Heavy Duty Weather Resistant VoIP Telephones
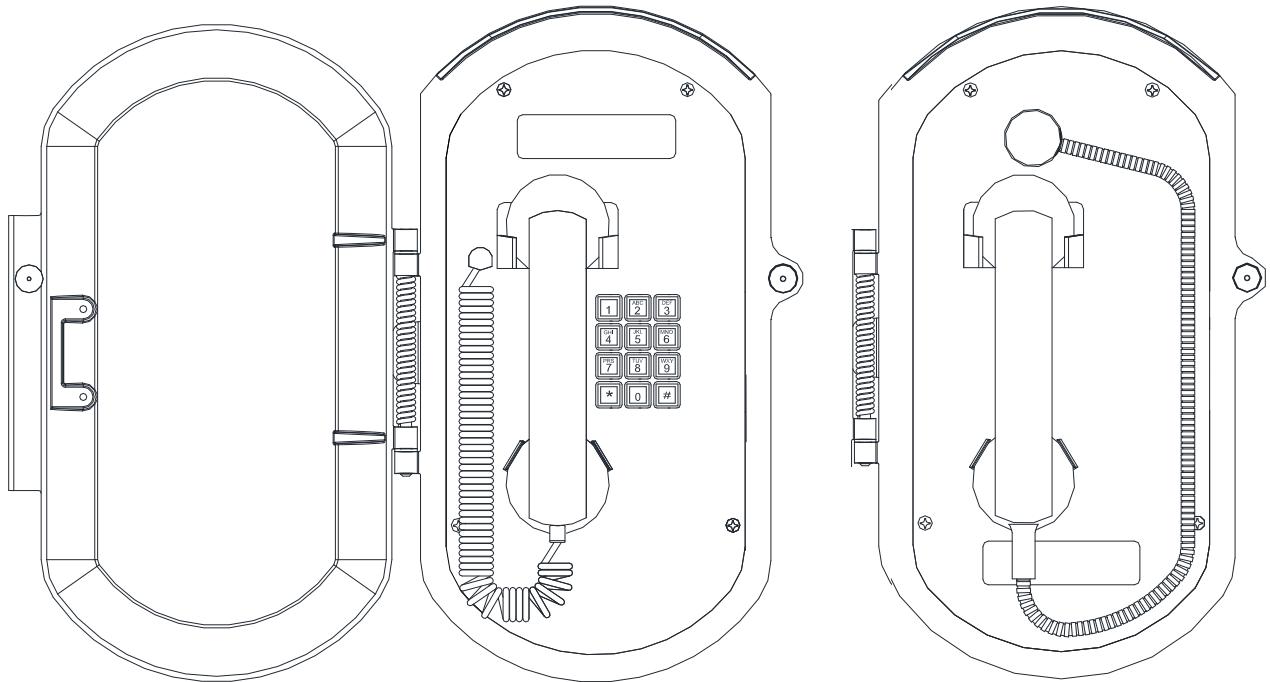
ACR-VoIP and ACT-VoIP Series

Installation and Operation

ACT-30-VoIP   **ACR-41-VoIP**

ISO 9001 CERTIFIED

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.

Table of Contents

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Package Contents

(1)   ACR or ACT VoIP Telephone

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

P5432   ACT-30-VoIP telephone with coil cord.

P5433   ACT-40-VoIP telephone with armored handset cord.

P5434   ACR-11-VoIP ringdown telephone with coil cord.

P5435   ACR-41-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

ACR-VoIP and ACT-VoIP Series Weather Resistant Telephones

The ACR-VoIP and ACT-VoIP Telephones meet the special requirements of sites prone to abuse and inclement weather. The apparatus is housed in an aluminum enclosure with a locking or non-locking door. The unit resists moisture, dust and corrosive chemicals and is specifically designed to provide reliable service in outdoor environments.

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 ACR-11-VoIP and ACT-30 are standard models with a curly cord and the ACR-41-VoIP and ACT-40 are vandal resistant models with an armored handset cord.

