



GAI-TRONICS®
A HUBBELL COMPANY

Model 352-001, 352-002, 352-003, and 352-004 Division 1 Telephones

Confidentiality Notice

This manual is provided solely as an operational, installation, and maintenance guide and contains sensitive business and technical information that is confidential and proprietary to GAI-Tronics. GAI-Tronics retains all intellectual property and other rights in or to the information contained herein, and such information may only be used in connection with the operation of your GAI-Tronics product or system. This manual may not be disclosed in any form, in whole or in part, directly or indirectly, to any third party.

General Information

GAI-Tronics' Class I, Division 1 Telephones are constructed of cast aluminum and are weatherproof and corrosion resistant. The telephones operate as a standard analog telephone—simply lift the handset and dial the desired telephone number. The telephones are fully line powered and do not require external power for standard operation.

This manual applies to the following models:

- Model 352-001 Division 1 Telephone
- Model 352-002 Division 1 Telephone with Ring Relay
- Model 352-003 Division 1 Telephone with Headset
- Model 352-004 Division 1 Telephone with Ring Relay and Headset

Installation

Installation Guidelines

These enclosures must be installed by trained, qualified and competent personnel. Installation must comply with state and national regulations, as well as safety practices for this type of equipment.

⚠ CAUTION ⚠ Do not install this equipment in hazardous areas other than those indicated on the approval listing in the "Specifications" section of this manual. Such installation may cause a safety hazard and consequent injury or property damage.

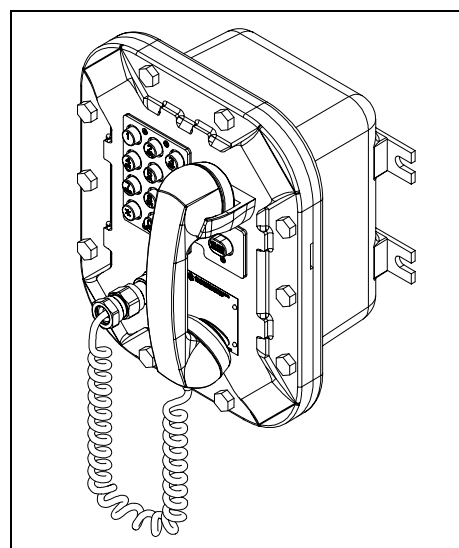








Figure 1. Model 352-001
Division 1 Telephone

The mounting location must be flat and provide proper clearance, rigidity and strength to support the enclosure and all contained devices.

 **WARNING**  Securely fasten the enclosure to the mounting location, using 3/8-inch diameter steel mounting bolts and washers, or washer head bolts.

 **WARNING**  **Do not disconnect equipment while energized.**
Insure proper grounding to protective earthing.

 **WARNING**  **The front cover is not hinged to the rear enclosure. When the cover bolts are removed, the cover must be adequately supported.**

 **ATTENTION**  **Installation should be performed by qualified personnel and only in accordance with the National Electrical Code or applicable local codes.**

Inspect and clean the machined flange flame joint surfaces of both the cover and box. Surfaces must be smooth, free of nicks, scratches, dirt or any foreign particle build-up that would prevent a proper seal. Surfaces must seat fully against each other to provide a proper explosion-proof joint. Clean surfaces by wiping with a clean lint-free cloth.

Apply a light coat of Killark "LUBG" lubricant to flange surfaces and close the cover. Install and tighten all cover bolts to 30 ft-lbs. Make certain no cover bolts are omitted. Use only those bolts supplied with the enclosure.

When installing any GAI-Tronics telephone equipment, please adhere to the following guidelines to ensure the safety of all personnel:

- **Electrostatic Discharge (ESD) Protection:** Your telephone has an earth ground terminal provision. Ensure that it is connected to ground in accordance with all local safety regulations and the National Electrical Code (NEC). Grounding must be ensured for safe and stable communications. Do not use long and coiled ground wires. Please note proper grounding does not eliminate the need for lightning protection for the telephone or the telephone system.
- NEVER install telephone during a lightning storm.
- **Install a UL Listed lightning arrestor** on any phone installed where the phone or phone cable is at risk of being exposed to lightning strikes. The lightning arrestor must be installed as close to the telephone as possible in a non-hazardous environment to maximize the protection. The lightning arrestor must not be installed within the telephone enclosure.
- 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.

Mounting

NOTE: The mounting surface must be able to support the 28-lbs. weight of the telephone.

The enclosure must be securely fastened with 3/8-inch diameter steel mounting bolts located on all four mounting feet. Stainless steel hardware is recommended in outdoor applications. Refer to Figure 2. The suggested mounting height is 48 inches to the bottom of the enclosure.

NOTE: Refer to the Killark Installation, Operation, and Maintenance Data Sheet enclosed with the unit for additional enclosure information.

