DATASHEET

SNR S3850G Series

L3 managed switches

The S3850G series is a new generation of L3 SNR switches. Thanks to the combination of optical and copper interfaces, 10GE uplink ports, rich L2 and L3 functionality, the SNR-S3850G series switches can be used to solve a wide range of tasks both in internet service providers networks and enterprise networks.

Main Features:

- · Dynamic routing OSPF, BGP, PIM
- · 13K IPv4 Routes
- · 1/10GE SFP+ Uplink ports
- · Dual built-in power supply
- · Comprehensive security features
- · Powerful features for managing quality of service (QoS)

Switch Models

Series switches are equipped by 10GE Uplink and 1GE Downlink interfaces. Due to the presence of RJ-45 / SFP combo ports, SNR-S3850G can be used in networks with copper or optical links, depending on requirements.

Model	Combo ports 10/100/1000Base-T | 100/1000Base-X SFP	10/100/1000Base-T	100/1000 Base-X SFP	1/10G SFP+
SNR-S3850G-24FX	8	–	16	4
SNR-S3850G-24TX	4	20	–	4
SNR-S3850G-48TX	–	48	–	4

High perfomance

Due to modern chipset, all S3850G series models support full port speed switching and routing simultaneously. 10GE Uplink ports and 1GE Downlink ports allow transfering traffic from clients to the network core and back without loss and increase in delays.

Model	Switching Capacity	Forwarding Rate	MAC
SNR-S3850G-24FX	128 Gbps	95 Mpps	16K
SNR-S3850G-24TX	128 Gbps	95 Mpps	16K
SNR-S3850G-48TX	176 Gbps	131 Mpps	16K

L3 features

The S3850G series switches supports IPv4/IPv6 hardware routing. Support for dynamic routing protocols (RIP, OSPF, BGP), multicast packet routing (PIM, MSDP), Policy-Based routing (PBR) and ECMP functionality allows building high performance multiservice L3 networks.

Model	L3 interfaces	Routing Table	PIM Routing Table	ARP Table
SNR-S3850G	1K	13K	1K	4K

Stacking Support

VSF protocol allows stacking several physical S3850G series switches into a single logical device, thereby simplifying configurating and increasing network reliability. Stacking is performed through standard interfaces and does not require the purchase of additional cards.

Resilience

For organizing resilient networks, support for standard protocols STP/RSTP/MSTP as well as ERPS (G.8032) including ERPS + CFM is implemented. Link aggregation functionality using LACP or static aggregation allows combining up to 8 ports into one logical interface, increasing the bandwidth ability and resilience at the data link level.

Multicast management

The S3850G series SNR switches have all the necessary functionality for multicast control. Layer 2 supports IGMP Snooping, MVR, IGMP packet filtering. Layer 3 supports routing of multicast traffic using the PIM-SM, PIM-DM, MSDP protocols. This allows the SNR-S3850G to be used to organize high-quality and secure services using multicast traffic, such as IPTV.

Quality of Service (QoS)

The Support for 8 hardware queues per port allows to create flexible service policies for different types of traffic, thus ensuring high quality of sensitive services under high load conditions. Traffic can be classified by field values in L2-L4 headers, including CoS, DSCP, VLAN ID, IP/MAC addresses, and TCP/UDP ports.

Security

The S3850G series switches provide a wide range of security features for both service providers and enterprise networks. Hardware Access Control Lists (ACLs) can filter traffic by L2-L4 header fields without performance brake. MAC-IP-Port binding functionality helps to protect the network from IP/MAC address spoofing by clients.Support for 802.1x and MAB protocols provides authentication of devices connected to the network.

Model	Multicast Group	Queues per Port	ACL
SNR-S3850G	4K	8	3K

Operational convenience

S3850G series SNR switches work under the control SNR system NOS (Networking Operating System) with the typical syntax CLI and SNMP MIB for all SNR switches. The system supports all the necessary functionality of the Enterprise/ISP level for building modern data networks and has extensive management and monitoring capabilities via CLI, Web and SNMP.

Dimensions and power supply

Switch SNR-S3850G-24FX are equipped with an RPS connector for connecting a backup DC 12 V power supply, and model SNR-S3850G-24FX-UPS have a built-in discharge/charge controller 12 V battery capacity up to 60 Ah. Models S3850G with RJ-45 Downlink have a two built-in AC power supplies 220 V, which reserve each other.

