AES-5204

**Industrial Ethernet Switch
with 4x IEEE 802.3at PoE**

User's Manual

Version 1.0

Revision History

Version	Release Time	Description
1.0	July 2016	Initial release

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Declaration of Conformity
CE

The CE symbol on the computer indicates that it is in compliance with the directives of the Union European (EU). A Certificate of Compliance is available by contacting Technical Support.

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from ARBOR. Please contact your local supplier for ordering information.

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.

FCC Class A
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1)   This device may not cause harmful interference, and
(2)   This device must accept any interference received, including interference   that may cause undesired operation.

NOTE:
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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

RoHS

ARBOR Technology Corp. certifies that all components in its products are in compliance and conform to the European Union's Restriction of Use of Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive 2002/95/EC.

The above mentioned directive was published on 2/13/2003. The main purpose of the directive is to prohibit the use of lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB), and polybrominated diphenyl ethers (PBDE) in electrical and electronic products. Member states of the EU are to enforce by 7/1/2006.

ARBOR Technology Corp. hereby states that the listed products do not contain unintentional additions of lead, mercury, hex chrome, PBB or PBDB that exceed a maximum concentration value of 0.1% by weight or for cadmium exceed 0.01% by weight, per homogenous material. Homogenous material is defined as a substance or mixture of substances with uniform composition (such as solders, resins, plating, etc.). Lead-free solder is used for all terminations (Sn(96-96.5%), Ag(3.0-3.5%) and Cu(0.5%)).

SVHC / REACH

To minimize the environmental impact and take more responsibility to the earth we live, Arbor hereby confirms all products comply with the restriction of SVHC (Substances of Very High Concern) in (EC) 1907/2006 (REACH --Registration, Evaluation, Authorization, and Restriction of Chemicals) regulated by the European Union.

All substances listed in SVHC < 0.1 % by weight (1000 ppm)

Important Safety Instructions

Read these safety instructions carefully

1. Read all cautions and warnings on the equipment.

2. Place this equipment on a reliable surface when installing. Dropping it or letting it fall may cause damage

3. Make sure the correct voltage is connected to the equipment.

4. For pluggable equipment, the socket outlet should be near the equipment and should be easily accessible.

5. Keep this equipment away from humidity.

6. The openings on the enclosure are for air convection and protect the equipment from overheating. DO NOT COVER THE OPENINGS.

7. Position the power cord so that people cannot step on it. Do not place anything over the power cord.

8. Never pour any liquid into opening. This may cause fire or electrical shock.

9. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.

10. If one of the following situations arises, get the equipment checked by service personnel:

    a. The power cord or plug is damaged.

    b. Liquid has penetrated into the equipment.

    c. The equipment has been exposed to moisture.

    d. The equipment does not work well, or you cannot get it to work according to the user's manual.

    e. The equipment has been dropped or damaged.

    f. The equipment has obvious signs of breakage.

11. Keep this User's Manual for later reference.

Product Heat

The computer generates heat during operation. Contact the computer's chassis with your body could cause discomfort or even a skin burn.
Warning

The Box PC and its components contain very delicately Integrated Circuits (IC). To protect the Box PC and its components against damage caused by static electricity, you should always follow the precautions below when handling it:

1. Disconnect your Box PC from the power source when you want to work on the inside.

2. Use a grounded wrist strap when handling computer components.

3. Place components on a grounded antistatic pad or on the bag that came with the Box PC, whenever components are separated from the system.

Technical Support

If you have any technical difficulties, please consult the user's manual first at:

http://www.arbor.com.tw

Please do not hesitate to call or e-mail our customer service when you still cannot find out the answer.

http://www.arbor-technology.com/

E-mail:info@arbor.com.tw

Warranty

This product is warranted to be in good working order for a period of one year from the date of purchase. Should this product fail to be in good working order at any time during this period, we will, at our option, replace or repair it at no additional charge except as set forth in the following terms. This warranty does not apply to products damaged by misuse, modifications, accident or disaster.

Vendor assumes no liability for any damages, lost profits, lost savings or any other incidental or consequential damage resulting from the use, misuse of, or inability to use this product. Vendor will not be liable for any claim made by any other related party.

