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Stratix 5700

Industrial Managed Ethernet Switch

Allen-Bradley

Features and Benefits:

Advanced Networking Features

- Integrated Device Level Ring (DLR) connectivity helps optimize the network architecture and provide consolidated network diagnostics
- Integrated Network Address Translation (NAT) provides 1:1 IP address mapping helping to reduce commissioning time
- Power over Ethernet (PoE) versions provide power to devices over Ethernet minimizing cabling
- Security features, including access control lists, help ensure that only authorized devices, users and traffic can access the network
- Secure Digital (SD) card provides simplified device replacement

Optimized integration:

- Studio 5000® Add-on Profiles (AOPs) enable premier integration into the Rockwell Automation Integrated Architecture® system
- Predefined Logix tags for monitoring and port control
- FactoryTalk® View faceplates enable status monitoring and alarming
- Built-in Cisco® Internet Operating System (IOS) helps provide secure integration with enterprise network



The wide deployment of EtherNet/IP™ in industrial automation means that there is a growing demand to manage the network properly. Integtrating new machine-level networks into an existing plant network requires convergence.

With more devices connected on the same Ethernet network than ever before, an industrial managed switch can help you simplify your network infrastructure. Adding a managed switch to your network architecture can also help make the process of adding new machines easier.

The Allen-Bradley® Stratix 5700™ is a compact, scalable Layer 2 managed switch with embedded Cisco technology for use in applications with small isolated, to complex networks. With integration into Studio 5000 Automation Engineering and Design Environment™, you can leverage FactoryTalk® View faceplates and Add-on Profiles for simplified configuration and monitoring.

By choosing a switch co-developed by Rockwell Automation and Cisco, your Operations Technology (OT) and Information Technology (IT) professionals leverage tools and technology that are familiar to them. This collaboration can also help to reduce configuration time and cost.

Designed and Developed for EtherNet/IP Automation Applications

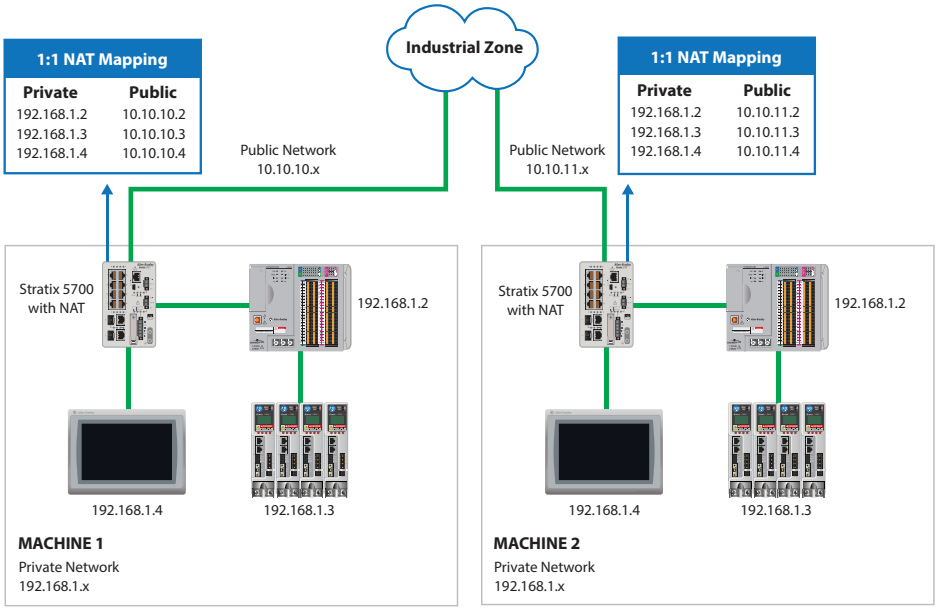
Network Address Translation

Machine integration onto a plant network architecture can be difficult as machine builder IP-address assignments rarely match the addresses of the end-user network. Also, network IP addresses are often unknown until the machine is being installed.

The Stratix 5700 with Network Address Translation (NAT) is a Layer 2 implementation that provides “wire speed” 1:1 translations ideal for automation applications where performance is critical.

