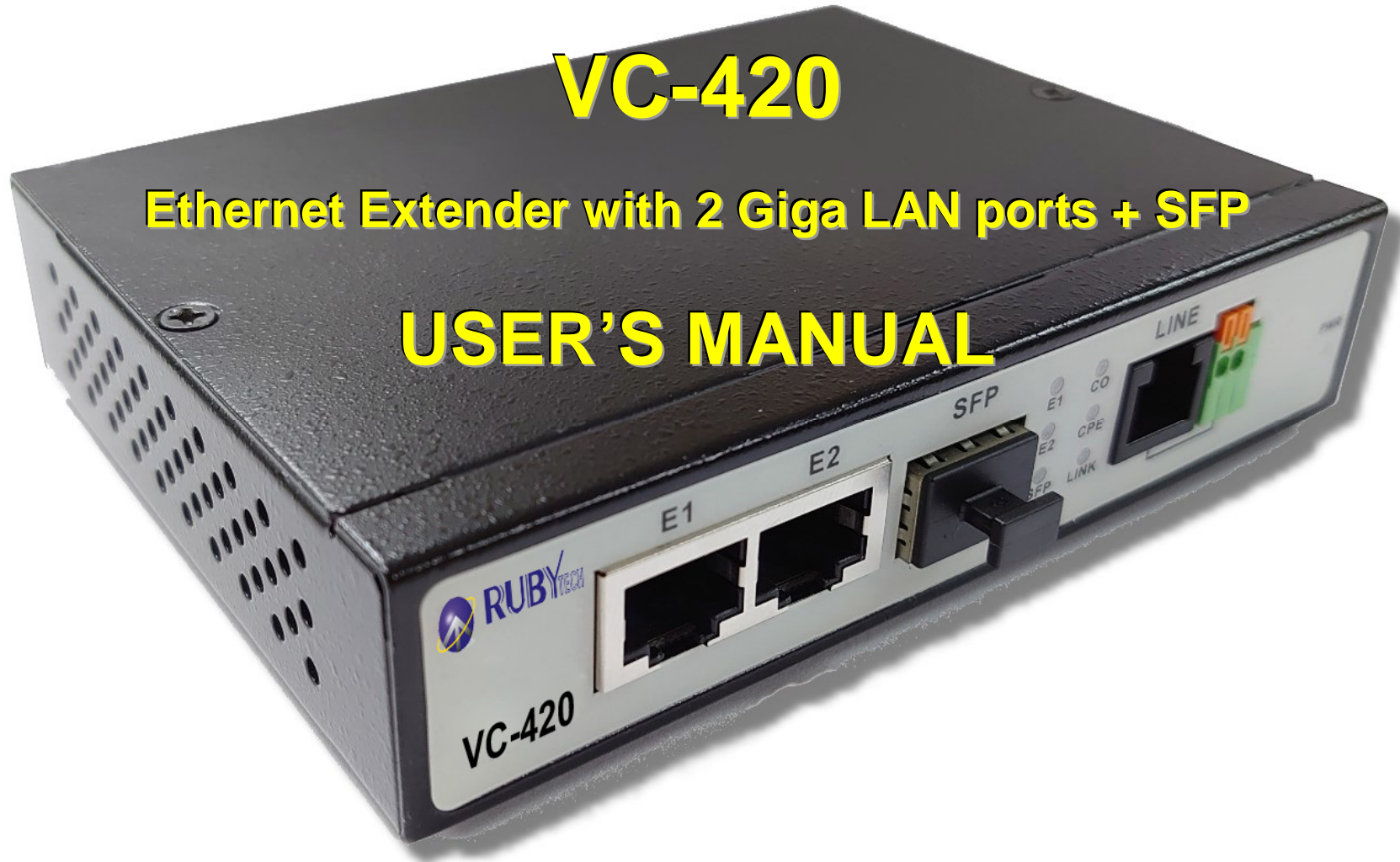


VC-420

Ethernet Extender with 2 Giga LAN ports + SFP

USER'S MANUAL



Copyright

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Legal Disclaimer

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics. With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, RubyTech Deutschland GmbH. hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

Statement of Conditions

In the interest of improving internal design, operational function, and/or reliability, RUBYTECH reserves the right to make changes to the products described in this document without notice. RUBYTECH does not assume any liability that may occur due to the use or application of the product(s) or circuit layout(s) described herein.

Maximum signal rate derived from IEEE Standard specifications. Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, and network overhead, lower actual data throughput rate. RUBYTECH does not warrant that the hardware will work properly in all environments and applications, and makes no warranty and representation, either implied or expressed, with respect to the quality, performance, merchantability, or fitness for a particular purpose. Make sure you follow in line with the environmental conditions to use this product.

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Foreword

The RUBYTECH' VC-420 is a VDSL2 CO/CPE bridge with 2 x 10/100/1000base-T LAN ports solution that's built for data transmission via 10/100/1000BASE-T Ethernet cable (UTP), line port by single twisted pair and 1.25G SFP slot. VC-420 supports CO/CPE mode selectable and bands profile selectable via DIP switch on rear panel of VC-420. VC-420 LAN port support auto-negotiation & auto-MDIX to set up the most stable & fastest connection between VC-420 and the devices that connected to it on Ethernet side.

