# Revision History

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<th>Revision</th>
<th>Release Date</th>
<th>Description of Change(s)</th>
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<tr>
<td>1.0</td>
<td>2019-06-18</td>
<td>Initial Release</td>
</tr>
<tr>
<td>1.1</td>
<td>2019-12-06</td>
<td>Update product name, specifications, mechanical drawings; add pipe version installation instructions; correct driver installation and BIOS settings</td>
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Preface

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**Conventions**

Take note of the following conventions used throughout this manual to make sure that users perform certain tasks and instructions properly.

---

**NOTE:** Additional information, aids, and tips that help users perform tasks.

---

**CAUTION:** Information to prevent minor physical injury, component damage, data loss, and/or program corruption when trying to complete a task.

*Informations destinées à prévenir les blessures corporelles mineures, les dommages aux composants, la perte de données et/ou la corruption de programme lors de l'exécution d'une tâche.*

---

**WARNING:** Information to prevent serious physical injury, component damage, data loss, and/or program corruption when trying to complete a specific task.

*Informations destinées à prévenir les blessures corporelles graves, les dommages aux composants, la perte de données et/ou la corruption de programme lors de l'exécution d'une tâche spécifique.*
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1 Introduction

The IP69K-rated Titan-AL Series of panel computers, based on the Intel Atom® x7-E3950 processor, is designed for use in monitoring and controlling production processes in industries obligated to meet high hygiene standards. The Titan series features power-efficient computing and up to 1080p high contrast display to present control schematics and graphical diagrams to systems operators. Encased in an IP69K, 316L stainless steel housing, the Titan series can withstand high pressure hot water cleaning, oxidative damage or other chemical reactions and is engineered to prevent water from remaining on the surface after cleaning with its flush front panel surface and the sleek rear chassis design. The pipe mounting option helps keep the workplace clean and neat by providing protection and allowing organization of cables. The Titan Panel Computer series is an ideal fit for food and beverage, pharmaceutical, automotive, and steel and metal industries.

1.1 Features

- Intel Atom® x7-E3950 quad core processors
- Capacitive touch screen
- I/O:
  - 2x USB 2.0 (M12, VESA mount version)
  - 1x USB 3.0, 1x USB 2.0 (Type A, pipe mount version)
  - 2x GbE ports
  - 2x COM ports (RS-232/422/485)
  - 1x DisplayPort (pipe mount model only)
- Built-in ADLINK SEMA management solution
- IP69K-rated fully sealed moisture- and particulate-proof housing (including I/O)
- Corrosion-resistant stainless steel SUS 316L (V4A) housing
- VESA Mount and Pipe Mount versions available
1.2 Packing List

Before unpacking, check the shipping carton for any damage. If the shipping carton and/or contents are damaged, inform your dealer immediately. Retain the shipping carton and packing materials for inspection. Obtain authorization from your dealer before returning any product to ADLINK. Ensure that the following items are included in the package.

**VESPA Mount Version**

- Titan-AL VESA mount unit
- Screw pack for VESA mounting
- Waterproof M12 cable kit
  - 1x COM cable (DB-9)
  - 1x GbE cable (RJ-45)
  - 1x USB 2.0 Y-splitter to 2x Type A
  - 1x AC power cable (US or EU version)
  - 2x M12 waterproof caps

**Pipe Mount Version**

- Titan-AL pipe mount unit
- Rear cover seal kit
  - spacers and screw pack
- Base mount seal kit
  - rubber seal, mounting bracket w/ adhesive, screw pack
# 2 Specifications

## 2.1 General Specifications

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Display Size</td>
<td>15.6&quot;</td>
<td>21.5&quot;</td>
<td>23.8&quot;</td>
</tr>
<tr>
<td>Resolution</td>
<td>1366 x 768</td>
<td>1920 x 1080</td>
<td>1920 x 1080</td>
</tr>
<tr>
<td>Brightness (w/o touch)</td>
<td>400 nits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contrast Ratio</td>
<td>500:1</td>
<td>1100:1</td>
<td>1000:1</td>
</tr>
<tr>
<td>Viewing Angle (U/D/R/L)</td>
<td>80°/80°/85°/85°</td>
<td>89°/89°/89°/89°</td>
<td>89°/89°/89°/89°</td>
</tr>
<tr>
<td>Touch screen</td>
<td>Projective capacitive sensor</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Main System

- **Processor**: Intel® Atom™ E3950
- **Memory**: 4GB DDR3L default (up to 8GB)
- **Storage**: 1x 2.5" SATA 128GB (default)
- **Operating System**: Windows 10 IoT Enterprise

### I/O

- **IP69K-rated I/O (M12 connectors, VESA Mount version)**
  - 2x USB 2.0, M12
  - 2x GbE, M12
  - 2x COM ports, RS-232/422/485
  - 1x AC power input

- **Integrated I/O ports (Pipe Mount version)**
  - 1x USB 3.0, 1x USB 2.0, Type A
  - 2x GbE, RJ-45
  - 2x COM ports, RS-232/422/485
  - 1x DisplayPort (including audio support)
  - 1x AC power input

- **WiFi and Bluetooth (optional)**
  - 802.11 a/b/g/n/ac
  - Bluetooth 4.0

### Mechanical

- **Construction**: Stainless steel SUS 316 (V4A)
- **Weight**: 8.0kg, 12.0kg, 12.8kg
- **Dimensions (HxWxD)**: 419 x 268 x 59 mm, 561 x 353 x 67 mm, 610 x 379 x 67 mm
- **Mounting Options**: VESA mount, MIS-D 75/100mm, Pipe mount
Each size Titan-AL Series panel computer is available in VESA and Pipe Mount versions. The full model names are as below.

<table>
<thead>
<tr>
<th>Mount Type</th>
<th>15.6&quot;</th>
<th>21.5&quot;</th>
<th>23.8&quot;</th>
</tr>
</thead>
</table>
2.2 Mechanical Drawings

All dimensions shown are in millimeters (mm) unless otherwise stated.

