

Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range

1. General

- 1.1.1. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range Hardware and Firmware shall be developed and manufactured in the UK.
- 1.1.2. All equipment and materials used shall be standard components that are regularly manufactured and used in the manufacturer's system.
- 1.1.3. All systems and components shall have been thoroughly tested and proven in actual use.
- 1.1.4. All systems and components shall be provided with a standard one-year warranty – additional options are available.
- 1.1.5. Users, Installers and Distributors of AMG products shall have access to our Website for technical assistance on a 24-hour basis. The website enable downloads of software updates, datasheets and manuals.

2. System Overview

- 2.1.1. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall offers connectivity via RJ45 copper ports and SFP fibre ports.
- 2.1.2. Industrial Managed LITE non-PoE and PoE switch range can operate in temperature conditions from -10°C to +60°C.
- 2.1.3. Industrial Hardened Managed LITE non-PoE and PoE switch range can operate in challenging network environments, with Industrial Hardened options able to operate in extreme temperature conditions from -40°C to +75°C.

3. Interfaces

3.1. Copper and Fibre connectivity

- 3.1.1. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall utilize RJ45 copper and SFP fibre ports.
 - 3.1.1.1. AMG9xM2L-4xx-1S-xxxx is equipped with 4 copper ports and 1 SFP fibre port.
 - 3.1.1.2. AMG9xM2L-4xx-2S-xxxx is equipped with 4 copper ports and 2 SFP fibre port.
 - 3.1.1.3. AMG9xM2L-8xx-2S-xxxx is equipped with 8 copper ports and 2 SFP fibre port.
 - 3.1.1.4. AMG9xM2L-12xx-3S-xxxx is equipped with 12 copper ports and 3 SFP fibre port.
 - 3.1.1.5. AMG9xM2L-16xx-4S-xxxx is equipped with 16 copper ports and 4 SFP fibre port.

- 3.1.2. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall support standard Ethernet cable as well as Multi-mode or Single-mode fibre cable with the use of SFP.
- 3.1.3. AMG9xM2L-xFx-xS-xxxx shall support 10/100BaseTx on each copper RJ45 port.
- 3.1.4. AMG9xM2L-xGx-xS-xxxx shall support 10/100/1000BaseTx on each copper RJ45 port.
- 3.1.5. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall support 100/1000BaseFx on each SFP port.
- 3.1.6. Industrial Hardened Managed LITE non-PoE and PoE switch range shall support auto negotiation of the transmission rate on Copper and SFP ports.
- 3.1.7. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall support Store and Forward architecture.

3.2. Power over Ethernet

- 3.2.1. Industrial and Industrial Hardened Managed LITE PoE switch range shall offer the option of PoE (802.3af) or PoE+ (802.3at) or PoE 60W or PoE 90W.
 - 3.2.1.1. AMG9xM2L-xxH-xS-xxxx shall support PoE (802.3af) and PoE+ (802.3at) per each copper port.
 - 3.2.1.2. AMG9xM2L-xxU-xS-xxxx shall support PoE 60W per each copper port.
 - 3.2.1.3. AMG9xM2L-xxNxxxx-xS-xxxx shall support PoE 90W per each copper port.
- 3.2.2. Industrial and Industrial Hardened Managed LITE PoE switch range shall offer different PoE budget depends on number of copper ports on a switch.
 - 3.2.2.1. AMG9xM2L-xxx-xS-P120 shall offer PoE budget max 120W.
 - 3.2.2.2. AMG9xM2L-xxx-xS-P240 shall offer PoE budget max 240W.
 - 3.2.2.3. AMG9xM2L-xxx-xS-P360 shall offer PoE budget max 360W.
 - 3.2.2.4. AMG9xM2L-xxx-xS-P480 shall offer PoE budget max 480W.
 - 3.2.2.5. AMG9xM2L-xxx-xS-P720 shall offer PoE budget max 720W.
 - 3.2.2.6. AMG9xM2L-xxx-xS-P960 shall offer PoE budget max 960W.
 - 3.2.2.7. AMG9xM2L-xxx-xS-P1200 shall offer PoE budget max 1200W.

3.3. Indicators

- 3.3.1. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall have the following indicators.

| LED's | Status | Meaning |
|----------------------------|-------------|------------------------------|
| Power | Green | Power applied (OK) |
| | Off | No Power |
| Copper Port(s) Link Act | Green on | Link (highest speed) |
| | Green Blink | Copper port Data activity |
| | Off | No Copper port Data activity |
| Fibre Port(s) Link Act | Green on | Link |
| | Green Blink | Fibre link Data activity |

| | | |
|----------|----------|-----------------------------|
| | Off | No Fibre link Data activity |
| PoE port | Amber On | PoE Device connected |
| | Off | No PoE Device connected |

4. Advanced Management

- 4.1.1. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall support management access via web GUI.
- 4.1.2. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall support Jumbo frames >9k.
- 4.1.3. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall support IEEE 802.1d STP, IEEE 802.1w RSTP.
- 4.1.4. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall support Ethernet port control and management, IEEE 802.1D Transparent bridging, IEEE 802.3x Flow control.
- 4.1.5. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall support IGMP v1/v2/v3.
- 4.1.6. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall support Simple Network Time Protocol (SNTP) client.
- 4.1.7. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall support SSH client for IPv4.
- 4.1.8. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall support IEEE 802.1q Tag VLAN.
- 4.1.9. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall support GUI SW upgrade by SFTP, TFTP.
- 4.1.10. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall support DHCP client for IPv4.

