



Installation and User Guide

PHP400 Help Point

VoIP version
48V DC power supply

IMPORTANT

**THIS PRODUCT 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 5.2 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.**

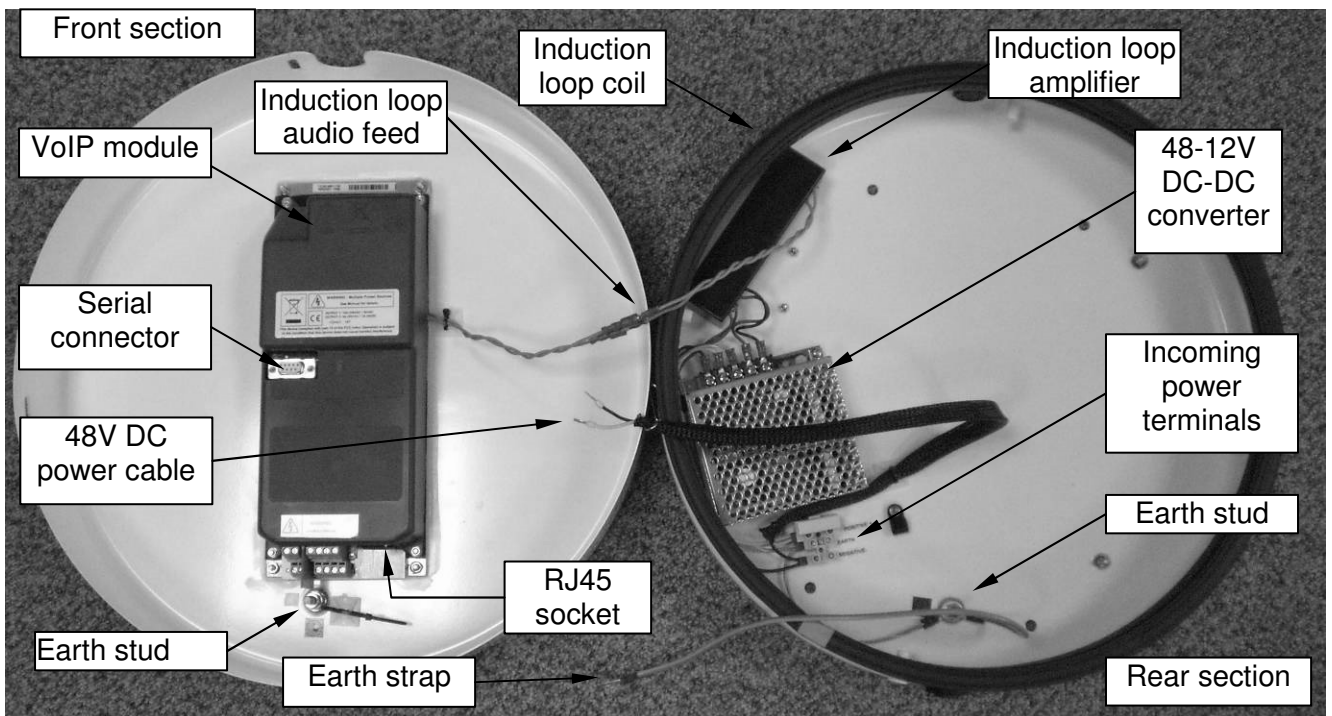
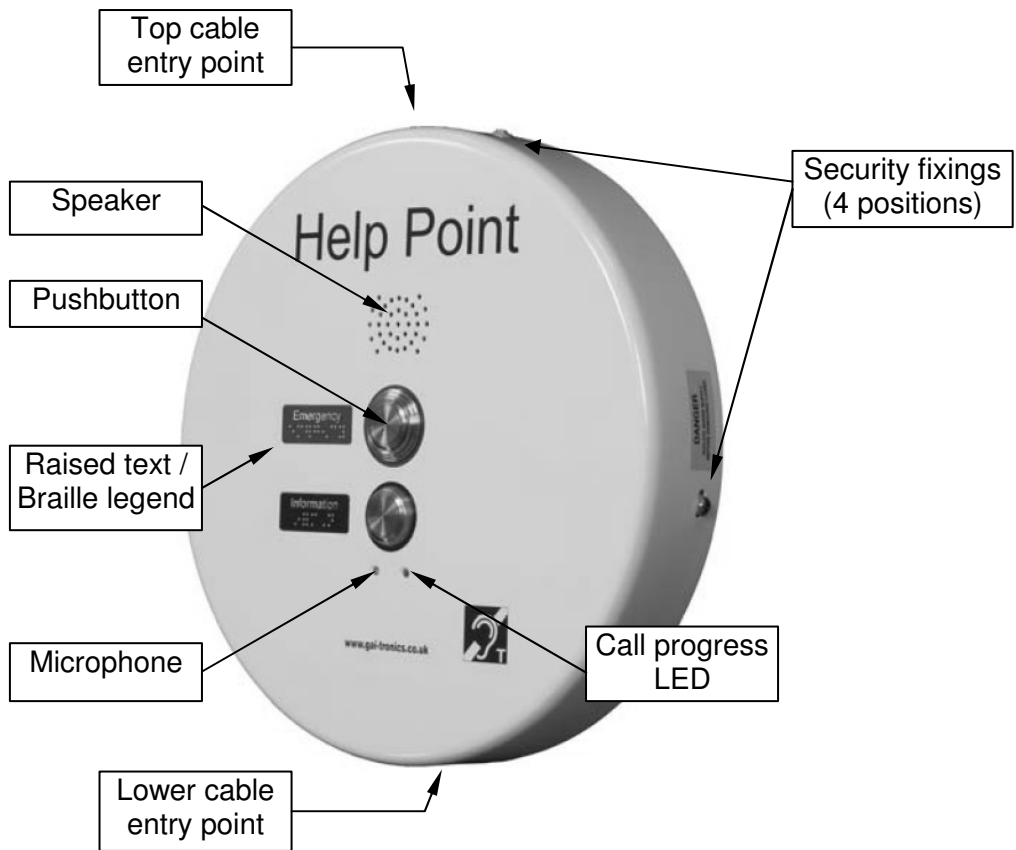
2. Product Description and Features

