Installation and User Guide

KETS 1141
Titan Illuminated
Crossing Telephone

WARNING
THIS TELEPHONE REQUIRES A SPECIFIC SET UP PROCEDURE,
DETAILED IN THIS MANUAL.

PHONES MAY FAIL TO OPERATE IF NOT SET UP
CORRECTLY ON INSTALLATION.

GAI-TRONICS

CONTENTS

1. Safety and Care Information

▲ **THIS TELEPHONE IS FOR THE KETS (Kestrel Emergency Telephone System) ONLY. DO NOT ATTEMPT TO CONNECT THIS TELEPHONE TO A PABX or PSTN LINE OR TO PETS.**

▲ **The safety of the user/installer relies on the isolation of the telephone network and not on the earthing of the case**

▲ **Please read these instructions thoroughly before starting installation. These products must be installed by competent personnel familiar with telephone installation.**

▲ **Telephone network voltages can be hazardous. Take adequate precautions when opening the case or installing. If in doubt, disconnect the telephone line elsewhere before accessing the line connections.**

▲ **For increased protection against lightning transients, attach a local earth to the main terminal block (see section 7)**
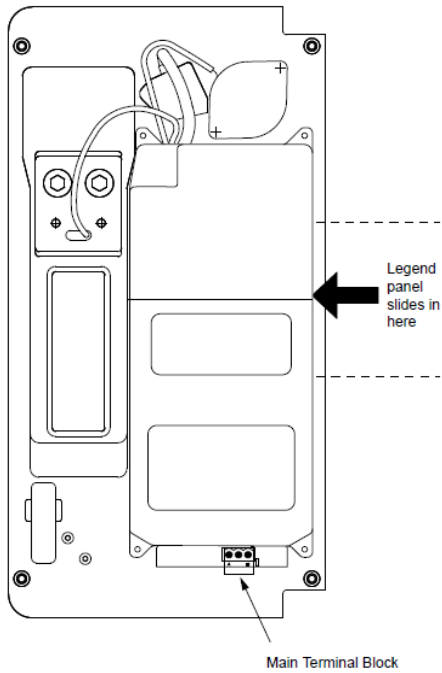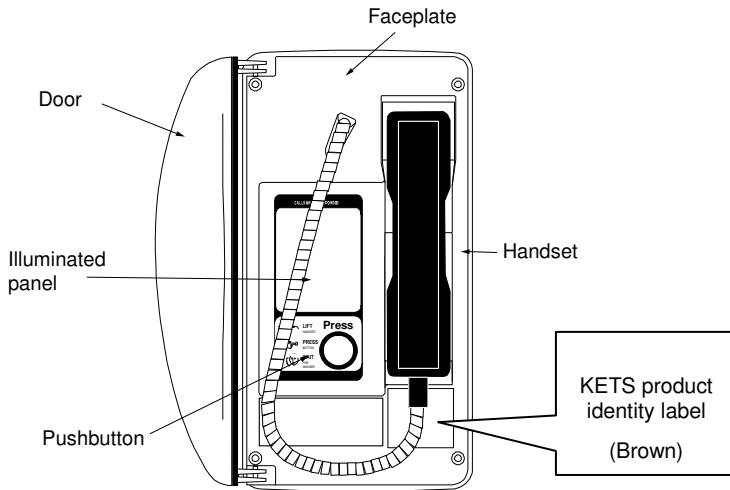
2. Product Description

This manual describes the KETS 1141 model Titan telephone, designed for use on KETS (Kestrel Emergency Telephone System) at automatic half barrier (AHB) level crossings in the UK. The product was introduced as an alternative to PETS, and delivers the functionality of PETS, but is not electrically compatible with any PETS interface. It can only be connected to a dedicated KETS interface.

The product identity label is **BROWN** (as opposed to the *blue* label visible on PETS units)

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

2.1. At a Glance

Faceplate

Door

Illuminated
panel

Handset

CALL/BAR   COMBI

LIFT   **Press**
HANDSET
PRESS
BUTTON
WAIT

KETS product
identity label

(Brown)

