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› ADVANTECH /

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1. INTRODUCTION

This manual provides detailed instructions for the installation, operation, and maintenance of the ADVANTECH PCIE-1612C-AE 4-Port RS-232/422/485 PCIe Communication Card. This interface module is designed to expand your system's serial communication capabilities, offering robust and reliable data transfer for industrial and commercial applications. Please read this manual thoroughly before attempting to install or operate the device.

2. SAFETY INFORMATION

Observe the following safety precautions to prevent damage to the device and ensure personal safety:

- Always disconnect power from your computer system before installing or removing any internal components.
- Wear an anti-static wrist strap and work on an anti-static mat to prevent electrostatic discharge (ESD) damage to the card and other components.
- Handle the card by its edges to avoid touching sensitive components.
- Ensure proper ventilation within your computer case to prevent overheating.
- Do not expose the card to moisture or extreme temperatures.

3. PACKAGE CONTENTS

Verify that all items are present in the package. If any item is missing or damaged, contact your vendor immediately.

- 1 x ADVANTECH PCIE-1612C-AE 4-Port RS-232/422/485 PCIe Communication Card
- Documentation (e.g., Quick Start Guide, Driver CD/USB - may vary by package)

4. PRODUCT OVERVIEW

The ADVANTECH PCIE-1612C-AE is a high-performance PCIe communication card designed for reliable serial data transmission. It features four independent serial ports, configurable for RS-232, RS-422, or RS-485 standards, making it versatile for various industrial and embedded applications.



Figure 1: ADVANTECH PCIE-1612C-AE 4-Port RS-232/422/485 PCIe Communication Card. This image shows the physical card with its PCIe connector and four serial port connectors.

Key Features:

- **Number of Channels / Ports:** 4 Port
- **Maximum Data Rate:** 921.6 kb/s
- **Interface Type:** PCIe, RS-232/422/485
- **Operating Supply Voltage:** 3.3 V
- **Operating Temperature Range:** -10°C to +60°C

5. SETUP

Follow these steps to properly install the PCIE-1612C-AE card into your computer system:

1. **Prepare Your System:** Power off your computer and disconnect the power cord from the wall outlet. Disconnect all peripheral devices.
2. **Open the Computer Case:** Remove the side panel of your computer case to access the motherboard and expansion slots.

3. **Locate an Available PCIe Slot:** Identify an empty PCI Express (PCIe) slot on your motherboard. The PCIe-1612C-AE requires a standard PCIe slot.
4. **Remove Slot Cover:** Remove the metal slot cover corresponding to the chosen PCIe slot from the back of your computer case.
5. **Install the Card:** Carefully align the PCIe-1612C-AE card with the PCIe slot. Apply even pressure to both ends of the card until it is firmly seated in the slot. Ensure the card's bracket is flush with the back of the computer case.
6. **Secure the Card:** Secure the card's bracket to the computer case using the screw or latch mechanism provided by your case.
7. **Close the Case:** Replace the computer's side panel and secure it.
8. **Reconnect Power:** Reconnect the power cord and all peripheral devices. Power on your computer.
9. **Install Drivers:** Once the operating system boots, it may automatically detect the new hardware. Install the necessary drivers from the provided media or download them from the ADVANTECH website. Follow the on-screen instructions for driver installation.

6. OPERATING

After successful installation and driver setup, the PCIe-1612C-AE card's serial ports will be available in your operating system's Device Manager (Windows) or equivalent system information utility (Linux). Each port can be configured for its specific communication parameters (baud rate, data bits, parity, stop bits, flow control) through your operating system's settings or application software.

- **Connecting Devices:** Connect your RS-232, RS-422, or RS-485 compatible devices to the corresponding ports on the PCIe-1612C-AE card using appropriate serial cables.
- **Software Configuration:** Use your serial communication software or application to select the correct COM port number assigned to each physical port on the card and configure the communication parameters to match your connected device.
- **RS-422/485 Mode:** For RS-422/485 modes, ensure proper termination and biasing are applied if required by your network topology. Refer to your device's documentation for specific requirements.

7. MAINTENANCE

The PCIe-1612C-AE card is designed for long-term reliability with minimal maintenance. However, adhering to general computer maintenance practices will help ensure optimal performance:

- **Dust Removal:** Periodically open your computer case (after disconnecting power) and use compressed air to gently remove dust buildup from the card and surrounding components. Dust can impede heat dissipation and lead to component failure.
- **Environmental Control:** Ensure the operating environment remains within the specified temperature and humidity ranges.
- **Cable Management:** Keep internal cables tidy to maintain good airflow within the case.

8. TROUBLESHOOTING

If you encounter issues with your PCIe-1612C-AE card, consider the following troubleshooting steps:

- **Card Not Detected:**

- Ensure the card is fully seated in the PCIe slot.
 - Try installing the card in a different PCIe slot.
 - Check your computer's BIOS/UEFI settings to ensure PCIe slots are enabled.
- **Drivers Not Installing/Working:**
 - Verify you have downloaded the correct drivers for your operating system and card model from the ADVANTECH website.
 - Uninstall any previous serial port drivers before installing new ones.
 - Check Device Manager for any error codes related to the serial ports.
- **Communication Errors:**
 - Confirm that the serial cable is correctly connected and not damaged.
 - Verify that the communication parameters (baud rate, data bits, parity, stop bits, flow control) in your software match those of the connected device.
 - For RS-485, check for proper wiring (A/B lines) and termination.
 - Test with a known working serial device or loopback test if possible.

9. SPECIFICATIONS

Feature	Specification
Model Number	PCIE-1612C-AE
Manufacturer	ADVANTECH
Product Type	Interface Modules
Number of Channels / Ports	4 Port
Interface Type	PCIe, RS-232/422/485
Maximum Data Rate	921.6 kb/s
Operating Supply Voltage	3.3 V
Minimum Operating Temperature	-10°C
Maximum Operating Temperature	+60°C
Item Weight	7 Pounds

10. WARRANTY AND SUPPORT

For warranty information, please refer to the documentation included with your purchase or contact your reseller or ADVANTECH directly. Warranty terms and conditions may vary by region and purchase agreement.

For technical support, driver downloads, or further assistance, please visit the official ADVANTECH website or contact their customer support services. Provide your product model number (PCIE-1612C-AE) and any relevant system information when seeking support.

