antaira®

making connectivity simple...

Industrial
Power over Ethernet Switches

PoE Overview

Power over Ethernet (**PoE**) is a technology that utilizes an RJ-45 copper port to support connections up to 100 meters and speeds up to 10mbps, 100mbps, and 1,000mbps over a single twisted pair Ethernet cable. A PoE port provides data transmission and utility just like any standard Ethernet port, but it also supplies electrical power over the same cable. Antaira's industrial PoE switches meet IEEE standards 802.3af(PoE) and 802.3at(PoE+). Switches that are PoE+ are backwards compatible with PoE and also provide more power than standard PoE (30 watts vs 15 watts). These PoE standards create a regulated level playing field for productization allowing more product options and companies to be compatible with one another.

PoE devices can be one of two types - one where the device injects or transmits power (Power Sourcing Equipment (**PSE**)) and the other where a device requires power to be drawn (Powered Device (**PD**)). Typically, PSEs are industrial networking switches and common PDs are VoIP phones, wireless access points, and IP cameras. The PSE and PD devices are networked/powered together by a sub-standard of IEEE 802.3af called **Mode A** (Endspan) and **Mode B** (Midspan). Mode A utilizes an Ethernet switch as the PSE and combines data and power onto an Ethernet cable while only utilizing pins 1,2(+ voltage) and 3,6(- voltage). Mode B is used in the design of injectors to add PoE power to an Ethernet cable connecting a PD device to a non-PoE network device. Mode B only utilizes pins 4,5(+ voltage) and 7,8(- voltage) which are also known as "spare pairs". In Mode B, the PSE supplies the positive and negative voltage for the pin assignments. In order for a PD to be compliant with IEEE 802.3af/at, it must be able to accept Mode A or Mode B. Antaira has a wide array of standardized industrial PoE switches that can be used as the PSE to fit into any application.

PoE Opportunities

Active vs Passive PoE

	Active PoE	Passive PoE
Switch/Media Converter	Negotiates with PD devices to deliver requested power	Sends current to all connected ports, regardless of the device
End/PD Device	Negotiates with switch/media converter to receive requested power	Assumes switch/media converter will deliver power
Pins Used to Deliver Power	Mode "A" - 1,2,3,6 Mode "B" - 4,5,7,8	Mode "B" - 4,5,7,8
Voltage Used	48VDC	24VDC
IEEE Standard	802.3af/at/bt	None
Maximum Distance for Power	100 meters	40 meters

Active PoE utilizes IEEE 802.3af/at providing 48VDC in outgoing power and will automatically do a "handshake" to negotiate the correct voltage between the switch and Powered Device (PD). Passive PoE is not compatible with IEEE standards and it provides 24VDC of constant outgoing power regardless of the voltage requirements at the end device. Passive PoE is proprietary to manufacturers who create their own PoE standard. Antaira only offers active PoE switches to support the industry standard for higher security. Implementing active PoE switches into applications allows for better networking communication with other PoE devices that follow the same standards.

Fiber Connectivity

Fiber optic cables are made of thin glass to carry digital information over long distances. It is the backbone of the fastest and most reliable connectivity technology. Antaira offers industrial Power over Ethernet (PoE) unmanaged and managed switches with fiber connectivity to give users a reliable fiber network for long distance communication and noise immunity.

▶ SC/ST connector and SFP port fiber
▶ 1, 2, and 4 fiber port connectivity options
▶ Network Redundancy: STP/RSTP/MSTP and G.8032 ring protection <50ms (Managed ONLY)

Unmanaged models available in 5,6,7,8,10,12,16 and 26 ports
Managed models available in 5,6,8,10,12 and 28 ports

Low Voltage Technology

The powering of Power over Ethernet (PoE) devices is critical. Since most PoE networking applications utilize DC power due to its reliability, the typical voltage supported is 48V. Sometimes an obstacle arises when a Powered Device (PD) only has 12V, 24V, or 36V of power available but needs 48V of PoE power to operate equipment in an application. This issue typically requires a switch and booster to be installed for the networking connectivity to function properly. Antaira Technologies specializes in an industrial PoE low voltage (input range of 12-36VDC) line with an internal voltage booster to support a standard 48VDC PoE power output.

