

5-Port Gigabit EtherNet/IP DLR Tap

ETAP-G5-DLR

User Manual

V 1.3



SST Automation

E-mail: support@sstautomation.com

www.SSTAutomation.com

Important Information

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Technical Support

Website: www.sstautomation.com

Email: support@sstautomation.com

Safety Information

The following safety information must be read before installing, wiring, commissioning, or maintaining the device.

DANGER - Electrical Hazard

Disconnect the power supply before wiring, rewiring, or removing the device from the DIN rail.

Do not touch exposed terminals while power is applied.

Do not use the device if the enclosure, terminals, or cables are damaged.

WARNING - General Safety

Only qualified personnel familiar with industrial Ethernet, EtherNet/IP, Modbus TCP, SNMP, and electrical safety practices may install and configure this device.

Read the entire manual before use. Incorrect wiring or configuration may cause communication failure or equipment damage.

Do not use this product in applications where failure may directly cause personal injury, life-support failure, or major environmental damage unless an independent safety system is provided.

CAUTION - Electrical Safety

Use a regulated 24 V DC power supply. The allowed input range is 9-30 V DC.

Observe correct polarity: connect GN to power ground and 24V+ to the positive DC input. Pin 2 is NC and must not be used as a power terminal.

Do not exceed the specified input voltage or current rating.

Use surge protection in lightning-prone or high-interference environments.

CAUTION - Installation Safety

Install the device on a standard 35 mm DIN rail in a dry, ventilated control cabinet.

Operating temperature: -20 °C to 60 °C. Relative humidity: 5%-95%, non-condensing.

The enclosure protection level is IP20. Protect the device from water, dust accumulation, conductive particles, and corrosive gases.

Do not apply heavy pressure to the enclosure or subject the device to mechanical shock.

CAUTION - Operation Safety

Do not frequently hot-plug the power terminal during normal operation.

Before changing DLR supervisor settings, understand the existing network topology to avoid ring interruption or

unintended supervisor conflict.

After changing IP, DLR, SNMP, Modbus TCP, or EtherNet/IP parameters, reboot the device if the Web page indicates that a restart is required.

CAUTION - Electrostatic Discharge (ESD)

Touch grounded metal before handling the device or wiring terminals.

Handle the device by its enclosure. Avoid touching internal contacts or connector pins.

NOTICE - Prohibited Actions

Action	Risk
Disassembling the enclosure	May damage the device and void warranty.
Using an incorrect voltage	May cause permanent hardware damage.
Connecting power to the NC terminal	May cause malfunction or wiring fault.
Operating in a wet environment	May cause short circuit or corrosion.
Changing DLR parameters without network planning	May cause ring interruption or supervisor conflict.

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1 Product Overview

1.1 Product Functions

The ETAP-G5-DLR is a smart industrial Ethernet tap featuring five Gigabit Ethernet ports. It supports the Device Level Ring (DLR) redundancy protocol and can operate as either a DLR ring supervisor or a DLR ring node. The device also supports SNMP network management, EtherNet/IP, and Modbus TCP.

1.2 Product Features

Supports the DLR ring network redundancy protocol and can operate as a ring supervisor or ring node.

Allows non-DLR field devices to be connected to an active DLR ring network.

Supports SNMP v1/v2c/v3 for network monitoring, configuration, and diagnostics.

Supports EtherNet/IP and Modbus TCP for industrial network monitoring and data integration.

Provides a built-in Web server for browser-based configuration.

Supports advanced multicast filtering and IGMP configuration for EtherNet/IP multicast traffic.

1.3 Application Scenarios

Scenario	Description
DLR ring extension	Connects DLR-capable devices in a redundant ring topology.
Standard Ethernet Device Integration	Allows standard Ethernet devices to access a DLR network through the tap, without changing the existing network topology.
Industrial monitoring	Provides SNMP, Modbus TCP, and EtherNet/IP access for monitoring and diagnostics.
Control cabinet networking	Provides five Gigabit copper ports in a compact DIN-rail form factor.

1.4 Key Specifications

The following table summarizes the key technical specifications. For complete details, refer to [Appendix A](#). The *Specification* column below indicates the relevant section in Appendix A.

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Item	Specification
Ethernet Ports	5× 10/100/1000 Mbps RJ45 (Gigabit) — See Appendix A
DLR Protocol	Device Level Ring supervisor/node, recovery time < 3 ms — See Appendix A
SNMP	v1/v2c/v3 with Trap/Inform — See Appendix A
Industrial Protocols	Modbus TCP, EtherNet/IP — See Appendix A and Sections 6.2, 6.3
Power Input	24 V DC (9–30 V DC) — See Appendix A
Operating Temperature	–20°C to 60°C — See Appendix A
Dimensions (W×H×D)	30 mm × 128 mm × 88 mm — See Appendix A
Installation	35 mm DIN-rail, IP20 — See Appendix A

2 Hardware Description

2.1 Product Appearance

Product layout drawings are for reference only. Refer to the physical product for exact details.



Figure 2-1 Product appearance and port layout.

2.2 LED Indicators

Indicator	Status	Description
NET	Steady green	Network initialization is complete and the device is operating normally.
	Flashing red	Network initialization is in progress, or the device is obtaining an IP address via DHCP.
	Steady orange	Firmware update mode is active.
RUN	Steady green	The module has started successfully.
	Off	The module is unpowered or failed to start.
NET & RUN	Flashing red at 1 Hz	The device is restoring factory defaults through the button.
	Steady red	Hardware detection test mode.

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DLR	Steady green	The DLR ring network is operating normally.
	Flashing green	A DLR ring fault has been detected.
	Off	DLR ring function is not enabled.

2.3 Button

The button is located on the underside of the product. It is recessed and can be pressed using a pin, stylus, or similar tool.

2.3.1 Restore Factory Settings

1. Wait until the device completes its power-on sequence. The NET indicator is steady green.
2. Within 10 seconds, press and hold the button for 5 seconds.
3. When the NET and RUN indicators flash red, release the button.
4. Wait until the reset process finishes. When the NET indicator returns to steady green and RUN turns off, the reset is complete.
5. After factory reset, the IP address is restored to the default value: 192.168.1.10.

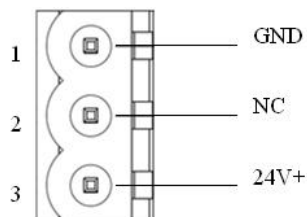
2.3.2 Bootloader / Backup Firmware Update Mode

Press and hold the button before powering on the device. Keep holding the button until the NET indicator turns orange, and then release the button to enter the B-process update mode.

2.4 Interfaces

2.4.1 Power Interface

Item	Specification
Supply voltage	24 V DC, allowed range: 9-30 V DC
Power input	One set of power input terminals
Connector	3-pin 5.08 mm closed terminal block



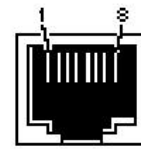
Pin	Signal	Function
1	GN	Power ground
2	NC	No connection
3	24V+	Positive 24 V DC input

Figure 2-2 Power terminal pin assignment.

2.4.2 Ethernet Interface

The Ethernet interfaces use standard RJ45 sockets and support 10/100/1000 Mbps adaptive Ethernet communication. The ports support full-duplex and half-duplex operation.

Pin	Signal Descriptions
S1	TXD+, Transmit Data+
S2	TXD-, Transmit Data-
S3	RXD+, Receive Data+
S4	Bi-directional Data+
S5	Bi-directional Data-
S6	RXD-, Receive Data-
S7	Bi-directional Data+
S8	Bi-directional Data-



RJ-45 port

Figure 2-3 RJ45 Ethernet interface.

