May 2025 Getting Started with the Latest S12 Firmware

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To meet growing demands for network security, compliance, and performance in industrial environments, ORing is officially launching new firmware versions S12 for the 9000-series product line. These updates are designed to align with the latest global cybersecurity regulations, including IEC-62443, and to support customers in building more secure, manageable, and resilient network infrastructures. The S12 firmware, in particular, offers enhanced cybersecurity protection, advanced access control, and greater flexibility for system integration, helping organizations prepare for the next generation of industrial network challenges.

1. Supported Models and Update Policy

Applicable Models:

All ORing 9000-series models are now equipped with S12 firmware except for Linux platform models.

For Standard 9000-series Products:

- The K1 and K9 firmware versions will reach end of support on December 31, 2025. After this date, no technical support or service will be available for these versions.
- From April 1, 2025, all production and shipment of 9000-series products will be preloaded with S12 firmware.
- If your application still requires K12 or earlier firmware, please contact us for a customized solution.

For Customized 9000-series Products:

- Existing projects may continue using their original firmware versions.
- New customized projects will default to K12, unless another version is explicitly specified.

Below is a list of S12-ready models available as of May 2025.				
All 9000-series products launched after this date will be shipped with preloaded S12 firmware.				
IGS-C9042GP	IGS-9168GP	TGS-9120-M12-BP2	RGS-P9160GCM1	
IGS-C9082GP	IGS-P9164GC	TGS-9200-M12-BP2	RGS-9168GCP	
IGS-9080-LA-PN	IGS-R9812GP	TGS-W9160-M12X-BP2	RGS-9168GCP-E	
IGS-9122GP-PN	IGS-RX164GP+	TPS-W9124GT-M12X-BP2	RGS-92222GCP-NP	
IGS-9168GP-PN	IGPS-9084GP	TGPS-9168GT-M12-BP2	RGS-9244GP	
IGS-9042GP-LA-PN	IGPS-9084GP-LA	TGPS-9164GT-M12X-BP2	RGS-9244GP-E	
IGS-9084GP	IGPS-9822DGP+	TGPS-W9082GF	RGS-R9244GP+-E	
IGS-9084GP-LA	IGPS-9842GTP	TGPS-9084GT-M12X-BP2	RGS-PR9000	
IGS-9084GP-FB2	IGPS-R9084GP	TRGPS-9084GT-M12X-BP2	RGS-R9244GP+	
IGS-9122GP	IGPS-RX884GTP+	TRGPS-9084TG-M12X-BP2	RGPS-92222GCP-NP	
IGS-9812GP	CPGS-9080-C	TGPS-W9124GT-M12X-BP2	RGPS-9244GP	
IGS-9822DGP+	CPGS-9120-M12-C	TGPS-9080-M12A	RGPS-R9244GP+	
IGS-P9164FX	CPGS-9160-M12-C	RES-9242GC		



IGS-P9164GF	CPGS-9120-C	RES-P9242GCL	
IGS-P9812GP	TES-W9124GT-M12X- BP2	RGS-P9000	

2. Upgrade Considerations and Limitations

When upgrading from K9 to K12 or S12, please be aware of the following:

• Configuration Restore Requirement

Due to differences in setting structures, users must upload the XML config file when upgrading. Most configuration settings can be restored automatically, except:

- o QoS
- o PTP
- o TTDP
- o GVRP

• Commander Compatibility

The new S12 firmware does not support Commander 4.0 due to its transition to a secure HTTPS control method in compliance with IEC-62443. A new Commander version compatible with S12 is expected in 2025 Q3.

3. Specification Comparison

Below is a summary of functional differences between K9, K12, and S12.

Feature	К9	K12/S12 Enhancements
		Supports authentication method
Authentication	Basic method	configuration, command authorization, and
		accounting
User Privilege	Not supported	Supports multiple user privilege levels
IP Setting UI	Basic interface	Enhanced and restructured interface
HTTPS	Basic	Supports advanced parameters
LLDP	Basic	Supports advanced configuration options
Configuration Backup	XML format only	Supports CLI and XML backups
DHCP Server Settings	Basic configuration	Enhanced configuration interface
Port Trunking	Basic	Advanced settings supported
VLAN Configuration	Basic UI	Enhanced interface and VLAN capabilities
IGMP Snooping	Basic implementation	Supports advanced control parameters
Access Management	Basic UI	Enhanced user control and access logic
Port Security	Not supported	Fully supported in K12/S12
Port Mirror	Basic capabilities	Advanced configuration available
Traffic Monitor	Supported	Not supported in K12/S12



For more details, please refer to the table at the end of the document.

