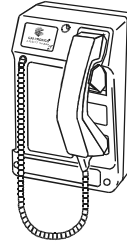


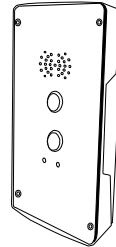
Titan



Commander



Vandal Resistant



Help Point

Installation and User Guide

Rugged VoIP Telephone

Titan, Commander, VR and Help Point models

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



IMPORTANT:

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.



Please read these instructions thoroughly before starting installation. These products must be installed by competent personnel familiar with electrical and network installations.



Refer to safety information in section 6.2 if hazardous voltages (eg mains) are to be connected to this product.



Make sure that correctly-sized cable glands are used, and that cables are securely clamped in the clamps provided. Failure to do so could result in an unsafe installation.



Take adequate precautions when opening the case or installing. Isolate connections elsewhere before opening.



The spring-loaded door (Titan models only, where fitted) can close sharply. Take care not to trap fingers etc., during installation and use.



CAUTION (handset versions): small metal objects may stick to the handset: please check before use.

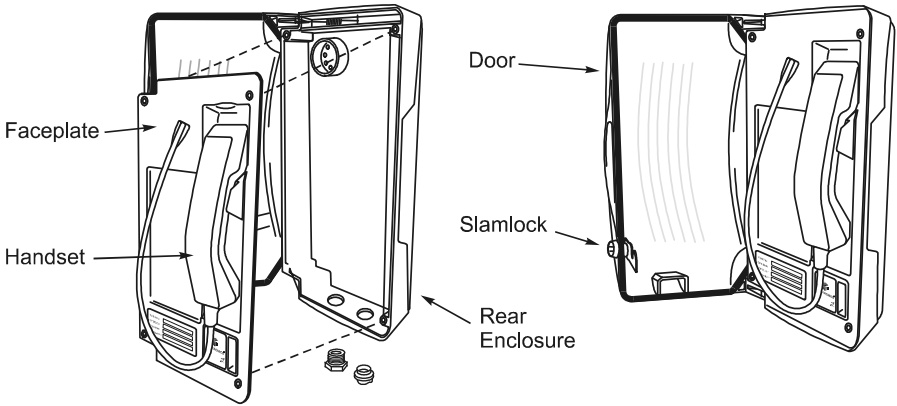
2. Features

This manual describes the voice over internet protocol (VoIP) versions of the Titan, Commander, Vandal Resistant (handsfree) and Help Point telephone ranges. Features include:

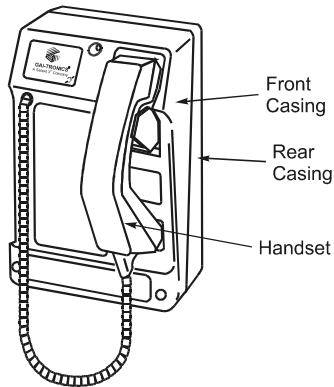
- SIP compatible (RFC3261)
- Automatic outgoing call diversion (memory list)
- Weather and vandal resistant
- Wide operating temperature range
- Real-time alarm reporting via email or Syslog
- Power over Ethernet compatible
- Configurable via web page, serial link or download
- 4 auxiliary inputs, 2 volt-free contact outputs

Models are available with different casing, keypad and handset options.

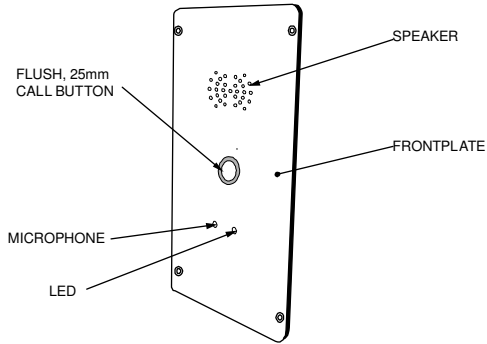
Titan, aluminium-bodied handset telephone



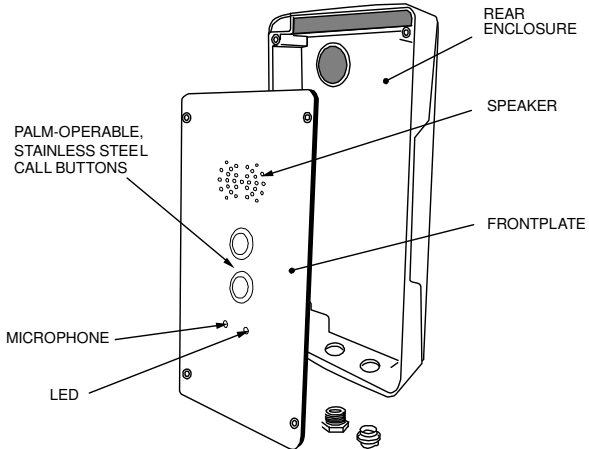
Commander, rugged glass-reinforced polyester handset telephone:



Vandal Resistant (VR) handsfree telephone:



Help Point handsfree telephone:



3. Quick Start Guide

IMPORTANT

THESE UNITS MUST BE CONFIGURED BEFORE THEY ARE INSTALLED.

All units have identical settings as factory defaults, so each one must be individually configured to give it a unique identity on the network. This may be difficult to do after the units are installed.