This manual describes the voice over internet protocol (VoIP) version of the GAI-Tronics 400mm circular Help Point. This product is based on the standard VoIP product range and has been specifically configured for use on rail platforms, with features including:

- Weather and vandal resistant casing
- Large, palm-operable, vandal resistant buttons
- Internal induction loop
- Raised text and Braille legends
- Wide operating temperature range
- 48Vdc powered
- Automatic outgoing call diversion (memory list)
- SIP compatible (RFC3261)
- Real-time alarm reporting via email or Syslog
- Configurable via web page, serial link or download
- 4 auxiliary inputs, 2 volt-free contact outputs

Models are available with different pushbutton options.

The Help Point casing is a two-part construction with electronics in both sections. The 2 sections are held together with 4 security screws through the sides, and there are several cables between the 2 sections. Cable entry points are provided to top and bottom of the casing. Blanking plugs are provided for unused cable entries.



3. Before Installation

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.

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.

3.1. Opening the Unit

To open the case, undo the 4 security screws around the edge of the unit. These screws are normally Torx type with a centre security pin.

The front section is fitted over the rear section and can be gently lifted clear.



Take care when separating the 2 sections – there are up to 4 cable sets between the 2 halves:

1. Induction loop audio (2 conductors)
2. DC power (2 conductors)
3. Earth cable
4. Ethernet cable (if already through one of the cable entries in the rear section).

These cables are deliberately short, but will allow the front section to sit to the **left** of the rear for set-up purposes.

3.2. Initial Network set-up

Factory default settings are:

Item	Default setting
DHCP	OFF
IP address	192.168.1.2
Net mask	255.255.255.0
Log in User Name	user
Log in Password	password
Serial port settings	115200 baud, 8 data bits, 1 stop bit, no parity, no handshaking.
Hostname	Each unit has a unique hostname (set to the serial number of the main PCB)

These settings must be changed prior to installation: as a minimum the unit must either be set to DHCP or assigned a unique static IP address.

Refer to the VoIP configuration guide 502-20-0119-001 for full details on all settings.

