



**GAI-TRONICS®**  
A HUBBELL COMPANY

# Model 354-001 Series NEMA 4X Industrial Telephone

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## 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 Model 354-001 series NEMA 4X Industrial Telephones are designed for use in extreme weather conditions where temperature and moisture are a concern. They are also ideal for use in areas that require a direct water spray (hose-down) for cleaning purposes or where a non-corrosive material is required.

The 354-001 series Telephone is perfectly suited for areas considered too harsh for a standard telephone.

The 354-001 series Telephone operates in the same manner as a standard telephone – simply lift the handset, listen for a dial tone, and dial the desired telephone number. The telephone is completely line-powered.

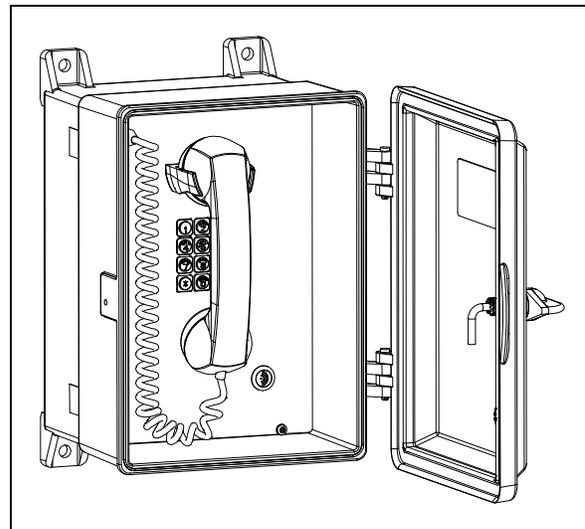


Figure 1. Model 354-001 Series NEMA 4X  
Industrial Telephone

## Features

Features include:

- NEMA 4X rated with door closed (NEMA 3R with door open)
- Line-powered operation
- Handset with 6-foot Hytrel® coiled cord and noise-cancelling microphone
- Panel-mounted push-button volume control
- Chrome-plated keypad with protective rubber boot and Braille reference
- Brushed stainless steel panel

## Ordering Information

The Model 354-001 series NEMA 4X Industrial Telephone is available in three standard models:

Table 1. Model Chart

Model	Description
354-001	NEMA 4X Industrial Telephone, Gray
354-001YL	NEMA 4X Industrial Telephone, Yellow
354-001OR	NEMA 4X Industrial Telephone, Orange
354-001RD	NEMA 4X Industrial Telephone, Red

The following options are available:

- Key-lock front door
- Coiled cord (15-foot)
- Armored handset cord (15-inch)
- Spring door closure

The following kits are available:

**Model 12565-009** Ring Detector Relay Kit (output contact rated 5 A @ 30 V dc/ac)

**Model 12576-130** Front Panel Replacement Kit

## Installation Guidelines

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

## Safety Guidelines

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

- NEVER install telephone wiring during a lightning storm.
- **Install a UL Listed lightning arrester** on any telephone installed where the telephone or telephone cable is at risk of being exposed to lightning strikes. The lightning arrester must be installed as close as possible to maximize the protection. It must not be installed within the enclosure supplied with the telephone. Please consult our Service Center at 800-492-1212 for further information.
- Do not install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Do not touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.

## Installation

 **WARNING**  **This product can contain hazardous voltages. Always remove power to this station and any associated equipment before beginning any installation.**

 **CAUTION**  **Do not install this equipment in 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.**

Install equipment without modification and according to all applicable local and national electrical codes. Consult the National Electrical Code (NFPA 70), Canadian Standards Association (CSA 22.1), and local codes for specific requirements regarding your installation. Class 2 circuit wiring must be performed in accordance with NEC 725.55.

## Security Hardware

The Model 354-001 series Telephone is vandal-resistant, with the front panel attached to its enclosure with security screws. A GAI-Tronics Model 233-001 Security Screwdriver (sold separately) or Torx T-25 security head tip (included with the telephone) is recommended for installing the security screws.