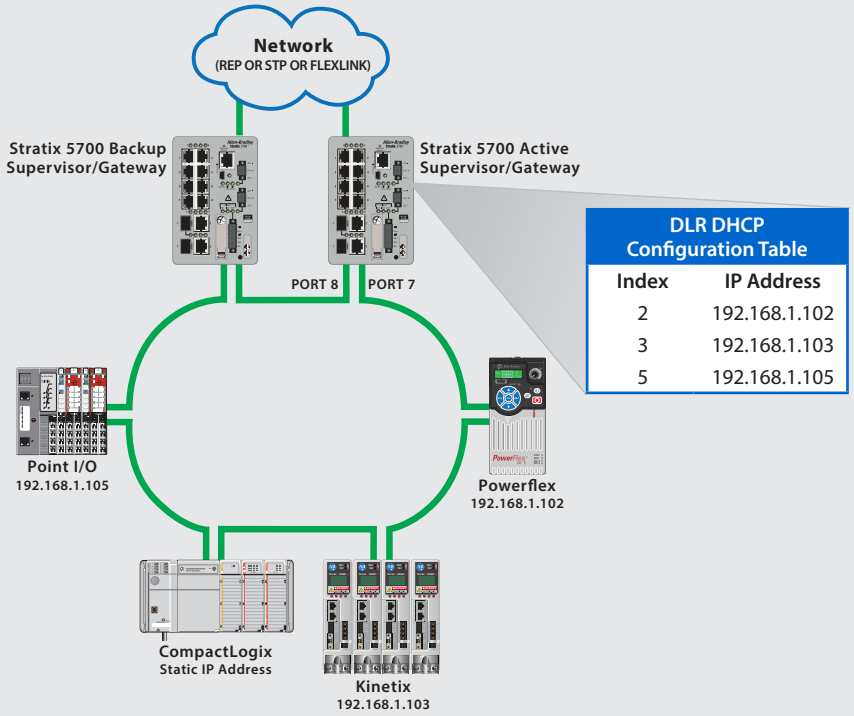
NAT allows for:

- Simplified integration of IP-address mapping from a set of local, machine-level IP addresses to the end user’s broader plant network
- OEMs to deliver standard machines to end users without programming unique IP addresses
- End users to more simply integrate the machines into the larger network



Device Level Ring Technology

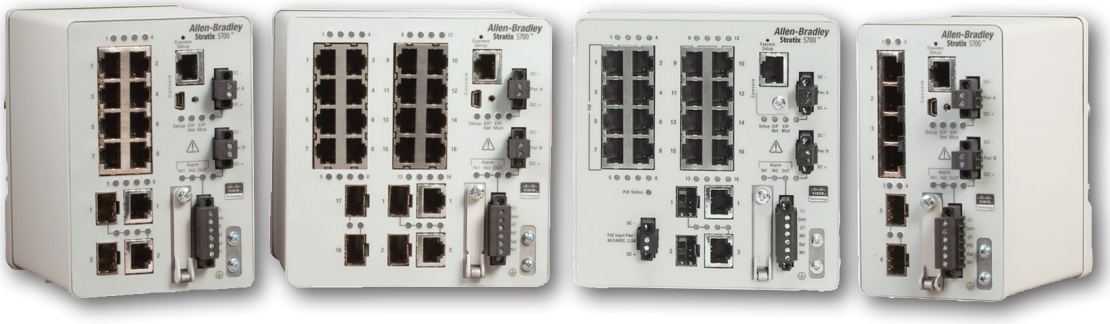
The Device Level Ring (DLR) protocol is used for high-speed, high-performance applications where resiliency is required. DLR is a layer 2 protocol that allows multi-port EtherNet/IP devices to form a ring topology. When the supervisor in the ring detects a break in the ring, it provides an alternate data route to help recover the network quickly.



The Stratix 5700 includes integrated DLR connectivity, which allows the switch to act as a node or a supervisor on the ring. When acting as a supervisor, the Stratix 5700 can consolidate information from the ring, and be the single place to manage machine-level network diagnostics and DLR status. With redundant gateway capabilities, the Stratix 5700 can support two switches on a single ring while being directly connected to the rest of the network helping to provide increased resiliency. The switch also offers DHCP IP address assignment to end devices on the DLR network for simplified device replacement.

Switch Reference Chart

Allen-Bradley Stratix 5700 Industrial Ethernet Switch



Switch Selection Table

CATALOG NUMBER	TOTAL PORTS	COPPER PORTS	COMBO PORTS	SFP SLOTS	PoE PORTS	SW TYPE	CIP Sync (IEEE 1588)	NAT	CONFORMAL COATING	DLR
1783-BMS4S2SGL	6			4 FE +2GE		Lite				
1783-BMS4S2SGA	6			4 FE +2GE		Full				
1783-BMS06SL	6	4 FE		2 FE		Lite				
1783-BMS06SA	6	4 FE		2 FE		Full				
1783-BMS06TL	6	6 FE				Lite				
1783-BMS06TA	6	6 FE				Full				
1783-BMS06SGL	6	4 FE		2 GE		Lite				
1783-BMS06SGA	6	4 FE		2 GE		Full				
1783-BMS06TGL	6	4 FE + 2 GE				Lite				
1783-BMS06TGA	6	4 FE + 2 GE				Full				
1783-BMS10CL	10	8 FE	2 FE			Lite				
1783-BMS10CA	10	8 FE	2 FE			Full				
1783-BMS10CGL	10	8 FE	2 GE			Lite				
1783-BMS10CGA	10	8 FE	2 GE			Full				
1783-BMS10CGP	10	8 FE	2 GE			Full	●			●
1783-BMS10CGN	10	8 FE	2 GE			Full	●	●		●
1783-BMS12T4E2CGL	18	12 FE	2 GE		4 FE	Lite				●
1783-BMS12T4E2CGP	18	12 FE	2 GE		4 FE	Full	●			●
1783-BMS12T4E2CGNK	18	12 FE	2 GE		4 FE	Full	●	●	●	●
1783-BMS20CL	20	16 FE	2 FE	2 FE		Lite				●
1783-BMS20CA	20	16 FE	2 FE	2 FE		Full				●
1783-BMS20CGL	20	16 FE	2 GE	2 FE		Lite				●
1783-BMS20CGP	20	16 FE	2 GE	2 FE		Full	●			●
1783-BMS20CGN	20	16 FE	2 GE	2 FE		Full	●	●		●
1783-BMS20CGPK	20	16 FE	2 GE	2 FE		Full	●		●	●

FE - Fast Ethernet GE - Gigabit Ethernet

Glossary of Terms

Access Control Lists allow you to filter network traffic. This can be used to selectively block types of traffic to provide traffic flow control or provide a basic level of security for accessing your network.

