



Simplify  
peed up

industrial connectivity  
MLiS, an Industrial IoT Expert



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Develop a wide range of wireless and wired products  
to meet various M2M and IoT needs.

## About Schmidt

Schmidt & Co., (Hong Kong) Limited, a subsidiary of Schmidt Electronics Group, was re-established in 1953 and has since built an enviable reputation in IT and electronic industries in the Asia Pacific region. Today, Schmidt has become a leading system integrator and proprietary product provider offering innovative yet competent Automatic Identification & Data Capture (AIDC), Mobile as well as Information Management solutions.

Schmidt makes life simple by bringing together barcoding, RFID, voice recognition, biometrics technologies, mobile computing and wireless communications, to facilitate the creation of real-time information infrastructure that helps customers optimize business processes, drive growth and improve their work and life efficiencies.

Headquartered in Hong Kong, we currently operate 15 regional offices across Asia, including key cities in China, Korea, Malaysia, Philippines, Singapore, Taiwan and Thailand, giving our customers the benefits of strong local presence with the promised regional support and consistently high quality of service.

## Milestone

1896 - Schmidt Group was founded in Tokyo by Mr. Paul Schmidt.

1911 - The first office was opened in Beijing, becoming the headquarters

1931 - The first branch was opened in Hong Kong

1953 - Schmidt & Co., (Hong Kong) Limited was registered, the Hong Kong office became the headquarters

1980 - The AIDC division of Schmidt & Co., (Hong Kong) Limited was established

2001 - Schmidt Group was restructured into 3 independent divisions

Schmidt Electronics Group

Schmidt BioMedTech Group

Schmidt Marketing Group

Today Schmidt & Co., (Hong Kong) Limited is now part of Schmidt Electronics Group

## Awards & Recognition

- Caring Company 2009-2014 the Hong Kong Council of Social Service
- Hong Kong Smart City Awards 2010 Silver Award - GS1 Hong Kong, Hong Kong PKI Forum.
- Hong Kong's Most Valuable Company 2010 Selected as the Hong Kong's Most Valuable Company in 2010 by a well-known magazine - Media zone.

## What is MLiS?

As our world develops, the need for better and more reliable data communications will grow. Our ambition is to provide the world's best industrial networks. Cyber security for industrial networks will become increasingly important along with the ability of the network to recover from interruptions. At MLiS, we have a wealth of experience in industrial communications applications. This is built in to our own products backed by our professional and skilled teams in research and development and production that will enable this vision.

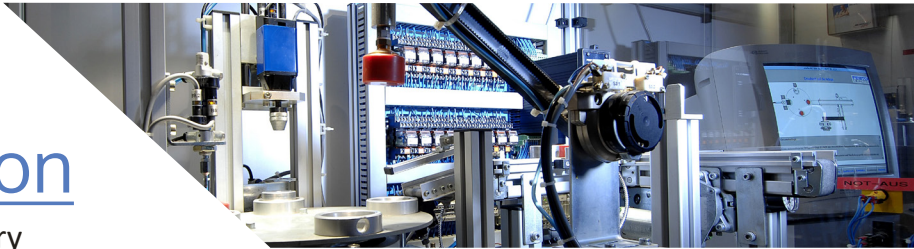
## Core Values

- Environmental Robustness
- Industry Leading Reliability and Quality
- Resilient Solutions
- Ease of Use
- Extensive Application and Support Capability



Quality

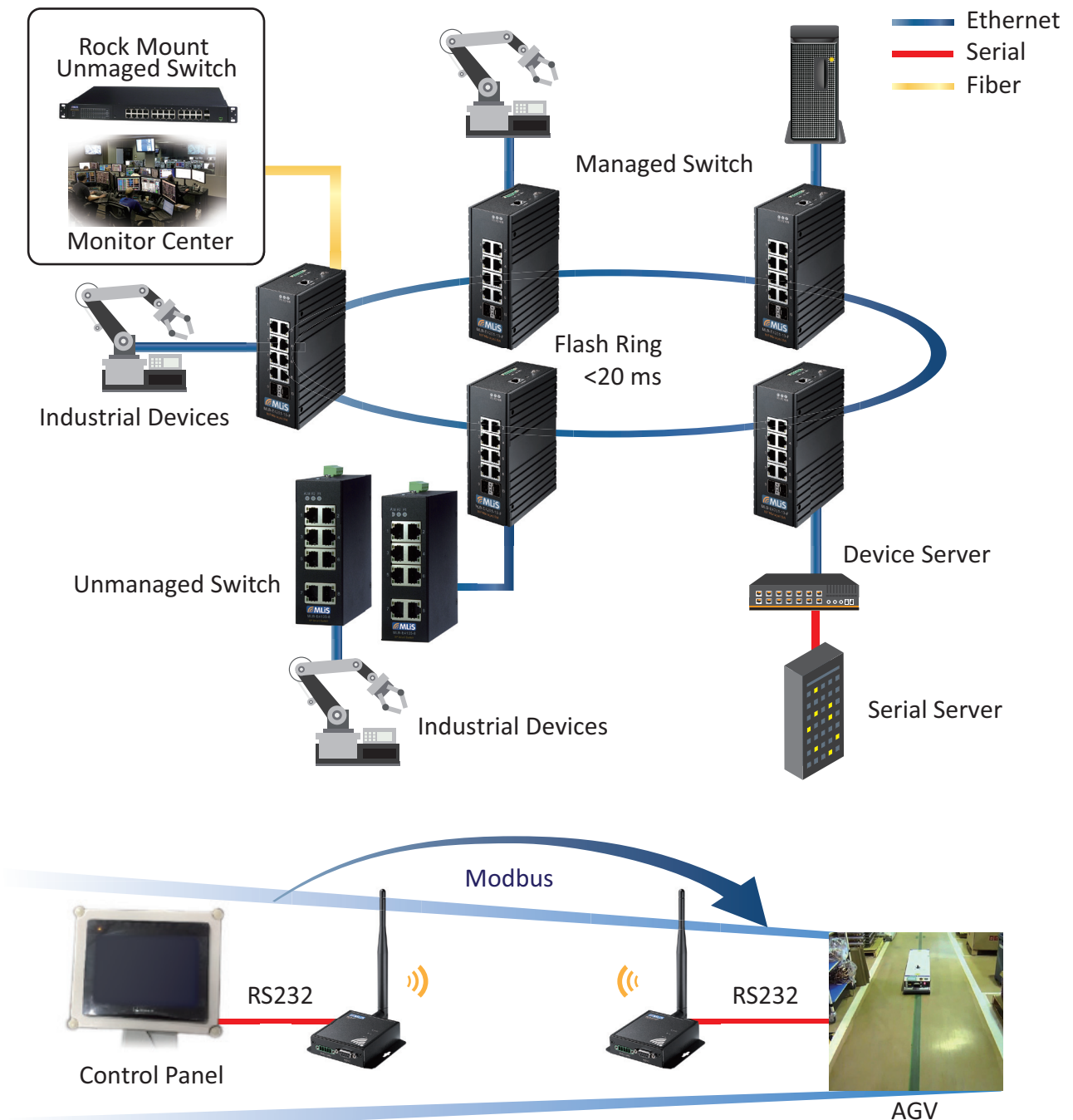




# Factory Automation

## Automatic Control towards Smart Factory

With the trend of industry 4.0, "smart factories" are created and robotic devices are used to complete manufacturing tasks, so that ease of operation is increased and total cost is reduced. MLiS provides wired and wireless solutions in industrial automation as the picture shows below. To ensure network stability, MLiS industrial Ethernet switches support flash ring to construct backbone network for redundancy. In addition, other industrial devices are connected by unmanaged switches and link backbone ring. Usually rack mount switches are installed in a monitor room and connect with the ring network via fiber. Moreover, MLiS products are capable of operating in harsh environments under wire temperature range from -40°C to +75°C. As for topology, the function is to control industrial devices and bring data back to central side to monitor.

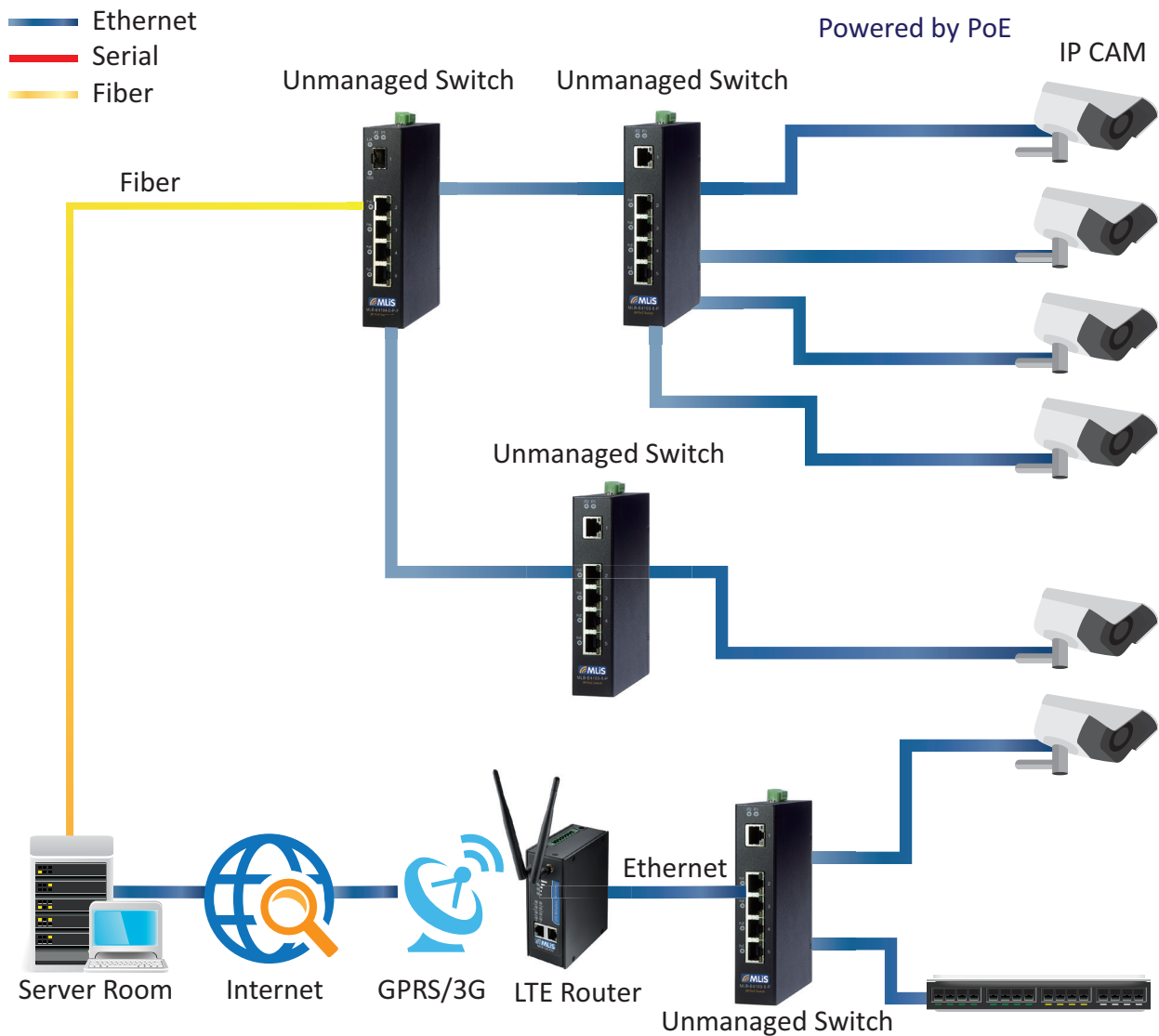


# Surveillance

## High-speed Data Transmission

Surveillance has become part of mainstream application in the industrial market. The growing trend in surveillance system is to control and manage the data transmission that relies on high-speed and wide bandwidth Internet connection. MLiS managed industrial switches support scale chain with new concepts (as the picture shows below), which chooses the middle node of chain to block path. Therefore, the surveillance system is able to balance traffic flow and specific nodes to prevent the network bottleneck and achieve high performance. In addition, MLiS industrial switches also support 802.3 af/at to assist in working with PoE IP camera and reliably handle data flow transmission.

MLiS managed switches provide new concepts for surveillance system to improve network performance. Furthermore, MLiS Ethernet switches are designed with features, which include wide temperature range, surge, port-to-port isolation, and 802.3 af/at PoE to meet industrial market needs.



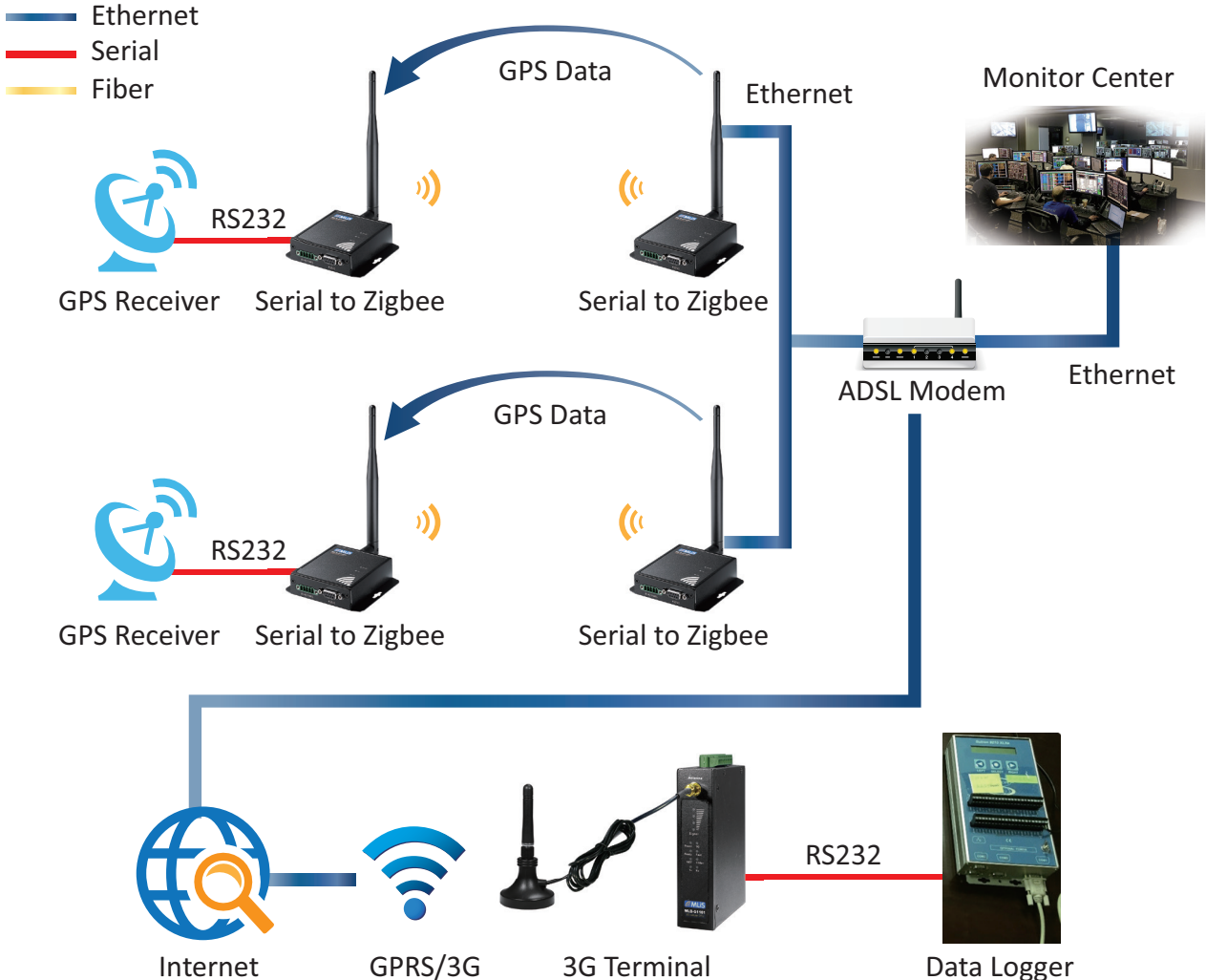


# Environmental Monitoring

## Efficiently Information Management System

MLiS pumping management system provides professional solution in environmental monitor application. Environment monitoring is applied to detect and collect operation status by digital or analog signals to send back the data to the controlling center in order to monitor and analyze the situations. As for MLiS wireless cellular terminal products, users can use remote pumping controllers and receive timely information to assist the system works properly through 2G/3G network connection.

Due to the wide factory area, the pumping management system has to be controlled by GPRS mobile service. The wireless cellular terminal is able to extend to the monitor coverage to connect with pumping devices via GPRS internet access. When operation errors occur, the data platform will automatically shut down the pumping devices and inform the controlling center to prevent further damages.





# Intelligent Transportation System

## Advanced Traffic Control Interface

Intelligent Transportation System (ITS) is an advanced application to provide innovative services relating to transport management and assist users to make safer and smarter use of transport networks. ITS is applied in the field of road transport and traffic management as well as for interfaces with other modes of transport.

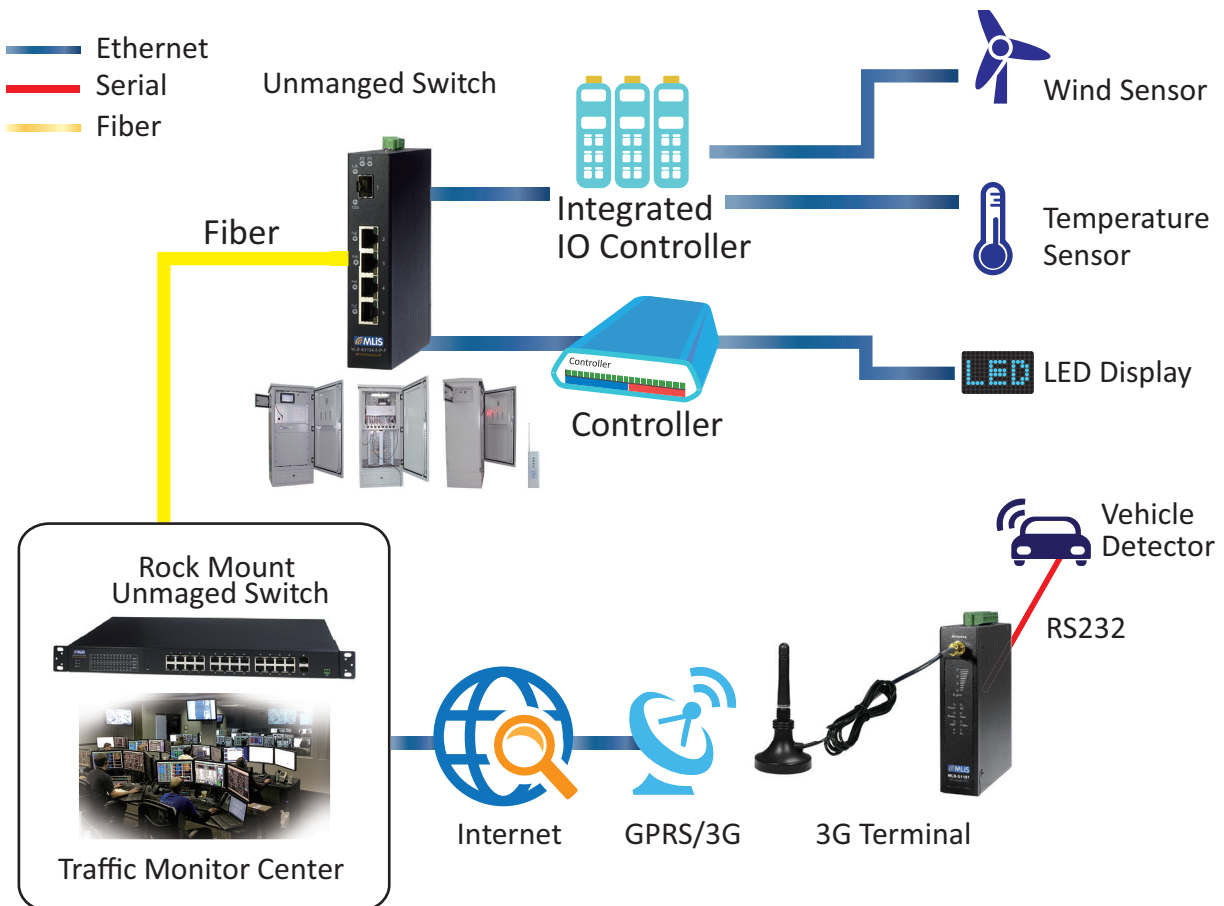
The system classifications are as below:

- ATMS (Advanced Traffic Management System)
- ATIS (Advanced Traveler Information System)
- AVCSS (Advanced Vehicle Control and Safety System)
- APTS (Advanced Public Transportation System)
- CVO (Commercial Vehicle Operation)



ATMS, ATIS, and AVCSS technologies are used in automatic vehicle monitoring and fleet management systems to improve traffic problems and enhance the safety and efficiency of information transmission such as ETC system. As for ETC system application, MLiS provides wireless and wired solutions to meet customers' needs. The cellular terminal connects to sensors and brings data back to the monitoring center as the structure shown below.

