# REV-S2988G Series

L2 Managed Switches
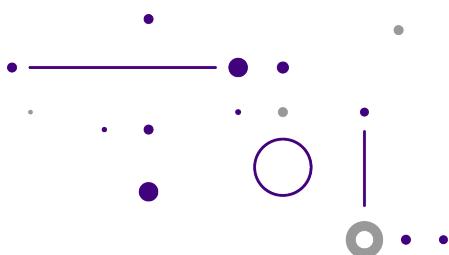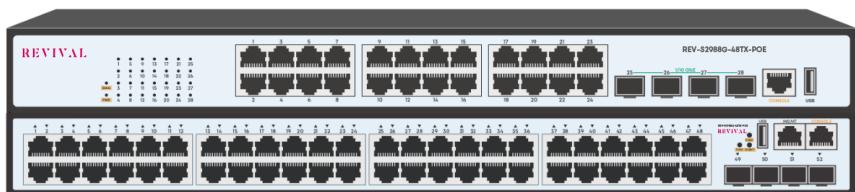
The S2988G series is a new generation of L2 access layer REV switches with 1/10GE SFP+ Uplink-ports. Port capacity and functionality of S2988G series switches provides the ability to build Gigabit access level in enterprise networks and internet service providers networks.

Main features:

- 1/10GE SFP+ Uplink ports
- VSF HA stacking support
- Built-in surge protection on all copper ports
- The availability of models with redundant power supply (RPS/UPS)
- USB-port for connecting external drives
- Cisco-like CLI and standard REV Private MIB
- Support for L2 redundancy protocols STP/RSTP/MSTP/ ERPS(+CFM)/MRPP
- QinQ Port-based/Selective support
- IPv6/Dualstack IPv4/IPv6 support

Switch Models

The series switches are equipped with 1/10GE SFP + Uplink ports and 10/100/1000Base-T Downlink ports. This allows the S2988G series to be used for building «fair» gigabit access where the Uplink port bandwidth cannot be fully occupied by a single user with a gigabit, tariff.

Model	10/100/1000Base-T	1/10GE SFP+
REV-S2988G-48TX-POE	48	4

High performance

S2988G series switches are built with modern chipsets and have a non-blocking switching matrix that allows all switch ports to operate simultaneously at full speed, guaranteeing high performance and minimal network latency.

Model	Switching Capacity	Forwarding Rate	MAC
REV-S2988G-48TX-POE	176 Gbps	131 Mpps	16K

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

Due to equipping each RJ-45 port with surge protection, the switch components are protected from damage when high voltage applied to the port.

Multicast management

Switches of the series have all the necessary functionality for multicast management on Layer 2: IGMP Snooping, MVR, IGMP packet filtering, and multicast, traffic filtering. This allows arranging an efficient transporting of multicast-based services, such as IPTV.

Quality of Service (QoS)

Support for 8 hardware queues per port allows creating 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.

Model	Multicast Group	Queues per Port	ACL
REV-S2988G (all series)	4096	8	512

Operational convenience

S2988G series REV switches work under the control REV system NOS (Networking Operating System) with the typical syntax CLI and SNMP MIB for all REV 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.

Security

The S2988G 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 ields 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.

Stacking Support

VSF protocol allows stacking multiple physical REV S2988G switches into a single logical device, thereby simplifying configuration and increasing network reliability. Stacking is performed through standard 10GE ports and does not require the purchase of additional cards.

PoE+ support

The REV-S2988G series switches support PoE 802.3af и PoE+ 802.3at standards with a smart capacity management. The PoE technology reduces cost of ownership and makes network maintenance easier. It allows to supply with power directly from switch different types of equipment such as WiFi hotspots, IP/Video phones, thin clients and others.

Model	Number of PoE ports	Total PoE capacity
REV-S2988G-48TX-POE	48	740 Watt

Dimensions and power supply

Model	Dimension	Power Consumption	Cooling	Power Supply
REV-S2988G-48TX-POE	440 x 44 x 320 mm	790 Watt	Active	100-240AC

Technical Brief:

Switching type
· Store-and-Forward

MAC address table
· 16K entries

Flow Control
· 802.3x Flow Control
· HOL

Jumbo frame
· 10 Kbytes

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

Flash memory size
· 64 Mbytes

RAM size
256 Mbytes

QinQ
· Port-Based / Selective QinQ

Ring Protection
· ERPS ITU-T G.8032
· ERPS + CFM
· MRPP
· Fast Link

Technical Characteristics:

Spanning Tree
- 802.1D STP/802.1W RSTP
- 802.1S MSTP (32 Instances)
- Root/BPDU Guard
- BPDU Tunnel

Loopback Detection
- Per-port/Per-MSTI
- Action shutdown/block

Port Aggregation
- LACP 802.3ad / 802.1ax
- Up to 64 groups per switch / up to 8 ports in group

Traffic Mirroring
- SPAN, RSPAN, ERSPAN
- 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
- VLAN Trunking
- VLAN Translation
- GVRP

Multicast
- 4096 IGMP groups
- IGMP v1/v2/v3 snooping
- IGMP Fast leave
- IGMP Snooping Immediately Leave
- IGMP Snooping Querier
- Multicast VLAN Registration
- 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

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; ND

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

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

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)
- SNMPv1/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

- 512 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

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 IP Version 6 Addressing Architecture
- RFC2893, 4213 IPv4/IPv6 Dual- stack
- IPv6 Ready Logo Phase 2

Stacking

- Stacking via SFP+
- Stack link bandwidth up to 40Gbps
- Up to 4 switches in a stack

Logging

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

USB Support

- USB 2.0 port

Cooling system

- Passive on 24-port models, active on 48-port models

Humidity

- 5%-95%, no condensation

Operating temperature

- 0C ~ 50C

Storage temperature

- -40C ~ 70C

Surge protection

- Up to 4 kV

MBTF

- >800000 hours

REVIVAL

Ordering information

Model	Description
REV-S2988G-48TX-POE	L2 Managed Switch, 48 ports 100/1000Base-T RJ-45, 4 ports 1/10GE SFP+. Power: 100-240AC. POE 740W

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