RISCO
GROUP

Creating Security Solutions.
With Care.

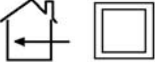# G A R D T E C
8 0 0   S e r i e s

800 816 872

Engineer's
Reference Guide

Contents

IMPORTANT!

Input:	**AC230V +/-10% ~50Hz 125mA Max. 35W Max**
Nominal Temp Range:	**0 - 50°C**
	Gardtec *800 Series* Metal Versions **For Indoor Use Only**
	Gardtec *800 Series* Plastic Versions **For Indoor Use Only**

This equipment is intended only for use as a Security Alarm Control Panel. Adequate ventilation away from heat and humidity must be provided. The unit must be fixed securely to a non-flammable surface using suitable fixings.

All mains wiring must conform to the relevant IEEE wiring regulations (or appropriate international regulatory standards). See Mains Supply Connection section within this manual for more detailed instructions.

All wiring must be protected from sharp or jagged edges.

All Low voltage (alarm) wiring must be to the appropriate international regulatory standards and comply to good wiring practice. Low voltage wiring should not be able to touch mains wiring.

Replacement fuses should be of the same type and rating conforming to IEC 127.

The maximum current draw from the unit for all output combinations **must not exceed the rated output. Please see note: **Power Supply Rating (Page 172)*.**

The unit is intended for use with a suitable re-chargeable lead acid battery permanently connected to the appropriate terminals.

Battery Fuse

An in-line Battery Fuse has now been incorporated into this product. The fuse rating is 2 Amp Anti-Surge. The fuse holder is spring loaded, therefore you should ensure that the battery lead is not under tension in order to maintain a good connection between the fuse and the holder.To change the fuse push the two halves of the holder together and twist

anti-clockwise. Please ensure correct battery charge on completion of the installation and during each service visit.

All documentation and manuals must be thoroughly read by suitably qualified installation personnel prior to installation.

The unit has no user serviceable parts inside. Internal access should only be by suitably qualified personnel.

Gardtec *800 Series* Metal Versions
The unit must be Earthed. It is the responsibility of the installation engineer to ensure that the earth connection to the unit lid is good on completion of the installation or after service.

Gardtec *800 Series* Plastic Versions
Provision is provided for an earth connection within the mains input connector block, this connection is for protection of the wiring only and is not functional for the unit.

1 INTRODUCTION

The Gardtec *800 Series of* control panels consists of two main parts, the master control panel and the keypad(s). The master control panel is a blank-end-station if the metal version is used, or the keypad may be mounted on board if the polycarbonate version is used with standard type keypads. Various zone wiring modes may be used, taking the maximum number of zones available on any one system to 144 zones with 7 areas with up to 99 user codes for the Gardtec *872*, 32 zones for the Gardtec *816* (15 user codes) and 16 zones for the Gardtec *800* (15 user codes). Zone expansion is via flexible zone expander cards on all models except the Gardtec *800*.

If required, Radio expansion cards may be fitted and up to two 8 channel receivers; Two on the *872* and one on the *816*. These Radio expansion cards are compatible with a range of radio equipment.

On the *872*, If required, up to two ID expander cards may be fitted instead of standard and radio expander card. Each ID expander cards will give up to 30 ID zones using industry standard ID buscuits or ID detectors. When using any expander cards the control panel zones are retained and are programmable as 8 (4 wire zones) or 16 (2 wire or 2 wire End of Line) zones.

Ample room is provided within the master control panel housing for all the system wiring, Mains connections, Digicom, Modem or Red-Care communicator (fitting inside the metal version only) and a 7Ah SLA battery.

Uploading/Downloading capabilities are possible on all models within the range through the Gardtec *800 Series* Modem and the Gardtec Remote Software Package for a P.C. Facility is also provided for direct connection to a P.C via the Gardtec *800 Series* Modem Patch Lead.

The capabilities of the Gardtec *800 Series of control panels* are endless and we strongly recommend that all the manuals (both engineer and user) are read and understood before any installation of the system is carried out. You will find that a little time spent now understanding the Gardtec *800 Series* will prove to be a great time saver for the future.

It must be stressed that the Gardtec *872* is one system that is capable of being split into seven areas. Under no circumstances should you regard it as seven separate systems.

Any references to Area Setting or Area Functions contained in this manual relate to the Gardtec 872 ONLY.

2 SYSTEM OVERVIEW

Codes

`800` `816` `872`

The Gardtec *872* is capable of accepting up to 99 user codes (15 for *800/816*) plus 1 engineer code. Each of the user codes is allocated a code type (with the exception of user 1 that is always Master) at the time the code is programmed. Code types plus engineer that are available are:

Code Type (*872*)	Code Type (*800/816*)
Cleaner	Set Only
Area 1	Main
Area 2	User
Area 3	Master
Area 4	Cleaner (816 only)
Area 5	
Area 6	
Area 7	
Main 1	
Main 2	
Main 3	
Main 4	
Main 5	
Main 6	
Main 7	
Control	
Set Only	
Main User	
Group Master	
Group Main	
Group Area	
Master	

Default Master User Code	**BS / EN2 5678**	**EN3 005678**
Default Engineer Code	**BS / EN2 1234**	**EN3 001234**

Note: ***User 1 will always be Master Level****.*

Note: ***For EN3 installations, User Codes and Engineer Codes <u>MUST</u> be six digits in length****.*

Note: ***800/816 have no area facilities****.*

Note: ***800 series control panels can only be programmed using <u>LCD KEYPAD</u>****.*

A full list of options that are available for the code types are given in the user manual. As a general guide for this section, the codes for the Gardtec *872* are split into two groups, Global and Area codes. Codes allocated to these groups are as follows:-

Global Codes (Controlling All Areas).

872

Master
Main
Set Only
Engineer
If any area is set, entering a global code (not Set Only or Cleaner) will unset all areas.

If all areas are unset, entering a global code followed by YES (or code then NO YES if Engineer code is used) will give the option to set all areas.

The global codes with the exception of Set Only also have other options. More details of these options are given in the user manual.

Area Codes (Controlling Specific Areas)

872

Cleaner (Area 0)	
Area 2	Main 6
Area 3	Main 7
Main 1	Area 4
Main 2	Area 5
Main 3	Area 6
Main 4	Area 7
Main 5	Area 1
Group Master	
Group Main	
Group Area	

These area codes will only control their specific areas. Area codes are 'low level codes' and have no user options, they will however allow for the part setting of each area.

Areas 1 to 7 may have up to 3 part sets suites (groups of zones). If part set 1 is used zones programmed into the part 1 suite will be removed (omitted), if part set 2 is used zones programmed into the part 2 suite will be removed and if part set 3 is used zones programmed into both part 1 and part 2 suites will be removed, no programming is required for part 3 as it combines zones in part 1 and part 2.

It should be noted that the zones programmed into a part set suite are programmed by the engineer and not the user.

To set an area simply enter the required area code (Press YES if a Main Area Code is used) and exit the area.

To part set an area enter the area code followed by NO and the part set number required (1, 2 or 3). If Main Area type code is used enter code followed by part set number.

To unset an area, enter the area code.

Cleaner Code (part set 0)) Master & Main Codes only   816   872

The Cleaner code or part set 0 acts in a different way to the other area codes. To set the system and remove the cleaner zones Enter code followed by YES, YES 0 This will set the system or area and remove the cleaner zones.

If a cleaner code is now entered the cleaner zones will also be set.

If a cleaner code is entered when the system is fully set or area set only the cleaner zones will be unset.

It should be noted that any entry/exit zones that are removed or unset via the cleaner code or part set 0 will chime when violated. This is to prevent other users straying into protected areas without warning.

More details of codes and using the system are given in the relevant sections of this manual, and in the user manuals.

Zone Allocation to Areas

Whilst within the zone programming section zones may be allocated to areas. This may be one single area or multiple (common) areas.

If a zone is allocated to more than one area it is then a common area zone and the following logic is applied:-

> If any area that is assigned to the zone is unset then the zone *is not* active.

> If all areas that are assigned to a zone are set then the zone *is* active.

> If any area that is assigned to the zone is in exit then the zone is also in exit (zone type will still apply).

> If any area that is assigned to the zone is in entry then the zone is also in entry (zone type will still apply).

Zones

800 **816** **872**

Three zone wiring modes are available depending on standard selected on power up.

16(2 Wire). If required, this configuration may be programmed for 16 two wire zones. In this case, two zones should be reserved for global tampers and the remaining 14 zones are then programmable for the desired zone types. All zones marked as AZ are positive loops and all zones marked as TZ are negative loops. Your global tamper loops must be of opposite polarity to the zones it is protecting.
Cannot be used in Grade 3 installations.

8(4 Wire). If required, this configuration may be programmed for 8 four wire zones. Wire 8 individual zones with their own tampers.

16(EOL) The control panel zones may also be programmed as 16 EOL (End Of Line resistor) zones. This configuration gives the highest possible zone wiring security and a maximum of ten detectors may be wired on to each zone when this option is selected. Resistors required for EOL operation are supplied with the control panel.

When using EOL zones each detector has a 6K8 resistor in parallel with the alarm contacts and there is a 4K7 resistor in series with the two zone wires. This gives both alarm and tamper protection from a single pair of wires. To make full use of this security feature the 4K7 resistor must be fitted to the furthest most point in the loop.

Three wiring options are available under 16(EOL):

Norm: Standard GardTec wiring configuration without Mask or Fault detection.
> *Note: Does not give any Fault or Masking detection and should only be used with Zone pairing.*

ELF1:   ELF1 wiring is used for detectors that have a relay output (a pair of terminals) for Fault or Mask..

ELF2:   ELF2 wiring is used for detectors that have a transistor output (a single terminal) for Fault or Mask.

Note: We would recommend that either ELF1 Format or ELF2 Format (dependant on detector output type, Relay or Transistor) is used. ELF1 or ELF2 wiring modes will allow for Alarm, Tamper, Fault and Masking to be monitored from a single zone without the need for zone pairing.

Note: The installer should check what output type the detector are, noting that all the detectors should be of the same type with regards to the Fault / Mask output.

Zone Pairing.
If the 8(4 Wire) wiring mode is used then a zone must be used to monitor for Masking and Fault. This is achieved by selecting Zone Pairing as on. Zone Pairing cannot be used in ELF1 or ELF2 wiring modes.

When using Zone Pairing each zone will have a corresponding paired zone that will be used for Masking and Fault signals. This is done by using the Odd numbered zones for the normal alarm detection and the Even numbered zones for Masking and Fault Detection.

Please note that half the zones on the system would be lost for processing the Mask and Fault signals and it would be more prudent to use the ELF1 or ELF2 modes as described previously.

*Note: GardTec **DO NOT** recommend zone pairing if the control panel has be programmed for 16 two wire zones.*

Zone Expansion

816 **872**

An expansion path is available through zone expander boards. Each expander board being programmable for 4 x four wire zones, 8 x two wire zones or 8x two wire EOL zones. Up to sixteen expander boards may be fitted to a Gardtec 872, giving a total of 144 zones when configured as 2 wire or 2 wire EOL zones, and up to two expander boards on the *816* giving a maximum of 32 zones. Each expander board and the control panel zones may use differing wiring configurations.

Expander cards may be fitted in locations away from the master control panel.

More details of zone options are given in the relevant sections in this manual.

ID Zone Expansion

872

As an alternative to ZEX expansion, up to two ID expander boards may be fitted. Each ID expander board will accept up to 30 standard ID biscuits/devices. ID biscuits may be used with all standard detection devices. This system allows either single leg or ring wiring using standard alarm cable, detectors may, if required can be 'teed' off the leg. This expansion method can offer considerable savings of cable and labour

One ID expander card may be plugged on to the control panel PCB (not with onboard RKP) with the other remote. Alternatively both ID expander may be mounted remote from the control panel. *If this method of expansion is used standard zone expanders or radio modules cannot be used.*

Zone Descriptions

816 **872**

Up to sixteen characters may be used for zone descriptions on the LCD keypad. The description that you allocate to a zone will also be applied to the tamper of that zone. If the cause of an alarm is through a zone tamper the description will be shortened to 13 characters on the display, the last three characters being replaced with <space>T!

The zone descriptor is displayed whilst viewing the cause of an alarm, viewing the log, if a zone is violated during exit and when programming zone descriptors

User Names

816 **872**

Each user (with the exception of the engineer) may be allocated a user name of up to nine characters. This name will be shown if the system is being set with a master or main code type and whilst viewing the log.

Keypads
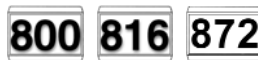
The Gardtec *800 Series* of control panels may be operated via any of the Gardtec *800 Series* range of keypads. Several types of keypad are currently available: Standard or Contour 32 character LCD, Standard or Contour twin seven segment LED, and twin seven segment LED compact. Standard keypads will also require a remote housing if not fitted onto the main control panel. This housing may be fitted in any one of three orientations

The Gardtec *800 Series* is also ACE & Prox compatible. ACE allows for the setting, part setting, unsetting and resetting (if programmed) of the system via Infra-Red remote control keyfobs. ACE is available as a stand alone receiver or built into a RKP

LCD, LED and ACE keypads may be mixed on the same system allowing for total flexibility in control of the system. A maximum of eight keypads/ACE units may be fitted to the Gardtec *872* (four for *800/816*).

Note: 800 series control panels can only be programmed using <u>LCD KEYPAD</u>.

Uploading/Downloading & Remote System Management

The Gardtec 800 *Series* is capable of uploading and downloading from both a primary location and secondary location (e.g Laptop computer). This helps reduce maintenance costs should there be a need to update the system program or a customer on site having difficulties.

This uploading/downloading capability has the ability to allow for complete Remote System Management.

Viewing the Log

Whilst viewing the log pressing the NO key will take you back to the previous event and pressing YES will move forward to the next event. When you open the log for viewing you will see the last event in the log.

Pressing the 5 key whilst viewing the log will show the zone number instead of the descriptor and the user number rather that the user name.

3   SYSTEM INSTALLATION

Planning The System

800 816 872

Time should be taken to plan the system. Because the master control panel may be a blank end station it may be looked upon as an engineer box requiring no attention from the end user. When choosing a location for the master control panel consideration should be given to the following:-

The routing of cables, e.g detection, sounders, mains, telephone line, keypads etc.

Area aesthetics in view of the above.

Future access by service personnel.

Consideration also needs to be given as to the positioning of the remote keypads. Wiring for the keypads may be 'star' or 'daisy chain' format (see Keypad Wiring for more details). When choosing locations for remote keypads the following points should be observed:-

      The proximity of the keypad to the entry/exit point(s).

      The operation of the keypad.

      The readability of the display.

      The wiring route to the keypad.

Where ACE units are used a clear line of sight from the transmitter to the receiver at a distance no greater than 5 metres.

The metal version of the master control panel has ample trunking and conduit entries at the top and the bottom of the housing, in addition to these entries there is also a 5mm stand-off to allow for side cable entries

Control Panel Mounting

Remove the two lid securing screws (single screw on polycarbonate version see Fig1) then (pushing in side buttons on polycarbonate version) pull the lid forwards and lift clear of the lid securing lip. Store the lid in a safe place.

Offer the base to the wall and using it as a template mark the four fixing point noting (on the metal version) that the lid securing lip should be at the bottom.

Store the base in a safe place then drill the wall. **Under no circumstances should you drill through the base.**

Before mounting the base to the wall remove any trunking or conduit entries that you require as knockouts.

Mount the base to the wall using 30mm No.10 screws and suitable rawl plugs.

After the installation has been completed refit the lid and secure with the retaining screw(s).

Keypad Mounting

The standard Gardtec *800 Series* keypad is available with a 32 character LCD display or with a twin seven segment LED display. All these keypads require the Gardtec *800 Series* RKP Housing Part No. 01-063 unless the keypad is to be mounted within the polycarbonate control panel (see Fig 1). Contour keypads are supplied as a complete unit for remote mounting.

This housing has been designed to allow mounting in one of three positions. These are:-

With the hinged flap to the left.   (See Fig 2a.)   Use fixing points A, B, D, E
placing edge of board under tab F

With the hinged flap to the right.   (See Fig 2b.)   Use fixing points A, C, D, E

With the hinged flap to the bottom. (See Fig 3.)   Use fixing points A, B, D, E
placing edge of board under
tab G

The base of the housing should be fixed to the wall using 25mm x No.8 screws and suitable rawl plugs in three positions.
After the keypad has been mounted in the base, the correct spring (supplied with the keypad) should be pushed onto the tamper switch (see Figs 2 & 3 for spring details).

Before replacing the cover move the ident jumper to the correct position.
Provided that the panel is mounted horizontally the keypad may also be mounted onboard the polycarbonate control panel (see Fig1) by removing the keypad blanking plate in the control panel cover. It should be noted that any zone expanders, ID expanders or output expanders cannot be fitted onboard if this option is chosen.

Fig 1 Polycarbonate Case with Onboard Keypad Mounting Details

A Fixing Points
B Cable Knockouts
C PCB Fixing Clips
DPCB Retaining Clips
E Tamper Switches
F Expander Poer
G Onboard keypad Fixing Clips
H Serial Printer Port
I Engineer RKP Port
J ProDigi/Modem Port
K Reset Link
L Spare Fuse
M Cover Fixing Screw
N PCB Fuses
P Mains Cable Entry
Q Alarm Cable Entries
R Mains Fuse
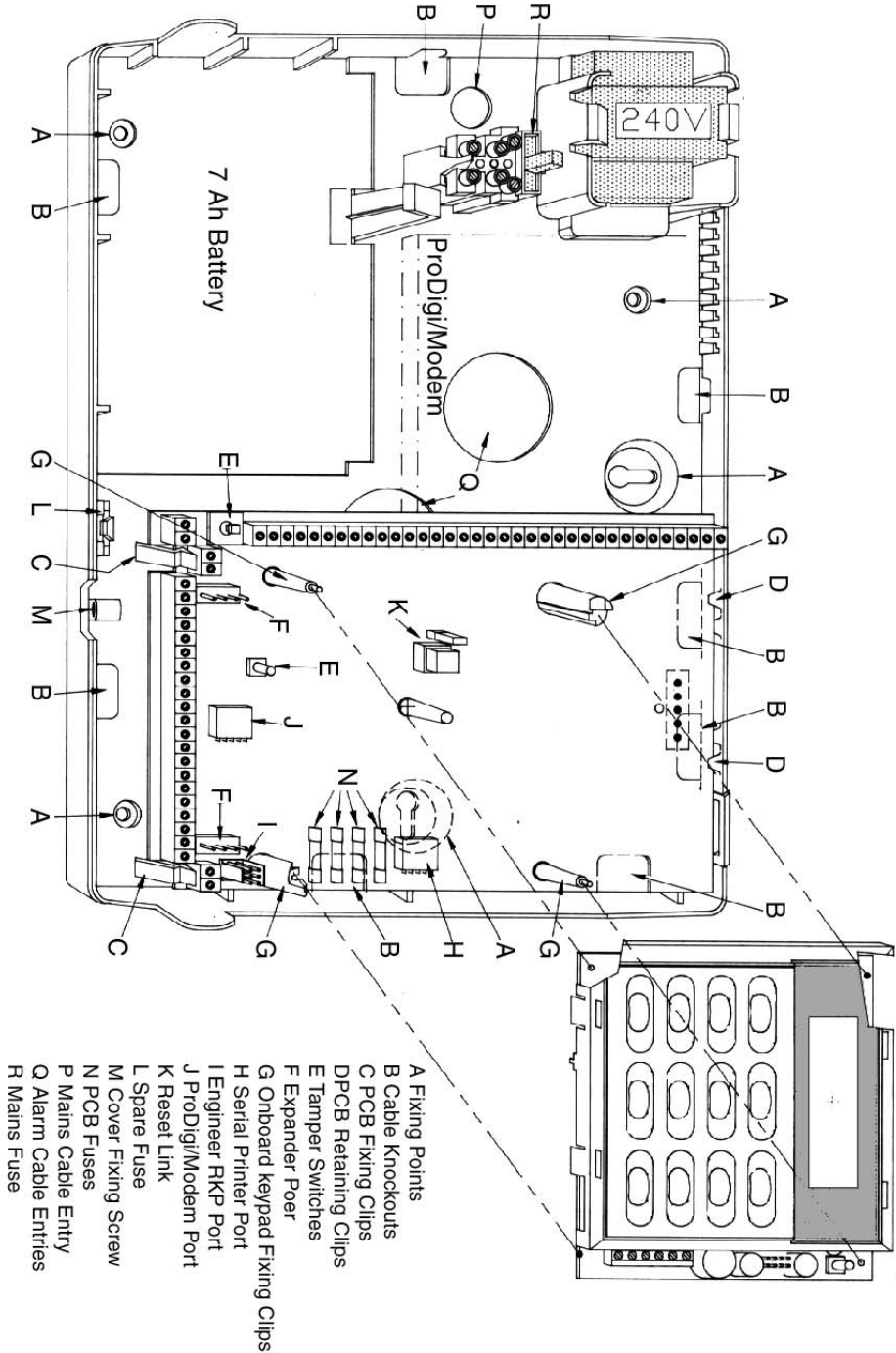
Fig 2a. Flap to left Standard RKP with Housing Base

Use one of the longer springs (supplied) on the tamper switch
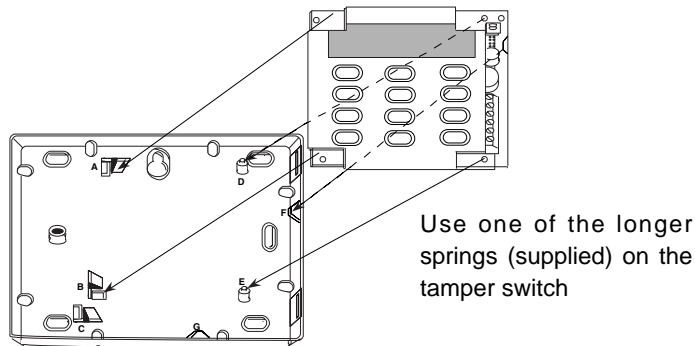
Fig 2b. Flap to right Standard RKP with Housing Base

Use the shorter spring (supplied) on the tamper switch
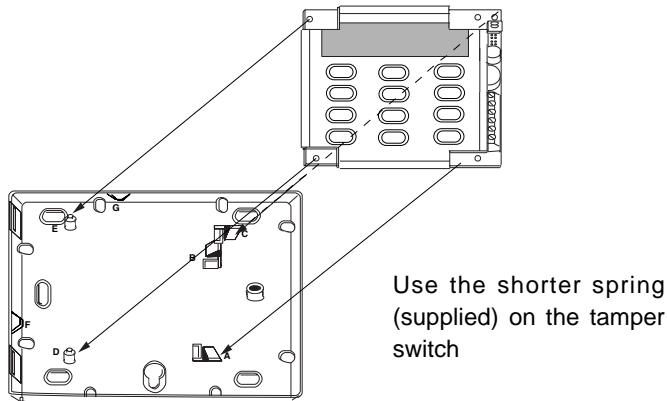
Fig 3. Flap to bottom Standard RKP with Housing Base

Use one of the longer springs (supplied) on the tamper switch
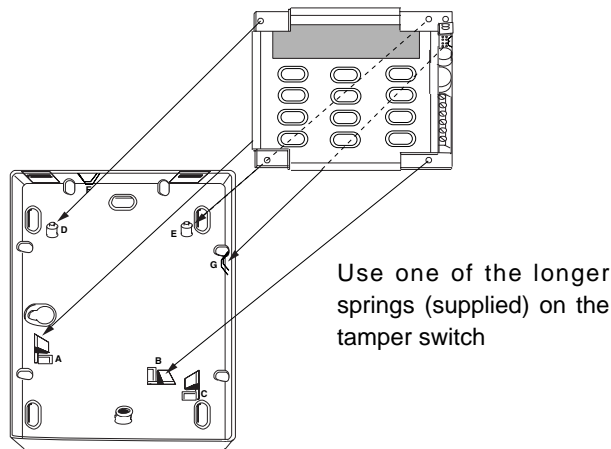
Fig 4a Contour RKP

Lower Flap to reveal single cover fixing screw

A stand alone ACE receiver is also available. This receiver will allow for the setting, part setting, unsetting, resetting (if programmed) and activation of alert keys 1 & 3.