To meet network device requirements, high bandwidth for video and data transmission is emphasized in the ETC system application. Large amounts of traffic data are from gantry devices such as camera and scanner, and sensor by Gigabit transmission speeds and across the ETC network backbone to achieve high-resolution transmission for each gantry. In addition, MLiS products support wide temperature operation. The device has to be capable of operating in harsh outdoor environments under wide temperature range from -40°C to 75°C. Moreover, MLiS cellular terminal is designed as compact dimension for gantry installation to meet the limited space and features in DIN-rail mounting.



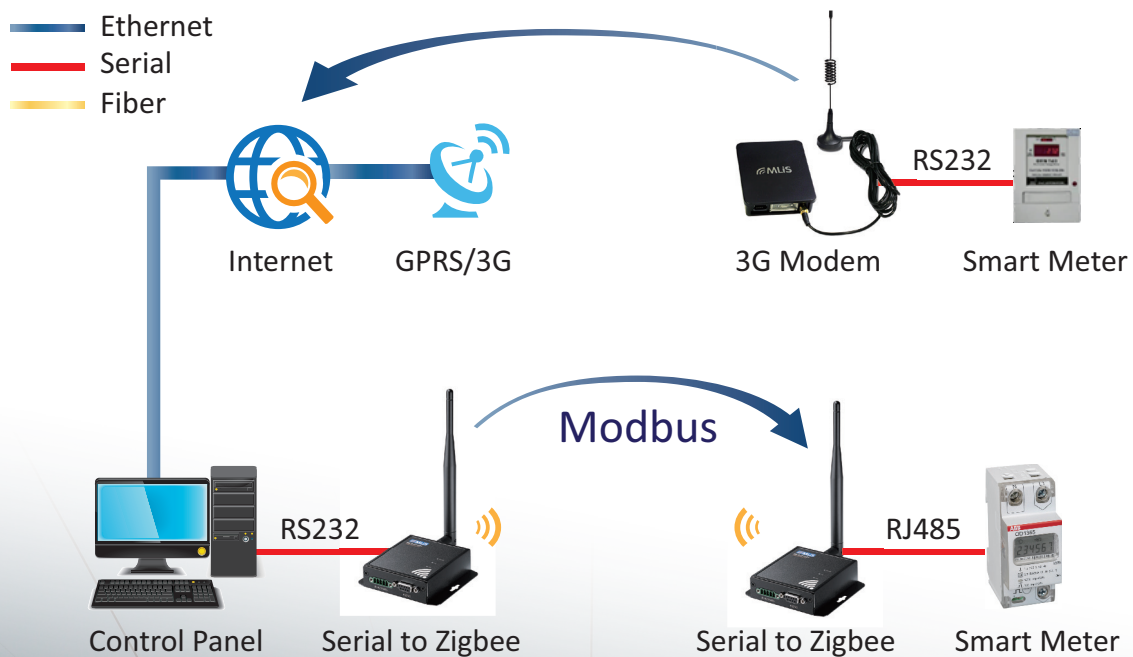


# Smart Grid

## Automatic Remote Access

As for the wireless network about power distribution, smart grid is an emphasis application in the industrial market. Power plants distributed over wide areas provide electric power. Power suppliers have to monitor data and collect the data for power distribution and transmission. Deploying wide range wireless network for automatic meter reading (AMR) system assists power suppliers to allocate energy distribution to control energy costs and service interruptions. In addition, automatic meter reading (AMR) system collects data status and transmits information to the central database to analyze automatically.

MLiS provides professional techniques and solutions for smart grid application. A well-designed communication structure is important for monitoring the power distribution efficiently. MLiS products GRPS, ZigBee, and RF series feature longer distance and better penetration transmission. In addition, MLiS products support auto mesh topology to set up the mesh network.



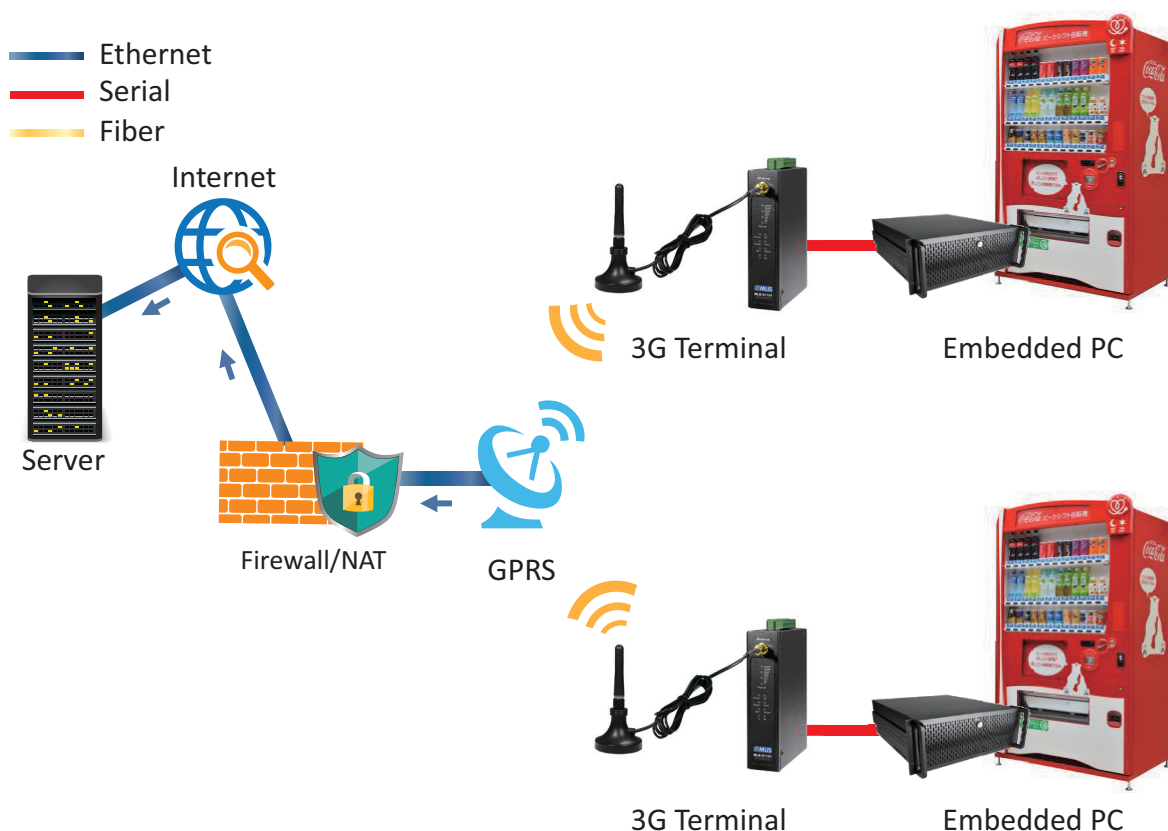


# Machine Automation

## Well-designed Network Communication Structure

Automation has kept industrial manufacturers competitive in a global marketplace. MLIS machine automation offers application platforms for various automation control solutions such as motion control and embedded systems to achieve reliable communication. MLIS product lines emphasize machine automation through electronic controls and sensors.

With the MLIS products, machine automation can be applied in ticket machines, lathe machines, or embedded motion controllers, etc. Machine automation systems can be configured and monitored remotely using an Ethernet connection to a PC or factory network. In addition, small and rugged devices can be easily integrated into production lines, machinery, or moving equipment. To meet industrial market application needs, MLIS Ethernet port provides setup, monitoring access, and communication protocols to support networking solution for intelligent management.



# Industrial Wireless

## *-Cellular Terminal-*

<i>MLB-G4202</i>	12
<i>MLB-G4201</i>	14
<i>MLB-G1101</i>	16
<i>MLB-G1102</i>	18

## *-Wi-Fi Terminal-*

<i>MLB-W4301</i>	20
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## *- ZigBee Terminal-*

<i>MLB-Z4001</i>	24
<i>MLB-Z1001</i>	26

## *-Cellular Modem-*

<i>MLB-G3002</i>	30
<i>MLB-G3001</i>	32

Cellular Terminal	4G Terminal	3G Terminal	3G Terminal	2G Terminal
Model Name	MLB-G4202	MLB-G4201	MLB-G1101	MLB-G1102
Product Photo				
2G/GPRS/GSM, Multi-slot Class 12 (quad band) Mobile Station Class B	•	•	•	•
GSM/GPRS/EDGE : 900/1800 MHz UMTS/HSPA+ : 900/2100	•	•	•	
4G LTE, B1,B3, B7,B8, B20	•			
WCDMA, B1, B2, B5, B6, B8	•			
Operation Mode Transparent (TCP Server/TCP Client/UDP Mode)	•	•	•	•
Operation Mode CCP Control(TCP/UDP), SMS/ AT Command	•	•	•	•
10/100Mb TX	2	2		
RS232/422/485 Module	1	1	1	1
SIM Card Slot	2	2	1	1
Data Bufferring	•	•	•	
Redundant Power Input	9~48VDC	9~48VDC	5~32VDC	5~32VDC
DC Jack Connector	•	•	•	•
Protocol				
TCP/IP	•	•		
Serial			•	•
Hardware Features				
Din-Rail/Wall Mount	•	•	•	•
Reverse Power Protection	•	•	•	•
-40~+75°C Operating Temperature	•	•	•	•
CE	•	•	•	
NCC	•	•	•	
Power Consumption	Max. 4Watt	Max. 4Watt	Max. 4Watt	Max. 4Watt
Relay Output (Normal Open)	2A @ 40VDC	2A @ 40VDC	2A @ 40VDC	2A @ 40VDC
Package Information				
Dimension (L)x(W)x(H)	122x88x49mm	122x88x49mm	119.5x89x26.9mm	119.5x89x26.9mm
Weight (w/o Packing Case)	425g	420g	200g	200g





# MLB-G4202

*Ethernet to LTE Terminal*

LTE  
Advanced

Industrial  
Design

-40 ~ +75°C

MLB-G4202 is a LTE terminal designed for 10/100M Ethernet communication over TCP/IP via any readily available 3G/4G carrier networks. Overall, it is more cost and time effective to establish communications between Machine to Machine over diverse locations.

MLB-G4202 terminal uses RJ45 connector as communication interface and the DC jack as power input. The LEDs are used to indicate the status of the terminal.

MLB-G4202 terminal can be used to provide wireless communications to link with many applications, including IP surveillance, vending, security and alarm monitoring, e-maintenance and other telemetry applications.

## Features

- Supports 3G and 4G global networks, including LTE advanced
- -40~+75°C wide temperature for harsh environment
- MCCP/MCCU support
- 15 KV ESD protection
- NAT/Port forwarding
- Event trigger by GPRS/IO/Reboot/Relay
- SMS control
- CE/NCC certification

General Features	
Frequency Range	LTE - 2100/1800/2600/900/800 MHz UMTS/HSPA - 2100/1900/850/800/900 MHz
WCDMA	2100MHz, 1900MHz, 850MHz, 900MHz
Protocol Stack	TCP/IP, UDP, HTTP, HTTPS, FTP, ICMP, DHCP, DDNS, ARP, SNMP, Telnet
Power Supply Input	9~48VDC
Power Consumption	Working mode: < 330mA
Humidity	5~95% (non-condensing)
Operating Temperature	-40~+75°C
Switch Off Protection	+90°C
Dimension (L)x(W)x(H)	121x88x48mm (excluding connectors)
Weight	425g (without antenna)
Casing Material	Metal
Data Transmission	
Peak Download Rate	100 Mbps
Peak Upload Rate	50 Mbps
Operating Mode	Transparent TCP Server/TCP client/UDP SMS/AT command
Relay	1 output with current carrying capacity of 2A @ 40VDC
Digital Inputs	2 electrically isolated inputs: +13~+30 V for state "1" (On) and +3 to -30 V for state "0" (Off)
ESD Protection	15 KV
NAT	Yes
Port Forwarding	Yes
IP Spc	Yes

Open VPN	Yes
Event trigger	GPRS/Reboot/IO/Relay
MCCP/MCCU	Yes API : MLIS Cellular Control Protocol (= MCCP) Utility : MLIS Cellular Configuration Utility (= MCCU)
Interfaces	
RF Antenna Socket	50 Ohm SMA
Power Connector	DC jack connector
SIM Card Num	2
SIM Card Slot	Flip-up type
Ethernet Interface	2 x RJ45 connector for 10/100M
Serial Interface	DB9 connector (Female)
LED	8 x Working Status Indicator 3 x Network Status Indicator
Reset	HW Reset
Approval	
Certification	EMC EN55022/24 FCC Part 15B EMS IEC61000-4-2 IEC61000-4-3 IEC61000-4-4 IEC61000-4-5 IEC61000-4-6 RF EN301908-1 Safety EN60950-1 NCC

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# MLB-G4201

## Ethernet to 2G/3G Terminal



2 Ethernet  
Ports

Industrial  
Design

-40 ~ +75°C

MLB-G4201 is a five-band UMTS/HSPA+ and Universal quad-band GSM/GPRS terminal designed for 10/100M Ethernet communication over TCP/IP via any readily available 2G/3G carrier networks. Overall, it is more cost and time effective to establish communications between Machine to Machine over diverse locations.

MLB-G4201 terminal uses RJ45 connector as communication interface and the DC jack as power input. The LEDs are used to indicate the status of the terminal.

MLB-G4201 terminal can be used to provide wireless communications to link with many applications, including IP surveillance, vending, security and alarm monitoring, e-maintenance and other telemetry applications.

## Features

- Five bands UMTS (WCDMA/FDD)/Quad-Band GSM/GPRS
- -40~+75°C wide temperature for harsh environment
- MCCP/MCCU support
- 15 KV ESD protection
- NAT/Port forwarding
- Event trigger by GPRS/IO/Reboot/Relay
- SMS control
- CE/FCC/NCC certification

General Features	
Frequency Range	UMTS(WCDMA/FDD) 800/850/900/1900/2100 MHz GSM 800/900/1800/1900 MHz
Protocol Stack	TCP/IP, UDP, HTTP, HTTPS, FTP, DHCP, DDNS, ARP, Telnet, SMTP, SNMP
Power Supply Input	9~48VDC
Power Consumption	Working mode: < 330mA
Humidity	5~95% (non-condensing)
Operating Temperature	-40~+75°C
Switch Off Protection	+90°C
Dimension (L)x(W)x(H)	122x88x48mm (excluding connectors)
Weight	420g (without antenna)
Casing Material	Metal
Data Transmission	
GPRS	Multi-slot Class 12, Mobile Station Class B
EDGE	Multi-slot Class 12
CSD	-9.6 Kbps, non-transparent, V.110
SMS	MT, MO, Cell Broadcast, Text and PDU mode
Operating Mode	Transparent TCP Server/TCP client/UDP SMS/AT command
Relay	1 output with current carrying capacity of 2A @ 40VDC
Digital Inputs	2 electrically isolated inputs: +13~+30V for state "1" (On) and +3 to -30V for state "0" (Off)
ESD Protection	15 KV
Event Trigger	GPRS/Reboot/IO/Relay

NAT	Yes
Port Forwarding	Yes
IP Sec	Yes
OpenVPN	Yes
MCCP/MCCU	Yes API: MLIS Cellular Control Protocol (= MCCP) Utility: MLIS Cellular Configuration Utility (= MCCU)
Interfaces	
RF Antenna Socket	50 Ohm SMA
Power Connector	DC jack connector
SIM Card Num	2
SIM Card Slot	Flip-up type
Ethernet Interface	2 x RJ45 connector for 10/100M
Serial Interface	DB9 connector (Female)
LED	8 x Working Status Indicator 3 x Network Status Indicator
Reset	HW Reset
Approval	
Certification	EMC EN55022/24 FCC Part 15B EMS IEC61000-4-2 IEC61000-4-3 IEC61000-4-4 IEC61000-4-5 IEC61000-4-6 RF EN301908-1 Safety EN60950-1 NCC

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# MLB-G1101

Dual Band 2G/3G Terminal



1M Data Buffer

Industrial Design

-40 ~ +75°C

MLB-G1101 is a Dual Band 2G/3G terminal designed for RS232/422/485 communication over TCP/IP via any readily available 2G/3G carrier networks. Overall, it is more cost and time effective to establish communications between Machine to Machine over diverse locations.

MLB-G1101 terminal uses DB9 connector as communication interface and the DC jack as power input. The LEDs are used to indicate the status of the terminal.

MLB-G1101 terminal can be used to provide wireless communications to link with many applications, including metering, fleet and asset management, vending, security and alarm monitoring, e-maintenance and other telemetry applications.

## Features

- Dual band 2G/3G (EU/US)
- Built-in 1M data buffer
- MCCC/MCCU support
- Build up watchdog and reconnection
- Event trigger for DI, relay changed via SMS or data
- Supports 4 connections (Max.) for server mode and 5 connections (Max.) for client mode
- CE/NCC certification

General Features	
Frequency Range	MLB-G1101-EU: <ul style="list-style-type: none"> <li>GSM/GPRS/EDGE 900/1800 MHz</li> <li>UMTS/HSPA+ 900/2100 MHz</li> </ul> MLB-G1101-US: <ul style="list-style-type: none"> <li>GSM/GPRS/EDGE 850/1900 MHz</li> <li>UMTS/HSPA+ 850/1900 MHz</li> </ul>
Protocol Stack	TCP/UDP/FTP/HTTP/SMTP
Power Supply Input	5~32VDC
Power Consumption	Working mode: < 330 mA Standby mode: < 27 mA
Humidity	5~95% (non-condensing).
Operating Temperature	-40~+75°C
Switch Off Protection	+90°C
Dimension (L)x(W)x(H)	119.5x 89x26.9mm (excluding connectors)
Weight	200g (without antenna)
Casing Material	Metal
Data Transmission +	
GPRS	Multi-slot Class 12, Mobile Station Class B
EDGE	Multi-slot Class 12
CSD	-9.6 Kbps, non-transparent, V.110
SMS	MT, MO, Cell Broadcast, Text and PDU mode
Operating Mode	Transparent (TCP server/TCP client/UDP) TCP server/TCP client/UDP SMS/AT command
Serial Mode	RS232/422/485
Serial Parameter	Data Bits: 5, 6, 7, 8 Stop Bits: 1, 1.5, 2 Parity: None, Even, Odd, Space, Mark Flow Control: RTS/CTS, DTR/DSR Baud Rate: 1200 - 230400 selectable Serial Signals: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RST (reset circuit), GND
Relay	1 output with current carrying capacity of 2A @ 40VDC

Digital Inputs	2 electrically isolated inputs: +13~+30 V for state "1" (On) and +3 to -30 V for state "0" (Off)
ESD Protection	15 KV
Heart Beat Packet	Yes
ID with Packet	Yes (15 Bytes MAX.)
Data Buffering	1 M
Data Delimiter	Yes
Event Trigger	GPRS/Reboot/IO/Relay
MCCP/MCCU	Yes API: MLIS Cellular Control Protocol (= MCCP) Utility: MLIS Cellular Configuration Utility (= MCCU)

Interfaces	
RF Antenna Socket	50 Ohm SMA
Power Connector	DC jack connector
SIM Card Num	1
SIM Card Slot	Flip-up type
Serial Interface	DB9 connector (Female)
LED	8 x Working Status Indicator 4 x Network Status Indicator
Reset	HW Reset

Reliability	
MTBF	1,053,812hrs

Approval	
Certification	EMC EN55022/24 EMS IEC61000-4-2 IEC61000-4-3 IEC61000-4-4 IEC61000-4-5 IEC61000-4-6 RF EN301908-1 EN301511 Safety EN60950-1 NCC

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# MLB-G1102

## Quad Band GSM/GPRS Terminal



1M Data Buffer

Industrial Design

-40 ~ +75°C

MLB-G1102 is a Quad Band GSM/GPRS terminal designed for RS232/422/485 communication over TCP/IP via any readily available 2G carrier networks. Overall, it is more cost and time effective to establish communications between Machine to Machine over diverse locations.