Vendors disclaim all other warranties, either expressed or implied, including but not limited to implied warranties of merchantability and fitness for a particular purpose, with respect to the hardware, the accompanying product's manual(s) and written materials, and any accompanying hardware. This limited warranty gives you specific legal rights.

Return authorization must be obtained from the vendor before returned merchandise will be accepted. Authorization can be obtained by calling or faxing the vendor and requesting a Return Merchandise Authorization (RMA) number. Returned goods should always be accompanied by a clear problem description.

Chapter 1

Introduction

1.1. Product Highlights

- RJ-45 & SFP Upstream supported
- 1 x GbE LAN, 1 x SFP and 4 x 802.3at PoE ports protection
- Up to 25.5 watts per PoE port
- 1 x RS-485 Camera Console Port
- Embedded MCU for intruder & power loss detection
- DC 9~36V power input
- Operating temperature (-40°C ~ 75°C)

1.2. About this Manual

This manual is meant for the experienced users and integrators with hardware knowledge of personal computers. If you are not sure about the description herein, consult your vendor before further handling.

We recommend that you keep one copy of this manual for the quick reference for any necessary maintenance in the future. Thank you for choosing ARBOR products.

1.3. Specifications

System	
Standard	IEEE 802.3, 802.3u, 802.3ab, 802.3x, 802.3at, 802.3af, 802.3az
Ethernet	4 x 10/100/1000 Mbps auto sensing, support 802.3at
WAN	1 x 10/100/1000 Mbps auto sensing
	1 x 1000Base-X SFP
Interface	
Connectors	5 x RJ-45 : 10/100/1000Base-T, Built-in 1.5 KV magnetic isolation
	1 x SFP : 1000Base-X
	1 x 5-pin termianl block : RS-485 console port
	1 x 3-pin terminal block : power input connector
LED Indicators	Per port: Link/Activity, Speed
Environmental	
Operating Temp.	-40 ~ 75°C (-40 ~ 167°F), ambient w/ air flow
Storage Temp.	-40 ~85 °C (-40 ~ 185°F)

Operating Humidity	10 ~ 95% @ 75°C (non-condensing)
Vibration	IEC 60068-2-6
Shock	IEC 60068-2-27
Qualification	
Certification	CE, FCC Class A
Power Requirement	
Power Input	DC 9~36V input (w/ 3-pin DC input terminal block)
Power Consumption	Max. 120W
Power Management	Vehicle ACC power ignition control
	Reversed power input protection
	Ignition-controlled power distribution circuit
Mechanical	
Construction	Aluminum alloy
Mounting	Support DIN-rail/wall-mounting
Weight	1.5 kg (3.428 lb)
Dimensions (W x D x H)	155 x 70 x 125 mm (6.10" x 2.75" x 4.92")

1.4. Inside the Package

Upon opening the package, carefully inspect the contents. If any of the items is missing or appears damaged, contact your local dealer or distributor. The package should contain the following items:

1 x AES-5204 Industrial Ethernet Switch

1 x User's Manual

1.5. Ordering Information

AES-5204	6-port Industrial Ethernet Switch with 4x IEEE 802.3at PoE ports

1.5.1. Optional Accessories

The following items are normally optional, but some vendors may include them as a standard package, or some vendors may not carry all the items.

PAC-120W6B-FSP	19V, 6.32A, 120W AC/DC Adapter Kit	

DRK-5300	SPCC+Ni, Al6063	
	DIN Rail 35 mm	

Chapter 2

Getting Started

2.1. Dimensions

The following illustration shows the dimensions of the computer, with the measurements in width, depth, and height called out.

