



## FMS-D4S-16P

16\*10/100/1000Base-T + 4\*1G/2.5GBase-X



Picture 1 Layer 2+ Managed Industrial PoE Switch

### Description

The FIBRAIN FMS-D2S-16P is the highly reliable layer 2+ managed industrial PoE switch with 16-port 10/100/1000-T PoE and 4-port 1G/2.5GBase-X SFP slots. It complies with IEEE802.3af, IEEE802.3at standard PoE protocol, the Max power consumption can reach 30W (PoE+) per port. It supports ERPS redundant network and the self-recovery mechanism is less than 20ms on full load which allows you to scheme a reliable Ethernet network by building a redundant ring topology as your back-up solution. It also supports Layer 3 IPv4/IPv6 static routing features and powerful Layer 2 management and secure function, which all making them ideal for large-scale industrial networks.

FMS-D2S-16P is also a high cost-effective easy-to-use device, which provides essential industrial Ethernet networking function, including wide range power input 44-57VDC, redundant power design with polarity reverse/over-voltage/over-current protection, robust IP40 fan-less housing with Din-rail installation, wide operation temperature from -40°C to 70°C as well as high-level EMI/EMC capability. It is the best choice for heavy industrial factory, transportation, oil & gas, chemical, IP Surveillance and processing automation area where environmental conditions are harsh and crucial.



## Key features

- 16\*10/100/1000Base-T RJ45 PoE, 2\*1G/2.5GBase-X SFP
- DC/DC redundant power 44-57V supply with polarity reverse/over-voltage/over-current protection
- Complies with IEEE802.3af PoE and IEEE802.3at PoE+ standard
- Support USB one key configuration and upgrading
- DI/DO/RS485 are optional
- Layer 3 features: Support IPv4/IPv6 static routing, DHCP server
- Support Layer 2 management function: VLAN, VLAN Classification, QinQ, LLDP, 802.1X, ERPS, STP/ RSTP/MSTP, Link aggregation, IGMP snooping, Port Mirroring, DHCP snooping/client, RMON, NTP client, Multicast, Ping/Tracert test, ACL, QoS, Dying Gasp, SFP DDM function
- Management and maintenance: IPv4 and IPv6 management; PoE management, Support Web, SNMP, CLI, Telnet/SSH management method; Support user management, system log, configuration upload/download through web interface, firmware upgrade via HTTP/TFTP/USB
- Support G.8032 ERPS protocol, recovery time  $\leq 20\text{ms}$
- Support 6KV surge protection and ESD: Air-15kV, Contact-8kV Protection
- IP40 fan-less and Din-rail hardware design
- Operation temperature:  $-40^\circ\text{C} \sim +70^\circ\text{C}$

## Specification

<b>Interface</b>	4x fiber port, 16x Cooper RJ45 ports
<b>Ethernet</b>	16x 10/100/1000Base-T RJ45 PoE, 2x 1000/2500Base-X SFP
<b>Management Port</b>	1xRJ45 Console port (115200,8,N,1) 1*USB 2.0 for configuration and firmware update
<b>Standard</b>	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX Ethernet IEEE 802.3ab 1000Base-T Ethernet IEEE 802.3z 1000Base-X Ethernet IEEE802.3x Flow Control and Back Pressure IEEE 802.1D Spanning Tree Protocol IEEE 802.1w Rapid Spanning Tree Protocol IEEE 802.1Q VLAN ITU-T G.8032 ERPS IEEE 802.1X Port Authentication Network Control IEEE 802.1ab LLDP IEEE 802.3ad LACP IEEE802.3af PoE IEEE802.3at PoE+



## Power parameter

<b>Input voltage</b>	44-57VDC(802.3af) 52-57VDC(802.3at) redundant power input
<b>Input current</b>	6A Max DC
<b>Total power consumption</b>	Full loading without PoE ≤22W Single power in: PoE power budget≤240W(-40C~+70C) Dual power in: PoE power budget≤370W(-40C~+60C) *Dual power input must be the same as DC voltage
<b>Connector</b>	Removable 2*2-pin terminal block
<b>Reverse polarity protection</b>	Support
<b>Over-voltage protection</b>	Support
<b>Over-current protection</b>	Support