MLB-G1102 terminal can be used to provide wireless communications to link with many applications, including metering, fleet and asset management, vending, security and alarm monitoring, e-maintenance and other telemetry applications.

MLB-G1102 terminal uses DB9 connector as communication interface and the DC jack as power input. The LEDs are used to indicate the status of the terminal.

## Features

- Quad band GSM/GPRS
- Built-in 1M data buffer
- MCCP/MCCU support
- Build up watchdog and reconnection
- Event trigger for DI, relay changed via SMS or data
- Supports 4 connections (Max.) for server mode and 5 connections (Max.) for client mode

General Features	
Frequency Range	GSM/GPRS 850/900/1800/1900 MHz
Protocol Stack	TCP/UDP/FTP/HTTP/SMTP
Power Supply Input	5~32VDC
Power Consumption	Working mode: 1.4W (9V@155mA) Idle mode: 0.18W (9V@30 mA)
Humidity	5~95% (non-condensing)
Operating Temperature	-40~+75°C
Switch Off Protection	+90°C
Dimension (L)x(W)x(H)	119.5x89x26.9mm (excluding connectors)
Weight	200g (without antenna)
Casing Material	Metal
Data Transmission	
GPRS	Multi-slot Class 12, Mobile Station Class B
EDGE	Multi-slot Class 12
CSD	-9.6 Kbps, non-transparent, V.110
SMS	MT, MO, Cell Broadcast, Text and PDU mode
Operating Mode	Transparent (TCP server/TCP client/UDP) MCCP control (TCP/UDP) SMS/AT command
Serial Mode	RS232/422/485
Serial Parameter	Data Bits: 5, 6, 7, 8 Stop Bits: 1, 1.5, 2 Parity: None, Even, Odd, Space, Mark Flow Control: RTS/CTS, DTR/DSR Baudrate: 1200-230400 selectable Serial Signals: TxD, RxD, RTS, CTS, DTR, DSR, DCD, RST (reset circuit), GND

Relay	1 output with current carrying capacity of 2A @ 40VDC
Digital Inputs	2 electrically isolated inputs: +13~+30 V for state "1" (On) and +3~-30 V for state "0" (Off)
ESD Protection	15 KV
Heart Beat Packet	Yes
ID with Packet	Yes (15 bytes MAX.)
Data Buffering	1 M
Data Delimiter	Yes
Event Trigger	GPRS/Reboot/IO/Relay
MCCP/MCCU	Yes API: MLIS Cellular Control Protocol (= MCCP) Utility: MLIS Cellular Configuration Utility (= MCCU)
Interfaces	
RF Antenna Socket	50 Ohm SMA
Power Connector	DC jack connector
SIM Card Num	1
SIM Card Slot	Flip-up type
Serial Interface	DB9 connector (Female)
LED	8 x Working Status Indicator 4 x Network Status Indicator
Reset	HW Reset
Reliability	
MTBF	1,046,770hrs
Approval	
Certification	EMC EN55022/24 EN301489-1/7 RF EN301511

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# MLB-W4301

Dual Band 802.11ac PoE AP



MIMO  
802.11ac

IEEE  
802.3at  
PoE+

16 SSIDs  
256 Clients

MLB-W4301 is a Dual-band 802.11ac PoE AP designed for 1 Gigabyte Ethernet communication via any readily available WiFi carrier network. Overall, it offers a more cost effective and time to market solution for bridging remote Machine to Machine over diverse locations without first having to invest and engineer a huge complex network.

MLB-W4301 AP uses the RJ45 Connector to provide data communication interface and PoE function, besides the DC jack to provide power input. LEDs are used to indicate the status of the AP.

MLB-W4301 AP can be used to provide a wireless communications link for many applications, such as Indoor coverage as stand-alone AP and Wireless Mesh Network

## Features

- Dual-band 2x2 MIMO 802.11ac
- 802.3 af PoE function
- 1 Gigabyte Ethernet
- Supports 16 SSIDs per band/up to 256 simultaneous clients

General Features																														
Frequency Range	2.4G radio: 2.4000GHz~2.4835GHz 5G radio: 5.150~5.250, 5.250~5.350, 5.470~5.725, 5.725~5.875 GHz																													
Maximum Transmit Power	2.4 G radio: Up to 21 dBm* 5 G radio: Up to 21 dBm* *MAX. transmit power may change according to the country regulation and transmission rates																													
Dual-band 2x2 MIMO Radio	Compliant with IEEE 802.11n and 802.11ac standard (MIMO 2x2).																													
Power Supply Input	+12V/1A																													
Power Consumption	< 12W																													
Humidity	5~95% (non-condensing)																													
Operating Temperature	0~+45°C																													
Dimension (L)x(W)x(H)	160x160x40mm																													
Weight	300g																													
Dustproof/Waterproof	IP30																													
Installation	Ceiling mounting or wall mounting																													
Casing Material	Plastic																													
Data Transmission																														
Multiple SSIDs	Supports 32 SSIDs, 16 SSIDs for each radio																													
Ethernet	1167 Mbps aggregated data rates																													
Receive Sensitivity	802.11g: -91 dBm @ 6 Mbps -77 dBm @ 54 Mbps 802.11n: <table border="1"> <thead> <tr> <th></th> <th>HT20</th> <th>HT40</th> </tr> </thead> <tbody> <tr> <td>MCS0/8/16</td> <td>-91 dBm</td> <td>-88 dBm</td> </tr> <tr> <td>MCS7/15</td> <td>-74 dBm</td> <td>-71 dBm</td> </tr> </tbody> </table> 802.11a: -93 dBm@6Mbps -77 dBm @ 54 Mbps 802.11ac: <table border="1"> <thead> <tr> <th></th> <th>VHT20</th> <th>VHT40</th> <th>VHT80</th> <th>HT40</th> </tr> </thead> <tbody> <tr> <td>MCS0</td> <td>-91 dBm</td> <td>-88 dBm</td> <td>-85 dBm</td> <td></td> </tr> <tr> <td>MCS8</td> <td>-70 dBm</td> <td>/</td> <td>/</td> <td></td> </tr> <tr> <td>MCS9</td> <td>-</td> <td>-64 dBm</td> <td>-61 dBm</td> <td></td> </tr> </tbody> </table>		HT20	HT40	MCS0/8/16	-91 dBm	-88 dBm	MCS7/15	-74 dBm	-71 dBm		VHT20	VHT40	VHT80	HT40	MCS0	-91 dBm	-88 dBm	-85 dBm		MCS8	-70 dBm	/	/		MCS9	-	-64 dBm	-61 dBm	
	HT20	HT40																												
MCS0/8/16	-91 dBm	-88 dBm																												
MCS7/15	-74 dBm	-71 dBm																												
	VHT20	VHT40	VHT80	HT40																										
MCS0	-91 dBm	-88 dBm	-85 dBm																											
MCS8	-70 dBm	/	/																											
MCS9	-	-64 dBm	-61 dBm																											
Industry-Standard Security	WEP, WPA/WPA2-PSK, 802.1x Auth (PEAP, EAP/SIM), MAC Auth and Web Auth																													

Special Features			
PoE Function	802.3af PoE (PD)		
Reset	Yes		
Interfaces			
Antenna Pattern	Frequency (MHz)	2400~2500	5150~5850
	Polarization	Vertical	Vertical
	Gain (dBi)	3+	3+
Power Connector	DC jack connector		
Ethernet Interface	RJ45 connector		
LED Indicator	RUN/ETH/5G/2.4G		
Approval			
Certification	FCC UL RoHS 2011/65/EU compliant ; WEEE 2002/96/EC		

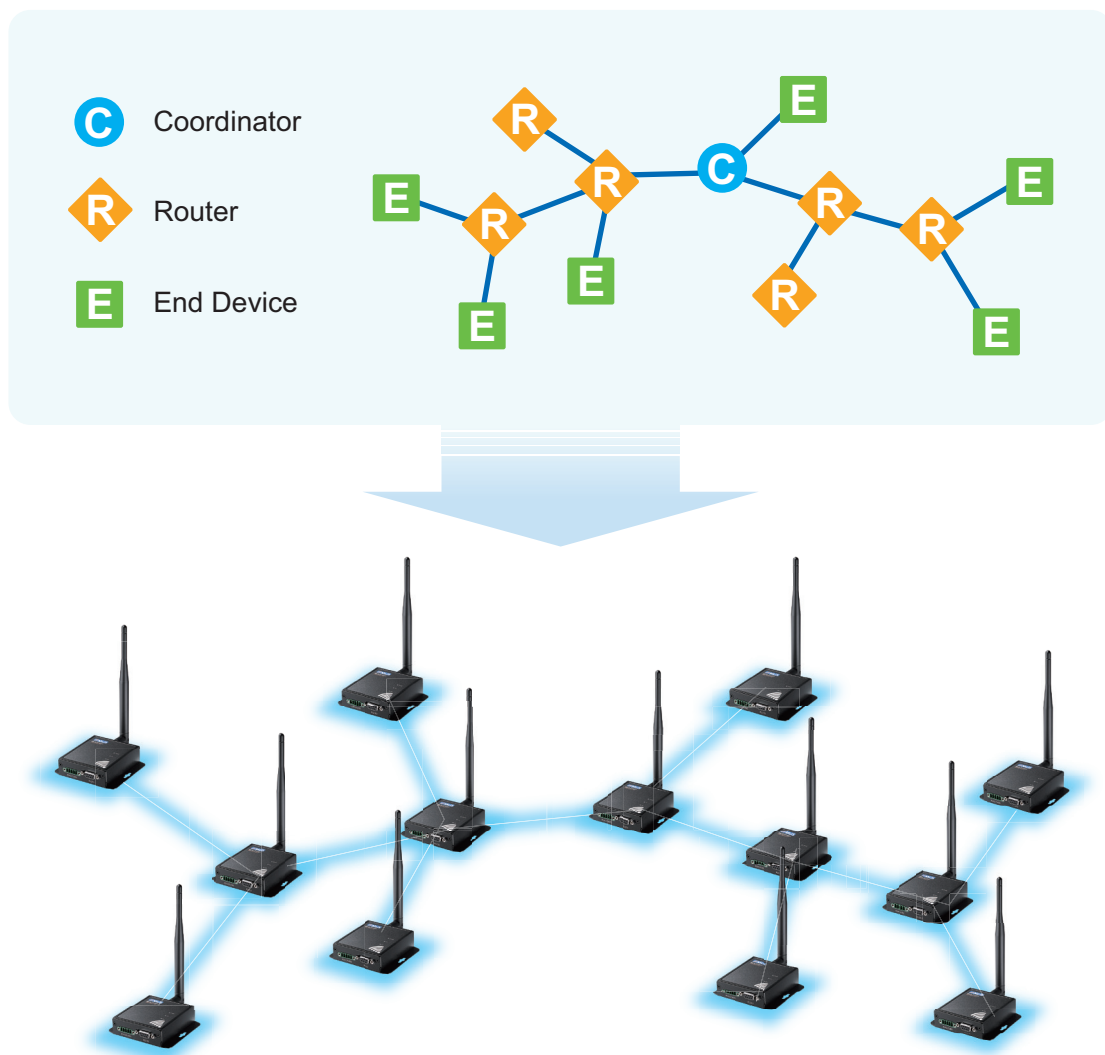
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# Auto-Mesh

Mesh networking allows messages route through different nodes to the destination. In the event that if one RF connection between nodes is lost (power-loss and environmental obstruction, etc.) the critical data, it can still reach the destination due to the mesh networking capabilities embedded inside the modem.

- Self-healing:  
Any nodes may enter or leave the network at any time without causing the network fail.
- Hierarchy and parent-child relationships are not needed.
- Quiet Protocol:  
Routing overhead will be reduced by using a reactive protocol similar to AODV.
- Route Discovery:
- Rather than maintaining a network map, routes will be discovered and created when needed.
- Selective Acknowledgments:  
The only destination node will reply to route requests.
- Reliable Delivery:  
Reliable delivery of data is accomplished by means of acknowledgements.

No coordinator, router, and end device.



ZigBee Terminal	Ethernet to 900 MHz RF Modem	Serial to 900 MHz RF Modem
Model Name	MLB-Z4001	MLB-Z1001
Product Photo		
902 to 928 MHz, Software Selectable Channel Mask for Interference Immunity	•	•
ESD Protection	•	•
Indoor/Urban Range	Up to 2000ft. (610m)	Up to 2000ft. (610m)
Outdoor/Line-of-Sight Range	Up to 9 miles (14km) w/ dipole antenna; Up to 28 miles (45km) w/ high-gain antenna	Up to 9 miles (14km) w/ dipole antenna; Up to 28 miles (45km) w/ high-gain antenna
Transmit Power	Up to 24 dBm (250 mW) software selectable	Up to 24 dBm (250 mW) software selectable
Receiver Sensitivity	-101 dBm @ 200 Kbps, -110 dBm @ 10 Kbps	-101 dBm @ 200 Kbps, -110 dBm @ 10 Kbps
Power Level	+7 dBm, (5 mW) ; +15 dBm, (32 mW) ; +18 dBm, (63 mW) +21 dBm, (125 mW) ; +24 dBm, (250 mW)	+7 dBm, (5 mW) ; +15 dBm, (32 mW) ; +18 dBm, (63 mW) +21 dBm, (125 mW) ; +24 dBm, (250 mW)
Networking Topologies	Mesh, Repeater, Point-to-Point, Point-to-Multipoint, Peer-to-Peer	Mesh, Repeater, Point-to-Point, Point-to-Multipoint, Peer-to-Peer
64 Channels Available, User Selectable Channels	•	•
Protocol	TCP/IP, UDP, HTTP, ICMP, IPv4, IGMP v1/v2, DHCP, Telnet	TCP/IP, UDP, HTTP, ICMP, IPv4, IGMP v1/v2, DHCP, Telnet
Encryption	•	•
Configuration Utility	•	•
Web Console	•	
Spread Spectrum	FHSS (Software Selectable Channels)	FHSS (Software Selectable Channels)
Power Input	5~32VDC	5~32VDC
RF Data Rate	10 Kbps or 200 Kbps	10 Kbps or 200 Kbps
<b>Hardware Features</b>		
RF Antenna Socket	50ohm SMA	50ohm SMA
Network Interface	RJ45 connect for Ethernet 10/100M	RJ45 connect for Ethernet 10/100M
DC Jack Connector	•	•
LED Indicator	•	•
Reset	•	•
CE Certification	•	•
MTBF	2,039,188hrs	2,073,734hrs
Operating Temperature	-40~+75°C	-40~+75°C
Humidity	5~95% (non-condensing)	5~95% (non-condensing)
<b>Package Information</b>		
Dimension (L)x(W)x(H)	86x76x25mm (excluding connectors)	86x76x25mm (excluding connectors)
Weight (w/o Packing Case)	218g (without antenna)	220g (without antenna)
Casing Material	Metal	Metal

# MLB-Z4001

*Ethernet to 900 MHz RF Modem*



Strong  
Penetrating

-40 ~ +75°C

AutoMesh  
Network

MLB-Z4001 is an Ethernet to 900 MHz RF modem designed for Ethernet communication via any readily available ZigBee network. Overall, it offers a more cost effective and time to market solution for bridging remote Machine to Machine over diverse locations without first having to invest and engineer a huge complex network.

MLB-Z4001 modem uses the RJ45 Connector to provide data communication interface and the DC jack to provide power input. LEDs are used to indicate the status of the terminal. MLB-Z4001 is taking advantage of the specific Mesh networking protocol, featuring dense network operation and supporting for sleeping routers, and are also available in a proprietary point-to-multipoint configuration.

MLB-Z4001 modem can be used to provide a wireless communications link for many applications, including warehouse, building automation, and street light applications.

## Features

- 900 MHz RF signal
- RF data rate up to 200 Kbps
- Automatically build up Mesh Network (Auto-Mesh)
- Configuration Utility/Web console
- Longer distance to 2000 ft. (610m)



General Features	
Frequency Band	902 to 928 MHz, software selectable channel mask for interference immunity
Power Input	5~32VDC
Operating Temperature	-40~+75°C
ESD Protection	15KV
Dimension (L)x(W)x(H)	86x76x25mm (excluding connectors)
Power Consumption	Normal mode: mA
Humidity	5~95% (non-condensing)
Weight	218g (without antenna)
Casing Material	Metal
Data Transmission	
RF Data Rate	10 Kbps or 200 Kbps
Indoor/Urban Range	Up to 2000 ft. (610 m)
Outdoor/ Line-Of-Sight Range	Up to 9 miles (14 km) w/ dipole antenna; Up to 28 miles (45 km) w/ high-gain antenna
Transmit Power	Up to 24 dBm (250 mW) software selectable
Receiver Sensitivity	-101 dBm @ 200 Kbps, -110 dBm @ 10 Kbps
Power Level	+7 dBm, (5 mW) ; +15 dBm, (32 mW) ; +18 dBm, (63 mW) ; +21 dBm, (125 mW) ; +24 dBm, (250 mW)

Special Features	
Networking Topologies	Mesh, Repeater, Point-to-Point, Point-to-Multipoint, Peer-to-Peer
Number of Channels, User Selectable Channels	64 channels available
Protocol	TCP/IP, UDP, HTTP, ICMP, IPv4, IGMP, DHCP, Telnet,
Encryption	128 bit AES
Configuration Tool	Web Console/Utility
Spread Spectrum	FHSS (Software Selectable Channels)
Interfaces	
RF Antenna Socket	50ohm SMA
Power Connector	DC jack connector
Network Interface	RJ45 connector for Ethernet 10/100M
LED	1 x Power 1 x Tx/Rx 1 x Ethernet 10/100M Indicator
Reset	HW Reset
Reliability	
MTBF	2,039,188hrs
Approval	
Certification	EMC EN55022/24

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# MLB-Z1001

Serial to 900 MHz RF Modem



Strong  
Penetrating

-40 ~ +75°C

AutoMesh  
Network

MLB-Z1001 is a 900 MHz RF modem designed for RS232/422/485 communication via any readily available ZigBee network. Overall, it offers a more cost effective and time to market solution for bridging remote Machine to Machine over diverse locations without first having to invest and engineer a huge complex network.

MLB-Z1001 modem uses the D89 & Terminal block connector to provide data communication interface and the DC jack to provide power input. LEDs are used to indicate the status of the modem.

MLB-Z1001 modem can be used to provide a wireless communication link for many applications, including warehouse, AGV, and street light applications.