2.   Typical System Installation

The Voice-over-IP (VoIP) ACR-VoIP and ACT-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 ACR-VoIP and ACT-VoIP Telephones can be installed as part of a VoIP phone system.
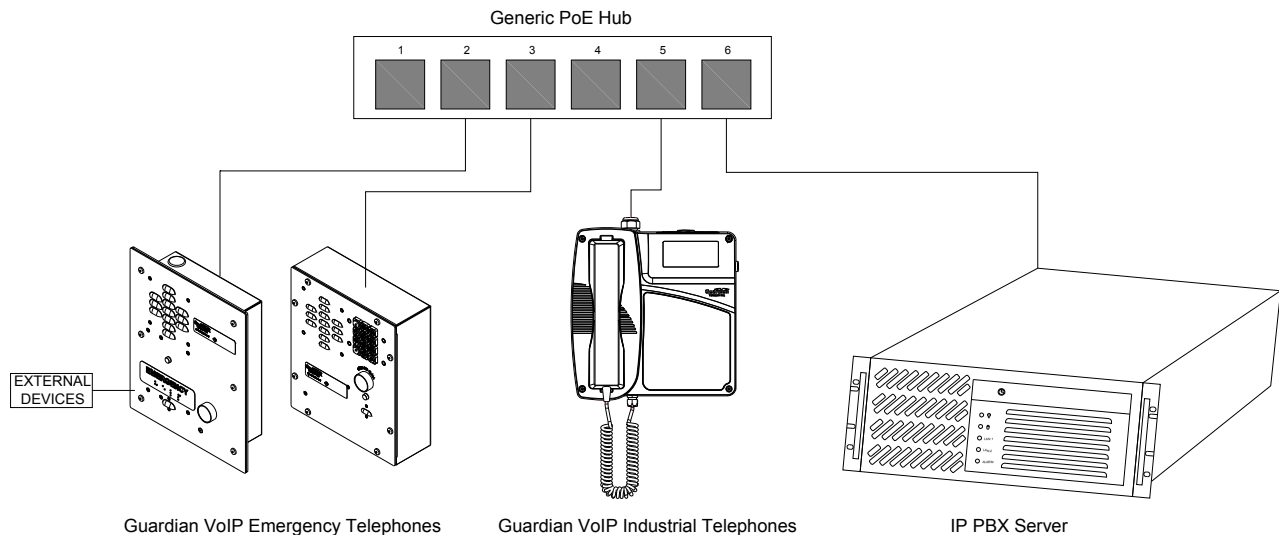
Figure 1 - Typical Installation

3.   Features

- *Enclosure*

    - *-cast aluminum construction*

    - *-weather and dust resistant*

    - *-durable Hammertone grey powder coat paint*

    - *-locking or non-locking door*

    - *-nylon bushings provide smooth door operation*

- *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*

- *Corrosion protected and powder coated steel faceplate*

- *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 (ACR-41-VoIP and ACT-40-VoIP only) withstands severe use*

- *Heavy duty G Type industrial handset*

- *Handset retainers to maintain on-hook status*

- *Modular parts for easy service*

- *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.*

- *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*

CAST ALUMINUM DOOR WITH OR WITHOUT LOCK

SEALED MAGNETIC REED HOOK SWITCH

CAST ALUMINUM ENCLOSURE
WITH POWDER COAT FINISH

HIGH IMPACT ABS HANDSET
WITH HEARING AID COMPATIBLE EARPIECE

MAGNETIC LATCH

METAL KEYPAD

HANDSET RETAINER CLIPS

CURLY CORD
(ARMORED CORD OPTIONAL)

Figure 2 - Features (typical)

4.0" [102mm]

Ø0.35" [Ø9mm]

15.4" [391mm]

7.9" [200mm]

6.0" [153mm]

8.0" [202mm]

9.3" [237mm]