VC-420 is specifically designed for FTTdp/FTTC network, and it supports both symmetrical and asymmetrical transmission at up to 160/160Mbps and 5/1Mbps at 3000 meters, which is a perfect solution to extend LAN to buildings, hotels, hospitals or any location outside of the 10/100/1000Base-T(Ethernet) or fiber optic.

Attention:

Be sure to read this manual carefully before using this product. Especially Legal Disclaimer, Statement of Conditions and Safety Warnings.

Caution:

The **VC-420** is for **indoor** applications only. This product does not have waterproof protection. Do not use in harsh environments (Over temperature range: 0°C ~ 50°C (32°F ~ 122°F)).

Safety Warnings

For your safety, be sure to read and follow all warning notices and instructions before using the device.

- ◆ **DO NOT** open the device or unit. Opening or removing covers can expose you to dangerous high voltage points or other risks. ONLY qualified service personnel can service the device. Please contact your vendor for further information.
- ◆ **Use ONLY** the dedicated power supply for your device. Connect the power cord or power adapter to the right supply voltage (110V AC used for North America and 230V AC used for Europe).
- ◆ **DO NOT** use the device if the power supply is damaged as it might cause electrocution. If the power supply is damaged, remove it from the power outlet. DO NOT attempt to repair the power supply. Contact your local vendor to order a new power supply.
- ◆ **Place** connecting cables carefully so that no one will step on them or stumble over them. DO NOT allow anything to rest on the power cord and do not locate the product where anyone can work on the power cord.
- ◆ **DO NOT** install nor use your device during a thunderstorm. There may be a remote risk of electric shock from lightning.
- ◆ **DO NOT** expose your device to dampness, dust or corrosive liquids.
- ◆ **DO NOT** use this product near water, for example, in a wet basement or near a swimming pool.
- ◆ **Connect ONLY** suitable accessories to the device. Make sure to connect the cables to the correct ports.
- ◆ **DO NOT** obstruct the device ventilation slots, as insufficient airflow may harm your device.
- ◆ **DO NOT** place items on the device.
- ◆ **DO NOT** use the device for outdoor applications, and make sure all the connections are indoors. There may be a remote risk of electric shock from lightning.
- ◆ **Be careful** when unplugging the power, because the transformer may be very hot.
- ◆ **Keep** the device and all its parts and accessories out of children's reach.
- ◆ **Clean** the device using a soft and dry cloth rather than liquid or atomizers. Power off the equipment before cleansing it.
- ◆ This product is **recyclable**. Dispose of it properly.

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Chapter 1. Unpacking Information

1.1 Check List

Carefully unpack the package and check its contents against the check list.

Package Contents:

			
1 x VC-420	Accessory: 1 x Ethernet Cable, 4 x Rubber Feet, 1 x DC12V Adapter		

Notes:

1. Please inform your dealer immediately for any missing or damaged parts. If possible, retain the carton including the original packing materials. Use them to repack the unit in case there is a need to return for repair.
2. If the product has any issue, please contact your local supplier.
3. Do not use sub-standard power supply. Before connecting the power supply to the device, be sure to check compliance with the specifications. The VC-420 uses a DC 12V/1A power supply.
4. The power supply included in the package is commercial-grade. Do not use in industrial-grade applications.
5. Please look for the QR code on the bottom of the product, the user can launch the QR code scanning program to scan and download the user's manual electronic format file. Above QR code icon is for reference.

Chapter 2. Installing the Device

2.1 Hardware Installation

This chapter describes how to install the bridge and establish the network connections. The **VC-420** may be installed on any level surface (e.g. a table or shelf or rail). However, please take note of the following minimum site requirements before one begin.

2.2 Pre-installation Requirements

Before you start the actual hardware installation, make sure you can provide the right operating environment, including power requirements, sufficient physical space, and proximity to other network devices that are to be connected.

Verify the following installation requirements:

- Power requirements: **DC 12V / 1A or above power supply.**
- The bridge should be located in a cool dry place, with at least **10cm/4in** of space at the front and back for ventilation.
- Place **VC-420** away from direct sunlight, heat sources, or areas with a high amount of electromagnetic interference.
- Check if the network cables and connectors needed for installation are available.
- Do not install phone lines strapped together with AC power lines, or telephone office line with voice signal.
- Avoid installing this device with radio amplifying station nearby or transformer station nearby.

2.3 General Rules

Before making any connections to the bridge, please note the following rules:

- **SFP Port**

All Fiber optical network connections to the SFP port must use Fiber 1.25G SFP transceiver.

Please note that SFP transceiver that you are using must be compatible to both side's device.

- **Ethernet Port (RJ-45)**

All network connections to the bridge Ethernet port must be made using Category 5e UTP/STP or above for 1000 Mbps, Category 5 UTP/STP for 100Mbps.

No more than 100 meters of cabling may be use between the MUX or HUB and an end node.

- **VDSL2 Port (RJ-11)**

All network connections to the RJ-11port must use **24~26** gauge with **twisted pair** phone wiring.

We **do not recommend** the use of the telephone line 28 gauge or above.

The RJ-11 connectors have six positions, two of which are wired. The device uses the center two pins. The pin out assignment for these connectors is presented below.

Please note that the line port is no polarity, therefore user can reverse the two wires of the phone cable when installed.

RJ-11 Pin out Assignments

Pin#	MNEMONIC	FUNCTION
1	NC	Unused
2	NC	Unused
3	DSL	Used

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4	DSL	Used
5	NC	Unused
6	NC	Unused_

• External Splitter installing

- VC-420 need install external splitter depend on PBX systems such as POTS/ISDN, when connecting with pone set and please make sure splitter which is compatible with local PBX system.

