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VigorTalk ATA-24 SH

24-Port Analogue Terminal Adapter

Installation Guide

V.1.0

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Version: 1.0

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Safety Instructions and Approval

Safety Instructions

● Make sure that the AC power source is in the range of AC100-240V. The VigorTalk ATA24 SH should be used in a sheltered area, within a temperature range from -10 to +65 °C and relative humidity in the range of 10% and 95%.

● DC power source operating condition: -42 to –56VDC. Do not expose the VigorTalk ATA24 SH to direct sunlight or other heat sources. The housing and electronic components may be damaged by direct sunlight or heat sources.

● Read the manual before turning on the power switch of device.

● Locate the emergency power-off switch near the device prior to power connection.

● Fixing the device on chassis to maintain air circulation and stable condition is recommended.

● Do not work alone if the operation environment is dangerous.

● Check and avoid the potential hazard for moist environment, and grounding issue for power cable.

● Please turn off the power switch when replacing fuse, installing or removing chassis.

● Do not place the device in a damp or humid place, e.g. a bathroom- (such as this environment).

● Avoid operating cable connection during lightning period.

● When you want to dispose of the VigorTalk ATA24 SH, please follow local regulations on conservation of the environment.

● Users can replace fuses by removing the module and replace it when necessary. Other components should be repaired by authorized and qualified personnel. Do not try to open or repair the device by yourself.

● The fuse for AC power inlet should be identical to the following standard: 250VAC, 2A

Regulatory Information

Federal Communication Commission Interference Statement

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 and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. 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 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.

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 may accept any interference received, including interference that may cause undesired operation.

Taiwanese BSMI (Bureau of Standards, Metrology and Inspection) A Warning:

Warning: This device might cause interference of radio frequency under the environment of dwelling. In such condition, the users might be asked to adopt some proper strategies.

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Warranty

We warrant to the original end user (purchaser) that this device will be free from any defects in workmanship or materials for a period of two (2) years from the date of purchase from the dealer. Please keep your purchase receipt in a safe place as it serves as proof of date of purchase. During the warranty period, and upon proof of purchase, should the product have indications of failure due to faulty workmanship and/or materials, we will, at our discretion, repair or replace the defective products or components, without charge for either parts or labor, to whatever extent we deem necessary tore-store the product to proper operating condition. Any replacement will consist of a new or re-manufactured functionally equivalent product of equal value, and will be offered solely at our discretion. This warranty will not apply if the product is modified, misused, tampered with, damaged by an act of God, or subjected to abnormal working conditions. The warranty does not cover the bundled or licensed software of other vendors. Defects which do not significantly affect the usability of the product will not be covered by the warranty. We reserve the right to revise the manual and online documentation and to make changes from time to time in the contents hereof without obligation to notify any person of such revision or changes.

Customer Support

Please prepare the following information before you contact your customer support.

- Product model and serial number
- Warranty information
- Date that you received VigorTalk
- Product configuration
- Software release version number
- Brief description of your problem

Table of Contents

1. Introduction

VigorTalk ATA-24 SH could provide large VoIP ports which is designed for ISP/SI. It not only provides high quality call service, but also supports various VoIP protocol and supplementary services.

Moreover, it combines guaranteed bandwidth, remote management and administrative functions to meet increasing demands for higher reliability in today's broadband environment. The DoS(Denial of Service) function helps to detect and mitigate DoS attacks such as flooding-type and vulnerability attacks.

VigorTalk ATA-24 SH is not only equipped with a console port being used for local management, but also provided excellent capabilities of SNMP, Telnet for remote management. In particular, it can be easily configured by EMS. The EMS system covers topology, configuration, deployment, security, alarm management and backed storage. Besides, with the solution of tag-based VLAN, it can provide improved security.

1.1 Features of VigorTalk ATA24 SH

1.1.1 General Features

VigorTalk ATA24 SH supports features as listed below.

- **Network Features**
  - ➢ DHCP Client
  - ➢ DDNS Client
  - ➢ Port Mirroring
  - ➢ WAN Port Backup

- **Security**
  - ➢ Denial of Service Prevention
  - ➢ Tag-based VLAN for Uplink

- **Management**
  VigorTalk ATA24 SH supports some management method as listed below.
  - ➢ Remote configuration backup/restore via EMS client/server.
  - ➢ Remote firmware upgrade
  - ➢ SNMP management
  - ➢ Command Line Interface, it can be accessed by local Console or Telnet interface.

