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SHDTU-05is Ethernet Modem For DIN Rail Mounting

ADDSECURE SHDTU-05is Ethernet Modem For DIN Rail Mounting Owner's Manual

Contents

ADDSECURE SHDTU-05is Ethernet Modem For DIN Rail Mounting

Product Information

- The SHDTU-05is is a G.SHDSL.bis Ethernet modem manufactured by AddSecure GmbH.
- It is designed to provide high-speed Ethernet connectivity over G.SHDSL.bis technology.
- The modem supports star-connection and point-to-point configurations for network setup.

Product Usage Instructions

- Before using the modem, carefully read the safety instructions provided in the user manual.
- Refer to the user manual for detailed descriptions of the modem.
- Explore the various features of the modem to optimize its performance.
- Familiarize yourself with the specifications of the modem to understand its capabilities.
- Follow the instructions provided to set up star-connection or point-to-point configurations.
- The front panel of the modem contains LED indicators for status monitoring and LAN port for network connectivity.
- Monitor the status of the modem using the LED indicators for power, connectivity, and activity.
- Connect your network devices to the LAN port on the modem for data transmission.

Legal information

- The contents of this document are provided "as is". Except as required by applicable law, no warranties of any kind, either express or implied, including, but not limited to, the implied warranties of merchantability and fitness

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- Under no circumstances shall AddSecure be responsible for any loss of data or income or any special, incidental, and consequential or indirect damages howsoever caused.
- More information about AddSecure can be found at the following Internet address: **http://www.addsecure.de**

Safety

Before installation:

- Read this manual completely and gather all information on the unit. Make sure that you understand it fully. Check that your application does not exceed the safe operating specifications for this unit.
- This unit should only be installed by qualified personnel.
- This unit must be properly connected to the installation protective ground for safety and functional reasons.
- This unit should be built-in to an apparatus cabinet, or similar, where access is restricted to service personnel only.
- The power supply wiring must be sufficiently fused, and if necessary it must be possible to disconnect manually from the power supply. Ensure compliance to national installation regulations.
- This unit uses convection cooling. To avoid obstructing the airflow around the unit, follow the spacing recommendations.

Before mounting, using or removing this unit:
Prevent access to hazardous voltage by disconnecting the unit from the power supply.
Warning! Do not open connected unit. Hazardous voltage may occur within this unit when connected to the power supply.

Care recommendations

- Follow the care recommendations below to maintain full operation of the unit and to fulfil the warranty obligations.
- This unit must not be operating with removed covers or lids.
- Do not attempt to disassemble the unit. There are no user serviceable parts inside.
- Do not drop, knock or shake the unit, rough handling above the specification may cause damage to internal circuit boards.
- Do not use harsh chemicals, cleaning solvents or strong detergents to clean the unit.
- Do not paint the unit. Paint can clog the unit and prevent proper operation.
- Do not expose the unit to any kind of liquids (rain, beverages, etc). The unit is not waterproof.
- Keep the unit within the specified humidity levels.
- Do not use or store the unit in dusty, dirty areas, connectors as well as other mechanical parts may be damaged.
- If the unit is not working properly, contact the place of purchase, the nearest AddSecure distributor office or AddSecure Tech support.
- A readily accessible disconnect device shall be incorporated external to the equipment.
- This unit may have hot surfaces when used in high ambient temperature.

Introduction

Descriptions

SHDTU-05is G.SHDSL.bis Ethernet modem / VPN Router is a high performance 4-port Security Gateway providing Internet access and LAN-to-LAN application over existing copper line for small/medium office and industrial applications. Complying with the latest G.SHDSL.bis technology, ITU-T G.991.2 (2004) standard, SHDTU-05 is offering data transmission rates of 15,296 Mbps in 2-wire mode.

SHDTU-05is G.SHDSL.bis Ethernetmodem / VPN Router is integrated with high-end Bridging/Routing capabilities with advanced functions of Multi-DMZ, Virtual Server mapping and VPN pass-through. Because of rapid growth of the network, virtual LAN has become one of the major new areas in internetworking industry. ADDSECURE SHDTU-05 is support port-based VLAN and IEEE 802.1q VLAN over ATM/EFM network.

With always on connection that DSL features, SHDTU-05is a VPN routersthat provides advanced firewall with Stateful Packet Inspection (SPI) and Denial of Service (DoS) protection, serving as a powerful firewall to protect from outside intruders of secure connection. It also supports IP precedence to classify and prioritize types of IP traffic. In addition, its VPN feature supports data transmission over the Internet by data encryption/decryption between two sites. VPNs feature allows replacing a private leased line to minimize the expense among global inter-connection.

Not only the much higher bandwidth than conventional symmetric digital subscriber loop, SHDTU-05is also provides the network administrators with a tool of Quality of Service (QoS) to allocate network resources effectively. By classifying the priority of services, the functions of bandwidth management increase efficiency and productivity on specific demands such as VoIP, video streaming or video-conferencing to guarantee all the applications get the deserved service quality.

