



leonton

Your Partner in Networking







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ABOUT US

Introduction

Leonton is a worldwide industrial networking communication manufacturer providing high-quality custom design product solutions. Located in Taiwan, Leonton has been a customer-centric company offering exceptional service and superb product quality inspections since its founding in 2012. We are recognized in the industry for our outstanding industrial networking product lines of industrial Ethernet switches and media converters. Leonton's superior product design capability allows for a quick and flawless time to market process. We are proud of our ability to manage and customize any project requiring a specific product to meet and exceed customer expectations.

Custom Design Service

Leonton's experienced and professional R&D engineering team collaborates with customers from the design stage and facilitates all required activities to successfully migrate new products toward mass production.

YOUR PARTNER IN NETWORKING

Project Management

We strictly follow customers' qualification processes for manufacturing approval and every new product undergoes Leonton's NPI program (New Product Introduction). This program identifies potential design flaws, validates the process, and decides suitable conditions for mass production.

Manufacturing & Quality Assurance

Leonton provides a complete testing system and professional environment to manufacture industrial networking products. Our exceptional design service experience and knowledge of new process technologies will assure customers of an impeccable product design experience. All finalized products are thoroughly checked for quality assurance, as we produce only products with the highest quality. Leonton offers reliable services that are economical and minimize project development timelines. Leonton uses state-of-the-art testing equipment in all verification testing phases for various product lines to validate the qualities of the product.

Total Solution Provider

Leonton Technologies was built on placing great value on customers' needs and goals in order to provide thorough and outstanding all-in-one solution.

Not only does Leonton provide industrial networking product design and manufacturing, but it also distributes industrial networking accessories such as SFP modules and DIN rail power supply series. Thus, providing customers a simple solution to their networking and communication needs is what Leonton emphasizes.

Furthermore, with over 30 years of combined engineering experience, Leonton provides consultation services for system integration and installation. We provide recommendations for products based on reviewing customers' specific environments and industrial applications.

Our team always upholds customers' brands by providing top-of-the-line service and solutions.



2012

Quality Assurance

IXIA & Spirent

Simulating network to validate performance, resilience, protocol compliance and interoperability of (networking) products.

Sifos

Validating functionality of PoE product series and compliance to IEEE PoE standards with sufficient and reliable data.

Temperature & Humidity Chamber

Simulating different harsh operating environments with extreme temperature and humidity to make sure products are able to operate reliably under severe conditions.

Burn-In Oven

Simulating high temperature conditions to validate the high tolerance to extreme weather and the reliability of the products.

NOW

CUSTOMIZATION SERVICE

Customization Service

STANDARD

Leonton is committed to providing the best service to our customers, and we start with our Standard products, which are 100% made of industrial components and examined by rigorous industrial-level tests. Moreover, we dedicate ourselves to preserve the environment by having all of our product RoHS compliant. Besides helping customers to gain a competitive edge in the market, Leonton keeps running new projects for the latest technology in our product on every aspect to enrich our product lines in the industrial networking industry.



INDUSTRIAL COMPONENT

Industrial component. Not only industrial.

As a leading manufacturer of industrial networking devices, Leonton only partners with the best suppliers who offer materials with the highest quality. The quality we insist on today gives the reliability you will discover tomorrow.



RIGOROUS TESTING

Test done. Quality assured.

Reliability is one of the most crucial keystones of industrial networking products. By strictly abiding by industrial-level quality control regulations, Leonton's each piece of unit is 100% inspected and tested before going to customers' hands with a 5-year warranty.



CUTTING-EDGE TECHNOLOGY

Edge cut. Tech got.

Technology is not just specialized aspects of a particular field of endeavor, but Leonton regards it as the distillation of craft, ingenuity and passion. We are motivated by hearing from customers and partners who are also onboard with the trend of technology progress. We offer cutting-edge technology for customers to gain a competitive edge in the market.

LITE-CUSTOM

It had never been so easy to build your own brand on industrial networking products, ranging from industrial Ethernet switch, media converter and other accessories. Slight changes based on Leonton's Standard goods can let you hit the market in the fastest way. By just a simple swap, a lovely re-branding is done without the cost of full R&D process. Mylar, label, housing color, or even additional ports could be easily modified to fit your needs. In this way, Leonton can help customers deliver their own product to the market immediately and smoothly.



PARTIAL MODIFICATION

Slightly changed. Highly recognized.

To hit the market fast, you only have to make few slight changes based on Leonton's Standard goods. Given our full flexibility and capability, you could customize and create your own branding for any specific product. With this advantage, we modify partially but thrive all-sidedly. Leonton's Lite-Custom service would be your best choice if you are just in need of small alterations.



EASY BRANDING

Simple swap. Lovely branding.

Leonton provides the easiest way to help you do the re-branding, which is to design a new mylar, customize a new label or even change the housing color for your chosen products. Without the cost of whole R&D process, you will be able to deliver your own product to the market immediately. In this simple way, branding would be fairly effortless.



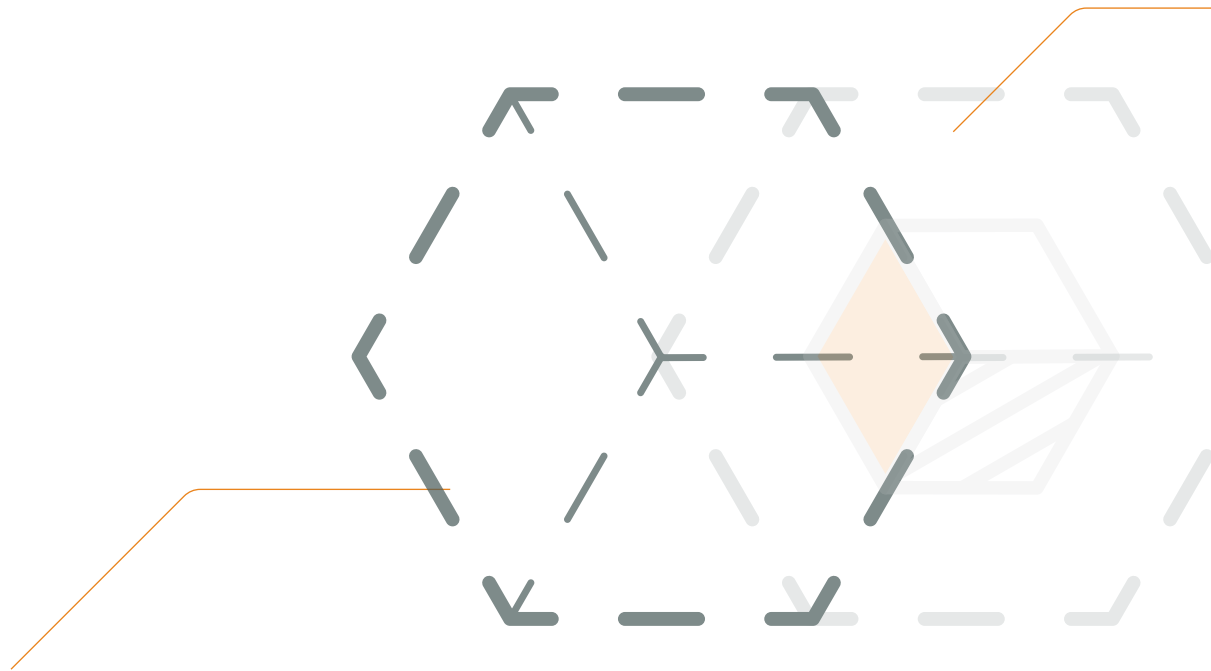
MULTIPLE ALTERNATIVES

New Interface. Your Interface.

Experienced engineers and designers can help you modify the specifications for lower cost and alter the software user interface for your branding needs. Based on Standard products, modifying port count is a good way to reduce the cost if you only need fewer ports. By having your own banner, front panel and any other details of the software will help you do the branding.

FULL-CUSTOM

In this fast-changing era, by Full-Custom service, Leonton helps customers to develop the industrial networking products which catch the trending from the very beginning and to manage the project flawlessly for the fastest time-to-market. Emphasis will be always put on development first since we consider it as the most crucial stage in the whole process. Followed by a series of verifications and tests, we take nothing of the project lightly and manage with an invariable strict attitude. Leonton is your best solution provider for reaching your business goals as we offer nothing less than great products and service but also deliver our core value, which is the best service.



ADVANCED DEVELOPMENT

Advanced development. Remarkable achievement.

Development is the most crucial stage in Leonton's Full-Custom project. Each phase is deliberately initiated and analyzed by our R&D team. Experienced engineers and technicians of Leonton target at designing products with the utmost reliability and performance for system integration. Each product is thoroughly planned, bettered and tested to reach the highest standard and meet customers' expectations.



FAST TIME-TO-MARKET

Stone before. Gold after.

Leonton's outstanding service gives our customers the fastest time-to-market ability, offering ID design, customizable software UI, packaging artwork design, certification program application and comprehensive product technical training. Leonton's engineers with more than 30 years experience in the industry will be the best solution providers for reaching your business goals.



FLAWLESS MANAGEMENT

Properly managed. Ideally delivered.

Right after an incoming customer request, Leonton initiates project management SOP, starting from PDS (Product Development Specification), EVT (Engineering Verification Test), DVT (Design Verification Test), PVT (Production Verification Test), MP (Mass Production), OQC (Outgoing Quality Control) to the closed case. We believe a well-managed project brings out more than a good product but also delivers our core value, and that is the best service.

Customization Service

CERTIFICATION

Manufacturer of industrial networking products, Leonton provides the most exceptional and comprehensive Ethernet-centralized networking product line for our customers.





EN 55024
EN 55032
EN 55035



EN 61000-6-4
EN 61000-6-2 *for Industrial Environment*



Corrosion Protection



DNV



IEC 61850-3



EN 50155



EN 50121-4



E-Mark



NEMA TS2



UL



ISA 12.12.01(C1D2)



ATEX

PRODUCT SELECTION GUIDE

BT PoE SERIES

Easily Connect & Power Up for Your High-Power PoE Networks

Facilitate Industrial 90W PoE Network Now

PoE (Power over Ethernet) technology is widely adopted for supporting networking devices power and connectivity when facing the challenge of wiring in rigorous environments with power sourcing limitations. IEEE standards specify the maximum power output from PSE (power sourcing equipment) as well as the power budget for the PD (powered device) to ensure the interoperability of both devices in the market.

With the increasing need of higher power in applications, the maximum PD power available is increased by this amendment to IEEE standards.

BG5-1204-SFP-24 Series

- 4*10/100/1000Base-TX IEEE 802.3bt 90W PoE
- 4*10/100/1000Base-X IEEE 802.3af/at PoE+
- 4*100/1000Base-TX SFP Slot
- 12-55VDC Dual Power Input for Redundancy

BG5-0702-SFP-24 Series

- 4*10/100/1000TX IEEE 802.3bt 90W PoE
- 1*10/100/1000TX Gigabit Ethernet
- 2*100/1000Base-TX SFP Slot
- 12-55VDC Dual Power Input for Redundancy

CBG5-0602-SFP Series

- 4*10/100/1000TX IEEE 802.3bt 90W PoE
- 2*100/1000Base-TX SFP Slot
- Compact Size Design
- 48-55VDC Dual Power Input for Redundancy

BG2-0500-SFP-24 Series

- 4*10/100/1000TX IEEE 802.3bt 90W PoE
- 1*10/100/1000TX Gigabit Ethernet
- 12-55VDC Dual Power Input for Redundancy

CBG2-0501-SFP-12 Series

- 4*10/100/1000TX IEEE 802.3bt 90W PoE
- 1*100/1000Base-TX SFP Slot
- Compact Size Design
- 9-55VDC Dual Power Input for Redundancy

MBG2-0201-SFP-24 Series

- 1*10/100/1000TX IEEE 802.3bt 90W PoE
- 1*100/1000Base-TX SFP Slot
- PD Remote Reset Technology(PRRT)
- Link Fault Pass Through(LFP)
- Compact Size Design
- 12-55VDC Dual Power Input for Redundancy

IEEE 802.3af

Power Sourced
15.4W

Power Requested
13W



IP Camera



IP Phone

IEEE 802.3at

Power Sourced
30W

Power Requested
25.5W



Wireless AP



IP Camera

IEEE 802.3bt

Power Sourced
90W

Power Requested
71.3W



PTZ Camera



PTZ Controller



Smart Lighting



Digital Signage

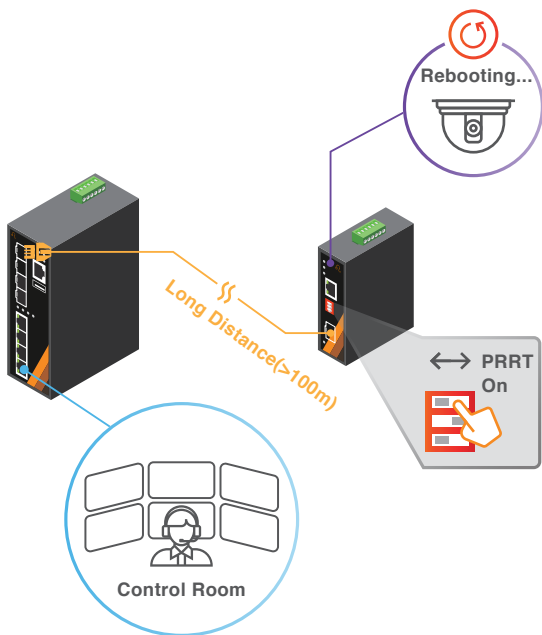


POS System

Time-Saving. Effort-Saving.

PRRT (PD Remote Reset Technology)

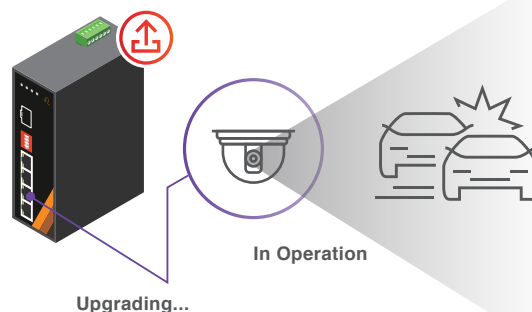
Enabling PRRT function can save you hours, miles and lots of efforts. With simply pull and plug on fiber cable of networking device connected with BT PoE product in the near field site, remote PSE system can be rebooted to reset remote PD devices.



Persistent PoE

PD devices are connected to collect important data for a wide array of crucial applications, such as video surveillance, to guarantee personal and property safety. It is one of the most users' concerns when it comes to PD devices shut-down in a key moment.

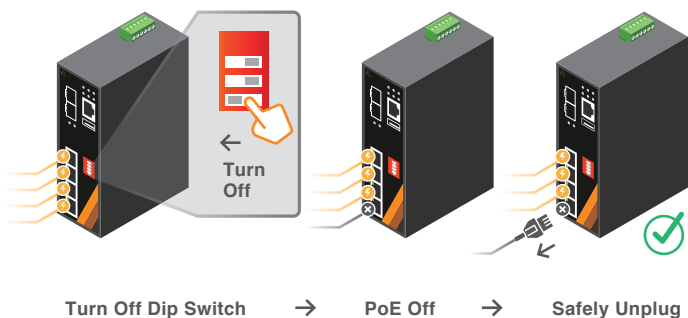
Leonton's Persistent PoE provides uninterrupted power delivery to PD devices even when the firmware is being upgraded, ensuring PD devices smooth operation with no worry.