Pushbutton

Legend
panel
slides in
here

Main Terminal Block

3. KETS System Summary

KETS is an "omnibus" system, meaning that all the telephones are connected in parallel on a single cable pair from the crossing to the concentrator.
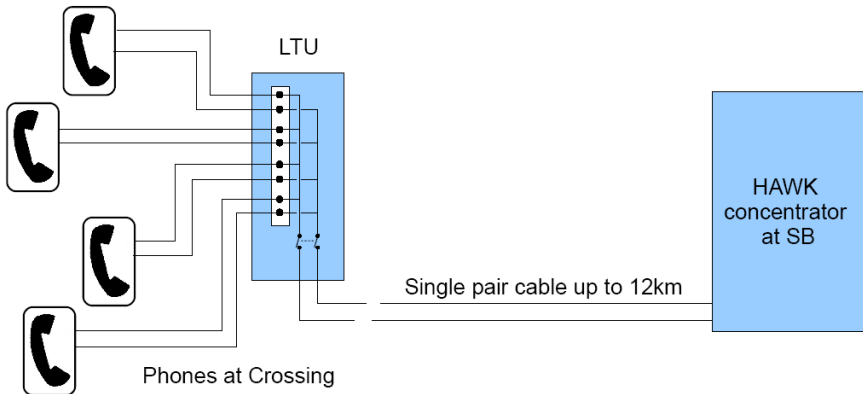
In practice all the phones at a crossing are connected into a Line Termination Unit (LTU), but this is a passive device containing only line conditioning components, terminals to connect up to 4 devices to a common pair and an ON OFF switch to isolate all crossing phones from the line. The ability for 4 telephones to work independently on a single pair with detailed fault monitoring and without interfering with each other relies on each telephone being an intelligent device with its own unique address on the system.

4. Addressing Procedure

To make sure that a KETS phone automatically acquires the correct address the rules are simple:

1. **Only apply power to a phone when the handset is OFF HOOK.**

2. **Always test ALL phones at a crossing before leaving site, even if only a single unit has been changed.**

These rules apply equally to a complete new crossing installation or replacement of a unit or units on an existing installed crossing.

If a KETS phone powers up with the handset on hook, it will retain its previous address. So, in the event of temporary disconnection or power interruption, all phones will retain their original addresses and function normally.

When installing or replacing a phone, it is essential that it does not retain any previously set address, for example from another crossing, which may cause a conflict. Powering up with the handset off hook will force it to acquire a new, unique address.

Always check the function of **all** KETS phones after any replacement has been made. If any individual phone does not perform as expected, it is usually because the above procedure has not been followed. In this case follow these steps to recover:

- disconnect power from all the phones (using the LTU switch),

- take all the handsets off hook,

- turn the LTU switch back on

- Replace all the handsets one by one

This will ensure that every phone acquires a unique address.

Note this situation can only occur as a result of maintenance activity, not during normal operation or as a result of power or line interruption.

5.   Operation / Testing

Normal operation of the phone is as follows:

Open the door - the illumination panel will come on

Lift handset - dial tone is heard but the call does not start.

Press button - ring tone is heard until the call is answered.

The call is cleared when the signaller hangs up, regardless of whether the user hangs up.

When a call is made from the signal box back to the crossing, all KETS phones on the line pair will ring.

When a handset is lifted the call is connected to that phone, and all the other phones will stop ringing.

6. Installation

6.1. General

IMPORTANT

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 invalidate your warranty.

These telephones are supplied without connection leads – cabling to the telephone network must be supplied and installed by the installer. Because of this, extra precautions must be observed: installation must be carried out by trained personnel. Contact GAI-Tronics if installation service is required.

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

2. Line connections are on the reverse of the faceplate, on the lower edge of the PCB as it protrudes from the back box.

3. 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.

4. Route the required cable through a gland as appropriate.

5. **Make sure the handset is off the cradle before connecting the telephone to the line**

6. Make connections following section 7.
   Ensure that both cable entries are sealed with either a gland or a black blanking plug as described.

7. Replace the handset on its cradle.

8. Re-fit the faceplate ensuring a weatherproof seal is maintained.

9. Test the operation of the telephone (sections 4 & 5) noting that **all** KETS phones at the crossing must be tested before leaving site. Installation is now complete.

6.2. If glands are required

Before mounting the telephone, check the cable routing and requirements. If glands are required, fit them to the case as follows:

1. Remove the RED blanking plug leaving the other (usually BLACK) in place.

2. Select the appropriate sized gland:
   Use the smaller gland for cables diameters 4 - 7mm.
   Use the larger gland for cable diameters 8 - 13mm.

3. 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.