3 Installation and Wiring

3.1 Mechanical Dimensions

Item	Specification
Width	1.18 in (30 mm)
Height	5.04 in (128 mm)
Depth	3.46 in (88 mm)
Installation	Standard 1.38 in (35 mm) DIN-rail mounting
Protection level	IP20

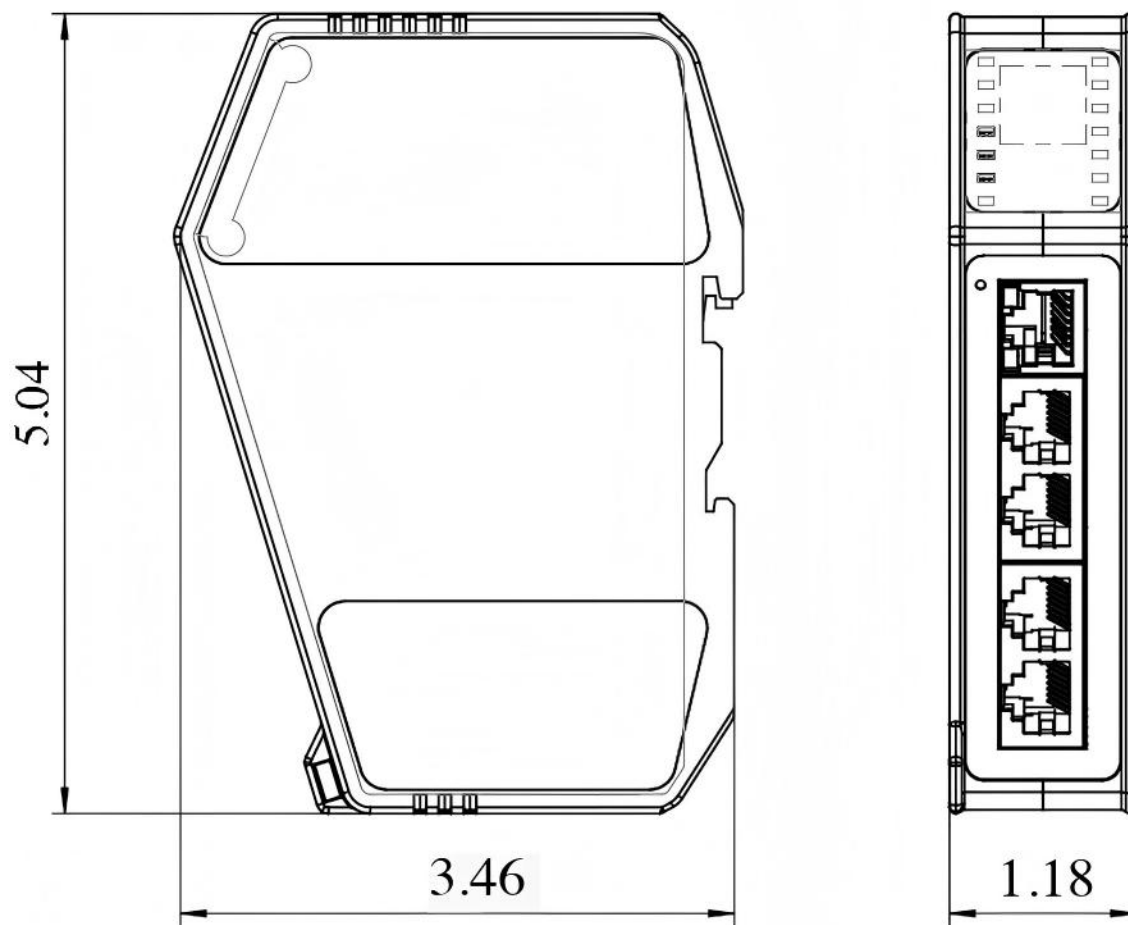


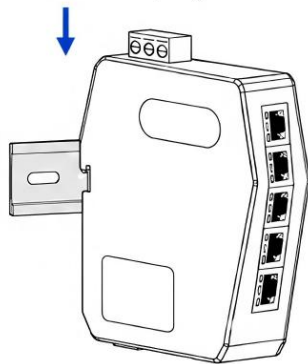
Figure 3-1 Mechanical dimensions.

3.2 Installation Method

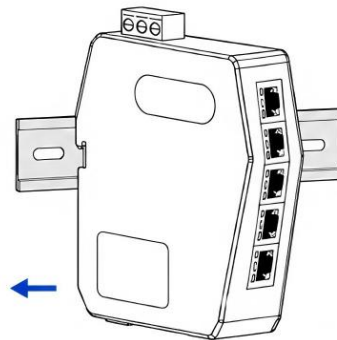
1. Confirm that the DIN rail is firmly installed in the control cabinet.
2. Hook the upper side of the device onto the DIN rail.
3. Press the lower side of the device toward the rail until it is locked in place.
4. Verify that the device is firmly mounted and does not move excessively.

Install

- 1** Hook the top of the device onto the top edge of the DIN rail.

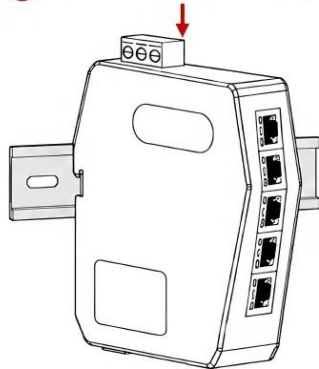


- 2** Push the bottom of the device toward the DIN rail.



Uninstall

- 1** Press the device down slightly.



- 2** Pull the bottom of the device away from the DIN rail.

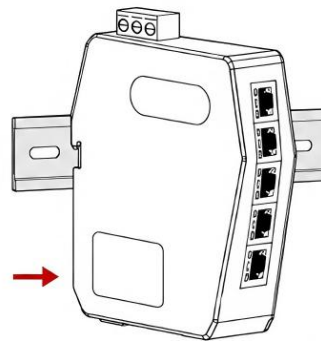


Figure 3-2 Installation and removal method.

3.3 Wiring Requirements

- Use a regulated 24 V DC industrial power supply.
- Verify terminal polarity before applying power.
- Use suitable industrial Ethernet cables for the RJ45 ports.
- Route power cables and Ethernet cables separately from high-voltage or high-current wiring where possible.

TIA-568 Cabling Limit: Per ANSI/TIA-568 structured cabling standards, the maximum horizontal copper cable length for Category 5e, 6, and 6a Ethernet is 100 meters (328 feet) between active devices, including patch cords. Exceeding this limit may cause signal degradation, increased error rates, or link failure. For installations requiring longer distances, consider fiber-optic media converters or intermediate switches.

3.4 Power Cycling Notice

After a complete power cut, wait at least 2 seconds before reapplying power to the device.

4 Quick Start

4.1 Initial Web Login

1. Connect the PC and the device to the same Ethernet network.
2. Set the PC to the same subnet as the default IP address if necessary.
3. Open Web Browser and enter the default IP address: 192.168.1.10.
4. Log in with the default username **admin** and default password **admin**.
5. Change the password after the first login according to site security requirements.

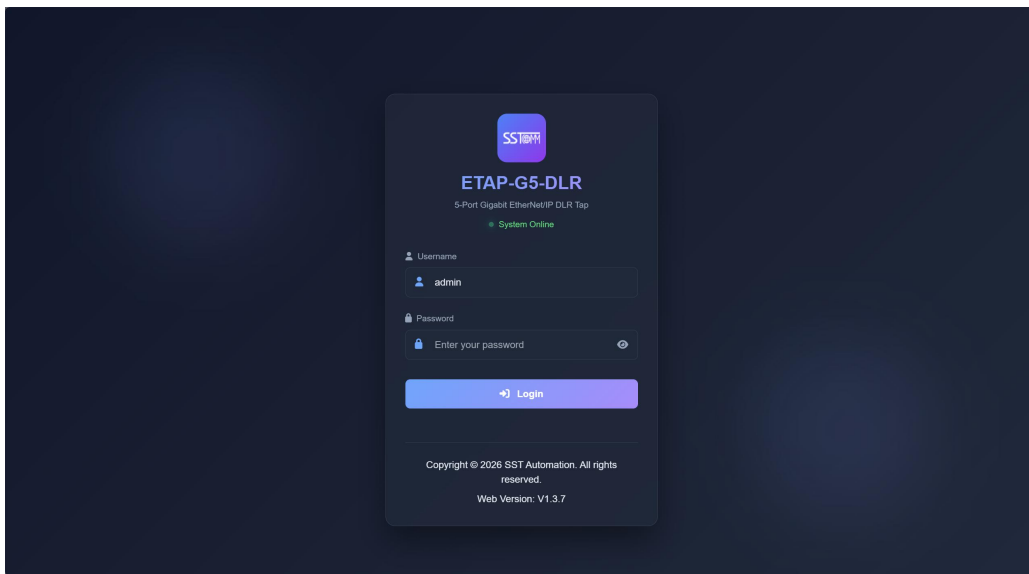


Figure 4-1 Initial Web login page.

4.2 Basic IP Configuration

1. Open Basic Settings > IP Address.
2. Enter the required device name and network parameters.
3. Click OK to save the configuration.
4. Reboot the device when prompted or when required by the configuration change.

