SDS-3016 Series

Industrial 14+2G-port Gigabit smart Ethernet switches

Features and Benefits

- Compact and flexible housing design to fit into confined spaces
- Web-based GUI for easy device configuration and management
- Web-based GUI for port diagnostics with statistics to detect and prevent issues
- Multi-language web GUI: English, Traditional Chinese, Simplified Chinese, Japanese, German, and French
- Supports RSTP/STP for network redundancy
- Supports MRP client redundancy based on IEC 62439-2 to ensure high network availability
- EtherNet/IP, PROFINET, and Modbus TCP industrial protocols supported for easy integration and monitoring in automation HMI/SCADA systems
- IP port binding to ensure critical devices can be replaced quickly without reassigning the IP Address
- Rotary DIP switch can perform profile-based settings without using a web browser
- Security features based on IEC 62443

Certifications

Introduction

The SDS-3016 smart Ethernet switch is the ideal product for IA engineers and automation machine builders to make their networks compatible with the vision of Industry 4.0. By breathing life into machines and control cabinets, the smart switch simplifies daily tasks with its easy configuration and easy installation. In addition, it is monitorable and is easy to maintain throughout the entire product life cycle.

The most frequently used automation protocols—including EtherNet/IP, PROFINET, and Modbus TCP—are embedded in the SDS-3016 switch to provide enhanced operational performance and flexibility by making it controllable and visible from automation HMIs. It also supports a range of useful management functions, including IEEE 802.1Q VLAN, port mirroring, SNMP, warning by relay, and a multi-language Web GUI.

Additional Features and Benefits

- Supports IEEE 802.1D-2004 and IEEE 802.1w STP/RSTP for rapid network redundancy
- IEEE 802.1Q VLAN to ease network planning
- Supports the ABC-02-USB automatic backup configurator for quick event log and configuration backup. Can also enable quick device switch over and firmware upgrade
- Automatic warning by exception through relay output
- Unused port lock, SNMPv3, and HTTPS to enhance network security
- Role-based account management for self-defined administration and/or user accounts
- Local log and the ability to export inventory files ease inventory management

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

10/100BaseT(X) Ports (RJ45 connector)	14 Auto negotiation speed Full/Half duplex mode Auto MDI/MDI-X connection
10/100/1000BaseT(X) Ports (RJ45 connector)	2 (SDS-3016-2GTX Series) Auto negotiation speed Full/Half duplex mode Auto MDI/MDI-X connection
100/1000BaseSFP Ports	2 (SDS-3016-2GSFP Series)
Standards	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseT(X) IEEE 802.3ab for 1000BaseT(X) IEEE 802.3z for 1000BaseX IEEE 802.3x for flow control IEEE 802.1D-2004 for Spanning Tree Protocol IEEE 802.1w for Rapid Spanning Tree Protocol IEEE 802.1Q for VLAN Tagging IEEE 802.1p for Class of Service

Ethernet Software Features

Industrial Protocols	EtherNet/IP, Modbus TCP, PROFINET IO Device
Management	Back Pressure Flow Control, DHCP Client, Flow control, IPv4/IPv6, LLDP, Port Mirror, SNMP Inform, SNMPv1/v2c/v3, Syslog
MIB	RFC1213, Ethernet-like MIB, IF MIB, LLDP MIB, Bridge MIB, Q-BRIDGE MIB
Redundancy Protocols	RSTP, STP, MRP (Client)
Security	Broadcast storm protection, HTTPS/SSL, SNMPv3, Port Lock
Time Management	NTP Server/Client, SNTP
Filter	802.1Q VLAN

Rotary Switch Configuration

Industrial Profile

Indicator	Mode
0	Modbus TCP profile (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
Others	Reserved (has the same behavior as Indicator 0)

Switch Properties

MAC Table Size	8 K
Max. No. of VLANs	8
VLAN ID Range	VID 1 to 4094
Packet Buffer Size	3 Mbits

USB Interface

Storage Port	USB Type A

LED Interface

LED Indicators	PWR1, PWR2, STATE, FAULT, 10/100M, 1000M (TP Port)

Power Parameters

Connection	2 removable 4-contact terminal block(s)
Input Voltage	12/24/48/-48 VDC, Redundant dual inputs
Operating Voltage	9.6 to 60 VDC
Input Current	SDS-3016-2GTX series: 12-48 VDC, 0.858 A (max.) SDS-3016-2GSFP series: 12-48 VDC, 0.99 A (max.)
Overload Current Protection	Supported
Reverse Polarity Protection	Supported

Physical Characteristics

Housing	Metal
IP Rating	IP40
Dimensions	36 x 135 x 111 mm (1.42 x 5.32 x 4.37 in)
Weight	590 g (1.3 lb)
Installation	DIN-rail mounting

Environmental Limits

Operating Temperature	Standard Models: -10 to 60°C (14 to 140°F) Wide Temp. Models: -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)

Standards and Certifications

EMC	EN 55032/35, EN 61000-6-2/-6-4
EMI	CISPR 32, FCC Part 15B Class A
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 10 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 1 kV IEC 61000-4-5 Surge: Power: 2 kV; Signal: 1 kV IEC 61000-4-6 CS: 10 V IEC 61000-4-8 PFMF: 30 A/m
Safety	EN 62368-1, UL 61010-2-201
Shock	IEC 60068-2-27
Freefall	IEC 60068-2-32
Vibration	IEC 60068-2-6