The general sequence for set up and use is:

	Stage	Comment
1.	Initial network configuration	Essential. Each phone must be set up for the network prior to installation. Each unit is usually dedicated to a specific location - make sure each configured phone is identified ready for installation. Refer to configuration guide (available from website).
2.	Change user name and password	Recommended, to prevent unauthorised changes to the phone's configuration. Make sure to record these details securely. Refer to configuration guide (available from website).
3.	Check for power and network.	Ensure that a network port is available within 95m of intended installation. Ensure that a power source is available (either local 24-48V DC or PoE). Refer to section 9.
4.	Mounting	Physical mounting at the intended location. Refer to section 5.
5.	Installation	Connections and cabling. Connection to the network at the intended location. Refer to section 6.
6.	Final configuration (can also be done prior to installation)	Setting autodial numbers, etc. Can be done remotely. Refer to configuration guide (available from website).
7.	Test	Check that calls can be made successfully
8.	Maintain	Monitor alarms. Set up auto-updates. Refer to configuration guide (available from website).

The easiest way to get started is to make a network connection to the unit and log on via a web browser.

The unit is initially set with a static IP address:

IP address **192.168.1.2**

It will request a user name and password, the initial factory settings are:

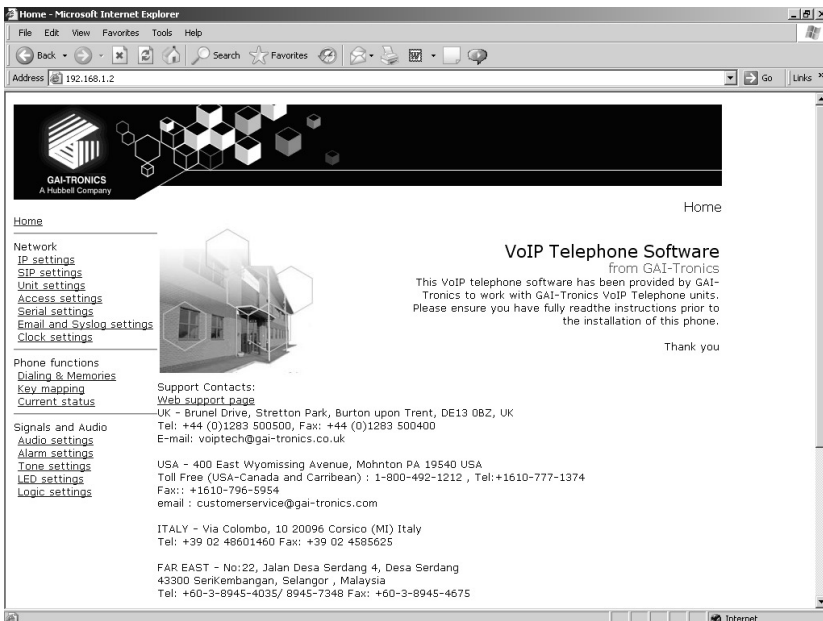
User Name **user**

Password **password**

The phone's home page is as shown below, and allows access to all the other configuration pages. Use the Network IP Settings page to change IP settings appropriate for the intended network.

IMPORTANT: After changing the IP address of the telephone you will need to browse to the new IP address to access the configuration, instead of the default 192.168.1.2.

IMPORTANT: If DHCP is enabled, ensure that there is a suitable DHCP server available on the network and that you have a means by which to discover the IP address of the telephone allocated by the DHCP server. There is no other way to access a DHCP enabled VoIP telephone over the network without being able to find the IP address allocated by the DHCP server.



Full help is available from

www.gai-tronics.org/support/voip-support/

4. Alternative Configuration Methods.

There are 3 methods for configuring GAI-Tronics VoIP telephones: -

- Web pages
- Configuration file
- Command Line interface (CLI)

Web pages (held within the telephone) can be accessed over the network using a browser such as Internet Explorer™, to view and change settings within a single unit.

Configuration files are ASCII text files containing configuration options that can be read and edited by a knowledgeable user using any plain text editor such as Notepad™. The telephone can automatically download a configuration file from the network, providing a controlled method of configuring multiple telephones.

The telephone can also be configured using a command line interface, either via the local serial port or remotely via a TELNET session over the network. The initial default settings for the serial port are :

Speed:	115200
Data bits:	8
Stop bts:	1
Parity	No

The complete syntax and command structures of configuration files and the CLI are included in the Configuration guide available from www.gai-tronics.org/support/voip-support/

5. Mounting methods and dimensions

5.1. General

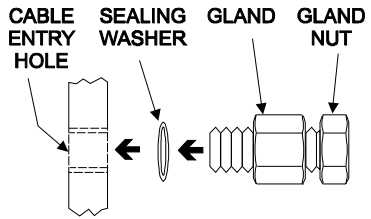
IMPORTANT

Installation details differ between the product ranges –please make sure you know which product you are installing and refer to the appropriate sections below.

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 cables 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

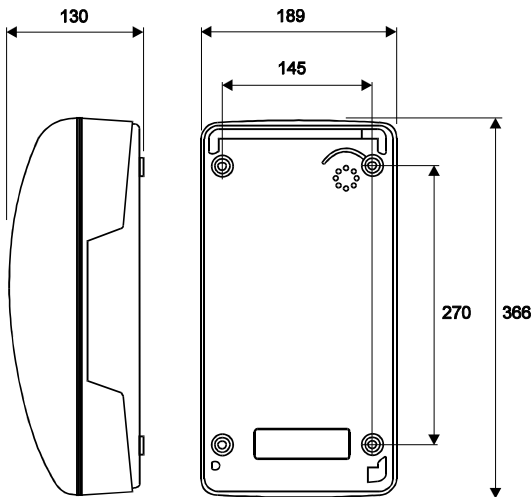
Glands are essential to clamp cables and to ensure a weatherproof seal. It is the installer’s responsibility to make sure they are correctly selected and fitted. Failure to do so could result in an unsafe installation.

