![Guardian Telecom Inc. logo] Industrial Communications Worldwide
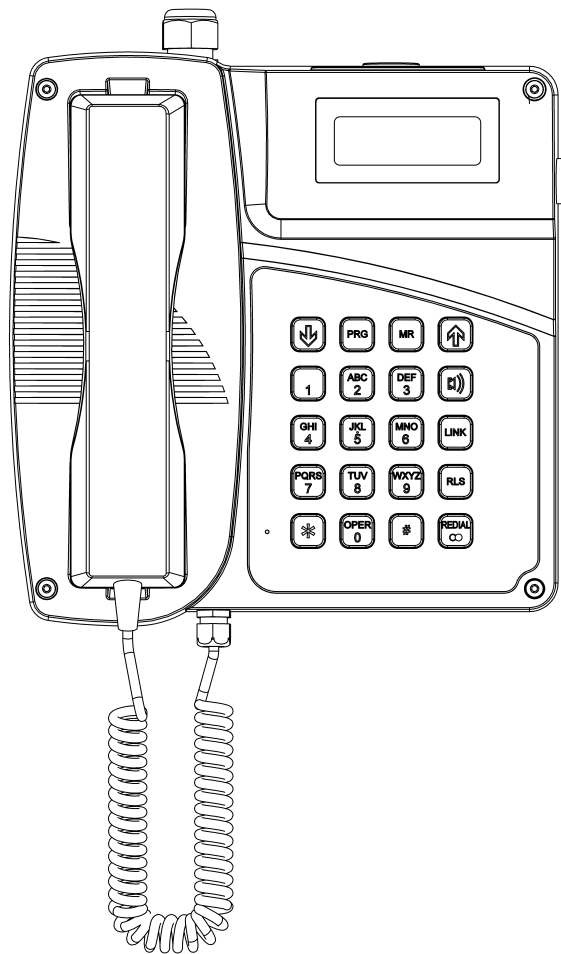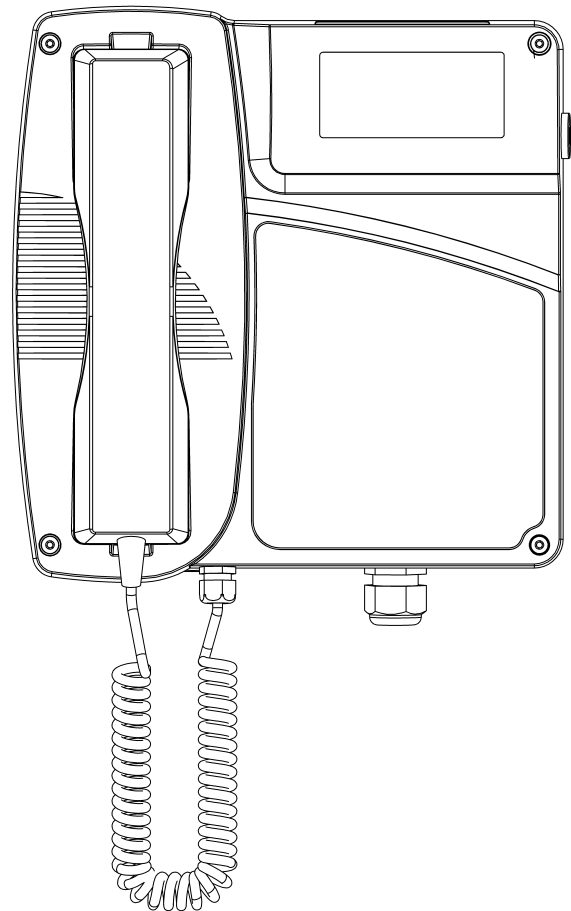
Industrial Desk/Wall Mount VoIP Telephones

DTR-VoIP and DTT-VoIP Series

Installation and Operation

DTT-50-VoIP

DTR-51-VoIP

![ISO 9001 CERTIFIED]

PoE DTR/T-VoIP Installation Guide P007314 Rev. C

Toll-free 1-800-363-8010
Phone (403) 258-3100
Fax. (403) 253-4967
www.guardiantelecom.com
E-mail: sales@guardiantelecom.com

Important Safety Instructions

1. Read these instructions.

2. Keep these instructions.

3. Heed all warnings.

4. Follow all instructions.

5. Install in accordance with the manufacturer's instructions.

6. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

7. Only use attachments/accessories specified by the manufacturer.

8. Refer all servicing to qualified service personnel.

9. Prior to installation, consult local building and electrical code requirements.

⚠ GENERAL ALERT	Warning *Electrical Hazard:* This product should be installed by a licensed electrician according to all local electrical and building codes.
⚠ GENERAL ALERT	Warning *Electrical Hazard:* To prevent injury, this apparatus must be securely attached to the floor/wall in accordance with the installation instructions.

This product meets the applicable Industry Canada technical specifications. / Le présent matériel est conforme aux specifications techniques applicables d'Industrie Canada.

If trouble is experienced with this equipment (DTR-VoIP and DTT-VoIP), for repair or warranty information, please contact Guardian Telecom at 1-800-363-8010. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

If this equipment requires AC power it is suggested that a surge arrestor be used.

Table of Contents

Figures

Tables

Package Contents

(1)　DTR-VoIP or DTT-VoIP Telephone

(1)　Parts bag containing 1 Allen wrench and handset retainer

(1)　Mounting Template

Note: Installation and Operation Manual, Setup and Configuration Manual, Guardian Discovery Utility, Interoperability Guide, VoIP Technical Support, Firmware and Autoprovisioning template are all available at www.guardiantelecom.com.

Models

P3040　DTT-50-VoIP telephone with coil cord.

P3041　DTT-60-VoIP telephone with armored handset cord.

P3042　DTR-51-VoIP Ringdown telephone with coil cord.

P3043　DTR-61-VoIP Ringdown telephone with armored handset cord.

Accessories

POE – Injector – Auxiliary Power Supply　　　(Contact Sales)

Loud Ringers and Strobe Lights

Registering Your VoIP Product

To register your VoIP product send an email to info@guardiantelecom.com.

Be sure to include "Guardian VoIP Registration" in the subject field of your email.

Include the following information:

1. Company Name (Req'd)

2. Address (Optional)

3. Device Model (Req'd)

4. Serial Number (Req'd)

5. Date of purchase (Req'd)

6. Name of Supplier (Req'd)

7. Prime Contact (Req'd)

8. Secondary Contact (Optional)

9. Contact Info: Email Address(es) (Req'd)

10. Phone Info: (Optional)

1.   Product Overview

DTT-VoIP Series Weather Resistant Telephones

DTR-VoIP and DTT-VoIP telephones provide safe, reliable communications in areas that are prone to high humidity, chemical vapors, dust and physical abuse.

These telephones are compatible with most SIP-based IP PBX servers that comply with SIP RFC 3261. Users can remotely monitor and program settings through a web browser to configure telephones on their network.

The DTR-51-VoIP and DTT-50-VoIP are standard models with a coiled handset cord and the DTR- 61-VoIP and DTT-60-VoIP are vandal resistant models with an armored handset cord.