## Conduit Installation Details

GAI-Tronics recommends installing telephone cable in conduit to protect against damage and vandalism. Mounting and wiring of the Model 354-001 series Telephones must be in accordance with installation standard practices.

Entering the enclosure from the top is not recommended. Bottom (preferred) or side entry helps prevent condensation moisture from dripping onto the telephone electronics causing severe damage. If using conduit, an appropriate hub (Myers STG series recommended) or a UL Listed NEMA 4X rated connector appropriate for the installation should be used. If a top entry must be made, a drip path is strongly recommended. Seal all conduit entrances around the entry point and inside the conduit using a silicone-type sealant.

The Model 354-001 series Telephones are not supplied with openings for conduit or cable because of potential installation variations. Conduit entrances must be installed prior to mounting the enclosure to the wall surface.

1. Open the door and remove the front panel assembly (carefully set aside).
2. Drill (hole saw) or punch entry openings using the template provided with the telephone. There must be a minimum of 1 inch (26 mm) of material between entry holes.
3. Install hub or fitting.

## Mounting the Enclosure

Mount the enclosure using the four 0.437-inch (11mm) diameter holes located on the mounting flanges with 3/8-inch (M8) hardware. For specific details, including mounting hole dimensions and spacing, refer to Figure 2.

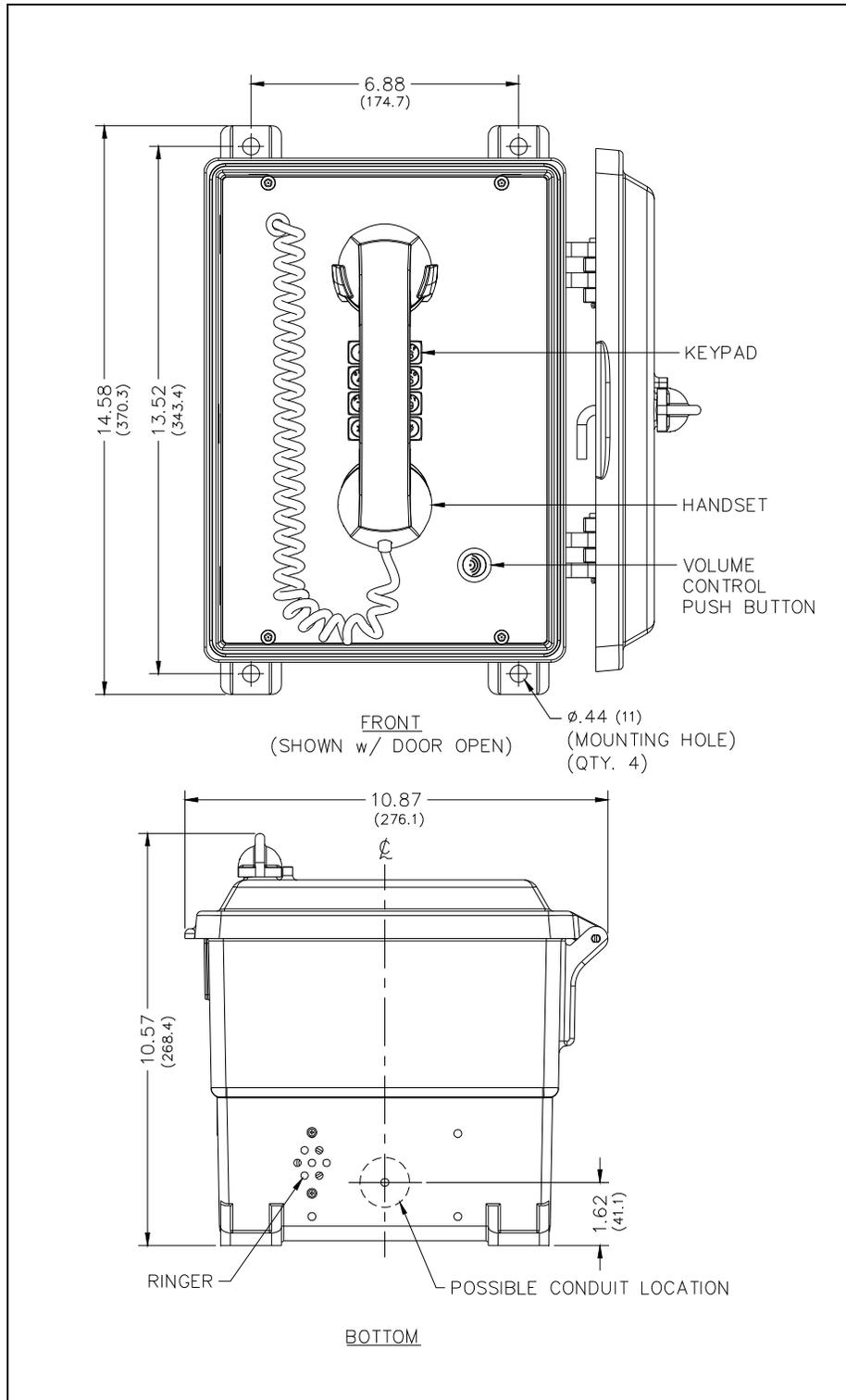


Figure 2. Mounting and Entry Locations

## Wiring and Testing

1. If mounting outdoors, install a lightning arrestor/suppressor (customer-supplied) on the telephone line.
2. Connect the incoming subscriber line (red and green) or line suppressor to the Main PCBA terminal strip. See Figure 3 and Figure 4.
3. Install panel assembly in the enclosure and fasten security screws.
4. Check for proper telephone operation by calling to and from another telephone.