Model	Dimension	Weight (brutto)	Power Consumption	Cooling	Power Supply
SNR-S3850G-24FX	440 x 44 x 240 mm	4,05 kg	60 Watt	Active	100-240 AC, 12V DC
SNR-S3850G-24FX-UPS	440 x 44 x 240 mm	4,09 kg	80 Watt	Active	100-240 AC, 12V DC+ UPS
SNR-S3850G-24FX-DC	440 x 44 x 240 mm	4,05 kg	60 Watt	Active	100-240 AC, 48V DC
SNR-S3850G-24TX	440 x 44 x 320 mm	3,98 kg	30 Watt	Active	100-240 AC, 100-240 AC
SNR-S3850G-48TX	440 x 44 x 320 mm	4,38 kg	50 Watt	Active	100-240 AC, 100-240 AC

Technical Brief:

Switching type
· Store-and-Forward

MAC address table
· 16K entries

Flash memory size
· 32 + 128 Mbytes

Flow Control
· 802.3x Flow Control
· HOL

Jumbo frame
· 10 Kbytes

QinQ
· Port-Based / Selective QinQ

RAM size
· 512 Mbytes

Mac address table features
· Limiting max number MAC addresses on a port, VLAN
· Static MAC addresses
· MAC-notification
· Disabling MAC address learning on a port, VLAN
· Blackhole MAC

Ring Protection
· ERPS ITU-T G.8032
· MRPP
· Fast Link
· ULPP
· ULSM

Stacking
· Stacking via SFP+
· Stack link bandwidth up to 40Gbps
· Up to 8 switches in the stack

Spanning Tree
· 802.1d STP
· 802.1w RSTP
· 802.1s MSTP (32 Instances)
· Root/BPDU Guard
· BPDU Tunnel

Loopback Detection
· Per-port
· Per-port-per-vlan
· Action shutdown/block

Port Aggregation
· LACP 802.3ad / 802.1ax
· Up to 128 groups per switch / Up to 8 ports in group

Redundancy protocols
· VRRP

Traffic Mirroring

- SPAN, RSPAN, ERSPAN, up to 7 groups
- One-to-One / Many-to-One
- Flow-based (ACL)
- Remote VLAN
- Reflector Port

VLAN

- IEEE 802.1Q , 4094 VLAN
- Port-based VLAN
- Private VLAN
- Protocol VLAN
- Voice/MAC VLAN
- Multicast VLAN
- Super VLAN
- VLAN Trunking
- VLAN Translation
- GVRP

Multicast

- 4k IGMP Groups
- IGMP v1/v2/v3 Snooping
- IGMP Fast Leave
- IGMP Snooping Immediately Leave
- Multicast Src/Dst Control
- Limiting the maximum number of subscriptions
- Illegal source detection
- Multicast policy
- Multicast Filter
- IGMP Snooping RADIUS Authentication
- MLD v1/v2 Snooping, MLD Snooping Immediately Leave
- MLD Snooping Querier

Multicast Riuting

- IGMP proxy
- DVMRP
- PIM-DM / PIM-SM / PIM-SSM: 1K routes
- Anycast RP
- MSDP

Routing

- 13K routes
- Static routing
- Policy-Based routing (PBR)
- RIPv1/v2
- OSPFv2
- BGP v4+

Tunneling

- GRE

Routing IPv6

- Static
- IPv6 PBR
- RIPng
- OSPFv3
- BGPv4+

IPv6

- ICMPv6; ND

IPv6 Tunneling

- GRE
- 6to4
- ISATAP

ECMP

- Up to 8 equal routes

Signaling protocols

- BFD

DHCP

- IPv4/IPv6 DHCP Client/Relay
- Option 82, Option 37/38
- IPv4/IPv6 DHCP Snooping/ Server
- DHCP User Control
- Binding table on flash

Security

- SSH v1/v2
- SSL v1/v2/v3
- MAC binding
- MAC filter
- Limiting the number of MAC addresses on a port
- Limiting Broadcast/Multicast/ Unicast packets on a port by Kbps
- Access Management (IP-MAC-Port Binding)
- Port Security
- Port Isolation
- ARP Guard
- ARP Binding
- ARP Limit
- Anti-ARP-Scan
- Dynamic ARP inspection (DAI)
- RA Snooping
- ND Snooping
- SAVI
- CPU protection
- IEEE 802.3az (Energy Efficient Ethernet), CE, RoHS
- CB, cUL, LVD