2.   Typical System Installation

The Voice-over-IP (VoIP) DTR-VoIP and DTT-VoIP Telephones are Power-over-Ethernet (PoE 802.3af) and Voice-over-IP (VoIP) two-way communications devices that easily connect into existing local area networks (LANs) with a single cable connection.

Figure 1 illustrates how the DTT-VoIP Telephones can be installed as part of a VoIP phone system.

Generic PoE Hub

EXTERNAL DEVICES

Guardian VoIP Emergency Telephones   Guardian VoIP Industrial Telephones   IP PBX Server
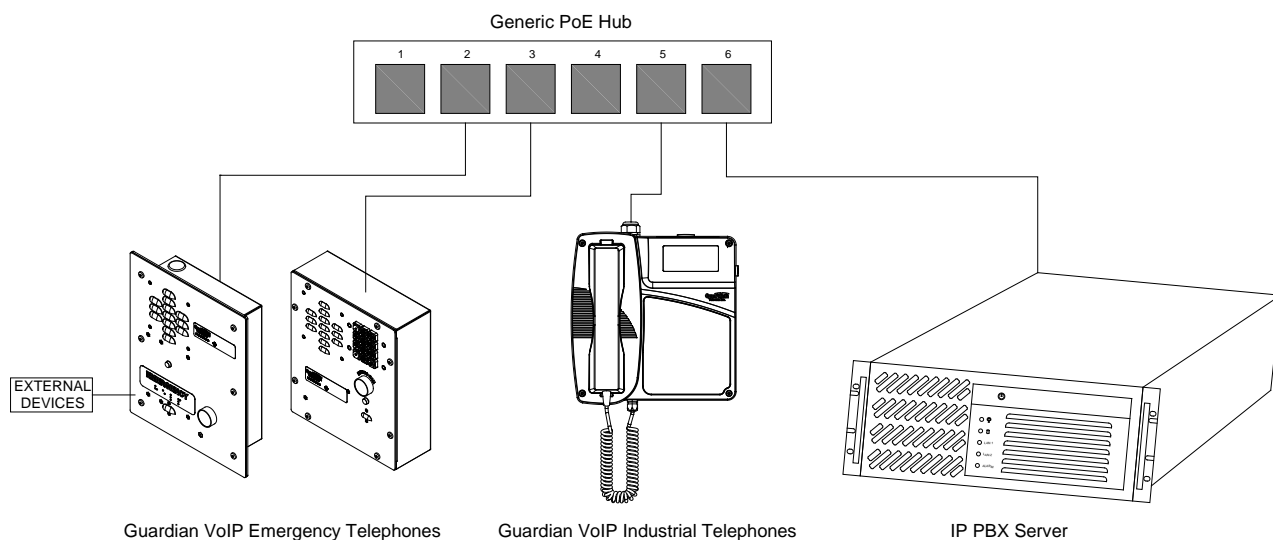
Figure 1 - Typical Installation

3.   Features

- Enclosure

    -glass filled Polyester body construction

    -weatherproof and corrosion resistant

    -reversible base for desk or wall mount

    -corrosion resistant hardware

- Temperature range -22 ° to +140 °F

    (-30 ° to +60 °C)

- Optional conformal coated circuit boards are resistant to corrosive agents (e.g. H_2S, SO_2 and NH_3) and environments with high humidity

- Waterproof connections & stainless steel fittings for longer life

- Magnetic Reed Hook Switch - no moving parts

- Easily mounted on any sturdy vertical structure

- Noise Reducing Microphone allows a high level of intelligibility in locations with high background noise

- Armored Handset Cord (DTR-61 VoIP and DTT-60-VoIP only) withstands severe use

- Heavy duty K Type industrial handset

- Handset retainers to maintain on-hook status

- Modular parts for easy service

- Two M20 and one M12 cable entries

- Hearing-Aid Compatible & Receiver Volume Adjustment

- Compatible with inductively coupled hearing-aid devices

- Adaptive full duplex operation

- Compatible with most SIP-based IP PBX servers that comply with SIP (RFC 3261).

- Network web management interface

- Guardian discovery utility makes it easy to detect, locate and launch the web based configuration screens

- Product self diagnostic testing available through web interface

- Network adjustable speaker volume and microphone sensitivity

- Network downloadable firmware

- PoE 802.3af enabled (Powered-over-Ethernet) or alternate power source

- Web Based User Interface allows remote setup of network, product operations, updates, self diagnostics and other functional access.

- Programmable speed dial

- Dual speeds of 10 Mbps and 100 Mbps

- Network/Web management

- Network configurable relay activation settings

- Dial Out Extension supports the addition of comma delimited pauses before sending additional DTMF tones

- Network downloadable product firmware

- Tamper proof design

- Autoprovisioning

- Configurable audio files

- Event activation – (see manual – events section)

- One year warranty

- Peer-to-peer capable

- Optional security screws with driver bit

M20 ENTRY GLAND (DESK MOUNT)*

M20 ALERTER WIRING PLUG*

LCD DISPLAY

GLASS REINFORCED
POLYESTER FACEPLATE

4x5 KEYPAD

MAGNETIC REED
HOOK SWITCH

COIL CORD FOR DTR-51-VoIP & DTT-50-VoIP
ARMORED CORD FOR DTR-61-VoIP & DTT-60-VoIP

* BASE IS ROTATED 180° FOR WALL MOUNT
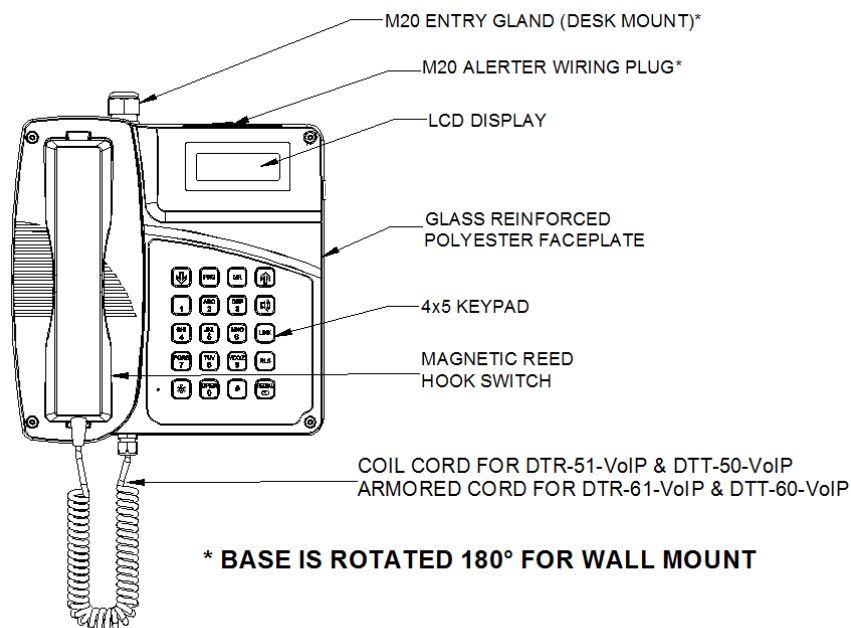
Figure 2 - Features (typical)

