

ADAM-6541

**10/100Base-TX Ethernet to 100Base-FX
Multi-Mode Fiber Optic Converter**

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5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

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Chapter 1

Introduction

1.1 Introduction

The ADAM-6541 is an industrial grade converter designed to convert Ethernet network (10/100Base-TX) to fiber network (100Base-FX). It transparently converts Ethernet signals into optic signals. The advantages of Fiber optic are wide bandwidth, anti-EMI and suitable for long-distance transmission. Therefore, ADAM-6541 is an ideal solution for “fiber to building” application in central offices or local sites.

The ADAM-6541 can be mounted in the following three ways: DIN Rail, panel, piggyback mounting. +10~30 V_{DC} operating voltages are also supplied over the terminal block. In addition, the operating temperature ranges from -10 ~ 70°C. The above functions make the ADAM-6541 a stable and reliable industrial grade converter.

High-Speed Transmission

The ADAM-6541 supports MDI/MDI-X of auto detection. You will not need to crossover. A switch controller that can automatically sense transmission speed (10/100 Mbps) will be included. Both Ethernet and fiber ports have memory buffers that support store-and-forward mechanism; it assures proper data transmission.

Flexible Mounting

The ADAM-6541 is extremely compact and can be mounted in three different ways: DIN rail, panel and piggyback mounting.

Easy to trouble-shoot

The ADAM-6541 provides three LED indicators: Power, Full/Link, 10/100Mbps, which easily let you troubleshoot.

Robust enough for industrial environment

The ADAM-6541 can normally work from -10°C to 70°C and accepts wide unregulated voltage range from +10 ~ 30 VDC. Besides, it also provides 3,000 VDC surge protection to protect it from over-voltage damages. It is suitable for any harsh operating environment.

1.2 Features

- Compact size economizes space
- Direct plug and play
- Easy to mount on a DIN-rail, panel or piggyback
- Supports full/half-duplex flow control
- Supports MDI/MDI-X auto crossover
- Embedded switch controller, supports auto-negotiation
- Embedded memory buffer, supports store and forward transmission
- Supports +10 ~ 30 V_{DC} voltage
- Supports operating temperature from -10° C ~ 70° C

1.3 Specification

- **Interface:** Network: 10/100Base-TX & 100Base-FX standard
- **Port:** 1 x 10/100 Mbps (RJ-45), 1 x 100 Mbps (Fiber)
- **Connector:** 1 x RJ-45 & 1 x Fiber (SC type)
- **Compatibility:** IEEE 802.3, IEEE 802.3u
- **Surge protection (Power):** 3,000 V_{DC}
- **Isolation (Ethernet port):** 1,500 V_{RMS}
- **LED:** Power, Full/Link, 10/100 Mbps
- **Ethernet Transmission Distance (RJ-45):** 100 m
- **Fiber Transmission Distance (Multi mode fiber):**
50/125, 62.5/125 μ m multi mode fiber
(1) 412 m for half duplex
(2) 2 km for full duplex
- **Power Requirement:** unregulated 10 to 30 V_{DC}
- **Power Consumption:** 3 Watt
- **Case:** ABS/PC with captive mounting hardware
- **Mounting:** DIN-rail, panel mounting, piggyback stack
- **Operating Temperature:** -10 to 70 °C
- **Storage Temperature:** -20 to 80 °C
- **Operating Humidity:** 20 to 95% (non-condensing)
- **Storage Humidity:** 0 to 95% (non-condensing)

1.4 Package Checklist

- ADAM-6541
- ADAM-6541 Manual
- NYLON Din-rail Mounting Adapter
- SECC panel mounting bracket

1.5 Ordering Information

ADAM-6541: 10/100Base-TX Ethernet to 100Base-FX Multi-Mode Fiber
Optic Converter

Chapter 2

Installation

In this chapter, you will be given an overview of the ADAM-6541 hardware installation procedures.

2.1 Front / Rear View

There are six network LEDs located on the top panel of the ADAM-6541, each with its own specific function.