Figure 3 - Overall Dimensions

TOP VIEW OF VoIP PCBA

J1: STANDARD 8 PIN RJ45 10/100Base-T And power input via Power over Ethernet

Figure 4 - Wiring
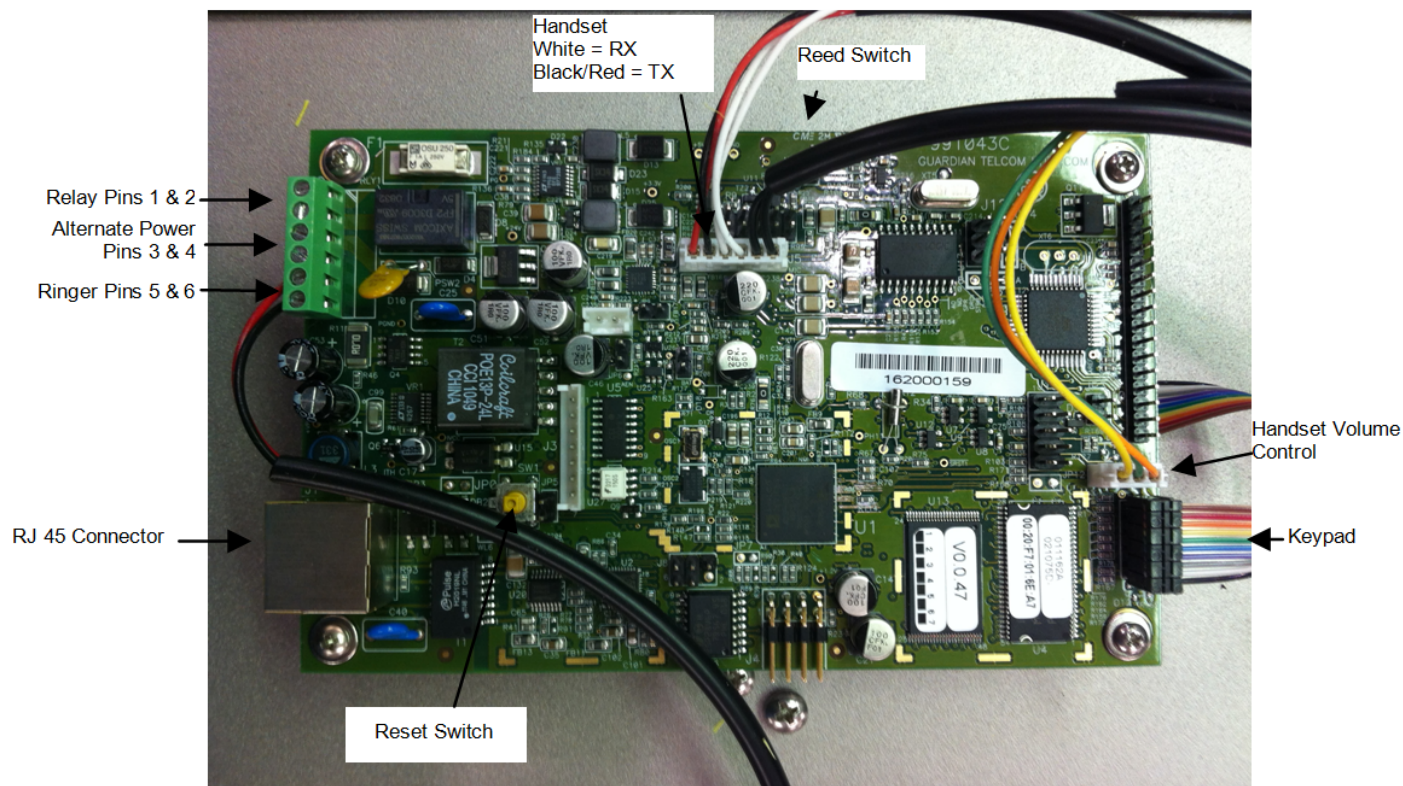
4.   Installation

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

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.