Figure 3 - Overall Dimensions

9.4" [238mm]
7.2" [184mm]
8.7" [222mm]
9.2" [234mm]
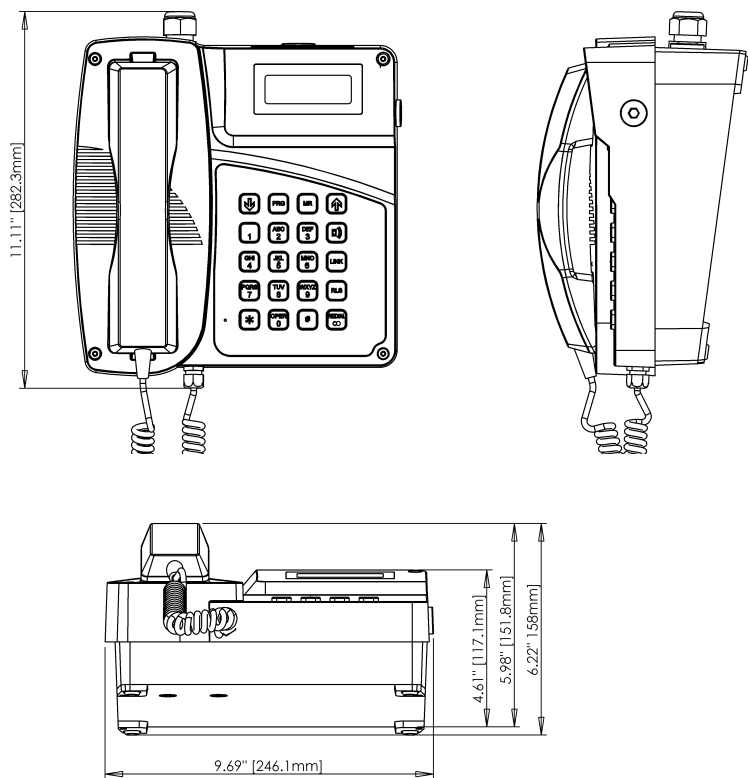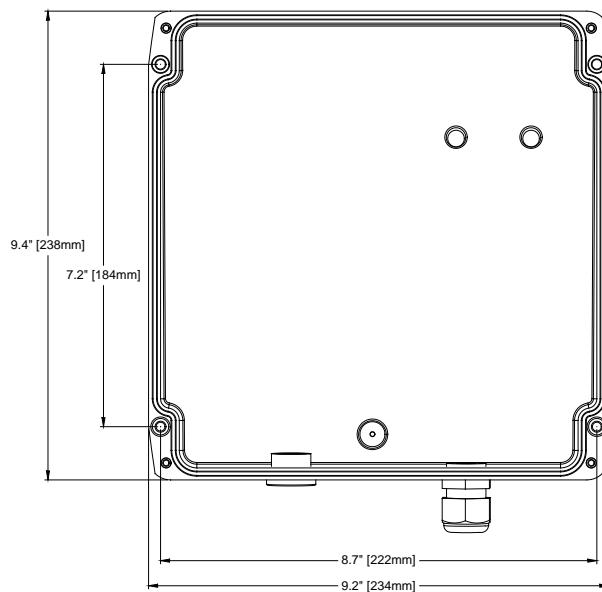
Figure 4 - Wall Installation of Base

4.   Installation

Enclosure

Follow all appropriate electrical codes and use only approved electrical fittings for the installation.

To Avoid The Danger Of An Accidental Shock or Circuit Damage

o If using an auxiliary power supply ensure it is unplugged during installation.

o If using the onboard relay to control an external relay ensure power is off during installation.

The telephone may be installed on a flat surface or wall mounted.

Using the 3mm Allen Key provided, loosen the four faceplate captive screws to detach the faceplate from the base.

Desk Top Configuration

If the telephone is to be desk top mounted set the base in the desired location.

Wall Mount Configuration

If the telephone is to be wall mounted choose a location that is free of obstructions and permits space for wiring. Mount the base with the deepest dimension on the bottom. Mount as follows:

See: Figure 3 - Overall Dimensions

   o   The telephone weighs 3.95 kilograms (8.68 pounds), ensure that the mounting can support four times the weight of the unit; that is 15.8 kilograms (34.8 pounds). Wall anchors are not included; follow the manufacture's instructions when installing anchors.

   o   Mounting to concrete or cinder block. Lead expansion anchors with M4 (#8) screws are recommended.

   o   Mounting to drywall. Hollow wall anchors (Molly Bolts) with M4 (#8) screws are recommended.

   o   Mounting to other surfaces. It is the responsibility of the installer to ensure that the base is attached in such a way as to support the weight specified above.

Install the handset retainer clips on the faceplate using the hardware supplied.