5. Power Supply

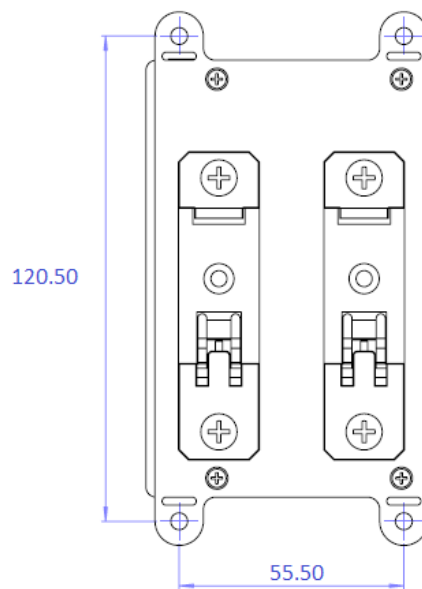
- 5.1.1. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall require an external CE approved PSU.
- 5.1.2. Industrial and Industrial Hardened Managed LITE non-PoE switch range shall have a 12 – 24V DC operating voltage range (specific PSU used dependant on model).
- 5.1.3. Industrial and Industrial Hardened Managed LITE PoE switch range shall support have a 48 – 56V DC operating voltage range (specific PSU used dependant on model).
- 5.1.4. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall automatically detect the power available.
- 5.1.5. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall support redundant PSUs. The switch has to 2 power input.
- 5.1.6. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall consume a supply current determined by the model and whether PoE is utilized.
- 5.1.7. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall use screw terminals, and be detachable.

6. Environmental

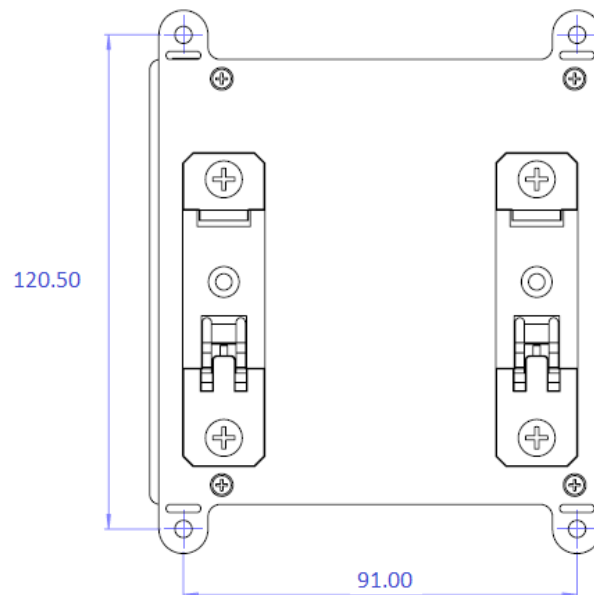
- 6.1.1. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall be capable of being Panel or DIN Rail mounted.
- 6.1.2. Industrial Managed LITE non-PoE and PoE switch range shall be capable of operating in temperature as low -60°C and high as +60°C.
- 6.1.3. Industrial Hardened Managed LITE non-PoE and PoE switch range shall be capable of operating in temperature as low as -40°C and as high as +75°C.
- 6.1.4. Industrial and Industrial Hardened Managed LITE non-PoE and PoE switch range shall operate in ambient relative humidity up to 95% non-condensing.

7. Dimensions

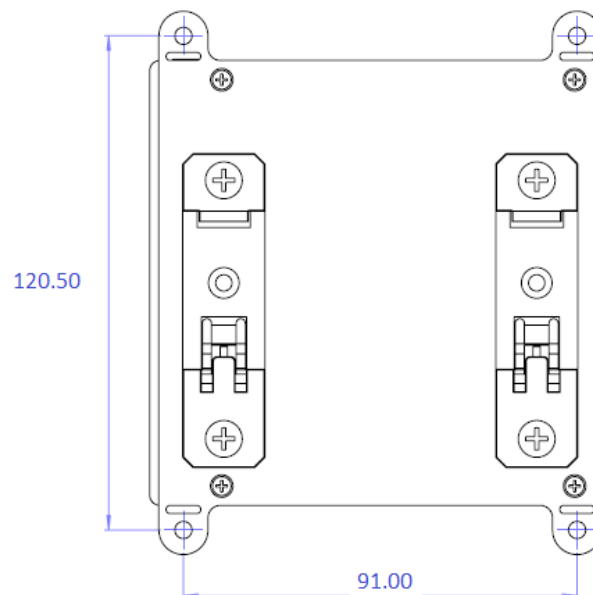
- 7.1.1. AMG9XM2L-4xx-1S-xxxx dimensions are 70.8mm (W) x 121mm (H) x 95.5mm (D, including 8mm DIN Rail brackets). Distance between horizontal fixing points is 55.5mm and distance between vertical fixing points is 120.5mm.



