



LNX-0500-M12-67 Series

**5-Port M12 Industrial IP67 Waterproof Ethernet Switch,
with 5*10/100Tx with M12-connector**



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User Manual

www.antaira.com

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FCC Notice

This equipment has been tested and found to comply with the limits for a Class-A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. It may cause harmful interference to radio communications if the equipment is not installed and used in accordance with the instructions. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

CE Mark Warning

This is a Class-A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Industrial Ethernet Switches

User Manual

This manual supports the following models:

- LNX-0500-M12-67
- LNX-0500-M12-67-T

Please check our website (www.antaira.com) for any updated manual or contact us by e-mail (support@antaira.com).

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1. Overview

Antaira Technologies' LNX-0500-M12-67 series is a 5-port 10/100Tx M12 IP67 industrial switch that meets the high-reliability requirements demanded by industrial applications. The LNX-0500-M12-67 series features a wide operating temperature of -10° to 70°C in the standard model and -40° to 75°C in the extended temperature model which allows this device to be used in various industrial environments. Its M12 connectors ensure a tight, robust connection and guarantees reliable operation in applications that are subject to high vibration and shock in environments containing dust, liquid or, laden with gas.

1.1 Key Features

- System Interface/Performance
 - All Copper ports support auto MDI/MDI-X function
 - Embedded 5*10/100Tx Fast Ethernet ports
 - Store-and-forward switching architecture
 - 1K MAC address table
 - 448Kbits memory buffer
- Power Input
 - Redundant power DC 12-48V through M12 5-Pin A-Coded male connector
 - Max. current 0.1A
- Operating Temperature
 - Standard operating temperature model: -10°C ~ 70°C
 - Extended operating temperature model (-T): -40°C ~ 75°C
- Case/Installation
 - Plastic case
 - IP67 protection
 - Installation in a Pollution Degree 2 industrial environment
 - DIN-Rail and wall mount design

1.2 Package Contents

- 1 – Quick Installation Guide
- 1 – LNX-0500-M12-67(-T)
- 1 – DIN-Rail kit with screws
- 1 – Set of 6*M12 protective caps
- 1 – Set of 6*port labels

1.3 Safety Precaution

Attention

If the DC voltage is supplied by an external circuit, please use a protection device on the power supply input. Supply by UL listed industrial use power. The industrial media converter's hardware specs, ports, cabling information, and wiring installation will be described within this user manual.

Warning Labels

The caution label means that you should check the certain information in the user manual when working with the device. (Shown in *Figure 1*)



Figure 1: Caution Label

2. Hardware Description

2.1 Physical Dimensions

Figure 2.1, below, shows the physical dimensions of Antaira Technologies' LNX-0500-M12-67 series:

