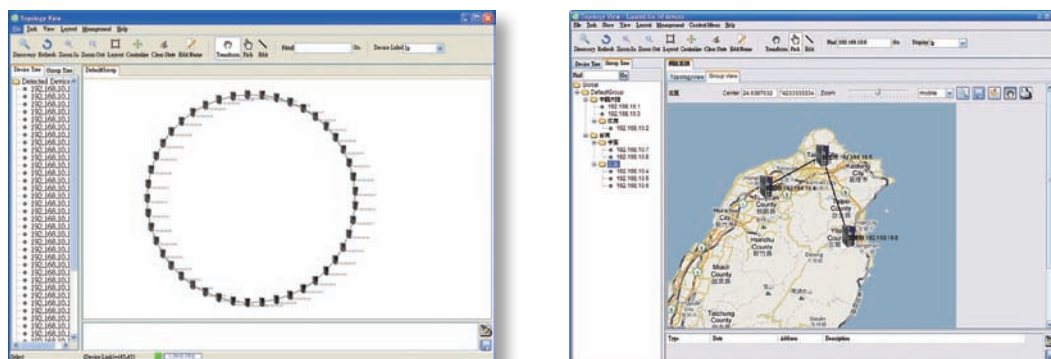
Open-Vision helps the administrator in configuring all ORing's Ethernet switches at once within a few steps by powerful application wizards in ORing Commander: IP Setting Wizard, Firmware Upgrade Wizard, and Redundant Ring (O-Ring) Group Wizard (in ORing Commander). The administrators do not need to configure the managed switches one by one anymore.



Visualized Management

Technology Description

ORing's Topology View can show up the complex topologies of all of ORing's Ethernet switches in the local network. Further, different switches can be grouped by different IPs and to be shown in different topology windows. Thus, administrators need not to monitor all of the switches in the local network at once, which makes the job of monitoring easier and more efficient. On the other hand, the health status of the connections will be shown on by different colors. ORing topology view helps the administrators to do the management visualizely, intuitively, and more efficiently.

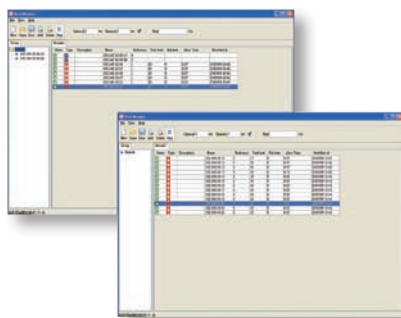


Complete Monitor

Technology Description

ORing-Vision has various mechanisms to monitor the statuses of ORing's switches, including event log, and SNMP traps. The administrators will be informed the occurrences of any abnormal events by email, and the list of event log could be exported as an excel file. Moreover, the configurations of all ORing's switches can be saved and the status of configurations of all switches in local network can be scanned regularly to detect any changes of the configurations. Hence, administrators could know any unexpected changes of the configurations of switches. On the other hand, ORing Host monitor can automatically ping and check the health statuses of connections among all IP-based devices in local area network. Host Monitor also features IP categorized function, and all of IP-based devices can be grouped by the different IPs and to be monitored.

The topology view function has been integrated in the DMG-S15 cloud server which will detect device status automatically and show the topology of all connected switches on the network.



Early Warning

Technology Description

Based on the various monitor mechanisms, if any failure is occurred in the network, administrators can be informed at a very early stage.

Industrial IOT Overview

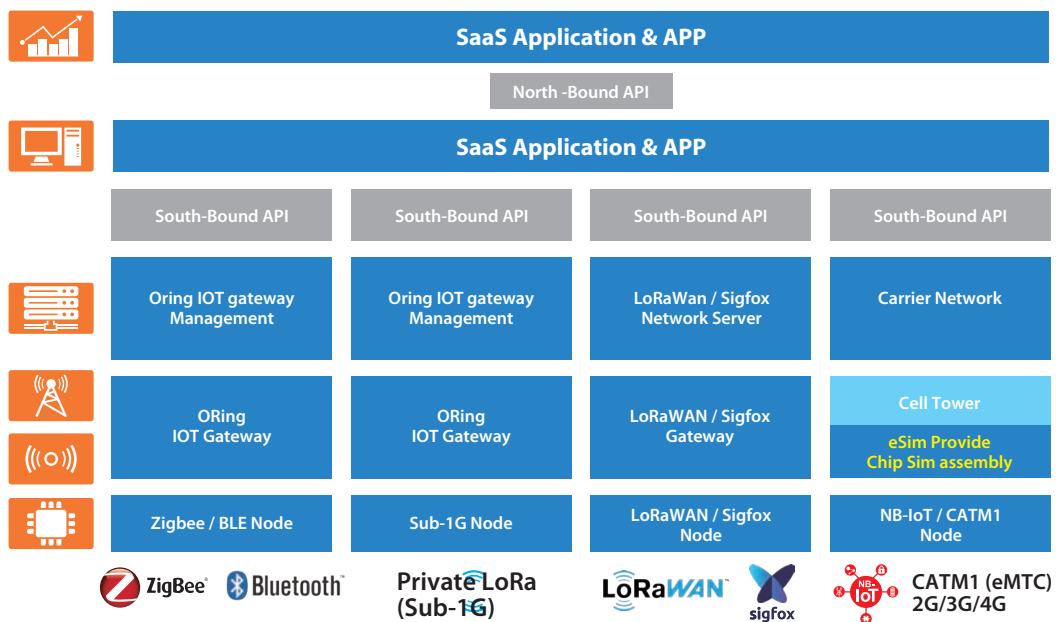
The Industrial Internet of Things (IIoT) is the key object in the past two years. What is IIoT ? What are the differences between IoT and IIoT ? At first, we should specify the IoT before making a statement about the IIoT. The IoT is composed by a network of intelligent computers, devices, and huge amounts of collecting data. The collected data is sent to the cloud central service where can be amounted to other data and then provided to end users with an optimizing solution. The IoT will connect each autonomous device in homes, schools, stores and industries.

The application of the IoT to the field of manufacturing industry is called IIoT. The IIoT will be the revolution in the manufacturing industry. It can greatly improve connectivity, efficiency, scalability, time and cost saving for the industrial organizations. The most important thing, IIoT networks of intelligent devices provides industrial organizations to break open data silos and connect all of their data and processes from factory to offices. Trough IIoT data analyzing also helps business development to clarify how their enterprise is doing, which makes them to do the better decisions.

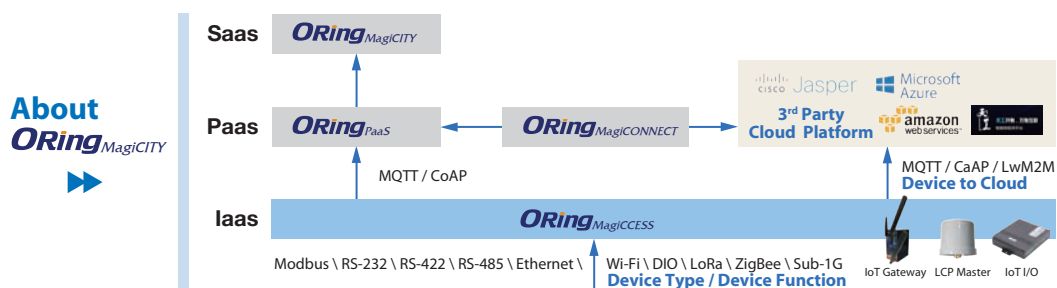
The IIoT is considered to be an up-going trend in the future. **ORing Industrial Networking Corp.** is based on our strong experience of developing wireless communication technology. We incorporated our technological strength with our products – gateways, I/O modules, smart antennas, cloud service platform and APP to provide a total IIoT solution. Potential environmental IIoT applications are growing such as Wi-Fi hotspots, PM2.5 air quality detection, urban marketing, and real-time surveillance systems. More business opportunities can be found in tremendous IIoT solutions and we are looking forward to inviting our ambitious customers to join us.

Key Technologies

ORing Solution for variant IIoT technologies



ORing IIoT Platform Technologies



ORing MagiCloud Overview

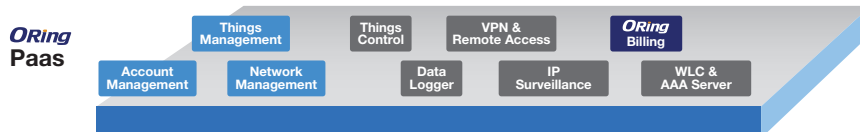
The ORing MagiCloud is a powerful managed cloud platform designed for industrial applications. With support for Modbus-RTU and ModBus-TCP, you can easily connect your devices to the platform and interact with cloud applications and other devices.

The ORing MagiCloud supports billions of devices and routes data to applications or other devices securely and reliably. Along with the ORing IIoT, REST API will be provided to help you track your device connectivity and access data from all of your devices anytime, even if they are offline.

ORing IIoT Roadmap



Functional Block



Key Technologies






Dashboard Embedded

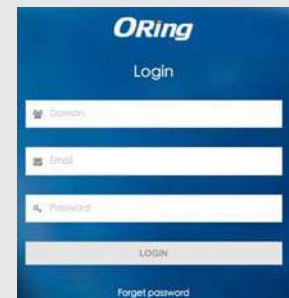
- Clear Dashboard and notifications tell you what you should do today



Organization Based

- Each organization owns one domain name, login your domain to manage your organization

	Name	Email	Role	Job Title	
	Angus	angus@oringnet.com	Admin	CEO	
	Benny	benny@oringnet.com	Member	RD	Permissions More Delete
	KYC	kyc@oringnet.com	Member	PM	Permissions More Delete
	Jacobi	jacobi@oringnet.com	Member	EM	Permissions More Delete
	Anna	anna@oringnet.com	Member	EM	Permissions More Delete



ORing Login

Domain:

Email:

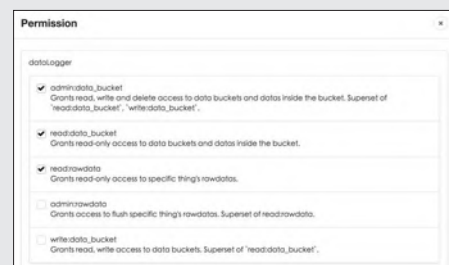
Password:

LOGIN

[Forget password](#)

Simple Authorization Management

- ORing Account Management is built with ACL and OAuth 2.0 which keeps account management, permission setup and authorization more easily.

Permission

dataLogger

- ☒ admindata_bucket
Grants read, write and delete access to data buckets and data inside the bucket. Superset of 'readdata_bucket', 'writedata_bucket'.
- ☒ readdata_bucket
Grants read-only access to data buckets and data inside the bucket.
- ☒ readrowdata
Grants read-only access to specific thing's rowdata.
- ☐ adminrowdata
Grants access to flush specific thing's rowdata. Superset of readrowdata.
- ☐ writedata_bucket
Grants read, write access to data buckets. Superset of 'readdata_bucket'.

Connect, Just in a Finger

- With ORing PaaS device management, view the device status and much more information, just at a glance.



Category: Show all

<input type="checkbox"/> None	<input type="button" value="Set"/>
<input type="checkbox"/> AWS-4322-GF	<input type="button" value="Set"/>
<input type="checkbox"/> Jacek ORing Sensor1	<input type="button" value="Set"/>
<input type="checkbox"/> Jacek ORing Sensor2	<input type="button" value="Set"/>
<input type="checkbox"/> Jacek ORing Sensor3	<input type="button" value="Set"/>
<input type="checkbox"/> testbed	<input type="button" value="Set"/>

Name	ID	Secret Key	Category	Data Logger	Status	W Select all C Cancel all
AWG-4322-GF	1102w9h-	ghyAUGu025v65	magiccity-sensor	Data Logger	ack	<input type="checkbox"/> ID
Jacek ORing Sensor1	8y86w7h-	p856pANU22zr0	magiccity-sensor	Data Logger	ack	<input type="checkbox"/> Secret Key
Jacek ORing Sensor2	ny8U0Q3e	tlmxK2Vh8uLA	magiccity-sensor	Data Logger	ack	<input type="checkbox"/> Category
testbed	5m-2Zkp-	8bqP7h9m3K3	magiccity-sensor	Data Logger	ack	<input type="checkbox"/> Data Logger
demo-tracker1	rus0ghw	x78xug265u7y8P	magiccity-tracker	Data Logger	ack	<input type="checkbox"/> Status
test sensor2	u0vng2o	C68hCP5eH7yCu	magiccity-sensor	Data Logger	active	<input type="button" value="Set"/>

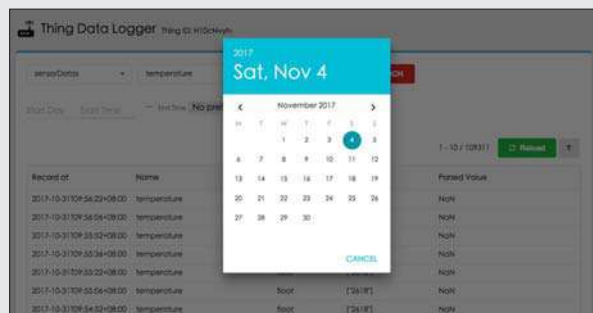
Multiple IoT Protocol Supported

- HTTPs, Socket, WebSocket, MQTT, CoAP and LwM2M



Data, No More Confusion

- ORing Data Logger assists you to collect and organize your precious data, and also help you synchronize data to your database.



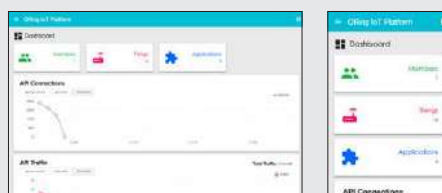
Multiple IoT Protocol Supported

- SQL and NoSQL database



Cross Platform Multiple Resolution Support

- Support PC, Laptop, Pad, smart phone and even your smart watch
- Support Linux, MAC, Windows, iOS and android



Connect your device to ORing PaaS

- Just three steps, create, link and you can see your data on ORing PaaS

Create

The screenshot shows the 'Create thing' form in the ORing PaaS interface. It includes fields for 'Name', 'Category', 'Data Type', and 'API Key'. There is a 'Create' button at the bottom right.

Link



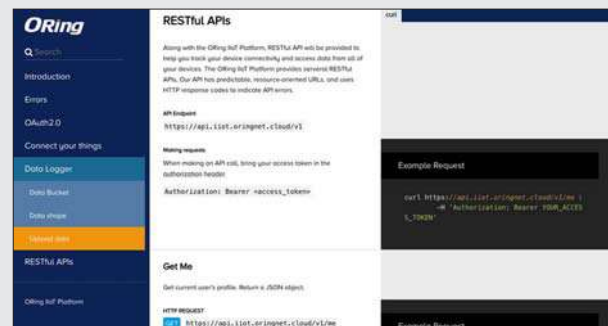
Upload

Record of	Name	Type	Value	Parsed Value
2017-10-31 10:54:22+08:00	temperature	float	[74.02]	NaN
2017-10-31 10:54:54+08:00	temperature	float	[74.02]	NaN
2017-10-31 10:55:02+08:00	temperature	float	[74.18]	NaN
2017-10-31 10:55:34+08:00	temperature	float	[74.18]	NaN
2017-10-31 10:55:22+08:00	temperature	float	[74.18]	NaN
2017-10-31 10:55:54+08:00	temperature	float	[74.18]	NaN

Developer Portal

- Powerful API let you develop your own application in a short time

ORing MagiCITY
ORing Market Place
ORing Sensor Network
ORing Hotspot

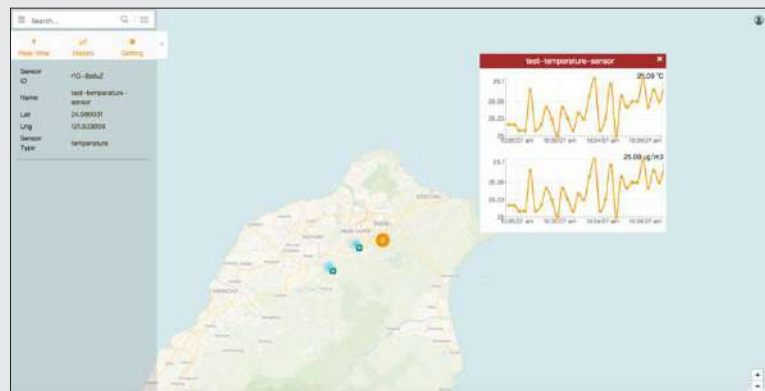


ORing MagiCITY

ORing MagiCITY is designed for Smart City Management. MagiCity integrates all the devices you need to interactively manage your smart city, such as smart lighting controls, sensor data loggers, smart meters, and smart trackers. MagiCity has a simple and clear user interface that make it easy for busy city managers to keep their smart city safe and cost efficient.

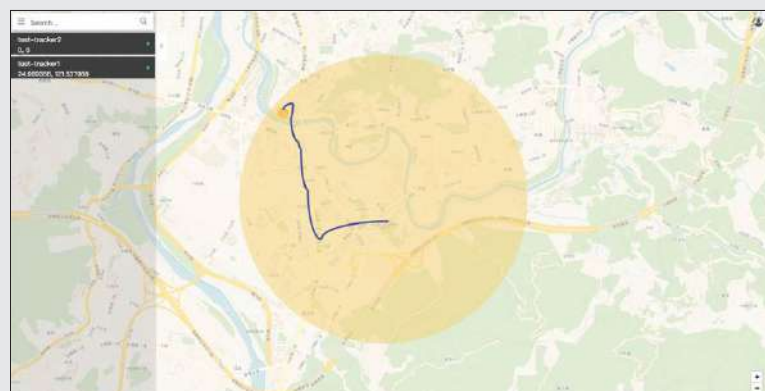
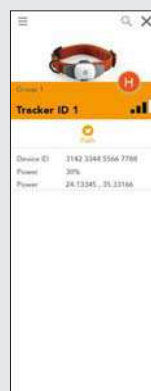
Sensor, Monitor, Log and Threshold

- Real time monitoring you data
- Export data or data base migration
- Set threshold value to alarm nearby citizen



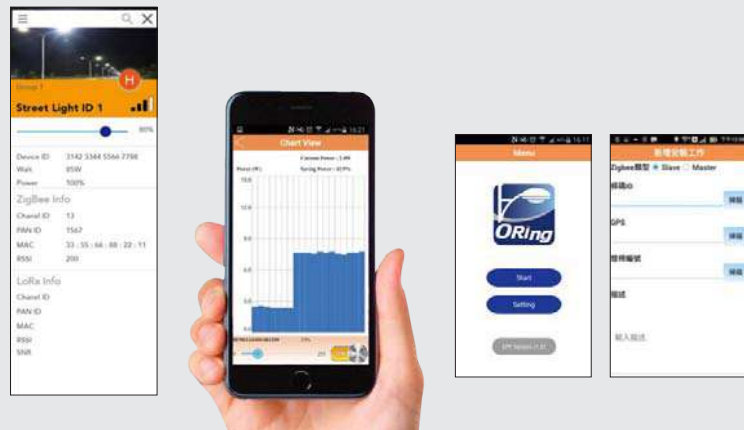
Tracker, Period, Path and S-Zone

- Periodically report GPS
- Draw the path on your map
- Set S-Zone, Security zone to prevent target ran out of the range



Street Light, Install, Adjust and Repair

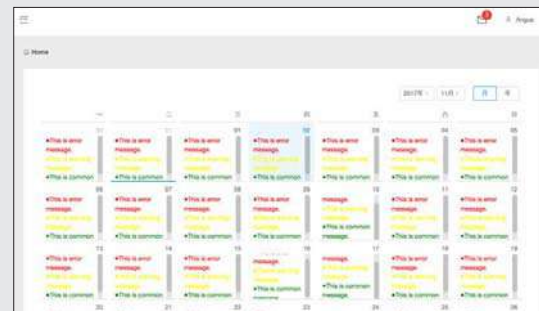
- Powerful, process-based solution for your city's streetlight, from site survey, Construction map, power management, adjustment to repairing process



Street Light, Issue Report System

- Every time when you login to system, At calendar, it tells you what should be done within today. When you manipulate system, it will appears notification when something happend

Pole ID	Title	Report Type	Status	Noticed Time
888882	[Citizen Report] report 下压	Citizen	New	100000001043
testDevicePublic	[Citizen Report] testDevicePublic 测试设备	Citizen	New	100000001048
testDevicePublic	[Citizen Report] testDevicePublic 测试设备	Citizen	New	100000001041
testDevicePublic	[Citizen Report] testDevicePublic 测试设备	Citizen	New	100000001050
apple	[Citizen Report] apple 测试设备	Citizen	New	100000001054



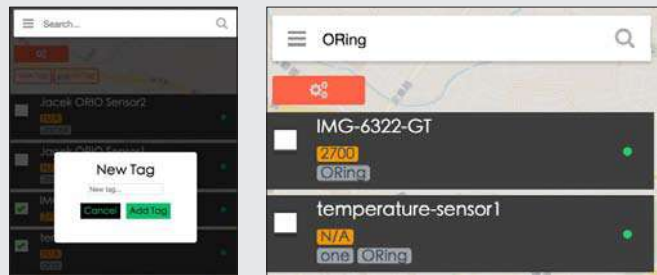
The Needs of Your Citizen, Gas, Water and Meter

- Remote meter monitoring
- Can be implemented on a "per-customer" basis
- Data can be synchronized to your other city programs and generate bill automatically



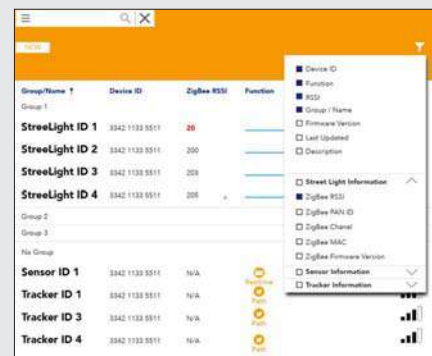
Powerful Search Mechanism, Easier to Find Your Device

- Support ID search and Tag Search
- One device can have up to 10 tags
- Multi-Dimension array algorithm, reduce the searching time



Easy Way to Fetch, Organizing Data

- A user-friendly interface, keep you fetch your data and sort it to report in a short time.



Product Selection Guide

Industrial Rack-Mount Gigabit/Fast Ethernet Switch

Managed Switch

Industrial Ethernet Switch



	RGS-92222GCP-NP / RGS-92222GCP-NP-E		RGS-9168GCP Series/-E	RES-9242GC
Port Number				
Number of ports	26		24	26
10/100Base-T(X) RJ45 Ports	-		-	24
10/100/1000Base-T(X) Ports	22		-	-
100Base-FX Fiber Ports	-		-	-
1000Base-X Fiber Ports	-		-	-
100Base-FX SFP Ports	-		-	-
100/1000Base-X SFP Ports	2		8	-
Gigabit Combo Ports	2		16	2
Power Redundancy				
DC Terminal Block	-	2 (-E)	2 (-E)	-
DC Power Jack	-		-	-
AC Power Cord	1	1	1	2
Installation				
DIN-Rail Mounting	-		-	-
Wall Mounting	-		-	-
Rack Mounting	•		•	•
Physical Characteristics				
Casing Protection	IP-20		IP-20	IP-20
Dimensions (mm)	443.7(W)x200(D)x44(H)	431(W)x342(D)x44(H)	431(W)x342(D)x44(H)	440(W) x 200(D) x 44(H)
Operating Temperature				
-10 to 60°C	-		-	-
-40 to 70°C	-		-	-
-40 to 75°C	•		•	•
Network Redundancy				
0-Ring	•		•	•
Open-Ring	•		-	•
0-Chain	•		•	•
MRP*NOTE	•		•	•
MSTP/STP/RSTP	•		•	•
Management and Control				
802.1X	•		•	•
Rate Limit	•		•	•
Port Mirror	•		•	•
Port Security	•		•	•
IGMP v2/v3	•		•	•
QoS Port Base/COS/TOS	•		•	•
Port Trunk Static/LACP	•		•	•
LLDP	•		•	•
System Alarm	SYSLOG / SNMP Trap	SYSLOG / SNMP Trap / Relay	SYSLOG / SNMP Trap / Relay	SYSLOG / SNMP Trap
DHCP	Server / Client		Server / Client	Server / Client
VLAN	802.1Q		802.1Q	802.1Q
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)		WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)
Warranty			5 years	

*NOTE: This function is available by request only

Product Selection Guide

Industrial Rack-Mount Gigabit/Fast Ethernet Switch

Managed Switch

Industrial Din-Rail Gigabit Ethernet Switch

Managed Switch

Industrial Ethernet Switch



RES-1242P

IGS-9122GPM

Port Number	RES-1242P	IGS-9122GPM
Number of ports	26	Max:26
10/100Base-T(X) RJ45 Ports	24	-
10/100/1000Base-T(X) Ports	-	12
100Base-FX SFP Ports	2	-
100/1000Base-X SFP Ports	-	2
Gigabit Combo Ports	-	-
Power Redundancy		
DC Terminal Block	-	2
DC Power Jack	-	-
AC Power Cord	1	-
Installation		
DIN-Rail Mounting	-	•
Wall Mounting	-	-
Rack Mounting	•	-
Physical Characteristics		
Casing Protection	IP-20	IP-30
Dimensions (mm)	440(W) x 200(D) x 44(H)	184(W) x 155(D) x 150(H)
Operating Temperature		
-40 to 70°C	•	-
-40 to 75°C	-	•
-40 to 85°C	-	-
Network Redundancy		
0-Ring	-	•
Open-Ring	-	•
0-Chain	-	•
MRP*NOTE	-	•
MSTP/STP/RSTP	-	•
Management and Control		
802.1X	-	•
Rate Limit	-	•
Port Mirror	-	•
Port Security	-	•
IGMP v2/v3	-	•
QoS Port Base/COS/TOS	-	•
Port Trunk Static/LACP	-	•
LLDP	-	•
System Alarm	-	SYSLOG / SNMP Trap / Relay
DHCP	-	Server / Client / Relay
VLAN	-	Port-Based / 802.1Q / Q-in-Q
Management / Configuration	-	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)
Warranty	5 years	

*NOTE: This function is available by request only

Product Selection Guide

Industrial Rack-Mount Modular Ethernet Switch

Managed Switch

Industrial Ethernet Switch



	RGS-PR9000-A-LV	RGS-PR9000-A-LV (10G)	RGS-PR9000-A-HV	RGS-PR9000-A-HV (10G)
Port Number				
Number of ports	up to 24	up to 28	up to 24	up to 28
10/100/1000Base-T(X) Ports	-			
100Base-FX Fiber Ports	-			
1000Base-X Fiber Ports	-			
100/1000Base-X SFP Ports	-			
10G SFP+ Ports	-	4	-	4
Gigabit Combo Ports	-			
Power Redundancy				
DC Terminal Block	2		-	
DC Power Jack	-		-	
AC Power Cord	-		2	
Installation				
DIN-Rail Mounting	-			
Wall Mounting	-			
Rack Mounting	●			
Physical Characteristics				
Casing Protection	IP 30			
Dimensions (mm)	440(W) x 325(D) x 44(H)			
Operating Temperature				
-20 to 60°C		●		●
-40 to 85°C	●		●	
Network Redundancy				
0-Ring	●			
Open-Ring	-			
0-Chain	●			
MRP*NOTE	-			
MSTP(RSTP/STP Compliant)	●			
Management and Control				
Static Routing / RIP /VRRP	●			
802.1X	●			
Rate Limit	●			
Port Mirror	●			
Port Security	●			
IGMP v2/v3	●			
QoS Port Base/COS/TOS	●			
Port Trunk Static/LACP	●			
LLDP	●			
Static Routing	●			
IEEE 1588v2	●			
System Alarm	SYSLOG / SNMP Trap / Relay			
DHCP	Server / Client / Relay			
VLAN	Port-Based / 802.1Q / Q-in-Q			
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet /Console(CLI)			
Warranty	5 years			