Antaira's industrial low voltage PoE unmanaged and managed switches are the most economical and efficient solution. Antaira offers a wide array of low voltage (12-36VDC) PoE switches that will accept low voltages between 12 to 36 volts to power on and supply the full IEEE 802.3 af/at PoE in a single device. This eliminates the need for a separate step-up transformer and saves the much-needed networking space in an enclosure by using just one small form factor device.

▶ Internal voltage booster
▶ Low power input (12-36VDC)
▶ Adheres to active PoE standards
▶ IEEE 802.3 af/at compliant up to 30 Watts of power

Unmanaged models available in 5, 6, 7, 8, and 10 ports
Managed models available in 5, 6, 8, and 10 ports

Unmanaged PoE

Unmanaged Ethernet switches are basic plug-and-play devices with no remote configuration, management, or monitoring options. These switches are cost-effective and typically are used in field level or small networks where management is unnecessary. Antaira offers a wide range of Power over Ethernet (PoE) plug-and-play models that boast a variety of port counts, fiber connectivity, and wide temperature ratings perfect for industrial PoE applications.

▶ 10/100/1000TX Ethernet speed options
▶ High power PoE IEEE 802.3af/at compliant
▶ Wide operating temperature (-40°C to 75°C)
▶ Compact layer 2 industrial Ethernet switches
▶ Surge and ESD protection
▶ Plug-and-play functionality

Models available in 5, 6 ,7, 8, 10, 12 ,16 and 26 ports

Managed PoE

Managed Ethernet switches enable network managers to remotely access a wide range of capabilities to configure, manage, and monitor a local area network. Antaira offers a wide range of Power over Ethernet (PoE) models that provide layer 2 network management software and fiber connection support. Built-in event handling functions allow users to have immediate event notices to improve remote monitoring and management. Antaira's industrial-grade managed PoE switches are ideal for harsh environments where real-time performance is critical.

▶ 10/100/1000TX Ethernet speed options
▶ High power PoE IEEE 802.3af/at compliant
▶ Layer 2 network management support: PoE Keep Alive, SNMP, VLAN, IGMP, and QoS
▶ Wide operating temperature (-40°C to 75°C)