5.2. Titan

As standard, Titan with rear enclosure is supplied with 2 cable glands with sealing washers, 4 countersunk screws with wall plugs and a 3mm Allen key.

Titan telephones supplied for flush mounting have no rear enclosure – see section 5.2.3 below.

5.2.1 Wall mounting



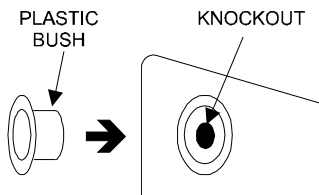
1. Using a suitable tool, punch out 4 holes in the rear enclosure, taking care not to damage or dislodge the plastic bushes. Only four of the eight holes are required - the outer ones are recommended. The inner holes are provided to be compatible with older-style mounting posts, and should be left intact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

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).

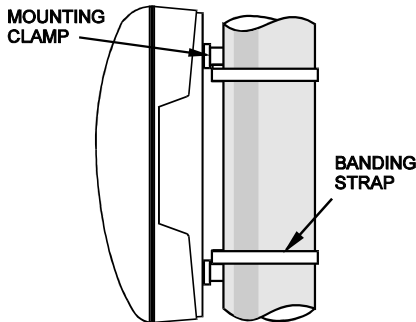
IMPORTANT: USE ONLY *countersunk-headed fixing screws. Check that screws seat properly in the plastic bushes to ensure a watertight seal. Do not use excessive tightening force, as this may crack the case.*



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 6.5) and re-fitting the face plate.

5.2.2 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:

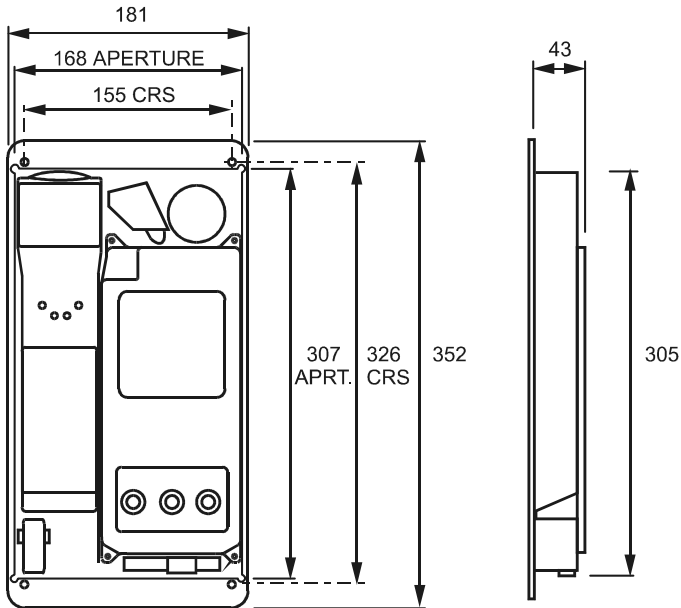
Banding straps (large scale worm-drive clamps) are not included in this kit and must be obtained separately. For details of where banding can be obtained, refer to GAI-Tronics.

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 6.5) 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.

5.2.3 Flush mounting

Titan telephones supplied for flush mounting have a slightly different faceplate to those supplied with a rear enclosure – in particular the fixing holes are in different positions and there are no corner cut-outs (for door hinges). These models are usually described as “Titan fp” and the supplied mounting kit contains round-headed screws and no glands.

Note that it is the installer’s responsibility to prevent moisture coming into contact with the electronics and connections on the back of the faceplate.

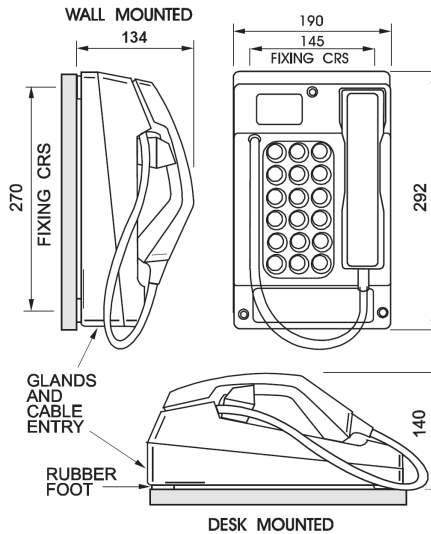


To flush-mount the telephone to a wall:

1. Prepare a recess (at least 50mm, 2in deep) in the wall according to the dimensions shown.
2. Mark the wall with hole centres based on the dimensions shown (155 x 326mm, 6.1 x 12.84in). If necessary offer the faceplate up to the wall to check alignment. Do not use the telephone as a template for drilling.
3. Drill holes in the wall at 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 1.5kg.
4. Route the cable to within the recess, and make connections to the telephone as shown in section 6.5.

5. Secure the telephone to the wall taking care not to trap any wires. The gasket on the rear of the faceplate is intended to make a weather seal when compressed against a smooth surface. Do not rely on this gasket to keep water out if mounting directly to rough surfaces such as brickwork – in these cases use additional sealant around the edges to ensure a weatherproof seal.

5.3. Commander



5.3.1 Wall mounting

To ensure weatherproof integrity when wall mounted, external cables should enter the enclosure from the bottom via the 20mm gland entries provided.

