IES-3424DSFP-2P-PT

24 10/100TX + 4 Dual Speed SFP Industrial L2+ Ethernet Switch

w/ Enhanced G.8032 Ring

- ■ *IEC61850-3 & IEEE1613 compliance*
- ■ *Goose monitoring; Built-in MMS server for power SCADA*
- ■ *Enhanced G.8032 ring protection < 20ms for single ring. Supports auto mode, enhanced mode, train mode and basic mode; Enhanced G.8032 ring covers multicast packets; MSTP 16 MSTI /RSTP*
- ■ *Miss-wiring avoidance & node failure protection*
- ■ *User friendly UI, including auto topology drawing and DDM threshold monitoring with dB values***; Complete CLI*
- ■ *Support LACP link aggregation, IGMP v3/router port, DHCP server & DHCP Option82 for Port/VLAN based DHCP distribution, Mac based DHCP server, QoS by VLAN, SSH/SSL, HTTPS, ACL, IPv6, SMS***
- ■ *USB slot for edited restoration and auto backup*

OVERVIEW

Lantech IES-3424DSFP-2P-PT is a high performance L2+ managed industrial IEC61850-3 Ethernet switch which provides L2 wire speed and advanced security function for network aggregation and backbone deployment. It delivers ITU G.8032 enhanced ring recovery less than 20ms including train ring, enhanced mode for easy configuration and aggregation ring*, comprehensive QoS, QoS by VLAN, advanced security including ACL L2/L3, SSH/SSL, Mac based DHCP server, DHCP Option 82, DHCP server, IGMPv1/v2/v3/router port, QinQ* (double tag VLAN) which are important features required in train and large network. It also supports Cisco Discovery Protocol (CDP) and LLDP for Ciscoworks to detect the switch info and show on L2 map topology.

The exclusive GOOSE function (IEC packet) can display the counter of GOOSE message transmitted and received by port. The built-in MMS (Manufacturing Messaging Specification) server can help power SCADA to monitor and control switch by data modeling.

The IES-3424DSFP-2P-PT also embedded several features for stronger and reliable network protection in an easy and intuitive way. When the pre-set ring configuration failed or looped by miss-wiring, Lantech IES-3424DSFP-2P-PT is able to alert with the LED indicator and disable ring automatically. Repowered auto ring restore function (node failure protection) ensures the switches in a ring to survive after power breakout is back. The status can be shown in NMS when each switch is back. This feature prevents the broken ring and keep ring alive without any re-configuration needed. Loop protection is also available to

prevent the generation of broadcast storm when a dumb switch is inserted in a closed loop connection.

DHCP option 82 and relay agent function (Port/VLAN based DHCP distribution) can offer the same IP address on port base or VLAN base where there is need to replace the new device connecting to Lantech switches to avoid any network disruption. The built-in DHCP Option 82 server offers the convenience of policy setting on the switch. Mac based DHCP server function assigns an IP address according to its MAC address to include dumb switches in DHCP network.

The user friendly UI, innovative auto topology drawing and topology demo makes IES-3424DSFP-2P-PT much easier to get hands-on. The IES-3424DSFP-2P-PT supports DMI interface that can correspond with DDM SFPs (Digital diagnostic monitor) to display the five parameters in Lantech's UI, including optical output power, input power, temperature, laser bias current and transceiver supply voltage***. The TX power/RX power raw data is automatically converted to dB values for installer, making it easier to calculate the fiber distance. The complete CLI enables professional engineer to configure setting by command line.

Lantech IES-3424DSFP-2P-PT features enhanced G.8032 ring which can be self-healed in less than 20ms for single ring topology protection covering Multicast packets. It also supports various ring topologies that covers double ring, multi-chain (under enhanced ring), train ring, basic ring by easy setup than others. The innovative auto-Ring configurator (auto mode) can

calculate owner and neighbor in one step. It supports MSTP that allows RSTP over VLAN for redundant links with 16 MSTI.

The configuration file of Lantech IES-3424DSFP-2P-PT can be exported in text file so that it can be edited and configured back to switch with ease for mass deployment. The factory reset button can restore the setting back to factory default and built-in watchdog design can automatically reboot the switch when CPU is found dead. The USB slot allows user to backup/ restore configuration.