Prevent Electric Spark Risk

Safe PoE Disable

High power PoE (802.3bt) accompanies the risk of electric spark. Safe PoE Disable design allows users to safely unplug the copper cable, ensuring zero electric spark danger and prevent fire hazard.



Responsive PoE Management

Users are able to manage the PoE devices according to different operating status with both hardware and software reminders thoroughly.

- PoE Budget
- Ping Alive
- PoE Schedule
- Event Indicator
- PoE Loading



Managed BT PoE Gigabit
Ethernet Switch

BT PoE Series



	CBG5-0602-SFP	BG5-0702-SFP-24	BG5-0702-SFP	BG5-1204-SFP-24	BG5-1204-SFP
Technical Information					
Number of Ports	6	7	7	12	12
10/100/1000Base-TX	4	5	5	8	8
100/1000Base-X SFP	2	2	2	4	4
IEEE 802.3at PoE (P.S.E.)	—	—	—	4	4
IEEE 802.3bt PoE (P.S.E.)	4	4	4	4	4
Jumbo Frame Support	✓	✓	✓	✓	✓
Power Requirements					
Redundant Power Inputs	48-55VDC	12-55VDC	48-55VDC	12-55VDC	48-55VDC
Overload Current Protection	✓	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓	✓	✓
Mechanical Characteristics					
Housing	Metal, IP40	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimensions (WxHxD mm)	65x110x90	54x142x99	54x142x99	54x142x99	54x142x99
Din-Rail & Panel Mounting	✓	✓	✓	✓	✓
Operating Temperature					
Standard (–10 to 65°C)	✓	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓	✓
Standards & Certifications					
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓	✓



Unmanaged BT PoE Gigabit Ethernet Switch | Media Converter

BT PoE Series

CE FC

	BG2-0500-24	BG2-0500	CBG2-0501-SFP-12	CBG2-0501-SFP	MBG2-0201-SFP-24	MBG2-0201-SFP
Technical Information						
Number of Ports	5	5	5	5	2	2
10/100/1000Base-TX	5	5	4	4	1	1
100/1000Base-X SFP	–	–	1	1	1	1
IEEE 802.3bt PoE (P.S.E.)	4	4	4	4	1	1
Jumbo Frame Support	✓	✓	✓	✓	✓	✓
Power Requirements						
Redundant Power Inputs	12-55VDC	48-55VDC	9-55VDC	48-55VDC	12-55VDC	48-55VDC
Overload Current Protection	✓	✓	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓	✓	–	–
Mechanical Characteristics						
Housing	Metal, IP30	Metal, IP30	Metal, IP40	Metal, IP40	Metal, IP30	Metal, IP30
Dimensions (WxHxD mm)	54x142x99	54x142x99	65x110x90	65x110x90	30x95x75	30x95x75
Din-Rail & Panel Mounting	✓	✓	✓	✓	✓	✓
Operating Temperature						
Standard (–10 to 65°C)	✓	✓	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓	✓	✓
Standards Certifications						
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓	✓	✓

Railway Solution

Nowadays, proper railway infrastructure is the economic backbone for almost every country in the world. No matter if it is HSR, Inter-city rail, regional trains, commuter trains, rapid transit, tram or even light rail, passengers would like to have a pleasant journey along the road. To achieve a seamless & smooth rail operation, Leonton provides Onboard, Wayside, and Train-to-Ground networking solutions for comprehensive infrastructure planning.

Onboard

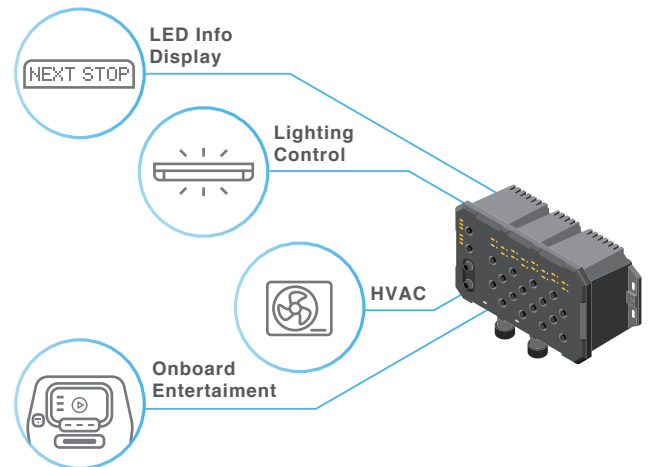
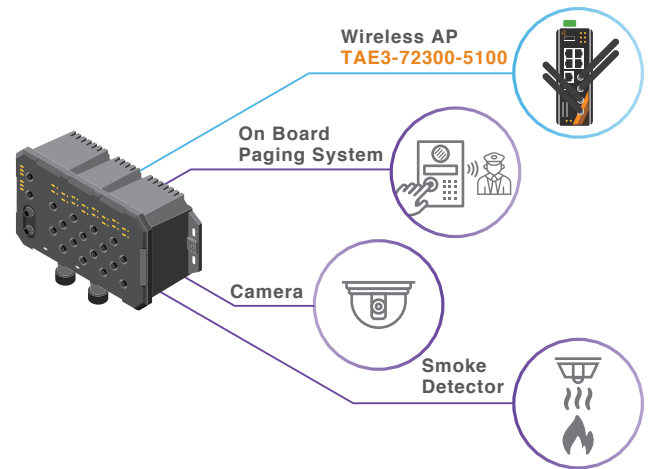
Onboard application, requiring EN 50155 standard, is combined with TCN (Train Communication Network), CCTV, PIS (Passenger Information System), and Passenger Wi-Fi. With all these systems consuming power, Leonton provides higher PoE output standard Ethernet switches for the increasing demand on the power output.

Wayside

Wayside application, requiring EN 50121 standard, is for signaling and communication purposes. Being able to collect and send the data back to the control center, Leonton offers Ethernet switches with waterproof IP67 certification and fiber optical interface for long distance transmission.

Train-to-Ground

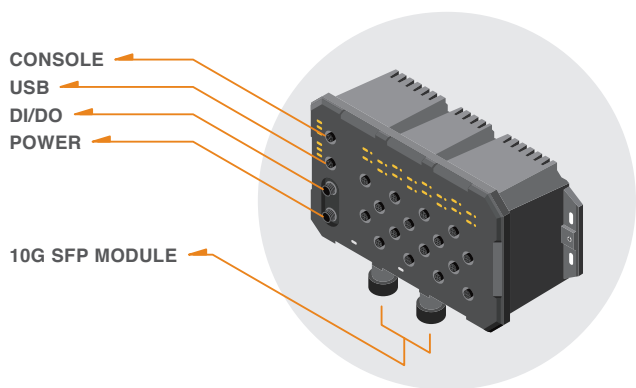
Train-to-Ground application, being utilized by wireless communication, sends and receives data bi-directionally, carrying both vital and non-vital data from and to the trains and ground facilities. Leonton provides not only Ethernet switches but also wireless devices such as IoT gateway for the extended data management.



The international standard covering electronic equipment for control, protection, diagnostic, energy supply, etc. installed on rail vehicles.



The international standard covering signaling and telecommunication apparatus that is installed inside the railway environment.



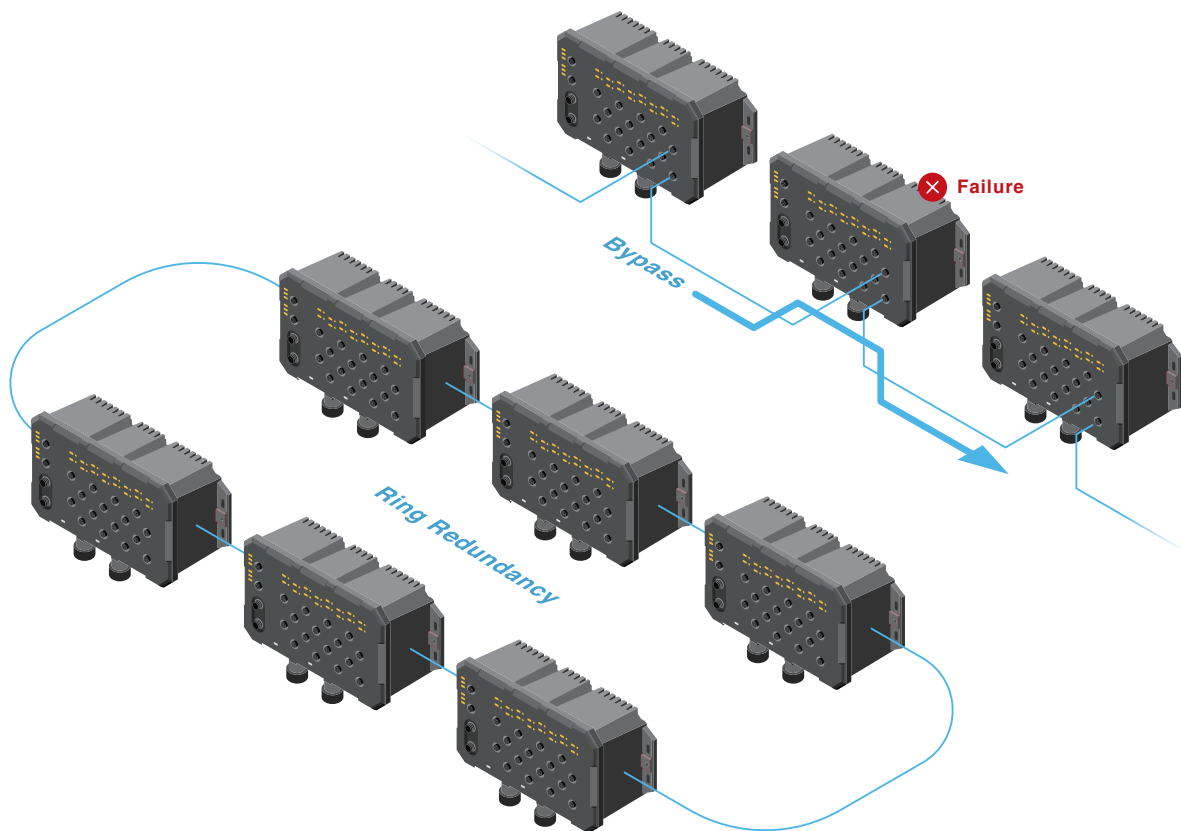
10G SFP Module Support

The industrial railway Ethernet switch, equipped with the 10G SFP fiber, first ever in the world allows users to choose suitable fiber for various applications by swapping the SFP transceivers, offering the maximum flexibility to long distance data transmission.

CONSOLE A-Coded	USB A-Coded	DI/DO A-Coded	POWER K-Coded	M12 X-Coded
1. NC 2. TX 3. RX 4. NC 5. GND	1. DN 2. VBUS 3. GND 4. DP	1. Relay Com 2. DI+ 3. DI- 4. Relay (NC) 5. NA	1. V1+ 2. V1- 3. V2+ 4. V2+ 5. GND	1. DA+ 2. DA- 3. DB+ 4. DB- 5. DD+ 6. DD- 7. DC- 8. DC+

Redundancy & Bypass

Redundancy, the most crucial part of industrial networking, is ensured by the hardware bypass function. Moreover, all Leonton managed Ethernet switches support ERPS-Ring redundancy to secure the connection stability.





Managed M12
Ethernet Switch

Railway Series



	PG5-1600-M12XB-67	PG5-1802-M12XB-10GSFP-67	EG5-1600-M12XB-67	EG5-1802-M12XB-10GSFP-67
Technical Information				
Number of Ports	16	18	16	18
10/100/1000 Base-TX	16 (16P M12 X-coded)	16 (16P M12 X-coded)	16 (16P M12 X-coded)	16 (16P M12 X-coded)
1G/10G SFP+	–	2	–	2
IEEE 802.3at PoE+ (P.S.E.)	16	16	–	–
Jumbo Frame Support	✓	✓	✓	✓
Power Requirements				
Redundant Power Inputs	24-110VDC (by model)	24-110VDC (by model)	24-110VDC (by model)	24-110VDC (by model)
Power Connection	4P M12 K-coded	4P M12 K-coded	4P M12 K-coded	4P M12 K-coded
Overload Current Protection	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓
DI/DO	5P A-coded	5P A-coded	5P A-coded	5P A-coded
Mechanical Characteristics				
Housing	Metal, IP67	Metal, IP67	Metal, IP67	Metal, IP67
Dimension (WxHxD mm)	295x183x105	295x183x105	295x183x105	295x183x105
Din-Rail & Panel Mounting	Panel	Panel	Panel	Panel
Operating Temperature				
Standard	–40 to 60°C	–40 to 60°C	–40 to 60°C	–40 to 60°C
Standards & Certifications				
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓
EN50155	✓	✓	✓	✓
EN50121-3-2	✓	✓	✓	✓
EN50121-4	✓	✓	✓	✓



Unmanaged M12
Ethernet Switch

M12 Series



	PG2-0800-M12XB-24-67	ET2-0500-M12-67
Technical Information		
Number of Ports	8	5
10/100 Base-TX	–	5 (4P M12 D-coded)
10/100/1000 Base-TX	8 (8P M12 X-coded)	–
IEEE 802.3at PoE+ (P.S.E.)	8	–
Jumbo Frame Support	✓	–
Ethernet Bypass Function	✓	–
Power Requirements		
Redundant Power Inputs	24-55VDC	12-48VDC
Power Connection	4P M12 T-coded	5P M12 A-coded
Overload Current Protection	✓	✓
Reverse Polarity Protection	✓	✓
DI/DO	5P A-coded	–
Mechanical Characteristics		
Housing	Metal, IP67	Plastic, IP67
Dimension (WxHxD mm)	254x122x117	37x216x46
Din-Rail & Panel Mounting	Panel	✓
Operating Temperature		
Standard (–10 to 65°C)	✓	✓
Extended (–40 to 75°C)	–40 to 70°C	✓
Standards & Certifications		
EN 61000-6-4 / EN 61000-6-2	✓	✓
FCC Part 15B / CISPR 22	✓	✓
UL 61010	✓	✓



Managed 10G Ethernet Switch

10G Series



	PG5-1002-10GSFP-24	PG5-1002-10GSFP	EG5-1002-10GSFP
Technical Information			
Number of Ports	10	10	10
10/100/1000Base-TX	8	8	8
1G/10G SFP+	2	2	2
IEEE 802.3at PoE+ (P.S.E.)	8	8	–
Jumbo Frame Support	✓	✓	✓
Power Requirements			
Redundant Power Inputs	12-55VDC	48-55VDC	12-48VDC
Overload Current Protection	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓
Mechanical Characteristics			
Housing	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	54x142x99	54x142x99	54x142x99
Din-Rail & Panel Mounting	✓	✓	✓
Operating Temperature			
Standard	–40 to 60°C	–40 to 60°C	–40 to 60°C
Standards & Certifications			
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓
UL 61010	✓	✓	✓



