

8100S Copper Series

LAYER 2-4 FAST ETHERNET STACKABLE SWITCHES

8100S is a series of Layer 2-4 24- and 48-port Fast Ethernet stackable copper switches. PoE switch versions support IEEE 802.3at (PoE+) 30W standard.

The 8100S Series provides high performance Layer 2-4 switching in an affordable fixed configuration stackable platform.

AT-8100S/24 and AT-8100S/24POE switches offer 24 10/100TX ports, two Gigabit combo ports, plus two integrated dedicated stacking connectors that deliver a total of 10Gbps stacking bandwidth to each switch.

The AT-8100S/48 and AT-8100S/48POE switch offers 48 10/100TX ports, two Gigabit combo ports, plus two integrated dedicated stacking connectors that deliver a total of 10Gbps stacking bandwidth to each switch.

Hardware Stacking

The stacking capability integrated into this platform is configured as a resilient ring topology designed to provide high reliability and simplified management for higher port density applications. Up to eight switches of either 24 or 48 variants can be stacked together using HDMI cables, providing up to 384 ports of Fast Ethernet connectivity, all manageable as a single IP entity.



Management Stacking

Enhanced Stacking provides CLI-based management of up to 24 switches with the same effort as for one switch. The Allied Telesis solution uses open standard Ethernet interfaces as stacking

links so that many switches within the same LAN and VLAN can be remotely managed as a single IP entity across different sites.

Key Features

Easy, Well Known Management

- » Industry standard AlliedWare Plus™ CLI
- » Simple, intuitive, full featured Allied Telesis Web Interface
- » Secure, encrypted Web and CLI management with SSHv2 and SSL
- » SNMP
- » Two levels of access privileges

Affordable, Truly Stackable Switching Platform

- » Single IP address stack management
- » 10Gig resilient ring stacking architecture
- » Across stack link aggregation
- » Across stack VLAN configuration
- » Across stack port mirroring
- » Redundant standby stack master
- » Stackable up to eight devices

Power Supply Redundancy

- » Integrated dual AC power supplies on all 8100S models except AT-8100S/24C switches
- » Optional DC power versions available on AT-8100S/24 and AT-8100S/48 switches

Power over Ethernet

- » Provides standards-based IEEE 802.3at Power over Ethernet to all 24 10/100TX ports or 48 10/100TX ports
- » Support for up to 24 class 3 powered devices at 15.4 Watts on AT-8100S/24POE and AT-8100S/48POE
- » Support for up to 12 class 4 powered devices at 30 Watts on AT-8100S/24POE and AT-8100S/48POE

All the QoS Needed in the Wiring Closet for Today's Voice and Data Networking

- » Eight priority queues
- » IEEE 802.1p for Layer 2 QoS
- » DSCP (DiffServ) for Layer 3 QoS
- » IEEE 802.1p to DSCP remarking traffic ready for transport to the Layer 3 core of the network
- » Layer 2 and Layer 4 Access Control List (ACL)
- » Voice VLAN
- » Automatic QoS

Securing the Network at its Most Vulnerable Point

- » IEEE 802.1x and RADIUS network login: for advanced control for user authentication and accountability
- » Guest VLAN: to ensure visitors or unauthorized users only connect to services defined by IT such as Internet services
- » Dynamic VLAN
- » TACACS+ for ease of management security administration
- » Port MAC address security options

Access Control Lists

- » Access Control Lists enable inspection of incoming frames and classify them based on various criteria. Specific actions can then be applied to these frames in order to more effectively manage the network traffic at Layer 2 through Layer 4. Typically ACLs are used as a security mechanism, either permitting or denying entry (hence the name Access Control) for frames in a group, but ACLs can also be applied to QoS.

Layer 3

- » Static routing
- » RIPv1 and RIPv2
- » Proxy ARP

Environmentally Friendly

In keeping with our commitment to environmentally friendly processes and products, the 8100S Series is a new green range of Fast Ethernet Layer 2–4 products designed to reduce power consumption, minimize hazardous waste and reduce acoustic noise. Features include the use of high efficiency power supplies and low power chip sets, and reduced power drive over short cable lengths. The switches also include an eco-friendly button on the front panel allowing you to conserve additional power by turning off all diagnostic LED indicators when they are not required.