Features

- Easy configuration and management with password control for various application environments
- Efficient IP routing and transparent learning bridge to support Internet broadband services
- Virtual LANs (VLANs) offer significant benefits in terms of efficient use of bandwidth, flexibility, performance and security
- VPN for safeguarded connections
- Built-in advanced SPI firewall
- IP precedence to partition the traffic into multiple classes of service
- Four 10/100M Base-T Auto-sensing, Auto-negotiation and Auto-MDI/MDIX switching port for flexible local area network connectivity
- Fully ATM protocol stack implementation over SHDSL.bis
- PPPoA and PPPoE support user authentication with PAP/CHAP/MS-CHAP/MS-CHAPv2
- SNMP management with SNMPv1/v2c/v3 agent and MIB II

Specifications

WAN Port:

- SHDSL.bis: ITU-T G.991.2 (2004) Annex A/B/F/G supported
- Encoding scheme: TC-PAM 4/8/16/32/64/128
- Data Rate: N x 64kbps (N= 1 – 239, 64-30592 kbit/s)
- Impedance: 135 ohms

LAN Port:

- 1-Port 10/100 Base Tx

- Auto-negotiation for 10/100Base-TX and Half/Full Duplex
- Auto-MDIX

LED:

- Power (Green)
- WAN LINK/ACT(Green)
- LAN (Port 1~port 4) LINK/ACT (Green)
- ALARM (Red)

Bridging and VLAN:

- IEEE 802.1D Transparent Learning Bridge
- EEE 802.1Q and Port Based VLAN + Q in Q
- Spanning Tree Protocol (STP) (RSTP) (MSTP)
- Up to 2K MAC Address

Routing:

- Static routing and RIP v1/v2(RFC 1058/2453) + OSPF
- NAT/PAT (RFC1631)
- NAT Application Level Gateways
- Skype/MSN/Yahoo Messenger (RFC2933)
- VoIP(SIP) pass through
- VPN PPTP/L2TP pass through
- Virtual Server

Network Protocol:

- IPv4 (ARP/RARP, TCP/UDP,ICMP)
- DHCP Client/Server, Relay
- DNS Relay/Proxy, Dynamic DNS(DDNS)
- IGMP v1/v2/v3, IGMP Proxy, IGMP Snooping
- SNTP and UPnP

ATM:

- 12 PVCs
- OAM F4/F5 Loopback
- AAL5
- VC Multiplexing and SNAP/LLC
- Ethernet over ATM (RFC 2684/RFC1483)
- Multiple protocol over ATM AAL5(MPOA, REF1483/2684)
- PPP over ATM (RFC 2364)

- Classic IP over ATM (RFC 1577)
- QoS(UBR/CBR/VBR/VBR-RT)

EFM:

- Support EFM OAM complying IEEE 802.3a
- EFM bonding (IEEE 802.3ah PAF)
- PPP
- PPPoE
- PAP/CHAP/MS-CHAP/MS-CHAPv2
- Configurable timer to auto-reconnect,
- Configurable Idle times for timeout

QoS:

- 802.1P Tag
- IPv4 ToS/DiffServ
- CoS
- Class-based Prioritization
- Class-based Traffic Shaping
- Class-based DSCP Mark
- Up to 8 priority queues
- IP Precedence Alternation

VPN:

- Plug and Play
- IPSec (RFC2411) up to 4 Tunnels
- DES/3DES/AES
- MD5/SHA-1
- IKE/Manual Key
- ISAKMP (RFC 2407/2408/4306)
- IKE v1 (RFC 2409/4109)
- PSK
- L2TP/PPTP

Firewall:

- SPI (Stateful Packet Inspection)
- Intrusion Detection/DoS (Denial of Service)
- DMZ
- Content Filtering
- URL Blocking
- Packet Filtering/Access Control List (ACL)

Management:

- Web and Telnet management via LAN ports
- CLI via serial console port
- Support SSH (RFC4250/4251/4252/4253/4254/4255/4256)
- SNMP v1/v2c/v3 (RFC 1157/1901//1905)
- MIB II (RFC 1213/1493)
- Syslog with Remote Logging support
- Firmware Upgrade via TFTP
- Configuration Data Import/Export
- Multiple Levels of Administration Privilege
- Support TR-069 WAN management protocol
- Alarm Contacts for Power + WAN filature configurable WEB GUI
- Email

Physical / Electrical:

- Mechanical : IP20 industrial case for DIN rail mounting
- Dimensions: 4x 17.5 x 13.5 cm (WxHxD)
- Redundant 2x 12-72 VDC (10-75 VDC absolute)
- Power Consumption: <5 watts
- Temperature: -20 to +70ºC
- Humidity: 0% to 95%RH (non-condensing)