The configuration guide is available from www.gai-tronics.org/support/voip-support/

To configure the unit it must first be powered, but note that the VoIP module itself can be powered via PoE if required. External power is only necessary because of the induction loop system.

As a quick guide the 2 most common methods of configuration are:

1. Make a direct network connection to the unit (for example using a crossover cable to a laptop), then access the unit's web pages by browsing to 192.168.1.2, or
2. Make a serial connection to the unit, enter the login and password, then use CLI commands such as:
IP SET DHCP ON, or
IP SET ADDRESS ...
IP SET MASK ...
etc.
The current IP settings can be displayed by entering IP SHOW ALL.

3.3. Site requirements

Having configured the unit for the intended network, ensure that the following are available for installation:

1. Power supply: 48V dc @ 2A.
2. Ethernet connection – 10/100BaseT on CAT5/CAT5e UTP cable, the cable run is normally limited to 95m.
3. This is normally a two-person installation, due to the size/weight of the unit and due to the need to connect cables between the 2 sections.

4. Installation and dimensions

4.1. 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 unit whilst unpacking, preparing and installing it in inclement weather conditions or by negligence.

Do not drill any additional holes in the casing. Make sure any unused cable entry or mounting holes are properly sealed against water or dust ingress.

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

4.2. Units dimensions and weight

Overall diameter	405mm
Depth (rear surface to front face)	88mm
Pushbutton height from front face	10mm
Unit weight	6.5kg
Mounting centres	4 x 7mm holes on 145 x 270mm centres, see drawing 112-11-0081-001 appended to this manual.
Cable entries	5 off 20mm gland entry points are provided, with blanking plugs to blank off any that are not used: 2 x rear 2 x lower 1 x upper (used for aerial) Positions are detailed on drawing 112-11-0081-001 appended to this manual.

4.3. Opening the Unit

To open the case, undo the 4 security screws around the edge of the unit. These screws are normally Torx type with a centre security pin.



The front section is fitted over the rear section and can be gently lifted clear.

Take care when separating the 2 sections – there are 4 cable sets between the 2 halves:

5. Induction loop audio (2 conductors)
6. DC power (2 conductors)
7. Earth cable
8. Ethernet cable.

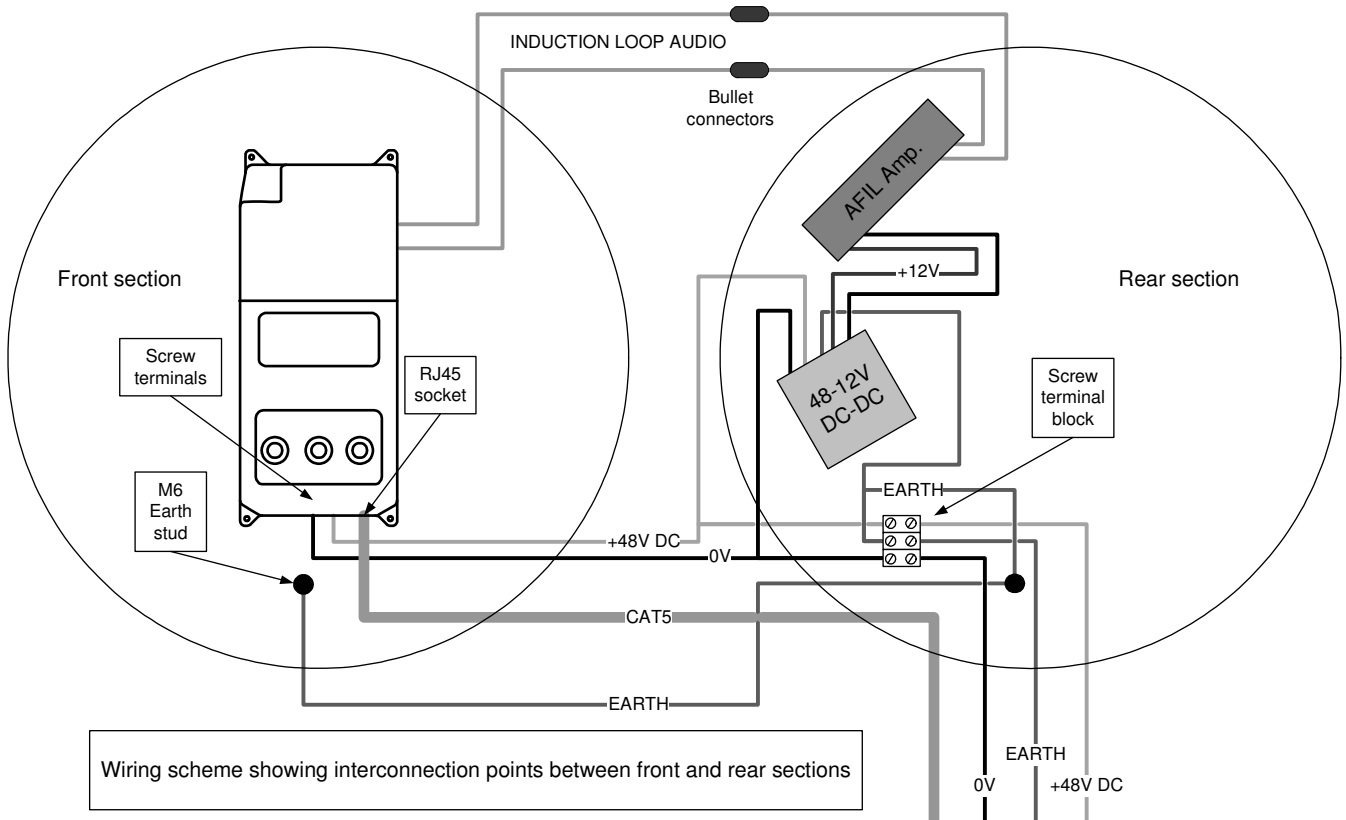
These cables are deliberately short, but will allow the front section to sit to the left of the rear for set-up purposes if required.