(W x H x D) is 37.13mm x 215.73mm x 32.8mm

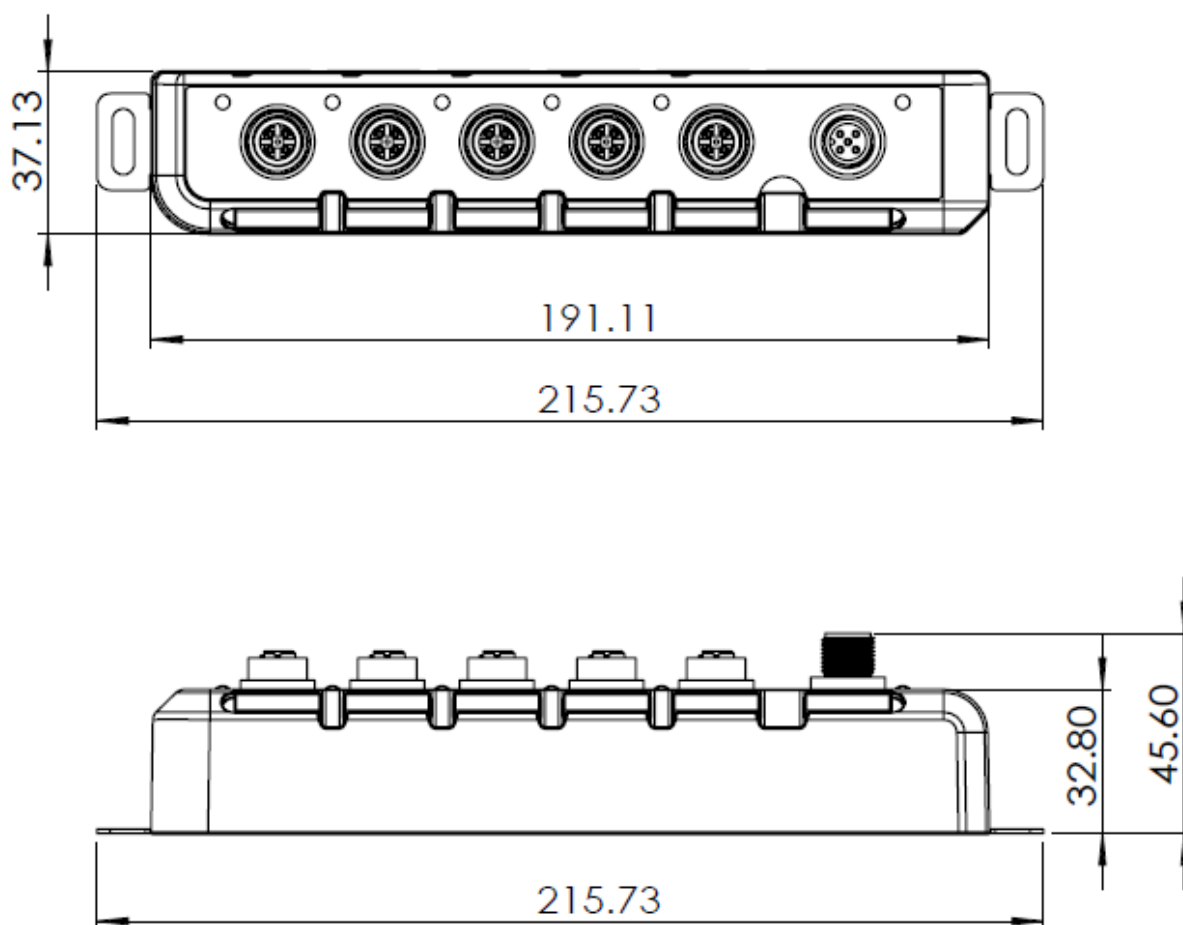


Figure 2.1

2.2 Front Panel

The front panel of the LNX-0500-M12-67 series can be seen below (*Figure 2.2*).