Note: Activation of alert keys is not permissible if programming EN2 / EN3 standards.

To mount the ACE receiver remove the front retaining screw of the receiver that is situated on the underside of the unit, pull the bottom edge of the cover forwards and upwards in one movement. The PCB may now be removed by unclipping it at the bottom edge and lifting clear of the base.

Fig 5. ACE Receiver

The base should be fixed to the wall in three positions using 30mm x No.6 screws and suitable rawl plugs.

It should be noted that the ACE receiver may only be used as keypad ident 1 or 2.

The new Contour range of stylish remote keypads are also available for the full Gardtec *800 Series* range of control panels. These keypads are designed to be fitted remote from the main control panel and both the LED and LCD versions are available with ACE as standard.

Fig 5a ACE Receiver and ACE
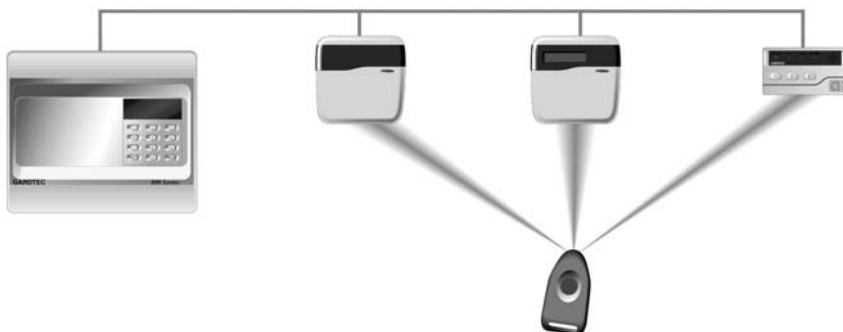
4   WIRING CONNECTIONS

800 816 872

With the exception of the mains wiring all
interconnections should be made with multicore 7/.02 alarm cable.

Good wiring practice should be observed throughout the installation and the following tips may prove useful.

Never run alarm cables parallel to mains cables, telephone cables or any other cables that may be carrying inductive loads

Whenever you have to cross mains cables with alarm cables ensure that you do so at 90°

Whenever possible wire the mains connection for the control panel back to the consumer unit via a 3A unswitched fused spur.

Never tap into ring main circuits that have fridges/freezers on them.

Never tap into lighting circuits that have fluorescent lighting units on them.

Mains Supply Connection

800 816 872

The mains connection for the Gardtec *800 Series* should be as shown in Fig 6.

Fig 6.

Warning the Gardtec *800 Series* control panels MUST BE EARTHED.

**Mains (Twin & Earth)
Connection Colours**

Live   = Brown (Red)
Neutral = Blue (Black)
Earth   = Copper

Yellow/Green sleeving should be used for Copper Earth Conductor

Consumer Unit

Fused Spur

Control Panel Mains
Terminal Block
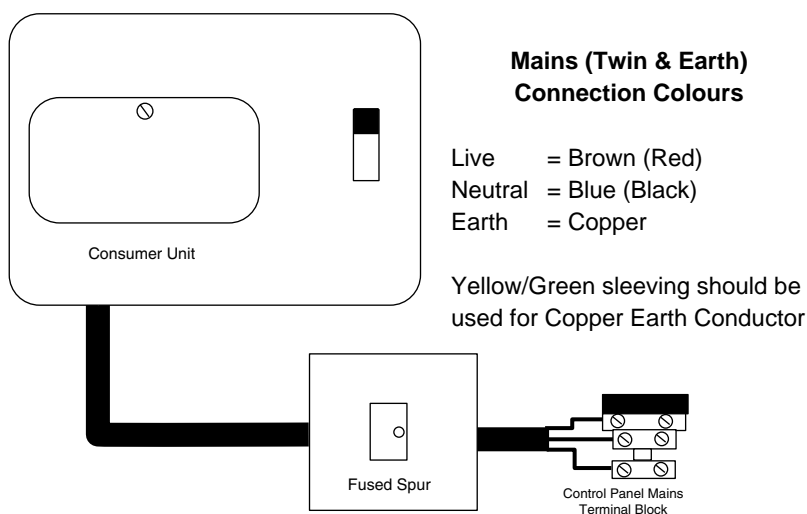
Keypad Wiring

Keypads may be wired in 'Star' format (each keypad being wired back to the master control panel) see Fig 7a, or 'Daisy Chain' format (from the control panel to the first keypad then onto the second keypad etc) see Fig 7b. It is also possible to wire the keypads with a mix of 'Star' and 'Daisy Chain' formats see Fig 8.

Fig 7a. 'Star' format wiring.

```
RKP 1 ———        ——— RKP 3
           Master
           Control
           Panel
RKP 2 ———        ——— RKP 4
```
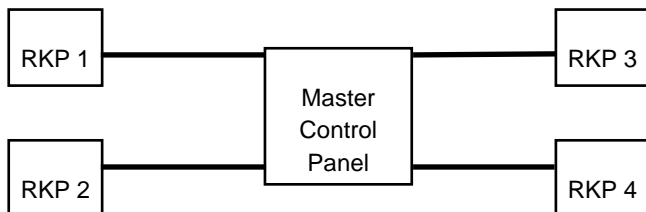
Fig 7b. 'Daisy Chain' format wiring.

```
Master
Control ——— RKP 1 ——— RKP 2 ——— RKP 3 ——— RKP 4
Panel
```
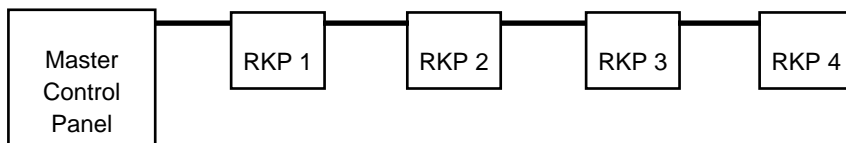
Fig 8. Mix of 'Star' and 'Daisy Chain' wiring.

```
                    RKP1b      RKP2b

                RKP1a      RKP2a
       Master
       Control        RKP3b      RKP4b
       Panel
               RKP 3      RKP 4
```
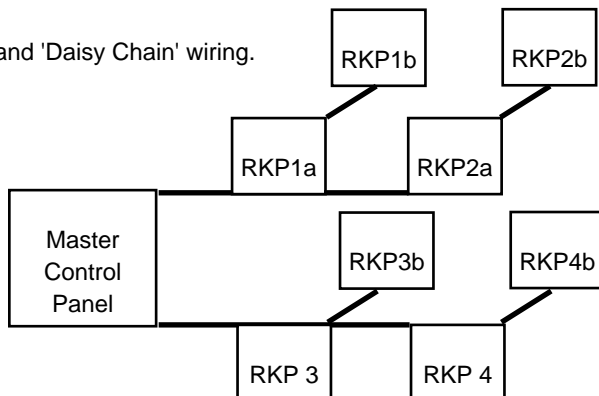
Note: All keypads need to be numbered via the onboard ident jumper switches.

Note: ACE receivers count as RKPs and may only be numbered as RKP 1 or 2 (unless built into RKP).

Keypad Terminal Connections

Some keypads that are compatible with other GardTec control panels may have additional markings as well as the Gardtec *800 Series* legends. These additional markings are disregarded within this manual.

They may also have three extra terminals marked as follows:-

E/E -VE

E/E +VE

TMP+

The keypad port on the master control panel is situated on the bottom edge of the PCB towards the right hand side. Wiring to the RKP(s) is terminal to terminal as shown in the following illustrations.

Fig 9. Single RKP wiring.
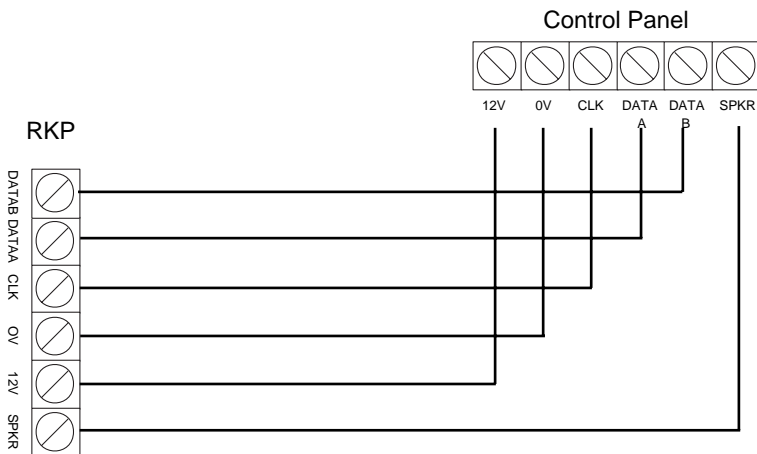
NOTE: RKP terminal positions may differ (dependent on model)

Fig 10. 4 Wire Contour RKP Wiring Details.

Note: CLK and SPK are not used.

KEYPAD CONNECTIONS

REMOTE KEYPAD

B
A
CLK
0V
12V

2K2

Remove 2K2 if using Keypad Zones and use resistor EOL.

A2 A1 | A4 A3 | SET | D2 | D1 | 0V | +12V | ZONE

4 Wire Contour RKP

REMOTE KEYPAD(S) MAY BE WIRED IN STAR OR DAISYCHAIN FORMAT

GTAG PROXIMITY READER(S)

Note: Keypad zones are preset and cannot be changed.
E/E - 3K3 KP Zone 1
Part E/E - 5K6 KP Zone 2
EOL - 2K2
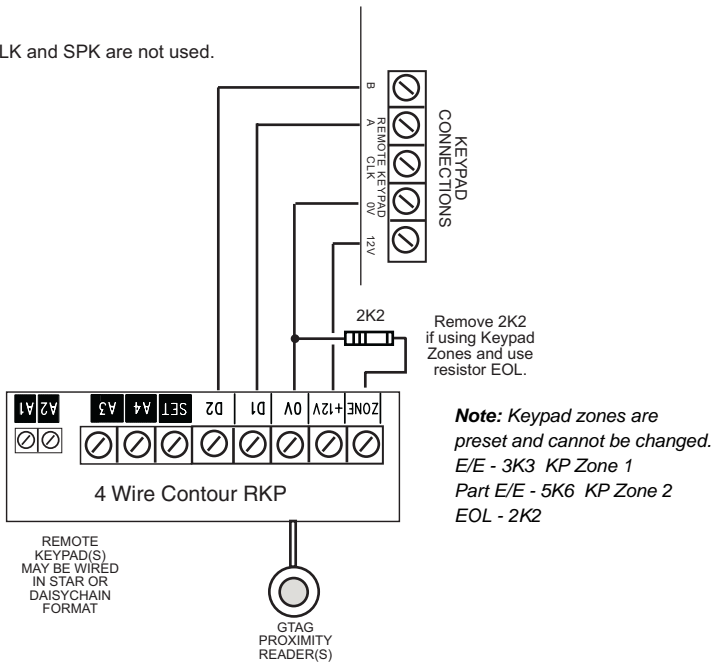
Note: RKP terminal positions may differ (dependent on model).

Note: For keypad programming information and keypad zone wiring details, please refer to PR5873 4 Wire Contour RKP Wiring Details installation guide.

*Note: All Keypads **MUST** be connected before powering up the Control Panel.*

*Note: All keypads on the same system **MUST** be of the same type. i.e. All four wire or all six.*

Keypad Jumper Options - Non 4 Wire Type 800 816 872

Keypad Numbering (ident)

All keypads must have the ident jumper in position in order that the system can recognise the keypad it is communicating with. This information is written to the log as the system is set and unset. If greater than four RKPs are required on the *872* the Multi Keypad option should be programmed to On. Two keypads may then share the same ident. It should be noted that LCD & LED RKPs may not share the same ident.

LCD and LED versions

Four jumper links are fitted on the LCD and LED versions of the keypad. On earlier Standard keypads the legend was slightly different as shown in Fig 11.

Fig 11. Keypad ident legends.

KEYPAD No.

●● 4   A4 ●● JP1
●● 3   A3 ●● JP2
●● 2   A2 ●● JP3
●● 1   A1 ●● JP4
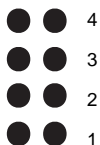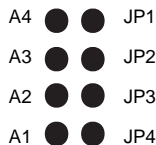
Early Legend   Standard/Contour Legend
(Use left hand legend)

Note: Contour keypads fitted with ACE have two additional jumpers for the ACE functions, these are:-

    US   This jumper is the user select. With the jumper link removed each ACE key fob will occupy one user code from the system, this is termed as high security mode.

            With the jumper link in position the ACE will occupy one user code from the system but up to fourteen key fobs may be programmed into the ACE, this is normal security mode.

    NVM   With this jumper in position the NVM contents will be cleared when the unit is powered up. All codes will be lost

    Note: **On Keypads from 2004 the US jumper is not present. All Ace Fobs or Prox are High Security**

The ident jumper should be positioned across the pins in one of the positions **before the system is powered up.**

Gardtec *800 Series* Compact RKP
The keypad ident on the compact RKP is through JP 1 to JP 4 respectively.

Note: some of these jumpers may not be fitted on versions without ACE

(ACE User Select) ACE units only
This jumper is the user select. With the jumper link removed each ACE key fob will occupy one user code from the system, this is termed as high security mode.

With the jumper link in position the ACE will occupy one user code from the system but up to fourteen key fobs may be programmed into the ACE, this is normal security mode.

(Reset) ACE units only
The ACE has a Non-Volatile Memory (NVM). If power is applied to the unit with this jumper in position, the memory contents will be erased. When the unit is first powered up, this jumper should be in position for at least 5 seconds. After this initial period the jumper link should be removed.

If a reset of the ACE is required (all fobs to be deleted) this jumper link should be refitted and the unit re-powered.

Note: Instructions for how to program keyfobs to the ACE and using ACE are contained within the user manual

ACE Receiver Wiring & Jumper Options

ACE is also available as a stand alone receiver. The wiring for the receiver is the same as for the RKP(s) with the exception that the speaker wiring terminal on the ACE is marked as SP- and **not** SPKR.

The ACE receiver is link selectable as unit No.1 or unit No.2 and it is permissible to have two units sharing the same ident.

Five options are available that are selected with jumper links.These options are as follows.

(US) (Not present on keypads from 2004)
This jumper is the user select. With the jumper link removed each ACE key fob will occupy one user code from the system, this is termed as high security mode.

With the jumper link in position the ACE will occupy one user code from the system but up to fourteen key fobs may be programmed into the ACE, this is normal security mode.

JP2 (RP)
This jumper is only used when the ACE is fitted to the Gardtec *800 Series* control panels and is used to select the ACE ident as 1 or 2 . This ident should be viewed as the RKP ident. With the jumper off the ACE will be remote device two, with the jumper fitted the ACE will be device number one.

JP4 (RST)
The ACE has a Non-Volatile Memory (NVM). If power is applied to the unit with this jumper in position, the memory contents will be erased. When the unit is first powered up, this jumper should be in position for at least 5 seconds. After this initial period the jumper link should be removed.

If a reset of the ACE is required (all fobs to be deleted) this jumper link should be refitted and the unit re-powered.

Note: Ensure all links are in desired position before powering up the ACE.

Output Connections

The output connections for the Gardtec *800 Series* are situated along the bottom edge of the main PCB in the master control panel.

Warning:
The maximum current draw from the unit for all output combinations must not exceed the rated output. Please see Specification Chapter in this manual.

Below is a description of each terminal. The order given is the same as the terminal order on the PCB looking from left to right.

Output Terminal Descriptions

816 872

RELAY COMM

A 24V 1Amp [1] changeover relay is provided on the Gardtec *816/872* PCB. This relay is fully programmable (refer to Programmable Options Description). The relay contacts are voltage free. This terminal is the common connection (see Fig. 12).

N/O

Normally Open connection for onboard relay (see Fig. 12).

N/C

Normally Closed connection for onboard relay (see Fig. 12).

Fig.12 Onboard Relay Operation

Relay De-Energised
(Normal)

Relay Energised
(Activated)
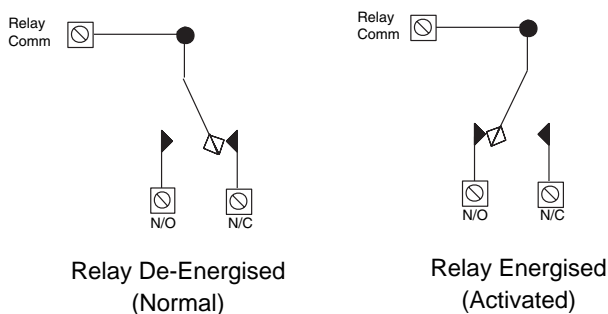
[1] **No attempt should be made to exceed the stated current output and the maximum current draw from the control panel must be taken into consideration.**

BATT + & -

Factory fitted Sealed Lead Acid battery connections. The Gardtec *872* is suitable for the installation of all the popular sizes of alarm batteries. Suggested sizes would be:-

12V 1.2Ah	Suitable only for the smallest installations.
12V 2.0Ah	Suitable only for small installations.
12V 3.0Ah	Suitable for small to medium size installations.
12V 7.0Ah	Suitable for all installations.

Reference should be made to current policies to determine the actual battery capacity requirements for your system.

It should be noted that the ***Plastic GardTec 800 Control Panel*** has **1 Amp** available for the full system. However, for the purpose of compliance to EN and PD6662 standard, the capacities of the power supply have to be specified differently.

For a Grade 2 system you have 72 hours to charge the battery. With the Plastic 800 Control Panel, 90mA is available for battery charging. This defines a theoretical maximum standby battery capacity of 8.0Ah and a maximum of 666mA available for system power. If a smaller capacity battery is used then the rating has to be reduced accordingly.

For example: If a 7Ah battery is used it will recharge in 72 Hrs and will theoretically provide 910mA (1000-90mA) for the system. However, the supply rating for that system under PD6662 is still 7.0Ah/12hrs = 583mA. Sounders, detectors and other auxiliary items should be included when calculating current drawn by the system. Any damage caused through overloading the Control Panel Supply will not be covered by the warranty.

We recommend that additional power supplies are used to supply detectors on long cable runs.

Note: For a Grade 3 system where the standby battery current is sufficient for 12Hr standby, the system must be capable of reporting mains fail to the ARC.

LK1

C54   BAT

800 Series - Top side

Note: If powering up the Control Panel with battery only, connect battery and short out LK1 for approx. 5 seconds. Keypad and Control Panel will then become active.

K/S

Keyswitch input. If required the Gardtec *816/840* may be operated by a keyswitch. Operation is by applying 12V to this terminal (see Fig. 13). The mode of operation is dependent on how the keyswitch option is programmed (refer to Programmable Options Description and also see Remote Reset).

Note:- The Gardtec *872* may be programmed to use zones for keyswitch setting of areas. The keyswitch terminal will give global setting (all areas).

Fig. 13 Keyswitch Connection

Keyswitch

12v K/S
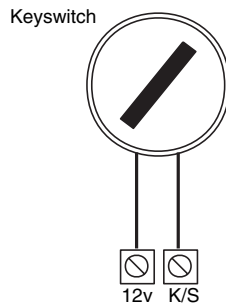
Note: Keyswitch type may be Normal (Open/Close)

or Biased (Momentary)

or Locked (keypads lock when used)

See also Remote Reset

ZONE KEYSWITCH OPTION

Up to eight zones may be allocated as zone keyswitches. This option is carried out via the 'Program Zone Type' option. Either Normal or Biased keyswitches may be used and the correct option for the keyswitch you are using should be chosen during programming.

Wiring for the keyswitch should be across the AZ pair of the zone, the TZ pair of the zone may be used in the normal manner.