Models available in 5, 6, 8, 10, 12 and 28 ports

— PoE
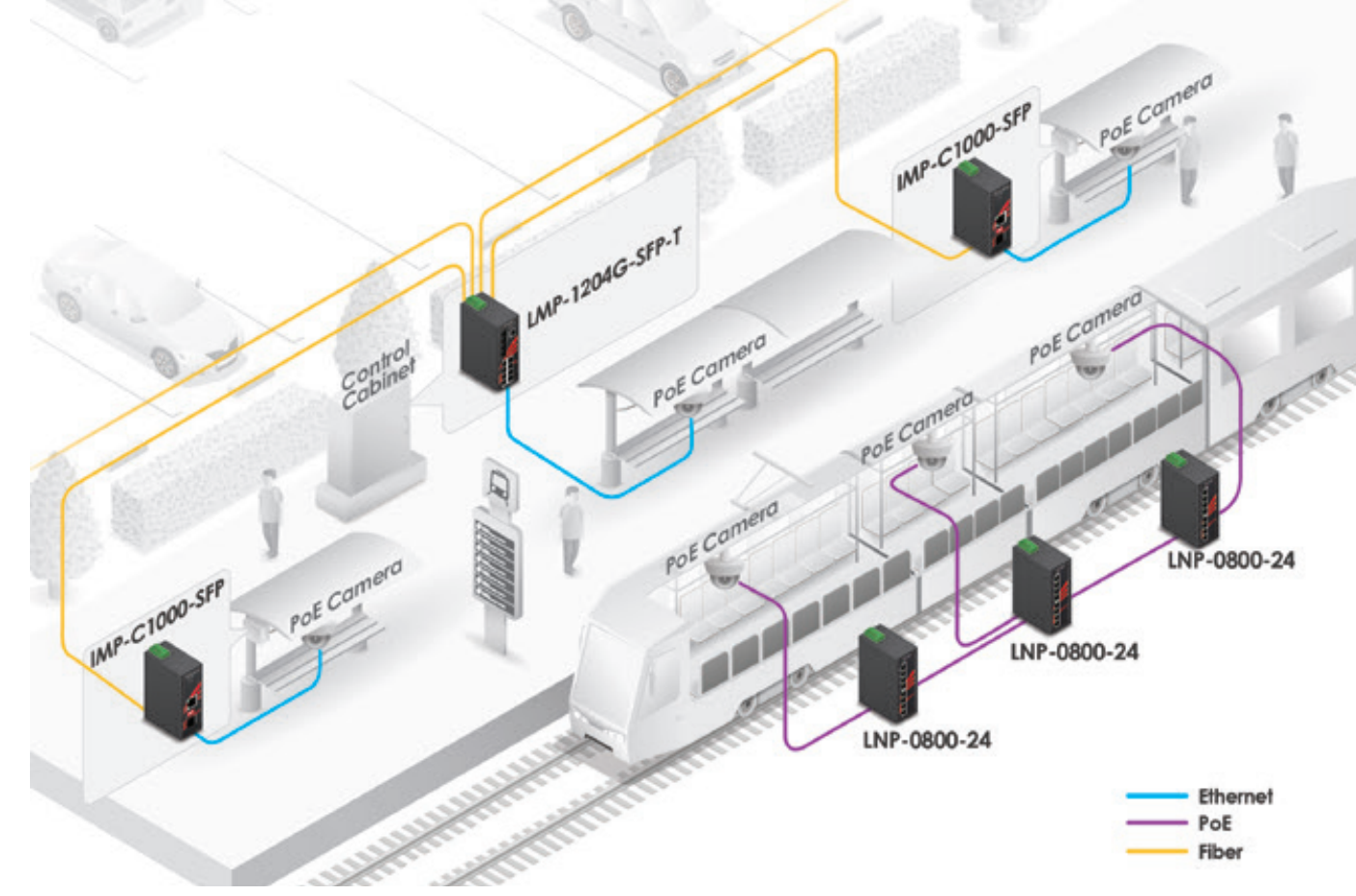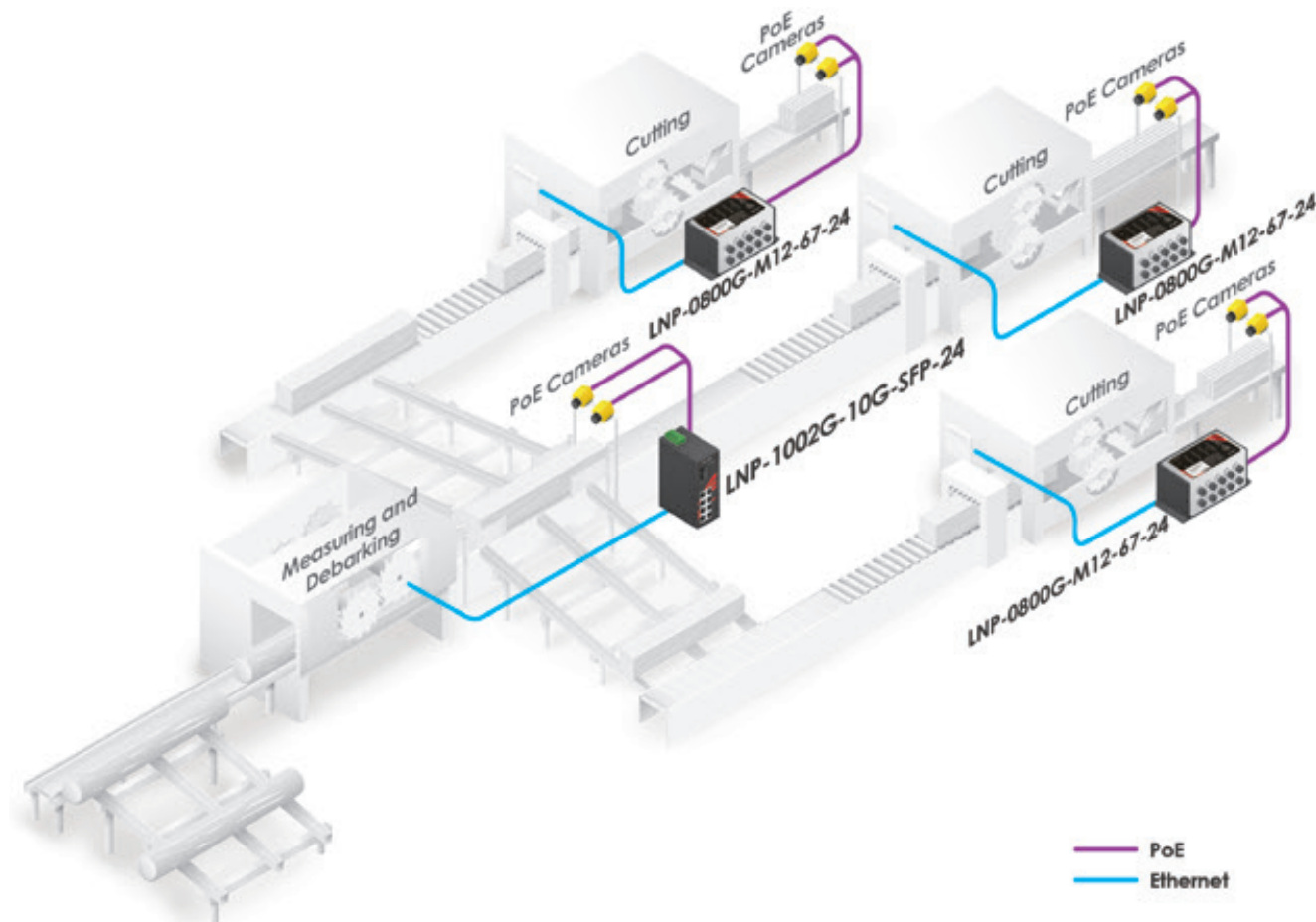— Ethernet

