



Gazelle S3028i-MGS Series

The Gazelle S3028i-MGS GE modular Layer 3 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. The Gazelle S3028i-MGS adopts a fully modular design, provides high-density interfaces, and is configurable and scalable. 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-MGS 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.

Gazelle S3028i-MGS is highly adaptive (such as mechanical stability, climate adaptability, and electromagnetic environment adaptability) to industrial environments. It is IP40 rated, and supports dual redundant power supplies, adopts low-power fan-less cooling technology, and ensures up to 35-year MTBF. It can be widely used in electric power, transportation, maritime transport, coal, petroleum, metallurgy, water treatment and other industries.

Gazelle S3028i-4XF-16GE-MGS



Gazelle S3028i-4XF-16GF-MGS



Gazelle S3028i-4XF-16GE-PWH-MGS



Gazelle S3028i-MG-SUB-8GF



Gazelle S3028i-MG-SUB-8GE



*For more models, please refer to ordering information

Highlights >>

- Modular design, Fan-less, IP40 protection level
- 24 Gigabit Ethernet ports plus up to 4 x 10G Ethernet ports
- IEEE 1588v2 Transparent Clock
- ITU G.8032 (recovery time < 50ms @ 250 switches ring)
- Layer 3 Static routing and routing protocols such as RIP v1/v2 and OSPF
- Automatic warning by exception through email and relay output
- 2 Digital Input (DI), 1 Relay Output
- Support POE/POE+/POE++, max 90W output per port
- Isolated redundant power inputs with 110/220VAC/DC or 24/48VDC power supply
- DHCP-based auto-configuration, configuration LED provided
- SNMP v1/v2c/v3, Raisecom Network Management System (NMS), CLI, Web management, and Telnet
- IEC61850-3 and IEEE1613 compliant
- Operating temperature: -40 to +85°C
- MTBF ≥ 35 years

International Headquarters

Raisecom Building, East-11, No.10 Xibeiwang East Road,
Haidian District, Beijing, P.R.China, 100193
Tel: +86 10 8288 3305
Fax: +86 10 8288 3056
www.raisecom.com

U.S.A. Headquarters

Address: 6380 N Eldridge Parkway Houston Texas
77401 USA
Tel: 1-888-816-4808
Email: sales@raisecominc.com

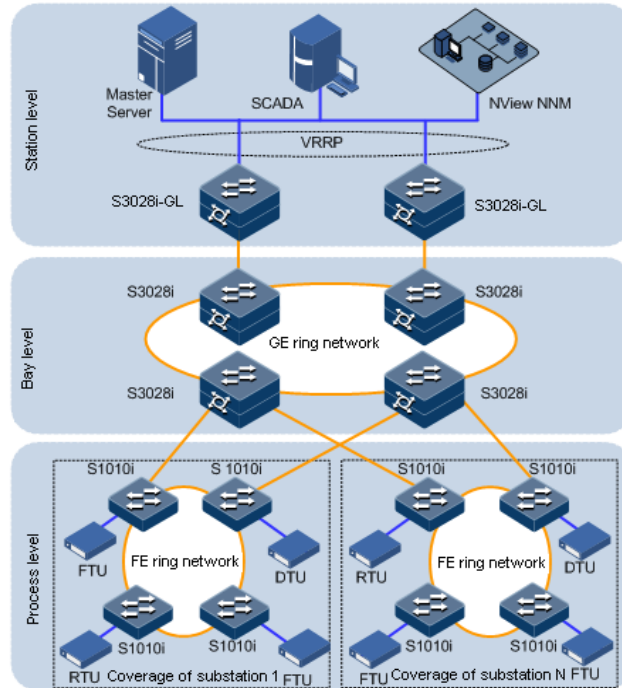
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Application >>

Figure 1 Power SCADA



Power SCADA solution

The Gazelle S3028i devices generally function as convergence switches and form a ring network or star network to access industrial devices or access switches. The Gazelle S3028i series devices can be used at the aggregation layer or you can use L3 core switches from other vendors.