2.2.1 Titan-15WP-VESA/15WP-PIPE-E3950

Figure 2-1: Titan-15WP Front View
Figure 2-2: Titan-15WP Side View (Right)
Figure 2-3: Titan-15WP-VESA Rear View

Figure 2-4: Titan-15WP-PIPE Rear View
2.2.2 Titan-21WP-VESA/PIPE-E3950

Figure 2-5: Titan-21WP Front View
Figure 2-6: Titan-21WP Side View (Right)
Figure 2-7: Titan-Z1WP-VESA Rear View

Figure 2-8: Titan-Z1WP-PIPE Rear View
2.2.3  Titan-24WP-VESA/PIPE-E3950

Figure 2-9: Titan-24WP Front View
Figure 2-10: Titan-24WP Side View (Right)

24WP-VESA

24WP-PIPE
Figure 2-11: Titan-24WP-VESA Rear View

Figure 2-12: Titan-24WP-PIPE Rear View
2.3 I/O Connectors - VESA Mount Version

The M12 I/O connectors located on the underside of the Titan-AL VESA mount chassis are as follows.

![Figure 2-13: VESA Mount External I/O](image)

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>AC power input</td>
</tr>
<tr>
<td>B</td>
<td>COM1 port</td>
</tr>
<tr>
<td>C</td>
<td>COM2 port</td>
</tr>
<tr>
<td>D</td>
<td>GbE1 port</td>
</tr>
<tr>
<td>E</td>
<td>GbE2 port</td>
</tr>
<tr>
<td>F</td>
<td>USB 2.0 x2</td>
</tr>
</tbody>
</table>
2.4 I/O Connectors - Pipe Mount Version

I/O connectors located in the opening on the rear of the Pipe Mount Titan-AL chassis are as follows.

Figure 2-14: Pipe-Mount External I/O

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>COM1 port</td>
</tr>
<tr>
<td>A2</td>
<td>COM2 port</td>
</tr>
<tr>
<td>B</td>
<td>USB 3.0</td>
</tr>
<tr>
<td>C1</td>
<td>GbE1</td>
</tr>
<tr>
<td>C2</td>
<td>GbE2</td>
</tr>
<tr>
<td>D</td>
<td>USB 2.0</td>
</tr>
<tr>
<td>E</td>
<td>DisplayPort</td>
</tr>
</tbody>
</table>
2.5 Smart Embedded Management Agent (SEMA)

The SEMA (Smart Embedded Management Agent) utility provides system control and failure protection, by counting, monitoring, and measuring hardware and software events.

For more information and operating instructions, please visit https://www.adlinktech.com/Products/Industrial_IoT_and_Cloud_solutions/SEMA_Smart_Embedded_Management_Agent/SEMA
3 Getting Started

Follow the instructions in this chapter to mount, power up, and install the drivers for the Titan-AL.

NOTE: To ensure correct operation of the device, do not cover the openings on the pressure balancing valve.

3.1 Mounting Solutions

The Titan-AL comes in VESA mount and pipe mount versions. The mounting procedures are described as described below.
3.1.1 VESA Mounting

Use the four M4 10mm screws included in the screw pack to mount the panel as shown (recommended torque: 12 to 15 kgf-cm).

Figure 3-1: VESA 75 Mounting

Figure 3-2: VESA 100 Mounting
3.1.2 Pipe Mounting

The Titan-AL pipe mount version requires an optional pipe mount bracket that is customized for the intended application. Please contact your local ADLINK representative for more information.

Securing the bracket to the panel

1. Connect all required cables to the connectors on the rear of the Pipe Mount Titan-AL chassis (Section 2.4 on page 13).
2. Feed the cables into the pipe mount bracket and out the base.
3. Make sure that the rubber seal is attached to the rear of the chassis as shown, and that the 8 spacers are inserted into the holes.
4. Attach the bracket onto the rubber seal and secure it with the 8 waterproof M4 screws provided.

5. Use a T20 screwdriver to tighten the screws in the criss-cross pattern indicated in the diagram below (note that the bottom center screw is a 7mm hex head due to the reduced clearance available). It is recommended to tighten the screws to the following torque values in 2 stages: first to 12 kgf-cm, then to 15 kgf-cm.

![Diagram of screw pattern]

**Screw type:** Flathead M4-0.7X20 (T20) stainless steel screw with gasket-type seal and NYLOK® blue patch

**Bottom center screw:** 7mm hex head M4-0.7X20 stainless steel screw w/ O-ring and NYLOK® blue patch
Preparing the mounting surface

Prepare the mounting surface for the pipe mount bracket by drilling and threading 10 mounting holes (M6 thread), drilling 3 positioning holes (Ø 5.5mm), and making a cut-out (Ø 70mm) for the cables as shown in the diagram below.
Securing the base to the mounting surface

1. Locate the mounting plate and peel the backing from the adhesive on the bottom. Align the 3 three positioning pins with the holes in the mounting surface and attach the plate with the adhesive side facing down.

![Diagram showing the base, rubber seal, mounting plate, and screws.](image-url)
2. Insert the rubber seal into the bottom of base of the pipe mount bracket with the grooved side facing downwards. Feed the cables from the base of the pipe mount base through the cut-out hole in the mounting surface.

Make sure to insert the rubber seal into the bottom of the base of the pipe mount bracket with the grooved side facing downwards.

3. Place the base and rubber seal onto the mounting plate attached to the mounting surface. Secure the bracket to the mounting surface with the 10 M6 waterproof screws provided.
4. Use a T30 screwdriver to tighten the screws in the order indicated in the diagram below. It is recommended to tighten the screws to 50 kgf-cm.
3.2 Powering Up

3.2.1 Connect the AC Power Supply

Connect the AC power supply to the power input of your model. Refer to Section 2.2 I/O Connectors - VESA Mount Version for the location of the connector on the VESA mount version, and Figure 3-3 below for the Pipe Mount version. The device will power up when the power supply is turned on.