- **VigorCMS**
  - ➢ On-line Device Status
  - ➢ Firewall Configuration (DoS)
  - ➢ VoIP Configuration
  - ➢ Performance Monitoring
  - ➢ Topology
  - ➢ Log
  - ➢ Alarm

1.1.2 VoIP Features

- **VoIP Service -** VigorTalk ATA24 SH can provide toll quality voice communication in terms of voice quality and reliability for the users.
  - ➤ FXS (24-port)
  - ➤ MGCP/SIP/H248
  - ➤ Codec G.711, 729A, 723.1, G.726
  - ➤ VAD (Silence Suppression) & CNG
  - ➤ G.168-2000 Echo Canceller, Jitter Buffer
  - ➤ Packet Loss Concealment
  - ➤ RFC2833-Out of Band DTMF
  - ➤ Gain/Attenuation Setting
  - ➤ Modem Support Rate Up V.92
  - ➤ Caller ID Support: Bellcore, ETSI, DTMF-based (Nor-Europe)
  - ➤ Line Polarity Reversal Generation
  - ➤ Hunting Group
  - ➤ Call Holding & Call Forwarding
  - ➤ Call Transfer, Call Waiting, 3-way Conference
  - ➤ Outbound Proxy
  - ➤ NAT Traversal (STUN) (RFC 3489)
  - ➤ Incoming Call Barring
  - ➤ T.38 Fax Relay
  - ➤ Single Codec Assignment
  - ➤ Multiple SIP Proxies Registering

1.1.3 Line Test and Diagnostic Functions

- **Metallic Loop test**
  - ➤ AC Voltage
  - ➤ AC Current
  - ➤ Resistance
  - ➤ Capacitance

- **Line Card Test**

  - ➤ Normal Battery
  - ➤ Loop Current

- **User Phone Test**
  - ➤ Pulse Digit Receiving Test
  - ➤ Low Frequency Signal Level Test
  - ➤ High Frequency Signal Level Test
  - ➤ Low Frequency Test
  - ➤ High Frequency Test
  - ➤ DTMF Tone Dialing Digit Receiving Test
  - ➤ Howler Tone Test
  - ➤ Ringing Test

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1.2 Applications

### 1.2.1 Branch Office Interconnection

VigorTalk ATA-24 SH can extend internal ports to reduce operational fee of the company or business. VigorTalk ATA-24 SH provides 24 FXS interfaces which can support VoIP service between branch offices by bundled with a security router and an IP-PBX server.
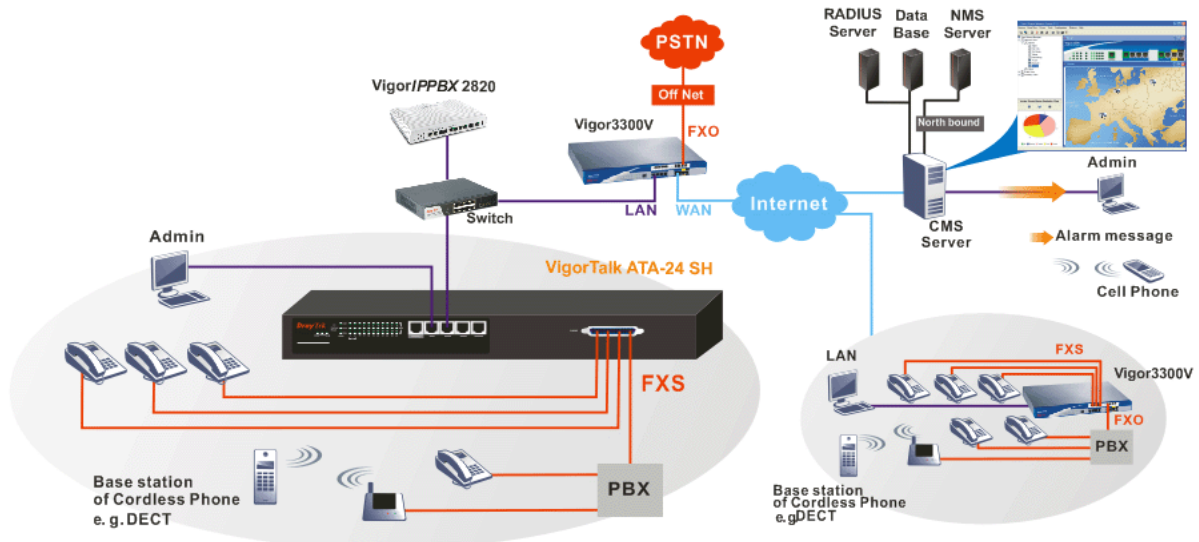
1.2.2 Security

The DoS function helps to detect and mitigate DoS attacks. These include flooding-type attacks and vulnerability attacks.