QoS by VLAN can allow switch to tag QoS by VLAN regardless the devices acknowledge QoS or not in which greatly enhance the bandwidth management in a network.

The IES-3424DSFP-2P-PT DIDO function can support additional open/close physical contact for designate applications besides Port / Power events, for example, DIDO

function can trigger alarm if the switch was moved or stolen. In case of events, the IES-3424DSFP-2P-PT will immediately send an email & SMS** text message to pre-defined addresses as well as SNMP Traps out. It provides 2DI and 2DO while disconnection of the specific port was detected; DO will activate the signal LED to alarm. DI can integrate the sensors for events and DO will trigger the alarm while sending alert information to IP network with email and traps.

Lantech IES-3424DSFP-2P-2P-PT supports dual power inputs from DC9.5~60V, 85~265VAC or 100V~370VDC. It features high reliability and robustness withstanding extensive EMI/RFI phenomenon, lighting surge, inductive load switching, high ESD, high fault current environment usually found in Substation, Steel automation, Mining and Process control etc. IES-3424DSFP-2P-PT can run under widely operational temperature (-40°C~75°C) in the harsh environment.

FEATURES & BENEFITS

- **System Interface/Performance**
  - *IEC-61850 & IEEE1613 Compliance*
  - *24x10/100TX at/af+ 4 100M/1000M SFP L2+*
  - *16K MAC Address Table*
  - *Dual Power Supply Design for DC(9.5V~60VDC), AC(85V~265VAC) or 100V~370VDC*
  - *-40to 75C operation temperature(-E model)*
  - *FAN less design*
- **Goose for port counter of Goose message(IEC packets)**
- **MMS server built-in for SCADA monitoring/control**
- **User friendly UI, Auto topology drawing, topology demo, Complete CLI for professional setting**
- **IP v6/v4 supported**
- **Enhanced G.8032 Ring protection in 20ms < 256 switches**
  - *Support various ring/chain topologies, including train ring& aggregation ring**
  - *Enhanced G.8032 ring configuration with ease*
  - *Auto ring configuration(auto mode) for single ring*
  - *Ring covers multicast on different ports*
- **Aggregation ring for ring redundancy and bandwidth combination***
- **DDM to support SFP diagnostic function*****
  - *Automatically convert the raw data into dB values for TX power/RX power, making it easier to measure the fiber distance*
- **256 groups MSTP over VLAN**
- **VLAN**
  - *4K 802.1Q Vlan, Port Based VLAN, GVRP**, QinQ**
- **Port Trunk with LACP 14 trunks with automatic link failover**
- **LACP link aggregation to add bandwidth**
- **QoS (Quality of Service)**
  - *Supports IEEE 802.1p CoS*
  - *Per port provides 8 priority queues*
  - *Port-base,Tag-base and TOS Priority*

- *Strict priority and WRR*
- **Security**
  - *SSL/SSH/ACL L2&L3*
  - *Port Security: MAC address entries/Filter/MAC-Port binding*
  - *IP Security: IP address security management to prevent unauthorized intruder.*
  - *Management access control with priority*
  - *Login Security: IEEE802.1X/RADIUS*
  - *HTTPS for secure access to the web interface*
- **Miss-wiring avoidance**
  - *LED indicator*
- **Repowered auto ring restore(node failure protection)**
  - *Ensure the switches in a ring to survive after power breakout is back*
  - *The status can be shown in NMS when each switch is back*
- **IGMP v1,v2,v3 and Proxy** for Multimedia Application; GMRP***
- **IGMP router to select another Query mode and support IGMP static routing for reversed IGMP flow to bind with port for IP surveillance application**
- **IEEE 1588 PTP v2 two-step for gigabit ports; SNTP, NTP supported**
- **Supports IEEE802.1ab LLDP, Cisco CDP**
- **DHCP server / client / DHCP Option 82 relay / DHCP Option 82 server for Port/VLAN based DHCP distribution**
- **Mac based DHCP server to assign IP address that includes dumb switches in DHCP network**
- **Bandwidth Control**
  - *Ingress Packet Filter and Egress Rate Limit*
  - *Broadcast/Multicast Packet Filter Control*
- **System Event Log, Email alert, SMS**(mobile text) and SNMP Trap for alarm support**
- **Environmental sensor built-in to detect temperature, voltage, current and send out SNMP traps , SMS** and emails if there is abnormal events**

