ADAM-6520 Series

5-port 10/100 Mbps Industrial Ethernet Switches

Features

- Supports full/half duplex flow control
- Supports MDI/MDI-X auto crossover
- Provides broadcast storm protection
- Embedded with a switch controller, supports auto-negotiation
- Supports +10 ~ 30 V_{DC} voltage power input
- Provides surge (EFT) protection 3,000 V_{DC} for power line (ADAM-6520L not equipped)
- Supports 4,000 V_{DC} Ethernet ESD protection (ADAM-6520L not equipped)
- Provides flexible mounting: DIN-rail, Wall, Stack
- Supports wide operating temperature range : -40 ~ 85° C (ADAM-6520I)

CE FCC

Introduction

ADAM-6520 is a 5-port industrial-grade switch with Ethernet connectivity and from 10 to 100 Mbps transfer rates. (Auto-negotiation). Just like any other product in the ADAM family, ADAM-6520 can be mounted in three different ways: DIN rail, Wall and Stack. Solid industrial-grade design assures reliable operation in common application areas like: semi-conductor factories, inventory control environments, assembly lines, manufacturing and many more.

All modules support a wide voltage range of +10 ~ 30 V_{DC} over the terminal block, and 3,000 V_{DC} surge (EFT) protection ensures that over-voltage is no concern. The wide operating temperature of ADAM-6520 goes from -10 ~ 70°, while ADAM-6520I from -40 ~ 85°. This permits them to be functional in harsh environments.

The six inclusive LED indicators make troubleshooting of the modules easier. Each port has a pair of LEDs that indicate link status and port activities. This easily informs users of any collisions, the link status, power failure and data receipts for immediate on-site diagnosis.

Specifications

Communications

- **Standard**   IEEE 802.3, 802.3u, 802.3x
- **LAN**   10/100Base-TX
- **Transmission Distance**   Up to 100 m
- **Transmission Speed**   Up to 100Mbps

Interface

- **Connectors**   5 x RJ-45
  2-pin removable screw terminal (power)
- **LED Indicators**   Power, Link/Speed

Power

- **Power Consumption**   ADAM-6520L: Max. 3W
  ADAM-6520/6520I: Max. 2.4 W
- **Power Input**   1 x Unregulated 10 ~ 30 V_{DC}

Mechanism

- **Dimensions (W x H x D)** 70 x 102 x 27 mm
- **Enclosure**   IP30, ABS+PC with solid mounting kits
- **Mounting**   DIN 35 rail, Wall, Stack

Protection

- **ESD (Ethernet)**   4,000 V_{DC} (ADAM-6520L not equipped)
- **Surge (EFT for power)**   3,000 V_{DC} (ADAM-6520L not equipped)

Environment

- **Operating Temperature**
  ADAM-6520 : -10 ~ 70° C (14 ~ 158° F), Stack : -10 ~ 60° C (14 ~ 140° F)
  ADAM-6520L : 0 ~ 60° C (32 ~ 140° F), Stack : 0 ~ 50° C (32 ~ 122° F)
  ADAM-6520I : -40 ~ 85° C (-40 ~ 185° F), Stack : -40 ~ 75° C (-40 ~ 167° F)
- **Storage Temperature**
  ADAM-6520 : -20 ~ 80° C (-4 ~ 176° F)
  ADAM-6520L : -10 ~ 70° C (14 ~ 158° F)
  ADAM-6520I : -50 ~ 95° C (-58 ~ 203° F)
- **Operating Humidity**   20 ~ 95 % (non-condensing)
- **Storing Humidity**   0 ~ 95 % (non-condensing)
- **MTBF**   1,580,000 hrs

Certifications

- **Safety**   UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMC**   U.S.A.: FCC Part 15 CISPR 22
  EU: EN55011, EN61000-6-4
    EN55022 Class A,
      EN61000-3-2/3
    EN55024,
      IEC61000-4-2/3/4/5/6/8/11
    EN61000-6-2

Ordering Information

- **ADAM-6520**   5-port 10/100 Mbps Industrial Ethernet Switch
- **ADAM-6520L**   5-port 10/100 Mbps Industrial Unmanaged Ethernet Switch
- **ADAM-6520I**   5-port 10/100 Mbps Industrial Ethernet Switch w/Wide Operating Temperature