## Features

- 900 MHz RF signal
- RF data rate up to 200 Kbps
- Automatically build up Mesh Network (Auto-Mesh)
- Configuration utility
- Longer distance to 2000 ft. (610m)

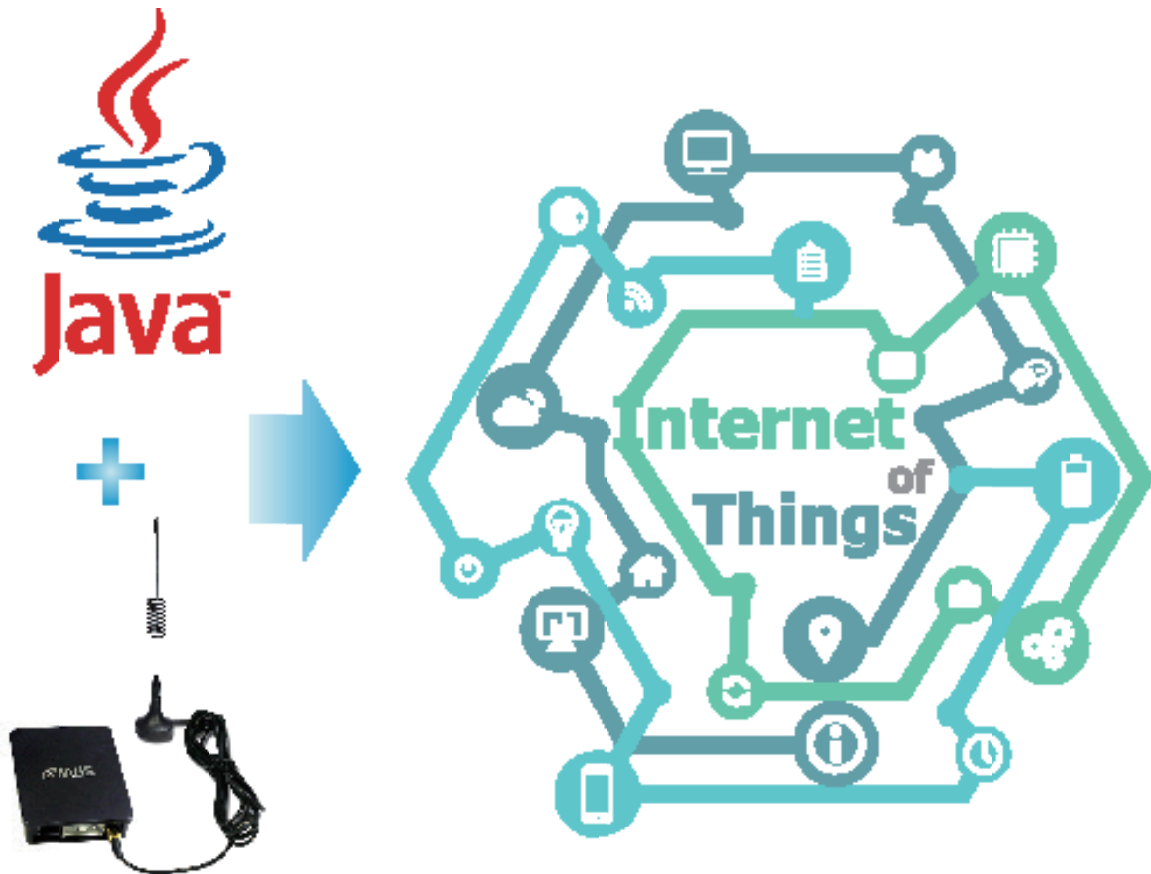
General Features	
Frequency Band	902 to 928 MHz, software selectable channel mask for interference immunity
Power Input	5~32VDC
Operating Temperature	-40°C~+75°C
ESD Protection	15KV
Dimension (L)x(W)x(H)	86x76x25mm (excluding connectors)
Power Consumption	Normal mode: 32mA
Humidity	5~95% (non-condensing)
Weight	212g (without antenna)
Casing Material	Metal
Data Transmission	
RF Data Rate	10 Kbps or 200 Kbps
Indoor/Urban Range	Up to 2000 ft. (610 m)
Outdoor/Line-Of-Sight Range	Up to 9 miles (14 km) w/ dipole antenna; Up to 28 miles (45 km) w/ high-gain antenna
Transmit Power	Up to 24 dBm (250 mW) software selectable
Receiver Sensitivity	-101 dBm @ 200 Kbps, -110 dBm @ 10 Kbps
Power Level	+7 dBm, (5 mW) ; +15 dBm, (32 mW) ; +18 dBm, (63 mW) ; +21 dBm, (125 mW) ; +24 dBm, (250 mW)



Special Features	
Networking Topologies	Mesh, Repeater, Point-to-Point, Point-to-Multipoint, Peer-to-Peer
Number of Channels, User Selectable Channels	64 channels available
Encryption	128 bit AES
Configuration Tool	Yes
Spread Spectrum	FHSS (Software Selectable Channels)
Interfaces	
RF Antenna Socket	50ohm SMA
Power Connector	DC jack connector
Serial Interface	DB9 connector for RS232 (Female) Terminal Block for RJ422/485
LED	1 x Power 1 x Tx 1 x Indicator
Reset	HW Reset
Reliability	
MTBF	2,073,734hrs
Approval	
Certification	EMC EN55022/24

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# Java Platform

MLiS meets the M2M customers' needs. By offering Java ME and Java M2M optimized version, MLiS modem facilitates end-to-end interworking, transparently passing critical data between the application and backend server. In short, MLiS modem Java strategy simplifies technology architecture, speeds application development, and elevates M2M to the next level to accelerate the Internet of Things development.



Cellular Modem	Dual Band 3G Wireless Modem	Quad Band GSM/GPRS Wireless Modem
Model Name	MLB-G3002	MLB-G3001
Product Photo		
Frequency Range	GSM/GPRS/EDGE 900/1800 MHz and UMTS/HSPA+ 900/2100 MHz	GSM/GPRS 850/900/1800/1900MHz
Command Sets	Hayes 3GPP TS 27.007, TS 27.005	Hayes 3GPP TS 27.007, TS 27.005
Protocol Stack	TCP/UDP/HTTP/FTP/SMTP	TCP/UDP/HTTP/FTP/SMTP
Power Supply Input	5~32VDC	5~32VDC
GPRS	Multi-slot Class 12, Mobile Station Class B	Multi-slot Class 12, Mobile Station Class B Downlink and Uplink 85.6kbps MAX.
CSD	•	•
SMS	•	•
Built-In JAVA Profile IMP-NG	•	•
MIM Supported	•	•
RF Antenna Socket	50 Ohm SMA	50 Ohm SMA
<b>Hardware Features</b>		
RJ45 Power Connector	•	•
SIM Card Slot	Push-push type	Push-push type
Serial Interface	RJ45 connect for RS232 (Female)	RJ45 connect for RS232 (Female)
LED Indicator	•	•
CE Certification	•	•
MTBF	2,433,201hrs	2,529,437hrs
Humidity	5~95% (non-condensing)	5~95% (non-condensing)
Operating Temperature	-40~+75°C	-40~+75°C
Switch Off Protection	+90°C	+90°C
<b>Package Information</b>		
Dimension (L)x(W)x(H)	94x75x21mm (excluding connectors)	94x75x21mm (excluding connectors)
Weight (w/o Packing Case)	90g (without antenna)	90g (without antenna)
Casing Material	Plastic	Plastic

# MLB-G3002

Dual Band 3G Modem



Java  
Enabled

-40 ~ +75°C

Industrial  
Design

MLB-G3002 is Dual Band 2G/3G modem designed for RS232 and USB communication over TCP/IP via any readily available 2G/3G carrier network. Overall, it offers a more cost effective and time to market solution for bridging remote Machine to Machine over diverse locations without first having to invest and engineer a huge complex network.

MLB-G3002 uses the RJ45 Connector to provide power and data communication interface. LEDs are used to indicate the status of the terminal.

MLB-G3002 can be used to provide a wireless communications link for many applications, including metering, fleet and asset management, vending, security and alarm monitoring, e-maintenance and other telemetry applications.

## Features

- Java enabled
- Dual band 2G/3G (EU/US)
- Built in TCP/IP Stack
- I/O reserved
- CE certification



General Features	
Frequency Range	MLB-G3002-EU <ul style="list-style-type: none"> <li>GSM/GPRS/EDGE 900/1800 MHz</li> <li>UMTS/HSPA+ 900/2100 MHz</li> </ul> MLB-G3002-US <ul style="list-style-type: none"> <li>GSM/GPRS/EDGE 850/1900 MHz</li> <li>UMTS/HSPA+ 850/1900 MHz</li> </ul>
Command Sets	Hayes 3GPP TS 27.007, TS 27.005
Protocol Stack	TCP/UDP/HTTP/FTP/SMTP
Power Supply Input	5~32VDC MAX.
Power Consumption	Sleep Mode: typ.
Humidity	5~95% (non-condensing)
Operating Temperature	-40~+75°C
Switch Off Protection	+90°C
Dimension (L)x(W)x(H)	94x75x21mm (excluding connectors)
Weight	92g (without antenna)
Casing Material	Plastic
Data Transmission	
GPRS	Multi-slot Class 12, Mobile Station Class B
EDGE	Multi-slot Class 12
CSD	9.6 kbps, non-transparent, V.110
SMS	MT, MO, Cell Broadcast, Text and PDU mode
Character Framing	7E1 and 8E1 (Serial Interface)

Special Features	
Internal Engine	Built-In JAVA Profile IMP-NG
I/O Pin Reserved	13
MIM Supported	Yes
Interfaces	
RF Antenna Socket	50ohm SMA
Power Connector	RJ45 connector
SIM Card Slot	Push-push type
Serial Interface	RJ45 connector for RS232 (Female)
LED	1 x Power 1 x Network Status Indicator
Reliability	
MTBF	2,433,201hrs
Approval	
Certification	EMC EN55022/24 EMS IEC 61000-4-2 IEC 61000-4-3 IEC 61000-4-4 IEC 61000-4-5 IEC-61000-4-11 RF EN301908-1 EN301511 Safety EN60950-1

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# MLB-G3001

Qual Band GSM/GPRS Modem



Java  
Enabled

-40 ~ +75°C

Industrial  
Design

MLB-G3001 is Qual Band GSM/GPRS modem designed for RS232 and USB communication over TCP/IP via readily available GSM/GPRS carrier network. Overall, it offers a more cost effective and time to market solution for bridging remote Machine to Machine over diverse locations without first having to invest and engineer a huge complex network.

MLB-G3001 uses the RJ45 Connector to provide power and data communication interface. LEDs are used to indicate the status of the terminal.

MLB-G3001 can be used to provide a wireless communications link for many applications, including metering, fleet and asset management, vending, security and alarm monitoring, e-maintenance and other telemetry applications.

## Features

- Java enabled
- Qual band GSM/GPRS
- Built in TCP/IP Stack
- I/O reserved
- CE certification

General Features	
Frequency Range	GSM/GPRS 850/900/1800/1900 MHz
Command Sets	Hayes 3GPP TS 27.007, TS 27.005
Protocol Stack	TCP/UDP/HTTP/FTP/SMTP
Power Supply Input	5~32VDC MAX.
Power Consumption	Sleep Mode: typ.
Humidity	5~95% (non-condensing)
Operating Temperature	-40~+75°C
Switch Off Protection	+90°C
Dimension (L)x(W)x(H)	94x75x21mm (excluding connectors)
Weight	92g (without antenna)
Casing Material	Plastic

Casing Material	
GPRS	Multi-slot Class 12, Mobile Station Class B
	Downlink and Uplink 85.6kbps MAX.
CSD	9.6 kbps, non-transparent, V.110
SMS	MT, MO, Cell Broadcast, Text and PDU mode
Character Framing	7E1 and 8E1 (Serial Interface)

Special Features	
Internal Engine	Built-In JAVA Profile IMP-NG
I/O Pin Reserved	13
MIM Supported	Yes
Interfaces	
RF Antenna Socket	50 Ohm SMA
Power Connector	RJ45 connector
SIM Card Slot	Push-push type
Serial Interface	RJ45 connector for RS232 (Female)
LED	1 x Power 1 x Network Status Indicator

Reliability	
MTBF	2,529,437 hrs

Approval	
Certification	EMC EN 55022/24 EMS IEC 61000-4-2 IEC 61000-4-3 IEC 61000-4-5 IEC 61000-4-11 RF EN 301511 Safety EN60950-1

Simplify Speed Up  
Industrial Connectivity

# Industrial Wired

## **-Managed Ethernet Switch-**

<i>MLB-E4201-10-F &amp; MLB-E4202-10-G-F</i>	36
<i>MLB-E4207-14-F &amp; MLB-E4208-14-G-F</i>	38
<i>MLB-E4203-28-F &amp; MLB-E4204-28-G-F</i>	40

## **-Managed PoE Switch-**

<i>MLB-E4211-8-P-F &amp; MLB-E4212-8-G-P-F</i>	44
<i>MLB-E4213-10-P-F &amp; MLB-E4214-10-G-P-F</i>	46
<i>MLB-E4205-12-P-F &amp; MLB-E4206-12-G-P-F</i>	48
<i>MLB-E4215H-14-P-F &amp; MLB-E4216H-14-G-P-F</i>	50

## **-Unmanaged Ethernet Switch-**

<i>MLB-E4101-5 &amp; MLB-E4102-5-F</i> <i>MLB-E4108-5-G &amp; MLB-E4109-5-G-F</i> <i>MLB-E4115-5-F-MM &amp; MLB-E4116-5-F-SM</i>	54
<i>MLB-E4105-8 &amp; MLB-E4106-8-F</i> <i>MLB-E4112-8-G &amp; MLB-E4113-8-G-F</i>	56
<i>MLB-E4107-26-F &amp; MLB-E4114-26-G-F</i>	58

## **-Unmanaged PoE Switch-**

<i>MLB-E4103-5-P &amp; MLB-E4104-5-P-F</i> <i>MLB-E4110-5-G-P &amp; MLB-E4111-5-G-P-F</i>	62
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## **-Fiber to Ethernet Media Converter-**

<i>MLB-F4001-MM &amp; MLB-F4002-SM</i>	64
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## **-1 Port Serial Device Server-**

<i>MLB-S4101</i>	66
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Managed Ethernet Switch	10P Din Rail Managed Switch with 2 SFP	10P Din Rail Managed Gigabit Switch with 2 SFP	14P Din Rail Managed Switch with 4 SFP	14P Din Rail Managed Gigabit Switch with 4 SFP	26P Rack Mount Managed Switch with 4 SFP	26P Rack Mount Managed Gigabit Switch with 4 SFP
Model Name	MLB-E4201-10-F	MLB-E4202-10-G-F	MLB-E4207-14-F	MLB-E4208-14-G-F	MLB-E4203-28-F	MLB-E4204-28-G-F
Product Photo						
Layer 3						
Layer 2	•	•	•	•	•	•
Profinet Protocol						
Gigabit TX		8		10		24
Gigabit SFP Module		2		4		4
10/100Mb TX	8		10		24	
100Mb SFP Module	2		4		4	
Redundant Power Input (AC 110/220V)					(By demand)	(By demand)
Redundant Power Input (DC 12~58V)	•	•	•	•	One AC only	One AC only
Software Features						
L3 Functions, Static, RIP I/II, OSPF						
L2 Functions, VLAN, LACP/Trunk	•	•	•	•	•	•
L2 Functions, QoS, Rate/Storm Control	•	•	•	•	•	•
L2 Functions, Storm Protection	•	•	•	•	•	•
L2 Functions, 802.1X, MAC/IP Security	•	•	•	•	•	•
L4 Function, ACL, QCL	•	•	•	•	•	•
Redundancy - STP/RSTP/MSTP	•	•	•	•	•	•
Redundancy - Flash Ring/Scale Chain	•	•	•	•	•	•
SNMP V1/V2C/V3, RMON	•	•	•	•	•	•
Relay Output Alarm	•	•	•	•	•	•
MAC Address Table	8K	8K	8K	8K	16K	16K
Jumbo Frame	9K	9K	9K	9K	9K	9K
Packet Buffer	4Mbit	4Mbit	4Mbit	4Mbit	8Mbit	8Mbit
Max VLAN No.	256	256	256	256	2048	2048
Priority Queue	8	8	8	8	8	8
Gigabit SFP Module						
2KV Surge Immunity on RJ45 Port	•	•	•	•	•	•
1.5 KV Hipot	•	•	•	•	•	•
19" Rack Mount					•	•
Din-Rail/Wall Mount	•	•	•	•		
Reverse Power Protection	•	•	•	•	•	•
-40~+75°C Operating Temperature	•	•	•	•	•	•
CE, FCC	•	•	•	•	•	•
Power Consumption	Max. 14Watt	Max. 14Watt	17Watt	17Watt	Max. 26Watt	Max. 26Watt
Relay Output (Normal Open)	1A. 24V	1A. 24V	1A. 24V	1A. 24V	1A. 30V	1A. 30V
Package Information						
Dimension (L)x(W)x(H)	154x65x108mm	154x65x108mm	154x65x108mm	154x65x108mm	43.5x570x250mm	43.5x570x250mm
Weight (w/o Packing Case)	1200g	1200g	1200g	1200g	3200g	3200g



# MLB-E4201-10-F MLB-E4202-10-G-F

10-Ports Managed (Gigabit) Switch



Gigabit  
-G Only

Managed

VLAN  
Mirroring

-40 ~ +75°C

Industrial  
Design

MLiS MLB-E4201-10-F/MLB-E4202-10-G-F are full 10/100M Gigabit Ethernet switches, providing 10/100M Gigabit Ethernet ports to update the existing network to a full 10/100M Gigabit speed infrastructure. A full Gigabit network provides higher overall throughput than a legacy fast Ethernet network, and reduce the response time for timing sensitive applications that may mix of video, voice and data in its traffic pipe. With the powerful features, MLI S Managed Switches are easily to prioritize, partition and organize user's network and provide reliable and good quality services.