— Ethernet
— PoE
— Fiber

Application

Paper Mills have a drive to maximize the production of wood products while minimizing defects. High speed laser sensors and machine optics are used in this process and require significant bandwidth and connectivity between various lumber systems.

Application Requirements

▶ Aggregate multiple 1G devices from multiple lumber instruments into a 10G data stream
▶ Connectivity devices have to withstand vibration in a harsh environment with continual operation
▶ Combination of copper and fiber ethernet devices

Solutions

LNP-1002G-10G-SFP-24: Low voltage PoE device connects multiple lasers, sensors, and optical components into a 10Gig data flow for the management software system to process, then instructs the downstream machine centers the correct orientation and cutting method.

LNP-0800G-M12-67-24: Provides a physically secure network connection to a high RPM, high vibration machine so the mill receives maximum value from each log and stem. A relay bypass feature on this device allows Ethernet connectivity to remain even if a daisy chained device should lose power.

Application

The light rail transit system is a public service with strict safety and security regulations requiring constant network monitoring with minimal downtime. Rail stations have a network communicating surveillance data to a control cabinet where data can be remotely accessed and monitored in real-time.

Application Requirements

▶ PoE+ devices to power and monitor surveillance cameras
▶ Eliminate fiber cabling between light rail stations with a fiber and Ethernet switch
▶ Connectivity devices able to withstand harsh environments

Solutions

LMP-1204G-SFP-T: Capable of daisy chaining light rail stations along tracks to remotely monitor surveillance data with a fully managed switch; this allows for easy troubleshooting when needed.

LNP-0800-24: Low voltage PoE capability to power up the surveillance cameras to capture and push data to a central hub where data can be monitored.

IMP-C1000-SFP: Compact media converter with high bandwidth capabilities providing long distance extension to inject power to surveillance cameras.