2.4 Connecting the Ethernet of RJ-45 Ports

VC-420 has two Ethernet ports which support connection to Ethernet operation. The devices attached to these ports must support auto-negotiation or 10Base-T, 100Base-T or 1000Base-T unless they will always operate at half duplex. Use any of the Ethernet ports to connect to devices such as Monitor system, Server, Switch, bridge or router.

2.5 Connecting the SFP Slot

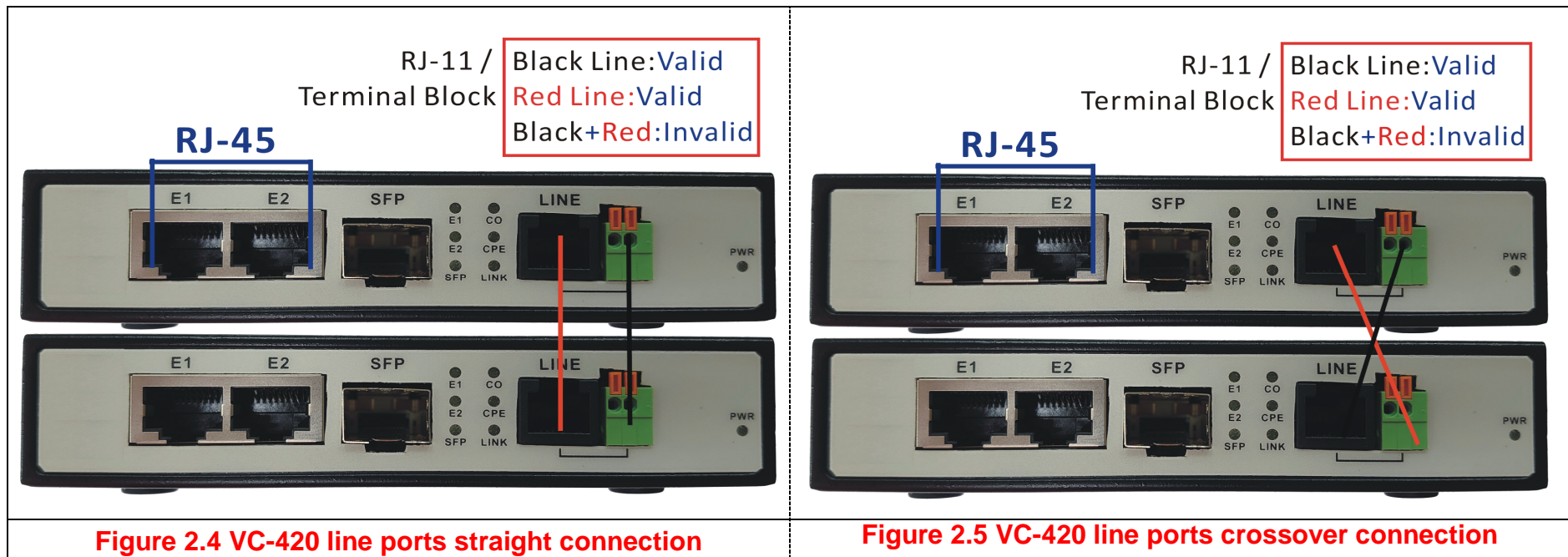
There are multiple types of SFP transceiver in market, please ensure the SFP transceiver is compatible to both side of device; otherwise, the connection can't set up.

2.6 Connecting the Line of RJ-11 Port

- ◆ The line port has 2 connectors: RJ-45 and terminal block. It is used to connect with VC-420(CO) using a single pair phone cable to VC-420(CPE) bridge side (point to point solution). Take note that VC-420 line port RJ-11 and terminal block cannot be used at the same time. Either RJ-11 port is connected or terminal block is connected using straight connection (Figure 2.4) or cross-over connection (Figure 2.5)



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- ◆ When inserting a RJ-11 plug, make sure the tab on the plug clicks into position to ensure that it is properly seated.
- ◆ **Do not** plug a RJ-11 phone jack connector into the Ethernet port (RJ-45 port). This may damage the bridge. Instead, use only twisted-pair cables with RJ-45 connectors that conform to Ethernet standard.

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Notes:

1. Be sure each twisted-pair cable (RJ-45 Ethernet cable) does not exceed 100 meters (333 feet).
2. We advise using Category 5~7 UTP/STP cables for Cable bridge or Bridge connections to avoid any confusion or inconvenience in the future when you attached to high bandwidth devices.
3. Line port use AWG**24 ~ 26** twisted pair phone wiring, we do not recommend 28 gauge or above.
4. The Slave device (CPE) must be connected to the Master device (CO) through the telephone wire. The Slave cannot be connected to another Slave, and the Master cannot be connected to another Master. Please confirm the **DIP switch status** before the link is established.

2.7 Application Diagram

Even though Fiber optic is a well developed technology, it still can't reach some places due to cost & physical limit. To extend Fiber optic service to region where Fiber optic infrastructure is not advanced, VC-420 will play an important role in such situation. With transmission at up to 160/160Mbps and 5/1Mbps at 3000 meters, VC-420 is suitable for FTTdp/FTTC network scenario, and is a perfect solution to extend LAN to buildings, hotels, hospitals, office, etc.