ADAM-6521 Series
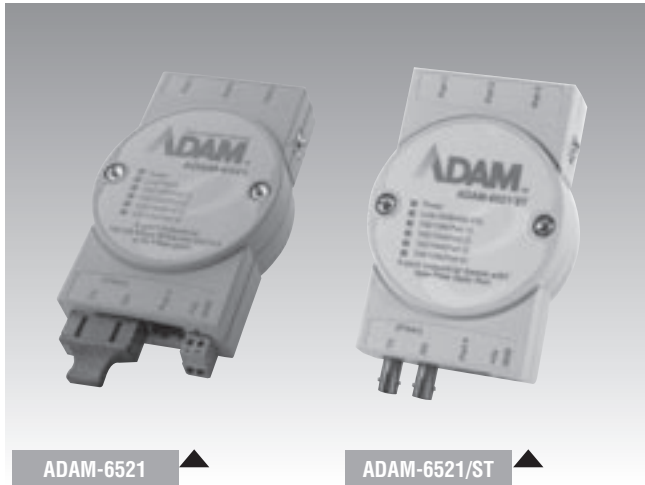
Features

- Provides 4 x 10/100 Mbps Ethernet ports with RJ-45 connector
- Provides 1 x 100 Mbps multi/single-mode fiber port with SC/ST connector
- Supports full/half duplex flow control
- Supports Integrated Loop-up engine
- Supports MDI/MDI-X auto crossover
- Provides broadcast storm protection
- Supports +10 ~ 30 V_{DC} voltage power input
- Provides surge (EFT) protection 3,000 V_{DC} for power line
- Supports 4,000 VDC Ethernet ESD protection
- Provides flexible mounting: DIN-rail, Wall, Stack
- Supports operating temperatures from -10 ~ 65° C

ADAM-6521   ADAM-6521/ST

CE FCC

Introduction

ADAM-6521 and ADAM-6521S are industrial-grade Ethernet switch with a fiber optic port that makes it possible to expand industrial networks fast and cost-effectively. ADAM-6521 and ADAM-6521S of 1 fiber port and 4-RJ-45 ports. With fiber optics, you can prevent noise interfering with your system and implement transmission distances up to 15 km.

ADAM-6521 and ADAM-6521S are especially suited for industrial environments with Ethernet networking needs such as: semi-conductor factories, inventory control environments, assembly line and production and more.

ADAM-6521 and ADAM-6521S support a wide voltage range of +10 ~ 30 V_{DC} over the terminal block, and 3,000 V_{DC} surge (EFT) protection to protect it from being damaged by over-voltage. A wide operating temperature range from -10 to 65° C (14 ~ 149° F), makes it functional in harsh operating environments. They also have six inclusive LED indicators which make troubleshooting the ADAM-6521 and ADAM-6521S easier. Each port has a pair of LEDs that indicate link status and transmission speed. This function conveniently informs users of any collisions, the link status, power failure and data receipts for immediate on-site diagnostics.

Specifications

Communications

Standard	IEEE 802.3, 802.3u, 802.3x
LAN	10/100Base-T, 100Base-FX
Transmission Distance	Ethernet : Up to 100 m Multi-mode Fiber : Up to 2 km (ADAM-6521, ADAM-6521/ST) Single-mode Fiber : Up to 15 km (ADAM-6521S)
Transmission Speed	Up to 100 Mbps

Interface

Connectors	4 x RJ-45, 1 x SC type fiber connector (ADAM-6521, ADAM-6521S) or 1 x ST type fiber connector (ADAM-6521/ST) 2-pin removable screw terminal (power)
LED Indicators	Power, Link (100Base-FX), 100/10M (Ethernet)

Power

Power Consumption	ADAM-6521, ADAM-6521/ST: Max. 3 W ADAM-6521S: Max. 4 W
Power Input	1 x Unregulated 10 ~ 30 V_{DC}

Mechanism

Dimensions (W x H x D)	70 x 112 x 27 mm
Enclosure	IP30, ABS+PC with solid mounting kits
Mounting	DIN 35 rail, Wall, Stack

Protection

ESD (Ethernet)	4,000 V_{DC}
Surge (EFT for power)	3,000 V_{DC}

Environment

Operating Temperature	-10 ~ 65° C (14 ~ 149° F) stack : -10 ~ 60° C (14 ~ 140° F)
Storage Temperature	-20 ~ 80° C (-4 ~ 176° F)
Operating Humidity	20 ~ 95% (non-condensing)
Storage Humidity	0 ~ 95% (non-condensing)
MTBF	1,150,000 hrs

Certifications

Safety	UL 60950-1, CAN/CSA-C22.2 No.60950
EMC	U.S.A.: FCC Part 15 CISPR 22 EU: EN55011, EN61000-6-4 EN55022 Class A, EN61000-3-2/3, EN55024, IEC61000-4-2/3/4/5/6/8/11 EN61000-6-2

Ordering Information

ADAM-6521	Industrial Ethernet Switch with 4 x 10/100Base-TX Ports & 1 Multi-mode SC Type Fiber Optic Port
ADAM-6521/ST	Industrial Ethernet Switch with 4 x 10/100Base-TX Ports & 1 Multi-mode ST Type Fiber Optic Port
ADAM-6521S	Industrial Ethernet Switch with 4 x 10/100Base-TX Ports & 1 Single-mode SC Type Fiber Optic Port