See: Figure 5 - Terminal Block Connections

Choose a wall location that is free of obstructions and permits space for conduit or wire.

See: Figure 3 - Overall Dimensions

Ensure mounting can support 12 lbs. (5.5 kg) and any additional foreseeable load.

Ensure that none of the electrical connection circuits are live.

Open the door, remove the screws on the faceplate and remove the faceplate.

Note: Be careful when removing the faceplate. The circuit board is on the faceplate.

Disconnect the faceplate harness.

Use the template provided or the enclosure itself to locate and drill holes for mounting screws.

Secure the enclosure to the wall.

Bring the Ethernet cable into the enclosure through the conduit entrance and connect to the RJ45 socket. If a conduit hub is used, ensure that it is grounded to the ground stud.

See: Figure 4 - Wiring

Connect external power if provided.

See: Figure 5 - Terminal Block Connections
See: Section 8.2 Connecting a Device to the Auxiliary Relay

Connect the on board relay if utilized.

Reconnect the faceplate harness.

Ensure all connections are secure.

Determine that the telephone is properly connected by pressing the RESET switch for less than five seconds to announce the IP address. LEDs on the RJ45 connector indicate network connection and activity.

See: Section 8.5 RESET Switch and Figure 8 - Network Activity

Replace the faceplate.

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

See: Manual P007402 – Setup and Configuration.

Test the unit by calling to and from another telephone.

5.   Operation

ACT-VoIP telephones may be set up for either keypad dialing or auto-dialing.

Note: The details are explained in the Setup and Configuration Manual P007402

If the telephone is configured for keypad dialing operation is identical to most other single line telephones.

If the telephone is configured for auto dialing lift the handset and press the number assigned to the extension to be dialed.

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

Adjust the receiver volume with the switch in the handset.

6.   Supported Protocols

The ACT-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 ACT-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

7.   Supported SIP Servers

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

8.   ACR/ACT-VoIP Telephones Wiring

8.1.   Connections

Figure 5 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
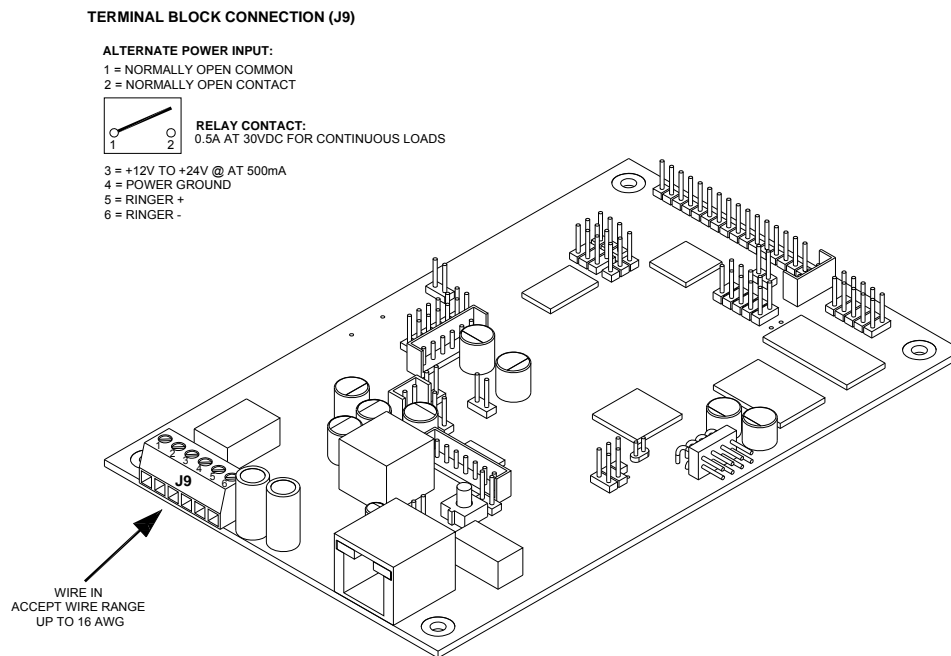
Figure 5 - Terminal Block Connections

8.2.   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.