Product Selection Guide

Industrial Rack-Mount Modular Ethernet Switch

Managed Switch

Industrial Ethernet Switch



	RGS-PR9000	RGS-P9000	RGS-R9244GP+/-E	
Port Number				
Number of ports	Max:28	Max:28	28	
10/100/1000Base-T(X) Ports	-	-	24	
100Base-FX Fiber Ports	-	-	-	
1000Base-X Fiber Ports	-	-	-	
100/1000Base-X SFP Ports	-	-	-	
1G/10G SFP+ Ports	-	-	4	
Gigabit Combo Ports	-	-	-	
Power Redundancy				
DC Terminal Block	2(LV)	2(LV)	-	2(-E)
DC Power Jack	-	-	-	-
AC Power Cord	2(HV)	2(HV)	1	1
Installation				
DIN-Rail Mounting	-	-	-	
Wall Mounting	-	-	-	
Rack Mounting	●	●	●	
Physical Characteristics				
Casing Protection	IP-30	IP-30	IP-30	
Dimensions (mm)	443.7(W) x 330(D) x 44(H)	443.7(W) x 330(D) x 44(H)	431 (W) x 342 (D) x 44 (H)	
Operating Temperature				
-20 to 60°C	-	-	●	
-40 to 70°C	-	-	-	
-40 to 85°C	●	●	-	
Network Redundancy				
0-Ring	●	●	●	
Open-Ring	●	●	●	
0-Chain	●	●	●	
MRP*NOTE	●	●	●	
MSTP(RSTP/STP Compliant)	●	●	●	
Management and Control				
Static Routing / RIP / VRRP	●	-	●	
802.1X	●	●	●	
Rate Limit	●	●	●	
Port Mirror	●	●	●	
Port Security	●	●	●	
IGMP v2/v3	●	●	●	
QoS Port Base/COS/TOS	●	●	●	
Port Trunk Static/LACP	●	●	●	
LLDP	●	●	●	
Static Routing	●	-	●	
IEEE 1588v2	●	●	●	
System Alarm	SYSLOG / SNMP Trap / Relay	Relay/SYSLOG / SNMP Trap / Relay	Relay/SYSLOG / SNMP Trap / Relay	
DHCP	Server / Client / Relay	Server / Client / Relay	Server / Client / Relay	
VLAN	Port-Based / 802.1Q / Q-in-Q	Port-Based / 802.1Q / Q-in-Q	Port-Based / 802.1Q / Q-in-Q	
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 /Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 /Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 /Telnet / Console(CLI)	
Warranty	5 years			

*NOTE: This function is available by request only

Product Selection Guide

Industrial Rack-Mount Modular Ethernet Switch

Managed Switch

Industrial Ethernet Switch



RGS-P9160GCM1

RGS-P9160GFM1

RGS-P9160FXM1

Port Number			
Number of ports	Max:24	Max:24	Max:24
10/100/1000Base-T(X) Ports	-	-	-
100Base-FX Fiber Ports	-	-	16
1000Base-X Fiber Ports	-	16	-
100/1000Base-X SFP Ports	-	-	-
1G/10G SFP+ Ports	-	-	-
Gigabit Combo Ports	16	-	-
Power Redundancy			
DC Terminal Block	-	-	-
DC Power Jack	-	-	-
AC Power Cord	-	-	-
Installation			
DIN-Rail Mounting	-	-	-
Wall Mounting	-	-	-
Rack Mounting	•	•	•
Physical Characteristics			
Casing Protection	IP-30	IP-30	IP-30
Dimensions (mm)	440(W) x 325(D) x 44(H)	440(W) x 325(D) x 44(H)	440(W) x 325(D) x 44(H)
Operating Temperature			
-20 to 60°C	-	-	-
-40 to 70°C	-	-	-
-40 to 85°C	•	•	•
Network Redundancy			
0-Ring	•	•	•
0-Chain	•	•	•
MRP*NOTE	•	•	•
MSTP(RSTP/STP Compliant)	•	•	•
Management and Control			
802.1X	•	•	•
Rate Limit	•	•	•
Port Mirror	•	•	•
Port Security	•	•	•
IGMP v2/v3	•	•	•
QoS Port Base/COS/TOS	•	•	•
Port Trunk Static/LACP	•	•	•
LLDP	•	•	•
System Alarm	SYSLOG / SNMP Trap / Relay	SYSLOG / SNMP Trap / Relay	SYSLOG / SNMP Trap / Relay
DHCP	Server / Client	Server / Client	Server / Client
VLAN	802.1Q	802.1Q	802.1Q
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)
Warranty	5 years		

Product Selection Guide

Industrial Rack-Mount Modular Ethernet Switch

Managed Switch

Industrial Ethernet Switch



RGS-P9160GCM2

RGS-P9160GFM2

RGS-P9160FXM2

Port Number			
Number of ports	Max:20	Max:20	Max:20
10/100/1000Base-T(X) Ports	-	-	-
100Base-FX Fiber Ports	-	-	16
1000Base-X Fiber Ports	-	16	-
100/1000Base-X SFP Ports	-	-	-
1G/10G SFP+ Ports	-	-	-
Gigabit Combo Ports	16	-	-
Power Redundancy			
DC Terminal Block	2(LV)	2(LV)	2(LV)
DC Power Jack	-	-	-
AC Power Cord	2(HV)	2(HV)	2(HV)
Installation			
DIN-Rail Mounting	-	-	-
Wall Mounting	-	-	-
Rack Mounting	•	•	•
Physical Characteristics			
Casing Protection	IP-30	IP-30	IP-30
Dimensions (mm)	440(W) x 325(D) x 44(H)	440(W) x 325(D) x 44(H)	440(W) x 325(D) x 44(H)
Operating Temperature			
-20 to 60°C	-	-	-
-40 to 70°C	-	-	-
-40 to 85°C	•	•	•
Network Redundancy			
O-Ring	•	•	•
O-Chain	•	•	•
MRP*NOTE	•	•	•
MSTP(RSTP/STP Compliant)	•	•	•
Management and Control			
802.1X	•	•	•
Rate Limit	•	•	•
Port Mirror	•	•	•
Port Security	•	•	•
IGMP v2/v3	•	•	•
QoS Port Base/COS/TOS	•	•	•
Port Trunk Static/LACP	•	•	•
LLDP	•	•	•
System Alarm	SYSLOG / SNMP Trap / Relay	SYSLOG / SNMP Trap / Relay	SYSLOG / SNMP Trap / Relay
DHCP	Server / Client	Server / Client	Server / Client
VLAN	802.1Q	802.1Q	802.1Q
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)
Warranty	5 years		

Product Selection Guide

Industrial Rack-Mount Modular Ethernet Switch

Accessories Module

Industrial Ethernet Switch



	SWM-80GT	SWM-08GP	SWM-04GP+_4	SWM-02GP+_4
Port Number				
Number of ports	8	8	4	2
10/100/1000Base-T(X) Ports	8	-	-	-
100Base-FX Fiber Ports	-	-	-	-
1000Base-X Fiber Ports	-	-	-	-
100/1000Base-X SFP Ports	-	8	-	-
10G SFP+ Ports	-	-	4	2
Gigabit Combo Ports	-	-	-	-
Power Redundancy				
DC Terminal Block	-	-	-	-
DC Power Jack	-	-	-	-
AC Power Cord	-	-	-	-
Installation				
DIN-Rail Mounting	-	-	-	-
Wall Mounting	-	-	-	-
Rack Mounting	Module Plug-in	Module Plug-in	Module Plug-in	Module Plug-in
Physical Characteristics				
Casing Protection	IP-30	IP-30	IP-30	IP-30
Dimensions (mm)	99(W) x 122(D) x 40.8(H)	99(W) x 122(D) x 40.8(H)	86.7(W) x 151.5(D) x 40.8(H)	86.7(W) x 151.5(D) x 40.8(H)
Operating Temperature				
-20 to 60°C	-	-	•	•
-40 to 85°C	•	•	-	-
Network Redundancy				
O-Ring	-	-	-	-
Open-Ring	-	-	-	-
O-Chain	-	-	-	-
MRP*NOTE	-	-	-	-
MSTP(RSTP/STP Compliant)	-	-	-	-
Management and Control				
802.1X	-	-	-	-
Rate Limit	-	-	-	-
Port Mirror	-	-	-	-
Port Security	-	-	-	-
IGMP v2/v3	-	-	-	-
QoS Port Base/COS/TOS	-	-	-	-
Port Trunk Static/LACP	-	-	-	-
LLDP	-	-	-	-
Static Routing	-	-	-	-
IEEE 1588v2	-	-	-	-
System Alarm	-	-	-	-
DHCP	-	-	-	-
VLAN	-	-	-	-
Management / Configuration	-	-	-	-
Warranty	5 years			

*NOTE: This function is available by request only

Product Selection Guide

Industrial Rack-Mount Modular Ethernet Switch

Accessories Module

Industrial Ethernet Switch



	SWM-04FX-MM-SC	SWM-04FX-MM-ST	SWM-04FX-SS-SC	SWM-04FX-SS-ST
Port Number				
Number of ports	4			
100Base-FX Fiber Ports	4			
Power Redundancy				
DC Terminal Block	-	-	-	-
DC Power Jack	-	-	-	-
AC Power Cord	-	-	-	-
Installation				
DIN-Rail Mounting	-	-	-	-
Wall Mounting	-	-	-	-
Rack Mounting	Module Plug-in	Module Plug-in	Module Plug-in	Module Plug-in
Physical Characteristics				
Casing Protection	IP-30	IP-30	IP-30	IP-30
Dimensions (mm)	99(W) x 122(D) x 40.8(H)	99(W) x 122(D) x 40.8(H)	86.7(W) x 151.5(D) x 40.8(H)	99(W) x 122(D) x 40.8(H)
Operating Temperature				
-40 to 70°C	-	-	-	-
-40 to 85°C	•	•	•	•
Network Redundancy				
Fiber mode	multi-mode	multi-mode	single-mode	single-mode
Connector Type	SC	ST	SC	ST
Data Rate	100Mbps	100Mbps	100Mbps	100Mbps
Typical Distance	2km	2km	30km	30km
Wavelength	1310nm	1310nm	1310nm	1310nm
Optical Output Power 9/125µm fiber (Max. TX)	-	-	-8dbm	-8dbm
Optical Output Power 9/125µm fiber (Min. TX)	-	-	-15dbm	-15dbm
Optical Output Power 62.5/125 µm fiber (Max. TX)	-14dbm	-14dbm	-	-
Optical Output Power 62.5/125 µm fiber (Min. TX)	-20dbm	-20dbm	-	-
Optical Output Power 50/125µm fiber (Max. TX)	-14dbm	-14dbm	-	-
Optical Output Power 50/125µm fiber (Min. TX)	-23.5dbm	-23.5dbm	-	-
Optical Input Power-minimum (Sensitivity)	-31dbm	-31dbm	-34dbm	-34dbm
Optical Input Power-maximum (Saturation)	0dbm	-8dbm	0dbm	0dbm
Link Budget	7.5db	8.5db	19db	19db
Warranty	5 years			

Product Selection Guide

Industrial Rack-Mount Modular Ethernet Switch

Accessories Module

Industrial Ethernet Switch



	SWM-04GF-MM-SC	SWM-04GF-MM-ST	SWM-04GF-SS-SC	SWM-04GF-SS-ST
Port Number				
Number of ports	4			
1000Base-X Fiber Ports	4			
Power Redundancy				
DC Terminal Block	-	-	-	-
DC Power Jack	-	-	-	-
AC Power Cord	-	-	-	-
Installation				
DIN-Rail Mounting	-	-	-	-
Wall Mounting	-	-	-	-
Rack Mounting	Module Plug-in	Module Plug-in	Module Plug-in	Module Plug-in
Physical Characteristics				
Casing Protection	IP-30	IP-30	IP-30	IP-30
Dimensions (mm)	99(W) x 122(D) x 40.8(H)	99(W) x 122(D) x 40.8(H)	99(W) x 122(D) x 40.8(H)	99(W) x 122(D) x 40.8(H)
Operating Temperature				
-40 to 70°C	-	-	-	-
-40 to 85°C	•	•	•	•
Network Redundancy				
Fiber mode	multi-mode	multi-mode-	single-mode	single-mode
Connector Type	SC	ST	SC	ST
Data Rate	1GMbps	1GMbps	1GMbps	1GMbps
Typical Distance	550m	550m	10km	10km
Wavelength	850nm	850nm	1310nm	1310nm
Optical Output Power 9/125µm fiber (Max. TX)	-	-	-3dbm	-3dbm
Optical Output Power 9/125µm fiber (Min. TX)	-	-	-9.5dbm	-9.5dbm
Optical Output Power 62.5/125 µm fiber (Max. TX)	-4dbm	-4dbm	-	-
Optical Output Power 62.5/125 µm fiber (Min. TX)	-9.5dbm	-9.5dbm-	-	-
Optical Output Power 50/125µm fiber (Max. TX)	-4dbm	-4dbm	-	-
Optical Output Power 50/125µm fiber (Min. TX)	-9.5dbm	-9.5dbm	-	-
Optical Input Power-minimum (Sensitivity)	-18dbm	-18dbm	-20dbm	-20dbm
Optical Input Power-maximum (Saturation)	0dbm	-8dbm	0dbm	0dbm
Link Budget	8.5db	8.5db	10.5db	10.5db
Warranty	5 years			

Product Selection Guide

Industrial Din-Rail Gigabit Ethernet Switch

Managed Switch

Industrial Ethernet Switch



IGS-9844GPF/IGS-9844GPFX

IGS-9812GP

IGS-9168GP

Port Number			
Number of ports	16		20
10/100Base-T(X) RJ45 Ports	-		-
10/100/1000Base-T(X) Ports	8		8
100Base-FX Fiber Ports	-	4	-
1000Base-X Fiber Ports	4	-	-
1000Base-X SFP Ports	-		-
100/1000Base-X SFP Ports	4		12
Gigabit Combo Ports	-		-
Power Redundancy			
DC Terminal Block	2		2
DC Power Jack	-		-
AC Power Cord	-		-
Installation			
DIN-Rail Mounting	•		•
Wall Mounting	•		•
Physical Characteristics			
Casing Protection	IP-30		IP-30
Dimensions (mm)	96.4(W)x105.5(D)x154(H)		96.4(W)x105.5(D)x154(H)
Operating Temperature			
-10 to 60°C	-		-
-40 to 70°C	-		-
-40 to 75°C	•		•
-40 to 85°C	-		-
Network Redundancy			
0-Ring	•		•
Open-Ring	•		•
0-Chain	•		•
MRP*NOTE	•		•
MSTP/RSTP/STP	•		•
Management and Control			
802.1X	•		•
Rate Limit	•		•
Port Mirror	•		•
Port Security	•		•
SNMP v1/v2/v3	•		•
IGMP v2/v3	•		•
QoS Port Base/COS/TOS	•		•
Port Trunk Static/LACP	•		•
LLDP	•		•
IEEE 1588v2	•		•
System Alarm	SYSLOG/ SNMP Trap / Relay		SYSLOG/ SNMP Trap / Relay
DHCP	Server / Client/ Relay		Server / Client/ Relay
VLAN	Port-Based / 802.1Q / Q-in-Q		Port-Based / 802.1Q / Q-in-Q
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)		WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)
Warranty			5 years

*NOTE: This function is available by request only

Product Selection Guide

Industrial Din-Rail Gigabit Ethernet Switch

Managed Switch

Industrial Ethernet Switch



IGS-9164GF/FX Series

IGS-9122GP

IGS-9084GP

Port Number	IGS-9164GF/FX Series		IGS-9122GP	IGS-9084GP
Number of ports	20		14	12
10/100Base-T(X) RJ45 Ports	-		-	-
10/100/1000Base-T(X) Ports	16		12	8
100Base-FX Fiber Ports	-	4(Multi)/Single Mode)	-	-
1000Base-X Fiber Ports	4(Multi)/Single Mode)		-	-
1000Base-FX SFP Ports	-		-	-
100/1000Base-X SFP Ports	-		2	4
Gigabit Combo Ports	-		-	-
Power Redundancy				
DC Terminal Block	2		2	2
DC Power Jack	-		-	-
AC Power Cord	-		-	-
Installation				
DIN-Rail Mounting	•		•	•
Wall Mounting	•		•	•
Physical Characteristics				
Casing Protection	IP-30		IP-30	IP-30
Dimensions (mm)	96.4(W)x105.5(D)x154(H)		74.3(W)x109.2(D)x153.6(H)	74.3(W)x109.2(D)x153.6(H)
Operating Temperature				
-10 to 60°C	-		-	-
-40 to 70°C	-		-	-
-40 to 75°C	•		•	•
Network Redundancy				
0-Ring	•		•	•
Open-Ring	•		•	•
0-Chain	•		•	•
MRP*NOTE	•		•	•
MSTP/RSTP/STP	•		•	•
Management and Control				
802.1X	•		•	•
Rate Limit	•		•	•
Port Mirror	•		•	•
Port Security	•		•	•
SNMP v1/v2/v3	•		•	•
IGMP v2/v3	•		•	•
QoS Port Base/COS/TOS	•		•	•
Port Trunk Static/LACP	•		•	•
LLDP	•		•	•
IEEE 1588v2	•		•	•
System Alarm	SYSLOG/ SNMP Trap / Relay		SYSLOG/ SNMP Trap / Relay	SYSLOG/ SNMP Trap / Relay
DHCP	Server / Client/ Relay		Server / Client/ Relay	Server / Client/ Relay
VLAN	Port-Based / 802.1Q / Q-in-Q		Port-Based / 802.1Q / Q-in-Q	Port-Based / 802.1Q / Q-in-Q
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 /Telnet / Console(CLI)		WEB / Windows Utility / SNMP v1,v2c,v3 /Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 /Telnet / Console(CLI)
Warranty	5 years			

*NOTE: This function is available by request only

Product Selection Guide

Industrial Ethernet Switch



IGS-9080 Series

IGS-9042GP

IGS-7084GCP

Port Number			
Number of ports	8	6	12
10/100Base-T(X) RJ45 Ports	-	-	-
10/100/1000Base-T(X) Ports	8	4	-
100Base-FX Fiber Ports	-	-	-
1000Base-X Fiber Ports	-	-	-
1000Base-FX SFP Ports	-	-	4
100/1000Base-X SFP Ports	-	2	-
Gigabit Combo Ports	-	-	8
Power Redundancy			
DC Terminal Block	2	2	2
DC Power Jack	-	-	-
AC Power Cord	-	-	-
Installation			
DIN-Rail Mounting	•	•	•
Wall Mounting	•	•	•
Physical Characteristics			
Casing Protection	IP-30	IP-30	IP-30
Dimensions (mm)	54.3(W)x108.5(D)x145.1(H)	54.3(W)x108.5(D)x145.1(H)	96.4(W)x105.5(D)x154(H)
Operating Temperature			
-10 to 60°C	-	-	-
-40 to 70°C	-	-	•
-40 to 75°C	•	•	-
Network Redundancy			
O-Ring	•	•	•
Open-Ring	•	•	•
O-Chain	•	•	•
MRP*NOTE	•	•	•
MSTP/RSTP/STP	•	•	•
Management and Control			
802.1X	•	•	•
Rate Limit	•	•	•
Port Mirror	•	•	•
Port Security	•	•	•
SNMP v1/v2/v3	•	•	•
IGMP v2/v3	•	•	•
QoS Port Base/COS/TOS	•	•	•
Port Trunk Static/LACP	•	•	•
LLDP	•	•	•
IEEE 1588v2	•	•	•
System Alarm	SYSLOG/ SNMP Trap / Relay	SYSLOG/ SNMP Trap / Relay	SYSLOG/ SNMP Trap / Relay
DHCP	Server / Client/ Relay	Server / Client/ Relay	Server / Client/ Relay
VLAN	Port-Based / 802.1Q / Q-in-Q	Port-Based / 802.1Q / Q-in-Q	Port-Based / 802.1Q / Q-in-Q
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 /Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 /Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 /Telnet / Console(CLI)
Warranty	5 years		

*NOTE: This function is available by request only

Product Selection Guide

Industrial Din-Rail Gigabit Ethernet Switch

Managed Switch

Industrial Ethernet Switch



IGS-R9812GP




IGS-P9812GP Series

IGS-P9164GF / FX / GC Series

Port Number			
Number of ports	20	20	20
10/100Base-T(X) RJ45 Ports	-	-	-
10/100/1000Base-T(X) Ports	8	8	16
100Base-FX Fiber Ports	-	-	- 4 -
1000Base-X Fiber Ports	-	-	4 - -
1000Base-X SFP Ports	-	-	- - -
100/1000Base-X SFP Ports	12	12	- - -
Gigabit Combo Ports	-	-	- - 4
Power Redundancy			
DC Terminal Block	2	2 (LV)	2 (LV)
DC Power Jack	-	-	-
AC Power Cord	-	2 (HV)	2 (HV)
Installation			
DIN-Rail Mounting	•	•	•
Wall Mounting	•	•	•
Physical Characteristics			
Casing Protection	IP-30	IP-30	IP-30
Dimensions (mm)	96.4(W)x145.5(D)x154(H)	115(W)x159(D)x154(H)	115(W)x159(D)x154(H)
Operating Temperature			
-10 to 60°C	-	-	-
-40 to 70°C	-	-	-
-40 to 75°C	•	•	•
-40 to 85°C	-	-	-
Network Redundancy			
O-Ring	•	•	•
Open-Ring	•	•	•
O-Chain	•	•	•
MRP*NOTE	•	•	•
MSTP/RSTP/STP	•	•	•
Management and Control			
Static Routing/RIP/RRP	SYSLOG/ SNMP Trap / Relay	•	-
802.1X	•	•	•
Rate Limit	•	•	•
Port Mirror	•	•	•
Port Security	•	•	•
SNMP v1/v2/v3	•	•	•
IGMP v2/v3	•	•	•
QoS Port Base/COS/TOS	•	•	•
Port Trunk Static/LACP	•	•	•
LLDP	•	•	•
IEEE 1588v2	•	•	•
System Alarm	SYSLOG/ SNMP Trap / Relay	SYSLOG/ SNMP Trap / Relay	SYSLOG/ SNMP Trap / Relay
DHCP	Server / Client/ Relay	Server / Client/ Relay	Server / Client/ Relay
VLAN	Port-Based / 802.1Q / Q-in-Q	Port-Based / 802.1Q / Q-in-Q	Port-Based / 802.1Q / Q-in-Q
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 /Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 /Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 /Telnet /Console(CLI)
Warranty	5 years		

*NOTE: This function is available by request only

Product Selection Guide

Industrial Ethernet Switch	Industrial DIN-Rail Gigabit Ethernet Switch		
	Managed Switch		Unmanaged Switch
			
	IGS-3044GC	IGS-3032GC	IGS-1082GP
Port Number			
Number of ports	8	5	10
10/100Base-T(X) RJ45 Ports	-	-	-
10/100/1000Base-T(X) Ports	4	3	8
100Base-FX Fiber Ports	-	-	-
1000Base-X Fiber Ports	-	-	-
1000Base-X SFP Ports	-	-	-
100/1000Base-X SFP Ports	-	-	2
Gigabit Combo Ports	4	2	-
Power Redundancy			
DC Terminal Block	2	2	2
DC Power Jack	-	1	-
AC Power Cord	-	-	-
Installation			
DIN-Rail Mounting	•	•	•
Wall Mounting	•	•	•
Physical Characteristics			
Casing Protection	IP-30	IP-30	IP-30
Dimensions (mm)	74.3(W)x109.2(D)x153.6(H)	54.2(W)x106.1(D)x145.4(H)	54.3(W)x108.3(D)x145.1(H)
Operating Temperature			
-10 to 60°C	-	-	-
-40 to 70°C	•	•	-
-40 to 75°C	-	-	•
Network Redundancy			
0-Ring	•	•	-
Open-Ring	•	•	-
0-Chain	•	•	-
MRP*NOTE	•	•	-
MSTP/RSTP/STP	•	•	-
Management and Control			
802.1X	•	•	-
Rate Limit	•	•	-
Port Mirror	•	•	-
Port Security	•	•	-
SNMP v1/v2/v3	•	•	-
IGMP v2/v3	•	•	-
QoS Port Base/COS/TOS	•	•	-
Port Trunk Static/LACP	•	•	-
LLDP	•	•	-
IEEE 1588v2	-	-	-
System Alarm	SYSLOG / SMTP / SNMP Trap / Relay	SYSLOG / SMTP / SNMP Trap / Relay	-
DHCP	Server / Client	Server / Client	-
VLAN	Port-Based / 802.1Q / Q-in-Q / GVRP	Port-Based / 802.1Q / Q-in-Q / GVRP	-
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	-
Warranty	5 years		

*NOTE: This function is available by request only

Product Selection Guide

Industrial DIN-Rail Gigabit Ethernet Switch

Unmanaged Switch

Industrial Ethernet Switch



IGS-1080A






IGS-1041GPA / 1050A

IGS-1042GPA

IGS-150B

Port Number					
Number of ports	8	5		6	5
10/100Base-T(X) RJ45 Ports	-			-	-
10/100/1000Base-T(X) Ports	8	4	5	4	5
100Base-FX Fiber Ports	-	-	-	-	-
1000Base-X Fiber Ports	-	-	-	-	-
1000Base-X SFP Ports	-	-	-	-	-
100/1000Base-X SFP Ports	-	1	-	2	-
Gigabit Combo Ports	-	-	-	-	-
Power Redundancy					
DC Terminal Block	2	2		2	2
DC Power Jack	-	-		-	-
AC Power Cord	-	-		-	-
Installation					
DIN-Rail Mounting	•	•		•	•
Wall Mounting	•	•		•	•
Physical Characteristics					
Casing Protection	IP-30	IP-30		IP-30	IP-30
Dimensions (mm)	26.1(W)x94.9(D)x144.3(H)	26.1(W)x94.9(D)x144.3(H)		26.1(W)x94.9(D)x144.3(H)	26.1(W)x70(D)x95(H)
Operating Temperature					
-10 to 60°C	-	-		-	-
-40 to 70°C	•	•		•	•
-40 to 85°C	-	-		-	-
Network Redundancy					
0-Ring	-	-		-	-
Open-Ring	-	-		-	-
0-Chain	-	-		-	-
MRP*NOTE	-	-		-	-
MSTP/RSTP/STP	-	-		-	-
Management and Control					
802.1X	-	-		-	-
Rate Limit	-	-		-	-
Port Mirror	-	-		-	-
Port Security	-	-		-	-
SNMP v1/v2/v3	-	-		-	-
IGMP v2/v3	-	-		-	-
QoS Port Base/COS/TOS	-	-		-	-
Port Trunk Static/LACP	-	-		-	-
LLDP	-	-		-	-
IEEE 1588v2	-	-		-	-
System Alarm	Relay	Relay		Relay	-
DHCP	-	-		-	-
VLAN	-	-		-	-
Management / Configuration	-	-		-	-
Warranty	5 years				

Product Selection Guide

Industrial DIN-Rail Fast Ethernet Switch					
Managed Switch					
Industrial Ethernet Switch					
	IES-3240	IES-3162GC	IES-3160	IES-P3073GC Series	IES-3073GC
Port Number					
Number of ports	24	18	16	10	10
10/100Base-T(X) RJ45 Ports	24	16	16	7	7
10/100/1000Base-T(X) Ports	-	-	-	-	-
100Base-FX Fiber Ports	-	-	-	-	-
1000Base-X Fiber Ports	-	-	-	-	-
100Base-FX SFP Ports	-	-	-	-	-
1000Base-X SFP Ports	-	-	-	-	-
Gigabit Combo Ports	-	2	-	3	3
Power Redundancy					
DC Terminal Block	2	2	2	2 (LV)	2
DC Power Jack	-	-	-	-	-
AC Power Cord	-	-	-	2 (HV)	-
Installation					
DIN-Rail Mounting	•	•	•	•	•
Wall Mounting	•	•	•	•	•
Rack Mounting	-	-	-	-	-
Physical Characteristics					
Casing Protection	IP-30	IP-30	IP-30	IP-30	IP-30
Dimensions (mm)	96.4(W)x108.5(D)x154(H)	96.4(W)x108.5(D)x154(H)	74.3(W)x109.2(D)x153.6(H)	96.4(W)x145.5(D)x154(H)	74.3(W)x109.2(D)x153.6(H)
Operating Temperature					
-10 to 60°C	-	-	-	-	-
-40 to 70°C	•	•	•	-	•
-40 to 85°C	-	-	-	•	-
Network Redundancy					
0-Ring	•	•	•	•	•
Open-Ring	•	•	•	•	•
0-Chain	•	•	•	•	•
STP/RSTP	•	•	•	•	•
MSTP	•	•	•	•	•
Management and Control					
802.1X	•	•	•	•	•
Rate Limit	•	•	•	•	•
Port Mirror	•	•	•	•	•
Port Security	•	•	•	•	•
IGMP v2/v3	•	•	•	•	•
QoS Port Base/COS/TOS	•	•	•	•	•
Port Trunk Static/LACP	•	•	•	•	•
LLDP	•	•	•	•	•
System Alarm	SYSLOG / SMTP / SNMP Trap / Relay	SYSLOG / SMTP / SNMP Trap / Relay	SYSLOG / SMTP / SNMP Trap / Relay	SYSLOG / SMTP / SNMP Trap / Relay	SYSLOG / SMTP / SNMP Trap / Relay
DHCP	Server / Client	Server / Client	Server / Client	Server / Client	Server / Client
VLAN	Port-Based / 802.1Q / Q-in-Q / GVRP	Port-Based / 802.1Q / Q-in-Q / GVRP	Port-Based / 802.1Q / Q-in-Q / GVRP	Port-Based / 802.1Q / Q-in-Q / GVRP	Port-Based / 802.1Q / Q-in-Q / GVRP
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)
Warranty	5 years				

