

TWS-3010-APL Series

8 10MbE-APL-spur, 2 1GbE-port managed Ethernet switches

Preliminary



Features and Benefits

- 8 802.3cg 10Base-T1L Ethernet-APL spur ports
- Ethernet-APL power classes A and C on each spur port
- Compact size for easy installation
- RSTP/STP and MRP for network redundancy and high network availability
- Supports EtherNet/IP, PROFINET, and Modbus TCP industrial protocols for easy integration and monitoring in automation systems
- Rotary DIP switch enables profile-based configuration selection without a web browser

Certifications



Introduction

The TWS-3010-APL Series industrial two-wire Ethernet switch brings reliable Ethernet connectivity to process industries at the field level. Complies with the Ethernet-APL Technical Specification.

With 10BASE-T1L technology and support for APL Power Classes A and C, the switch extends Ethernet communication to field devices. It delivers both power and data over a single twisted pair at data rates up to 10 Mbps and distances up to 1 km, simplifying installation, lowering wiring costs, and enabling more flexible field deployment.

Diagnostic functions and port-mirroring make deployment and troubleshooting a breeze. Compact chassis and front-facing ports make installation and maintenance easy in tight control cabinets. Industrial Ethernet protocols, like PROFINET, allow for seamless integration with existing systems, and provide scalability for future digitalization and IIoT expansion.

Specifications

Input/Output Interface

Alarm Contact Channels	1 Relay output with current carrying capacity of 1 A @ 24 VDC
Buttons	Reset button
Digital Input Channels	1
Digital Inputs	+13 to +30 V for state 1 -30 to +3 V for state 0 Max. input current: 8 mA

Ethernet Interface

Combo Ports (10/100/1000BaseT(X) or 100/1000BaseSFP)	2
Standards	IEEE 802.1D-2004 for Spanning Tree Protocol IEEE 802.1p for Class of Service IEEE 802.1Q for VLAN Tagging IEEE 802.1s for Multiple Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1X for authentication IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) and 100BaseFX IEEE 802.3x for flow control IEEE 802.3z for 1000BaseX IEEE 802.3ab for 1000BaseT(X) IEEE 802.3ad for Port Trunk with LACP IEEE802.3cg for 10Base-T1L
Ethernet-APL Spur Ports (10Base-T1L)	8 3-pin terminal block connectors Ethernet-APL power classes A and C

Ethernet Software Features

Filter	802.1Q VLAN BPDU Guard BPDU Filter GMRP GVRP IGMP v1/v2/v3 Port-based VLAN
Industrial Protocols	EtherNet/IP Modbus TCP PROFINET IO Device
Management	LLDP Back Pressure Flow Control BOOTP Port Mirroring DHCP Option 66/67/82 DHCP Server/Client Fiber check Flow control IPv4/IPv6 RARP RMON SCP SMTP SNMP Inform SNMPv1/v2c/v3 Syslog Telnet TFTP
MIB	Ethernet-like-MIB MIB-II Bridge-MIB P-BRIDGE MIB Q-BRIDGE-MIB RMON MIB Groups 1, 2, 3, 9 RSTP MIB
Redundancy Protocols	Link Aggregation MRP MSTP RSTP STP

Security	Broadcast storm protection HTTPS/SSL TACACS+ SNMPv3 Sticky MAC NTP authentication Port Lock RADIUS SSH SMTP with TLS
Time Management	NTP Server/Client SNTP

Switch Properties

IGMP Groups	2048
MAC Table Size	8 K
Max. No. of VLANs	64
Packet Buffer Size	1 Mbits
Priority Queues	4
VLAN ID Range	VID 1 to 4094

USB Interface

Storage Port	USB Type A (for ABC-02 only)
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LED Interface

LED Indicators	PWR1, PWR2, STATE, FAULT, Gigabit combo port, Ethernet-APL spur port
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Serial Interface

Console Port	RS-232 (TxD, RxD, GND), 8-pin RJ45 (115200, n, 8, 1)
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Rotary Switch Configuration

Industrial Profile	Indicator	Mode
	0	No function enabled via DIP switch (Default)
	1	PROFINET profile enabled
	2	PROFINET profile and DHCP client enabled
	3	EtherNet/IP profile enabled
	4	EtherNet/IP profile and DHCP client enabled
	5	Modbus TCP profile enabled
	6	Modbus TCP profile and DHCP client enabled
	7-9	Reserved (currently performs the same behavior as indicator 0)

Power Parameters

Connection	2 removable 2-contact terminal block(s)
Input Current	24 to 48 VDC, 1 A - 0.5 A (max.)
Input Voltage	24/48 VDC Redundant dual inputs
Operating Voltage	20 to 60 VDC