![Figure 3-3: AC Connector on Pipe Mount Version](image)

3.2.2 Power Button

The power button is located on the side of the chassis as shown in Section 2.2 Mechanical Drawings. To power down the device, perform a soft shutdown using the operating system. Press the power button to power up the device. To perform a hard shutdown, hold down the power button for several seconds until the device powers down.
3.3 Driver Installation

After installing the operating system, all related drivers must be installed for the system to function properly. This section describes the drivers needed for Windows operating systems and the procedures to install them. For other OS support, please contact ADLINK for further information.

Download the drivers from the ADLINK website at: www.adlinktech.com/Products/Panel_PCs_Monitors/IndustrialPanelComputers/Titan-AL

Install the Windows 10 IoT Enterprise operating system before installing any drivers. Most standard I/O device drivers are included in the Windows OS. Please note that you will need Administrator privilege to install the drivers.

Install the drivers in the following order:

1. Chipset driver
2. Graphics driver
3. Ethernet driver
4. Serial I/O driver
5. Audio I/O driver (Pipe version only)
6. TXE driver

Chipset Driver

To install the chipset driver:

1. Close any running applications.
2. From ADLINK’s website, download and extract the contents of the file Titan-AL_Win10 64bit_Chipset.
3. Execute SetupChipset.exe and follow onscreen instructions to complete the setup.
4. After installation is complete, reboot the system.
Graphics Driver

To install the graphics driver:

1. Close any running applications.
2. From ADLINK's website, download and extract the contents of the file Titan-AL_Win10 64bit_Graphics.
3. Execute igxpin.exe and follow onscreen instructions to complete the setup.
4. After installation is complete, reboot the system.

Ethernet Driver

To install the Ethernet controller driver:

1. Close any running applications.
2. From ADLINK's website, download and extract the contents of the file Titan-AL_Win10 64bit_Ethernet.
3. Execute LAN-PROWinx64 22.9.exe and follow onscreen instructions to complete the setup.
4. After installation is complete, reboot the system.

Serial I/O Driver

To install the serial I/O controller driver:

1. Close any running applications.
2. From ADLINK's website, download and extract the contents of the file Titan-AL_Win10 64bit_Serial.
3. Execute SetupSerialIO.exe and follow onscreen instructions to complete the setup.
4. After installation is complete, reboot the system.
Audio Driver (Pipe Version only)

To install the audio driver:

1. Close any running applications.
2. From ADLINK’s website, download and extract the contents of the file Titan-AL_Win10 64bit_Audio.
3. Execute Setup.exe and follow onscreen instructions to complete the setup.

TXE Driver

To install the serial I/O controller driver:

1. Close any running applications.
2. From ADLINK’s website, download and extract the contents of the file Titan-AL_Win10 64bit_TXE.
3. Execute SetupTXE.exe and follow onscreen instructions to complete the setup.

3.4 SE MA Utility

The Titan-AL supports ADLINK Smart Embedded Management Utility with features as follows.

- System Health for real time CPU, system temperature, total/current uptime
- Watchdog Timer
- Hardware Monitoring for input voltage levels and current power consumption

For more information and operating instructions, please visit https://www.adlinktech.com/Products/Industrial_IoT_and_Cloud_solutions/SEMA_Smart_EMBEDDED_MANAGEMENT_AGENT/SEMA
4 Interfaces

4.1 Pin Definitions - VESA Mount Version

Refer to Section 2.3 I/O Connectors - VESA Mount Version for connector location information.

4.1.1 AC Power Input (M12)

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE</td>
<td>Protective Earth</td>
</tr>
<tr>
<td>1</td>
<td>Line (L)</td>
</tr>
<tr>
<td>2</td>
<td>NC</td>
</tr>
<tr>
<td>3</td>
<td>Neutral (N)</td>
</tr>
</tbody>
</table>

Table 4-1: AC Power Input Pin Definition (M12)
4.1.2 COM Port (M12)

COM1/2 ports support RS-232 (default) and RS-422/RS-485 modes, by BIOS setting.

<table>
<thead>
<tr>
<th>Pin</th>
<th>RS-232</th>
<th>RS-422</th>
<th>RS-485</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>DCD#</td>
<td>TXD422-</td>
<td>485-</td>
</tr>
<tr>
<td>2</td>
<td>RXD</td>
<td>TXD422+</td>
<td>485+</td>
</tr>
<tr>
<td>3</td>
<td>TXD</td>
<td>RXD422+</td>
<td>N/C</td>
</tr>
<tr>
<td>4</td>
<td>DTR#</td>
<td>RXD422-</td>
<td>N/C</td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
<td>N/C</td>
<td>N/C</td>
</tr>
<tr>
<td>6</td>
<td>DSR#</td>
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<td>N/C</td>
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<td>7</td>
<td>RTS#</td>
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<td>N/C</td>
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<tr>
<td>8</td>
<td>CTS#</td>
<td>N/C</td>
<td>N/C</td>
</tr>
<tr>
<td>9</td>
<td>RI#</td>
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<td>N/C</td>
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<tr>
<td>10</td>
<td>CH_GND</td>
<td>CH_GND</td>
<td>CH_GND</td>
</tr>
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Table 4-2: COM Ports Pin Definition (M12)
4.1.3 USB 2.0 Ports (M12)

![USB 2.0 Ports Diagram]

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
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<tr>
<td>1</td>
<td>P5V</td>
</tr>
<tr>
<td>2</td>
<td>USB1_N</td>
</tr>
<tr>
<td>3</td>
<td>USB1_P</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
</tr>
<tr>
<td>5</td>
<td>P5V</td>
</tr>
<tr>
<td>6</td>
<td>USB2_N</td>
</tr>
<tr>
<td>7</td>
<td>USB2_P</td>
</tr>
<tr>
<td>8</td>
<td>GND</td>
</tr>
<tr>
<td>9-17</td>
<td>N/C</td>
</tr>
</tbody>
</table>

Table 4-3: USB 2.0 Port Pin Definition (M12)
4.1.4 GbE Ports (M12)

![GbE Port Diagram]

<table>
<thead>
<tr>
<th>Pin</th>
<th>10BASE-T/100BASE-TX</th>
<th>1000BASE-T</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TX+</td>
<td>TX0+</td>
</tr>
<tr>
<td>2</td>
<td>TX-</td>
<td>TX0-</td>
</tr>
<tr>
<td>3</td>
<td>RX+</td>
<td>TX1+</td>
</tr>
<tr>
<td>4</td>
<td>—</td>
<td>TX2+</td>
</tr>
<tr>
<td>5</td>
<td>—</td>
<td>TX2-</td>
</tr>
<tr>
<td>6</td>
<td>RX-</td>
<td>TX1-</td>
</tr>
<tr>
<td>7</td>
<td>—</td>
<td>TX3+</td>
</tr>
<tr>
<td>8</td>
<td>—</td>
<td>TX3-</td>
</tr>
</tbody>
</table>

Table 4-4: GbE Port Pin Definition (M12)
4.2 Pin Definitions - Pipe Mount Version

Refer to Section 2.4 I/O Connectors - Pipe Mount Version for connector location information.