Key features >>

Ethernet Ports

- Basic Model (Fixed port on the motherboard):
Gazelle S3028i-4XF-16GE-MGS: (4 10G SFP port + 4 GE Combo + 12 GE port)
Gazelle S3028i-4XF-16GF-MGS: (4 10G SFP port + 4 GE Combo + 12 GF port)
- Optional module (pluggable subcard):
SUB-8GE-MGS: (8 GF port)

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SUB-8GF-MGS: (8 GE ports)	
Ethernet Port Type	<input type="checkbox"/> XF: 10G SFP+ port (supports 1000 Mbit/s SFP.) <input type="checkbox"/> GF: 100/1000 Mbit/s auto-negotiation SFP optical port <input type="checkbox"/> GE: 10/100/1000 Mbit/s auto-negotiation Ethernet electrical port
Switching capacity	<input type="checkbox"/> 128Gbps
Packet forwarding rate	<input type="checkbox"/> 95.3Mpps
MAC address table	<input type="checkbox"/> 16K MAC addresses <input type="checkbox"/> MAC automatic learning, MAC aging, and static MAC <input type="checkbox"/> Static, dynamic, blackhole MAC entries <input type="checkbox"/> MAC address limits based on VLAN and interface <input type="checkbox"/> Suppression of MAC address flapping
VLAN	<input type="checkbox"/> 4K VLANs <input type="checkbox"/> MAC/Protocol/IP subnet/Interface-based VLAN <input type="checkbox"/> Basic QinQ and selective QinQ <input type="checkbox"/> VLAN mapping
PTP protocol	<input type="checkbox"/> IEEE1588v2 TC
Ring network protection	<input type="checkbox"/> ERPS (G.8032) <input type="checkbox"/> STP/RSTP/MSTP <input type="checkbox"/> BPDU protection and root protection <input type="checkbox"/> Loop detection
Reliability	<input type="checkbox"/> VRRP <input type="checkbox"/> Manual aggregation and static LACP <input type="checkbox"/> Interface backup <input type="checkbox"/> LACP <input type="checkbox"/> Loop detection
IPv6	<input type="checkbox"/> IPv6 Ping, IPv6 Tracert, IPv6 Telnet, and IPV6 FTP/TFTP/SFTP <input type="checkbox"/> IPv6 SNMP, Raisecom NView IPv6 network management <input type="checkbox"/> IPv6 Radius, IPV6 TACACS+, IPv6 NTP, and SNTP <input type="checkbox"/> IPv6 ACL
Multicast	<input type="checkbox"/> IGMP v1/v2/v3 Snooping and immediate leave <input type="checkbox"/> Immediate leave based on interface and user <input type="checkbox"/> Static multicast group <input type="checkbox"/> MLD Snooping v1/v2 <input type="checkbox"/> IGMP
Routing protocol	<input type="checkbox"/> static routing <input type="checkbox"/> RIPv1/v2' OSFPv2 <input type="checkbox"/> PIM-SM
DHCP	DHCP Client DHCP Snooping DHCP Relay

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Haidian District, Beijing, P.R.China, 100193

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Fax: +86 10 8288 3056

www.raisecom.com

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	<ul style="list-style-type: none"> □ DHCP Server, supporting option43 □ DHCP Snooping option61, 82/DHCP Relay option82
Mirroring	<ul style="list-style-type: none"> □ Flow mirroring □ Local and remote port mirroring
QoS/ACL	<ul style="list-style-type: none"> □ Simple traffic classification based on interface, IEEE 802.1p priority, and DHCP priority □ Rate limiting in the ingress direction of the interface and traffic shaping in the egress direction of the interface □ SP, WRR, DRR, SP+WRR, and SP+DRR scheduling modes, 8 queues supported by each interface □ ACL (MAC, IP, MAC+IP, IPv6, and user-defined) □ Traffic policy (redirection, mirroring, adding and modifying VLANs, modifying (802.1p/DSCP) priority, and modifying egress queues, gathering statistics, and so on) □ Flow-based single-rate dual-color CAR □ Traffic policy applied based on physical interface in the ingress direction, statistics viewing and clearing
Security	<ul style="list-style-type: none"> □ User hierarchical management and password protection □ IEEE 802.1x authentication based on interface and MAC □ CPU protection and ARP attack prevention □ Binding of IP, MAC, interface, and VLAN □ Blackhole MAC address □ MAC address limits □ AAA, Radius, and TACACS+ □ Interface isolation □ Secure MAC □ SSH V2.0 □ SFTP □ HTTPS □ DHCP Snooping, anti-proofing DHCP server □ Dynamic ARP inspection, MITM prevention and ARP DoS prevention □ BPDU guard and Root guard
Management and maintenance	<ul style="list-style-type: none"> □ Console interface and out-of-band interface management □ SNMPv1/v2c/v3, CLI, Web management, TELENET, SSH2.0, and so on □ Raisecom NView NMS □ RMON □ LLDP/LLDP-MED □ Syslog and hierarchical alarms □ Ping and Tracert □ Dying gasp □ NTP and SNTP □ Virtual Cable Test □ Interface loopback □ Zero configuration, configuration downloading, and software upgrade through DHCP Sever □ Interface loop detection