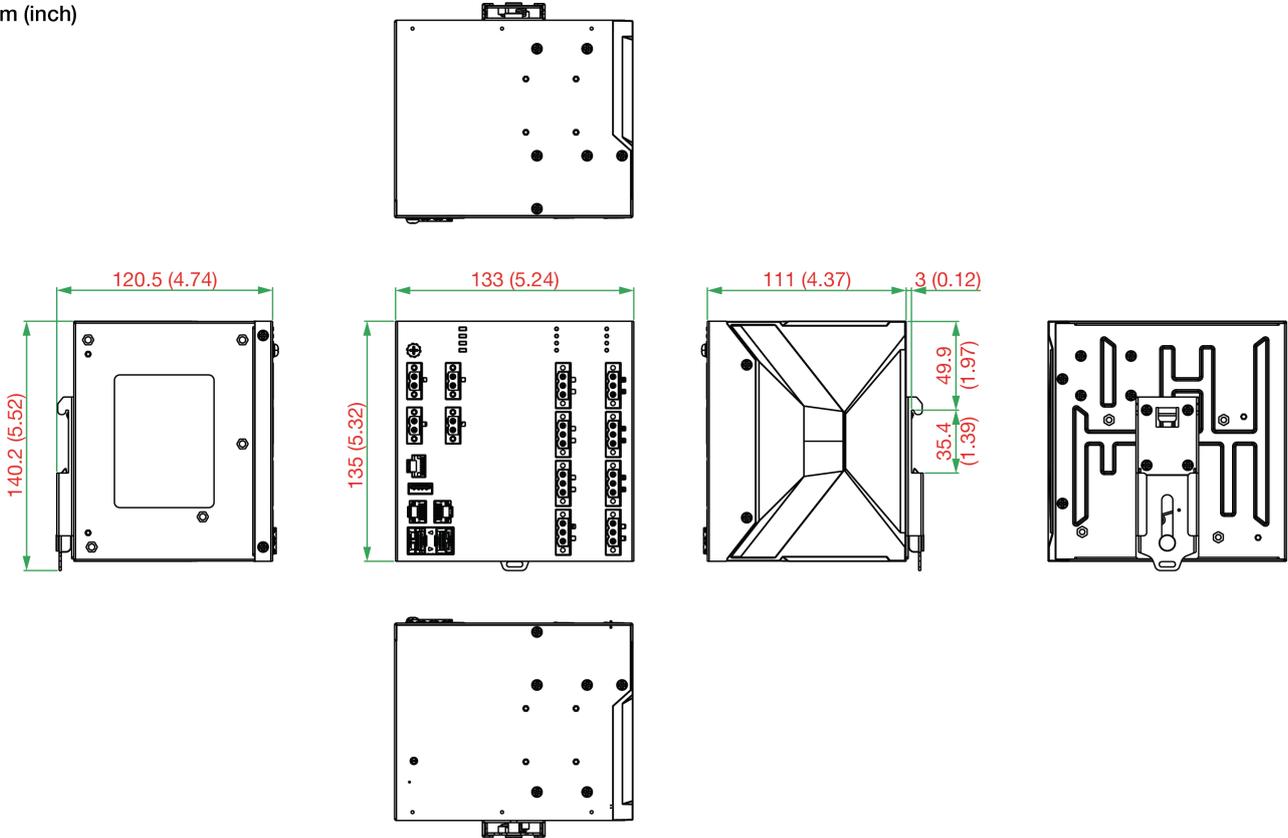
Overload Current Protection	Supported
Reverse Polarity Protection	Supported
Physical Characteristics	
Housing	Metal
IP Rating	IP30
Dimensions	133 x 135 x 111 mm (5.24 x 5.32 x 4.37 in)
Weight	1,452 g (3.20 lb)
Installation	DIN-rail mounting Wall mounting (with optional kit)
Environmental Limits	
Operating Temperature	-40 to 75°C (-40 to 167°F)
Storage Temperature (package included)	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Altitude	Up to 2,000 m Note: Please contact Moxa if you require products guaranteed to function properly at higher altitudes
Standards and Certifications	
Safety	UL 61010-2-201 EN IEC 62368-1
EMC	EN 61000-6-2/-6-4
EMI	FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Level 3 IEC 61000-4-3 RS: Level 3 IEC 61000-4-4 EFT: Level 3 IEC 61000-4-5 Surge: Level 3 IEC 61000-4-6 CS: Level 3 IEC 61000-4-8 PFMF: Level 3
Vibration	IEC 60068-2-6 IEC 60068-2-64
Shock	IEC 60068-2-27
Freefall	ISTA 1A (with package)
MTBF	
Time	2,063,466 hrs
Standards	Telcordia (Bellcore), GB
Warranty	
Warranty Period	5 years
Details	See www.moxa.com/warranty

Package Contents

Device	1 x TWS-3010-APL-8PS-2GC-T switch
Documentation	1 x quick installation guide 1 x warranty card
Note	SFP modules need to be purchased separately for use with this product.