See: Figure 6 - Auxiliary Relay Wiring Diagram

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.

See: Manual P007402 Setup and Configuration

Note: The three digit code for the auxiliary relay must be sent in conformance with RFC2833 DTMF generation.
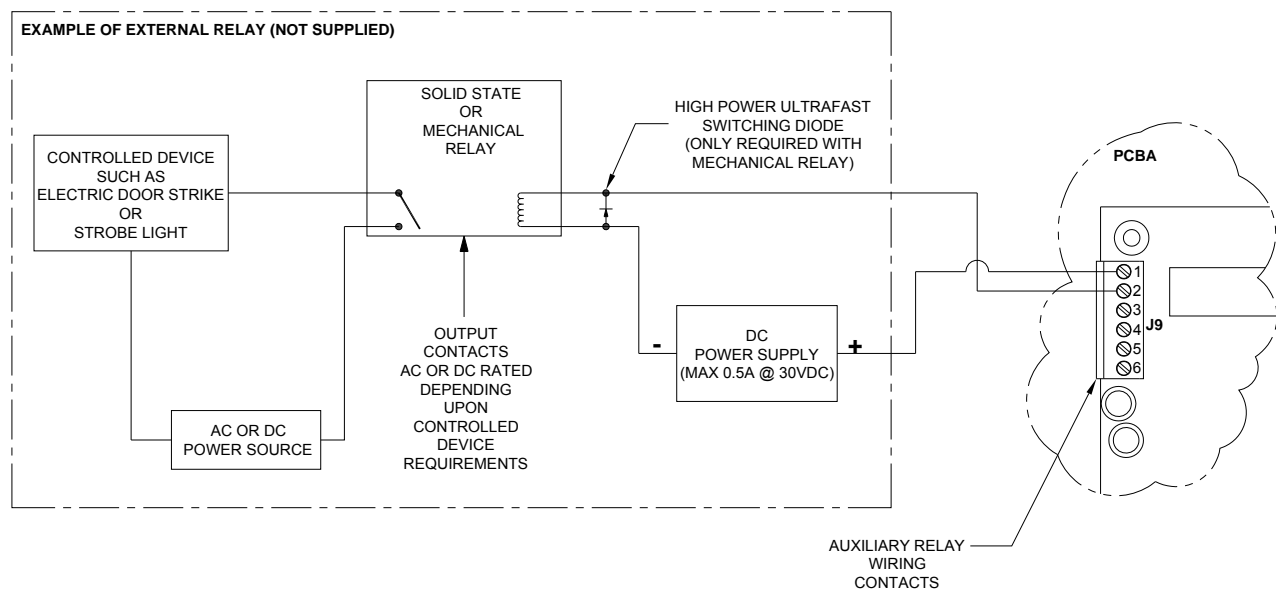
Figure 6 - Auxiliary Relay Wiring Diagram