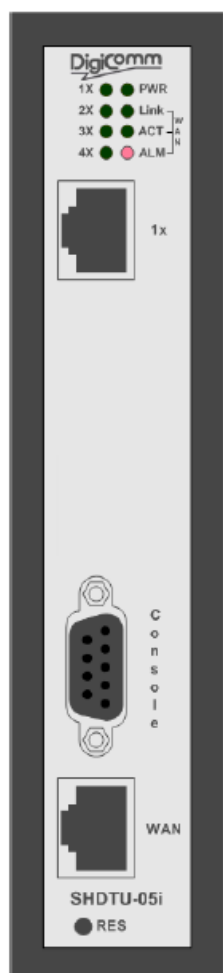## Connections

Star-connection Point-to-Point
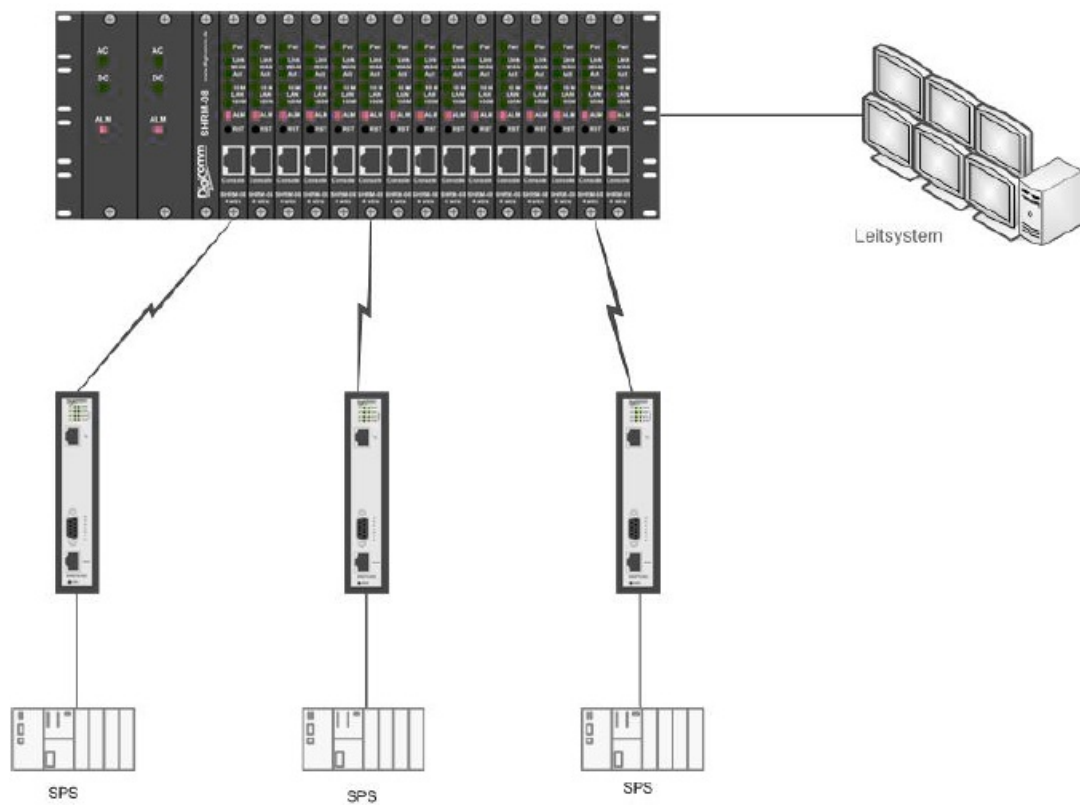
Details

Front Panel

| Connector	Description
Console	RJ-45 for system configuration and maintenance
WAN	RJ-45 for WAN connection
RES	Reset button for reboot or load factory default
LAN (1x)	10/100BaseT auto-sensing and auto-MDIX for LAN port (RJ-45)

LED indicators

LEDs		Active	Descripton
PWR		On	The power adaptor is connected to this divice
DSL	LINK	On	SHDSL.bis line connection is established
	ACT	Blink	SHDSL.bis line handshake Transmit or received data over SHDSL.bis link
LAN	1X	On	Ethernet cable is connected to LAN 1
		Blink	Transmit or received data over LAN 1
ALM		On	All SHDSL.bis line connections are dropped
		Off	No Alarm

LAN Port

- The VPN Router has one LAN port. The port is auto-negotiating and auto-crossover.
- In 10/100Mbps fast Ethernet, the speed can be 10Mbps or 100Mbps and the duplex mode can be half duplex or duplex.
- The auto-negotiating port can detect and adjust to the optimum Ethernet speed (10/100 Mbps) and duplex mode (full duplex or half duplex) of the connected device. The auto-crossover (auto-MDI/MDI-X) ports automatically works with a straight-through or crossover Ethernet cable.

WAN Port

- The VPN Router has one port for WAN port connection, this is a G.SHDSL.Bis interface. The pin assignments for SHDSL line cable are:
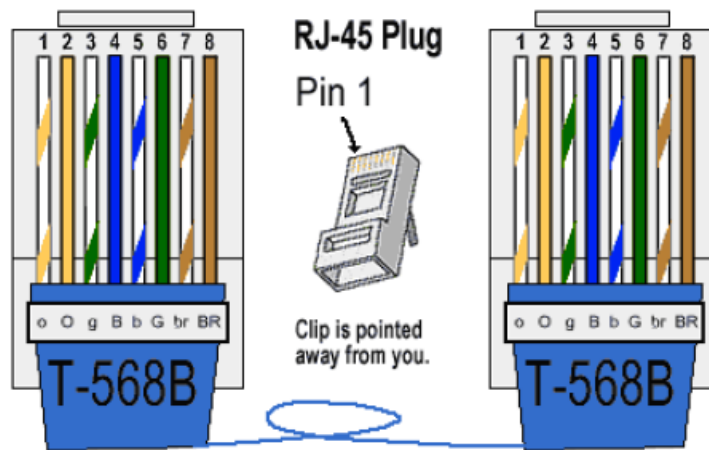
Top view