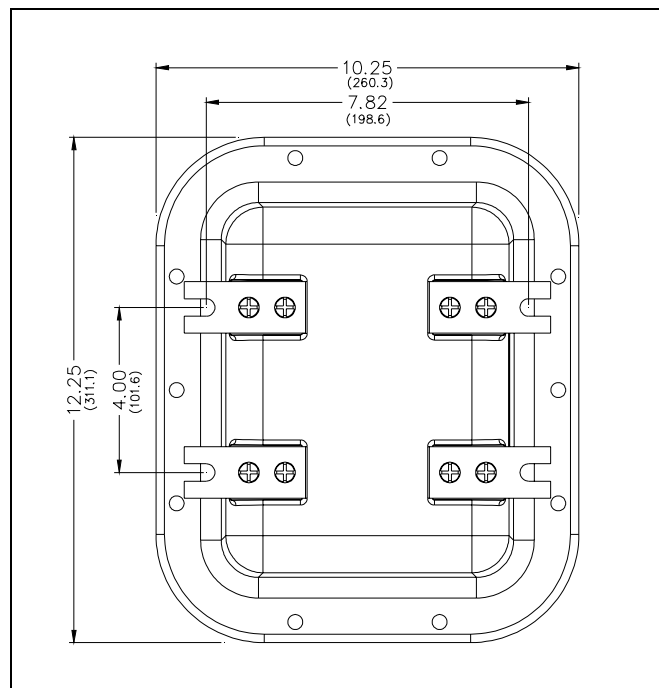


Figure 2. Model 352 Series Division 1 Telephone Enclosure Mounting Details

Cable Entries

Refer to Figure 3 for the NPT conduit entries. Ensure any unused openings are sealed with proper fittings per local standards. Use field wiring suitable for the ambient temperature. Any conduit NPT plugs (blanking elements) must be explosion-proof with a Type 4X rating.

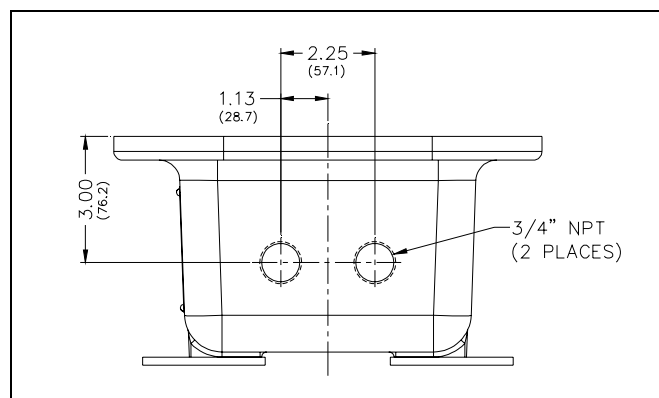


Figure 3. Model 352 Series Conduit Entries

Hardware Description

External

Models 352-001 and 352-002 each contain a handset with approved cable gland, standard keypad, volume control button, and applicable approval labeling. The handset rests on a cradle, which has a magnetic reed switch to signal an off-hook condition. The enclosure is sealed with ten cover mounting bolts located around the perimeter of the enclosure's flange. See Figure 4.

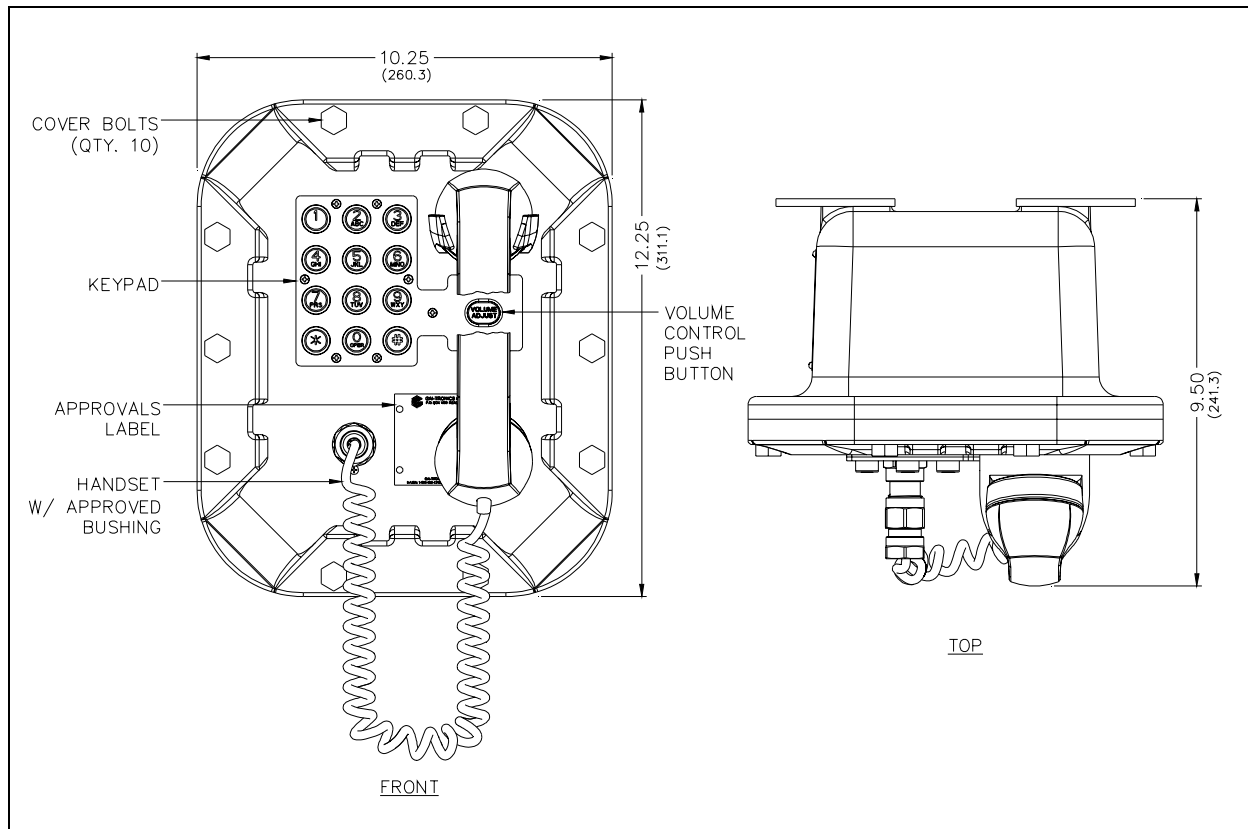


Figure 4. Model 352 Series Division 1 Hazardous Area Telephone Outline

For Models 352-003 and 352-004 with the headset option, the cradle and handset are replaced with a removable headset and headset activation bracket.