Flooding-type attacks attempt to use up all your system's resources while vulnerability attacks try to paralyze the system by offending the vulnerabilities of the protocol or operation system.
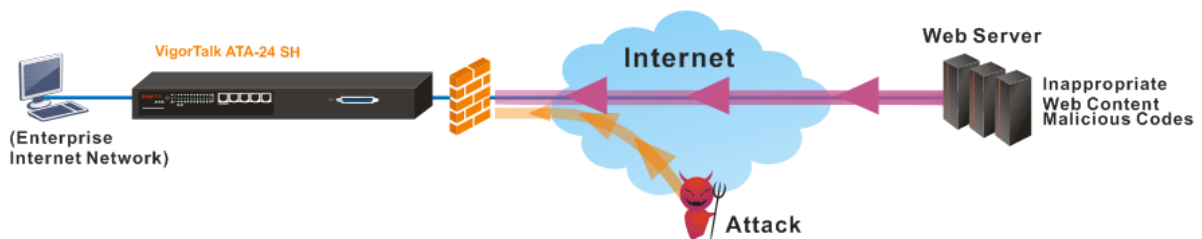
2. Panel Explanation

This chapter will introduce the LED indicators and connectors for preparing the installation listed in Chapter 3.

2.1 Connectors

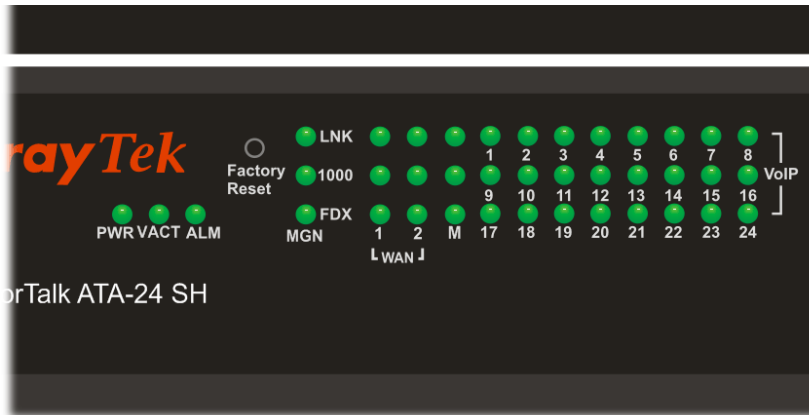All connections are made on the front panel of the VigorTalk ATA24 SH except power connector.

Interface	Description
Factory Reset	Used to restore the default settings. Turn on the adapter (**VACT** LED is blinking). Press the hole and hold for more than 5 seconds. When you see the **VACT** LED begins to blink rapidly than usual, release the button. Then the adapter will restart with the factory default configuration.
CONSOLE	A RS232 serial interface is used to connect a local management computer.
MGN	A management interface with RJ45 interface is for Telnet or SNMP management.
WAN1/2	Connecter for remote networked devices.
MIRROR	Connecter for security monitor.
PHONE	Connected to telephones.

In addition, below shows the cables used in different connectors.

Name	Type, Color	Connected to
Power Cord	Cord, Black Wire,	AC Outlet (100-240VAC) DC Outlet(-42 ~ 56VDC)
Serial Cable (Console)	RS232, Grey	PC RS232 port for CLI.
RJ45 Cable for WAN	RJ-45 (8P8C), Blue	Connect to Ethernet Interface

RJ-21 Cable for PHONE	RJ-21 to RJ-21 or RJ-21 to RJ-11	CPP Panel or telephone

2.2 LED Indication

LED		Status	Explanation
PWR		On	The adapter is powered on.
		Off	The adapter is powered off.
VACT		On/Blinking	The system is active.
		Off	The system is hanged.
ALM		On	The system alarm is active.
MGN	LNK	On	The Ethernet link is established.
		Blinking	The data transmission is done through the corresponding port.
		Off	No Ethernet link is established.
	1000	On	It means that a normal 1000 Mbps connection is through its corresponding port.
		Off	It means that a normal 100/10 Mbps connection is through its corresponding port.
	FDX	On	It means a full duplex connection on corresponding port.
		Off	It means a half duplex connection on corresponding port.
WAN/ MIRROR	LNK	On	The Ethernet link is established on corresponding port.
		Off	No Ethernet link is established.
	1000	On	It means that a normal 1000 Mbps connection is through its corresponding port.
		Off	It means that a normal 100 Mbps connection is through its corresponding port.