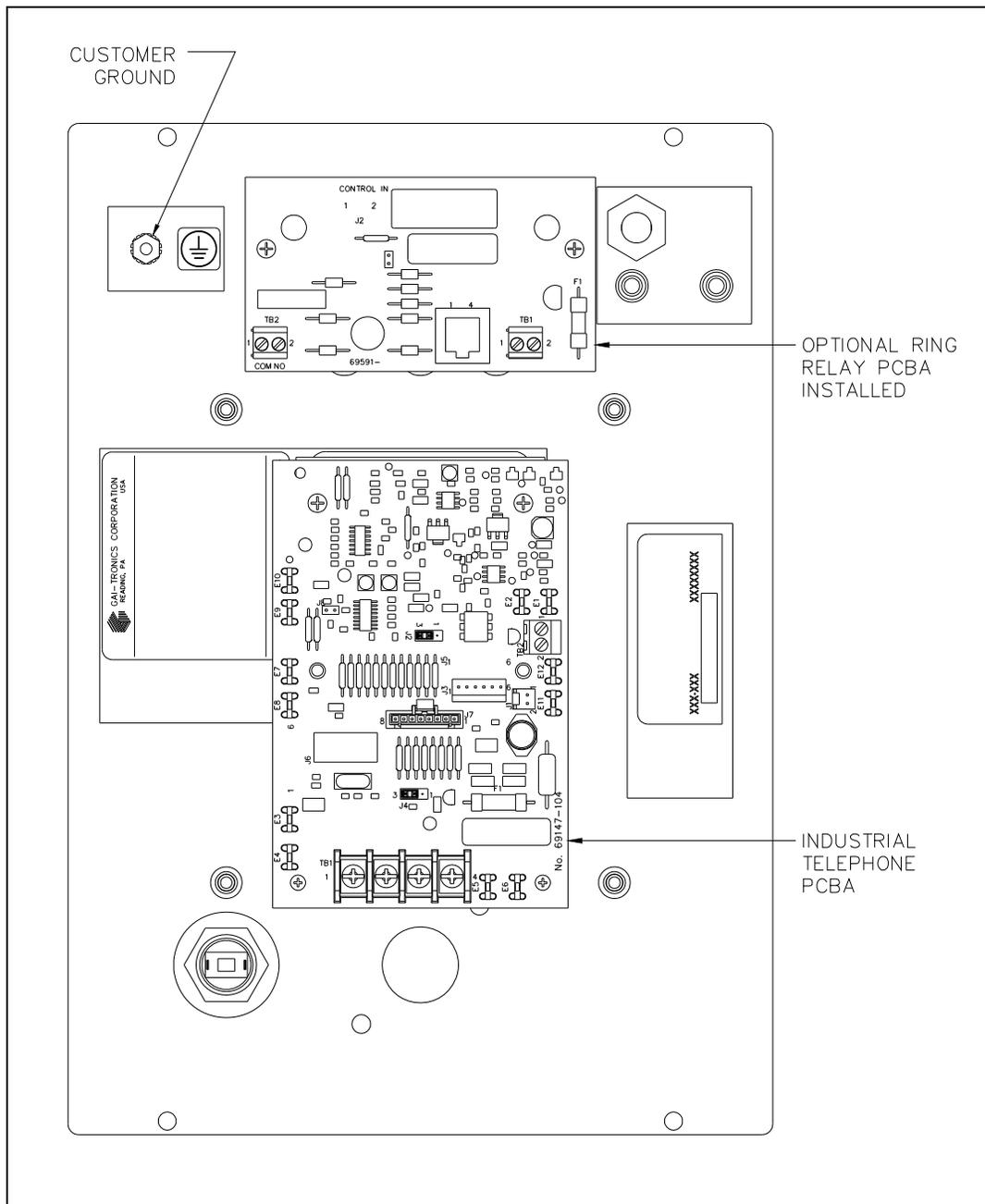


Figure 3. Interior of the Front Panel

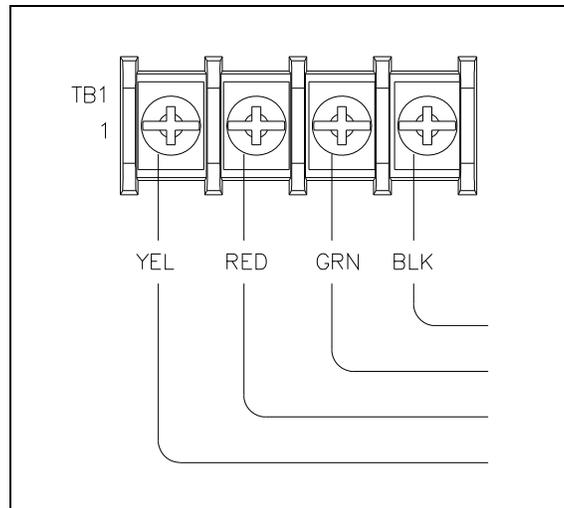


Figure 4. TB1 Terminal Block on Industrial Telephone PCBA

## Ring Relay Kit

The Ring Relay Kit allows the telephone to activate a peripheral device, such as a beacon or sounder, when ring voltage is present. The kit includes a PCBA, mounting hardware, and USOC RJ11C Module connector cord (provided with the kit).

When installed, the Ring Relay PCBA is connected to the Industrial Telephone PCBA via the 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 installed on the back of the front panel. See Figure 3 for mounting and steps 1 through 3 in the “Ring Relay Wiring” section.

### Installing the Ring Relay PCBA

1. Install the two standoffs (provided) onto the back of the panel as shown in Figure 3.
2. Align the Ring Relay PCBA with the two standoffs and secure using the two 6-32 screws provided.

## Ring Relay Wiring

1. Connect the incoming subscriber line to the TB1 terminal block. See Figure 5.
2. Connect the external sounder or beacon to TB2 for activation with an incoming telephone call. See Figure 5 and Figure 6.
3. Before reattaching the panel assembly, connect the USOC RJ11C modular connector cord (provided with the Ring Relay Kit) from the Industrial Telephone PCBA to the Ring Relay PCBA.