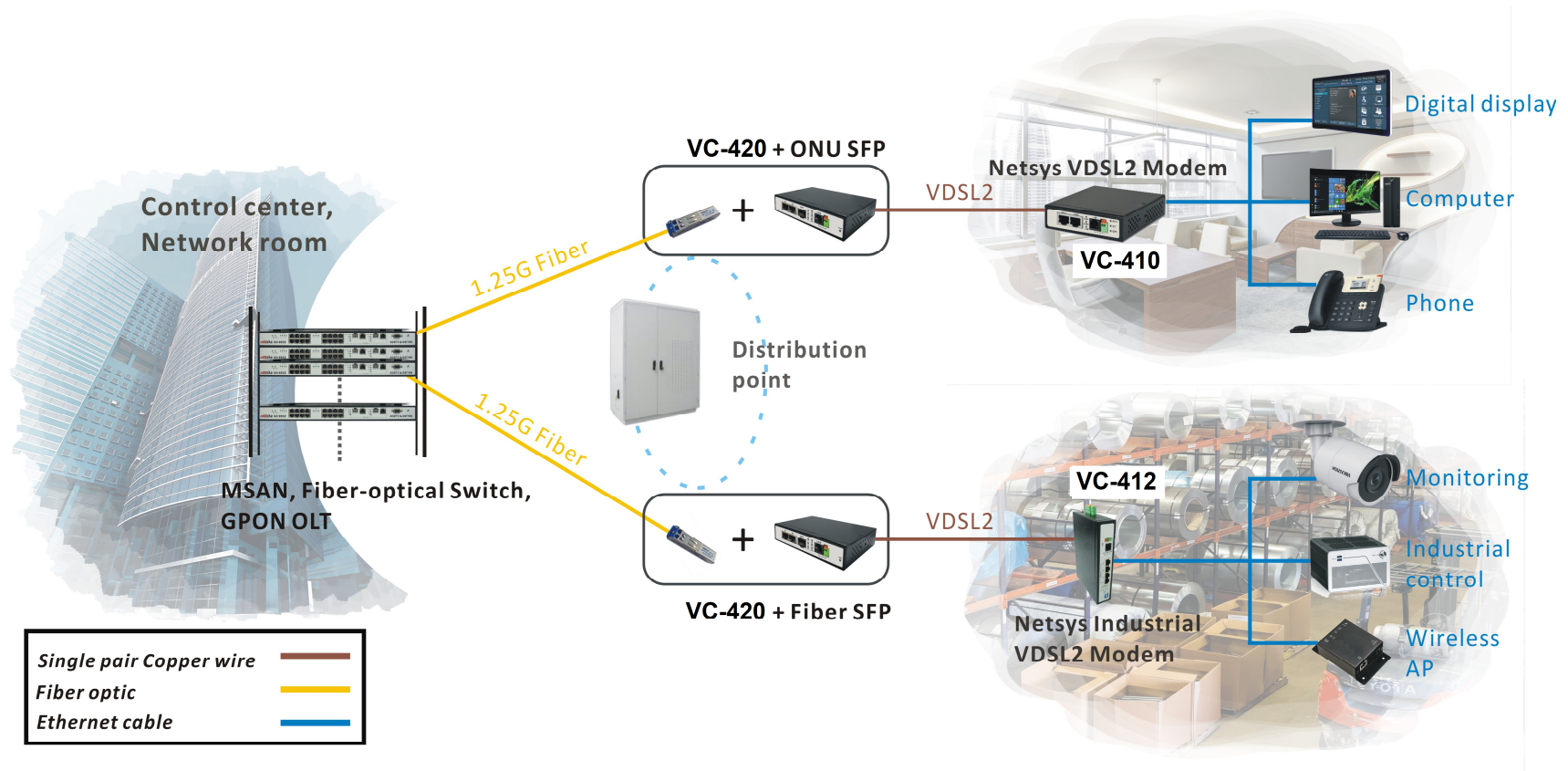


Figure 2.2 Application Diagram

Chapter 3. Hardware Description

This section describes the important parts of VC-420. It features the front panel and rear panel.

1. Front Panel: The front panel provides SFP Slot, RJ-45 Connector, RJ-11 connector and LED indicators of VC-420.

1-1. Front panel indicator : There are 7 LEDs indicators on front panel, the following Table shows the description.



Figure 2.1 Front Panel

Tip: With only a glance of the front panel's LED indicators, the converter status will be fully aware.

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Table 2-1 Description of the front interface

Port Name	Connector type	Description
E1 / E2	RJ-45	For connecting to a Networking device.
SFP	SFP slot	For small form-factor pluggable transceiver.
LINE	RJ-11	For connecting to VDSL2 device. (Do not use RJ11 and Terminal Block at the same time.)

Reminder: Please use SFP transceiver which is compatible to Fiber 1.25G SFP slot , otherwise, the connection cannot set up.

1-2. Rear Panel: The rear panel provides Power DC Jack, mode-switching table and Dip Switch.

