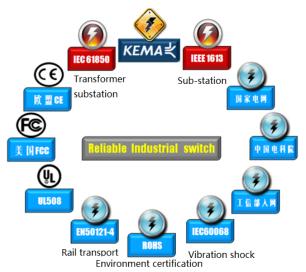




Gazelle S3028i-LF FE NMS-manageable Layer 2 Industrial Switch

Brief introduction

The Gazelle S3028i-LF FE NMS-manageable Layer 2 industrial switch is specially designed for the Automatic Control System (ACS) in the industrial field, which can operate stably for a long time in harsh environments. It delivers industry-leading ring network technologies, supports multiple industrial redundant ring network protocols, through which any interface can form a ring with other devices, and supports chain, star, dual-star, ring, tangent ring, intersecting ring, and coupling ring, with sub-20ms self-healing of the ring network. Featuring high reliability, security, and manageability, the Gazelle S3028i-LF ensures secure transmission of key data. It also supports remote management and can work with Raisecom



NView NNM system for cluster management, implementing seamless network management during the whole process.

The Gazelle S3028i-LF is highly adaptive to industrial environments in terms of mechanical stability, climate adaptability, electromagnetic environment adaptability, and so on. It is IP40 rated, and supports dual redundant power supplies, adopts low-power fanless cooling technology, and ensures up to 35-year Mean Time Between Failures (MTBF) and a 3-year warranty. The Gazelle S3028i-LF can be widely used not only in electric power industry, but also in transportation, maritime transport, coal, petroleum, metallurgy, water treatment and other industries.

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Device features

Wire-speed switching and flexible configuration

The Gazelle S3028i-LF supports the bus bandwidth of 12.8 Gbit/s. It can meet the high bandwidth requirements of the current multi-service big data. With multiple choices of uplink optical ports, you can flexibly choose the interfaces as required. With these features, the Gazelle S3028i-LF helps increase the network adjustability and scalability, guaranteeing customers' investment.

Complete security control policy

The Gazelle S3028i-LF supports IEEE 802.1x, RADIUS, and TACACS+ authentication which are used to authenticate users when they access the network, and supports multiple binding groups such as MAC + interface, storm control, and port lock to ensure the validity of access users.

The Gazelle S3028i-LF supports port mirroring to monitor services and traffic of the monitoring port, which helps optimize deployment and monitor malicious attacks.

Fast self-healing Ethernet ring network

Any interface on the Gazelle S3028i-LF can form a ring with other devices and the Gazelle S3028i-LF supports multiple Ethernet ring protocols, including spanning tree and G.8032 (ERPS). The sub-20ms self-healing of the ring network ensures reliable data transmission between nodes.

Carrier-grade QoS

The Gazelle S3028i-LF supports 8 output queues for each interface, and multiple queue scheduling algorithms, such as Strict Priority (SP), Weighted Round Robin (WRR), SP+WRR, Deficit Round Robin (DRR), and SP+DRR, through which packets can be distributed to interface output queues based on different priorities. It also supports bidirectional rate limiting on the interface with a minimum rate-limiting granularity of 8 Kbit/s. With Carrier-grade QoS, the Gazelle S3028i-LF meets users' requirements for multi-service identification, classification, and resource scheduling.

The Gazelle S3028i-LF supports selective QinQ, with which the VLANs of the customer network and the carrier network can be hierarchically managed to make the network architecture more flexible.

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Easy management and maintenance

The Gazelle S3028i-LF supports SNMP and Raisecom NView NNM system. It supports network topology discovery and implements centralized management (uniformly manages multiple devices) and maintenance of devices by working with Raisecom NView NNM system, thus reducing the management costs. The Gazelle S3028i-LF also supports multiple management methods, such as CLI, SSH, Web network management, and Telnet, facilitating device management.

