

# Installation and User Guide

## VoIP Titan Illuminated Crossing Telephone (1193 model)

**IMPORTANT**  
**THESE PRODUCTS MUST BE CONFIGURED PRIOR TO INSTALLATION**  
**PLEASE READ THIS GUIDE FIRST**

### **GAI-TRONICS**

A division of Hubbell Ltd.

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## 1. Safety and Care Information

The safety instructions for these products are contained in a separate document, no **502-20-0171-001**, which is included as a paper copy with every individual telephone and is available online from:

<https://www.hubbell.com/gai-tronics/en/iom-user-guides>

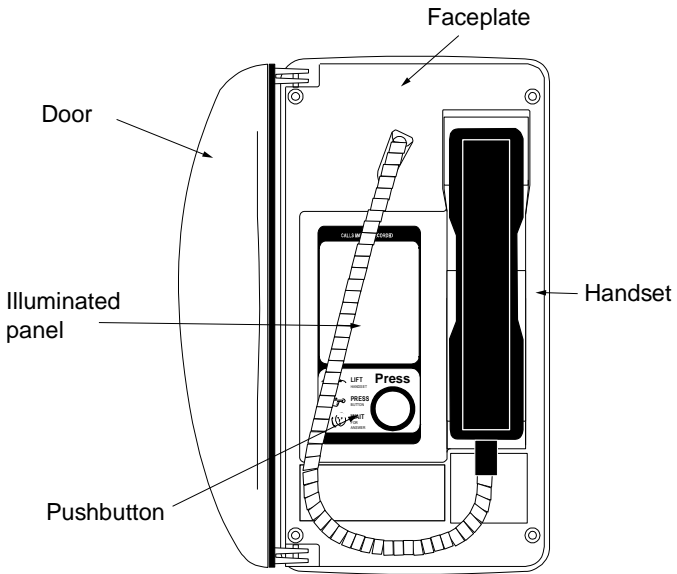
## 2. Features

This manual describes the voice over internet protocol (VoIP 1193 version) of the Titan Illuminated Crossing Phone. Features include:

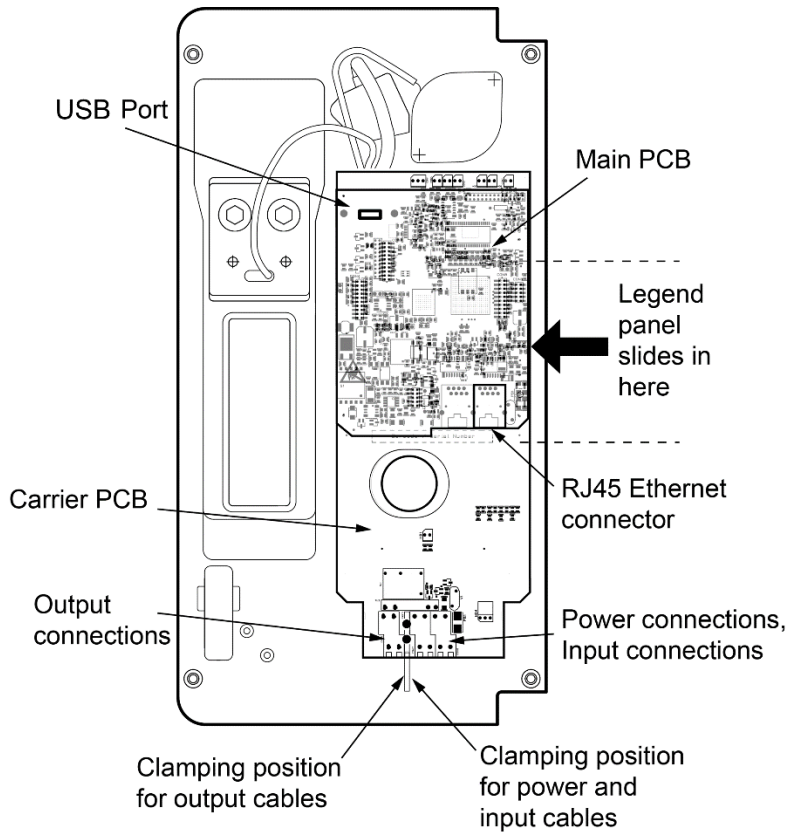
- Visually identical to analogue PETS telephone
- Large backlit panel to illuminate a translucent location ID legend
- Soft sprung door with magnetic catch
- SIP compatible (RFC3261)
- Automatic outgoing call diversion (memory list)
- Weather and vandal resistant
- Wide operating temperature range
- Real-time alarm reporting via SNMP
- Power over Ethernet compatible
- Configurable via web page, SNMP or download
- 3 auxiliary inputs, 2 volt-free contact outputs

For the full list of product features, please see the specifications in section 11.