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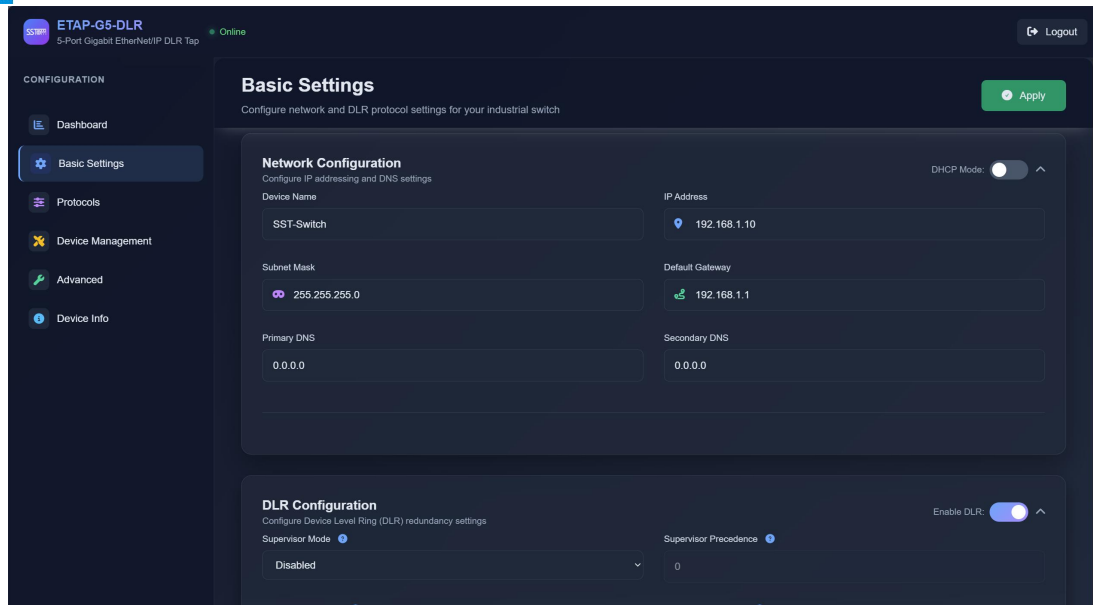


Figure 4-2 IP address configuration page.

4.3 Basic DLR Configuration

1. Open Basic Settings > DLR Settings.
2. Enable Ring Supervisor only when this device is intended to operate as a supervisor.
3. Set the beacon interval, timeout, priority, and VLAN ID according to the network design.
4. Save the configuration and reboot the device if required.

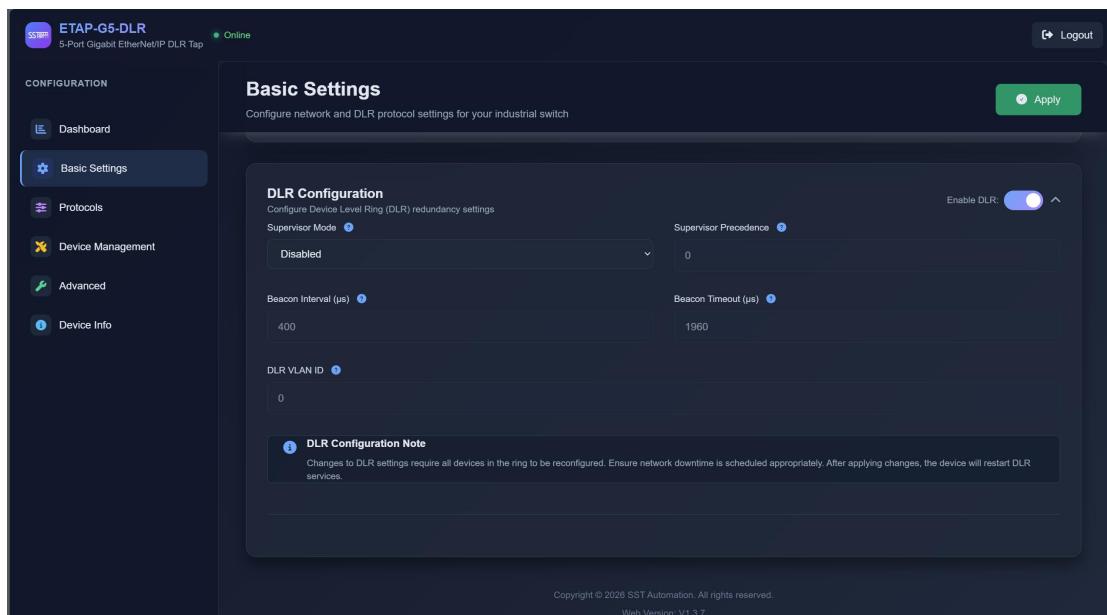


Figure 4-3 DLR configuration page.

5 Web Configuration

This device is configured through a Web browser. The Web interface includes the Login Interface and the Configuration Interface.

Item	Default / Recommendation
Default login IP	192.168.1.10
Default username	admin
Default password	admin
Recommended browser	Google Chrome / Microsoft Edge

5.1 Login Interface

Element	Description
Username and password fields	Enter credentials and click Login to access the main interface.
Remember password checkbox	When enabled, the browser saves the credentials for future login. Use this only on trusted computers.
Show password toggle	Switches between masked and plain-text display for the password field.
Language selector	Selects the preferred Web interface language.

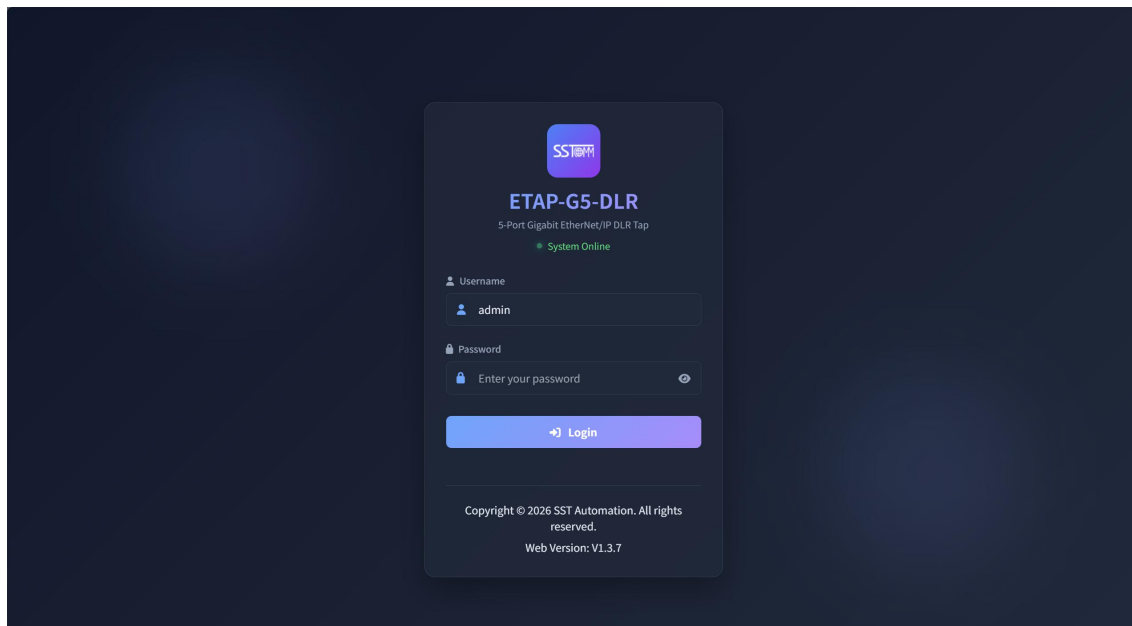


Figure 5-1 Login interface.

5.2 Configuration Interface

Area	Description
Primary menu	Provides access to Status Information, Basic Settings, Parameter Configuration, System Tools, Advanced Configuration, and About Device.
Secondary menu	Provides detailed pages under each primary menu.
Functional area	Displays parameters, status information, and action buttons.

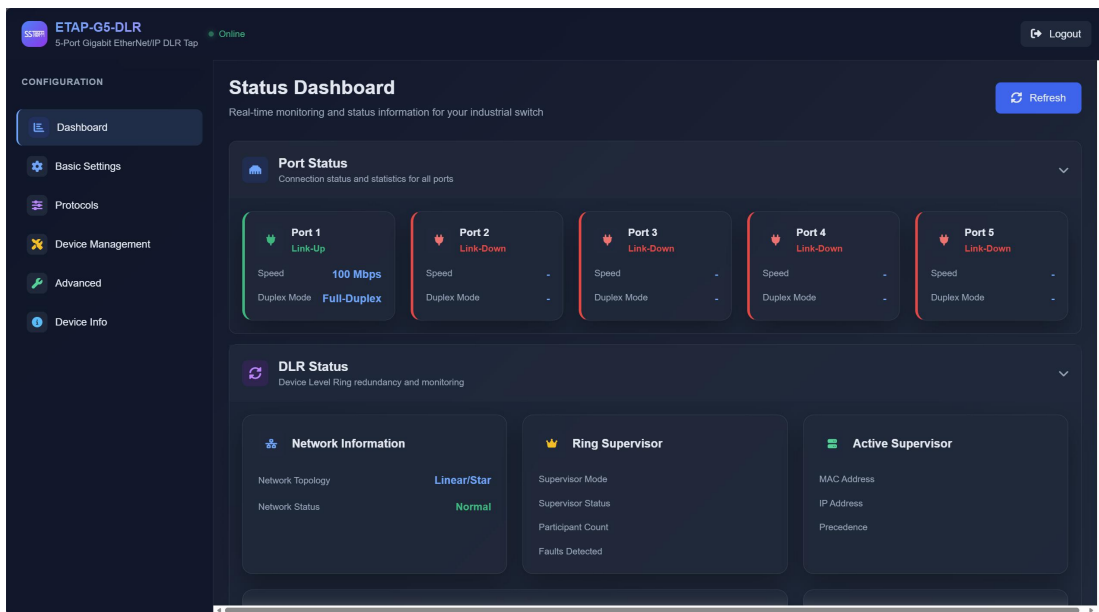


Figure 5-2 Configuration interface.