12345678
Front view
Loop 1 (4,5)
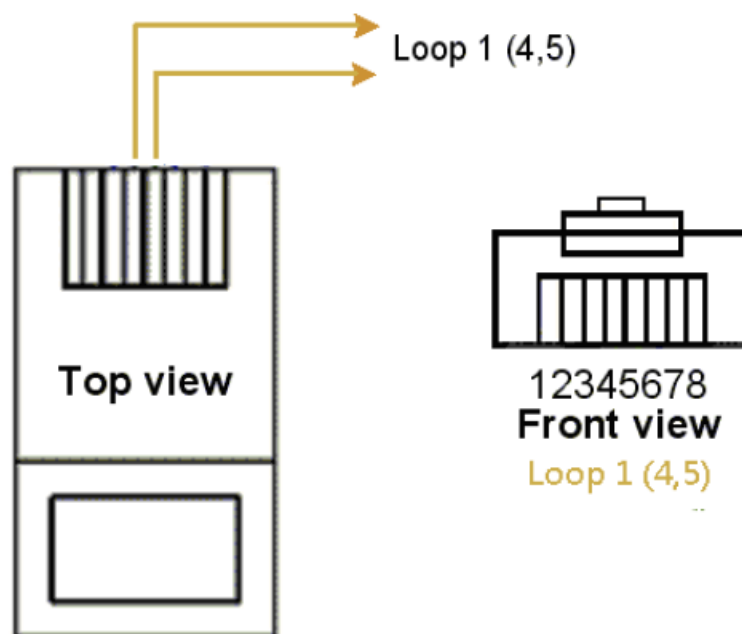
SHDTU-05is				
2-wire mode	Loop1 (4,5)			

- For test on point to point connection purpose, you can use the Straight-Through Ethernet Cable for SHDSL, bis link as the following.
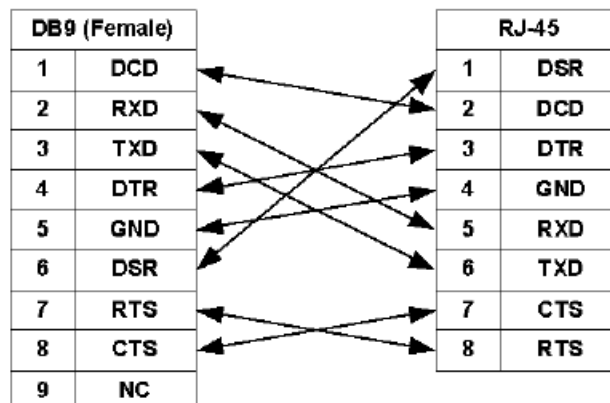
T-568A Straight-Through Ethernet Cable

T-568B Straight-Through Ethernet Cable

RJ-45 Plug
Pin 1

Clip is pointed away from you.
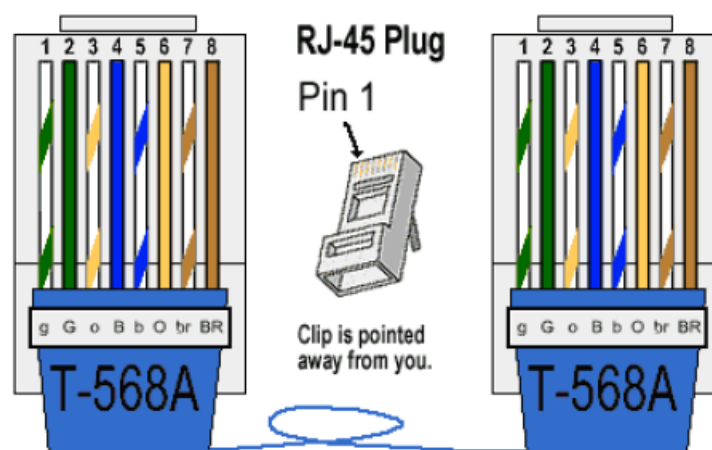
Console Port

- Connect the RJ-45 jack of the console cable to the console port of the VPN Router.
- Connect the DB-9 female end to a serial port (COM1, COM2 or other COM port) of your computer.
- The wiring diagram of the console cable is as follows

DB9 (Female)			RJ-45	
1	DCD		1	DSR
2	RXD		2	DCD
3	TXD		3	DTR
4	DTR		4	GND
5	GND		5	RXD
6	DSR		6	TXD
7	RTS		7	CTS
8	CTS		8	RTS
9	NC			

- The pin assignment of RJ-45 modular jack on the Console cable:

| Pin Number	Abbrev.	Description	Figure
1	DSR	DCE ready	
2	DCD	Received Line Signal Detector	
3	DTR	DTE ready	
4	GND	Signal Ground	
5	RXD	Received Data	
6	TXD	Transmitted Data	
7	CTS	Clear to Send	
8	RTS	Request to Send	

Reset button
The reset button can be used only in one of two ways.