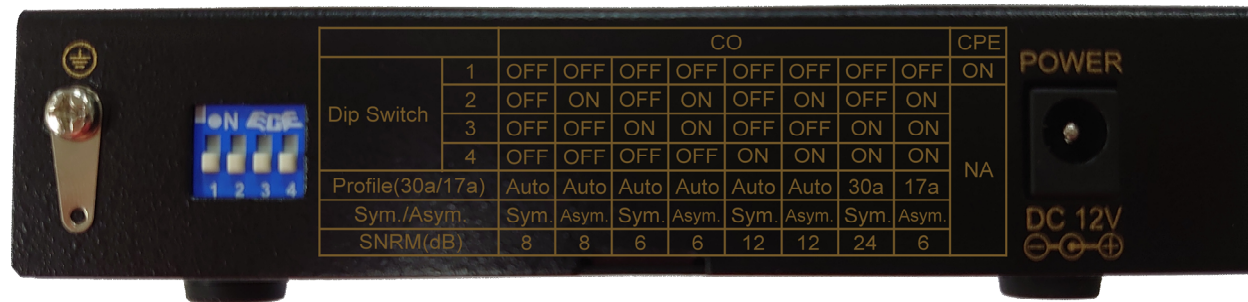


Figure 2.2 Rear Panel

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VDSL2 bands profile Config Overview

Below table clarify the settings of 9 different VDSL modes.

DIP Switch on rear panel				Config Mode	Description
PIN1	PIN2	PIN3	PIN4		
OFF	OFF	OFF	OFF	Sy-Auto I_8/2 (SNRM 8/8)	Symmetric Auto, Max. Interleave=8, Min.Inp=2, SNRM=8 (Default)
OFF	ON	OFF	OFF	NSy-Auto I_8/2 (SNRM 8/8)	non symmetric Auto, Max. Interleave=8, Min.Inp=2, SNRM=8
OFF	OFF	ON	OFF	Sy-Auto I_8/2 (SNRM 6/6)	Symmetric Auto, Max. Interleave=8, Min.Inp=2, SNRM=6
OFF	ON	ON	OFF	NSy-Auto I_8/2 (SNRM 6/6)	Non symmetric Auto, Max. Interleave=8, Min.Inp=2, SNRM=6
OFF	OFF	OFF	ON	Sy-Auto G.INP_17/2/41 (SNRM 12/12)	Symmetric Auto, enable G.INP, enable re-transmission, SNRM=12
OFF	ON	OFF	ON	NSy-Auto G.INP_17/2/41 (SNRM 12/12)	non symmetric Auto, enable G.INP, enable re-transmission, SNRM=12
OFF	OFF	ON	ON	Sy-30a-D2.2M G.INP_17/2/41 (Rate 20/20) (SNRM 24/24)	Symmetric 30a, disable 0~2.2MHz, enable G.INP, enable re-transmission, Max.Line rate=20Mbps, SNRM=24
OFF	ON	ON	ON	Annex-A-17a-eu32_I-8/2 (SNRM 6/6)	17A Annex A Eu32, Max. Interleave=8, Min. Inp=2, SNRM=6
ON	NA	NA	NA	CPE Mode	<u>Switching to Slave mode</u>

3.1 LED Indicators

The VC-420 has 7 LED indicators. The following Table shows the description. (Table 2-1)

Table 2-1 LED Indicators Description and Operation

LEDs	Color	Status	Description
PWR	Green	ON	Power Good
		OFF	Power OFF
E1/E2	Green	ON (Steady)	Ethernet port on Link status
		Blinking	Data transmission
		OFF	No Connection
CO	Green	ON	CO mode
CPE	Green	ON	CPE mode
SFP	Green	ON	SFP on Link Status
LINE	Green	ON (Steady)	Line port on Link status
		Blinking Fastly	1.Device has detected a Master / Slave device and ready to connect. 2.Data transmission
		Blinking Slowly	Device on handshaking status
		OFF	No connection

Remark: 1. Except for Fiber SFP transceiver, SFP LED indicator will light up right away when the SFP transceiver insert into SFP slot.

2. CO = Master / CPE =Slave

Appendix A: Cable Requirements

A.1 Ethernet Cable

A CAT 5~7 UTP (unshielded twisted pair) cable is typically used to connect the Ethernet device to the Modem. A: 10/100TX cable often consists of four pairs of wires, two of which are used for transmission. The connector at the end of the 10/100TX cable is referred to as a RJ-45 connector and it consists of eight pins. The Ethernet standard uses pins 1, 2, 3 and 6 for data transmission purposes. (Table A-1 10/100TX)

B: 1000TX cable often consists of four pairs of wires, all of which are used for transmission. The connector at the end of the 1000TX cable is referred to as a RJ-45 connector and it consists of eight pins. The Ethernet standard uses pins 1, 2, 3, 4, 5 and 6 for data transmission purposes. (Table A-1 1000TX)

Table A-1 RJ-45 Ethernet Connector Pin Assignments

PIN #	10/100TX		1000TX	
	Signal	Media Dependant interface	Signal	Media Dependant interface-cross
1	TX+	Transmit Data+	BI_DA+	Bi-directional pair A+
2	TX-	Transmit Data-	BI_DA-	Bi-directional pair A-
3	RX+	Receive Data+	BI_DB+	Bi-directional pair B+
4	NC	Unused	BI_DC+	Bi-directional pair C+
5	NC	Unused-	BI_DC-	Bi-directional pair C-
6	RX-	Receive Data-	BI_DB-	Bi-directional pair B-
7	NC	Unused	BI_DD+	Bi-directional pair D+
8	NC	Unused	BI_DD-	Bi-directional pair D-