Unmanaged 10G Ethernet Switch

10G Series



	PG2-1002-10GSFP-24	PG2-1002-10GSFP	EG2-1002-10GSFP
Technical Information			
Number of Ports	10	10	10
10/100/1000Base-TX	8	8	8
10G SFP+	2	2	2
IEEE 802.3at PoE+ (P.S.E.)	8	8	—
Jumbo Frame Support	✓	✓	✓
Power Requirements			
Redundant Power Inputs	12-55VDC	48-55VDC	12-48VDC
Overload Current Protection	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓
Mechanical Characteristics			
Housing	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	54x142x99	54x142x99	54x142x99
Din-Rail & Panel Mounting	✓	✓	✓
Operating Temperature			
Standard	-40 to 60°C	-40 to 60°C	-40 to 60°C
Standards & Certifications			
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓
UL 61010	✓	✓	✓



Unmanaged 10G Ethernet Switch

10G Series



PG2-1204-SFP2-10GSFP2-24

PG2-1204-SFP2-10GSFP2

EG2-1204-SFP2-10GSFP2

Technical Information	PG2-1204-SFP2-10GSFP2-24	PG2-1204-SFP2-10GSFP2	EG2-1204-SFP2-10GSFP2
Number of Ports	12	12	12
10/100/1000Base-TX	8	8	8
1000Base-X SFP	2	2	2
10G SFP+	2	2	2
IEEE 802.3at PoE+ (P.S.E.)	8	8	-
Jumbo Frame Support	✓	✓	✓
Power Requirements			
Redundant Power Inputs	12-55VDC	48-55VDC	12-48VDC
Overload Current Protection	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓
Mechanical Characteristics			
Housing	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	54x142x99	54x142x99	54x142x99
Din-Rail & Panel Mounting	✓	✓	✓
Operating Temperature			
Standard	-40 to 60°C	-40 to 60°C	-40 to 60°C
Standards & Certifications			
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓
UL 61010	✓	✓	✓



Unmanaged Ethernet Switch

E-Mark Series



	ET2-0800-E	EG2-0800-E	PG2-0800-24-E	PG2-1202-SFP-12-E
Technical Information				
Number of Ports	8	8	8	12
10/100Base-TX	8	–	–	–
10/100/1000Base-TX	–	8	8	10
100/1000Base-X SFP	–	–	–	2
IEEE 802.3at PoE+ (P.S.E.)	–	–	8	8
Jumbo Frame Support	–	✓	✓	✓
Power Requirements				
Redundant Power Inputs	12-48VDC	12-48VDC	12-36VDC	9-55VDC
Overload Current Protection	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓	✓
Mechanical Characteristics				
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	30x142x99	30x140x95	41x145x95	46x142x99
Din-Rail & Panel Mounting	✓	✓	✓	✓
Operating Temperature				
Standard (–10 to 65°C)	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓
Standards & Certifications				
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓
E-Mark	✓	✓	✓	✓
Corrosion Protection	✓ (CP)	✓ (CP)	✓ (CP)	–



IIoT Gateway

Wireless Series

CE FC

TAE3-72300-5100-T

TLE3-71300-5120-T

Technical Information		
Type	IEEE 802.11a/b/g/n/ac	IEEE 802.11a/b/g/n/ac
Number of Radios	2 WiFi	1 WiFi, 1 LTE
10/100/1000Base-TX	4 LAN, 1 WAN	4 LAN, 1 WAN
SIM Slot	–	2
Antenna	4	4
WLAN Operation Mode	AP Router, WDS, WDS Hybrid	
WiFi Encryption	WEP, WPA, WPA2, WPA-PSK, WPA2-PSK, 802.1x	
Frequency Range IEEE 802.11b/g/n (2.4GHz)	US/TW: 2.412G–2.462GHz, EU/AU/NZ: 2.412G–2.472GHz	
Frequency Range IEEE 802.11a/n/ac (5GHz)	US/AU/NZ: 5.15G–5.25GHz, 5.725G–5.85GHz, EU: 5.15G–5.25GHz, TW: 5.15G–5.35GHz, 5.725G–5.85GHz	
Comm. Bus	1*RS232/RS485 (4-pin Terminal Block)	
I/O	1*DI (Logic 0: 0–2V, Logic 1: 5V–30V), 1*DO (Relay Mode, up to 30V/1A)	
Log Storage	1*USB 2.0	1*USB 2.0
Power Requirements		
Power Inputs	12-48VDC	12-48VDC
Reverse Polarity Protection	✓	✓
Mechanical Characteristics		
Housing	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	56x120x160	56x120x160
Din-Rail Mounting	✓	✓
Wall Mounting	✓	✓
Operating Temperature		
Extended (–30 to 70°C)	✓	✓
Standards & Certifications		
EMI / EMS	✓	✓
RF	47 CFR FCC Oart 15, Subpart B, nClass A, ICES-003:2016 Issue 6, updated Apr. 2019, Class A, ANSI C63.4:2015	
RF Radiation Exposure	FCC Part 2 (Section 2.1091), KDB 447498 D01 General RF Exposure Guidance v06, IEEE C95.3-2002	
Certifications	FCC, CE	FCC, CE



Managed Low Voltage PoE
Gigabit Ethernet Switch

LV PoE Series



PG5-0601-SFP-24 PG5-0602-SFP-24 PG5-0702-SFP-24 PG5-0800-24 PG5-0802-M-24 PG5-0802-SFP-24

Technical Information						
Number of Ports	6	6	7	8	8	8
10/100/1000Base-TX	5	4	5	8	6	6
100/1000Base-X SFP	1	2	2	–	–	2
1000Base-X Fixed Fiber	–	–	–	–	2	–
IEEE 802.3at PoE+ (P.S.E.)	4	4	4	8	4	6
Jumbo Frame Support	✓	✓	✓	✓	✓	✓
Power Requirements						
Redundant Power Inputs	12-55VDC	12-55VDC	12-55VDC	12-55VDC	12-55VDC	12-55VDC
Overload Current Protection	✓	✓	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓	✓	✓	✓
Mechanical Characteristics						
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimensions (WxHxD mm)	54x142x99	54x142x99	54x142x99	54x142x99	54x142x99	54x142x99
Din-Rail & Panel Mounting	✓	✓	✓	✓	✓	✓
Operating Temperature						
Standard (–10 to 65°C)	✓	✓	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓	✓	✓
Standards & Certifications						
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓	✓	✓
UL 61010	✓	–	✓	✓	✓	✓



Managed Low Voltage PoE
Gigabit Ethernet Switch

LV PoE Series



	PG5-0804-SFP-24	PG5-1002-SFP-24	PG5-1202-SFP-24	PG5-1204-SFP-24
Technical Information				
Number of Ports	8	10	12	12
10/100/1000Base-TX	4	8	10	8
100/1000Base-X SFP	4	2	2	4
IEEE 802.3at PoE+ (P.S.E.)	8	8	8	8
Jumbo Frame Support	✓	✓	✓	✓
Power Requirements				
Redundant Power Inputs	12-55VDC	12-55VDC	12-55VDC	12-55VDC
Overload Current Protection	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓	✓
Mechanical Characteristics				
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	54x142x99	54x142x99	54x142x99	54x142x99
Din-Rail & Panel Mounting	✓	✓	✓	✓
Operating Temperature				
Standard (-10 to 65°C)	✓	✓	✓	✓
Extended (-40 to 75°C)	✓	✓	✓	✓
Standards & Certifications				
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓
UL 61010	✓	✓	✓	✓
ISA 12.12.01 (C1D2)	-	✓	✓	✓
ATEX	-	✓	✓	✓
NEMA TS2	-	✓	✓	✓



Managed Low Voltage PoE
Fast Ethernet Switch

LV PoE Series



	PT5-0501-M-24	PT5-0600-24	PT5-0602-M-24	PT5-1204-GT2-SFP2-24
Technical Information				
Number of Ports	5	6	6	12
10/100Base-TX	4	6	4	8
10/100/1000Base-TX	–	–	–	2
100Base-FX Fixed Fiber	1	–	2	–
100/1000Base-X SFP	–	–	–	2
IEEE 802.3at PoE+ (P.S.E.)	4	4	4	8
Jumbo Frame Support	–	–	–	✓
Power Requirements				
Redundant Power Inputs	12-55VDC	12-55VDC	12-55VDC	12-55VDC
Overload Current Protection	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓	✓
Mechanical Characteristics				
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	54x142x99	54x142x99	54x142x99	54x142x99
Din-Rail & Panel Mounting	✓	✓	✓	✓
Operating Temperature				
Standard (–10 to 65°C)	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓
Standards & Certifications				
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓
UL 61010	–	✓	✓	✓



Managed PoE Gigabit Ethernet Switch

PG5 Series



	PG5-0601-SFP	PG5-0602-SFP	PG5-0702-SFP	PG5-0800	PG5-0802-SFP	PG5-0804-SFP	PG5-1002-SFP
Technical Information							
Number of Ports	6	6	7	8	8	8	10
10/100/1000 Base-TX	5	4	5	8	6	4	8
100/1000 Base-X SFP	1	2	2	–	2	4	2
IEEE 802.3at PoE+ (P.S.E.)	4	4	4	8	6	4	8
Jumbo Frame Support	✓	✓	✓	✓	✓	✓	✓
Power Requirements							
Redundant Power Inputs	48-55VDC	48-55VDC	48-55VDC	48-55VDC	48-55VDC	48-55VDC	48-55VDC
Overload Current Protection	✓	✓	✓	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓	✓	✓	✓	✓
Mechanical Characteristics							
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	54x142x99	54x142x99	54x142x99	54x142x99	54x142x99	54x142x99	54x142x99
Din-Rail & Panel Mounting	✓	✓	✓	✓	✓	✓	✓
Operating Temperature							
Standard (–10 to 65°C)	✓	✓	✓	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓	✓	✓	✓
Standards & Certifications							
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓	✓	✓	✓
UL 61010	✓	–	✓	✓	✓	✓	✓
ISA 12.12.01 (C1D2)	–	–	–	–	–	–	✓
ATEX	–	–	–	–	–	–	✓
NEMA TS2	–	–	–	–	–	–	✓
Corrosion Protection	–	–	–	–	–	–	✓(CP)



Managed PoE Gigabit Ethernet Switch

PG5 Series



	PG5-1202-SFP	PG5-1204-SFP	PG5-1600-SFP	PG5-1802-SFP	PG5-2004-SFP	PG5-2012-SFP
Technical Information						
Number of Ports	12	12	16	18	20	20
10/100/1000Base-TX	10	8	16	16	16	8
100/1000Base-X SFP	2	4	—	2	4	12
IEEE 802.3at PoE+ (P.S.E.)	8	8	16	16	16	8
Jumbo Frame Support	✓	✓	✓	✓	✓	✓
Power Requirements						
Redundant Power Inputs	48-55VDC	48-55VDC	48-55VDC	48-55VDC	48-55VDC	48-55VDC
Overload Current Protection	✓	✓	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓	✓	✓	✓
Mechanical Characteristics						
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	54x142x99	54x142x99	67x142x99	67x142x99	67x142x99	TBD
Din-Rail & Panel Mounting	✓	✓	✓	✓	✓	✓
Operating Temperature						
Standard (-10 to 65°C)	✓	✓	✓	✓	✓	✓
Extended (-40 to 75°C)	✓	✓	✓	✓	✓	✓
Standards & Certifications						
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓	✓	✓
FCC Part 15 B / CISPR 22	✓	✓	✓	✓	✓	✓
UL 61010	✓	✓	✓	✓	✓	—
ISA 12.12.01 (C1D2)	✓	✓	—	—	—	—
ATEX	✓	✓	—	—	—	—
NEMA TS2	✓	✓	—	—	—	—



Managed PoE Fast
Ethernet Switch

PT5 Series



	PT5-0501-M	PT5-0600	PT5-0602-M	PT5-1204-GT2-SFP2
Technical Information				
Number of Ports	5	6	6	12
10/100Base-TX	4	6	4	8
10/100/1000Base-TX	–	–	–	2
100Base-FX Fixed Fiber	1	–	2	–
100/1000Base-X SFP	–	–	–	2
IEEE 802.3at PoE+ (P.S.E.)	4	4	4	8
Jumbo Frame Support	✓	✓	✓	✓
Power Requirements				
Redundant Power Inputs	48-55VDC	48-55VDC	48-55VDC	48-55VDC
Overload Current Protection	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓	✓
Mechanical Characteristics				
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimensions (WxHxD mm)	54x142x99	54x142x99	54x142x99	54x142x99
Din-Rail & Panel Mounting	✓	✓	✓	✓
Operating Temperature				
Standard (–10 to 65°C)	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓
Standards & Certifications				
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓
UL 61010	–	✓	✓	✓



Managed Gigabit Ethernet Switch

EG5 Series



	EG5-0501-SFP	EG5-0601-SFP	CEG5-0602-SFP	EG5-0602-SFP
Technical Information				
Number of Ports	5	6	6	6
10/100/1000Base-TX	4	5	4	4
100/1000Base-X SFP	1	1	2	2
Jumbo Frame Support	✓	✓	✓	✓
Power Requirements				
Redundant Power Inputs	12-48VDC	12-48VDC	12-48VDC	12-48VDC
Overload Current Protection	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓	✓
Mechanical Characteristics				
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	54x142x99	54x142x99	65x110x90	54x142x99
Din-Rail & Panel Mounting	✓	✓	✓	✓
Operating Temperature				
Standard (-10 to 65°C)	✓	✓	✓	✓
Extended (-40 to 75°C)	✓	✓	✓	✓
Standards & Certifications				
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓
UL 61010	-	✓	-	-



Managed Gigabit Ethernet Switch

EG5 Series



	EG5-0702-SFP	EG5-0800	EG5-0802-SFP	EG5-0804-SFP
Technical Information				
Number of Ports	7	8	8	8
10/100/1000Base-TX	5	8	6	4
100/1000Base-X SFP	2	–	2	4
Jumbo Frame Support	✓	✓	✓	✓
Power Requirements				
Redundant Power Inputs	12-48VDC	12-48VDC	12-48VDC	12-48VDC
Overload Current Protection	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓	✓
Mechanical Characteristics				
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	54x142x99	54x142x99	54x142x99	54x142x99
Din-Rail & Panel Mounting	✓	✓	✓	✓
Operating Temperature				
Standard (–10 to 65°C)	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓
Standards & Certifications				
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓
UL 61010	✓	✓	✓	✓



