# **IES-P3073GC Series**

▶ Industrial IEC 61850-3 10-port managed Ethernet switch with 7x10/100Base-T(X) and 3xGigabit combo ports, SFP socket

#### **Features**

- Designed for power substation / Railway application and fully compliant with the requirement of IEC 61850-3 and IEEE 1613
- World's fastest Redundant Ethernet Ring: **O-Ring** (recovery time < 10ms over 250 units of connection)
- **Open-Ring** support the other vendor's ring technology in open architecture
- **0-Chain** allow multiple redundant network rings
- Support standard IEC 62439-2 MRP (Media Redundancy Protocol) function
- STP/RSTP/MSTP supported
- Support PTP Client (Precision Time Protocol) clock synchronization
- Support Modbus/TCP protocol
- IGMP v2/v3 (IGMP snooping support) for filtering multicast traffic
- Port Trunking for easy of bandwidth management
- SNMP v1/v2c/v3 support for secured network management
- RMON for traffic monitoring
- Supports **DDM** (Digital Diagnostic Monitoring) function
- Support LLDP protocol
- Port lock to prevent access from unauthorized MAC address
- Event notification through Syslog, Email, SNMP trap, and Relay Output
- Windows utility (**Open-Vision**) support centralized management and configurable by Web-based ,Telnet, Console(CLI)
- Support 3 Gigabit combo ports
- Rigid IP-30 housing design
- DIN-Rail and wall mounting enabled











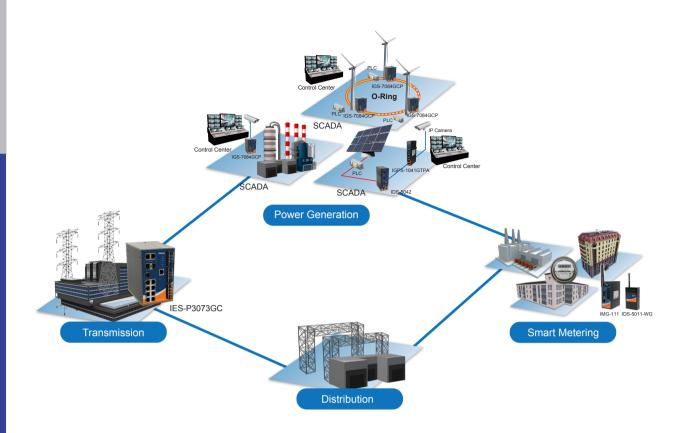






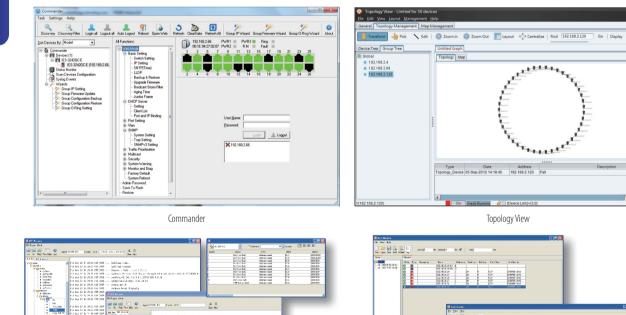
#### Introduction

IES-P3073GC series are IEC 61850-3 managed Redundant Ring Ethernet switch with 7x10/100Base-T(X) and 3xGigabit combo ports. These switches are designed for power substation application and rolling stock application, fully compliant with the requirement of IEC 61850-3 and IEEE 1613. And these switches designed for the toughest and fully compliant with EN50155 requirement. With completely support of Ethernet Redundancy protocol, O-Ring (recovery time < 10ms over 250 units of connection), Open-Ring, O-Chain, MRP and MSTP/RSTP/STP (IEEE 802.1s/w/D) can protect your mission-critical applications from network interruptions or temporary malfunctions with its fast recovery technology. Another Open-Ring technology is also supported which can applied for other vendor's proprietary ring. 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 provided ease-of-use while maximizing fault-recovery swiftness, flexibility, compatibility, and cost-effectiveness in one set of network redundancy topology. All function of IES-P3073GC series can be managed centralized and convenient by a powerful windows utility — Open-Vision. IES-P3073GC series support new DDM (Digital Diagnostic Monitoring) function, which can monitor instantly the status of electrical voltage, current and temperature. In addition, the wide operating temperature range from -40 to  $85^{\circ}$ C can satisfy most of operating environment. Therefore, these switches are one of the most reliable choices for highly-managed Fiber Ethernet application.



