

DefibSafe Installation Guide

Installing Defibrillator Cabinets in BT Phone Boxes



Risk Assessment



February 2017

Recommendations for Installation of Public Access Defibrillators in Phone Boxes

This information is informative and provides a method of installing Public Access Defibrillators which will assist the installer with complying with BS7671:2008 - Requirements for Electrical Installations. This information is neither normative or exhaustive and only provides only one such method of compliance; it is the responsibility of the installer to ensure the safety of people, livestock and property for any such electrical installation.

What are the hazards?	Who might be harmed and how?	How the risk should be controlled.	Action by who?	Action by when?
Electric Shock - Direct (basic)	All users of equipment including (but not limited to) installers, maintenance technicians, customers and public.	<p>All live parts in voltage band 1 and 2 (ELV and LV respectively) are completely covered by insulation which cannot be removed without destruction (416.1).</p> <p>Where basic insulation is removed for the purpose of termination, these terminations are inside enclosures (in this case, a fused connection unit) providing a minimum degree of protection IP2X (416.2.1) and only accessible by use of a tool/key (416.2.4).</p>	Installer and Inspectors/ Maintenance Engineers	On installation and inspected when serviced.
Electric Shock - Indirect (fault)	All users of equipment including (but not limited to) installers, maintenance technicians, customers and public.	<p>Equipment accessible to the public and users of the equipment is protected by extra low voltage (ELV) supplied by a transformer complying with BS EN 61558-2-6/8 (414.3) where the nominal voltage cannot exceed the upper limit of band 1.</p> <p>Connection between the LV source and the primary winding of the ELV transformer is to be made as short as possible; is to be of class 2 construction; is to use insulated AND sheathed cables where conductors are not enclosed in class 2 equipment.</p> <p>The supply of the installation is protected by a BS1361 /88-3 fuse (installed in the FCU of the phone box) of the lowest possible rating to enable operation of the equipment under normal conditions while also providing the fastest disconnection of supply (ADS) under fault conditions (this rating will likely be 1A).</p>	Installer and Inspectors/ Maintenance Engineers	On installation and inspected when serviced.

Risk Assessment



<p>Electric Shock - Indirect (fault)</p> <p>CONTINUED</p>	<p>All users of equipment including (but not limited to) installers, maintenance technicians, customers and public.</p> <p>CONTINUED</p>	<p>All equipment is to be fixed/secured using appropriate fixings and have sufficient stability/durability to maintain the required level of protection in normal service (416.2.3). This will likely require the use of cable ties and saddles or specially designed mounts for the short length of cable between the FCU (usually already installed in the phone box) and the transformer.</p> <p>Cables should enter enclosures by use of a compression gland to ensure stability and security of cables.</p> <p>Adequate consideration and verification of the support, fixings and durability of the equipment, including transformer, defibrillator, cables and any other equipment being used (preinstalled or otherwise) should be given during installation.</p>	<p>Installer and Inspectors/ Maintenance Engineers</p>	<p>On installation and inspected when serviced.</p> <p>CONTINUED</p>
<p>Thermal effects</p>	<p>All users of equipment including (but not limited to) installers, maintenance technicians, customers and public.</p>	<p>Cabled connections between the LV source and the primary winding of the ELV transformer is to be made as short as practicable and is to use insulated and sheathed multicore flexible cable of a minimum cross sectional area of 1mm² when protected by a 3A rated fuse protects the cable.</p> <p>Tightness and security of all terminations should be verified by use of a tug test in accordance with good working practices to ensure thermal effects from joints are minimised.</p> <p>All heat generating components are installed to maximise dissipation of heat and ensure components and equipment are running within normal operating temperatures.</p>	<p>Installer and Inspectors/ Maintenance Engineers</p>	<p>On installation and inspected when serviced.</p> <p>CONTINUED</p>