Managed Gigabit Ethernet Switch

EG5 Series



EG5-1002-SFP EG5-1202-SFP EG5-1204-SFP EG5-1600-SFP EG5-1802-SFP EG5-2004-SFP EG5-2012-SFP

Technical Information	EG5-1002-SFP	EG5-1202-SFP	EG5-1204-SFP	EG5-1600-SFP	EG5-1802-SFP	EG5-2004-SFP	EG5-2012-SFP
Number of Ports	10	12	12	16	18	20	20
10/100/1000Base-TX	8	10	8	16	16	16	8
100/1000Base-X SFP	2	2	4	–	2	4	12
Jumbo Frame Support	✓	✓	✓	✓	✓	✓	✓
Power Requirements							
Redundant Power Inputs	12-48VDC	12-48VDC	12-48VDC	12-48VDC	12-48VDC	12-48VDC	12-48VDC
Overload Current Protection	✓	✓	✓	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓	✓	✓	✓	✓
Mechanical Characteristics							
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	54x142x99	54x142x99	54x142x99	67x142x99	67x142x99	67x142x99	TBD
Din-Rail & Panel Mounting	✓	✓	✓	✓	✓	✓	✓
Operating Temperature							
Standard (–10 to 65°C)	✓	✓	✓	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓	✓	✓	✓
Standards & Certifications							
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓	✓	✓	✓
UL 61010	✓	✓	✓	✓	✓	✓	–
ISA 12.12.01 (C1D2)	✓	✓	✓	–	–	–	–
ATEX	✓	✓	✓	–	–	–	–
NEMA TS2	✓	✓	✓	–	–	–	–
Corrosion Protection	✓ (CP)	–	–	–	–	–	–



Managed Fast Ethernet Switch

ET5 Series



	ET5-0500	ET5-0600	ET5-0602-M	ET5-0802-M	ET5-0800	ET5-1204-GT2-SFP2
Technical Information						
Number of Ports	5	6	6	8	8	12
10/100Base-TX	5	6	4	6	8	8
10/100/1000Base-TX	–	–	–	–	–	2
100Base-FX Fixed Fiber	–	–	2	2	–	–
100/1000Base-X SFP	–	–	–	–	–	2
Jumbo Frame Support	✓	✓	✓	✓	✓	✓
Power Requirements						
Redundant Power Inputs	12-48VDC	12-48VDC	12-48VDC	12-48VDC	12-48VDC	12-48VDC
Overload Current Protection	✓	✓	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓	✓	✓	✓
Mechanical Characteristics						
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	54x142x99	54x142x99	54x142x99	54x142x99	54x142x99	54x142x99
Din-Rail & Panel Mounting	✓	✓	✓	✓	✓	✓
Operating Temperature						
Standard (–10 to 65°C)	✓	✓	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓	✓	✓
Standards & Certifications						
EN 61000-6-4 / EN61000-6-2	✓	✓	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓	✓	✓
UL 61010	–	✓	✓	✓	✓	✓



Unmanaged Low Voltage PoE Gigabit Ethernet Switch

LV PoE Series



	PG2-0500-24	PG2-0702-SFP-24	PG2-0800-24	PG2-1002-SFP-24	PG2-1202-SFP-24
Technical Information					
Number of Ports	5	7	8	10	12
10/100/1000Base-TX	5	5	8	8	10
100/1000Base-X SFP	–	2	–	2	2
IEEE 802.3at PoE+ (P.S.E.)	4	4	8	8	8
Jumbo Frame Support	✓	✓	✓	✓	✓
Power Requirements					
Redundant Power Inputs	12-36VDC	12-36VDC	12-36VDC	12-36VDC	12-36VDC
Overload Current Protection	✓	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓	✓	✓
Mechanical Characteristics					
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	46x142x99	46x142x99	41x145x95	46x142x99	46x142x99
Din-Rail & Panel Mounting	✓	✓	✓	✓	✓
Operating Temperature					
Standard (–10 to 65°C)	✓	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓	✓
Standards & Certifications					
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓	✓
UL 508	–	–	✓	–	–
UL 61010	✓	✓	–	✓	✓
ISA 12.12.01 (C1D2)	✓	✓	✓	✓	✓
Corrosion Protection	–	–	✓(CP)	–	–

Unmanaged Low Voltage PoE
Fast Ethernet Switch

LV PoE Series



PT2-0500-24 PT2-0501-M-24 PT2-0702-SFP-24 **PT2-0800-24** PT2-0802-M-24 PT2-0802-2C-24 PT2-1002-2C-24

Technical Information	PT2-0500-24	PT2-0501-M-24	PT2-0702-SFP-24	PT2-0800-24	PT2-0802-M-24	PT2-0802-2C-24	PT2-1002-2C-24
Number of Ports	5	5	7	8	8	8	10
10/100Base-TX	5	4	5	8	6	6	8
10/100/1000Base-TX	–	–	–	–	–	2 w/combo	2 w/combo
100Base-FX Fixed Fiber	–	1	–	–	2	–	–
100/1000Base-X SFP	–	–	2	–	–	2 w/combo	2 w/combo
IEEE 802.3at PoE+ (P.S.E.)	4	4	4	8	6	6	8
Power Requirements							
Redundant Power Inputs	12-36VDC	12-36VDC	12-36VDC	12-36VDC	12-36VDC	12-36VDC	12-36VDC
Overload Current Protection	✓	✓	✓	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓	✓	✓	✓	✓
Mechanical Characteristics							
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	46x142x99	46x142x99	46x142x99	46x142x99	46x142x99	46x142x99	46x142x99
Din-Rail & Panel Mounting	✓	✓	✓	✓	✓	✓	✓
Operating Temperature							
Standard (–10 to 65°C)	✓	✓	✓	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓	✓	✓	✓
Standards & Certifications							
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓	✓	✓	✓
UL 508	✓	✓	–	✓	✓	–	–
UL 61010	–	–	✓	–	–	✓	✓
ISA 12.12.01 (C1D2)	✓	✓	✓	✓	✓	✓	✓
Corrosion Protection	✓ (CP)	–	–	–	–	–	–



Unmanaged PoE Gigabit Ethernet Switch

PG2 Series



	CPG2-0500	PG2-0500	PG2-0601-SFP	PG2-0702-SFP	PG2-0800	PG2-1002-SFP	FPG2-1002-SFP
Technical Information							
Number of Ports	5	5	6	7	8	10	10
10/100/1000Base-TX	5	5	5	5	8	8	8
100/1000Base-X SFP	–	–	1	2	–	2	2
IEEE 802.3at PoE+ (P.S.E.)	4	4	4	4	8	8	8
Jumbo Frame Support	✓	✓	✓	✓	✓	✓	✓
Power Requirements							
Redundant Power Inputs	48-55VDC	48-55VDC	48-55VDC	48-55VDC	48-55VDC	48-55VDC	48-55VDC
Overload Current Protection	✓	✓	✓	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓	✓	✓	✓
Relay 24VDC@1A	–	✓	✓	✓	✓	✓	✓
Mechanical Characteristics							
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	30x95x75	30x142x99	30x142x99	30x142x99	26x145x95	46x142x99	TBD
Din-Rail & Panel Mounting	✓	✓	✓	✓	✓	✓	Panel
Operating Temperature							
Standard (–10 to 65°C)	✓	✓	✓	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓	✓	✓	✓
Standards & Certifications							
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓	✓	✓	✓
UL 508	–	–	–	–	✓	–	–
UL 61010	✓	✓	✓	✓	–	✓	–
ISA 12.12.01 (C1D2)	–	✓	✓	✓	✓	✓	–

Unmanaged PoE Gigabit Ethernet Switch

PG2 Series



PG2-1202-SFP PG2-1204-SFP PG2-1604-SFP PG2-1600 PG2-1802-SFP PG2-2004-SFP

Technical Information	PG2-1202-SFP	PG2-1204-SFP	PG2-1604-SFP	PG2-1600	PG2-1802-SFP	PG2-2004-SFP
Number of Ports	12	12	16	16	18	20
10/100/1000Base-TX	10	8	12	16	16	16
100/1000Base-X SFP	2	4	4	–	2	4
IEEE 802.3at PoE+ (P.S.E.)	8	8	12	16	16	16
Jumbo Frame Support	✓	✓	✓	✓	✓	✓
Power Requirements						
Redundant Power Inputs	48-55VDC	48-55VDC	48-55VDC	48-55VDC	48-55VDC	48-55VDC
Overload Current Protection	✓	✓	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓	✓	✓	✓
Mechanical Characteristics						
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Aluminum, IP30	Aluminum, IP30	Aluminum, IP30
Dimension (WxHxD mm)	46x142x99	46x142x99	59x142x99	67x142x99	67x142x99	67x142x99
Din-Rail & Panel Mounting	✓	✓	✓	✓	✓	✓
Operating Temperature						
Standard (–10 to 65°C)	✓	✓	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓	✓	✓
Standards & Certifications						
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓	✓	✓
UL 61010	✓	✓	–	–	–	–
ISA 12.12.01 (C1D2)	✓	–	–	–	–	–
EN 50121-4	–	–	✓	–	–	–



Unmanaged PoE Fast Ethernet Switch

PT2 Series



	PT2-0500	PT2-0501-M	PT2-0602-M	PT2-0702-SFP
Technical Information				
Number of Ports	5	5	6	7
10/100Base-TX	5	4	4	5
100Base-FX Fixed Fiber	–	1	2	–
100/1000Base-X SFP	–	–	–	2
IEEE 802.3at PoE+ (P.S.E.)	4	4	4	4
Power Requirements				
Redundant Power Inputs	48-55VDC	48-55VDC	48-55VDC	48-55VDC
Overload Current Protection	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓	✓
Mechanical Characteristics				
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	30x142x99	30x142x99	30x142x99	30x142x99
Din-Rail & Panel Mounting	✓	✓	✓	✓
Operating Temperature				
Standard (–10 to 65°C)	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓
Standards & Certifications				
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓
UL 508	✓	✓	✓	–
UL 61010	–	–	–	✓
ISA 12.12.01 (C1D2)	✓	✓	✓	✓
Corrosion Protection	✓ (CP)	–	–	–

Unmanaged PoE Fast Ethernet Switch

PT2 Series



	PT2-0800	PT2-0802-M	PT2-0802-2C	PT2-1002-2C
Technical Information				
Number of Ports	8	8	8	10
10/100Base-TX	8	6	6	8
10/100/1000Base-TX	–	–	2 w/combo	2 w/combo
100Base-FX Fixed Fiber	–	2	–	–
100/1000Base-X SFP	–	–	2 w/combo	2 w/combo
IEEE 802.3at PoE+ (P.S.E.)	8	6	6	8
Power Requirements				
Redundant Power Inputs	48-55 VDC	48-55 VDC	48-55 VDC	48-55VDC
Overload Current Protection	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓	✓
Mechanical Characteristics				
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	30x142x99	46x142x99	46x142x99	46x142x99
Din-Rail & Panel Mounting	✓	✓	✓	✓
Operating Temperature				
Standard (–10 to 65°C)	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓
Standards & Certifications				
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓
FCC Part 15 B / CISPR 22	✓	✓	✓	✓
UL 508	✓	✓	–	–
UL 61010	–	–	✓	✓
ISA 12.12.01 (C1D2)	✓	✓	✓	✓



Unmanaged Gigabit Ethernet Switch

EG2 Series



	CEG2-0500	EG2-0500	CEG2-0501-SFP	EG2-0501-SFP	EG2-0601-SFP	EG2-0702-SFP	CEG2-0800	EG2-0800
Technical Information								
Number of Ports	5	5	5	5	6	7	8	8
10/100/1000Base-TX	5	5	4	4	5	5	8	8
100/1000Base-X SFP	–	–	1	1	1	2	–	–
Jumbo Frame Support	✓	✓	✓	✓	✓	✓	✓	✓
Power Requirements								
Redundant Power Inputs	12-48VDC	12-48VDC	12-48VDC	12-48VDC	12-48VDC	12-48VDC	12-48VDC	12-48VDC
Overload Current Protection	✓	✓	✓	✓	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓	✓	✓	✓	✓
Relay 24VDC@1A	–	✓	✓	✓	✓	✓	✓	✓
Mechanical Characteristics								
Housing	Metal, IP30	Metal, IP30	Metal, IP40	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	26x95x75	30x140x95	65x110x90	30x140x95	30x140x95	30x142x99	40x65x70	30x140x95
Din-Rail & Panel Mounting	✓	✓	✓	✓	✓	✓	✓	✓
Operating Temperature								
Standard (–10 to 65°C)	✓	✓	✓	✓	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓	✓	✓	✓	✓
Standards & Certifications								
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓	✓	✓	✓	✓
UL 61010	✓	✓	✓	✓	✓	✓	–	✓
ISA 12.12.01 (C1D2)	–	✓	–	✓	✓	✓	–	–
Corrosion Protection	–	✓(CP)	–	–	–	–	–	✓(CP)



Unmanaged Gigabit Ethernet Switch

EG2 Series



EG2-1002-SFP EG2-1202-SFP EG2-1204-SFP EG2-1604-SFP EG2-1600 EG2-1802-SFP EG2-2004-SFP

Technical Information	EG2-1002-SFP	EG2-1202-SFP	EG2-1204-SFP	EG2-1604-SFP	EG2-1600	EG2-1802-SFP	EG2-2004-SFP
Number of Ports	10	12	12	16	16	18	20
10/100/1000Base-TX	8	10	8	12	16	16	16
100/1000Base-X SFP	2	2	4	4	–	2	4
Jumbo Frame Support	✓	✓	✓	✓	✓	✓	✓
Power Requirements							
Redundant Power Inputs	12-48VDC	12-48VDC	12-48VDC	12-48VDC	12-48VDC	12-48VDC	12-48VDC
Overload Current Protection	✓	✓	✓	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓	✓	✓	✓	✓
Mechanical Characteristics							
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Aluminum, IP30	Aluminum, IP30	Aluminum, IP30
Dimension (WxHxD mm)	46x142x99	46x142x99	46x142x99	59x142x99	67x142x99	67x142x99	67x142x99
Din-Rail & Panel Mounting	✓	✓	✓	✓	✓	✓	✓
Operating Temperature							
Standard (–10 to 65°C)	✓	✓	✓	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓	✓	✓	✓
Standards & Certifications							
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓	✓	✓	✓
UL 61010	✓	✓	✓	–	–	–	–
ISA 12.12.01 (C1D2)	✓	✓	–	–	–	–	–
EN 50121-4	–	–	–	✓	–	–	–



Unmanaged Fast Ethernet Switch

ET2 Series



	CET2-0500	ET2-0500	ET2-0501-M	ET2-0602-M	ET2-0702-SFP
Technical Information					
Number of Ports	5	5	5	6	7
10/100Base-TX	5	5	4	4	5
10/100/1000Base-TX	–	–	–	–	–
100Base-FX Fixed Fiber	–	–	1	2	–
100/1000Base-X SFP	–	–	–	–	2
Power Requirements					
Redundant Power Inputs	12-48VDC	12-48VDC	12-48VDC	12-48VDC	12-48VDC
Overload Current Protection	✓	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓	✓
Relay 24VDC@1A	–	✓	✓	✓	✓
Mechanical Characteristics					
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	26x95x75	30x142x99	30x142x99	30x142x99	30x142x99
Din-Rail & Panel Mounting	✓	✓	✓	✓	✓
Operating Temperature					
Standard (–10 to 65°C)	✓	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓	✓
Standards & Certifications					
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓	✓
UL 508	–	–	✓	✓	–
UL 61010	✓	✓	–	–	✓
ISA 12.12.01 (C1D2)	–	✓	✓	✓	✓
Corrosion Protection	–	✓ (CP)	–	–	–