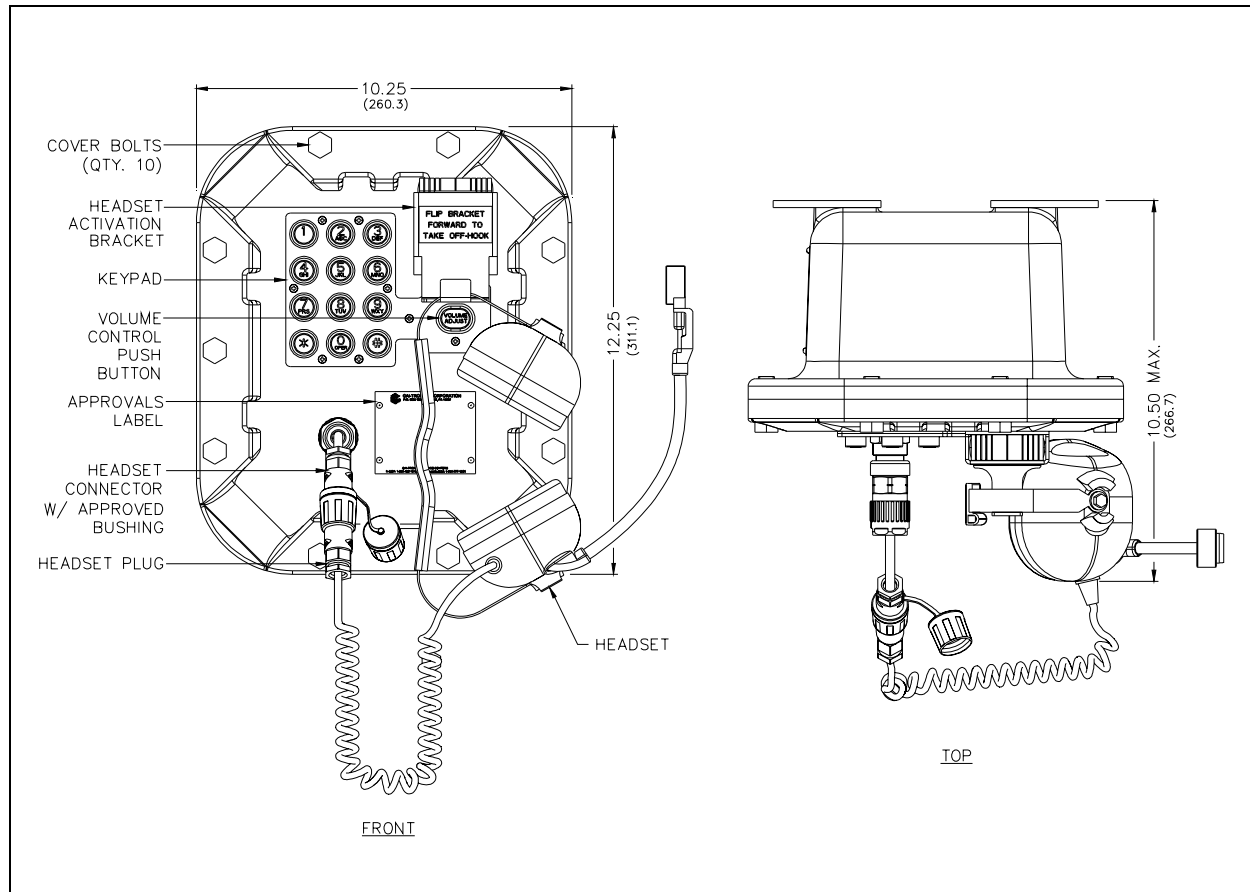


Figure 5. Model 352 Series Headset Models

Internal

With the exception of the ring relay (when fitted), all standard components are mounted to the rear of the front cover. See Figure 6 for the parts layout.