Product Selection Guide

Industrial DIN-Rail Fast Ethernet Switch

Managed Switch

Industrial Ethernet Switch



IES-3082GC



IES-3082GP



IES-3062 Series / IES-3080

Port Number			
Number of ports	10	10	8
10/100Base-T(X) RJ45 Ports	8	8	6
10/100/1000Base-T(X) Ports	-	-	2
100Base-FX Fiber Ports	-	-	2 (Multi/Single-Mode)
1000Base-X Fiber Ports	-	-	2 (Multi/Single-Mode)
100Base-FX SFP Ports	-	-	-
1000Base-X SFP Ports	-	2	-
Gigabit Combo Ports	2	-	-
Power Redundancy			
DC Terminal Block	2	2	2
DC Power Jack	1	1	1
AC Power Cord	-	-	-
Installation			
DIN-Rail Mounting	•	•	•
Wall Mounting	•	•	-
Desktop	-	-	-
Physical Characteristics			
Casing Protection	IP-30	IP-30	IP-30
Dimensions (mm)	52(W)x106.1(D)x144.3(H)	52(W)x106.1(D)x144.3(H)	52(W)x106.1(D)x144.3(H)
Operating Temperature			
-10 to 60°C	-	-	-
-40 to 70°C	•	•	•
Network Redundancy			
O-Ring	•	•	•
Open-Ring	•	•	•
O-Chain	•	•	•
MRP*NOTE	•	•	•
MSTP/RSTP/STP	•	•	•
Management and Control			
802.1X	•	•	•
Rate Limit	•	•	•
Port Mirror	•	•	•
Port Security	•	•	•
IGMP v2/v3	•	•	•
QoS Port Base/COS/TOS	•	•	•
Port Trunk Static/LACP	•	•	•
LLDP	•	•	•
System Alarm	SYSLOG / SMTP / SNMP Trap / Relay	SYSLOG / SMTP / SNMP Trap / Relay	SYSLOG / SMTP / SNMP Trap / Relay
DHCP	Server / Client	Server / Client	Server / Client
VLAN	Port-Based / 802.1Q / Q-in-Q / GVRP	Port-Based / 802.1Q / Q-in-Q / GVRP	Port-Based / 802.1Q / Q-in-Q / GVRP
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)
Warranty	5 years		

*NOTE: This function is available by request only

Product Selection Guide

Industrial Ethernet Switch

Industrial DIN-Rail Fast Ethernet Switch

Lite-Managed Switch	Unmanaged Switch				
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IES-2060 / 2042FX Series



IES-2042PA



IES-2050A



IES-1240



IES-1162GC



IES-1160

Port Number						
Number of ports	6		6	5	24	18
10/100Base-T(X) RJ45 Ports	6	4	4	5	24	16
10/100/1000Base-T(X) Ports	-	-	-	-	-	-
100Base-FX Fiber Ports	-	2 (Multi/Single-Mode)	-	-	-	-
1000Base-X Fiber Ports	-	-	-	-	-	-
100Base-FX SFP Ports	-	2	-	-	-	-
1000Base-X SFP Ports	-	-	-	-	-	-
Gigabit Combo Ports	-	-	-	-	2	-
Power Redundancy						
DC Terminal Block	2	2	2	2	2	2
DC Power Jack	1	-	-	-	-	-
AC Power Cord	-	-	-	-	-	-
Installation						
DIN-Rail Mounting	•	•	•	•	•	•
Wall Mounting	•	•	•	•	•	•
Rack Mounting	-	-	-	-	-	-
Physical Characteristics						
Casing Protection	IP-30		IP-30	IP-30	IP-30	IP-30
Dimensions (mm)	52(W)x106.1(D)x144.3(H)		26.1(W)x94.9(D)x144.3(H)	26.1(W)x94.9(D)x144.3(H)	96.4(W)x108.5(D)x154(H)	96.4(W)x108.5(D)x154(H)
Operating Temperature						
-10 to 60°C	-	-	-	-	-	-
-40 to 70°C	•	•	•	•	•	•
Network Redundancy						
0-Ring	•	•	•	-	-	-
Open-Ring	•	•	•	-	-	-
0-Chain	•	•	•	-	-	-
STP/RSTP	•	•	•	-	-	-
MSTP	-	-	-	-	-	-
Management and Control						
802.1X	-	-	-	-	-	-
Rate Limit	-	-	-	-	-	-
Port Mirror	-	-	-	-	-	-
Port Security	-	-	-	-	-	-
IGMP v2/v3	-	-	-	-	-	-
QoS Port Base/COS/TOS	-	-	-	-	-	-
Port Trunk Static/LACP	-	-	-	-	-	-
LLDP	•	•	•	-	-	-
System Alarm	SYSLOG / SMTP / SNMP Trap / Relay		SYSLOG / SMTP / SNMP Trap / Relay	SYSLOG / SMTP / SNMP Trap / Relay	Relay	Relay
DHCP	Client		Client	Client	-	-
VLAN	Port-Based		Port-Based	Port-Based	-	-
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 /Telnet		WEB / Windows Utility / SNMP v1,v2c,v3 /Telnet	WEB / Windows Utility / SNMP v1,v2c,v3 /Telnet	-	-
Warranty	5 years					

Product Selection Guide

Industrial DIN-Rail Fast Ethernet Switch

Unmanaged Switch

Industrial Ethernet Switch



IES-1142P



IES-1082GP



IES-1062 Series / IES-1080



IES-1050A / 1080A

Port Number						
Number of ports	16	10	8		5	8
10/100Base-T(X) RJ45 Ports	14	8	6	8	5	8
10/100/1000Base-T(X) Ports	-	-	2	-	-	-
100Base-FX Fiber Ports	-	-	2 (Multi/Single-Mode)	-	-	-
1000Base-X Fiber Ports	-	-	2 (Multi/Single-Mode)	-	-	-
100Base-FX SFP Ports	2	-	-	-	-	-
1000Base-X SFP Ports	-	2	-	-	-	-
Gigabit Combo Ports	-	-	-	-	-	-
Power Redundancy						
DC Terminal Block	2	2	2	-	2	-
DC Power Jack	-	1	1	-	-	-
AC Power Cord	-	-	-	-	-	-
Installation						
DIN-Rail Mounting	•	•	•	-	•	-
Wall Mounting	-	•	•	-	•	-
Rack Mounting	-	-	-	-	-	-
Physical Characteristics						
Casing Protection	IP-30	IP-30	IP-30	-	IP-30	-
Dimensions (mm)	74(W)x140(D)x170(H)	52(W)x106.1(D)x144.3(H)	52(W)x106.1(D)x144.3(H)	-	26.1(W)x94.9(D)x144.3(H)	-
Operating Temperature						
-10 to 60°C	-	-	-	-	-	-
-40 to 70°C	•	•	•	-	•	-
Network Redundancy						
0-Ring	-	-	-	-	-	-
Open-Ring	-	-	-	-	-	-
0-Chain	-	-	-	-	-	-
STP/RSTP	-	-	-	-	-	-
MSTP	-	-	-	-	-	-
Management and Control						
802.1X	-	-	-	-	-	-
Rate Limit	-	-	-	-	-	-
Port Mirror	-	-	-	-	-	-
Port Security	-	-	-	-	-	-
IGMP v2/v3	-	-	-	-	-	-
QoS Port Base/COS/TOS	-	-	-	-	-	-
Port Trunk Static/LACP	-	-	-	-	-	-
LLDP	-	-	-	-	-	-
System Alarm	-	Relay	Relay	-	Relay	-
DHCP	-	-	-	-	-	-
VLAN	-	-	-	-	-	-
Management / Configuration	-	-	-	-	-	-
Warranty	5 years					

Product Selection Guide

Industrial DIN-Rail Fast Ethernet Switch

Unmanaged Switch

Industrial Ethernet Switch



IES-1041FX / 1042FX



IES-150B



IES-180B

Port Number			
Number of ports	5	6	5
10/100Base-T(X) RJ45 Ports	4		5
10/100/1000Base-T(X) Ports	-		-
100Base-FX Fiber Ports	1 (Multi/Single-Mode)	2 (Multi/Single-Mode)	-
1000Base-X Fiber Ports	-		-
100Base-FX SFP Ports	-		-
1000Base-X SFP Ports	-		-
Gigabit Combo Ports	-		-
Power Redundancy			
DC Terminal Block	2	2	2
DC Power Jack	-	-	-
AC Power Cord	-	-	-
Installation			
DIN-Rail Mounting	•	•	•
Wall Mounting	•	•	•
Rack Mounting	-	-	-
Physical Characteristics			
Casing Protection	IP-30	IP-30	IP-30
Dimensions (mm)	26.1(W)x94.9(D)x144.3(H)	26.1(W)x70(D)x95(H)	41(W)x90(D)x95(H)
Operating Temperature			
-10 to 60°C	-	-	-
-40 to 70°C	•	•	•
Network Redundancy			
0-Ring	-	-	-
Open-Ring	-	-	-
0-Chain	-	-	-
STP/RSTP	-	-	-
MSTP	-	-	-
Management and Control			
802.1X	-	-	-
Rate Limit	-	-	-
Port Mirror	-	-	-
Port Security	-	-	-
IGMP v2/v3	-	-	-
QoS Port Base/COS/TOS	-	-	-
Port Trunk Static/LACP	-	-	-
LLDP	-	-	-
System Alarm	Relay	-	-
DHCP	-	-	-
VLAN	-	-	-
Management / Configuration	-	-	-
Warranty	5 years		

Product Selection Guide

Industrial DIN-Rail Fast Ethernet Switch

Unmanaged Switch

Industrial Ethernet Switch



IES-180-L



IES-162FX-L Series

Port Number		
Number of ports	8	8
10/100Base-T(X) RJ45 Ports	8	6
10/100/1000Base-T(X) Ports	-	-
100Base-FX Fiber Ports	-	2 (Multi/Single-Mode)
1000Base-X Fiber Ports	-	-
100Base-FX SFP Ports	-	-
1000Base-X SFP Ports	-	-
Gigabit Combo Ports	-	-
Power Redundancy		
DC Terminal Block	1	1
DC Power Jack	-	-
AC Power Cord	-	-
Installation		
DIN-Rail Mounting	•	•
Wall Mounting	•	•
Rack Mounting	-	-
Physical Characteristics		
Casing Protection	IP-30	IP-30
Dimensions (mm)	41(W)x75(D)x115(H)	41(W)x83.98(D)x115(H)
Operating Temperature		
-20 to 60°C	•	•
-40 to 70°C	-	-
Network Redundancy		
0-Ring	-	-
Open-Ring	-	-
0-Chain	-	-
STP/RSTP	-	-
MSTP	-	-
Management and Control		
802.1X	-	-
Rate Limit	-	-
Port Mirror	-	-
Port Security	-	-
IGMP v2/v3	-	-
QoS Port Base/COS/TOS	-	-
Port Trunk Static/LACP	-	-
LLDP	-	-
System Alarm	-	-
DHCP	-	-
VLAN	-	-
Management / Configuration	-	-
Warranty	5 years	

Product Selection Guide

Industrial Ethernet Switch



Industrial Desktop Gigabit Ethernet Switch

Managed Switch

DGS-9812GP-A10_S Series

DGS-9168GP-A10_S Series

DGS-R9812GP-A10_S

Port Number			
Number of ports	20	24	20
10/100Base-T(X) RJ45 Ports	-	-	-
10/100/1000Base-T(X) Ports	8	16	8
100Base-FX Fiber Ports	-	-	-
1000Base-X Fiber Ports	-	-	-
Fiber bypass ports	2	2	2
100/1000Base-X SFP Ports	12	8	12
Gigabit Combo Ports	-	-	-
Power Redundancy			
DC Terminal Block	-	-	-
DC Power Jack	-	-	-
AC Power Cord	2 AC(one socket)	2 AC(one socket)	2 AC(one socket)
Installation			
DIN-Rail Mounting	-	-	-
Wall Mounting	-	-	-
Desktop	•	•	•
Physical Characteristics			
Casing Protection	IP-30	IP-30	IP-30
Dimensions (mm)	300(W)x165(D)x88(H)	300(W)x165(D)x88(H)	200(W)x130(D)x88(H)
Operating Temperature			
-10 to 60°C	-	-	-
-40 to 75°C	•	•	•
Network Redundancy			
O-Ring	•	•	•
Open-Ring	•	•	•
O-Chain	•	•	•
MRP ^{*NOTE}	•	•	•
MSTP/RSTP/STP	•	•	•
Management and Control			
Static Routing/RIP/VRRP	-	-	•
802.1X	•	•	•
Rate Limit	•	•	•
Port Mirror	•	•	•
Port Security	•	•	•
IGMP v2/v3	•	•	•
QoS Port Base/COS/TOS	•	•	•
IEEE1588v2	•	•	•
Port Trunk Static/LACP	•	•	•
LLDP	•	•	•
System Alarm	SYSLOG/SMTP/SNMP Trap/Relay	SYSLOG/SMTP/SNMP Trap/Relay	SYSLOG/SMTP/SNMP Trap/Relay
DHCP	Server/Client	Server/Client	Server/Client
VLAN	Port-Based/802.1Q/Q-in-Q/GVRP	Port-Based/802.1Q/Q-in-Q/GVRP	Port-Based/802.1Q/Q-in-Q/GVRP
Management/Configuration	WEB/Windows Utility/SNMP v1,v2c,v3/Telnet/Console(CLI)	WEB/Windows Utility/SNMP v1,v2c,v3/Telnet/Console(CLI)	WEB/Windows Utility/SNMP v1,v2c,v3/Telnet/Console(CLI)
Warranty	5 years		

*NOTE: This function is available by request only

Product Selection Guide

Industrial Desktop Fast Ethernet Switch

Managed Switch

Industrial Ethernet Switch



DES-3082GP-AIO_S Series



DES-3082GP-P



DES-3073GC-P

Port Number			
Number of ports	10	10	10
10/100Base-T(X) RJ45 Ports	8	8	7
10/100/1000Base-T(X) Ports	-	-	-
100Base-FX Fiber Ports	-	-	-
1000Base-X Fiber Ports	-	-	-
Fiber bypass ports	2	-	-
100/1000Base-X SFP Ports	2	2	2
Gigabit Combo Ports	-	-	3
Power Redundancy			
DC Terminal Block	-	-	-
DC Power Jack	-	-	-
AC Power Cord	2 AC(one socket)	1 AC(one socket)	2 AC(one socket)
Installation			
DIN-Rail Mounting	-	-	-
Wall Mounting	-	-	-
Desktop	•	•	•
Physical Characteristics			
Casing Protection	IP-30	IP-30	IP-30
Dimensions (mm)	300(W)x165(D)x88(H)	200(W)x130(D)x88(H)	150(W)x149(D)x70(H)
Operating Temperature			
-10 to 60°C	-	-	-
-40 to 70°C	•	•	•
Network Redundancy			
0-Ring	•	•	•
Open-Ring	•	•	•
0-Chain	•	•	•
MRP*NOTE	•	•	•
MSTP/RSTP/STP	•	•	•
Management and Control			
802.1X	•	•	•
Rate Limit	•	•	•
Port Mirror	•	•	•
Port Security	•	•	•
IGMP v2/v3	•	•	•
QoS Port Base/COS/TOS	•	•	•
PTP Client	•	•	•
Port Trunk Static/LACP	•	•	•
LLDP	•	•	•
System Alarm	SYSLOG/SMTP/SNMP Trap/Relay	SYSLOG/SMTP/SNMP Trap/Relay	SYSLOG/SMTP/SNMP Trap/Relay
DHCP	Server / Client	Server / Client	Server / Client
VLAN	Port-Based/802.1Q/Q-in-Q/GVRP	Port-Based/802.1Q/Q-in-Q/GVRP	Port-Based/802.1Q/Q-in-Q/GVRP
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)
Warranty	5 years		

*NOTE: This function is available by request only

Product Selection Guide

Industrial Gigabit PoE Ethernet Switch

Managed Rack-Mount Switch

Industrial Ethernet Switch



RGPS-R9244GP+-LP/P

RGPS-92222GCP-NP/LP/P Series

RGPS-9084GP-P

Port Number					
Number of ports	28	26			12
10/100Base-T(X) RJ45 Ports	-	-			-
10/100/1000Base-T(X) Ports	24 (P.S.E) IEEE 802.3 at (max.360/720 Watts)	22 (P.S.E) IEEE 802.3 at (max.720/320 Watts)			8 (P.S.E) IEEE 802.3 at (max 240 Watts)
100Base-FX Fiber Ports	-	-			-
1000Base-X SFP Ports	-	-			-
100/1000Base-X SFP Ports	-	2			4
10G SFP+	4	-			-
Gigabit Combo Ports	-	2(P.S.E.)			-
Power Redundancy					
DC Terminal Block	-	1	-	-	-
DC Power Jack	-	-	-	-	-
AC Power Cord	1	-	1	1	1
Installation					
Rack Mounting	•	•			•
Physical Characteristics					
Casing Protection	IP-20	IP-20			IP-20
Dimensions (mm)	431(W) x 342(D) x 44(H)	431(W) x 342(D) x 44(H)			443.7(W) x 230(D) x 44(H)
Operating Temperature					
-20 to 60°C	•	-			-
-40 to 60°C	-	•			-
-40 to 70°C	-	-			-
-40 to 75°C	-	-			•
Network Redundancy					
0-Ring	•	•			•
Open-Ring	•	•			•
0-Chain	•	•			•
MRP*NOTE	•	•			•
MSTP/RSTP/STP	•	•			•
Management and Control					
802.1X	•	•			•
Rate Limit	•	•			•
Port Mirror	•	•			•
Port Security	•	•			•
IGMP v2/v3	•	•			•
QoS Port Base/COS/TOS	•	•			•
Port Trunk Static/LACP	•	•			•
LLDP	•	•			•
IEEE 1588v2	•	-			•
System Alarm	SYSLOG / SNMP Trap	SYSLOG / SNMP Trap			SYSLOG / SNMP Trap
DHCP	Server / Client	Server / Client			Server / Client
VLAN	Port-Based / 802.1Q / Q-in-Q	Port-Based / 802.1Q / Q-in-Q			802.1Q
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 /Telnet /Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 /Telnet /Console(CLI)			WEB / Windows Utility / SNMP v1,v2c,v3 /Telnet /Console(CLI)
Warranty	5 years				

Product Selection Guide

Industrial Ethernet Switch



Port Number	IGPS-9842GTP/-24V	IGPS-9084GP	IGPS-9080/-24V	IGPS-9042GP-24V	IGPS-R9084GP
Number of ports	14	12	8	6	12
10/100Base-T(X) RJ45 Ports	-	-	-	-	-
10/100/1000Base-T(X) Ports	8 (P.S.E) IEEE 802.3 at (max 240 /120 Watts)+4	8 (P.S.E) IEEE 802.3 at	8 (P.S.E) IEEE 802.3 at (max 240 /120 Watts)	4 (P.S.E) IEEE 802.3 at	8 (P.S.E) IEEE 802.3 at
100Base-FX Fiber Ports	-	-	-	-	-
1000Base-X Fiber Ports	-	-	-	-	-
100Base-FX SFP Ports	-	-	-	-	-
100/1000Base-X SFP Ports	2	4	-	2	4(100/1000M)
Gigabit Combo Ports	-	-	-	-	-
Power Redundancy					
DC Terminal Block	2	2	2	2	2
DC Power Jack	-	-	-	-	-
AC Power Cord	-	-	-	-	-
Installation					
DIN-Rail Mounting	•	•	•	•	•
Wall Mounting	•	•	•	•	•
Rack Mounting	-	-	-	-	-
Physical Characteristics					
Casing Protection	IP-30	IP-30	IP-30	IP-30	IP-30
Dimensions (mm)	74.3(W)x109.2(D)x153.6(H)	96.4(W)x105.5(D)x154(H)	54.1(W)x106.1(D)x145.4(H)	54.1(W)x106.1(D)x145.4(H)	96.4(W)x145.5(D)x154(H)
Operating Temperature					
-40 to 60°C	-	-	-	-	-
-40 to 75°C	•	•	•	•	•
Network Redundancy					
O-Ring	•	•	•	•	•
Open-Ring	•	•	•	•	•
O-Chain	•	•	•	•	•
MRP ^{*NOTE}	•	•	•	•	•
MSTP/RSTP/STP	•	•	•	•	•
Management and Control					
Static Routing/RIP/VRP	-	-	-	-	•
802.1X	•	•	•	•	•
Rate Limit	•	•	•	•	•
Port Mirror	•	•	•	•	•
Port Security	•	•	•	•	•
IGMP v2/v3	•	•	•	•	•
QoS Port Base/COS/TOS	•	•	•	•	•
Port Trunk Static/LACP	•	•	•	•	•
LLDP	•	•	•	•	•
IEEE 1588v2	•	•	•	•	•
System Alarm	SYSLOG / SNMP Trap / Relay	SYSLOG / SNMP Trap / Relay	Relay / SYSLOG / SNMP Trap	Relay / SYSLOG / SNMP Trap	Relay / SYSLOG / SNMP Trap
DHCP	Server / Client / Relay	Server / Client / Relay	Server / Client / Relay	Server / Client / Relay	Server / Client / Relay
VLAN	Port-Based / 802.1Q / Q-in-Q	Port-Based / 802.1Q / Q-in-Q	Port-Based / 802.1Q / Q-in-Q	Port-Based / 802.1Q / Q-in-Q	Port-Based / 802.1Q / Q-in-Q
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c, v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c, v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c, v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c, v3 / Telnet / Console(CLI)
Warranty	5 years				

*NOTE: This function is available by request only

Product Selection Guide

Industrial Gigabit PoE Ethernet Switch

Unmanaged DIN-Rail Switch

Industrial Ethernet Switch



IGPS-1080-24V



IGPS-1080-24V-I



IGPS-1080A



IGPS-1042GPA

Port Number				
Number of ports	8	8	8	6
10/100Base-T(X) RJ45 Ports	-	-	-	-
10/100/1000Base-T(X) Ports	8 (P.S.E) IEEE 802.3 at (max 120 Watts)	8 (P.S.E) IEEE 802.3 at (max 120 Watts)	8 (P.S.E.) IEEE 802.3 at	4 (P.S.E.) IEEE 802.3at
100Base-FX Fiber Ports	-	-	-	-
1000Base-X Fiber Ports	-	-	-	-
100Base-FX SFP Ports	-	-	-	-
1000Base-X SFP Ports	-	-	-	2
Gigabit Combo Ports	-	-	-	-
Power Redundancy				
DC Terminal Block	2	2	2	2
DC Power Jack	-	-	-	-
AC Power Cord	-	-	-	-
Installation				
DIN-Rail Mounting	•	•	•	•
Wall Mounting	•	•	•	•
Rack Mounting	-	-	-	-
Physical Characteristics				
Casing Protection	IP-30	IP-30	IP-30	IP-30
Dimensions (mm)	41(W)x94.9(D)x144.3(H)	41(W)x94.9(D)x144.3(H)	26.1(W)x94.9(D)x144.3(H)	26.1(W)x94.9(D)x144.3(H)
Operating Temperature				
-40 to 60°C	-	-	-	-
-40 to 70°C	•	•	•	•
Network Redundancy				
O-Ring	-	-	-	-
Open-Ring	-	-	-	-
O-Chain	-	-	-	-
STP/RSTP	-	-	-	-
MSTP	-	-	-	-
Management and Control				
802.1X	-	-	-	-
Rate Limit	-	-	-	-
Port Mirror	-	-	-	-
Port Security	-	-	-	-
IGMP v2/v3	-	-	-	-
QoS Port Base/COS/TOS	-	-	-	-
Port Trunk Static/LACP	-	-	-	-
LLDP	-	-	-	-
System Alarm	Relay	Relay	Relay	Relay
DHCP	-	-	-	-
VLAN	-	-	-	-
Management / Configuration	-	-	-	-
Warranty				

Product Selection Guide

Industrial Gigabit PoE Ethernet Switch

Unmanaged DIN-Rail Switch

Industrial Ethernet Switch



IGPS-1042GP-24V



IGPS-1411GTP-24V




IGPS-1411GTPA



IGPS-1082GP Series

Port Number				
Number of ports	6	6	6	10
10/100Base-T(X) RJ45 Ports	-	-	-	-
10/100/1000Base-T(X) Ports	4 (P.S.E.) IEEE 802.3at	4 (P.S.E.) + 1 IEEE 802.3at	4 (P.S.E.) + 1 IEEE 802.3at	8 (P.S.E.) IEEE 802.3at
100Base-FX Fiber Ports	-	-	-	-
1000Base-X Fiber Ports	-	-	-	-
100/1000Base-X SFP Ports	2	1	1	2
Gigabit Combo Ports	-	-	-	-
Power Redundancy				
DC Terminal Block	2	2	2	2
DC Power Jack	-	-	-	-
AC Power Cord	-	-	-	-
Installation				
DIN-Rail Mounting	•	•	•	•
Wall Mounting	•	•	•	•
Rack Mounting	-	-	-	-
Physical Characteristics				
Casing Protection	IP-30	IP-30	IP-30	IP-30
Dimensions (mm)	41(W)x94.9(D)x144.3(H)	41(W)x94.9(D)x144.3(H)	26.1(W)x94.9(D)x144.3(H)	54.3(W)x108.3(D)x145.1(H)
Operating Temperature				
-40 to 60°C	-	•	-	-
-40 to 70°C	•	-	•	-
-40 to 75°C	-	•	-	•
Network Redundancy				
0-Ring	-	-	-	-
Open-Ring	-	-	-	-
0-Chain	-	-	-	-
STP/RSTP	-	-	-	-
MSTP	-	-	-	-
Management and Control				
802.1X	-	-	-	-
Rate Limit	-	-	-	-
Port Mirror	-	-	-	-
Port Security	-	-	-	-
IGMP v2/v3	-	-	-	-
QoS Port Base/COS/TOS	-	-	-	-
Port Trunk Static/LACP	-	-	-	-
LLDP	-	-	-	-
System Alarm	Relay	Relay	Relay	-
DHCP	-	-	-	-
VLAN	-	-	-	-
Management / Configuration	-	-	-	-
Warranty	5 years			