Low Power Consumption with Silent Operation

The AT-8100S/24C, AT-8100S/24 and AT-8100S/48 products are designed for silent operation, allowing them to be used in office environments as well as wiring closets.

Ideal Branch Office and Wiring Closet Connectivity

Powerful line rate performance and stackability make this switch ideal for branch offices or the wiring closet of larger offices. The state-of-the-art QoS capability of this product ensures reliable delivery of advanced network services such as voice while effectively controlling the continually increasing traffic needs found in today's networks. The switch is able to automatically configure a dedicated voice VLAN when an IP phone is connected to a port. AutoQoS enables advanced networking features at the edge without complex configuration.

Easy Access Networking

Featuring the industry standard Command Line Interface (CLI) of AlliedWare Plus and Allied Telesis'

intuitive featured Web interface, the advanced features of the 8100S Series are accessible to a wide range of system administrators. The well known CLI and Web interfaces significantly reduce learning time and minimize the cost of deployment.

Securing the Network Edge

To ensure the protection of your data, it is important to control access to your network. Protocols such as IEEE 802.1x port-based authentication guarantee that only known users are connected to the network. Unknown users who physically connect can be isolated to a pre-determined part of your network, offering guests such benefits as Internet access while ensuring the integrity of your private network data. The switch is also fully compliant with Microsoft Network Access Protection (NAP) and Symantec Network Access Control (SNAC).

Gigabit and Fast Ethernet SFP Support

All switches in the 8100S Series support both Gigabit and Fast Ethernet Small Form-factor Pluggables (SFPs). This makes the 8100S Series an ideal family for environments where Gigabit fiber switches will be phased in over time. The 8100S Series allows for connectivity to the legacy 100FX hardware until it is upgraded to Gigabit.

IPv6 Aware Switch

In addition to the extensive IPv6 management support, the 8100S Series functions as a Layer 2 switch in a pure IPv6 network as well as in a combined IPv4/IPv6 dual stack network. The system is IPv6-aware and is capable of bridging IPv6 Ethernet packets. This is done with no user configuration. IPv6 packets are bridged regardless of any extension headers that may exist.

VLAN Double Tagging (Q-in-Q)

VLAN double-tagging can be useful for customers such as Internet Service Providers (ISP), allowing them to use VLANs internally while mixing traffic from clients that are already VLAN tagged. The first VLAN tag is used by the ISP to route traffic across their own network, while the second VLAN tag is that of the end-user customer. The use of this feature allows end-users to have physically distributed networks, which they can manage themselves, carried over an independent infrastructure.