TOP VIEW OF VoIP PCBA

ETHERNET
CABLE

Figure 5 - Wiring

Handset
White = RX
Black/Red = TX

Reed Switch

Relay Pins 1 & 2

Alternate Power
Pins 3 & 4

Ringer Pins 5 & 6

Handset Volume
Control

RJ 45 Connector

Keypad

Reset Switch
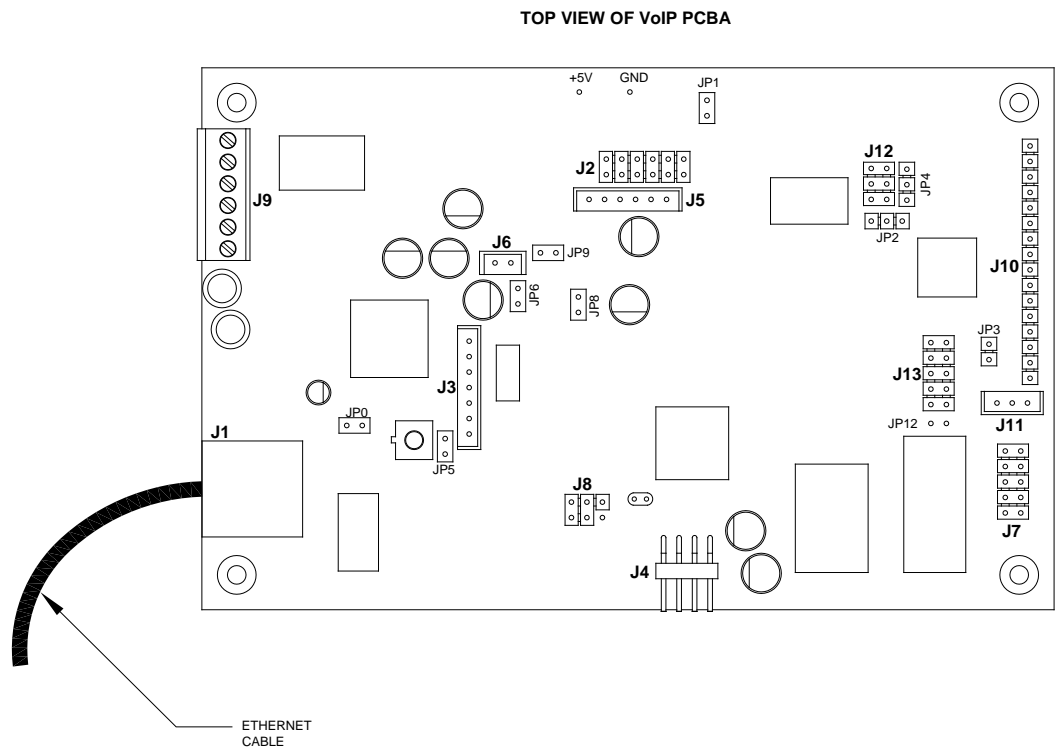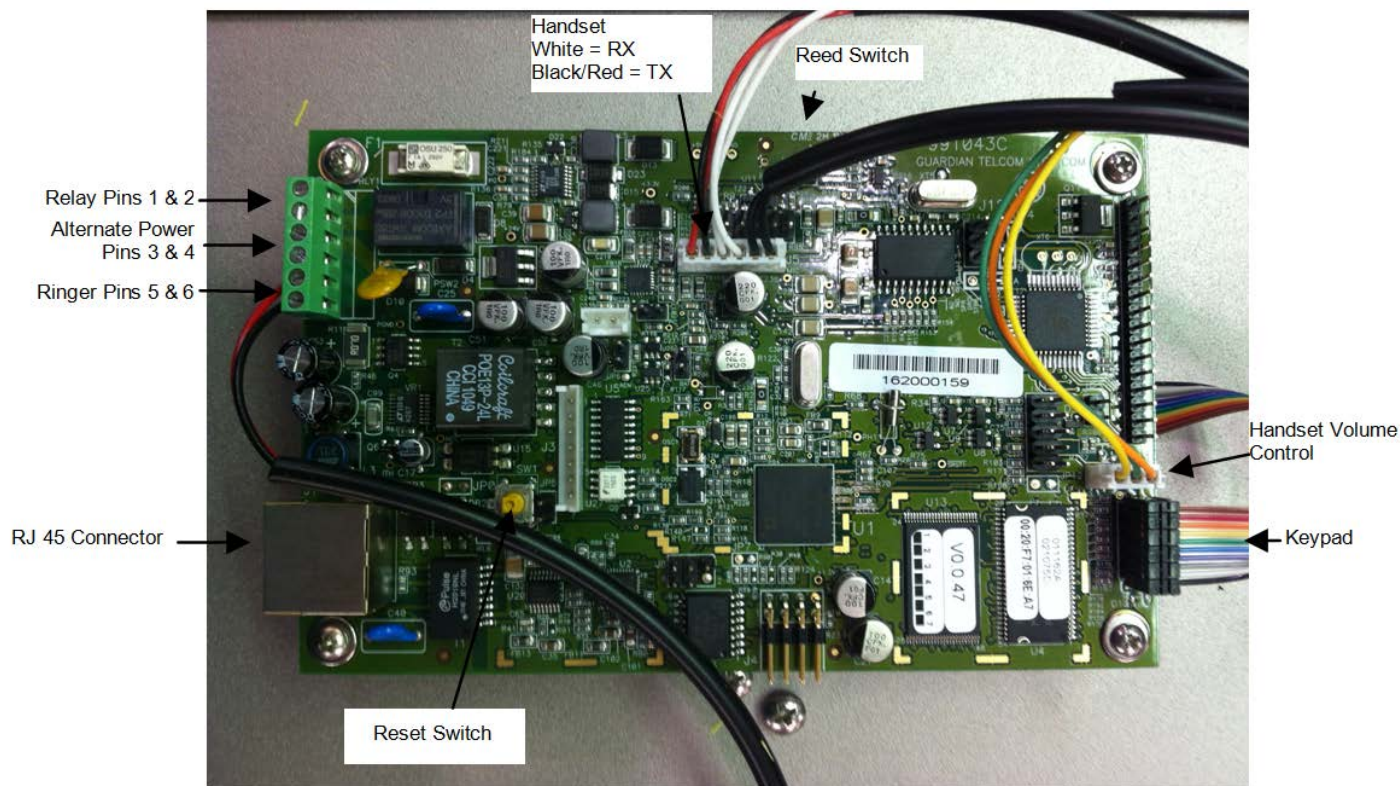
5.   Wiring

WARNING: Use properly sized cable to ensure a gas/dust tight seal at the cable gland to maintain an IP66 rating, (M12 – 2 to 5mm), (M20 – 8 to 13mm). *Take care not to lose parts of the gland if the cap is removed.*

If the telephone is wall mounted temporarily hang the faceplate on the right side of the base using two of the faceplate screws. Be careful not to lose the "O" ring screw retainers.

Tip: If cable diameter is not in the range of the M12 or M20 glands provided an approved reducer and smaller gland can be fitted.

See: Figure 6 - Temporary Mounting for Wiring

Determine if power to operate the telephone will be provided via the ethernet or if external power will be required. If external power is required install Guardian's Auxiliary Power Supply or equivalent.

Thread the bare end of the Network cable out of the enclosure through the gland and insert the plug into the RJ-45 connector on the PCBA.

See: Figure 5 - Wiring

Connect the on board relay if utilized.

If using an alternate power supply connect to the terminal block.

Tighten the cable glands securely.

See: Section 9.2 Connecting a Device to the Auxiliary Relay and Figure 7 - Terminal Block Connections

Connect the Network cable into the system.

Determine that the telephone is properly connected by pressing the RESET switch for less than five seconds to announce the IP address.

Mount the face plate and secure the captive screws to the base.

Tip: Torque screws to 1.65 ft/lbs (1.36Nm)

Apply power to the telephone. Allow approx 30 seconds for the phone to boot up.

If using an auxiliary power supply apply power to the conductors.

If the built in Ring Detect Relay is utilized apply power to the conductors.

Programming

Tip: See Manual P007402 - Setup and Configuration

Set up and configure if changes are required to the default settings.

Test the unit by making calls to and from another unit.
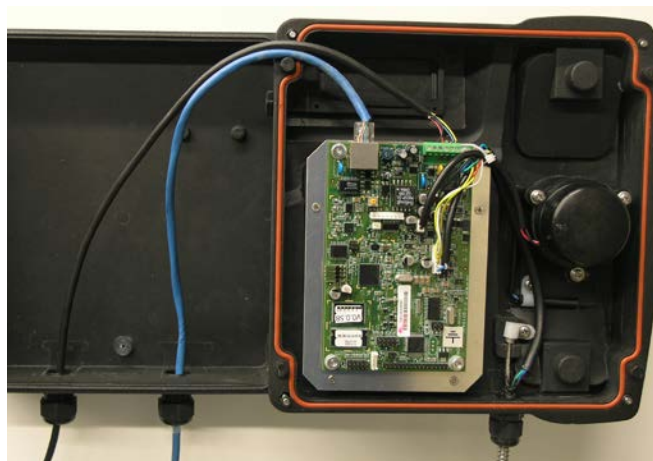
Figure 6 - Temporary Mounting for Wiring

6.   Operation

Once your Model DTT-VoIP Telephone has been properly installed and energized, operation is identical to most other single line telephones.