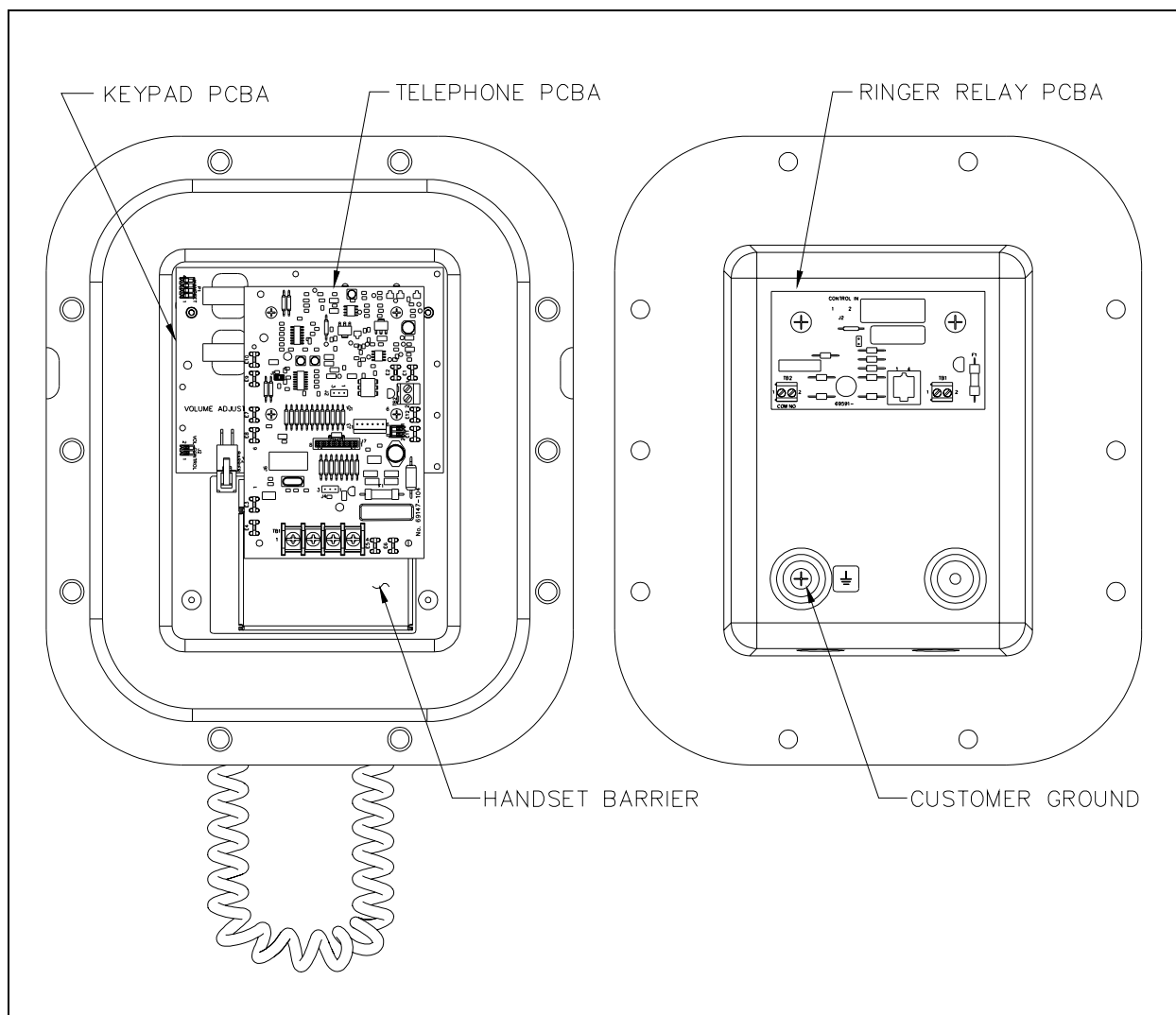


Figure 6. Model 352 Series Division 1 Hazardous Area Telephone - Internal View

Ring Relay PCBA

The Ring Relay PCBA allows the telephone to activate an external beacon or sounder when the telephone receives a call. When installed, the Ring Relay PCBA is connected to the main PCBA via a USOC RJ11C modular connector cord. This allows the telephone input wiring to be connected directly to the Ring Relay PCBA. The Ring Relay PCBA is located in the rear enclosure. See Figure 6 for mounting, and steps 3 through 5 in the “Wiring” section.

Wiring

**WARNING**

The front cover is not hinged to the rear enclosure. When the cover bolts are removed, the cover must be adequately supported.

1. While supporting the front cover, remove the ten cover bolts on the enclosure flange. Pull the front cover far enough away to expose the internal connections and disconnect any wiring between the front cover and rear enclosure. Place the front cover aside.
2. Connect the incoming subscriber line or the telephone line suppressor (if applicable) to TB1 on the main PCBA. If there is not a Ring Relay PCBA present, see Figure 7.

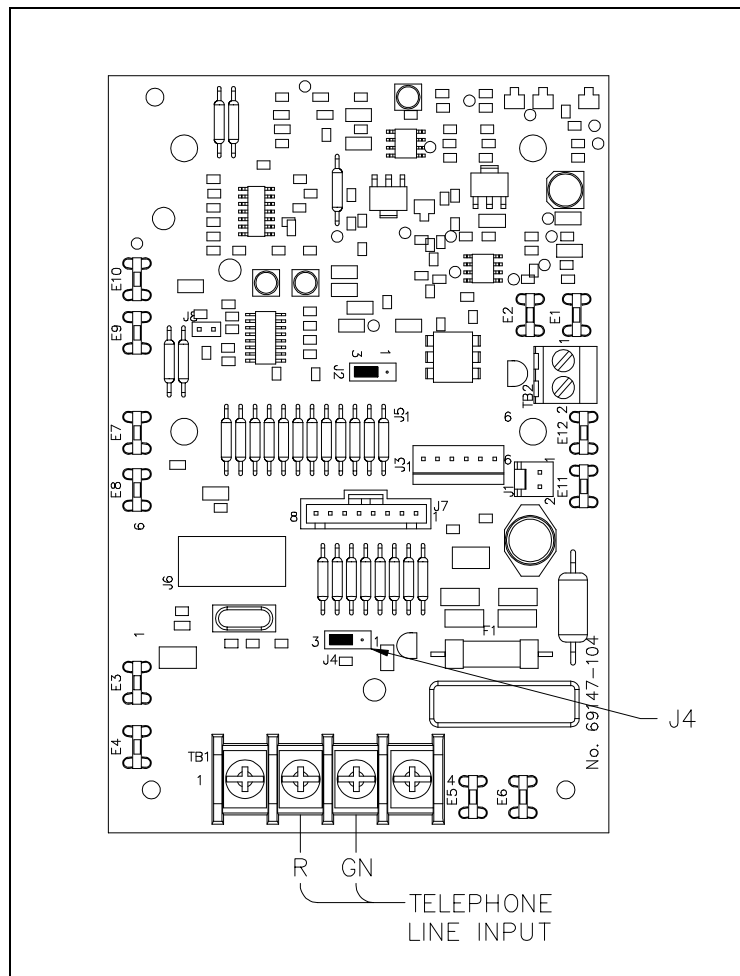


Figure 7.

3. When a Ring Relay PCBA is present, connect the incoming subscriber line to the TB1 terminal block. See Figure 8 and Figure 9.