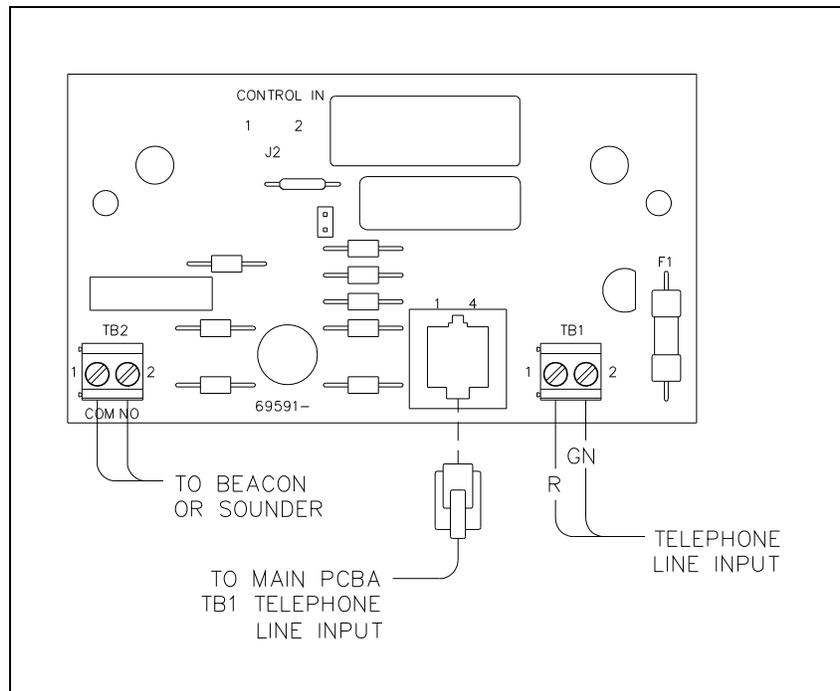


Figure 5. Ring Relay PCBA Wiring

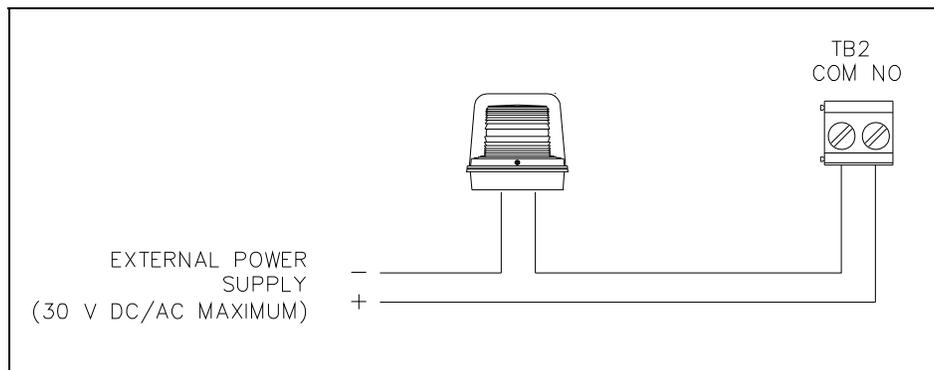


Figure 6. Device Interconnection

## Operation

1. Lift the handset to place a call.
2. The handset receiver volume control, which is located on the stainless steel front panel, can be adjusted to the desired level by momentarily pressing the push button.  
**NOTE:** Pressing the volume push button increases the volume in 3 dB increments. The volume starts at 0 dB and increases to a maximum of 18 dB. Pressing the push button a seventh time returns the volume to 0 dB.
3. Dial the desired number.
4. After completion of the call, place the handset on-hook.