4.4. Installation method

The Help Point is intended for vertical installation to a solid wall or suitable post as detailed below.

1. Ensure the Help Point has been configured for the network as described in section 3.2.
2. Choose a suitable location for the Help Point, bearing in mind the weight of the unit, and that the operating button(s) should normally be in the range 1200 – 1400mm from the ground for ease of access by people in wheelchairs.
3. Mark the wall or surface with fixing centres as shown above. If necessary use the rear section to help mark the centres. Do not use the rear section as a drilling template.

4. Select fixing screws or bolts appropriate to the type of wall or surface, suitable to support the unit. Drill fixing holes to suit.
5. Separate the front and rear sections of the Help Point, taking care to disconnect interconnecting cables as described in section 3.1.
6. Secure the rear section to the wall, making sure that the fixing holes are sealed to prevent water ingress using nylon washers or other appropriate sealing methods.
7. Bring power and Ethernet cables into the unit through one or both of the cable entry holes. Cables will normally be contained in conduit, but glands may also be used.
8. The power cable is terminated directly to the terminal block provided, and secured using the cable restraint.
9. The ethernet cable should be left long enough to allow connection to the front section (approximately 450mm from entry point) and terminated with an RJ45 plug.
10. Ensure that cable entries are sealed to prevent water ingress. If glands are used do not over tighten – CAT5 UTP can be damaged by excess tightening. If only one cable entry is used, the blanking plug fitted to the second position must be left in place.
11. Connect induction loop audio, dc power, ethernet and earth cables to the front section of the case.
12. Apply power. The LED on the internal PSU should illuminate. After approximately 1 minute the red "heartbeat" LED inside the VoIP module should be visible flashing.
13. Fit the front section over the rear section and secure in place using the 4 security screws.



5. Connections

5.1. DC Power connections

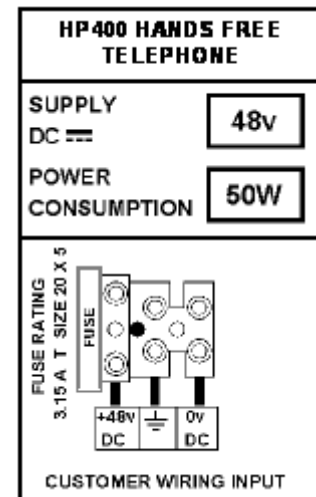
Connect a 48V DC power supply to the terminal block as shown on the connection label.

