ALPHA TELECOM
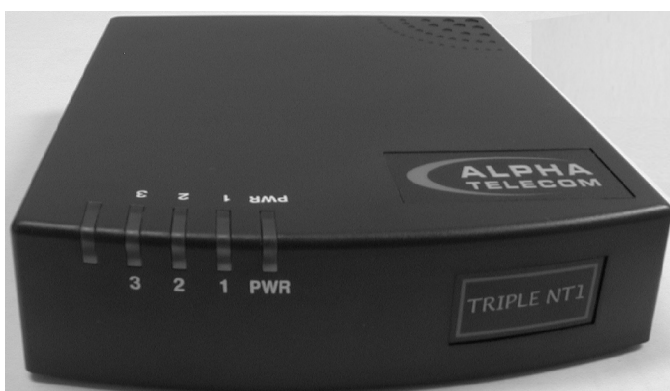
UT3620 Triple NT1

Installation Guide

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Revision 1.03
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Information in this guide is subject
to change without notification.

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Important Safety Instructions

If you experience technical difficulty with the UT3620 please contact Alpha Telecom at 408-895-1806 or support@alpha-tele.com for technical support.

Never install telephone wiring during a lightning storm.

Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.

Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.

Use caution when installing or modifying telephone lines.

Do not use this product near water, for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement or near a swimming pool.

Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.

Do not use the telephone to report a gas leak in the vicinity of the leak.

Use only the power supply indicated in this manual.

Caution - For continued protection against risk of fire, replace only with same type rating of fuse "F3, F6, F9 and F12", 125V, 1.0A, located on printed wiring board.

The registration jack USOC, Facility Interface codes, and Service order codes are as follows: USOC, RJ49C; FIC, 02IS5; SOC, 6.0N.

SAVE THESE INSTRUCTIONS

Introduction

The Alpha Telecom UT3620 Triple NT1 is a compact, versatile, and affordable Network Termination 1 (NT1) device for connecting Terminal Equipment (TE) to the Integrated Services Digital Network (ISDN).

This installation guide describes how to install the UT3620 for use with Video Conferencing Equipment and ISDN Telephones.

Package Contents

One UT3620 Triple NT1
Three RJ-45 to RJ-45 cables
Three RJ-11 to RJ-45 hybrid cables
Six wire ties for cable management
One power supply (16Watt or 40Watt)
Manual
Warranty Card
Wall-Mounting Kit

Front Panel

Figure 1 shows the UT3620 in perspective view to show all of the LEDs and labels. There is a position for an extra LED at the far left which is not used in this model. There are four LEDs in the front panel of the UT3620. Each of the first three LEDs from the left indicates the status of the labeled interface. The last LED indicates the power status of the UT3620.
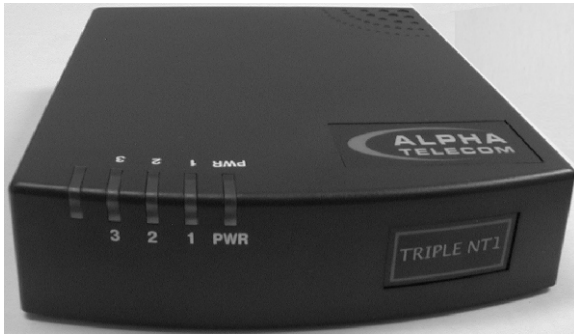
Figure 1. UT3620 Perspective View

Rear Panel

The UT3620 rear panel shown in **Figure 2** has nine RJ-45 connectors: three U-Interfaces and six S/T-Interfaces from left to right. It also has a barrel type power connector and a wire clip.
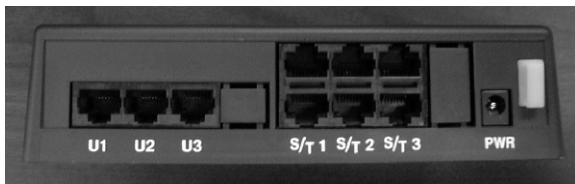
Figure 2. UT3620 Rear Panel