### 3. At a Glance



Front view

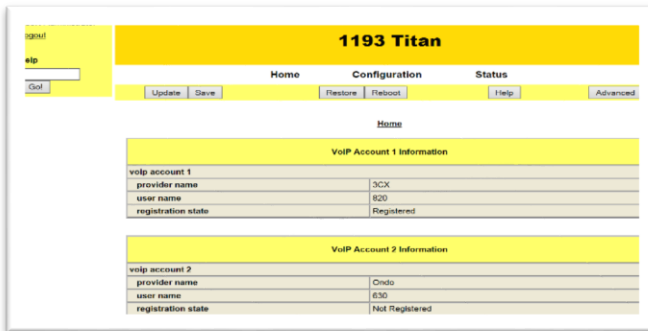


Rear view

## 4. Quick Start Guide

Full programming and configuration details are contained in the Configuration guide, available from

[www.hubbell.com/gai-tronics/en/voip-support](http://www.hubbell.com/gai-tronics/en/voip-support)



The factory defaults will generally be sufficient in most cases, but the following steps must be taken as a minimum:

- Provide an Ethernet connection and power (either 24-48Vdc or PoE)
- Ensure that a DHCP server is available on the network, and that the IP address allocated to the telephone can be discovered (DHCP is the normal factory default provisioning method). If DHCP fails (or there is no DHCP server) the telephone will revert to a default IP address of 192.168.1.2 after a few minutes
- Using a web browser, browse to the IP address.
- When prompted, enter the user name and password (Defaults: **user & password**)
- From the Home Page, select the Configuration section, and from that the VoIP Accounts main page
- On the VoIP Account 1 Information sub-page, enter:
  - The user name (the extension number or name used by the SIP server for this telephone)
  - Domain name, Proxy domain name and Register domain name – set all of these to the domain name or IP address of the SIP server
  - Auth user password – set to the authentication password for the extension on the SIP server if required.
  - Ensure Provider enable and Register enable are both set to enable.
  - Update the changes, then save the changes.
  - Check that the registration state changes to “registered”
- Program any speed dial memories using the User Configuration main page

## 5. Operation / Testing

When the telephone is powered (either by DC supply or PoE) the illuminated panel will be lit, regardless of whether the door is open or closed, or if a call is in progress or not.

Lifting the handset will cause dial tone to be heard (if registered with a SIP server) but a call will not be initiated.

Pressing the button with the handset off hook will make the phone start a call to Memory 1.

Call initiation is independent of how long the button is held pressed. Keeping the button pressed will still make a call.

Pressing the button with the handset on hook will have no effect.

### 5.1. Illuminated Panel alert

If the illuminated panel should fail or become disconnected, the telephone will trigger input 4 and send an SNMP trap to an SNMP server if configured.

### 5.2. Handset integrity alert

If the handset integrity loop is broken (most commonly because the handset has been damaged or torn off), in addition to activating the Integrity Loop alarm the illumination will be turned off.

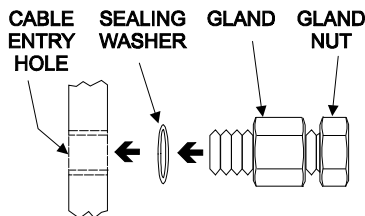
## 6. Mounting methods and dimensions

### 6.1. General

Before mounting the telephone, check the cable routing and requirements. Fit gland(s) to the case as follows:

1. Remove the RED blanking plug leaving the other (usually BLACK) in place.  
Only fit a second gland if any external inputs or outputs are being used – cables for these should be routed through a separate gland to the network cable.
2. Note that 2 plastic glands are supplied, but it is the installer's responsibility to select the correct type of gland for the application and cables used. The gland entries (and the supplied glands) are M20.