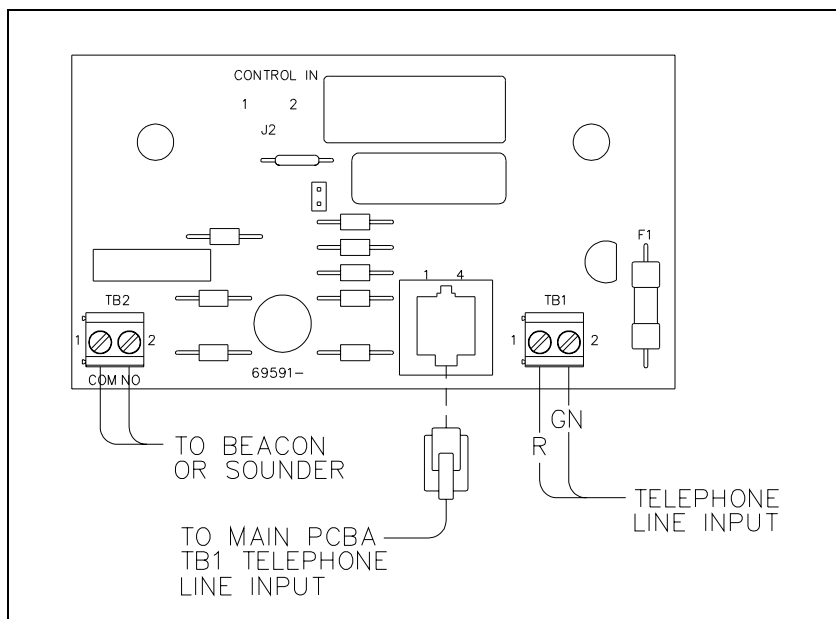


Figure 8.

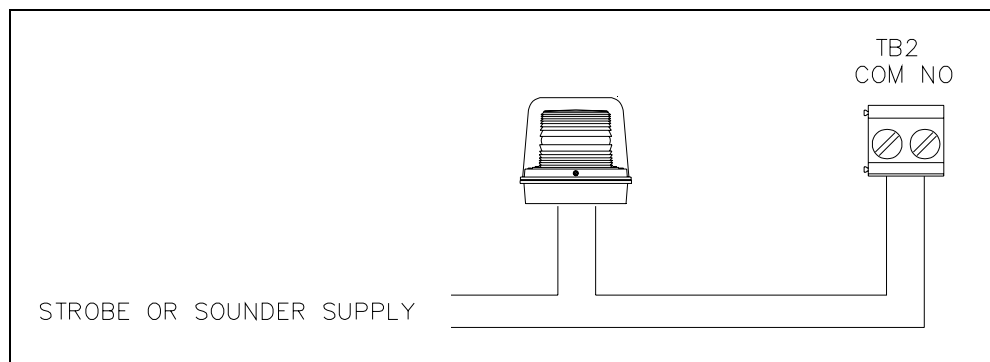


Figure 9.

4. Connect the external sounder or beacon to TB2, for activation with an incoming telephone call.
5. Reconnect the USOC RJ11C modular connector cord to the Ring Relay PCBA, from the main PCBA on the front panel, before reattaching the front cover.

⚠ WARNING ⚠ Any external equipment connected to the Ring Relay PCBA must be rated for the hazardous area where it will be located. Improper installation or equipment may cause a safety hazard and consequent injury or property damage.

Volume Control Jumper Setting

The handset receiver volume control is factory set to default to its original setting (0 dB) when the telephone is hung up. To save the volume control setting, jumper **J4**, which is factory set at positions **2** and **3**, must be moved to positions **1** and **2**. Refer to Figure 7 for the location of **J4**.

Auxiliary Output

Each telephone includes one isolated solid state switch capable of switching a maximum of 48 V dc, 125 mA or 28 V_{RMS} ac, 80 mA_{RMS}. TB2 (AUX OUT) on the main PCBA provides the connections for the auxiliary output. Refer to Figure 10 for the location of TB2. This output remains energized for the duration of a call.