In order for this keyswitch option to operate there must be a Area User code allocated for the area that the keyswitch is intended to control, e.g if allocated to control area 2 then an area 2 code needs to be programmed on to the system.

In order that the keyswitch operations are recorded to the log in the correct manner, we would suggest that the highest user codes (e.g 97 - 99 for 3 keyswitches) are used. The following example shows a typical format for the user names.

User Name (example)	or	User Name(example)	Area	User No.
DOOR KEY	or	MARY KEY	Area 1	User 97
STORES KEY	or	FRED KEY	Area 2	User 98
SALES	or	HARRY KEY	Area 3	User 99

Because the Gardtec *872* reads the list of users from high to low the log will show for example Set MARY KEY A1 hh/mm/dd/mm. If User numbers are not reserved or allocated then the system will use the first code available (reading high to low) for that particular area set.

Space has been made at the start of the User manual to give indication to an end user of what user codes, if any have been reserved for this purpose. Please take time to fill in this section for end user reference.

0V (DIGI)

0V (-VE) connection to a Digital communicator or Red-Care STU

12V (DIGI)
12V (+VE) connection to a Digital communicator or RED-Care STU. The output from this terminal is protected by the GARD fuse (315/400mA dependant on model)*[1] on the main PCB.

LINE FAULT
This is the Line Fault input terminal. The terminal should be held @12V by the communicator and swing to 0V to produce a Line Fault condition on the control panel. If Line Fault is not used the factory fitted link to 12V should be left in place.

Note: To activate this terminal the programmable option 'DIGICOM TYPE' must be programmed to 'NORMAL'.

Note: If the GardTec ProDigi or Modem is to be used on serial comms (plugged into the main PCB) the factory fitted link from this terminal to 12V MUST be removed.

Note: When the DigiModem is used the L/F & 12Hr terminals cannot be used as inputs/outputs.

REMOTE RESET

(Note: This option may use the Linefault or KS terminal). The Line Fault or the K/S terminal also doubles as the Remote Reset input (normally found on Red-Care STUs, sometimes termed as Remote Signal Path). To use this feature the 'REMOTE RESET' option should be programmed to ON (option 39). After an alarm, the control panel will reset when 12V is applied to this terminal.

The feature allows the use of RedCare units with Remote Reset even when a Modem is connected. It should be noted that the triggers for the RedCare should be from the P.A, D1 & D2 terminal. **Do not use the 12Hr terminal as this doubles as a data connection for the Modem.**

The Remote Reset feature may also be used to auto-reset the control panel after an alarm. This must only be used on non BS 4737 systems when the panel is being used for purposes other than security. The auto-reset is achieved by leaving the factory fitted link in position and turning the 'REMOTE RESET' (option 39) ON

PA (D3)

This terminal is the Digicom output for PA (Personal Attack)and would normally be connected to channel 2 of a communicator. The output is open collector and has a maximum current sink of 50mA*[1] *[2]

Note: By default PA mode is set to Bells Only. This must be changed to Silent or Bells Always.

12HR (D4)

This terminal is the Digicom output for 12HR (Alarm)and would normally be connected to channel 3. The output is open collector and has a maximum current sink of 50mA*[1] *[2]

Note: If the ProDigi or Modem are not used PA & 12Hr are programmable under the option D3 & D4

Note: When testing Digicom Channels via menu 65 (Test Digicom Channels) and Digicom type Normal has been selected the display will show 1 2 3 4 with zeros under each number. In this instance 1 refers to D1 output. 2 refers to PA output (D3). 3 refers to 12Hr output (D4). 4 refers to D2 output.

*[1] The maximum current draw from the unit for all output combinations **MUST not exceed the rated output. Please see note: *Power Supply Rating (Page 172).***

*[2] *Some Digicoms may require a 6K8 pull-up resistor fitting between this output and 12V*

D1, D2, D3, D4

These terminals are digicom outputs that are fully programmable by the engineer (see Programmable Options Description for more details). The outputs are open collector and have a maximum current sink of 50mA*[1] *[2]. On systems only using two channels or systems using the ProDigi or Modem D1 & D2 are free for other uses.

Note: The start polarity is of the Digicom port is programmable by the engineer.

Fig. 14 Typical Digicom Wiring

Gardtec 872

0V   12V   LINE   PA   12HR   D1   D2
              FAULT   ALARM

6K8
6K8
6K8
6K8

For example:
D.A.C 4 or
Red-Care
3GSTU
BLUE STU
Home STU

0V   12V   2   3   1   4
                        CHANNELS
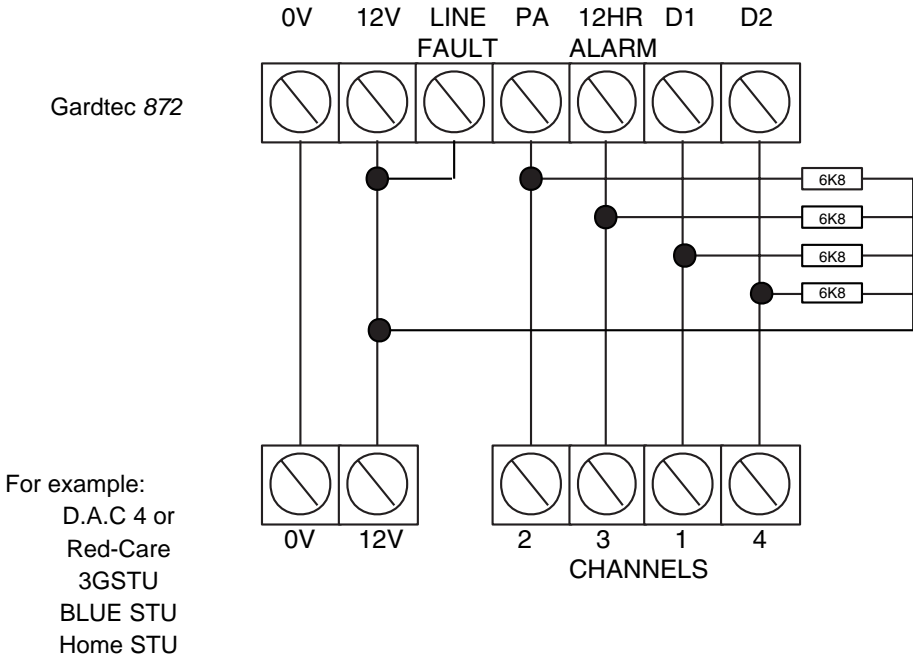
Note: *D1 should be programmed for FIRE   (Chan1)*
          D2 should be programmed for OPEN/CLOSE   (Chan4)
          Program Digicom Type to NORMAL
          6K8 resistors provide Pull-Up for open collector outputs

*[1] The maximum current draw from the unit for all output combinations **MUST not exceed the rated output. Please see note: *Power Supply Rating (Page 172).***

[2] Some Digicoms may require a 6K8 pull-up resistor fitting between this output and 12V

Fig. 15 ProDigi or Gardtec Modem Wiring.

If the Gardtec Modem is used basic system configuration is available by defaulting the system using **5, 5, YES, NO.** Further details are given in the Gardtec Modem manual.

ProDigi
or
Gardtec Modem

Gardtec *872*
Main PCB

Communicator
SK3
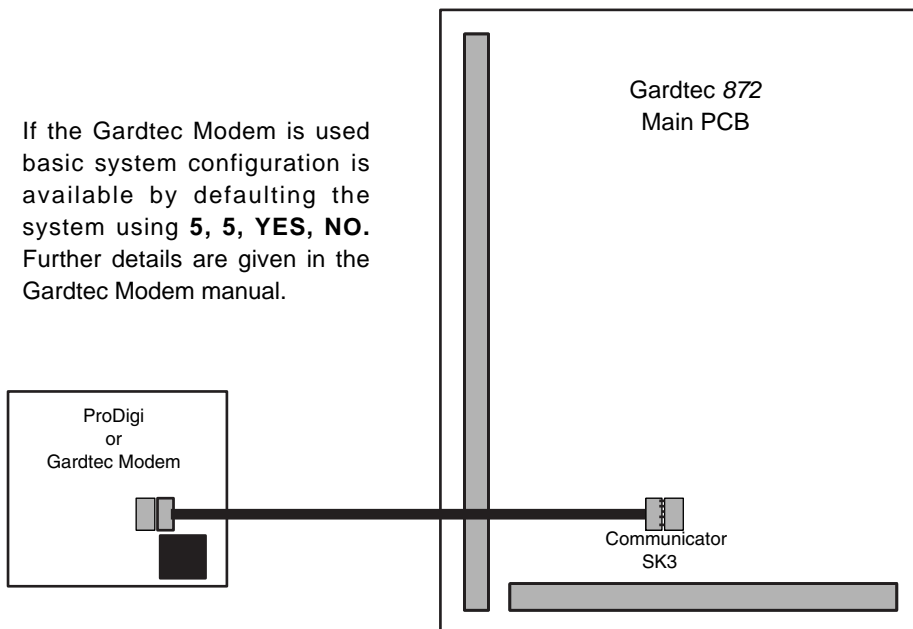
Note: Modem will give 8 channels and leave D1, D2 & D3 (PA term) free for other uses

For a ProDigi program Digicom Type to Gardiner

For Modem Mod+FF or MOD+PID

Remove link from 12V & Line Fault Terminals before connecting ProDigi/Modem

Both the ProDigi and Gardtec Modem can be programmed direct from the Gardtec *800 Series*

Modem Patch Lead

800 816 872

If the Gardtec *800 Series* Modem patch lead is to be used for direct connection to a PC or Lap-Top It should be connected to SK3. **The factory fitted link between 12V & Line Fault must be removed.** Full instructions on use of the Gardtec *800 Series* Modem Patch lead are supplied with the unit.

SW+ LATCH

800 816 872

This terminal is high (+12V) when the system is set and low (0V) when the system is unset. Typical use for this terminal would be the latch signal for PIRs and Shockgards etc. A maximum sink of 50mA *[1]

DET RESET

800 816 872

This +VE supply terminal is provided for the types of detectors that require the removal of power to reset them. In the default mode the 12V supply from this terminal will pulse off for three seconds during the exit time. The terminal is also programmable for other uses (see Programmable Options Description for more details). A maximum current draw of 50mA*[1] is available.

STROBE + | -

800 816 872

This pair of terminals provide power for the strobe light during and after an alarm. The negative terminal is switched. A maximum current of 1Amp*[1] can be switched with these terminals.

BELL + | -

800 816 872

This pair of terminals provide power for the bell during an alarm. The negative terminal is switched. A maximum current draw of 1Amp*[1] is available from these terminals.

The positive terminal also provides the positive hold off for the SAB.

In SCB mode (see Programmable Options Description), the terminals stand at + & -. The negative terminal will change state to positive for the duration of the alarm.

It should be noted that the operation of the bell is influenced by the programmable options Bell Delay, Bell Ring Time and Number of Arms (see Programmable Options Descriptions for more details).

BELL HOLD -

800 816 872

This terminal is the negative tamper feed and also provides the negative Hold Off for the SAB.

The terminal has a factory fitted link fitted to the SAB TMP terminal in order to keep the bell tamper clear. **This link should be removed** as the bell wiring is connected.

SAB TMP

800 816 872

This terminal is the tamper return from the Bell Box. If unused the factory fitted link to Bell Hold- should be left in place.

*[1] *No attempt should be made to exceed the stated current and the 1 Amp maximum current draw from the control panel must be taken into consideration..*

RKP 12V

This terminal provides the +12V supply for the keypads and ACE units (see Keypad Wiring for more detail). A maximum current draw of 0.5Amp*[1] is available from this terminal.

RKP 0V

This terminal is the 0V supply for the keypads and ACE units (see Keypad Wiring for more detail).

CLK (for fault finding terminal should be approx 5V)

This terminal is the Clock connection for the keypads and ACE units (see Keypad Wiring for more detail).

DATA A (for fault finding terminal should be approx 8V)

This terminal is the Data A connection for the keypads and ACE units (see Keypad Wiring for more detail).

DATA B (for fault finding terminal should be approx 6V)

This terminal is the Data B connection for the keypads and ACE units (see Keypad Wiring for more detail).

SPKR & SP+

These terminals are connected to any extension speakers (min impedance 16 Ohm) that are fitted. The SP+ is the common and SPKR is the output of the amplifier driver.

The SPKR terminal is also connected to the SPKR (speaker terminal) on the RKP(s).

The current drawn by any extension speakers needs to be calculated in the total system current. The current drawn by a 16 Ohm speaker would typically be 300mA.
Fig. 16 Single Speaker   Fig. 17 Twin Speakers (wired in series)
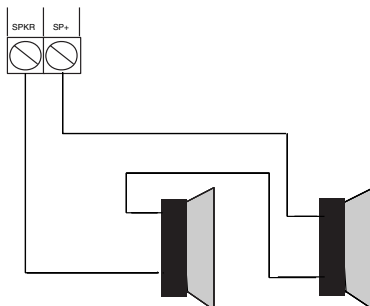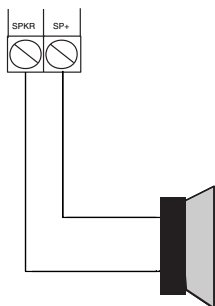
Note: Minimum speaker impedance is 16 Ohm

*[1] *No attempt should be made to exceed the stated current and the 1 Amp maximum current draw from the control panel must be taken into consideration..*

Fig. 18 Typical output wiring

.

Door locks, Additional Sounders etc.		N/O	
		N/C	
		BATT	+
			-
Keyswitch		K/S	
AUX 12V		0V	DIGI
		12V	
Digital Communicator or Red-Care STU		LINE FAULT	
		PA	
		12HR ALARM	
		D1	
		D2	
Latch signal for Gardscan MX+ PIRs, Shockgards etc.		SW+ LATCH	
Programmable SW+ Output		DET RESET	
Strobe Light		+	STROBE
		-	
SAB Module		+	BELL
		-	
		BELL HOLD-	
		SAB TMP	
RKP 4 etc.	RKP 3	12V	RKP
	RKP /ACE 2	0V	
	RKP /ACE 1	CLK	
		A	DATA
		B	DATA
Extension Speaker		SPKR	
		SP+	

AUX 12V

RELAY COMM

Fig. 19 Traditional bell box wiring.
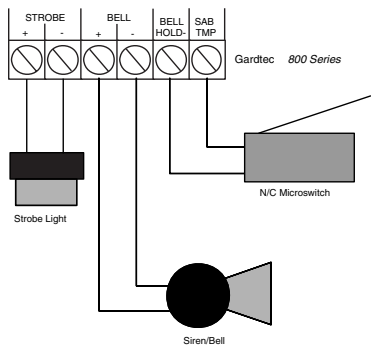
Fig. 20 Novagard wiring
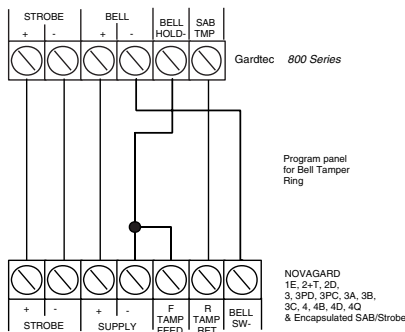
Note: Terminal positions may change dependent on model.

Fig. 21a Novagard X wiring
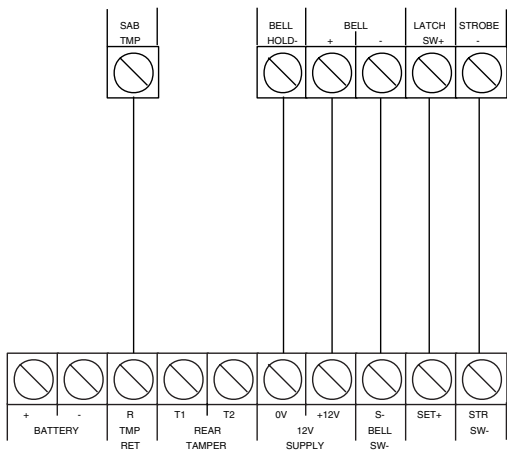
Note: Terminal positions changed for clarity

Fig. 21b Novagard Delta & Novagard Metal wiring.

STROBE	SAB TMP	BELL -	BELL +	BELL HOLD-
⊘	⊘	⊘	⊘	⊘

STR SW-	TMPR	BELL SW-	12V	0V	BAT-	BAT+
⊘	⊘	⊘	⊘	⊘	⊘	⊘
			SUPPLY		BATTERY	
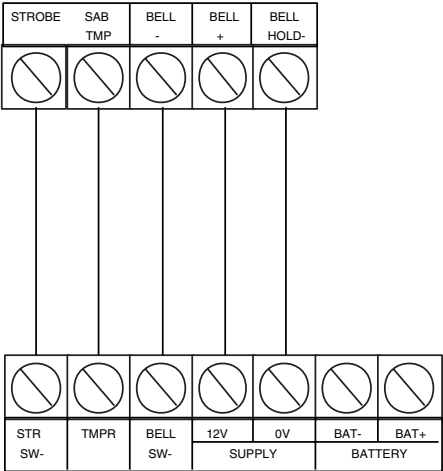
Note: Terminal positions changed for clarity

Zone Connections - 8(4 Wire option)

800 816 872

Three zone wiring modes are available depending on standard selected on power up. (BS, EN2, EN3).

To use the 4 wire option the control panel should be programmed for 8 (4 WIRE) in the programming section 'PROGRAM ZONE WIRING' (option No.50).

Each zone is fully programmable. Details of the zone options available are given in the section 'Programmable Options Description'. Each alarm zone is marked as AZx and is a positive loop, each tamper zone is marked as TZx and is a negative loop.

If pressure pads or other normally open devices, are to be used the AZ zone should be shorted to the TZ zone by the device in order to activate the AZ zone.

Typical wiring of various detectors is given in Fig. 22

Fig. 22 Typical 4 Wire Configuration

Terminal			
DETECTOR SUPPLY	12V + / -		+ Supply / - Supply
ALARM ZONE 1 + LOOP	AZ1		Normally Closed Alarm Pair
TAMPER ZONE 1 - LOOP	TZ1		Normally Closed Tamper Pair

Single Passive Infra-Red

ALARM ZONE 2 + LOOP	AZ2		Normally Closed Alarm Pair
TAMPER ZONE 2 - LOOP	TZ2		Normally Closed Tamper Pair

Single Contact

ALARM ZONE 3 + LOOP	AZ3		Normally Closed Alarm Pair
TAMPER ZONE 3 - LOOP	TZ3		Normally Closed Tamper Pair

Double Contact

ALARM ZONE 4 + LOOP	AZ4		Normally Closed Alarm Pair / Normally Open Device
TAMPER ZONE 4 - LOOP	TZ4		Normally Closed Tamper Pair

Single Pressure Pad

Note:
AZ zones are +ve
TZ zones are -ve
To comply with BS4737 alarm and tamper loops
should be oposite polarity

ALARM ZONE 5 + LOOP	AZ5		
TAMPER ZONE 5 - LOOP	TZ5		

Any unused zones may be programmed to off
and the factory fitted link can be removed from the
zone terminals.

It is not advisable to connect normally open devices
onto a TZ loop

ALARM ZONE 6 + LOOP	AZ6		
TAMPER ZONE 6 - LOOP	TZ6		

ALARM ZONE 7 + LOOP	AZ7		
TAMPER ZONE 7 - LOOP	TZ7		

Note:
If exit terminator is required program zone as ET
If unset doorbell is required allocate chime to the
ET zone.

Setting Mode should be programmed for ET
Exit terminator zone must be AZ zone

ALARM ZONE 8 + LOOP	AZ8		Normally Closed Alarm Pair / Normally Open Push Button
TAMPER ZONE 8 - LOOP	TZ8		Normally Closed Tamper Pair

Exit Terminator Button (if required)

Zone Connections - 16(2 Wire)

This option will give sixteen zones available from the control panel PCB.

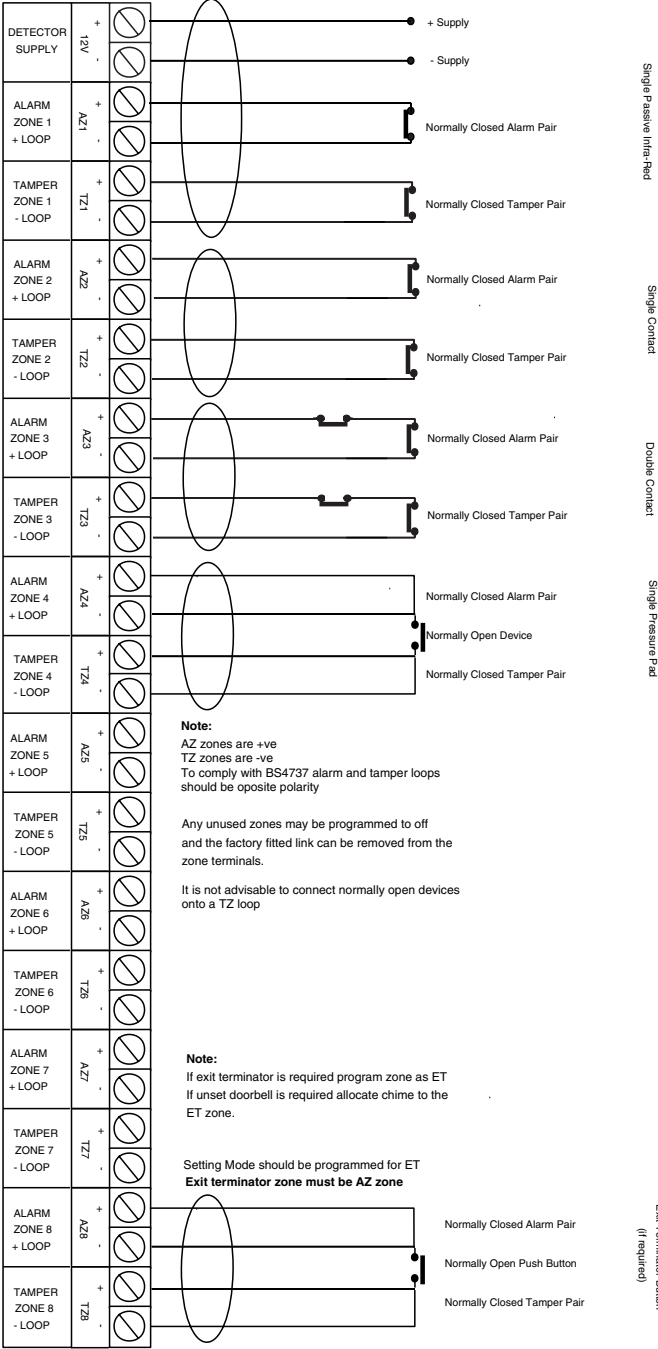*Note: This wiring method __MUST NOT__ be used if wiring to EN3 standards.*

To use the 2 wire option the control panel should be programmed for 16 (2 WIRE) in the programming section 'PROGRAM ZONE WIRING' (option No.50)

When this wiring option is programmed zones AZ1 to AZ8 are zones 1 to 8 inclusive, all AZ zones are positive loops.