Product Selection Guide

	Industrial PoE Fast Ethernet Switch							
	Managed Switch	Lite-Managed Switch		Unmanaged Switch				
Industrial Ethernet Switch								
	IPS-3082GC-24V/AT	IPS-2042P	IPS-2042TX / 2042FX		IPS-1080A/24V	IPS-1042FA	IPS-1042FX-24V	
Port Number								
Number of ports	10	6	6		8		6	6
10/100Base-T(X) RJ45 Ports	8 (P.S.E.) IEEE802.3 af/at	4 (P.S.E.) IEEE802.3 af	2+4 (P.S.E.) IEEE802.3 af	4 (P.S.E.) IEEE802.3 af	8 (P.S.E.) IEEE802.3 at (max.180/120 Watts)		4 (P.S.E.) IEEE802.3 at	4 (P.S.E.) IEEE802.3 at
10/100/1000Base-T(X) Ports	-	-	-		-		-	-
100Base-FX Fiber Ports	-	-	-	2 (Multi/ Single- Mode)	-	-	2 (Multi/Single-Mode)	2 (Multi/Single-Mode)
100Base-FX SFP Ports	-	2	-		-		-	-
1000Base-X SFP Ports	-	-	-		-		-	-
Gigabit Combo Ports	2	-	-		-		-	-
Power Redundancy								
DC Terminal Block	2	2	2		2		2	2
DC Power Jack	-	1	1		-		-	-
Installation								
DIN-Rail Mounting	•	•	•		•		•	•
Wall Mounting	•	•	•		•		•	•
Physical Characteristics								
Casing Protection	IP-30	IP-30	IP-30		IP-30		IP-30	IP-30
Dimensions (mm)	74.3(W)x109.2(D)x153.6(H)	54.2(W)x106.1(D)x145.4(H)	54.2(W)x106.1(D)x145.4(H)		26.1(W)x94.9(D) x144.3(H)	41(W)x94.9(D) x144.3(H)	26.1(W)x94.9(D)x144.3(H)	41(W)x94.9(D)x144.3(H)
Operating Temperature								
-10 to 60°C	-	-	-		-		-	-
-40 to 60°C	-	-	-		-		-	-
-40 to 70°C	•	•	•		•		•	•
Network Redundancy								
0-Ring	•	•	•		-		-	-
Open-Ring	•	•	•		-		-	-
0-Chain	•	•	•		-		-	-
MRP*NOTE	•	-	-		-		-	-
MSTP/RSTP/STP	•	RSTP/STP	RSTP/STP		-		-	-
Management and Control								
802.1X	•	-	-		-		-	-
Rate Limit	•	-	-		-		-	-
Port Mirror	•	-	-		-		-	-
Port Security	•	-	-		-		-	-
IGMP v2/v3	•	-	-		-		-	-
QoS Port Base/COS/TOS	•	-	-		-		-	-
Port Trunk Static/LACP	•	-	-		-		-	-
LLDP	•	•	•		-		-	-
System Alarm	SYSLOG / SMTP / SNMP Trap / Relay	SYSLOG / SMTP / SNMP Trap / Relay	SYSLOG /SMTP /SNMP Trap /Relay		-		-	-
DHCP	Server / Client	Client	Client		-		-	-
VLAN	Port-Based/802.1Q/Q-in-Q/ GVRP	Port-Based	Port-Based		-		-	-
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet		-		-	-
Warranty	5 years							
Page	1-185/188	1-191	1-194		1-197/200		1-202	1-205

*NOTE: This function is available by request only

Product Selection Guide

Industrial IP-67 Ethernet Switch

Lite-Managed Switch

Industrial Ethernet Switch



IES-2050-M12



CPS-3080-C



CPS-3162GC-C

Port Number			
Number of ports	5	8	18
10/100Base-T(X) RJ45 Ports	5 (M12 A-coding)	8(in Compact PCI Socket)	8+8(in Compact PCI Socket)
10/100/1000Base-T(X) Ports	-	-	-
100Base-FX Fiber Ports	-	-	-
100Base-FX SFP Ports	-	-	-
1000Base-X SFP Ports	-	-	-
Gigabit Combo Ports	-	-	2
Power Redundancy			
DC Terminal Block	1(M12)	-	-
DC Power Jack	-	-	-
CompactPCI bus power	-	•	•
Installation			
DIN-Rail Mounting	•	-	-
Wall Mounting	•	-	-
CompactPCI Slot	-	•	•
Physical Characteristics			
Casing Protection	-	-	-
Dimensions (mm)	190 (W) x 40.5 (D) x 155 (H)	20 (W) x 20.9 (D) x 130.7 (H)	80 (W) x 209 (D) x 130.7 (H)
Operating Temperature			
-10 to 60°C	-	-	-
-20 to 70°C	-	-	-
-40 to 70°C	•	•	•
Network Redundancy			
0-Ring	•	•	•
Open-Ring	•	•	•
0-Chain	•	•	•
STP/RSTP	•	•	•
MSTP	-	•	•
Management and Control			
802.1X	-	•	•
Rate Limit	-	•	•
Port Mirror	-	•	•
Port Security	-	•	•
SNMP v1/v2/v3	-	•	•
QoS Port Base/COS/TOS	-	•	•
Port Trunk Static/LACP	-	•	•
LLDP	•	•	•
System Alarm	SYSLOG / SMTP / SNMP Trap	SYSLOG / SMTP / SNMP Trap	SYSLOG / SMTP / SNMP Trap
DHCP	Client	Client	Client
VLAN	Port-Based	Port-Based/802.1Q/Q-in-Q/GVRP	Port-Based/802.1Q/Q-in-Q/GVRP
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet/Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet/Console(CLI)
Warranty	5 years		

Product Selection Guide

Industrial Ethernet Switch

Card-Type Ethernet Switch

Managed Switch Industrial CompactPCI Ethernet Switch



CPGS-9080-C



CPGS-9120-C



CPGS-9120-M12-C



CPGS-9160-M12-C

Port Number				
Number of ports	8	12	12	16
10/100Base-T(X) RJ45 Ports	-	-	-	-
10/100/1000Base-T(X) Ports	8xCPCI interface	8xCPCI interface+4xRJ-45	8xCPCI interface+4xM12	8xCPCI interface+8xM12
100Base-FX Fiber Ports	-	-	-	-
100Base-FX SFP Ports	-	-	-	-
1000Base-X SFP Ports	-	-	-	-
Gigabit Combo Ports	-	-	-	-
Power Redundancy				
DC Terminal Block	-	-	-	-
DC Power Jack	-	-	-	-
CompactPCI bus power	•	•	•	•
Installation				
DIN-Rail Mounting	-	-	-	-
Wall Mounting	-	-	-	-
CompactPCI Slot	•	•	•	•
Physical Characteristics				
Casing Protection	-	-	-	-
Dimensions (mm)	20 (W) x 209 (D) x 130.7 (H)	40 (W) x 209 (D) x 130.7 (H)	40 (W) x 209 (D) x 130.7 (H)	81.7 (W) x 209 (D) x 130.7 (H)
Operating Temperature				
-10 to 60°C	-	-	-	-
-20 to 70°C	-	-	-	-
-40 to 70°C	•	•	•	•
Network Redundancy				
0-Ring	•	•	•	•
Open-Ring	•	•	•	•
0-Chain	•	•	•	•
MRP*NOTE	○	○	○	○
MSTP/RSTP/STP	•	•	•	•
Management and Control				
802.1X	•	•	•	•
Rate Limit	•	•	•	•
Port Mirror	•	•	•	•
Port Security	•	•	•	•
SNMP v1/v2/v3	•	•	•	•
QoS Port Base/COS/TOS	•	•	•	•
Port Trunk Static/LACP	•	•	•	•
LLDP	•	•	•	•
System Alarm	SYSLOG / SMTP / SNMP Trap	SYSLOG / SMTP / SNMP Trap	SYSLOG / SMTP / SNMP Trap	SYSLOG / SMTP / SNMP Trap
DHCP	Server / Client / Relay	Server / Client / Relay	Server / Client / Relay	Server / Client / Relay
VLAN	Port-Based / 802.1Q / Q-in-Q / GVRP	Port-Based / 802.1Q / Q-in-Q / GVRP	Port-Based / 802.1Q / Q-in-Q / GVRP	Port-Based / 802.1Q / Q-in-Q / GVRP
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)
Warranty	5years			

*NOTE: This function is available by request only

Product Selection Guide

Card-Type Ethernet Switch

Managed Switch Industrial CompactPCI Ethernet Switch

Industrial Ethernet Switch



CPGS-B9142ET-C



CPGS-B9142ET-M12-C

Port Number		
Number of ports	16	16
10/100Base-T(X) RJ45 Ports	-	-
10/100/1000Base-T(X) Ports	14-port (8-port with CompactPCI interface, 6-port with RJ45 connector)	14-port (8-port with CompactPCI interface, 6-port with M12 connector)
1000Base-X SFP Ports	-	-
2-Wire Extension Ports	2 (RJ-11)	2 (M12)
Power Redundancy		
DC Terminal Block		
DC Power Jack		
CompactPCI bus power	•	•
Installation		
DIN-Rail Mounting	-	-
Wall Mounting	-	-
CompactPCI bus	•	•
Physical Characteristics		
Casing Protection	-	-
Dimensions (mm)	81.7 (W) x 209 (D) x 129.0 (H)	81.7 (W) x 209 (D) x 129.0 (H)
Operating Temperature		
-10 to 60°C	-	-
-20 to 70°C	-	-
-40 to 70°C	•	•
Network Redundancy		
0-Ring	•	•
Open-Ring	•	•
0-Chain	•	•
MRP*NOTE	○	○
MSTP/RSTP/STP	•	•
Management and Control		
802.1X	•	•
Rate Limit	•	•
Port Mirror	•	•
Port Security	•	•
SNMP v1/v2/v3	•	•
QoS Port Base/COS/TOS	•	•
Port Trunk Static/LACP	•	•
LLDP	•	•
System Alarm	SYSLOG / SMTP / SNMP Trap	SYSLOG / SMTP / SNMP Trap
DHCP	Server / Client / Relay	Server / Client / Relay
VLAN	Port-Based / 802.1Q / Q-in-Q / GVRP	Port-Based / 802.1Q / Q-in-Q / GVRP
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)
Warranty	5 years	

*NOTE: This function is available by request only

Product Selection Guide

Industrial Ethernet Switch

Card-Type Ethernet Switch		
Industrial PCI Ethernet Switch	Industrial PCIe Gigabit Ethernet Switch	Industrial PCIe Gigabit PoE Ethernet Switch



ICS-4040



IGCS-E140



IGPCS-E140



IGPCS-E131GP

Port Number				
Number of ports	4	4	4	4
10/100Base-T(X) RJ45 Ports	4	-	-	-
10/100/1000Base-T(X) Ports	-	4	4 (P.S.E.) IEEE 802.3at(max.65 Watts)	3 (P.S.E.) IEEE 802.3at(max.65 Watts)
100Base-FX Fiber Ports	-	-	-	-
100Base-FX SFP Ports	-	-	-	-
100/1000Base-X SFP Ports	-	-	-	1
Gigabit Combo Ports	-	-	-	-
Power Redundancy				
DC Terminal Block	-	-	-	-
DC Power Jack	-	-	-	-
Card Bus Power	PCI bus	PCIe bus	PCIe bus	PCIe bus
Installation				
DIN-Rail Mounting	-	-	-	-
Wall Mounting	-	-	-	-
Card Slot	PCI	PCIe	PCIe	PCIe
Physical Characteristics				
Casing Protection	-	-	-	-
Dimensions (mm)	121(W) x 100(D)	21.3(W)x136(D)x121(H)	21.3(W)x178(D)x121(H)	21.3(W)x178(D)x121(H)
Operating Temperature				
-10 to 60°C	•	•	•	•
-20 to 70°C	-	-	-	-
-40 to 70°C	-	-	-	-
Network Redundancy				
0-Ring	•	-	-	-
Open-Ring	•	-	-	-
0-Chain	•	-	-	-
STP/RSTP	-	-	-	-
MSTP	•	-	-	-
Management and Control				
802.1X	-	-	-	-
Rate Limit	-	-	-	-
Port Mirror	-	-	-	-
Port Security	-	-	-	-
SNMP v1/v2/v3	-	-	-	-
QoS Port Base/COS/TOS	-	-	-	-
Port Trunk Static/LACP	-	-	-	-
LLDP	•	-	-	-
System Alarm	SYSLOG / SMTP / SNMP Trap	-	-	-
DHCP	Client	-	-	-
VLAN	Port-Based	-	-	-
Management / Configuration	WEB / Windows Utility / SNMP v1,v2,v3 / Telnet	-	-	-
Warranty	5 years			

Product Selection Guide

Industrial Ethernet Switch

Optical / PoE Network Accessories				
Optical Bypass Switch	PoE Injector			



IBS-102FX-MM/SS-LC





INJ-102GT/24V

INJ-102GT+/+24V

INJ-101GT+/+60W

Port Number					
Number of ports	4	4		4	1
10/100Base-T(X) RJ45 Ports	-	-	-	-	-
10/100/1000Base-T(X) RJ45 Ports	-	2		2	1
PoE+(30 Watts) Output Ports	-	2 (P.S.E.)		-	-
PoE++(60 Watts) Output Ports	-	-	-	-	1(P.S.E.)
PoE++(90 Watts) Output Ports	-	-	-	2 (P.S.E.)	-
100/1G/10G Fiber Ports	-	-	-	-	-
Optical Bypass ports	4 (LC connector)	-	-	-	-
Power Redundancy					
DC Terminal Block	1	1	1	1	1
DC Power Jack	1	-	-	-	-
Operating Voltage	-	50-57VDC	12-57VDC	50-57VDC	12-57VDC
Output Power	-	30 Watts Per Port		90 Watts per port	90 Watts in total
60 Watts					
Installation					
DIN-Rail Mounting	•	•		•	•
Wall Mounting	•	•		•	•
PCIe Slot	-	-		-	-
Physical Characteristics					
Casing Protection	IP-30	IP-30	IP-30	IP-30	IP-30
Dimensions (mm)	26.1(W)x94.9(D)x144.3(H)	26.1(W)x70(D)x95(H)	40(W)x70(D)x95(H)	40(W)x70(D)x95(H)	26.1(W)x70(D)x95(H)
Operating Temperature					
-20 to 70°C		•		•	-
-40 to 70°C	•	-		-	-
-40 to 75°C	-	-		-	•
Network Redundancy					
O-Ring	-	-		-	-
Open-Ring	-	-		-	-
O-Chain	-	-		-	-
STP/RSTP	-	-		-	-
MSTP	-	-		-	-
Management and Control					
802.1X	-	-		-	-
Rate Limit	-	-		-	-
Port Mirror	-	-		-	-
Port Security	-	-		-	-
SNMP v1/v2/v3	-	-		-	-
QoS Port Base/COS/TOS	-	-		-	-
Port Trunk Static/LACP	-	-		-	-
LLDP	-	-		-	-
System Alarm	Relay	-		-	-
DHCP	-	-		-	-
VLAN	-	-		-	-
Management / Configuration	-	-		-	-
Warranty	5 years				

Product Selection Guide

Industrial Ethernet Switch	Optical / PoE Network Accessorie			
	PoE Splitter		EN50155 PoE Injector	
				
	SPL-101GT	SPL-101GT-12V	TINJ-101GT-M12/24V	TINJ-101-M12/24V
Port Number				
Number of ports	2	2	2(M12)	2(M12)
10/100Base-T(X) RJ45 Ports	-	-	-	1 (M12)
10/100/1000Base-T(X) RJ45 Ports	1	1	1 (M12)	-
PoE+(30 Watts) Ports	1(P.D.)	1(P.D.)	1 (P.S.E.)	1 (P.S.E.)
PoE++(90 Watts) Ports	-	-	-	-
100/1G/10G Fiber Ports	-	-	-	-
Optical Bypass ports	-	-	-	-
Power Redundancy				
DC Terminal Block	1 (24VDC output)	1 (12VDC output)	1	1
DC Power Jack	-	-	-	-
Operating Voltage	36-57VDC	36-57VDC	50-57VDC	50-57VDC
Output Power	24V@0.9A MAX	12V@1.8A MAX	30 Watts Max.PerPort	30 Watts Max.PerPort
Installation				
DIN-Rail Mounting	•	•	•	•
Wall Mounting	•	•	•	•
PCIe Slot	-	-	-	-
Physical Characteristics				
Casing Protection	IP-30	IP-30	IP-30	IP-30
Dimensions (mm)	26.1(W)x70(D)x95(H)	26.1(W)x70(D)x95(H)	88.9(W)x40(D)x178.2(H)	88.9(W)x40(D)x178.2(H)
Operating Temperature				
-10 to 60°C	-	-	-	-
-20 to 70°C	•	•	-	-
-25 to 70°C	-	-	•	•
Network Redundancy				
0-Ring	-	-	-	-
Open-Ring	-	-	-	-
0-Chain	-	-	-	-
STP/RSTP	-	-	-	-
MSTP	-	-	-	-
Management and Control				
802.1X	-	-	-	-
Rate Limit	-	-	-	-
Port Mirror	-	-	-	-
Port Security	-	-	-	-
SNMP v1/v2/v3	-	-	-	-
QoS Port Base/COS/TOS	-	-	-	-
Port Trunk Static/LACP	-	-	-	-
LLDP	-	-	-	-
System Alarm	-	-	-	-
DHCP	-	-	-	-
VLAN	-	-	-	-
Management / Configuration	-	-	-	-
Warranty	5 years			

Product Selection Guide

Industrial EN50155 Ethernet Switch

Managed Switch

Industrial Ethernet Switch



TES-3162GT-M12-BP1



TES-3082GT-M12-BP1







TES-3080-M12 / -BP2

Port Number			
Number of ports	18	10	8
10/100Base-T(X) M12 D-Coding Ports	16	8	8
10/100/1000Base-T(X) M12 A-Coding Ports	2(1-pair bypass)	2	4+4(2-pair bypass)
100Base-FX Fiber Ports	-	-	-
1000Base-X Fiber Ports	-	-	-
Gigabit Combo Ports	-	-	-
Power Redundancy			
On M12 Connector	-	-	-
On M23 Connector	2(M23)	2(M23)	2(M23)
Installation			
DIN-Rail Mounting	-	-	-
Wall Mounting	•	•	•
Physical Characteristics			
Casing Protection	IP-40	IP-40	IP-40
Dimensions (mm)	260(W) x 91.3(D) x 216(H)	170(W) x 75(D) x 196(H)	125(W) x 65(D) x 196(H)
Operating Temperature			
-10 to 60°C	-	-	-
-40 to 70°C	•	•	•
Network Redundancy			
0-Ring	•	•	•
Open-Ring	•	•	•
0-Chain	•	•	•
MRP*NOTE	○	○	○
MSTP/RSTP/STP	•	•	•
Management and Control			
802.1X	•	•	•
Rate Limit	•	•	•
Port Mirror	•	•	•
Port Security	•	•	•
IGMP v2/v3	•	•	•
QoS Port Base/COS/TOS	•	•	•
Port Trunk Static/LACP	•	•	•
LLDP	•	•	•
System Alarm	SYSLOG / SMTP / SNMP Trap / Relay	SYSLOG / SMTP / SNMP Trap / Relay	SYSLOG / SMTP / SNMP Trap / Relay
DHCP	Server / Client / Relay	Server / Client / Relay	Server / Client / Relay
VLAN	Port-Based/802.1Q/Q-in-Q/GVRP	Port-Based/802.1Q/Q-in-Q/GVRP	Port-Based/802.1Q/Q-in-Q/GVRP
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console (CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console (CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console (CLI)
Warranty	5 years		

*NOTE: This function is available by request only

Product Selection Guide

Industrial EN50155 Ethernet Switch				
Lite-Managed Switch		Unmanaged Switch		
Industrial Ethernet Switch				
	TES-250-M12	TES-1080-M12 / -BP2	TES-180-M12	TES-150-M12
Port Number				
Number of ports	5	8	8	5
10/100Base-T(X) M12 D-Coding Ports	5	8	8	5
10/100/1000Base-T(X) M12 A-Coding Ports	-	-	-	-
100Base-FX Fiber Ports	-	-	-	-
1000Base-X Fiber Ports	-	-	-	-
Gigabit Combo Ports	-	-	-	-
Power Redundancy				
On M12 Connector	1(M12)	-	1(M12)	1(M12)
On M23 Connector	-	2(M23)	-	-
Installation				
DIN-Rail Mounting	-	-	-	-
Wall Mounting	•	•	•	•
Physical Characteristics				
Casing Protection	IP-40	IP-40	IP-40	IP-40
Dimensions (mm)	89(W) x 40(D) x 178(H)	125(W) x 65(D) x 196(H)	88.9(W) x 40(D) x 178.2(H)	89(W) x 40(D) x 178(H)
Operating Temperature				
-10 to 60°C	-	-	-	-
-40 to 70°C	•	•	•	•
Network Redundancy				
O-Ring	•	-	-	-
Open-Ring	•	-	-	-
O-Chain	•	-	-	-
MRP*NOTE	-	-	-	-
MSTP/RSTP/STP	RSTP/STP	-	-	-
Management and Control				
802.1X	-	-	-	-
Rate Limit	-	-	-	-
Port Mirror	-	-	-	-
Port Security	-	-	-	-
IGMP v2/v3	-	-	-	-
QoS Port Base/COS/TOS	-	-	-	-
Port Trunk Static/LACP	-	-	-	-
LLDP	•	-	-	-
System Alarm	SYSLOG/SMTP/SNMP Trap	Relay	-	-
DHCP	Client	-	-	-
VLAN	Port-Based	-	-	-
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet	-	-	-
Warranty				

*NOTE: This function is available by request only

Product Selection Guide

Industrial EN50155 PoE Ethernet Switch

Managed Switch

Industrial Ethernet Switch



TPS-9168GT-M12

TPS-3882GT-M12-BP1/-24V

TPS-3162GT-M12-BP1/-24V

TPS-3044TX-M12

Port Number				
Number of ports	24	18	18	8
10/100Base-T(X) M12 D-Coding Ports	16 (P.S.E.)+8 IEEE 802.3 af	8 (P.S.E.)+8 IEEE 802.3 af	16 (P.S.E.) IEEE 802.3 af	4 (P.S.E.)+4 IEEE 802.3 af
10/100/1000Base-T(X) M12 A-Coding Ports	8	2(1-pair Bypass)	2(1-pair Bypass)	-
100Base-FX Fiber Ports	-	-	-	-
1000Base-X Fiber Ports	-	-	-	-
100Base-FX SFP Ports	-	-	-	-
1000Base-X SFP Ports	-	-	-	-
Gigabit Combo Ports	-	-	-	-
Power Redundancy				
On M12 Connector	-	-	-	-
On M23 Connector	2(M23)	2(M23)	2(M23)	2(M23)
Installation				
DIN-Rail Mounting	-	-	-	-
Wall Mounting	•	•	•	•
Physical Characteristics				
Casing Protection	IP-40	IP-40	IP-40	IP-40
Dimensions (mm)	320(W) x 91.3(D) x 228(H)	260(W) x 91.3(D) x 216(H)	260(W) x 91.3(D) x 216(H)	170(W) x 75(D) x 196(H)
Operating Temperature				
-40 to 70°C	-	•	•	•
-40 to 75°C	•	-	-	-
Network Redundancy				
O-Ring	•	•	•	•
Open-Ring	-	•	•	•
O-Chain	•	•	•	•
MRP*NOTE	○	○	○	○
MSTP/RSTP/STP	•	•	•	•
Management and Control				
802.1X	•	•	•	•
Rate Limit	•	•	•	•
Port Mirror	•	•	•	•
Port Security	•	•	•	•
IGMP v2/v3	•	•	•	•
QoS Port Base/COS/TOS	•	•	•	•
Port Trunk Static/LACP	•	•	•	•
LLDP	•	•	•	•
System Alarm	SYSLOG / SMTP / SNMP Trap / Relay	SYSLOG / SMTP / SNMP Trap / Relay	SYSLOG / SMTP / SNMP Trap / Relay	SYSLOG / SMTP / SNMP Trap / Relay
DHCP	Server / Client / Relay	Server / Client / Relay	Server / Client / Relay	Server / Client / Relay
VLAN	Port-Based/802.1Q/Q-in-Q/GVRP	Port-Based/802.1Q/Q-in-Q/GVRP	Port-Based/802.1Q/Q-in-Q/GVRP	Port-Based/802.1Q/Q-in-Q/GVRP
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console (CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console (CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console (CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console (CLI)
Warranty	5 years			

* Provide 2pairs of HW Bypass ports.

*NOTE: This function is available by request only

Product Selection Guide

Industrial Ethernet Switch

Industrial EN50155 PoE Ethernet Switch

Managed Switch



TPS-3082GT-M12-BP1



TPS-3082GT-M12X-BP1



TPS-3082GF-MM-M12-Q0DC



TPS-B3082ET-M12-BP1

Port Number				
Number of ports	10	10	10	10
10/100Base-T(X) M12 D-Coding Ports	8 (P.S.E.) IEEE 802.3 af	8 (P.S.E.) IEEE 802.3 at	8 (P.S.E.) IEEE 802.3 af	8 (P.S.E.) IEEE 802.3 af
10/100/1000Base-T(X) M12 A-Coding Ports	2(1-pair Bypass)D-Coding	-	-	-
1000Base-X Fiber Ports	-	-	2(Q0DC)	-
10/100/1000Base-T(X) ports in M12 X-coding Ports	-	2 x M12 connector (8-pin X-coding)	-	-
Gigabit Combo Ports	-	-	-	-
Extension ports	-	-	-	2
Power Redundancy				
On M12 Connector	-	-	-	-
On M23 Connector	2	2	2	2
Installation				
DIN-Rail Mounting	-	-	-	-
Wall Mounting	•	•	•	•
Physical Characteristics				
Casing Protection	IP-40	IP-40	IP-40	IP-40
Dimensions (mm)	170(W) x 75(D) x 196(H)	212(W) x 75(D) x 198(H)	212(W) x 75(D) x 198(H)	212(W) x 75(D) x 198(H)
Operating Temperature				
-40 to 70°C	•	-	-	-
-40 to 75°C	-	•	•	•
Network Redundancy				
0-Ring	•	•	•	•
Open-Ring	•	•	•	•
0-Chain	•	•	•	•
MRP*NOTE	○	○	○	○
MSTP/RSTP/STP	•	•	•	•
Management and Control				
802.1X	•	•	•	•
Rate Limit	•	•	•	•
Port Mirror	•	•	•	•
Port Security	•	•	•	•
IGMP v2/v3	•	•	•	•
QoS Port Base/COS/TOS	•	•	•	•
Port Trunk Static/LACP	•	•	•	•
LLDP	•	•	•	•
System Alarm	SYSLOG / SMTP / SNMP Trap / Relay	SYSLOG / SMTP / SNMP Trap / Relay	SYSLOG / SMTP / SNMP Trap / Relay	SYSLOG / SMTP / SNMP Trap / Relay
DHCP	Server / Client / Relay	Server / Client / Relay	Server / Client / Relay	Server / Client / Relay
VLAN	Port-Based/802.1Q/Q-in-Q/GVRP	Port-Based/802.1Q/Q-in-Q/GVRP	Port-Based/802.1Q/Q-in-Q/GVRP	Port-Based/802.1Q/Q-in-Q/GVRP
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console (CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console (CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console (CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console (CLI)
Warranty	5 years			

* Provide 2pairs of HW Bypass ports.