## **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.



Monitoring and Configuration interface

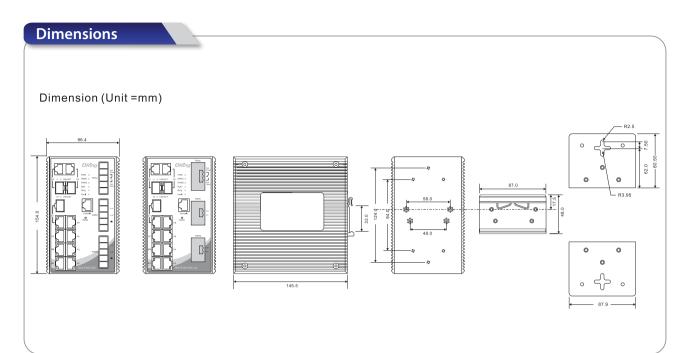
ARI

PETER

TEPRE

TEPRE

FILLETTE



(Unit=mm)

## Specifications

ORing Switch Model	IES-P3073GC-LV Preliminary	IES-P3073GC-HV
Physical Ports		
10/100Base-T(X) Port in RJ45 Auto MDI/MDIX		7
Gigabit combo Ports with 10/100/1000Base-T(X) and 100/1000Base-X SFP Port	3	
Technology		
Ethernet Standards	IEEE 802.3 for 10Base-T IEEE 802.3u for 100Base-TX and 100Base-FX IEEE 802.3z for 1000Base-X IEEE 802.3ab for 1000Base-T IEEE 802.3x for Flow control IEEE 802.3ad for LACP (Link Aggregation Control Protocol ) IEEE 802.1D for STP (Spanning Tree Protocol) IEEE 802.1p for COS (Class of Service) IEEE 802.1v for VLAN Tagging IEEE 802.1v for RSTP (Rapid Spanning Tree Protoco	
MAC Table	8192 MAC addresses	
Priority Queues	4	
Processing	Store-and-Forward	
Switch Properties	Switching latency: 7 us Switching bandwidth: 7.4Gbps Max. Number of Available VLANs: 4096 IGMP multicast groups: 1024 Port rate limiting: User Define	
Security Features	Enable/disable ports, MAC based port security Port based network access control (802.1x) VLAN (802.1Q) to segregate and secure network traffic Supports Q-in-Q VLAN for performance & security to expand the VLAN space Radius centralized password management SNMP v1/v2c/v3 encrypted authentication and access security	