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| LED		Status	Explanation
	FDX	On	It means a full duplex connection on corresponding port.
		Off	It means a half duplex connection on corresponding port.
VoIP (1-24)		On	The phone is off hook (the handset of phone is hanging).
		Blinking	A phone call is incoming or on-line.

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3. Installation and Connection

3.1 Rack-Mounted Installation

VigorTalk ATA24 SH can be installed on 19-, 23-inches racks by using standard brackets in 19-inch rack or optional larger brackets on 23-inch rack with other equipments. The bracket for 19-, 23-inch racks are shown below.

Attach the brackets to the chassis in 19-, 23-inch rack. The second bracket attaches the other side of the chassis as above procedure.
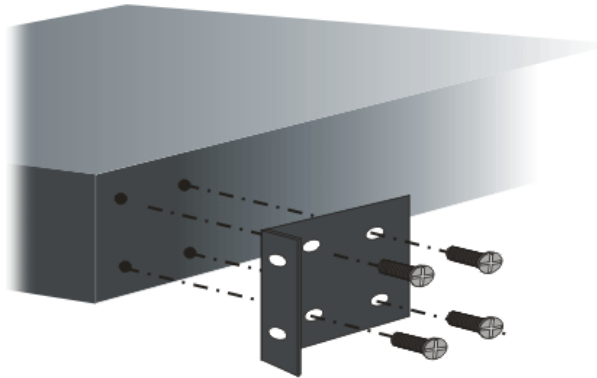
After bracket installation, VigorTalk ATA24 SH chassis could be installed in the rack by using two screws for each side of rack.
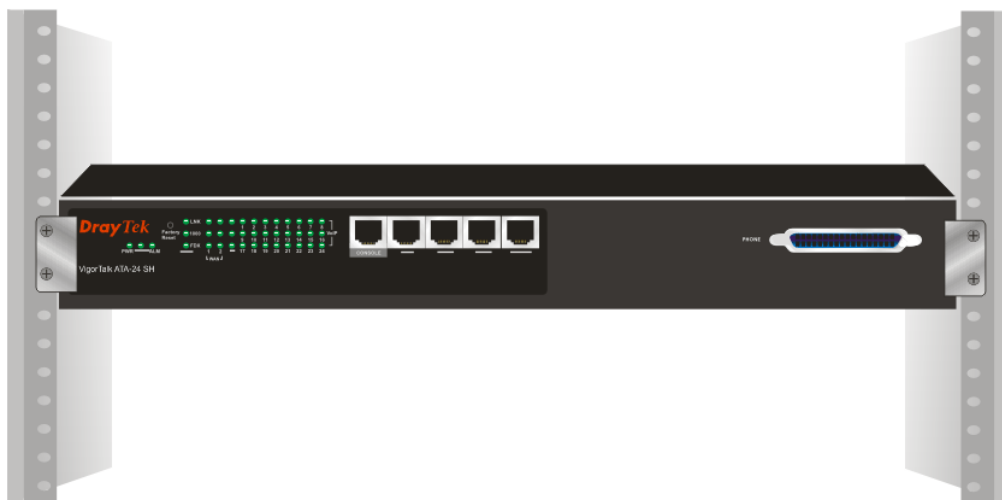
3.2 Desktop Placement

The VigorTalk ATA24 SH can be placed on the rack or on a flat surface. There are four rubber feet attached on the bottom of the VigorTalk ATA24 SH to stabilize the device for placing on a flat surface. These rubber feet aims to improve the air circulation, and at the

same time it can decrease unnecessarily rubbing on the desk. Therefore, you can simply put the device on your desk or any flat surface without worrying damage.

3.3 Frame Ground Installation

The frame ground is on the rear side of the VigorTalk ATA24 SH which is powered by AC connector. Connect the frame ground to a building's earthing terminal by using frame ground wire.

Importance: Please connect the frame ground first before you connect any other cables for this device.

3.4 CPP (Centric Patch Panel, Optional Device)

The VigorTalk ATA24 SH can provide lots of voice services.