LED	Color	Description
Power	Green	Power is On
	Off	Power is Off
Full/Link (100Base-Fx)	Green	Full-duplex
	Orange	Half-duplex
	Off	Not networking
100/10M (Ethernet)	Green	Link to 10Mbps
	Orange	Link to 100Mbps
	Off	Not networking

Table2-1 ADAM-6541 LED Definition

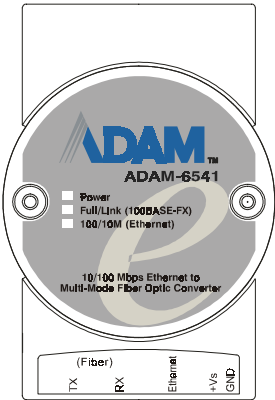


Figure 2-1 ADAM-6541-Front Panel

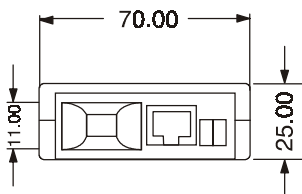




Figure 2-2 *ADAM-6541-Rear Panel*

2.2 Full / Half-Duplex Selection

There are two modes of data transmissions, full-duplex and half-duplex transmission. The data can be transmitted in both directions on a single carrier at the same time when you select Full-duplex mode. But the data can only be transmitted in one direction on a single carrier at the same time when you select Half-duplex mode. You may select Full or half-duplex mode according to your equipment requirement.

You can configure full or half-duplex ADAM-6541 via JP1 (located on the top-left PCB.)

JP1	Description
 <p>Diagram showing the JP1 switch position for Half-Duplex mode. The switch is a vertical bar with three pins labeled 1, 2, and 3. Pin 1 is open (white circle), Pin 2 is closed (black circle), and Pin 3 is closed (black circle).</p>	Half-Duplex
 <p>Diagram showing the JP1 switch position for Full-Duplex (Default) mode. The switch is a vertical bar with three pins labeled 1, 2, and 3. Pin 1 is closed (black circle), Pin 2 is closed (black circle), and Pin 3 is open (white circle).</p>	Full-Duplex (Default)

NOTE: Fiber Transmission Distance
 (1) Half duplex: 412 m
 (2) Full duplex: 2 km

2.3 Connecting the Hardware

Next, we will explain how to find a proper location for your ADAM-6541, connect to the network, hook up the power cable, and connect to the ADAM-6541 Ethernet port.

2.3.1 Choosing a Location

Due to its versatility and innovative design, the ADAM-6541 can be:

- fixed to a panel mount
- fixed to a DIN Rail.
- Piggyback Stack

Panel Mounting

The ADAM-6541 can be attached to a wall using the included metal brackets. Each bracket comes with four screws. First attach the brackets to the bottom of the ADAM-6541, then screw each bracket to a wall.

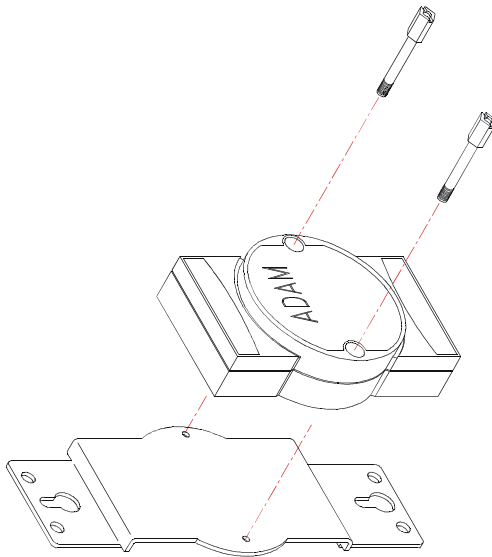


Figure 2-3 *Panel Mounting*

DIN Rail Mounting

You can mount the ADAM-6541 on a standard DIN Rail. First, using two screws, attach the metal plate to the DIN Rail bracket. Because the screw heads are beveled, the tops of the screws will be flush with the metal plate. Din Rail Mounting Brackets-Orientation of Metal Plates: A more convenient way is to screw the metal plate with the DIN rail bracket assembly to the bottom of the server. Next, use the remaining screws to put the metal plate on the bottom of the ADAM-6541.

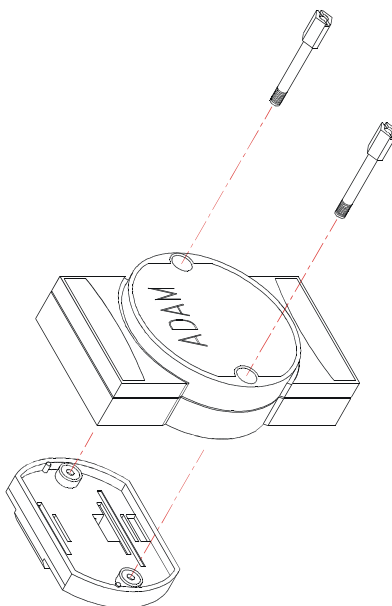


Figure 2-4 *Din Rail Mounting*

Piggyback Stack

ADAM-6541 can be stacked as seen in the figure below.