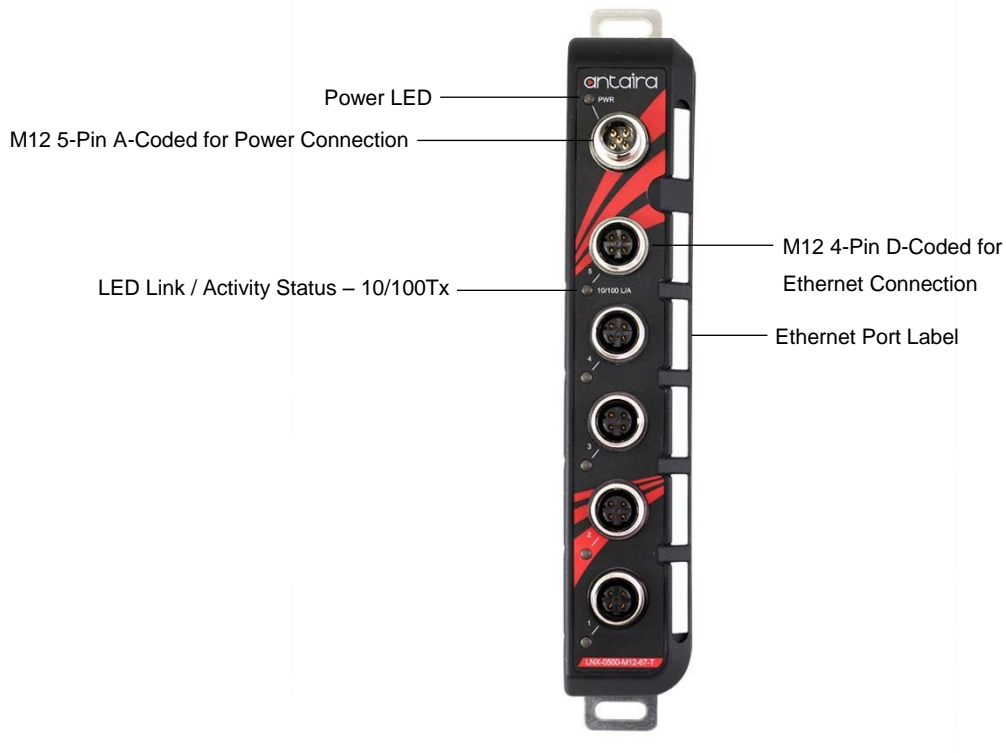


Figure 2.2

2.3 LED Indicators

There are LED light indicators located on the front panel of the industrial Ethernet switch that displays the power and network status. Each LED indicator has a different color and has its own specific meaning, see below in *Table 2.1*.

LED	Color	Description	
PWR	Green	On	Power input 1 is active
		Off	Power input 1 is inactive
Ethernet Port (1 to 5) LINK/ACT	Green	On	Power input 2 is active
		Flashing	Networking is active at 10/100 Mbps
		Off	Power input 2 is inactive

Table 2.1

NOTE: "PWR" is the abbreviation for "Power", "ACT" is for "Activity", and "L/A" is for "Link/Activity".

2.4 Grounding

Grounding and wire routing help limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw to the grounding surface prior to connecting devices. The industrial Ethernet switch provides two ground holes which are on the top and bottom of the wall mounting metal plate which are the same as wall mounting holes. It is recommended to use a M3 or M4 ground screw and grounding wire, and attach the wire to either ground hole with the screw. The grounding holes are shown below in *Figure 2.3*.

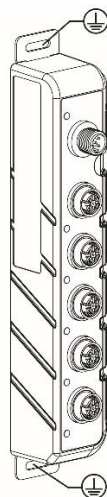


Figure 2.3



Caution: Using a shielded cable achieves better electromagnetic compatibility.

2.5 Ethernet Ports

M12 Interface (Auto MDI/MDIX)

- **Connection Format: M12 4-Pin D-Coded Female Connector**
- **Transmission Rate: 10 Mbit/s or 100 Mbit/s**

Prepare the M12 4-Pin D-Coded Ethernet Port mating cable for Ethernet connection. The M12 D-Coded Ethernet ports are auto-sensing for 10Base-T or 100Base-TX device connections. Auto MDI/MDIX means that you can connect to another switch or workstation without changing straight-through or crossover cabling. See pin assignment shown in *Table 2.2*.


M12 4-Pin D-Coded Female Connector		
Illustration	Pinouts	10/100Base-T(X) Signal
	1	Transmit Data + (TX+)
	2	Receive Data + (RX+)
	3	Transmit Data - (TX-)
	4	Receive Data - (RX-)

Table 2.2

NOTE: “+” and “-” signs represent the polarity of the wires that make up each wire pair.



Caution:

1. Please use with copper conductors only.
2. Use conductors with insulation rated for at least 60/75°C.
3. Base the conductor Ampacity on a maximum termination temperature of 60/75°C.

2.6 Wiring the Power Inputs

This industrial Ethernet switch provides dual DC power inputs for redundancy through a M12 5-Pin A-Coded male connector. Prepare the M12 5-Pin A-Coded cable for power connection. Table 2.3 shows the pin assignment.


M12 5-Pin A-Coded Male Power Connector			
Illustration	Pinouts	Function	Description
	1	V1+	Power Input 1 +
	2	V2+	Power Input 2 +
	3	V2-	Power Input 2 -
	4	V1-	Power Input 1 -
	5	⏏	Grounding

Table 2.3

NOTE: Recommended use the wire gauge between 18–24AWG.

Please follow the below steps to insert the power wire.

1. Insert the positive and negative power wires into the power connector on the industrial Ethernet switch with pin4, pin1 (V1+, V1-) for power 1, and pin3, pin2 (V2+, V2-) for power 2.
2. Tighten the screw nut to prevent the connector from loosening.



Caution: The power input specification is complied with the requirements of SELV (Safety Extra Low Voltage), and the power supply should be complied with UL 61010-1 & UL 61010-2-201.

3. Mounting Installation

3.1 DIN-Rail Mounting

Follow the steps below to learn how to install the DIN-Rail on the industrial Ethernet switch and how to hang the switch.

1. Use the screws to install the DIN-Rail bracket on the rear side of the industrial Ethernet switch as shown in *Figure 3.1*.

