Guide rail style industrial Ethernet switches—IAC1400 series

Overview

IAC1400 series Switches can be flexibly configured with multiple gigabit and gigabit ports, the physical form of port can be optical or electric, and can also support four serial ports.
IAC1400's backplane bandwidth is up to 52Gbps, where any two ports can be formed a self-healing ring network. IAC1400 supports multiple independent self-healing ring networks, which can be double fiber, single fiber, twisted pair, or any combination thereof. Using the self-healing ring network technology, its algorithm based on hardware can ensure that the self-healing time of each node is less than 5ms, and the self-healing time of ring network is less than 50ms (typical value). IAC1400 also supports the ring media redundancy protocol based on IEC62439 ,the PRP parallel redundancy protocol based on IEC62439-3,with the HSR high availability seamless redundancy.
IAC1400 series adopts FPGA and CPLD dynamic reconstruction and reprogramming technology, can monitor various key operation parameters via way of local or remote, with high stability and high reliability.

Performance characteristics

- Linear switches with high performance and flexible configuration.
- Optical port type: SFP/ST/SC, up to 4 a serial port and 8 road POE port is optional
- Backplane bandwidth is up to 52Gbps.
- Support PoE power supply, support for IEEE 802.3 af, at 802.3 standard.
- Support PoE equipment testing, PoE power supply management.
- Support Ethernet ring network function and multiple self-healing ring, node healing time is less than 5 milliseconds, self-healing time of ring network is less than 50 milliseconds (typical).
- Support ring network media redundant protocol based on IEC62439
- Support parallel redundancy protocols based on IEC62439-3 PRP and HSR high availability seamless redundancy.
- support multiple independent self-healing rings, any two ports can be formed a self-healing ring network and.
- With Dying -- gasp function, can report active state via the SNMP protocol when power supply drop.
- Supports MODBUS/UDP/SNMP remote monitoring and various mainstream OPC

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software.

- Redundant dual power input design.
- -40℃ to +85℃ working in no Fan status.
- Average trouble-free operation time is up to 600000 hours.

Technical specifications

- IEEE 802.3 CSMA/CD method and physical layer specifications
- IEEE 802.1p Priority Queuing
- IEEE 802.1q VLAN tagging
- IEEE 802.1d Spanning Tree Algorithm
- IEEE 802.1w Rapid Spanning Tree
- IEEE 802.1s Multiple Spanning Tree
- IEEE 802.3ac VLAN Tagging
- IEEE 802.1x Authentication
- IEEE 802.3ad Link Aggregation
- IEEE 802.3x Flow Control
- IEEE 802.3 Ethernet
- IEEE 802.3u Fast Ethernet
- IEEE 802 Networks
- RFC 768 UDP
- RFC 791 P
- RFC 792 ICMP
- RFC 793 TCP
- RFC 826 ARP
- RFC 854 Telnet Client & Server
- RFC 951 BootP
- RFC 862 Echo Protocol
- RFC 863 Discard Protocol
- RFC 867 Daytime Protocol
- RFC 868 Time Protocol
- RFC 919 Broadcasting Internet Datagrams
- RFC 922 Broadcasting Internet Datagrams in thePresence of Subnets
- RFC 1042 Standard for the Transmission of IP Datagrams over Networks
- RFC 1122 Host Requirements
- RFC 1166 Internet Numbers
- RFC 1191 Path MTU Discovery
- RFC 1305 NTPv3
- RFC 1332 The PPP Internet Protocol Control- Protocol
- RFC 1334 PPP Authentication Protocols
- (specifies PAP)
- RFC 1542 Bootstrap Extensions & DHCP
- RFC 1548 The Point-to-Point protocol
- RFC 1851 The ESP Triple DES Transform ESP
- RFC 1866 HTML
- RFC 1989 PPP Link Quality Monitoring
- RFC 1994 PPP Challenge Handshake Authen- tication Protocol (CHAP)
- RFC 2068 HTTP
- RFC 213 DHCP Server

- RFC 2132 DHCP Options and BOOTP Ven- dorExtensions
- RFC 2138 RADIUS
- RFC 2139 RADIUS Accounting
- RFC 2474 DiffServ Precedence
- RFC 2597 DiffServ Assured Forwarding
- RFC 2598 DiffServ Expedited Forwarding
- RFC 2644 Directed Broadcasts
- RFC 2865 Remote Authentication Dial In User
- Service (RADIUS)
- RFC 3084 COPS-PR
- RFC 3140 PHB Identification Codes PHB
- RFC 3222 Forwarding Information Base SSH2 Secure Shell 2
- IGMP snooping
- SNMPv1/v2/v3

Hardware performance:

- The back of bandwidth：52Gbps
- The processor：333MHz RISC
- Switching technology: Parallel storage and forwarding based on ASIC
- MAC address table: 4K
- Buffer: 2M
- Exchange rate: 148,800 PPS / 100 Mbit port, 1,488,000 PPS / 1000 gigabit port.