4.2.1 COM Ports (DB-9)

COM1/2 ports support RS-232 (default) and RS-422/RS-485 modes, by BIOS setting.

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>RS-232</th>
<th>RS-422</th>
<th>RS-485</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DCD#</td>
<td>TXD422-</td>
<td>485-</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>RXD</td>
<td>TXD422+</td>
<td>485+</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>TXD</td>
<td>RXD422+</td>
<td>N/C</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>DTR#</td>
<td>RXD422-</td>
<td>N/C</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
<td>N/C</td>
<td>N/C</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>DSR#</td>
<td>N/C</td>
<td>N/C</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>RTS#</td>
<td>N/C</td>
<td>N/C</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>CTS#</td>
<td>N/C</td>
<td>N/C</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>RI#</td>
<td>N/C</td>
<td>N/C</td>
<td></td>
</tr>
</tbody>
</table>

Table 4-5: COM Port Pin Definition (DB-9)
4.2.2  USB Ports

USB 2.0 (Type A)

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Signal Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>USB2.0_VBUS</td>
</tr>
<tr>
<td>2</td>
<td>D-</td>
</tr>
<tr>
<td>3</td>
<td>D+</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
</tr>
</tbody>
</table>

Table 4-6: USB 2.0 Pin Definition (Type A)

USB 3.0 (Type A)

<table>
<thead>
<tr>
<th>Pin #</th>
<th>Signal Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>USB3.0_VBUS</td>
</tr>
<tr>
<td>2</td>
<td>D-</td>
</tr>
<tr>
<td>3</td>
<td>D+</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
</tr>
<tr>
<td>5</td>
<td>SSRX-</td>
</tr>
<tr>
<td>6</td>
<td>SSRX+</td>
</tr>
<tr>
<td>7</td>
<td>GND</td>
</tr>
<tr>
<td>8</td>
<td>SSTX-</td>
</tr>
<tr>
<td>9</td>
<td>SSTX+</td>
</tr>
</tbody>
</table>

Table 4-7: USB 3.0 Pin Definition (Type A)
4.2.3 GbE Ports (RJ-45)

<table>
<thead>
<tr>
<th>Pin #</th>
<th>10BASE-T/100BASE-TX</th>
<th>1000BASE-T</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TX+</td>
<td>TX0+</td>
</tr>
<tr>
<td>2</td>
<td>TX-</td>
<td>TX0-</td>
</tr>
<tr>
<td>3</td>
<td>RX+</td>
<td>TX1+</td>
</tr>
<tr>
<td>4</td>
<td>—</td>
<td>TX2+</td>
</tr>
<tr>
<td>5</td>
<td>—</td>
<td>TX2-</td>
</tr>
<tr>
<td>6</td>
<td>RX-</td>
<td>TX1-</td>
</tr>
<tr>
<td>7</td>
<td>—</td>
<td>TX3+</td>
</tr>
<tr>
<td>8</td>
<td>—</td>
<td>TX3-</td>
</tr>
</tbody>
</table>

Table 4-8: RJ-45 GbE Pin Definition (RJ-45)

<table>
<thead>
<tr>
<th>LED</th>
<th>LED Color</th>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed (left)</td>
<td>Green/Yellow</td>
<td>OFF</td>
<td>10 Mbps</td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td>OFF</td>
<td>100 Mbps</td>
</tr>
<tr>
<td></td>
<td>Yellow</td>
<td>OFF</td>
<td>1 GBbps</td>
</tr>
<tr>
<td></td>
<td>Green (right)</td>
<td>OFF</td>
<td>Ethernet port is disconnected</td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td>ON</td>
<td>Ethernet port is connected with no activity</td>
</tr>
<tr>
<td></td>
<td>Flashing</td>
<td></td>
<td>Ethernet port is connected and active</td>
</tr>
</tbody>
</table>

Table 4-9: GbE Port LED Definition
4.2.4 DisplayPort

One DisplayPort connector supports the DP++ standard specification, and can connect to VGA, DVI, HDMI, and Display Port monitors via DisplayPort to VGA adapter cable, DisplayPort to DVI adapter cable, or DisplayPort to HDMI adapter cable and Display Port cable, with DP1.2 support for resolutions up to 4096 x 2160 at 60Hz.

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>Pin</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ML_Lane0_P</td>
<td>11</td>
<td>GND</td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
<td>12</td>
<td>ML_Lane3_N</td>
</tr>
<tr>
<td>3</td>
<td>ML_Lane0_N</td>
<td>13</td>
<td>Config1</td>
</tr>
<tr>
<td>4</td>
<td>ML_Lane1_P</td>
<td>14</td>
<td>Config2</td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
<td>15</td>
<td>Aux_P</td>
</tr>
<tr>
<td>6</td>
<td>ML_Lane1_N</td>
<td>16</td>
<td>GND</td>
</tr>
<tr>
<td>7</td>
<td>ML_Lane2_P</td>
<td>17</td>
<td>Aux_N</td>
</tr>
<tr>
<td>8</td>
<td>GND</td>
<td>18</td>
<td>Hot Plug</td>
</tr>
<tr>
<td>9</td>
<td>ML_Lane2_N</td>
<td>19</td>
<td>Return</td>
</tr>
<tr>
<td>10</td>
<td>ML_Lane3_P</td>
<td>20</td>
<td>DP_PWR_+3.3V</td>
</tr>
</tbody>
</table>

Table 4-10: DisplayPort Pin Definition
5 BIOS Setup

The Basic Input/Output System (BIOS) is a program that provides a basic level of communication between the processor and peripherals. In addition, the BIOS also contains codes for various advanced features applied to the Titan-AL. The BIOS setup program includes menus for configuring settings and enabling features of the Titan-AL. Most users do not need to use the BIOS setup program, as the Titan-AL ships with default settings that work well for most configurations.