Datasheet Version 1.54

- **TFTP/HTTP firmware upgrade; Lantech™ InstaView**** **for multiple upgrade; USB for edited restoration and auto backup**
- **Reset / Factory default button to restore factory setting**
- **Watch dog design to reboot switch if CPU is found** **dead**
- **Provides EFT protection 4K VDC for power line**
- **Supports 8KV contact & 15KV air Ethernet ESD protection**
- **2 DI/DO and 1 relay contact alarm**

DIMENSIONS (unit=mm)
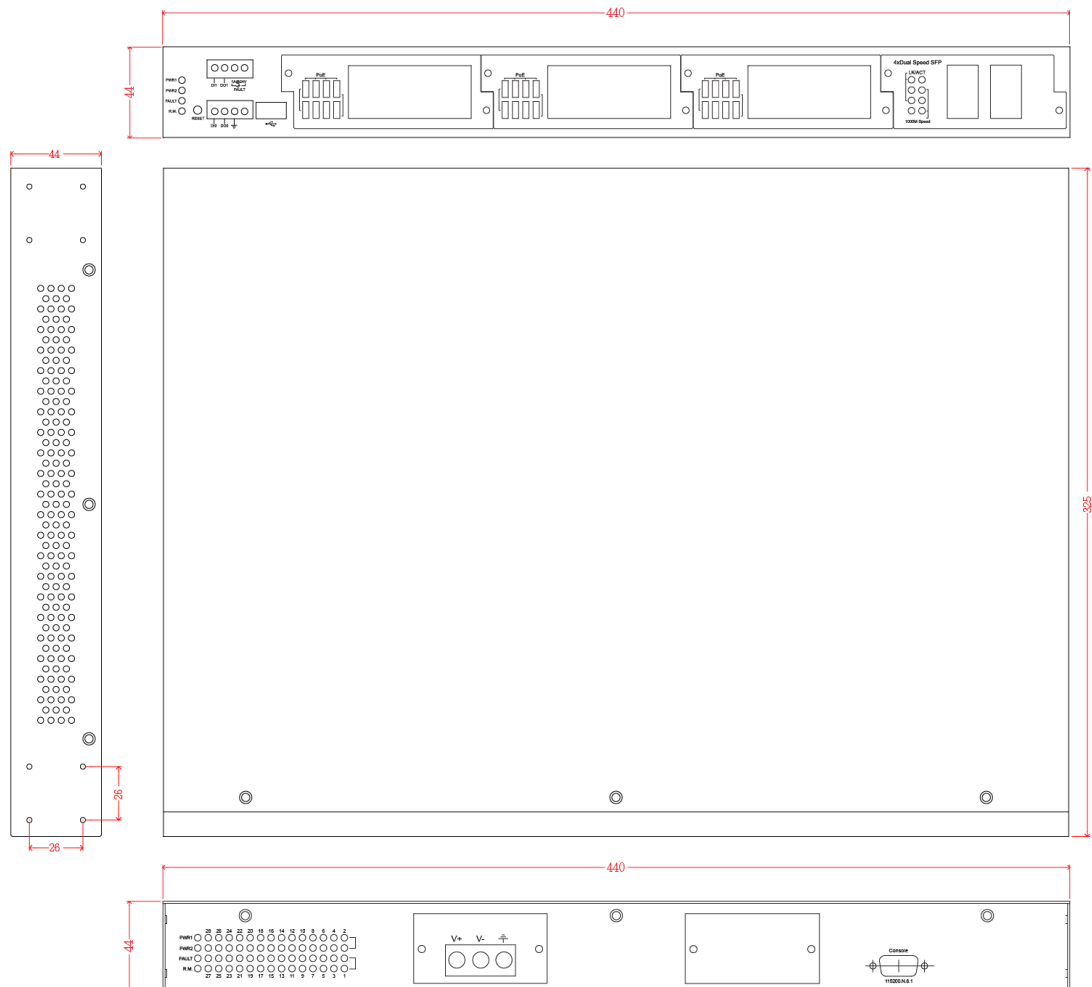
SPECIFICATION

Hardware Specification			
IEEE Standards	IEEE 802.3 10Base-T Ethernet		IEEE 802.3ad Link Aggregation Control Protocol (LACP)
	IEEE 802.3u 100Base-TX Ethernet		IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
	IEEE 802.3ab 1000Base-T Ethernet		IEEE 802.1x User Authentication (Radius)
	IEEE 802.3z Gigabit Fiber		IEEE 1588 Precision Time Protocol v2
	IEEE 802.3x Flow Control Capability	Switch Architecture	Back-plane (Switching Fabric): 12.8Gbps
	ANSI/IEEE 802.3 Auto-negotiation		
	IEEE 802.1Q VLAN	Transfer Rate	14,880pps for Ethernet port
	IEEE 802.1p Class of Service		148,800pps for Fast Ethernet port
	IEEE 802.1X Access Control		1,488,000pps for Gigabit Ethernet / Gigabit Fiber port
	IEEE 802.1D Spanning Tree	MAC Address	16K MAC address table
	IEEE 802.1w Rapid Spanning Tree	Jumbo frame	10KB
	IEEE 802.1s Multiple Spanning Tree	Connectors	24 10/100TX RJ-45 with auto MDI/MDI-X function