Unmanaged Fast Ethernet Switch

ET2 Series



	CET2-0800	ET2-0800	ET2-1002-2C	ET2-1600
Technical Information				
Number of Ports	8	8	10	16
10/100Base-TX	8	8	8	16
10/100/1000Base-TX	–	–	2 w/combo	–
100/1000Base-X SFP	–	–	2 w/combo	–
Power Requirements				
Redundant Power Inputs	12-48VDC	12-48VDC	12-48VDC	12-48VDC
Overload Current Protection	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓
Relay 24VDC@1A	✓	✓	✓	✓
Mechanical Characteristics				
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	40x65x70	30x142x99	46x142x99	46x142x99
Din-Rail & Panel Mounting	✓	✓	✓	✓
Operating Temperature				
Standard (–10 to 65°C)	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓
Standards & Certifications				
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓
UL 61010	✓	✓	✓	–
ISA 12.12.01 (C1D2)	–	–	✓	–
Corrosion Protection	–	✓ (CP)	–	–

Managed Rack Mount
Ethernet Switch



Rack Mount Series



	RPG5-2602-2C	REG5-2602-2C	RPG5-2804-10GSFP-24	REG5-2804-10GSFP
Technical Information				
Number of Ports	26	26	28	28
10/100/1000Base-TX	24 + 2 w/combo	24 + 2 w/combo	24	24
100/1000Base-X SFP	2 w/combo	2 w/combo	–	–
1G/10G SFP+	–	–	4	4
IEEE 802.3at PoE+ (P.S.E.)	24	–	24	–
Jumbo Frame Support	✓	✓	✓	✓
Power Requirements				
Redundant Power Inputs	48-55VDC	90-264VAC, 47-63Hz	12-55VDC	12-48VDC
Overload Current Protection	✓	✓	✓	✓
Reverse Polarity Protection	✓	–	✓	✓
Relay 24VDC@1A	✓	–	✓	✓
Mechanical Characteristics				
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	440x44x200	440x44x200	TBD	TBD
Rack Mounting	✓	✓	✓	✓
Operating Temperature				
Standard (–10 to 65°C)	✓	✓	✓	✓
Extended (–40 to 75°C)	✓	✓	✓	✓
Standards & Certifications				
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓
UL 61010	✓	–	–	–

Unmanaged Rack Mount
Ethernet Switch

Rack Mount Series



	RPG2-2602-2C	REG2-2602-2C
Technical Information		
Number of Ports	26	26
10/100/1000Base-TX	24 + 2 w/combo	24 + 2 w/combo
100/1000Base-TX	2 w/combo	2 w/combo
IEEE 802.3at PoE+ (P.S.E.)	24	-
Jumbo Frame Support	✓	✓
Power Requirements		
Redundant Power Inputs	48-55VDC	90-264VAC, 47-63Hz
Overload Current Protection	✓	✓
Reverse Polarity Protection	✓	✓
Relay 24VDC@1A	✓	-
Mechanical Characteristics		
Housing	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	440x44x200	440x44x200
Rack Mounting	✓	✓
Operating Temperature		
Standard (-10 to 65°C)	✓	✓
Extended (-40 to 75°C)	✓	✓
Standards & Certifications		
EN 61000-6-4 / EN 61000-6-2	✓	✓
FCC Part 15B / CISPR 22	✓	✓
UL 61010	✓	-



Media Converter

Media Converter Series



	MPG2-0201-SFP	MEG2-0201-SFP	MEG2-0201-M	MPT2-0201-M	MET2-0201-M
Technical Information					
Number of Ports	2	2	2	2	2
10/100Base-TX	–	–	–	1	1
10/100/1000Base-TX	1	1	1	–	–
100/1000Base-X SFP	1	1	–	–	–
100Base-FX Fixed Fiber	–	–	–	1	1
1000Base-X Fixed Fiber	–	–	1	–	–
IEEE 802.3at PoE+ (P.S.E.)	1	–	–	1	–
Jumbo Frame Support	✓	✓	✓	–	–
Power Requirements					
Redundant Power Inputs	48-55VDC	12-48VDC	12-48VDC	48-55VDC	12-48VDC
Overload Current Protection	✓	✓	✓	✓	✓
Reverse Polarity Protection	✓	✓	✓	✓	✓
Relay 24VDC@1A	–	–	–	✓	✓
Mechanical Characteristics					
Housing	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30	Metal, IP30
Dimension (WxHxD mm)	26x95x75	26x95x75	26x95x75	26x95x75	26x95x75
Din-Rail & Panel Mounting	✓	✓	✓	✓	✓
Operating Temperature					
Standard (–10 to 70°C)	✓	✓	✓	✓	✓
Extended (–40 to 80°C)	✓	✓	✓	✓	✓
Standards & Certifications					
EN 61000-6-4 / EN 61000-6-2	✓	✓	✓	✓	✓
FCC Part 15B / CISPR 22	✓	✓	✓	✓	✓
UL 61010	✓	✓	✓	–	–



PoE Injector

PoE Injector Series

CE FC

Accessories

DC/DC Booster

CE FC

GINJ-0201-AT-24

GINJ-0201-BT-24

	GINJ-0201-AT-24	GINJ-0201-BT-24
Technical Information		
Number of Ports	2	2
10/100/1000Base-TX	2	2
IEEE 802.3at PoE+ (P.S.E.)	1	–
IEEE 802.3bt PoE+ (P.S.E.)	–	1
PoE Power Budget	30W	90W
Power Requirements		
Redundant Power Inputs	12-55VDC	12-55VDC
Overload Current Protection	✓	✓
Reverse Polarity Protection	✓	✓
Mechanical Characteristics		
Housing	Metal, IP30	Metal, IP30
Dimensions (WxHxD mm)	26x95x75	30x95x75
Din-Rail & Panel Mounting	✓	✓
Operating Temperature		
Standard (–10 to 65°C)	✓	✓
Extended (–40 to 75°C)	✓	✓
Standards & Certifications		
EN 61000-6-4 / EN 61000-6-2	✓	✓
FCC Part 15B / CISPR 22	✓	✓

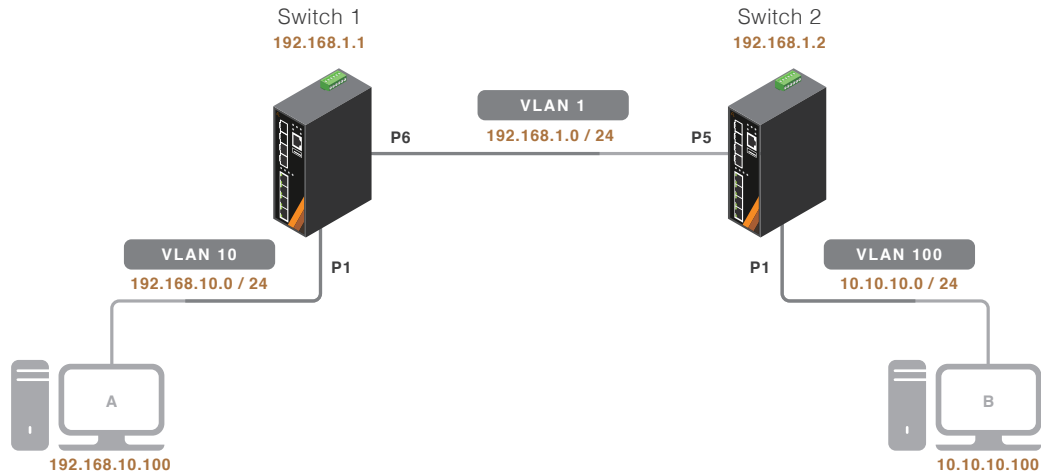
DD-0953

	DD-0953
Technical Information	
DC Output Range	53V (adj. 48-55V)
DC Input Range	9-55V
Max. Power Rated	300W
Protection	
Overload Current Protection	✓
Reverse Polarity Protection	✓
Mechanical Characteristics	
Housing	Metal, IP30
Dimensions (WxHxD mm)	35x95x75
Din-Rail & Panel Mounting	✓
Operating Temperature	
Extended (–40 to 75°C)	✓
Standards & Certifications	
CE	✓
FCC Part 15B / CISPR 22	✓

SOFTWARE FEATURE

001.

IP Routes (Static Routes)



IP Routes (Static Routes)

001.

IP routing is determined to build a suitable path for a network packet from a host on one network to another host on a different remote network, and selects a specific packet forwarding rules from the static routing table to determine how to deliver the packet to the target host.

DHCP Relay

002.

DHCP relay agent is used to forward and to transfer DHCP messages between the clients and the server when they are not in the same subnet domain.

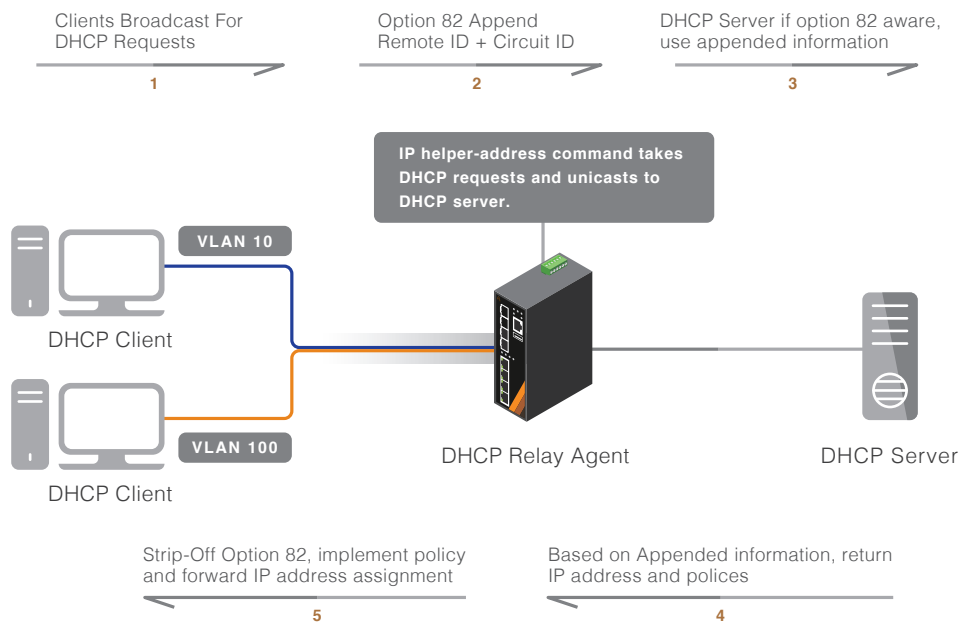
DHCP Snooping

003.

DHCP Snooping is used to block intruder on the untrusted ports of the switch device when it tries to intervene by injecting a bogus DHCP reply packet to a legitimate conversation between the DHCP client and server.

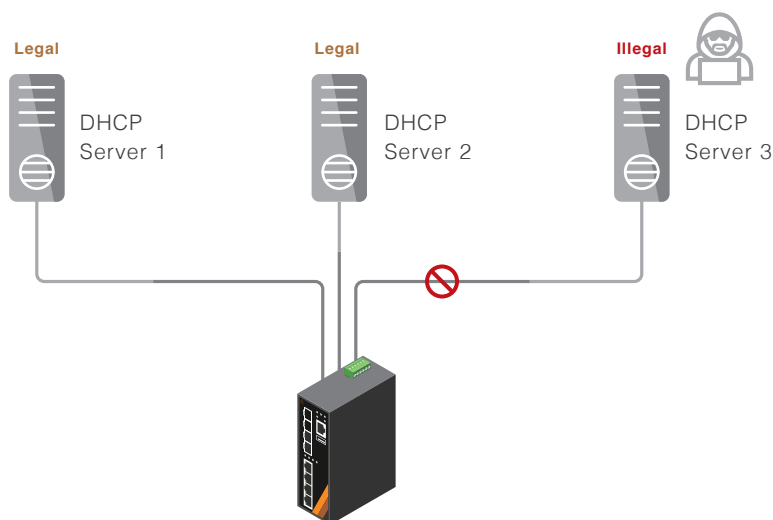
002.

DHCP Relay



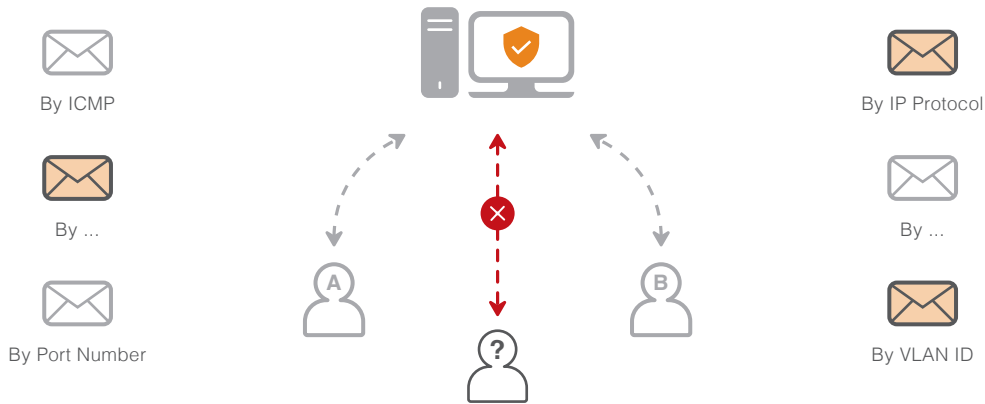
003.

DHCP Snooping



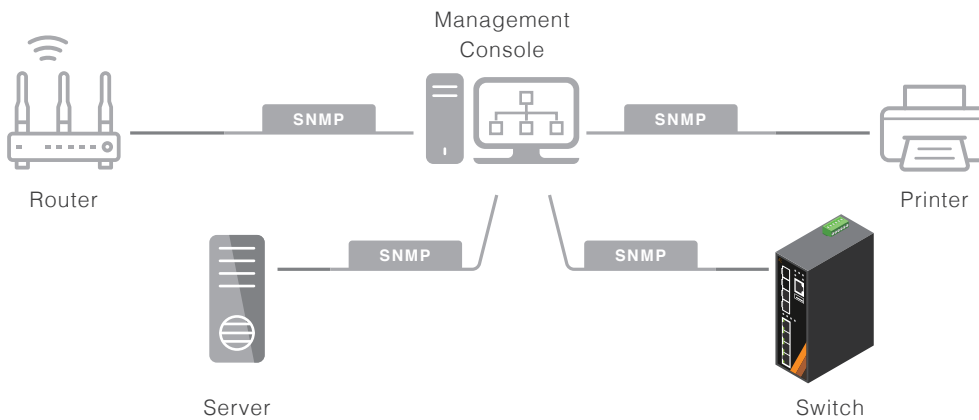
004.

ACL



005.

SNMP



ACL

Access Control List (ACL) is a set of rules which used to filter network traffic. It can be configured on devices with packet filtering capabilities. ACL may include a list of conditions that determine when to allow the traffic or deny on the different packet of categories. It is applied for interfaces to filter leaving or entering packets.

004.