Because the 2 wire option has been selected the TZ terminals are also programmable as zones. The zone numbering for the TZ zones will be as follows:-

Zone 9 on terminals TZ1
Zone 10 on terminals TZ2
Zone 11 on terminals TZ3
Zone 12 on terminals TZ4
Zone 13 on terminals TZ5
Zone 14 on terminals TZ6
Zone 15 on terminals TZ7
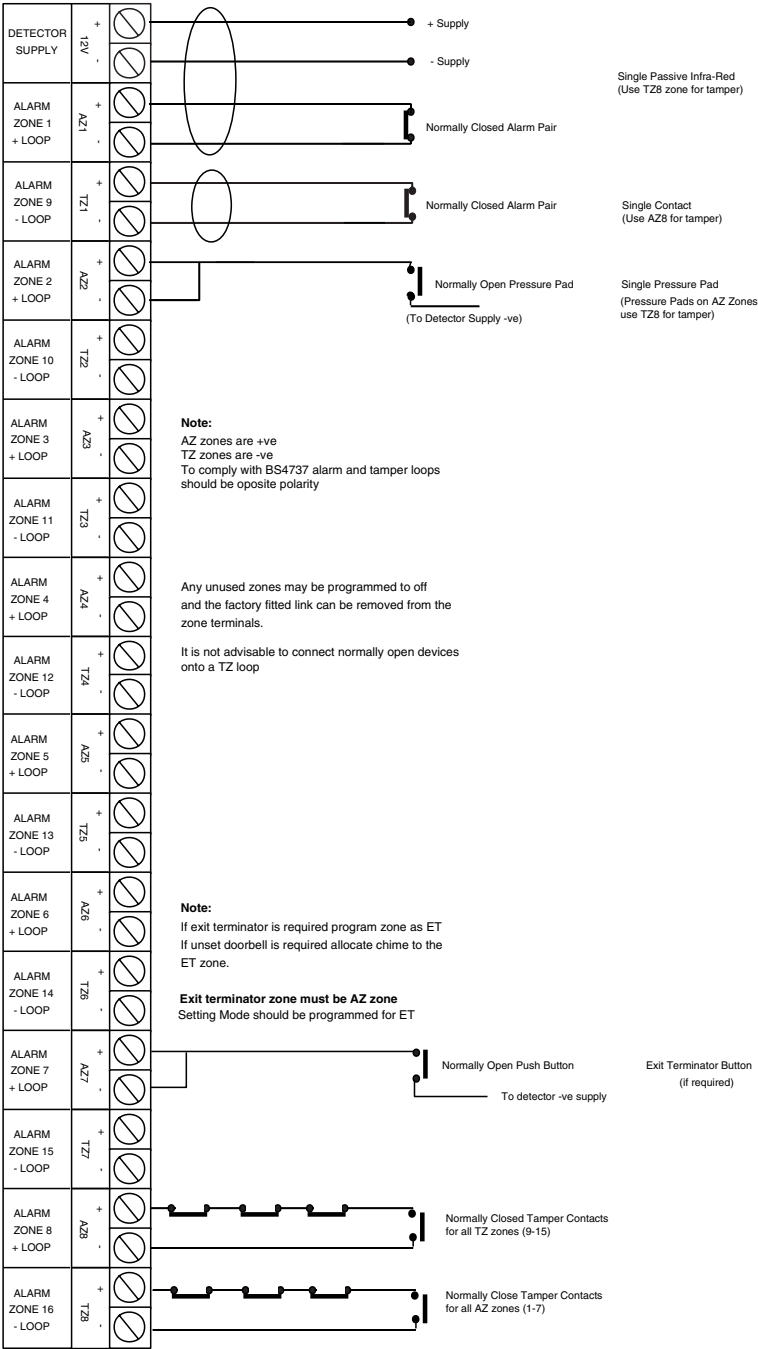Zone 16 on terminals TZ8
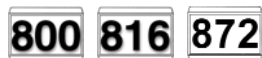
Note: Tampers should be of opposite polarity. This means that when using the 2 wire wiring option one AZ zone (e.g zone 8, AZ8) should be programmed as 24Hr and used as a global tamper for all TZ zones, and one TZ zone (e.g zone 16, TZ8) should be programmed as 24Hr and used as a global tamper for all the AZ zones.

Typical wiring of various detectors is given in Fig.23

Fig. 23 Typical 2 Wire Configuration

Terminal	Label		Description
DETECTOR SUPPLY	12V	+	+ Supply
		-	- Supply

Single Passive Infra-Red
(Use TZ8 zone for tamper)

| ALARM ZONE 1 + LOOP | AZ1 | + | Normally Closed Alarm Pair |
| | | - | |

| ALARM ZONE 9 - LOOP | TZ1 | + | Normally Closed Alarm Pair |
| | | - | |

Single Contact
(Use AZ8 for tamper)

| ALARM ZONE 2 + LOOP | AZ2 | + | Normally Open Pressure Pad |
| | | - | (To Detector Supply -ve) |

Single Pressure Pad
(Pressure Pads on AZ Zones
use TZ8 for tamper)

| ALARM ZONE 10 - LOOP | TZ2 | + | |
| | | - | |

Note:
AZ zones are +ve
TZ zones are -ve
To comply with BS4737 alarm and tamper loops
should be oposite polarity

| ALARM ZONE 3 + LOOP | AZ3 | + | |
| | | - | |

| ALARM ZONE 11 - LOOP | TZ3 | + | |
| | | - | |

Any unused zones may be programmed to off
and the factory fitted link can be removed from the
zone terminals.

| ALARM ZONE 4 + LOOP | AZ4 | + | |
| | | - | |

It is not advisable to connect normally open devices
onto a TZ loop

| ALARM ZONE 12 - LOOP | TZ4 | + | |
| | | - | |

| ALARM ZONE 5 + LOOP | AZ5 | + | |
| | | - | |

| ALARM ZONE 13 - LOOP | TZ5 | + | |
| | | - | |

Note:
If exit terminator is required program zone as ET
If unset doorbell is required allocate chime to the
ET zone.

Exit terminator zone must be AZ zone
Setting Mode should be programmed for ET

| ALARM ZONE 6 + LOOP | AZ6 | + | |
| | | - | |

| ALARM ZONE 14 - LOOP | TZ6 | + | |
| | | - | |

| ALARM ZONE 7 + LOOP | AZ7 | + | Normally Open Push Button |
| | | - | To detector -ve supply |

Exit Terminator Button
(if required)

| ALARM ZONE 15 - LOOP | TZ7 | + | |
| | | - | |

| ALARM ZONE 8 + LOOP | AZ8 | + | Normally Closed Tamper Contacts for all TZ zones (9-15) |
| | | - | |

| ALARM ZONE 16 - LOOP | TZ8 | + | Normally Close Tamper Contacts for all AZ zones (1-7) |
| | | - | |

Zone Connections - 16(EOL)

800 816 872

This option will give sixteen zones available from the control panel PCB.

The control panel zones may also be programmed as 16 EOL (End Of Line resistor) zones. This configuration gives the highest possible zone wiring security and a maximum of ten detectors may be wired on to each zone when this option is selected. Resistors required for EOL operation are supplied with the control panel.

When using EOL zones each detector has a 6K8 resistor in parallel with the alarm contacts and there is a 4K7 resistor in series with the two zone wires. This gives both alarm and tamper protection from a single pair of wires. To make full use of this security feature the 4K7 resistor must be fitted to the furthest most point in the loop.

To use the 2 wire EOL option the control panel should be programmed for 16 (2 WIRE EOL) in the programming section 'PROGRAM ZONE WIRING' (option No.50)

When this wiring option is programmed zones AZ1 to AZ8 are zones 1 to 8 inclusive.

Because the 2 wire EOL option has been selected the TZ terminals are also programmable as zones. The zone numbering for the TZ zones will be as follows:-

Zone 9 on terminals TZ1
Zone 10 on terminals TZ2
Zone 11 on terminals TZ3
Zone 12 on terminals TZ4
Zone 13 on terminals TZ5
Zone 14 on terminals TZ6
Zone 15 on terminals TZ7
Zone 16 on terminals TZ8

Typical wiring of various detectors is given in Figs.24 to 28.

Three wiring options are available under 16(EOL):

Norm: Standard GardTec wiring configuration without Mask or Fault detection.
   Note: Does not give any Fault or Masking detection and should only be used with Zone pairing.

ELF1:   ELF1 wiring is used for detectors that have a relay output (a pair of terminals) for Fault or Mask..

ELF2:   ELF2 wiring is used for detectors that have a transistor output (a single terminal) for Fault or Mask.

Note: We would recommend that either ELF1 Format or ELF2 Format (dependant on detector output type, Relay or Transistor) is used. ELF1 or ELF2 wiring modes will allow for Alarm, Tamper, Fault and Masking to be monitored from a single zone without the need for zone pairing.

Note: The installer should check what output type the detector are, noting that all the detectors should be of the same type with regards to the Fault / Mask output.

Zone Pairing.
If the 8(4 Wire) wiring mode is used then a zone must be used to monitor for Masking and Fault. This is achieved by selecting Zone Pairing as on. Zone Pairing cannot be used in ELF1 or ELF2 wiring modes.

When using Zone Pairing each zone will have a corresponding paired zone that will be used for Masking and Fault signals. This is done by using the Odd numbered zones for the normal alarm detection and the Even numbered zones for Masking and Fault Detection.

Please note that half the zones on the system would be lost for processing the Mask and Fault signals and it would be more prudent to use the ELF1 or ELF2 modes as described previously.

*Note: GardTec **DO NOT** recommend zone pairing if the control panel has be programmed for 16 two wire zones.*

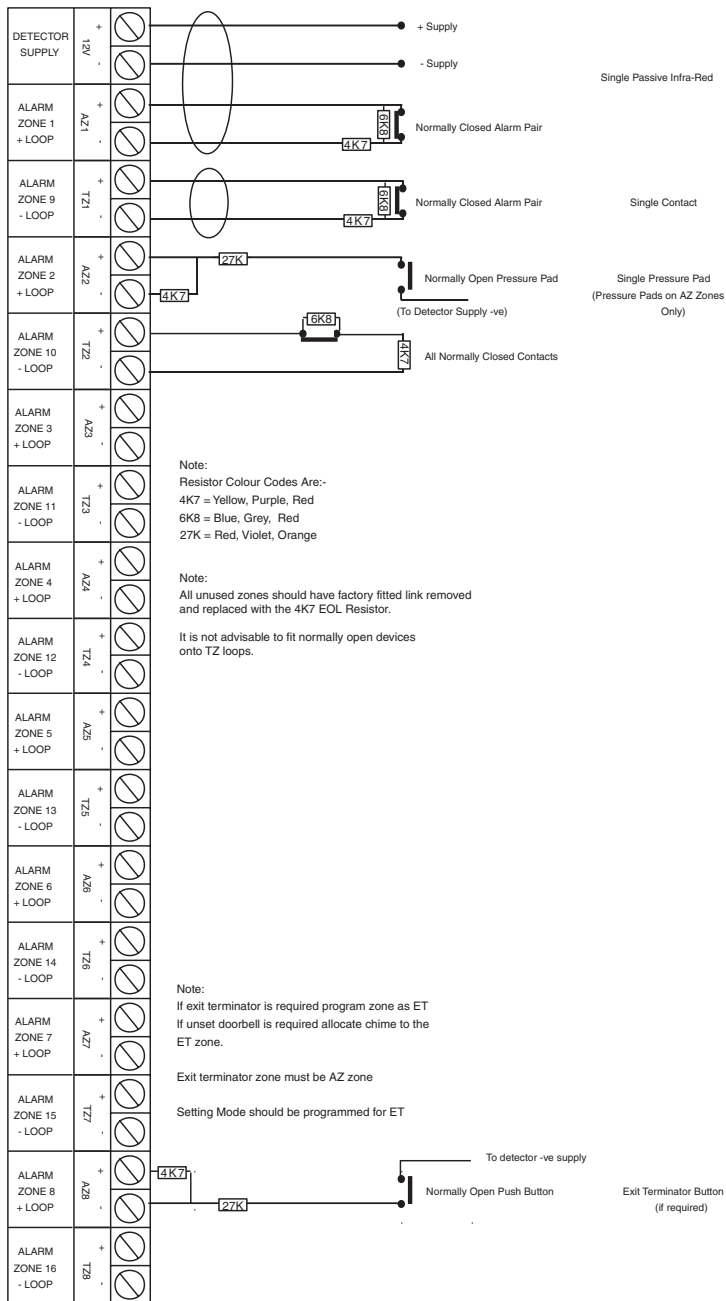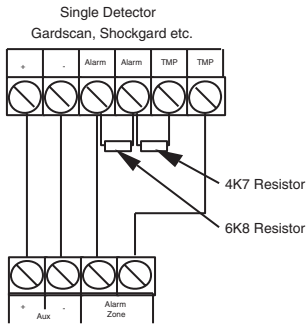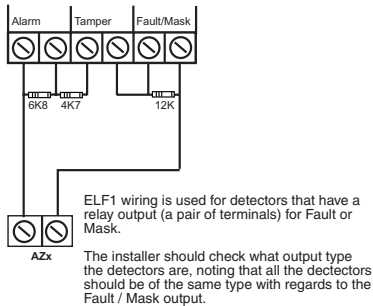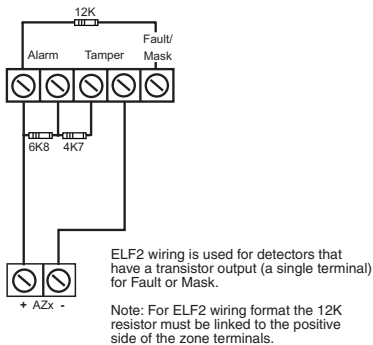# Fig. 24 Typical 2 Wire EOL Configuration

DETECTOR SUPPLY — 12V — + / -
+ Supply
- Supply

Single Passive Infra-Red

ALARM ZONE 1 + LOOP — AZ1
6K8
4K7
Normally Closed Alarm Pair

ALARM ZONE 9 - LOOP — TZ1
6K8
4K7
Normally Closed Alarm Pair
Single Contact

ALARM ZONE 2 + LOOP — AZ2
27K
4K7
Normally Open Pressure Pad
(To Detector Supply -ve)
Single Pressure Pad
(Pressure Pads on AZ Zones Only)

ALARM ZONE 10 - LOOP — TZ2
6K8
4K7
All Normally Closed Contacts

ALARM ZONE 3 + LOOP — AZ3

Note:
Resistor Colour Codes Are:-
4K7 = Yellow, Purple, Red
6K8 = Blue, Grey, Red
27K = Red, Violet, Orange

ALARM ZONE 11 - LOOP — TZ3

Note:
All unused zones should have factory fitted link removed and replaced with the 4K7 EOL Resistor.

ALARM ZONE 4 + LOOP — AZ4

It is not advisable to fit normally open devices onto TZ loops.

ALARM ZONE 12 - LOOP — TZ4

ALARM ZONE 5 + LOOP — AZ5

ALARM ZONE 13 - LOOP — TZ5

ALARM ZONE 6 + LOOP — AZ6

ALARM ZONE 14 - LOOP — TZ6

Note:
If exit terminator is required program zone as ET
If unset doorbell is required allocate chime to the ET zone.

ALARM ZONE 7 + LOOP — AZ7

Exit terminator zone must be AZ zone

ALARM ZONE 15 - LOOP — TZ7

Setting Mode should be programmed for ET

ALARM ZONE 8 + LOOP — AZ8
4K7
27K
To detector -ve supply
Normally Open Push Button
Exit Terminator Button (if required)

ALARM ZONE 16 - LOOP — TZ8

Fig. 25

Single Detector
Gardscan, Shockgard etc.

4K7 Resistor

6K8 Resistor

Fig. 26

Where Anti-Mask detectors are used, one of the following wiring modes may be used.

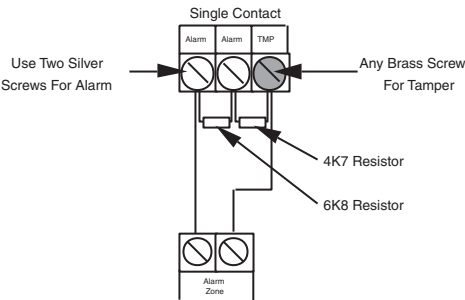ELF1 wiring is used for detectors that have a relay output (a pair of terminals) for Fault or Mask.

The installer should check what output type the detectors are, noting that all the dectectors should be of the same type with regards to the Fault / Mask output.

Typical ELF1

Fig. 27

ELF2 wiring is used for detectors that have a transistor output (a single terminal) for Fault or Mask.

Note: For ELF2 wiring format the 12K resistor must be linked to the positive side of the zone terminals.

Typical ELF2

Fig. 28

Single Contact

Use Two Silver Screws For Alarm

Any Brass Screw For Tamper

4K7 Resistor

6K8 Resistor

Zone Expander Cards

Two types of zone expander cards are available, the Gardtec *816* Expander Card that may only be used on the *816* and the Gardtec *872* Expander that may be used on the *816/872.*

*Note: It is essential that **NO** sensor / detector is powered from the expansion board. Use control panel AUX output or remote PSU.*

Up to sixteen zone expander cards may be fitted to the Gardtec *872* and two on the *816* control panel. If required, one of these expander cards may be plugged directly onto the the main PCB, the other expander cards then being wired to the plug-on card as shown in Fig.29. **Four cores are required for interconnection of the zone expanders. If Output Expanders are to be used (*872 only*) on the same leg as zone expanders an extra core will be required.**

Fig. 29a Gardtec *872* Expander Card Wiring 'Daisy Chain' Format

		872	*872*
Expander1 (Plugged on)	**Expander2**	**Expander3**	**To Others**

12V	⟵⟶	12V	⟷	12V	⟶
0V	⟵⟶	0V	⟷	0V	⟶
SAD 1	⟵⟶	SAD 1	⟷	SAD 1	⟶
SCLK	⟵⟶	SCLK	⟷	SCLK	⟶
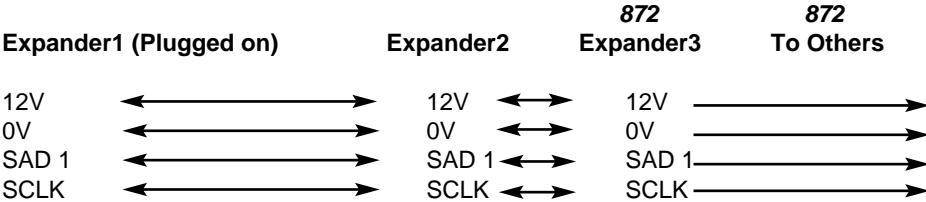
Fig. 30b Gardtec *816* Expander Card Wiring 'Daisy Chain' Format

Expander1 (Plugged on)	**Expander2**
12V	⟵⟶	12V
0V	⟵⟶	0V
SADIN	⟵⟶	SADIN
SCLK	⟵⟶	SCLK
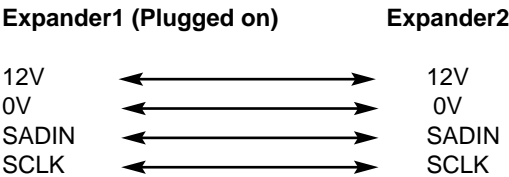
The expander cards may also be wired back to the onboard expander card in 'Star' format (each expander card wired back individually).

Alternatively all the zone expander cards may be wired to the main PCB via an optional zone expander cable Part No. 01-094. If the *816* Expander Cards are being used two expander cables will be required. When using the zone expander cable the following colours should be used (see Figs 30a, 30b).

If Output expanders are used (*872* only) all SAD 2 connections should be on the first group. If the expanders are remote from the main PCB a second expander cable will be required to plug onto PCB EXP2 socket. The SAD2 connection on this second cable is the black core.

Fig. 30a GardTec *872* Zone Expanders (**Group1**) remote from panel (inc Cable Colours) for EXP1 to EXP8

872 Expander Card(1)   *872* Expander Card(2)

Expander Cable 1 Plug to EXP1 LH Molex Connector Main PCB Pin 1			
	Blue	SCLK	SCLK
	Yellow	**SAD1**	**SAD1** → 872
	Black	0V	0V
	Red	12V	12V
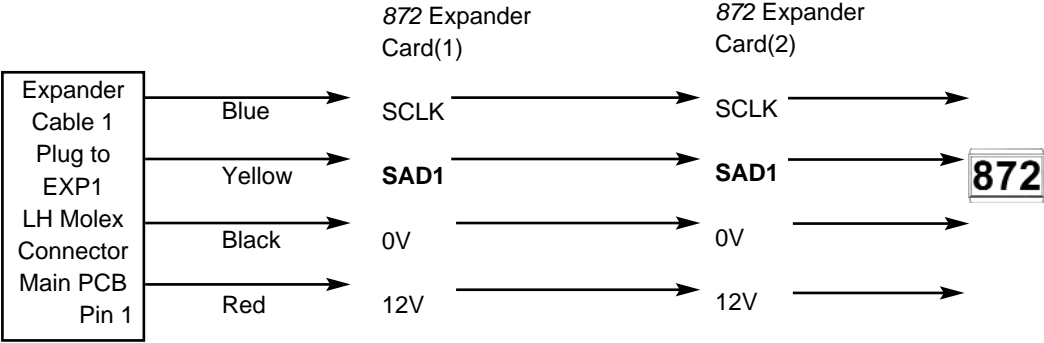
Each of the Expander cards should be idented using the jumpers JP1-JP8 on the card.