sFlow

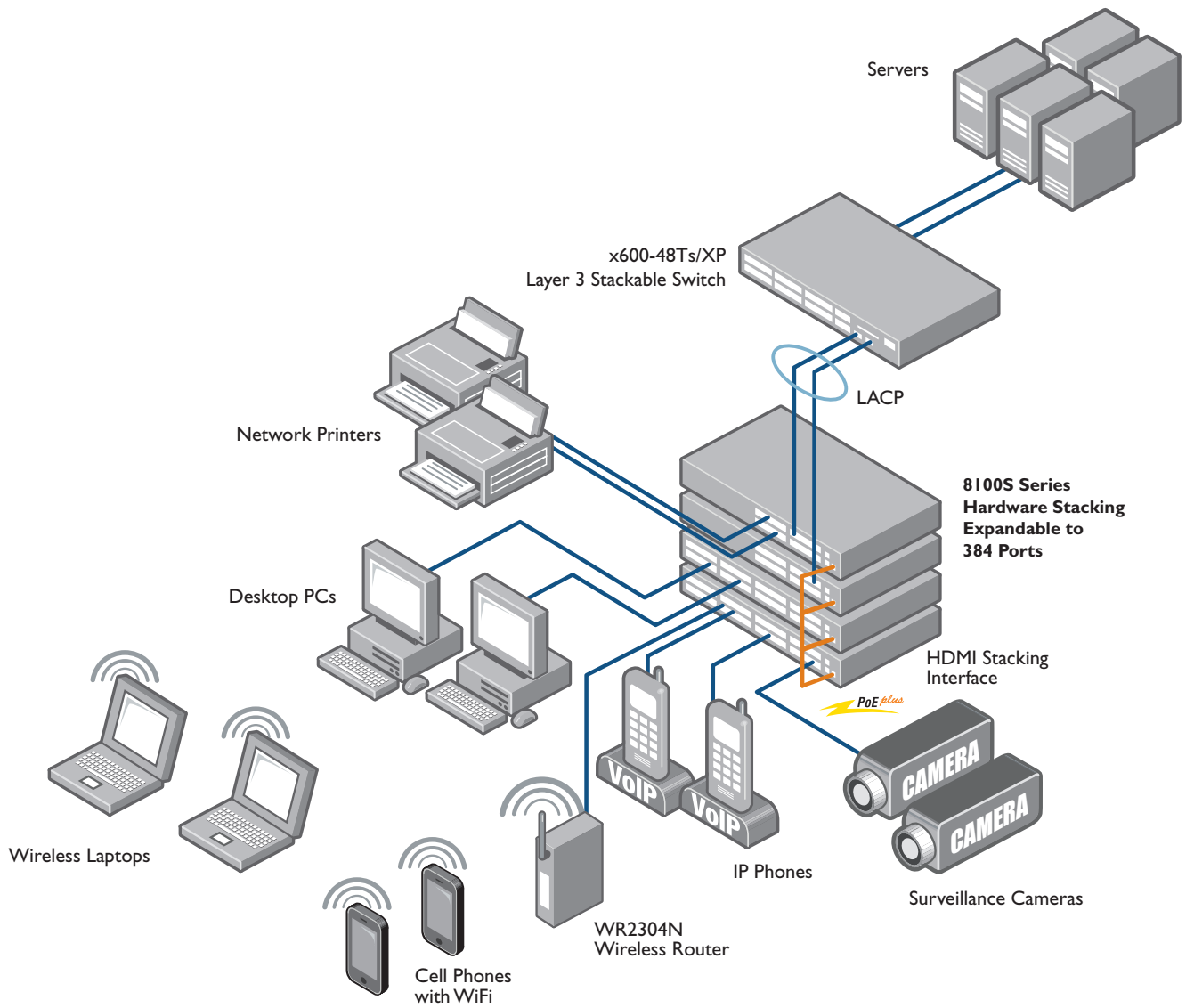
sFlow is an industry-standard technology for monitoring high-speed switched networks. It gives complete visibility into the use of networks enabling performance optimization, accounting and billing for usage, and defense against security threats. Sampled packets sent to a collector ensure sFlow always maintains a real-time view of network traffic.

Layer 3 Routing

The switch provides static IPv4 routing at the edge of the network as well as support for RIPv1 and RIPv2.

Redundant Power Options

All variants of the 8100S copper switch family, except the AT-8100S/24C switch feature two internal power supplies as standard, ensuring continuous switch operation of both the switch and the PoE power - even in the event of a power supply failure. 48vDC powered versions can be ordered for the AT-8100S/24 and AT-8100S/48 models. All models are designed for front-to-back cooling.



System Capacity

128MB RAM
16MB flash memory
16K MAC addresses
Forwarding rates:

AT-8100S/24C	27.9Mpps
AT-8100S/24	27.9Mpps
AT-8100S/24POE	27.9Mpps
AT-8100S/48	35.1Mpps
AT-8100S/48POE	35.1Mpps

TFTP boot support
Temperature threshold alert
266MHz CPU

Switching Capacity

AT-8100S/24C	18.8Gbps
AT-8100S/24	18.8Gbps
AT-8100S/24POE	18.8Gbps
AT-8100S/48	23.6Gbps
AT-8100S/48POE	23.6Gbps

Maximum Bandwidth

Non-blocking for all packet sizes

Wirespeed Switching (Layer 2/3) on all Ethernet Ports

14,880pps for 10Mbps Ethernet
148,800pps for 100Mbps Ethernet
1,488,000pps for 1000Mbps Ethernet