ADAM-6541 Series

Ethernet to Fiber Optic Converters

Features

- Provides 1 x 10/100 Mbps Ethernet port with RJ45 connector
- Provides 1 x 100 Mbps multi/single-mode fiber optic port
- Provides internal jumper for Link Fault Pass-through (LFP) setting (ADAM-6541P/6541S only)
- Supports full/half duplex flow control and internal jumper for setting
- Supports store and forward transmission
- Supports auto-negotiation
- Supports MDI/MDI-X auto crossover
- Provides surge protection (EFT) 3,000 VDC for power line
- Provides 4,000 VDC Ethernet ESD protection
- Supports +10 ~ 30 V$_{DC}$ power input
- Provides flexible mounting : DIN-rail, Panel Mounting, Piggy-back
- Supports operating temperature from 0 ~ 60 °C

ADAM-6541 **ADAM-6541/ST**

CE FCC UL

Introduction

ADAM-6541 is designed to convert Ethernet networks to fiber networks. It does so by transparently converting Ethernet signals to optic signals. The advantages of fiber optics are wide bandwidth, EMI immunity and long-distance transmission capability. Therefore, ADAM-6541 is an ideal solution for "fiber to building" applications at central offices or local sites.

ADAM-6541 supports MDI/MDIX auto detection, so you don't need to use crossover wires. It also includes a switch controller that can sense the transmission speed (10/100 Mbps) automatically. Both the Ethernet port and the fiber port have memory buffers that support store-and-forward mechanisms. This assures data can be transmitted properly.

ADAM-6541 is extremely compact and can be mounted in three different ways: DIN-rail, Wall and Stack. ADAM-6541 can work normally from 0 ~ 60 °C and accepts a wide voltage range from +10 ~ 30 V$_{DC}$. Besides, it also provides 3,000 V$_{DC}$ surge (EFT) protection against over-voltage, so it is suitable for harsh operating environments.

Link Fault Pass-Through (LFP)

ADAM-6541P/6541S is an enhanced Ethernet to fiber-optic converter. Aside from its standard features, the versatile ADAM-6541P/6541S also has the LFP (Link Fault Pass-through) feature. When one side of the link fails, the other side continues transmitting packets, and waiting for a response that never arrives from the disconnected side. Use the internal jumper to enable the LFP function, then ADAM-6541P/6541S will force the link to shut down as soon as noticed that the other link has failed, giving the application software a chance to react to the situation.

Specifications

Communications

- **Standard** IEEE 802.3, 802.3u, 802.3x
- **LAN** 10/100Base-TX, 100Base-FX
- **Transmission Distance**
  Ethernet : Up to 100 m
  Fiber: Multi-mode : Up to 2 km
  Single-mode : Up to 20 km
- **Transmission Speed** Up to 100 Mbps

Interface

- **Connectors** 1 x RJ-45
  1 x SC type fiber connector (ADAM-6541, ADAM-6541P, ADAM-6541S) or 1 x ST type fiber connector (ADAM-6541/ST)
  2-pin removable screw terminal (power)
- **LED Indicators** ADAM-6541, ADAM-6541/ST : Power, Full/Link (100BASE-FX), 100/10M (Ethernet)
  ADAM-6541P, ADAM-6541S : Power, Link/Speed (Fiber), Link/Speed (Ethernet), LFS/Duplex(TX)

Power

- **Power Consumption** ADAM-6541, ADAM-6541/ST : Max. 3W
  ADAM-6541P, ADAM-6541S : Max. 3.5W
- **Power Input** 1 x Unregulated 10 ~ 30 V$_{DC}$

Mechanism

- **Dimensions (W x H x D)** 70 x 112 x 27 mm
- **Enclosure** IP30, ABS+PC with solid mounting kits
- **Mounting** DIN 35 rail, Wall, Stack

Protection

- **ESD (Ethernet)** 4,000 V$_{DC}$
- **Isolation (Ethernet)** 1,500 V$_{rms}$
- **Surge (EFT for power)** 3,000 V$_{DC}$
- **Power Reverse** ADAM-6541P/6541S only
- **Overload** 1A/125V Replaceable Fuse (ADAM-6541P/6541S only)

Environment

- **Operating Temperature** 0 ~ 60° C (32 ~ 140° F)
  Stack: 0 ~ 55° C (32 ~ 131° F)
- **Storage Temperature** -10 ~ 70° C (-14 ~ 158° F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 0 ~ 95% (non-condensing)
- **MTBF** 550,000 hrs