Parts Required



Part	Description
Universal Fixing Bracket	Fits any GU made defibrillator cabinet to any BT phone box
Transformer	240V to 15V DC
240V AC Power Cable	No plug & <1m length
15V DC Power Cable	1m long
Conduit	Self-adhesive box
4 x cable tie mount	To secure transformer and high voltage cable
6 x small screws	To secure cable tie mounts, approx. 15mm long thread
4 x large cable ties	To fit cable tie mounts
Rubber Grommet	To fit 9mm diameter cable
4 x M8 x 40mm bolts	To fix Mounting Bracket
4 x M8 washers	To fix Mounting Bracket
4 x M10 x 40mm bolts	To fix Cabinet
4 x M10 nuts	To fix Cabinet
4 x M10 penny washers	To fix Cabinet
2 x M3 x 12mm bolts	To secure Mounting Bracket

Tools Required

- ☐ Battery powered drill (must be able to easily drill through 5mm thick steel)
- ☐ Set of **security** Allen Key bits
- ☐ Ratchet, to suit:
- ☐ 13mm socket & 13mm spanner
- ☐ 17mm socket & 17mm spanner
- ☐ 12.5mm sharp cobalt metal drill bit (recommend bringing a range of sizes)
- ☐ Small insulated flat-head screwdriver
- ☐ Wire strippers
- ☐ Mains voltage tester

Pre-job Checks

Before going to site, ensure that the phonebox is ready for an install to take place:

- ☐ Has the BT Phone been removed?
- ☐ Is there power going to the Phone Box? (Phone Box over-head light should be on)
- ☐ Is the Phone Box in a reasonable state of repair (especially the electrical enclosure and fixing points), so that it is possible to do a safe install?
- ☐ Is the phone box clean?

**PLEASE NOTE – THIS INSTALLATION SHOULD ONLY BE
CARRIED OUT BY A COMPETENT PERSON**

Preparation



Prepare Phone Box and Cabinet for installation

Once on site, remove any shelves or picture frames from the phone box rear wall, that might get in the way.

- ! If the Cabinet you are installing has a transformer fitted internally, the Transformer and Mains Power Cable should be moved to outside of the cabinet for extra safety. The 15V Power Cable should be run into the cabinet instead.

This provides an extra layer of safety, when installing without an earth connection.

If you have to route the 15V Power Cable through a hole (often the case in the modern phone boxes):

- Remove the 15V Power Cable from the defibrillator cabinet and then run it through a 12.5mm hole, using a rubber cable grommet to protect the wire against sharp edges. Ensure the **male** connector is on the **outside** of the electrical enclosure