WARNING:
Changing BIOS settings may lead to incorrect controller behavior and possible inability to boot.
La modification des paramètres du BIOS peut entraîner un comportement incorrect du contrôleur et une impossibilité éventuelle de démarrer.
5.1 Main

Contains basic system information for the rugged panel computer.

**BIOS Information**

Shows vendor, version, build date, MRC Version, GOP Version, and TXE FW Version for active BIOS.

**System Information**

Shows current system project name, hardware version, CPU brand string, CPU frequency, total memory, memory frequency and PCH SKU.
**System Time/System Date**

Allows adjustment of system time and date, as follows:

1. Highlight System Time or System Date using the up and down keys

2. Enter new values using the keyboard and <Tab> to move between fields

---

**NOTE:**

The time is in 24-hour format, for example, 5:30 A.M. appears as 05:30:00, and 5:30 P.M. as 17:30:00.

---

**Access Level**

Displays the current access level for BIOS setup.
5.1.1 Board Information
Displays serial number, manufacturing date, last repair date, and MAC address for the installed board.

Runtime Statistics
Displays total runtime, current runtime, power cycles, boot cycles, and boot reason for the system.
5.2 Advanced

This menu accesses advanced options for the device.

CAUTION:

Setting incorrect or conflicting values in Advanced BIOS Setup may cause system malfunction.

Le réglage de valeurs incorrectes ou conflictuelles dans la configuration avancée du BIOS peut entraîner un dysfonctionnement du système.
5.2.1 CPU Configuration

EIST
Enables/disables Intel SpeedStep.

Turbo Mode
Enables/disables Turbo mode.

Intel Virtualization Technology
When enabled, VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.

C-States
Enhanced C-state
Enables/disables C1E, where, when enabled, CPU will switch to minimum speed when all cores enter CStates.
Max Package C State
Sets the Max Package C State supported by the processor, from among PC2, PC1, and C0.

Max Core C State
Sets the Max Core C State supported by the cores, from among Fused value, Core C10, Core C9, and Core C8.

C-State Auto Demotion
Configures C-State Auto Demotion.

C-State Un-demotion
Configures C-State Auto Un-demotion.

DTS
Enables/disables Digital Thermal Sensor.

5.2.2 Graphics Configuration

<table>
<thead>
<tr>
<th>Graphics Configuration</th>
<th>Data format and Color Depth select</th>
</tr>
</thead>
<tbody>
<tr>
<td>For LVDS Only</td>
<td></td>
</tr>
<tr>
<td>Data format and Color</td>
<td>[Auto]</td>
</tr>
<tr>
<td>LVDS Output Mode</td>
<td>[Auto]</td>
</tr>
<tr>
<td>DE Polarity</td>
<td>[Active High]</td>
</tr>
<tr>
<td>Vsync Polarity</td>
<td>[Active High]</td>
</tr>
<tr>
<td>Hsync Polarity</td>
<td>[Active High]</td>
</tr>
<tr>
<td>Spreading depth</td>
<td>[No Spreading]</td>
</tr>
<tr>
<td>For eDP/LVDS</td>
<td></td>
</tr>
<tr>
<td>Active LFP Config</td>
<td>[eDP/LVDS]</td>
</tr>
</tbody>
</table>

←: Select Screen
+: Select Item
Enter: Select
+-/: Change Opt.
F1: General Help
F8: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit

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Data Formation and Color Depth
Selects data format and color depth, from among Auto, VESA 24 bpp, JEIDA 24 bpp, and JEIDA/vesa 18 bpp

LVDS Output Mode
Selects single/dual mode

DE Polarity
Selects active High/Active Low DE polarity

Vsync Polarity
Selects Active High/Active Low Vsync polarity

Hsync Polarity
Selects Active High/Active Low Hsync polarity

Spreading Depth
Selects clock frequency center spreading depth

Active LFP Config
Configures active local flat panel
5.2.3 Power Management

Enable ACPI Auto Configuration
Enables/disables BIOS ACPI Auto Configuration.

Enable Hibernation
Enables/disables hibernation (OS/S4 Sleep State), incompatible with some OS.

ACPI Sleep State
Selects the highest ACPI sleep state the system will enter when SUSPEND is entered.

Lock Legacy Resources
Enables/disables Legacy Resources.
mPCIe Slot Wake
Enables/disables PCI Express slot wake capability.

LAN Wake
Enables/disables onboard LAN wake capability.

RTC Wake system from S5
Enables/disables system wake on alarm event, from among
- Fixed Time: system wakes on the hr::min::sec specified
- Dynamic Time: system wakes on the current time +
  increase in minutes

Emulation AT/ATX
Selects Emulation AT or ATX function, where, if set to [Emulation
AT], BIOS will report no suspend functions to ACPI OS, and in
windows XP, OS displays shutdown message during system shut-
down.

LAN#1 Control
Enables/disables LAN#1 device.