DTR-VoIP telephones will dial the programmed number when the handset is lifted.

Adjust the receiver volume with the switch in the handset or on the keypad.

7.   Supported Protocols

The DTT-VoIP Telephone with Keypad supports:

- SIP (Session Initiation Protocol)
- HTTP Web-based configuration

    Provides an intuitive user interface for easy system configuration and verification of DTT-VoIP Telephone with Keypad operations.

- DHCP Client

    Dynamically assigns IP addresses in addition to the option to use static addressing.

- TFTP Client

    Facilitates hosting for the Autoprovisioning configuration file.

- RTP

    Facilitates autoprovisioning configuration values on boot.

- Audio Encodings

    PCMU (G.711 mu-law)

    PCMA (G.711 A-law)

    Packet Time 20 ms

8.   Supported SIP Servers

As a SIP device, this product will operate with most IP PBX servers.

9.   DTR/DTT-VoIP Telephones Wiring

9.1.   Connections

Figure 7 shows the pin connections on the J9 (terminal block). This terminal block can accept a wire range from 16 AWG to 26 AWG.

Note: As an alternative to using PoE power 12 to 24 VDC at 500 mA can be supplied to the terminal block.

TERMINAL BLOCK CONNECTION (J9)

ALTERNATE POWER INPUT:
1 = NORMALLY OPEN COMMON
2 = NORMALLY OPEN CONTACT

RELAY CONTACT:
0.5A AT 30VDC FOR CONTINUOUS LOADS

3 = +12V TO +24V @ AT 500mA
4 = POWER GROUND
5 = RINGER +
6 = RINGER -

J9

WIRE IN
ACCEPT WIRE RANGE
UP TO 16 AWG
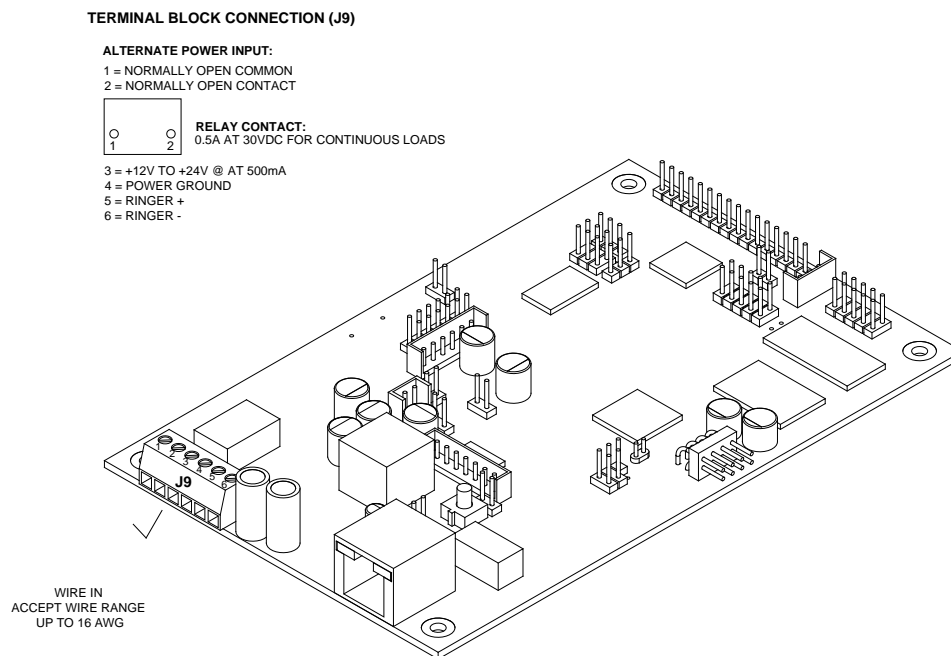
Figure 7 - Terminal Block Connections

9.2.　Connecting a Device to the Auxiliary Relay

The ACR/ACT-VoIP Telephone incorporates one on-board relay located on the PCBA, which enables users to control a low current external relay or device. An external relay could control a ringer, strobe light, door lock or any other apparatus. The on board relay is protected by a 1 Amp, non-replaceable fuse. **Power switched by the relay should not exceed 0.5 Amps @ 30VDC.** The PCBA is not designed to handle AC voltages.

Warning: The relay circuitry contains a non-replaceable 250VAC 1A fuse. If the fuse blows the board must be returned to Guardian or an approved service center for repair.

The Telephone relay activation time is selectable through the web interface on the Device Configuration Page. The relay is controlled by DTMF tones generated from the phone to which the VoIP phone is connected; no matter which one initiated the call. The DTMF tones are selectable from the web interface as well.

Note: The three digit code for the auxiliary relay must be sent in conformance with RFC2833 DTMF generation.

See: Figure 8 - Auxiliary Relay Wiring Diagram.

See: Manual P007402 Setup and Configuration
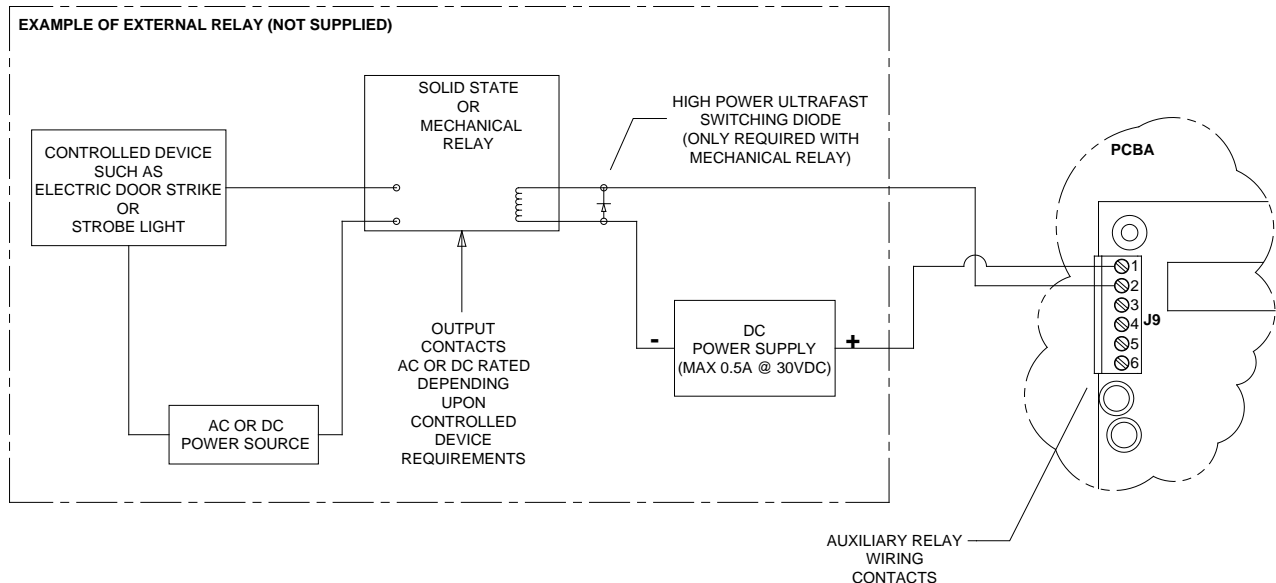
Figure 8 - Auxiliary Relay Wiring Diagram