Environmental Specifications

Operating temperature: 0°C to 40°C
Storage temperature: -25°C to 70°C
Operating humidity: 5% to 80% non-condensing
Storage humidity: 5% to 95% non-condensing
Max operating altitude: 3,048 m (10,000 ft)

Port Configuration

Auto-negotiation, duplex, MDI/MDI-X, IEEE 802.3x flow control/back pressure
Head of Line (HOL) blocking prevention
Broadcast storm control
Bad cable detection
Redundant master/slave management
Link flap protection
Group link control
Port mirroring (remote option)

Ethernet Specifications

RFC 894 Ethernet II encapsulation
IEEE 802.1D MAC bridges
IEEE 802.1Q Virtual LANs
IEEE 802.2 Logical link control
IEEE 802.3ac VLAN TAG
IEEE 802.3ad (LACP) link aggregation
IEEE 802.3u 100TX
IEEE 802.3x Full-duplex operation
IEEE 802.3z Gigabit Ethernet
IEEE 802.3af Power over Ethernet class 3
IEEE 802.3at Power over Ethernet class 4
Jumbo frames (9216 bytes)

Quality of Service (QoS)

Eight egress queues per port
Ingress rate limiting
Egress rate control (shaping)
Voice VLAN
Automatic QoS
Head of Line (HOL) blocking prevention
IEEE 802.1p Class of Service with strict and weighted round robin scheduling/strict priority scheduling
RFC 2474 DSCP for IP-based QoS
RFC 2475 Differentiated services architecture
Layer 2, 3 and 4 criteria
IEEE 802.1Q priority remarking

Spanning-Tree Protocol

IEEE 802.1D Spanning-Tree Protocol
IEEE 802.1w Rapid Spanning-Tree Protocol
IEEE 802.1s Multiple Spanning-Tree Protocol (15 instances)
BPDU guard
Loop guard

Management

RFC 854 Telnet server
Console management port
AlliedWare Plus CLI
Web GUI
RFC 1866 HTML
RFC 2068 HTTP
RFC 2616 HTTPS
RFC 1350 TFTP client
Xmodem
RFC 1305 NTP
RFC 1155 MIB
RFC 1157 SNMPv1
RFC 1901 SNMPv2
RFC 3411 SNMPv3
RFC 1757 RMON 4 groups: Stats, History, Alarms and Events
RFC 3164 Syslog protocol
IEEE 802.3 MAUs
Event log
RFC 3176 sFlow

MIB Support

RFC 1213 MIB-II
RFC 1215 TRAP MIB
RFC 1493 Bridge MIB
RFC 2863 Interfaces group MIB
RFC 1643 Ethernet-like MIB
RFC 2618 RMON MIB
RFC 2674 IEEE 802.1Q MIB
RFC 2096 IP forwarding table MIB
RFC 3768 VRRP MIB
Allied Telesis enterprise MIB

VLAN

4096 VLANs (IEEE 802.1Q)
Port-based VLANs
MAC-based VLANs – 1K
IP subnet-based VLANs – 256
Private VLANs
GARP VLAN Registration Protocol (GVRP)
IEEE 802.1ad double VLAN Tagging (Q-in-Q)

Link Aggregation

IEEE 802.3ad LACP
Port trunking up to eight per trunk, 32 groups

Link Discovery

IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
Link Layer Discovery Protocol-Media Endpoint (LLDP-MED)

General Protocols

RFC 768 UDP
RFC 791 IP
RFC 792 ICMP
RFC 793 TCP
RFC 826 ARP
RFC 950 Subnetting, ICMP
RFC 1027 Proxy ARP
RFC 1035 DNS
RFC 1122 Internet host requirements
DHCP client
DHCP snooping
DHCP option 82
RFC 3046 DHCP relay agent information option
RFC 951 BootP

IP Multicast

RFC 1112 IGMPv1 snooping
RFC 2236 IGMPv2 snooping
RFC 3376 IGMPv3 snooping
IGMP snooping querier
Multicast groups – 1024
Multicast VLAN Registration (MVR)