If a 48V power supply is not available, GAI-Tronics can supply a suitable unit, see spare parts (section 8).

One power supply cannot supply more than one PHP400 - a separate, isolated supply must be provided for each unit..

Cabling from the 48V supply to each PHP400 must be sufficient to provide the required current (2A) without causing a significant voltage drop over the required distance.

The fuse must always be replaced by the correct type, ie 3.15A T (20x5mm).



5.2. 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.

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 1mm² (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.

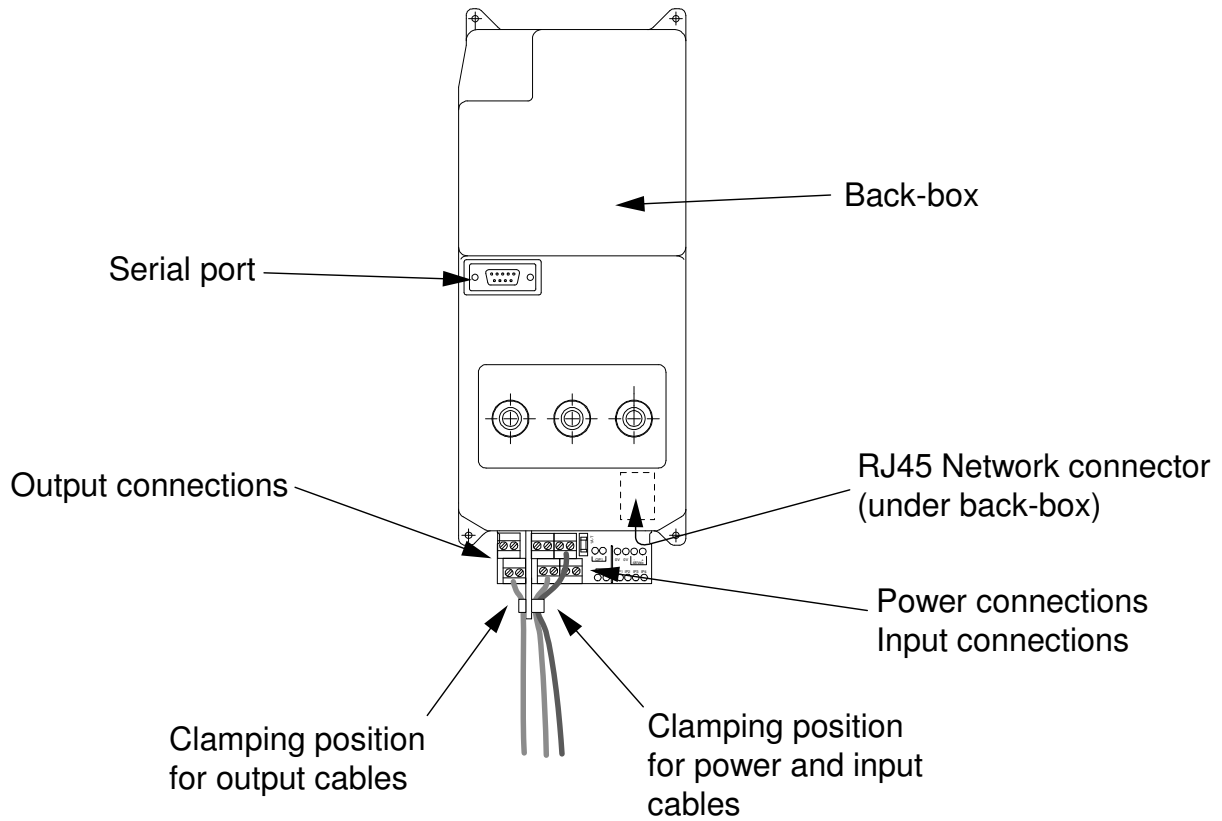
The use of an isolated supply or an RCD is recommended for these circuits.