If the application is using on building environment, the CPP (Centric Patch Panel) is preferred. **The purpose of CPP module is to transfer RJ-21 jack in VigorTalk ATA24 SH to RJ-11 connector.** It is usually installed between end-users' equipment and telephone company in a basement or telephone room. The CPP is the point of termination for the outside telephone company lines coming into a building and the telephone lines in the building.
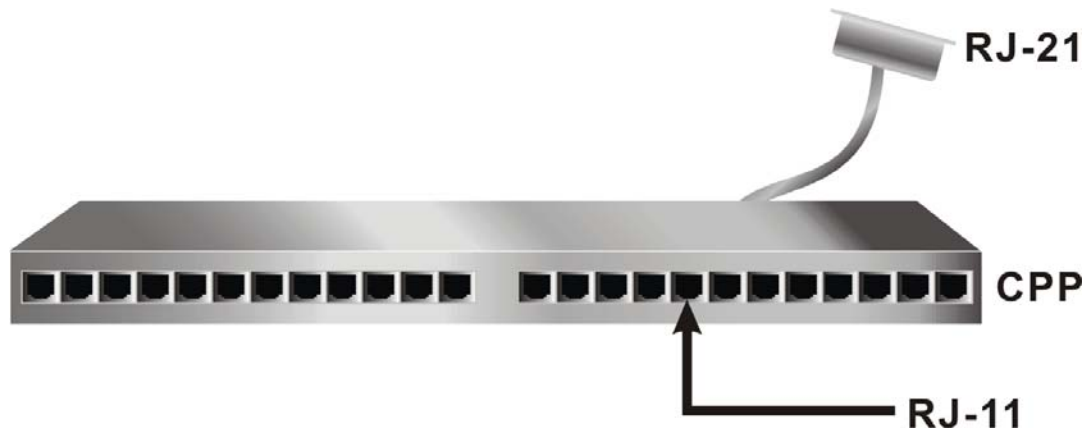
The existing **telephone wiring** usually depends on user's region. Here is the description of typical installation scenario. Use telephone wires with RJ-11 jacks on one end for connecting to the CPP board.

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Scenario

Phone service is available in VigorTalk ATA24 SH. You can connect a RJ-11 jack port attached in a CPP to a telephone directly. The following example shows the connection for *Voice transmission* through CPP.
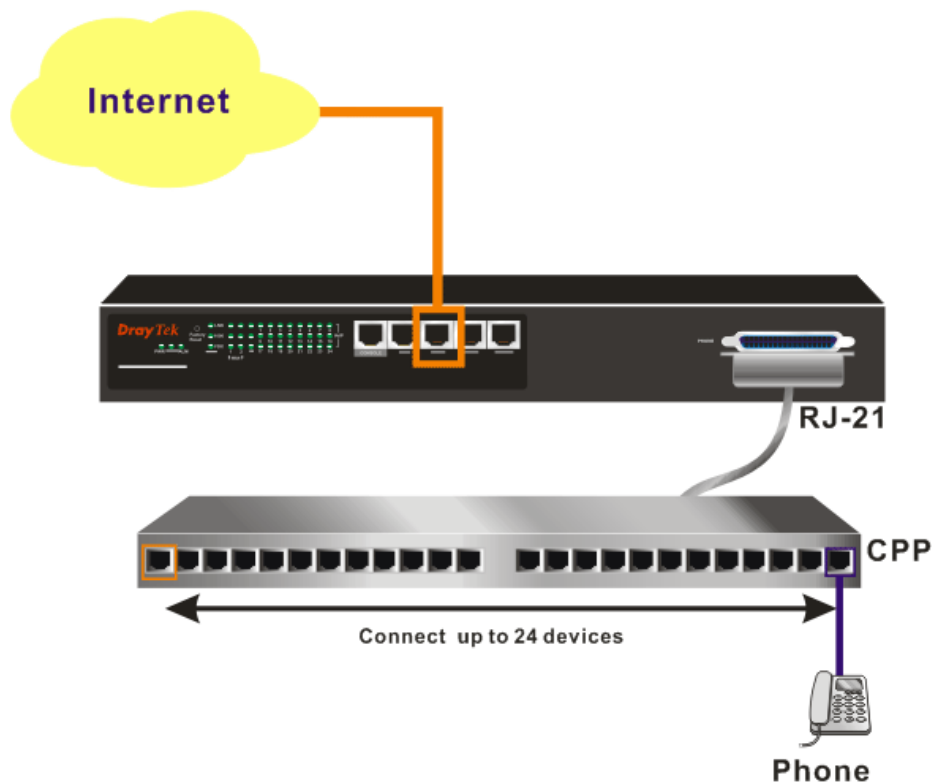
3.5 Power Connection

Before you purchasing the device, please check your environment to determine which power type that matches with your requirement.

