IGPS-P9084GP-LA

Industrial IEC 61850 12-port managed Gigabit PoE Ethernet switch with 8x10/100/1000Base-T(X) P.S.E. ports and 4x100/1000Base-X, SFP socket,

Features

- Designed for Power substation application and fully compliant with the requirement of IEC61850-3/IEEE 1613
- Supprot IEEE 1588v2 clock syncronization
- Support **O-Ring** (recovery time < 30ms) and MSTP(RSTP/STP compatible) for Ethernet Redundancy
- **Open-Ring** support the other vendor's ring technology in open architecture
- **O-Chain** allow multiple redundant network rings
- Support standard IEC 62439-2 **MRP** (Media Redundancy Protocol) function
- 8 port P.S.E. fully compliant with IEEE802.3at standard, provide up to 30 Watts per port
- Support PoE on/off scheduled configuration
- Support PoE alive check and auto reboot fuction
- Support IPV6 new internet protocol version
- Support EtherNet/IP™ and Modbus TCP protocol
- Support IEEE 802.3az **Energy-Efficient Ethernet** technology
- Provided HTTPS/SSH protocol to enhance network security
- Support SMTP client and NTP server protocol
- Support IP-based bandwidth management
- Support application-based QoS management
- Support Device Binding security function
- Support DOS/DDOS auto prevention
- Support auto-negotiation and auto-MDI/MDIX
- Support full and half duplex mode
- IGMP v2/v3 (IGMP snooping support) for filtering multicast traffic
- Support SNMP v1/v2c/v3 & RMON & 802.1Q VLAN Network Management
- Support ACL, TACACS+ and 802.1x User Authentication for security
- Support 9.6K Bytes Jumbo Frame
- Syslog/SNMP Trap notification for warning of unexpected event
- Support **DBU-01** backup unit device to quickly backup/restore configuration
- Web-based ,SNMP v1/v2c/v3, Telnet, Console (CLI), and Windows utility (**Open-Vision**) configuration
- Support LLDP Protocol
- Rigid IP-30 housing with Fanless design
- DIN-Rail and wall mounting enabled
- 61850-3 certified
- Support QoS and MMS server Protocol



ROHS CE FC

Full Gigabit | P.S.E PUE | O-Ring | Redundant PWR | -40~75°C Temperature

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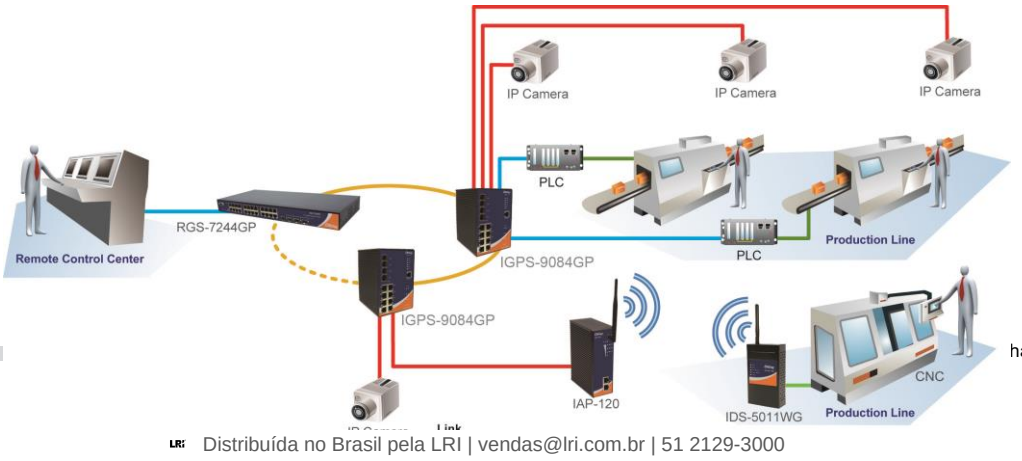
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Introduction

IGPS-P9084GP-LA is IEC61850-3 managed PoE Ethernet switch with 8x10/100/1000Base-T(X) P.S.E. ports and 4x100/1000Base-X SFP ports. The switch is designed for power substation application and rolling stock application, fully compliant with the requirement of IEC 61850-3 and IEEE 1613

The switch support Ethernet Redundancy protocol, O-Ring (recovery time < 20ms over 250 units of connection) and MSTP (RSTP/STP compatible) can protect your mission-critical applications from network interruptions or temporary malfunctions with its fast recovery technology. IGPS-P9084GP-LA also support Power over Ethernet, a system to transmit electrical power up to 30 watts, total PoE power budget is 240W max, along with data, to remote devices over standard twisted-pair cable in an Ethernet network. The switch is one of the most reliable choices for highly-managed and Fiber Ethernet power substation.