	4 100M / 1000M Mini-GBIC : SFP sockets	RFC 2674 Q-Bridge MIB	
	RS-232 console: Female DB-9	RFC 2790 Host Resource MIB	
	USB for backup and restore	LLDP MIB*	
DDM	Conform to SFF-8472 to show diagnostic SFP with temperature, current, voltage, input and output power	RSTP MIB*	
		Private MIB	
LED	Per unit: Power 1 (Green), Power 2 (Green), Alarm (Red) ,R.M (Green)	VLAN	Port based VLAN, up to 28 groups
			IEEE802.1Q Tag VLAN
	Link/Activity (Green), Full duplex/collision(Yellow)), MINI GBIC (Link/Activity)(Green)		Static VLAN groups up to 256, VLAN ID from 1 to 4096
Power Supply	Two power slots,		GVRP up to 256 groups**
	9.5~60VDC input		Multicast VLAN Registration*, QinQ*, QOS QinQ*
	IEC320 85~265VAC conversion (-AC model)	Port Trunk with LACP	LACP Port Trunk: 8 Trunk groups
	AC/DC 85~265VAC/100V~370VDC conversion (-HV model)		
		LLDP	Support LLDP to allow switch to advise its identification and capability on the LAN
Power Consumption	Full load: 30W/ Unload: 13W		
		CDP	Cisco Discovery protocol for topology mapping
Relay Alarm	Provides one relay output for port breakdown, power fail and alarm.	Goose monitoring	Show individual Goose TX / RX counter(IEC packets)
	Alarm Relay current carry ability: 1A @ DC24V	IEC 61850-9-4	Built in MMS server for data modeling for power SCADA
DI/DO	2 Digital Input (DI) :	ITU G.8032	Support ITU G.8032 v2/2012 for Ring protection in less than 20ms for self-heal recovery (basic mode)
	Level 0: -30~2V / Level 1: 10~30V		Support various ring/chain topologies
	Max. input current:8mA		Includes train ring & aggregation ring*
	2 Digital Output(DO): Open collector to 40 VDC, 200mA		Enhanced G.8032 ring configuration with ease
			Ring covers multicast on different ports
Factory reset button & watch dog design	Factory reset button to restore back to factory default settings. Watch dog design can reboot switch automatically when CPU is found dead	User friendly UI	■ Auto topology drawing with detail node info
			■ DDM threshold with dB values***
			■ Complete CLI for professional setting
Case Dimension	19" Metal case,IP-30;	IPv6/v4	Present
	440mm(W)x325mm(D)x44mm(H)	Spanning Tree	Support IEEE802.1d Spanning Tree,IEEE802.1w Rapid Spanning Tree, IEEE 802.1s MSTP
Operating Humidity	5%~95% (Non-condensing)		
Operating Temperature	Standard: -20℃ ~60℃	Quality of Service	The quality of service determined by port, Tag and IPv4 Type of service, IPv4 Differentiated Services Code Points - DSCP
	Extended temperature : -40℃ ~75℃		
Storage Temperature	-40℃ ~85℃	Class of Service	Support IEEE802.1p class of service, per port provides 8 priority queues
EMI	FCC Class A, CE EN61000-4-2 (ESD),	QoS by VLAN	Tagged QoS by VLAN for all devices in the network
	CE EN61000-4-3 (RS), CE EN-61000-4-4 (EFT),	IP Security	Supports 10 IP addresses that have permission to access the switch management and to prevent unauthorized intruder.