*NOTE: This function is available by request only

Industrial EN50155 PoE Ethernet Switch

Unmanaged Switch

Industrial Ethernet Switch



TPS-141TX-M12 Series



TPS-1080-M12-BP2/-24V



TPS-1080-M12/-24V

Port Number					
Number of ports	5	8		8	
10/100Base-T(X) M12 D-Coding Ports	4 (P.S.E.) + 1 IEEE 802.3 at	8 (P.S.E.)(2-pair bypass) IEEE 802.3 at	8 (P.S.E.)(2-pair bypass) IEEE 802.3 at (max.120W)	8 (P.S.E.) IEEE 802.3 at	8 (P.S.E.) IEEE 802.3 at (max.120W)
10/100/1000Base-T(X) M12 A-Coding Ports	-	-		-	
100Base-FX Fiber Ports	-	-		-	
1000Base-X SFP Ports	-	-		-	
Gigabit Combo Ports	-	-		-	
Extension ports	-	-		-	
Power Redundancy					
On M12 Connector	1	-		-	
On M23 Connector	-	2		2	
Installation					
DIN-Rail Mounting	-	-		-	
Wall Mounting	●	●		●	
Physical Characteristics					
Casing Protection	IP-40	IP-40		IP-40	
Dimensions (mm)	89(W) x 40(D) x 178(H) / 89(W) x 55(D) x 178(H) 24V/MV	125(W) x 65(D) x 196(H)		125(W) x 65(D) x 196(H)	
Operating Temperature					
-40 to 75°C	●	●		●	
Network Redundancy					
O-Ring	-	-		-	
Open-Ring	-	-		-	
O-Chain	-	-		-	
MRP*NOTE	-	-		-	
MSTP/RSTP/STP	-	-		-	
Management and Control					
802.1X	-	-		-	
Rate Limit	-	-		-	
Port Mirror	-	-		-	
Port Security	-	-		-	
IGMP v2/v3	-	-		-	
QoS Port Base/COS/TOS	-	-		-	
Port Trunk Static/LACP	-	-		-	
LLDP	-	-		-	
System Alarm	-	Relay		Relay	
DHCP	-	-		-	
VLAN	-	-		-	
Management / Configuration	-	-		-	
Warranty					

*NOTE: This function is available by request only

Product Selection Guide

Industrial EN50155 Gigabit Ethernet Switch			
Managed Switch		Unmanaged Switch	
Industrial Ethernet Switch			
	TGS-9200-M12 / -BP2	TGS-9120-M12 / -BP2	TGS-1080-M12 / -BP2
Port Number			
Number of ports	20	12	8
10/100Base-T(X) M12 D-Coding Ports	-	-	-
10/100/1000Base-T(X) M12 A-Coding Ports	20/ 16+4(2-Pair HW bypass)	12/ 8+4(2-Pair HW bypass)	8/ 4+4(2-Pair HW bypass)
100Base-FX Fiber Ports	-	-	-
1000Base-X Fiber Ports	-	-	-
100Base-FX SFP Ports	-	-	-
1000Base-X SFP Ports	-	-	-
Gigabit Combo Ports	-	-	-
Power Redundancy			
On M12 Connector	-	-	-
On M23 Connector	2(M23)	2(M23)	2(M23)
Installation			
DIN-Rail Mounting	-	-	-
Wall Mounting	•	•	•
Physical Characteristics			
Casing Protection	IP-30	IP-30	IP-40
Dimensions (mm)	260(W) x 91.3(D) x 216(H)	260(W) x 91.3(D) x 216(H)	125(W) x 65(D) x 196(H)
Operating Temperature			
-10 to 60°C	-	-	-
-40 to 70°C	•	•	•
Network Redundancy			
0-Ring	•	•	-
Open-Ring	•	•	-
0-Chain	•	•	-
MRP*NOTE	○	○	-
MSTP/RSTP/STP	•	•	-
Management and Control			
802.1X	•	•	-
Rate Limit	•	•	-
Port Mirror	•	•	-
Port Security	•	•	-
IGMP v2/v3	•	•	-
QoS Port Base/COS/TOS	•	•	-
Port Trunk Static/LACP	•	•	-
LLDP	•	•	-
IEEE 1588v2	•	•	-
System Alarm	SYSLOG/SMTP/SNMP Trap/Relay	SYSLOG/SMTP/SNMP Trap/Relay	Relay
DHCP	Server / Client/Relay	Server / Client/Relay	-
VLAN	Port-Based/802.1Q/Q-in-Q/GVRP	Port-Based/802.1Q/Q-in-Q/GVRP	-
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console (CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console (CLI)	-
Warranty	5 years		

*NOTE: This function is available by request only

Product Selection Guide

Industrial EN50155 Gigabit PoE Ethernet Switch

Managed Switch

Industrial Ethernet Switch



TGPS-9168GT-M12

TGPS-9164GT-M12 / -24V

TGPS-9164GT-M12-BP2 / -24V

Port Number				
Number of ports	24		20	
10/100/1000Base-T(X) M12 A-Coding P.S.E. Ports	16 IEEE 802.3 af		16 IEEE 802.3 af	16 IEEE 802.3 af (max.120W)
10/100/1000Base-T(X) M12 A-Coding Ports	8		4	
100Base-FX Fiber Ports	-		-	
1000Base-X Fiber Ports	-		-	
100Base-FX SFP Ports	-		-	
1000Base-X SFP Ports	-		-	
Gigabit Combo Ports	-		-	
Power Redundancy				
On M12 Connector	-		-	
On M23 Connector	2(M23)		2(M23)	
Installation				
DIN-Rail Mounting	-		-	
Wall Mounting	•		•	
Physical Characteristics				
Casing Protection	IP-30		IP-30	
Dimensions (mm)	320(W) x 91.3(D)x 228(H)		260(W) x 91.3(D)x 216(H)	
Operating Temperature				
-10 to 60°C	-		-	
-40 to 75°C	•		•	
Network Redundancy				
O-Ring	•		•	
Open-Ring	•		•	
O-Chain	•		•	
MRP*NOTE	○		○	
MSTP/RSTP/STP	•		•	
Management and Control				
802.1X	•		•	
Rate Limit	•		•	
Port Mirror	•		•	
Port Security	•		•	
IGMP v2/v3	•		•	
QoS Port Base/COS/TOS	•		•	
Port Trunk Static/LACP	•		•	
LLDP	•		•	
IEEE 1588v2	•		•	
System Alarm	SYSLOG / SMTP / SNMP Trap / Relay		SYSLOG / SMTP / SNMP Trap / Relay	
DHCP	Server / Client / Relay		Server / Client / Relay	
VLAN	Port-Based/802.1Q/Q-in-Q/GVRP		Port-Based/802.1Q/Q-in-Q/GVRP	
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console (CLI)		WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console (CLI)	
Warranty	5 years			

*NOTE: This function is available by request only

Product Selection Guide

Industrial EN50155 Gigabit PoE Ethernet Switch

Managed Switch

Industrial Ethernet Switch



TGPS-9084GT-M12 / -24V



TGPS-9084GT-M12-BP2 / -24V



TGPS-9080-M12A-MV

Port Number					
Number of ports	12		12		8
10/100/1000Base-T(X) M12 A-Coding P.S.E. Ports	8 IEEE 802.3 af	8 IEEE 802.3 af (max.120W)	8 IEEE 802.3 af	8 IEEE 802.3 af (max.120W)	8
10/100/1000Base-T(X) M12 A-Coding Ports	4		4(2-pair Bypass)		-
100Base-FX Fiber Ports	-		-		-
1000Base-X Fiber Ports	-		-		-
100Base-FX SFP Ports	-		-		-
1000Base-X SFP Ports	-		-		-
Gigabit Combo Ports	-		-		-
Power Redundancy					
On M12 Connector	-		-		-
On M23 Connector	2(M23)		2(M23)		-
7/8 inch male connector	-		-		1
Installation					
DIN-Rail Mounting	-		-		-
Wall Mounting	●		●		●
Physical Characteristics					
Casing Protection	IP-30		IP-30		IP-40
Dimensions (mm)	260(W) x 91.3(D)x 216(H)		260(W) x 91.3(D)x 216(H)		205(W) x 99(D)x 175(H)
Operating Temperature					
-10 to 60°C	-		-		-
-40 to 75°C	●		●		●
Network Redundancy					
0-Ring	●		●		●
Open-Ring	●		●		●
0-Chain	●		●		●
MRP*NOTE	○		○		○
MSTP/RSTP/STP	●		●		●
Management and Control					
802.1X	●		●		●
Rate Limit	●		●		●
Port Mirror	●		●		●
Port Security	●		●		●
IGMP v2/v3	●		●		●
QoS Port Base/COS/TOS	●		●		●
Port Trunk Static/LACP	●		●		●
LLDP	●		●		●
IEEE 1588v2	●		●		●
System Alarm	SYSLOG / SMTP / SNMP Trap / Relay		SYSLOG / SMTP / SNMP Trap / Relay		SYSLOG / SMTP / SNMP Trap / Relay
DHCP	Server / Client / Relay		Server / Client / Relay		Server / Client / Relay
VLAN	Port-Based/802.1Q/Q-in-Q/GVRP		Port-Based/802.1Q/Q-in-Q/GVRP		Port-Based/802.1Q/Q-in-Q/GVRP
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console (CLI)		WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console (CLI)		WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console (CLI)
Warranty	5 years				

*NOTE: This function is available by request only

Product Selection Guide

Industrial EN50155 Gigabit PoE Ethernet Switch

Unmanaged Switch

Industrial Ethernet Switch



TGP5-1080-M12/24V



TGP5-1080-M12-BP2/24V

Port Number		
Number of ports	8	8
10/100Base-T(X) M12 D-Coding Ports	-	-
10/100/500 Base-T(X) M12 D-Coding Ports	-	-
10/100/1000Base-T(X) M12 A-Coding Ports	8 (P.S.E.) IEEE 802.3 at/8 (P.S.E.) IEEE 802.3 at (Max.120W)	4 (P.S.E.)+4 (P.S.E.)(2-pair Bypass)IEEE 802.3 at / 4 (P.S.E.)+4 (P.S.E.)(2-pair Bypass)IEEE 802.3 at(Max.120W)
100Base-FX Fiber Ports	-	-
1000Base-X Fiber Ports	-	-
100Base-FX SFP Ports	-	-
1000Base-X SFP Ports	-	-
Gigabit Combo Ports	-	-
Power Redundancy		
On M12 Connector	-	-
On M23 Connector	2	2
Installation		
DIN-Rail Mounting	-	-
Wall Mounting	•	•
Physical Characteristics		
Casing Protection	IP-30	IP-30
Dimensions (mm)	125(W) x 65(D) x 196(H)	125(W) x 65(D) x 196(H)
Operating Temperature		
-10 to 60°C	-	-
-40 to 70°C	•	•
-40 to 75°C	-	-
Network Redundancy		
0-Ring	-	-
Open-Ring	-	-
0-Chain	-	-
MRP*NOTE	-	-
MSTP/RSTP/STP	-	-
Management and Control		
802.1X	-	-
Rate Limit	-	-
Port Mirror	-	-
Port Security	-	-
IGMP v2/v3	-	-
QoS Port Base/COS/TOS	-	-
Port Trunk Static/LACP	-	-
LLDP	-	-
System Alarm	Relay	Relay
DHCP	-	-
VLAN	-	-
Management / Configuration	-	-
Warranty	5 years	

*NOTE: This function is available by request only

Product Selection Guide

Industrial Ethernet Switch

Industrial EN50155 Gigabit PoE Ethernet Switch

Unmanaged Switch



TGXPS-141GX-M12/24V(MV)



TXPS-141XT-M12/24V(MV)

Port Number				
Number of ports	5		5	
10/100Base-T(X) M12 D-Coding Ports	-		-	
10/100/500 Base-T(X) M12 D-Coding Ports	-		4 (P.S.E.) IEEE 802.3 at+1	
10/100/500 /1000Base-T(X) M12 A-Coding Ports	4 (P.S.E.) IEEE 802.3 at+1		-	
10/100/1000Base-T(X) M12 A-Coding Ports	-		-	
100Base-FX Fiber Ports	-		-	
1000Base-X Fiber Ports	-		-	
100Base-FX SFP Ports	-		-	
1000Base-X SFP Ports	-		-	
Gigabit Combo Ports	-		-	
Power Redundancy				
On M12 Connector	1		1	
On M23 Connector	-		-	
Installation				
DIN-Rail Mounting	-		-	
Wall Mounting	●		●	
Physical Characteristics				
Casing Protection	IP-40		IP-40	
Dimensions (mm)	88.9(W) x 40(D) x 178.2(H)	88.9(W) x 55(D) x 178.2(H)	88.9(W) x 40(D) x 178.2(H)	88.9(W) x 55(D) x 178.2(H)
Operating Temperature				
-10 to 60°C	-		-	
-40 to 70°C	-		-	
-40 to 75°C	●		●	
Network Redundancy				
0-Ring	-		-	
Open-Ring	-		-	
0-Chain	-		-	
MRP*NOTE	-		-	
MSTP/RSTP/STP	-		-	
Management and Control				
802.1X	-		-	
Rate Limit	-		-	
Port Mirror	-		-	
Port Security	-		-	
IGMP v2/v3	-		-	
QoS Port Base/COS/TOS	-		-	
Port Trunk Static/LACP	-		-	
LLDP	-		-	
System Alarm	-		-	
DHCP	-		-	
VLAN	-		-	
Management / Configuration	-		-	
Warranty	5 years			

Product Selection Guide

Industrial EN50155 Gigabit PoE Ethernet Switch

Unmanaged Switch

Industrial Ethernet Switch



TSPL-101GT-M12 Series



TINJ-101GT-M12 series



TINJ-101-M12 series

Port Number					
Number of ports	2(M12)		2(M12)		2(M12)
10/100Base-T(X) RJ45 Ports	-		-		1(M12)
10/100/1000Base-T(X) RJ45 Ports	1(M12)		1(M12)		-
PoE+(30 Watts) Ports	1(P.D)		1(P.S.E.)		1(P.S.E.)
PoE++(90 Watts) Ports	-		-		-
100/1G/10G Fiber Ports	-		-		-
Optical Bypass ports	-		-		-
Power Redundancy					
DC Terminal Block	1		1		1
DC Power Jack	-		-		-
Operating Voltage	36 to 57 VDC		50-57VDC	12-50VDC	50-57VDC 12-50VDC
Output Power	-		30 Watts Max.		30 Watts Max.
Output Voltage	24V@1A	12V@2A	-		-
Installation					
DIN-Rail Mounting	-		•		•
Wall Mounting	•		•		•
Physical Characteristics					
Casing Protection	IP-40		IP-30		IP-30
Dimensions (mm)	88.9(W)x40(D)x178.2(H)		88.9(W)x40(D)x178.2(H)		88.9(W)x40(D)x178.2(H)
Operating Temperature					
-10 to 60°C	-		-		-
-25 to 70°C	-		•		•
-25 to 75°C	•		-		-
Network Redundancy					
O-Ring	-		-		-
Open-Ring	-		-		-
O-Chain	-		-		-
STP/RSTP	-		-		-
Management and Control					
802.1X	-		-		-
Rate Limit	-		-		-
Port Mirror	-		-		-
Port Security	-		-		-
IGMP v2/v3	-		-		-
QoS Port Base/COS/TOS	-		-		-
Port Trunk Static/LACP	-		-		-
LLDP	-		-		-
System Alarm	-		-		-
DHCP	-		-		-
VLAN	-		-		-
Management / Configuration	-		-		-
Warranty	5years				

Product Selection Guide

Industrial Ethernet Switch

Industrial C1D2 DIN-Rail Fast Ethernet Switch

Managed Switch

Unmanaged Switch



IES-A3162GC



IES-A3062 Series / IES-A3080








IES-A1062 Series / IES-A1080

Port Number						
Number of ports	18	8		8		
10/100Base-T(X) RJ45 Ports	16	6	8	6	8	
10/100/1000Base-T(X) Ports	-	2	-	2	-	
100Base-FX Fiber Ports	-	2 (Multi/Single-Mode)	-	2 (Multi/Single-Mode)	-	
1000Base-X Fiber Ports	-	2 (Multi/Single-Mode)	-	2 (Multi/Single-Mode)	-	
100Base-FX SFP Ports	-	-	-	-	-	
1000Base-X SFP Ports	-	-	-	-	-	
Gigabit Combo Ports	2	-	-	-	-	
Power Redundancy						
DC Terminal Block	2	2		2		
DC Power Jack	-	1		1		
AC Power Cord	-	-		-		
Installation						
DIN-Rail Mounting	•	•		•		
Wall Mounting	•	•		•		
Desktop	-	-		-		
Physical Characteristics						
Casing Protection	IP-30	IP-30		IP-30		
Dimensions (mm)	96.4(W)x108.5(D)x154(H)	52(W)x106.1(D)x144.3(H)		52(W)x106.1(D)x144.3(H)		
Operating Temperature						
-10 to 60°C	-	-		-		
-40 to 70°C	•	•		•		
Network Redundancy						
O-Ring	•	•		-		
Open-Ring	•	•		-		
O-Chain	•	•		-		
MRP*NOTE	○	○		-		
MSTP/RSTP/STP	•	•		-		
Management and Control						
802.1X	•	•		-		
Rate Limit	•	•		-		
Port Mirror	•	•		-		
Port Security	•	•		-		
IGMP v2/v3	•	•		-		
QoS Port Base/COS/TOS	•	•		-		
Port Trunk Static/LACP	•	•		-		
LLDP	•	•		-		
System Alarm	SYSLOG / SMTP / SNMP Trap	SYSLOG / SMTP / SNMP Trap		-		
DHCP	Server / Client	Server / Client		-		
VLAN	Port-Based / 802.1Q / Q-in-Q / GVRP	Port-Based / 802.1Q / Q-in-Q / GVRP		-		
Management / Configuration	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)	WEB / Windows Utility / SNMP v1,v2c,v3 / Telnet / Console(CLI)		-		
Warranty	5 years					

*NOTE: This function is available by request only

Product Selection Guide

Industrial Rack-Mount Ethernet to Fiber Media Converter							
Chassis		Power Supply	Card type Ethernet to fiber				
Industrial Media Converter							
	RMC-1000	RPM-130-AC	RPMC-111GPB	RMC-121FB	RMC-111FB / 111PB		
	Port Number						
	Chassis Slots	18	-	-	-	-	
	10/100Base-T(X) RJ45 Ports	-	-	-	2	1	
10/100/1000Base-T(X) RJ45 Ports	-	-	1	-	-		
100Base-FX Fiber Ports	-	-	-	1 (Multi/Single-Mode)	1 (Multi/Single-Mode)	1 (SFP)	
1000Base-X Fiber Ports	-	-	1 (SFP)	-	-		
USB Port	-	-	-	-	-		
RS-232 Serial Port	-	-	-	-	-		
RS-422/485 Serial Port	-	-	-	-	-		
RS-232/422/485 Serial Port	-	-	-	-	-		
Serial Port Feature							
Baud Rate	-	-	-	-	-		
Signals	-	-	-	-	-		
Power Redundancy							
DC Back Plane	-	-	1	1	1		
DC Terminal Block	-	-	-	-	-		
DC Power Jack	-	-	-	-	-		
AC Power Cord	2 (Optional)	1	-	-	-		
Installation							
DIN-Rail Mounting	-	-	-	-	-		
Wall mounting	-	-	-	-	-		
Rack-Mount	●	● (RMC-1000)	● (RMC-1000)	● (RMC-1000)	● (RMC-1000)		
Physical Characteristics							
Casing Protection	IP-20		IP-20	IP-20	IP-20		
Dimensions (mm)	430(W) x 243(D) x 132(H)		21.8(W) x 66.8(D) x 126(H)	68(D) x 126(H)	68(D) x 126(H)		
Operating Temperature							
-10 to 60°C	●	-	●	●	●		
-10 to 70°C	-	●	-	-	-		
-40 to 70°C	-	-	-	-	-		
Protection							
Power Overload Current Protection	●	●	●	●	●		
Power Reverse Polarity Protection	-	-	-	-	-		
Serial Isolation Protection	-	-	-	-	-		
Warranty							
2 years							

Product Selection Guide

Industrial Ethernet to Fiber Media Converter

Mini type Ethernet to fiber

Mini type Ethernet Extender

Industrial Media Converter



IMC-121FB

IMC-111FB / 111PB

IMC-B111ETB-TB

IMC-B111ETB-RJ45

Port Number				
Chassis Slots	-	-	-	-
10/100Base-T(X) RJ45 Ports	2	1	1	1
10/100/1000Base-T(X) RJ45 Ports	-	-	-	-
100Base-FX Fiber Ports	1 (Multi/Single-Mode)	1 (Multi/Single-Mode)	1 (SFP)	-
1000Base-X Fiber Ports	-	-	-	-
100M Extende Port	-	-	1 (Terminal Block -2 Wired)	1 (RJ45-2/4/8 Wired)
RS-232 Serial Port	-	-	-	-
RS-422/485 Serial Port	-	-	-	-
RS-232/422/485 Serial Port	-	-	-	-
Serial Port Feature				
Baud Rate	-	-	-	-
Signals	-	-	-	-
Power Redundancy				
DC Back Plane	-	-	-	-
DC Terminal Block	2	2	2	2
DC Power Jack	by cable	by cable	by cable	by cable
AC Power Cord	-	-	-	-
Installation				
DIN-Rail Mounting	•	•	•	•
Wall mounting	•	•	•	•
Rack-Mount	-	-	-	-
Physical Characteristics				
Casing Protection	IP-30	IP-30	IP-30	IP-30
Dimensions (mm)	26.1(W) x 70(D) x 95(H)	26.1(W) x 70(D) x 95(H)	26.1(W) x 70(D) x 95(H)	26.1(W) x 70(D) x 95(H)
Operating Temperature				
-10 to 60°C	-	-	-	-
-10 to 70°C	-	-	-	-
-40 to 75°C	•	•	•	•
Protection				
Power Overload Current Protection	•	•	•	•
Power Reverse Polarity Protection	•	•	•	•
Serial Isolation Protection	-	-	-	-
Warranty	5 years			

Product Selection Guide

Industrial Ethernet to Fiber Media Converter

Slim type Gigabit Ethernet to fiber

Industrial Media Converter



IGMC-1011GF / 1011GP

IGMC-111GP

IGPMC-111GP

Port Number				
Chassis Slots	-		-	-
10/100Base-T(X) RJ45 Ports	-		-	-
10/100/1000Base-T(X) RJ45 Ports	1		1	1(P.S.E.)
100Base-FX Fiber Ports	-		-	-
1000Base-X Fiber Ports	1 (Multi/Single-Mode)	1 (SFP)	1	1
100M Extende Port	-		-	-
RS-232 Serial Port	-		-	-
RS-422/485 Serial Port	-		-	-
RS-232/422/485 Serial Port	-		-	-
Serial Port Feature				
Baud Rate	-		-	-
Signals	-		-	-
Power Redundancy				
DC Back Plane	-		-	-
DC Terminal Block	2		2	2
DC Power Jack	-		-	-
AC Power Cord	-		-	-
Installation				
DIN-Rail Mounting	•		•	•
Wall mounting	•		•	•
Rack-Mount	-		-	-
Physical Characteristics				
Casing Protection	IP-30		IP-30	IP-30
Dimensions (mm)	26.1(W) x 94.9(D) x 144.3(H)		40(W) x 70(D) x 95(H)	40(W) x 70(D) x 95(H)
Operating Temperature				
-40 to 75°C	•		•	•
-40 to 85°C	-		-	-
Protection				
Power Overload Current Protection	•		•	•
Power Reverse Polarity Protection	•		•	•
Serial Isolation Protection	-		-	-
Warranty	5 years			

Product Selection Guide

Industrial Ethernet to Fiber Media Converter

Mini type Ethernet to fiber

IEC 61850-3 Ethernet to fiber

IEC 61850-3 Ethernet to fiber M12 Connector

Industrial Media Converter



IGMC-111GPB

IMC-P111FX/P-LV / HV

IMC-P111FX/P-M12-LV / HV

Port Number					
Chassis Slots	-	-		-	
10/100Base-T(X) RJ45 Ports	-	1	1	1(M12 A-Coded)	
10/100/1000Base-T(X) RJ45 Ports	1	-	-		
100Base-FX Fiber Ports	-	1 (Multi/Single-Mode)	1 (SFP)	1 (Multi/Single-Mode)	1 (SFP)
1000Base-X Fiber Ports	1 (SFP)	-	-	-	
USB Port	-	-	-	-	
RS-232 Serial Port	-	-	-	-	
RS-422/485 Serial Port	-	-	-	-	
RS-232/422/485 Serial Port	-	-	-	-	
Serial Port Feature					
Baud Rate	-	-	-	-	
Signals	-	-	-	-	
Power Redundancy					
DC Back Plane	-	-			
DC Terminal Block	2	2(for LV Model)		2(for LV Model)	
DC Power Jack	by cable	-		-	
AC Power Cord	-	2(for HV Model)		2(for HV Model)	
Installation					
DIN-Rail Mounting	●	●		●	
Wall mounting	●	●		●	
Rack-Mount	-	-		-	
Physical Characteristics					
Casing Protection	IP-30	IP-30		IP-30	
Dimensions (mm)	26.1(W) x 70(D) x 95(H)	52(W) x 106.1(D) x 144.3(H)mm		52(W) x 106.1(D) x 144.3(H)mm	
Operating Temperature					
-10 to 60°C	-	-		-	
-40 to 75°C	●	-		-	
-10 to 85°C	-	●		●	
Protection					
Power Overload Current Protection	●	●		●	
Power Reverse Polarity Protection	●	●		●	
Serial Isolation Protection	-	-		-	
Warranty	5 years				

Product Selection Guide

Industrial Ethernet to Fiber Media Converter				
Ethernet Extender		Mini type PoE Ethernet to fiber		Gigabit Ethernet to fiber
Industrial Media Converter				
	IMC-V111ET-TB	IPMC-111PB	IPMC-111PB++-60W	ITGMC-111GP+
Port Number				
Chassis Slots	-	-	-	-
10/100Base-T(X) RJ45 Ports	1	1 (P.S.E.)	1 (60W P.S.E)	-
10/100/1000Base-T(X) RJ45 Ports	-	-	-	-
1G/10GBase-T(X) RJ45 Ports	-	-	-	1
100Base-FX Fiber Ports	-	1 (SFP)	1 (SFP)	-
1000Base-X Fiber Ports	-	-	-	-
1G/10GBase-X Fiber Ports	-	-	-	1
USB Port	-	-	-	-
RS-232 Serial Port	-	-	-	-
RS-422/485 Serial Port	-	-	-	-
RS-232/422/485 Serial Port	-	-	-	-
Power Redundancy				
DC Back Plane	-	-	-	-
DC Terminal Block	2	2	2	2
DC Power Jack	by cable	by cable	by cable	by cable
AC Power Cord	-	-	-	-
Installation				
DIN-Rail Mounting	•	•	•	•
Wall mounting	•	•	•	•
Rack-Mount	-	-	-	-
Physical Characteristics				
Casing Protection	IP-30	IP-30	IP-30	IP-30
Dimensions (mm)	41 (W) x 70 (D) x 95.5 (H)mm	26.1(W) x 70(D) x 95(H)	26.1(W) x 70(D) x 95(H)	40 (W) x 108 (D) x 154 (H)mm
Operating Temperature				
-10 to 60°C	-	-	-	-
-20 to 60°C	-	-	-	•
-40 to 75°C	•	•	•	-
Protection				
Power Overload Current Protection	•	•	•	•
Power Reverse Polarity Protection	-	•	•	•
Serial Isolation Protection	-	-	-	-
Warranty	5 years			

Product Selection Guide

Industrial Media Converter

USB to Serial Media Converter

USB to Serial



ISC-4110U / 8110U



ISC-1310FB



ISC-1310FR



ISC-1310FW-SS

Port Number				
10/100Base-T(X) RJ45 Ports	-	-	-	-
10/100/1000Base-T(X) RJ45 Ports	-	-	-	-
Fiber Ports	-	•	•	•
1000Base-X Fiber Ports	-	-	-	-
USB Port	1	-	-	-
RS-232 Serial Port	4 (DB62 female) 8 (DB62 female) DB62 to DB9 cable attached	-		
RS-422/485 Serial Port	-	-		
RS-232/422/485 Serial Port	-	1		
Serial Port Feature				
Baud Rate	300 ~ 921.6Kbps	50 bps ~ 921.6Kbps		
Signals	RS-232 : TX, RX, RTS, CTS, DTR, DSR, DCD, GND	RS-232 : TX, RX, RTS, CTS, GND RS-422 : TX+, TX-, RX+, RX- RS-485 : Data+, Data-		
Power Redundancy				
DC Terminal Block	1	2		
DC Power Jack	1	-		
USB Bus Power	•	-		
Installation				
DIN-Rail Mounting	•	•	•	•
Wall mounting	•	•	•	•
Physical Characteristics				
Casing Protection	IP-30	IP-30	IP-30	IP-30
Dimensions (mm)	26.1(W) x 94.9(D) x 144.3(H) mm	26.1(W) x 70(D) x 95(H) mm	26.1(W) x 70(D) x 95(H) mm	26.1(W) x 70(D) x 95(H) mm
Operating Temperature				
-10 to 70°C	-	-	-	-
-40 to 70°C	•	•	-	-
-40 to 75°C	-	-	•	•
Protection				
Power Overload Current Protection	•	•	•	•
Power Reverse Polarity Protection	•	-		
Serial Isolation Protection	-	-		
Warranty	5 years	5 years	5 years	5 years

Product Selection Guide

Industrial Media Converter

Serial to Serial Media Converter

Serial to Serial



ISC-1210U-I / 1310U-I



ISC-1112 / 1112-I



ISC-1112B/1112B-1



ISC-1212-I

Port Number				
10/100Base-T(X) RJ45 Ports	-			
10/100/1000Base-T(X) RJ45 Ports	-			
Fiber Ports	-			
1000Base-X Fiber Ports	-			
USB Port	1			
RS-232 Serial Port	-			
RS-422/485 Serial Port	1	-	1	1 (DB9 male)
RS-232/422/485 Serial Port	-	1	-	-
Serial Port Feature				
Baud Rate	300 ~ 115.2Kbps			
Signals	RS-422 : TX+, TX-, RX+, RX-, RTS+, CTS+, CTS-, RS-485 : Data+, Data-	RS-232 : TX, RX, RTS, CTS, GND RS-422 : TX+, TX-, RX+, RX-, RS-485 : Data+, Data-	RS-232 : TX, RX, GND RS-422 : TX+, TX-, RX+, RX-, RS-485 : Data+, Data-	RS-232 : TX, RX, GND RS-422 : TX+, TX-, RX+, RX-, RS-485 : Data+, Data-, GND RS-485(4-wire) : TX+, TX-, RX+, RX-
Power Redundancy				
DC Terminal Block	-			
DC Power Jack	-			
USB Bus Power	•			
Installation				
DIN-Rail Mounting	•			
Wall mounting	•			
Physical Characteristics				
Casing Protection	IP-30			
Dimensions (mm)	71.2(W) x 25.3(D) x 100.6(H) mm	71.2(W)x25.3(D)x100.6(H) mm	26.1(W) x 70(D) x 95(H) mm	71.2(W)x25.3(D)x100.6(H) mm
Operating Temperature				
-10 to 70°C	•			
-20 to 70°C	-			
-40 to 70°C	-			
Protection				
Power Overload Current Protection	•			
Power Reverse Polarity Protection	-			
Serial Isolation Protection	3000 VDC	- 3000 VDC	- 3000 VDC	3000 VDC
Warranty	2 years			

