

ADAM-6542

**10/100Base-TX Ethernet to 100Base-FX
WDM Single Strand 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-6542 is an industrial grade converter which is designed to convert Ethernet network to fiber network. It transparently converts Ethernet signals into optic signals. The advantages of Fiber optic are wide bandwidth, anti-EMI, and very suitable for long-distance transmission. Therefore, ADAM-6542 is an ideal solution for “fiber to building” application in central offices or local sites.

The ADAM-6542 provides three ways to be fixed in any industrial environments: DIN Rail, panel, piggyback mounting. The ADAM-6542 also supplies +10~30 VDC operating voltage over the terminal block. In addition, the operating temperature of the ADAM-6542 is from -10 ~ 70°C. The above functions make the ADAM-6542 a more stable and reliable industrial grade converter.

WDM Single Strand Fiber

The ADAM-6542 adopts WDM (Wavelength Division Multiplexing) technology that increases the information carrying capacity of fiber via multiplex transmit and receive signals at different wavelengths on single strand cable. The WDM technology is implemented in two sites: one is installed in the ADAM-6542/W15, with transmitting channel of 1550nm and receiving channel of 1310nm. The other site is installed in the ADAM6542/W13, with transmitting channel of 1310nm and receiving channel of 1550nm. Both transmitting and receiving channel of ADAM- 6542/W15 and ADAM-6542/W13 are multiplexed to a single strand cable. You can save half cabling cost when you use ADAM-6542/W15 and ADAM-6542/W13 instead of your original dual fiber converter.

High-Speed Transmission

The ADAM-6542 supports MDI/MDI-X of auto detection. You don't need to crossover yourself. It also includes a switch controller that can automatically sense transmission speed (10/100 Mbps). Both Ethernet port and fiber port have memory buffers that support store-and-forward mechanism; it assures data can be transmitted properly.

Flexible Mounting

The ADAM-6542 is extremely compact and it can be mounted via three different ways. DIN rail, panel and piggyback mounting.

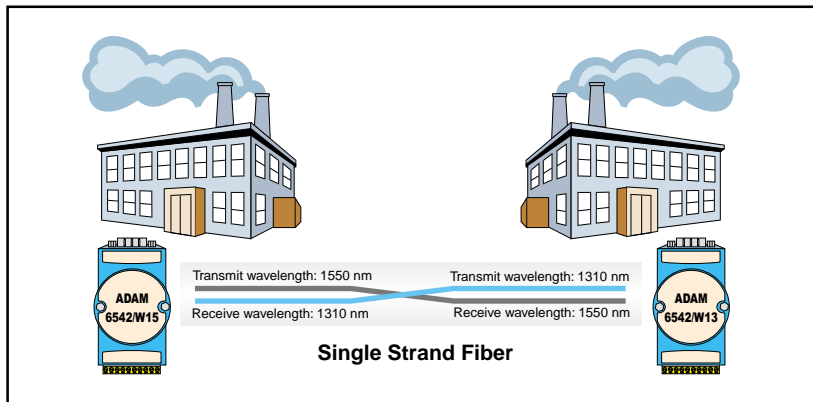
Easy to trouble-shoot

The ADAM-6542 provides three LED indicators: Power, Link, 10/100Mbps which let you trouble shoot easier.

Robust enough for industrial environment

The ADAM-6542 can normally work from -10°C to 70°C , and accepts wide unregulated voltage range from $+10 \sim 30 \text{ V}_{\text{DC}}$. Beside, it also provides $3,000 \text{ V}_{\text{DC}}$ surge protection from over-voltage damages. It is suitable for any harsh operating environment.