Wiring Instructions

Figure 3 shows the wiring diagram of the UT3620 with the ISDN TE and the ISDN U-Interface. Specific step-by-step instructions follow.
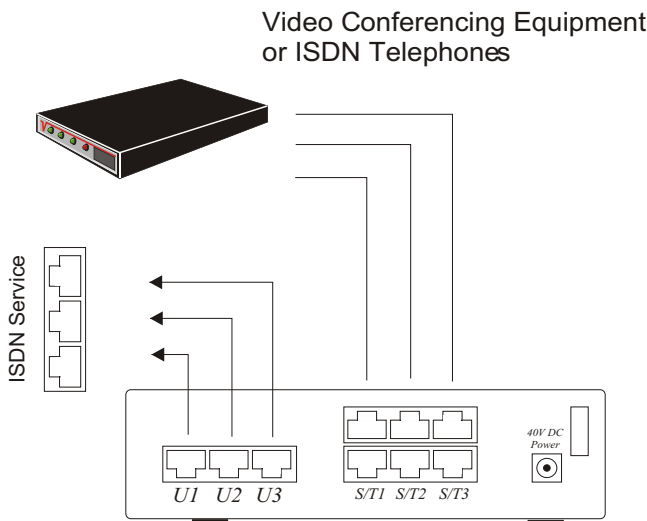
Figure 3. Interface Wiring Diagram

Step 1: Adjust the DIP Switches on the bottom of the UT3620 for the desired S/T Bus Configuration. Please refer to Appendix A: DIP Switch Positions, Page 7, and Appendix B: S/T Bus Configuration, Page 8, for details.

The manufacturer's default DIP Switch configuration will work for a majority of installations. Adjustments should only be made if the configuration is an exception as mentioned in the Appendix B.

Step 2: Connect the DC power plug of the power supply to the power connector on the rear of the UT3620 as shown in **Figure 4**. Place the power cable into the wire clip to secure it.
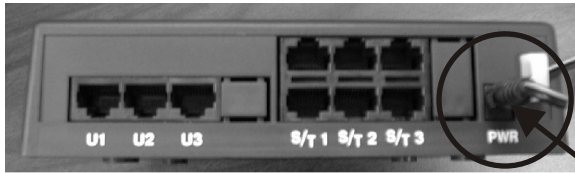
Figure 4. Power Connector

Plug the power supply into an AC power outlet. The Power LED will illuminate green and stay solid indicating the UT3620 has power. The Line Status LEDs will flash green once to indicate each interface is receiving power.

If any of the LEDs do not illuminate appropriately, repeat this step to verify all connections are secured. If the symptom persists, contact technical support for assistance.

Step 3: Connect the RJ-45 end of the hybrid cable provided to the U-Interface connector on the UT3620 as in **Figure 5**, then connect the RJ-11 end of the hybrid cable to the U-Interface outlet.

Figure 5. U-Interface Connector

The Line Status LED will flash green eight times per second while synchronizing with the ISDN line, then once per second to indicate the U-Interface has synchronized. Repeat this step for the remaining U-Interfaces.

If the LED does not flash at all, or does not slow to once per second, there could be a problem with the ISDN line. To verify the ISDN line, try a different U-Interface port, preferably one that is known to work. If the ISDN Line in question fails on the working port, try verifying the cable has connected solidly or try an RJ-45 to RJ-45 cable.

An alternative test is to plug a known working ISDN Line into the U-Interface port that is in question. If the working ISDN Line works on the U-Interface port in question, then try the steps above for verifying the ISDN Line in question.

If the U-Interface port fails with the known good ISDN Line, or the ISDN Line works on another port, contact technical support.

Step 4: Connect one end of the RJ-45 to RJ-45 cable provided to one of the S/T connectors on the UT3620. Connect the other end to the TE. This is illustrated in **Figure 6** on the next page.

The Line Status LED will illuminate solid green indicating that the TE has synchronized with the ISDN line. Repeat this step for the remaining S/T-Interfaces.

If the LED continues to blink slowly, the TE has not synchronized. Note: Video Conferencing products often require the software to be operating to achieve synchronization. Check the RJ-45 to RJ-45 cable connections, and verify both RJ-45 ports for the S/T-Interface. Also, verify the S/T Bus Configuration is correct for the installation.