Software Features	STP/RSTP/MSTP (IEEE 802.1D/w/s) Redundant Ring (0-Ring) with recovery time less than 10ms over 250 units TOS/Diffserv supported Quality of Service (802.1p) for real-time traffic VLAN (802.1Q) with VLAN tagging and GVRP supported IGMP Snooping for multicast filtering Port configuration, status, statistics, monitoring, security SNTP for synchronizing of clocks over network Support PTP Client (Precision Time Protocol) clock synchronization DHCP Server (Client support PORT Trunk support MVR (Multicast VLAN Registration) support Modbus TCP		
Network Redundancy	O-Ring Open-Ring O-Chain MRP STP / RSTP / MSTP		
Warning / Monitoring System	Relay output for fault event alarming Syslog server / client to record and view events Include SMTP for event warning notification via email Event selection support		
RS-232 Serial Console Port	RS-232 in RJ45 connector with console cable. 9600bps, 8, N, 1		
LED Indicators			
Power Indicator	Green: Power LED x 3		
R.M. Indicator	Green: Indicates that the system is operating in O-Ring master mode		
Fault Indicator	Amber: Indicates unexpected event occurred		
10/100Base-T(X) RJ45 Port Indicator	Green for port Link/Act. Amber for Duplex/Collision		
10/100/1000Base-T(X) RJ45 Port Indicator	Green for port Link/Act. Amber for 100Mbps indicator		
100/1000Base-X SFP Port Indicator	Green for port Link/Act.		
Fault Contact			
Relay	Relay output to carry capacity of 1A at 24VDC		
Relay Power	Relay output to carry capacity of 1A at 24VDC		
,	Relay output to carry capacity of 1A at 24VDC  Dual power inputs. 20~72VDC on dual 2-pin terminal block	Dual power inputs. 85~264VAC/88~373VDC on dual 3-pin terminal block	
Power			
Power  Redundant Input Power	Dual power inputs. 20~72VDC on dual 2-pin terminal block	terminal block	
Power  Redundant Input Power  Power Consumption (Typ.)	Dual power inputs. 20~72VDC on dual 2-pin terminal block 12 Watts	terminal block	
Power  Redundant Input Power  Power Consumption (Typ.)  Overload Current Protection	Dual power inputs. 20~72VDC on dual 2-pin terminal block 12 Watts Present	terminal block	
Power  Redundant Input Power  Power Consumption (Typ.)  Overload Current Protection  Reverse Polarity Protection	Dual power inputs. 20~72VDC on dual 2-pin terminal block 12 Watts Present Present on terminal block  IP-30	terminal block 12 Watts	
Power  Redundant Input Power  Power Consumption (Typ.)  Overload Current Protection  Reverse Polarity Protection  Physical Characteristics  Enclosure  Dimensions (W x D x H)	Dual power inputs. 20~72VDC on dual 2-pin terminal block  12 Watts  Present  Present on terminal block  IP-30  96.4 (W) x 145.5 (D) x 154 (H)mm  3.8 (W) x 5.73 (D) x 6.06 (H)inch	terminal block 12 Watts  96.4 (W) x 145.5 (D) x 154 (H)mm 3.8 (W) x 5.73 (D) x 6.06 (H)inch	
Power  Redundant Input Power  Power Consumption (Typ.)  Overload Current Protection  Reverse Polarity Protection  Physical Characteristics  Enclosure  Dimensions (W x D x H)  Weight (g)	Dual power inputs. 20~72VDC on dual 2-pin terminal block  12 Watts  Present  Present on terminal block  IP-30  96.4 (W) x 145.5 (D) x 154 (H)mm	terminal block 12 Watts  96.4 (W) x 145.5 (D) x 154 (H)mm	
Power  Redundant Input Power  Power Consumption (Typ.)  Overload Current Protection  Reverse Polarity Protection  Physical Characteristics  Enclosure  Dimensions (W x D x H)  Weight (g)  Environmental	Dual power inputs. 20~72VDC on dual 2-pin terminal block  12 Watts  Present  Present on terminal block  IP-30  96.4 (W) x 145.5 (D) x 154 (H)mm  3.8 (W) x 5.73 (D) x 6.06 (H)inch  1415 g	terminal block 12 Watts  96.4 (W) x 145.5 (D) x 154 (H)mm 3.8 (W) x 5.73 (D) x 6.06 (H)inch	
Power  Redundant Input Power  Power Consumption (Typ.)  Overload Current Protection  Reverse Polarity Protection  Physical Characteristics  Enclosure  Dimensions (W x D x H)  Weight (g)  Environmental  Storage Temperature	Dual power inputs. 20~72VDC on dual 2-pin terminal block  12 Watts  Present  Present on terminal block  IP-30  96.4 (W) x 145.5 (D) x 154 (H)mm  3.8 (W) x 5.73 (D) x 6.06 (H)inch  1415 g  -40 to 85°C (-40 to 185°F)	terminal block 12 Watts  96.4 (W) x 145.5 (D) x 154 (H)mm 3.8 (W) x 5.73 (D) x 6.06 (H)inch	