Software functions:

- Management style：Browser, serial port,STD-17 MIB-II，STD-58 SMIv2, STD-59 RMON, STD-62 SNMPv3,SNMPv2c, SNMPv1,RFC2668 MAU,RFC2925 Ping MIB.
- Diagnosis way: indicator light, log file, relay, RMON, port mirroring, TRAP
- Redundant functions：MRP,HSR,PRP，Ring，MSTP，RSTP，Port together
- Time synchronization：IEEE1588，SNTP
- Other：4K VLANS，IPv4/IPv6 multi-cast，Storm control, MC/BC protection, Jumbo Frame

Physical performance:

- Mean trouble-free time (MTBF): more than600,000 hours
- Storage temperature:-40℃ ~ 85℃
- Operating temperature：-40℃ ~ 85℃
- Humidity：5% ~ 95%，Non condensation
- Product size: (W)79x(H)140x(L)110mm
- Protection class: IP40 (part IP54)
- Weight:1.3kg (maximum)
- Power consumption: 15W (maximum)

Mechanical characteristics

- Vibration：IEC 60068-2-6
- Shock：IEC 60068-2-27
- Free fall：IEC 60068-2-32
- Circuit board：Comply with IPC standard

Electromagnetic property

- Electromagnetic radiation：FCC 47 CFR Part 15 Class A EN55022 Class A
- Electromagnetic compatibility：
- IEC(EN)61000-4-2，class 4;
- IEC(EN)61000-4-3，class 4;
- IEC(EN)61000-4-4，class 4;
- IEC(EN)61000-4-5，class 4
- IEC(EN)61000-4-6，class 4;
- IEC(EN)61000-4-9，class 4;

Industry certification and testing

- Product safety：CE EN60950-1 FCC, Part 15 Subpart B Class A，EN 55022 Class A.
- Hazardous area：UL/cUL1604 Class 1 Div 2.
- Power industry：IEC61850-3, IEEE1613（C37.90.x）.

The order reference

Choose industrial switch based on the following considerations

- According to access port type: gigabit, 100Mbit, optical port, electric port(Eport),serial port.
- According to the number of access ports: 2, 4, 8.
- According to the installation method: guide rail type or rack type, Rail type industrial switches is IAC1400.
- According to the protocol type: layer two or layer three, IAC1400 guide rail type switches is two-layer switches.
- Depending on the way of power supply: DC or AC, IAC1400 guide rail type industrial switches generally adapts DC, please indicate if you have specific requirement when purchasing.
- According to the transmission distance: SFP pluggable modules involves single mode, multi-mode, MB port, gigabit, optical port, electric port(Eport), 20 km, 40 km, 80 km and other different transmission distance.

Example: If you need a two-layer rack switch with 2 *100Mbit Eports and 4*100Mbit optical ports. The transmission distance is less than 20km,two serials port, 48V DC.

- You should choose：IAC1412-4-4C,And 4*100Mbit short distance SFP optical modules.

The following is the type of Rial industrial switch for China Southern Power Grid Frame bidding:

Type	Type for STEC	Description
Two layer Ethernet switch -2 Optical+4 Eport (indoor)	IAC1408-4	Guide rail type+ full network management, 4 megabit Eports +4 megabit slot-type SFP, using redundant double DC input isolated power supply (18 ~ 60VDC). Operating temperature -40 ~ 85 degrees, protection level up to IP40.
Two layer Ethernet switch -2 Optical+4 Eport (outdoor) IP54	IAC1408-4-IP54	Full network management, 4 megabit Eports +4 megabit SFP slots, Operating temperature -40 ~ 85 degrees, protection level up to IP54.
Two layer Ethernet switch -2 Optical+4 Eport+serials port (indoor)	IAC1412-4-4C	Guide rail type+Full network management, 4 megabit Eports +4 megabit SFP slots, using redundant double DC input isolated power supply (18 ~ 60VDC). Operating temperature -40 ~ 85 degrees, protection level up to IP40.
Two-layer Ethernet switch -4 Optical+4 Eport (indoor)	IAC1408-4	Guide rail type+Full network management, 4 megabit Eports +4 megabit SFP slots, using redundant double DC input isolated power supply (18 ~ 60VDC). Operating temperature -40 ~ 85 degrees, protection level up to IP40.
Two-layer Ethernet switch -4 Optical +4 Eport + serials port (indoor)	IAC1412-4-4C	Guide rail type+Full network management, 4 megabit Eports +4 megabit SFP slots+4 serials port, using redundant double DC input isolated power supply (18 ~ 60VDC). Operating temperature -40 ~ 85 degrees, protection level up to IP40.
Two-layer industrial Ethernet switch ,out door （IP54）, Fixed or modular switch host, including dual power modules (ac/DC based on site conditions) and software, etc., supporting more than 4*1000M optical ports, 4* 1000M Eports, with POE power supply function.	IAC1416-4G-8P	Guide rail type,two layer POE industrial switches, 4 gigabit Eport+ 8 gigabit PoE+ Eport+4 *100Mbit and gigabit SFP slots, using redundant double DC input isolated power supply（44～57VDC）. The port protection adopts dual instantaneous voltage suppression tube. Operating temperature -40 ~ 85 degrees, protection level up to IP54.
Netmanager software	ArtiFirm	comprehensive network management platform, English interface network management system based on SNMP english interface network management system, support WIN operating system
Megabyte optical module - Short distance (less than 10kM)	FSFP-LX-20	FSFP-LX-20 100MB signal mode SFP optical module (1310nm), LC interface, maximum distance 20km
100 MB optical Module - Medium distance (10km-40km)	FSFP-LX-40	100MB signal mode SFP optical module (1310nm), LC interface, maximum distance 20km

Type	Type for STEC	Description
100 MB optical module - Long distance (greater than 40kM)	FSFP-LX-80	100MB SINGLE mode SFP optical module (1310/1550nm), LC interface, maximum distance 40km

Please noted:100MB short distance optical SFP can achieve the maximum transmission of 20 kilometers, so if you need SFP which is less than 20 kilometers, please choose the short distance optical module.