Fig. 30b GardTec *872* Zone Expanders (**Group2**) remote from panel (inc Cable Colours) for EXP9 to EXP16

872 Expander Card(9)   *872* Expander Card(10)

Expander Cable 2 Plug to EXP2 RH Molex Connector Main PCB Pin 1			
	Blue	SCLK	SCLK
	Yellow (SAD2)	**SAD1**	**SAD1**
	Black	0V	0V
	Red	12V	12V
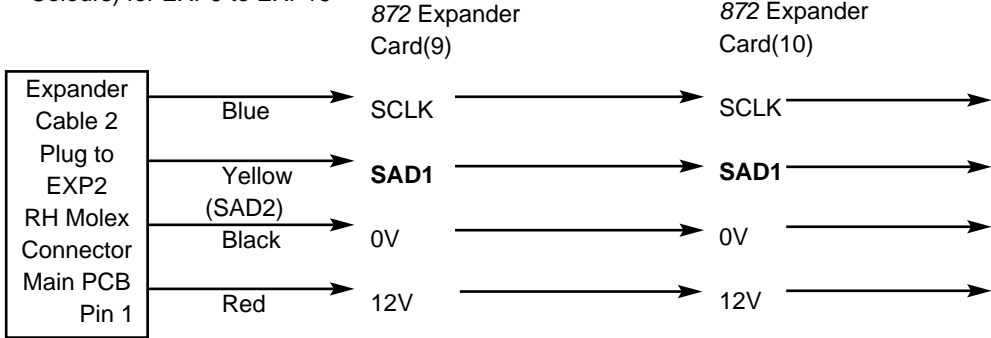
Each of the Expander cards should be idented using the jumpers JP1-JP8 on the card.
JP1= EXP9, JP2-EXP10, JP3=EXP11, JP4=EXP12, JP5=EXP13, JP6=EXP14,
JP7=EXP15, JP8=EXP16.

Note: In all above examples max cable run is 150 metres. It is recommended that PSUs are used to supply the detectors on remote expanders

Note: Remote Expander Cable(s) Part No.01-094 will be required.

The expander cable plug MUST be plugged in to the main PCB EXP socket(s) with the red wire to pin 1.

If required expander cards may be mounted in a remote expander box Part No 02-066 These expander boxes are ideal housings when the expander cards are to be mounted away from the control panel.

Zone Expander Card Ident & Zone Allocation

The panel and each individual card may be programmed as four wire, two wire or two wire EOL wiring modes. All zones on ZEX 1 start at 21 and all zones on ZEX 2 start at 31 and so on. The zone allocation for the different modes is given below.

Group 1 Expanders using SAD1 from panel to SAD1 terminal on Expander

EXP1 *JP1 On*	**4 Wire**	**2 Wire**	**2 Wire EOL**
AZ1 Zone	21	21	21
AZ2 Zone	22	22	22
AZ3 Zone	23	23	23
AZ4 Zone	24	24	24
TZ1 Zone	21 Tamper	25	25
TZ2 Zone	22 Tamper	26	26
TZ3 Zone	23 Tamper	27	27
TZ4 Zone	24 Tamper	28	28

EXP2 *JP2 On*	**4 Wire**	**2 Wire**	**2 Wire EOL**
AZ1 Zone	31	31	31
AZ2 Zone	32	32	32
AZ3 Zone	33	33	33
AZ4 Zone	34	34	34
TZ1 Zone	31 Tamper	35	35
TZ2 Zone	32 Tamper	36	36
TZ3 Zone	33 Tamper	37	37
TZ4 Zone	34 Tamper	38	38

EXP3 *JP3 On*	**4 Wire**	**2 Wire**	**2 Wire EOL**
AZ1 Zone	41	41	41
AZ2 Zone	42	42	42
AZ3 Zone	43	43	43
AZ4 Zone	44	44	44
TZ1 Zone	41 Tamper	45	45
TZ2 Zone	42 Tamper	46	46
TZ3 Zone	43 Tamper	47	47
TZ4 Zone	44 Tamper	48	48

EXP4 *JP4 On*	**4 Wire**	**2 Wire**	**2 Wire EOL**
AZ1 Zone	51	51	51
AZ2 Zone	52	52	52
AZ3 Zone	53	53	53
AZ4 Zone	54	54	54
TZ1 Zone	51 Tamper	55	55
TZ2 Zone	52 Tamper	56	56
TZ3 Zone	53 Tamper	57	57
TZ4 Zone	54 Tamper	58	58

EXP5 *JP5 On*	**4 Wire**	**2 Wire**	**2 Wire EOL**
AZ1 Zone	61	61	61
AZ2 Zone	62	62	62
AZ3 Zone	63	63	63
AZ4 Zone	64	64	64
TZ1 Zone	61 Tamper	65	65
TZ2 Zone	62 Tamper	66	66
TZ3 Zone	63 Tamper	67	67
TZ4 Zone	64 Tamper	68	68

EXP6 *JP6 On*	**4 Wire**	**2 Wire**	**2 Wire EOL**
AZ1 Zone	71	71	71
AZ2 Zone	72	72	72
AZ3 Zone	73	73	73
AZ4 Zone	74	74	74
TZ1 Zone	71 Tamper	75	75
TZ2 Zone	72 Tamper	76	76
TZ3 Zone	73 Tamper	77	77
TZ4 Zone	74 Tamper	78	78

EXP7 *JP7 On*	**4 Wire**	**2 Wire**	**2 Wire EOL**
AZ1 Zone	81	81	81
AZ2 Zone	82	82	82
AZ3 Zone	83	83	83
AZ4 Zone	84	84	84
TZ1 Zone	81 Tamper	85	85
TZ2 Zone	82 Tamper	86	86
TZ3 Zone	83 Tamper	87	87
TZ4 Zone	84 Tamper	88	88

EXP8 *JP8 On*	**4 Wire**	**2 Wire**	**2 Wire EOL**
AZ1 Zone	91	91	91
AZ2 Zone	92	92	92
AZ3 Zone	93	93	93
AZ4 Zone	94	94	94
TZ1 Zone	91 Tamper	95	95
TZ2 Zone	92 Tamper	96	96
TZ3 Zone	93 Tamper	97	97
TZ4 Zone	94 Tamper	98	98

Note: Expander 8 cannot be used if a Radio Expander is being used

Group 2 Expanders using SAD2 from panel to SAD1 terminal on Expander

EXP9 *JP1 On*	**4 Wire**	**2 Wire**	**2 Wire EOL**
AZ1 Zone	101	101	101
AZ2 Zone	102	102	102
AZ3 Zone	103	103	103
AZ4 Zone	104	104	104
TZ1 Zone	101 Tamper	105	105
TZ2 Zone	102 Tamper	106	106
TZ3 Zone	103 Tamper	107	107
TZ4 Zone	104 Tamper	108	108

EXP10 *JP2 On*	**4 Wire**	**2 Wire**	**2 Wire EOL**
AZ1 Zone	111	111	111
AZ2 Zone	112	112	112
AZ3 Zone	113	113	113
AZ4 Zone	114	114	114
TZ1 Zone	111 Tamper	115	115
TZ2 Zone	112 Tamper	116	116
TZ3 Zone	113 Tamper	117	117
TZ4 Zone	114 Tamper	118	118

EXP11 *JP3 On*	**4 Wire**	**2 Wire**	**2 Wire EOL**
AZ1 Zone	121	121	121
AZ2 Zone	122	122	122
AZ3 Zone	123	123	123
AZ4 Zone	124	124	124
TZ1 Zone	121 Tamper	125	125
TZ2 Zone	122 Tamper	126	126
TZ3 Zone	123 Tamper	127	127
TZ4 Zone	124 Tamper	128	128

EXP12 *JP4 On*	**4 Wire**	**2 Wire**	**2 Wire EOL**
AZ1 Zone	131	131	131
AZ2 Zone	132	132	132
AZ3 Zone	133	133	133
AZ4 Zone	134	134	134
TZ1 Zone	131 Tamper	135	135
TZ2 Zone	132 Tamper	136	136
TZ3 Zone	133 Tamper	137	137
TZ4 Zone	134 Tamper	138	138

EXP13 *JP5 On*	**4 Wire**	**2 Wire**	**2 Wire EOL**
AZ1 Zone	141	141	141
AZ2 Zone	142	142	142
AZ3 Zone	143	143	143
AZ4 Zone	144	144	144
TZ1 Zone	141 Tamper	145	145
TZ2 Zone	142 Tamper	146	146
TZ3 Zone	143 Tamper	147	147
TZ4 Zone	144 Tamper	148	148

EXP14 *JP6 On*	**4 Wire**	**2 Wire**	**2 Wire EOL**
AZ1 Zone	151	151	151
AZ2 Zone	152	152	152
AZ3 Zone	153	153	153
AZ4 Zone	154	154	154
TZ1 Zone	151 Tamper	155	155
TZ2 Zone	152 Tamper	156	156
TZ3 Zone	153 Tamper	157	157
TZ4 Zone	154 Tamper	158	158

EXP15 *JP7 On*	**4 Wire**	**2 Wire**	**2 Wire EOL**
AZ1 Zone	161	161	161
AZ2 Zone	162	162	162
AZ3 Zone	163	163	163
AZ4 Zone	164	164	164
TZ1 Zone	161 Tamper	165	165
TZ2 Zone	162 Tamper	166	166
TZ3 Zone	163 Tamper	167	167
TZ4 Zone	164 Tamper	168	168

EXP16 *JP8 On*	**4 Wire**	**2 Wire**	**2 Wire EOL**
AZ1 Zone	171	171	171
AZ2 Zone	172	172	172
AZ3 Zone	173	173	173
AZ4 Zone	174	174	174
TZ1 Zone	171 Tamper	175	175
TZ2 Zone	172 Tamper	176	176
TZ3 Zone	173 Tamper	177	177
TZ4 Zone	174 Tamper	178	178

Note: Expander 8 & 16 cannot be used if a Radio Expander is being used.

Note: Wiring configurations may differ on each zone expander card to suit your requirements. For example the control panel may be programmed as 4 Wire, Expander 1 as 2 Wire and Expander 3 as 2 Wire EOL etc, etc.

On all Standard Zone Expanders AZ zones are +ve and TZ zones are -ve

Output Expander Modules (OPX)

Up to four output expander modules may be fitted to the Gardtec *872* control panel. These modules may, if required be wired in a chain of zone expanders or on a separate leg(s). **The zone expanders only require four cores for interconnection, if Output Expanders are used on the same leg five cores will be required.**

Two types of module are available:-

        Four open collector outputs. Max current sink 350mA each.
        Four change over relays. Contact rating 1A 12V (resistive).

Each Output Expander (OPX) has a bank of four jumper switches labelled OPX1 to OPX4. The output allocation is as follows:-

Jumper Position	Output No (LCD)	Output No (LED)
OPX1	OP1	1
OPX1	OP2	2
OPX1	OP3	3
OPX1	OP4	4
OPX2	OP1	5
OPX2	OP2	6
OPX2	OP3	7
OPX2	OP4	8
OPX3	OP1	9
OPX3	OP2	10
OPX3	OP3	11
OPX3	OP4	12
OPX4	OP1	13
OPX4	OP2	14
OPX4	OP3	15
OPX4	OP4	16

Notes: *If required, two expander cards may be configured on the same ident to enable duplication of outputs.*

When using any devices that consume current, consideration MUST be given to the overall current available from the control panel.

The invert link on the card will invert all the outputs of the card.

ID Expanders

The GardTec 872 ID Expander card allows thirty detectors to be fitted on a four wire run using industry standard ID biscuits or ID compatible devices. Two ID expander cards can be fitted to the control panel. The control panel zones may still be programmed as 'Normal (4 wire)', 'Two Wire' or 'Two Wire EOL'. When used to full capacity this allows the GardTec *872* to have up to 16 control panel zones plus 60 ID zones. Radio Expanders cannot be used if ID Expansion has been chosen.

Each ID expander may be wired back to the control panel with standard alarm four core cable.

Wiring Configurations
Several configurations may be used for wiring the ID expanders to the control panel, these are:-

One ID Expander onboard the control panel PCB.
The expander is simply plugged across the molex pins marked as EXP1 and EXP2

One ID Expander remote from the control panel PCB.
This will require a Remote Expander cable (Part No. 01-094). This cable is plugged on to EXP1 with the Red wire to pin 1 and is wired to the ID Expander.

One ID Expander onboard the control panel PCB and one ID Expander remote from the PCB.
The first module is plugged across the molex pins on the control panel PCB marked as EXP1 and EXP2. The second module is then wired to the first.

Fig 31 ID Biscuit Wiring Diagram **Full wiring details are supplied with the ID Expander Board** Zone No's 21 - 50 are on ID card 1 (SAD1) Zone No's 51 - 80 are on ID card 2 (SAD2)
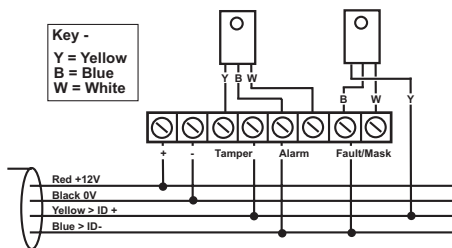
Fig32 Detector Using Wired ID Biscuit
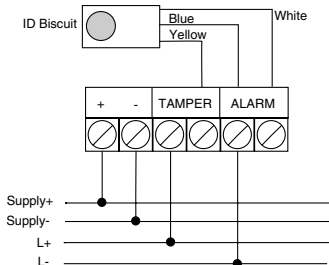
Fig33 Wired ID Biscuit for Contact/PA
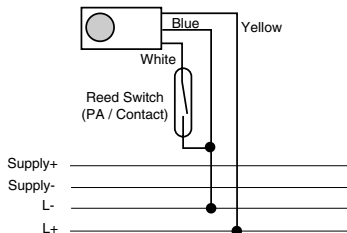
Radio Expanders (Radio ZEX)   816 872

Radio Expanders cannot be used if the ID expansion option has been chosen. One Radio expansion card may be fitted that will allow up to two Radio Receivers (8 channels each) to be fitted. (One only on the 816). The first Radio Receiver must be idented as receiver number one. The second receiver is idented as receiver number 2. Each Radio Receiver is capable of using up to eight radio detectors.

Radio Expander Card to Control Panel.

		Control Panel		Radio Expander
EXP1	Pin1 12V	←——————→	+12V
	Pin2 0V	←——————→	0V
	Pin3 SAD1	←——————→	SAD1
	Pin4 SCLK	←——————→	SCLK
EXP2	Pin3 SAD2	←——————→	SAD2
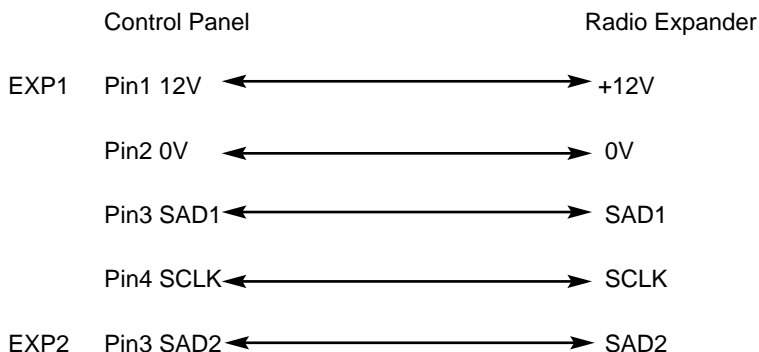
Once the Radio Expander Card has been connected to the GardTec 872 control panel it should be connected to the Radio Receiver as follows:-

Radio Expander Card to Radio Receiver Wiring

Red ←——————→ Red

Black ←——————→ Black

Yellow ←——————→ Yellow

Green ←——————→ Green
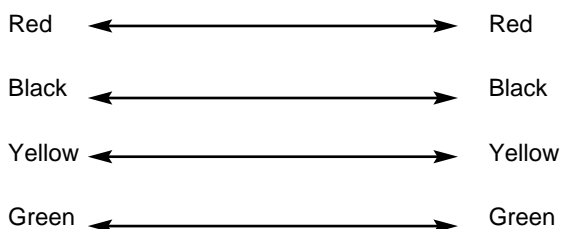
Notes: Further instruction are supplied with Radio Expander Card

Zones occupied by receiver 1 are 91 to 98

Zones occupied by receiver 2 are 171 to 178

Radio Expander Wiring & Switch Settings
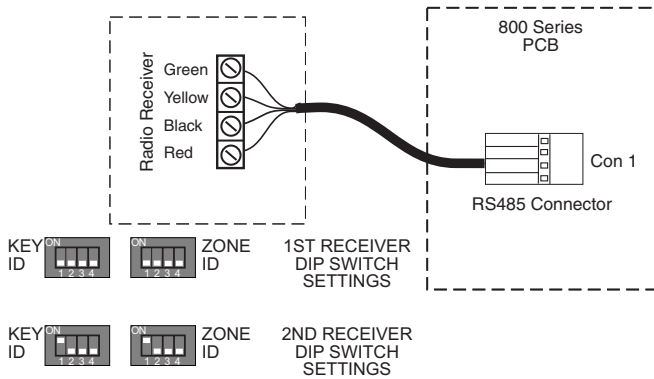
Connect cable between **Con 1** on the 800 PCB and the Radio Receiver.

Each receiver has two banks of switches marked as Key ID and Zone ID.
For **Receiver 1**, all the switches must be in the **OFF** position.
For **Receiver 2**, switch 1 on the **Key ID** and the **Zone ID** banks must be in the ON position.**Note: Move switches before applying power to the Receiver.**

Engineers RKP Connection
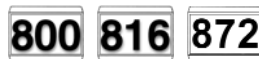
To aid installation and programming an Engineers LCD RKP lead is available (part No. 01-090) that may be connected to an LCD RKP and plugged directly onto the main PCB of the control panel. This engineers RKP may be configured as RKP 1 to 4. It should be noted that if LED keypads have been fitted to the system for end user operation an LCD keypad may not share the same ident as an LED keypad.

This engineers RKP should be connected to the plug on the main PCB marked SK2 ENG RKP. The connector is 'keyed' and will only fit in one orientation, the use of force should be avoided to prevent damage to the plug or socket.

The GardTec *872* Control Panel must be programmed via an LCD Keypad.

The keypad wiring colours for the Engineers RKP lead are as follows.

Cable Colour		RKP Terminals
Red	⟵⟶	12V
Yellow	⟵⟶	Data A
Black	⟵⟶	Data B
Blue	⟵⟶	CLK
Green	⟵⟶	0V
White	⟵⟶	SPKR

Printer Connection

The GardTec *872* has an RS232 port that may be connected to a standard serial printer, to facilitate this two printer leads are available from GardTec Ltd.

Printer Cable No. 1   Part No 01-091   Connects from PCB direct to printer

The printer should be capable of being set to the following:-

Baud Rate	1200
Data Bits	8
Parity	None
Stop Bits	4
Carriage Return	None

Note: The printer should have its own power supply. Under no circumstances should the power for the printer be drawn from the control panel.

The printer may be used in one of three modes:-

1)   For printing the Event Log (user or engineer function). Pressing 1 whilst viewing the Event Log will start the printer (refer to user manual for more details).

2)   For printing the Program Review (engineer function). Pressing 1 whilst in the engineer option Program Review will start the printer.

3)   For Real Time Printing. When Real Time Printing is programmed to ON each event that is written to the log will also be sent to the printer.

         This option needs to be set ON from within the engineer programming mode (option 96) and may be overridden by the user by using the online / offline function on the printer.

Two suggested Printers are currently available, one from RS Components and one from Farnell Electronics. *Descriptions and Part Number correct at time of going to press.*

RS Components		Farnell Electronics	
Description	**Part No.**	**Description**	**Part No.**
24 col/2.5 lps printer	244-632	Serial Printer 2.5 lps	255-701
Power Adaptor	244-654	Battery Charger UK	231-540
2 Rolls + 1 Ribbon	202-981	Paper Roll 15m	177-306
		Paper Roll 30m	231-952
		Ribbon	308-213

5   AREAS & ZONES

Area Options are only applicable to the Gardtec *872*

Understanding Areas

This section is intended to simplify the complicated subject of Areas and Area Codes. It is recommended that you read this section and understand it in its entirety before moving on to the programming section.

Typical zone programming to allow for the areas shown in Fig. 34 would be:-

Zone No.	Zone Type	Cover For	Area Allocation
1	Entry/Exit	Sales Office Door	Area 1
2	Access	Sales Office PIR	Area 1
3	Entry/Exit	Distribution Door	Area 2
4	Access	Distribution PIR	Area 2
5	Entry/Exit	Stores Door	Area 3
6	Access	Stores PIR	Area 3
7	Entry/Exit	Reception Door	Areas 1, 3
8	Access	Reception PIR	Areas 1, 3
9	Access	Corridor PIR	Areas 1, 3

Because zones 7, 8 & 9 are allocated to more than one area they will **automatically be classed as a common area by the system**. The zones within the common area will only be set when all areas on the system that contain these common area zones are set.

As can be seen in Fig. 34 Area 2 (Distribution) does not use the common area and therefore does not need to have the common area zones allocated to it. Setting and unsetting Area 2 will have no effect on the common area.

In the example shown each area would have its own RKP with the possibility of a fourth in the reception as a master RKP.