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

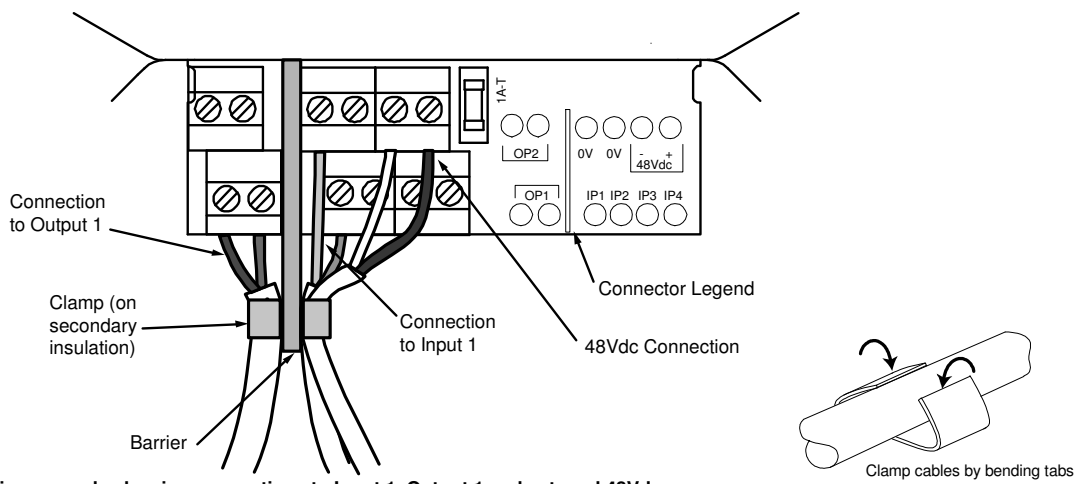
Always ensure that sufficient clearance is maintained between hazardous voltages and any accessible conductive parts.

5.3. Connections to the VoIP module

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 connections to Input 1, Output 1 and external 48Vdc.

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 5.2

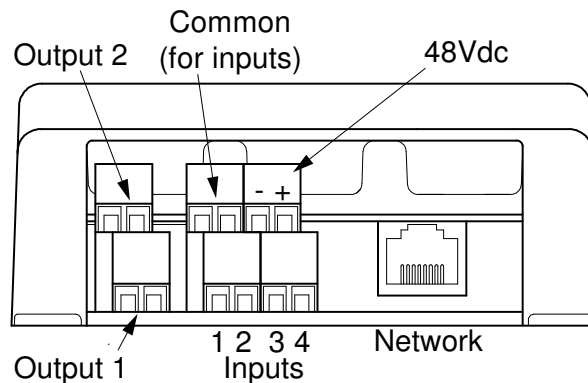
Output 1 - rating 2A at 250Vac, 2A at 30Vdc

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)

Power Connection - 48Vdc from external supply, connected via terminal block in rear section. Note that the VoIP module itself requires only 100mA from the 48V supply – the majority of the power is required by the induction loop amplifier fed by the 48-12V DC-DC converter.

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. Cleaning

Recommended cleaning methods are outlined below:

6.1. Normal Cleaning

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

6.2. 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.

6.3. 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.

6.4. 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.

7. 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

8. Repairs and Spare Parts.

It is recommended that Help Points are returned to GAI-Tronics for service or repair, to ensure that any repairs are fully tested. In the event of work having to be carried out on site, the following spare parts are available:

Part No	Description	Notes
112-02-0081-11W	Complete Help Point	This is a single button, 48V supply, VoIP unit. Other configurations are available
999-02-1075-000	Main VoIP PCB	When ordering, specify the part number of the Help Point that it is for.
999-02-1098-003	Carrier PCB	Includes microphone
610-99-0421-000	48-12V DC-DC converter	
610-99-0425-001	Mains to 48V Power Supply	Mounted external to Help Point (usually in electrical cabinet). Not water protected.
500-02-0505-002	Induction loop amplifier	Encapsulated module with flying leads