LAN#2 Control
Enables/disables LAN#2 device.
# Power Consumption

Power consumption information

<table>
<thead>
<tr>
<th>Power Consumption</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Input Current</td>
<td>0.470A</td>
</tr>
<tr>
<td>Current Input Power</td>
<td>5.680W</td>
</tr>
<tr>
<td>CPU-Vcore</td>
<td>0.825V</td>
</tr>
<tr>
<td>VGFx</td>
<td>0.805V</td>
</tr>
<tr>
<td>V1P05S</td>
<td>1.051V</td>
</tr>
<tr>
<td>VMEH</td>
<td>1.358V</td>
</tr>
<tr>
<td>VIN(12V)</td>
<td>11.941V</td>
</tr>
<tr>
<td>VSS3B8Y</td>
<td>5.036V</td>
</tr>
<tr>
<td>VSS</td>
<td>5.059V</td>
</tr>
<tr>
<td>P_+3V3_A</td>
<td>3.324V</td>
</tr>
<tr>
<td>P_+3V3_S</td>
<td>3.300V</td>
</tr>
<tr>
<td>VRDC</td>
<td>3.045V</td>
</tr>
<tr>
<td>P_+1V24_S</td>
<td>1.264V</td>
</tr>
<tr>
<td>P_+1MV3_S</td>
<td>1.787V</td>
</tr>
</tbody>
</table>

**Key:**
- F1: General Help
- F8: Previous Values
- F9: Optimized Defaults
- F10: Save & Exit
- ESC: Exit

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## 5.2.4 System Management

### System Management

<table>
<thead>
<tr>
<th>Feature</th>
<th>Version/Build Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEMA Firmware</td>
<td>BMC SP-AL 0v6, Jan 25 2018</td>
</tr>
<tr>
<td>SEMA Bootloader</td>
<td>bl_SP-AL 5v1, Jan 4 2018</td>
</tr>
</tbody>
</table>

- **SEMA Features**
- **Flags**

Refer to SEMA user manual for detail operation.

Displays BMC and SEMA version and build date.

### SEMA Features

Refer to SEMA documentation for detailed operation

### Flags

 Displays BMC flag
5.2.5 Thermal Management

Displays CPU and board temperatures.

**Critical Trip Point**
Temperature threshold of critical trip point.

**Passive Cooling Trip Point**
Temperature threshold of passive cooling trip point.
5.2.6 Watchdog Timer

Power-Up Watchdog

Enables/disables Power Up watchdog, which, when enabled, resets the system a certain amount of time after power up. Pressing F12 during startup disables the power up watchdog.

RunTime Watchdog

Enables/disables RunTime watchdog, which, when enabled, resets the system a certain amount of time after power up.
5.2.7 Super IO Configuration

Enables/disables the serial port and sets the serial port mode to RS-232, RS-422 or RS-485.
5.2.8 Serial Console Redirection

Enables/disables serial port console redirection.
5.2.9 Network Stack Configuration

Enables/disables UEFI network stack.
### 5.2.10 Trusted Computing

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Security Device Support</td>
<td>Enables/disables BIOS support for security device. OS will not show Security Device, TCG EFI protocol and INT1A interface will not be available.</td>
</tr>
<tr>
<td>NO Security Device Found</td>
<td></td>
</tr>
</tbody>
</table>

Enables/disables BIOS support for security device, when disabled, OS will not show the security device, and TCG EFI protocol and INT1A interface will not be available.
5.2.11 USB Configuration

XHCI Hand-off

Enables/disables XHCI hand-off, as a workaround for OS with no XHCI hand-off support, where XHCI ownership change should be claimed by XHCI driver.

USB Mass Storage Driver Support

Enables/disables mass storage driver support.

USB transfer time-out

Time-out value for control, bulk, and interrupt transfers.

Device reset time-out

USB mass storage device Start Unit command time-out.
Device power-up delay

Maximum time the device will take before properly reporting itself to the Hot Controller, with ‘Auto’ using default value, for a Root port 100 ms, and for a Hub port the delay is taken from the Hub descriptor.

5.2.12 Intel I211 Gigabit Network Connection

<table>
<thead>
<tr>
<th>PORT CONFIGURATION MENU</th>
<th>Advanced Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIC Configuration</td>
<td></td>
</tr>
<tr>
<td>Blink LEDs</td>
<td>0</td>
</tr>
<tr>
<td>PORT CONFIGURATION INFORMATION</td>
<td></td>
</tr>
<tr>
<td>UEFI Driver:</td>
<td>Intel(R) PRO/1000 6.1.1...</td>
</tr>
<tr>
<td>Adapter FBA:</td>
<td></td>
</tr>
<tr>
<td>Chip Type</td>
<td>Intel i211</td>
</tr>
<tr>
<td>PCl Device ID</td>
<td>1539</td>
</tr>
<tr>
<td>PCl Address</td>
<td>02:00:00</td>
</tr>
<tr>
<td>Link Status</td>
<td>[Disconnected]</td>
</tr>
<tr>
<td>MAC Address</td>
<td>00:30:64:1D:03:06</td>
</tr>
</tbody>
</table>

Click to configure the network device port.

+++: Select Screen
++/: Select Item
Enter: Select
F1: General Help
F8: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit

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# NIC Configuration

<table>
<thead>
<tr>
<th>Link Speed</th>
<th>[Auto Negotiated]</th>
<th>Specifies the port speed used for the selected boot protocol.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wake On LAN</td>
<td>[Enabled]</td>
<td></td>
</tr>
</tbody>
</table>

### Link Speed

Specifies the port speed used for the selected boot protocol.

### Wake On Lan

Enables the server to be powered on using an in-band magic packet.

### Blink LEDs

Identifies the physical network port by blinking the associated LED.
5.3 Chipset

- North Bridge
- South Bridge
- Uncore Configuration
- South Cluster Configuration

North Bridge Parameters

++: Select Screen
F1: Select Item
Enter: Select
+/-= Change Opt.
F1: General Help
F8: Previous Values
F9: Optimized Defaults
F10: Save & Exit
ESC: Exit
5.3.1 North Bridge

Displays memory information, sets maximum value for TOLUID and enables/disables BIOS assignment and PCIe VGA workaround.
5.3.2 South Bridge

Sets IRQ mode and enables/disables SMBUs and PCI clock run.
5.3.3 Uncore Configuration

