DATASHEET

TR-CES2708 Series

Industrial Grade Carrier Ethernet Series

Product Overview

Techroutes CES2708 series—the industrial carrier Ethernet switches are small but power full switches designed for carrier 3G/4G backhaul networks.

With the unified operation, the equipment can make better use of themselves. CES2708 series adopt patented ORING+TM self-healing rings. It's hardware-based algorithm ensures the fail-over time in every node less than 5ms and the network self-healing time less than 50ms (typical value).

CES2708 also supports IEC62439-2 based MRP, IEC62439-3 based PRP, and HSR.

CES2708 switches adopt the half-rack frame and support 8x100/1000M SFP slots, or 4 x 10/100/1000M electrical ports and 4 x 100/1000M SFP slots which makes network establishment more flexible and prompt.

CES 2708 Switches designed to withstand in harsh environment, the fan less design switch supports operational temperature range of - 40ºC to 70 ºC

Performance Features

- Supporting IEC61850-3 and IEEE1613
- Supporting transmits multicast packets such as packets about IEC 61850 GOOSE or sampling values.
- Supporting IEEE1588V2(PTP)， Boundary Clock (BC), E2E transparent clock, and P2P transparent clock (TC)
- Supporting ORING+™ based Ethernet ring and multiple self-healing rings with the fail-over time in every node less than 5ms and the net- work self-healing time less than 50ms (typical value)
- Supporting IEC62439-2 based MRP
- Any two ports can establish a self-healing ring and support multiple independent self-healing rings
- With function of data packet dropout protection and quick recover from network failure.
- Supporting various multicast protocols and strong safety protection mechanism
- Providing bandwidth service with different levels in Ethernet service by speed limiting and traffic shaping in QoS of layer 2
- Supports Auto Provisioning
- Supporting function of the static and dynamic allocation as well as limitation of CPU and real- time monitor the key operating parameters, including CPU utilization rate, RAM, supply voltage and mainboard voltage.
- CES2708 series have a full set of professional network management and monitoring and alarm system. And they also support OPC.
- Adopting redundant dual power input design

Technical Specifications

Ethernet Standards	IEEE 1588v2 with one-step clock support 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 802.3z Gigabit Ethernet IEEE 802 Networks
MAC exchange	Static configuration and dynamic MAC learning MAC browsing and removal Configurable aging time of the MAC address Limited number of learnable MAC addresses MAC filtration Black-hole MAC list
VLAN	4K VLAN GVRP 1:1 VLAN mapping and N:1 VLAN mapping QinQ and flexible QinQ PVLAN
STP	802.1D (STP), 802.1W (RSTP) and 802.1S (MSTP) BPDU protection, root protection, and loopback protection
Multicast	IGMP v1/v2/v3 IGMP snooping IGMP Fast Leave Multicast group strategy and quantity limitation Multicast flow copying over VLANs
IPv6	ICMPv6, DHCPv6, ACLv6 and IPv6 Telnet IPv6 neighbor discovery Path MTU discovery MLD V1/V2 IGMP snooping
QoS	Flow classification based on L2~4 protocols CAR flow limit 802.1P/DSCP priority re-labeling SP, WRR, and “SP+WRR” Congestion avoidance mechanisms like Tail-Drop and WRED Flow monitoring and flow shaping
Security	L2/L3/L4 ACL flow identification and filtration DDoS attack prevention, TCP’s SYN Flood attack prevention, UDP Flood attack prevention, etc Broadcast/multicast/unknown unicast storm-control Port isolation Port security, and “IP+MAC+port” binding DHCP snooping and DHCP option 82 IEEE 802.1x authentication Radius BDTacacs+ authentication Level-based command line protection
Reliability	Static/LACP link aggregation EAPS and ERPS ISSU uninterrupted system upgrade
Management	Console, Telnet, SSH, Web SNMP v1/v2/v3 TFTP RMON

Hardware Performance

Backplane band-width:	26Gbps
CPU:	600MHz RISC
Switching technique:	ASIC based parallel store and forward
MAC address table:	8K
Buffer:	1.5M (Min)
Exchange rate:	148,800 pps/100M ports 1,488,000 pps/1000M ports

Software Function

Management:	WebGUI, serial port,STD-17 MIB-II,STD-58 SMIv2, STD-59 RMON, STD-62 SNMPv3, SNMPv2c, SNMPv1, RFC2668 MAU, RFC2925 Ping MIB, Techroutes Private MIBs
Diagnosis mode:	Indicator light, journal file, relay , RMON, port mirroring, TRAP
Functional redundancy:	MRP,HSR,PRP,ORING+, MSTP, RSTP, port trunking
Time synchronization:	IEEE1588v2 (BC and TC), NTP, SNTP
Others:	IPv4/IPv6 multicast, storm control, MC/BC protection, support Jumbo Frame, ZTP

Physical Performance

MTBF:	more than 800,000 hours
Storage temperature	-40°C ~ 85°C
Operating temperature:	-40°C ~ 75°C
Humidity:	5% ~ 95%,non-condensation
Product size:	220x150x44 mm 220x250x44 mm (for AC POE Model)
Protection grade:	IP40
Weight:	3.5kg (Max)
Power:	60W (Max)

Mechanical Features

Vibration:	IEC 60068-2-6
Impact:	IEC 60068-2-27
Free- falling:	IEC 60068-2-32
Circuit board:	Approved by IPC

Electromagnetic Characteristics

Electromagnetic radiation:	FCC 47 CFR Part 15 Class A EN55022 Class A
Electromagnetic compatibility:	IEC(EN)61000-4-2,Cass 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 standards and Testing

Product safety:	CE EN60950-1 FCC
Dangerous area:	UL/cUL1604 Class 1 Div 2
Power Industry:	IEC61850-3 IEEE1613 (C37.90.x)

Ordering Information

TR CES2708-UP	Industrial grade Carrier Ethernet Layer-2 Switch with 8 100M/1000M auto-adaptive SFP ports. The hardware supports protocols SyncE and IEEE1588v2; up to IP40 protection grade; Universal power supply (40-60VDC or 90~264VAC). (Accessories need to be configured independently)
TR CES2708-D4-UP	Industrial grade Carrier Ethernet Layer-2 Switch with 4 gigabit TX ports, 4 100M/1000M auto-adaptive SFP ports. The hardware supports protocols SyncE and IEEE1588v2; up to IP40 protection grade; Universal power supply (40-60VDC or 90~264VAC). (Accessories need to be configured independently).
TR CES2708P-DC	Industrial grade Carrier Ethernet Layer-2 Switch with 8 100M/1000M auto-adaptive SFP ports. The hardware supports protocols SyncE and IEEE1588v2; up to IP40 protection grade; Universal power supply (18-60VDC). (Accessories need to be configured independently)
TR CES2708-D4-PLUS (POE ++)	Industrial grade Carrier Ethernet Layer-2 Switch with 4 gigabit TX ports (supports 802.3af/at/bt Ethernet power supply), 4 100M/1000M auto-adaptive SFP ports. The hardware supports protocols SyncE and IEEE1588v2; up to IP40 protection grade; DC power supply (44-57VDC). (Accessories need to be configured independently).
SFP modules	*Choose from GSFP Datasheet*

For More details:
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