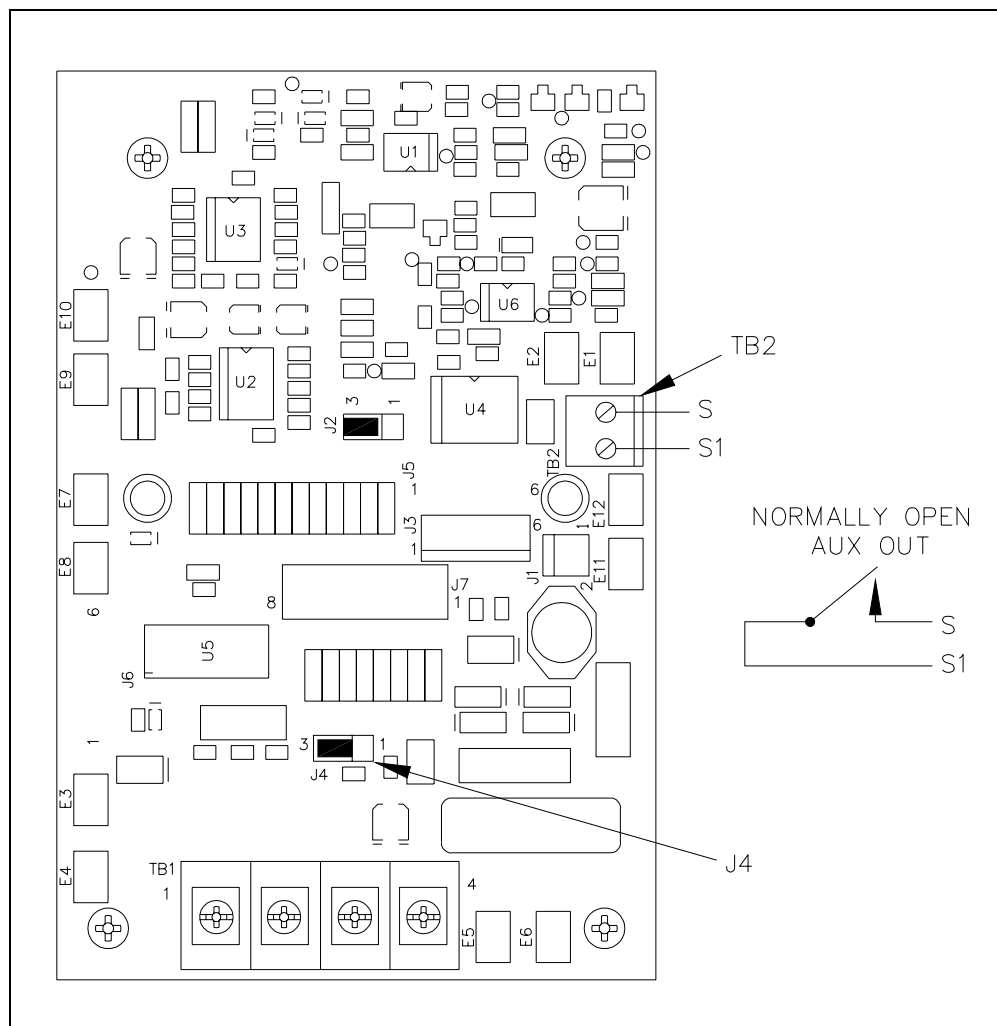


Figure 10.

Attach the Front Cover

After all adjustments have been completed, inspect and clean the machined flange joint surfaces of both the cover and box. Surfaces must be smooth, free of nicks, scratches, dirt or any foreign particle build-up that would prevent a proper seal. Surfaces must seat fully against each other to provide a proper explosion-proof joint. Clean surfaces by wiping with a clean lint-free cloth.

Apply a light coat of Killark "LUBG" lubricant to flange surfaces and close the cover. Install and tighten all cover bolts to 30 ft-lbs. Make certain no cover bolts are omitted. Use only those bolts supplied with the enclosure.

NOTE: Refer to the Killark Installation, Operation, and Maintenance Data Sheet enclosed with the unit for additional enclosure information.

Operation

Models 352-001 and 352-002 Handset Operation

1. Lift the handset to place a call.
2. The handset receiver volume located on the front cover keypad, can be adjusted to the desired level by pressing the volume control push button.

NOTE: Pressing the volume control push button increases the volume in 3-dB increments. The volume starts at 0 dB and increases to a maximum volume of 18 dB. Pressing the volume control push button a seventh time will return the volume to 0 dB.

3. Dial the desired number.
4. After completion of the call, place the handset on-hook.

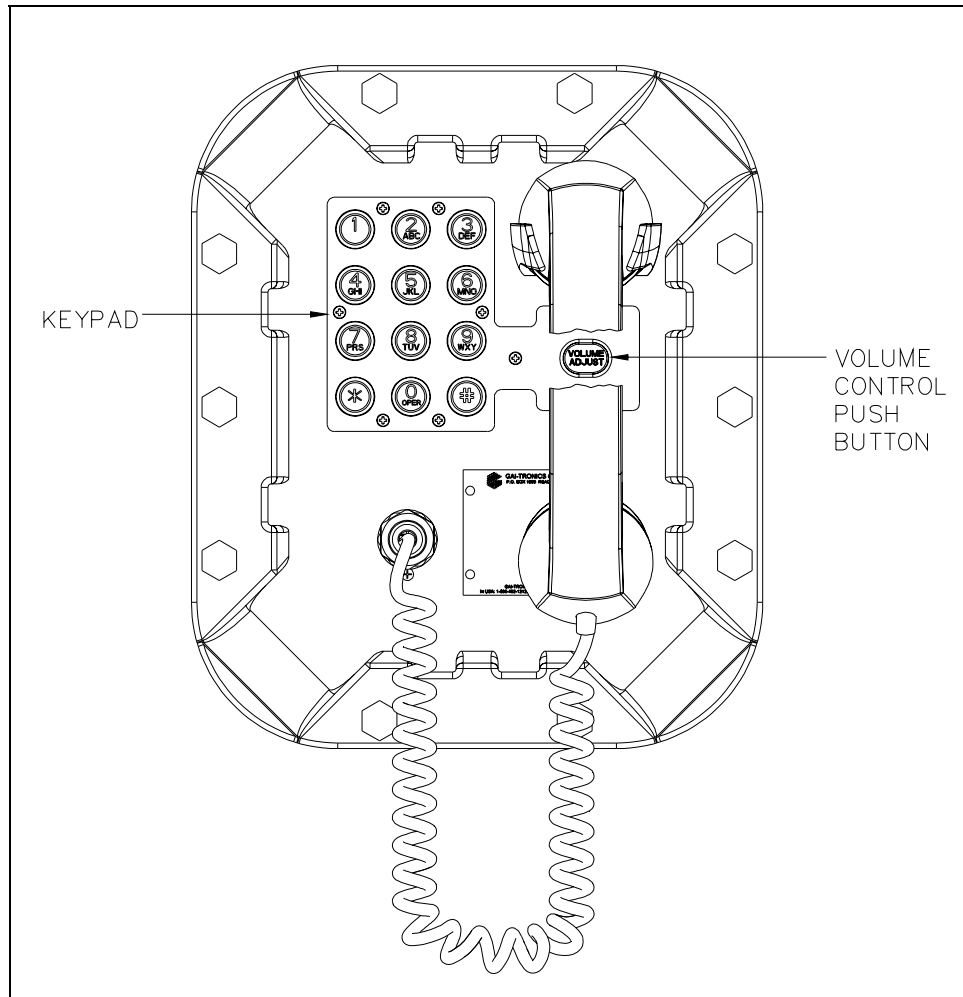


Figure 11.