IPv6

- ICMPv6
- NDP
- SNMP over IPv6
- HTTP over IPv6
- IPv6 ping/traceroute
- IPv6 Telnet IPv6 Syslog
- RFC1981 Path MTU Discovery
- RFC2460 IPv6
- RFC2461, 4861 Neighbor Discovery
- RFC2462, 4862 IPv6 Stateless Address Auto-configuration
- RFC2464 IPv6 Neighbor over Ethernet and definition
- RFC3515, 4291 Addressing Architecture IPv6
- RFC2893, 4213 IPv4/IPv6 Dual-stack
- IPv6 Ready Logo Phase 2

Logging

- RAM logging
- Flash logging
- Logging to Syslog server
- Configuring the logging level
- Logging executed command

QoS

- 8 queues per port
- Strict Priority, WDRR, Strict+WDRR
- Bandwidth Control
- Flow Redirect
- Traffic classification per port, ACL (L2-L4), VLAN ID, CoS, ToS, DSCP, IPv6 Flow Label
- Per port / VLAN policing
- Remarking DSCP, CoS/802.1p, Precedence, ToS

Management and monitoring

- RADIUS, TACACS+
- 802.1x (host/port based access control, Dynamic VLAN, Guest VLAN, Auto VLAN)
- MAC Authentication Bypass
- Up to 15 levels of user privileges
- Passing privilege levels via RADIUS/TACACS+
- Xmodem/TFTP/FTP, CLI, Telnet, Console
- Web/SSL, SSH (IPv4/IPv6)
- SNMP v1/v2c/v3, SNMP Traps, Public & Private MIB interface
- RMON 1,2,3,9
- Bootp/DHCP Client
- Autoprovisioning
- SNTP/NTP (IPv4/IPv6)
- PPPoE Intermediate agent
- Debug commands
- Password recovery
- Password encryption
- Backup and restore settings
- Ping, Traceroute
- Syslog (IPv4/IPv6)
- Dual IMG, Multiple
- Configuration Files
- Port/CPU Mirror, RSPAN, ERSPAN
- OAM, Dying GASP, VCT, DDM
- Multiple IP Interface
- ULDP (like Cisco UDLD), LLDP/LLDP MED
- Management of indication
- Virtual Cabel Test (VCT)

ACL

- 3K ACL
- Per port / VLAN
- Filtering based on: switch port, VLAN ID, 802.1p priority, MAC address, EtherType, IPv4 / IPv6 address, IPv6 traffic class, IPv6 flow label, ToS, DSCP, protocol type, TCP / UDP port number, CPU Interface Filtering
- Time Range ACL
- Userdefined ACL
- ACL statistics

USB Support

- USB 2.0 - port

Humidite

- 5%-95%, no condensation

Operating temperature

- 0C ~ 50C

Storage temperature

- -40C ~ 70C

Surge protection

- Up to 4 kV

MBTF

- >800000 hours

Power consumption

- 30 watt (SNR-S3850G-24TX)
- 50 watt (SNR-S3850G-48TX)
- 60 watt (SNR-S3850G-24FX (-DC))
- 80 watt (SNR-S3850G-24FX-UPS)

Ordering information

Model	Description
SNR-S3850G-24FX	L3 Managed switch, 8 combo ports 10/100/1000Base-T | 100/1000Base-X SFP, 16 ports 100/1000Base-X SFP, 4 ports 1/10GE SFP+. Power 100-240 AC, 12V DC RPS.
SNR-S3850G-24FX-UPS	L3 Managed switch, 8 combo ports 10/100/1000Base-T | 100/1000Base-X SFP, 16 ports 100/1000Base-X SFP, 4 ports 1/10GE SFP+. Power 100-240 AC, 12V battery connector
SNR-S3850G-24FX-DC	L3 Managed switch, 8 combo ports 10/100/1000Base-T | 100/1000Base-X SFP, 16 ports 100/1000Base-X SFP, 4 ports 1/10GE SFP+. Power 100-240 AC, 48V DC
SNR-S3850G-24TX	L3 Managed switch, 4 combo ports 10/100/1000Base-T | 100/1000Base-X SFP, 20 ports 10/100/1000Base-T, 4 ports 1/10GE SFP+. Power 100-240 AC + 100-240 AC
SNR-S3850G-48TX	L3 Managed switch, 48 ports 10/100/1000Base-T, 4 ports 1/10GE SFP+. Power 100-240 AC + 100-240 AC

Website	SNR switch community on forum.nag.ru	NAG technical support portal	Firmware and Documentation