IMPORTANT:

Do not drill any extra holes as this will invalidate your warranty and could result in an unsafe condition.

1. Remove rubber feet from the Rear Casing if fitted. Ensuring that the cable entries are at the bottom offer the Rear Casing up to the vertical surface and mark through the fixing holes. Do not use the Rear Casing as a template to drill the holes. Work only from the marked positions.
2. Drill the holes in the vertical surface to suit the best method of fixing.
3. Ensure the Rear Casing is securely attached to the vertical surface using the four 7mm diameter screw holes provided. No sealing washers are necessary.

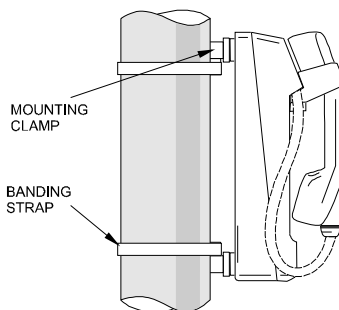
IMPORTANT: *Do not use countersunk headed fixing screws. Only use round head, socket cap head or pan head screws. Take care not to over tighten the screws, doing so may damage the case, could result in an unsafe condition and will invalidate your warranty.*

4. Continue the installation by making the appropriate connections (section 6.5).
5. Reconnect the ringer. Secure the telephone Front Casing to the Rear Casing.

5.3.2 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 (4 – 8in) diameter, or on to square or rectangular section uprights of 100mm to 150mm (4 – 6in) across the mounting surface. For flat mounting on surfaces greater than 150mm (6in) across use the desk or wall mounted methods as appropriate.



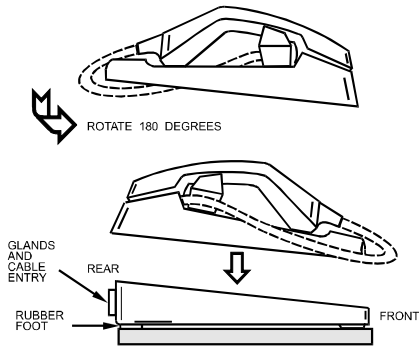
NOTE:

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.

1. Remove rubber feet from the Rear Casing if fitted. Attach the pole mounting clamp assemblies to the Rear Casing using the M6 x 25 screws provided.
2. 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 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.
3. Continue the installation by making the appropriate connections (section 6.5).
4. Reconnect the ringer. Secure the telephone Front Casing to the Rear Casing.
5. 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.

5.3.3 Desk mounting / Rake

For horizontal surfaces greater than 150 x 280mm (6 x 11in) use the free-standing desk mounted method below.



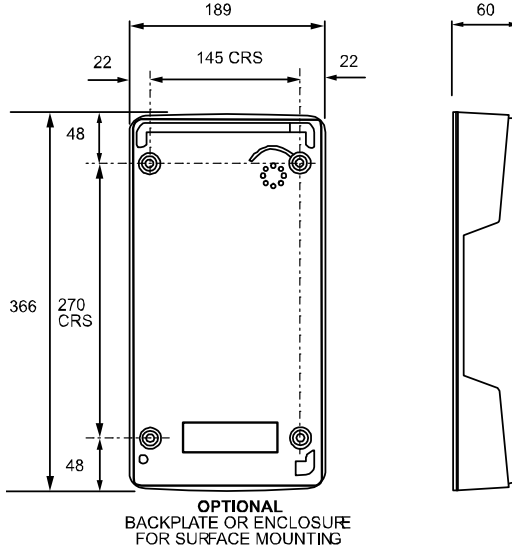
To provide a 'rake' for convenient operation, the Front Casing may be turned through 180° before it is fitted to the Rear Casing. Thus the cable entries are at the rear of the telephone.

1. Ensure that the supplied rubber feet are fitted to the underside of the Rear Casing.
2. Rotate the Front Casing through 180° taking care not to trap any wires.
3. Continue the installation by making the appropriate connections (section 6.5).
4. Reconnect the ringer. Secure the telephone Front Casing to the Rear Casing.

5.4. VR and Help Point

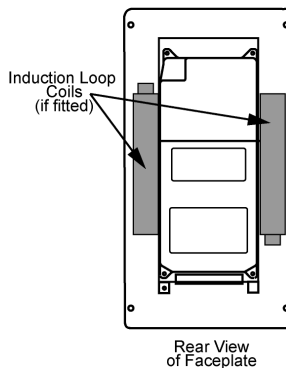
From a mounting and installation point of view, VR and Help Point products are identical.

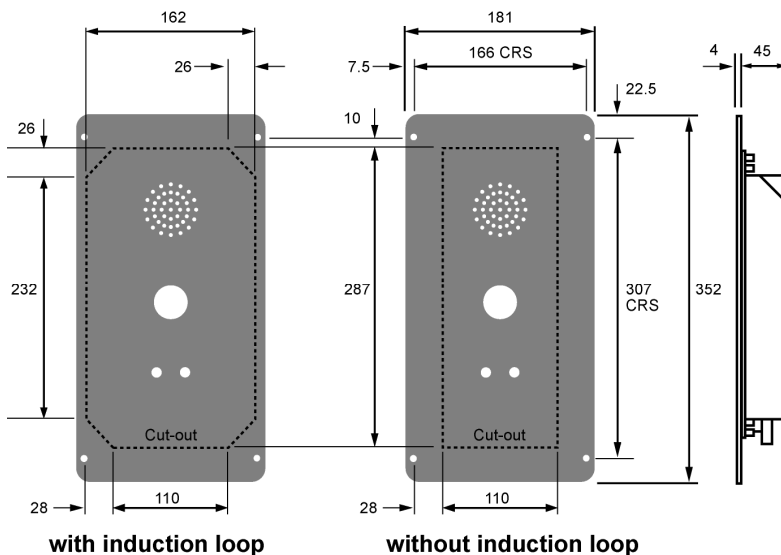
5.4.1 Wall/Pole Mounting



When wall or pole mounted, VR and Help Point units must be fitted inside a dedicated rear enclosure. The rear enclosure is identical to the Titan enclosure (although usually without a door). Follow the Titan mounting information given in sections 5.2.1 (wall mounting) or 5.2.2 (pole mounting).