CABLE ENTRY HOLE   SEALING WASHER   GLAND   GLAND NUT

4. Proceed with chosen mounting method below
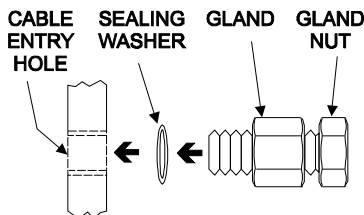
As standard, the telephone is supplied with a pole mounting kit, part number 100-02-0208-001.

6.3. Wall mounting


130   189   145   270   366
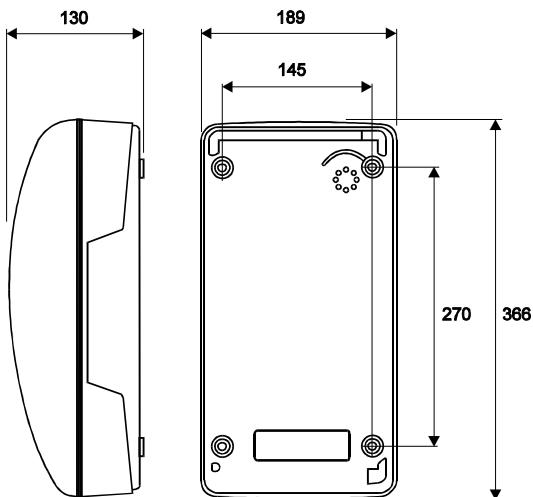
1. Using a suitable tool, punch out 4 holes in the rear enclosure, taking care not to damage or dislodge the plastic bushes. Only four of the eight holes are required - the outer ones are recommended. The inner holes are provided to be compatible with older-style mounting posts, and should be left intact if not used. If the inner holes are used they must be fitted with the supplied plastic bushes.

> **WARNING:**.*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). 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.

> **IMPORTANT**: *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.*
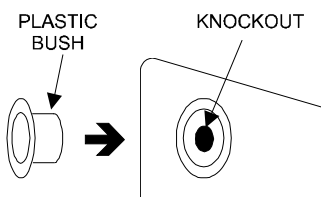
4. Ensure that all four plastic flanged bushes are in place and the rear enclosure is screwed tightly to the surface to prevent any water ingress through the punched holes.

5. Complete the installation by making the appropriate connections (section 7) and re-fitting the face plate.

6.4. Pole mounting
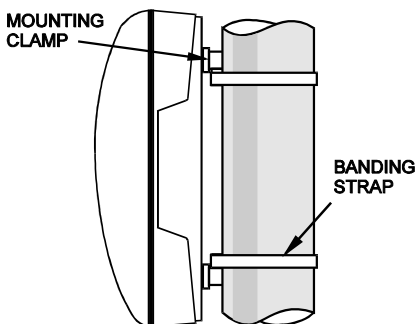
Kit No 100-02-0208-001

This accessory is for mounting GAI-Tronics telephones on to the side of round poles of 100mm to 200mm diameter, or on to square or rectangular section uprights of 100mm to 150mm 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 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) 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

If glands are used, insert the cable through the gland body and tighten the gland nut sufficiently to clamp the cable, making a seal. Ensure sufficient cable is left to allow removal of the faceplate without straining the cable.
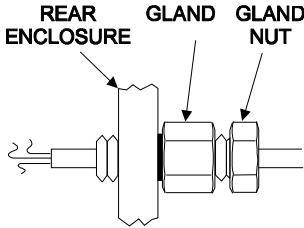
IMPORTANT: If only one cable entry is used, the BLACK blanking plug fitted to the second position must be left in place.

Connect the telephone line A and B to the main terminal block TB2 as shown.

The centre earth terminal is intended as an optional connection to a local earth for the purpose of enhanced protection from lightning transients, and is not required in terms of user safety from the telephone network.

Note: Conductor sizes to be 0.5mm-2.5mm^2 (flexible cable);0.5-4.0mm^2 (solid cable) The terminal block can be disconnected from the circuit board for easier installation

Cabling must not infringe European Low Voltage Directive (LVD) 2006/95/EC.

Main Terminal Block

KETS 1141 Titan Illuminated Crossing Telephone
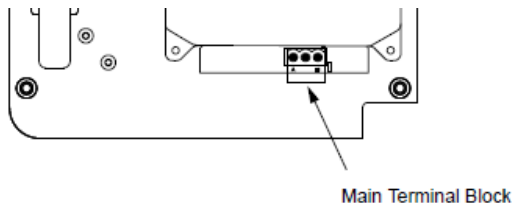
8. Legend Panel.