3. Select the appropriate sized gland:  
Use the smaller gland for cable diameters 4 - 7mm (0.16 – 0.27in).  
Use the larger gland for cable diameters 8 - 13mm (0.3 – 0.5in).
4. From the outside of the case, insert the selected gland into the threaded cable entry hole and tighten, so that its sealing washer is compressed against the enclosure surface.
5. Proceed with chosen mounting method below



### IMPORTANT

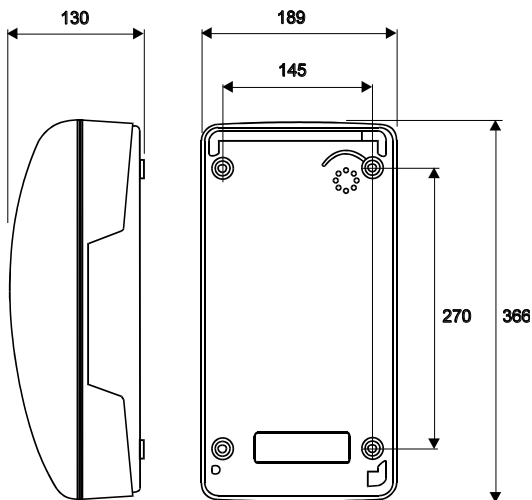
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**Glands are essential to clamp cables and to ensure a weatherproof seal. It is the installer's responsibility to make sure they are correctly selected and fitted. Failure to do so could result in an unsafe installation.**

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As standard, Titan with rear enclosure is supplied with 2 differently sized cable glands with sealing washers, 4 flanged sealing bushes and a 3mm Allen key.

### 6.2. Wall mounting



1. Using a suitable tool, punch out 4 holes in the rear enclosure, taking care not to damage or dislodge the plastic bushes. Only four of the eight holes are required - the outer ones are recommended. The inner holes are provided to be compatible with older-style mounting posts, and should be left intact if not used. If the inner holes are used they must be fitted with the supplied plastic bushes.



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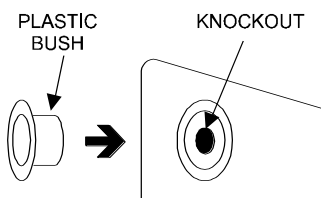
**WARNING:** *An unsafe condition could occur (and your warranty will be invalidated) if :-*

1. *Any fixing hole made in the rear enclosure is left unused.*
  2. *Any additional holes are drilled into the telephone enclosure.*
  3. *Plastic bushes are not used on all fixing holes.*
- 

2. Mark the wall with hole centres based on the dimensions shown (145 x 270mm, 5.7 x 10.63in). If necessary offer the rear enclosure up to the wall to check alignment. Do not use the enclosure as a template for drilling.
  3. Drill holes in the wall on the marked positions. Select appropriate screws, wall plugs etc., for the type of wall, bearing in mind that the weight of the complete phone is around 5kg (11lbs).
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**IMPORTANT:** *USE ONLY countersunk-headed fixing screws. Check that screws seat properly in the plastic bushes to ensure a watertight seal. Do not use excessive tightening force, as this may crack the case.*

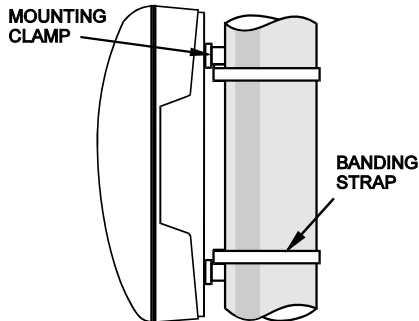
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4. Ensure that all four plastic flanged bushes are in place and the rear enclosure is screwed tightly to the surface to prevent any water ingress through the punched holes.
5. Complete the installation by making the appropriate connections (section 7.4) and re-fitting the face plate.

### 6.3. Pole mounting

Kit No 100-02-0208-001



This accessory is for mounting GAI-Tronics telephones on to the side of round poles of 100mm to 200mm diameter (4 - 8in), or on to square or rectangular section uprights of 100mm to 150mm (4 – 6in) across the mounting surface.