155.00

125.00

Unit:mm

2.2. Take A Tour
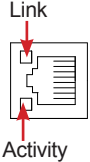
Front View   **Rear View**
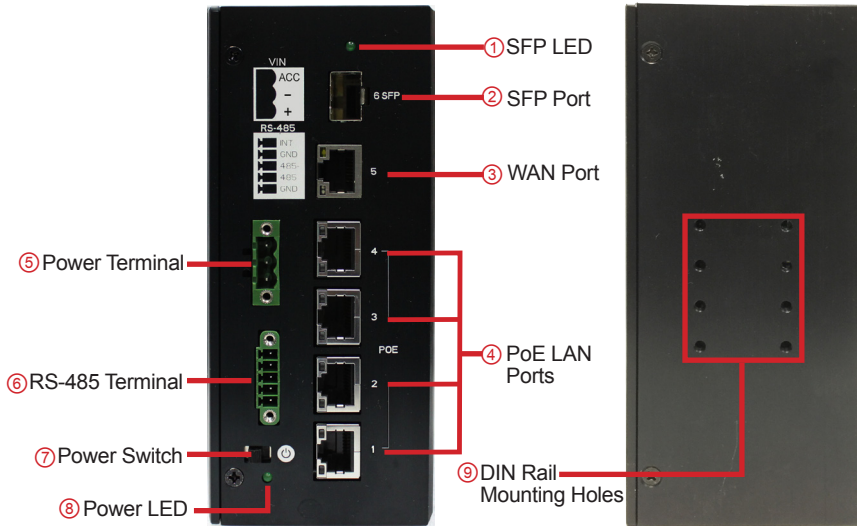
Item	Descriptions
① **SFP LED**	SFP status indication.
② **SFP Port**	10/100/1000Baes-X SFP port for SFP interface module
③ **WAN Port**	10/100/1000Base-T RJ-45 WAN port
④ **PoE LAN Ports**	4 x 10/100/1000Base-T RJ-45 LAN ports w/PoE Compliant with 802.3at, output power up to 25.5W per each port
⑤ **Power Terminal**	1 x 3-pin DC input terminal block Supports DC 9~36V power input or ACC ignition input
⑥ **RS-485 Terminal**	RS-485 for camera control and intruder detection
⑦ **Power Switch**	Power switch
⑧ **Power LED**	Power status indication
⑨ **DIN Rail Mounting Holes**	For DIN-Rail mounting

2.3. LED Indicators

There are few LEDs on the front panel of the switch to display the power status and network status as described in the table below:

LED		Color	State	Descriptions	
SFP LED		Green	On	SFP module is connected.	
			Off	No SFP module is connected.	
Power LED		Green	On	Power is being supplied to power input.	
			Blinking	No PoE power is being supplied to power output.	
			Off	Power is not being supplied to power input	
WAN / PoE LAN (1~4)	**Link**	Orange	On	Link and active.	Link
			Blinking	Data is being transmitted.	
			Off	No link.	
	Speed	Green	On	Data transmission speed is 1000Mbps	Activity
			Off	Data transmission speed is 100Mbps	

Chapter 3

Installation and Maintenance

3.1. Disassemble the Computer

If you need to configure the power detection mode, you will need to disassemble the computer to access the system power DIP switch. The following section will guide you to disassemble the computer.

1. Power off your computer and unplug the power cord and any peripherals. Place the computer on a flat surface. Loosen and remove the 4 screws on each of the side panels and remove the side panels.
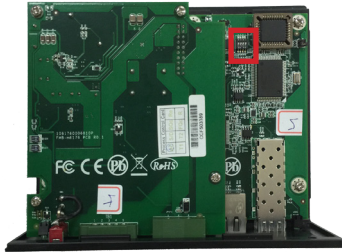
2. Loosen and remove the 2 screws on front and rear panels respectively.

3. Place the computer in an upright position. Grab the chassis edges as shown below and apply gentle pressure outwards to disassemble the chassis.
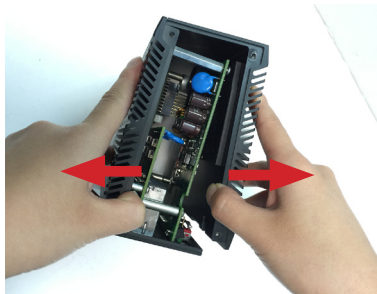
4. Then you will see the DIP switch (SW1) on the main board.
   For more information on DIP Switch settings, refer to .