MTBF

Time	1,109,179 hrs
Standards	Telcordia (Bellcore), GB

Warranty

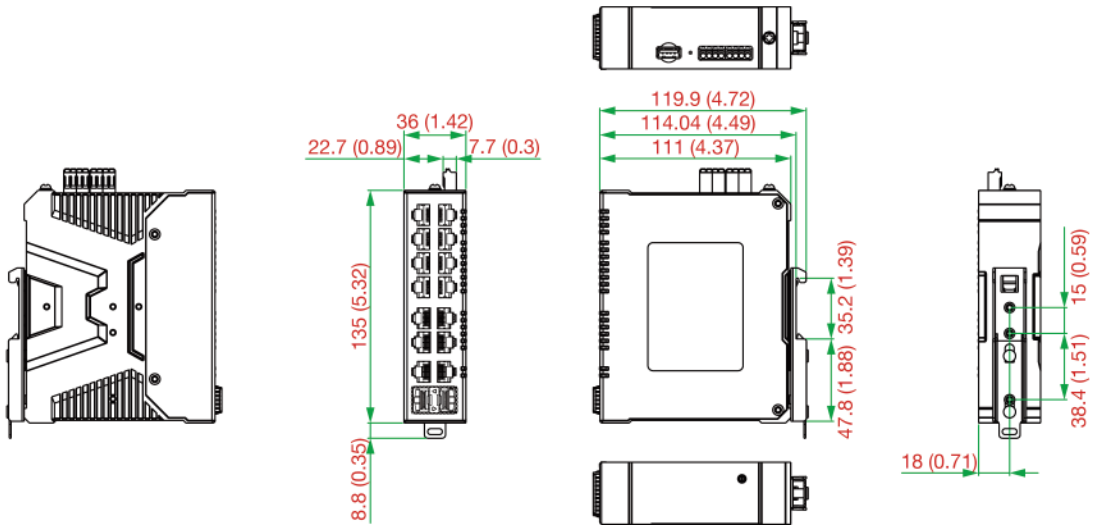
Warranty Period	5 years
Details	See www.moxa.com/warranty

Package Contents

Device	1 x SDS-3016 Series switch
Installation Kit	4 x cap, plastic, for RJ45 port
Documentation	1 x product certificates of quality inspection, Simplified Chinese 1 x product notice, Simplified Chinese 1 x quick installation guide 1 x warranty card

Dimensions

Unit: mm (inch)



Ordering Information

Model Name	Layer	Total No. of Ports	10/100BaseT(X) Ports, RJ45 Connector	10/100/1000BaseT(X) Ports, RJ45 Connector	100/1000BaseSFP Ports	Operating Temp.
SDS-3016-2GTX	2	16	14	2	–	-10 to 60°C
SDS-3016-2GTX-T	2	16	14	2	–	-40 to 75°C
SDS-3016-2GSFP	2	16	14	–	2	-10 to 60°C
SDS-3016-2GSFP-T	2	16	14	–	2	-40 to 75°C

Accessories (sold separately)

SFP Modules

SFP-1FEMLC-T	SFP module with 1 100Base multi-mode, LC connector for 2/4 km transmission, -40 to 85°C operating temperature
SFP-1FELLC-T	SFP module with 1 100Base single-mode with LC connector for 80 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-1GLHXLC	SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, 0 to 60°C operating temperature
SFP-1GLHXLC-T	SFP module with 1 1000BaseLHX port with LC connector for 40 km transmission, -40 to 85°C operating temperature
SFP-1GLSXLC	SFP module with 1 1000BaseLSX port with LC connector for 1km/2km transmission, 0 to 60°C operating temperature
SFP-1GLSXLC-T	SFP module with 1 1000BaseLSX port with LC connector for 1km/2km transmission, -40 to 85°C operating temperature
SFP-1GLXLC	SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, 0 to 60°C operating temperature
SFP-1GLXLC-T	SFP module with 1 1000BaseLX port with LC connector for 10 km transmission, -40 to 85°C operating temperature
SFP-1GSXLC	SFP module with 1 1000BaseSX port with LC connector for 300m/550m transmission, 0 to 60°C operating temperature
SFP-1GSXLC-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
SFP-1GTXRJ45-T	SFP module with 1 1000BaseT port with RJ45 connector for 100 m transmission, -40 to 75°C operating temperature

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

Power Supplies

DR-120-24	120W/2.5A DIN-rail 24 VDC power supply with universal 88 to 132 VAC or 176 to 264 VAC input by switch, or 248 to 370 VDC input, -10 to 60°C operating temperature
DR-4524	45W/2A DIN-rail 24 VDC power supply with universal 85 to 264 VAC or 120 to 370 VDC input, -10 to 50° C operating temperature
DR-75-24	75W/3.2A DIN-rail 24 VDC power supply with universal 85 to 264 VAC or 120 to 370 VDC input, -10 to 60°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

Rack-Mounting Kits

RK-4U	19-inch rack-mounting kit