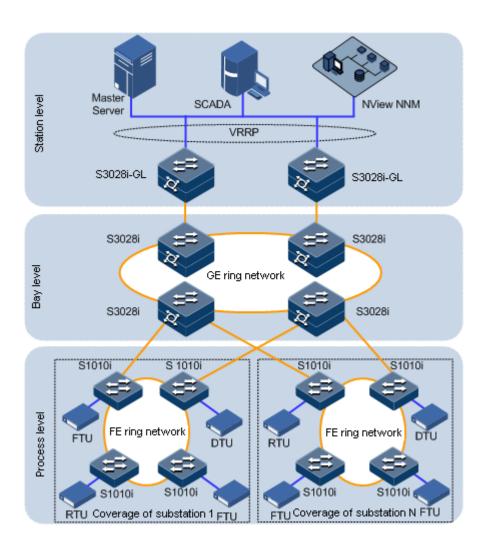
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Typical application

Distribution automation application



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Technical specifications

Model	Gazelle S3028i-LF		
Description	 Option For Uplink Ports 4 GE SFP ports (100Base-FX/1000Base-X) 4 SC/ST ports 24 FE RJ45 ports All-metal enclosure Fanless design IP40-compliant Rack mounting 		
Basic information			
Service interfaces	 Option For Uplink Ports 4 GE SFP ports (100Base-FX/1000Base-X) 4 SC/ST ports 24 FE RJ45 ports 		
LEDs	 Power LED System LED System alarm LED Synchronization LED Interface status LED (LINK/ACT, SPEED, and Full/Half Duplex modes for your choices) 		
Dimensions (Length \times Width \times Height)	440 mm \times 200 mm \times 44 mm, standard 19" 1U		

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Model	Gazelle S3028i-LF	
Weight	2.5 kg	
Installation mode	Rack installation	
Protection grade	IP40	
MTBF	35 years	
Operating voltage	HIP	
	• Rated voltage: 110/220 VAC, 110/220 VDC	
	• Voltage range: 85–264 VAC, 88–300 VDC	
Power consumption	< 15 W	
Operating temperature	-40°C to +85°C	
Storage temperature	-40°C to +85°C	
Relative humidity	5%–95%, non-condensing	
Backplane bandwidth	12.8 Gbit/s	
MAC address table	16K, automatic learning	
Relay alarm interface	1 SPDT alarm interface	
Console	1 RJ45 management interface	
Features		
Switching mode	Store and Forward, 12 Mbit switching cache	
Frame length	Support a maximum frame length of 12K bytes.	
Storm control	Support storm control over broadcast, multicast, and DLF packets.	

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Model	Gazelle S3028i-LF			
	Control method: interface configuration, based on BPS, PPS, or burst			
Interface loop detection	 When a loop is detected, the interface can be automatically shut down. When the loop is eliminated, the interface can be automatically unblocked again. You can configure the detection interval. 			
Multicast	 Support IGMP Snooping v1, v2, and v3. Support filtering multicast packets and discarding unknown multicast packets. 			
Spanning tree	 Support STP, MSTP, and RSTP. Support 64 instances. The hardware supports 256 STGs. 			
Industrial ring network protocols	 Support G.8032 (ERPS). Support up to 254 rings. Each ring supports up to 1024 devices. The self-healing time of the ring network is less than 20ms. 			
Interface aggregation	 Support up to 32 aggregation groups. Each group supports up to 8 interfaces. Support load balancing mode based on MAC address and IP address. Support static and dynamic LACP. 			
Mirroring	 Support multiple-to-one port mirroring, namely, multiple source ports and one mirroring port. Support respective mirroring in the ingress and egress direction of the interface. Support flow-based mirroring. 			
MAC address	 Support 16K MAC addresses. Support disabling or enabling MAC address learning based on interface. Support adding/deleting MAC addresses and showing statistics. 			