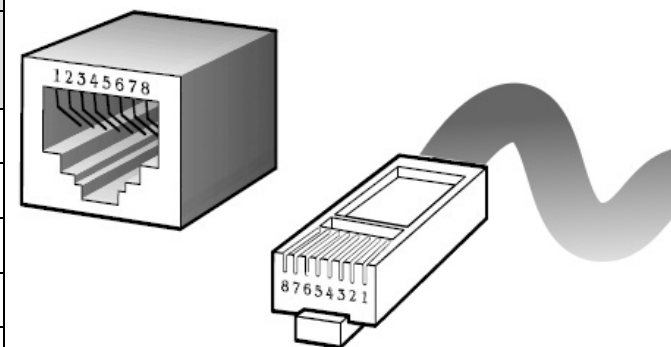


Figure A-1 Standard RJ-45 repectacle/connector

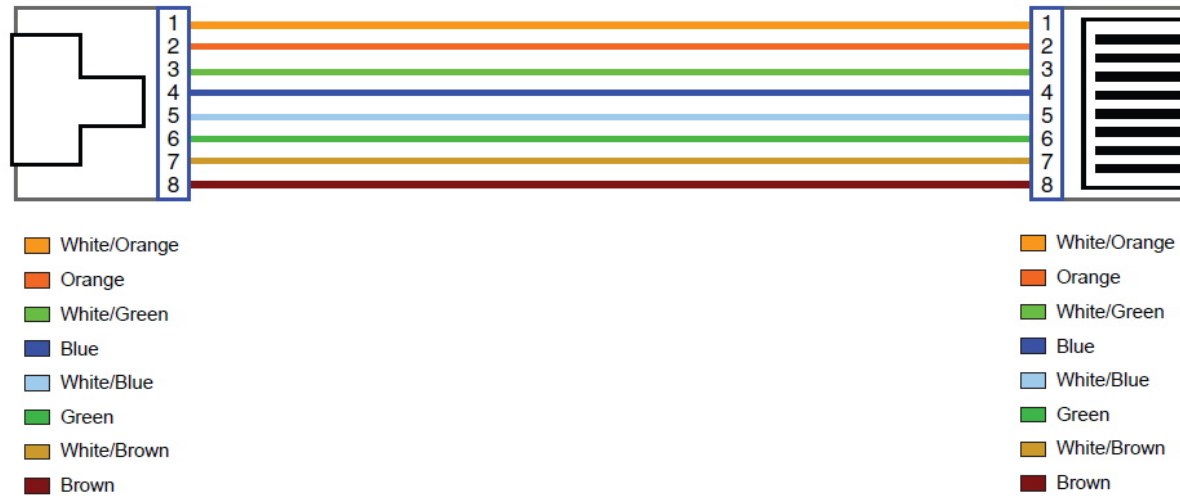


Figure A-2 Pin Assignments and Wiring for an RJ-45 Straight-Through Cable

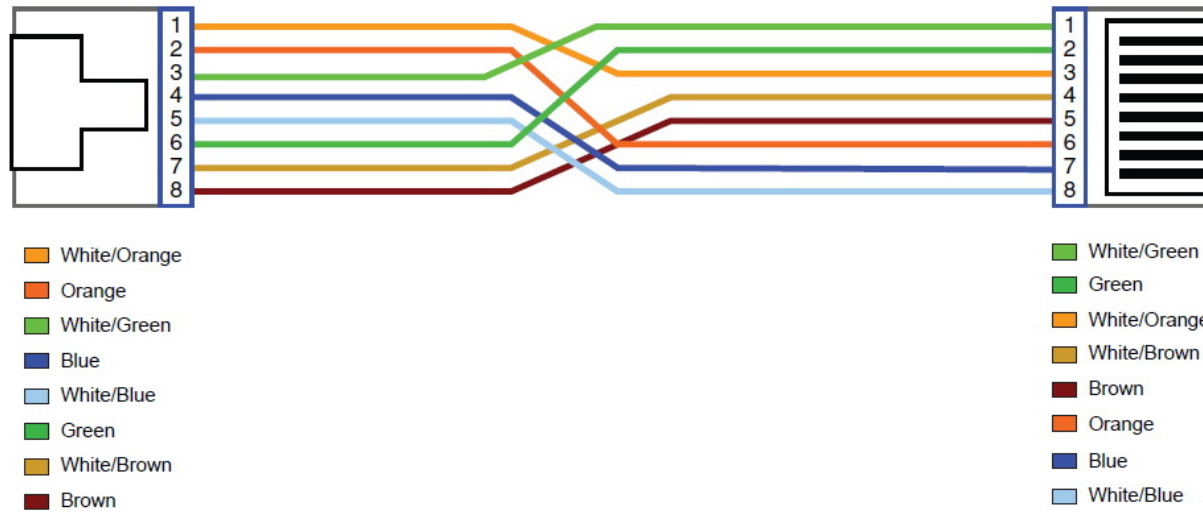


Figure A-3 Pin Assignments and Wiring for an RJ-45 Crossover Cable

Appendix B: Product Specification

Key Features and Benefits:

- ◆ Comply with IEEE802.3/802.3u/802.3ab standards
- ◆ Comply with ITU-T G.993.2 VDSL2 standard
- ◆ Supports 2 x 10/100/1000TX & auto –MDIX for RJ-45 port
- ◆ Supports 1 x 1.25G SFP Slot
- ◆ Cost effective Copper/Fiber to VDSL2 bridge function for FTTP/FTTC application
- ◆ Up to 160/160Mbps high bandwidth
- ◆ Maximum distance up to @ 3km (9842ft)
- ◆ Selectable CO and CPE mode via DIP switch
- ◆ Selectable G.inp mode
- ◆ Selectable 8 bands profile
- ◆ Supports both UPBO & DPBO
- ◆ Supports DIN-Rail / Bracket (Optional) installation
- ◆ Compact in size, easy installation
- ◆ Plug & Play
- ◆ Flexible application & installation
- ◆ Line port built in surge protector