## Features

- Provides 8 Gigabit copper ports plus 2 SFP ports 100FX or 1000BaseF (SX/LX/LH) (MLB-E4201-10-F/MLB-E4202-10-G-F)
- 9K jumbo frames
- L2 wire-speed switching engine
- 8K MAC forwarding addresses
- Network redundant LACP, STP, RSTP & MSTP, Flash Ring, Scale Chain (< 20 ms)
- Port-based/tag-based VLAN, IEEE 802.1ad/QinQ VLAN, add/remove VLAN tags
- Multicasting supports IGMP v1/v2, proxy & snooping
- Multicast/Broadcast/Flooding Storm Control
- IEEE802.1x access control
- Per VLAN mirroring
- Dual power input (12~58VDC) & reverse power protection
- DIN-rail and wall mounting option
- Only MLB-E4202-10-G-F model supports Gigabit

Ethernet	
Operating Mode	Store and forward, L2 wire-speed/non-blocking switching engine
MAC Addresses	8K
Jumbo Frames	9K Bytes
Copper RJ45 Ports	
Speed	10/100/1000 Mbps
MDI/MDIX Auto-crossover	Supports straight or cross wired cables
Auto-negotiating	10/100/1000 Mbps speed auto-negotiation; full and half duplex
Ethernet Isolation	1500 VRMS 1 minute
SFP (Pluggable) Ports	
Port Types Supported	SFP (Pluggable) Ports 100/1000BaseSFP slot
Support 100FX	Plastic
Support 100/1000BaseT SFP Transceiver	Multi-slot Class 12, Mobile Station Class B
Network Redundancy	
Flash Ring	Link loss recovery < 20ms Single & multiple rings supported
Scale Chain	Link loss recovery < 20ms
Spanning Tree Protocol	IEEE 802.1D STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP
Port Trunk with LACP	Static trunk or dynamic via LACP (Link Aggregation Control Protocol)
Bridge, VLANs & Protocols	
Flow Control	IEEE 802.3x (full duplex) and back-pressure (half duplex)
Max VLANs	256
VLAN Types	Port-based VLANs IEEE 802.1Q tag-based VLANs IEEE 802.1ad double tagging (Q in Q)
Multicast Protocols	IGMP v1, v2 with up to 255 multicast groups IGMP snooping and querying Immediate leave and leave proxy Throttling and filtering
LLDP	IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
Traffic Management & QoS	
Priority	IEEE 802.1p QoS
Number of Queues Per Port	4
Scheduling Schemes	SPQ, WRR
Traffic Shaper	Port-based shaping
Security	
Port Security	IP and MAC-based access control IEEE 802.1X authentication Network Access Control
Storm Control	Multicast/Broadcast/Flooding Storm Control
Management	
User Management Interfaces	Cisco-like CLI (Command Line Interface) WEB-based management SNMP v1, v2c, v3 Telnet (5 sessions)

Management Security	HTTPs, SSH Radius client for management
Upgrade & Restore	TFTP/FTP for configuration import/export, TFTP/FTP for firmware upgrade
Diagnostic	Syslog Per VLAN mirroring Ethernet copper connection diagnostic tool SFP with DDM (Digital Diagnostic Monitoring)
MIBs	RFC 1757 RMON 1,2,3,9; RFC 2674 Q-Bridge MIB RFC-1213 MIB-II; RFC-1493 Bridge MIB; RFC 2233 IF MIB
DHCP	Client, Server, Relay, Snooping, Option 82
NTP/SNTP	Yes
System Status	Device info/status; Ethernet port status; PoE status
PoE Management	Scheduling; power control; PoE PD power consumption
Power	
Power Input	Redundant input terminals
Input Voltage Range	12~58VDC
Reverse Power Protection	Yes
Transient Protection	> 15,000 watt peak
Indicators	
Power Status Indication	Indication of power input status
Ethernet Port Indication	Link & speed
Environmental & Compliances	
Operating Temperature Range	-40~+75°C (cold startup at -40°C)
Storage Temperature Range	-40~+85°C
Humidity	5~95% (non-condensing)
Vibration, Shock & Freefall	Vibration: IEC60068-2-6 Shock: IEC60068-2-27 Free Fall: IEC60068-2-32
Certification Compliance	CE/FCC/UL-508; EN-50121-4
Electrical Safety	UL508/CSA C22, EN61010-1, CE
EMC	FCC Part 15, CISPR 22 (EN55022) Class A IEC61000-4-2, -3, -4, -5, -6 (Level 3)
RoHS and WEEE	RoHS (Pb free) and WEEE compliant
MTBF	> 25 years
Mechanical	
Ingress Protection	IP30
Installation Option	DIN-rail mounting, wall mounting
Dimension (L)x(W)x(H)	154x65x108mm
Weight	120g



# MLB-E4207-14-F

# MLB-E4208-14-G-F

14-Ports Managed (Gigabit) Switch

Gigabit  
-G Only

Managed

VLAN  
Mirroring

-40 ~ +75°C

Industrial  
Design

MLB-E4207-14-F/MLB-E4208-14-G-F are full 10/100M Gigabit Ethernet switches, providing 14 10/100M Gigabit Ethernet ports to update the existing network to a full 10/100M Gigabit speed infrastructure. A full Gigabit network provides higher overall throughput than a legacy fast Ethernet network, and reduce the response time for timing sensitive applications that may mix of video, voice and data in its traffic pipe. With the powerful features, MLIS Managed Switches are easily to prioritize, partition and organize user's network and provide reliable and good quality services.

## Features

- Provides 10 Gigabit copper ports plus 4 SFP ports 100FX or 1000BaseF (SX/LX/LH) (MLB-E4207-14-F/MLB-E4208-14-G-F)
- 9K jumbo frames
- L2 wire-speed switching engine
- 8K MAC forwarding addresses
- Network redundant LACP, STP, RSTP & MSTP, Flash Ring, Scale Chain (< 20 ms)
- Port-based/tag-based VLAN, IEEE 802.1ad/QinQ VLAN, add/remove VLAN tags
- Multicasting supports IGMP v1/v2, proxy & snooping
- Multicast/Broadcast/Flooding Storm Control
- IEEE802.1x access control
- Per VLAN mirroring
- Dual power input (12 ~ 58VDC) & reverse power protection
- DIN-rail and wall mounting option
- Only MLB-E4208-14-G-F model supports Gigabit

Ethernet	
Operating Mode	Store and forward, L2 wire-speed/non-blocking switching engine
MAC Addresses	8K
Jumbo Frames	9K Bytes
Copper RJ45 Ports	
Speed	10/100/1000 Mbps
MDI/MDIX Auto-crossover	Support straight or cross wired cables
Auto-negotiating	10/100/1000 Mbps speed auto-negotiation; full and half duplex
Ethernet Isolation	1500 VRMS 1 minute
SFP (Pluggable) Ports	
Port Types Supported	SFP (Pluggable) Ports 100/1000BaseSFP slot Supports 100FX Supports 100/1000BaseT SFP transceiver
Support 100FX	LC typically for fiber (depends on module)
Support 100/1000BaseT SFP transceiver	Typical 50 or 62.5/125 $\mu$ m for multimode (mm); Typical 8 or 9/125 $\mu$ m for single mode (sm)
Network Redundancy	
Flash Ring	Link loss recovery < 20ms Single & multiple rings supported
Scale Chain	Link loss recovery < 20ms
Spanning Tree Protocol	IEEE 802.1D STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP
Port Trunk with LACP	Static trunk or dynamic via LACP (Link Aggregation Control Protocol)
Bridge, VLANs & Protocols	
Flow Control	IEEE 802.3x (full duplex) and back-pressure (half duplex)
Max VLANs	256
VLAN Types	Port-based VLANs IEEE 802.1Q tag-based VLANs IEEE 802.1ad double tagging (Q in Q)
Multicast Protocols	IGMP v1, v2 with up to 255 multicast groups IGMP snooping and querying Immediate leave and leave proxy Throttling and filtering
LLDP	IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
Traffic Management & QoS	
Priority	IEEE 802.1p QoS
Number of Queues Per Port	4
Scheduling Schemes	SPQ, WRR
Traffic Shaper	Port-based shaping
Security	
Port Security	IP and MAC-based access control IEEE 802.1X authentication Network Access Control
Storm Control	Multicast/Broadcast/Flooding Storm Control

Management	
User Management Interfaces	Cisco-like CLI (Command Line Interface) WEB-based management SNMP v1, v2c, v3 Telnet (5 sessions)
Management Security	HTTPs, SSH Radius client for management
Upgrade & Restore	TFTP/FTP for configuration import/export TFTP/FTP for firmware upgrade
Diagnostic	Syslog Per VLAN mirroring Ethernet copper connection diagnostic tool SFP with DDM (Digital Diagnostic Monitoring)
MIBs	RFC 1757 RMON 1,2,3,9; RFC 2674 Q-Bridge MIB RFC-1213 MIB-II; RFC-1493 Bridge MIB; RFC 2233 IF MIB
DHCP	Client, Server, Relay, Snooping, Option 82
NTP/SNTP	Yes
System Status	Device info/status; Ethernet port status; PoE status
PoE Management	Scheduling; power control; PoE PD power consumption
Power	
Power Input	Redundant input terminals
Input Voltage Range	12~58VDC
Reverse Power Protection	Yes
Transient Protection	> 15,000 watt peak
Indicators	
Power Status Indication	Indication of power input status
Ethernet Port Indication	Link & speed
Environmental & Compliances	
Operating Temperature Range	-40~+75°C (cold startup at -40°C)
Storage Temperature Range	-40~+85°C
Humidity	5~95% (non-condensing)
Vibration, Shock & Freefall	Vibration: IEC60068-2-6 Shock: IEC60068-2-27 Free Fall: IEC60068-2-32
Certification Compliance	CE/FCC/UL-508; EN-50121-4
Electrical Safety	UL508/CSA C22, EN61010-1, CE
EMC	FCC Part 15, CISPR 22 (EN55022) Class A IEC61000-4-2, -3, -4, -5, -6 (Level 3)
RoHS and WEEE	RoHS (Pb free) and WEEE compliant
MTBF	> 25 years
Mechanical	
Ingress Protection	IP30
Installation Option	DIN-rail mounting, wall mounting
Dimension (L)x(W)x(H)	154x65x108mm
Weight	120g

# MLB-E4203-28-F MLB-E4204-28-G-F

28-Ports L2 Managed (Gigabit) Switch



- Gigabit -G Only
- Advanced QoS
- VLAN Mirroring
- 40 ~ +75°C
- Industrial Design

MLB-E4203-28-F/MLB-E4204-28-G-F are full 10/100M Gigabit, rack-mount type Ethernet switches, providing 28 10/100M Gigabit Ethernet ports to update the existing network to a full 10/100M Gigabit speed infrastructure. A full Gigabit network provides higher overall throughput than a legacy fast Ethernet network, and reduce the response time for timing sensitive applications that may mix of video, voice and data in its traffic pipe. With the powerful features, MLB-E4203-28-F/MLB-E4204-28-G-F Managed Switches are easily to prioritize, partition and organize user's network and provide reliable and good quality services.




## Features

- 24 10/100M Gigabit copper ports plus 4 SFP ports 100FX or 1000BaseF (SX/LX/LH)
- 9K jumbo frames
- L2 wire-speed switching
- Network redundant LACP, STP, RSTP & MSTP, Flash Ring, Scale Chain (< 20 ms)
- Supports single & multiple rings
- Advanced VLAN operations: IEEE 802.1ad/QinQ VLAN, VLAN tag add/remove/replace
- Private VLAN, port-based/tag-based/protocol-based VLAN
- Multicasting supports IGMP v1/v2/v3, proxy & snooping
- Security: IEEE 802.1x authentication, RADIUS & TACACS+ AAA
- Policy-based traffic control engine for actions of deny, allow, queue mapping, rate limit, mirror, or CoS remark on any combination of specific Layer-2/Layer-3/Layer-4 patterns
- QoS (SPQ, WRR, SPQ+ WRR): Hierarchical per-port, per queue shaping & scheduling with bandwidth management
- Only MLB-E4204-28-G-F model supports Gigabit



Ethernet	
Ethernet Interface	24 10/100M Gigabit copper ports plus 4 SFP ports 100FX or 1000BaseF (SX/LX/LH)
Operating Mode	Store and forward, L2 wire-speed/non-blocking switching engine
MAC Addresses	8K
Jumbo Frames	9K Bytes
Copper RJ45 Ports	
Speed	10/100/1000 Mbps
MDI/MDIX Auto-crossover	Supports straight or cross wired cables
Auto-negotiating	10/100/1000 Mbps speed auto-negotiation; full and half duplex
Ethernet Isolation	1500 VRMS 1 minute
SFP (Pluggable) Ports	
Port Types Supported	Gigabit fiber multimode, fiber single mode, fiber long-haul Single mode 100/1000BaseF (SX/LX/LH)
Fiber Port Connector	LC typically for fiber (depends on module)
Network Redundancy	
Flash Ring	Link loss recovery < 20ms Single & multiple rings supported
Spanning Tree Protocol	IEEE 802.1D STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP BPDU forwarding and filtering
IEEE 802.3ad Port Trunk with LACP	Static trunk or dynamic via LACP (Link Aggregation Control Protocol)
Scale Chain	Link loss recovery < 20ms
Bridge, VLANs & Protocols	
Flow Control	IEEE 802.3x (full duplex) and back-pressure (half duplex)
Max VLANs	2048
VLAN Types	Port-based VLANs, IEEE 802.1Q tag-based VLANs, IEEE 802.1v protocol-based VLANs, IEEE 802.1ad double tagging (Q in Q)
VLAN Operations	private VLAN
MVR (Multicast VLAN Registration)	Attach/Remove/Replacement VLAN tag
Multicast Protocols	IGMP v1, v2 and v3 with up to 512 multicast groups IGMP snooping and querying Immediate leave and leave proxy
Traffic Management & QoS	
Policy-based Access Control Engine	Policy/Profile-based Access Control List (ACL) Multi-layer ACL support; Flexible combination of well-known fixed Layer 2/3/4 fields: - VLAN ID, Source/Destination MAC address, EtherType - Source/Destination IP address, IP protocol number - UDP or TCP, Source/Destination port number of TCP/UDP - DSCP or ToS value Actions per rule: deny, allow, queue mapping, rate limit, mirror, CoS remark Max number of profiles per switch: 20 Max number of rules per profile: 32
Number of Queues Per Port	8
Scheduling Schemes	SPQ, WRR, SPQ+ WRR

Traffic Shaper	Hierarchical per port and per queue shaping & scheduling with bandwidth management
Traffic Policer	Ingress rate limit in 1K bps granularity TRTCM (Two Rate Three Color Marker) policer engine
Policy-based Access Control Engine	Policy/Profile-based Access Control List (ACL)
Security	
Port Security	IP and MAC-based access control; Policy-based access control IEEE 802.1X authentication network access control RADIUS client for IEEE 802.1X
Storm Control	Multicast/Broadcast/Flooding Storm Control on per port and per VLAN basis
Management	
User Management Interfaces	Cisco-like CLI (Command Line Interface) WEB-based management SNMP v1, v2c, v3 Telnet (5 sessions)
Management Security	HTTPs, SSH Radius client for management (*pending) TACACS+ client for management (*pending)
Upgrade & Restore	TFTP/FTP for configuration import/export TFTP/FTP for firmware upgrade
Diagnostic	Syslog Policy-based stream mirroring
NTP/SNTP	Yes
Power	
Power Input	DC: Redundant input terminals
Input Voltage Range	100/240 VAC, 50Hz to 60Hz
Reverse Power Protection	Yes
Indicators	
Power Status Indication	Indication of power input status
Ethernet Port Indication	Link & speed
Environmental & Compliances	
Operating Temperature Range	-40~+75°C (cold startup at -40°C)
Storage Temperature Range	-40~+85°C
Humidity	5~95% (non-condensing)
Vibration, Shock & Freefall	Vibration: IEC60068-2-6 Shock: IEC60068-2-27 Free Fall: IEC60068-2-32
Certification Compliance	CE/FCC/UL-508
EMI	Radiated emission: CISPR 22, EN55022 Class A Conducted emission: EN55022 Class A
EMS	ESD: IEC61000-4-2 Radiated RF (RS): IEC61000-4-3 EFT: IEC61000-4-4 Surge: IEC61000-4-5 Conducted RF (CS): IEC61000-4-6
RoHS and WEEE	RoHS (Pb free) and WEEE compliant
MTBF	> 25 years
Mechanical	
Ingress Protection	IP30
Installation Option	19" rack mounting
Dimensions (L)x(W)x(H)	435x570x250mm
Weight	3200g

Managed PoE Switch	8P Din Rail Managed PoE Switch with 2 SFP	8P Din Rail Managed PoE Gigabit Switch with 2 SFP	12P Din Rail Managed PoE Switch with 4 SFP
Model Name	MLB-E4211-8-P-F	MLB-E4212-8-G-P-F	MLB-E4205-12-P-F
Product Photo			
Layer 2	•	•	•
Gigabit TX		6	
Gigabit SFP Module		2	
10/100Mb TX	6		8
100Mb SFP Module	2		4
IEEE 802.3af/at (15.4/30 Watt) PoE/PoE+	Max. 6	Max. 6	Max. 8
IEEE 802.3at+ (36 Watt)			
Ultra High Power PoE (60 Watt)			
Redundant Power Input	46~57VDC	46~57VDC	46~57VDC
Software Features			
L2 Functions, VLAN, LACP/Trunk	•	•	•
L2 Functions, QoS	•	•	•
L2 Functions, Storm Protection	•	•	•
L2 Functions, 802.1X, MAC/IP Security	•	•	•
L4 Function, ACL, QCL	•	•	•
Redundancy - STP/RSTP/MSTP	•	•	•
Redundancy - Flash Ring/Scale Chain	•	•	•
SNMP V1/V2C/V3, RMON	•	•	•
Relay Output Alarm	•	•	•
MAC Address Table	8K	8K	8K
Jumbo Frame	9K	9K	9K
Packet Buffer	4Mbit	4Mbit	4Mbit
Max VLAN No.	256	256	256
Priority Queue	8	8	8
Hardware Features			
2KV Surge Immunity on RJ45 Port	•	•	•
1.5 KV Hipot	•	•	•
Din-Rail/Wall Mount	•	•	•
Reverse Power Protection	•	•	•
-40~+75°C Operating Temperature	•	•	•
CE, FCC	•	•	•
Power Consumption	Max. 13Watt	Max. 13Watt	Max. 17Watt
Relay Output (Normal Open)	1A. 24V	1A. 24V	1A. 24V
Package Information			
Dimension (L)x(W)x(H)	77x154x128mm	77x154x128mm	77x154x128mm
Weight (w/o Packing Case)	1400g	1400g	1400g

Managed PoE Switch	12P Din Rail Managed PoE Gigabit Switch with 4 SFP	14P Din Rail Managed 60W PoE Switch with 4 SFP	14P Din Rail Managed 60W PoE Gigabit Switch with 4 SFP
Model Name	MLB-E4206-12-G-P-F	MLB-E4215H-14-P-F	MLB-E4216H-14-G-P-F
Product Photo			
Layer 2	•	•	•
Gigabit TX	8		10
Gigabit SFP Module	4		4
10/100Mb TX		10	
100Mb SFP Module		4	
IEEE 802.3af/at (15.4/30 Watt) PoE/PoE+	Max. 8	Max. 8	Max. 8
IEEE 802.3at+ (36 Watt)			
Ultra High Power PoE (60 Watt)		Max. 2	Max. 2
Redundant Power Input	46~57VDC	50~57VDC	50~57VDC
<b>Software Features</b>			
L2 Functions, VLAN, LACP/Trunk	•	•	•
L2 Functions, QoS	•	•	•
L2 Functions, Storm Protection	•	•	•
L2 Functions, 802.1X, MAC/IP Security	•	•	•
L4 Function, ACL, QCL	•	•	•
Redundancy - STP/RSTP/MSTP	•	•	•
Redundancy - Flash Ring/Scale Chain	•	•	•
SNMP V1/V2C/V3, RMON	•	•	•
Relay Output Alarm	•	•	•
MAC Address Table	8K	8K	8K
Jumbo Frame	9K	9K	9K
Packet Buffer	4Mbit	4Mbit	4Mbit
Max VLAN No.	256	1024	1024
Priority Queue	8	8	8
<b>Hardware Features</b>			
2KV Surge Immunity on RJ45 Port	•	•	•
1.5 KV Hipot	•	•	•
Din-Rail/Wall Mount	•	•	•
Reverse Power Protection	•	•	•
-40~+75°C Operating Temperature	•	•	•
CE, FCC	•	•	•
Power Consumption	Max. 17Watt	Max. 17Watt	Max. 17Watt
Relay Output (Normal Open)	1A. 24V	1A. 24V	1A. 24V
<b>Package Information</b>			
Dimension (L)x(W)x(H)	77x154x128mm	154x105x108mm	154x105x108mm
Weight (w/o Packing Case)	1400g	1500g	1500g



# MLB-E4211-8-P-F

# MLB-E4212-8-G-P-F

8-Ports PoE Managed (Gigabit) Switch

- IEEE 80.2at PoE+
- Industrial Design
- 40 ~ +75°C
- VLAN Mirroring
- Managed

MLIS MLB-E4211-8-P-F/MLB-E4212-8-G-P-F Managed 10/100M Gigabit Ethernet switches, providing 4 10/100/1000BaseT PoE PSE ports, and 2 100/1000Base SFP ports. It complies with IEEE 802.3at standard and is able to deliver up to 30 watts power per port along with data on standard Ethernet cabling. The switch can be used to power any IEEE 802.3af/at compliant PoE PD devices with PoE power management feature, which eases the deployment effort of planning PoE power budget and eliminates the need for additional wiring to reach power source.