1. Press the Reset Button for two seconds will cause the system to reboot.

2. Pressing the Reset Button for eight seconds will cause the product to load the factory default setting and lose all of your configuration. When you want to change its configuration but forget the user name or password, or if the product is having problems connecting to the Internet and you want to configure it again, clearing all configurations, press the Reset Button for eight seconds with a paper clip or sharp pencil.

Screw contacts
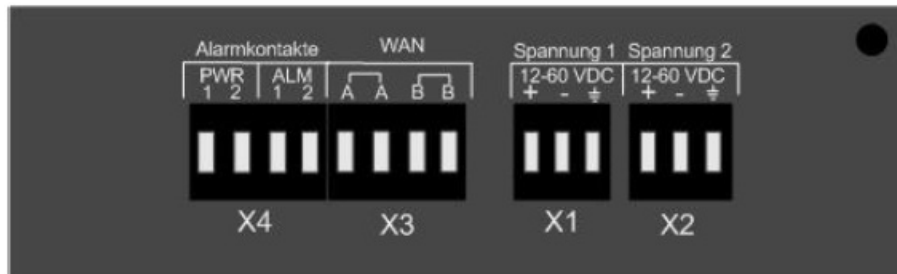
| Connector		Description
X1	**Voltage 1**	**12-72 VDC Screw contacts to Power Supply (10-75 VDC absolute)**
X2	**Voltage 2**	**12-72 VDC Screw contacts to Power Supply (10-75 VDC absolute)**
X3	**WAN A/B**	**Screw contacts for WAN 1/2 (channel A/B)**
X4	**Alarmsignal**	**Screw contacts for power and WAN failiture alarms** **PWR: Power Fault** **WAN: Line/DSC Fault (programmable)** **PWR Alarm contacts open when Power Fault WAN Alarm contacts close when Link Fault**

Power connection

- Connect the SHDTU-05is to a power source using the screw connectors at the bottom using current voltages from 12V to 72V DC
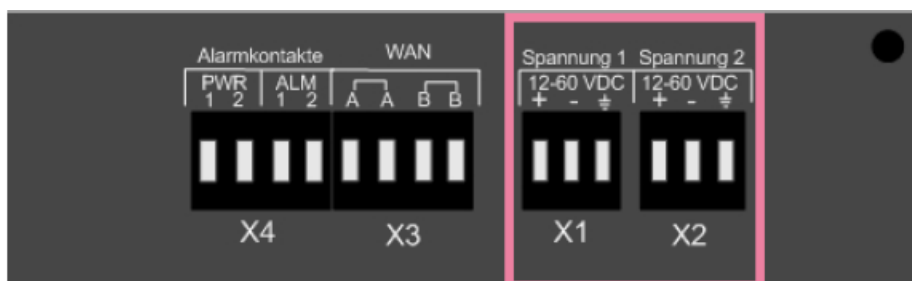
- This unit has a redundant power supply. This means i.e. you can have 24VDC on screw connector PWR-1 and 48VDC on PWR-2. If one of the power sources fails, the other one will immediately take over.