	CE EN61000-4-5 (Surge), CE EN61000-4-6 (CS),		
	CE EN61000-4-8, CE EN61000-4-11,		
	CE EN61000-4-12, CE EN55022 Class A, CE EN55024	Port Mirror	Support 3 mirroring types: "RX, TX and Both packet"
		Multicast Filtering & IGMP	Support IGMP snooping v1,v2,v3; Supports IGMP static route
Stability Testing	IEC60068-2-32 (Free fall), IEC60068-2-27 (Shock),		
	IEC60068-2-6 (Vibration), IEC60870-2-2,		IGMP query and router port
	IEC60068-2-30		1024 multicast groups and IGMP query
			GMRP*, QinQ*, QOS QinQ*
Power Automation	IEC 61850-3, IEEE 1613	Bandwidth Control	Support ingress packet filter and egress packet limit. The egress rate control supports all of packet type, the limit rates are 0~100Mbps.
MTBF	511,958 hours		
	(standards: IEC 62830)		Ingress filter packet type combination rules are Broadcast/Multicast/Flooded Unicast packet, Broadcast/Multicast packet, Broadcast packet only and all types of packet. The packet filter rate can be set from 0 to 100Mbps
Warranty	5 years		
Software Specification			
Management	SNMP v1 v2c, v3/ Web/Telnet/CLI Management		
SNMP MIB	RFC 1215 Traps MIB,		The packet filter rate can be set an accurate value through the pull-down menu for the ingress packet filter and the egress packet limit.
	RFC 1213 MIBII		
	RFC 1158 MIBII		
	RFC 1157 SNMP MIB,	Network Security	Support 10 IP addresses that have permission to access the switch management and to prevent unauthorized intruder.
	RFC 1493 Bridge MIB,		
	RFC 1573 IF MIB		
	RFC 2674 VLAN MIB,		802.1X access control for port based and MAC based authentication/MAC-Port binding
	Partial RFC 1643 EtherLike,		
	Partial RFC 1757 RMON,		Management access control with priority

	256 Policy based Access Control List SSL/ SSH for Management HTTPS for secure access to the web interface TACACS+* for Authentication	DHCP	Provide DHCP Client/ DHCP Server/DHCP Option 82/Port based & VLAN based DHCP distribution (DHCP relay agent)
Protection	■ Miss-wiring avoidance ■ Repowered auto ring restore (node failure protection) ■ Loop protection	Mac based DHCP Server	Assign IP address by Mac that can include dumb switch in DHCP network
		DNS	Provide DNS client feature and support Primary and Secondary DNS server.
Flow Control	Support Flow Control for Full-duplex and Back Pressure for Half-duplex	SNTP	Support SNTP to synchronize system clock in Internet
System Log	Support System log record and remote system log server	Firmware Update	Support TFTP /HTTP firmware update ; InstaView** mass firmware upgrade
SMTP, SMS**	Support SMTP Server and 6 e-mail accounts for receiving event alert; Can send alert via mobile SMS** text	Configuration backup and restore	Support text backup and restore; USB dongle for firmware auto-backup and edited restoration
SNMP Trap	Up to 3 Trap stations Cold start, Port link up, Port link down, Authentication Failure, Private Trap for power status, DI/DO open/close		