Product Selection Guide

Industrial Device Server				
Device Server				
Industrial Device Server				
	IDS-4312 / IDS-4312+	IDS-1112	IDS-342GT	IDS-342GT+
Serial Port				
Serial port Numbers	1	1	4	4
Serial Mode	RS-232/422/485	RS-232	RS-232/422/485	RS-232/422/485
Serial Port Connector	DB9 (male)	DB9 (male)	DB9 (male)	DB9 (male)
Serial Port with 2KV Isolation	-	-	-	-
Serial Baud Rate	110 bps to 460.8 Kbps	110 bps to 460.8 Kbps	110 bps to 921.6 Kbps	110 bps to 921.6 Kbps
Ethernet Port				
10/100Base-T(X) in RJ45 Auto MDI/MDIX Ports	2	2	2	2
10/100/1000Base-T(X) in R345	-	-	2	2
Wireless LAN Interface	IEEE 802.11b/g/n	IEEE 802.11b/g	-	-
Support PoE (IEEE 802.3af compliant)	• (ETH1)	-	-	•
Ethernet Switch mode / Fast Recovery Mode supported	-	•	-	-
Power Redundancy				
DC Terminal Block	1 (4-pin)	2	2	2
DC Power Jack	-	-	-	-
Installation				
DIN-Rail Mounting	•	•	•	•
Wall mounting	•	•	•	•
Physical Characteristics				
Casing Protection	IP-30	IP-30	IP-30	IP-30
Dimensions (mm)	45(W) x 81(D) x 95(H) mm	40(W) x 115(D) x 153(H) mm	54.2(W) x 106.1(D) x 145.4(H) mm	54.2(W) x 106.1(D) x 145.4(H) mm
Operating Temperature				
-40 to 70°C	-	-	•	•
-10 to 60°C	•	•	-	-
Networking Technology				
Operating Modes	Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP	Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP	Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP RTU Master, RTU Slave, ASCII Master, ASCII Slave	Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP RTU Master, RTU Slave, ASCII Master, ASCII Slave
Windows O.S.Supported	Windows NT/2000/XP/2003/ VISTA 32/64-Bit/ Windows 7 32/64-Bit	Windows NT/2000/XP/2003/ VISTA 32/64-Bit/ Windows 7 32/64-Bit	Windows NT/2000/XP/2003/ VISTA 64-Bit/ Windows 7 64-Bit	Windows NT/2000/XP/2003/ VISTA 64-Bit/ Windows 7 64-Bit
Multiple Link	5 host devices : Virtual COM, TCP Server, TCP Client mode; 4 IP ranges : UDP	5 host devices : Virtual COM, TCP Server, TCP Client mode; 4 IP ranges : UDP	5 host devices : Virtual COM, TCP Server, TCP Client mode; 4 IP ranges : UDP	5 host devices : Virtual COM, TCP Server, TCP Client mode; 4 IP ranges : UDP
Event Notification	Syslog / SMTP/ SNMP trap	Syslog / SMTP/ SNMP trap / Beeper	Syslog / SNMP trap	Syslog / SNMP trap
NAT Router Pass Through	-	•	-	-
PPPoE	-	•	-	-
DDNS	-	•	-	-
Security				
HTTPS/SSH Management	•	•	•	•
IP White List	•	•	-	-
SSL Data Encryption	•	•	•	•
IEEE 802.1X	•	•	-	-
Warranty	5 years			

Product Selection Guide

Industrial Device Server

Device Server

Industrial Device Server



IDS-342/342+



IDS-322/322+



IDS-312/312+

Serial Port			
Serial port Numbers	4	2	1
Serial Mode	RS-232/422/485	RS-232/422/485	RS-232/422/485
Serial Port Connector	DB9 (male)	DB9 (male)	DB9 (male)
Serial Port with 2KV Isolation	-	-	-
Serial Baud Rate	110 bps to 460.8 Kbps	110 bps to 460.8 Kbps	110 bps to 460.8 Kbps
Ethernet Port			
10/100Base-T(X) in RJ45 Auto MDI/MDIX Ports	2	2	2
100Base-FX Fiber Ports	-	-	-
Wireless LAN Interface	-	-	-
ETH1 Support PoE (IEEE 802.3af compliant)	-	•	•
Ethernet Switch mode / Fast Recovery Mode supported	-	-	-
Power Redundancy			
DC Terminal Block	2	2	2
DC Power Jack	-	-	-
Installation			
DIN-Rail Mounting	•	•	•
Wall mounting	-	•	•
Physical Characteristics			
Casing Protection	IP-30	IP-30	IP-30
Dimensions (mm)	66(W) x 80.6(D) x 95(H) mm	45(W) x 80.6(D) x 95(H) mm	45(W) x 80.6(D) x 95(H) mm
Operating Temperature			
-40 to 70°C	•	•	•
-10 to 60°C	-	-	-
Networking Technology			
Operating Modes	Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP	Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP	Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP
Windows O.S.Supported	Windows NT/2000/XP/2003/VISTA 64-Bit/ Windows 7 64-Bit	Windows NT/2000/XP/2003/VISTA 64-Bit/ Windows 7 64-Bit	Windows NT/2000/XP/2003/VISTA 64-Bit/ Windows 7 64-Bit
Multiple Link	5 host devices : Virtual COM, TCP Server, TCP Client mode; 4 IP ranges : UDP	5 host devices : Virtual COM, TCP Server, TCP Client mode; 4 IP ranges : UDP	5 host devices : Virtual COM, TCP Server, TCP Client mode; 4 IP ranges : UDP
Event Notification	Syslog / SMTP/ SNMP trap	Syslog / SMTP/ SNMP trap	Syslog / SMTP/ SNMP trap
NAT Router Pass Through	-	-	-
PPPoE	-	-	-
DDNS	-	-	-
Security			
HTTPS/SSH Management	•	•	•
IP White List	•	•	•
SSL Data Encryption	•	•	•
IEEE 802.1X	-	-	-
Warranty	5 years		

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Industrial Device Server

IDS-312L

IDS-242GT-I+

TDS-5041-I-M12

Product Selection Guide

Industrial Device Server

Device Server

Industrial Device Server




RDS-3166G

RDS-3086G



RDS-P3000

Serial Port			
Serial port Numbers	16	8	
Serial Mode	RS-232/422/485	RS-232/422/485	RS-232/422/485
Serial Port Connector	RJ48	RJ48	RJ48
Serial Port with 2KV Isolation	•	•	
Serial Baud Rate	50 bps to 921.6 Kbps	50 bps to 921.6 Kbps	50 bps to 921.6 Kbps
Ethernet Port			
10/100/1000Base-T(X) in RJ45 Auto MDI/MDIX Ports	4	4	4
100/1000Base-X SFP Ports	2	2	2
Wireless LAN Interface	-	-	
ETH2 Support PoE (IEEE 802.3af compliant)	-	-	
Ethernet Switch mode / Fast Recovery Mode supported	-	-	
Power Redundancy			
DC Terminal Block	-	-	
AC Power Cord	1	1	
Installation			
Rack Mounting	•	•	•
Wall mounting	-	-	-
Physical Characteristics			
Casing Protection	IP-30	IP-30	
Dimensions (mm)	443.7(W) x 211.5(D) x 44(H) mm	443.7(W) x 211.5(D) x 44(H) mm	360(W) x 440(D) x 43(H) mm
Operating Temperature			
-40 to 70°C	•	•	•
-10 to 60°C	-	-	-
Networking Technology			
Operating Modes	Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP	Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP	
Windows O.S.Supported	Windows NT/2000/XP/2003/ VISTA 64-Bit/ Windows 7 64-Bit	Windows NT/2000/XP/2003/ VISTA 64-Bit/ Windows 7 64-Bit	
Multiple Link	5 host devices : Virtual COM, TCP Server, TCP Client mode; 4 IP ranges : UDP	5 host devices : Virtual COM, TCP Server, TCP Client mode; 4 IP ranges : UDP	
Event Notification	Syslog / SNMP trap / and Beeper	Syslog / SNMP trap / and Beeper	
NAT Router Pass Through	-	-	
PPPoE	-	-	
DDNS	-	-	
Security			
HTTPS/SSH Management	•	•	
IP White List	-	-	
SSL Data Encryption	•	•	
IEEE 802.1X	-	-	
Warranty	5 years		



Product Selection Guide

Industrial Device Server						
PCI Express Cards						
Industrial Device Server						
	PCard-E1041L-S-D4	PCard-E1041L-D4	PCard-E3041L-S-D4	PCard-E3041L-D4	PCard-E3041L-SI-D4	PCard-E3041L-D4
Serial Port						
Connector	DB44(Female) x 1		DB44(Female) x 1		DB44(Female) x 1	
Ports	4		4		4	
Operation Mode	RS-232		RS-232 / RS-422 / 4(2)-Wire RS-485		RS-232 / RS-422 / 4(2)-Wire RS-485	
Serial Baud Rate	50 bps to 921.6 Kbps		50 bps to 921.6 Kbps		50 bps to 921.6 Kbps	
Data Bits	5, 6, 7, 8		5, 6, 7, 8		5, 6, 7, 8	
Parity	odd, even, none, mark, space		odd, even, none, mark, space		odd, even, none, mark, space	
Stop Bits	1, 1.5, 2		1, 1.5, 2		1, 1.5, 2	
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND		TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND		TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND	
RS-422	-		Tx+,Tx-, Rx+, Rx-,GND		Tx+,Tx-, Rx+, Rx-,GND	
RS-485 (2-wire)	-		D+, D-, GND		D+, D-, GND	
RS-485 (4-wire)	-		Tx+,Tx-, Rx+, Rx-,GND		Tx+,Tx-, Rx+, Rx-,GND	
Flow Control	RTS/CTS, Xon/Xoff		RTS/CTS, Xon/Xoff		RTS/CTS, Xon/Xoff	
LED Indicator						
Serial TX LEDs	Green: Serial port is transmitting data (TX)		Green: Serial port is transmitting data (TX)		Green: Serial port is transmitting data (TX)	
Serial RX LEDs	Amber: Serial port is receiving data (RX)		Amber: Serial port is receiving data (RX)		Amber: Serial port is receiving data (RX)	
Power Consumption						
Power Consumption	835 mA @ 3.3 VDC	835 mA @ 3.3 VDC	835 mA @ 3.3 VDC	835 mA @ 3.3 VDC	1,150 mA @ 3.3 VDC	1,150 mA @ 3.3 VDC
Standards and Certification						
EMC	EN 55032/24		EN 55032/24		EN 55032/24	
EMI	CISPR 22, FCC Part 15B Class B		CISPR 22, FCC Part 15B Class B		CISPR 22, FCC Part 15B Class B	
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal : 6 kV (only for -S model) IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFME		IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal : 6 kV (only for -S model) IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFME		IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal : 6 kV (only for -S model) IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFME	
Physical Characteristic						
Physical Characteristic	67.2 x 104.8 mm	67.2 x 104.8 mm	67.2 x 104.8 mm	67.2 x 104.8 mm	67.2 x 136.8 mm	67.2 x 136.8 mm
Environmental						
Storage Temperature	-40 to 85°C		-40 to 85°C		-40 to 85°C	
Operating Temperature	-40 to 75°C		-40 to 75°C		-40 to 75°C	
Operating Humidity	5% to 95% Non-condensing		5% to 95% Non-condensing		5% to 95% Non-condensing	
Warranty	5 years		5 years		5 years	

Product Selection Guide

Industrial Device Server				
PCI Express Cards				
Industrial Device Server				
	PCard-E3021L-S-D5	PCard-E3021L-D5	PCard-E3021L-SI-D5	PCard-E3021L-I-D5
Serial Port				
Connector	DB25(Female) x 1		DB25(Female) x 1	
Ports	2		2	
Operation Mode	RS-232 / RS-422 / 4(2)-Wire RS-485		RS-232 / RS-422 / 4(2)-Wire RS-485	
Serial Baud Rate	50 bps to 921.6 Kbps		50 bps to 921.6 Kbps	
Data Bits	5, 6, 7, 8		5, 6, 7, 8	
Parity	odd, even, none, mark, space		odd, even, none, mark, space	
Stop Bits	1, 1.5, 2		1, 1.5, 2	
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND		TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND	
RS-422	Tx+,Tx-, Rx+, Rx-,GND		Tx+,Tx-, Rx+, Rx-,GND	
RS-485 (2-wire)	D+, D-, GND		D+, D-, GND	
RS-485 (4-wire)	Tx+,Tx-, Rx+, Rx-,GND		Tx+,Tx-, Rx+, Rx-,GND	
Flow Control	RTS/CTS, Xon/Xoff		RTS/CTS, Xon/Xoff	
LED Indicator				
Serial TX LEDs	Green: Serial port is transmitting data (TX)		Green: Serial port is transmitting data (TX)	
Serial RX LEDs	Amber: Serial port is receiving data (RX)		Amber: Serial port is receiving data (RX)	
Power Consumption				
Power Consumption	630 mA @ 3.3 VDC	630 mA @ 3.3 VDC	630 mA @ 3.3 VDC	630 mA @ 3.3 VDC
Standards and Certification				
EMC	EN 55032/24		EN 55032/24	
EMI	CISPR 22, FCC Part 15B Class B		CISPR 22, FCC Part 15B Class B	
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal : 6 kV (only for -S model) IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMEF		IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal : 6 kV (only for -S model) IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMEF	
Physical Characteristic				
Physical Characteristic	67.2 x 101.8 mm	67.2 x 101.8 mm	67.2 x 101.8 mm	67.2 x 101.8 mm
Environmental				
Storage Temperature	-40 to 85°C		-40 to 85°C	
Operating Temperature	-40 to 75°C		-40 to 75°C	
Operating Humidity	5% to 95% Non-condensing		5% to 95% Non-condensing	
Warranty	5 years		5 years	

Product Selection Guide

Industrial Device Server	Industrial Device Server			
	PCI Express Cards			
				
	PCard-E3021-S-D9	PCard-E3021-D9	PCard-E3021-SI-D9	PCard-E3021-I-D9
Serial Port				
Connector	DB9(Male) x 2		DB9(Male) x 2	
Ports	2		2	
Operation Mode	RS-232 / RS-422 / 4(2)-Wire RS-485		RS-232 / RS-422 / 4(2)-Wire RS-485	
Serial Baud Rate	50 bps to 921.6 Kbps		50 bps to 921.6 Kbps	
Data Bits	5, 6, 7, 8		5, 6, 7, 8	
Parity	odd, even, none, mark, space		odd, even, none, mark, space	
Stop Bits	1, 1.5, 2		1, 1.5, 2	
RS-232	TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND		TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND	
RS-422	Tx+,Tx-, Rx+, Rx-,GND		Tx+,Tx-, Rx+, Rx-,GND	
RS-485 (2-wire)	D+, D-, GND		D+, D-, GND	
RS-485 (4-wire)	Tx+,Tx-, Rx+, Rx-,GND		Tx+,Tx-, Rx+, Rx-,GND	
Flow Control	RTS/CTS, Xon/Xoff		RTS/CTS, Xon/Xoff	
LED Indicator				
Serial TX LEDs	Green: Serial port is transmitting data (TX)		Green: Serial port is transmitting data (TX)	
Serial RX LEDs	Amber: Serial port is receiving data (RX)		Amber: Serial port is receiving data (RX)	
Power Consumption				
Power Consumption	630 mA @ 3.3 VDC	630 mA @ 3.3 VDC	630 mA @ 3.3 VDC	630 mA @ 3.3 VDC
Standards and Certification				
EMC	EN 55032/24		EN 55032/24	
EMI	CISPR 22, FCC Part 15B Class B		CISPR 22, FCC Part 15B Class B	
EMS	IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 6 kV (only for -S model) IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMEF		IEC 61000-4-2 ESD: Contact: 8 kV; Air: 15 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 6 kV (only for -S model) IEC 61000-4-6 CS: 150 kHz to 80 MHz: 3 V/m; Signal: 3 V/m IEC 61000-4-8 PFMEF	
Physical Characteristic				
Physical Characteristic	85.0 x 101.9 mm	85.0 x 101.9 mm	85.0 x 101.9 mm	85.0 x 101.9 mm
Environmental				
Storage Temperature	-40 to 85°C		-40 to 85°C	
Operating Temperature	-40 to 75°C		-40 to 75°C	
Operating Humidity	5% to 95% Non-condensing		5% to 95% Non-condensing	
Warranty	5 years		5 years	

Product Selection Guide

Industrial Wireless Access Point

DIN-Rail WLAN Access Point



IAP-420/420+



IGAP-420/420+



IGAP-620/620+

Ethernet Ports			
10/100 Base-T(X) LAN Ports	2	-	-
10/100 /1000 Base-T(X) LAN Ports	-	2	2
PoE(P.D.) Support	-	• (LAN Port-1)	-
Ethernet Switch / Redundant Mode Support	•	•	•
WLAN Interface			
WLAN Standard	IEEE802.11b/g/n	IEEE802.11b/g/n	IEEE802.11a/b/g/n
Transmit Power	19 dBm max.	17 dBm max.	17 dBm max.
Transmission Rate	IEEE802.11b : 11Mbps IEEE802.11g : 54Mbps IEEE802.11n : 150Mbps	IEEE802.11b : 11Mbps IEEE802.11a/g : 54Mbps IEEE802.11n : 300Mbps	IEEE802.11b : 11Mbps IEEE802.11a/g : 54Mbps IEEE802.11n : 300Mbps
Antenna Connector	Reverse SMA	Reverse SMA	Reverse SMA
Antenna	2.4GHz :2 dBi	2.4GHz :2 dBi 5GHz :2 dBi	2.4GHz :2 dBi 5GHz :2 dBi
Power Redundancy			
Power Connector	2(Terminal Block)	2(Terminal Block)	2(Terminal Block)
Installation			
DIN-Rail Mounting	•	•	•
Wall Mounting	•	•	•
Pillar-Mounting	-	-	-
Physical Characteristics			
Casing Protection	IP-30	IP-30	IP-30
Dimensions (mm)	41(W)x81(D)x95(H)	74.3(W)x109.2(D)x153.6(H)	74.3(W)x109.2(D)x153.6(H)
Operating Temperature			
-10 to 60°C	•	-	-
-25 to 70°C	-	•	•
Network Technology			
Alarm Notification	Relay Output / SNMP Trap / System Log	Relay Output / SNMP Trap / System Log	Relay Output / SNMP Trap / System Log
Management / Configuration	WEB/Window Utility	WEB/Window Utility	WEB/Window Utility
Warranty			
5years			

Product Selection Guide

DIN-Rail WLAN Access Point

Industrial Wireless Access Point



IGAP-820/820+



IGAP-6620+

Ethernet Ports			
10/100 Base-T(X) LAN Ports	-		
10/100 /1000 Base-T(X) LAN Ports	2		
PoE(P.D.) Support	-	• (LAN Port-2)	• (LAN Port-2)
Ethernet Switch / Redundant Mode Support	•		
WLAN Interface			
WLAN Standard	IEEE802.11ac/g/n	Dual IEEE802.11a/b/g/n	
Transmit Power	18 dBm max.	17 dBm max.	
Transmission Rate	IEEE802.11b : 11Mbps IEEE802.11a/g : 54Mbps IEEE802.11n : 300Mbps IEEE802.11ac : 1.3Gbps	IEEE802.11b : 11Mbps IEEE802.11a/g : 54Mbps IEEE802.11n : 300Mbps IEEE802.11ac : 1.3Gbps	
Antenna Connector	Reverse SMA	Reverse SMA	
Antenna	2.4GHz :2 dBi 5GHz :2 dBi	2.4GHz :2 dBi 5GHz :2 dBi	
Power Redundancy			
Power Connector	2(Terminal Block)	2(Terminal Block)	
Installation			
DIN-Rail Mounting	•	•	
Wall Mounting	•	•	
Pillar-Mounting	-	-	
Physical Characteristics			
Casing Protection	IP-30	IP-30	
Dimensions (mm)	74.3(W)x109.2(D)x153.6(H)	74.3(W)x109.2(D)x153.6(H)	
Operating Temperature			
-10 to 60°C	-	-	
-25 to 70°C	•	•	
Network Technology			
Alarm Notification	Relay Output / SNMP Trap / System Log	Relay Output / SNMP Trap / System Log	
Management / Configuration	WEB/Window Utility	WEB/Window Utility	
Warranty		5years	

Product Selection Guide

Industrial Wireless Access Point

Industrial IP-67 WLAN Access Point



IAP-W420+ / IAP-W422+

IAP-W520+ / IAP-W522+

EN50155 WLAN Access Point



TGAP-620-M12 Series

TGAP-820-M12 Series

Ethernet Ports						
10/100 Base-T(X) LAN Ports	2		2		-	-
10/100/1000 Base-T(X) LAN Ports	-		-		2 (M12)	2 (M12)
PoE(P.D.) Support	●		●		(TGAP-620+-M12)	(TGAP-820+-M12)
WLAN Interface						
WLAN Standard	IEEE802.11 b/g/n		IEEE802.11a/n		IEEE802.11a/b/g/n	IEEE802.11a/c/g/n
Transmit Power	29 dBm max.		27 dBm max.		17 dBm max.	18 dBm max.
Transmission Rate	IEEE802.11b : 11Mbps IEEE802.11g : 54Mbps IEEE802.11n : 300Mbps		IEEE802.11a : 54Mbps IEEE802.11n : 300Mbps		IEEE802.11b : 11Mbps IEEE802.11a/g : 54Mbps IEEE802.11n : 300Mbps IEEE802.11n : 300Mbps	IEEE802.11b : 11Mbps IEEE802.11a/g : 54Mbps IEEE802.11n : 300Mbps IEEE802.11ac : 1.3Gbps
Antenna Connector	-	N-Type	-	N-Type	Reverse SMA	Reverse SMA
Antenna	Built-in 10 dBi	-	Built-in 15 dBi	-	2.4GHz :2 dBi 5GHz :2 dBi	2.4GHz :2 dBi 5GHz :2 dBi
Power Redundancy						
Power Connector	-		-		2 (M23)	2 (M23)
Installation						
DIN-Rail Mounting	-		-		-	-
Wall Mounting	-		-		●	●
Pillar-Mounting	●		●		-	-
Physical Characteristics						
Casing Protection	IP-67		IP-67		IP-40	IP-40
Dimensions (mm)	157(W)x96(D)x58(H) / 157(W)x96(D)x47.5(H)		157(W)x96(D)x58(H) / 157(W)x96(D)x47.5(H)		125(W)x65(D)x196(H)	125.6(W)x65(D)x196.1(H)
Operating Temperature						
-10 to 60℃	-		-		-	-
-25 to 70℃	●		●		●	●
Network Technology						
Alarm Notification	SNMP Trap / System Log		SNMP Trap / System Log		Relay Output / SNMP Trap / System Log	Relay Output / SNMP Trap / System Log
Management / Configuration	WEB/Window Utility		WEB/Window Utility		WEB/Window Utility	WEB/Window Utility
Warranty	5 years					

Product Selection Guide

EN50155 WLAN Access Point

Industrial Wireless Access Point



TGAP-6620-M12 Series



TGAP-W610+ series



TGAP-W6610+ Series

Ethernet Ports			
10/100 Base-T(X) LAN Ports	-	-	-
10/100/1000 Base-T(X) LAN Ports	2 (M12)	1(M12/RJ45)	1(M12/RJ45)
PoE(P.D.) Support	(TGAP-6620+-M12)	•	•
WLAN Interface			
WLAN Standard	Dual IEEE802.11a/b/g/n	IEEE802.11a/b/g/n	Dual IEEE802.11a/b/g/n
Transmit Power	17 dBm max.	17 dBm max.	17 dBm max.
Transmission Rate	IEEE802.11b : 11Mbps IEEE802.11a/g : 54Mbps IEEE802.11n : 300Mbps	IEEE802.11b : 11Mbps IEEE802.11a/g : 54Mbps IEEE802.11n : 300Mbps	IEEE802.11b : 11Mbps IEEE802.11a/g : 54Mbps IEEE802.11n : 300Mbps
Antenna Connector	Reverse SMA	N-Type	N-Type
Antenna	2.4GHz : 2 dBi 5GHz : 3 dBi	2.4GHz : 3 dBi 5GHz : 5 dBi	2.4GHz : 3 dBi 5GHz : 5 dBi
Power Redundancy			
Power Connector	2 (M23)	2 (M12)	2 (M12)
Installation			
DIN-Rail Mounting	-	-	-
Wall Mounting	•	•	•
Pillar-Mounting	-	•	•
Physical Characteristics			
Casing Protection	IP-40	IP-67	IP-67
Dimensions (mm)	125(W)x65(D)x196(H)	310(W)x310(D)x87(H)	310(W)x310(D)x87(H)
Operating Temperature			
-10 to 60°C	-	-	-
-25 to 70°C	•	•	•
Network Technology			
Alarm Notification	Relay Output / SNMP Trap / System Log	Relay Output / SNMP Trap / System Log	Relay Output / SNMP Trap / System Log
Management / Configuration	WEB/Window Utility	WEB/Window Utility	WEB/Window Utility
Warranty			
5 years			

Product Selection Guide

DIN-Rail VPN Router

Industrial Cellular VPN Router



IGR-20 / IGR-20+



IAR-142(+)-3G



IAR-142(+)-4G

Ethernet Ports			
10/100 Base-T(X) LAN Ports	-	2	2
10/100/1000 Base-T(X) Lan Ports	2	-	-
PoE (P.D.)Support	-	• (LAN Port-2)	• (LAN Port-1)
10/100/1000 Base-T(X) Lan Ports	-	-	-
WLAN Interface			
WLAN/Cellular Standard	-	IEEE802.11b/g/n	IEEE802.11b/g/n
Transmit Power	-	19 dBm max.	19 dBm max.
Transmission Rate	-	IEEE802.11b : 11Mbps IEEE802.11g : 54Mbps IEEE802.11n : 150Mbps	IEEE802.11b : 11Mbps IEEE802.11g : 54Mbps IEEE802.11n : 150Mbps
Antenna connector	-	Reverse SMA	Reverse SMA
Antenna	-	2.4GHz:2 dBi 5GHz:2 dBi	2.4GHz:2 dBi 5GHz:2 dBi
WAN Interface			
Cellular Standard	-	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSPA	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSPA / LTE(4G)
Transmission Power	-	33 dbm max.	33 dbm max.
SIM Slot	-	1	1
Antenna	-	Multi-Band Antenna	Multi-Band Antenna
Power Redundancy			
Power Connector	2(Terminal Block)	1(Terminal Block)	1(Terminal Block)
Installation			
DIN-Rail Mounting	•	•	•
Wall mounting	•	•	•
Physical Characteristics			
Casing Protection	IP-30	IP-30	IP-30
Dimensions (mm)	74.3(W)x109.2(D)x153.6(H)	41(W) x 81(D) x 95(H)	45(W) x 80.6(D) x 95(H)
Operating Temperature			
-10 to 60°C	-	•	•
-10 to 70°C	-	-	-
-20 to 70°C	-	-	-
-40 to 75°C	•	-	-
Network Technology			
Alarm Notification	Relay Output / SNMP Trap / System Log	SNMP Trap / System Log/SMTP	SNMP Trap / System Log/SMTP
Management / Configuration	WEB/Window Utility	WEB / Window Utility	WEB / Window Utility
Warranty		5 years	