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.

Variable Information (Replaceable Legend Panel)

Fixed Information
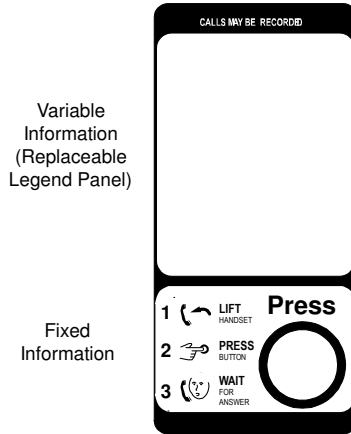
8.1. Legend panel dimensions

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.

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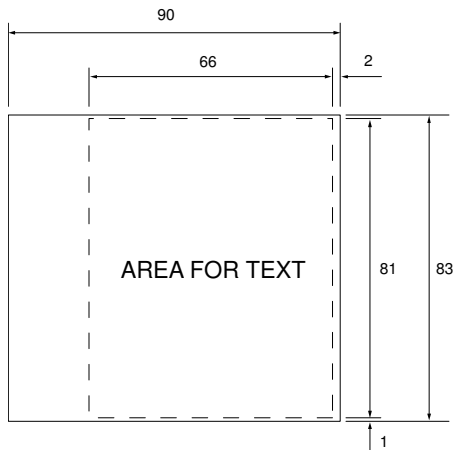
Note that the area for printing is 81mm x 66mm and allows a border and a tab for ease of fitting.

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-button

The 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 GR1 graffiti stain remover.
CAUTION: This is a very aggressive chemical. Pay close attention to the manufacturer's recommendations for storage, handling and use.

KETS 1141 Titan Illuminated Crossing Telephone

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 9000-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

11. Technical Specifications

Operational Requirements	
Systems.	• Kestrel Emergency Telephone System (KETS) only.
Not suitable for connection to:	• Public networks (PSTN) • Standard PABXs • PETS
Telephone line parameters	• On-hook current: 3.5mA ± 10% • Line voltage 20 to 70 Vdc • Loop current ≥ 15mA

Product features	
Power supply	100% line power.
Hookswitch	Electronic with no external moving parts
Ringer loudness	>75dBA @ 1m
Handset	Suitable for inductive coupling to Hearing Aids having a `T' switch position. Tested to ETS 300-381

Environmental limits	
Temperature:	Operating: -20ºC to +60ºC Storing: -40ºC to +70ºC
Relative Humidity	Up to 95% (non-condensing)
Ingress Protection	IP65 to EN60529 – Degrees of protection provided by enclosures.

Physical characteristics	
Casing material	Die-cast Aluminium
Handset Material	Cycoloy (2800) with stainless steel cord.
Weight	5kg approx.
Dimensions	189W x 366H x 130D (mm)

Compliance to standards	
European Directive	2004/108/EC – EMC Directive
	2006/95/EC – Low Volltage Directive (LVD)
	2011/65/EC - Restriction of the use of certain hazardous substances in electrical and electronic equipment (recast) (RoHS 2) Directive
EMC	EN55022 – Information technology equipment. Radio disturbance characteristics.
	EN55024 – Information technology equipment. Immunity characteristics.
	EN 50121-4 - Railway applications, emission and immunity
Safety	EN60950-1 – Specification for information technology equipment, including electrical business equipment.
Recycling Information	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.
	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.
	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.

12. CE Declaration

GAI-TRONICS
A Division of Hubbell Ltd

EC Declaration of Conformity $C \epsilon$

We, GAI-Tronics (a division of Hubbell Ltd.), of Brunel Drive, Stretton Business Park, Burton upon Trent, Staffordshire, England, DE13 0BZ, declare under our sole responsibility, that the following product is in conformity with the directives listed below and hold the relevant technical documentation at the above address.

Product description	Titan Illuminated KETS Telephones incorporating 999-02-1141-xxx PCB (all variants)

EC Directives
2004/108/EC – EMC Directive
2006/95/EC – Low Volltage Directive (LVD)
2011/65/EC - Restriction of the use of certain hazardous substances in electrical and electronic equipment (recast) (RoHS 2) Directive

Date of issue	Name/Job Function of authorised signatory	Signature of signatory
30 November 2012	R Rumsby Engineering Manager	

Document: 028-40-3321-000 iss 1   QC 300 / 11

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