## Layer 2 Functions

<b>Port aggregation</b>	Support GE port aggregation Support 2.5GE aggregation Support static aggregation Support LACP dynamic aggregation Up to 64 aggregation groups and up to 8 ports per group
<b>Port features</b>	Support IEEE802.3x flow control, Support interface counters, Support port isolation, Port mirroring ( One-to-One, Many-to-One) Support loop detection(Port-based; VLAN-based) Support broadcast storm suppression (broadcast; unknown multicast; unknown unicast)
<b>Mac-address table management</b>	Support static Mac-address management Support dynamic Mac-address Management Support filtering Mac-address Support MAC limit based on port and VLAN Support MAC flapping based on port and VLAN
<b>VLAN</b>	Support access mode Support trunk mode Support hybrid mode
<b>VLAN classification</b>	Mac Based VLAN



	IP Based VLAN Protocol Based VLAN
<b>GVRP</b>	Normal mode Fixed mode Forbidden mode
<b>QinQ</b>	Port-based QinQ VLAN-based QinQ (VLAN-stacking; VLAN-mapping) Flow-based QinQ
<b>LLDP</b>	<b>LLDP (Link Layer Discovery Protocol)</b>
<b>Ring network protocol</b>	Support IEEE802.1D-STP Support IEEE802.1W-RSTP Support IEEE802.1S-MSTP  Support G.8032 ERPS protocol, single ring, sub Ring and major ring Recovery time ≤20ms

## L2 Multicast and Security functions

<b>IGMP snooping</b>	Support IGMP snooping
<b>Group address</b>	Support group address
<b>ACL</b>	IP Standard ACL MAC extend ACL IP extend ACL IPv6 ACL
<b>Qos</b>	Support QoS Class, remarking Support SP, WRR queue scheduling Ingress port-based rate-limit Egress port-based rate-limit Support policy-based QoS
<b>802.1x</b>	Port access control Mac-address access control RADIUS server
<b>Port-security</b>	Port-security
<b>IP source guard</b>	IP Port/MAC binding
<b>ARP-check</b>	Support ARP-check and ARP packet filtering for illegal users
<b>Access control</b>	Support Telnet/SSH/HTTP/HTTPS user access control



## Management & Maintenance functions

<b>User Management</b>	Support password protection Support user authorization management
<b>SNMP</b>	Supporting SNMP V1/V2C/V3 version
<b>Web Management</b>	Web Management Support HTTP V1.1 Support HTTPS
<b>CLI management</b>	Console/Telnet command line management
<b>RMON</b>	Support RMON(Remote Monitoring) alarm
<b>Firmware upgrade</b>	Firmware upgrade
<b>Fault Detection</b>	Ping/Traceroute Dying gasp Support optical transceiver DDM function
<b>Cable detection</b>	Support copper port cable detection
<b>PoE management</b>	Support 802.3af/802.3at Support PD watchdog Support PoE priority management Support Max PoE power configuration for each port Support alarm threshold configuration Support reserved power configuration
<b>NTP</b>	Network Time Protocol
<b>Syslog/Debug</b>	Syslog/Debug Syslog send to three servers
<b>Configuration import/export</b>	Support FTP/TFTP remote import/export Support USB import/export
<b>Dual partition manage</b>	Support dual partition switching

## Application Protocol Functions

<b>DHCP Snooping</b>	DHCP snooping trust port Support remote-id/circuit-id configuration DHCP option-82
<b>DHCP client</b>	Support DHCP client
<b>Telnet server</b>	Support telnet server
<b>Telnet client</b>	Support telnet client



<b>SSH server</b>	Support SSH server
<b>TACACS</b>	Support TACACS (the terminal access controller accesses the control system)
<b>sflow</b>	Support network traffic analysis
<b>ARP</b>	ARP table aging
<b>TFTP</b>	Support TFTP Client
<b>IPv4 / IPv6</b>	static routing