5.3 Status Information - Port Status

Parameter	Description
Connection Status	Displays Connected or Disconnected.
Speed	Displays 1000 Mbps, 100 Mbps, or 10 Mbps.
Duplex Mode	Displays Full Duplex or Half Duplex.

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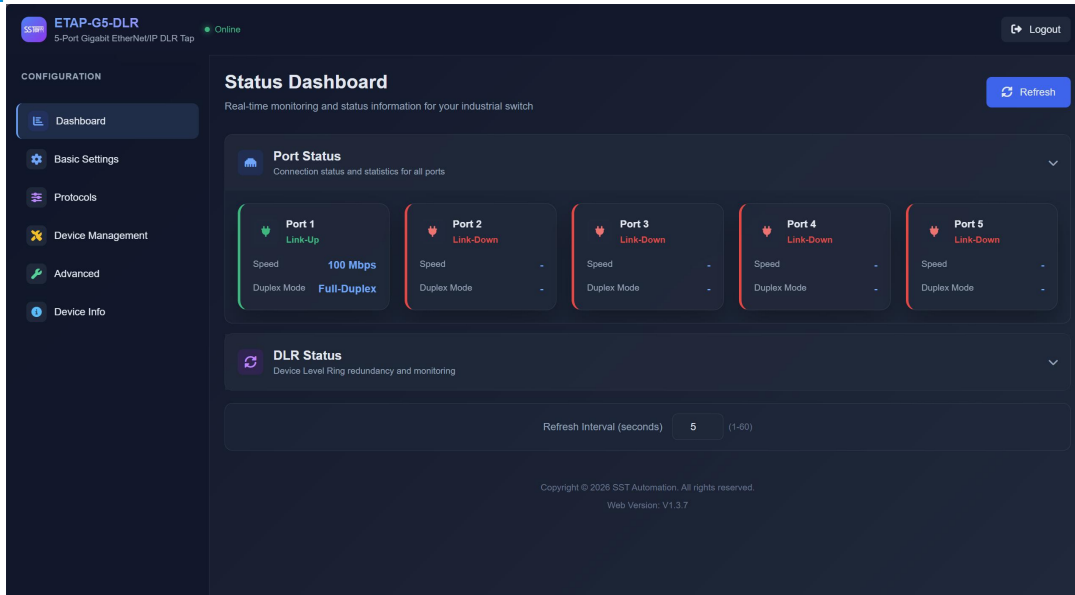


Figure 5-3 Port status page.

5.4 Status Information - DLR Status

Parameter	Description
Network Topology	Displays the current DLR topology, such as Linear/Star or Ring.
Network Status	Displays Normal or Error.
Last Node in Interface 1	When a ring error occurs, displays the last responsive IP and MAC address adjacent to Port 1.
Last Node in Interface 2	When a ring error occurs, displays the last responsive IP and MAC address adjacent to Port 2.
Beacon Interval (us)	Frequency at which the active supervisor transmits beacon packets.
Beacon Timeout (us)	Duration a ring node waits for a beacon before detecting beacon loss.
Priority	Supervisor priority used for active/backup supervisor election. Default: 0.
VLAN ID	VLAN tag assigned to outbound DLR protocol frames.
Ring Supervisor Mode	Displays Enabled or Disabled.
Ring Supervisor Status	Displays Active or Backup.
Number of Ring Nodes	Total number of active nodes in the DLR ring, including the supervisor.
Ring Error Count	Total number of ring fault events detected by the device.

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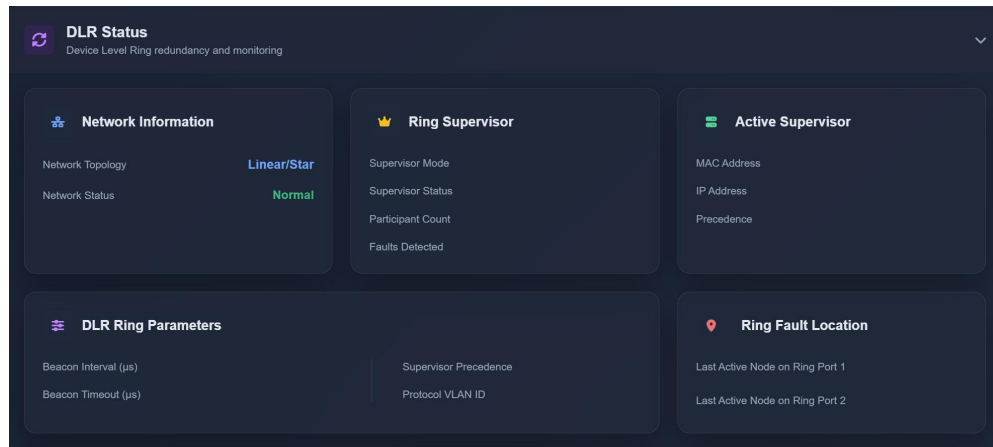


Figure 5-4 DLR status page.

5.5 Basic Settings - IP Address

This page configures the device name and network addresses. Click OK to save the configuration. The new configuration takes effect after the device is restarted. Click Cancel to discard unsaved changes and reload current settings.

- Device Name may contain letters, numbers, periods, hyphens, or underscores, with a maximum length of 31 characters.
- After a complete power cut, wait at least 2 seconds before reapplying power.

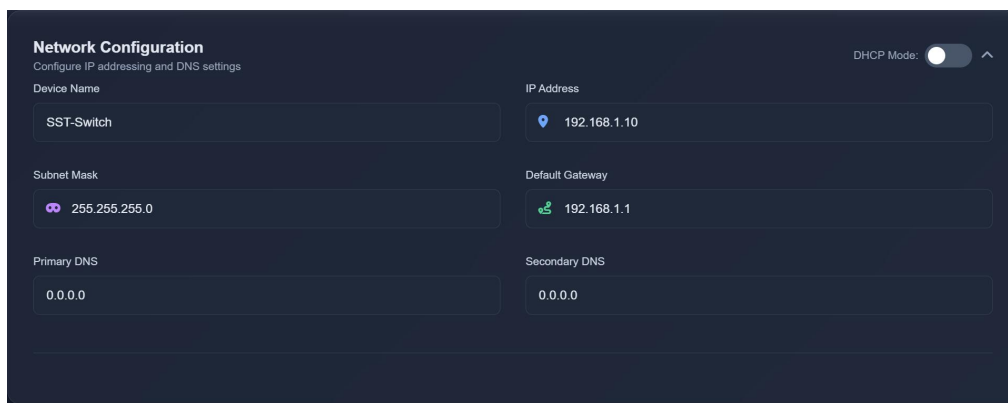


Figure 5-5 IP address settings page.

5.6 Basic Settings - DLR Settings

Parameter	Description
Ring Supervisor	Enables or disables supervisor mode. When disabled, the device operates as a ring node.
Ring Supervisor Priority Function	Allows the supervisor to compare priority with other supervisors and switch to Backup if a higher-priority supervisor is active.
Beacon Interval	Sets the beacon transmit interval when the device is the active supervisor.
Beacon Timeout	Sets the beacon timeout period.
Beacon VLAN ID	Specifies the VLAN ID used for supervisor-generated beacon frames.

DLR Configuration

Configure Device Level Ring (DLR) redundancy settings

Enable DLR: ☒

Supervisor Mode

Disabled

Supervisor Precedence

0

Beacon Interval (μs)

400

Beacon Timeout (μs)

1960

DLR VLAN ID

0

DLR Configuration Note

Changes to DLR settings require all devices in the ring to be reconfigured. Ensure network downtime is scheduled appropriately. After applying changes, the device will restart DLR services.

Figure 5-6 DLR settings page.

6 Protocol Configuration

6.1 SNMP

The SNMP page configures Simple Network Management Protocol parameters. Click OK to save changes, or click Cancel to reload current parameters. Changes take effect after reboot when required.