If these steps do not help, try moving a known working S/T-Interface to this port, preferably from an adjacent S/T-Interface port. If the LED still does not indicate synchronization, call technical support.
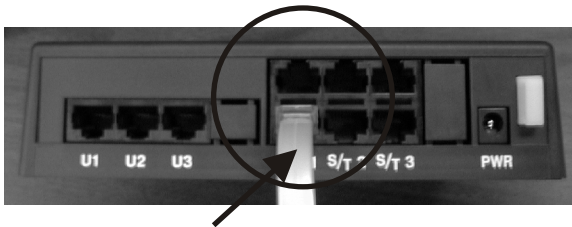
Figure 6. S/T-Interface Connector

Step 5: Use the wire ties supplied with the UT3620 and group the U-Interface cables together followed by the S/T-Interface cables. Alternatively, group each U-Interface and corresponding S/T-Interface cables.

When the installation is complete, all LEDs should stay solid green. Once this is established, the UT3620 is fully functioning.

Congratulations! You have now completed installation of your UT3620 Quad NT1!

Appendix A: DIP Switch Positions

There are three sets of five DIP Switches on the bottom of the UT3620 as shown in **Figure 7**, each corresponding to the appropriate line. The DIP Switches allow the user to adjust the S/T bus Terminating Resistor (TR) and S/T bus timing.

"0", "50", and "100" are the S/T bus TR settings in Ohms. Most equipment requires 100 Ohm termination. Any TE requiring 50 Ohm termination will state such in its documentation.

The S/T bus timing is the most significant setting for the short (fixed timing) or extended (adaptive timing) bus configurations, and the terms are often incorrectly equated.

Details of each DIP Switch are given in **Table 1**. The asterisks represent the default positions.

Setting	1	2	3	4	5
0	---	Off	Off	Off	Off
50	---	On	On	On	On
100	---	Off*	Off*	On*	On*
Adaptive	Off*	---	---	---	---
Fixed	On	---	---	---	---

Table 1. DIP Switch Position Assignments

Figure 7. DIP Switches

Appendix B: S/T Bus Configuration

Combinations of these settings and the wiring requirements of the installation determine the configuration for each line. Each S/T-Interface is configured separately to provide flexibility.

Default Configuration:
The manufacturer's default DIP Switch configuration will work on almost all installations. No more than four terminals can be attached and each terminal must be the same distance away from the NT1, within 10 meters tolerance, to a maximum of 200 meters divided by the number of terminals. For example two terminals could be 85m and 95m from the NT1 respectively.

Figure 8. Default S/T Configuration

Alternative Configurations:
There are three configurations for which the defaults are not the ideal settings. Each is detailed with examples and the appropriate configuration.

Short Bus Configuration:

This covers cases where there are unknown, random, or uneven distances between the NT1 and TE. This requires more than one TE, and the distance between the TE and the NT1 must be greater than 10 meters. For example, there are four terminals arranged as in **Figure 9** below.

Solution: Verify the distance between any two terminals is at most 50 meters. The farthest terminal must be within 200 meters of the NT1, and it must have its own TR (or have a TR wired into the line just before the terminal). Up to eight terminals can be supported in this configuration.
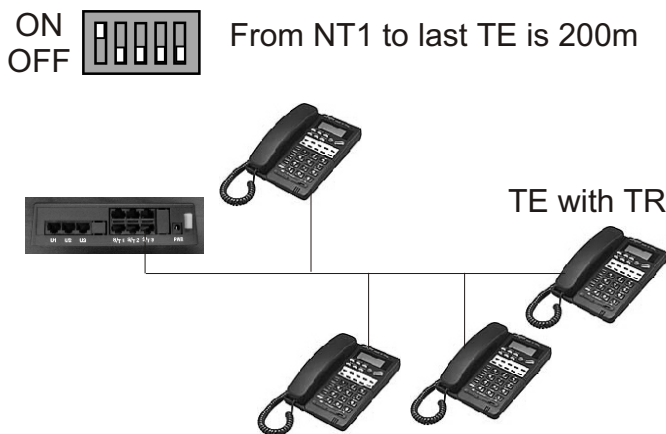
Figure 9. Short Bus Configuration

Extended Bus Configuration:
This covers cases where more than 200 meters is required between the NT1 and the TE.

Solution: Wire a TR a fixed distance from the NT1, or if only one terminal is needed, turn on a built-in TR. If a TR is wired into the line, up to four terminals can be supported as long as each is within 25 meters from the TR.

With only one terminal, the maximum distance from the NT1 to the TR is 1300 meters. The maximum distance is reduced to 1000 meters with two to four terminals as in **Figure 10** below.