8.3. Identifying the Connector Locations and Functions

See Figure 7 and Table 1 to identify the connector locations and functions.
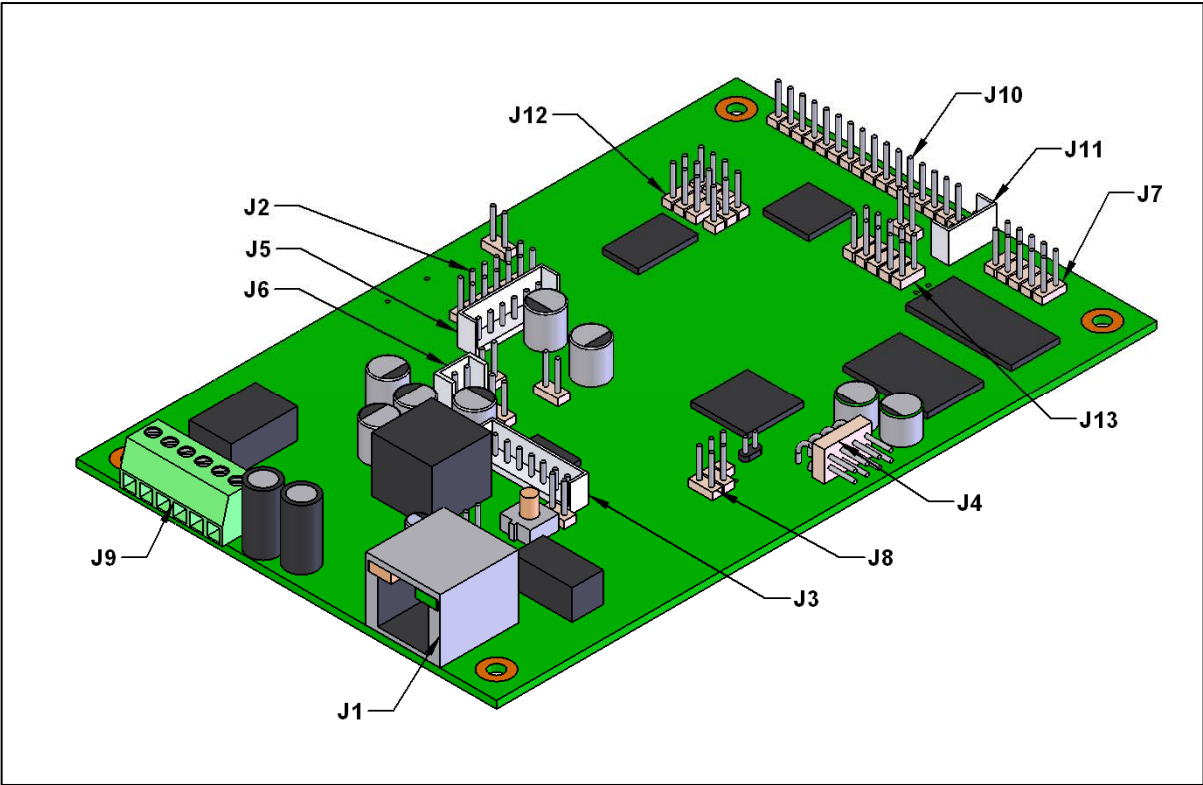
Figure 7 - Connector Locations

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	Not used
J11	Handset V.C. Interface
J12	ISP-DIP/Debug UART

Table 1 - Connector Functions

8.4. 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 8). 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.