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- Optical module DDM
- Link-state tracking
- DLDP unidirectional link detection
- Dual systems

Specifications >>

Power supply	<ul style="list-style-type: none"> <input type="checkbox"/> DC: 24/48 VDC (20–72 VDC), support dual inputs (two independent terminals) <input type="checkbox"/> HIP: 110/220 VAC/DC (85–264 VAC, 88–300 VDC), support dual inputs (two independent terminals) <p>Only DC support POE, and Required Input:</p> <p>IEEE802.3af: 45 ~ 57 VDC IEEE802.3at: 50 ~ 57 VDC IEEE802.3bt: 52 ~ 57 VDC</p>
Maximum power consumption	<p>Model 1: 24 GE Gazelle S3028i-4XF-24GE-MGS: < 20W</p> <p>Model 2: 24 GF (Full optical ports) Gazelle S3028i-4XF-24GF-MGS: < 44W</p> <p>Model 3: PWH(POE) Gazelle S3028i-4XF-24GE-PWH-MGS Switch power consumption: < 20 W POE power consumption: 0 ~ 480 W</p>
POE	<p>Only PWH Model supports POE:</p> <p>9~16 Ports support IEEE802.3bt (compatible with IEEE802.3af and IEEE802.3at), max 90w per port</p> <p>16~24 Ports support IEEE802.3at (compatible with IEEE802.3af), max 30w per port</p>
Alarm Relay	3-pin SPDT relay alarm terminal (Dying Gasp and device failure alarms)
Digital input	<p>Support two digital inputs:</p> <p>The digital input supports status 1 and status 2.</p> <p>Status 1: 13–30V voltage input Status 2: -30 to 1V voltage input Maximum input current: 6mA</p>
LED Indicator	<input type="checkbox"/> Ethernet port Status LED(LNK/ACT, SPEED) at the Front panel and Back panel

Standard and protocol >>

Standard and protocol	<ul style="list-style-type: none"> <input type="checkbox"/> IEEE 802.3 <input type="checkbox"/> IEEE 802.3u for 100BaseT(X) and 100Base FX <input type="checkbox"/> IEEE 802.3ab for 1000BaseT(X) <input type="checkbox"/> IEEE 802.3z for 1000BaseSX/LX/LHX/ZX <input type="checkbox"/> IEEE 802.3x for Flow Control <input type="checkbox"/> IEEE 802.1d for Spanning Tree Protocol <input type="checkbox"/> IEEE 802.1w for Rapid STP <input type="checkbox"/> IEEE 802.1s for MSTP <input type="checkbox"/> IEEE 802.1q for VLAN Tagging <input type="checkbox"/> IEEE 802.1p for Quality of Service <input type="checkbox"/> IEEE 802.1X for Security <input type="checkbox"/> IEEE 802.3ad for Port Trunk with LACP <input type="checkbox"/> IEEE 802.3af/at/bt for POE <input type="checkbox"/> IEC61000-4-2 (ESD): ±8kV contact discharge; ±15kV air discharge <input type="checkbox"/> IEC61000-4-3 (RS): 20V/m (80–1000 MHz) <input type="checkbox"/> IEC61000-4-4 (EFT): power cable: ±4kV; data cable: ±2kV <input type="checkbox"/> IEC61000-4-5 (Surge): power cable: CM±4kV/DM±2kV; data cable: ±4kV <input type="checkbox"/> IEC61000-4-6 (RF Conducted Immunity): 10V (150–80 MHz) <input type="checkbox"/> IEC61000-4-8 (Power frequency magnetic field): 100A/m continuous; 1000A/m, 1s to 3s <input type="checkbox"/> IEC61000-4-9 (Pulse magnetic field): 1000A/m <input type="checkbox"/> IEC61000-4-10 (Damped oscillatory magnetic field): 100A/m <input type="checkbox"/> IEC61000-4-12/18 (Oscillatory wave): CM 2.5kV, DM1kV <input type="checkbox"/> IEC61000-4-16 (Common mode conduction): 30 V continuous; 300V, 1s <input type="checkbox"/> FCC Part 15/CISPR22 (EN55022): Class A <input type="checkbox"/> IEC61000-6-2 (General industrial standard) <input type="checkbox"/> IEC60068-2-6 (Anti-vibration) <input type="checkbox"/> IEC60068-2-27 (Anti-shock)
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Raisecom Building, East-11, No.10 Xibeiwang East Road,
Haidian District, Beijing, P.R.China, 100193
Tel: +86 10 8288 3305
Fax: +86 10 8288 3056
www.raisecom.com