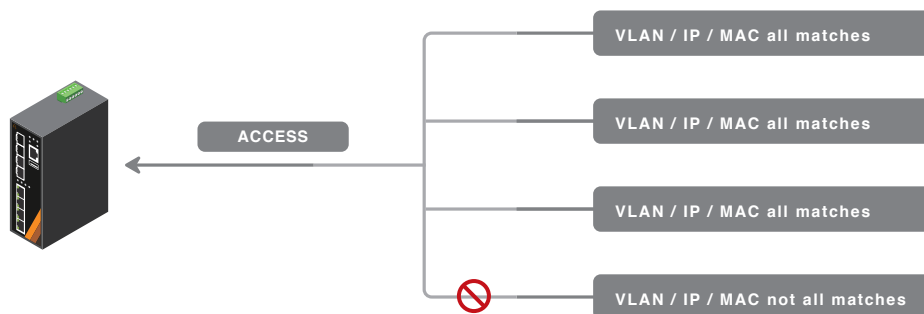
SNMP

Simple Network Management Protocol (SNMP) is widely used in network management for collecting and organizing information about managed devices on IP networks and for modifying that information to change device behavior.

005.

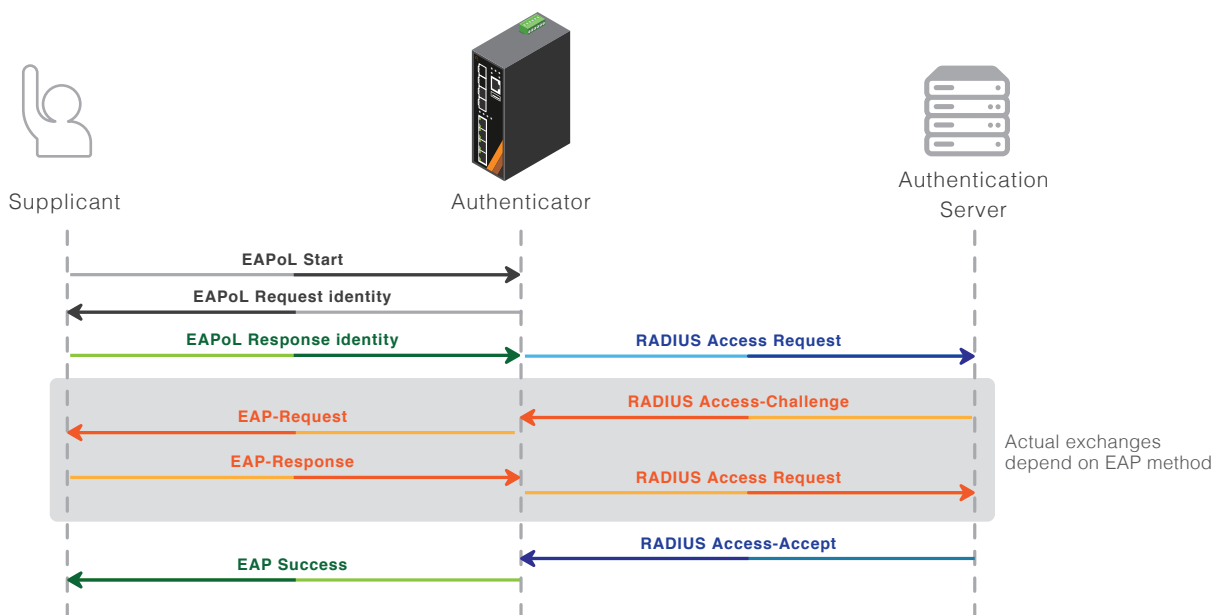
006.

IP Source Guard



007.

IEEE 802.1X



IP Source Guard

006. **IEEE 802.1X**

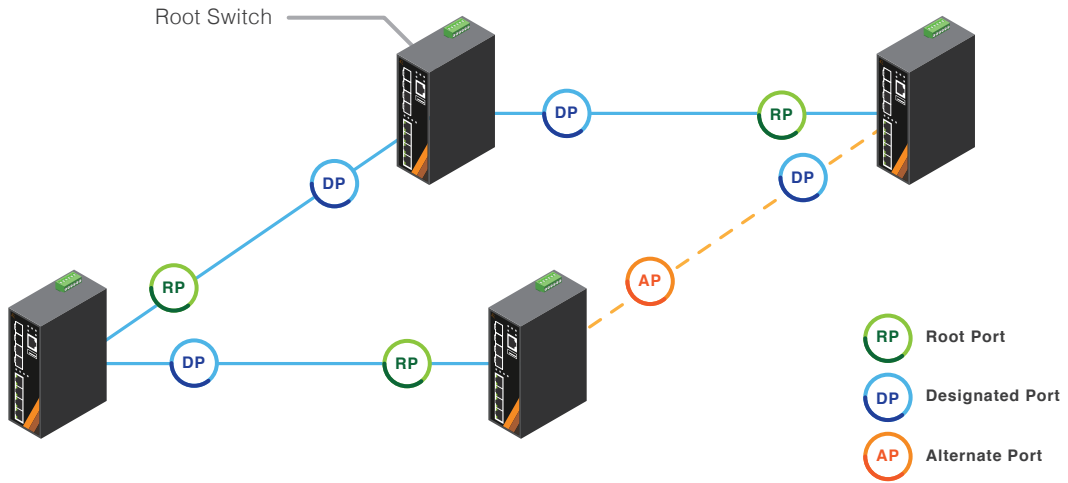
007.

IP source guard is the solution for the IT administrator, by restricting IP traffic, to prevent legitimate IP from being hacked by the malicious third party. Switching IP setting is a common way to avoid being blocked by the administrator, but this will eventually cause the whole network blocked. Therefore, the ultimate solution for the problem would be IP source guard.

IEEE 802.1X is an IEEE Standard for port-based Network Access Control (PNAC). It provides an authentication mechanism to achieve more security on authenticated ports.

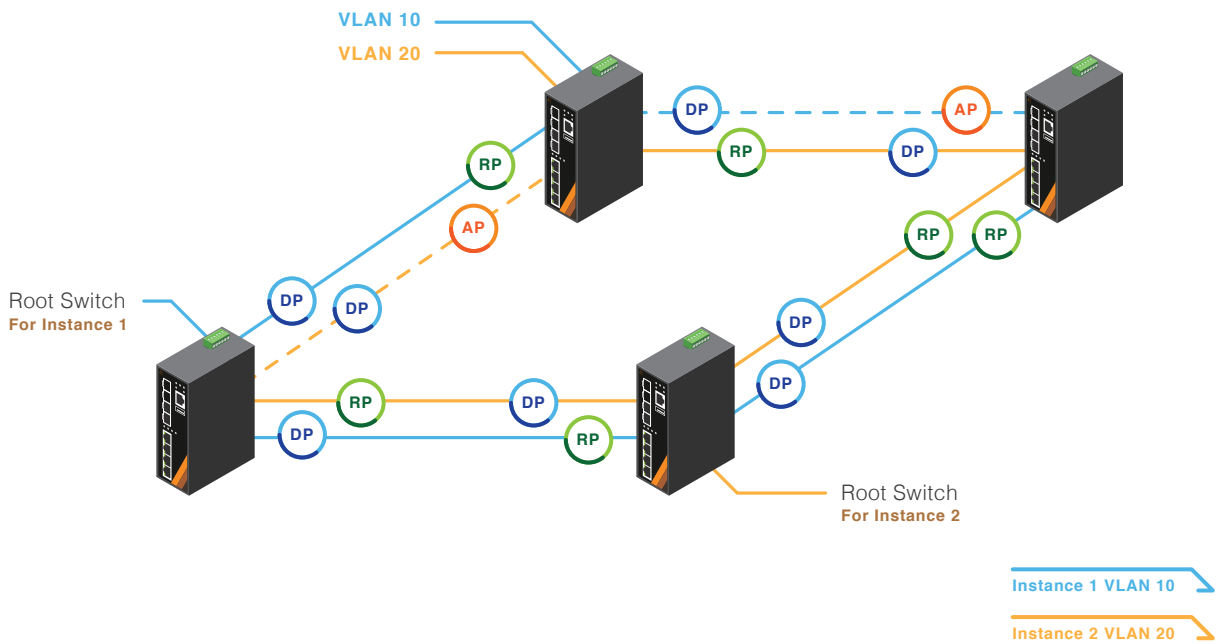
008.

RSTP



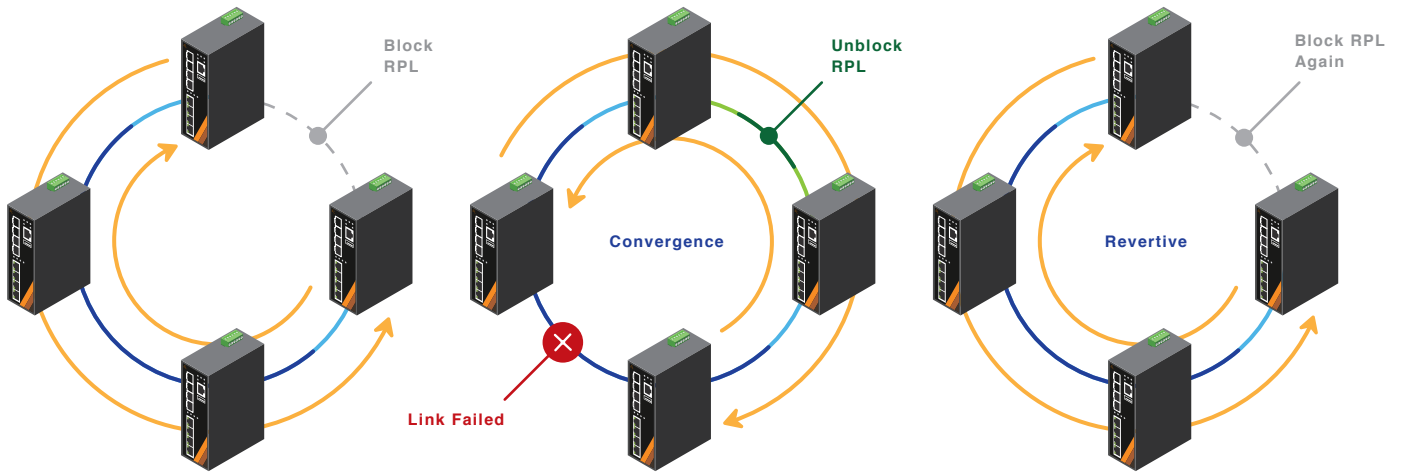
009.

MSTP



010.

ERPS



RSTP

008.

RSTP is a useful link redundancy protocol which recovers the links without the need of manually enabling backup links to get rid of bridge loops danger. RSTP is available to address the STP convergence time gap issue. It uses discarding to replace STP disabled, blocking and listening ports status, and enables STP Root Ports and STP Designated Ports to change from the blocking to forwarding port state in a few seconds.

MSTP

009.

MSTP is the extension of RSTP. It allows frames to be assigned to different VLANs to separate instances of spanning tree. Each instance defines a single forwarding topology for a unique set of VLANs. Therefore, as a port belongs to multiple VLANs, it may be blocked in one spanning tree instance but forwarding in another instance.

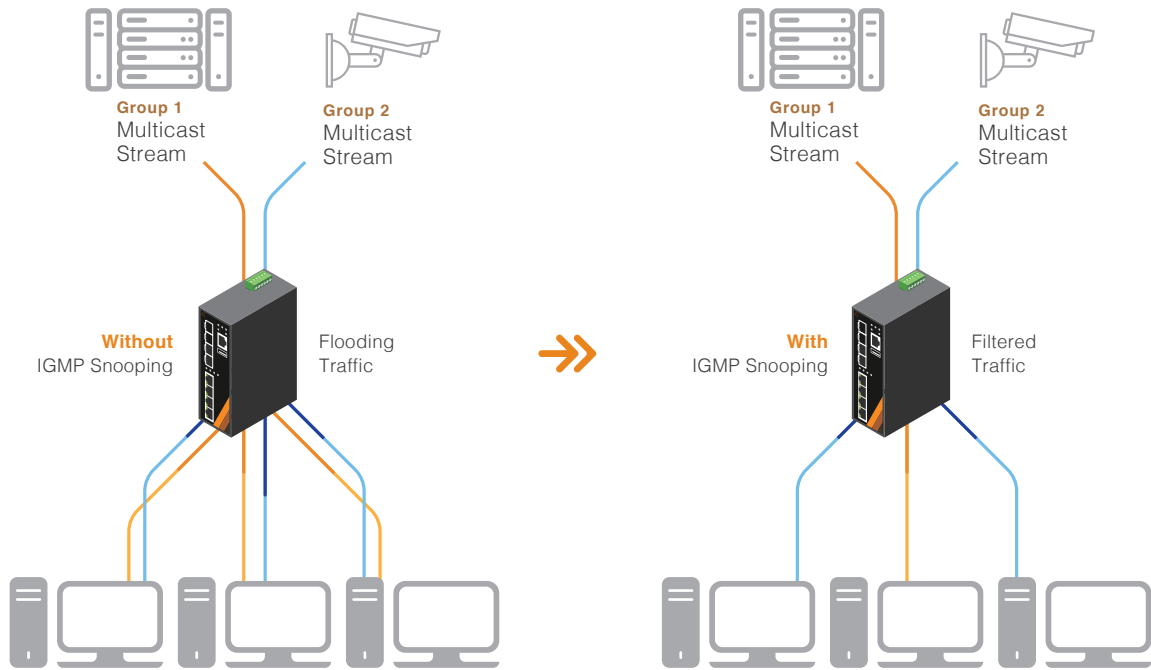
ERPS

010.

ERPS is a fast ring redundancy protocol that is addressed by ITU-T under G.8032 to provide sub-50ms protection and recovery switching for Ethernet traffic in a ring topology and ensure that there are no loops formed at the Ethernet layer.

011.

IGMP Snooping



IGMP Snooping

011.

IGMP snooping is the process of listening to Internet Group Management Protocol (IGMP) network traffic. This feature allows a switch to listen to the IGMP conversation between hosts and multicast routers. By listening to these conversations, the switch maintains a map of which links need which IP multicast streams. The switch will only forward multicast streams to the host, so it can reduce the unnecessary load in the traffic.

VLAN

012.

IEEE 802.1Q Virtual LAN (VLAN) defines a system of VLAN tagging for Ethernet frames and contains a VLAN Identifier that indicates the VLAN numbers. Users can use different VLAN settings to isolate network traffic.