5.4.2 Flush mounting





Note that it is the installer's responsibility to prevent moisture coming into contact with the electronics and connections on the back of the faceplate.

To flush-mount the telephone to a wall:

1. Prepare a recess (at least 50mm, 2in deep) in the wall according to the cut-out dimensions shown. The recess must be clear of cables, glands, conduit etc.
2. Mark the wall with hole centres based on the dimensions shown (166 x 307mm, 6.5 x 12.1in). If necessary offer the faceplate up to the wall to check alignment. Do not use the telephone as a template for drilling.
3. Drill holes in the wall at 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 1.5kg (3.3lbs).
4. Route the cable to within the recess, and make connections to the telephone as shown in section 6.5.

Secure the telephone to the wall taking care not to trap any wires. Note that the gasket on the rear of the faceplate is intended to make a weather seal when compressed against a smooth surface. Do not rely on this gasket to keep water out if mounting directly to rough surfaces such as brickwork – in these cases use additional sealant around the edges to ensure a weatherproof seal.

6. Connections and Installation

6.1. General

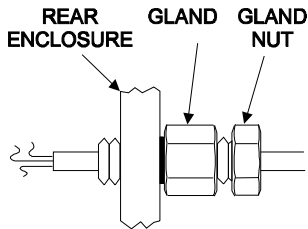
IMPORTANT

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.

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.



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

IMPORTANT

Installation details differ between the product ranges –please make sure you know which product you are installing and refer to the appropriate sections below.

6.2. 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, both SELV or both TNV. 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 mm² (19awg) for flexible cords, or 1 mm² (18awg) for other cables. For currents up to 10 Amps, the minimum conductor cross sectional area must be 1 mm² (18awg) for flexible cords, or 1.5mm² (16awg) 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 or cords used must be insulated and have an overall insulated outer sheath covering both conductors. They must be appropriately rated and certified. Examples of suitable ratings for PVC cords are IEC 60227 designation H05 VV-F or H05 VV-F2, or for rubber insulated cords, IEC 60245 designation H05 RR-F

Extra precautions must be taken for flush-mounted Titan, VR and Help Point products (where a GAI-Tronics rear enclosure is not used). In this case it is the installer's responsibility to ensure that the installation is safe, that there is no possibility of any contact being made to live terminals, that cables are properly restrained to prevent them becoming detached, and that there is no possibility of water, dust or other fluids coming into contact with the rear of the product.

Always ensure that sufficient clearance is maintained between hazardous voltages and any accessible conductive parts.

If in doubt always use a GAI-Tronics rear enclosure, installed according to these instructions.

6.3. Emergency Services warning

If, as configured, the telephone cannot make a direct call to the emergency services, check with your network administrator whether it is necessary to warn users, and if so provide a suitable warning notice. A warning label, which can be fixed to the front of the telephone, is provided.

6.4. Titan Installation

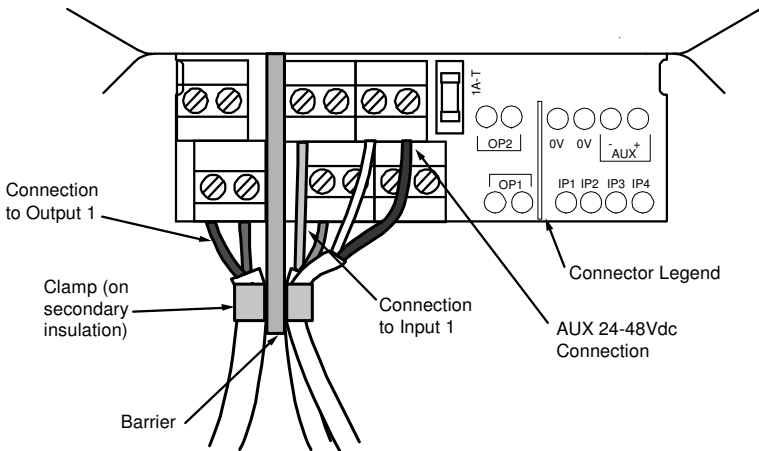
1. To prepare for installation, open the door (where fitted), then undo the four retaining screws to remove the faceplate from the rear enclosure. A 3mm Allen key is required.

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 5) and mount the rear enclosure first where applicable.
3. Route the required cables through glands as appropriate, and make connections following section 6.5. 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.