A variation of this method, called the Y-Bus Configuration, allows the use of two equally distant TR. More details about this configuration are in the next section, "Y-Bus Configuration".
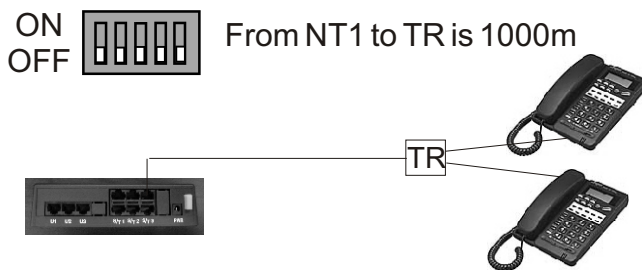
Figure 10. Extended Bus Configuration

Y-Bus Configuration:

This covers cases where more than 4 terminals are required. An example is shown in **Figure 11**.

Solution: Wire two equally distant TR a maximum of 140 meters from the NT1, within a 10 meter tolerance. Each TR can support up to 4 terminals, and terminals must be within 25 meters of a TR. No TE symmetry is required, so one TR can have four terminals connected while the second only has one.
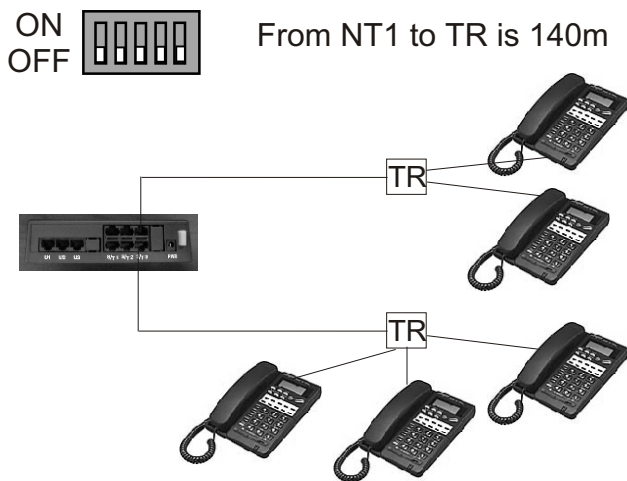
Figure 11. Y-Bus Configuration

Appendix C: Interface Pin Assignments

Each interface has specific pinouts which are important for electricians and technicians to know. Anyone installing wiring for the UT3620 should pay close attention to this information. All interfaces described here are located on the rear panel of the UT3620.

Pin	Function	Pin	Function
1	---	2	---
3	RX+	4	TX+
5	TX-	6	RX-
7	RTN	8	+40V

Table 2. S/T-Interface Pin Assignments

Pin	Function	Pin	Function
1	---	2	---
3	---	4	TIP
5	RING	6	---
7	---	8	---

Table 3. U-Interface Pin Assignments

Pin	Function	Pin	Function
1	+40V	2	GND

Table 4. Power Connector Pin Assignments

Appendix D: Power Source 2 (PS2)

The UT3620 is powered by an AC power supply included with the unit. There are two options - the 16 Watt power supply or the 40 Watt power supply.

The 16 Watt power supply can provide up to 16 watts of Power Source 2 (PS2) power. This power supply is normally used for Video Conferencing, Data Equipment, or fewer low-power ISDN Telephones.

The 40 Watt power supply provides up to 40 watts of PS2 power and is used for multiple ISDN Telephones on all lines.

PS2 power is commonly used to power TE from the NT1. Most data devices, such as Video Conferencing units, do not require PS2 to function.

Most ISDN Telephones, including those with built in data capabilities, require PS2 power. The specifications or documentation of the TE will have information on the watts required by the device.

Unit	Input	Output
16 Watt	120VAC@60Hz	+48VDC@250mA
40 Watt	90~264VAC@50~60Hz	+42VDC@1A

Table 5. Power Supply Information

Appendix E: Acronyms

A (mA)   Amp (milli-Amp)

AC   Alternating Current

DC   Direct Current

DIP   Dual In-line Package

Hz   Hertz

ISDN   Integrated Services Digital Network

m   meters

MLT   Metallic Loop Test

NT1   Network Termination type 1 device

PS2   Power Source 2

TE   Terminal Equipment

TR   Terminating Resistor

V   Volts

VAC   Volts AC

VDC   Volts DC

FCC Notice

This device complies with all FCC Part 15 rules and regulations. Operation is subject to the following 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.