U.S.A. Headquarters

Address: 6380 N Eldridge Parkway Houston Texas
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	<input type="checkbox"/> Power Status LED <input type="checkbox"/> SYS LED and ALM LED <input type="checkbox"/> MGMT LED (for auto-configuration) <input type="checkbox"/> USB Status LED
Reset Button	System Reset or Restore Factory Configuration
USB Port	System Upgrade and Backup
Dimension and Weight	440mm x 44mm x 320mm (width x height x depth), 2.1 Kg
Environment requirement	<input type="checkbox"/> Operating temperature: -40 to 85°C, 5%–95% <input type="checkbox"/> Storage temperature: -40 to 85°C, 5%–95% <input type="checkbox"/> Relative humidity: 5%–90% (non-condensing)

	<input type="checkbox"/> IEC60068-2-32 (Free fall) <input type="checkbox"/> CE, FCC, UL, and RoHS-compliant
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Ordering information >>

<p>Gazelle S3028i-4XF-16GE-MGS</p>	<ul style="list-style-type: none"> <input type="checkbox"/> 4 10G SFP+ ports (support 1000Mbps SFP) <input type="checkbox"/> 4 GE Combo ports (support 100/1000Mbps SFP port, and 10/100/1000Mbps RJ45 port) <input type="checkbox"/> 12 GE ports (support 10/100/1000Mbps RJ45 port) <p>This model has an empty slot, and optional subcards as following:</p> <ol style="list-style-type: none"> 1. Gazelle S3028i-MG-SUB-8GE 2. Gazelle S3028i-MG-SUB-8GF 3. None
<p>Gazelle S3028i-4XF-16GF-MGS</p>	<ul style="list-style-type: none"> <input type="checkbox"/> 4 10G SFP+ ports (support 1000Mbps SFP) <input type="checkbox"/> 4 GE Combo ports (support 100/1000Mbps SFP port, and 10/100/1000Mbps RJ45 port) <input type="checkbox"/> 12 GF ports (support 100/1000Mbps SFP) <p>This model has an empty slot, and optional subcards as following:</p> <ol style="list-style-type: none"> 1. Gazelle S3028i-MG-SUB-8GE 2. Gazelle S3028i-MG-SUB-8GF 3. None
<p>Gazelle S3028i-4XF-16GE-PWH-MGS</p>	<ul style="list-style-type: none"> <input type="checkbox"/> 4 10G SFP+ ports (support 1000Mbps SFP) <input type="checkbox"/> 4 GE Combo ports (support 100/1000Mbps SFP port, and 10/100/1000Mbps RJ45 port) <input type="checkbox"/> 12 GE ports (support 10/100/1000Mbps RJ45 port) <p>Port 8~16 support IEEE802.3bt (compatible with IEEE802.3af and IEEE802.3at), max 90W per port Port 17~24 support IEEE802.3at (compatible with IEEE802.3af), max 30W per port</p> <p>This model has an empty slot, and optional subcards as following:</p> <ol style="list-style-type: none"> 1. Gazelle S3028i-MG-SUB-8GE 2. Gazelle S3028i-MG-SUB-8GF 3. None
<p>Gazelle S3028i-MG-SUB-8GE</p>	<p>Sub Card with 8 GE ports (10/100/1000Mbps RJ45 port), not supporting POE</p>
<p>Gazelle S3028i-MG-SUB-8GF</p>	<p>Sub Card with 8 GF ports (100/1000Mbps SFP port)</p>

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Power Supply:

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Gazelle S3028i-4XF-16GF-MGS

- DC/S: 24/48 VDC, single input
- DC/D: 24/48 VDC, dual inputs
- HIP/S: 110/220 VAC/DC, single input
- HIP/D: 110/220 VAC/DC, dual inputs

Gazelle S3028i-4XF-16GE-PWH-MGS

- DC/D: 48 VDC, dual inputs

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