CAUTION: Providing the SHDTU-05is with a voltage higher than 75 VDC could result in damage to board components.
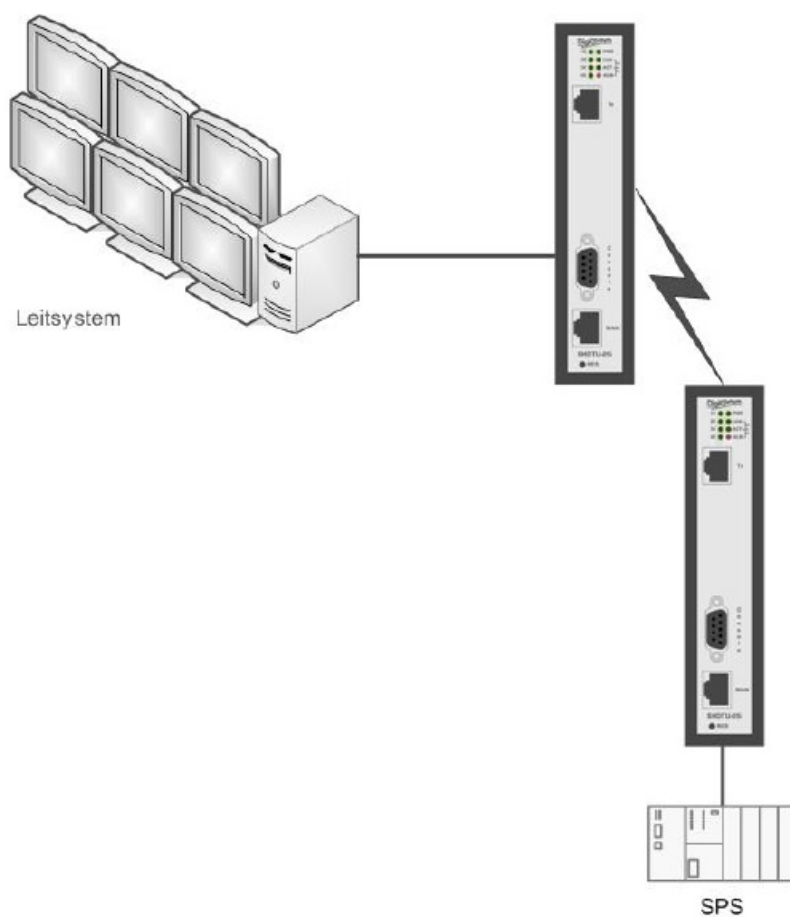
WAN-Port
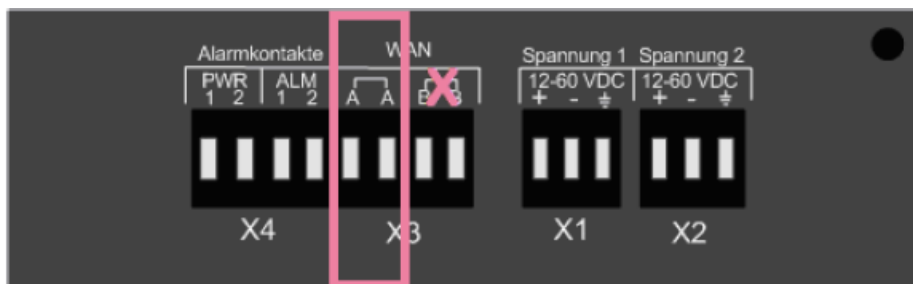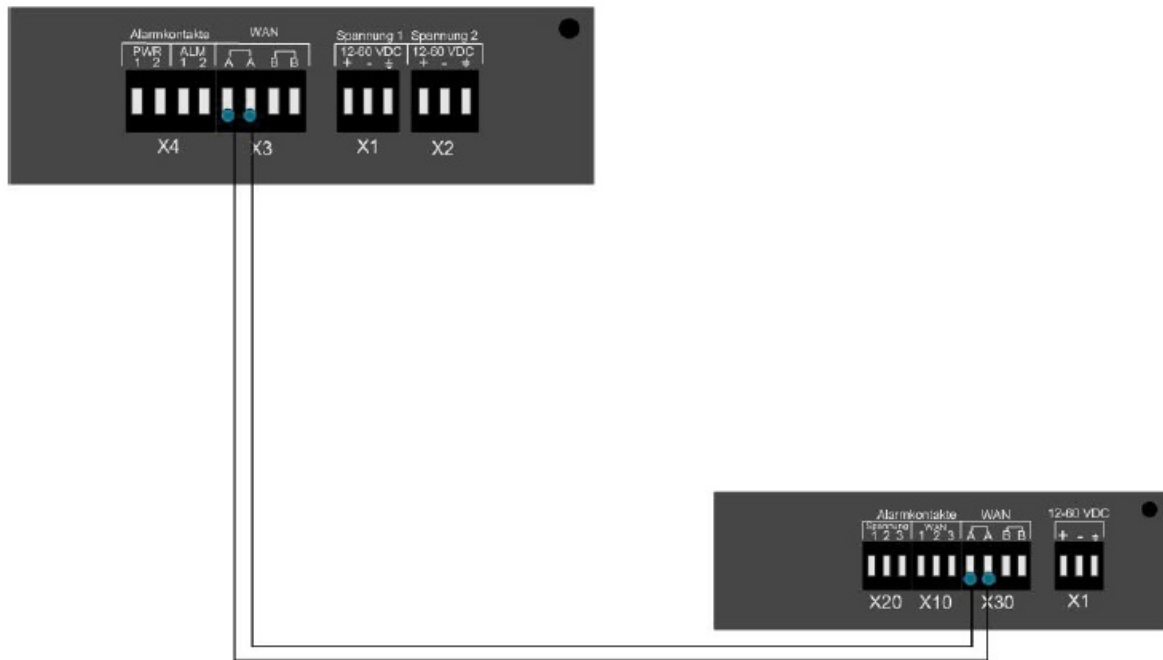

CAUTION: The WAN connectors B/B are not in use.
Point to point Application:

- This is an example for a link application, with SHDTU-05is as central and
- SHDTU-05is as remote station. The following pictures show you how to connect the SHDTUs. Note that Channel B is not available in two wire units.
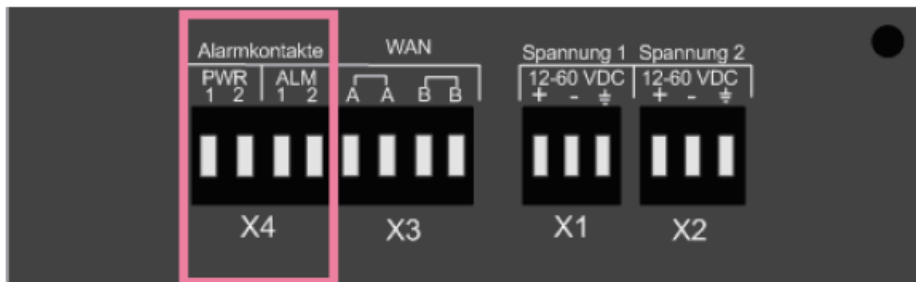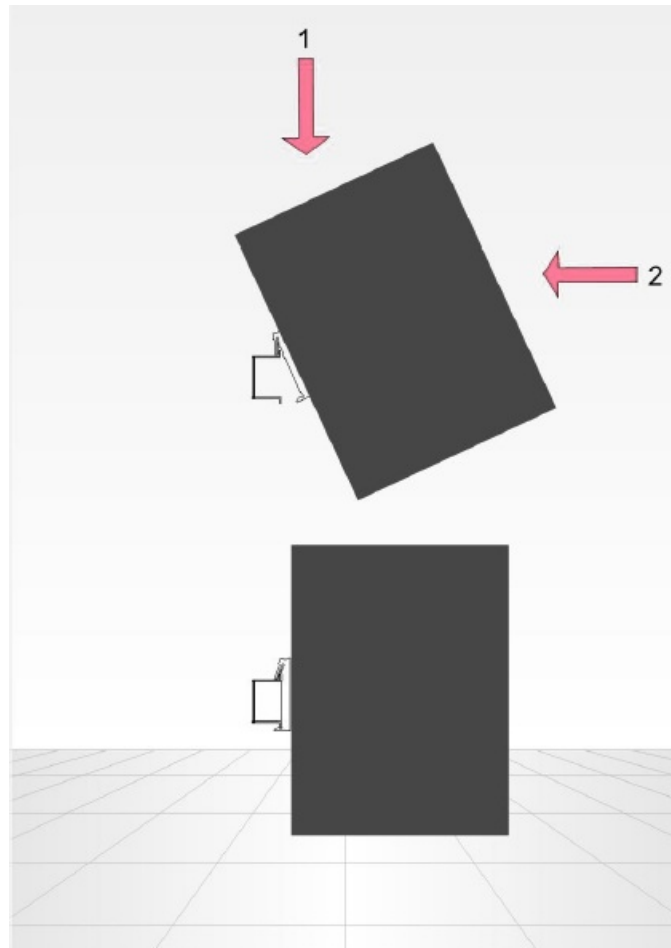
Network Map

Detail Map

Alarm

- The Alarm contacts are used by connecting an electric circuit to the screw connector if an alarm is engaged the power (PWR) alarm relays is opened and the WAN (ALM) relays is closed.
- **CAUTION:** Using the alarm relays contacts with more than the regular 30V DC and 2A could cause damage to the board components!

Assembly

- This unit should be mounted on 35 mm DIN-rail, which is horizontally mounted inside an apparatus cabinet, or similar. Snap on mounting, see figure. To cool this unit, convection cooling is used. To avoid obstructing the airflow around the unit, use the following spacing rules. Minimum spacing 25mm (1.0 inch) above / below and 10mm (0.4 inches)
- Left / right the unit. Spacing is recommended for the use of unit in full operating temperature range and service life.

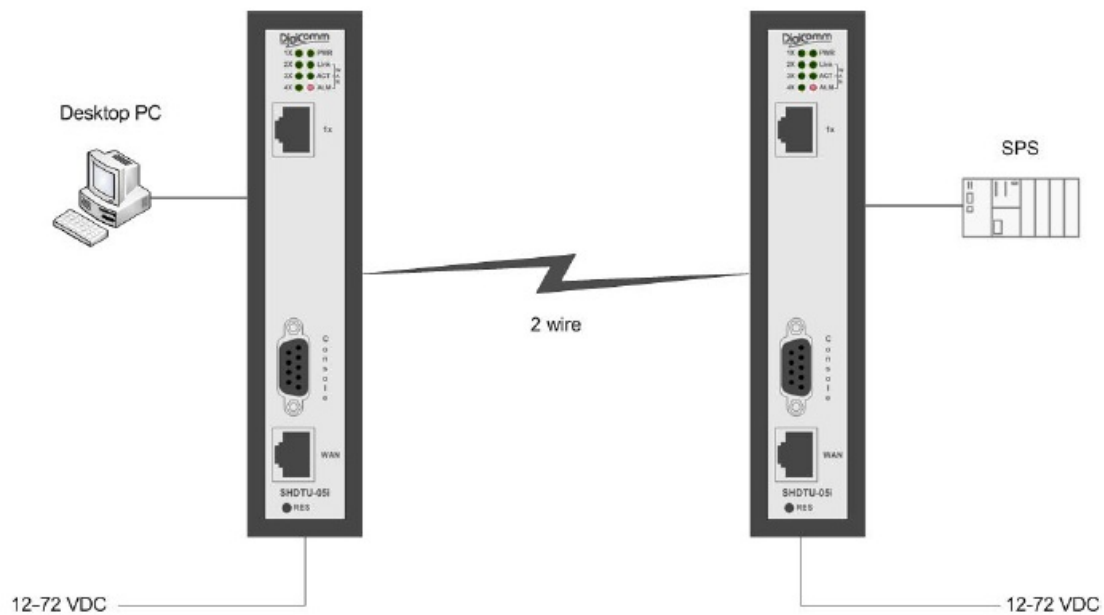## Configuration

Configuration methods

- There are three methods to configure the VPN Router: serial console, Telnet/SSH and Web Browser. Users have to choose one method to configure the VPN Router.