<table>
<thead>
<tr>
<th>Option</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated Graphics Device</td>
<td>[Enable]</td>
<td>Enables/disables Integrated Graphic Device and RC6 (Render Standby), sets</td>
</tr>
<tr>
<td>Primary Display</td>
<td>[Ideo]</td>
<td>size for GTT, aperture size, DVMT pre-allocation, DVMT total Gfx Mem and</td>
</tr>
<tr>
<td>RC6 (Render Standby)</td>
<td>[Disable]</td>
<td>CD clock frequency.</td>
</tr>
<tr>
<td>GTT Size</td>
<td>[8MB]</td>
<td>Enable: Enable Integrated Graphics Device (IGO) when selected as the</td>
</tr>
<tr>
<td>Aperture Size</td>
<td>[256MB]</td>
<td>Primary Video Adaptor. Disable: Always disable IGD</td>
</tr>
<tr>
<td>DVMT Pre-Allocated</td>
<td>[512MB]</td>
<td></td>
</tr>
<tr>
<td>DVMT Total Gfx Mem</td>
<td>[256MB]</td>
<td></td>
</tr>
<tr>
<td>Cd Clock Frequency</td>
<td>[624 MHz]</td>
<td></td>
</tr>
</tbody>
</table>

Enables/disables Integrated Graphic Device and RC6 (Render Standby), sets size for GTT, aperture size, DVMT pre-allocation, DVMT total Gfx Mem and CD clock frequency.
5.3.4 South Cluster Configuration

### HD-Audio Configuration

**HD-Audio Support**

Enables/disables HDA Audio

**Audio Output Selection**

Selects audio output, from speaker out or line out.

### LPSS Configuration

Selects I2C support mode.

### PCI Express Configuration

Enables/disables PCI Express clock gating, Port8xh Decode, Peer Memory Write and Compliance mode, and configures PCI Express Root Port.
SATA Drives
Enables/disables Chipset SATA Controller, which supports the 2 black internal SATA ports (up to 3Gb/s supported per port), and configures SATA.

SCC Configuration
Enables/disables SCC eMMC support and selects eMMC max speed.

USB Configuration

XHCI Pre-boot Driver
Enables/disables XHCI pre-boot driver support.

XHCI Mode
Enables/disables XHCI mode.

USB VBUS
Turns USB VBUS on/off.
USB HIC1 Support
Enables/disables USB HIC1 support.

USB SSIC1 Support
Enables/disables USB SSIC1 support.

USB Port Disable Override
Enables USB disable override.

XDCI Support
Enables/disables XDCI support.

XHCI Disable Compliance Mode
Selects XHCI Disable Compliance Mode.

USB HW Mode AFE Comparators
Enables/disables mode AFE comparators.
Miscellaneous Configuration

State After G3

Specifies the state to be entered when power is re-applied after a power failure (G3 state), from S0 state, in which the system boots directly when power is applied, and S5 state, in which the system remains powered down until the power button is pressed.

BIOS Lock

Enables/disables South Cluster BIOS Lock Enable, must be enabled to ensure SMM protection of flash.
5.4 Security

If only the Administrator password is set, access is limited and password requested on Setup.

If User password is set, it acts as power-on password and must be entered to boot or enter Setup.

Administrator Password
Sets Administrator Password.

User Password
Sets User Password.
### Secure Boot Menu

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secure Boot</td>
<td>System mode: User, Secure Boot status: Not Active</td>
</tr>
<tr>
<td>Secure Boot Control</td>
<td>Options: [Disabled]</td>
</tr>
</tbody>
</table>

Secure Boot activated when Platform Key (PK) is enrolled, System mode is User/Deployed, and CSM function is disabled.

**Secure Boot Control**

Can be enabled if running in User mode with enrolled Platform Key (PK) and CSM disabled.

**HDD Security Configuration**

Configures HDD security
### 5.5 Boot

#### Setup Prompt Timeout

Sets the number of seconds before the setup activation key is launched, with 65535(0xFFFF) for indefinite wait.

#### Bootup Num-Lock State

Sets keypad Number Lock status following boot.

#### Quiet Boot

When disabled, directs BIOS to display POST messages, and when enabled, directs BIOS to display the OEM logo.

#### Fast Boot

When disabled, directs BIOS to perform all POST tests, and when enabled, directs BIOS to skip certain POST tests for faster Boot, with possibly reduced effectiveness.
Boot Configuration

Specifies the priority of boot devices, all of which are detected during POST and displayed. Target Boot Option # and select the desired device.

UEFI Hard Disk Drive BBS Priorities

Sets the system boot order.

UEFI USB Key Drive BBS Priorities

Sets the system boot order.
## 5.6 Save & Exit

<table>
<thead>
<tr>
<th>Boot Configuration</th>
<th>Number of seconds to wait for setup activation key. 65535(0xfffff) means indefinite waiting.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setup Prompt Timeout</td>
<td>[On]</td>
</tr>
<tr>
<td>Bootup NumLock State</td>
<td>[Enabled]</td>
</tr>
<tr>
<td>Quiet Boot</td>
<td>[Disabled]</td>
</tr>
<tr>
<td>Fast Boot</td>
<td>[Disabled]</td>
</tr>
</tbody>
</table>

**Boot Configuration**

- Boot Option #1: [Hard Disk: Windows E...]
- Boot Option #2: [CD/DVD]
- Boot Option #3: [USB Hard Disk]
- Boot Option #4: [USB CD/DVD]
- Boot Option #5: [USB: UEFI: 0:0:0]
- Boot Option #6: [USB Floppy]
- Boot Option #7: [USB: 0:0:0]
- Boot Option #8: [Network]

- UEFI Hard Disk Drive BBS Priorities
- UEFI USB Key Drive BBS Priorities

**Key combinations**

- +: Select Screen
- ↑: Select Item
- Enter: Select
- F1: General Help
- F8: Previous Values
- F9: Optimized Defaults
- F10: Save & Exit
- ESC: Exit

---

**Save Changes and Exit**

Exits system setup after saving changes.

**Discard Changes and Exit**

Discards all changes and exits BIOS setup.

**Save Changes and Reset**

Saves all changes and reboots the system, with new settings taking effect.

**Discard Changes and Reset**

Resets system setup without saving any changes.
Save Changes
Saves changes made so far to any of the Setup options.

Discard Changes
Discards changes made so far to any of the Setup options.

Restore Defaults
Returns all BIOS options to default settings, maximizing system stability at less than maximum performance. Select if the computer encounters system configuration problems.