Parameter	Description
Version	V1/V2c/V3, V1/V2c, or V3 only. Factory default: V3 only.
V1/V2 Read Community	Read community string. Maximum 30 characters. Default: public.
V1/V2 Write Community	Write/read community string. Maximum 30 characters. Default: private.
User Name	SNMPv3 user name. Maximum 32 characters. Default: admin.
Admin Authentication Protocol (Auth)	No Authentication, HMAC-MD5, or HMAC-SHA1.
Admin Privacy Key	Key associated with the selected admin authentication type. Maximum 64 characters.
User Privacy Protocol (Priv)	No Authentication or DES.
User Privacy Key	Key associated with the selected user authentication type. Maximum 64 characters.
Trap/Inform Recipient Mode	Trap V1 or Inform V2c. Default: Inform V2c.
Trap Receiver 1/2 IP Address	Management server IP address for Trap/Inform messages.
Trap Receiver 1/2 Community	Trap community name. Maximum 30 characters. Default: public.

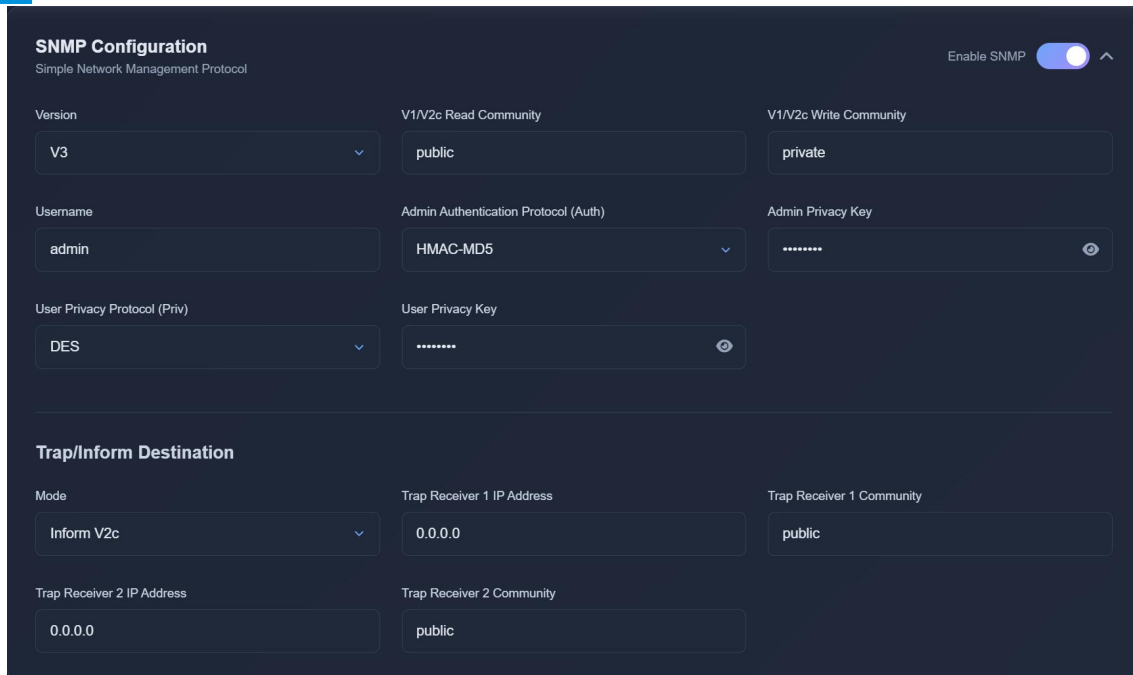
Note: Special characters are not supported.

MIB File Location: The SNMP MIB file (SST-ETAP-G5-DLR-MIB) can be downloaded from the SST Automation support website at www.sstautomation.com. The device also supports standard MIBs: IF-MIB, RFC1213-MIB, EtherLike-MIB, TCP-MIB, and UDP-MIB. Refer to Appendix A for the complete list of supported MIBs.

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The screenshot shows the 'SNMP Configuration' page with the following fields and values:

- SNMP Configuration** (Simple Network Management Protocol): Enable SNMP is toggled on.
- Version:** V3
- V1/V2c Read Community:** public
- V1/V2c Write Community:** private
- Username:** admin
- Admin Authentication Protocol (Auth):** HMAC-MD5
- Admin Privacy Key:** (masked with dots)
- User Privacy Protocol (Priv):** DES
- User Privacy Key:** (masked with dots)
- Trap/Inform Destination:**
 - Mode:** Inform V2c
 - Trap Receiver 1 IP Address:** 0.0.0.0
 - Trap Receiver 1 Community:** public
 - Trap Receiver 2 IP Address:** 0.0.0.0
 - Trap Receiver 2 Community:** public

Figure 6-1 SNMP configuration page.

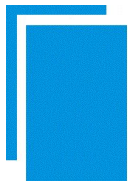
6.2 Modbus TCP

The Modbus TCP page configures parameters related to internal Modbus TCP server access. Click OK to save changes. Configuration changes take effect after a reboot when required.

Parameter	Description
Output Control Authentication	When enabled, writes using function code 0x06 or 0x10 require valid username and password data. Username ASCII data is mapped at register address 40001, and password ASCII data is mapped at register address 40016.
Username	String up to 20 characters.
Password	String up to 20 characters.
Allowed Client IP Addresses	When enabled, only Modbus TCP clients from the specified IP addresses can connect.
Maximum concurrent client connections	2

Note:Special characters are not supported.

Note:The detailed Modbus TCP register mapping and data object definitions are provided in a separate document:



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ETAP-G5-DLR Industrial Protocol Mapping Table.

Modbus TCP Configuration

Modbus TCP — Modbus Application Protocol on TCP (typically port 502)

Enable Modbus TCP ☒

☐ Output Control Authentication ?

Username: 12345678 Password: *****

Allowed Client IP Addresses

☐ Allowed Client IP Address 1 ?

IP Address: 0.0.0.0

☐ Allowed Client IP Address 2 ?

IP Address: 0.0.0.0

Figure 6-2 Modbus TCP configuration page.

6.3 EtherNet/IP

The EtherNet/IP page configures CIP communication parameters. Click OK to save changes, or click Cancel to discard input.

Parameter	Description
IGMP	Enables IGMP to support EtherNet/IP multicast traffic distribution.
VendCode	Vendor code value. Valid range: 1-65535.
Allowed Scanner IP Address	When enabled, only the specified EtherNet/IP scanner IP address is allowed to connect.

Note:Special characters are not supported.

Note:The detailed EtherNet/IP CIP object mapping and assembly instance definitions are provided in a separate document: *ETAP-G5-DLR Industrial Protocol Mapping Table*.

Figure 6-3 EtherNet/IP configuration page.

7 DLR Ring Network

7.1 DLR Overview

Device Level Ring (DLR) is a Layer-2 data link protocol for fast media redundancy in ring networks. It is commonly used in EtherNet/IP automation systems with devices that include embedded Ethernet switches. DLR detects link interruptions and restores communication paths rapidly to meet industrial automation requirements.

7.2 Configuration Description

DLR configuration includes ring supervisor layout and ring node layout. In a DLR network, one active supervisor manages beacon frames and ring status. Other nodes forward frames and monitor beacon status.

The screenshot shows the 'DLR Configuration' page. At the top right, there is a toggle switch labeled 'Enable DLR:' which is currently turned on. Below this, the page is divided into several sections. The first section is 'Supervisor Mode', which has a dropdown menu currently set to 'Disabled'. To its right is 'Supervisor Precedence', which has a text input field containing the value '0'. Below these are two more text input fields: 'Beacon Interval (μs)' with the value '400' and 'Beacon Timeout (μs)' with the value '1960'. Further down is the 'DLR VLAN ID' section with a text input field containing the value '0'. At the bottom of the configuration area is a 'DLR Configuration Note' box. The note contains an information icon and text stating: 'Changes to DLR settings require all devices in the ring to be reconfigured. Ensure network downtime is scheduled appropriately. After applying changes, the device will restart DLR services.'

Figure 7-1 DLR configuration page.

7.3 Normal Operation

During normal operation, the active ring supervisor transmits beacon frames from both active network ports at the configured interval. Ring nodes receive beacon frames on one port and forward them from the opposite port. To prevent broadcast storms, the active supervisor logically blocks traffic on one of its two ports to prevent endless frame looping.

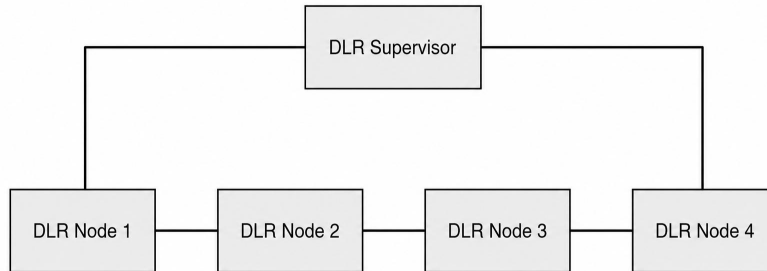


Figure 7-2 Normal DLR ring topology.