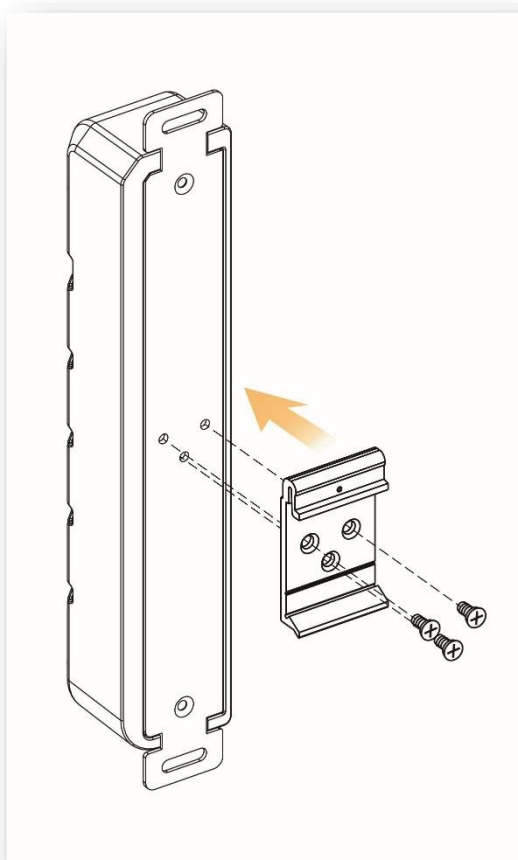


Figure 3.1

NOTE: To remove the DIN-Rail bracket, do the opposite from step 1.

2. After the DIN-Rail bracket is installed on the rear side of the switch, see *Figure 3.2* to mount the switch.
 - 1 Insert the top of the DIN-Rail onto the track.
 - 2 Lightly pull down the bracket onto the rail.
 - 3 Check if the bracket is mounted tightly on the rail.

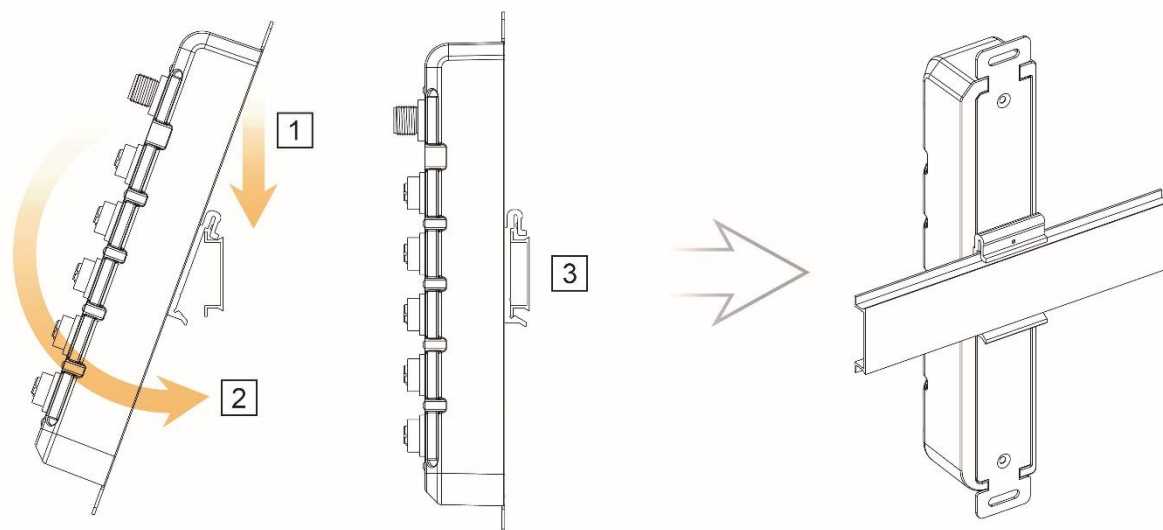


Figure 3.2
Install the Ethernet Switch on the DIN-Rail

3.2 Wall Mounting

Follow the steps below to mount the industrial Ethernet switch to a wall using the screw holes as shown below in *Figure 3.3*.

