

## IES-2216C/E

16 10/100TX + 2 10/100/1000T/Dual Speed SFP Combo w/X-Ring Managed Industrial Switch



Lantech Industrial Switch series are designed with 3 unique hardware features: 1. Redundant power supply design 2. Terminal block is placed on the bottom of device to isolate dust 3. Relay contact to connect with alarm system in case of power or port failure.

Lantech patent-pending feature of "X-Ring" incorporating on Industrial Switch series is to find a auto-recovery-path in 300ms when network is failed over and can be ring up to twenty(20) Lantech Industrial Switches. Lantech Dual- Homing feature can ensure two X-Ring groups with redundant back up when connected to a backbone switch. Lantech Industrial Switch can set Back-up Masters in X-Ring to ensure the most secure network.

Lantech IES-2216C/E is a 16 port 10/100TX + 10/100/1000T/Dual Speed SFP combo SNMP industrial switch. The SFP interface support both 100M and Giga fiber. Lantech IES-2216C/E redundant power design and X-ring features ensure a high-performance and reliable network connection. IES-2216C/E is the best solution for Automation, transportation Semi-conductor factory and assembly lines.

### Features

- 16-port 10/100/1000T + 2 10/100/1000T/ Dual Speed SFP Industrial Switch. (Total 18 Port Switch)
- RJ-45 Port Support Auto MDI/MDI-X Function.
- Store-and-Forward Switching Architecture.
- Back-plane (Switching Fabric): 7.2Gbps
- 1Mbits Packet Buffer.
- 8K MAC address table.
- IP-30 Protection.
- DIN rail and wall mount design.
- Wide-range redundant power design.
- Power polarity reverse Protect.
- Overload Current Protection.
- Supports IEEE 802.1d Spanning Tree
- Supports IEEE 802.1w Rapid Spanning Tree
- Port Based VLAN
- Supports 802.1Q Tag VLAN
- GVRP
- Double Tag VLAN (Q in Q)\*
- Private VLAN\*\*
- X-Ring  
X-ring, Dual Homing, and Couple Ring Topology.  
Provide redundant backup feature and the recovery time below 300ms.
- Port Trunk with LACP.
- Supports IEEE 802.1ab LLDP\*\*.

### Specification

Standard	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX IEEE802.3ab 1000Base-T IEEE802.3z Gigabit fiber IEEE802.3x Flow Control and Back Pressure IEEE802.3ad Port trunk with LACP IEEE802.1d Spanning Tree/ IEEE802.1w Rapid Spanning Tree IEEE802.1p Class of Service IEEE802.1Q VLAN Tag IEEE 802.1x User Authentication (Radius) IEEE802.1ab LLDP**
Switch Architecture	Back-plane (Switching Fabric): 7.2Gbps Packet throughput ability(Full-Duplex): 10.7Mpps @64bytes
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port 1,488,000pps for Gigabit Fiber Ethernet port
Packet Buffer	1Mbits
Mac Address	8K MAC address table
Flash ROM	4Mbytes
DRAM	32Mbytes
Connector	10/100TX: 16 x RJ-45 10/100/1000T/ Mini-GBIC Combo: 2 x RJ-45 + 2 x 100/1000 SFP sockets RS-232 connector: RJ-45 type
Network Cable	10Base-T: 2-pair UTP/STP Cat. 3, 4, 5 cable EIA/TIA-568 100-ohm (100m) 100Base-TX: 2-pair UTP/STP Cat. 5/5E cable EIA/TIA-568 100-ohm (100m)
Optical Cable	Multi-mode: 50/125um~62.5/125um Single mode: 9/125um Available distance: 2km (Multi-mode)/30km (Single-mode) Wavelength: 1310nm (Multi-mode/Single-mode)
Protocol	CSMA/CD
LED	Per unit: Power (Green), Power 1 (Green), Power 2 (Green), Fault (Red), Master (Green) 16 10/100TX : Link/Activity (Green), Full duplex/Collision (Yellow) Giga Copper: Link/Activity (Green), Speed (1000Mbps Green) SFP: Link/Activity (Green)
Reserve polarity protection	Present
Overload current protection	Present
Power Supply	DC 12~48V, Redundant power with polarity reverse protect function and removable terminal block
Power Consumption	10 Watts (Open Issue)
Operating Humidity	5% to 95% (Non-condensing)
Operating Temperature	Standard: -10°C~60°C; Wide Operating Temperature (-40°C~75°C)*
Storage Temperature	-40°C to 85°C