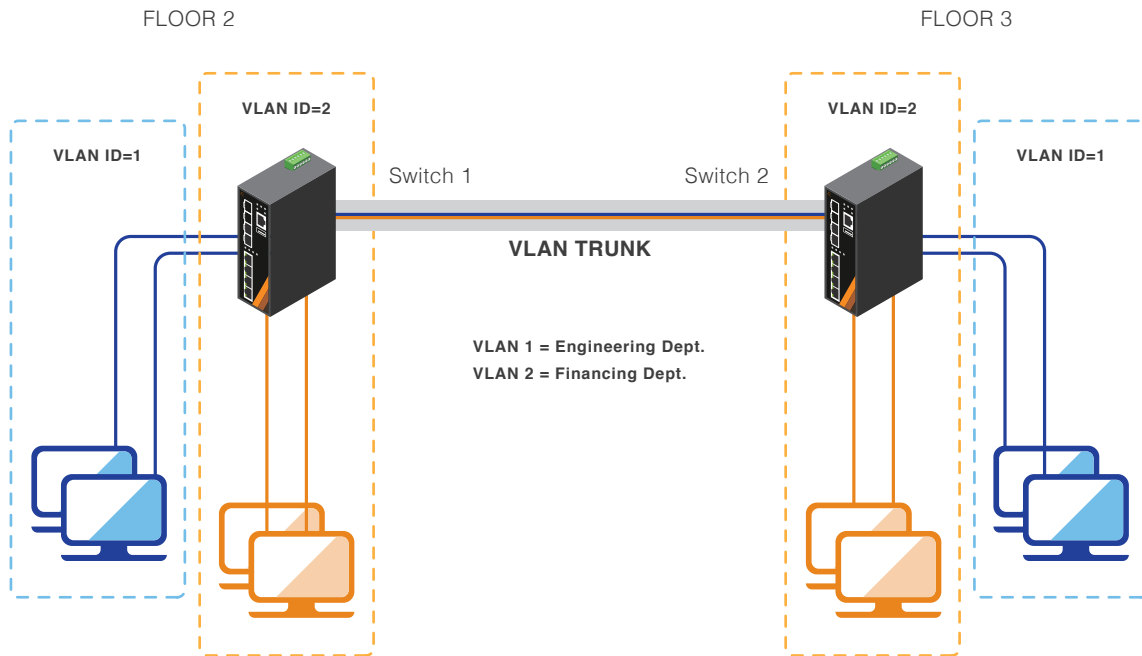
QoS

013.

Quality of Service (QoS) is applied throughout the network. This ensures that network traffic is prioritized according to specified criteria, users, or data flows, or to guarantee a certain level of performance to a data flow and application usage quality.

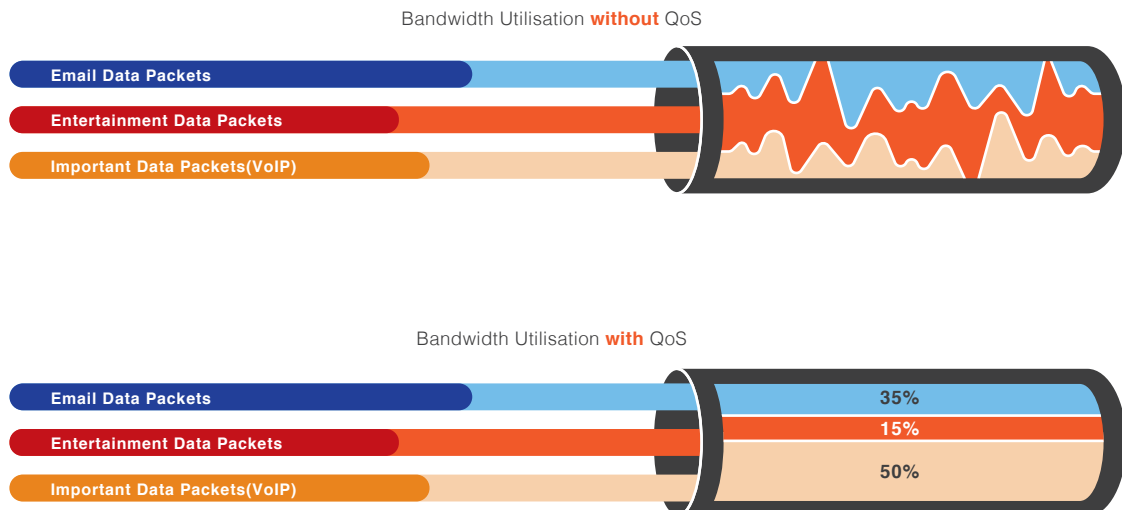
012.

VLAN



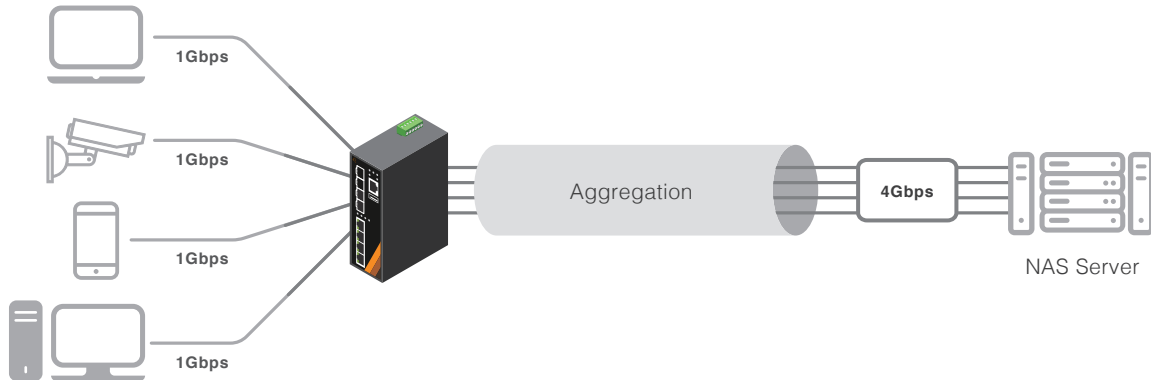
013.

QoS



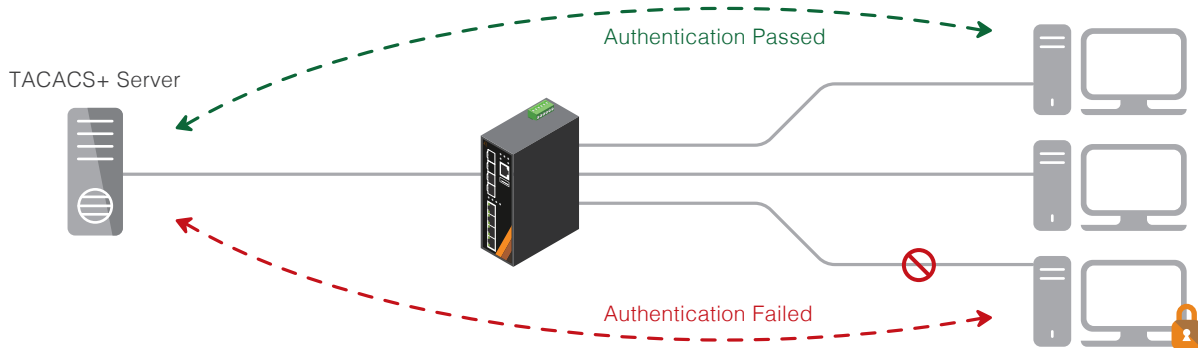
014.

Aggregation



015.

TACACS+



Aggregation

014. **TACACS+**

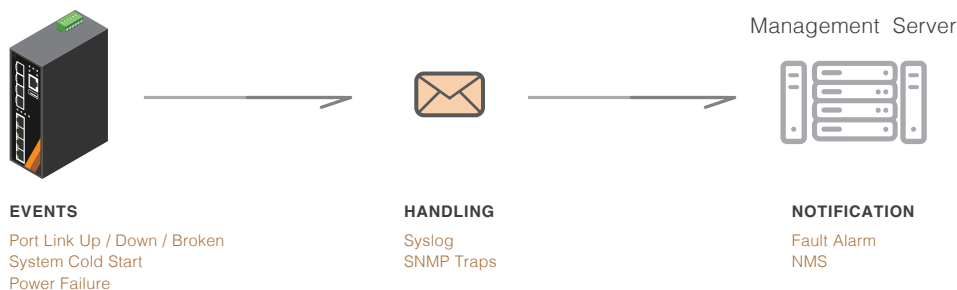
015.

Aggregation is a method of combining multiple network connections in parallel. It increases the throughput beyond what a single connection could sustain, and provides redundancy in case one of the links fails. For example, if the application requires a 4-Gigabit link, and each port supports only 1-Gigabit link, the "Aggregation" allows users to link 4 of 1-Gigabit ports to obtain a 4-Gigabit trunk feature.

TACACS+ is a networking protocol which provides access control for routers, network access servers and other network computing devices via one or more centralized servers.

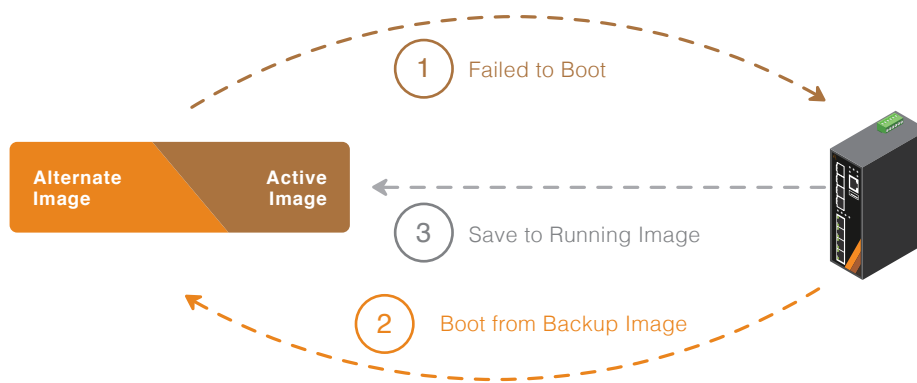
016.

Fault Management



017.

Software Image Selection



Fault Management

016.

These messages are the main form of communication and recorded between a System Agent and a System Manager. They are used to inform a System manager when an important event happens at the Agent level. A benefit of using these messages for reporting alarms is that they trigger instantaneously, rather than waiting for a status request from the manager.

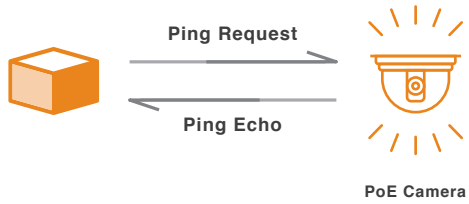
Software Image Selection

017.

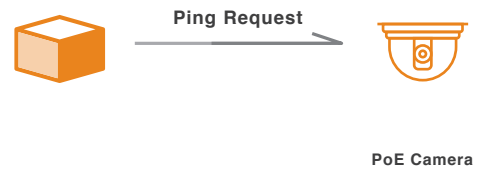
The Software Image Selection feature allows switches to have two images in permanent storage. You can denote one of these images as an active image that will be loaded in subsequent reboots and the other image as an alternate image.

PoE Ping Alive

PD Status Good!