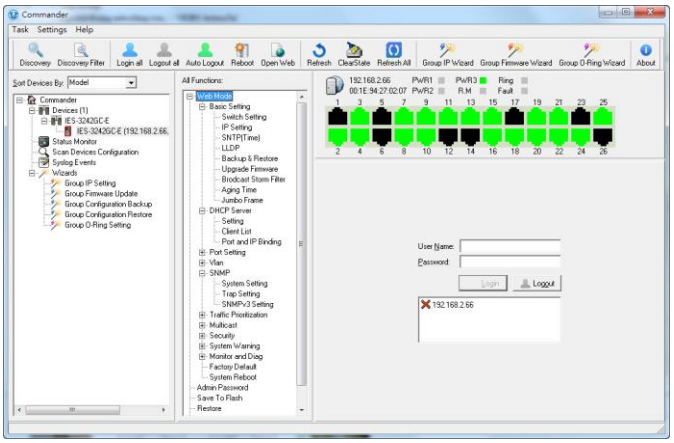
- **O-Ring :** O-Ring is ORing's proprietary redundant ring technology, with recovery time of less 20 milliseconds and up to 250 nodes. The O-Ring redundant ring technology can protect mission-critical application from network interruptions or temporary malfunction with its fast recover technology.
- **Open-Ring :** Open-Ring is an enhanced redundant technology that makes ORing's switches compatible with other vendor's proprietary redundant ring technologies. It enables ORing's switches to form a single ring with other vendor's switch. In cases where the ring is setup using proprietary technology, ORing offers a compatibility service where ORing can make its switches compatible with your particular network requirements.
- **O-Chain :** O-Chain is the revolutionary network redundancy technology that provides the add-on network redundancy topology for any backbone network, 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. O-Chain providing ease-of-use while maximizing fault-recovery swiftness, flexibility, compatibility, and cost-effectiveness in one set of network redundancy topology.
- **MRP: Media Redundancy Protocol** (**MRP**) is a data network protocol standardized by the IEC 62439-2. It allows rings of Ethernet switches to overcome any single failure with recovery time much faster than achievable with Spanning Tree Protocol.
- **IP-based Bandwidth Management :** The switch provide advanced IP-based bandwidth management which can limit the maximum bandwidth for each IP device. User can configure IP camera and NVR with more bandwidth and limit other device bandwidth.
- **Application-Based QoS :** The switch also support application-based QoS. Application-based QoS can set highest priority for data stream according to TCP/UDP port number.
- **Device Binding Function :** ORing special Device Binding function can only permit allowed IP address with MAC address to access the network. Hacker cannot access the IP surveillance network without permission. It can avoid hacker from stealing video privacy data and attacking IP camera, NVR and controllers.
- **Advanced DOS/DDOS Auto Prevention :** The switch also provided advanced DOS/DDOS auto prevention. If there is any IP flow become big in short time, the switch will lock the source IP address for certain time to prevent the attack. It's hardware based prevention so it can prevent DOS/DDOS attack immediately and completely.
- **EtherNet/IP™** : This product is ODVA CONFORMANT for use in EtherNet/IP industrial automation systems
- **Modbus TCP :** This is a Modbus variant used for communications over TCP/IP networks.
- **IEEE 802.3az Energy-Efficient Ethernet :** This is a set of enhancements to the twisted-pair and backplane Ethernet family of networking standards that will allow for less power consumption during periods of low data activity. The intention was to reduce power consumption by 50% or more.