Consideration should be given to the zone types that are going to be used bearing in mind that the common area may already have been unset by an area user code, therefore entry points to other areas would also need to be programmed as entry/exit.

Fig. 34. Typical Area Layout

Zones situated in
Area3:-

Zone 5
Zone 6

**Area 3
Stores**

Zones situated in
Area1:-

Zone 1
Zone 2

Zones situated in
Common Area:-

Zone 7
Zone 8
Zone 9

Zones situated in
Area2:-

Zone 3
Zone 4

**Area 1
Sales Office**

**Area 2
Distribution**

**Common Area
Corridor & Reception**
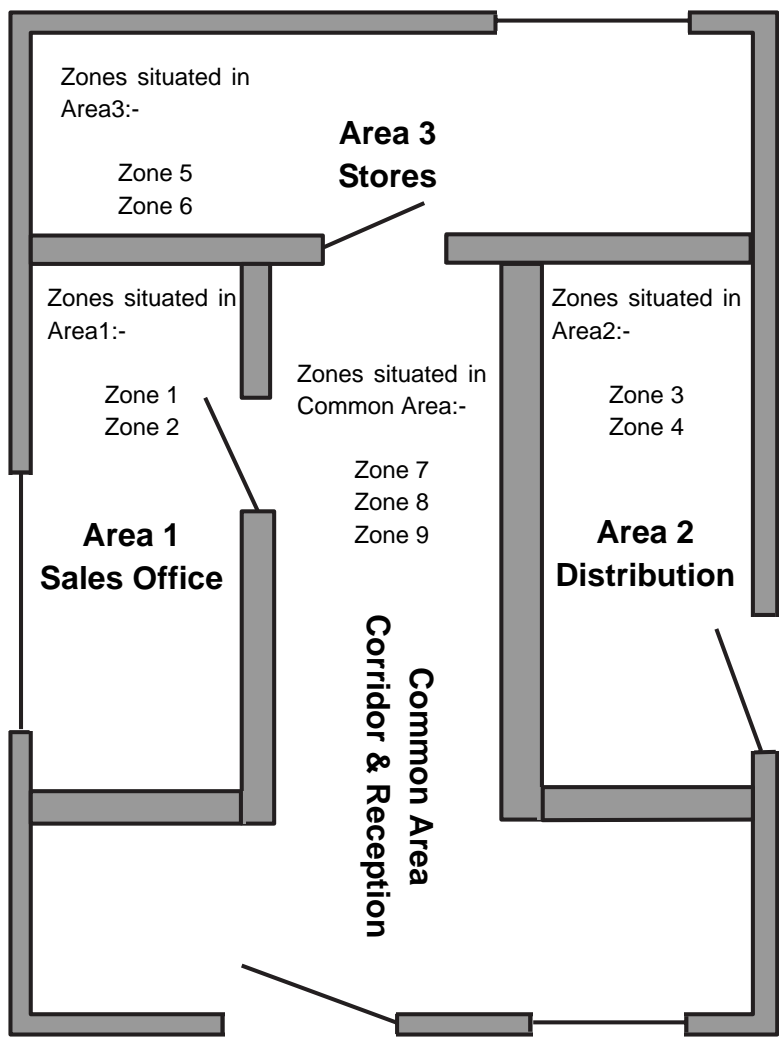
Three areas are show in this example. The 872 has seven areas available.

The User codes that are allocated to the system shown in Fig. 35 are:-

User No.	User Type	Functions Available
1	Master	Set/Area Sets/Part Set/Unset Remove Zones Test Zones View Log Change Chime Change User Codes Change Time/Date
2	Area 1	Set/Part Set/Unset Area 1
3	Area 2	Set/Part Set/Unset Area 2
4	Area 3	Set/Part Set/Unset Area 3

Note: User codes are programmed via a master level code (factory default 5678).

Note: Part Sets will only be available if they have been programmed by the engineer.

Note: Reset will be available on the code level programmed by the engineer.

In the event that an area does not have a code allocated to it (e.g area 1 code has been deleted), any other area code setting the system will also set the area without a code. This is to ensure that no areas can be left unset unintentionally.

Care should be taken by the engineer when allocating part sets so they do not overlap into other areas.

The cleaner area acts in a different way to other areas. The cleaner area is set up within the Zone Attributes programming sequence. Cleaner zones will then be removed from the system when a Part/Area 0 is used. The different ways that a cleaner code operates are:-

With system unset   Cleaner code will fully set the system.

With full system set   Cleaner code will unset only the cleaner zones.

With system part set 0   Cleaner code will set the remainder of the system.

With any one or more
areas set   Cleaner code will set the cleaner zones.

Zone Type Terminology

800 816 872

Each zone has a default type that may be re-programmed. Below is an explanation of the terminology used for zone types.

12 Hour

Zone active when Control Panel is Set.

Access

Will allow to pass through on exit.
Will allow to pass through on entry only if E/E is opened first.

24 Hour

Internal Sounder if Unset.
Full alarm if Set.
Remains active in Engineer Programming Mode.

Entry/Exit (or E/E)

Zone used as last exit point (will terminate exit time if setting mode is set to E/E or Time+E/E).
Will start E/E time if opened when Control Panel is Set

Part E/E

As Access if Control Panel is Full Set
As Entry/Exit if Control Panel is Part Set

Panic

24Hour Personal Attack (or Panic Attack). Active if Control Panel is Set, Unset or in Engineer Programming Mode . May only be tested via Engineer code if programmed as testable.

Alert

Internal Sounder Only, Recorded to Log when Unset
Recorded to Log when SET

Fire

Will give Fire alarm when activated (pulsed sounders) with Control Panel Set or Unset.
Remains active in Engineer Programming Mode.

ET

Exit terminator. Used for final setting of the system. Exit Mode must be programmed for ET.

Monitor

Will write to the log once only in any one set or unset unless chime is allocated then all activations are written to the log.

KSW Bat

When used, zone should be connected to the trouble/status output of third party radio equipment that is capable of giving a low battery signal.

Line Fault

When used, acts as a Line Fault input to the control panel.

Fault

When used, will act as an Fault input to the control panel when an internal fault has been detected within the PIR.

Mask

When used, will act as an input to the control panel if the detector has been blocked or covered.

Note: Fault and Mask are treated as 24Hr but trigger a Fault Sound in Day (Unset) Mode. The Fault sound is a three tone sounder.

Zone Type Terminology (Areas & Attributes)

When programming the zone types other zone attributes including area allocation may be programmed within the same screen. Please refer to the breakdown of the Zone programming screen below.

Zone Number   Zone Type

```
000=Ent/Ex        A=
1234567          Rem -
```

Area(s) Zone is allocated to   Zone Attribute
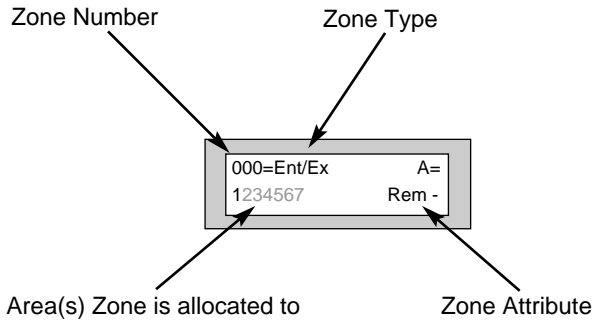
Zone Programming Screen

Zone Number

The Zone number currently being programmed.

Zone Type

The current Zone Type (refer to previous page for terminology.

Area(s)

Area(s) that the current zone is allocated to.

872

Zone Attribute

Attribute for current zone. Attributes available are:-

Remove-

Zone cannot removed (omitted) by the end user.

Rem+/Dk

Zone may be removed (omitted) by end user and is also Double Knock.

Rem -/Dk

> Zone cannot be removed (omitted) by end user and is also Double Knock.

Off

> Zone is turned Off.

Norm.Ky

> Zone is a Normal Type Keyswitch Zone.

Bias.Ky

> Zone is a Bias Type Keyswitch Zone.

Remove +

> Zone may be removed (omitted) by end user.

Note: Each Zone should be programmed individually for your requirements.

Output Types Terminology

There are two groups of outputs types available.

General Outputs. These are available on the following terminals

> Detector Reset Terminal
> Latch Terminal
> On-Board Relay Terminals (com, N/O, N/C)
> PGM 3 Terminal (Strobe Terminal)
> Optional Output Cards 872 (max 4 cards each having 4 changeover relays)

When programming these outputs and you press no to the current setting the display will show:-

> ```
> Choose . . 1 - 7 = Area
> 8 = All   9 = Any
> ```
>   872 Only
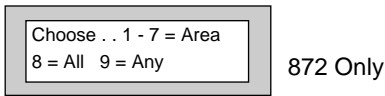
At this point choose if you require the output to be allocated to Area 1 - 7 or All Areas or Any Area.

> Some General Output Types may be used for triggering Digital
> Communicators or RedCare STUs.

Below is given a list of Output Types with a brief description of the option.

Off

Output not used.

Pulse Off

Output is active and will switch for 3 seconds when code is entered.

Pulse On

Output is inactive and will switch for 3 seconds when code is entered.

After Alarm

Will trigger in alarm and stay in alarm until panel has auto rearmed or has been reset.

Walk (Forced Walk Test) (872 only)

When FWT is used, the zones programmed as Walk must be walk tested before the system will start to set. FWT Mode (option 130) must be programmed to 'All Sets' or 'Full Set Only' for FWT to operate. A FWT Bypass time is available via option 129. This allows up to 90 minutes between the system being unset and then set without having to walk test the system again.

Pulse Set

Will activate for 5 seconds when the panel sets.

Int Sounder

Will activate when panel is in alarm or tamper.

E/E
Will activate for the duration of the entry exit times.

Bell
Will activate when the bell is triggered and will cut of with the bell time.

Alert
Will activate when an alert zone is triggered.

Any Fire
Will activate when a fire zone is triggered.

Any Panic
Will activate when a panic zone is triggered will also activate when a duress code is entered.

Alarm
Will activate when panel is in alarm and will reset when a code is entered.

Alarm B
Will activate when a second zone has alarmed (The activation of this output is dependent upon other system attributes) Please refer to DD243 Section .

Alm Abort
Will activate when the panel is in alarm and unset within the programmed abort time.

O/C Cleaner
Used for sending open and closing when a cleaner code is used.

Cleaner Set
Will active when a cleaner code is used to set the system.

Gen Tamper
Will activate with bell / control / keypad / zex tampers.

Zone 24Hr
Will activate when a 24Hr zone is triggered

Part Set
Will activate when the system is part set or when a zone is removed (omitted).

Strobe
Will activate when the strobe is triggered.

Latch Any
Will activate when panel is set and will reset when entry timer starts.

Any Set
Will activate when panel is set and will reset when panel is unset.

Power Fail
Will activate when aux. power falls below 10.6 volts.

Power OK
Output is active and changes over when the battery volts fall below 10.6 V.

Watchdog
Will activate when the processor is reset.

Mails Fail
Will Activate when the mains is removed from the panel and will reset when the mains is restored.

Any Digi
Will activate when any Digicom channel is triggered.

Status
This output has 3 operating modes intended to provide visual indication of system status.
> Set output on for 10 seconds.
> Unset On for 1 second Off for 1 second for a 10 second period.
> Confirmed On for 3 seconds Off for 1 second until the system is reset.

Perimeter
Will activate when a perimeter zone is triggered.

Zone Exclude
Will activate when the panel auto rearms with a zone in fault condition.

Custom 1-8 872 + 816 Only
This output can be used to follow a zone or code.

Timed 1-3
This output will follow the programmed On /Off times for times 1/2/3.

Any Closed
This output will change over when any area is set.

Communications Outputs. These are available on the following terminals

> D1
> D2
> D3 (PA terminal)
> D4 (12Hr terminal)
> Digicom Channels (when used with GardTec ProDigi or Digi / Modem)

Below is given a list of Output Types with a brief description of the option.

Off
Output not used

Zone 24Hr
Will activate when a 24Hr zone is triggered

Gen Tamper
Will activate with bell / control / keypad / zex tampers

Alert
Will activate when an alert zone is triggered

Fire
Will activate when a fire zone is triggered

Part Set
Will activate when the system is part set or when a zone is removed (omitted)

Open / Close
Will activate when panel set or unset
Panic
Will activate when a panic zone is triggered will also activate when a duress code is entered

Alarm
Will activate when panel is in alarm and will reset when the panel auto rearms or when the panel is reset

Alarm B
Will activate when a second zone has alarmed (The activation of this output is dependent upon other system attributes) Please refer to the DD243 Section within this manual.

Alarm Abort
Will activate when the panel is in alarm and unset within the programmed abort time .

Power Fail
Will activate when aux. power falls below 10.6 volts.

Watchdog
Will activate when the processor is reset.

Mails Fail
Will Activate when the mains is removed from the panel and will reset when the mains is restored.

Area 1-7 Alarm
Will activate when the selected area is in alarm and will reset when the panel auto re-arms or when the panel is reset.

O/C Area 1-7
Will activate when the selected area is set and unset.

O/C Cleaner
Used for sending open and closing when a cleaner code is used.

Area 1-7 Alarm B
Will activate when a second zone has alarmed in the selected area (The activation of this output is dependent upon other system attributes) Please refer to the DD243 Section within this manual.

Alarm Abort 1-7
Will activate when the selected area is in alarm and unset within the programmed abort time.

Area 1-7 Panic
Will activate when the selected area panic zone is triggered will also activate when a area duress code is entered.

Area 1-7 Fire
Will activate when a selected area fire zone is triggered.

Perimeter
Will activate when a perimeter zone is triggered.

Zone Exclude
Will activate when the panel auto rearms with a zone in fault condition. It is a requirement of DD243 that a zone that is auto excluded is reported to central station.

KSW Bat
When used, zone should be connected to the trouble/status output of third party radio equipment that is capable of giving a low battery signal.

Line Fault
When used, acts as a Line Fault input to the control panel.

6 PROGRAMMING

Gardtec *800 Series* Programming

800 816 872

The GardTec *800* series control panels uses 32 character LCD Remote Keypads for control of the system via User Code(s) and programming of the system via an Engineer Code. The Factory Default Codes are.

Note: The 800 series Control Panel can only be programmed using <u>LCD KEYPAD</u>.

Default Master User Code	**BS / EN2 5678**	**EN3 005678**
Default Engineer Code	**BS / EN2 1234**	**EN3 001234**

Note: For EN3 installations, User Codes and Engineer Codes *<u>MUST</u>* be six digits in length.

The Engineer code may be 'Locked' into the system during engineer programming. It should be noted that if the 'Locked' code is not known the only way to have it returned to the factory default is to return the PCB to the factory.

Option Formats. When an option cannot be changed the display will show a **:** rather than the usual **=** sign. Pressing the No key is disregarded and the panel will react as though the Yes key has been pressed (i.e. it will move onto the next option).

Resetting Factory Defaults

Several reset to factory default routines are available to the engineer at system power-up but **it should be noted that none of these routines will 'Un-Lock' a ' Locked' Engineer Code.**

The following default routines are available.

a)   Pressing **1, 9, YES, NO** during initial power up will revert the Master Code and Engineer Code (not locked engineer code) back to factory defaults.

b)   Pressing **3, 7, YES, NO** during initial power up will revert all system settings back to defaults with the exception of the User Names and Zone Descriptors.

c)   Pressing **4, 6, YES, NO** during initial power up will revert all system settings back to factory defaults. **It is *<u>ESSENTIAL</u>* that a 4 6 Yes No Reset is done to all new systems before commencement of programming.**

d)   Pressing **5, 5, YES, NO** during initial power up will revert all system settings to factory defaults and will also set the comms options up for GardTec Remote. ie Modem On; No Return. **For commissioning systems for use with GardTec Remote, use this option**.

Reset of the factory defaults and entering Engineer Mode:-

Note: It is *ESSENTIAL* that a 4 6 Yes No reset is done to all new systems before commencement of programming.

1) Remove all power from the system for at least ten seconds

2) Apply mains power to the control panel.
   The display will show, for example:-
   (Display will differ dependant on panel version)

```
Gardtec872      xx-xx
```

3) Whilst this display is showing (the first five seconds) press the keys shown in a, b or c for the reset required. **(E.g. 4 6 Yes No)**.

   The display will show:-
   This may show for several minutes.

```
Please Wait
```

4) The display will then show:-

```
Select Standard
1:BS   2:EN2   3:EN3
```

   Selecting 1:BS - Panel may be programmed to comply with the old BS4737 Standards. DD243 requirements will still apply.
   Selecting 2:EN2 - Panel may be programmed to comply with EN50131-1 for Grade 2 Systems. DD243 requirements will still apply.
   Selecting 3:EN3 - Panel may be programmed to comply with EN50131-1 for Grade 3 Systems. DD243 requirements will still apply

5) Select **2:EN2**.The display will then show:-
   This may show for several minutes.

```
Please Wait
```

   The display will then show:-

```
01 Jan        00:01:50
```

6) Enter Engineer code.
   (1234 default EN2). The display will show:-

```
Enter Authorisor
Code . . . . . .
```

   *Note: User Codes and Engineer Codes **MUST** be six digits in length for EN3 installations.*

7) Enter the Authorisor code. The Authorisor code is the Master User, **(default 5678 EN2)**.
   The display will show:-

```
Do you want to . .
Use ENGNR. Mode ?
```

   Note: It may be required that an engineer has to be authorised by a user before access to the Engineer mode is granted.

8) Press Yes. The display will show:-

```
Program Zones . . . . - - -
Zones ?
```

Moving Around

Enter Engineer mode as described on page 69.

The display will show:-

```
Program . . . .    _ _ _
Zones ?
```
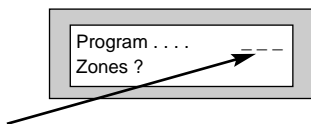
Whenever three underscores are shown on the display the screen is a **Header**.

Pressing the NO key will move to the next **Header**.

Pressing the YES key whilst viewing a **Header** will enter into the options under that **Header**.

Pressing 0 will escape back one step (except when a numeric entry is required).

You are able to jump to various common options when programming by entering the relevant menu numbers. With a **Header** showing, key in the appropriate menu number, then press Yes. (See pages 73-77 for Common Options with Menu Numbers).

<table>
<tr><td colspan="2" align="center">Headers & Options</td><td colspan="2" align="center">Headers & Options</td></tr>
</table>

Headers & Options   Headers & Options

Program Zones   **Entry Times**

Zone Types   Entry Time 1
Zone Descriptors   Entry Time 2
Zone Wiring
Zone Attributes   **Bells / Sounders**
(Test/Part/Cleaner/Chime/Walk/Sec/Per)
Zone Double Knock/Arm/Log   Bell Type
Zone E/E Mode   Bell Delay/No Arms
Event Tags   Bell & Sounder Ring
                                                 Bell Tamper Mode
Setting Modes   Bell For Part Set

Setting For Full Sets
Setting For Part 1 Sets
Setting For Part 2 Sets
Setting For Part 3 Sets
Setting Delay
Setting Sounders
Setting Conformation
Auto Part Set

Keypad / Keyswitch

Keypad Alert 1 Keys
Keypad Alert 2 Keys
Keypad Alert 3 Keys
Number of Keypads
Keypad Backlight Mode
ACE / Prox

Digicom

Type or Test
Start Delay / Part
Channels
Digicom/Modem Functions

Line Fault Modes

Line Fault Sounders
Line Fault Mode in Exit
Line Fault Log Mode
Line Fault Detect Time

Panic / Duress

PA Mode / Bells Only
Testable / Non-Testable
Duress Off *(To conform with EN standards,*
Duress is defaulted to Off and cannot be changed)

Rly / PGM3 / Timers

PGM2/3 Operating Mode
Timer 1 On Time
Timer 1 Off Time
Timer 2 On Time
Timer 2 Off Time
Timer 3 On Time
Timer 3 Off Time

Reset / Mains

Mains Fail Delay
Alarm 1 Reset (Area 1)
Alarm 2 Reset (Area 2)
Alarm 3 Reset (Area 3)
Tamper Reset
Alarm Restore On/Off
Abort Time

Sounder Levels

Chime Level
Entry/Exit Level
Key Beep Level

Sens/ XP / Custom

PGM1 O/P
Expander 1 O/P 1 - 4
Expander 2 O/P 1 - 4
Expander 3 O/P 1 - 4
Expander 4 O/P 1 - 4
Custom Output 1
Custom Output 2
Custom Output 3
Custom Output 4
Custom Output 5
Custom Output 6
Custom Output 7
Custom Output 8

Engineer Code

Engineer Code
Engineer Code Locked/Unlocked

Service / PTM

Service Timer On/Off
Time To Next Service
Service Tel No.
Lock-Out On/Off
Engineer Mode Constant/Timed

Custom Screens

LCD Status Display
(To conform with EN standards, LCD Status is
defaulted to Off and cannot be changed)
LED Status Display
Custom Display On/Off
Program Text

Diagnostics / Log

List Event Log
Change List Diagnostics
PSU Diagnostics
NovActive Diagnostics
PSU Test Time
Aux Volts
Battery Volts On Charge
Battery Volts Off Charge

Alarm Confirm

Window Time
On Entry
Sounder Mode
Reset Mode
Secondary Time
ET Mode
Bell Mode
Strobe Mode
Start Delay
ACE Battery Monitor
Comms Restore
Keypad Opening

In conclusion, the Yes and No Keys are used to navigate. The No Key is also used to change a value (may also require a numeric input) and the Zero Key is used to move back a level (not when the display is expecting a numeric input).

Program the GardTec *800* series Control Panels using the headers and options above or alternatively use the appropriate shortcut menu numbers.