Product Selection Guide

DIN-Rail Cellular VPN Router

Industrial Cellular VPN Router



IGAR-1062+-3G/4G



IGAR-2062+-3G/4G



IGAR-1662+-3G/4G

Ethernet Ports			
10/100 Base-T(X) LAN Ports	-	-	-
10/100/1000 Base-T(X) Lan Ports	2	2	2
PoE (P.D.)Support	●(LAN Port-2)	●(LAN Port-2)	●(LAN Port-2)
Ethernet switch/redundant mode support	●	●	●
WLAN Interface			
WLAN Standard	IEEE802.11a/b/g/n	IEEE802.11a/b/g/n	Dual IEEE802.11a/b/g/n Dual RF
Transmit Power	17 dBm max.	17 dBm max.	17 dBm max.
Transmission Rate	IEEE802.11b : 11Mbps IEEE802.11a/g : 54Mbps IEEE802.11n : 300Mbps	IEEE802.11b : 11Mbps IEEE802.11a/g : 54Mbps IEEE802.11n : 300Mbps	IEEE802.11b : 11Mbps IEEE802.11a/g : 54Mbps IEEE802.11n : 300Mbps
Antenna connector	Reverse SMA	Reverse SMA	Reverse SMA
Antenna	2.4GHz:2 dBi 5GHz:2 dBi	2.4GHz:2 dBi 5GHz:2 dBi	2.4GHz:2 dBi 5GHz:2 dBi
WAN Interface			
Cellular Standard	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA / LTE(4G)	Dual GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA / LTE(4G)	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA / LTE(4G)
Transmission Power	33 dbm max.	33 dbm max.	33 dbm max.
SIM Slot	1	2	1
Antenna	Multi-Band Antenna	Multi-Band Antenna	Multi-Band Antenna
Power Redundancy			
Power Connector	2(Terminal Block)	2(Terminal Block)	2(Terminal Block)
Installation			
DIN-Rail Mounting	●	●	●
Wall mounting	●	●	●
Physical Characteristics			
Casing Protection	IP-30	IP-30	IP-30
Dimensions (mm)	74.3(W) x 109.2(D) x 53.6(H)	74.3(W) x 109.2(D) x 53.6(H)	74.3(W) x 109.2(D) x 53.6(H)
Operating Temperature			
-10 to 60°C	-	-	-
-10 to 70°C	-	-	-
-25 to 70°C	●	●	●
Network Technology			
Alarm Notification	Relay Output / System Log	Relay Output / System Log	Relay Output / System Log
Management / Configuration	WEB	WEB	WEB
Warranty			
5 years			

Product Selection Guide

EN50155 WLAN Cellular VPN Router

Industrial Cellular VPN Router



TGAR-1062+-3GS/4GS-M12



TGAR-1662+-3GS/4GS-M12



TGAR-1062+-4G6S-M12

Ethernet Ports					
10/100 Base-T(X) LAN Ports	-		-		-
10/100/1000 Base-T(X) LAN Ports	2 (M12)		2 (M12)		2 (M12)
10/100 Base-FX Fiber Ports	-		-		-
PoE (P.D.)Support	(TGAR-1062+-3GS/4GS-M12)		(TGAR-1662+-3GS/4GS-M12)		(TGAR-1062+-4G6S-M12)
Ethernet switch/redundant mode support	●		●		●
WLAN Interface					
WLAN Standard	IEEE802.11a/b/g/n		Dual IEEE802.11a/b/g/n		Dual IEEE802.11a/b/g/n
Transmit Power	17 dBm max.		17 dBm max.		17 dBm max.
Transmission Rate	IEEE802.11b : 11Mbps IEEE802.11a/g : 54Mbps IEEE802.11n : 300Mbps		IEEE802.11b : 11Mbps IEEE802.11a/g : 54Mbps IEEE802.11n : 300Mbps		IEEE802.11b : 11Mbps IEEE802.11a/g : 54Mbps IEEE802.11n : 300Mbps
Antenna connector	Reverse SMA	Reverse SMA	Reverse SMA	Reverse SMA	Reverse SMA
Antenna	2.4GHz :2 dBi 5GHz :3 dBi		2.4GHz :2 dBi 5GHz :3 dBi		2.4GHz :2 dBi 5GHz :3 dBi
GPS					
Antenna connector	1 x External SMA antenna connector		1 x External SMA antenna connector		1 x External reverse SMA antenna connector
Frequency	1575.42MHz		1575.42MHz		1575.42MHz
WAN Interface					
Cellular Standard	GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA / LTE(4G)		GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA / LTE(4G)		GSM / GPRS/ EGPRS/ EDGE / WCDMA / HSDPA / HSUPA / LTE+(4G)
Transmission Power	33 dbm max.		33 dbm max.		33 dbm max.
SIM Slot	1		1		1
Antenna connector	Reverse SMA	SMA	Reverse SMA	SMA	SMA
Antenna	Multi-Band Antenna		Multi-Band Antenna		Multi-Band Antenna
WAN Connection Type	Static/Dynamic IP,PPPoE		Static/Dynamic IP,PPPoE		Static/Dynamic IP,PPPoE
WAN Dial-UP	3G	4G LTE	3G	4G LTE	4G LTE (Cat.6)
Power Redundancy					
Power Connector	2 (M23)		2 (M23)		2 (M23)
Installation					
DIN-Rail Mounting	-		-		-
Wall mounting	●		●		●
Physical Characteristics					
Casing Protection	IP-40		IP-40		IP-40
Dimensions (mm)	125(W) x 65(D) x 196(H)		125(W) x 65(D) x 196(H)		125.6(W) x 65(D) x 196.1(H)
Operating Temperature					
-10 to 60°C	●		-		-
-20 to 70°C	-		●		-
-25 to 70°C	●		-		●
Network Technology					
Alarm Notification	Relay Output / SNMP Trap / System Log/SMTP		Relay Output / SNMP Trap / System Log/SMTP		Relay Output / SNMP Trap / System Log/SMTP
Management / Configuration	WEB / Window Utility		WEB / Window Utility		WEB / Window Utility
Warranty					
	5 years				

Product Selection Guide

EN50155 Outdoor Cellular VPN Router

Industrial Cellular VPN Router



TGA-2062+-3GS/4GS-M12



TGA-W1061+-3G/4G



TGA-620-M12-MV

Ethernet Ports				
10/100 Base-T(X) LAN Ports	-	-	-	1 (M12)
10/100/1000 Base-T(X) LAN Ports	2 (M12)	1 (M12/RJ45)	-	-
10/100 Base-FX Fiber Ports	-	-	-	-
PoE (P.D.)Support	(TGA-2062+-3GS/4GS-M12)	•	-	-
Ethernet switch/redundant mode support	•	-	-	•
WLAN Interface				
WLAN Standard	IEEE802.11a/b/g/n	IEEE802.11a/b/g/n	IEEE802.11a/b/g/n	IEEE802.11a/b/g/n
Transmit Power	17 dBm max.	17 dBm max.	17 dBm max.	17 dBm max.
Transmission Rate	IEEE802.11b : 11Mbps IEEE802.11a/g : 54Mbps IEEE802.11n : 300Mbps	IEEE802.11b : 11Mbps IEEE802.11a/g : 54Mbps IEEE802.11n : 300Mbps	IEEE802.11b : 11Mbps IEEE802.11a/g : 54Mbps IEEE802.11n : 300Mbps	IEEE802.11b : 1 / 2 / 5.5 / 11 Mbps IEEE802.11a/g : 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE802.11n : up to 300Mbps
Antenna connector	Reverse SMA	N-Type	Reverse SMA	Reverse SMA
Antenna	2.4GHz : 2 dBi 5GHz : 3 dBi	2.4GHz : 3 dBi 5GHz : 5 dBi	2.4GHz : 2 dBi 5GHz : 3 dBi	2.4GHz : 2 dBi 5GHz : 3 dBi
GPS				
Antenna connector	1 x External SMA antenna connector	-	-	-
Frequency	1575.42MHz	-	-	-
WAN Interface				
Cellular Standard	GSM / GPRS / EGPRS / EDGE / WCDMA / HSDPA / HSUPA / LTE(4G)	GSM / GPRS / EGPRS / EDGE / WCDMA / HSDPA / HSUPA / LTE(4G)	GSM / GPRS / EGPRS / EDGE / WCDMA / HSDPA / HSUPA	GSM / GPRS / EGPRS / EDGE / WCDMA / HSDPA / HSUPA
Transmission Power	33 dbm max.	33 dbm max.	33 dbm max.	33 dbm max.
SIM Slot	2	1	1	1
Antenna connector	Reverse SMA SMA	N-Type	Reverse SMA	Reverse SMA
Antenna	Multi-Band Antenna	Multi-Band Antenna	Multi-Band Antenna	Multi-Band Antenna
WAN Connection Type	Static/Dynamic IP, PPPoE	Static/Dynamic IP, PPPoE	Static/Dynamic IP, PPPoE	Static/Dynamic IP, PPPoE
WAN Dial-UP	Dual 3G Dual 4G LTE	3G 4G LTE	3G	3G
Power Redundancy				
Power Connector	2 (M23)	2 (M12)	2 (7/8")	2 (7/8")
Installation				
DIN-Rail Mounting	-	-	-	-
Wall mounting	•	•	•	•
Pillar Mounting	-	•	-	-
Physical Characteristics				
Casing Protection	IP-40	IP-67	IP-40	IP-40
Dimensions (mm)	125(W) x 65(D) x 196(H)	310(W) x 310(D) x 87(H)	143(W) x 65(D) x 196.1(H)	143(W) x 65(D) x 196.1(H)
Operating Temperature				
-10 to 60°C	-	-	-	-
-25 to 70°C	•	•	•	•
Network Technology				
Alarm Notification	Relay Output / SNMP Trap / System Log/SMTP	Relay Output / SNMP Trap / System Log/SMTP	Relay Output / SNMP Trap / System Log/SMTP	Relay Output / SNMP Trap / System Log/SMTP
Management / Configuration	WEB / Window Utility	WEB / Window Utility	WEB / Window Utility	WEB / Window Utility
Warranty				
5 years				

Product Selection Guide

Industrial Media Gateway

M2M Gateway

Industrial M2M Gateway



IMG-6322GT-3G/4G

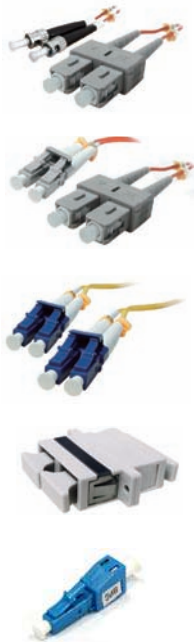


IMG-W6121+-3G/4G-M12

Ethernet Ports				
10/100/1000 Base-T(X) LAN Ports	2		-	
10/100/1000 Base-T(X) Port with PoE P.D	-		1	
Serial Port				
Serial port Numbers	2		2	
Serial Mode	RS-232/422/485x1+RS-422/485x1		RS-232	
Serial Port Connector	DB9 (male)x1+Terminal Blockx1		M12 (male)	
Serial Baud Rate	110 bps to 921.6Kbps		110 bps to 460.8 Kbps	
WLAN Interface				
WLAN Standard	IEEE802.11a/b/g/n		IEEE802.11a/b/g/n	
Transmit Power	802.11a: 12dBm ± 1.5dBm 802.11b: 17dBm ± 1.5dBm 802.11g: 16dBm ± 1.5dBm 802.11gn HT20: 15dBm ± 1.5dBm@150Mbps 802.11gn HT40: 14dBm ± 1.5dBm@300Mbps 802.11an HT20: 12dBm ± 1.5dBm@150Mbps 802.11an HT40: 11dBm ± 1.5dBm@300Mbps		802.11a: 12dBm ± 1.5dBm 802.11b: 17dBm ± 1.5dBm 802.11g: 15dBm ± 1.5dBm 802.11gn HT20: 13dBm ± 1.5dBm@150Mbps 802.11gn HT40: 12dBm ± 1.5dBm@300Mbps 802.11an HT20: 12dBm ± 1.5dBm@150Mbps 802.11an HT40: 12dBm ± 1.5dBm@300Mbps	
Transmission Rate	IEEE802.11b: 1 / 2 / 5.5 / 11 Mbps IEEE802.11a/g: 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE801.11n: up to 300Mbps		IEEE802.11b: 1 / 2 / 5.5 / 11 Mbps IEEE802.11a/g: 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps IEEE801.11n: up to 300Mbps	
Antenna connector	Reverse SMA Female connector x2		N-Type	
Antenna	2		Wi-Fi ANT x2	
Cellular Interface				
Cullular Standard	GSM / GPRS / EGPRS / EDGE / WCDMA / HSDPA / HSUPA	GSM / GPRS / EGPRS / EDGE / WCDMA / HSDPA / HSUPA/LTE	GSM / GPRS / EGPRS / EDGE / WCDMA / HSDPA / HSUPA	GSM / GPRS / EGPRS / EDGE / WCDMA / HSDPA / HSUPA/LTE
Band Option	Dual-band : HSUPA 1900/2100 MHz Quad-band : GSM/GPRS/EDGE 850/900/1800/1900 MHz WCDMA/HSDPA 850/900/1900/2100 MHz	America(US) LTE: 700/1700/2100/ MHz UMTS/HSDPA/HSUPA/HSPA+/DC-HSPA+:- 800/850/1900/2100 MHz GSM/GPRS/EDGE: 850/900/1800/1900 MHz Europe(EU) LTE: 800/900/1800/2100/2600 MHz UMTS/HSDPA/HSUPA/HSPA+/DC-HSPA+:- 900/2100 MHz GSM/GPRS/EDGE: 900/1800/1900 MHz	Dual-band : HSUPA 1900/2100 MHz Quad-band : GSM/GPRS/EDGE 850/900/1800/1900 MHz WCDMA/HSDPA 850/900/1900/2100 MHz	America(US) LTE: 700/1700/2100/ MHz UMTS/HSDPA/HSUPA/HSPA+/DC-HSPA+:- 800/850/1900/2100 MHz GSM/GPRS/EDGE: 850/900/1800/1900 MHz Europe(EU) LTE: 800/900/1800/2100/2600 MHz UMTS/HSDPA/HSUPA/HSPA+/DC-HSPA+:- 900/2100 MHz GSM/GPRS/EDGE: 900/1800/1900 MHz
Power Redundancy				
DC Terminal Block	2		-	
Installation				
DIN-Rail Mounting	●		-	
Wall mounting	●		●	
Physical Characteristics				
Casing Protection	IP-30		IP-67	
Dimensions (mm)	74.3(W) x 109.2(D) x 153.6(H)		310(W) x 310(D) x 87(H)	
Operating Temperature				
-40 to 70°C	●		●	
Network Technology				
Operating Modes	Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP		Virtual Com, Serial Tunnel, TCP Server, TCP Client, UDP	
Windows O.S.Supported	Windows NT/2000/XP/2003/ VISTA 64-Bit/ Windows 7 64-Bit		Windows NT/2000/XP/2003/ VISTA 64-Bit/ Windows 7 64-Bit	
Multiple Link	5 host devices : Virtual COM, TCP Server, TCP Client mode; 4 IP ranges : UDP		5 host devices : Virtual COM, TCP Server, TCP Client mode; 4 IP ranges : UDP	
Event Notification	Syslog / SMTP/ SNMP trap		Syslog / SMTP/ SNMP trap / Beeper	
Warranty	3 years			

Product Selection Guide

Accessories



Fiber Patch Cord(FPC)/ Fiber Patch Adapter(FCA)/ Fiber Attenuator(FAT)					
Model Name	Optical Connector	Multi-mode	Single-mode	Diameter	Specification
FPC-SCSC-MM3M	SC / SC	•		62.5/125 μm	3 m
FPC-SCSC-SS3M	SC / SC		•	9/125 μm	3 m
FPC-SCLC-MM3M	SC / LC	•		62.5/125 μm	3 m
FPC-SCLC-SS3M	SC / LC		•	9/125 μm	3 m
FPC-SCST-MM3M	SC / ST	•		62.5/125 μm	3 m
FPC-SCST-SS3M	SC / ST		•	9/125 μm	3 m
FPC-LCLC-MM3M	LC / LC	•		62.5/125 μm	3 m
FPC-LCLC-SS3M	LC / LC		•	9/125 μm	3 m
FCA-SC-MM	SC / SC	•		62.5/125 μm	-
FCA-SC-SS	SC / SC		•	9/125 μm	-
FAT-LC-SS05	LC / LC		•	9/125 μm	5 db
FAT-LC-SS10	LC / LC		•	9/125 μm	10 db
FAT-LC-SS15	LC / LC		•	9/125 μm	15 db
FAT-LC-SS20	LC / LC		•	9/125 μm	20 db



DIN-Rail Power Supply	
Regular Type	
Model Name	Description
DR-4512	45W DIN-Rail 12VDC/3.5A Power Supply with universal 100 to 240VAC input, -10~50°C
DR-4524	45W DIN-Rail 24VDC/2A Power Supply with universal 100 to 240VAC input, -10~50°C
DR-75-12	75W DIN-Rail 12VDC/6.3A Power Supply with universal 100 to 240VAC input, -10~60°C
DR-75-24	75W DIN-Rail 24VDC/3.2A Power Supply with universal 100 to 240VAC input, -10~60°C
DR-75-48	75W DIN-Rail 48VDC/1.6A Power Supply with universal 100 to 240VAC input, -10~60°C
DR-120-12	120W DIN-Rail 12VDC/10A Power Supply with 100 to 120VAC / 220 to 240VAC input, -10~60°C
DR-120-24	120W DIN-Rail 24VDC/5A Power Supply with 100 to 120VAC / 220 to 240VAC input, -10~60°C
DR-120-48	120W DIN-Rail 48VDC/2.5A Power Supply with 100 to 120VAC / 220 to 240VAC input, -10~60°C
SDR-240-48	240W DIN-Rail 48VDC/5A Power Supply with 100 to 240VAC input, -25~70°C
SDR-480-48	480W DIN-Rail 48VDC/10A Power Supply with 100 to 240VAC input, -25~70°C
Extended Type	
Model Name	Description
DRP024V060W1BN	60W DIN-Rail 24VDC/2.5A Power Supply with universal 100 to 240VAC input, extended type, -25~80°C
DRP024V120W1BN	120W DIN-Rail 24VDC/5A Power Supply with universal 100 to 240VAC input, extended type, -25~80°C
DRP024V240W1BN	240W DIN-Rail 24VDC/10A Power Supply with universal 100 to 240VAC input, extended type, -25~80°C
DRP024V480W1BN	480W DIN-Rail 24VDC/20A Power Supply with universal 100 to 240VAC input, extended type, -25~80°C
DRP048V060W1BN	60W DIN-Rail 48VDC/1.25A Power Supply with universal 100 to 240VAC input, extended type, -25~80°C
DRP048V120W1BN	120W DIN-Rail 48VDC/2.5A Power Supply with universal 100 to 240VAC input, extended type, -25~80°C
DRP048V240W1BN	240W DIN-Rail 48VDC/5A Power Supply with universal 100 to 240VAC input, extended type, -25~80°C
DRP048V480W1BN	480W DIN-Rail 48VDC/10A Power Supply with universal 100 to 240VAC input, extended type, -25~75°C

Product Selection Guide



Power Cord with Ferrule terminal (For Din-Rail Power Supply)

Model Name	Description
PCF-AU	Power Cord with Ferrule terminal, AU plug
PCF-UK	Power Cord with Ferrule terminal, UK plug
PCF-US	Power Cord with Ferrule terminal, US plug
PCF-EU	Power Cord with Ferrule terminal, EU plug
PCF-JP	Power Cord with Ferrule terminal, JP plug

Power Adapter

Model Name	Description
PAA-121000	12VDC/1000mA 12W Power Adapter with universal 100 to 240VAC input, US plug, 0~40°C
PAE-121000	12VDC/1000mA 12W Power Adapter with universal 100 to 240VAC input, EU plug, 0~40°C
PAA-123750	12VDC/3750mA 45W Power Adapter with universal 100 to 240VAC input, US plug, -40~75°C
PAE-123750	12VDC/3750mA 45W Power Adapter with universal 100 to 240VAC input, EU plug, -40~75°C
PAA-482500	48VDC/2500mA 120W Power Adapter with universal 100 to 240VAC input, US power cord, -30~70°C
PAE-482500	48VDC/2500mA 120W Power Adapter with universal 100 to 240VAC input, EU power cord, -30~70°C
PAA-502400	50VDC/2400mA 120W Power Adapter with universal 100 to 240VAC input, US power cord, -10~50°C
PAE-502400	50VDC/2400mA 120W Power Adapter with universal 100 to 240VAC input, EU power cord, -10~50°C

*Note: Other plugs upon request.

M-Series Cables and connectors

Model Name	Description	Cable Length
M12C-4M4M-300	4-pin M12 Male to 4-pin M12 Male IP-67 Ethernet Cable, 3m, A-coding	3 m
M12C-4M4F-1000	4-pin M12 Male to 4-pin M12 Female IP-67 Ethernet Cable, 10m, A-coding	10 m
M12C-4M4F-3000	4-pin M12 Male to 4-pin M12 Female IP-67 Ethernet Cable, 30m, A-coding	30 m
M12C-4MRJ-300	4-pin M12 Male to RJ45 plug Ethernet Cable, 3m, A-coding	3 m
M12C-4M4M-300D	4-pin M12 Male to 4-pin M12 Male IP-67 Ethernet Cable, 3m, D-coding	3 m
M12C-4M4F-1000D	4-pin M12 Male to 4-pin M12 Female IP-67 Ethernet Cable, 10m, D-coding	10 m
M12C-4M4F-3000D	4-pin M12 Male to 4-pin M12 Female IP-67 Ethernet Cable, 30m, D-coding	30 m
M12C-4MRJ-300D	4-pin M12 Male to RJ45 Plug Ethernet Cable, 3m, D-coding	3 m
M12C-5MDB9-300	5-pin M12 Male to DB9 console Cable, 3m, A-coding	3 m
M12C-5M00-300	5-pin M12 Male to Tin-plated Bare Wire Power Cable, 3m, A-coding	3 m
M12C-5M5F-1000	5-pin M12 Male to 5-pin M12 Female IP-67 Cable, 10m, A-coding	10 m
M12C-5M5F-3000	5-pin M12 Male to 5-pin M12 Female IP-67 Cable, 30m, A-coding	30 m
M12C-8M8M-300	8-pin M12 Male to 8-pin M12 Male IP-67 Ethernet Cable, 3m, A-coding	3 m
M12C-8M8F-1000	8-pin M12 Male to 8-pin M12 Female IP-67 Ethernet Cable, 10m, A-coding	10 m
M12C-8M8F-3000	8-pin M12 Male to 8-pin M12 Female IP-67 Ethernet Cable, 30m, A-coding	30 m
M12C-8MRJ-300	8-pin M12 Male to RJ45 plug Ethernet Cable, 3m, A-coding	3 m
M12C-8M8M-300X	8-pin M12 Male to 8-pin M12 Male IP-67 Ethernet Cable, 3m, X-coding	3 m
M12C-8M8F-1000X	8-pin M12 Male to 8-pin M12 Female IP-67 Ethernet Cable, 10m, X-coding	10 m
M12C-8M8F-3000X	8-pin M12 Male to 8-pin M12 Female IP-67 Ethernet Cable, 30m, X-coding	30 m
M12C-8MRJ-300X	8-pin M12 Male to RJ45 plug Ethernet Cable, 3m, X-coding	3 m
M23C-5M00-300	5-pin M23 Male to Tin-plated Bare Wire Power Cable, 3m, A-coding	3 m
7/8C-5F00-300	5-pin 7/8 inch Female to Tin-plated Bare Wire Power Cable, 3m, A-coding	3 m
M12P-4MD	4-pin M12 Male Assembled Plug, Soldering type, D-coding	-
M12P-4MD-C	4-pin M12 Male Assembled Plug, IDC type, D-coding	-
M12P-4FS-S	4-pin M12 Female Assembled Plug, Screw type, S-coding	-
M12P-5MA	5-pin M12 Male Assembled Plug, Soldering type, A-coding	-



Product Selection Guide



M12P-5MA-C	5-pin M12 Male Assembled Plug, IDC type, A-coding	-
M12P-5FA	5-pin M12 Female Assembled Plug, Soldering type, A-coding	-
M12P-5FA-C	5-pin M12 Female Assembled Plug, IDC type, A-coding	-
M12P-8MA	8-pin M12 Male Assembled Plug, Soldering type, A-coding	-
M12P-8MA-C	8-pin M12 Male Assembled Plug, IDC type, A-coding	-
M12P-8FA	8-pin M12 Female Assembled Plug, Soldering type, A-coding	-
M12P-8FA-C	8-pin M12 Female Assembled Plug, IDC type, A-coding	-
M12P-8MX-C	8-pin M12 Male Assembled Plug, IDC type, X-coding	-
M23P-5MA	5-pin M23 Male Assembled Plug, Soldering type, A-coding	-
M23P-5MAR-S	5-pin M23 Male Assembled Plug, Screw type, A-coding, right angled	-
7/8P-5FA	5-pin 7/8 inch Female Assembled Plug, Soldering type, A-coding	-
7/8P-5FAR-S	5-pin 7/8 inch Female Assembled Plug, Screw type, A-coding, right angled	-



RF Antenna Base (Magnetic)

Model Name	Description	Cable Length
RFB-M2-150	N Female Magnetic WLAN RF Antenna Base, Cable length 1.5m, with SMA Male RS connector	1.5 m
RFB-M2-1000	N Female Magnetic WLAN RF Antenna Base, Cable length 10m, with SMA Male RS connector	10 m
RFB-M3-150	SMA Female RS Magnetic WLAN RF Antenna Base, Cable length 1.5m, with SMA Male RS connector	1.5m



RF Cable

Model Name	Description	Cable Length
RFC-SFR-SMR-1000	Low loss RF Cable, Cable length 10m, RP-SMA Female to RP-SMA Male connector	10 m
RFC-SF-SMR-150	Low loss RF Cable, Cable length 1.5m, SMA Female to RP-SMA Male connector	1.5 m
RFC-SM-SMR-150	Low loss RF Cable, Cable length 1.5m, SMA Male to RP-SMA Male connector	1.5 m
RFC-NM-SMR-150	Low loss RF Cable, Cable length 1.5m, N Male to RP-SMA Male connector	1.5 m
RFC-NM-SMR-500	Low loss RF Cable, Cable length 5m, N Male to RP-SMA Male connector	5m
RFC-NM-SMR-1000	Low loss RF Cable, Cable length 10m, N Male to RP-SMA Male connector	10 m
RFC-NF-NM-50	Low loss RF Cable, Cable length 0.5m, N Female to N Male connector	0.5 m
RFC-NF-NM-500	Low loss RF Cable, Cable length 5m, N Female to N Male connector	5 m
RFC-NF-NM-1000	Low loss RF Cable, Cable length 10m, N Female to N Male connector	10 m
RFC-NM-NM-150	Low loss RF Cable, Cable length 1.5m, N Male to N Male connector	1.5m



RF Surge Protector

Model Name	Description
RFP-NF-NM-WAG	High-power RF Surge Protector, 0~6GHz, N Female to N Male connector



WLAN RF Antenna (Outdoor Panel Type)

Model Name	Description
RFA-P12-WG	Outdoor High-gain Panel Antenna, 2.4GHz, 12dbi max, N Female connector
RFA-P14-WA	Outdoor High-gain Panel Antenna, 5GHz, 14dbi max, N Female connector

Product Selection Guide



WLAN RF Antenna (Omni - Directional)	
Model Name	Description
RFA-O7-NM-WG	Omni-directional High-gain Dipole Antenna, 2.4GHz, 7dBi max, N Male connector
RFA-O9-NM-WG	Omni-directional High-gain Dipole Antenna, 2.4GHz, 9dBi max, N Male connector
RFA-O5-NM-WA	Omni-directional High-gain Dipole Antenna, 5GHz, 5dBi max, N Male connector
RFA-O10-NM-WA	Omni-directional High-gain Dipole Antenna, 5GHz, 10dBi max, N Male connector
RFA-O12-NF-WA	Omni-directional High-gain Dipole Antenna, 5GHz, 12dBi max, N Female connector with wall-mount bracket
RFA-O8-NM-WAG	Omni-directional High-gain Dipole Antenna, 2.4/5GHz, 6/8dBi max, N Male connector



RF Antenna (Dome Type)	
Model Name	Description
RFA-D9-SM-WG	WLAN RF Dome Antenna 2.4GHz, 9dBi max, 2.4GHz, SMA Male connector
RFA-D28-SM-AG-3M	GPS Active Antenna, 1575 MHz, 28dBi max, Magnetic with 3m SMA Male cable



RF Antenna (Roof Type)	
Model Name	Description
RFA-O5-NF3-W3GGS-028	Omni-directional Roof Antenna, 2G/3G/4G, Wifi and GPS applications, 5dBi max, N Female connector

Product Selection Guide

Accessories Fast Ethernet SFP modules



Specifications

	Model name				
Characteristics	SFP100-MM/-I	SFP100-SS30/-I	SFP100-SS60/-I	SFP100-SS100/-I	*SFP100-SS120/-I
Fiber mode	multi-mode	single-mode	single-mode	single-mode	single-mode
Typical Distance	2 km	30 km	60 km	100 km	120 km
Operating Temperature	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)
Wavelength	1310 nm	1310 nm	1310 nm	1550 nm	1550 nm
Optical Output Power 9/125 μm fiber (Max. TX)	-	-8 dBm	0 dBm	0 dBm	5 dBm
Optical Output Power 9/125 μm fiber (Min. TX)	-	-15 dBm	-5 dBm	-5 dBm	0 dBm
Optical Output Power 62.5/125 μm fiber (Max. TX)	-14 dBm	-	-	-	-
Optical Output Power 62.5/125 μm fiber (Min. TX)	-20 dBm	-	-	-	-
Optical Output Power 50/125 μm fiber (Max. TX)	-14 dBm	-	-	-	-
Optical Output Power 50/125 μm fiber (Min. TX)	-23.5 dBm	-	-	-	-
Optical Input Power-minimum (Sensitivity)	-31 dBm	-34 dBm	-35 dBm	-35 dBm	-35 dBm
Optical Input Power-maximum (Saturation)	-8 dBm	0 dBm	0 dBm	0 dBm	0 dBm
Link Budget	7.5 dB	19 dB	30 dB	30 dB	35 dB

✳ If two SFP transceivers are connected to each other in a short distance and the received optical power is greater than the listed specification of the received SFP transceiver, please add an optical attenuator (Please refer to FAT-LC series accessories) to avoid any possible damages.