7.4 Link Fault Operation

When a physical copper or fiber link fault occurs, the ring supervisor unblocks its restricted port and starts bidirectional frame forwarding through both ports. This maintains network communication through the remaining path.

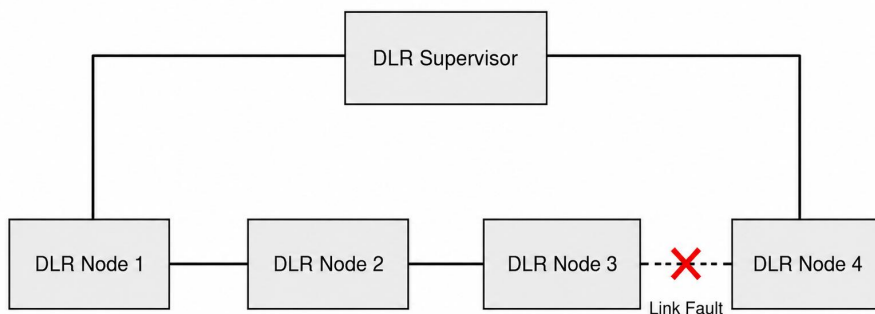


Figure 7-3 DLR link fault topology.

7.5 Supervisor Priority

If more than one supervisor exists in the same DLR ring, supervisor priority is used for active/backup supervisor selection. The device with the highest priority becomes the active supervisor. Avoid enabling supervisor mode on multiple devices unless the network design requires redundant supervisors.

8 Operation and Maintenance

8.1 Routine Maintenance

- Check that all Ethernet and power connectors are firmly seated.
- Check LED status during commissioning and routine inspection.
- Keep the enclosure dry and clean. Do not allow water, oil, conductive dust, or metal particles to enter the device.
- Back up the device configuration after commissioning.

8.2 Precautions

- Avoid applying heavy pressure to the device casing to prevent cracks or deformation.
- Protect the hardware from drops or mechanical impact, which may damage internal surface-mount components.
- Ensure input voltage matches the specified range to prevent damage.
- Protect the unit from liquid exposure or water ingress.
- Double-check terminal pin assignments before initial power-up to avoid wiring errors or short circuits.

8.3 Factory Reset

A factory reset clears local non-volatile settings and restarts the device. Use factory reset only when configuration recovery is required or when the login information is lost.

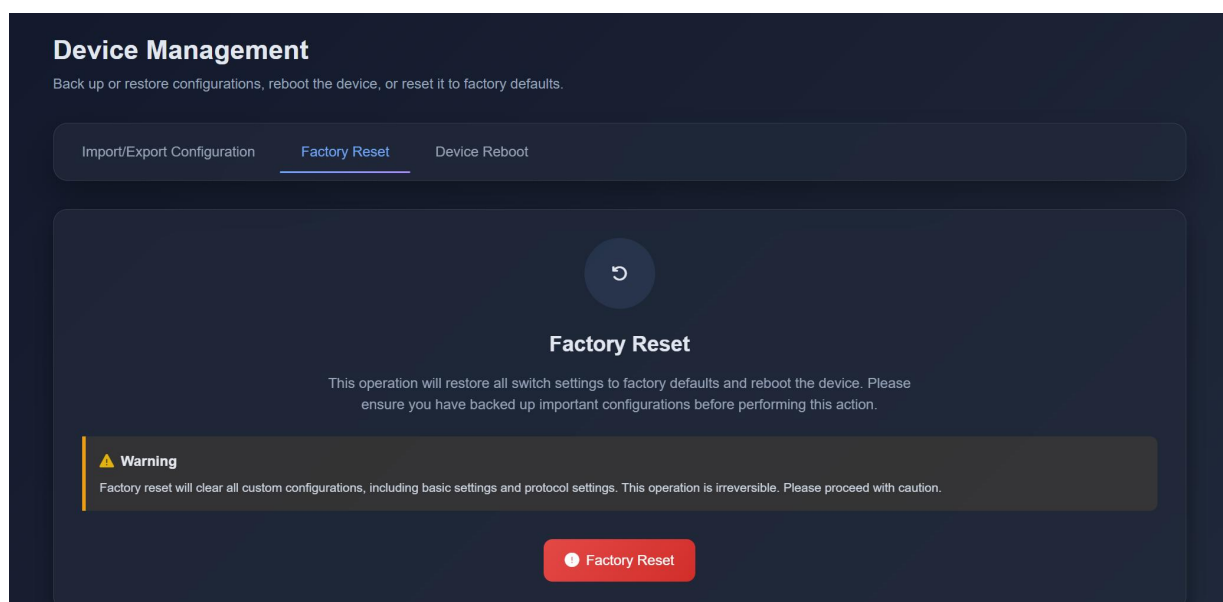


Figure 8-1 Factory reset page.

8.4 Configuration Import and Export

Use Advanced Configuration > Import/Export Configuration to import a stored configuration file or export the current device parameters. Imported configuration takes effect after a device reboot.

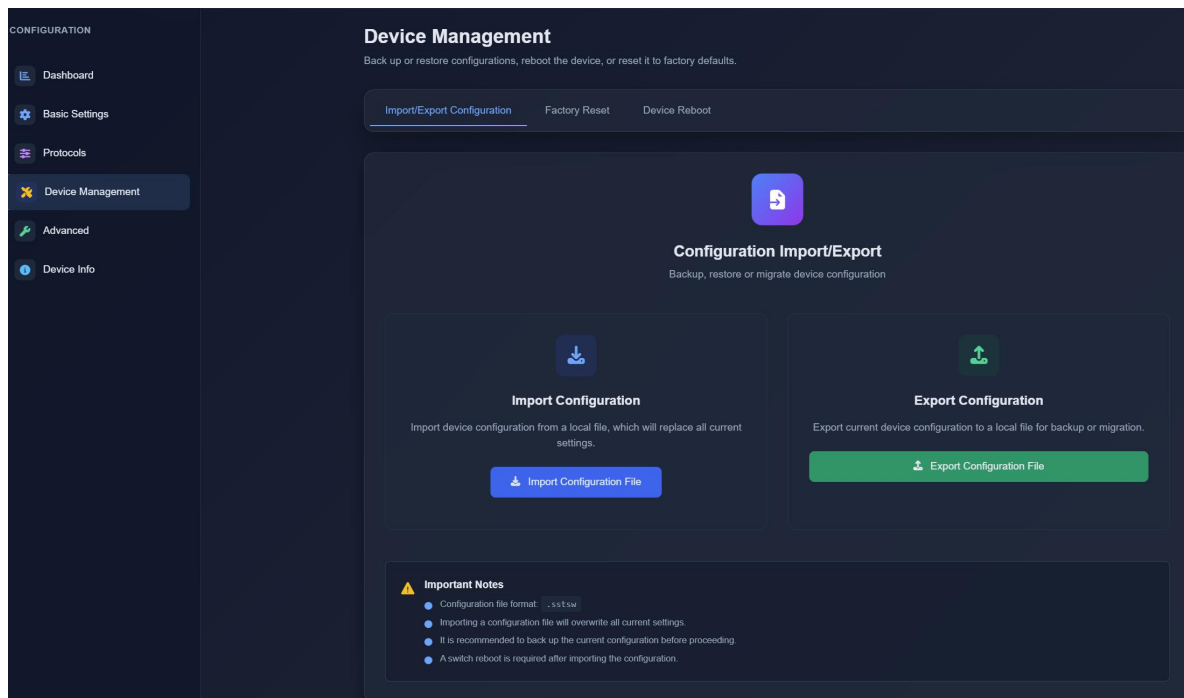


Figure 8-2 Configuration import/export page.

9 Troubleshooting

9.1 Power and Startup Issues

Symptom	Possible Cause	Solution
RUN LED is off	No power, wrong polarity, or startup failure	Check 24 V DC wiring, GN/24V+ polarity, terminal tightness, and power supply output.
NET and RUN steady red	Hardware detection test mode	Power cycle the device. If the state persists, contact technical support.
Device restarts repeatedly	Power supply voltage unstable or wiring loose	Check supply voltage range, current capacity, and terminal connection.

9.2 Web Login Issues

Symptom	Possible Cause	Solution
Cannot open Web page	PC and device are in different subnets	Set the PC IP address to the same subnet as 192.168.1.10 or the configured device IP.
Default IP does not respond	IP address was changed or DHCP is enabled	Check DHCP server records, scan the network, or restore factory settings if necessary.
Login failed	Incorrect username or password	Verify credentials. Restore factory settings if the password is lost and configuration recovery is acceptable.
Web page displays abnormally	Browser compatibility issue	Use Google Chrome and refresh the page.