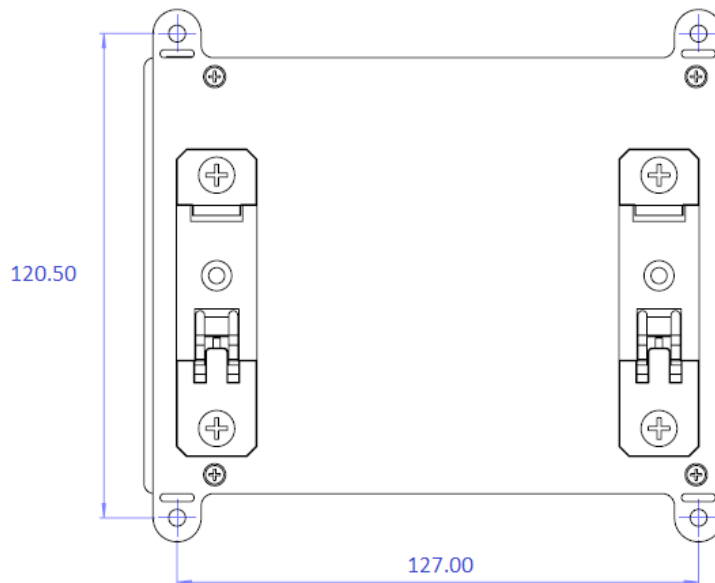
- 7.1.2. AMG9xM2L-4xx-2S-xxxx dimensions are 106.5mm (W) x 121mm (H) x 95.5mm (D, including 8mm DIN Rail brackets). Distance between horizontal fixing points is 91.0mm and distance between vertical fixing points is 120.5mm.



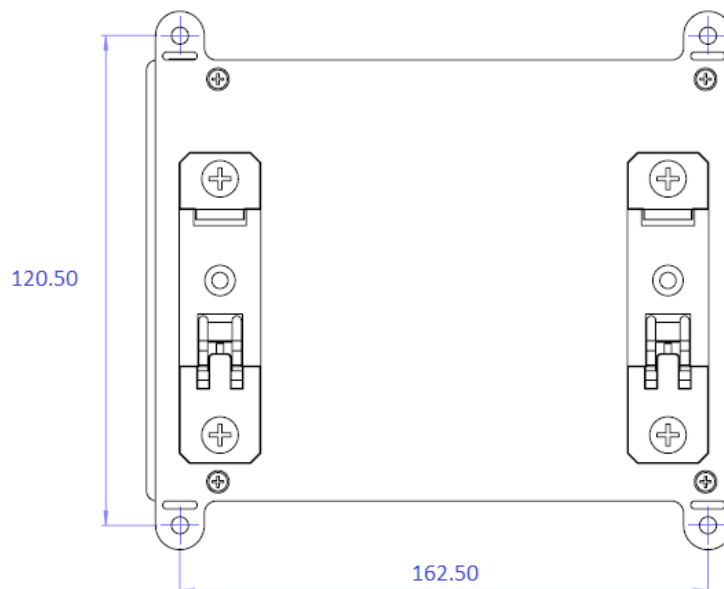
- 7.1.3. AMG9xM2L-8xx-2S-xxxx dimensions are 106.5mm (W) x 121mm (H) x 95.5mm (D, including 8mm DIN Rail brackets). Distance between horizontal fixing points is 91.0mm and distance between vertical fixing points is 120.5mm.



- 7.1.4. AMG9xM2L-12xx-3S-xxxx dimensions are 142mm (W) x 121mm (H) x 95.5mm (D, including 8mm DIN Rail brackets). Distance between horizontal fixing points is 127.0mm and distance between vertical fixing points is 120.5mm.



- 7.1.5. AMG9xM2L-16xx-4S-xxxx dimensions are 177.5mm (W) x 121mm (H) x 95.5mm (D, including 8mm DIN Rail brackets). Distance between horizontal fixing points is 162.5mm and distance between vertical fixing points is 120.5mm.



8. Specification Summary

| Technology | Standards | Explanation |
|------------|--------------------|-------------------------------------|
| Technology | IEEE 802.3i | 10Base-T |
| | IEEE 802.3u | 100Base-TX, 100Base-FX |
| | IEEE 802.3z | 1000Base-X |
| | IEEE 802.3af | Power over Ethernet |
| | IEEE 802.3at | Power over Ethernet |
| | IEEE 802.3x | Flow Control and Back pressure |
| | IEEE 802.1d | STP (Spanning Tree Protocol) |
| | IEEE 802.1w | RSTP (Rapid Spanning Tree Protocol) |
| | IEEE 802.1Q | Virtual LANs (VLAN) |
| | IEEE 802.1X | Network Authentication |
| | RFC 1112,2236,3376 | IGMP snooping v1/v2/v3 |
| | RFC 2131 | DHCP client |
| | | SSH |
| | Power | |
| | | Power Fail Alarm output |
| | | Reverse Polarity protection |
| PoE | | Max PoE Budget up to 1200W |