*Future Release

**Optional

***Optional DDM SFP required

ORDERING INFOMATION

■ **IES-3424DSFP-2P-PT**……………………….…......**P/N: 8388-506**
24 10/100TX + 4 Dual SFP L2 plus Industrial IEC61850 Switch
Built-in 1x isolated DC 12~56VDC power supply + 1x additional PSU slot; -20°C to 60°C

■ **IES-3424DSFP-2P-PT-E**………………….……….....**P/N: 8388-507**
24 10/100TX + 4 Dual SFP L2 plus Industrial IEC61850 Switch
Built-in 1x isolated DC 12~56VDC power supply + 1x additional PSU slot; -40°C to 75°C

■ **IES-3424DSFP-2P-PT-HV**………………….……......**P/N: 8388-508**
24 10/100TX + 4 Dual SFP L2 plus Industrial IEC61850 Switch
Built-in 1x isolated AC/DC 85~265VAC/100V~370VDC power conversion + 1x additional PSU slot; -20°C to 60°C

■ **IES-3424DSFP-2P-PT-HV-E**……………..………......**P/N: 8388-509**
24 10/100TX + 4 Dual SFP L2 plus Industrial IEC61850 Switch
Built-in 1x isolated AC/DC 85~265VAC/100V~370VDC power conversion + 1x additional PSU slot; -40°C to 75°C

■ **IES-3424DSFP-2P-PT-AC**…………………….………**P/N: 8388-510**
24 10/100TX + 4 Dual SFP L2 plus Industrial IEC61850 Switch
Built-in 1x isolated AC85~265VAC IEC320 power conversion + 1x additional PSU slot; -20°C to 60°C

■ **IES-3424DSFP-2P-PT-AC-E**…………………….......**P/N: 8388-511**
24 10/100TX + 4 Dual SFP L2 plus Industrial IEC61850 Switch
Built-in 1x isolated AC85~265VAC IEC320 power conversion + 1x additional PSU slot; -40°C to 75°C

OPTIONAL ACCESSORIES

Power

EOTH000701
Isolation Power 85-264VAC, 100-370VDC 1.5A , 47-63HZ

EOTH000702
Isolation Power 36-75VDC, 2.5A

EOTH000703
Power 85-264VAC IEC320 socket, 1.5A , 47-63HZ

85-265VAC, 1.5A , 47-63HZ

EOTH000704
Power Input Module 12-57VDC, 2.5A

12-56VDC, 2.5A
V+ V- ⏚

Mini GBIC (SFP)

8330-162X	MINI GBIC 1000SX (LC/0.5km) Transceiver
8330-163X	MINI GBIC 1000SX2 (LC/2km) Transceiver
8330-165X	MINI GBIC 1000LX (LC/10km) Transceiver
8340-0591	MINI GBIC 1000LHX (LC/40km) Transceiver
8330-166	MINI GBIC 1000XD (LC/50km) Transceiver
8330-169	MINI GBIC 1000XD (LC/60km) Transceiver
8330-167	MINI GBIC 1000ZX (LC/80km) Transceiver
8330-170	MINI GBIC 1000EZX (120km) Transceiver
8330-168	MINI GBIC 10/100/1000T (100m) Transceiver
8330-060	100Base FX 2KM, Multi-mode, LC Transceiver
8330-065	100Base FX 5KM, Multi-mode, LC Transceiver

8330-061	100Base LX 30KM, Single-mode, LC Transceiver
8330-188	LTSFP-1000BX-10KM Transceiver (WDM 1310)
8330-189	LTSFP-1000BX-10KM Transceiver (WDM 1550)
8330-186	LTSFP-1000BX-20KM Transceiver (WDM 1310)
8330-187	LTSFP-1000BX-20KM Transceiver (WDM 1550)
8330-180	LTSFP-1000BX-40KM Transceiver (WDM 1310)
8330-182	LTSFP-1000BX-40KM Transceiver (WDM 1550)
8330-181	LTSFP-1000BX-60KM Transceiver (WDM 1310)
8330-183	LTSFP-1000BX-60KM Transceiver (WDM 1550)
8330-184	LTSFP-1000BX-80KM Transceiver (WDM 1490)
8330-185	LTSFP-1000BX-80KM Transceiver (WDM 1550)

All SFP with –D are with DDM function

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