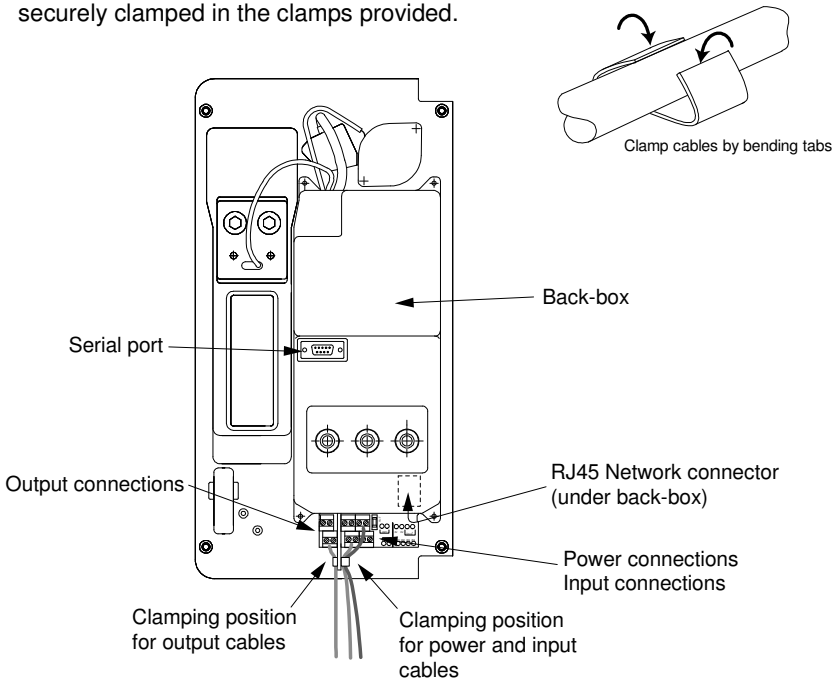
6.5. Titan Connections

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 - 0.14mm² to 2.5mm² (26 to 14awg) for rigid/solid cables, 0.14mm² to 1.5mm² (26 to 16awg) for flexible/stranded cable.

Refer to safety information in section 6.2

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

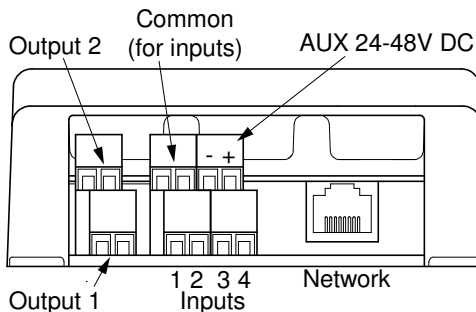
Output 2 - 3A at 250Vac, 1A at 24Vdc

(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. 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

NOTE: Earlier models are 48Vdc only. Check the connector legend as shown above. If it is marked "AUX" it can accept voltages between 24 and 48V DC. If it is marked "48V" it is 48V only.

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



End view of Connectors

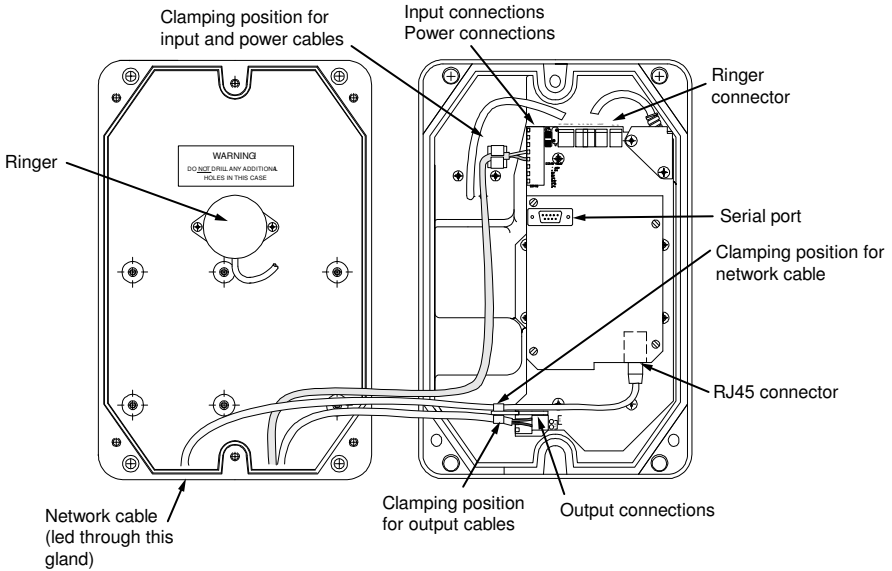
6.6. Commander Installation

1. To prepare for installation, undo the three retaining screws shown to remove the front casing from the rear. The screws are captive in the front casing; a 5mm Allen key is required. Disconnect the ringer connector from the circuit board, noting the position and orientation.

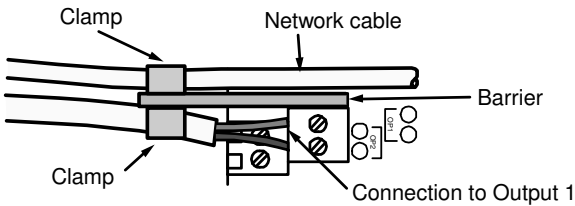
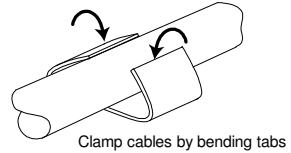
2. The Commander telephone can be installed vertically to a wall or pole, or used horizontally on a desk. Select the required mounting method (section 5) and mount the rear casing first where applicable.
3. Route the required cables through glands as appropriate, and make connections following section 6.7. 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 60N (approx 6kg force or 13.5lbf) without visible movement. If conduit is used, mains cables must be secured elsewhere.
4. Reconnect the ringer. Re-secure the telephone Front Casing to the Rear Casing with the three retaining screws, ensuring a weatherproof seal.
5. Test the operation of the telephone. Installation is now complete.