9.3 Network Connection Issues

Symptom	Possible Cause	Solution
Port status is Disconnected	Cable unplugged or link partner powered off	Check cable, connector, and remote device power.
Unexpected 10 Mbps or 100 Mbps speed	Cable category or link partner limitation	Check Ethernet cable category and port settings of the connected device.
Half Duplex is displayed	Auto-negotiation mismatch	Check link partner duplex configuration

unexpectedly		and cable quality.
Frequent link interruption	Poor cable quality or electromagnetic interference	Replace the cable and separate network cable from high-power wiring.

9.4 DLR Ring Issues

Symptom	Possible Cause	Solution
DLR LED off	DLR function not enabled	Enable DLR settings if ring operation is required.
DLR LED flashing green	Ring fault detected	Check ring cabling, last node information, and network topology.
Network Status shows Error	Broken cable or disconnected ring node	Check both ring paths and restore physical connection.
Supervisor remains Backup	Another supervisor has higher priority	Check supervisor priority and active supervisor status.
Ring unstable after configuration	Multiple supervisors or incorrect beacon parameters	Verify supervisor settings, beacon interval, timeout, and VLAN ID.

9.5 Modbus TCP Issues

Symptom	Possible Cause	Solution
Modbus TCP client cannot connect	Allowed Client IP restriction enabled	Verify Allowed Client IP1/IP2 settings or disable the restriction for testing.
Only one or two clients can connect	Maximum concurrent client connections reached	Disconnect unused clients. The device supports up to two Modbus TCP client connections.
Write operation fails	Output Control Verification enabled and credentials mismatch	Check username/password mapping and ASCII data at register address 40001 and 40016.

9.6 EtherNet/IP Issues

Symptom	Possible Cause	Solution
Scanner cannot connect	Allowed Client IP is enabled or scanner IP is incorrect	Check scanner IP and Allowed Client IP setting.
Multicast communication abnormal	IGMP disabled or network switch not configured	Enable IGMP and verify multicast support in the network.
Vendor code rejected	VendCode outside valid range	Set VendCode within 1-65535.

9.7 SNMP Issues

Symptom	Possible Cause	Solution
SNMP manager cannot read data	SNMP version or community mismatch	Check SNMP version, community strings, and user name.
SNMPv3 authentication fails	Auth type or key mismatch	Verify authentication type and key settings.
Trap/Inform not received	Host IP or community incorrect	Check host IP address, recipient mode, and trap community.

9.8 Recovery Procedures

Action	How to Perform
Reboot device	Open System Tools > Device Reboot and click Reboot Switch, or power cycle the device.
Restore factory settings from Web	Open System Tools > Factory Reset and click Restore Factory Settings.
Restore factory settings by button	After startup, hold the button for 5 seconds within 10 seconds of steady green NET, then release when NET and RUN flash red.
Enter update mode	Hold the button before power-on until the NET indicator turns orange.

10 Frequently Asked Questions

Q1: What is the default IP address?

The default IP address is 192.168.1.10.

Q2: What are the default username and password?

The default username is admin and the default password is admin.

Q3: Which browser is recommended?

Google Chrome is recommended for best compatibility.

Q4: Can the device operate as a DLR supervisor?

Yes. It can operate as either a DLR ring supervisor or a DLR ring node.

Q5: Can non-DLR devices be connected to a DLR network through this device?

Yes. The device is designed to help connect non-DLR field devices to an active DLR ring network.

Q6: What is the DLR self-healing recovery time?

The DLR ring network redundancy self-healing recovery time is less than 3 ms.

Q7: How many Modbus TCP clients are supported?

A maximum of two Modbus TCP client connections are supported concurrently.

Q8: Which SNMP versions are supported?

SNMP v1, v2c, and v3 are supported. The default setting is V3 only.

Q9: Does Remote Update work in this hardware build?

No. The Remote Update menu is present, but the function is not implemented in this hardware build.

Q10: Does Cloud Management work in this product release?

No. Cloud Management is not implemented in this product release.

Q11: When do configuration changes take effect?

Many network and protocol changes are saved after clicking OK and take effect after a device reboot.

Q12: How can I recover the device if I forget the password?

Restore factory settings using the button or Web interface, if clearing the configuration is acceptable for the site.

11 Glossary

Term	Description
DLR	Device Level Ring. A Layer-2 redundancy protocol used in EtherNet/IP networks.
Ring Supervisor	A DLR device that manages ring status and beacon frames.
Ring Node	A DLR-capable device that participates in the ring and forwards frames.
SNMP	Simple Network Management Protocol. Used for monitoring and management.
MIB	Management Information Base. A database of managed objects used by SNMP.
CIP	Common Industrial Protocol. The object-oriented protocol used by EtherNet/IP.
IGMP	Internet Group Management Protocol. Used for multicast group management.
Modbus TCP	Modbus protocol transmitted over TCP/IP Ethernet networks.
EtherNet/IP	Industrial Ethernet protocol based on CIP.
VLAN ID	Virtual LAN identifier used to tag Ethernet frames.
Beacon	A periodic DLR protocol frame transmitted by the active ring supervisor to monitor ring integrity and detect link faults.
CIP Assembly	A structured collection of CIP attributes mapped to a single I/O connection, used in EtherNet/IP implicit messaging.
Client/Server Model	A communication model where the client initiates requests and the server responds. In Modbus TCP, the client polls the server for data.
DHCP	Dynamic Host Configuration Protocol. Automatically assigns IP addresses to devices on a network.
DIN Rail	A standard 35 mm metal rail used for mounting industrial control equipment inside enclosures.
Full Duplex	Simultaneous bidirectional data transmission on an Ethernet link.
Half Duplex	Alternating bidirectional data transmission where only one direction is active at a time.
IGMP Snooping	A network switch feature that monitors IGMP traffic to optimize multicast forwarding and reduce unnecessary traffic.
RJ45	An 8-position 8-contact (8P8C) modular connector commonly used for

	Ethernet networking.
Trap (SNMP)	An unsolicited notification sent by an SNMP agent to a management station when a significant event occurs.

Appendix A Technical Specifications

Item	Specification
Ethernet ports	5 Gigabit RJ45 copper ports
Port speed	10/100/1000 Mbps auto-negotiation
Duplex mode	Full duplex / half duplex
Switching mechanism	Store and forward
MAC address table	4K entries
Frame buffer	64 Kbytes
DLR recovery time	< 3 ms
SNMP	v1/v2c/v3
Supported MIBs	IF-MIB, RFC1213-MIB, EtherLike-MIB, TCP-MIB, UDP-MIB, SST-ETAP-G5-DLR-MIB
Industrial protocols	Modbus TCP, EtherNet/IP
Supported CIP objects	Identity, Message Router, Assembly, Connection Manager, Port, TCP/IP Interface, Ethernet Link, SST Networking, DLR
Power input	24 V DC, range: 9-30 V DC, 200 mA
Operating temperature	-20 °C to 60 °C
Relative humidity	5%-95%, non-condensing
Dimensions	1.18 in × 5.04 in × 3.46 in 30 mm × 128 mm × 88 mm (W × H × D)
Installation	1.38 in (35 mm) DIN-rail mounting
Protection level	IP20

Appendix B Default Parameters and Quick Reference

B.1 Default Login Parameters

Parameter	Default
Default IP address	192.168.1.10
Default username	admin
Default password	admin
Recommended browser	Google Chrome

B.2 Power Terminal

Pin	Signal	Description
1	GN	Power ground
2	NC	No connection
3	24V+	Positive 24 V DC input

B.3 LED Quick Reference

LED Status	Meaning
NET steady green	Normal network initialization complete
NET flashing red	Network initialization or DHCP in progress
NET steady orange	Firmware update mode
RUN steady green	Startup successful
RUN off	Unpowered or startup failure
DLR steady green	Ring normal
DLR flashing green	Ring fault
DLR off	DLR disabled

B.4 Feature Support Quick Reference

Feature	Status / Limit
Remote Update	Menu available, function not implemented in this hardware build
Cloud Management	Menu available, function not implemented in this product

ETAP-G5-DLR

5-Port Gigabit EtherNet/IP DLR Tap

User Manual

	release
Modbus TCP client connections	Maximum 2 concurrent connections
SNMP default version	V3 only
DLR supervisor support	Supported
DLR node support	Supported



Appendix C Revision History

Date	Revision	Modification Content
2026-06-02	A	V1.3 initial release.

Appendix D Keyword Index

The following index lists key terms and their primary locations within this manual. Terms are sorted alphabetically.