5. After making required settings, follow the disassembly instructions in reverse order to assembly the computer.
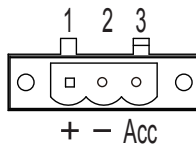
3.2. Wire DC-in Power Source

⚠ **Warning** Only trained and qualified personnel are allowed to install or replace this equipment.

The computer can be powered on/off from the power button or directly from the vehicle ignition. The pin assignment for the DC power inlet is as below:

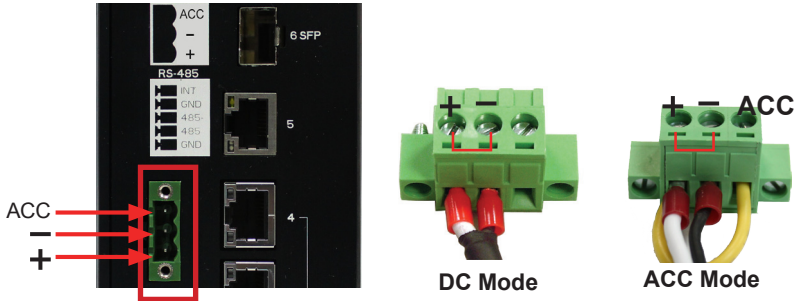| Pin	Description
1	DC 9~36V
2	GND
3	ACC (ignition signal)

Follow the instructions below to connect the computer to a DC-input power source.

1. Before wiring, make sure the power source is disconnected.

2. Find the terminal block in the accessory box.

3. Use the wire-stripping tool to strip a short insulation segment from the output wires of the DC power source.

4. Identify the positive and negative feed positions for the terminal block connection. See the symbols printed on the panel indicating the polarities.

5. Insert the exposed wires into the terminal block plugs. Only wires with insulation
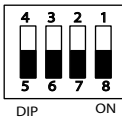
should extend from the terminal block plugs. Note that the polarities between the wires and the terminal block plugs must be positive to positive and negative to negative.

6. Use a slotted screwdriver to tighten the captive screws. Plug the terminal block firmly, which wired, into the receptacle on the rear panel.

DC Mode　　　**ACC Mode**

3.3. Configuring Power Mode

1. Disassemble the computer to access the system power switch (SW1).

2. Configure the PIN 4-5 of SW1 according to your power system.

| Pin	Description
1-8	Reserve
2-7	Reserve
3-6	ON : POE Power display for Power LED OFF : Normal Power display for Power LED
4-5	ON: ACC Power detection disabled (JPSY1_Pin 3 is not connect to JPSY1_Pin1) OFF : ACC Power detection enabled (JPSY1_Pin 3 is connect to JPSY1_Pin1)

3.4. DIN-rail Mount

Integrate the computer to where it works by mounting it to a DIN-rail in the surroundings. Such integration relies on the DIN-rail clip on the rear side of the computer. Follow through the guide below to mount/dismount the computer to/from a DIN-rail.

3.4.1. Mount the Computer

1. Find the DIN-rail clip on the rear side of the computer as illustrated below. Hold the computer in a portrait orientation.
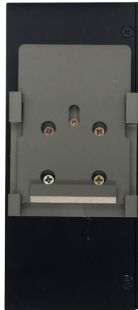
2. Confront the DIN-rail clip with the DIN-rail to mount. Hang the computer on the DIN-rail by DIN-rail clip. Push the bottom of the computer and snap the computer onto the DIN-rail.
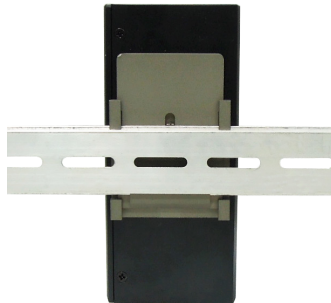
3.4.2. Dismount the Computer

Power off the computer and disconnect all cables before proceeding to dismount the computer off the DIN-rail.

1. Push the top side of the computer down, with both hands. Try to release the clip from the DIN-rail.

Push

Lift

2. Once the clip is released from the DIN-rail, completely dismount the computer off the DIN-rail by lifting the computer's bottom side.