## Features

- Provides 4 or 8 10/100/1000Base TX PoE ports, plus 2 or 4 100FX/1000BaseF SFP slots
- IEEE 802.3af 15.4W/IEEE 802.3at 30W (2-pairs) & 60W (4-pairs) high power PoE
- Total PoE power budget: Max. 240W PSE power delivered
- 9K Jumbo frames
- L2 wire-speed switching engine
- 8K MAC forwarding addresses
- Network redundant LACP, spanning tree STP, RSTP & MSTP, and quick ring fail-over protection (< 20 ms)
- Port-based/tag-based VLAN, IEEE 802.1ad/QinQ VLAN, Add/remove VLAN tags
- Multicasting supports IGMP v1/v2, proxy & snooping
- Multicast/Broadcast/Flooding storm control
- IEEE802.1x access control
- Per VLAN mirroring
- CLI/Web/SNMP management interfaces
- PoE PSE power management & PD power consumption monitoring
- Dual power input & reverse power protection
- DIN-Rail and wall mounting option
- Only MLB-E4212-8-G-P-F model supports Gigabit

Ethernet	
Operating Mode	Store and forward, L2 wire-speed/non-blocking switching engine
MAC Addresses	8K
Jumbo Frames	9K Bytes
Copper RJ45 Ports	
Speed	10/100/1000 Mbps
MDI/MDIX Auto-crossover	Support straight or cross wired cables
Auto-negotiating	10/100/1000 Mbps speed auto-negotiation; full and half duplex
Ethernet Isolation	1500 VRMS 1 minute
SFP (Pluggable) Ports	
Port Types Supported	SFP (pluggable) Ports 100/1000BaseSFP slot Supports 100FX SFP transceiver Supports 100/1000Base-T SFP transceiver
Fiber Port Connector	LC typically for fiber (depends on module)
Optimal Fiber Cable	Typical 50 or 62.5/125 $\mu$ m for multimode (mm); Typical 8 or 9/125 $\mu$ m for single mode (sm)
Network Redundancy	
Flash Ring	Link loss recovery < 20ms Single & multiple rings supported
Scale Chain	Link loss recovery < 20ms
Spanning Tree Protocol	IEEE 802.1D STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP
Port Trunk with LACP	Static trunk or dynamic via LACP (Link Aggregation Control Protocol)
Bridge, VLANs & Protocols	
Flow Control	IEEE 802.3x (full duplex) and back-pressure (half duplex)
Max VLANs	1024
VLAN Types	Port-based VLANs; MAC-based VLANs; IP Subnet-based VLANs Protocol-based VLANs IEEE 802.1Q tag-based VLANs RADIUS-assigned VLAN IEEE 802.1ad double tagging (Q in Q)
Multicast Protocols	IGMP v1, v2 with up to 255 multicast groups IGMP snooping and querying Immediate leave and leave proxy Throttling and filtering
LLDP	IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
Traffic Management & QoS	
Priority	IEEE 802.1p QoS
Number of Queues Per Port	8
Scheduling Schemes	SPQ, WRR
Traffic Shaper	Port-based shaping
RADIUS QoS	RADIUS-assigned QoS Class
Alarm	
Alarm Relay Output	Relay output with current carrying capacity of 0.5A @ 24 VD
Alarm Notification	Configurable alarm profile to enable alarm LED, alarm relay & SNMP traps
Security	
Port Security	IP and MAC-based access control IEEE 802.1X authentication network access control Authentication via local database, RADIUS or TACACS+ AAA (Authentication, Accounting and Authorization)

Storm Control	Multicast/Broadcast/Flooding Storm Control
Management	
User Management Interfaces	Cisco-like CLI (Command Line Interface) WEB-based management SNMP v1, v2c, v3 Telnet (5 sessions)
Management Security	HTTPs, SSH Radius client for management
Upgrade & Restore	TFTP/FTP for configuration import/export TFTP/FTP for firmware upgrade
Diagnostic	Syslog Per VLAN mirroring Ethernet copper connection diagnostic tool SFP with DDM (Digital Diagnostic Monitoring)
MIBs	RFC 1757 RMON 1, 2, 3, 9; RFC 2674 Q-Bridge MIB RFC-1213 MIB-II; RFC-1493 Bridge MIB; RFC 2233 IF MI
DHCP	Client, Server, Relay, Snooping, Option 82
NTP/SNTP	Yes
System Status	Device info/status; Ethernet port status; PoE status
PoE Management	Scheduling; power control; PoE PD power consumption
Power	
Power Input	Redundant input terminals
Input Voltage Range	44~58VDC (50~58VDC for better PoE performance)
Total PoE Output Power Budget Per Switch	240W
Max PoE Output Power Budget Per Port	30W (Max. 60W for port 1 & port 2)
PoE PSE Port Output Power Management	Scheduling; power control; PoE PD power consumption monitoring
Reverse Power Protection	Yes
Transient Protection	> 15,000 watt peak
Power Consumption	Max. 14W without PD connected Max 265W with 240W PSE power delivered
Indicators	
Power Status Indication	Indication of power input status
Ethernet Port Indication	Link & speed
PoE Status	Indication of PoE Power applying
System Alarm	Profile-defined System Alarm
Environmental & Compliances	
Operating Temperature	-40~+75°C (cold startup at -40°C)
Storage Temperature	-40~+85°C
Humidity	5~95% RH (non-condensing)
Vibration Shock & Freefall	Vibration: IEC60068-2-6 Shock: IEC60068-2-27 Free Fall: IEC60068-2-32
Certification Compliance	CE/FCC
Electrical Safety	CSA C22, EN61010-1, CE
EMC	FCC Part 15, CISPR 22 (EN55022) Class A IEC61000-4-2, -3, -4, -5, -6 (level 3)
RoHS and WEEE	RoHS (Pb free) and WEEE compliant
MTBF	> 25 years
Mechanical	
Ingress Protection	IP30
Installation Option	DIN-rail mounting, wall mounting
Dimension (L)x(W)x(H)	77x154x128mm
Weight	1410g



# MLB-E4213-10-P-F MLB-E4214-10-G-P-F

10-Ports PoE Managed (Gigabit) Switch



- IEEE 802.3at PoE+
- Industrial Design
- 40 ~ +75°C
- VLAN Mirroring
- Managed

MLB-E4213-10-P-F/MLB-E4214-10-G-P-F is a 10-Port Managed 10/100M Gigabit Ethernet switch, providing 8 10/100Base-T PoE PSE ports and 2 100/1000BaseSFP ports. It complies with IEEE 802.3at standard and is able to deliver up to 30 watts power per port along with data on standard Ethernet cabling. The switch can be used to power any IEEE 802.3af/at compliant PoE PD devices with PoE power management feature, which eases the deployment effort of planning PoE power budget and eliminates the need for additional wiring to reach power source

## Features

- Provides 8 10/100Base TX PoE ports plus 2 SFP ports 100FX or 1000BaseF (SX/LX/LH)
- IEEE 802.3af 15.4W/IEEE 802.3at 30W high power PoE
- Total 120W PoE power budget
- 9K Jumbo frames
- L2 wire-speed switching engine
- 8K MAC forwarding addresses
- Network redundant LACP, spanning tree STP, RSTP & MSTP, and quick ring fail-over protection (< 20 ms)
- Port-based/tag-based VLAN, IEEE 802.1ad/QinQ VLAN, Add/remove VLAN tags
- Multicasting supports IGMP v1/v2, proxy & snooping
- Multicast/Broadcast/Flooding Storm Control
- IEEE802.1x access control
- Per VLAN mirroring
- CLI/Web/SNMP management interfaces
- PoE PSE power management & PD power consumption
- Dual power input & reverse power protection
- DIN-Rail and wall mounting option
- Only MLB-E4214-10-G-F model supports Gigabit

Ethernet	
Operating Mode	Store and forward, L2 wire-speed/non-blocking switching engine
MAC Addresses	8K
Jumbo Frames	9K Bytes
Copper RJ45 Ports	
Speed	10/100/1000 Mbps
MDI/MDIX Auto-crossover	Support straight or cross wired cables
Auto-negotiating	10/100/1000 Mbps speed auto-negotiation; full and half duplex
Ethernet Isolation	1500 VRMS 1 minute
SFP (Pluggable) Ports	
Port Types Supported	SFP (pluggable) Ports 100/1000Base SFP slot Supports 100FX SFP transceiver Supports 100/1000BaseT SFP transceiver
Fiber Port Connector	LC typically for fiber (depends on module)
Optimal Fiber Cable	Typical 50 or 62.5/125 $\mu$ m for multimode (mm); Typical 8 or 9/125 $\mu$ m for single mode (sm)
Network Redundancy	
Flash Ring	Link loss recovery < 20ms Single & multiple rings supported
Scale Chain	Link loss recovery < 20ms
Spanning Tree Protocol	IEEE 802.1D STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP
Port Trunk with LACP	Static trunk or dynamic via LACP (Link Aggregation Control Protocol)
Bridge, VLANs & Protocols	
Flow Control	IEEE 802.3x (full duplex) and back-pressure (half duplex)
Max VLANs	256
VLAN Types	Port-based VLANs IEEE 802.1Q tag-based VLANs IEEE 802.1ad Double Tagging (Q in Q)
Multicast Protocols	IGMP v1, v2 with up to 255 multicast groups IGMP snooping and querying Immediate leave and leave proxy Throttling and filtering
LLDP	IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
Traffic Management & QoS	
Priority	IEEE 802.1p QoS
Number of Queues Per Port	8
Scheduling Schemes	SPQ, WRR
Traffic Shaper	Port-based shaping
Security	
Port Security	IP and MAC-based access control IEEE 802.1X authentication Network Access Control
Storm Control	Multicast/Broadcast/Flooding Storm Control

Management	
User Management Interfaces	Cisco-like CLI (Command Line Interface) WEB-based management SNMP v1, v2c, v3 Telnet (5 sessions)
Management Security	HTTPs, SSH Radius client for management
Upgrade & Restore	FTP for configuration import/export, FTP for firmware upgrade
Diagnostic	Syslog Per VLAN mirroring Ethernet copper connection diagnostic tool SFP with DDM (Digital Diagnostic Monitoring)
MIBs	RFC 1757 RMON 1, 2, 3, 9; RFC 2674 Q-Bridge MIB RFC-1213 MIB-II; RFC-1493 Bridge MIB; RFC 2233 IF MIB
DHCP	Client, Server, Relay, Snooping, Option 82
NTP/SNTP	Yes
System Status	Device info/status; Ethernet port status; PoE status
PoE Management	Scheduling; power control; PoE PD power consumption
Power	
Power Input	Redundant input terminals
Input Voltage Range	46-57VDC
Total PoE Output Power Budget Per Switch	120W
Reverse Power Protection	Yes
Transient Protection	> 15,000 watt peak
Power Consumption	15W without PD loading
Indicators	
Power Status Indication	Indication of power input status
Ethernet Port Indication	Link & speed
PoE status	Indication of PoE Power applying
Environmental & Compliances	
Operating Temperature	-40~+75°C (cold startup at -40°C)
Storage Temperature	-40~+85°C
Humidity	5~95% RH (non-condensing)
Vibration shock & Freefall	Vibration: IEC60068-2-6 Shock: IEC60068-2-27 Free Fall: IEC60068-2-32
Certification Compliance	CE/FCC
Electrical Safety	CSA C22, EN61010-1, CE
EMC	FCC Part 15, CISPR 22 (EN55022) Class A IEC61000-4-2, -3, -4, -5, -6 (Level 3)
RoHS and WEEE	RoHS (Pb free) and WEEE compliant
MTBF	> 25 years
Mechanical	
Ingress Protection	IP30
Installation Option	DIN-rail mounting, wall mounting
Dimension (L)x(W)x(H)	77x154x128mm
Weight	1410g

# MLB-E4205-12-P-F MLB-E4206-12-G-P-F

12 Ports PoE Managed (Gigabit) Switch



MLB-E4205-12-P-F/MLB-E4206-12-G-P-F switch is a Managed 10/100M Gigabit Ethernet switch, providing 4/8 10/100/1000BaseT PoE PSE ports and 100/1000BaseSFP ports. It complies to IEEE 802.3at standard and able to deliver up to 30 watts power per port along with data on standard Ethernet cabling. The switch can be used to power any IEEE 802.3af/at compliant PoE PD devices with PoE power management feature, which eases the deployment effort of planning PoE power budget and eliminates the need for additional wiring to reach power source.

## Features

- Provide 4 or 8 10/100/1000Base TX PoE ports plus 2 or 4 100FX/1000BaseF SFP slots
- IEEE 802.3af 15.4W/IEEE 802.3at 30W High Power PoE
- Total 120W PoE power budget
- 9K jumbo frames
- L2 wire-speed switching engine
- 8K MAC forwarding addresses
- Network redundant LACP, Spanning tree STP, RSTP & MSTP, flash Ring and scale chain (< 20 ms)
- Port-based/tag-based VLAN, IEEE 802.1ad/QinQ VLAN, add/remove VLAN tags,
- Multicasting supports IGMP v1/v2, proxy & snooping
- Multicast/Broadcast/Flooding Storm Control
- IEEE802.1x access control
- Per VLAN mirroring
- CLI/Web/SNMP management interfaces
- PoE PSE power management & PD power consumption
- Dual power input & reverse power protection
- DIN-rail and wall mounting option
- Only MLB-E4206-12-G-P-F model supports Gigabit

Ethernet	
Operating Mode	Store and forward, L2 wire-speed/non-blocking switching engine
MAC Addresses	8K
Jumbo Frames	9K Bytes
Copper RJ45 Ports	
Speed	10/100/1000 Mbps (MLB-E4206-12-G-P-F supports 1000 Mbps)
MDI/MDIX Auto-crossover	Support straight or cross wired cables
Auto-negotiating	10/100/1000 Mbps speed auto-negotiation; full and half duplex
Ethernet Isolation	1500 VRMS 1 minute
SFP (Pluggable) Ports	
Port Types Supported	SFP (pluggable) Ports 100/1000BaseSFP slot Support 100FX Support 100/1000BaseT SFP transceiver (MLB-E4206-12-G-P-F supports 1000 Mbps)
Fiber Port Connector	LC typically for fiber (depends on module)
Optimal Fiber Cable	Typical 50 or 62.5/125 $\mu$ m for multimode (mm); Typical 8 or 9/125 $\mu$ m for single mode (sm)
Network Redundancy	
Flash Ring	Link loss recovery < 20 ms. Single & multiple rings supported
Scale Chain	Link loss recovery < 20ms
Spanning Tree Protocol	IEEE 802.1D STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP
Port Trunk with LACP	Static trunk or dynamic via LACP (Link Aggregation Control Protocol)
Bridge, VLANs & Protocols	
Flow Control	IEEE 802.3x (full duplex) and back-pressure (half duplex)
Max VLANs	256
VLAN Types	Port-based VLANs IEEE 802.1Q tag-based VLANs IEEE 802.1ad double tagging (Q in Q)
Multicast Protocols	IGMP v1, v2 with up to 255 multicast groups IGMP snooping and querying Immediate leave and leave proxy Throttling and filtering
LLDP	IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
Traffic Management & QoS	
Priority	IEEE 802.1p QoS
Number of Queues Per Port	8
Scheduling Schemes	SPQ, WRR
Traffic Shaper	Port-based shaping
Security	
Port Security	IP and MAC-based access control IEEE 802.1X authentication network access control
Storm Control	Multicast/Broadcast/Flooding Storm Control

Management	
User Management Interfaces	Cisco-like CLI (Command Line Interface) WEB-based management SNMP v1, v2c, v3 Telnet (5 sessions)
Management Security	HTTPs, SSH Radius Client for management
Upgrade & Restore	TFTP/FTP for configuration import/export TFTP/FTP for firmware upgrade
Diagnostic	Syslog Per VLAN mirroring Ethernet copper connection diagnostic tool SFP with DDM (Digital Diagnostic Monitoring)
MIBs	RFC 1757 RMON 1,2,3,9; RFC 2674 Q-Bridge MIB RFC-1213 MIB-II; RFC-1493 Bridge MIB; RFC 2233 IF MIB
DHCP	Client, Server, Relay, Snooping, Option 82
NTP/SNTP	Yes
System Status	Device info/status; Ethernet port status; PoE status
PoE Management	Scheduling; power control; PoE PD power consumption
Power	
Power Input	Redundant input terminals
Input Voltage Range	46~57VDC
Total PoE Output Power Budget	120W
PoE PSE Port Output Power Management	Scheduling; power control; PoE PD power consumption
Reverse Power Protection	Yes
Transient Protection Power Consumption	> 15,000 Watts peak 15W without PD loading
Indicators	
Power Status Indication	Indication of power input status
Ethernet Port Indication	Link & Speed
PoE Status	Indication of PoE Power applying
Environmental & Compliances	
Operating Temperature Range	-40~+75°C (cold startup at -40°C)
Storage Temperature Range	-40~+85°C
Humidity	5~95% (non-condensing)
Vibration, Shock & Freefall	Vibration: IEC60068-2-6 Shock: IEC60068-2-27 Free Fall: IEC60068-2-32
Certification Compliance	CE/FCC/UL-508; EN-50121-4
Electrical Safety	UL508/CSA C22, EN61010-1, CE
EMC	FCC Part 15, CISPR 22 (EN55022) Class A IEC61000-4-2, -3, -4, -5, -6
RoHS and WEEE	RoHS (Pb free) and WEEE compliant
MTBF	> 25 years
Mechanical	
Ingress Protection	IP30
Installation Option	DIN-rail mounting, wall mounting
Dimension (L)x(W)x(H)	77x154x128mm
Weight	1410g

# MLB-E4215H-14-P-F MLB-E4216H-14-G-P-F

14-Ports 60/30 Watts PoE Managed (Gigabit) Switch



MLB-E4215H-14-P-F/MLB-E4216H-14-G-P-F is a Managed 10/100M Gigabit Ethernet switch, providing 8 10/100/1000Base-T PoE PSE ports, 2 10/100/1000Base-T ports and 4 100/1000Base SFP ports. It complies with IEEE 802.3at standard and able to deliver up to 30/60 watts power per port along with data on standard Ethernet cabling. The switch can be used to power any IEEE 802.3af/at compliant PoE PD devices with PoE power management feature, which eases the deployment effort of planning PoE power budget and eliminates the need for additional wiring to reach power source.