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Specifications:

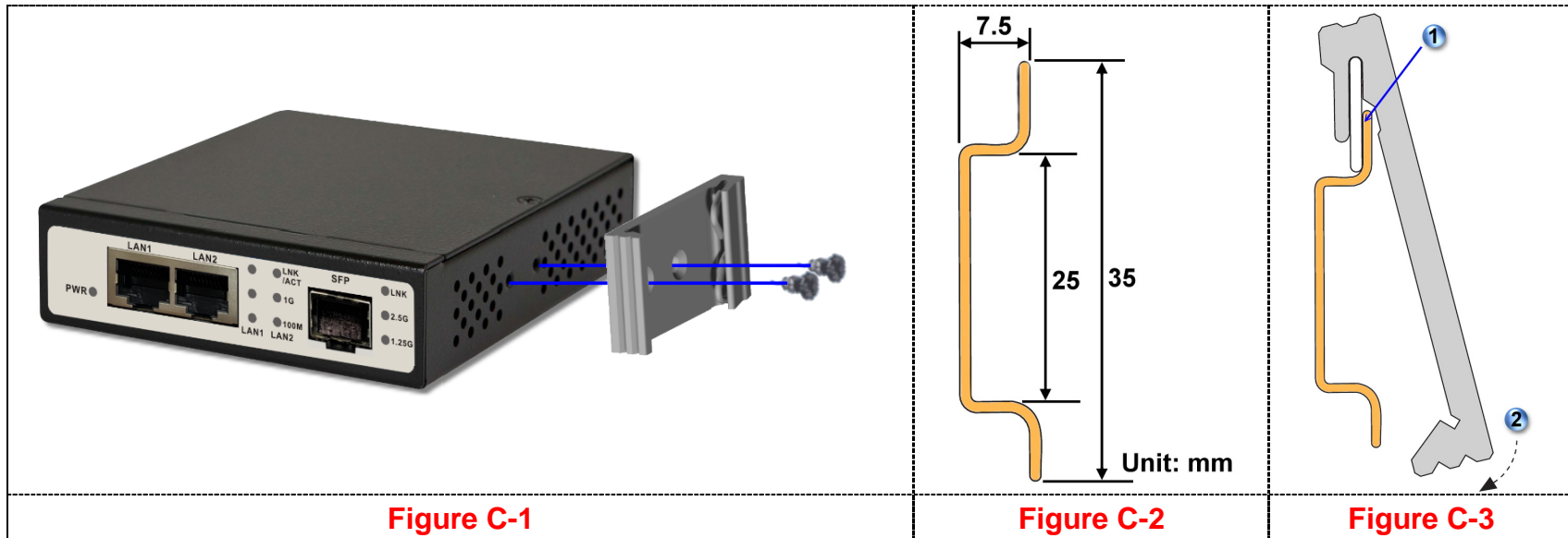
Item	Description
Protocol and Standards :	IEEE 802.3u / IEEE802.3ab / IEEE802.3z
Cabling requirements:	Ethernet: 1000Base-T Cat.5 or above UTP Cable Fiber Optic: 1000Base-X Flexible (Depending on Fiber Transceiver)
Modes :	VDSL2 CO mode X 8 + CPE mode
Interface :	2 x RJ-45, 1 x RJ-11, 1 x SFP slot, 1 x DIP switch, 1 x DC power jack
LED Indication :	PWR Link / Act Speed
Certification :	CE, FCC, RoHS Compliant
Temperature :	0°C ~ 50°C (32°F ~ 122°F) (Operating) -20°C ~ 70°C (-4°F ~ 158°F) (Storage)
Optional accessories :	1. Din Rail mounting plate 2. Bracket
Humidity :	10 - 90% (non-condensing)
Weight :	0.3Kg
Dimensions :	95mm x 110mm x 27mm (3.74" x 4.33"x 1.06')
Power Consumption :	3W Typical
Power Adapter :	Input : AC 100~240 volts/50~60Hz Output : DC 12V/1A

Appendix C: DIN-Rail mount installation

This appendix describes how to install the DIN-Rail to the bridged. The accessory is optional.

◆ Please refer to install the DIN-RAIL as following step:

1. Install the DIN-Rail mounting plate to the VC-420. (Figure C-1)
2. Please use the suitable DIN-Rail to install, please refer to the dimensions of the DIN-Rail.(Figure C-2)
3. Insert the top of the DIN-Rail into the top slots on the DIN-Rail mounting plate and the DIN-Rail mounting plate will snap into place. (Figure C-3)



Appendix D: Troubleshooting

Diagnosing Bridge's Indicators

The Bridge can be easily monitored through its comprehensive panel indicators. These indicators assist in identifying problems the Media Converter may encounter. This section describes common problems you may encounter and possible solutions:

1. Symptom:	POWER indicator does not light up (green) after power on.
Cause:	Defective External power supply
Solution:	Check the power plug by plugging in another that is functioning properly. Check the power cord with another device. If these measures fail to resolve the problem, have the unit power supply replaced by a qualified distributor.
2. Symptom:	Link indicator does not light up (green) after making a connection.
Cause:	Network interface (ex. a network adapter card on the attached device), network cable, or switch port is defective.
Solution:	<ul style="list-style-type: none">◆ Verify if both of the VC-420 (all devices) and attached device are powered on.◆ Be sure the Ethernet cable and fiber optics are plugged into both the switch and corresponding device.◆ Verify that the proper cable type is used and its length does not exceed specified limits.◆ Check the Adapter on the attached device and cable connections for possible defects.◆ Replace the defective Adapter or cable if necessary.◆ Verify CO/CPE Mode setting is correctly and repower after DIP switch setting

System Diagnostics

Power and Cooling Problems

If the POWER indicator does not turn on when the power cord is plugged in, you may have a problem with the power outlet, power cord, or internal power supply. However, if the unit power is off after running for a while, check for loose power connections, power losses or surges at the power outlet. If you still cannot isolate the problem, then the internal power supply may be defective. In this case, please contact your local dealer.

Installation

Verify that all system components have been properly installed. If one or more components appear to be malfunctioning (e.g. the power cord or network cabling), test them in an alternate environment where you are sure that all the other components are functioning properly.

Transmission Mode

The default of transmission mode for RJ-45 ports is 10/100/1000 Mbps Ethernet, **SFP port is 1.25Gbps (1000Base-X), and for RJ-11 port is 100Mbps xDSL**. Therefore, if the Link signal is disrupted (e.g. by unplugging the network cable and plugging it back in again, or by resetting the power), the port will try to **re-establish connection** with the attached device via auto-negotiation.

Physical Configuration

If problems occur after altering the network configuration, restore the original connections, and try to track the problem down by implementing the new changes, one step at a time. Ensure that cable distances and other physical aspects of the installation do not exceed recommendations.

System Integrity

As a last resort verify the switch integrity with a power-on reset. Turn the power to the switch off and then on several times. If the problem still persists and you have completed all the preceding diagnoses, then contact your dealer.

Appendix E: Compliance and Safety Information

FCC Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a computing device, pursuant to Part 15 of FCC class A rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generate, 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 or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. The equipment and the receiver should be connected to outlets on separate circuits.
4. Consult the dealer or an experienced radio/television technician for help.

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Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

If this telephone equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the proper functioning of your equipment. If they do, you will be notified in advance in order for you to make necessary modifications to maintain uninterrupted service.

This equipment may not be used on coin service provided by the telephone company. Connection to party lines is subject to state tariffs.

Important Safety Instructions

- ◆ **Caution:** The direct plug-in wall transformer serves as the main product for disconnecting. The socket outlet shall be installed near the product and be readily accessible.
- ◆ **Caution:** Use only the power supply included with this product. In the event the power supply is lost or damaged: In the United States, use only with CSA certified or UL listed Class 2 power supply, rated **12VDC 1A** or above.
IN Europe, use only with CE certified power supply, rated **12VDC 1A** or above.
- ◆ **Do not** use this equipment near water, for example in a wet basement.
- ◆ **Avoid** using a telephone during an electrical storm. There may be a remote risk of electrical shock from lightning.
- ◆ **Do not** use the telephone to report a gas leak in the vicinity of the leaking area.

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- ◆ If you experience trouble with this unit, please contact customer service of your dealer immediately.
- ◆ **DO NOT DISASSEMBLE THIS EQUIPMENT.** It does not contain any user serviceable components.

FCC Warning



This equipment has been tested 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 can generate, use, and 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 owner's expense.

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.

RoHS Mark Warning



RoHS stands for Restriction of Hazardous Substances, and impacts the entire electronics industry and many electrical products as well. The original RoHS, also known as Directive 2002/95/EC, originated in the European Union in 2002 and restricts the use of six hazardous materials found in electrical and electronic products. All applicable products in the EU market since July 1, 2006 must pass RoHS compliance. Directive 2011/65/EU was published in 2011 by the EU, which is known as RoHS-Recast or RoHS 2. RoHS 2 includes a **CE-marking directive**, with RoHS compliance now being required for CE marking of products. RoHS 2 also added Categories 8 and 9, and has additional compliance recordkeeping requirements. Directive 2015/863 was published in 2015 by the EU, which is known as RoHS 3. RoHS 3 adds four additional restricted substances (phthalates) to the list of six.

WEEE Warning



To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

Warranty

The original owner that the product delivered in this package will be free from defects in material and workmanship for one year parts after purchase.

There will be a minimal charge to replace consumable components, such as fuses, power transformers, and mechanical cooling devices. The warranty will not apply to any products which have been subjected to any misuse, neglect or accidental damage, or which contain defects which are in any way attributable to improper installation or to alteration or repairs made or performed by any person not under control of the original owner.

The above warranty is in lieu of any other warranty, whether express, implied, or statutory, including but not limited to any warranty of merchantability, fitness for a particular purpose, or any warranty arising out of any proposal, specification, or sample. We shall not be liable for incidental or consequential damages. We neither assume nor authorize any person to assume for it any other liability.

WARNING
Warranty Void
If Removed

WARNING:

- 1. DO NOT TEAR OFF OR REMOVE THE WARRANTY STICKER AS SHOWN, OR THE WARRANTY IS VOID.**
- 2. WARRANTY VOID IF USE COMMERCIAL-GRADE POWER SUPPLY IS USED AT HARSH ENVIRONMENTS.**