Key Products

LNP-1002G-10G-SFP-24
10-Port Industrial PoE+ 10G Unmanaged Switch
▶ 8*10/100/1000TX RJ45 (PSE:30W/Port) + 2*10G SFP+ ports
▶ IEEE 802.3af/at compliant
▶ Power Input: 24VDC to 55VDC

LNP-0800G-M12-67-24
8-Port Industrial PoE+ IP67 Gigabit M12 Switch
▶ 8*10/100/1000TX w/ M12 connectors & PoE Injector (30W/Port)
▶ Intrusion protection against vibration, water, and dust
▶ Power Input: 24VDC to 55VDC

Key Products

LMP-1204G-SFP-T
12-Port Industrial PoE+ Gigabit Managed Switch
▶ 8*10/100/1000TX (30W/Port) + 4*100/1000 SFP Ports
▶ Temperature Range: -40℃ to 75℃

IMP-C1000-SFP
Compact Industrial Gigabit PoE+ Ethernet to Fiber Media Converter
▶ 1*10/100/1000TX (PSE:30W) to 1*100/1000 SFP port
▶ Redundant Power Input: 48VDC to 55VDC

LNP-0800-24
8-Port Industrial PoE+ Unmanaged Ethernet Switch
▶ 8*10/100TX (30W/port)
▶ IEEE 802.3af/at compliant
▶ Power Input: 12VDC to 36VDC

LNP-201AG-T
Industrial PoE+ Gigabit Injector; DIN-RAIL or Wall Mountable 24-48VDC

LNP-0500 Series
5-Port Industrial PoE+ 10/100TX Switches

LNP-0500G Series
5-Port Industrial PoE+ Gigabit Switches

LNP-0501 Series (SC/ST Connector)
5-Port Industrial PoE+ 10/100TX Switches w/ 1 Fiber Port

LNP-0500-24 Series
5-Port Industrial PoE+ 10/100TX Switches

LNP-0500G-24 Series
5-Port Industrial PoE+ Gigabit Switches

LNP-0501-ST-24 Series
5-Port Industrial PoE+ 10/100TX Switches w/ 1 Fiber Port; ST Connector

LNP-0501-S3-24 Series
5-Port Industrial PoE+ 10/100TX Switches w/ 1 Fiber Port; SC Connector

LNP-0602 Series (SC/ST Connector)
6-Port Industrial PoE+ 10/100TX Switches w/ 2 Fiber Ports

LNP-0702C-SFP Series
7-Port Industrial PoE+ 10/100TX Switches w/ 2 Gigabit SFP Ports

LNP-0702G-SFP Series
7-Port Industrial PoE+ Gigabit Switches w/ 2 SFP Ports

LNP-0800 Series
8-Port Industrial PoE+ 10/100TX Switches

LNP-0702C-SFP-24 Series
7-Port Industrial PoE+ 10/100TX Switches w/ 2 Gigabit SFP Ports

LNP-0702G-SFP-24 Series
7-Port Industrial PoE+ Gigabit Switches w/ 2 SFP Ports

LNP-0800-24 Series
8-Port Industrial PoE+ 10/100TX Switches

LNP-800AGH-24 Series
8-Port Industrial PoE+ Gigabit Switches

LNP-800AGH Series
8-Port Industrial PoE+ Gigabit Switches

LNP-0802C-SFP Series
8-Port Industrial PoE+ 10/100TX Switches w/ 2 Gigabit SFP Ports

LNP-1002C-SFP Series
10-Port Industrial PoE+ 10/100TX Switches w/ 2 Gigabit RJ45/SFP Ports

LNP-1002G-SFP Series
10-Port Industrial PoE+ Gigabit Switches w/ 2 SFP Ports

LNP-800AGH-24-T-CC *
8-Port Industrial PoE+ Gigabit Switches w/ Conformal Coating

LNP-0802-24 Series
8-Port Industrial PoE+ 10/100TX Switches w/ 2 Fiber Ports

LNP-0802C-SFP-24 Series
8-Port Industrial PoE+ 10/100TX Switches w/ 2 Gigabit SFP Ports

LNP-1002C-SFP-24 Series
10-Port Industrial PoE+ 10/100TX Switches w/ 2 Gigabit RJ45/SFP Ports

LNP-1002G-10G SFP Series
10-Port Industrial PoE+ Gigabit Switches w/ 2 10G SFP Ports

LNP-1202G-SFP Series
12-Port Industrial PoE+ Gigabit Switches w/ 2 SFP Ports

LNP-1002G-SFP-24 Series
10-Port Industrial PoE+ Gigabit Switches w/ 2 SFP Ports

LNP-2602G-SFP Series
26-Port Industrial PoE+ Gigabit Switches w/ 2 RJ45/SFP Ports

LNP-1002G-SFP-24 Series
10-Port Industrial PoE+ Gigabit Switches w/ 2 SFP Ports

LNP-1002G-10G SFP-24
10-Port Industrial PoE+ Gigabit Switches w/ 2 10G SFP Ports

* Antaira offers conformally coated products to prevent corrosion from gases, moisture, and debris found in toxic environments.