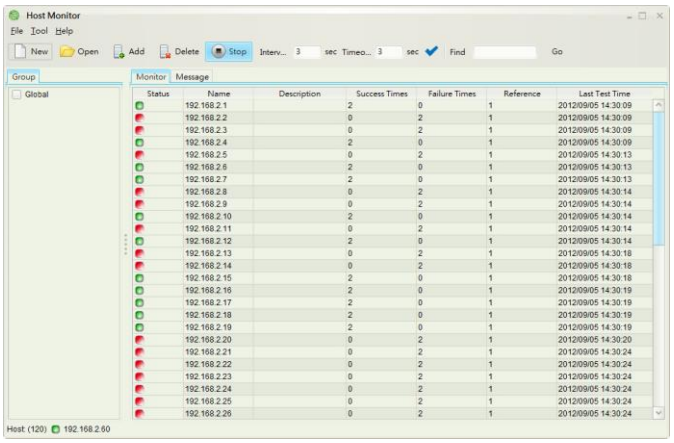
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Open-Vision

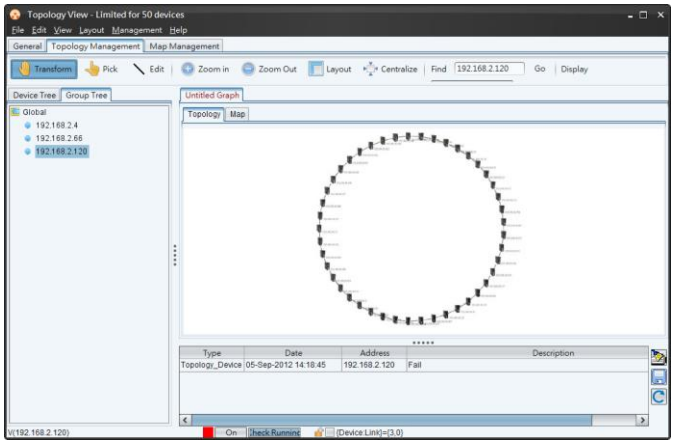
ORing's switches are intelligent switches. Different from other traditional redundant switches, ORing provides a set of Windows utility (Open-Vision) for user to manage and monitor all of industrial Ethernet switches on the industrial network.