#### **NOTE:**

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*Banding straps (large scale worm-drive clamps) are not included in this kit and must be obtained separately. For details of where banding can be obtained, refer to GAI-Tronics.*

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1. Using a suitable tool, punch out the 4 **outer** holes in the rear enclosure, taking care not to damage or dislodge the plastic bushes.
2. Attach the pole mounting clamp assemblies to the rear enclosure using the M6 x 25 screws provided, pushing the screws through from inside the phone.
3. Tighten nuts to a torque of 4.5Nm (3.3lb-ft) max.  
**IMPORTANT: avoid the use of power tools.** Spinning the nuts too quickly can cause a rapid increase in heat which can cause the nuts to seize as a result of galling or cold-welding.  
Note: only use the outer four holes, and ensure that the screws seat properly in the plastic bushes to avoid water ingress.
4. Ensuring that the glands are at the bottom, pass a proprietary banding strap round each of the pole mounting clamps and the support pole. Tighten securely.
5. Continue the installation by making the appropriate connections (section 7.4) and re-fitting the face plate.
6. Re-tighten the straps firmly and trim off any excess band material. For security the driving head of the band may also be sawn off.

## 7. Connections and Installation

### 7.1. General

#### IMPORTANT

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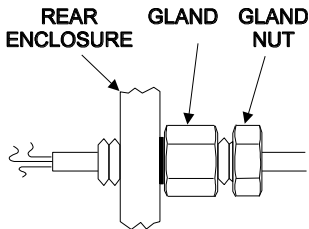
**THIS PRODUCT CAN CONTAIN HAZARDOUS VOLTAGES. IT IS ESSENTIAL THAT THE WATERPROOF SEAL IS PROPERLY MADE DURING INSTALLATION, TO ENSURE THAT WATER CANNOT GET INTO THE ENCLOSURE. THE INGRESS OF WATER CAN CAUSE ACCESSIBLE PARTS OF THE TELEPHONE TO BECOME LIVE, AND THEREFORE MUST BE PREVENTED AT ALL COSTS.**

**All possible measures must be taken to ensure water, fluid or dust does not contaminate the internal components of the telephone whilst unpacking, preparing and installing the telephone in inclement weather conditions or by negligence.**

**Failure to do so may result in an unsafe condition and will invalidate your warranty.**

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Insert each cable through its gland body and tighten the gland nut sufficiently to clamp the cable, making a seal. Do not over tighten the gland – CAT5 UTP can be damaged by excess tightening. Ensure sufficient cable is left to allow removal of the front section of the phone without straining the cable.



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**IMPORTANT:** If only one gland entry is used, the blanking plug fitted to the second gland position must be left in place.

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## 7.2. IMPORTANT SAFETY INFORMATION

Please pay particular attention to the following points if hazardous voltages (>48V) are to be connected to either of the control outputs:

The circuits that the relay contacts are connected to must be of the same type, i.e. Both mains or both low voltage. It is not permissible to mix the types of circuit connected to these relays.

These products are Class II Equipment, meaning that they are designed with double insulation to protect against electric shock hazards. They must be installed in strict accordance with these instructions. It is the installer's responsibility to ensure that any live or hazardous conductors are properly connected, not accessible to users, and that the equipment is left in a safe condition.

It is acceptable to connect mains circuits in the frequency range 45 to 65 Hz to these relays.

For currents up to 3 Amps, the minimum conductor cross sectional area must be 0.75 mm<sup>2</sup> (19awg) for flexible cords, or 1mm<sup>2</sup> (18awg) for other cables.

Circuits connected to these relays must be protected against over-current and short circuit by a suitable method, for example a fuse or circuit breaker rated at less than or equal to the relay contact rating.

The use of an isolated supply or an RCD is recommended for these circuits.

Cables must be correctly rated and specified for the intended environment, and of indoor or outdoor type as appropriate.

**Always use the GAI-Tronics rear enclosure, installed according to these instructions.**

## 7.3. Installation

1. To prepare for installation, open the door (where fitted), then undo the four retaining screws to remove the faceplate from the rear enclosure. A 3mm Allen key is required.