Managed PoE Switches

Standard Voltage (48-55VDC)

LMP-0501 Series (SC/ST Connector)
5-Port Industrial PoE+ 10/100TX Switches w/ 1 Fiber Port

LMP-0600 Series
6-Port Industrial PoE+ 10/100TX Switches

LMP-0601G-SFP Series
6-Port Industrial PoE+ Gigabit Switches w/ 1 SFP Port

LMP-0602 Series (SC/ST Connector)
6-Port Industrial PoE+ 10/100TX Switches w/ 2 Fiber Ports

LMP-0800G Series
8-Port Industrial PoE+ Gigabit Switches

LMP-0804G-SFP Series
8-Port Industrial PoE+ Gigabit Switches w/ 4 SFP Ports

LMP-1002C-SFP Series
10-Port Industrial PoE+ 10/100TX Switches w/ 2 Gigabit RJ45/SFP Ports

LMP-1002G-SFP Series
10-Port Industrial PoE+ Gigabit Switches w/ 2 SFP Ports

LMP-1202G-SFP Series
12-Port Industrial PoE+ Gigabit Switches w/ 2 SFP Ports

LMP-1204G-SFP Series
12-Port Industrial PoE+ Gigabit Switches w/ 4 SFP Ports

LNP-2804GN-SFP-T
28-Port Industrial PoE+ Gigabit Switch w/ 4 RJ45/SFP Ports

Managed Switch Features & Highlights

- Network Redundancy: RSTP/MSTP, G.8032
- IGMP
- Quality of Service
- IEEE 802.1Q VLAN
- SNMP
- PoE Keep Alive
- Event Scheduling
- System Warning & Automatic Email
- USB Data Load & Backup
- Port Mirroring
- Port Statistics & Control

Managed PoE Switches

Low Voltage (12-36VDC)

LMP-0501-M-24 Series
5-Port Industrial PoE+ 10/100TX Switches w/ 1 Fiber Port; Multi-Mode

LMP-0501-ST-24 Series
5-Port Industrial PoE+ 10/100TX Switches w/ 1 Fiber Port; ST Connector

LMP-0501-S3-24 Series
5-Port Industrial PoE+ 10/100TX Switches w/ 1 Fiber Port; Single-Mode

LMP-0600-24 Series
6-Port Industrial PoE+ 10/100TX Switches

LMP-0601G-SFP-24 Series
6-Port Industrial PoE+ Gigabit Switches w/ 1 SFP Port

LMP-0602-M-24 Series
6-Port Industrial PoE+ 10/100TX Switches w/ 2 Fiber Ports; Multi-Mode

LMP-0602-ST-24 Series
6-Port Industrial PoE+ 10/100TX Switches w/ 2 Fiber Ports; ST Connector

LMP-0602-S3-24 Series
6-Port Industrial PoE+ 10/100TX Switches w/ 2 Fiber Ports; Single-Mode

LMP-0800G-24 Series
8-Port Industrial PoE+ Gigabit Switches

LMP-1002C-SFP-24 Series
10-Port Industrial PoE+ 10/100TX Switches w/ 2 Gigabit RJ45/SFP Ports

LMP-1002G-SFP-24 Series
10-Port Industrial PoE+ Gigabit Switches w/ 2 SFP Ports

About Antaira

Antaira Technologies is a leading developer and manufacturer of high-quality industrial networking and communication product solutions. Since 2005, Antaira has offered a full spectrum of product lines that feature reliable Ethernet infrastructures, extended temperature tolerance, and rugged enclosure designs. Our product lines range from industrial Ethernet switches, to, industrial wireless devices, Ethernet media converters, industrial serial communications. Our vast professional experience has allowed us to deploy a wide array of products worldwide in mission-critical applications across various markets, such as, automation, transportation, security, oil and gas, power/utility and medical.

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