Ordering Information

Model Name	Description
SFP100-MM	100Mbps SFP optical transceiver, multi-mode / 2km, 1310nm, 0 ~ 70°C
SFP100-MM-I	100Mbps SFP optical transceiver, multi-mode / 2km, 1310nm, industrial grade, -40 ~ 85°C
SFP100-SS30	100Mbps SFP optical transceiver, single-mode / 30km, 1310nm, 0 ~ 70°C
SFP100-SS30-I	100Mbps SFP optical transceiver, single-mode / 30km, 1310nm, industrial grade, -40 ~ 85°C
SFP100-SS60	100Mbps SFP optical transceiver, single-mode / 60km, 1310nm, 0 ~ 70°C
SFP100-SS60-I	100Mbps SFP optical transceiver, single-mode / 60km, 1310nm, industrial grade, -40 ~ 85°C
SFP100-SS100	100Mbps SFP optical transceiver, single-mode / 100km, 1550nm, 0 ~ 70°C
SFP100-SS100-I	100Mbps SFP optical transceiver, single-mode / 100km, 1550nm, industrial grade, -40 ~ 85°C
SFP100-SS120	100Mbps SFP optical transceiver, single-mode / 120km, 1550nm, 0 ~ 70°C
SFP100-SS120-I	100Mbps SFP optical transceiver, single-mode / 120km, 1550nm, industrial grade, -40 ~ 85°C

Product Selection Guide

Accessories

Fast Ethernet BIDI-SFP modules



Specifications

	Model Name							
Characteristics	SFP100B3-MM/-I	SFP100B5-MM/-I	SFP100B3-SS20/-I	SFP100B5-SS20/-I	SFP100B3-SS40/-I	SFP100B5-SS40/-I	SFP100B3-SS60/-I	SFP100B5-SS60/-I
Fiber mode	Multi-mode	Multi-mode	single-mode	single-mode	single-mode	single-mode	single-mode	single-mode
Typical Distance	2 km	2 km	20 km	20 km	40 km	40 km	60 km	60 km
Operating Temperature	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)
Wavelength	TX : 1310 nm RX : 1550 nm	TX : 1550 nm RX : 1310 nm	TX : 1310 nm RX : 1550 nm	TX : 1550 nm RX : 1310 nm	TX : 1310 nm RX : 1550 nm	TX : 1550 nm RX : 1310 nm	TX : 1310 nm RX : 1550 nm	TX : 1550 nm RX : 1310 nm
Optical Output Power 9/125 μm fiber (Max. TX)	0 dBm	0 dBm	-8 dBm	-8 dBm	0 dBm	0 dBm	0 dBm	0 dBm
Optical Output Power 9/125 μm fiber (Min. TX)	-10 dBm	-10 dBm	-14 dBm	-14 dBm	-8 dBm	-8 dBm	-5 dBm	-5 dBm
Optical Input Power-minimum (Sensitivity)	-28 dBm	-28 dBm	-32 dBm	-32 dBm	-34 dBm	-34 dBm	-34 dBm	-34 dBm
Optical Input Power-maximum (Saturation)	0 dBm	0 dBm	0 dBm	0 dBm	0 dBm	0 dBm	0 dBm	0 dBm
Link Budget	18 dB		18 dB		26 dB		29 dB	

Ordering Information

Model Name	Description
SFP100B3-MM	100Mbps SFP optical Transceiver, Multi-mode BIDI / 2KM, TX1310nm / RX1550nm, 0 ~ 70°C
SFP100B3-MM-I	100Mbps SFP optical Transceiver, Multi-mode BIDI / 2KM, TX1310nm / RX1550nm, industrial grade, -40 ~ 85°C
SFP100B5-MM	100Mbps SFP optical Transceiver, Multi-mode BIDI / 2KM, TX1550nm / RX1310nm, 0 ~ 70°C
SFP100B5-MM-I	100Mbps SFP optical Transceiver, Multi-mode BIDI / 2KM, TX1550nm / RX1310nm, industrial grade, -40 ~ 85°C
SFP100B3-SS20	100Mbps SFP optical transceiver, single-mode BIDI / 20km, TX1310nm, RX1550nm, 0 ~ 70°C
SFP100B3-SS20-I	100Mbps SFP optical transceiver, single-mode BIDI / 20km, TX1310nm, RX1550nm, industrial grade, -40 ~ 85°C
SFP100B5-SS20	100Mbps SFP optical transceiver, single-mode BIDI / 20km, TX1550nm, RX1310nm, 0 ~ 70°C
SFP100B5-SS20-I	100Mbps SFP optical transceiver, single-mode BIDI / 20km, TX1550nm, RX1310nm, industrial grade, -40 ~ 85°C
SFP100B3-SS40	100Mbps SFP optical transceiver, single-mode BIDI / 40km, TX1310nm, RX1550nm, 0 ~ 70°C
SFP100B3-SS40-I	100Mbps SFP optical transceiver, single-mode BIDI / 40km, TX1310nm, RX1550nm, industrial grade, -40 ~ 85°C
SFP100B5-SS40	100Mbps SFP optical transceiver, single-mode BIDI / 40km, TX1550nm, RX1310nm, 0 ~ 70°C
SFP100B5-SS40-I	100Mbps SFP optical transceiver, single-mode BIDI / 40km, TX1550nm, RX1310nm, industrial grade, -40 ~ 85°C
SFP100B3-SS60	100Mbps SFP optical transceiver, single-mode BIDI / 60km, TX1310nm, RX1550nm, 0 ~ 70°C
SFP100B3-SS60-I	100Mbps SFP optical transceiver, single-mode BIDI / 60km, TX1310nm, RX1550nm, industrial grade, -40 ~ 85°C
SFP100B5-SS60	100Mbps SFP optical transceiver, single-mode BIDI / 60km, TX1550nm, RX1310nm, 0 ~ 70°C
SFP100B5-SS60-I	100Mbps SFP optical transceiver, single-mode BIDI / 60km, TX1550nm, RX1310nm, industrial grade, -40 ~ 85°C

Product Selection Guide

Accessories

Gigabit Ethernet SFP modules



Specifications

	Model Name									
Characteristics	SFP1G-SX/-I	SFP1G-MLX/-I	SFP1G-LX10/-I	*SFP1G-LX20/-I	*SFP1G-LHX30/-I	*SFP1G-LHX40/-I	*SFP1G-XD50/-I	*SFP1G-ZX70/-I	*SFP1G-ZX80/-I	*SFP1G-EZX120/-I
Fiber mode	multi-mode	multi-mode	single-mode	single-mode	single-mode	single-mode	single-mode	single-mode	single-mode	single-mode
Typical Distance	550 m	62.5/125 : 2km 50/125 : 1km	10 km	20 km	30 km	40 km	50 km	70 km	80 km	120 km
Operating Temperature	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)
Wavelength	850 nm	1310 nm	1310 nm	1310 nm	1310 nm	1310 nm	1550 nm	1550 nm	1550 nm	1550 nm
Optical Output Power 9/125 μm fiber (Max. TX)	-	-	-3 dBm	-2 dBm	1 dBm	1 dBm	1 dBm	5 dBm	5 dBm	5 dBm
Optical Output Power 9/125 μm fiber (Min. TX)	-	-	-9.5 dBm	-8 dBm	-4 dBm	-4 dBm	-4 dBm	0 dBm	0 dBm	0 dBm
Optical Output Power 62.5/125 μm fiber (Max. TX)	-4 dBm	-1 dBm	-	-	-	-	-	-	-	-
Optical Output Power 62.5/125 μm fiber (Min. TX)	-9.5 dBm	-9 dBm	-	-	-	-	-	-	-	-
Optical Output Power 50/125 μm fiber (Max. TX)	-4 dBm	-1 dBm	-	-	-	-	-	-	-	-
Optical Output Power 50/125 μm fiber (Min. TX)	-9.5 dBm	-9 dBm	-	-	-	-	-	-	-	-
Optical Input Power-minimum (Sensitivity)	-18 dBm	-19 dBm	-20 dBm	-23 dBm	-24 dBm	-24 dBm	-24 dBm	-24 dBm	-24 dBm	-32 dBm
Optical Input Power-maximum (Saturation)	0 dBm	-1 dBm	-3 dBm	-3 dBm	-3 dBm	-3 dBm	-3 dBm	-3 dBm	-3 dBm	-8 dBm
Link Budget	8.5 dB	10 dB	10.5 dB	15 dB	20 dB	20 dB	20 dB	24 dB	24 dB	32 dB

☀ If two SFP transceivers are connected to each other in a short distance and the received optical power is greater than the listed specification of the received SFP transceiver, please add an optical attenuator (Please refer to FAT-LC series accessories) to avoid any possible damages.

Ordering Information

Model Name	Description
SFP1G-SX	1Gbps SFP optical transceiver, multi-mode / 550m, 850nm, 0 ~ 70°C
SFP1G-SX-I	1Gbps SFP optical transceiver, multi-mode / 550m, 850nm, industrial grade, -40 ~ 85°C
SFP1G-MLX	1Gbps SFP optical transceiver, multi-mode / 2km, 1310nm, 0 ~ 70°C
SFP1G-MLX-I	1Gbps SFP optical transceiver, multi-mode / 2km, 1310nm, industrial grade, -40 ~ 85°C
SFP1G-LX10	1Gbps SFP optical transceiver, single-mode / 10km, 1310nm, 0 ~ 70°C
SFP1G-LX10-I	1Gbps SFP optical transceiver, single-mode / 10km, 1310nm, industrial grade, -40 ~ 85°C
SFP1G-LX20	1Gbps SFP optical transceiver, single-mode / 20km, 1310nm, 0 ~ 70°C
SFP1G-LX20-I	1Gbps SFP optical transceiver, single-mode / 20km, 1310nm, industrial grade, -40 ~ 85°C
SFP1G-LHX30	1Gbps SFP optical transceiver, single-mode / 30km, 1310nm, 0 ~ 70°C
SFP1G-LHX30-I	1Gbps SFP optical transceiver, single-mode / 30km, 1310nm, industrial grade, -40 ~ 85°C
SFP1G-LHX40	1Gbps SFP optical transceiver, single-mode / 40km, 1310nm, 0 ~ 70°C
SFP1G-LHX40-I	1Gbps SFP optical transceiver, single-mode / 40km, 1310nm, industrial grade, -40 ~ 85°C
SFP1G-XD50	1Gbps SFP optical transceiver, single-mode / 50km, 1550nm, 0 ~ 70°C
SFP1G-XD50-I	1Gbps SFP optical transceiver, single-mode / 50km, 1550nm, industrial grade, -40 ~ 85°C
SFP1G-ZX70	1Gbps SFP optical transceiver, single-mode / 70km, 1550nm, 0 ~ 70°C
SFP1G-ZX70-I	1Gbps SFP optical transceiver, single-mode / 70km, 1550nm, industrial grade, -40 ~ 85°C
SFP1G-ZX80	1Gbps SFP optical transceiver, single-mode / 80km, 1550nm, 0 ~ 70°C
SFP1G-ZX80-I	1Gbps SFP optical transceiver, single-mode / 80km, 1550nm, industrial grade, -40 ~ 85°C
SFP1G-EZX120	1Gbps SFP optical transceiver, single-mode / 120km, 1550nm, 0 ~ 70°C
SFP1G-EZX120-I	1Gbps SFP optical transceiver, single-mode / 120km, 1550nm, industrial grade, -40 ~ 85°C

Product Selection Guide

Accessories

Gigabit Ethernet BIDI-SFP modules



Specifications

	Model Name									
Characteristics	SFP1GB3-LX10/-I	SFP1GB5-LX10/-I	SFP1GB3-LX20/-I	SFP1GB5-LX20/-I	*SFP1GB3-LX40/-I	*SFP1GB5-LX40/-I	*SFP1GB3-LX60/-I	*SFP1GB5-LX60/-I	*SFP1GB4-LX80/-I	*SFP1GB5-LX80/-I
Fiber mode	single-mode	single-mode	single-mode	single-mode	single-mode	single-mode	single-mode	single-mode	single-mode	single-mode
Typical Distance	10 km	10 km	20 km	20 km	40 km	40 km	60 km	60 km	80 km	80 km
Operating Temperature	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)
Wavelength	TX : 1310 nm RX : 1550 nm	TX : 1550 nm RX : 1310 nm	TX : 1310 nm RX : 1550 nm	TX : 1550 nm RX : 1310 nm	TX : 1310 nm RX : 1550 nm	TX : 1550 nm RX : 1310 nm	TX : 1310 nm RX : 1550 nm	TX : 1550 nm RX : 1310 nm	TX : 1490 nm RX : 1550 nm	TX : 1550 nm RX : 1490 nm
Optical Output Power 9/125 μm fiber (Max. TX)	-3 dBm	-3 dBm	-2 dBm	-2 dBm	2 dBm	2 dBm	5 dBm	4 dBm	4 dBm	4 dBm
Optical Output Power 9/125 μm fiber (Min. TX)	-9 dBm	-9 dBm	-8 dBm	-8 dBm	-3 dBm	-3 dBm	0 dBm	-2 dBm	-2 dBm	-2 dBm
Optical Input Power-minimum (Sensitivity)	-21 dBm	-21 dBm	-23 dBm	-23 dBm	-23 dBm	-23 dBm	-24 dBm	-25 dBm	-25 dBm	-25 dBm
Optical Input Power-maximum (Saturation)	-1 dBm	-1 dBm	-1 dBm	-1 dBm	-1 dBm	-1 dBm	-1 dBm	-1 dBm	-3 dBm	-3 dBm
Link Budget	12 dB		15 dB		20 dB		22 dB		23 dB	

* If two SFP transceivers are connected to each other in a short distance and the received optical power is greater than the listed specification of the received SFP transceiver, please add an optical attenuator (Please refer to FAT-LC series accessories) to avoid any possible damages.

Ordering Information

Model Name	Description
SFP1GB3-LX10	1Gbps SFP optical transceiver, single-mode BIDI / 10km, TX1310nm, RX1550nm, 0 ~ 70°C
SFP1GB3-LX10-I	1Gbps SFP optical transceiver, single-mode BIDI / 10km, TX1310nm, RX1550nm, industrial grade, -40 ~ 85°C
SFP1GB5-LX10	1Gbps SFP optical transceiver, single-mode BIDI / 10km, TX1550nm, RX1310nm, 0 ~ 70°C
SFP1GB5-LX10-I	1Gbps SFP optical transceiver, single-mode BIDI / 10km, TX1550nm, RX1310nm, industrial grade, -40 ~ 85°C
SFP1GB3-LX20	1Gbps SFP optical transceiver, single-mode BIDI / 20km, TX1310nm, RX1550nm, 0 ~ 70°C
SFP1GB3-LX20-I	1Gbps SFP optical transceiver, single-mode BIDI / 20km, TX1310nm, RX1550nm, industrial grade, -40 ~ 85°C
SFP1GB5-LX20	1Gbps SFP optical transceiver, single-mode BIDI / 20km, TX1550nm, RX1310nm, 0 ~ 70°C
SFP1GB5-LX20-I	1Gbps SFP optical transceiver, single-mode BIDI / 20km, TX1550nm, RX1310nm, industrial grade, -40 ~ 85°C
SFP1GB3-LX40	1Gbps SFP optical transceiver, single-mode BIDI / 40km, TX1310nm, RX1550nm, 0 ~ 70°C
SFP1GB3-LX40-I	1Gbps SFP optical transceiver, single-mode BIDI / 40km, TX1310nm, RX1550nm, industrial grade, -40 ~ 85°C
SFP1GB5-LX40	1Gbps SFP optical transceiver, single-mode BIDI / 40km, TX1550nm, RX1310nm, 0 ~ 70°C
SFP1GB5-LX40-I	1Gbps SFP optical transceiver, single-mode BIDI / 40km, TX1550nm, RX1310nm, industrial grade, -40 ~ 85°C
SFP1GB3-LX60	1Gbps SFP optical transceiver, single-mode BIDI / 60km, TX1310nm, RX1550nm, 0 ~ 70°C
SFP1GB3-LX60-I	1Gbps SFP optical transceiver, single-mode BIDI / 60km, TX1310nm, RX1550nm, industrial grade, -40 ~ 85°C
SFP1GB5-LX60	1Gbps SFP optical transceiver, single-mode BIDI / 60km, TX1550nm, RX1310nm, 0 ~ 70°C
SFP1GB5-LX60-I	1Gbps SFP optical transceiver, single-mode BIDI / 60km, TX1550nm, RX1310nm, industrial grade, -40 ~ 85°C
SFP1GB4-LX80	1Gbps SFP optical transceiver, single-mode BIDI / 80km, 1490nm, 1550nm, 0 ~ 70°C
SFP1GB4-LX80-I	1Gbps SFP optical transceiver, single-mode BIDI / 80km, 1490nm, 1550nm, industrial grade, -40 ~ 85°C
SFP1GB5-LX80	1Gbps SFP optical transceiver, single-mode BIDI / 80km, 1550nm, 1490nm, 0 ~ 70°C
SFP1GB5-LX80-I	1Gbps SFP optical transceiver, single-mode BIDI / 80km, 1550nm, 1490nm, industrial grade, -40 ~ 85°C

Product Selection Guide

Accessories

10G Ethernet SFP+ modules with Diagnostic Monitoring



Specifications

	Model Name				
Characteristics	SFP10G-MM/-I	SFP10G-LR10/-I	SFP10G-LR20/-I	*SFP10G-ER40/-I	*SFP10G-ZR80/-I
Fiber mode	multi-mode	single-mode	single-mode	single-mode	single-mode
Typical Distance	62.5/125um : 33m 50/125um(OM2) : 82m 50/125um(OM3) : 300m	10 km	20 km	40 km	80 km
Operating Temperature	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)	0~70°C -40~85°C (-I model)
Wavelength	850 nm	1310 nm	1310 nm	1550 nm	1550 nm
Optical Output Power 9/125 μm fiber (Max. TX)	-	0.5 dBm	0.5 dBm	4 dBm	4 dBm
Optical Output Power 9/125 μm fiber (Min. TX)	-	-8 dBm	-4 dBm	-4.7 dBm	0 dBm
Optical Output Power 62.5/125 μm fiber (Max. TX)	-1 dBm	-	-	-	-
Optical Output Power 62.5/125 μm fiber (Min. TX)	-6.5 dBm	-	-	-	-
Optical Output Power 50/125 μm fiber (Max. TX)	-1 dBm	-	-	-	-
Optical Output Power 50/125 μm fiber (Min. TX)	-6.5 dBm	-	-	-	-
Optical Input Power-minimum (Sensitivity)	-9.9 dBm	-14.4 dBm	-15 dBm	-15.8 dBm	-23 dBm
Optical Input Power-maximum (Saturation)	-1 dBm	0.5 dBm	0.5 dBm	-1 dBm	-7 dBm
Link Budget	3.4 dB	6.4 dB	11 dB	11.1 dB	23 dB

⚠ If two SFP transceivers are connected to each other in a short distance and the received optical power is greater than the listed specification of the received SFP transceiver, please add an optical attenuator(Please refer to FAT-LC series accessories) to avoid any possible damages.

Ordering Information

Model Name	Description
SFP10G-MM	10Gbps SFP+ optical transceiver, multi-mode / 300m, 850nm, 0 ~ 70°C
SFP10G-MM-I	10Gbps SFP+ optical transceiver, multi-mode / 300m, 850nm, industrial grade, -40 ~ 85°C
SFP10G-LR10	10Gbps SFP+ optical transceiver, single-mode / 10km, 1310nm, 0 ~ 70°C
SFP10G-LR10-I	10Gbps SFP+ optical transceiver, single-mode / 10km, 1310nm, industrial grade, -40 ~ 85°C
SFP10G-LR20	10Gbps SFP+ optical transceiver, single-mode / 20km, 1310nm, 0 ~ 70°C
SFP10G-LR20-I	10Gbps SFP+ optical transceiver, single-mode / 20km, 1310nm, industrial grade, -40 ~ 85°C
SFP10G-ER40	10Gbps SFP+ optical transceiver, multi-mode / 40km, 1550nm, 0 ~ 70°C
SFP10G-ER40-I	10Gbps SFP+ optical transceiver, multi-mode / 40km, 1550nm, industrial grade, -40 ~ 85°C
SFP10G-ZR80	10Gbps SFP+ optical transceiver, single-mode / 80km, 1550nm, 0 ~ 70°C
SFP10G-ZR80-I	10Gbps SFP+ optical transceiver, single-mode / 80km, 1550nm, industrial grade, -40 ~ 85°C

Product Selection Guide

Accessories

Gigabit Ethernet SFP-RJ45 modules



Specifications

	Model Name		
Characteristics	SFP1GRJ	SFP1GRJ-I	SFP10GRJ
Operating Temperature	0~70°C	-40~85°C	0~70°C
RJ45 Operation mode	1000Base-T*	1000Base-T*	10GBase-T*
SFP Interface	SERDES, 1000Base-X	SERDES, 1000Base-X	SERDES, 10GBase-X

- * 1. Please notice 10/100Base-T(X) modes are not supported.
 2. Link length up to 100m with Cat5 UTP cable or better.
- * 1. Please notice 10/100/1000Base-T modes are not supported.
 2. Link length up to 30m with Cat6a/7 cable.

Ordering Information

Model Name	Description
SFP1GRJ	1Gbps SFP to 1000 Base-T transceiver, 0 ~ 70°C
SFP1GRJ-I	1Gbps SFP to 1000 Base-T transceiver, industrial grade, -40 ~ 85°C
SFP10GRJ	10Gbps SFP+ to 10G - Base-T transceiver, 0 ~ 70°C

10G Ethernet SFP+ Copper Cable



Specifications

	Model Name			
Characteristics	SFPC10G-50	SFPC10G-100	SFPC10G-300	SFPC10G-500
Max.Speed	10 Gbps	10 Gbps	10 Gbps	10 Gbps
Wire Gauge	30 AWG	30 AWG	30 AWG	24 AWG
Low Smoke Zero Halogen	•	•	•	•
Cable length	0.5 m	1 m	3 m	5 m
Operating temperature	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C

Ordering Information

Model Name	Description	Cable length
SFPC10G-50	10Gbps SFP+ copper cable 30AWG, 0.5 m, -40 ~ 85°C	0.5 m
SFPC10G-100	10Gbps SFP+ copper cable 30AWG, 1 m, -40 ~ 85°C	1 m
SFPC10G-300	10Gbps SFP+ copper cable 30AWG, 3 m, -40 ~ 85°C	3 m
SFPC10G-500	10Gbps SFP+ copper cable 24AWG, 5 m, -40 ~ 85°C	5 m

Product Selection Guide

Network Management Software

Open-Vision v3.6



Ordering Information

Model Name	Description
Open-Vision M500	Powerful Network Management Windows Utility Suite, 500 IP devices

Network Management Server

DMG-S15






Specifications

Port Number	
10/100/1000Base-T(X) Ports	6
Power Redundancy	
AC Power adapter with power cord	1(100~240VAC)
Installation	
Rack Mounting	•
Physical Characteristics	
Casing Protection	IP-20
Dimensions (mm)	431(W)x276(D)x44(H)
Operating Temperature	
0 to 40°C	•
Management and Control	
VPN Server	•
Firewall	•
Multi-level login	admin / user
Wireless Management	•
Built in Router	•
Topology View	•
DDNS	•
Event Notification	SYSLOG / SNMP Trap/ Relay
DHCP	Server / Client
Management / Configuration	WEB
Captive Portal	•
AAA Server	•
Warranty	3 years

Ordering Information

Model Name	Description
DMG-S15	ORing Rack mount multi-functional Device Management Gateway with 1xGbE WAN port, 5x GbE LAN ports

Product Selection Guide

			Smart Lighting Controller ZigBee Series							
			Master		Slave					
Industrial IOT Product										
			OLM-Z01ND		OLM-Z01NT		OLS-Z01ND		OLS-Z01NT	
			NEMA Socket Connected							
			Pin define		7pin NEMA socket (Follow ANSI C136.41 Receptacle)					
			Technology							
DC Dimmable Function		DALI		AO(0-10V)		DALI		AO(0-10V)		
Measurement		Vrms(V) 、Irms(I) 、Power Factor(PF) 、Frequency(Hz) 、Power(W)								
Lighting Control	ON	●		●		●		●		
	OFF	●		●		●		●		
Uplink Interface										
Working Mode		3G		3G						
		4G		4G						
Network Interface										
Working Mode		WIFI		WIFI		ZigBee		ZigBee		
		ZigBee		ZigBee						
RF Spectrum		2.4GHz		2.4GHz		2.4GHz		2.4GHz		
Electrical Specification										
Input Power Supply Voltage		110-240Vac								
Load Capacity		2A								
Power Consumption		1.35W(Max)								
DALI supply current		10mA				10mA				
AO supply current				1mA				1mA		
Physical Characteristics										
Enclosure		IP54								
Dimensions		Φ90 x 87mm								
Weight		190g								
Environmental										
Storage Temperature		-40℃ to +80℃								
Operating Temperature		-30℃ to +70℃								
Operating Humidity		0 to 95%								

Industrial IOT Product



Product Selection Guide

Smart Lighting Controller NBloT Series

NBloT Lighting Controller

Industrial IOT Product



OL-NB01ND

OL-NB01NT

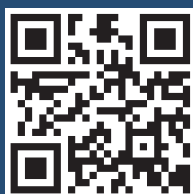
NEMA Socket Connected			
Pin define		7pin NEMA socket (Follow ANSI C136.41 Receptacle)	
Technology			
DC Dimmable Function		DALI	A0(0-10V)
Measurement		Vrms(V) 、 Irms(I) 、 Power Factor(PF) 、 Frequency(Hz) 、 Power(W)	
Lighting Control	ON	•	•
	OFF	•	•
Uplink Interface			
Working Mode	3G		
	4G		
Network Interface			
Working Mode		NB-IoT	NB-IoT
RF Spectrum	Band4(1700MHz)		Band4(1700MHz)
	Band5(850MHz)		Band5(850MHz)
	Band8(900MHz)		Band8(900MHz)
	Band20(800MHz)		Band20(800MHz)
	Band28(700MHz)		Band28(700MHz)
Electrical Specification			
Input Power Supply Voltage		110-240Vac	
Load Capacity		2A	
Power Consumption		1.35W(Max)	
DALI supply current		10mA	
AO supply current			1mA
Physical Characteristics			
Enclosure		IP54	
Dimensions		Φ90 x 87mm	
Weight		190g	
Environmental			
Storage Temperature		-40℃ to +80℃	
Operating Temperature		-30℃ to +70℃	
Operating Humidity		0 to 95%	

Notes



ORing

Get Connected Anytime, Anywhere



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*Specifications are subject to change without prior notice.