LCD Menu Shortcut Numbers

You are able to jump to various common options when programming by entering the relevant menu numbers. With a Header showing, key in the appropriate menu number, then press Yes. **Options available will be panel dependant.**

Menu No.	Jumps to
1	Relay Mode / PGM3 Mode
2	Timers On Time
3	Timers On Time
4	Timers Off Time
5	Timers Off Time
6	PA Mode
7	PA Mode
8	Chime Level
9	Entry Exit Level
10	Exit Sounder Mode
11	Final Set Delay
12	Full Set Setting Time / Setting Mode
13	Part 1 Set Setting Time / Setting Mode
14	Part 2 Set Setting Time / Setting Mode
15	Part 3 Set Setting Time / Setting Mode
16	Full Set Setting Time / Setting Mode
17	Part 1 Set Setting Time / Setting Mode
18	Part 2 Set Setting Time / Setting Mode
19	Part 3 Set Setting Mode / Setting Time
20	Alert 1 Keys Mode / On Off
21	Alert 2 Keys Mode / On Off
22	No. of Keypads / Multi On Off / Keyswitch
23	Bell Delay / No. of Bell Arms
24	Bell Ring Time / Sounder Mode
25	Bell Delay / No. of Arms
26	NovActive On Off
27	Bell Tamper Ring On Off
28	Entry Time 1
29	Entry Time 2 (use 00 for DD243:2002 system)
30	Fire Zone Delay
31	D1 Mode / D2 Mode
32	D1 Mode / D2 Mode
33	Channel Start Polarity
34	Digicom Type
35	Key Beep Level

Menu No.	Jumps to
36	No. of Keypads / Multi On Off / Keyswitch
37	Zone Re-Arm / Double Knock Time
38	Engineer Code
39	Remote Reset / Line Fault Source
40	Line Fault Sounders
41	Line Fault Mode
44	Latch Terminal Mode
45	Bell Ring Time / Sounder Mode
46	Mains Fail Delay
47	Tamper Reset Mode
48	Backlight Mode
49	Zone Re-Arm / Double Knock Time
50	On-Board Zone Wiring Modes
51	On-Board Zone Wiring Modes (enter zone No.)
52	Test Zone (entering zones to be on test)
53	Save Panel NVM to PTM
54	Service Due Weeks
56	Alert 1 Keys Mode / Alert 1 Keys On Off
57	Alert 2 Keys Mode / Alert 2 Keys On Off
58	Digicom Channels
64	Alarm Restore / Abort Time
65	Digicom Type or Test
66	E/E Zones in Part Set
67	Engineer Code Locked / Unlocked
68	Strobe Confirm
69	Auto Part Set
70	Part Set Bells
71	Zone Types (enter zone No.)
72	Zone Expansion Type
73	ID mapping (set expansion type ZEX / ID first)
74	ID mapping (set expansion type ZEX / ID first)
75	ZEX 1 Wiring
76	ZEX 2 Wiring
77	ZEX 3 Wiring

Menu No.	Jumps to
78	ZEX 4 Wiring
79	ZEX 5 Wiring
80	ZEX 6 Wiring
81	ZEX 7 Wiring
82	ZEX 8 Wiring
83	Expander 1 O/P1 Mode
84	Timer 2 On Time
85	Timer 2 On Time
86	Timer 2 Off Time
87	Timer 2 Off Time
88	Timer 3 On Time
89	Timer 3 On Time
91	Timer 3 Off Time
92	Timer 3 Off Time
93	Custom Display
94	Custom Text
95	Zone Descriptors (enter Zone No.)
96	List Event Log
97	List Event Log
98	Event Log (while viewing 1 = Printer On / Off)
101	Alarm 2 Reset Mode
102	Alarm 3 Reset Mode
103	D1 / D2 Mode
104	D1 / D2 Mode
105	D1 / D2 Mode
106	D1 / D2 Mode
107	Bell 2 Ring Time / Bell 3 Ring Time
108	Bell 2 Ring Time / Bell Ring 3 Time
109	Bell Delay 2 Time
110	Bell Delay 3 Time
111	Full Set Exit Time / Exit Mode Area 2
112	Part 1 Set Exit Time / Exit Mode Area 2
113	Part 2 Set Exit Time / Exit Mode Area 2
114	Part 3 Set Exit Time / Exit Mode Area 2
115	Full Set Exit Time / Exit Mode Area 3
116	Part 1 Set Exit Time / Exit Mode Area 3
117	Part 2 Set Exit Time / Exit Mode Area 3
118	Part 3 Set Exit Time / Exit Mode Area 3
119	Full Set Exit Time / Exit Mode Area 2

Menu No.	Jumps to
120	Part 1 Exit Time / Exit Mode Area 2
121	Part 2 Exit Time / Exit Mode Area 2
122	Part 3 Exit Time / Exit Mode Area 2
123	Full Set Exit Time / Exit Mode Area 3
124	Part 1 Set Exit Time / Exit Mode Area 3
125	Part 2 Set Exit Time / Exit Mode Area 3
126	Part 3 Set Exit Time / Exit Mode Area 3
127	Remote Reset Mode / Line Fault Source
128	N/A
129	Forced Walk Test On Off / Forced Walk Test Bypass Time
130	Forced Walk Test On Off / Forced Walk Test Bypass Time
131	NovActive On Off
139	PSU Test Time
140	Duress On Off
141	Service Timer On Off
142	Relay Mode / PGM 3 (strobe terminal) Mode
153	Test Zones
154	Test Zones
155	Confirm Time Window **(Start of DD243:2002 Section)**
156	Secondary Time Window
157	Confirm on Entry On Off
158	Sounder Trigger
159	Unconfirm Reset
160	E/T Mode
161	Bell Trigger

Menu No.	Jumps to
162	Confirm Start Delay
164	Strobe Timer
165	Strobe Trigger
166	Custom 1 OP Mode (zone / code) / No. / Period / Mode
167	Custom 2 OP Mode (zone / code) / No. / Period / Mode
168	Custom 3 OP Mode (zone / code) / No. / Period / Mode
169	Custom 4 OP Mode (zone / code) / No. / Period / Mode
170	Custom 5 OP Mode (zone / code) / No. / Period / Mode
171	Custom 6 OP Mode (zone / code) / No. / Period / Mode
172	Custom 7 OP Mode (zone / code) / No. / Period / Mode
173	Custom 8 OP Mode (zone / code) / No. / Period / Mode
174	Comms Restore On Off

Understanding Part/Test/Chime

800 **816** **872**

Part Sets
Three Part Set modes are available on all models. These are Part1, Part 2 & Part3.

Part Set 1 may consist of a suite of zones that have been programmed as Part1 by the engineer.

Part Set 2 may consist of a suite of zones that have been programmed as Part2 by the engineer.

Part Set 3 combines all zones in Part1 & Part2 to form the third Part Set. This requires no additional programming by the engineer other than Part1 & Part2 programming.

Note: **Zones programmed into a Part Set will be removed (omitted) from the system when that Part Set is used.**

Test
Zones programmed as Test will not activate the system when it is set. Activations of test zones when the system is set will record to the log and will show 'Test Fail' when the system is unset.

Test should only be used for zones that will not be activated when the system is set. Do not use test on any E/E or Entry Route zones.

Note: **After a zone has been put on test it will be automatically taken off test after 20 successful Set / Unset operations.**

Chime 1 & 2
Any number of zones may be programmed as chime 1 or 2 by the engineer. Chime is usually used as a low level warning when the system is unset that someone has entered a protected area.

Chime may be turned On and Off by the end user as required

If Exit Terminators are fitted to the system the Exit Terminator zone may be programmed for chime thus doubling as a door bell.

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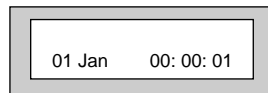
Walk (Forced Walk Test)
When FWT is used the zones programmed as Walk must be walk tested before the system will start to set. FWT Mode (option 130) must be programmed to 'All Sets' or 'Full Set Only' for FWT to operate. A FWT Bypass time is available via option 129. This allows up to 90 minutes between the system being unset and then set without having to walk test the system again.

Zone Programming Tutorial
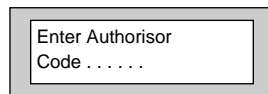
Below is a Zone Programming Tutorial that shows how a single zone is programmed on the GardTec 872. 800/816 is similar but no Area information is programmed. This should be repeated for all zones that require programming.

1) With the display showing:-
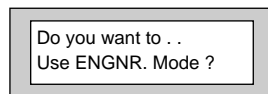
```
01 Jan     00: 00: 01
```

2) Enter the Engineer code **(1234 default EN2)**
The display will show:-
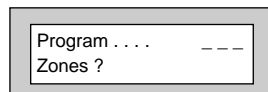
```
Enter Authorisor
Code . . . . . .
```

3) Enter the Authorisor code. The Authorisor code is the Master User, **(default 5678 EN2)**.
The display will show:-
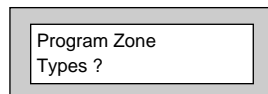
```
Do you want to . .
Use ENGNR. Mode ?
```

4) Press YES. The display will show:-
This is Engineer Mode
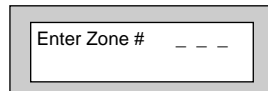
```
Program . . . .      _ _ _
Zones ?
```

5) Press Yes. The display will show:-
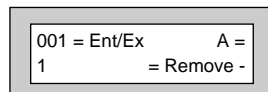
```
Program Zone
Types ?
```

6) Press Yes. The display will show:-
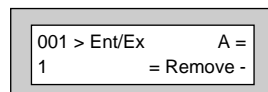
```
Enter Zone #     _ _ _
```

7) Enter the zone number you wish to program e.g 1 followed by Yes. The display will show, for example:-

```
001 = Ent/Ex          A =
1              = Remove -
```

8) Press No. The display will show:-

```
001 > Ent/Ex          A =
1              = Remove -
```

9) Note the chevron has now appeared before the Zone Type. Now press the No key until the Zone Type you require is displayed.

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10) When you are satisfied with your selection
press Yes. The display will show for example:-

```
001 = Ent/Ex        A >
1               = Remove -
```

11) All Zones are Area 1 by default. Use the 1 to 7
keys to add or remove the zone to other Areas.
When you are satisfied press Yes.
The display will show for example:-

```
001 = Ent/Ex        = A
1 2 3 4         > Remove -
```

We will now be changing the Zone Tag options, available are:-

Remove-   The zone may not be Removed (Omitted) by the end user. (Part
Sets are still allowed).

Remove+/DK   Zone may be Removed (Omitted) by the end user and is a Double
Knock Zone (2 activations required within time window).

Remove-/DK   Zone may not be Removed by end user (Part Sets are still allowed)
and is Double Knock Zone.

Off   Zone is turned Off (Use with caution).

Norm Key   Zone is a Keyswitch Zone for a normal type Keyswitch.

Bias Key   Zone is a Keyswitch Zone for a Bias (momentary) type Keyswitch.

Remove+   Zone may be Removed by end user.

12) Press No until the setting you require is
displayed then press Yes.

13) The display will show the next zone to program.
You should repeat from Step 8 until you have
programmed all the zones.

14) When all required Zones have been
programmed press 0 (zero) key **twice**.
The display will show:-

```
Program Zone
Types ?
```

15) Press No. The display will show:-

```
Program Zone
Descriptors  ?
```

16) Press Yes. The display will show:-

```
Enter Zone #    _ _ _
```

17) Enter the Zone number you wish to
program the Descriptor for, followed by Yes.
The display will show for example:-

```
Zone 001 Name =
Zone 001
```

18) Press No. The display will show:-

```
Zone 001 Name >
_
```

19) You should now program the Descriptor you
require using the template below for the
key allocation in a similar way that you you would
type a text message on a mobile telephone.

As the desired character is displayed press the
Yes key to move on to the next character.

Continue until the line is complete.

1 ABC	**2** DEF	**3** GHI
4 JKL	**5** MNO	**6** PQR
7 STU	**8** VWX	**9** YZ Space
No Delete	**0** 1234567890	**Yes** Enter Character

20) As you enter the last character the display
will move on to the next Zone. For example:-

```
Zone 002 Name =
Zone 002
```

21) Repeat from Step 18 until all the Descriptors
you require have been programmed. Then
press 0 (zero) key **twice**.
The display will show:-

```
Program Zone
Descriptors ?
```

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22)   Press No. The display will show:-

```
Program Zone
Wiring ?
```

23)   Press Yes. The display will show:-
Note: Zone Response time is defaulted to 400ms and may not be changed.

```
Zone Response
:400 mS
```

24)   Press Yes. The display will show:-
Note: Fault /Mask response time may be programmed as a global parameter and may be reprogrammed from 2 to 14 seconds. (increments of 2 seconds).

```
Fault / Mask  Zones
Response=Norm
```

The time programmed for this option will apply to all zones, there is no option for individual response times per zone. It is a global setting.

Once the Fault / Mask as been triggered the response time for the Fault / Mask will revert to the default time of 400ms until the fault / mask problem has cleared.

25)   Press No until the settings you require are displayed. Then press Yes. The display will show:-

```
On-Board Zones
=16 <EOL>
```

Wiring Modes available are:-

16(2 Wire)   Two wires are used for the zone and a global tamper is used. **(Version / Grade dependant - Cannot be used in Grade 3 installations)**.

8(4 Wire).   May be programmed for 8 four wire zones. Wire 8 individual zones with their own tampers.

16(EOL)   Two wires are used in conjunction with two resistors to give End Of Line wiring, this is the most secure wiring format.

Note: This tutorial assumes that 16(EOL) has been selected.

26)   With the display showing:-
Press Yes.

```
On-Board Zones
=16 <EOL>
```

27)   The display will show:-

```
On-Board EOL
=Norm
```

Three wiring options are available under 16 (EOL):

Norm: Standard GardTec wiring configuration without Mask or Fault detection.
Note: Does not give any Fault or Masking detection and should only be used with Zone pairing.

ELF1: ELF1 wiring is used for detectors that have a relay output (a pair of terminals) for Fault or Mask..

ELF2: ELF2 wiring is used for detectors that have a transistor output (a single terminal) for Fault or Mask.

Note: We would recommend that either ELF1 Format or ELF2 Format (dependant on detector output type, Relay or Transistor) is used. ELF1 or ELF2 wiring modes will allow for Alarm, Tamper, Fault and Masking to be monitored from a single zone without the need for zone pairing.

Note: The installer should check what output type the detector are, noting that all the detectors should be of the same type with regards to the Fault / Mask output.

28) Press No until the setting you require is displayed, then press Yes. The display will show:-

> Zone Expansion
> = ZEX

Options available are:-

ZEX = Standard GardTec **Z**one **EX**panders. *(Are all defaulted to EOL with the same options that are available for the on-board zones).*

ID = ID Expander card using ID Biscuits.

Please refer to page 166 for programming ID Expanders - 872 only.

29) With the display showing:-
Press Yes.

> Zone Expansion
> = ZEX

30) The display will show:-
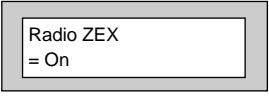
> Radio ZEX
> > Off

31) If you are not using Radio Detectors press Yes
and jump to Step 33.

　　　Otherwise
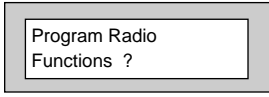
　　　Press No until the display shows:-

```
Radio ZEX
= On
```
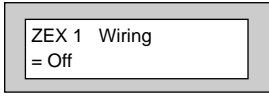
**Comprehensive instructions on how to setup and program the Radio Expansion
are given in the document Hybrid Wireless Set-Up & Programming Guide
document number PR5588 supplied with the Radio Receiver.**

32) Press Yes. The display will show:-

```
Program Radio
Functions  ?
```

33) Press No. The display will show:-

```
ZEX 1   Wiring
= Off
```

Options available are.

Off　　　　　　　Expander Card is turned Off

4 (4 Wire)　　　Expander will give 4 zones + 4 tamper zones

8 (EOL)　　　　Two wires are used in conjunction with two resistors to give
End Of Line wiring. Expander will give 8 End Of Line zones. This is
the most secure wiring format.

8 (2 Wire)　　　Two wires are used for the zone and a global tamper is used.
(Grade dependant - Cannot be used in Grade 3 installations).

34) Press No until the required setting is displayed
then press Yes. The display will show:-

> ZEX 1 Pairing
> = Off

35) Press No until the required setting is displayed
then press Yes. The display will show:-

> ZEX 2   Wiring
> = Off

36) Repeat from Step 39 until all the ZEX Expanders
you require have been programmed.
The display will show:-

> Program Zone
> Wiring ?

37) Press No. The display will show:-

> Program Zone
> Attributes ?

38) Press Yes. The display will show:-

> Test None

**Any 12Hr type zone(s) may be placed on Test. A Zone on Test will never trigger
an alarm or send a central station signal. If the Zone(s) fails the Test when the
system is Set the display will show Test Fail when the user Un-Sets the system.
After 20 successful Sets and Un-Sets the Zone(s) will be taken out of Test by the
system.**

39) If you do not wish to put a Zone(s) on Test press
     Yes and jump to Step 44.

     Otherwise

40) Press No. The display will show:-

     ```
     Enter Zone # _ _ _
     then +YES or -NO
     ```


41) Enter the Zone number you wish to place on test
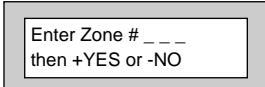   followed by Yes.
     The display will show for example:-

     ```
     Test 003
     ```


42) To add more Zone(s) to the test repeat from
     Step 40.

43) When you have finished adding Zones to Test
     press Yes.

44) The display will show:-

     ```
     Pt-1 None
     ```

Three Part Sets are available on the GardTec *800* series control panels. Zones added to the PT-1 (Part 1) screen will be Removed (Omitted) when the system is Part 1 Set. Zones added to the PT-2 (Part 2) screen will be Removed (Omitted) when Part Set 2 is used. When Part Set 3 is used Parts 1 & 2 are combined and Removed (Omitted).

45)   If you do not wish to enter PT-1 Zone press Yes
        and jump to Step 50.

        Otherwise

46)   Press No. The display will show:-

```
Enter Zone # _ _ _
then +YES or -NO
```


47)   Enter the Zone number you require for PT-1
        followed by Yes.
        The display will show for example:-

```
Pt-1 004
```


48)   To add more Zones to PT-1 repeat from Step 46.

49)   When you have finished adding Zones to PT-1
        press Yes.

50)   The display will show:-

```
Pt-2 None
```

51)   If you do not wish to enter PT-2 Zones press Yes
        and jump to Step 56.

        Otherwise

52)   Press No. The display will show:-

```
Enter Zone # _ _ _
then +YES or -NO
```

53)   Enter the Zone number you require for PT-2
        followed by Yes.
        The display will show, for example:-

```
Pt-2  005
```

54)   To add more Zones to PT-2 repeat from Step 52.

55)   When you have finished adding Zones to PT-2
        press Yes.

56)   The display will show:-

```
Clnr  None
```

Zones entered as Cleaner will be Removed (Omitted) when a Part Set 0 is performed and the added to the Part 0 set system when a Cleaner level code is entered.

Or

When a system is Full Set and a Cleaner level code is entered the Cleaner zones will be removed (Omitted).
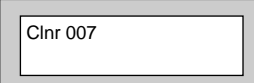
57)   If you do not wish to enter Clnr Zones press Yes
        and jump to Step 62.

        Otherwise

58)   Press No. The display will show:-

```
Enter Zone # _ _ _
then +YES or -NO
```

59) Enter the Zone number you require for Clnr
followed by Yes.
The display will show, for example:-
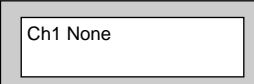
```
Clnr 007
```

60) To add more Zones to Clnr repeat from Step 58.

61) When you have finished adding Zones to Clnr
press Yes.

62) The display will show:-

```
Ch1 None
```
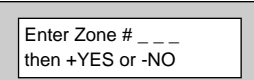
**Two Chime suites are available on the GardTec *800* series control panels so for
example you would have the Front Door on Zone 1 programmed into Ch1 and the
Rear Door on say Zone 6 programmed into Ch2. When the system is Unset
opening the Front Door will produce a Chime. Opening the Rear Door will
produce a different Chime.**

**It should be noted that Chime must be programmed as On from the user mode.
Please refer to the User Manual for details.**

63) If you do not wish to enter Ch1 Zone press Yes
and jump to Step 68.
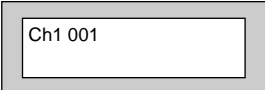
Otherwise

64) Press No. The display will show:-

```
Enter Zone # _ _ _
then +YES or -NO
```

65) Enter the Zone number you require for Ch1 followed by Yes.
The display will show for example:-
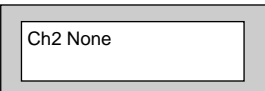
> Ch1 001

66) To add more Zones to Ch1 repeat from Step 64.

67) When you have finished adding Zones to Ch-1 press Yes.

68) The display will show:-

> Ch2 None

69) If you do not wish to enter CH-2 Zones press Yes and jump to Step 74.
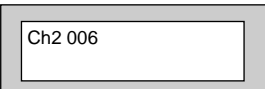
Otherwise

70) Press No. The display will show:-

> Enter Zone # _ _ _
> then +YES or -NO

71) Enter the Zone number you require for Ch2 followed by Yes.
The display will show for example:-

> Ch2 006

72) To add more Zones to Ch2 repeat from Step 70.

73) When you have finished adding Zones to Ch2 press Yes

74)   The display will show:-

```
Walk   None
```

Zone programmed as Walk will have to be Walk Tested before the system will start to Set. The Option 'Walk' must also be programmed to On in the Zone E/E Mode section.

75)   If you do not wish to enter Walk Zones press Yes
       and jump to Step 80.

       Otherwise

76)   Press No. The display will show:-

```
Enter Zone # _ _ _
then +YES or -NO
```

77)   Enter the Zone number you require for Walk
       followed by Yes.
       The display will show for example:-

```
Walk   002
```

78)   To add more Zones to Walk repeat from Step 80.

79)   When you have finished adding Zones to Walk
       press Yes. The display will show:-

```
Sec. None
```

       Secondary Zones:
       Zones programmed as secondary will not active any sounders or comms until
       a normal zone activates.
       This will then trigger a confirmed signal and activate the sounders as
       programmed.