8.4.1. Verify Network Activity

The square, yellow **Activity** light blinks when there is network activity.
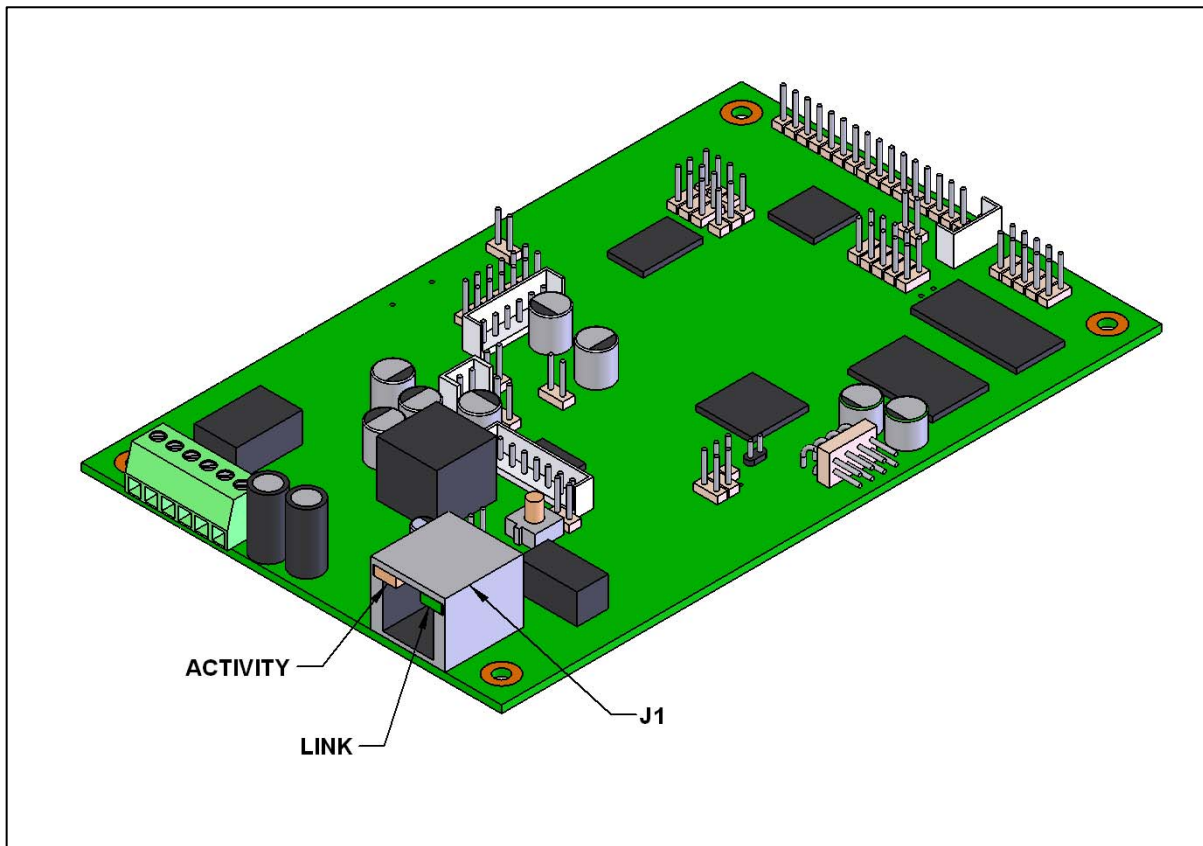
Figure 8 - Network Activity

8.5.   RESET Switch

When the Telephone is operational and linked to the network use the Reset Test Function Management **(RESET)** switch (Figure 9), on the Telephone board to announce, the Telephone's IP Address, and test that the audio is working (see Section 8.5.1). The message will come through the handset receiver.
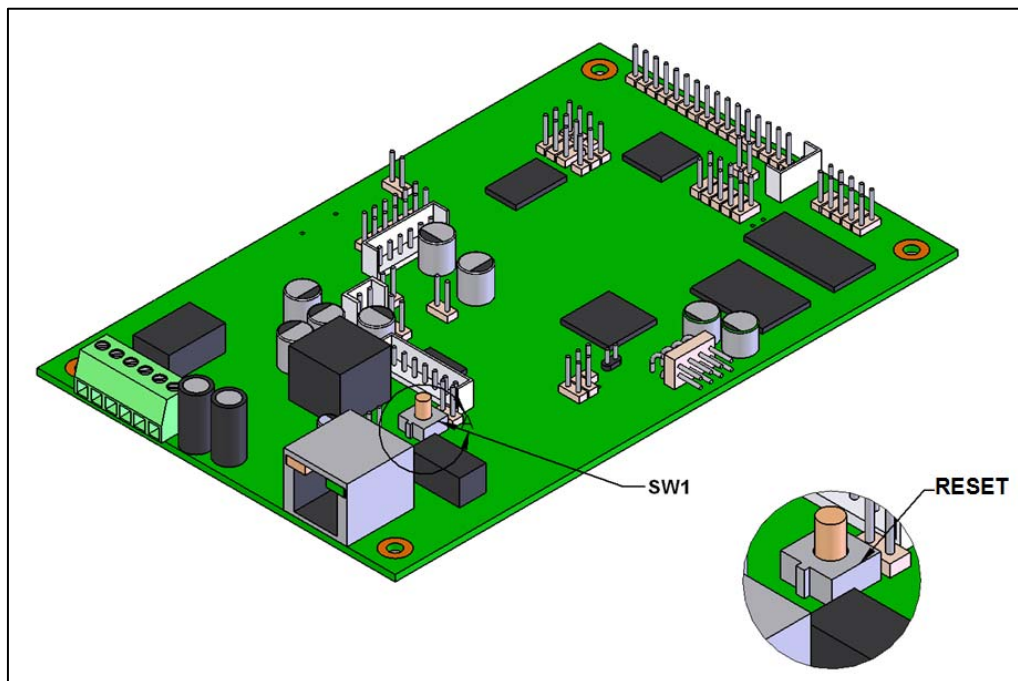
Figure 9 - RESET Switch