The AC input and ground connections can be done on the rear panel. You can connect the rack to ground by using spring screws.


1. Connect the female end of the power cord to the power socket on the rear panel of VigorTalk ATA24 SH.

2. Connect the other end of the cord to a power outlet and make sure that no objects obstruct the airflow of the fans (located on the rear side of the unit).

3.6 Console Port Connection

The default setting of the console port is "**baud rate 115200, no parity, and 8 bit with 1 stop bit (N81)**".

For the initial configuration, users need to use terminal emulator software on a computer and connect it to a network module through the console port. Users can connect the RJ-45 end of the console cable to the console port of the network module. On the other side, users can connect the other end to a serial port (RS232) of a computer.
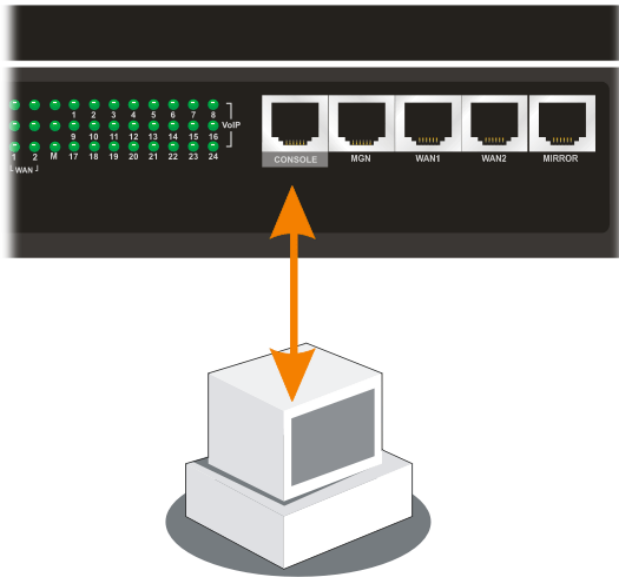
Beware that the default login is "**admin**", password is "**1234**".

```
****************************************************

*     ATA-24 SH Bootloader Version: V1.0.5 (Jul 20 2009 - 11:20:16)     *

****************************************************

Press [ENTER] key within 5 sec. to download image...0

Please wait a minute...

Login:
```

3.7 Management Port Connection

Users can connect the RJ-45 cable to the MGN port of the device. The IP address is **192.168.1.1** by default. The subnet of PC should be the same as default IP setting.
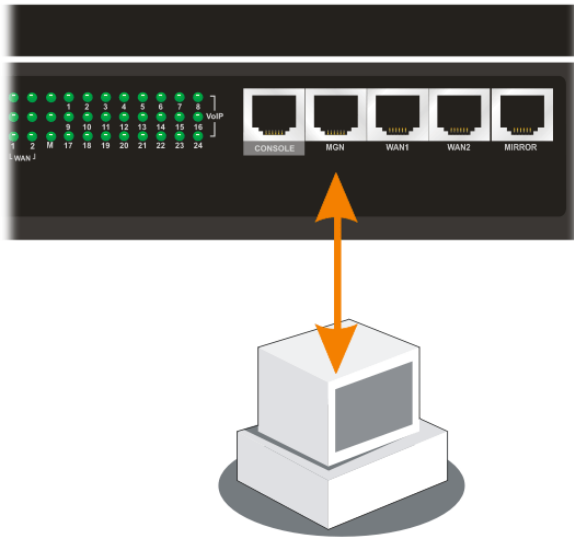

```
ATA24-SH> network/mgn> ip -s

-------------------------------------------------------------------------------
     MGN IP Status
-------------------------------------------------------------------------------
IP Address                  : 192.168.1.1
NetMask                     : 255.255.255.0
```

