

Product Introduction

DS409

Industrial 9G L2 Managed Ethernet Switch





Target vertical markets

- Wind Power plants,
- Power Substations
- Oil & Gas industry
- Other heavy industrial networks

Major benefits of DS409

- 9 Full-Gigabit Ethernet ports, incl. 3 dual speed SFP combo ports (100/1000Mbps)
- Multiple fibers ports for sensitive data communication
 - Immunity to EMI/RFI
 - Low attenuation and greater distance
 - Security
- Full L2 Management with cyber security(+)
- Supports the latest ITU-T G.8032 v1/v2 ERPS Ring Redundancy protocol
- Exceeds EN50121-4 EMC protection (level A)
- Wide operation temperature range and wide power input range

DS409 Interfaces

Industrial 9G L2 Managed Ethernet Switch

Integrated Power Connector

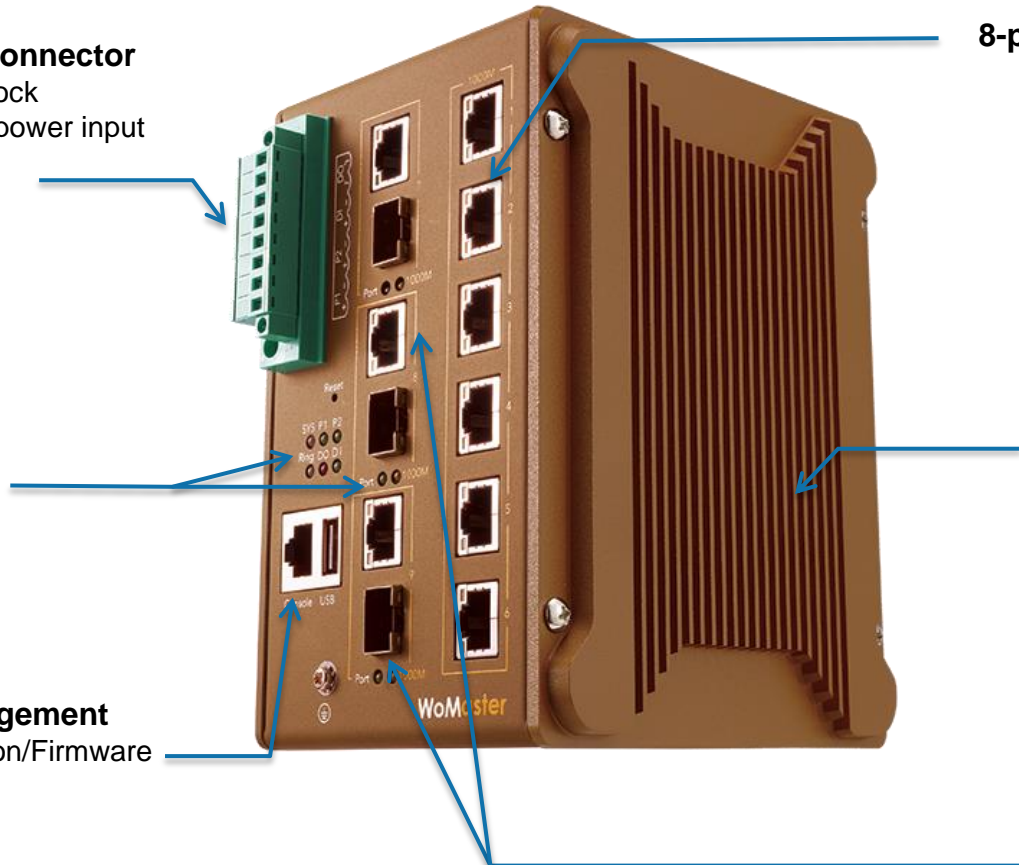
- 1 x 8-pin terminal block
- 4 pin for redundant power input
- 2 pin DI
- 2 pin DO
- Easy installation

System LED

- 2 x Power
- 1 x System Status
- 1 x DO
- 1 x DI
- 1 x Ring status
- 3 x SFP Port
- 3 x SFP 1000M

Easy System Management

- USB for Configuration/Firmware update
- RS232 console



8-port 10/100MBase-TX

DIN Clip

3 Gigabit Uplink

- 3-port 100/1000M RJ45/SFP combo



Hardware features

- Full-Gigabit Ethernet ports with 6x GE copper + 3x GE RJ/SFP Combo (SFP supports 100M)
- USB for firmware/configuration update
- 10~60V extra wide power input
- Exceptional design to sustain -40~75°C wide temperature
- Roadside EN 50121-4 EMC & NEMA TS2 compliance

Software features

- Fully L2 Managed
- Cyber Security Features: 802.1X/RADIUS/MAB, IP/Port Security, VLAN
- IEEE 1588 v1/2 Precision time protocol
- VPN for remote management
- LLDP, SNMP
- ITU-T G.8032 v1/v2 ERPS Ring Redundancy for loop protection and interoperability, RSTP/MSTP

ITU-T G.8032 v.2 ERPS

Problems:

- standard Ethernet Ring Switching doesn't provide protection from loop formation, broadcast storm, MAC table is unstable;
- restoration time in seconds – not suitable for critical networks;
- proprietary rings are hard for complicated network integration.

Solution: ITU-T G.8032 v.2 ERPS

ITU (International Telecommunication Union) - Recommendation name: series G.8032

ITU-T G.8032, Ethernet Ring Protection Switching - a standard ring protocol for Ethernet Ring protection and interoperability.

Benefits:

- Interoperates with third party industrial switches (supported by Cisco, Huawei, Juniper, D-link, etc.)
- Version1 for single ring, version 2 for multi-ring topology
- Carrier grade restoration time: <50ms
 - No computing time when topology changed (user specified blocking ports)
 - No flush required in some cases
 - Ex: RPL/blocking ports failure
 - No BPDU forwarding
- Maintenance mode (force switch)
- Revertive/non-revertive

Application Example

Vertical communication network requirements:
high speed, reliability, long distance, immunity

Local Data network

Low Speed

High Speed



Oil & Gas

Substation



Immunity requirement

Field Control room



Copper Ring

Fiber Ring



Distance requirement



IEC 62443



ERPS

Combo Ring



Remote Control room
www.womaster.eu