9. Technical Specifications

Product features	
Power supply	Nominal 48Vdc, 1A. (Voltage range: 36-56V)
Ringer loudness	80dBA @ 1m
Network	10/100 BaseT Ethernet RJ45, Cat5 or Cat5e UTP Static IP provisioning or DHCP
Call Control Signalling	SIP (RFC3261 compliant) Loose routing
External inputs	4 auxilliary inputs, volt free, (internal pull-up resistor source current = 300uA)
External outputs	Ratings: Output 1 - 2A at 250Vac, 2A at 30Vdc Output 2 - 3A at 250Vac, 1A at 24Vdc REFER TO SAFETY INFORMATION IN SECTION 5.2 <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.</i> <i>Output 2 will not give any significant temperature rise up to its rated current of 3A)</i>
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 to EN60529:1992 – Degrees of protection provided by enclosures.
Physical characteristics	
Casing material	Front section: Stainless steel Rear section: Mild steel, zinc coated Finish: Polyester powder coated
Weight	6.5kg (11lbs).
Dimensions	405mm diameter. 88mm depth. Buttons may protrude a further 10mm from front face.

Compliance to standards	
European Directives	1999/5/EC – European Radio & Telecommunications Terminal Equipment Directive. 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
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>
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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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10. CE Declaration

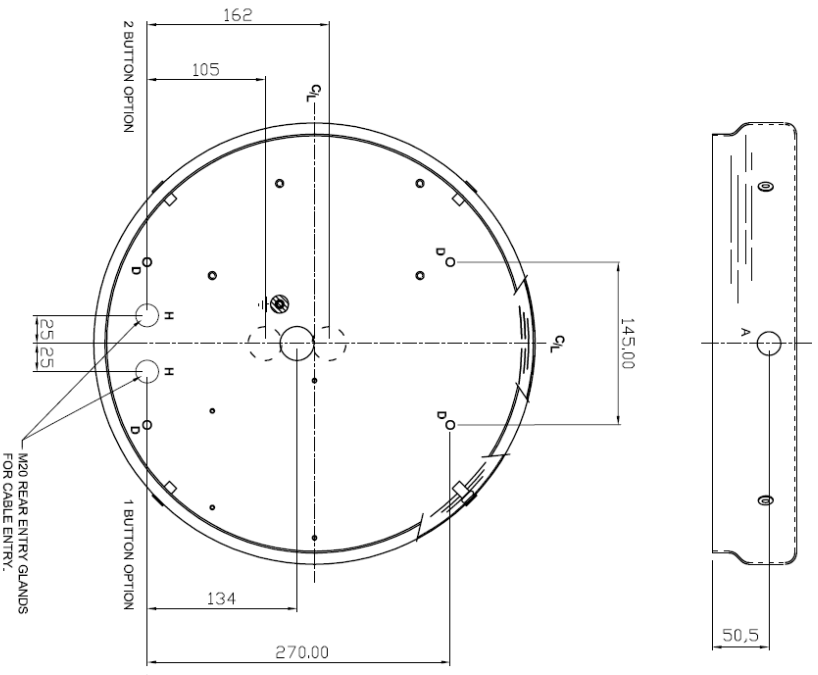
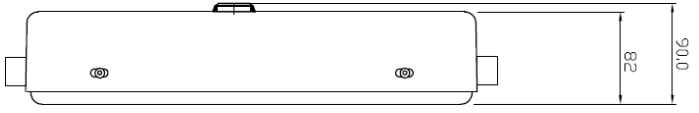
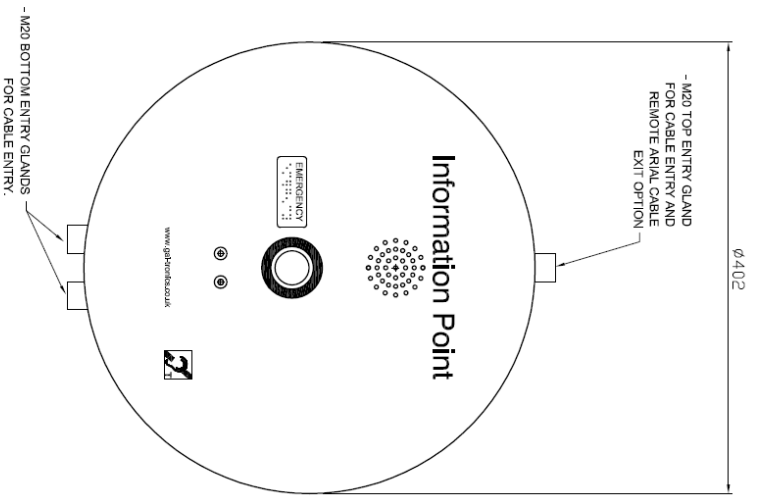
A copy of the current CE Declaration of Conformity is available from our website www.gai-tronics.org/support/certificates-approvals/