6.7. Commander Connections

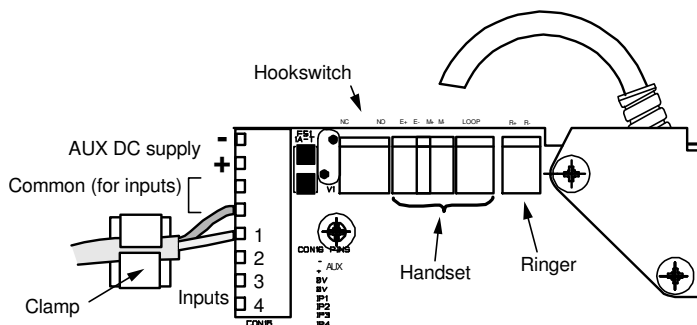
Make the appropriate connections as shown on the diagrams below.



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



Cabling example showing connection to Output 1



Connection types and ratings:

- LAN connection - RJ45 on Cat5 or Cat5e UTP cable
- All other connections - 0.14mm² to 2.5mm² (26 to 14awg) for rigid/solid cables, 0.14mm² to 1.5mm² (26 to 16awg) for flexible/stranded cable.

Refer to safety information in section 6.2

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

Output 2 - rating 2A at 250Vac, 1A at 24Vdc

(Note: for either Output 1 or Output 2, 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.)

External power supply - 24-48Vdc, 200mA

NOTE: Earlier models are 48Vdc only. Check the connector legend as shown above. If it is marked "AUX" it can accept voltages between 24 and 48V DC. If it is marked "48V" it is 48V only.

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

6.8. VR and Help Point Installation

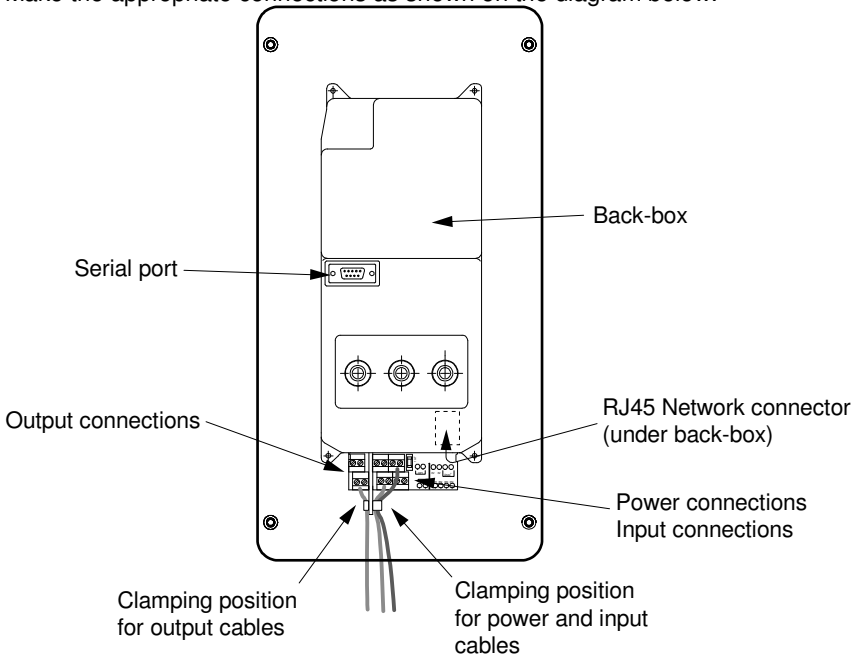
1. To prepare for installation, remove the faceplate from the rear enclosure (if supplied) by undoing the four retaining screws. A 3mm Allen key is required.
2. VR and Help Point telephones are intended for vertical installation to a wall or pole or flush-mounted into a vertical surface. Select the required

mounting method (section 5) and mount the rear enclosure first where applicable.

3. Route the required cables through glands as appropriate, and make connections following section 6.9. 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 60N (approx 6kg force or 13.5lbf) without visible movement. If conduit is used, mains cables must be secured elsewhere.
4. Re-fit the faceplate ensuring a weatherproof seal
IMPORTANT: avoid the use of power tools. Spinning the fixing screws too quickly can cause a rapid increase in heat which can cause them to seize as a result of galling or cold-welding.
5. Test the operation of the telephone. Installation is now complete.

6.9. VR and Help Point Connections

Make the appropriate connections as shown on the diagram below.



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

Connection details for VR and Help Points are identical to **Titan**, please refer to section 6.5 above. Note: if powering from 24Vdc, the power supply must be capable of delivering 400mA.

7. Cleaning

Recommended cleaning methods are outlined below:

7.1. Normal Cleaning

For normal cleaning we recommend "Virosol", manufactured by Clover products.

Carefully follow manufacturer's instructions for storage, handling and use.

7.2. Stainless Steel Push-buttons

Stainless steel push-buttons, where fitted, should be cleaned regularly especially if the Help Point is in a marine environment. The stainless steel may show signs of discolouration or rust – this will not damage the buttons or impair their 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.

7.3. 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.