8.5.1.   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.

8.5.2.   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).

8.6.   Adjust the Volume

The volume can be adjusted through the Device Configuration Page.

9.   Product Specifications

Electrical Performance	
RINGER OUTPUT	>80 dB
MICROPHONE	NOISE REDUCING ELECTRET
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	3R
OPERATING TEMPERATURE	-22° TO +140° F (-30° TO +60° C)
HUMIDITY	0 TO 95% RH
DUSTPROOF	FULLY GASKETTED ENCLOSURE
Mechanical	
HOOK SWITCH (CRADLE SWITCH) LIFE	>1 000 000 OPERATIONS
HOUSING MATERIAL	CAST ALUMINUM, POWDER COATED
FACEPLATE	STEEL, ZINC DICHROMATE PLATED AND POWDER COATED
DIMENSIONS (H X W x D) WALL MOUNTED	15.4 X 9.3 X 6.0" (391 X 237 X 153 MM)
NET WEIGHT	12 LBS (5.5 KG).
STANDARD MOUNTING	VERTICAL WALL
WIRING ACCESS	½" NPT
HANDSET MATERIAL	GLASS FILLED POLYESTER (CARBON LOADED)
HARDWARE MATERIAL	STAINLESS STEEL
COMPLIANCE	
FCC	PART 15, CLASS A
ICES-003	CLASS A
IEC	61000-6-2: 2005
CISPR	22: 2008

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.

10. 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.

Disconnect the telephone IP Cable and Aux Power if necessary.

Carefully remove the front cover assembly and separate from the housing by disconnecting the harness plugs. 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 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.

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 six screws holding the circuit board in place. Carefully remove the board.

Install the new circuit board reattach the wiring.

Fuse

The relay circuitry contains a non-replaceable 250VAC 1A fuse. If the fuse blows install a new main circuit board.

11. Replacement Parts

Part No.	Description
P002726	Strain Relief - Right Angle Bushing
P002786	Handset Cradle
P004245	Gasket for Floyd Bell Ringer
P004263	Gasket for Handset Retainer
P004370	Faceplate ACT-30
P004371	Handset Retainers Clips
P004446	Faceplate for ACR-11
P004455	Gasket Top
P004456	Gasket Bottom
P005133	Faceplate ACT-40
P005134	Faceplate ACR-41
P005585	Ga- Ace-100 Enclosure - Grey
P005837	Reed Switch
P006520	Swivel Cord Guide Polyurethane
P007228	4' Curly Cord C/W V.C, Tx And Rx
P007230	22" Arm'd Cord C/W V.C, Tx And Rx
P007319	Floyd Bell Ringer
P007395	PCBA - VoIP
P007472	Sa- Metal Keypad C/W PCB & Cable
P007477	Adaptor Plate For Mounting PCBA

12. 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.

13. 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.

14. 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.

15. 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.
Toll-free 1-800-363-8010
Phone (403) 258-3100
Fax. (403) 253-4967
www.guardiantelecom.com

16. 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.

17. 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 online under Products\VoIP Technical Support at www.guardiantelecom.com or 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.

18. 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.

Notes:

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

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Guardian Telecom Inc.
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)

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