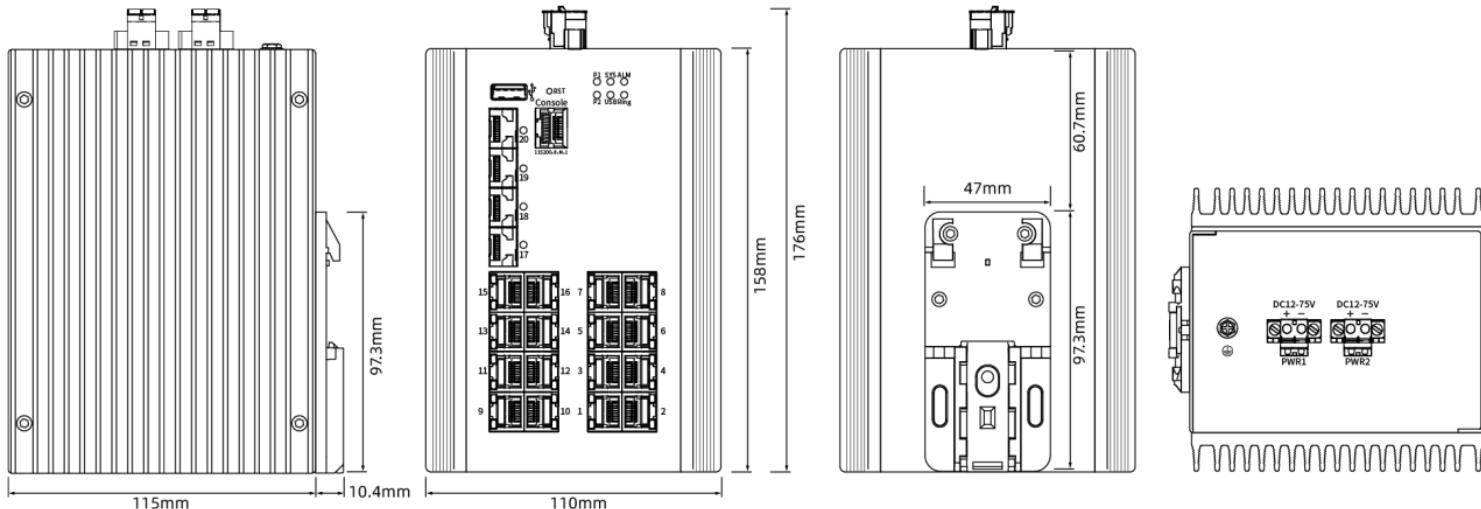
## Other information

<b>Switching Features</b>	
<b>Switching capacity</b>	52Gbps
<b>Packet forwarding</b>	38.688Mpps
<b>MAC address</b>	16k
<b>VLAN</b>	4k
<b>Buffer</b>	12Mbit
<b>Forwarding delay</b>	<5us
<b>Jumbo Frame</b>	Support 10Kbytes
<b>MDX/MIDX</b>	Support
<b>Watchdog</b>	Support
<b>Mechanical structure</b>	
<b>Case protection</b>	IP40
<b>Installation meth</b>	Din-rail
<b>Dimension(W*D*H)mm</b>	110*115*158mm
<b>Weight</b>	2.1 kg
<b>Operating environment</b>	
<b>Operating temperature</b>	-40°C~+70°C
<b>Storage/transportation temperature</b>	-40°C~+85°C
<b>Relative humidity</b>	Operation humidity: 10%-90%RH Storage humidity: 5%-95%RH
<b>Industrial Standard</b>	
<b>EMS</b>	Surge protection of power: IEC 61000-4-5 6KV/4KV(8/20us) Surge protection of Ethernet ports: IEC 61000-4-5 6KV/2KV(10/700us) RS: IEC 61000-4-3 80 MHz-1 GHz: 10 V/m EFT: IEC 61000-4-4 4K/2K



	CS: IEC 61000-4-6 10V ESD: IEC 61000-4-2 Contact: 8K; Air: 15K
<b>EMI</b>	FCC Part 15B Class
<b>Shock</b>	IEC 60068-2-27
<b>Free fall</b>	IEC 60068-2-32
<b>Vibration</b>	IEC 60068-2-6
<b>Certification</b>	CE/FCC/RoHS

### Structure diagram



### Ordering information

**FMS-D4S-16P** – Layer 2+ Managed industrial PoE switch with 16\*10/100/1000Base-T RJ45 PoE ports and 4\*1G/2.5GBase-X SFP slots, complies with IEEE802.3af, IEEE802.3at standard, DC44-57V input, redundant dual power supply, Din-rail installation. Operation temperature: -40°C~+70°