Power  Redundant Input Power  Power Consumption (Typ.)  Overload Current Protection  Reverse Polarity Protection  Physical Characteristics  Enclosure  Dimensions (W x D x H)  Weight (g)  Environmental  Storage Temperature  Operating Temperature	Dual power inputs. 20~72VDC on dual 2-pin terminal block  12 Watts  Present  Present on terminal block  IP-30  96.4 (W) x 145.5 (D) x 154 (H)mm  3.8 (W) x 5.73 (D) x 6.06 (H)inch  1415 g  -40 to 85°C (-40 to 185°F)  -40 to 85°C (-40 to 185°F)	terminal block 12 Watts  96.4 (W) x 145.5 (D) x 154 (H)mm 3.8 (W) x 5.73 (D) x 6.06 (H)inch	
Power  Redundant Input Power  Power Consumption (Typ.)  Overload Current Protection  Reverse Polarity Protection  Physical Characteristics  Enclosure  Dimensions (W x D x H)  Weight (g)  Environmental  Storage Temperature  Operating Temperature  Operating Humidity	Dual power inputs. 20~72VDC on dual 2-pin terminal block  12 Watts  Present  Present on terminal block  IP-30  96.4 (W) x 145.5 (D) x 154 (H)mm  3.8 (W) x 5.73 (D) x 6.06 (H)inch  1415 g  -40 to 85°C (-40 to 185°F)	terminal block 12 Watts  96.4 (W) x 145.5 (D) x 154 (H)mm 3.8 (W) x 5.73 (D) x 6.06 (H)inch	
Power  Redundant Input Power  Power Consumption (Typ.)  Overload Current Protection  Reverse Polarity Protection  Physical Characteristics  Enclosure  Dimensions (W x D x H)  Weight (g)  Environmental  Storage Temperature  Operating Temperature  Operating Humidity  Regulatory Approvals	Dual power inputs. 20~72VDC on dual 2-pin terminal block  12 Watts  Present  Present on terminal block  IP-30  96.4 (W) x 145.5 (D) x 154 (H)mm  3.8 (W) x 5.73 (D) x 6.06 (H)inch  1415 g  -40 to 85°C (-40 to 185°F)  -40 to 85°C (-40 to 185°F)  5% to 95% Non-condensing	terminal block 12 Watts  96.4 (W) x 145.5 (D) x 154 (H)mm 3.8 (W) x 5.73 (D) x 6.06 (H)inch	
Power  Redundant Input Power  Power Consumption (Typ.)  Overload Current Protection  Reverse Polarity Protection  Physical Characteristics  Enclosure  Dimensions (W x D x H)  Weight (g)  Environmental  Storage Temperature  Operating Temperature  Operating Humidity  Regulatory Approvals  Power Automation	Dual power inputs. 20~72VDC on dual 2-pin terminal block  12 Watts  Present  Present on terminal block  IP-30  96.4 (W) x 145.5 (D) x 154 (H)mm  3.8 (W) x 5.73 (D) x 6.06 (H)inch  1415 g  -40 to 85°C (-40 to 185°F)  -40 to 85°C (-40 to 185°F)  5% to 95% Non-condensing	terminal block 12 Watts  96.4 (W) x 145.5 (D) x 154 (H)mm 3.8 (W) x 5.73 (D) x 6.06 (H)inch 1935g	
Power  Redundant Input Power  Power Consumption (Typ.)  Overload Current Protection  Reverse Polarity Protection  Physical Characteristics  Enclosure  Dimensions (W x D x H)  Weight (g)  Environmental  Storage Temperature  Operating Temperature  Operating Humidity  Regulatory Approvals	Dual power inputs. 20~72VDC on dual 2-pin terminal block  12 Watts  Present  Present on terminal block  IP-30  96.4 (W) x 145.5 (D) x 154 (H)mm  3.8 (W) x 5.73 (D) x 6.06 (H)inch  1415 g  -40 to 85°C (-40 to 185°F)  -40 to 85°C (-40 to 185°F)  5% to 95% Non-condensing  IEC 61850-3, IEEE 1613  FCC Part 15, CISPR (EN55022) class A, EN50155 (EN50121-3-EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT),	terminal block 12 Watts  96.4 (W) x 145.5 (D) x 154 (H)mm 3.8 (W) x 5.73 (D) x 6.06 (H)inch 1935g  2, EN55011, EN50121-4)	
Power  Redundant Input Power  Power Consumption (Typ.)  Overload Current Protection  Reverse Polarity Protection  Physical Characteristics  Enclosure  Dimensions (W x D x H)  Weight (g)  Environmental  Storage Temperature  Operating Temperature  Operating Humidity  Regulatory Approvals  Power Automation  EMI  EMS	Dual power inputs. 20~72VDC on dual 2-pin terminal block  12 Watts  Present  Present on terminal block  IP-30  96.4 (W) x 145.5 (D) x 154 (H)mm  3.8 (W) x 5.73 (D) x 6.06 (H)inch  1415 g  -40 to 85°C (-40 to 185°F)  -40 to 85°C (-40 to 185°F)  5% to 95% Non-condensing  IEC 61850-3, IEEE 1613  FCC Part 15, CISPR (EN55022) class A, EN50155 (EN50121-3-EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-11	terminal block 12 Watts  96.4 (W) x 145.5 (D) x 154 (H)mm 3.8 (W) x 5.73 (D) x 6.06 (H)inch 1935g  2, EN55011, EN50121-4)	