11. Licensing Notices

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/

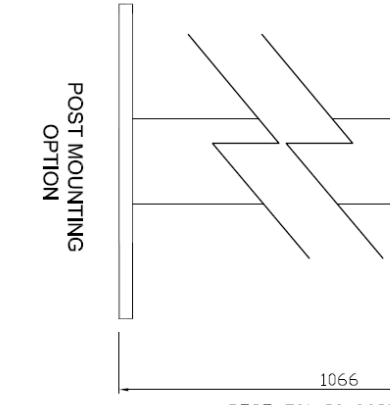
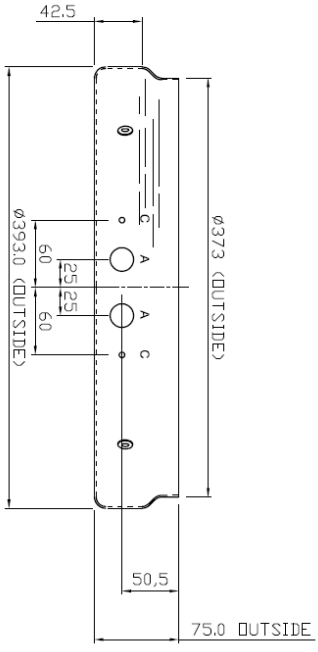


FRONT VIEW

SIDE VIEW

INTERNAL VIEW (COVER REMOVED)

- NOTES:-
- 1 - ROUND HELP POINT:-
 - VOIP HANDS FREE TELEPHONE 1 & 2 BUTTON OPTIONS
 - GSM TELEPHONE HANDS FREE 1 & 2 BUTTON OPTIONS
 - EUROPHONE HANDSFREE TELEPHONE 1 & 2 BUTTON OPTIONS
 - 2 - THE ROUND HELP POINT HOLE FIXING PATTERN IS THE SAME AS THE TITAN , COMMANDER, VR AND DDA RANGE OF TELEPHONES.



CERT AUTHORITY DETAILS:		CAN CODE:		MANUFACTURING CODE:		THIS DRAWING IS CONFIDENTIAL AND IS THE PROPERTY OF GAL-TRONICS. IT IS TO BE KEPT IN STRICTLY CONFIDENTIAL AND NOT TO BE REPRODUCED OR COPIED WITHOUT THE WRITTEN PERMISSION OF GAL-TRONICS.	
STRIKE OUT		IMPROPRIATE CODES		D-FACT 4-ENZY 1-80P 6-PRIM 3-VAMP		DO NOT THIS PRINT	
K		I		2		PAPER: A3	
K		I		2		SHEET: N/A	
K		I		2		LIFE: YES	
K		I		2		GOODS: IN NSP	
K		I		2		SINGLE SOURCE APPROVAL	
K		I		2		SCALE: NTS	
K		I		2		CAD Ref.: 11001A2	
K		I		2		TITLE: ROUND HELP POINT INSTALLATION INFORMATION FOR VOIP & GSM VERSIONS	
K		I		2		VOCAB/ORG. No: 112-11-0081-001	
K		I		2		Sheet 1 of 1	
K		I		2		PROJ. REF.: 33848	
K		I		2		ISSUE DATE	
K		I		2		CHANGE DETAILS	
K		I		2		DRAWN CHECK APPROVED	
K		I		2		GAL-TRONICS	
K		I		2		A division of Hubbell Limited	
K		I		2		Hubbell Ltd. Station Approach, Broomfield Road, Broomfield, Essex, SSO 1 5JL, UK. Tel: +44 (0)1383 500 400 Fax: +44 (0)1383 500 400	
K		I		2		POST 501-20-0697-002	

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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