9.3.   Identifying the Connector Locations and Functions

See Figure 9 and Table 1 to identify the connector locations and functions.
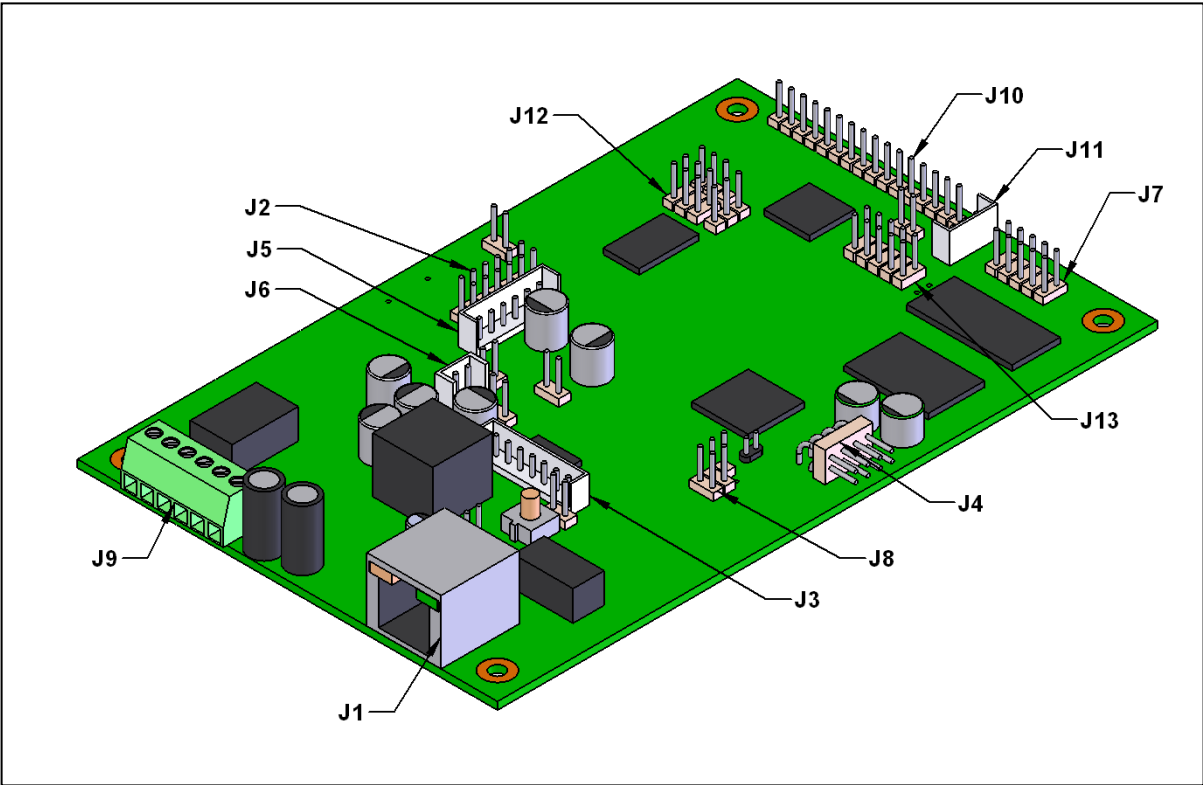
Figure 9 - Connector Locations

Connector	Function
J1	PoE Network Connection (RJ-45)
J2	Hands free Microphone Interface/LED Interface
J3	Not used
J4	JTAG Interface
J5	Handset/Reed Switch Interface
J6	Speaker Interface
J7	Keypad Interface
J8	RS232 Port
J9	Terminal Block (see Figure 5)
J10	LCD Interface
J11	Handset V.C. Interface
J12	ISP-DIP/Debug UART

Table 1 - Connector Functions

9.4. Network Connectivity, and Data Rate

When you plug in the Ethernet cable or power supply:

- The square, green **Link** light above the Ethernet port indicates that the network connection has been established (see Figure 10). The Link light changes color to confirm the auto-negotiated baud rate:

- This light is yellow at 10 Mbps.

- It is orange at 100 Mbps.

9.4.1. Verify Network Activity

The square, yellow **Activity** light blinks when there is network activity.
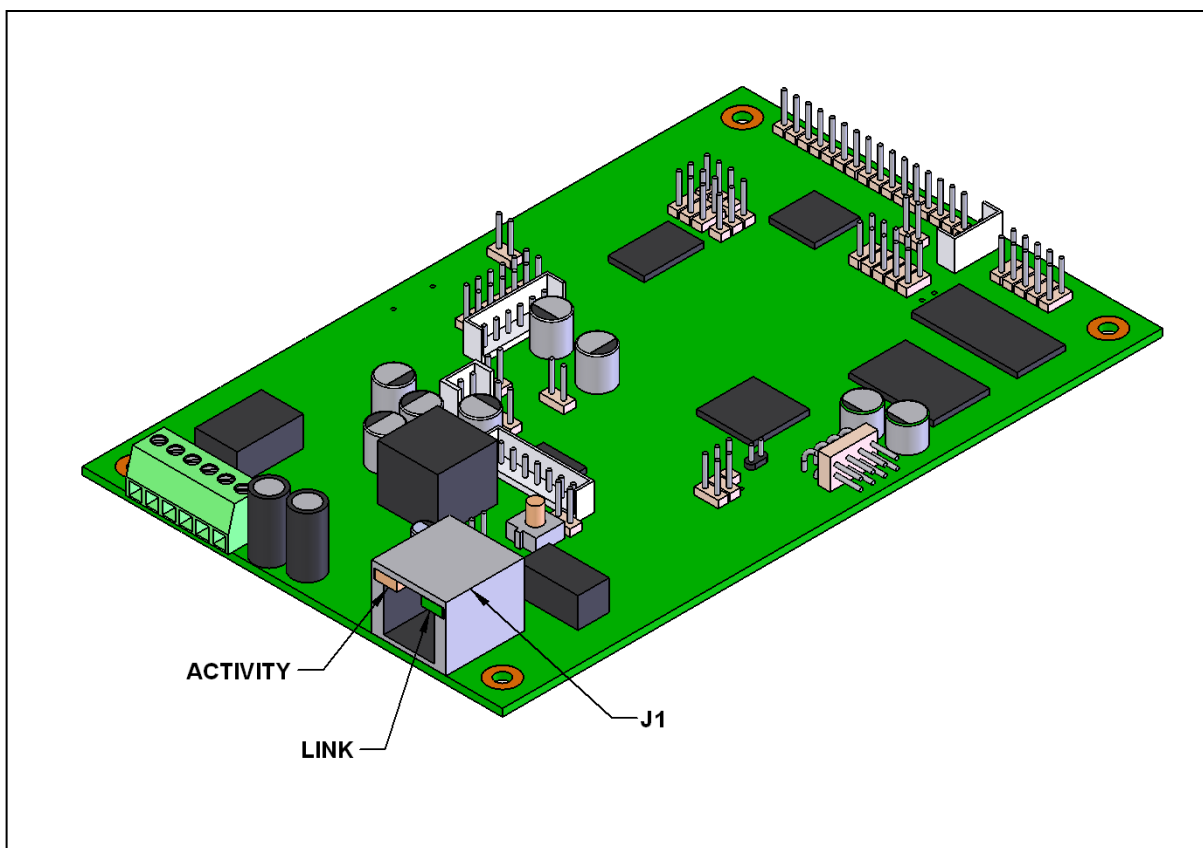
Figure 10 - Network Activity