7.4. Anti-Graffiti Coating

Where polyurethane anti-graffiti coating or paint has been specified (as an option), it can be cleaned using Methylated Spirits or Methyl Isobutyl Ketone. Other cleaners can be used but should be tested on a small area first

8. 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. www.gai-tronics.co.uk


9. Technical Specifications


Product features		
Power supply	<p>Power-over-Ethernet, 802.3af compliant (Class 0) via RJ45, both method A and method B, or External power supply: 24-48Vdc, 200mA, except VR and Help Point models being powered from 24Vdc, which require 400mA.</p> <p>NOTE: Earlier models are 48Vdc only. Check the connector legend as shown in section 6.5 or section 6.7. A separate, isolated supply must be provided for each telephone.</p> <p>Voltage range (24V versions): 22-50V Voltage range (48V versions): 36-56V</p>	
Hookswitch	Electronic with no external moving parts	
Ringer loudness	80dBA @ 1m	
Handset (Titan & Commander)	<p>Suitable for inductive coupling to Hearing Aids having a 'T' switch position.</p> <p>Tested to ETS 300-381</p>	
Network	<p>10/100 BaseT Ethernet RJ45, Cat5 or Cat5e UTP</p> <p>Static IP provisioning or DHCP</p>	
Call Control Signalling	<p>SIP (RFC3261 compliant)</p> <p>Loose routing</p>	
External inputs	4 auxilliary inputs, volt free, (internal pull-up resistor source current = 300uA)	
External outputs	<p>Ratings:</p> <p>Output 1 - 2A* at 250Vac, 2A at 30Vdc Output 2 (Titan and Handsfree) - 3A at 250Vac, 1A at 24Vdc Output 2 (Commander) - 2A* at 250Vac, 1A at 24Vdc</p> <p>REFER TO SAFETY INFORMATION IN SECTION 6.2</p> <p><i>(*Note: for these outputs, 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.</i></p> <p><i>Output 2 on Titan and Handsfree models will not give any significant temperature rise up to its rated current of 3A)</i></p>	

Product features	
Codecs & Audio	G.711 A-Law G.711 μ -Law G.722 G.729 G.723.1 MP-MLQ G.723.1 ACELP Codec preference sequence DTMF in-band / out-of-band (RFC2833) Configurable comfort tones (to emulate national tones)
Configuration	Embedded web server Embedded Telnet server Configuration file download Direct serial connection (9 way D type female connector) Command line interface SNTP with timezone and daylight saving Automatic updating via TFTP Password protection
Monitoring and Reporting	Real-time over TCP/IP Syslog application or email. Embedded SMTP client Automatic fault reporting Handset integrity monitoring
Call Diversion	Configurable call lists (max 20 entries) Numbers or URIs (with comfort tones) Divert to next in list if the call fails
Environmental limits	
Temperature:	Operating: -20 °C to +60 °C (-4 °F to 140 °F) Storing: -40 °C to +70 °C (-40 °F to 158 °F)
Relative Humidity	Up to 95% (non-condensing)
Ingress Protection	IP65. (Titan with door closed IP66) to EN60529:1992 – Degrees of protection provided by enclosures.
Physical characteristics	
Casing material	Aluminium (Titan, VR and Help Point) Glass reinforced polyester (Commander)
Handset Material	Cycoloy (2800) with stainless steel or polyester curled cord.
Weight	3 –5kg (2.2 – 11lbs) depending on option.
Dimensions	Dependant on model and variant. See 5.2 (Titan), 5.3 (Commander) or 5.4 (VR or Help Point).

Compliance to standards


EMC	<p>EN55022 – Information technology equipment. Radio disturbance characteristics.</p> <p>EN55024 – Information technology equipment. Immunity characteristics.</p> <p>EN 50121-4 - Railway applications, emission and immunity</p> <p>This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:</p> <ul style="list-style-type: none">• Re-orient or relocate the receiving antenna.• Increase the separation between the equipment and receiver.• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.• Consult the dealer or an experienced radio/TV technician for help
Safety	<p>EN60950-1 – Specification for information technology equipment, including electrical business equipment.</p> <p>BS6317:1992 (Clause 13.9) - Specification for simple telephones for connection to public switched telephone networks run by certain public telecommunication operators.</p> <p>EN50371 - Generic standard to demonstrate the compliance of low power electronic and electrical apparatus with the basic restrictions related to human exposure to electromagnetic fields (10 MHz - 300 GHz). General public.</p>

European Directives	2004/108/EC – EMC Directive 2006/95/EC – Low Voltage Directive (LVD) 2011/65/EC - Restriction of the use of certain hazardous substances in electrical and electronic equipment (recast) (RoHS 2) Directive	
	2002/96/EC - Waste Electrical and Electronic Equipment (WEEE) Directive	

Recycling Information	<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>	
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9.1.1 Australian standards

Australian versions are compliant with the following:

EMC	AS/NZS CISPR 22 – Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement	
Safety	AS/NZS 60950.1 – Specification for information technology equipment, including electrical business equipment. IEC 60950-22 - Equipment installed outdoors	
Telephony	AS/ACIF S004 – Acoustic testing	

10. CE Declaration

A copy of the current CE Declaration of Conformity is available from our website. www.gai-tronics.org/support/certificates-approvals/

11. Licensing Notes

The firmware in GAI-Tronics VoIP products contains modules subject to licensing and copyright as follows:

Module	License
u-boot	GPL V2
Linux kernel	GPL V2
Busybox	GPL V2
Opal/PWLib	Mozilla Public License V1.1
Modutils	GPL V2
MTD	GPL V2
NTP	David L. Mills Copyright Notice

These licence and copyright notices are available in full from our website at www.gai-tronics.org/support/voip-support/

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