Certifications

- **Safety** UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMC** U.S.A.: FCC Part 15 CISPR 22
  EU: EN55011, EN61000-6-4
  EN55022 Class A,
  EN61000-3-2/3
  EN55024,
  IEC61000-4-2/3/4/5/6/8/11
  EN61000-6-2

Ordering Information

- **ADAM-6541** Ethernet to Multi-mode SC Type Fiber Optic Converter
- **ADAM-6541/ST** Ethernet to Multi-mode ST Type Fiber Optic Converter
- **ADAM-6541P** Ethernet to Multi-mode SC Type Fiber Optic Converter w/LFP
- **ADAM-6541S** Ethernet to Single-mode SC Type Fiber Optic Converter w/LFP

ADAM-6542 Series
Ethernet to WDM Fiber Optic Converters

Features

- Supports 1-port 100 Mbps single strand fiber optic (ADAM-6542)
- Supports full/half duplex flow control
- Supports Integrated Loop-up engine
- Supports MDI/MDI-X auto crossover
- Provides broadcast storm protection
- Supports +10~ 30 V_{DC} voltage power input
- Provides surge (EFT) protection 3,000 V_{DC} for power line
- Provides flexible mounting: DIN-rail, Wall, Stack
- Supports operating temperatures from -10 ~ 65° C
- Embedded a switch controller-supports auto-negotiation
- Embedded a memory buffer-supports store and forward transmission

CE FCC

Introduction

ADAM-6542 is designed to convert Ethernet networks to fiber networks. It does so by transparently converting Ethernet signals to optic signals. The advantages of fiber optics are wide bandwidth, EMI immunity and long-distance transmission capability. Therefore,ADAM-6542 is the ideal solution for "fiber to building" applications at central offices or local sites.

ADAM-6542 uses WDM (Wavelength Division Multiplexing) technology, which increases the information-carrying capacity of fiber by multiplex transmission and reception of signals at different wavelengths on a singles strand cable. WDM technology is implemented in couples. One site uses an ADAM-6542/W15 where the transmission channel is 1550 nm and the reception channel is 1310nm. The other site installs an ADAM6542/W13 where the transmission channel is 1310nm and the reception channel is 1550nm. Both the transmission and reception channels of ADAM-6542/W15 and ADAM-6542/W13 are multiplexed to a single strand cable. This means that cabling costs are halved when you use ADAM-6542/W15 and ADAM-6542/W13 instead of a dual fiber converter.

ADAM-6542 support MDI/MDIX auto detection, so you don't need to use crossover wires. It also includes a switch controller that can sense the transmission speed (10/100 Mbps) automatically. Both the Ethernet port and the fiber port have memory buffers that support store-and-forward mechanisms.

Specifications

Communications

- **Standard**   IEEE 802.3, 802.3u, 802.3x
- **LAN**   10/100Base-TX, 100Base-FX
- **Transmission Distance**   Ethernet : Up to 100 m
  Fiber: Up to 20 km
- **Transmission Speed**   Up to 100 Mbps

Interface

- **Connectors**   1 x RJ-45
  1 x SC type fiber connector
  2-pin removable screw terminal (power)
- **LED Indicators**   Power, Link (100Base-FX),
  100/10 M (Ethernet)

Power

- **Power Consumption**   Max. 3 W
- **Power Input**   1 x Unregulated 10 ~ 30 V_{DC}

Mechanism

- **Dimensions (W x H x D)** 70 x 112 x 27 mm
- **Enclosure**   IP30, ABS+PC with solid mounting kits
- **Mounting**   DIN 35 rail, Wall, Stack

Protection

- **ESD (Ethernet)**   4,000 V_{DC}
- **Isolation (Ethernet)**   1,500 V_{rms}
- **Surge (EFT for power)**   3,000 V_{DC}

Environment

- **Operating Temperature**   0 ~ 60° C (32 ~ 140° F)
  Stack : 0 ~ 55° C (32 ~ 131° F)
- **Storage Temperature**   -10 ~ 70° C (-14 ~ 158° F)
- **Operating Humidity**   20 ~ 95% (non-condensing)
- **Storage Humidity**   0 ~ 95% (non-condensing)
- **MTBF**   550,000 hrs

Certifications

- **Safety**   UL 60950-1, CAN/CSA-C22.2 No.60950
- **EMC**   U.S.A.: FCC Part 15 CISPR 22
  EU: EN55011, EN61000-6-4
       EN55022 Class A,
      EN61000-3-2/3
       EN55024
  IEC61000-4-2/3/4/5/6/8/11
       EN61000-6-2

Ordering Information

- **ADAM-6542/W15**   Ethernet to WDM Single Strand Fiber Optic Converter
  (Tx : 1550 nm, Rx : 1310 nm)
- **ADAM-6542/W13**   Ethernet to WDM Single Strand Fiber Optic Converter
  (Tx : 1310 nm, Rx : 1550 nm)