CIP port control and fault detection allows for port access based on Logix controller program or controller mode (idle/fault). Allows secure access to the network based on machine conditions.

CIP SYNC (IEEE1588) is the ODVA implementation of the IEEE 1588 precision time protocol. This protocol allows very high precision clock synchronization across automation devices. CIP SYNC is an enabling technology for time-critical automation tasks such as accurate alarming for post-event diagnostics, precision motion and high precision first fault detection or sequence of events.

Device Level Ring (DLR) allows direct connectivity to a resilient ring network at the device level.

DHCP per port allows you to assign a specific IP address to each port, confirming that the device attached to a given port will get the same IP address. This feature allows for device replacement without having to manually configure IP addresses.

Encryption provides network security by encrypting administrator traffic during Telnet and SNMP sessions.

EtherChannel is a port trunking technology. EtherChannel allows grouping several physical Ethernet ports to create one logical Ethernet port. Should a link fail, the EtherChannel technology will automatically redistribute traffic across the remaining links.

Ethernet/IP (CIP) interface enables premier integration to the Integrated Architecture with Studio 5000 AOP, Logix tags and View Faceplates.

FlexLinks provides resiliency with a quick recovery time and load balancing on a redundant star network.

IGMP Snooping (Internet Group Management Protocol) constrains the flooding of multicast traffic by dynamically configuring switch ports so that multicast traffic is forwarded only to ports associated with a particular IP multicast group.

Key Software Features

FEATURE HIGHLIGHTS	LITE	FULL
Switching		
CIP Sync (IEEE 1588)		Separate Option
REP (Resilient Ring Protocol)	●	●
FlexLinks		●
QoS		●
STP/RSTP/MST (instances)	64	128
IGMP snooping with querier	●	●
VLANs with trunking	64	255
EtherChannel (link aggregation)		●
Port Threshold (Storm Control & Traffic Shaping)		●
IPv6 support		●
Access control lists (ACLs)		●
Static and InterVLAN routing		●
Device Level Ring (DLR)	Select Versions	Select Versions
Security		
CIP port control & fault detection	●	●
MAC ID Port Security		●
IEEE 802.1x security		●
TACACS+, RADIUS authentication	●	●
Encryption (SSH, SNMPv3, HTTPS)	Separate Option*	Separate Option*
Diagnostics		
Port mirroring	●	●
Syslog	●	●
Broken wire detection	●	●
Duplicate IP detection	●	●
Management		
SNMP	●	●
Smartports	●	●
DHCP per port	●	●
Network Address Translation (NAT)		Separate Option
Command Line Interface (CLI)	●	●
Compatible with Cisco tools: CNA, CiscoWorks	●	●
Application interface		
EtherNet/IP (CIP) interface	●	●

* Separate SW IOS required

MAC ID Port Security checks the MAC ID of devices connected to the switch to determine if it is authorized. If not the device is blocked and the controller receives a warning message. This provides a method to block unauthorized access to the network.

Network Address Translation (NAT) provides 1:1 translations of IP addresses from one subnet to another. Can be used to integrate machines into an existing network architecture.

Port Thresholds (Storm control & Traffic Shaping) allows you to set both incoming and outgoing traffic limits. If a threshold is exceeded alarms can be set in the Logix controller to alert an operator.

Power over Ethernet (PoE) provides electrical power along with data on a single Ethernet cable to end devices.

QoS – Quality of Service (QoS) is the ability to provide different priority to different applications, users, or data flows, to help provide a higher level of determinism on your network.

REP (Resilient Ethernet Protocol) – A ring protocol that allows switches to be connected in a ring, ring segment or nested ring segments. REP provides network resiliency across switches with a rapid recovery time ideal for industrial automation applications.

Smartports provide a set of configurations to optimize port settings for common devices like automation devices, switches, routers, PCs and wireless devices. Smartports can also be customized for specific needs.

SNMP Simple Network Management Protocol (SNMP) is a management protocol typically used by IT to help monitor and configure network-attached devices.

Static and InterVLAN Routing bridges the gap between layer 2 and layer 3 routing providing limited static and connected routes across VLANs.

STP/RSTP/MST Spanning Tree Protocol, is a feature that provides a resilient path between switches. Used for applications that requires a fault tolerant network.

VLANs with Trunking is a feature that allows you to group devices with a common set of requirements into network segments. VLANs can be used to provide scalability, security and management to your network.

802.1x Security is an IEEE standard for access control and authentication. It can be used to track access to network resources and helps secure the network infrastructure.

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