## Features


- Provides 8 10/100/1000Base TX PoE ports, 2 10/100/1000Base TX, plus 4 100FX/1000BaseF SFP slots
- IEEE 802.3af 15.4W/IEEE 802.3at 30W (2-pairs) & 60W (4-pairs) high power PoE
- Total PoE power budget: Max. 240W PSE power delivered
- 9K jumbo frames
- L2 wire-speed switching engine
- 8K MAC forwarding addresses
- Network redundant LACP, spanning tree STP, RSTP & MSTP, and quick ring fail-over protection (< 20 ms)
- Port-based/tag-based VLAN, IEEE 802.1ad/ QinQ VLAN, Add/remove VLAN tags
- Multicasting supports IGMP v1/v2, proxy & snooping
- Multicast/Broadcast/Flooding Storm Control
- IEEE802.1x access control
- Per VLAN mirroring
- CLI/Web/SNMP management interfaces
- PoE PSE power management & PD power consumption monitoring
- Dual power input & reverse power protection
- DIN-Rail and wall mounting option
- Only MLB-E4216H-14-G-P-F model supports Gigabit









Ethernet	
Operating Mode	Store and forward, L2 wire-speed/non-blocking switching engine
MAC Addresses	8K
Jumbo Frames	9K Bytes
Copper RJ45 Ports	
Speed	10/100/1000 Mbps
MDI/MDIX Auto-crossover	Support straight or cross wired cables
Auto-negotiating	10/100/1000 Mbps speed auto-negotiation; full and half duplex
Ethernet Isolation	1500 VRMS 1 minute
SFP (Pluggable) Ports	
Port Types Supported	SFP (pluggable) Ports 100/1000Base SFP slot Support 100FX SFP transceiver Support 100/1000Base-T SFP transceiver
Fiber Port Connector	LC typically for fiber (depends on module)
Optimal Fiber Cable	Typical 50 or 62.5/125 $\mu$ m for multimode (mm); Typical 8 or 9/125 $\mu$ m for single mode (sm)
Network Redundancy	
Flash Ring	Link loss recovery < 20ms Single & multiple rings supported
Scale Chain	Link loss recovery < 20ms
Spanning Tree Protocol	IEEE 802.1D STP, IEEE 802.1w RSTP, IEEE 802.1s MSTP
Port Trunk with LACP	Static trunk or dynamic via LACP (Link Aggregation Control Protocol)
Bridge, VLANs & Protocols	
Flow Control	IEEE 802.3x (full duplex) and back-pressure (half duplex)
Max VLANs	1024
VLAN Types	Port-based VLANs; MAC-based VLANs; IP Subnet-based VLANs Protocol-based VLANs IEEE 802.1Q tag-based VLANs RADIUS-assigned VLAN IEEE 802.1ad double tagging (Q in Q)
Multicast Protocols	IGMP v1, v2 with up to 255 multicast groups IGMP snooping and querying Immediate leave and leave proxy Throttling and filtering
LLDP	IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
Traffic Management & QoS	
Priority	IEEE 802.1p QoS
Number of Queues Per Port	8
Scheduling Schemes	SPQ, WRR
Traffic Shaper	Port-based shaping
RADIUS QoS	RADIUS-assigned QoS Class
Alarm	
Alarm Relay Output	relay output with current carrying capacity of 0.5A @ 24 VD
Alarm Notification	Configurable alarm profile to enable alarm LED, alarm relay & SNMP traps
Security	
Port Security	IP and MAC-based access control IEEE 802.1X authentication Network Access Control
Storm Control	Multicast/Broadcast/Flooding Storm Control

Management	
User Management Interfaces	Cisco-like CLI (Command Line Interface) WEB-based management SNMP v1, v2c, v3 Telnet (5 sessions)
Management Security	HTTPs, SSH Radius client for management
Upgrade & Restore	FTP for configuration import/export, FTP for firmware upgrade
Diagnostic	Syslog Per VLAN mirroring Ethernet copper connection diagnostic tool SFP with DDM (Digital Diagnostic Monitoring)
MIBs	RFC 1757 RMON 1, 2, 3, 9; RFC 2674 Q-Bridge MIB RFC-1213 MIB-II; RFC-1493 Bridge MIB; RFC 2233 IF MIB
DHCP	Client, Server, Relay, Snooping, Option 82
NTP/SNTP	Yes
System Status	Device info/status; Ethernet port status; PoE status
PoE Management	Scheduling; power control; PoE PD power consumption
Power	
Power Input	Redundant input terminals
Input Voltage Range	44~58VDC (50~58VDC for better PoE performance)
Total PoE Output Power Budget Per Switch	240W
Max PoE Output Power Budget Per Port	30W (Max. 60W for port 1 & port 2)
PoE PSE Port Output Power Management	Scheduling; power control; PoE PD power consumption monitoring
Reverse Power Protection	Yes
Transient Protection	> 15,000 watts peak
Power Consumption	Max. 14W without PD connected Max 265W with 240W PSE power delivered
Indicators	
Power Status Indication	Indication of power input status
Ethernet Port Indication	Link & speed
PoE status	Indication of PoE Power applying
System Alarm	Profile-defined system alarm
Environmental & Compliances	
Operating Temperature	-40~+75°C (cold startup at -40°C)
Storage Temperature	-40~+85°C
Humidity	5~95% RH (Non-condensing)
Vibration Shock & Frefall	Vibration: IEC60068-2-6 Shock: IEC60068-2-27 Free Fall: IEC60068-2-32
Certification Compliance	CE/FCC
Electrical Safety	CSA C22, EN61010-1, CE
EMC	FCC Part 15, CISPR 22 (EN55022) Class A IEC61000-4-2, -3, -4, -5, -6
RoHS and WEEE	RoHS (Pb free) and WEEE compliant
MTBF	> 25 years
Mechanical	
Ingress Protection	IP30
Installation Option	DIN-rail mounting, wall mounting
Dimension	77x154x128mm
Weight	1410g



Unmanaged Ethernet Switch	5P Din Rail Unmanaged Switch	5P Din Rail Unmanaged Switch with 1 SFP	5P Din Rail Unmanaged Gigabit Switch	5P Din Rail Unmanaged Gigabit Switch with 1 SFP	5P Din Rail Unmanaged Gigabit Switch with Multimode Fiber	5P Din Rail Unmanaged Gigabit Switch with Single Mode Fiber
<b>Model Name</b>	<b>MLB-E4101-5</b>	<b>MLB-E4102-5-F</b>	<b>MLB-E4108-5-G</b>	<b>MLB-E4109-5-G-F</b>	<b>MLB-E4115-5-F-MM</b>	<b>MLB-E4116-5-F-SM</b>
<b>Basic Selection</b>						
<b>Product Photo</b>						
<b>Layer 3</b>	•	•	•	•	•	•
<b>Layer 2</b>						
<b>Profinet Protocol</b>						
<b>Gigabit TX</b>			5	4		
<b>Gigabit SFP Module</b>				1		
<b>10/100Mb TX</b>	5	4			4	4
<b>100Mb SFP Module</b>		1 FIX			1 FIX	1 FIX
<b>Redundant Power Input (AC 110/220V)</b>						•
<b>Redundant Power Input (DC 12~58V)</b>	•	•	•	•	•	•
<b>Software Features</b>						
<b>L3 Function+A15:A29s, Static, RIP I/II, OSPF</b>						
<b>L2 Functions, VLAN, LACP/Trunk</b>						
<b>L2 Functions, QoS, Rate/Storm Control</b>			•	•		
<b>L2 Functions, Storm Protection</b>			•	•		
<b>L2 Functions, 802.1X, MAC/IP Security</b>						
<b>L4 Function, ACL, QCL</b>						
<b>Redundancy - STP/RSTP/MSTP</b>						
<b>Redundancy - Flash Ring/Scale Chain</b>						
<b>SNMP V1/V2C/V3, RMON</b>						
<b>Relay Output Alarm</b>	•	•	•	•	•	•
<b>MAC Address Table</b>	1K	1K	2K	2K	1K	1K
<b>Jumbo Frame</b>			9K	9K		
<b>Packet Buffer</b>	1Mbit	1Mbit	1Mbit	1Mbit	1Mbit	1Mbit
<b>Max VLAN No.</b>						
<b>Priority Queue</b>			4	4		
<b>Hardware Features</b>						
<b>2KV Surge Immunity on RJ45 Port</b>	•	•	•	•	•	•
<b>1.5 KV Hipot</b>	•	•	•	•	•	•
<b>19" Rack Mount</b>						
<b>Din-Rail/Wall mount</b>	•	•	•	•	•	•
<b>Reverse Power protection</b>	•	•	•	•	•	•
<b>-40~+75°C Operating Temperature</b>	•	•	•	•	•	•
<b>CE, FCC</b>	•	•	•	•	•	•
<b>Power Consumption</b>	Max. 5.5Watt	Max. 5.5Watt	Max. 4.3Watt	Max. 4.3Watt	Max. 5.5Watt	Max. 5.5Watt
<b>Relay Output (Normal Open)</b>	1A. 24V	1A. 24V	1A. 24V	1A. 24V	1A. 24V	1A. 24V
<b>Package Information</b>						
<b>Dimension (L)x(W)x(H)</b>	109.2x29x89.4mm	109.2x29x89.4mm	109.2x29x89.4mm	109.2x29x89.4mm	109.2x29x89.4mm	109.2x29x89.4mm
<b>Weight (w/o Packing Case)</b>	290g	290g	290g	290g	290g	290g

Unmanaged Ethernet Switch	8P Din Rail Unmanaged Switch	8P Din Rail Unmanaged Switch with 2 SFP	8P Din Rail Unmanaged Gigabit Switch	8P Din Rail Unmanaged Gigabit Switch with 2 SFP	26P Rack Mount Unmanaged Switch with 2 SFP	26P Rack Mount Unmanaged Gigabit Switch with 2 SFP
<b>Model Name</b>	MLB-E4105-8	MLB-E4106-8-F	MLB-E4112-8-G	MLB-E4113-8-G-F	MLB-E4107-26-F	MLB-E4114-26-G-F
<b>Basic Selection</b>						
<b>Product Photo</b>						
<b>Layer 3</b>	•	•	•	•	•	•
<b>Layer 2</b>						
<b>Profinet Protocol</b>						
<b>Gigabit TX</b>			8	6		24
<b>Gigabit SFP Module</b>				2		2
<b>10/100Mb TX</b>	8	6			24	
<b>100Mb SFP Module</b>		2			2	
<b>Redundant Power Input (AC 110/220V)</b>					•	•
<b>Redundant Power Input (DC 12~58V)</b>	•	•	•	•	•	•
<b>Software Features</b>						
<b>L3 Function+A15:A29s, Static, RIP I/II, OSPF</b>						
<b>L2 Functions, VLAN, LACP/ Trunk</b>						
<b>L2 Functions, QoS, Rate/Storm Control</b>			•	•	•	•
<b>L2 Functions, Storm Protection</b>			•	•	•	•
<b>L2 Functions, 802.1X, MAC/IP Security</b>						
<b>L4 Function, ACL, QCL</b>						
<b>Redundancy - STP/RSTP/MSTP</b>						
<b>Redundancy - Flash Ring/Scale Chain</b>						
<b>SNMP V1/V2C/V3, RMON</b>						
<b>Relay Output Alarm</b>	•	•	•	•	•	•
<b>MAC Address Table</b>	1K	1K	8K	8K	8K	8K
<b>Jumbo Frame</b>			9K	9K	9K	9K
<b>Packet Buffer</b>	1Mbit	1Mbit	4Mbit	4Mbit	4Mbit	4Mbit
<b>Max VLAN No.</b>						
<b>Priority Queue</b>			4	4	8	8
<b>Hardware Features</b>						
<b>2KV Surge Immunity on RJ45 Port</b>	•	•	•	•	•	•
<b>1.5 kV Hipot</b>	•	•	•	•	•	•
<b>19" Rack Mount</b>					•	•
<b>Din-Rail/Wall Mount</b>	•	•	•	•		
<b>Reverse Power Protection</b>	•	•	•	•	•	•
<b>-40~+75°C Operating Temperature</b>	•	•	•	•	•	•
<b>CE, FCC</b>	•	•	•	•	•	•
<b>Power Consumption</b>	Max. 5.5Watt	Max. 5.5Watt	Max. 8.5Watt	Max. 8.5Watt	Max 35Watt	Max 35Watt
<b>Relay Output (Normal Open)</b>	1A. 24V	1A. 24V	1A. 24V	1A. 24V	1A. 24V	1A. 24V
<b>Package Information</b>						
<b>Dimension (L)x(W)x(H)</b>	117.8x39x96.9mm	117.8x39x96.9mm	117.8x39x96.9mm	117.8x39x96.9mm	43.5x570x250mm	43.5x570x250mm
<b>Weight (w/o Packing Case)</b>	395g	395g	395g	395g	1.5kg	1.5kg

## MLB-E4101-5 & MLB-E4102-5-F

## MLB-E4108-5-G & MLB-E4109-5-G-F

## MLB-E4115-5-F-MM & MLB-E4116-5-F-SM

### 5-Ports Unmanaged Industrial Ethernet Switch



Port to  
Port  
Isolation

Advanced  
QoS

Recovery  
< 20 ms

-40 ~ +75°C

MLIS 5-Ports Ethernet Switch series provides different combination in Gigabit/Fast Ethernet and fiber connections for optional. It fulfills the needs of the rapid growth of communication traffic in the industrial network. MLB series is designed for supporting standard industrial applications without complex setup to make the network truly plug-and-play.

## Features

- IEEE 802.3x flow control & back-pressure
- 9K jumbo frames
- L2 wire-speed switching engine
- 2K MAC forwarding addresses
- Queues per port: 4
- Supports 802.1p & TOS/DS QoS
- Multicast/Broadcast/Flooding Storm Control
- Fanless & wide operating temperature range (-40~+75°C)
- Dual power input (12~58VDC) & reverse power protection
- Hi-POT 1.5 KV
- IP30
- DIN-Rail and wall mounting option
- Only MLB-E4108-5-G & MLB-E4109-5-G-F models support Gigabit

Ethernet	
Operating Mode	Store and forward L2 wire-speed/non-blocking switching engine
MAC Addresses	2K (Gigabit Ethernet)/1K (Fast Ethernet)
Jumbo Frames	9K Bytes
Copper RJ45 Ports	Gigabit Ethernet Switch: 10/100/1000 Mbps speed auto-negotiation; MDI/MDIX auto-crossover Fast Ethernet Switch: 10/100M Copper ports speed auto-negotiation; MDI/MDIX auto-crossover
Ethernet Isolation	1500 VRMS 1 minute
Ethernet Port Indication	Link & Speed
Environmental & Compliances	
Operating Temperature Range	-40~+75°C (cold startup at -40°C)
Storage Temperature Range	-40~+85°C
Humidity	5~95% RH (non-condensing)
Vibration, Shock & Freefall	Vibration:IEC60068-2-6 Shock:IEC60068-2-27 Free Fall:IEC60068-2-32
Certification Compliance	CE/FCC/UL-508; EN-50121-4
Electrical Safety	UL508/CSA C22, EN61010-1, CE
SFP Ports	Gigabit Ethernet Fiber Switch: 100/1000 base SFP slot Fast Ethernet Fiber Switch: 100 Base SFP slot

Fiber Port Connector	LC typically for fiber (depends on module)
Flow Control	IEEE 802.3x (full duplex) & back-pressure (half duplex)
Fault Contact	Power alarm relay output (MLB-E4101-5)
QoS (*)	IEEE 802.1p
Number of Queues(*)	4
Traffic Shaper (*)	Port-based port shaping
Storm Control	Multicast/Broadcast/Flooding Storm Control per system basis enable/disable
Power	
Power Input	Redundant input terminals; reverse power protection
Input Voltage Range	12~58VDC
Indicators	
Power Status Indication	Indication of power input status
EMC	FCC Part 15, CISPR 22 (EN55022) Class A IEC61000-4-2, -3, -4, -5, -6 (Level 3)
RoHS and WEEE	RoHS (Pb free) and WEEE compliant
MTBF	> 25 years
Mechanical	
Ingress Protection	IP30
Installation Option	DIN-rail mounting/Wall mounting
LLDP	IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
Dimension (L)x(W)x(H)	112.2x29.1x89.4mm (without DIN rail clip)
Weight	295g

Simplify Speed Up  
Industrial Connectivity

## MLB-E4105-8 & MLB-E4106-8-F

## MLB-E4112-8-G & MLB-E4113-8-G-F

### 8-Ports Unmanaged Industrial Ethernet Switch



Port to  
Port  
Isolation

Advanced  
QoS

Recovery  
< 20 ms

-40 ~ +75°C

MLiS 8 Ports Gigabit Ethernet Switch provides Gigabit/Fast Ethernet and Fiber ports for optional. It fulfills the needs of the rapid growth of communication traffic in industrial network.

MLiS unmanaged series are designed for supporting standard industrial applications without complex setup to make the network truly plug-and-play. With the QoS and traffic storm control, MLiS series switches are able to provide the high reliability user experience in the complex network.

## Features

- IEEE 802.3x flow control & back-pressure
- 9K jumbo frames
- L2 wire-speed switching engine
- 8K MAC forwarding addresses
- Queues per port: 4
- Support 802.1p & TOS/DS QoS
- Multicast/Broadcast/Flooding Storm Control
- Fanless & wide operating temperature range (-40~+75°C)
- Dual power input (12~58VDC) & reverse power protection
- Hi-POT 1.5 KV
- IP30
- DIN-Rail and Wall mounting option
- Only MLB-E4112-8-G & MLB-E4113-8-G-F models support Gigabit

Ethernet	
Operating Mode	Store and forward L2 wire-speed/non-blocking switching engine
MAC Addresses	1K (Fast Ethernet)/8K (Gigabit Ethernet)
Jumbo Frames (*)	9K Bytes
Copper RJ45 Ports	Gigabit Ethernet Switch: 10/100/1000 Mbps Copper ports speed auto-negotiation; MDI/MDIX auto-crossover Fast Ethernet Switch: 10/100M Copper ports speed auto-negotiation; MDI/MDIX auto-crossover
Ethernet Isolation	1500 VRMS 1 minute
SFP (Pluggable) Ports	Gigabit Ethernet Fiber Switch: 100FX or 1000BaseF (SX/LX/LH) Fast Ethernet Fiber Switch: 100 Base SFP slot
Fiber Port Connector	LC typically for fiber (depends on module)
Flow Control	IEEE 802.3x (full duplex) and back-pressure (half duplex)
Fault contact	Power alarm relay output (MLB-E4105-8)
QoS	IEEE 802.1p
Number of Queues(*)	4
Traffic Shaper (*)	Port-based port shaping
Storm Control	Multicast/Broadcast/Flooding Storm Control per system basis enable/disable

Power	
Power Input	Redundant input terminals; reverse power protection
Input Voltage Range	12~58VDC
Indicators	
Power Status Indication	Indication of power input status
Ethernet Port Indication	Link & Speed
Environmental & Compliances	
Operating Temperature Range	-40~+75°C (cold startup at -40°C)
Storage Temperature Range	-40~+85°C
Humidity	5~95% RH (non-condensing)
Vibration, Shock & Freefall	Vibration:IEC60068-2-6 Shock:IEC60068-2-27 Free Fall:IEC60068-2-32
Certification Compliance	CE/FCC/UL-508; EN-50121-4
Electrical Safety	UL508/CSA C22, EN61010-1, CE
EMC	FCC Part 15, CISPR 22 (EN55022) Class A IEC61000-4-2, -3, -4, -5, -6 (Level 3)
RoHS and WEEE	RoHS (Pb free) and WEEE compliant
MTBF	> 25 years
Mechanical	
Ingress Protection	IP30
Installation Option	DIN-rail mounting/Wall mounting
LLDP	IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
Dimension (L)x(W)x(H)	117.8x39x96.9mm (without DIN rail clip)
Weight	395g

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# MLB-E4107-26-F MLB-E4114-26-G-F

24+2G-Port Unmanaged Gigabit Switch



Full  
Gigabit

SFP  
Module

-40 ~ +75°C

Industrial  
Design

MLB-E4107-26-F & MLB-E4114-26-G-F provides 24+2G \* 10/100/1000M Ethernet ports to fulfill the needs of the rapid growth of communication traffic in industrial network. MLB unmanaged series are designed for supporting standard industrial applications without complex setup to make the network truly plug-and-play. With the QoS and traffic storm control, MLB series switches are able to provide the high reliability user experience in the complex network.