System Architecture



1.2 Features

- Compact size economizes space
- Direct plug and play
- Easy to mounted on a DIN-rail, panel or piggyback
- Provides 100Base-FX WDM Single Strand Fiber
- Supports MDI/MDI-X auto crossover.
- Embedded switch controller, support auto-negotiation.
- Embedded memory buffer, support store and forward transmission.
- Supports $+10 \sim 30 \text{ V}_{\text{DC}}$ voltage
- Supports operating temperature from $-10^{\circ}\text{C} \sim 70^{\circ}\text{C}$

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 802.3 u
- **Surge protection (Power):** 3,000 V_{DC}
- **Isolation (Ethernet Port):** 1,500 V_{RMS}
- **LED:** Power, LNK/ACT, 10/100 Mbps
- **Transmission Distance (Ethernet):** 100 m
- **ADAM-6542:** (Single mode fiber): 8.3/125, 8.7/125, 9/125 or 10/125 μm single mode fiber, 20 km for WDM (Wavelength Division Multiplexing)
- **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-6542
- ADAM-6542 Manual
- NYLON Din-rail Mounting Adapter
- SECC panel mounting bracket

1.5 Ordering Information:

ADAM-6542/W15: 10/100Base-TX Ethernet to 100Base-FX WDM Single Strand Fiber Optic Converter (Tx: 1550nm; Rx: 1310 nm)

ADAM-6542/W13: 10/100Base-TX Ethernet to 100Base-FX WDM Single Strand Fiber Optic Converter (Tx: 1310 nm; Rx: 1550 nm)

Chapter 2

Installation

In this chapter, you will be given an overview of the ADAM-6542 hardware installation procedures.

2.1 Front / Rear View

There are six network LEDs located on the top panel of ADAM-6542, each with its own specific function.

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

Table2-1 ADAM-6542 LED Definition

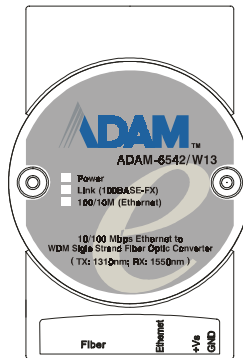


Figure 2-1 ADAM-6542-Front Panel

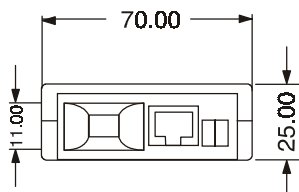


Figure 2-2 ADAM-6542-Rear Panel

2.2 Connecting the Hardware

Next, we will explain how to find a proper location for your ADAM-6542, connect to the network, hook up the power cable, and connect to the ADAM-6542 Ethernet port.

2.2.1 Choosing a Location

Due to its versatility and innovative design, the ADAM-6542 can be:

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

Panel Mounting

The ADAM-6542 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-6542, then screw each bracket to a wall.

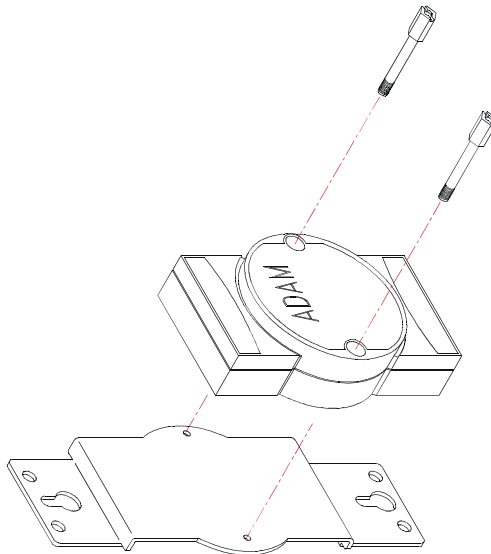


Figure 2-3 *Panel Mounting*

DIN Rail Mounting

You can mount the ADAM-6542 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 You can now screw the metal plate with the DIN rail bracket assembly to the bottom of the server in a more convenient way. Next, use the remaining screws to put the metal plate on the bottom of the ADAM-6542.