9.5. RESET Switch

When the Telephone is operational and linked to the network use the Reset Test Function Management **(RESET)** switch (Figure 11), on the Telephone board to announce, the Telephone's IP Address, and test that the audio is working (see Section 9.5.1). The message will come through the handset receiver.
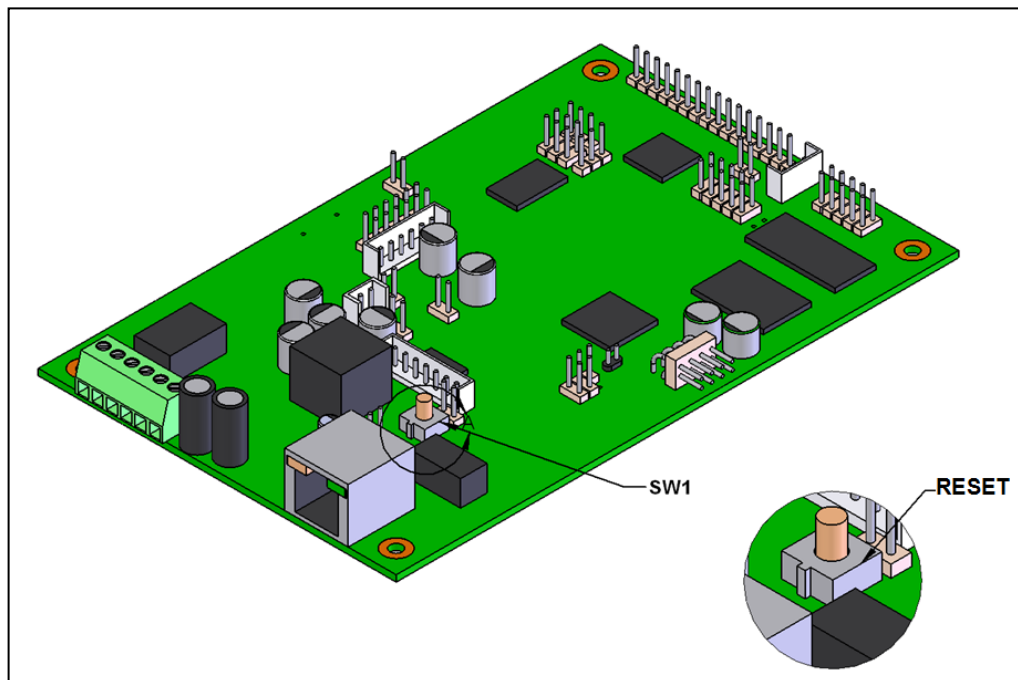
Figure 11 - RESET Switch

9.5.1. Announcing the IP Address

To announce a telephone's current IP address:

1. Press and release the RESET switch (SW1). Do not hold more than five seconds.

Note   The telephone will use DHCP to obtain the new IP address (DHCP-assigned address or default to 10.10.10.10 if a DHCP server is not present).

Note   Pressing and holding the RESET switch for longer than five seconds will restore the telephone to the factory default settings.

9.5.2. Restore the Factory Default Settings

When troubleshooting configuration problems, it is sometimes convenient to restore the device to a known state.

Note: Each Telephone is delivered with factory set default values.

To set the factory default settings:

1. Press and hold the **RESET** switch (SW1) for more than five seconds.

2. The telephone announces that it is restoring the factory default settings.

Note   The telephone will use DHCP to obtain the new IP address (DHCP-assigned address or default to 10.10.10.10 if a DHCP server is not present).

9.6. Adjust the Volume

You can adjust the volume through the Device Configuration Page.

10. Product Specifications

Electrical Performance

RINGER OUTPUT	>80 dB
MICROPHONE	NOISE REDUCING
RECEIVER	HEARING AID COMPATIBLE

Category

ETHERNET I/F	10/100 MBPS
PROTOCOL	SIP RFC 3261 COMPATIBLE
POWER INPUT	802.3AF COMPLIANT OR 12-24VOLTS AT 500mA PoE
PAYLOAD TYPES	G711, A-LAW AND μ-LAW

Environmental

INGRESS PROTECTION RATING	IP66
OPERATING TEMPERATURE	-22° TO +140° F (-30° TO +60° C)
STORAGE TEMPERATURE	-58° TO +176° F (-50° TO +80° C)
HUMIDITY	0 TO 95% RH
DUSTPROOF	FULLY GASKETTED ENCLOSURE

Mechanical

HOOK SWITCH (CRADLE SWITCH) LIFE	>1 000 000 OPERATIONS
HOUSING MATERIAL	GLASS FILLED POLYESTER (CARBON LOADED)
HANDSET MATERIAL	GLASS FILLED POLYESTER (CARBON LOADED)
DIMENSIONS (H X W X D) WALL MOUNTED	11.1 X 9.7 X 6.2" (282 X 246 X 158 MM)
NET WEIGHT	8.7 LBS (3.95 KG).
STANDARD MOUNTING	DESK OR WALL
WIRING ACCESS	½" NPT
HARDWARE MATERIAL	STAINLESS STEEL

COMPLIANCE

FCC	PART 15, CLASS A
ICES-003	CLASS A
IEC	61000-6-2: 2005
CISPR	22: 2008
WEATHERPROOF ENCLOSURE	TYPE 3R

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

11. Field Repairs

Field repairs may only be carried out by qualified technicians using OEM parts. Substitution of parts voids warranty and may pose a hazard to users of the equipment.

See: 12 Replacement Parts

Disconnect the telephone IP Cable and Aux Power if necessary.

Carefully remove the front cover assembly and separate from the housing by disconnecting the wiring. NOTE that the handset and all electronics are attached to the front plate.

Perform the necessary repairs or adjustments.

Carefully replace the front plate and install all four screws. Do not over tighten the cover screws. There is a flexible gasket between the cover and the body; excessive tightening of the screws deforms the gasket and reduces the weather resistance of the set.

Tip: Torque screws to 2.5 in/lbs (0.28 Nm).

Handset Replacement

Refer to the instruction sheet included with the replacement handset.