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### Features

- Supports IEEE 802.1p Class of Service, Per port provides 4 priority queues.  
Port base, Tag Base and Type of Service Priority.
- Supports Ingress Packet Filter and Egress Rate Limit.
- Broadcast/Multicast Packet Filter Control.
- System Log Server/Client.
- SMTP e-mail Alert.
- Relay Alarm Output System Events.
- Security  
Port Security: MAC address entries/Filter  
IP Security: IP address security management to prevent unauthorized intruder.  
Login Security: IEEE802.1X/RADIUS
- SNMP  
Device cold start  
Power status  
Authentication failure  
X-Ring topology changed  
Port Link up/Link down
- IGMP with Query mode for Multi Media
- TFTP Firmware Update and System Configure Restore/Backup.

### Specification

Case Dimension	Metal case, IP-30, 72mm (W) x 105mm (D) x 152mm (H)
Installation	DIN Rail and Wall Mount Design
EMI	FCC Class A, CE EN61000-4-2 (ESD), CE EN61000-4-3 (RS), CE EN-61000-4-4 (EFT), CE EN61000-4-5 (Surge), CE EN61000-4-6 (CS), CE EN61000-4-8, CE EN61000-4-11, CE EN61000-4-12, CE EN61000-6-2, CE EN61000-6-4
Safety	UL, cUL, CE/EN60950-1
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock), IEC60068-2-6 (Vibration)

### Software Feature

Management	SNMP v1 v2c, v3/ Web/Telnet/CLI Management
SNMP MIB	RFC 1215 Trap, RFC1213 MIBII, RFC 1157 SNMP MIB, RFC 1493 Bridge MIB, RFC 2674 VLAN MIB, RFC 1643, RFC 1757, RSTP MIB, Private MIB
VLAN	Port Based VLAN IEEE 802.1Q Tag VLAN (256 entries)/ VLAN ID (Up to 4K, VLAN ID can be assigned from 1 to 4096.) GVRP (256 Groups) Double Tag VLAN (Q in Q)* Private VLAN**
Port Trunk with LACP	LACP Port Trunk: 4 Trunk groups/Maximum 4 trunk members
LLDP**	Supports LLDP to allow switch to advise its identification and capability on the LAN
Spanning Tree	Supports IEEE802.1w Rapid Spanning Tree
X-Ring/ X-Ring plus	Supports X-Ring, Dual Homing, and Couple Ring. Provide redundant backup feature and the recovery time below 300ms; X-Ring plus(< 1ms)**
Quality of Service	The quality of service determined by port, Tag and IPv4 Type of service, IPv4/IPv6 Different Service
Class of Service	Supports IEEE802.1p class of service, per port provides 4 priority queues
Port Security	Support 100 entries of MAC address for static MAC and another 100 for MAC filter
Port Mirror	Supports 3 mirroring types: "RX, TX and Both packet".
IGMP	Supports IGMP snooping v1, v2, v3 256 multicast groups and IGMP query
IP Security	Supports 10 IP addresses that have permission to access the switch management and to prevent unauthorized intruder.
Login Security	Supports IEEE802.1X Authentication/RADIUS
Bandwidth Control	Supports ingress packet filter and egress packet limit The egress rate control supports all of packet type and the limit rates are 100K~250Mbps Ingress filter packet type combination rules are Broadcast/Multicast/Unknown Unicast packet, Broadcast/Multicast packet, Broadcast packet only and all of packet. The packet filter rate can be set from 100k to 250Mbps
Flow Control	Supports Flow Control for Full-duplex and Back Pressure for Half-duplex
System Log	Supports System log record and remote system log server
SMTP	Supports SMTP Server and 6 e-mail accounts for receiving event alert
Relay Alarm	Provides one relay output for port breakdown, power fail Alarm Relay current carry ability: 1A @ DC24V
SNMP Trap	Up to 3 Trap stations Cold start, Port link up, Port link down, Authentication Failure, Private Trap for power status, Port Alarm configuration, Fault alarm, X-Ring topology change
DHCP	Provides DHCP Client/ DHCP Server functions
DNS	Provides DNS client feature and support Primary and Secondary DNS server
SNTP	Supports SNTP to synchronize system clock in Internet
Firmware Update	Supports TFTP firmware update, TFTP backup and restore.
Configuration upload and download	Supports binary configuration file for system quick installation

\*Future release \*\*Optional

### Ordering Information

- IES-2216C/E.....P/N 8350-650  
16 10/100TX + 2 10/100/1000T/Dual Speed SFP Combo w/X-Ring managed Industrial Switch