Security / IEEE 802.1x

TACACS+
RFC 2865 RADIUS client
RFC 2866 RADIUS accounting
IEEE 802.1x port-based Network Access Control (NAC)
Supplicant
Authenticator
IEEE 802.1x multiple supplicant mode
Piggy-back mode
Per port MAC address limiting
Per port MAC address filtering
MAC address security/lockdown
RFC 1321 MD-5
EAP, EAP-TLS, LEAP, PEAP, TTLS
Dynamic VLANs
Guest VLANs
Secure VLANs
Layer 2/3/4/ Access Control Lists (ACLs)
2K ACL rules
ACLs based on:

- Ethernet frame type
- MAC address/VLAN ID/IEEE 802.1p
- Layer 2/3 protocol
- IP subnet/address/ToS/DSCP
- UDP/TCP port/flag

SSLv3 for Web management
SSL sessions – 10
Telnet sessions – 10
SSH sessions – 10
Microsoft NAP compliant
Symantec NAC support
Web authentication

IPv6

IPv6 host
IPv6 ACL
RFC 2463 ICMPv6
Dual-stack IPv4/IPv6 protocol
IPv6 network management
IPv6 applications: WEB/SSL, Telnet server/SSH, management ACLs

IP Routing

Static IPv4 routing – 8K
RIPv1, v2
Proxy ARP

Stacking Features

10Gbps stacking bandwidth via dedicated HDMI stacking ports
Stack up to eight units using HDMI stacking ports or stack up to 24 units using Enhanced Stacking
Single system appearance
Single IP management
Backup master
Link aggregation / trunking across stack
Port mirroring across stack
VLAN across stack
Maximum HDMI stacking cable length 1m



Compliance Standards

IEEE 802.3 – 10T
 IEEE 802.3u – 100TX with auto-negotiation
 IEEE 802.3ab – 1000T Gigabit Ethernet
 100FX SFP support
 1000X SFP support

Safety and Electromagnetic Emissions Certifications

EMI: FCC class A, CISPR 22 class A, EN55022 class A, C-TICK, VCCI
 Immunity: EN55024, EN61000-3-2 and EN61000-3-3
 Safety: UL 60950 (cULus), EN60950-1 (TUV)

RoHS Standards

Compliant with European and China RoHS standards

Package Description

AT-8100S/xx switch
 AC power cord
 Management cable (RJ-45 to DB-9)
 Rubber feet for desktop installation and 19" rack mountable hardware kit accessories
 Install Guide and CLI users guide available at alliedtelesis.com
 HDMI stacking cable (1 meter)

Physical Specifications

	Dimensions (WxDxH)
AT-8100S/24C	33 x 22.8 x 4.3 cm 13 x 8 x 1.72 in
AT-8100S/24	44 x 29.1 x 4.3 cm 17.34 x 14.46 x 1.72 in
AT-8100S/24POE	44 x 29.1 x 4.3 cm 17.34 x 14.46 x 1.72 in
AT-8100S/48	44 x 29.1 x 4.3 cm 17.34 x 14.46 x 1.72 in
AT-8100S/48POE	44 x 29.1 x 4.3 cm 17.34 x 14.46 x 1.72 in

Product Weight

	Weight (kg/lbs)
AT-8100S/24C	2.15 kg / 4.75 lb
AT-8100S/24	3.62 kg / 8.1 lb
AT-8100S/24POE	4.96 kg / 10.98 lb
AT-8100S/48	4.03 kg / 8.9 lb
AT-8100S/48POE	5.42 kg / 11.95 lb

Acoustic Noise

AT-8100S/24C	0dB (fanless)
AT-8100S/24	0dB (fanless)
AT-8100S/24POE	61.5dB
AT-8100S/48	0dB (fanless)
AT-8100S/48POE	61.9dB

Power over Ethernet Specifications

Available Power over Ethernet: 385W (using two PSU)

	IEEE 802.3af class 3	IEEE 802.3af class 4
AT-8100S/24POE	24 ports	12 ports
AT-8100S/48POE	24 ports	12 ports

IEEE 802.3af (mode B)

IEEE 802.3at (mode B)