Power  Redundant Input Power  Power Consumption (Typ.)  Overload Current Protection  Reverse Polarity Protection  Physical Characteristics  Enclosure  Dimensions (W x D x H)  Weight (g)  Environmental  Storage Temperature  Operating Temperature  Operating Humidity  Regulatory Approvals  Power Automation  EMI  EMS  Shock	Dual power inputs. 20~72VDC on dual 2-pin terminal block  12 Watts  Present  Present on terminal block  IP-30  96.4 (W) x 145.5 (D) x 154 (H)mm  3.8 (W) x 5.73 (D) x 6.06 (H)inch  1415 g  -40 to 85°C (-40 to 185°F)  -40 to 85°C (-40 to 185°F)  5% to 95% Non-condensing  IEC 61850-3, IEEE 1613  FCC Part 15, CISPR (EN55022) class A, EN50155 (EN50121-3-EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-11  IEC60068-2-27	terminal block 12 Watts  96.4 (W) x 145.5 (D) x 154 (H)mm 3.8 (W) x 5.73 (D) x 6.06 (H)inch 1935g  2, EN55011, EN50121-4)	
Power  Redundant Input Power  Power Consumption (Typ.)  Overload Current Protection  Reverse Polarity Protection  Physical Characteristics  Enclosure  Dimensions (W x D x H)  Weight (g)  Environmental  Storage Temperature  Operating Temperature  Operating Humidity  Regulatory Approvals  Power Automation  EMI  EMS  Shock  Free Fall	Dual power inputs. 20~72VDC on dual 2-pin terminal block  12 Watts  Present  Present on terminal block  IP-30  96.4 (W) x 145.5 (D) x 154 (H)mm  3.8 (W) x 5.73 (D) x 6.06 (H)inch  1415 g  -40 to 85°C (-40 to 185°F)  -40 to 85°C (-40 to 185°F)  5% to 95% Non-condensing  IEC 61850-3, IEEE 1613  FCC Part 15, CISPR (EN55022) class A, EN50155 (EN50121-3-EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-11  IEC60068-2-27  IEC60068-2-32	terminal block 12 Watts  96.4 (W) x 145.5 (D) x 154 (H)mm 3.8 (W) x 5.73 (D) x 6.06 (H)inch 1935g  2, EN55011, EN50121-4)	
Power  Redundant Input Power  Power Consumption (Typ.)  Overload Current Protection  Reverse Polarity Protection  Physical Characteristics  Enclosure  Dimensions (W x D x H)  Weight (g)  Environmental  Storage Temperature  Operating Temperature  Operating Humidity  Regulatory Approvals  Power Automation  EMI  EMS  Shock  Free Fall  Vibration	Dual power inputs. 20~72VDC on dual 2-pin terminal block  12 Watts  Present  Present on terminal block  IP-30  96.4 (W) x 145.5 (D) x 154 (H)mm  3.8 (W) x 5.73 (D) x 6.06 (H)inch  1415 g  -40 to 85°C (-40 to 185°F)  -40 to 85°C (-40 to 185°F)  5% to 95% Non-condensing  IEC 61850-3, IEEE 1613  FCC Part 15, CISPR (EN55022) class A, EN50155 (EN50121-3-EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-11  IEC60068-2-27  IEC60068-2-32  IEC60068-2-6	terminal block 12 Watts  96.4 (W) x 145.5 (D) x 154 (H)mm 3.8 (W) x 5.73 (D) x 6.06 (H)inch 1935g  2, EN55011, EN50121-4)	
Power  Redundant Input Power  Power Consumption (Typ.)  Overload Current Protection  Reverse Polarity Protection  Physical Characteristics  Enclosure  Dimensions (W x D x H)  Weight (g)  Environmental  Storage Temperature  Operating Temperature  Operating Humidity  Regulatory Approvals  Power Automation  EMI  EMS  Shock  Free Fall	Dual power inputs. 20~72VDC on dual 2-pin terminal block  12 Watts  Present  Present on terminal block  IP-30  96.4 (W) x 145.5 (D) x 154 (H)mm  3.8 (W) x 5.73 (D) x 6.06 (H)inch  1415 g  -40 to 85°C (-40 to 185°F)  -40 to 85°C (-40 to 185°F)  5% to 95% Non-condensing  IEC 61850-3, IEEE 1613  FCC Part 15, CISPR (EN55022) class A, EN50155 (EN50121-3-EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-11  IEC60068-2-27  IEC60068-2-32	terminal block 12 Watts  96.4 (W) x 145.5 (D) x 154 (H)mm 3.8 (W) x 5.73 (D) x 6.06 (H)inch 1935g  2, EN55011, EN50121-4)	