Commander



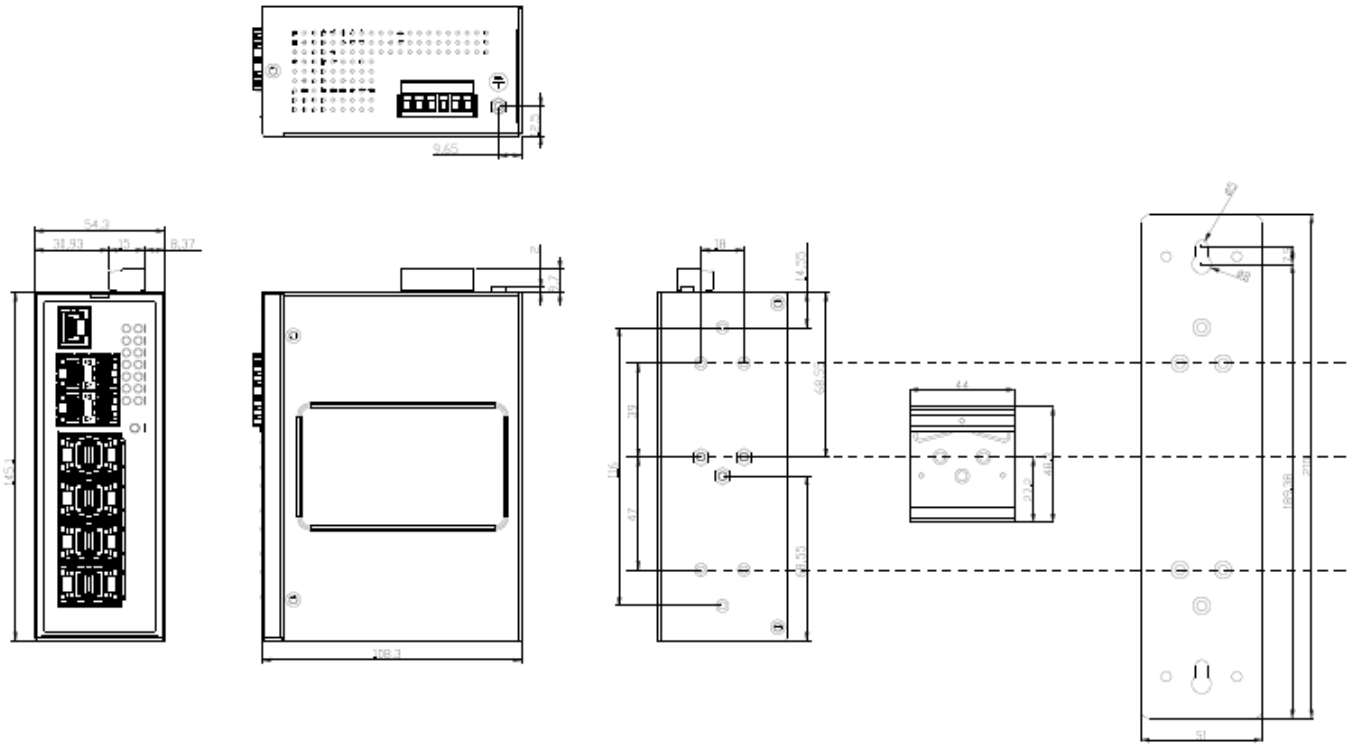
Host Monitor



Topology View

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Dimension



PoE Pin Definition

- 10/100Base-T(X) P.S.E. RJ-45 port

RJ-45 Pin Definition	
Pin No.	Description
#1	TD+ with PoE Power input +
#2	TD- with PoE Power input +
#3	RD+ with PoE Power input -
#6	RD- with PoE Power input -

- 1000Base-T P.S.E. RJ-45 port

RJ-45 Pin Definition	
Pin No.	Description
#1	BI_DA+ with PoE Power input +
#2	BI_DA- with PoE Power input +
#3	BI_DB+ with PoE Power input -
#4	BI_DC+
#5	BI_DC-
#6	BI_DB- with PoE Power input -
#7	BI_DD+
#8	BI_DD-

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Specifications

ORing Switch Model	IGPS-P9084GP-LA
Physical Ports	
10/100/1000Base-T(X) with P.S.E. Ports in RJ45 Auto MDI/MDIX	**8**
100/1000Base-X with SFP port	**4**
Technology	
Ethernet Standards	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX and 100Base-FX IEEE 802.3ab for 1000Base-T IEEE 802.3z for 1000Base-X IEEE 802.3x for Flow control IEEE 802.3ad for LACP (Link Aggregation Control Protocol) IEEE 802.1p for COS (Class of Service) IEEE 802.1Q for VLAN Tagging IEEE 802.1D for STP (Spanning Tree Protocol) IEEE 802.1w for RSTP (Rapid Spanning Tree Protocol) IEEE 802.1s for MSTP (Multiple Spanning Tree Protocol) IEEE 802.1x for Authentication IEEE 802.1AB for LLDP (Link Layer Discovery Protocol) IEEE 802.3at PoE specification (up to 30 Watts per port for P.S.E.)
PoE Power Supply Type	Endspan mode
PoE Power Output	Per port 56V DC, 350mA. Max. 15.4 watts (IEEE 802.3af), Per Port 56V DC, 590mA. Max. 30 watts (IEEE 802.3at)
MAC Table	8k
Priority Queues	8
Processing	Store-and-Forward
Share Data Buffer	4Mbit
Switch Properties	Switching latency: 7 us Switching bandwidth: 24Gbps Throughput (packet per second) : 17.856Mpps@64Bytes packet Max. Number of Available VLANs: 4096 VLAN ID Range : VID 0 to 4095 IGMP multicast groups: 256 for each VLAN Port rate limiting: User Define
Jumbo frame	Up to 9.6K Bytes
Security Features	Device Binding security feature Enable/disable ports, MAC based port security Port based network access control (802.1x) VLAN (802.1Q) to segregate and secure network traffic Radius centralized password management SNMPv3 encrypted authentication and access security Https / SSH enhance network security
Software Features	STP/RSTP/MSTP (IEEE 802.1D/w/s) Redundant Ring (O-Ring) with recovery time less than 20ms over 250 units TOS/Diffserv supported Quality of Service (802.1p) for real-time traffic VLAN (802.1Q) with VLAN tagging IGMP Snooping IP-based bandwidth management Application-based QoS management DOS/DDOS auto prevention Port configuration, status, statistics, monitoring, security DHCP Server/Client/Relay SMTP Client Modbus TCP EtherNet/IP™ NTP server
Network Redundancy	O-Ring Open-Ring O-Chain MRP MSTP (RSTP/STP compatible)