3.8 Default WAN 1 Port Connection

Users can connect the RJ-45 cable to the WAN1 port of the device. The IP address is **172.16.1.2** by default. Modify the IP address of the network segment you want to use for accessing into Internet if necessary.
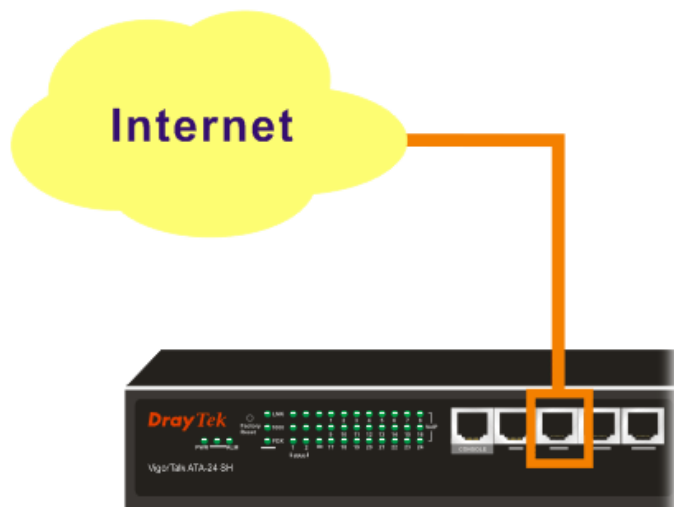
```
ATA24-SH/network/wan> static -s 1
--------------------------------------------------------------------------------
  WAN1 Static Setting
--------------------------------------------------------------------------------
IP Address: 172.16.1.2
Subnet Mask: 255.255.255.0
Default Gateway: 172.16.1.1
Primary DNS: 168.95.1.1
Secondary DNS: 168.95.1.2
```
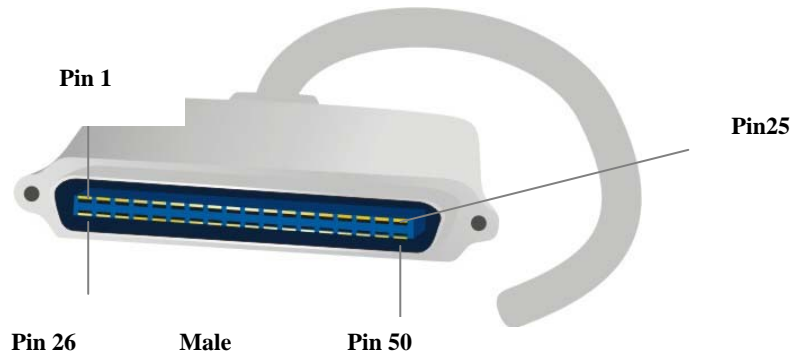
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Appendix: Connectors

A.1 RJ21 DSL Connector

Connections made with two 50-pin champ cables are attached to the RJ21 interface on VigorTalk ATA24 SH. Each cable terminates with a 50-pin Telco straight champ connector.

Pin 1

Pin25

Pin 26   **Male**   **Pin 50**

Pin assignments between the Line and the PSTN splitter.

Pin Number	Wire Color	TIP/RING	Port Number	Pin Number	Wire Color	TIP/RING	Port Number
26 1	White/blue Blue/white	TIP RING	1	38 13	Black/green Green/black	TIP RING	13
27 2	White/orange Orange/white	TIP RING	2	39 14	Black/brown Brown/black	TIP RING	14
28 3	White/green Green/white	TIP RING	3	40 15	Black/gray Gray/black	TIP RING	15
29 4	White/brown Brown/white	TIP RING	4	41 16	Yellow/blue Blue/yellow	TIP RING	16
30 5	White/gray Gray/white	TIP RING	5	42 17	Yellow/orange Orange/yellow	TIP RING	17
31 6	Red/blue Blue/red	TIP RING	6	43 18	Yellow/green Green/yellow	TIP RING	18
32 7	Red/orange Orange/red	TIP RING	7	44 19	Yellow/brown Brown/yellow	TIP RING	19
33 8	Red/green Green/red	TIP RING	8	45 20	Yellow/gray Gray/yellow	TIP RING	20
34 9	Red/brown Brown/red	TIP RING	9	46 21	Violet/blue Blue/violet	TIP RING	21
35 10	Red/gray Gray/red	TIP RING	10	47 22	Violet/orange Orange/violet	TIP RING	22
36 11	Black/blue Blue/black	TIP RING	11	48 23	Violet/green Green/violet	TIP RING	23
37 12	Black/orange Orange/black	TIP RING	12	49 24	Violet/brown Brown/violet	TIP RING	24
				50 25	Violet/gray Gray/violet	TIP RING	25 is dummy

Set the pin assignments for backplane connector RJ45, the alarm relay connector.

A.2 RS232 Connector

The RJ45 connection jet is used for CLI commands for system configurations and controlling functions in the VigorTalk ATA24 SH. The jet is used for initialization of the

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VigorTalk ATA24 SH during the preliminary installation. The "management cable", as shown in Figure 1-15, converts the RJ45 to the RS232 interface. The RJ45 jet connects to a console interface in the VigorTalk ATA24 SH, while the RS232 DB9 connecting to a console port on the computer.