## Features



- Provide 24 \* 10/100/1000M copper ports plus 2 ports 100FX or 1000BaseF (SX/LX/LH)
- IEEE 802.3x flow control & back-pressure
- 9K jumbo frames
- L2 wire-speed switching engine
- 8K MAC forwarding addresses
- Queues per port: 8
- Supports 802.1p & TOS/DS QoS
- Multicast/Broadcast/Flooding Storm Control
- Fanless & wide operating temperature range (-40~+75°C)
- Reverse power protection
- AC input power option
- HI-POT 1.5 KV
- IP30
- 19" rack mounting
- Only MLB-E4114-26-G-F model supports Gigabit

Ethernet	
Operating Mode	Store and forward L2 wire-speed/non-blocking switching engine
MAC Addresses	8K
Jumbo Frames	9K Bytes
Copper RJ45 Ports	10/100 Mbps speed auto-negotiation; MDI/MDIX auto-crossover (MLB-E4107-26-F)
Copper RJ45 Ports	10/100/1000 Mbps speed auto-negotiation; MDI/MDIX auto-crossover (MLB-E4114-26-G-F)
Ethernet Isolation	1500 VRMS 1 minute
SFP (Pluggable) Ports	100 base SFP slot (MLB-E4107-26-F)
SFP (Pluggable) Ports	100/1000 base SFP slot (MLB-E4114-26-G-F)
Fiber Port Connector	LC typically for fiber (depends on module)
Flow Control	IEEE 802.3x (full duplex) and back-pressure (half duplex)
QoS	IEEE 802.1p
Number of Queues	8
Traffic Shaper	Port-based port shaping
Storm Control	Multicast/Broadcast/Flooding Storm Control per system basis enable/disable
Power	
Power Input	Redundant input terminals; reverse power protection
Input Voltage Range	100/240 VAC, 50 to 60Hz

Indicators	
Power Status Indication	Indication of power input status
Ethernet Port Indication	Link & Speed
Environmental & Compliances	
Operating Temperature Range	-40~+75°C (cold startup at -40°C)
Storage Temperature Range	-40~+85°C
Humidity	5~95% RH (non-condensing)
Vibration, Shock & Freefall	Vibration:IEC60068-2-6 Shock:IEC60068-2-27 Free Fall:IEC60068-2-32
Certification Compliance	CE/FCC/UL-508
EMI	Radiated Emission:CISPR 22, EN55022 Class A
EMS	ESD:IEC61000-4-2 Radiated RF (RS):IEC61000-4-3 EFT:IEC61000-4-4 Surge:IEC61000-4-5 Conducted RF (CS):IEC61000-4-6
RoHS and WEEE	RoHS (Pb free) and WEEE compliant
MTBF	> 25 years
Mechanical	
Ingress Protection	IP30
Installation Option	19" rack mounting
LLDP	IEEE 802.1ab Link Layer Discovery Protocol (LLDP)
Dimension (L)x(W)x(H)	440x250x42mm (without DIN rail clip)
Weight	3000g

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Unmanaged PoE Switch	5P Din Rail Unmanaged PoE Switch	5P Din Rail Unmanaged PoE Switch with 1 SFP
Model Name	MLB-E4103-5-P	MLB-E4104-5-P-F
Basic Selection		
Layer 2	•	•
Gigabit TX		
Gigabit SFP Module		
10/100Mb TX	5	4
100Mb SFP Module		1
IEEE 802.3af/at (15.4/30Watt) PoE/PoE+	Max. 4	Max. 4
IEEE 802.3at+ (36Watt)		
Ultra High Power PoE (60Watt)		
Redundant Power Input	46~57VDC	46~57VDC
Software Features		
L2 Functions, VLAN, LACP/Trunk		
L2 Functions, QoS	•	•
L2 Functions, Storm Protection	•	•
L2 Functions, 802.1X, MAC/IP Security		
L4 Function, ACL, QCL		
Redundancy - STP/RSTP/MSTP		
Redundancy - Flash Ring/Scale Chain		
SNMP V1/V2C/V3, RMON		
Relay Output Alarm		
MAC Address Table	2K	2K
Jumbo Frame	9K	9K
Packet Buffer	1Mbit	1Mbit
Max VLAN No.		
Priority Queue	4	4
Hardware Features		
2KV Surge Immunity on RJ45 Port	•	•
1.5 KV Hipot	•	•
Din-Rail/Wall Mount	•	•
Reverse Power Protection	•	•
-40~+75°C Operating Temperature	•	•
CE, FCC	•	•
Power Consumption	Max. 5Watt	Max. 5Watt
Relay Output (Normal Open)		
Package Information		
Dimension (L)x(W)x(H)	112x29x89.4mm	112x29x89.4mm
Weight (w/o Packing Case)	295g	295g

Unmanaged PoE Switch	5P Din Rail Unmanaged PoE Gigabit Switch	5P Din Rail Unmanaged PoE Gigabit Switch with 1 SFP
Model Name	<b>MLB-E4110-5-G-P</b>	<b>MLB-E4111-5-G-P-F</b>
Basic Selection		
Layer 2	•	•
Gigabit TX	5	4
Gigabit SFP Module		1
10/100Mb TX		
100Mb SFP Module		
IEEE 802.3af/at (15.4/30Watt) PoE/PoE+	Max. 4	Max. 4
IEEE 802.3at+ (36Watt)		
Ultra High Power PoE (60Watt)		
Redundant Power Input	46~57VDC	46~57VDC
Software Features		
L2 Functions, VLAN, LACP/Trunk		
L2 Functions, QoS	•	•
L2 Functions, Storm Protection	•	•
L2 Functions, 802.1X, MAC/IP Security		
L4 Function, ACL, QCL		
Redundancy - STP/RSTP/MSTP		
Redundancy - Flash Ring/Scale Chain		
SNMP V1/V2C/V3, RMON		
Relay Output Alarm		
MAC Address Table	2K	2K
Jumbo Frame	9K	9K
Packet Buffer	1Mbit	1Mbit
Max VLAN No.		
Priority Queue	4	4
Hardware Features		
2KV Surge Immunity on RJ45 Port	•	•
1.5 KV Hipot	•	•
Din-Rail/Wall Mount	•	•
Reverse Power Protection	•	•
-40~+75°C Operating Temperature	•	•
CE, FCC	•	•
Power Consumption	Max. 5Watt	Max. 5Watt
Relay Output (Normal Open)		
Package Information		
Dimension (L)x(W)x(H)	112x29x89.4mm	112x29x89.4mm
Weight (w/o Packing Case)	295g	295g

## MLB-E4103-5-P & MLB-E4104-5-P-F

## MLB-E4110-5-G-P & MLB-E4111-5-G-P-F

*MLiS Unmanaged 5 Ports PoE Switch*



Port to  
Port  
Isolation

Advanced  
QoS

Recovery  
< 20 ms

-40 ~ +75°C

MLiS unmanaged full 10/100/1000M 5 ports Ethernet switches compliant with both IEEE 802.3af and IEEE 802.3at PoE standards and delivering up to 30 watts power per port along with data on standard Ethernet cabling. The switches can be used to power IEEE 802.3af/at standard devices (PD), which eliminates the need for additional wiring and eases the deployment for applications to reach power source.

## Features

- Full 10/100/1000M Ethernet ports
- IEEE 802.3af PoE & IEEE 802.3at PoE+ complaint
- 9K jumbo frames
- L2 wire-speed switching engine
- 2K MAC forwarding addresses
- Fanless design and withstand a wide operating temperature range (-40~+75°C)
- Dual power input (46~57VDC, dual input)
- DIN-rail and wall mounting option
- IP30
- Only MLB-E4110-5-G-P & MLB-E4111-5-G-P-F models support Gigabit

Ethernet	
Operating Mode	Store and forward L2 wire-speed/non-blocking switching engine
MAC Addresses	2K
Jumbo Frames	9K Bytes
Copper RJ45 Ports	10/100 Mbps speed auto-negotiation; MDI/MDIX auto-crossover (MLB-E4103-5-P & MLB-E4104-5-P-F)
Copper RJ45 Ports	10/100/1000 Mbps speed auto-negotiation; MDI/MDIX auto-crossover (MLB-E4110-5-G-P & MLB-E4111-5-G-P-F)
Ethernet Isolation	1500 VRMS 1 minute
SFP (Pluggable) Ports	100 Base SFP slot (MLB-E4104-5-P-F)
SFP (Pluggable) Ports	1000 Base SFP slot (MLB-E4111-5-G-P-F)
Fiber Port Connector	LC typically for fiber (depends on module)
Flow Control	IEEE 802.3x (full duplex) and back-pressure (half duplex)
QoS	IEEE 802.1p, 4 queues per port
Number of Queues	4
Traffic Shaper	Port-based port shaping
Storm Control	Multicast/Broadcast/Flooding Storm Control per system basis enable/disable
PoE	4 Ports for IEEE 802.3at PoE PSE
Power	
Power Input	Redundant input terminals; reverse power protection
Input Voltage Range	12 ~ 58VDC (46~57VDC for PoE)

Indicators	
Power Status Indication	Indication of power input status
Ethernet Port Indication	Link & Speed
PoE Power Indication	PoE power status indication
Environmental & Compliances	
Operating Temperature Range	-40~+75°C (cold startup at -40°C)
Storage Temperature Range	-40~+85°C
Humidity	5~95% RH (non-condensing)
Vibration, Shock & Freefall	Vibration: IEC60068-2-6 Shock: IEC60068-2-27 Free Fall: IEC60068-2-32
Certification Compliance	CE/FCC/UL-508; EN-50121-4
Electrical Safety	UL508/CSA C22, EN61010-1, CE
EMC	FCC Part 15, CISPR 22 (EN55022) Class A IEC61000-4-2, -3, -4, -5, -6 (Level 3)
RoHS and WEEE	RoHS (Pb free) and WEEE compliant
MTBF	> 25 years
Mechanical	
Ingress Protection	IP30
Installation Option	DIN-rail mounting
Dimension (L)x(W)x(H)	139x29x106mm (without DIN rail clip)
Weight	375g

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# MLB-F4001-MM

# MLB-F4002-SM

*Rugged Industrial Media Converter*



Mini  
Type

Link Fault  
Pass-Through

-40 ~ +75°C

MLiS MLB-F4001-MM/MLB-F4002-SM

This true mini, rugged Industrial media converter is designed for where critical but space-limited outdoor CAM enclosure. It can be powered by wide range of VAC ,VDC or external DC power adapter . With its multi-purpose design, it can also be used for Din-Rail or wall-mounted. It is an ideal unit for IP surveillance, traffic monitoring and Security application in critical environment. It can tolerate -40°C~+75°C in harsh environment to perform a reliable network.

MLB-F4001-MM: Multi-mode SC fiber supports 2km

MLB-F4002-SM: Single-mode SC fiber supports 30km

## Features

- True Mini, rugged design enclosure 59x36x49mm (LxWxH)
- Supports 18V - 36VAC/12V - 60VDC/DC jack socket
- Link Fault Pass through (LFP) function
- Switch model and converter mode
- Surge protection diodes on power input
- ESD protection diodes on RJ-45 port
- Provides far end fault function on FX port
- Provides increased noise immunity
- Extended environmental specification -40~+75°C

Fiber	
Ports	100BaseFX SC (MM 2km, SM 30km)
Ethernet	
IEEE Standard	IEEE 802.3 10Base-T Ethernet IEEE 802.3u 100Base-TX Fast Ethernet IEEE 802.3u 100Base-FX Fast Ethernet IEEE 802.3x flow control and back pressure
Data Processing	Store and forward
Flow Control	IEEE 802.3x Flow Control and Back Pressure
Architecture	Full wire speed conversion Transparent conversion to 802.1Q VLAN tagged packets
MAC Address Table Size	1 K
Serial Parameter	1 Mbits
Network Connector	RJ45
Settings	
LED Indicators	Power, Speed, Link/Act Speed (TP port) Link/Act (TP and Fiber port)
DIP Switch	Link Fault Pass Through (LFP) Converter mode, switch mode
Power	
Power Protection	Surge protection diodes on power input
Connector Protection	ESD protection diodes on TX port
Reserve Polarity Protection	Yes

Overload Current Protection	Yes
Power Input	18 V -36 VAC, 9 V – 60VDC, DC jack terminal cable supported (DC Barrel Connector )
Conformance to UL Standards	Use isolated power supply to conform with UL 508 standard
Power Consumption	Full Load: 1.92Watts @ 48VDC
Removable Terminal Block	3 pin contact terminal block for power input Wire range: 0.34mm <sup>2</sup> to 2.5mm <sup>2</sup> Solid wire (AWG): 12 - 24/14 - 22 Stranded wire (AWG): 12 - 24/14 - 22 Torque: 5lb-In/0.5Nm/0.56Nm Wire strip length: 7 - 8mm

#### Environmental & Compliances

Housing Design	IP40 Design, high graded aluminum
Installation Option	DIN rail mounted, panel mounted
Operation Temperature	-40~+75°C
Storage Temperature	-40~+85°C
Humidity	5~95% (Non-condensing)

#### Approval

Certification	EN60950-1, CE, FCC, ROHS,VCCI
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#### Mechanical

Dimension (L)x(W)x(H)	59x36x49mm
Weight	235g

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# MLB-S4101

## Serial to Ethernet Device Server



Various  
Operation  
Mode

Virtual  
COM

SNMP  
Supported

MLiS MLB-S4101 Ethernet serial server connects RS232, 422, 485 serial devices to an Ethernet LAN/WAN providing a reliable communication connection. The MLB-S4101 Windows driver installs virtual COM ports in the Device Manager of the operating system. The virtual COM port is designed to establish a connection with the MLB-S4101. This in turn will allow communications with the connected serial device in the same manner as a device connected to the COM port in a PC. The LAN becomes transparent to the serial device and the software running on the PC. MLB-S4101 also offers a Heart Beat feature to insure a reliable communications connection.

MLiS MLB-S4101 can be configured as a TCP Client/Server or UDP. The MLB-S4101 operates in "Direct IP Mode", "Virtual COM Mode", and "Paired Mode"

## Features

- DIN rail or panel mount
- Supports 10/100 Mbps Ethernet
- Supports RS232, RS-422, and RS-485 serial interface
- Supports LAN and WAN communications
- In server mode supports individual client sessions for security
- Management access password protected
- Virtual COM drivers for Windows NT/98/ME/2000/XP
- Supports socket connection, TCP server, TCP client, and UDP
- Supports up to 8 TCP connection in TCP server mode
- Heart beat connection ensures reliable TCP connection against power failure or network disruption
- Supports loop back mode. Data is echoed back for easily testing the connection
- Support SNMP Get and Set function

Serial Parameters	
Output (Serial Buffer)	64K bytes for MLB-S4101
Input (Serial Buffer)	8K bytes per port
Connection	DTE – BD-9 male
Serial Interface	RS232: TX, RX, RTS, CTS, DTR, DSR, DCD, GND RS-422: TX+, TX-, RX+, RX-, RTS+, RTS-, CTS+, CTS-, GND RS-485: Data+, Data-, GND
Data Rate	110 bps to 230.4 k bps
Parity	none, even, odd, mark, space
Data Bits	5, 6, 7 or 8
Stop Bits	1, 1.5 or 2
Ethernet	
LAN	10/100 Mbps Auto-detecting – 10 Base T, 100 Base TX
Operating Mode	Direct IP Mode, Virtual COM Mode, Paired Mode

Network	
Protocol	TCP, IP, ARP, DHCP, Telnet, HTTP, UDP, SNMP, ICMP
Management	Manager software, serial console, telnet, web server firmware upgradeable, SNMP.
Power	
Power Requirement	9 ~15VDC @ 500 mA
Environment	
Operation Temperature	0~+50°C (32~122°F)
Storage Temperature	-20~+60°C (-4~140°F)
Humidity	5~95% (non-condensing)
Approval	
Certification	CE/FCC
Mechanical	
Dimension (L)x(W)x(H)	85x115x23mm
Weight	395g

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## Power Adaptor


Model Name	MLA-PSP-200	MLA-PSP-201	MLA-PSP-204	MLA-PSP-203
Product Photo				
Description	Input: AC 100~240V Output: 9V/1.3A DC jack 5.5/2.1	US Plug, works with MLA-PSP-200	UK Plug, works with MLA-PSP-200	EU Plug, works with MLA-PSP-200

Model Name	MLA-PSP-202	MLA-PSP-005	MLA-PSP-006
Product Photo			
Description	AUS Plug, works with MLA-PSP-200	Power adaptor for WiFi AP Power Input: Universal 100~240 Vac/47~63 Hz Input, without any slide switches. Power Output: +12.0V/0~1.0A	PoE power core for WiFi AP Power Input: 100~240V~50/60Hz 1.0A MAX Power Output: 54V @ 0.65V

## Cable

Model Name	MLA-CAB-101	MLA-CAB-103
Product Photo		
Description	RS232 M to F cable	RJ45 to DB9 (w/dc jack) cable

## Power Supplier

Model Name	MLA-SUP-001
Product Photo	
Description	Industrial DC power supplier 48V @ 1.6A


## Mount Kit

Model Name	MLD-MNT-001
Product Photo	
Description	Din rail for MLB-G3002/ MLB-G3002 (US)/ MLB-G3001



## Power Adaptor

Model Name	MLA-ANT-002	MLA-ANT-004	MLA-ANT-005	MLA-ANT-006
Product Photo				
Description	Magnet standalone antenna 900MHz-1800/1900MHz -2100MHz 4 band, 3dBi	900MHZ, half wave dipole, 2.1 dBi RPSMA female	Magnet 850/900MHz- 1800/1900MHz -2100MHz 5 band antenna with male SMA connector, 1.5dBi	890~960/1710~1880MHz, SMA, 5 dBi, length = 292mm

## Ethernet SFP Fiber Transceiver




Model Name	MLA-SFP-GTX
Product Photo	
Description	1000Base-TX to RJ45 copper, operating temperature 0~+70°C




## Ethernet SFP Fiber Transceiver




Model Name	MLA-SFP-GELXWA-10-T	MLA-SFP-GELXWB-10-T
Product Photo		
Description	1.25Gbps single-mode single LC WDM SFP transceiver 10KM, TX1310nm/RX1550nm, wide operating temperature -40~+85°C	1.25Gbps single-mode single LC WDM FP transceiver 10KM, TX1550nm/RX1310nm, wide operating temperature -40~+85°C






## 100Mbps SFP Fiber Transceiver




Model Name	MLA-SFP-100M	MLA-SFP-100M-T	MLA-SFP-100S30
Product Photo			
Description	Multi-mode 100Mbps 2KM fiber transceiver, LC connector, 0~+70°C	Multi-mode 100Mbps 2KM fiber transceiver, LC connector, wide operating temperature -40~+85°C	Single mode 100Mbps 30KM fiber transceiver, LC connector, 0~+70°C




Model Name	MLA-SFP-100S30-T	MLA-SFP-100S60	MLA-SFP-100S60-T
Product Photo			
Description	Single mode 100Mbps 30km fiber transceiver, LC connector, wide operating temperature -40~+85°C	100Mbps Single-mode 60KM fiber transceiver, LC connector	100Mbps Single-mode 60KM fiber transceiver, LC connector, -40~+85°C




Model Name	MLA-SFP-100S80	MLA-SFP-100S80-T	MLA-SFP-100S100
Product Photo			
Description	100Mbps single-mode 80KM fiber transceiver, LC connector	100Mbps single-mode 80KM fiber transceiver, LC connector, -40~+85°C	100Mbps single-mode 100KM fiber transceiver, LC connector




Model Name	MLA-SFP-100S100-T	MLA-SFP-100S120	MLA-SFP-100S120-T
Product Photo			
Description	100Mbps single-mode 100KM fiber transceiver, LC connector, -40~+85°C	100Mbps single-mode 120KM fiber transceiver, LC connector	100Mbps single-mode 120KM fiber transceiver, LC connector, -40~+85°C

# Gigabit SFP Fiber Transceiver

Model Name	MLA-SFP-GSX	MLA-SFP-GSX-T	MLA-SFP-GSX2
Product Photo			
Description	1000Base-SX multi-mode transceiver 550m, 0~+70°C	1000Base-SX multi-mode transceiver 550m, wide operating temperature -40~+85°C	1000Base-SX+ multi-mode transceiver 2km, -10~+70°C

Model Name	MLA-SFP-GSX2-T	MLA-SFP-GLX10	MLA-SFP-GLX10-T
Product Photo			
Description	1000Base-SX+ multi-mode transceiver 2km, -40~+85°C	1000Base-LX single-mode transceiver 10Km, 0~+70°C	1000Base-LX single-mode transceiver 10Km, wide operating temperature -40~+85°C

Model Name	MLA-SFP-GLHX30	MLA-SFP-GLHX30-T	MLA-SFP-GXD50
Product Photo			
Description	1000Base-LHX single-mode transceiver 30km, -10~+70°C	1000Base-LHX single-mode transceiver 30km, -40~+85°C	1000Base-XD single-mode transceiver 50km, -10~+70°C

Model Name	MLA-SFP-GXD50-T	MLA-SFP-GZX70	MLA-SFP-GZX70-T
Product Photo			
Description	1000Base-XD single-mode transceiver 50km, -40~+85°C	1000Base-ZX single-mode transceiver 70km, -10~+70°C	1000Base-ZX single-mode transceiver 70km, -40~+85°C



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