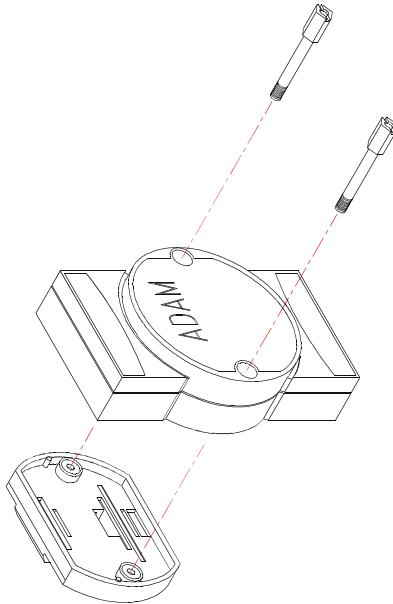


Figure 2-4 *Din Rail Mounting*

Piggyback Stack

ADAM-6542 can be stacked as seen in the figure below.

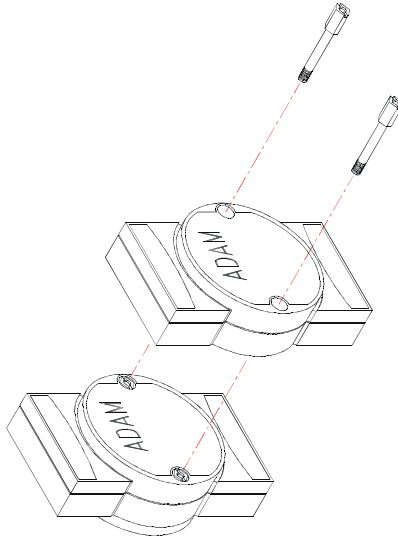


Figure 2-5 *Piggyback Stack*

2.3 Network Connection

2.3.1 Connection to the devices

The ADAM-6542 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," and it 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.

2.3.2 Connection to other Hubs or Switch

ADAM-6542 has a RJ-45 port that supports the connection to 10Mbps Ethernet or 100Mbps Fast Ethernet.. ADAM-6542 can be connected to other hub or switch via a two-pair straight through cable or crossover cable. The connection can be made from any ADAM-6542 port (MDIX) to other Hub or Switch either MDI-X port or uplink MDI port.

ADAM-6542 supports auto crossover to network users' connections more easily and flexibly. 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.

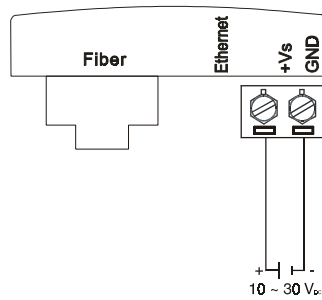
2.3.3 Connection to fiber network

Connecting to fiber network segment with three-bud fiber. You can use fiber standards via 8.3/125, 8.7/125, 9/125 or 10/125 μm single mode fiber. With fiber optic, it transmits speed up to 100 Mbps and you can prevent noise interference from the system and transmission distance up to 20 km for WDM (Wave-length Division Multiplexing)

2.3.4 Power Connection

You should take the following steps to connect the ADAM-6542 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.

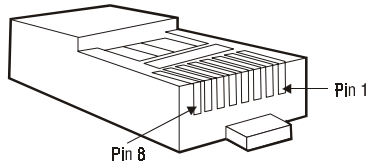


Figure A-1 *RJ-45 Pin Assignment*

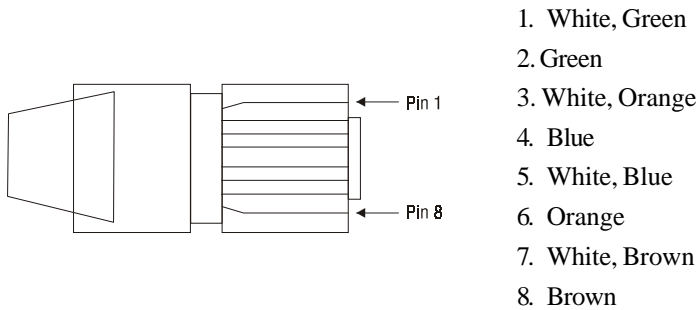


Figure A-2 *EIA/TIA-568B*