**Caution – take care to support the spring-loaded door whilst open to prevent it slamming shut and trapping fingers.**

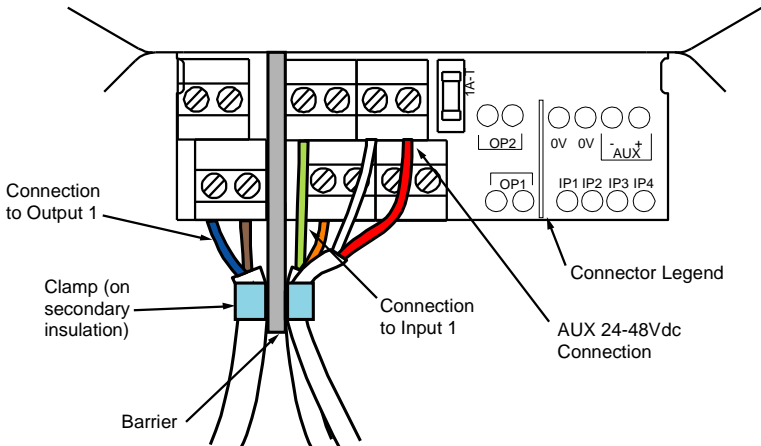
2. The Titan telephone is intended for vertical installation to a wall or pole. Select the required mounting method (section 6) and mount the rear enclosure first where applicable.
3. Route the required cables through glands as appropriate, and make connections following section 7.4. When fitting mains wiring to this product that is not wholly run within trunking, it is important that the strain relief is correctly installed and tested to ensure there will be no

disturbance to the wire terminations. As a minimum the cable must withstand a pull of 100N (approx 10kg force or 22.5lbf) without visible movement. If conduit is used, mains cables must be secured elsewhere.

4. Re-fit the faceplate ensuring a weatherproof seal
5. Test the operation of the telephone. Installation is now complete.

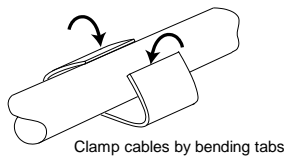
#### 7.4. Connections

Make the appropriate connections as shown on the diagrams below.



#### Cabling example showing connections to Input 1, Output 1 and aux. DC supply

Take particular note of the cable clamping arrangements – all cables must be securely clamped in the clamps provided.



#### Connection types and ratings:

- LAN connection - RJ45 on Cat5 or Cat5e UTP cable
- All other connections - 0.14mm<sup>2</sup> to 2.5mm<sup>2</sup> (26 to 14awg) for rigid/solid cables, 0.14mm<sup>2</sup> to 1.5mm<sup>2</sup> (26 to 16awg) for flexible/stranded cable.

#### Refer to safety information in section 7.2

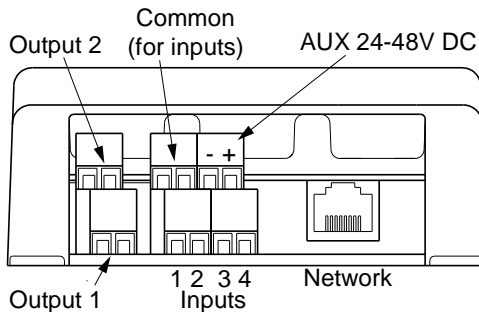
**Output 1** - rating 2A at 250Vac, 2A at 30Vdc

**Output 2** - 3A at 250Vac, 1A at 24Vdc

*(Note: for Output 1, a continuous current of 2A will cause a 22°C temperature rise to the PCB area close to the terminals after 10mins. This will not cause the telephone to malfunction, but it may result in this area becoming hot especially in high ambient temperatures. Avoid operating Output 1 at high currents in high temperatures. If the current is below 1A this temperature rise will be less than 5°C. Output 2 will not give any significant temperature rise up to its rated current of 3A)*

**External power supply** - 24-48Vdc, 200mA

**Control inputs** - for connection to voltage free contacts only. Internal pull-up resistor source current = 300uA. These inputs form part of an ES1 circuit and precautions must be taken to prevent hazardous voltages being applied to these circuits



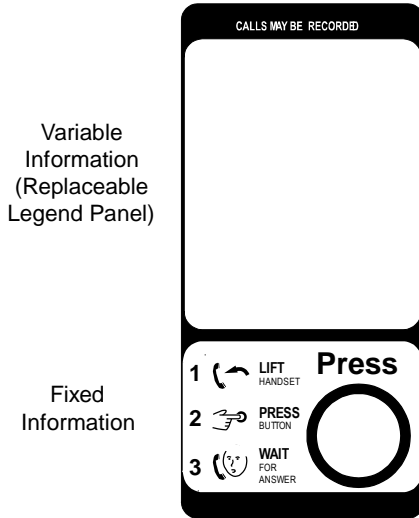
**End view of Connectors**

Inputs 1-3 are available to be connected as required.