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Model	Gazelle S3028i-LF		
	• Support interface-based MAC address limits, ranging from 1 to 255.		
Flow control	• Support IEEE 802.3x flow control in full duplex mode.		
	• Support back pressure flow control in half duplex mode.		
VLAN	Support 4094 concurrent VLANs.		
	• Support QinQ.		
	• Support PVLAN configurations.		
Routing	Support static routes.		
Advanced features			
QoS and ACL	• Support mapping from CoS and DSCP to local priority. Support interface trust mode.		
	Support trusting local priority.		
	• Support trusting CoS and DSCP priority.		
	• Support overwriting CoS and queue priorities with VLAN, SMAC, and DMAC priorities based on interface.		
	• Support traffic classification and configuration of traffic policy.		
	• Support global queue scheduling.		
	• Each interface supports 8 queues.		
	• Support multiple queue scheduling modes, such as SP, WRR, SP+WRR, DRR, and SP+DRR.		
	Support traffic statistics.		
	• Support traffic-based mirroring, rate limiting, redirection, VLAN translation, modification of 802.1P, CoS, DSCP, IP Precedence, and internal priority.		
Bandwidth control	• Range: 1–1000 Mbit/s (GE interface), 1–100 Mbit/s (FE interface)		
	• Granularity: 64 kbit/s when the rate ranges from 1M to 100M, and 64 kbit/s when		

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Model	Gazelle S3028i-LF		
	the rate ranges from 100M to 1000M		
	• Support burst configuration with the maximum value of 128 KB.		
	Support VLAN-based rate limiting.		
	• Support ingress rate limiting based on interface, and traffic rate limiting based on packet type and queue priority.		
	• Support disabling rate limiting on data flow with the specified destination MAC address and source MAC address based on interface.		
	• Support traffic shaping in the egress direction of the interface.		
Security	• Support IEEE 802.1X authentication based on interface, MAC address, and users.		
	Support hierarchical management on users and password protection.		
	Support RADIUS authentication.		
	• Support TACACS+ authentication.		
	• Support binding a MAC address with an interface.		
	Support PPPoE Agent.		
	• Support dot1x.		
	Support IP Source Guard.		
	Support dynamic ARP inspection.		
Management features			
System management	Support CLI configurations.		
	• Support CLI help in both Chinese and English.		
	• Support Telnet configurations.		
	• Support configurations through the Console interface.		
	• Support remote configurations of multiple SSH v2 clients.		
	• Support RMON group 1, 2, 3, and 9 MIB.		

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Model	Gazelle S3028i-LF			
	• Support SNMP v1/v2c/v3.			
	• Support IEEE 802.3ah OAM.			
	Support Raisecom NMS.			
	• Support system log.			
	Support alarm outputs through Relay, Trap, and Syslog.			
	Support Keepalive reports.			
	Support LLDP.			
Time management	Support timezone management.			
	Support time modification.			
	• Support DST.			
	• Support the SNTP client to be synchronized with the system time.			
	• Support NTP.			
DHCP	Support DHCP Snooping, DHCP Client/Server/Relay, and DHCP Option82.			
Task scheduling	Support running the task periodically or during a specified time.			
Tolerance and	Support system error report.			
redundancy	• Support fast recovery from critical errors.			
Authentication				
Compliance standard	• IEEE 802.3			
	• IEEE 802.3u for 100BaseT(X) and 100Base FX			
	• IEEE 802.3ab for 1000BaseT(X)			
	• IEEE 802.3z for 1000BaseSX/LX/LHX/ZX			
	• IEEE 802.3x for Flow Control			

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Model	Gazelle S3028i-LF				
	IEEE 802.1d for Spanning Tree Protocol				
	• IEEE 802.1w for Rapid STP				
	• IEEE 802.1s for MSTP				
	IEEE 802.1q for VLAN Tagging				
	• IEEE 802.1p for Quality of Service				
	• IEEE 802.1X for Security				
	• IEEE 802.3ad for Port Trunk with LACP				
	• IEC61000-4-2 (ESD): ± 8 kV contact discharge, ± 15 kV air discharge				
	• IEC61000-4-3 (RS): 10V/m (80–1000 MHz)				
	• IEC61000-4-4 (EFT): power cable: ± 4 kV; data cable: ± 2 kV				
	• IEC61000-4-5 (Surge) power cable: CM \pm 4 kV/DM \pm 2 kV; data cable: CM \pm 4 kV				
	• IEC61000-4-6 (RF Conducted Immunity): 10 V (150 kHz–80 MHz)				
	IEC61000-4-8 (Power Frequency Magnetic Field Immunity): 100A/m continuous 1000A/m, 1s to 3s				
	• IEC61000-4-9 (pulse magnetic field): 1000A/m				
	• IEC61000-4-10 (damped oscillation magnetic field): 100A/m				
	• IEC61000-4-12/18 (oscillation wave): CM 2.5kV, DM 1kV				
	• IEC61000-4-16 (Common mode conduction): 30V continuous; 300 V, 1s				
	• FCC Part 15/CISPR22 (EN55022): Class A				
	• IEC61000-6-2 (general industrial standards)				
	• IEC60068-2-6 (anti-vibration)				
	• IEC60068-2-27 (anti-shock)				
	• IEC60068-2-32 (free falling)				