Disconnect the handset wiring from the terminal block.

If the phone is equipped with an armored cord handset, remove the anchor screw from the armored cord lanyard.

Loosen the handset cable gland and pull out the cord.

Install the new replacement handset and tighten the gland.

Rewire the handset cord to the terminal block.

Ringer Speaker Replacement

Unplug the speaker connector from the main board.

Remove the screws that hold the speaker cap to get access to the speaker.

Install the new speaker and gasket.

Reconnect the speaker connector to the main board.

Main Circuit Board Replacement

Label any wiring attached to the circuit board. Disconnect wiring and ribbon cable.

Remove the screws holding the circuit board in place and carefully remove the board.

Install the new board and reconnect wiring.

12. Replacement Parts	
Part No.	**Description**
P001039	Magnetic reed hook switch
P001462	0-Ring gaskets for faceplate screws (4 required)
P004123	Nylon fastener for hook switch
P3044	Replacement Handset c/w coil cord.
P006614	Handset retainer
P006617	Allen key for faceplate screws
P006656	Receiver cartridge & PCBA Assembly
P006668	M20 Plug
P006675	Faceplate gasket
P006679	M12 Gland
P006690	M20 Gland
P006692	M4 Faceplate screws (4 required)
P006819	Speaker
P006862	M12 Plug
P3045	Replacement Handset c/w armored cord.
P007013	Microphone cartridge PCBA assembly
P007177	Telephone housing base
P007395	PCBA, VoIP Telephone
P008107	Telephone faceplate

13.   Cleaning Tips for Guardian Telephones

Guardian Telephones may occasionally need to be cleaned to maintain appearance. Generally, wiping the surface with a clean, water dampened cloth will remove most films or residues. If the soiling is too stubborn for plain water, a mild detergent solution may be used. Be sure to wipe away any detergent residue with a plain water dampened cloth. The Telephone may be cleaned with any general-purpose household glass and surface type cleaner. Do not spray the telephone directly! Spray the cleaner on a soft cloth then wipe the surface. Pre-treated cloths, like those used for eyeglasses or cameras, may be used to clean the Telephone. Premoistened towelettes may also be used, however, avoid those containing lanolin or aloe as they will leave a slippery residue. The handset and surface of the telephone may be cleaned with disinfectants used for general cleaning in a medical environment. Isopropyl alcohol may be used applied with a cloth. Avoid using alcohol on silicon based keypads, since doing so may significantly degrade legibility.

- Do not use furniture polishes, waxes or plasticizer-based cleaner (Armor All etc.)

- Do not use lanolin, aloe, glycerin or other skin care type products.

- Do not apply any solvent such as acetone, mineral spirits etc.

- Do not directly spray or immerse the handset.

14. Warranty

Guardian Telecom warrants your product to be free of defects in material and workmanship for a period of one year. Guardian Telecom will repair or replace any defective unit that is under warranty
This warranty is null and void if any non-authorized modifications have been made to this product, or if it has been subjected to misuse, neglect, or accident. This warranty covers bench repairs only; such repairs must be made at Guardian Telecom or an authorized service depot. Guardian Telecom is not responsible for costs incurred for on-site service calls, freight, or brokerage.
A return authorization must be obtained prior to warranty claims or repairs.

15. Disclaimer

The products covered by this manual are designed for use in Industrial Environments and/or Hazardous Locations. Due to the range of possible applications for these instruments the manufacturer will not be responsible for damages or losses of any kind suffered as a result of the use of this product, including consequential damages.

16. Warning

This device may be opened and reassembled by qualified personnel only, for the purposes of installing the product, making adjustments and replacing components, following the instructions in the product manual.
High voltages may be present in this product when connected to telephone wiring.

17. Service Telephone Number

1-800-363-8010

Guardian Telecom provides a customer service telephone number which is toll-free within North America. If you need assistance when installing or operating this product, please call the toll-free telephone number between regular business hours (8:00AM-5:00PM), Mountain Standard Time. If you are calling outside of regular business hours, please leave a detailed message, and a member of Guardian Telecom's Service Department will return your call as soon as possible. If your product requires service, Guardian personnel will supply you with an RMA (return materials authorization) number over the telephone or through our web site product return page. This number must be included with your return address and the name of the person to contact.

Guardian Telecom Inc.
7552 - 10th Street N.E.
Calgary, Alberta, Canada T2E 8W1
Toll-free 1-800-363-8010
Phone (403) 258-3100
Fax. (403) 253-4967
www.guardiantelecom.com

18. Feedback

Guardian Telecom continually strives to make reliable, durable, and easy to use products. If you, as an installer or user of our equipment, have any suggestions for improvements to this or any of our products or documents, including this manual, we would appreciate hearing from you.

19. Guardian Product Return

Guardian products have been quality tested and are in full working order when shipped from the factory, given the rugged nature of these products shipping is not expected to damage a unit. In the unlikely event of a malfunction, Guardian follows the three step procedure below.

Step I - On-Site Correction

The most common source of difficulties with a new product is improper installation in one of two ways: incorrect wiring connections or connection to an incorrect power source.

Product wiring needs to be properly connected to the on-site wiring. Correct wiring instructions are shown in the user manuals included with the product.

VoIP telephones must receive power either from the Ethernet (POE) or from an external source. If a VoIP telephone fails to function refer to the Question & Answer section in the Setup and Configuration manual P007402. If the solution is not found in the Q & A section contact Guardian Tech Support at 1-800-363 8010.

Step II - Return Materials Authorization (RMA)

When a product has been installed following user manual instructions, and the unit fails to operate, the user must contact Guardian Telecom to obtain authorization to return the product. This can be done by done by completing a RMA form online at www.guardiantelecom.com, or by calling the service telephone number given in this manual.

After providing information on the product, the owner and the nature of the problem, Guardian will issue a RMA number, to be shown on documentation returned with the product.

In addition to the RMA number, shipping documents should include name, address and telephone number of the owner along with contact information for the person responsible for the repair and/or the user who identified the malfunction.

(Where a product is being returned for repair from outside of Canada, customs documentation must show the product's serial number, date of export [date of purchase], and a notation that the equipment is: "Canadian goods returning.")

Step III - Factory Authorized Service

Once received, each product is carefully inspected and tested. If the product is under warranty, repairs are completed and the product returned to the owner, generally within five working days of receipt by the factory.

A product that has been subjected to misuse, neglect or accident or is beyond the warranty period will be evaluated. The service department will provide the owner's representative with a repair cost estimate. Once approved, repairs are completed and the product returned, generally within five working days.

Notes:

Model No.	
Part No.	
Serial No.	
Date of Purchase	

THIS PAGE INTENTIONALLY LEFT BLANK

Guardian Telecom Inc.
7552 - 10th Street N.E.
Calgary, Alberta, Canada T2E 8W1
Toll-free 1-800-363-8010
Phone (403) 258-3100
Fax. (403) 253-4967
www.guardiantelecom.com
E-mail: sales@guardiantelecom.com
(Click to open message box)

Industrial Communications Worldwide