Save as User Defaults
Saves all changes to this point as user defaults.

Restore User Defaults
Restores user defaults to all setup options.

Launch EFI Shell from file system device
Attempts to launch EFI Shell application (Shell.efi) from an available filesystem device.

Setup Prompt Timeout
Sets the number of seconds before the setup activation key is launched, with 65535(0xFFFF) for indefinite wait.
Important Safety Instructions

For user safety, please read and follow all instructions, Warnings, Cautions, and Notes marked in this manual and on the associated device before handling/operating the device, to avoid injury or damage.

► Read these safety instructions carefully
► Keep the User’s Manual for future reference
► Read the Specifications section of this manual for detailed information on the recommended operating environment
► The Titan-15WP/21WP/24WP-VESA/PIPE-E3950 can be operated at ambient temperatures of 45ºC with 100-240VAC input.
► When installing/mounting or uninstalling/removing device; or when removal of a chassis cover is required for user servicing (See “Getting Started” on page 15.):
  ▶ Turn off power and unplug any power cords/cables
  ▶ Reinstall all chassis covers before restoring power
► To avoid electrical shock and/or damage to device:
  ▶ Keep device away from water or liquid sources
  ▶ Keep device away from high heat or humidity
  ▶ Keep device properly ventilated (do not block or cover ventilation openings)
  ▶ Always use recommended voltage and power source settings
  ▶ Always install and operate device near an easily accessible electrical outlet
  ▶ Secure the power cord (do not place any object on/over the power cord)
  ▶ Only install/attach and operate device on stable surfaces and/or recommended mountings
► If the device will not be used for long periods of time, turn off and unplug from its power source
► Never attempt to repair the device, which should only be serviced by qualified technical personnel using suitable tools
A Lithium-type battery may be provided for uninterrupted backup or emergency power

Ensure that the device connects to a socket/outlet with ground/earth connection.

Risk of explosion if battery is replaced with one of an incorrect type; please dispose of used batteries appropriately.

The device must be serviced by authorized technicians when:

- The power cord or plug is damaged
- Liquid has entered the device interior
- The device has been exposed to high humidity and/or moisture
- The device is not functioning or does not function according to the User’s Manual
- The device has been dropped and/or damaged and/or shows obvious signs of breakage

Disconnect the power supply cord before loosening the thumbscrews and always fasten the thumbscrews with a screwdriver before starting the system up

It is recommended that the device be installed only in a server room or computer room where access is:

- Restricted to qualified service personnel or users familiar with restrictions applied to the location, reasons therefor, and any precautions required
- Only afforded by the use of a tool or lock and key, or other means of security, and controlled by the authority responsible for the location
Consignes de Sécurité Importantes

S'il vous plaît prêter attention stricte à tous les avertissements et mises en garde figurant sur l'appareil, pour éviter des blessures ou des dommages. Avant de connecter le Titan-AL à une source de courant continu, veuillez vous assurer de la polarité de la tension conformément à l'entrée CC du Équipement. Une tension et/ou une polarité incorrectes peuvent causer des dommages irréversibles sur le système.

- Lisez attentivement ces consignes de sécurité
- Consservez le manuel de l'utilisateur pour pouvoir le consulter ultérieurement
- Lisez la section Spécifications de ce manuel pour des informations détaillées sur l'environnement d'exploitation recommandé
- Lors de l'installation/montage ou de la désinstallation/suppression de l'appareil ; ou lorsque le démontage d'un couvercle de châssis est nécessaire pour l'entretien par l'utilisateur (Voir "Mise en route à la page 15").
  - Mettez l'appareil hors tension et débranchez tous les cordons/câbles d'alimentation
  - Réinstallez tous les couvercles de châssis avant de rétablir l'alimentation
- Pour éviter les chocs électriques et/ou d'endommager l'appareil:
  - Tenez l'appareil à l'écart de toute source d'eau ou de liquide
  - Tenez l'appareil à l'écart d'une forte chaleur ou d'une humidité élevée
  - Maintenez l'appareil correctement ventilé (n'obstruer ou ne couvrez pas les ouvertures de ventilation)
  - Utilisez toujours les réglages de tension et de source d'alimentation recommandés
  - Installez et utilisez toujours l'appareil près d'une prise de courant facilement accessible
Fixez le cordon d'alimentation (ne placez aucun objet sur le cordon d'alimentation)

Installez/fixez et utilisez l'appareil uniquement sur des surfaces stables et/ou sur les fixations recommandées

L'équipement doit être connecté à une prise de courant avec mise à la terre

Si l'appareil ne doit pas être utilisé pendant de longues périodes, éteignez-le et débranchez-le de sa source d'alimentation

N'essayez jamais de réparer l'appareil, qui ne doit être réparé que par un personnel technique qualifié à l'aide d'outils appropriés

Une batterie de type Lithium peut être fournie pour une alimentation de secours ininterrompue ou d'urgence.

L'appareil doit être entretenu par des techniciens agréés lorsque:

- Le cordon d'alimentation ou la prise est endommagé(e)
- Un liquide a pénétré à l'intérieur de l'appareil
- L'appareil a été exposé à une forte humidité et/ou de la buée
- L'appareil ne fonctionne pas ou ne fonctionne pas selon le manuel de l'utilisateur
- L'appareil est tombé et/ou a été endommagé et/ou présente des signes évidents de dommage

Débranchez le cordon d'alimentation avant de desserrer les vis à oreilles et serrez toujours les vis à oreilles avec un tournevis avant de mettre le système en marche

Il est recommandé d'installer l'appareil uniquement dans une salle de serveurs ou une salle informatique où l'accès est:

- Réservé au personnel de service qualifié ou aux utilisateurs familiarisés avec les restrictions appliquées à l'emplacement, aux raisons de ces restrictions et toutes les précautions requises
- Uniquement autorisé par l'utilisation d'un outil, d'une serrure et d'une clé, ou d'un autre moyen de sécurité, et contrôlé par l'autorité responsable de l'emplacement
Getting Service

Ask an Expert: http://askanexpert.adlinktech.com

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