Dimensions

Unit: mm (inch)



Ordering Information

Model Name	Ethernet-APL Spur Ports (10Base-T1L)	Combo Ports 10/100/1000BaseT(X) or 100/ 1000BaseSFP	Operating Temp.
TWS-3010-APL-8PS-2GC-T	8	2	-40 to 75°C

Accessories (sold separately)

Storage Kits

ABC-02-USB	Configuration backup and restoration tool, firmware upgrade, and log file storage tool for managed Ethernet switches and routers, 0 to 60°C operating temperature
ABC-02-USB-T	Configuration backup and restoration tool, firmware upgrade, and log file storage tool for managed Ethernet switches and routers, -40 to 75°C operating temperature

SFP Modules

SFP-1FELLC-T	SFP module with 1 100Base single-mode with LC connector for 80 km transmission, -40 to 85°C operating temperature
SFP-1FEMLC-T	SFP module with 1 100Base multi-mode, LC connector for 2/4 km transmission, -40 to 85°C operating temperature
SFP-1FESLC-T	SFP module with 1 100Base single-mode with LC connector for 40 km transmission, -40 to 85°C operating temperature

SFP-1G10ALC	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature
SFP-1G10ALC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature
SFP-1G10BLC	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature
SFP-1G10BLC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 10 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature
SFP-1G20ALC	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature
SFP-1G20ALC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature
SFP-1G20BLC	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature
SFP-1G20BLC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 20 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature
SFP-1G40ALC	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1310 nm, RX 1550 nm, 0 to 60°C operating temperature
SFP-1G40ALC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1310 nm, RX 1550 nm, -40 to 85°C operating temperature
SFP-1G40BLC	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1550 nm, RX 1310 nm, 0 to 60°C operating temperature
SFP-1G40BLC-T	WDM-type (BiDi) SFP module with 1 1000BaseSFP port with LC connector for 40 km transmission; TX 1550 nm, RX 1310 nm, -40 to 85°C operating temperature
SFP-1GEZXLC	SFP module with 1 1000BaseEZX port with LC connector for 110 km transmission, 0 to 60°C operating temperature
SFP-1GEZXLC-120	SFP module with 1 1000BaseEZX port with LC connector for 120 km transmission, 0 to 60°C operating temperature
SFP-1GLHLC	SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, 0 to 60°C operating temperature
SFP-1GLHLC-T	SFP module with 1 1000BaseLH port with LC connector for 30 km transmission, -40 to 85°C operating temperature
SFP-1GLHXL	SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, 0 to 60°C operating temperature
SFP-1GLHXL-T	SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, -40 to 85°C operating temperature
SFP-1GLSXL	SFP module with 1 1000BaseLSX port with LC connector for 1km/2km transmission, 0 to 60°C operating temperature
SFP-1GLSXL-T	SFP module with 1 1000BaseLSX port with LC connector for 1km/2km transmission, -40 to 85°C operating temperature
SFP-1GLXL	SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, 0 to 60°C operating temperature
SFP-1GLXL-T	SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, -40 to 85°C operating temperature
SFP-1GSXL	SFP module with 1 1000BaseSX port with LC connector for 300m/550m transmission, 0 to 60°C operating temperature
SFP-1GSXL-T	SFP module with 1 1000BaseSX port with LC connector for 300m/550m transmission, -40 to 85°C operating temperature
SFP-1GZXLC	SFP module with 1 1000BaseZX port with LC connector for 80 km transmission, 0 to 60°C operating temperature
SFP-1GZXLC-T	SFP module with 1 1000BaseZX port with LC connector for 80 km transmission, -40 to 85°C operating temperature

Power Supplies

HDR-60-24	60 W/2.5 A DIN-rail 24 VDC power supply, universal 85 to 264 VAC or 120 to 370 VDC input voltage, -30 to 70°C operating temperature
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NDR-120-24	120 W/5.0 A DIN-rail 24 VDC power supply, universal 90 to 264 VAC or 127 to 370 VDC input voltage, -20 to 70°C operating temperature
NDR-120-48	120 W/2.5 A DIN-rail 48 VDC power supply, universal 90 to 264 VAC or 127 to 370 VDC input voltage, -20 to 70°C operating temperature
NDR-240-48	240 W/5.0 A DIN-rail 48 VDC power supply, universal 90 to 264 VAC or 127 to 370 VDC input voltage, -20 to 70°C operating temperature
MDR-40-24	DIN-rail 24 VDC power supply with 40W/1.7A, 85 to 264 VAC, or 120 to 370 VDC input, -20 to 70°C operating temperature
MDR-60-24	DIN-rail 24 VDC power supply with 60W/2.5A, 85 to 264 VAC, or 120 to 370 VDC input, -20 to 70°C operating temperature

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