Mode B PoE carries PoE power to powered devices on spare pairs 4/5 and 7/8 of Ethernet interface

Quality and Reliability

	MTBF
AT-8100S/24C	510,000
AT-8100S/24	430,000
AT-8100S/24POE	70,000
AT-8100S/48	300,000
AT-8100S/48POE	61,000

Power Characteristics

Voltage: 100-240V AC (10% auto-ranging)
 Frequency: 47-63Hz

Power Consumption

AT-8100S/24C	15.11W
Standard product with single AC power supply	
AT-8100S/24	18.69W
Standard product with single AC power supply or optional dual power supply	
AT-8100S/24POE	401.83W
Standard product with dual AC power supply	
AT-8100S/48	24.84W
Standard product with dual AC power supply	
AT-8100S/48POE	441.98W
Standard product with dual AC power supply	

Latency

	10Mbit	100Mbit
AT-8100S/24C	81.927µs	11.567µs
AT-8100S/24	81.862µs	11.437µs
AT-8100S/24POE	80.138µs	12.121µs
AT-8100S/48	80.197µs	11.672µs
AT-8100S/48POE	80.296µs	11.691µs

Ordering Information

8100S Stackable Fast Ethernet Copper Switches

AT-8100S/24C-xx
 24 x 10/100TX RJ-45 ports
 2 combo ports (2 x 10/100/1000T RJ-45 ports or
 2 x 100/1000 SFP ports)
 2 x HDMI stacking ports
 Internal single AC power supply

AT-8100S/24-xx
 24 x 10/100TX RJ-45 ports
 2 combo ports (2 x 10/100/1000T RJ-45 ports or
 2 x 100/1000 SFP ports)
 2 x HDMI stacking ports
 Internal dual AC power supplies or optional DC power
 supplies

AT-8100S/24POE-xx
 24 x 10/100TX PoE RJ-45 ports
 2 combo ports (2 x 10/100/1000T RJ-45 ports or
 2 x 100/1000 SFP ports)
 2 x HDMI stacking ports
 Internal dual AC power supplies

AT-8100S/48-xx
 48 x 10/100TX RJ-45 ports
 2 combo ports (2 x 10/100/1000T RJ-45 ports or
 2 x 100/1000 SFP ports)
 2 x HDMI stacking ports
 Internal dual AC power supplies or optional DC power
 supplies

AT-8100S/48POE-xx
 48 x 10/100TX PoE RJ-45 ports
 2 combo ports (2 x 10/100/1000T RJ-45 ports or
 2 x 100/1000 SFP ports)
 2 x HDMI stacking ports
 Internal dual AC power supplies

Where xx =
 10 for US power cord
 20 for no power cord
 30 for UK power cord
 40 for Australian power cord
 50 for European power cord
 80 for DC power supply
 (AT-8100S/24 and AT-8100S/48)

Small Form Pluggable Optics Modules

AT-SPSX
 SFP, MMF, 1000Mbps, 220 / 500 m, 850 nm, LC

AT-SPEX
 SFP, MMF, 1000Mbps, 2 km, 1310 nm, LC

AT-SPLX10
 SFP, SMF, 1000Mbps, 10 km, 1310 nm, LC

AT-SPLX40
 SFP, SMF, 1000Mbps, 40 km, 1310 nm, LC

AT-SPZX80
 SFP, SMF, 1000Mbps, 80 km, 1550 nm, LC

AT-SPBD10-13
 SFP, SMF, 1000Mbps, 10 km, 1310/1490 nm,
 LC-BiDi

AT-SPBD10-14
 SFP, SMF, 1000Mbps, 10 km, 1490/1310 nm,
 LC-BiDi

AT-SPFX/2
 SFP, MMF, 100Mbps, 2 km, 1310 nm, LC

AT-SPFXBD-LC-13
 SFP, SMF, 100Mbps, 10 km, 1310/1510 nm, LC-BiDi

AT-SPFXBD-LC-15
 SFP, SMF, 100Mbps, 10 km, 1510/1310 nm, LC-BiDi

AT-SPFX/15
 SFP, SMF, 100Mbps, 15 km, 1310 nm, LC