**NOTE: Input 4 is reserved for the LED panel failure alarm and is internally connected on the PCB. Do not connect input 4 to any external device.**

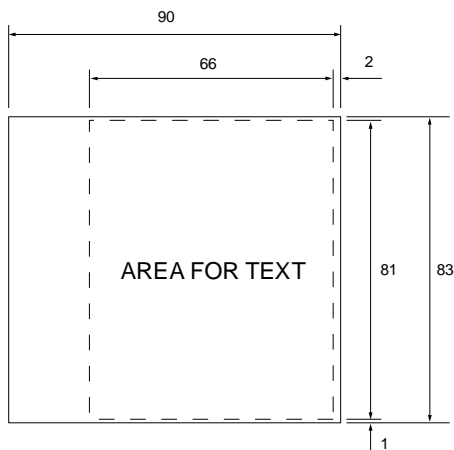
## 8. Legend Panel.

The telephone is designed to accept a legend panel, giving details of the level crossing. The legend panel slides into a thin slot behind the faceplate and is held in place when the faceplate is secured in the rear enclosure. The legend panel is then backlit by the illuminated panel.



### 8.1. Legend panel dimensions

The legend panel should be made from clear material (for example laser printer OHP film), preferably 0.5mm thick (max 1mm), and cut to the template below.



Note that the area for printing is 81mm x 66mm and allows a border and a tab for ease of fitting.

## **8.2. Fitting the legend panel.**

To fit the legend panel, first ensure that a panel has been correctly printed and cut to size according to the template above.

Remove the faceplate from the telephone by removing the 4 retaining screws.

Locate the slot behind the window, at the left hand edge when viewing from the front. The slot is only approximately 1mm thick, and there is a retaining guide to keep the legend panel aligned correctly.

Gently slide the legend panel into place. Undue force should not be necessary. Note that the slot is fairly tight to the dimensions above to ensure correct alignment.

When fully inserted, the edge of the legend panel will protrude beyond the circuit board to the edge of the gasket, allowing a tab for ease of removal. **It must not overlap the strip of gasket, otherwise the water seal will be compromised.**



## 9. Cleaning

Recommended cleaning methods are outlined below:

### 9.1. Normal Cleaning

For normal cleaning we recommend "Virosol", manufactured by Clover products.  
Carefully follow manufacturer's instructions for storage, handling and use.

### 9.2. Stainless Steel Push-buttons

Stainless steel push-button should be cleaned regularly especially if the telephone is in a marine environment. The stainless steel may show signs of discolouration or rust – this will not damage the button or impair its performance but may look unsightly and can be cleaned off using normal cleaning agents as above. In extreme cases a mild abrasive may be necessary.

### 9.3. Graffiti

For graffiti, paint and ink we recommend the use of 3M GR2 graffiti stain remover.

**CAUTION:** This is a very aggressive chemical. Pay close attention to the manufacturer's recommendations for storage, handling and use.

## 10. Aftercare

The purchase of your GAI-Tronics product does not end our commitment to you.


In addition to our warranty obligations, GAI-Tronics are able to offer various levels of maintenance packages, installation and commissioning packages and technical support, from ad-hoc repairs to full maintenance contracts.

By choosing GAI-Tronics as your aftercare provider you are ensured of manufacturer expertise and ISO 9001-certified quality control standards throughout the life of the product.

We can also supply a full range of accessories including mounting posts, beacons and high-volume sounders.