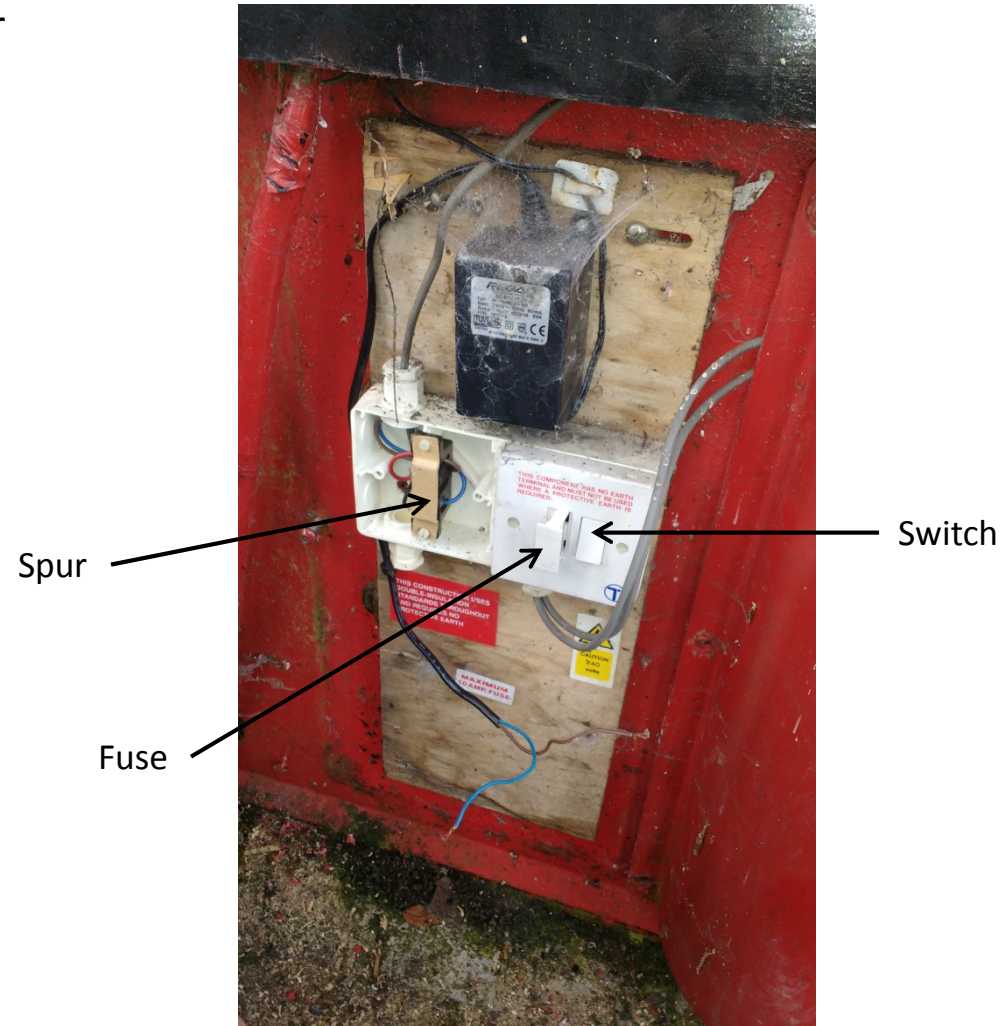
Beware sharp edges
– use Rubber Grommet/Cable Gland on
holes through metal

Installation



1. Isolate power going to the spur

- A. Remove cover of electrical enclosure.
- B. Turn off switch
- C. Remove fuse
- D. Remove the plastic cover of the spur
- E. Use voltage tester to confirm spur has been isolated



Installation

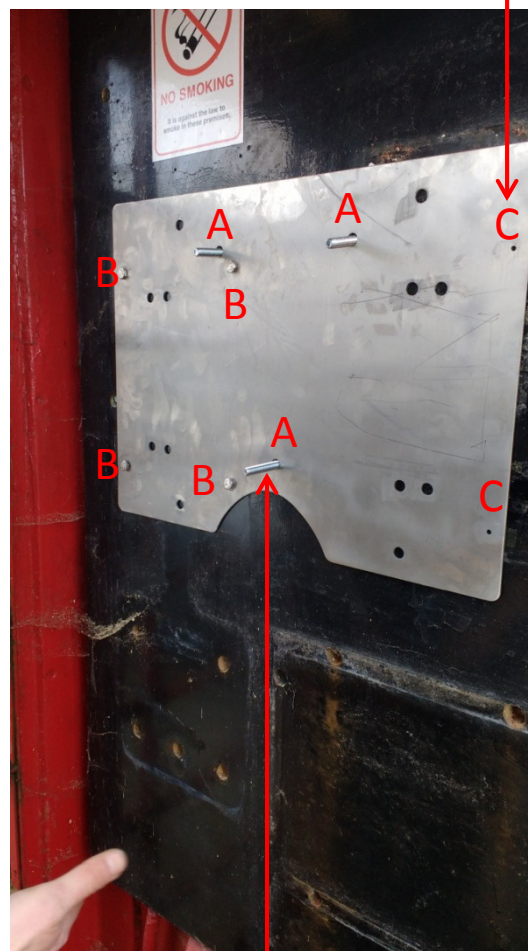


3. Fix Mounting Bracket & Cabinet

- A. Insert M10 bolts into Mounting Bracket from rear and leave loose. Be sure to use the correct holes for the cabinet type that you are installing
- B. Fix Mounting Bracket to the Phone Box, using 4 x M8 bolts and washers
- C. Additionally, use appropriate fixings to secure the right hand side of bracket
- D. Now **loosely** fix the cabinet to the M10 bolts, using the M10 nuts and penny washers
- E. With the cabinet loosely fitted, run the 15V Power Cable back into the cabinet
- F. Now secure to cabinet in place. Do not over-tighten fixing nuts.