Preparation
The following guide is designed to lead users through Web Configuration of G.shdsl.bis VPN Router in the easiest and quickest way possible. Please follow the instructions carefully.

- Step 1. Connect the Ethernet cable to a LAN port.(Note: The VPN Router supports auto-MDIX switching hub so both straight through and cross-over Ethernet cables can be used.)
- Step 2. Connect the WAN cable to the VPN Router over adapter or screws.
- Step 3. Connect power over screws.
- Step 4. Turn on the PC or NB, which is used for configuration of the VPN Router.

To avoid possible damage to the VPN Router, DO NOT turn on this device before hardware installation.

Connection with VPN Router

Web configuration (HTTP / HTTPs)

- Make sure the Ethernet Adapter has been installed in PC or NB used for the configuration of the modem. TCP/IP protocol is necessary for web configuration, so please check the TCP/IP protocol it has been installed.
- The VPN Router provides a browser interface that allows you to configure and manage this device. After you set up your IP address for the VPN Router, you can access the VPN Router's Web interface applications directly in your browser by entering the IP address of the VPN Router. You can then use your Web browser to list and manage configuration parameters from PC.
- Web Configuration requires Internet Explorer 7.0 or later or equivalent and later versions. The recommended screen resolution is 1024 by 768 pixels.

Login via Web Browser
This section introduces the configuration and functions of the web-based management. It is an HTML-based management interface that allows users to setup and manage the AddSecure SHDTU-05is VPN routers. This configuration system offers all monitoring and management features which allow users to access VPN routers from anywhere on the network with a standard browser, such as, Internet Explorer or Firefox.

- Step 1. User can use any common browsers, such as, Internet Explorer, on your computer to connect the VPN Router. Then, please type "http://192.168.0.1" for Master or http://192.168.0.2 for Slave in the address bar of the browser.
- Step 2. The default IP address and subnet mask of the management port of VPN Router are "192.168.0.1" and "255.255.255.0".
- Step 3. Key in User name: "root"
- Password: "root" then, click on "Login" button to log in the web configuration.

- **Note:** Both the default user name and password are "root". It is suggested to change the user name and the password for security reasons.
- **Note:** For safety purposes, the password will be prompted as star symbols.
- **Note:** Once you change the user name and password, please login with the new user name and password in the next login process.

Serial Console configuration
The console port is an RJ-45 connector that enables a connection to a PC for monitoring and configuring the VPN Router. Use the supplied serial cable with a female DB-9 connector to the serial port of PC and RJ-45 module jack connector to VPN Router's console port. Start your terminal access program by a terminal emulation program or Hyper Terminal and configure its communication parameters to match the following default characteristics of the console port:

Parameter	Value
Baud Rate	115200
Data Bits	8
Parity Check	None
Stop Bits	1
Flow Control	None

- It will ask for user name and password in order to remote login when using telnet, please use "root" for username and "root" for password.

```
### module <dhcp> init
### module <route> init
### module <rip> init
### module <qos> init
### module <sntp> init
### module <snmp> init
### module <web> init
### module <ssh> init
### module <telnet> init
### module <upnp> init
### module <tr069> init
### module <ipsec> init
### module <l2tp> init
### module <pptp> init
### module <ppp> init
### module <shdslbis> init
### module <igmp> init
### module <ddns> init
### module <gsm> init

Welcome to VPN Router Configuration Tool
UserName : root
Password : ****
VPN#
```

Telnet / SSH configuration

The VPN Router also supports telnet or SSH for remote management. Please make sure the correct Ethernet cable is connected to the LAN ports of the device to your computer. The LAN indicator on the front panel shall light on if a correct cable is used. Start your telnet client with a command window or VT100 terminal emulation by key in "192.168.0.1" (Master) or "192.168.0.2" (Slave), which is the management IP address of SHDTU-05is VPN router, and wait for the login page to pop up. Then, key in the username and the password once the login page shows. The login page is shown as the following screen (The default user name and password are "root" and "root".)

- The default Telnet function is disabled. Therefore, before using this Telnet function, please enable Telnet using Web management.

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For further information regarding our products please visit us at **www.addsecure.de**

FAQ

- **Q: Where can I find more information about AddSecure products?**
  - **A:** Visit **www.addsecure.de** for further information about AddSecure products.

Documents / Resources

	ADDSECURE SHDTU-05is Ethernet Modem For DIN Rail Mounting [pdf] Owner's Manual SHDTU-05is, SHDTU-10is, SHDTU-05is Ethernet Modem For DIN Rail Mounting, SHDTU-05is, Ethernet Modem For DIN Rail Mounting, DIN Rail Mounting, Rail Mounting

References

- **AddSecure – Sichere IoT-Konnektivitätslösungen**
- **User Manual**