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Model	Gazelle S3028i-LF		
	 IEC61850-3 (electrical substation) IEEE1613 (electrical substation) 		
	• KEMA		
	• CE, certification by China Electric Power Research Institute, and Network Access License for Telecommunications Equipment (Ministry of Industry and Information Technology, P.R.C)		

Ordering information

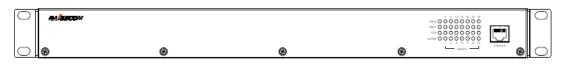


Figure 1 Front Panel

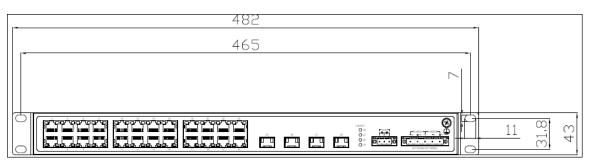


Figure 2 Back Panel

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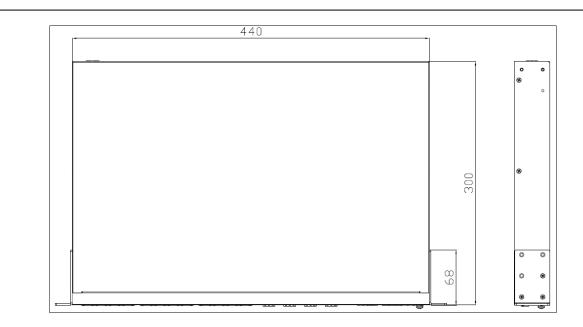


Figure 3 vertical view;



Ordering Info			
Product model	Version	Description	
Gazelle S3028i -4GF-24FE-LF-HIP/S Gazelle S3028i -4GF-24FE-LF- HIP/D	А	 4 GE SFP ports (100Base-FX/1000Base-X) 24 FE RJ45 ports HIP/S: Single Input, AC110/220V, DC110/220V HIP/D: Dual Input, AC110/220V, DC110/220V 	
Gazelle S3028i -24FE-LF- HIP/S	А	24 FE RJ45 ports	

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Gazelle S3028i -24FE-LF- HIP/D		HIP/S: Single Input, AC110/220V, DC110/220V
Gazelle S3028i -4M/S1/S2-24FE-LF-HIP/S Gazelle S3028i -4M/S1/S2-24FE-LF-HIP/D	A	 HIP/D: Dual Input, AC110/220V, DC110/220V 24 个 FE ports 4 个 100Base-FX SC ports M: multimode, 1310nm, 0~4km S1: singlemode, 1310nm, 0~20km S2: singlemode, 1310nm, 0~40km HIP/S: Single Input, AC110/220V, DC110/220V HIP/D: Dual Input, AC110/220V, DC110/220V
Gazelle S3028i -4MST/S1ST/S2ST-24FE-LF-HIP/S Gazelle S3028i -4MST/S1ST/S2ST-24FE-LF-HIP/D	А	24 个 FE ports 4 个 100Base-FX SC ports MST: multimode, 1310nm, 0~4km S1ST: singlemode, 1310nm, 0~20km S2ST: singlemode, 1310nm, 0~40km HIP/S: Single Input, AC110/220V, DC110/220V HIP/D: Dual Input, AC110/220V, DC110/220V

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