❗ DO NOT USE SELF TAPPING SCREWS (IE TEK SCREWS) FOR WEIGHT BEARING FIXINGS

C fixings are not weight bearing



M10 bolts, configured here to fit a DefibSafe2

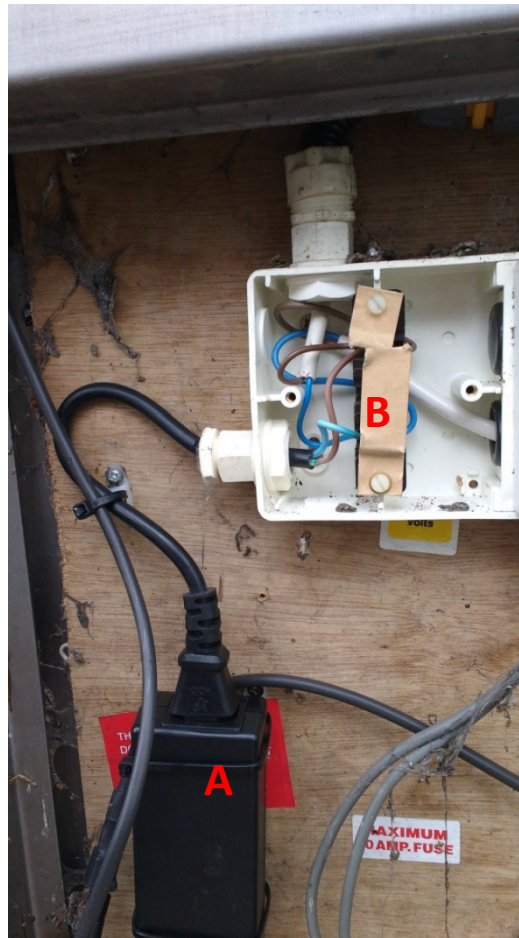
Installation



4. Wire in the Power Supply (Transformer)

- A. Fix the Transformer to the phonebox, using the cable ties & mounts.
 - ! Ensure that the kettle cable connection cannot work loose
- B. Wire in the Mains Power cable into the Phone Box's fused spur (there is no Earth connection to make)
- C. Replace the plastic cover
- D. Replace the existing fuse, with a fuse of appropriate size to protect the Transformer – GU suggest a 3 amp fuse
- E. Connect the 15V Power Cable to the Transformer & secure in place
- F. Turn on the power and check the Status Light on the cabinet
- G. Replace the cover of the Electrical Enclosure
- H. Run the cable to the Cabinet in conduit on order to protect it.

NOTE – AN RCD CAN BE USED FOR EXTRA PROTECTION BETWEEN THE TRANSFORMER AND THE SPUR - THIS IS NOT ESSENTIAL TO MEET THE REQUIREMENTS OF BT.




Installation



4. Paperwork

- A. Before leaving the site, fill in the Installation Form
- B. Now set-up the defibrillator and place it inside the cabinet. If there is no defibrillator to install right-away, put a sign on the door of the cabinet, clearly stating:

“CABINET NOT IN USE, IN AN EMERGENCY DIAL 999”



Example

Defibrillator Cabinet Installation Form

<u>Customer Details:</u>	
Customer:	
Contact Name:	
Contact Phone Number:	
Contact Email Address:	
Address of Box Installation:	
Date of Installation:	

<u>Cabinet Details:</u>	
Box Code:	
Power Taken From:	

<u>Installation Details:</u>	
Installed By:	Date Installed:
Installers Signature:	

<u>Notes:</u>

<u>Customer Sign Off:</u>	
I confirm that the box has been installed to a satisfactory level on the above date, at the above location.	
Customer Name:	
Customer Signature:	Date:
Customer Comments:	