## **Ordering Information**



Code Definition	10/100Base-T(X) Port Number	Additional Port Number	Additional Port Type
Option	- <b>07</b> : 7 ports	- <b>3</b> :3 ports	- GC: Gigabit combo port

Model Name		Description
Available Model	IES-P3073GC-LV Preliminary	Industrial IEC 61850-3 10-port managed Ethernet switch with 7x10/100Base-T(X) and 3xGigabit combo ports, SFP socket, low-voltage power inputs
	IES-P3073GC-HV_US	Industrial IEC 61850-3 10-port managed Ethernet switch with 7x10/100Base-T(X) and 3xGigabit combo ports, SFP socket, high-voltage power inputs, US power cord
	IES-P3073GC-HV_UK	Industrial IEC 61850-3 10-port managed Ethernet switch with 7x10/100Base-T(X) and 3xGigabit combo ports, SFP socket, high-voltage power inputs, UK power cord
	IES-P3073GC-HV_EU	Industrial IEC 61850-3 10-port managed Ethernet switch with 7x10/100Base-T(X) and 3xGigabit combo ports, SFP socket, high-voltage power inputs, EU power cord
Packing List  IES-P3073GC  DIN-Rail Kit  Wall-mount Kit  Console Cable  Power Cable  ORing Tool CD  Quick Installati		Optional Accessories (Can be purchased separately)  Open-Vision M500, Powerful Network Management Windows Utility Suite, 500 IP devices  SFP100 series, 100Mbps SFP optical transceiver  SFP1G series, 1Gbps SFP optical transceiver  DR-45 series, 45W DIN-Rail power supply  DR-75 series, 75W DIN-Rail power supply  DR-120 series, 120W DIN-Rail power supply