1. Prepare 2 screws for mounting the switch to a wall.
NOTE: Recommended to use the M3 or M4 screws.
2. Based on the positions of the 2 screw holes on the top and bottom side of the switch, make 2 screw holes on a wall accordingly.
3. Insert the screws through the screw holes on the switch and screw the switch into the wall.
4. To remove the switch from the wall, do the opposite from the steps above.

NOTE: Make sure to disconnect all cables from the switch before removing the unit from the wall.

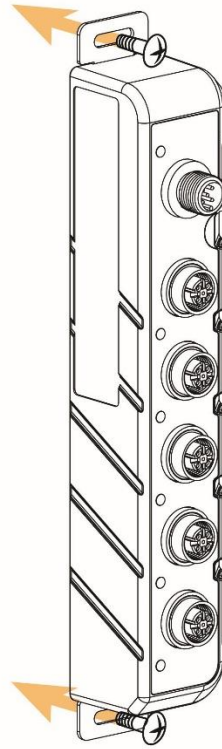


Figure 3.3

Wall Mounting Bracket Dimensions



Caution: "Wall" means industrial control panel wall.

4. Hardware Installation

4.1 Installation Steps

This section will explain how to install LNX-0500-M12-67 series.



Caution:

1. This device is intended for indoor use and at altitudes up to 2000 meters. In addition, the environmental condition should be maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.
2. The device is intended to be installed in an industrial control enclosure and panel.
3. For use in a controlled environment, please refer to manual for environmental conditions.

Installation Steps

1. Unpack the industrial Ethernet switch from the original packing box.
2. To hang the industrial Ethernet switch on a wall or DIN-Rail, please refer to the **Mounting Installation** section.
3. Power on the industrial Ethernet switch, then the power LED light will turn on.
 - a. If you need help on how to wire power, please refer to the **Wiring the Power Inputs** section.
 - b. Please refer to the **LED Indicators** section for LED light indication.
4. Prepare the M12 cable for Ethernet connection.
5. Insert one side of the M12 cable into the switch's Ethernet port and on the other side into the networking device's Ethernet port. The Ethernet port's LED on the industrial Ethernet switch will turn on when the cable is connected to the networking device.
 - a. Please refer to the **LED Indicators** section for LED light indication.
6. When all connections are set and the LED lights all show normal, the installation is complete.

4.2 Maintenance and Service

- If the device requires servicing of any kind, the user is required to disconnect and remove it from its mounting. The initial installation should be done in a way that makes this as convenient as possible.
- Voltage/power lines should be properly insulated as well as other cables. Be careful when handling them so as to not trip over.
- Do not under any circumstance insert foreign objects of any kind into the heat dissipation holes located in the different faces of the device. This may not only harm the internal layout, but might cause harm to user as well.
- Do not under any circumstance open the device for any reason. Please contact your dealer for any repair needed or follow the instructions within the manual.
- Clean the device with dry soft cloth.

5. Network Application

This segment provides an example of an industrial M12 Ethernet switch application

(Figure 5.1).