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RS-232 Serial Console Port	RS-232 in RJ45 connector with console cable. 115200bps, 8, N, 1
LED indicators	
Power Indicator (PWR)	Green : Power LED x 3
Ring Master Indicator (R.M.)	Green : Indicates that the system is operating in O-Ring Master mode
O-Ring Indicator (Ring)	Green : Indicates that the system operating in O-Ring mode Green Blinking : Indicates that the Ring is broken.
Fault Indicator (Fault)	Amber : Indicate unexpected event occurred
10/100/1000Base-T(X) RJ45 Port Indicator	Green for Port LINK/ACT indicator Dual color LED for speed indicator: Green for 1000Mbps / Amber for 100Mbps / off-light for 10Mbps
100/1000Base-X SFP Port Indicator	Green for port Link/Act.
PoE Indicator	Green : PoE enabled LED x 8
Fault contact	
Relay	Relay output to carry capacity of 1A at 24VDC
Reset Function	
Reset Button	< 5 sec: System reboot, > 5 sec: Factory default
Power	
Redundant Input power	50/57VDC on 6-pin terminal block
Power consumption (Typ.)	13.2 Watts
PoE Power Budget	240W max, 30W/per port
Overload current protection	Present
Physical Characteristic	
Enclosure	IP-30
Dimension (W x D x H)	54.3 (W) x 108.3 (D) x 145.1 (H) mm (2.13 x 4.26 x 5.71 inches)
Weight	779g
Environmental	
Storage Temperature	-40 to 85°C (-40 to 185°F)
Operating Temperature	-40 to 75°C (-40 to 167°F)
Operating Humidity	5% to 95% Non-condensing
Regulatory approvals	
EMC	CE EMC (EN 55035, EN 55032), FCC Part 15 B
EMI	EN 55032, CISPR32, EN 61000-3-2, EN 61000-3-3, FCC Part 15 B class A
EMS	EN 55035 (IEC/EN 61000-4-2, IEC/EN 61000-4-3 (RS),IEC/EN 61000-4-4, IEC/EN 61000-4-5 , IEC/EN 61000-4-6 (CS), IEC/EN 61000-4-8(PFMF),
Power Automation	IEC 61850-3, IEEE 1613
Shock	IEC60068-2-27
Free Fall	IEC60068-2-31
Vibration	IEC60068-2-6
Safety	EN62368-1
MTBF	602,954hrs
Warranty	5 years

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Ordering Information

IGPS-P90ABCC-LA

Code Definition	10/100/1000Base-T(X) P.S.E. Port Number	100/1000Base-X SFP Port Number	Additional Port Type	Version
Option	**- 8:** 8 ports	**- 4:** 4 ports	**-GP:** Gigabit SFP ports	**L:** IEEE 1588

	Model Name	Description
Available Model	**IGPS-P9084GP-LA**	Industrial IEC 61850 12-port managed Gigabit PoE Ethernet switch with 8x10/100/1000Base-T(X) P.S.E. ports and 4x100/1000Base-X, SFP socket,

Packing List

- **IGPS-P9084GP-LA x 1**
- **ORing Tool CD x 1**
- **Quick Installation Guide x 1**
- **DIN-Rail Kit x 1**
- **Wall-mount Kit x 2**
- **Console Cable x 1**

Optional Accessories

- **Open-Vision M500 : Powerful Network Management Windows Utility Suit, 500 IP devices**
- **DBU-01 : backup unit device**
- **SFP100 series : 100Mbps SFP optical transceiver**
- **SFP 1G series : 1Gbps SFP optical transceiver**

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