Models 352-003 and 352-004 Headset Operation

1. To connect the headset, plug it into the flexible plug on the front of the telephone by removing the sealing cap from the receptacle, aligning the connector pins, and screwing the two ends together.

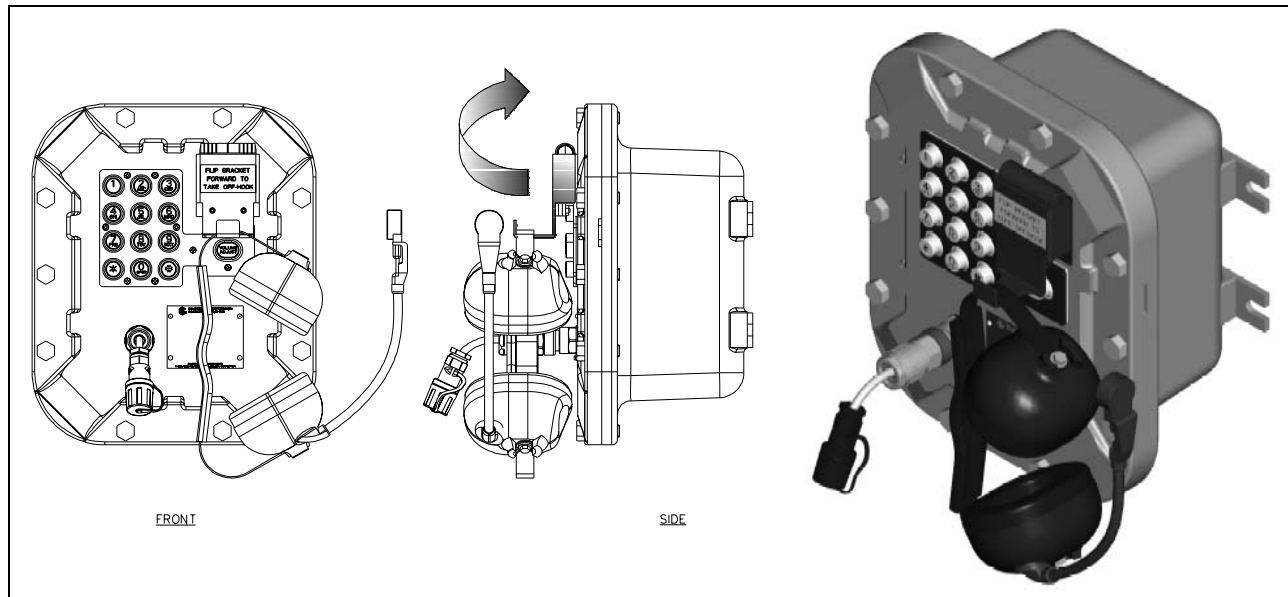


Figure 12.

2. To place a call, remove the headset from the headset activation bracket and flip the headset bracket forward to its preset position. See Figure 12.
3. The handset receiver volume control, which is located on the front cover keypad, can be adjusted to the desired level by pressing the volume control push button.

NOTE: Pressing the volume control push button increases the volume in 3-dB increments. The volume starts at 0 dB and increases to a maximum volume of 18 dB. Pressing the volume control push button a seventh time will return the volume to 0 dB.

4. Dial the desired number.

5. Flip the headset activation bracket to its vertical preset position to hang up. If applicable, place the headset on the bracket after the completion of the call. Otherwise, disconnect the flexible receptacle and plug by unscrewing the two ends, and pulling them apart. When disconnected, reattach the sealing cap to the end of the receptacle. See Figure 13.

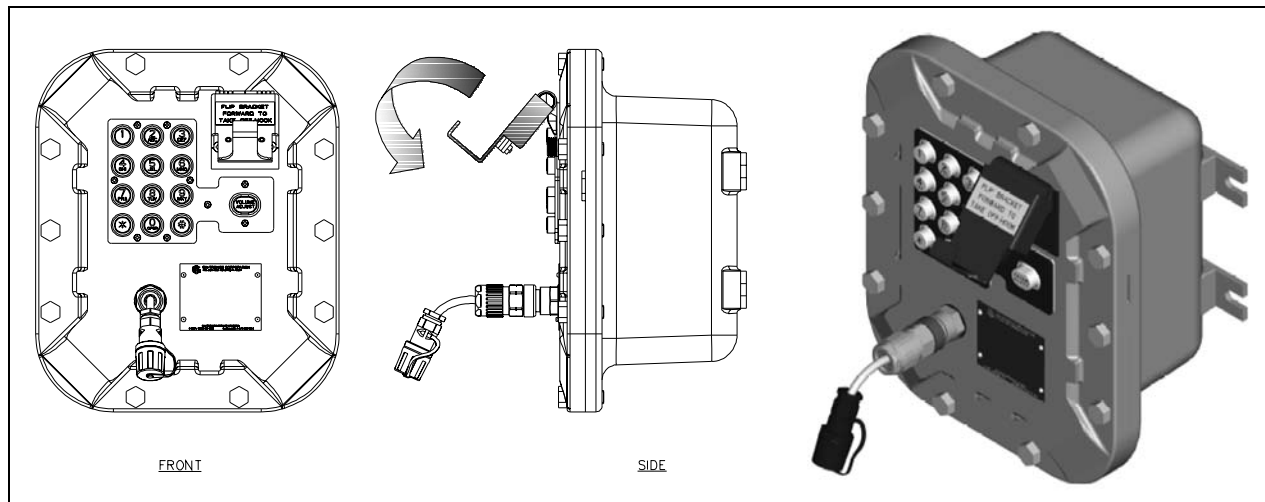


Figure 13.