1

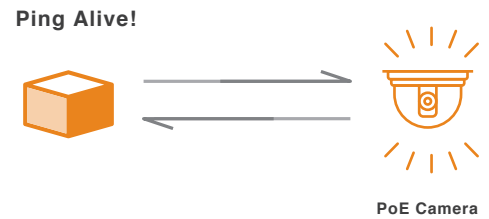


2



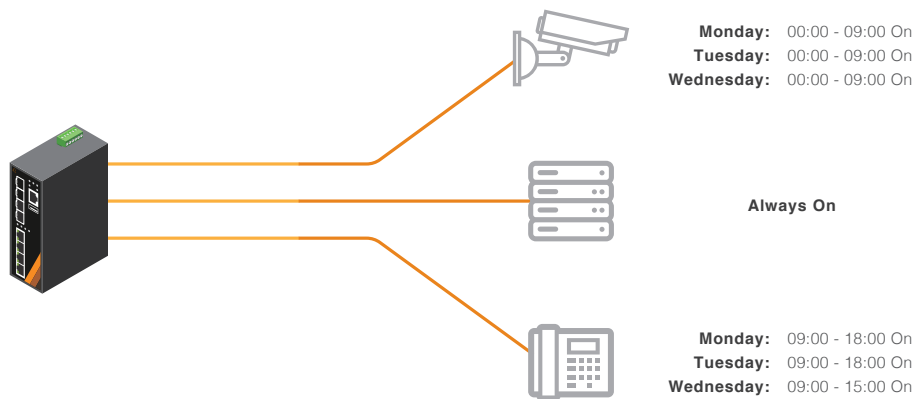
3

Reset PD if there's no response

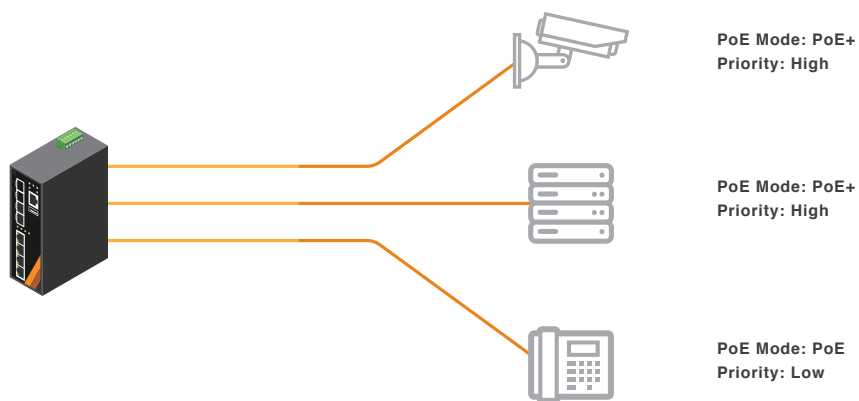


4

PoE Schedule



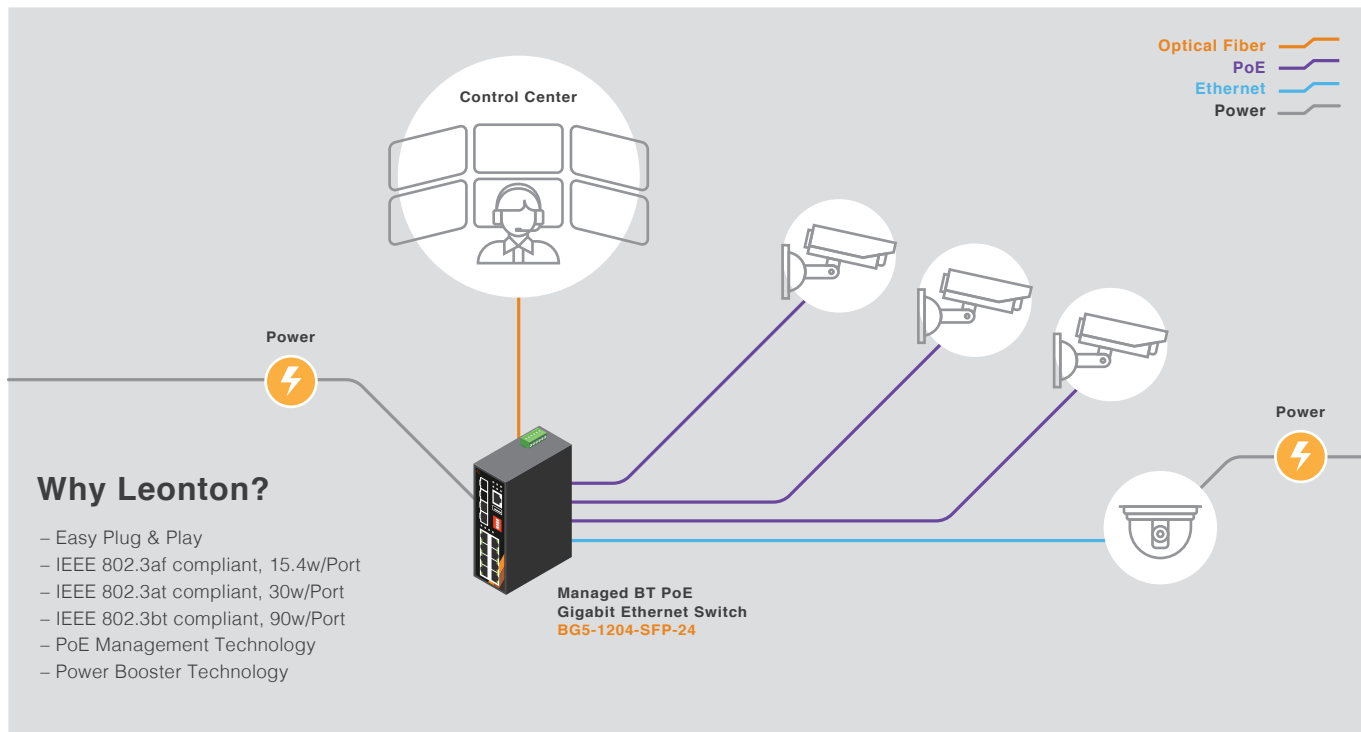
PoE Power Priority Management



APPLICATION & SOLUTION

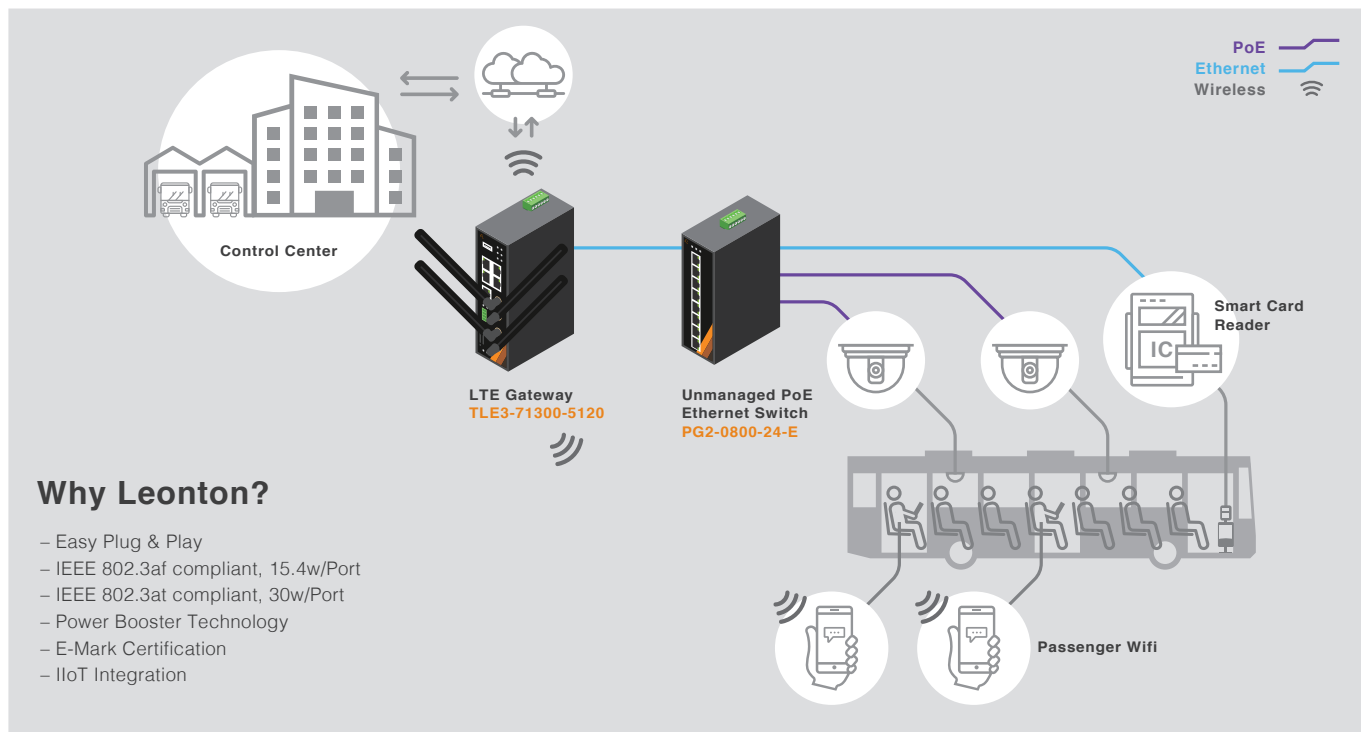
Security

Effortless Surveillance



ITS

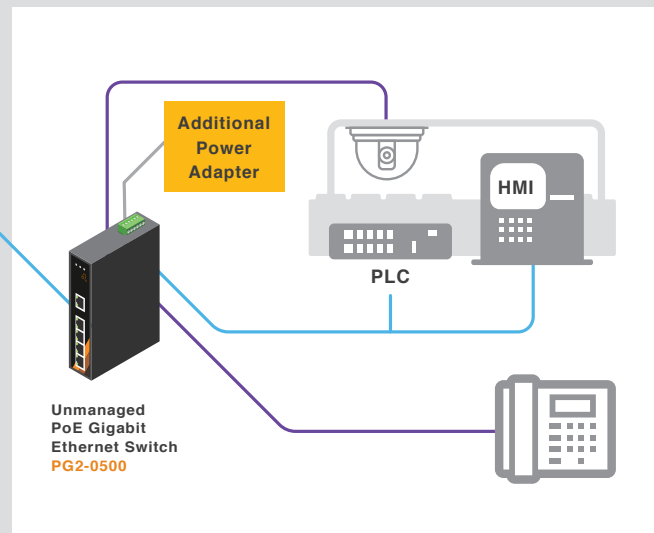
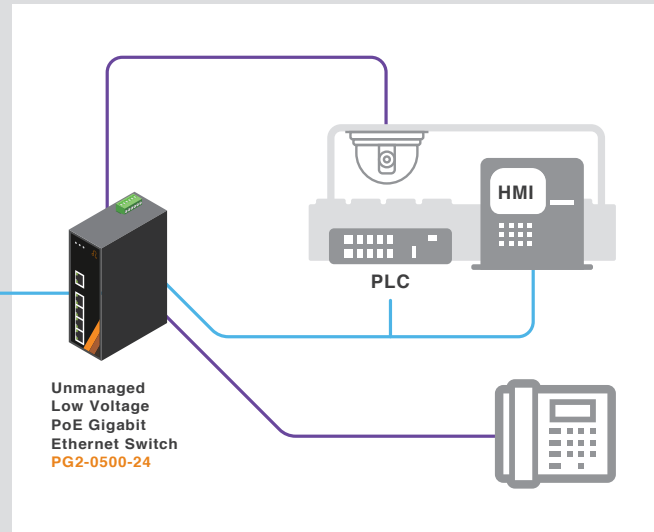
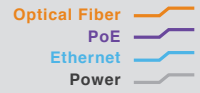
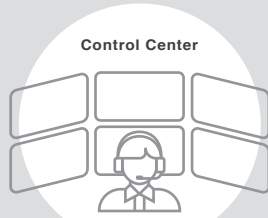
Bus Application



Automation Manufacturing

Why Leonton?

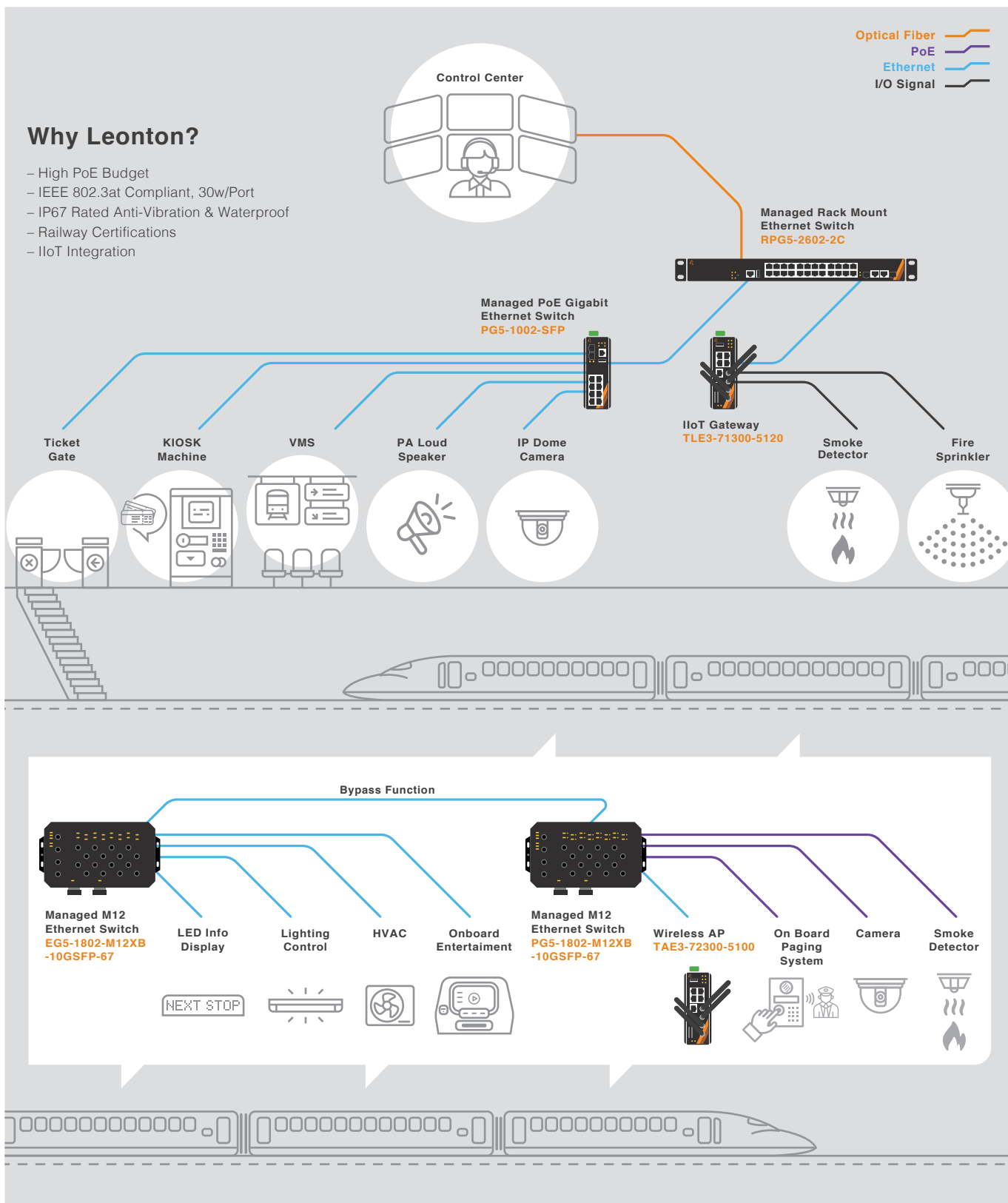
- Low Voltage Power Support
- 30 Watt Output/Port
- Fan-less Design
- IP67 Rated Anti-Vibration & Waterproof
- CE, FCC, UL



ITS Railway Application

Why Leonton?

- High PoE Budget
- IEEE 802.3at Compliant, 30w/Port
- IP67 Rated Anti-Vibration & Waterproof
- Railway Certifications
- IIoT Integration



APPENDIX

QUICK CONVERSION GUIDE

Measurement		
in	mm	cm
1	25.4	2.54
2	50.8	5.08
3	76.2	7.62
4	101.6	10.16
5	127	12.7
6	152.4	15.24
7	177.8	17.78
8	203.2	20.32
9	228.6	22.86
10	254	25.4
11	279.4	27.94
12	304.8	30.48
13	330.2	33.02
14	355.6	35.56
15	381	38.1
16	406.4	40.64
17	431.8	43.18
18	457.2	45.72
19	482.6	48.26
20	508	50.8
21	533.4	53.34
22	558.8	55.88
23	584.2	58.42
24	609.6	60.96

Distance		
ft	yd	m
1	0.333	0.305
2	0.667	0.610
3	1.000	0.914
4	1.333	1.219
5	1.667	1.524
6	2.000	1.829
7	2.333	2.134
8	2.667	2.438
9	3.000	2.743
10	3.333	3.048
11	3.667	3.353
12	4.000	3.658
13	4.333	3.962
14	4.667	4.267
15	5.000	4.572
16	5.333	4.877
17	5.667	5.182
18	6.000	5.486
19	6.333	5.791
20	6.667	6.096
21	7.000	6.401
22	7.333	6.706
23	7.667	7.010
24	8.000	7.315

Distance	
mi	km
1	1.609
2	3.219
3	4.828
4	6.437
5	8.047
6	9.656
7	11.265
8	12.874
9	14.484
10	16.093
11	17.702
12	19.312
13	20.921
14	22.530
15	24.140
16	25.749
17	27.358
18	28.967
19	30.577
20	32.186
21	33.795
22	35.405
23	37.014
24	38.623

Weight	
lb	g
1	453.592
2	907.184
3	1360.776
4	1814.368
5	2267.960
6	2721.552
7	3175.144
8	3628.736
9	4082.328
10	4535.920
11	4989.512
12	5443.104
13	5896.696
14	6350.288
15	6803.880
16	7257.472
17	7711.064
18	8164.656
19	8618.248
20	9071.840
21	9525.432
22	9979.024
23	10432.616
24	10886.208

Temperature	
Celsius	Fahrenheit
100	212
90	194
80	176
70	158
60	140
50	122
40	104
30	86
20	68
10	50
	32
-10	14
-20	-4
-30	-22
-40	-40

°F = [°C] × 9/5 + 32
 °C = ([°F] – 32) × 5/9

Key

Imperial	Metric
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Fiber Optical Link Loss Budget:

1. Connector Loss: Each connector, ≈ 0.5 - 0.7 dB loss
2. Splice Loss: Each splice, ≈ 0.2 dB loss

3A. Multi-Mode Cable Length Fiber Loss:

- a). 3 dB loss per km for 850 nm sources.
- b). 1 dB loss per km for 1300 nm sources.

3B. Single-Mode Cable Length Fiber Loss:

- a). 0.5 dB loss per km for 1300 nm sources.
- b). 0.25 dB loss per km for 1550 nm sources.

Equation:

$[(0.5 \text{ dB}) (\# \text{ connectors})] + [(0.2 \text{ dB}) (\# \text{ splices})] + \text{fiber loss on the total length of cable} = \text{dB loss}$

Wireless Power

dBm	Power	dBm	Power
0	1.0 mW	16	40.0 mW
1	1.3 mW	17	50.0 mW
2	1.6 mW	18	63.0 mW
3	2.0 mW	19	79.0 mW
4	2.5 mW	20	100.0 mW
5	3.2 mW	21	126.0 mW
6	4.0 mW	22	158.0 mW
7	5.0 mW	23	200.0 mW
8	6.0 mW	24	250.0 mW
9	8.0 mW	25	316.0 mW
10	10.0 mW	26	398.0 mW
11	13.0 mW	27	500.0 mW
12	16.0 mW	28	630.0 mW
13	20.0 mW	29	800.0 mW
14	25.0 mW	30	1.0 W
15	32.0 mW	31	1.3 W





Your Partner in Networking