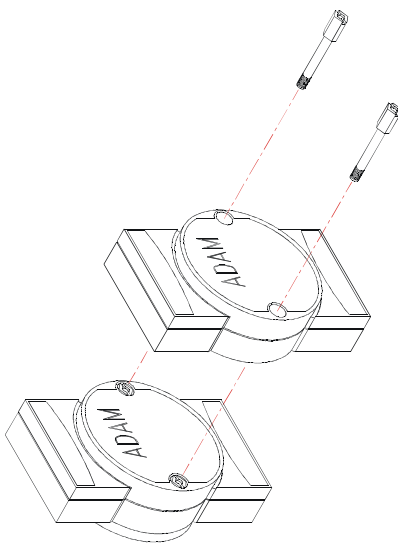


Figure2-5 *Piggyback Stack*

2.4 Network Connection

2.4.1 Connection to the devices

The ADAM-6541 consists of one fiber and one RJ-45 port.

Each of the converter's twisted-pair ports can be used to connect a station or other device. Use a straight-through twisted-pair cable with RJ-45 connectors on both ends. The twisted-pair cable extended from a twisted-pair port is called a "twisted-pair segment," that can be up to 100 meters long. You can connect any RJ-45 (MDI-X) station port on the switch to any device that uses a standard network interface such as a workstation or server.

2.4.2 Connection to other Hubs or Switch

ADAM-6541 has an RJ-45 port that supports the connection to 10Mbps Ethernet or 100Mbps Fast Ethernet, and half or full duplex operation. ADAM-6541 can be connected to other hub or switch via a two-pair straight

through cable or crossover cable. The connection can be made from ADAM-6541's ports to other Hub or Switch, such as MDI-X port or uplink MDI port.

ADAM-6541 supports auto crossover to easily and flexibly network users' connections. You can connect any RJ-45 (MDI-X) station port on the switch to any device such as a switch or a bridge or router.

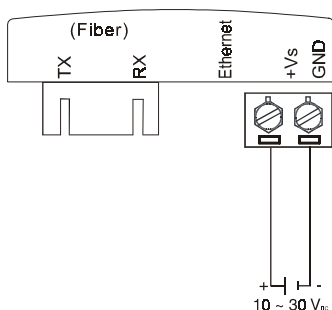
2.4.3 Connection to fiber network

Connecting to the fiber network segment with three-bud fiber. You can use fiber standards via 50/125, 62.5/125 μm (Core/Clad). With fiber optic, it transmits speed up to 100 Mbps and you can prevent noise interference from the system and transmission distance up to 2 km.

2.4.4 Power Connection

You should take the following steps to connect ADAM-6541 power.

1. Connect the power cable to 2-pin connector
2. Connect power cable to power adapter



Note: Please plug in a dust cover of fiber port to prevent from dust as you don't use fiber port.

Appendix A

It is suggested to adopt ELA/TIA as the wiring of the RJ45.

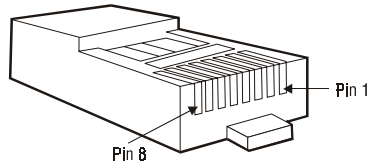


Figure A-1 *RJ-45 Pin Assignment*

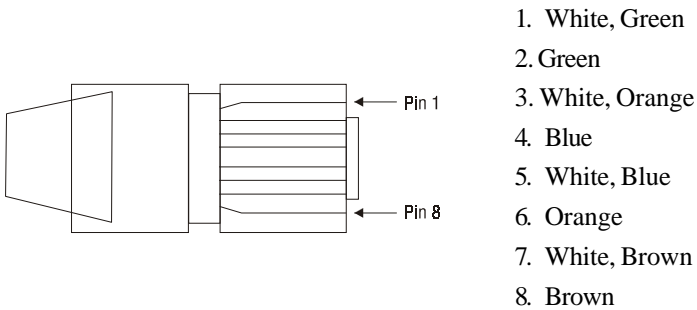


Figure A-2 *EIA/TIA-568B*