Maintenance

Service

If your telephone requires depot service, contact your Regional Service Center for a return authorization number (RA#). Equipment should be shipped prepaid to GAI-Tronics with a return authorization number and a purchase order number. If the equipment is under warranty, repairs will be made without charge. Please include a written explanation of all defects to assist our technicians in their troubleshooting efforts.

Call 800-492-1212 inside the USA or 610-777-1374 outside the USA for help identifying the Regional Service Center closest to you.

Specifications

Electrical (Typical)

Frequency response.....	300–3,000 Hz
Inter-digit pause	100 ms
Minimum loop current	20 mA
Signaling tone (DTMF).....	100 ms Tone Duration
Supervisory dc current	Minimum 20 mA dc; maximum 60 mA dc
Supervisory dc voltage.....	24–60 V dc (not polarity sensitive)
Network interface.....	Loop Start
Auxiliary output (isolated solid state switch)	48 V dc @ 125 mA 28 V _{RMS} ac @ 80 mA _{RMS}
Ring Relay PCBA output mechanical relay contact	250 V ac @ 5A 30 V dc @ 5A
Network signaling.....	DTMF
Ringer Equivalence Number (REN) <u>with</u> Ringer Relay PCBA.....	3.1A
REN <u>without</u> Ringer Relay PCBA	1.0A/1.3B

Environmental

Operating temperature	–40° F to +140° F (–40° C to +60° C)
Humidity	90% non-condensing

Mechanical

Enclosure	Cast aluminum with aluminized lacquer paint
Handset Cord	“G” style handset/PVC 6-foot extended length (standard)
Connections.....	Internal screw-type barrier terminal blocks
Dimensions, Outside	10.25 W × 12.25 H × 9.50 D inches (260.3 × 311.1 × 241.3 mm)
Mounting.....	Wall or column, four 3/8-inch (10 mm) mounting feet with slots
Shipping weight	30.0 lbs. (13.6 kg)
Net weight.....	28.0 lbs. (12.7 kg)

Approvals

NRTL listed	Hazardous locations Class I, Division 1, Groups B, C, & D
(USA and Canada)	Class II, Division 1, Groups F & G
	Class III, Division 1
	T6 – Gas
	T4A – Dust

User Instructions (USA)

This equipment has been tested and found 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 generates, uses, and can 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 his own expense.

Warranty

Equipment. GAI-Tronics warrants for a period of one (1) year from the date of shipment, that any GAI-Tronics equipment supplied hereunder shall be free of defects in material and workmanship, shall comply with the then-current product specifications and product literature, and if applicable, shall be fit for the purpose specified in the agreed-upon quotation or proposal document. If (a) Seller's goods prove to be defective in workmanship and/or material under normal and proper usage, or unfit for the purpose specified and agreed upon, and (b) Buyer's claim is made within the warranty period set forth above, Buyer may return such goods to GAI-Tronics' nearest depot repair facility, freight prepaid, at which time they will be repaired or replaced, at Seller's option, without charge to Buyer. Repair or replacement shall be Buyer's sole and exclusive remedy. The warranty period on any repaired or replacement equipment shall be the greater of the ninety (90) day repair warranty or one (1) year from the date the original equipment was shipped. In no event shall GAI-Tronics warranty obligations with respect to equipment exceed 100% of the total cost of the equipment supplied hereunder. Buyer may also be entitled to the manufacturer's warranty on any third-party goods supplied by GAI-Tronics hereunder. The applicability of any such third-party warranty will be determined by GAI-Tronics.

Services. Any services GAI-Tronics provides hereunder, whether directly or through subcontractors, shall be performed in accordance with the standard of care with which such services are normally provided in the industry. If the services fail to meet the applicable industry standard, GAI-Tronics will re-perform such services at no cost to buyer to correct said deficiency to Company's satisfaction provided any and all issues are identified prior to the demobilization of the Contractor's personnel from the work site. Re-performance of services shall be Buyer's sole and exclusive remedy, and in no event shall GAI-Tronics warranty obligations with respect to services exceed 100% of the total cost of the services provided hereunder.

Warranty Periods. Every claim by Buyer alleging a defect in the goods and/or services provided hereunder shall be deemed waived unless such claim is made in writing within the applicable warranty periods as set forth above. Provided, however, that if the defect complained of is latent and not discoverable within the above warranty periods, every claim arising on account of such latent defect shall be deemed waived unless it is made in writing within a reasonable time after such latent defect is or should have been discovered by Buyer.

Limitations / Exclusions. The warranties herein shall not apply to, and GAI-Tronics shall not be responsible for, any damage to the goods or failure of the services supplied hereunder, to the extent caused by Buyer's neglect, failure to follow operational and maintenance procedures provided with the equipment, or the use of technicians not specifically authorized by GAI-Tronics to maintain or service the equipment. THE WARRANTIES AND REMEDIES CONTAINED HEREIN ARE IN LIEU OF AND EXCLUDE ALL OTHER WARRANTIES AND REMEDIES, WHETHER EXPRESS OR IMPLIED BY OPERATION OF LAW OR OTHERWISE, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Return Policy

If the equipment requires service, contact your Regional Service Center for a return authorization number (RA#). Equipment should be shipped prepaid to GAI-Tronics with a return authorization number and a purchase order number. If the equipment is under warranty, repairs or a replacement will be made in accordance with the warranty policy set forth above. Please include a written explanation of all defects to assist our technicians in their troubleshooting efforts.

Call 800-492-1212 (inside the USA) or 610-777-1374 (outside the USA) for help identifying the Regional Service Center closest to you.