Contact GAI-Tronics for details. <https://www.hubbell.com/gai-tronics/en/>


## 11. Technical Specifications

| Product features        |  |  |
|-------------------------|--|--|
| Power supply            | Power-over-Ethernet, 802.3af compliant (Class 0) via RJ45, both method A and method B, or<br>External power supply: 24-48Vdc, 200mA.<br>Maximum voltage range: 22-50V  |  |
| Hookswitch              | Electronic with no external moving parts   |  |
| Ringer loudness         | 80dBA @ 1m   |  |
| Handset                 | Suitable for inductive coupling to Hearing Aids having a `T' switch position.<br>Tested to ETS 300-381   |  |
| Network                 | 10/100 BaseT Ethernet RJ45, Cat5 or Cat5e UTP<br>Static IP provisioning or DHCP  |  |
| Call Control Signalling | SIP (RFC3261 compliant)<br>Loose routing   |  |
| External inputs         | 4 auxilliary inputs, volt free, (internal pull-up resistor source current = 300uA)   |  |
| External outputs        | Ratings:<br>Output 1 - 2A at 250Vac, 2A at 30Vdc<br>Output 2 - 3A at 250Vac, 1A at 24Vdc<br><br><b>REFER TO SAFETY INFORMATION IN SECTION 7.2</b><br><i>(Note: for Output 1, a continuous current of 2A will cause a 22°C temperature rise to the PCB area close to the terminals after 10mins. If the current is below 1A this temperature rise will be less than 5°C. Output 2 will not give any significant temperature rise up to its rated current of 3A)</i> |  |
| Codecs & Audio          | G.711 A-Law<br>G.711 µ-Law<br>G.729<br>Codec preference sequence<br>Configurable ring and call progress tones (to emulate national tones)  |  |
| Configuration           | Embedded web server<br>SNMP<br>Configuration file download<br>SNTP with timezone and daylight saving<br>Automatic updating via TFTP<br>Password protection   |  |

|                                 |  |
|---------------------------------|--|
| <b>Product features</b>         |  |
| Monitoring and Reporting        | SNMP<br>Automatic fault reporting<br>Handset integrity monitoring  |
| Call Diversion                  | Configurable call lists (max 30 entries)<br>Numbers or URIs<br>Divert to next in list if the call fails              |
| <b>Environmental limits</b>     |  |
| Temperature:                    | Operating: -40°C to +60°C (-40°F to 140°F)<br>Storage: -40°C to +70°C (-40°F to 158°F)                               |
| Relative Humidity               | Up to 95% (non-condensing)   |
| Ingress Protection              | To EN60529:1992 – Degrees of protection provided by enclosures:<br>Titan with door closed IP66 (IP65 with door open) |
| <b>Physical characteristics</b> |  |
| Casing material                 | Aluminium  |
| Handset Material                | Cycloy (2800) with stainless steel or polyester curled cord.   |
| Weight                          | 5kg (11lbs).   |
| Dimensions                      | 189W x 366H x 130D mm  |

| <b>Compliance to standards</b> |   |
|--------------------------------|---|
| EMC                            | <p>EN 55032 - Electromagnetic compatibility of multimedia equipment - Emission requirements</p> <p>EN 55035 - Electromagnetic compatibility of multimedia equipment - Immunity requirements</p> <p>EN 50121-4 - Railway applications, emission and immunity</p> <p>Federal Communications Commission Statement</p> <p>Note: 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.</p> <p>ICES-003 Class A</p> |
| Safety                         | <p>EN 60950-22 Information technology equipment. Safety. Equipment installed outdoors</p> <p>EN 62368-1 Audio/video, information and communication technology equipment. Safety requirements</p>  |

|                     |   |   |
|---------------------|---|---|
| European Directives | <p>2014/30/EU – EMC Directive</p> <p>2014/35/EU – Low Voltage Directive (LVD)</p> <p>2011/65/EC - Restriction of the use of certain hazardous substances in electrical and electronic equipment (recast) (RoHS 2) Directive</p> |  |
|                     | <p>2012/19/EU - Waste Electrical and Electronic Equipment (WEEE) Directive</p>  |   |

|                              |   |  |
|------------------------------|---|--|
| <p>Recycling Information</p> | <p>The symbol shown here and on the product means that the product is classed as Electrical or Electronic Equipment and should not be disposed with other household or commercial waste at the end of its working life.</p> <p>The Waste of Electrical and Electronic Equipment (WEEE) Directive has been put in place to recycle products using best available recovery and recycling techniques to minimise the impact on the environment, treat any hazardous substances and avoid the increasing landfill.</p> <p>Business users should contact their suppliers and check the terms and conditions of the purchase contract and ensure that this product is not mixed with other commercial waste for disposal.</p> |  |
|------------------------------|---|--|

## 12. CE Declaration

A copy of the current CE Declaration of Conformity is available from our website. <https://www.hubbell.com/gai-tronics/en/product-certificates-uk>

### **GAI-TRONICS**

A division of Hubbell Ltd.

Brunel Drive, Stretton Park  
 Burton on Trent, DE13 0BZ  
 England

Tel: 01283 500500, Fax: 01283 500400

<https://www.hubbell.com/gai-tronics/en/>

The policy of GAI-Tronics is one of continuous improvement, therefore the Company reserves the right to change specifications without notice