4. Security and Cybersecurity Enhancements in S12

S12 introduces advanced features aligned with global cybersecurity standards:

• 802.1x + Device Binding

The system will check the conditions of 802.1x and device binding at the same time. Only users who meet both conditions can perform normal data transmission, providing users with a higher security option that complies with "Zero Trust Network Access" (ZTNA) usage scenarios.

• Password Policy Enforcement

By implementing a configurable password strength policy, organizations can balance security and usability, ensuring stronger protection against cyber threats while maintaining user convenience.

• No Default Password

Users are prompted to create a secure password upon initial login via web or CLI.

• Group-based User Privilege

Role-based account management helps organizations enhance security, improve efficiency, and ensure compliance while making user management easier.

• Account Lockout

Automatically locks accounts after multiple failed login attempts to enhance security by preventing brute-force attacks and unauthorized access

• Audit Logging

Detailed logs help administrators track changes, detect security threats, and ensure compliance with regulations.

• Auto Logout Configuration

Enhance security by automatically logging out inactive users, reducing the risk of unauthorized access.

We strongly encourage all users to begin migrating to the new firmware platform as early as possible. For any assistance during your upgrade or to request customized solutions, please contact ORing technical support.



5. K9, K12, and S12 Function Comparison

	Features	К9	K12	S12
Network	O-Ring	~	✓	✓
	O-Chain	✓	✓	✓
	MRP	✓	✓	✓
Reduituality	MSTP (RSTP/STP)	✓	✓	✓
	G.8032 ERPS	✓	✓	✓
	Port Configuration	~	✓	\checkmark
	Flow Control (802.3x)	✓	✓	✓
Dout Control	Port Trunking/ LACP	✓	✓	✓
/ Monitor	Loop Protection	✓	✓	✓
	DDM	✓	✓	✓
	Cable Diagnostic	~	✓	\checkmark
	CPU Load		✓	✓
	Multiple User Privilege		✓	✓
	НТТРЅ	~	✓	✓
	SSH	~	✓	✓
	DBU-01	~	✓	✓
Management	LLDP (802.1AB)	~	✓	✓
	UPnP	~	✓	✓
	SNMP v1/v2c/v3	~	✓	✓
	RMON	✓	✓	~
	Dual Image	✓	✓	\checkmark
	TOS/Diffserv	✓	~	\checkmark
0.55	CoS (802.1p)	✓	✓	\checkmark
QUS	Application-based QoS	✓	✓	~
	Port Storm Control	✓	✓	~
	Port-based VLAN	✓	✓	~
	802.1Q Tag VLAN	✓	✓	~
VLAN	Q-in-Q VLAN	~	✓	\checkmark
	GVRP	~	✓	✓
	Private VLAN	~	✓	✓
Multicast	IGMP v2/v3 Snooping	✓	✓	\checkmark
DUCD	DHCP Client/Server	~	✓	\checkmark
DHCP	DHCP Relay	✓	✓	\checkmark



	Features	К9	K12	S12
DHCP	DHCP Option82	\checkmark	\checkmark	\checkmark
	DHCP Snooping	✓	✓	✓
	DHCP Port and IP Binding	\checkmark	\checkmark	\checkmark
Time Protocol	NTP (Client/Server)	~	\checkmark	\checkmark
	IEEE 1588 PTP	~	\checkmark	\checkmark
	Modbus TCP	\checkmark	\checkmark	\checkmark
	EtherNet/IP	~	\checkmark	\checkmark
	PROFINET (PN model)		\checkmark	\checkmark
	MMS (IEC-61850 Substation model)		\checkmark	\checkmark
Railway Protocol	O-TTDP (EN50155 Railway model)	\checkmark	~	~
	Static Routing (L3 model)		\checkmark	\checkmark
Layer 3	RIP v1/v2 (L3 model)		\checkmark	\checkmark
	VRRP (L3 model)		\checkmark	\checkmark
	Device Binding	\checkmark	\checkmark	\checkmark
	DoS/DDoS Auto Prevention	\checkmark	\checkmark	\checkmark
	IP Source Guard	\checkmark	\checkmark	\checkmark
	ACL	\checkmark	\checkmark	\checkmark
Network Security	AAA-TACACS+	\checkmark	\checkmark	\checkmark
	AAA-RADIUS	\checkmark	✓	✓
	802.1X	~	✓	✓
	MAC-based Authentication	\checkmark	✓	✓
	Port Security Limit Control	~	✓	✓
	802.1x + Device Binding			✓
	UK PSTI			✓
	IEC-62443 Certification			✓
Cybersecurity	Password Policy Configuration			✓
	Group Privilege Level			✓
	Account Lockout			\checkmark
	Audit Log			✓
	Auto Logout Configuration			✓

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