This device complies with Part 68 of the FCC rules and regulations. On the underside of this equipment is a label that contains, among other information, the FCC registration number for this equipment. If requested, provide this information to your telephone company.

If your UT3620 causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advanced notice isn't practical, you will be notified as soon as possible. You will be advised of your right to file a complaint with the FCC if you believe it is necessary.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could effect the operation of your equipment. If they do, you will be given advanced notice so as to give you an opportunity to maintain uninterrupted service.

ETL/ETLC Notice

This device complies with all ETL and ETLC safety requirements.

Industry Canada Information

Notice: The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The department does not guarantee the equipment will work to the user's satisfaction.

Before installing this equipment, users should ensure that

it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions might not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.
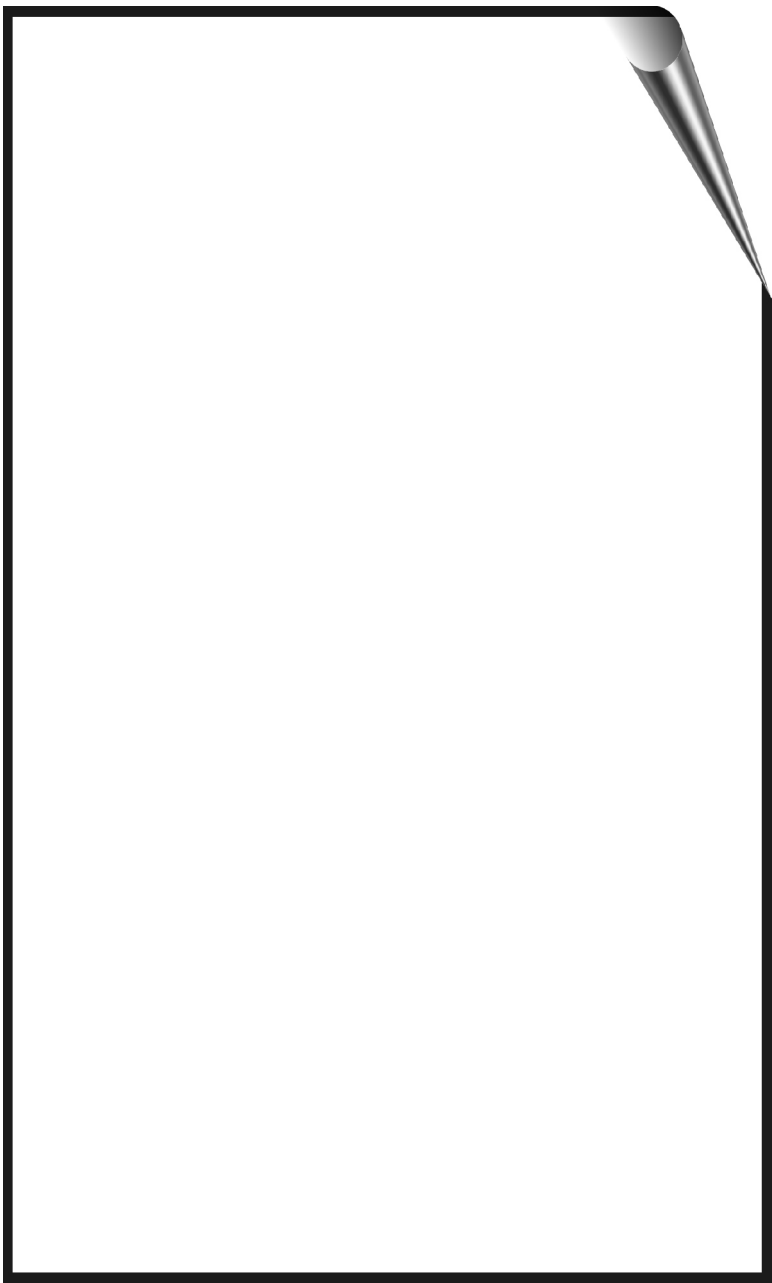
User should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electrical inspection authority, or electrician, as appropriate.

Metallic Loop Test (MLT)

Metallic Loop Test (MLT) support is optional on the UT3620. The MLT is a low power signal transmitted from the central office. With this option, the UT3620 will loop this signal back to the central office, completing the test. The absence or presence of MLT support has no affect on the performance of the UT3620. For further questions, contact technical support.

NOTES:

Wall Mounting Template

4.73''