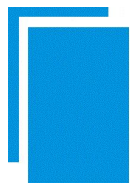
Term	Section	Description
Active Supervisor	7.1 DLR Overview	The DLR ring supervisor that is currently managing beacon frames and ring status.
Auto-negotiation	2.4 Interfaces, Appx A	Automatic speed/duplex detection at 10/100/1000 Mbps for Ethernet ports.
Beacon Frame	7.3 Normal Operation	Periodic frames transmitted by the active DLR supervisor to monitor ring integrity.
Beacon Interval	5.6 DLR Settings	Transmission frequency of DLR beacon frames, configured in microseconds.
Beacon Timeout	5.6 DLR Settings	Maximum time a ring node waits for a beacon before detecting beacon loss.
Beacon VLAN ID	5.6 DLR Settings	VLAN identifier assigned to outbound DLR beacon frames.
CIP	6.3 EtherNet/IP, Glossary	Common Industrial Protocol. The object-oriented protocol used by EtherNet/IP.
Configuration Import/Export	8.4	Web-based function to save or restore device configuration from a file.
Connection Status	5.3 Port Status	Displays whether each Ethernet port is Connected or Disconnected.
Default IP Address	4.1, Appx B	Factory default IP: 192.168.1.10.
Default Password	4.1, Appx B	Factory default login password: admin.
Default Username	4.1, Appx B	Factory default login username: admin.
Device Name	5.5 IP Address	User-configurable name, up to 31 characters (letters, numbers, periods, hyphens, underscores).
DIN Rail	3.2 Installation Method	Standard 35 mm mounting rail for industrial control cabinet installation.
DLR	7.1 DLR Overview, Glossary	Device Level Ring. Layer-2 redundancy protocol for EtherNet/IP networks. Recovery time < 3 ms.
DLR Indicator (LED)	2.2 LED Indicators, Appx B	Steady green = normal; flashing green = ring fault; off = DLR disabled.
DLR Recovery Time	7.1, Appx A	Ring self-healing time: less than 3 ms.

DLR Status Page	5.4 DLR Status	Web page showing topology, ring status, last node info, supervisor status, error count.
Duplex Mode	5.3, Appx A	Full Duplex or Half Duplex; displayed per port on the Status page.
Ethernet Interface	2.4 Interfaces	Five RJ45 copper ports supporting 10/100/1000 Mbps auto-negotiation.
EtherNet/IP	6.3, Glossary	Industrial Ethernet protocol based on CIP; supported for monitoring and data integration.
Factory Reset	2.3 Button, 8.3	Restores all settings to factory defaults via button, Web UI, or power-on sequence.
Frame Buffer	Appx A	64 KBytes of frame buffer memory.
Full Duplex	2.4, Appx A	Simultaneous bidirectional communication mode.
Function Code 0x06	6.2 Modbus TCP	Modbus write single register; requires authentication when Output Control is enabled.
Function Code 0x10	6.2 Modbus TCP	Modbus write multiple registers; requires authentication when Output Control is enabled.
Gigabit Ethernet	1.1, Appx A	Five 10/100/1000 Mbps RJ45 copper ports.
GN (Power Ground)	2.4 Power Interface, Appx B	Pin 1 of the power terminal; connect to power ground.
Half Duplex	2.4 Interfaces	Alternating bidirectional communication mode.
HMAC-MD5	6.1 SNMP	SNMPv3 authentication protocol (Message Digest 5).
HMAC-SHA1	6.1 SNMP	SNMPv3 authentication protocol (Secure Hash Algorithm 1).
IGMP	6.3, Glossary	Internet Group Management Protocol for multicast group management in EtherNet/IP networks.
Inform (SNMP)	6.1 SNMP	SNMPv2c notification mechanism requiring acknowledgment from the receiver.
IP Address Configuration	5.5	Web page for configuring device name, IP address, subnet mask, and gateway.
IP20	3.1 Mechanical Dimensions	Ingress protection rating; protected against solid objects > 12.5 mm, not waterproof.
Last Node	5.4 DLR Status	IP and MAC address of the last responsive node adjacent to a fault location.

LED Indicators	2.2, Appx B.3	NET (green=normal, red=init, orange=update), RUN (green=started), DLR (green=normal, flashing=fault).
Link Fault	7.4	Physical link failure in the DLR ring; supervisor unblocks restricted port to maintain connectivity.
Login Interface	5.1	Web login page with username/password, language selector, and credential options.
MAC Address Table	Appx A	4K MAC address entries supported.
MIB	6.1 SNMP, Glossary	Management Information Base. Database of managed objects accessible via SNMP.
Modbus TCP	6.2, Glossary	Modbus protocol over TCP/IP. Supports up to 2 concurrent client connections.
Multicast Filtering	1.2, 6.3	Advanced IGMP-based filtering for EtherNet/IP multicast traffic.
NC (No Connection)	2.4, Appx B	Pin 2 of the power terminal; must NOT be used as a power terminal.
NET Indicator (LED)	2.2, Appx B	Steady green = normal; flashing red = initializing/DHCP; steady orange = firmware update.
Network Status	5.4 DLR Status	Displays Normal or Error for the current DLR ring.
Network Topology	5.4 DLR Status	Displays Linear/Star or Ring for the current DLR topology.
Number of Ring Nodes	5.4 DLR Status	Total count of active nodes in the DLR ring, including the supervisor.
Output Control Auth.	6.2 Modbus TCP	Modbus write protection requiring username/password via registers 40001 and 40016.
Port Speed	5.3, Appx A	Displays 1000 Mbps, 100 Mbps, or 10 Mbps per Ethernet port.
Power Cycling	3.4	Wait at least 2 seconds after complete power cut before reapplying power.
Power Interface	2.4	3-pin 5.08 mm terminal block; Pin 1=GN, Pin 2=NC, Pin 3=24V+.
Power Supply	2.4, Appx A	24 V DC regulated, allowed range 9-30 V DC, 200 mA nominal.

Priority (Supervisor)	5.6, 7.5	Numeric value for active/backup supervisor election; highest priority wins.
Read Community	6.1 SNMP	SNMPv1/v2c read-only community string; max 30 chars; default: public.
Reboot	5.5, 8.4	Required after changing IP, DLR, SNMP, Modbus TCP, or EtherNet/IP parameters.
Remember Password	5.1 Login Interface	Browser credential saving option; use only on trusted computers.
Remote Update	FAQ Q9, Appx B.4	Menu present in Web UI but NOT implemented in this hardware build.
Ring Error Count	5.4 DLR Status	Total number of ring fault events detected by the device.
Ring Node	7.1, Glossary	A DLR-capable device that participates in the ring and forwards frames.
Ring Supervisor	7.1, Glossary	DLR device managing ring status; transmits beacons and blocks one port to prevent loops.
Ring Supervisor Mode	5.6 DLR Settings	Enabled = supervisor; Disabled = ring node.
Ring Supervisor Status	5.4 DLR Status	Displays Active or Backup for the current supervisor role.
RJ45	2.4 Ethernet Interface	Standard 8P8C modular connector for the Ethernet ports.
RUN Indicator (LED)	2.2, Appx B	Steady green = startup successful; off = unpowered or startup failed.
SNMP	6.1, Glossary	Simple Network Management Protocol v1/v2c/v3 for network monitoring and management.
SNMP v3 Authentication	6.1 SNMP	Supports No Auth, HMAC-MD5, or HMAC-SHA1 with optional DES encryption.
Store and Forward	Appx A	Switching mechanism used by the Ethernet ports.
Supervisor Priority	5.6, 7.5	Enables priority-based active/backup supervisor election in multi-supervisor rings.
Trap (SNMP)	6.1 SNMP	SNMPv1 notification sent to management servers; configurable receiver IP and community.
Trap Receiver	6.1 SNMP	Up to 2 management server IP addresses for

		receiving SNMP Trap/Inform messages.
VendCode	6.3 EtherNet/IP	Vendor code for CIP identity; valid range 1-65535.
VLAN ID	5.6, Glossary	Virtual LAN identifier used to tag Ethernet frames.
Web Configuration	5 Web Configuration	Browser-based configuration (Google Chrome recommended).
Write Community	6.1 SNMP	SNMPv1/v2c read/write community string; max 30 chars; default: private.
192.168.1.10	4.1, Appx B	Factory default IP address.
24V+ (Positive DC)	2.4, Appx B	Pin 3 of the power terminal; connect to +24 V DC positive input.
9-30 V DC	2.4, Appx A	Allowed power input voltage range.



Appendix E Compliance and Warranty Notes

Compliance

Use only official product labels, declarations of conformity, and regional approval documents to claim CE, FCC, RoHS, WEEE, or other compliance status. Do not add regulatory claims to customer-facing material unless the corresponding certification is verified.

Warranty

The product is covered by a 3-year limited warranty from the date of purchase. Warranty terms, service scope, and return procedures are subject to the sales contract or the official SST Automation warranty policy applicable to the region.

Technical Support

For technical support, provide the model, serial number if available, firmware version, configuration project, wiring information, and fault description.