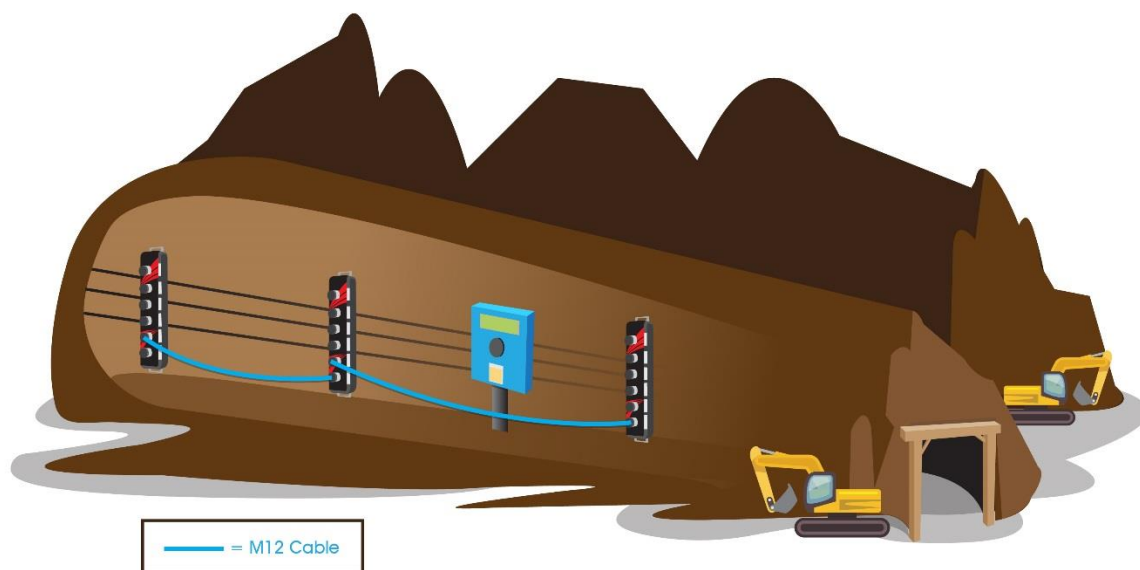


Figure 5.1

Industrial M12 Ethernet Switch Application

Example

6. Trouble Shooting

- Verify you have the right power cord or adapter. Never use a power supply or adapter with a non-compliant DC output voltage or it will burn the equipment.
- Select the proper cable to construct your network. Please check that you are using the right cable.
- Diagnosing LED Indicators: To assist in identifying problems, the switch can be easily monitored with the LED indicators which help to identify if any problems exist.
 - Please refer to the LED Indicators section for LED light indication.
- If the power indicator LED does not turn on when the power cord is plugged in, the user may have a problem with the power cord. Check for loose power connections, power losses, or surges at the power outlet.
 - Please contact Antaira for technical support service if the problem still cannot be resolved.
- If the industrial switch LED indicators are normal and the connected cables are correct but the packets still cannot transmit, please check the system's Ethernet devices' configuration or status.

7. Technical Specifications

Table 7.1 has the technical specifications for Antaira Technologies' LNX-0500-M12-67 series:

Standards	IEEE 802.3	10Base-T Ethernet
	IEEE 802.3u	100Base-TX Fast Ethernet
Technology	Protocol	CSMA/CD
	Processing Type	Store and Forward
	Flow Control	IEEE 802.3x back pressure flow control
Switch Properties	Switch Architecture	Back-Plane: Non-Blocking Switching Fabric
	Transfer Rate	14,880pps for Ethernet Port 148,800pps for Fast Ethernet Port
	Memory Buffer	448kbits
	MAC Table Size	1k
Port Interface	Ethernet Port	5*10/100T(X) M12, 4-pin D-coded, Female, auto negotiation speed, Full/Half duplex mode, and auto MDI/MDI-X connection
	LED Indicator	Power, Ethernet Ports: Link / Act
Mechanical Characteristics	Housing	Plastic, IP67 protection
	Dimension	37.13 x 215.73 x 32.8 mm (W x H x D)
	Weight	Unit Weight: 0.749 lbs. Shipping Weight: 1.322 lbs.
	Mounting	DIN-Rail Mounting, Wall Mounting
Power Requirement	Input Voltage	12~48VDC, Redundant Inputs
	Power Connection	1*M12, 5-pin A-coded, Male
	Reverse Polarity Protection	Present
	Overload Current Protection	Present
	Power Consumption	500mWatts
Environmental Limits	Operating Temperature	Standard: -10 to 70°C EOT: -40 to 75°C
	Operating Humidity	5% to 95% (Non-Condensing)
	Storage Temperature	-40 to 85°C
Regulatory Approvals	EMI / EMS	FCC Part 15 Subpart B Class A, CE EN 55032 Class A, EN 61000-6-4 Class A, CE EN 55024 Class A, EN 61000-6-2 Class A, IEC61000-4-2 (ESD), IEC61000-4-3 (RS), IEC61000-4-4 (EFT), IEC61000-4-5 (Surge), IEC61000-4-6 (CS), IEC61000-4-8 (Magnetic Field)
	Stability Testing	IEC60068-2-32 (Free Fall), 27 (Shock), 6 (Vibration)
	Green	RoHS Compliant
	Safety	FCC, CE, UL 61010-1 (Pending), UL 61010-2-201 (Pending)
	Warranty	5 Years

Table 7.1

Antaira Customer Service and Support

(Antaira US Headquarter) + 844-268-2472

(Antaira Europe Office) + 48-22-862-88-81

(Antaira Asia Office) + 886-2-2218-9733

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