The default setting of the console port is "**baud rate 9600, no parity, and 8 bit with 1 stop bit (N81)**".

The pin-out for this connector is shown below:

RJ45	DB9 (Female)	Signal
No connection	1	CD
3	2	TD
6	3	RD
7	4	DTR
5	5	GND
2	6	DSR
8	7	RTS
1	8	CTS
No connection	9	RI

A.3 Standard 10/100 Base-T Ethernet Interface Connector

RJ45 jets provide 10/100 Base-T Ethernet interfaces. The interface supports MDI/MDIX auto-detection of either straight or crossover RJ45 cables. These cables are used on UP1,UP2/MGN interfaces.
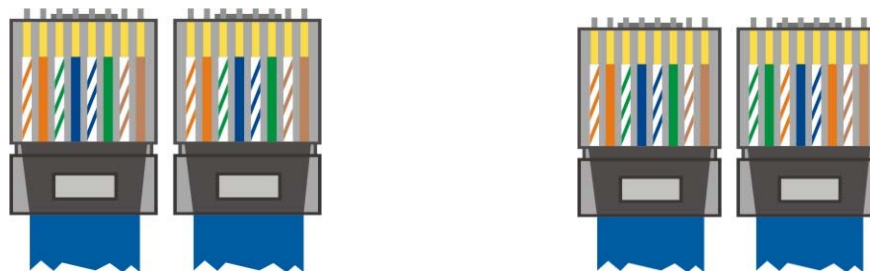
At 400 and 600 W the surface roughness was quite low (~15 2) and the coatings showed a mirror-like surface with a high brightness.

RJ-45 **Straight-through** Cable Pin-outs				RJ-45 **Crossover** Cable Pin-outs			
Signal	Pin	Pin	Signal	Signal	Pin	Pin	Signal
Tx+	1	1	Tx+	Tx+	1	1	Rx+
Tx-	2	2	Tx-	Tx-	2	2	Tx+
Rx+	3	3	Rx+	Rx+	3	3	--

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--	4	4	--
--	5	5	--
Rx-	6	6	Rx-
-	7	7	-
-	8	8	-

--	4	4	--
--	5	5	--
Rx-	6	6	Tx-
-	7	7	-
-	8	8	-

A.4 Standard 10/100/1000 Base-T Ethernet Interface Connector

RJ45 jets provide 8P8C 10/100/1000 Base-T Ethernet interfaces. The interface supports MDI/MDIX auto-detection of either straight or crossover RJ45 cables. These cables are used on GE interfaces for subtending connection on Master and UP1, UP2/MGN port on Slave.
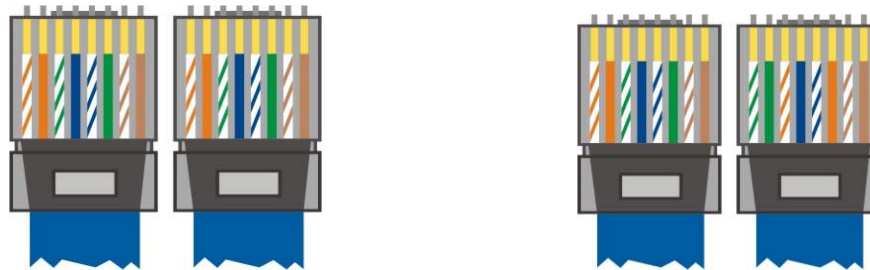
RJ-45 **Straight-through** Cable Pin-outs (8P8C)			
Signal	Pin	Pin	Signal
TP0+	1	1	TP0+
TP0-	2	2	TP0-
TP1+	3	3	TP1+
TP1-	4	4	TP1-
TP2+	5	5	TP2+
TP2-	6	6	TP2-
TP3+	7	7	TP3+
TP3-	8	8	TP3-

RJ-45 **Crossover** Cable Pin-outs (8P8C)			
Signal	Pin	Pin	Signal
TP0+	1	1	TP1+
TP0-	2	2	TP1-
TP1+	3	3	TP0+
TP1-	4	4	TP0-
TP2+	5	5	TP3+
TP2-	6	6	TP3-
TP3+	7	7	TP2+
TP3-	8	8	TP2-

A.5 Contacting Your Dealer

If the device you have still cannot work correctly after trying many efforts, please contact your dealer for further help right away.