## 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**, after the desired volume is reached.

## Specifications

### Electrical (Typical)

Frequency response.....	300 to 3,000 Hz
Inter-digit pause .....	100 ms
Minimum loop current .....	20 mA
Operation .....	Loop start
Signaling tone (DTMF).....	100 ms tone duration
Supervisory dc current .....	Minimum 20 mA dc; maximum 60 mA dc
Supervisory dc voltage.....	24 V dc to 60 V dc (not polarity sensitive)
Network interface.....	Loop start
Minimum loop center.....	20 mA
Network signaling.....	DTMF
Ring Relay PCBA (optional) output contact rating .....	30 V dc/ac @ 5 A

### Environmental

Operating temperature .....	-40° F to +140° F (-40° C to +60° C)
Humidity .....	90% non-condensing
Enclosures for Electrical Equipment.....	UL 50 TYPE 4X with door closed and latched

### FCC Information

FCC Registration Number .....	US: ADGTE10A-46048HAC
Ringer Equivalence Number (REN) .....	1.0A/1.3B
Network connection (USOC).....	RJ11
Meets hearing aid compatibility magnetic field intensity and volume control technical standards per FCC Sections 68.316 and 68.317.	

IC Information (Canada)

IC Certification Number ..... 82211754  
 Ringer Equivalence Number (REN) ..... 1.0A/1.3B  
 Connecting Method..... CA11A

Mechanical

Enclosure (gray, yellow, orange, or red)..... Engineered plastic  
 Handset cord ..... “G” style handset/Hytrel® 6-foot extended length (standard)  
 Connections..... Screw terminals  
 Dimensions, outside..... 14.6 H × 10.9 W × 10.5 D inches (371 × 276 × 267 mm)  
 Mounting..... Wall or column, four 0.44-inch (11mm) diameter mounting holes  
 Weight..... 12.0 lbs. (5.44 kg)

Safety Approvals

Safety of Information Technology Equipment ..... UL 60950 and Can/CSA-C22.2 NO. 60950-00

## Replacement Parts and Accessories

Table 2.

Part No.	Description
10113-122	Handset Assembly with 6-foot Hytrel® Coiled Cord and Noise Canceling Microphone
10113-020	Handset Assembly with 15-inch Armored Handset Cord and Noise Canceling Microphone
12542-002	Replacement Mounting Screw Kit (Security, 15 pack)
51035-005A	Replacement Keypad Assembly
69147-104	Replacement PCB Assembly
12576-130	Front Panel Replacement Assembly, Hytrel® Coiled Cord
12576-132	Front Panel Replacement Assembly, Armored Handset Cord
12565-009	Ring Relay Kit
12251-001	Spring Door Kit
54001-003	Security Tip, Torx T-25
61531-083	Ringer with cable assembly

## 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.

This equipment complies with Part 68 of the FCC rules. Located on the equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN). If requested, this information must be provided to the telephone company. The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive REN's on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the REN's should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total REN's contact the telephone company to determine the maximum REN for the calling area. This equipment cannot be used on the telephone company-provided coin service. Connection to Party Line Service is subject to State Tariffs. If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary. The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications in order to maintain uninterrupted service.

If trouble is experienced with this equipment, please contact:

GAI-Tronics Corporation  
400 E. Wyomissing, Ave.  
Mohnton, PA 19540 USA  
800-492-1212 or 610-777-1374

If the trouble is causing harm to the telephone network, the telephone company may request you to remove the equipment from the network until the problem is resolved. This equipment uses the following USOC jacks: RJ11C It is recommended that the customer install an ac surge arrester in the ac outlet to which this device is connected. This is to avoid damaging the equipment caused by local lightning strikes and other electrical surges. This equipment is Hearing-Aid Compatible (HAC). The telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device, including fax machines, to send any message unless such message clearly contains in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent and an identification of the business or other entity, or other individual sending the message and the telephone number of the sending machine or such business, other entity, or individual. (The telephone number provided may not be a 900 number or any other number for which charges exceed local or long-distance transmission charges.)

## User Instructions (Canada) CP-01, Issue 8, Part I: Section 14.1

**NOTICE:** The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document (s). The Department does not guarantee the equipment will operate 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. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Repairs to certified equipment should be coordinated by a representative 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. Users 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.



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

CP-01, Issue 8, Part I: Section 14.2

**NOTICE:** The **Ringer Equivalence Number (REN)** assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

# Warranty

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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

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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.