80)   If you do not wish to enter Sec. Zones press Yes
       and jump to Step 85.

       Otherwise

81)   Press No. The display will show:-

```
Enter Zone # _ _ _
then +YES or -NO
```

82)   Enter the Zone number you require for Sec.
       followed by Yes.
       The display will show for example:-

```
Sec.   002
```

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83)   To add more Zones to Sec. repeat from Step 81.

84)   When you have finished adding Zones to Sec.
        press Yes. The display will show:-

```
Per.  None
```


Perimeter Zone:
Zones programmed as perimeter will activate the alarm as normal but will also
activate a comms channel programmed as perimeter.

85)   If you do not wish to enter Per. Zones press Yes
        and jump to Step 90.

        Otherwise

86)   Press No. The display will show:-

```
Enter Zone # _ _ _
then +YES or -NO
```

87)   Enter the Zone number you require for Per.
        followed by Yes.
        The display will show for example:-

```
Per.  002
```


88)   To add more Zones to Per. repeat from Step 86.

89)   When you have finished adding Zones to Per.
        press Yes. The display will show, for example:-

```
Test  None
```


90)   Press 0 (zero), then No. The display will show:-

```
Program  Zone
DKnock / Arm / Log  ?
```


DKnock/Arm/Log:
Zones on double knock are required to activate twice within the double knock
time window or stay active for fifteen seconds to generate an alarm condition.

Arm is used to program the zones to automatically re-arm after an activation.
It should be noted that a zone still violated when the system times out after
an alarm, will not re-armed.

91) Press Yes. The display will show:-

```
Zone  Re-Arm    =On
D/Knock  time  =01m
```

92) Press No to change the setting, followed by Yes
The display will show:-

```
Zone  Re-Arm    =Off
D/Knock  time  >01m
```

93) Press No. Enter the Time required for the double
knock time window, e.g. 5. The display will show:-

```
Zone  Re-Arm    =Off
D/Knock  time  >05m
```

94) Press Yes. The display will show:-

```
Zone  Log  Limit
: On
```

*Note: Zone Log Limit is defaulted to On and may not be changed. Only five activations from any
one zone will be recorded in the log during any set period.*

95) Press Yes. The display will return to:-

```
Program  Zone
DKnock / Arm / Log  ?
```

96) At this point you may press No to move to
the next option. The display will show:-

```
Program  Zone
E/E mode  ?
```

Or press 0 (zero) repeatedly to exit.

97) With the display showing:-
Press Yes.

```
Program  Zone
E/E  mode  ?
```

98) The display will show:-

```
E/E  Zones
=E/E    in Part
```

Note:
E/E *in part set entry exit zones will start the entry timer if opened in part set.*

12Hr *in part set entry exit zones will be instant when opened in part set.*

99) Press No until your required setting is displayed, then press Yes. The display will show:-

```
Walk = Off
Bypass = 00   Mins
```

Available Options for Forced Walk Test are.

All Sets.   All Area/Part sets will require the zones allocated in the walk test options to be tested.

Full Only.   In Part-Set Walk Test is not required.

Off.   Forced Walk Test is disabled.

100) Press No until your required setting is displayed, then press Yes. The display will show:-

```
Walk = Off
Bypass = >00   Mins
```

Note:
Bypass. Is programmed in ten minute increments. (If the system is Unset and Set within this bypass time, the forced Walk Test is not required).

101) Press No to enter your required time, followed by Yes.The display will show:-

```
Program  Zone
E/E  mode  ?
```

102) At this point you may press No to move to the next option. The display will show:-

```
Program  Zone
Event  Tags  ?
```

Or press 0 (zero) repeatedly to exit.

Reporting a Mains Fail on a PSU.

In order to report a Mains Fail on a PSU the Fault output on the PSU would be wired to a Zone on the Control Panel.

```
Program  Zone
Event  Tags  ?
```

The Zone Type would be programmed as 'Fault'.

Program the Zone Descriptor as External PSU.

At the end of the Program Zones menu we have a menu called Program Events Tags, enter this option and select the Zone number you have programmed as Fault.

Program the Tag as Mains Fail. Then program a Digi Channel as Mains Fail.
This will allow for full reporting of External PSUs.

This concludes the Step by Step instruction for the Zone Programming.

103)   When you have finished programming zones, press
         0 (zero) until the display shows:-

01 Jan   00: 00: 01
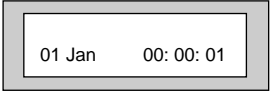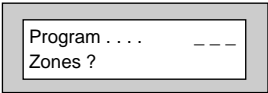
Programming Setting Modes

Setting Modes are the modes that the control panel will use to set the system for a particular type of set. An example of this may be that the Full Set Modes is programmed as Final Exit Door (door opening and closing during exit will set te panel) whilst the Setting Mode for Part Set 1 is timed. Each type of Set (Full, Part 1, Part 2, Part 3) may have its own Setting Mode.

1)   Enter into Engineer Mode
      To do this follow Steps 1 to 4 on page 79
      With the display showing:-
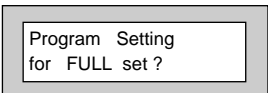
```
Program . . . .       _ _ _
Zones ?
```

2)   Press No. The display will show:-
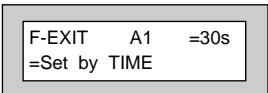
```
Program . . . .       _ _ _
Setting  Modes ?
```

3)   Press Yes. The display will show:-

```
Program   Setting
for   FULL  set ?
```

4)   Press Yes. The display will show:-
      (A1 indicates Area 1).
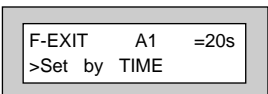
```
F-EXIT      A1      =30s
=Set  by  TIME
```

5)   Press No **twice**. The display will show:-

```
F-EXIT      A1      >_ _s
=Set  by  TIME
```

6)   Enter the time you require as the Exit Time
      (in seconds), followed by Yes.
      The display will show, for example:-

```
F-EXIT      A1      =20s
>Set  by  TIME
```

7) Use the No key to scroll through the Setting Modes.

Options available for Setting Modes are.

Set By Time   The system will Set after the Time shown in the
Exit Time.

Set By ET   The system will set when the Exit Terminator Button
outside the premises is pushed. (This option will require
a Zone to be programmed as Exit Terminator).

Set By E/E   Once the user has started to Set the system, the Exit Tones
will continue until the Final Exit Door is opened then closed.
This option will require a Door Contact.

Set By Time+E/E   Once the user has started to Set the system, the system
will Set on either the Time expiring or the door opening and
closing. This option may require a Door Contact.

8) When the Setting Mode you require is displayed,
press Yes. The display will show:-

```
F-EXIT      A2     =30s
=Set  by  TIME
```

9) Repeat for all Areas. After Area 7, the display
will show:-

```
Program Setting
for FULL set ?
```

10) Press No. The display will show:-

```
Program Setting
for PART 1 set ?
```

11) Press Yes. The display will show:-

```
P1-EXIT     A1     =30s
=Set  by  TIME
```

12) Press No **twice**. The display will show:-

```
P1-EXIT     A1     >_ _s
=Set  by  TIME
```

13) Enter the time you require as the Exit Time
(in seconds), followed by Yes.
The display will show, for example:-

```
P1-EXIT     A1     =20s
>Set  by  TIME
```

14)   Use the No key to scroll through the Setting Modes.

15)   When the Setting Mode you require is displayed
          press Yes. The display will show:-

```
P1-EXIT   A2     =20s
=Set  by   TIME
```

16)   Repeat for all Areas. After Area 7, the display
          will show:-

```
Program Setting
for PART 1 set ?
```

17)   Press No. The display will show:-

```
Program Setting
for PART 2 set ?
```

18)   Press Yes. The display will show:-

```
P2-EXIT   A1     =30s
=Set  by   TIME
```

19)   Press No **twice**.

20)   Enter the time you require as the Exit Time
          (in seconds), followed by Yes.
          The display will show, for example:-

```
P2-EXIT   A1     = 20s
>Set  by   TIME
```

21)   Use the No key to scroll through the
          Setting Modes.

22)   When the Setting Mode you Require is displayed
          press Yes. The display will show:-

```
P2-EXIT   A2     = 30s
=Set  by   TIME
```

23)   Repeat for all Areas. After Area 7, the display
          will show:-

```
Program Setting
for PART 2 set ?
```

24)   Press No. The display will show:-

```
Program Setting
for PART 3 set ?
```

25)   Press Yes. The display will show:-

```
P3-EXIT    A1      =30s
=Set   by   TIME
```

26)   Press No **twice**. The display will show:-

```
P3-EXIT    A1      >_ _s
=Set   by   TIME
```

27)   Enter the time you require as the Exit Time
        (in seconds) followed by Yes.
        The display will show, for example:-

```
P3-EXIT    A1      =20s
>Set   by   TIME
```

28)   Use the No key to scroll through the
        Setting Modes.

29)   When the Setting Mode you require is displayed
        press Yes. The display will show:-

```
P3-EXIT    A2      =30s
>Set   by   TIME
```

30)   Repeat for all Areas. After Area 7, the display
        will show:-

```
Program Setting
for PART 3 set ?
```

31)   Press No. The display will show:-

```
Program Setting
Delay ?
```

32)   Press Yes. The display will show:-

```
Final Set Delay
= 03s
```

The Final Set Delay is a period of Time in Seconds after the expiry of the Exit Time and is intended to allow any PIRs for example that are on the Exit Route to settle before the system finally Sets. The majority of PIRs will settle within the Default Time of 3 seconds but some may need a Final Setting Delay of up to 10 seconds.

33) Press No **twice**. The display will show:-

```
Final Set Delay
> _ _
```

34) Enter the Time required (in seconds) followed
by Yes. The display will show:-

```
Program Setting
Delay ?
```

35) Press No. The display will show:-

```
Program Setting
Sounders ?
```

The Setting Sounders option determines if any, or all Part Sets are audible (Exit Tones) or not. This is a useful feature when part of the family may already be asleep when the system is being Part Set.

36) Press Yes.The display will show:-

```
Exit Sounder . .
= Always Audible
```

37) Press the No key to scroll through the options.

Options available for Setting Sounders are.

Always Audible   Exit Sounder will be audible for all Part Sets

Silent If Part 1   Exit Sounder will be silent during a Part 1 Set

Silent If Part 2   Exit Sounder will be silent during a Part 2 Set

Silent If Part 3   Exit Sounder will be silent during a Part 3 Set

Always Silent   Exit Sounder will be silent during ANY Part Set

When using a silent Part Set a single beep will be heard at the end of the Exit Time to confirm the system has Set.

38) When you have the required setting displayed
press Yes. The display will show:-

```
Program Setting
Sounders ?
```

39)   Press No. The display will show:-

```
Program Setting
Confirmation ?
```

Setting Confirmation uses the Strobe Light to confirm that the system has finally set.

40)   Press Yes. The display will show:-

```
Strobe Confirm
= Off
```

41)   Press the No key to scroll through the options.

Available options for Strobe Confirm are.

Off   Strobe Confirm is turned Off

Full-Set   The Strobe will Confirm only on a Full Set

Any-Set   The Strobe will Confirm on Any Set (Full or Part)

42)   When the required setting is displayed press Yes.
        The display will show:-

```
Program Setting
Confirmation ?
```

43)   Press No. The display will show:-

```
Program Setting
for Auto-Part  ?
```

Auto Part Set allows the system to decide if the Setting should be Full Set or Part 1 Set. In order to use this option the Setting Mode for Full Set MUST be Time+E/E and a Door Contact must be fitted to the door.

If the system sees the door open and close during a setting procedure the system will Full Set.

If the system does not see the door open and close during a setting procedure the system will Part 1 Set.
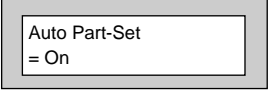
It is not possible to use Silent Part Sets with this option as the decision to do a Part 1 set is taken after the Entry Time has expired.

44) Press Yes. The display will show:-
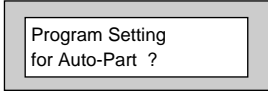
| Auto Part-Set |
| = Off |

45) To change this press No **twice**.
The display will show:-
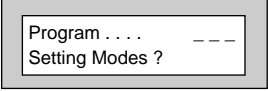
| Auto Part-Set |
| = On |

46) Press Yes. The display will show:-

| Program Setting |
| for Auto-Part ? |

47) This concludes the programming for
Setting Modes. Press 0 (zero) to return to:-

| Program . . . .   _ _ _ |
| Setting Modes ? |

Or

Press 0 (zero) until the display shows:-

| 01 Jan   00: 00: 01 |

Programming Entry Times
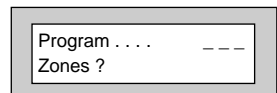
Two Entry Times are available (Entry Time 1 & Entry Time 2). On entry to the premises via the Entry Door Entry Time 1 will start. If deviation from Entry Route during Entry Time 1 then Entry Time 2 starts. Entry Time 2 is 30 seconds and cannot be changed. Note that comms cannot take place until the later of the theoretical expiry of Entry Time 1, or the expiry of Entry Time 2.

Note: **Entry Time 1** is defaulted to 30 seconds but maybe changed to a maximum of 45 seconds. **(EN2 / 3 Only)**.
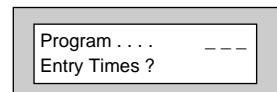
Note: **Entry Time 2** is defaulted to 30 seconds and may not be changed.

1)   Enter into Engineer Mode
       To do this follow Steps 1 to 4 on page 79
       With the display showing:-
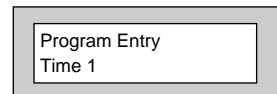
> Program . . . .   _ _ _
> Zones ?

2)   Press No **twice**. The display will show:-
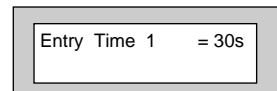
> Program . . . .   _ _ _
> Entry Times ?

3)   Press Yes. The display will show:-
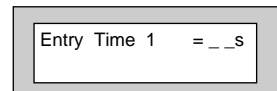
> Program Entry
> Time 1

4)   Press Yes. The display will show:-
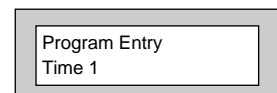
> Entry Time 1   = 30s

5)   Press No **twice**. The display will show:-

> Entry Time 1   = _ _s

6)   Enter the Time required (in seconds) followed by
       Yes. The display will show:-

> Program Entry
> Time 1

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7)   Press No. The display will show:-

> Program Entry
> Time 2 ?

8)   Press Yes. The display will show:-
      Note: Entry Time 2 is defaulted to 30 seconds and may not
      be changed.

> Entry Time 2 : 30s
> Warning Bell = On

> *Warning Bell. Default is set to On but may be changed to Off. If Warning Bell is On, then Bells will*
> *operate during Entry Time 2, after the theoretical expiry of Entry Time 1 has been reached. If set to*
> *Off, the bells will activate only when both Entry Time 1 and 2 have expired.*

9)   Press No to change the setting followed by Yes
      The display will show:-

> Program Entry
> Time 2 ?

10)   This concludes the programming for
      Entry Times. Press 0 (zero) to return to:-

> Program . . . .   _ _ _
> Entry Times ?

      Or

      Press 0 (zero) until the display shows:-

> 01 Jan   00: 00: 01

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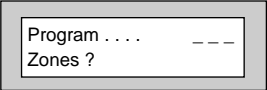
Programming Bells / Sounders

1)   Enter into Engineer Mode
To do this follow Steps 1 to 4 on page 79
With the display showing:-
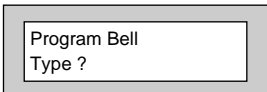
> Program . . . .   _ _ _
> Zones ?

2)   Press No **three times**. The display will show:-

> Program . . . .   _ _ _
> Bells / Sounders ?

3)   Press Yes. The display will show:-
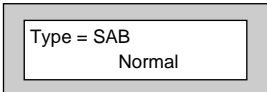
> Program Bell
> Type ?

4)   Press Yes. The display will show:-

> NovActive = Off

5)   This option should remain Off unless you are
using a NovActive Bell Box
Press Yes. The display will show:-

> Type = SAB
>   Normal

Two Types of Bell may be programmed.

SAB   Self Actuating Bell. The Bell + terminal stands at 12V and the Bell -
terminal switches negative on activation.

SCB   Self Contained Bell. The Bell + and Bell - stand at 12V and 0v. The
0V is removed on activation.

**The majority of Bells sold in the UK are SAB. You should only change the Bell
Type if you are sure the Bell Type you have is SCB.**

The other option on this screen may be programmed as

Normal   Normal UK trigger for the UK

Irish   A 4k7 resistor is required in the tamper return line at the bellbox this
option is only required for the Irish Republic.

6)   Press Yes. The display will show:-

```
Program Bell
Type ?
```

7)   Press No. The display will show:-

```
Program Bell
Delay / No. Arms ?
```

8)   Press Yes. The display will show:-
        (Delay 1 indicates Area 1).

```
Bell Delay1 = 00 m
No. Arms = 99
```

9)   Press No **twice**. The display will show:-

```
Bell Delay1 = _ _ m
No. Arms = 99
```

10)   Enter the number of minutes you require for the
        Bell Delay followed by Yes.
        The display will show:-

```
Bell Delay = 00 m
No. Arms > 99
```

   Note: Bell Delay is defaulted to 0 but maybe programmed to a maximum of 10 minutes.

**Be careful when using Bell delay, the Bell will not sound for the period
programmed after the alarm has been activated. Bell Delay used to be a Police
requirement, but is now not often used in the UK.**

11)   Press No.The display will show:-

```
Bell Delay = 00 m
No. Arms > _ _
```

**Number of Arms is the number of times the bell is capable of sounding during a
Set period. It is normal to set this option to 3 or 4, If left at 99 the number of
Arms is infinite.**

   Note: If this option is programmed to 0 the Bell will not activate.

12)   Enter the required Number of Arms followed by
        Yes.

13)   Repeat Delay programming for all 7 Areas.
        The display will show:-

```
Program Bell
Delay / No. Arms ?
```

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14)   Press No. The display will show:-

```
Program Bell
& Sounder Ring ?
```

15)   Press Yes. The display will show:-
(Ring 1 indicates Area 1).

```
Bell  Ring1  = 10 m
Sounder  =  Constant
```

16)   Press No **twice**. The display will show:-

```
Bell Ring1 = _ _ m
Sounder = Constant
```

17)   Enter the Bell Ring Time you require(in minutes)
followed by Yes. The display will show:-

```
Bell Ring1 = 15 m
Sounder > Constant
```

*Note: Bell Ring is defaulted to 10 minutes and is programmable from a minimum of 1 minute to a
maximum of 15 minutes.*

**The term Sounder refers to the Internal Speakers fitted to the system and also
the speaker(s) fitted to the RKPs**

Options available for Sounder are.

Constant   Will continue after the Bell Time has elapsed.

Timed   Will Time out with the Bell Time

18)   Press No until your required setting is displayed
then press Yes. The display will show:-

```
Strobe Timer
= 000 m
```

**The Strobe light will normally continue after the Bell Time has elapsed. You may
time the Strobe if required. To do so.**

19)   Press No **twice**. The display will show:-

```
Strobe Timer
= _ _ _ m
```

20)   Enter the time required (in minutes) followed by
Yes.

21)   Repeat Bell Ring for all 7 Areas.
The display will show:-

```
Program Bell
& Sounder Ring ?
```

Note: Strobe Timer is defaulted to 0 minutes but is programmable to a maximum of 120 minutes.

22) Press No. The display will show:-

```
Program Bell
Tamper Mode ?
```

23) Press Yes. The display will show:-

```
Bell Tamper Ring
= On
```

With the Bell Tamper Ring On, tampering the Bell Box will also trigger the Bell Output from the control panel. With Bell Tamper Ring Off, the Bell Trigger from the panel is not activated.

24) Press No until your required setting is displayed, then press Yes. The display will show:-

```
Program Bell
Tamper Mode ?
```

25) Press No. The display will show:-

```
Program Bell
for Part-Set ?
```

26) Press Yes. The display will show:-

```
Part-Set Bells
= On
```

27) Press No until the required setting is displayed, then press Yes. The display will show:-

```
Program Bell
for Part-Set ?
```

28) This concludes the programming for Bells & Sounders. Press 0 (zero) to return to:-

```
Program . . . .    _ _ _
Bells / Sounders ?
```

Or

Press 0 (zero) until the display shows:-

```
01 Jan      00: 00: 01
```

Programming Keypad

Up to 8 RKPs (Remote Keypads) may be fitted to the GardTec *816 / 872* control panels on a 6 wire connection (4 on the *800* control panel). If more than four keypad are to be used, then 'Mult' (Program Keypad) has to be selected to ON *(816 / 872 only)*. For information on how to wire the keypad please refer to the back of this manual.

1)   Enter into Engineer Mode.
        To do this follow Steps 1 to 4 on page 79
        With the display showing:-

```
Program . . . .      _ _ _
Zones ?
```

2)   Press No **four times**. The display will show:-

```
Program . . . .      _ _ _
Keypad / Kyswitch ?
```

3)   Press Yes. The display will show:-

```
Program   Keypad
Alert  1   keys ?
```

Alert 1 Keys refers to Keys 1&3 pressed together.

4)   Press Yes. The display will show:-

```
Alert  1  =Off
1&3  Keys =Off
```

5)   Press the No Key to scroll through the settings
        for Alert 1 **(Alert 1, 1& 3 Keys)**.
        When the settings you require are displayed press
        Yes. The display will show:-

```
Program   Keypad
Alert  1   keys ?
```

6)   Press No. The display will show:-

```
Program   Keypad
Alert  2   keys ?
```

7)   Repeat for the remaining Alerts 2 and Function keys (Alert 3).

Alert 2 Keys refer to Keys 7&9 pressed together.
Function Keys refer to the two recess Keys pressed together ⛨⛨ *(Alert 3).*

Note: *Function Keys (Recess Keys, Keypad Part No 01152PA) should only be programmed as <u>Panic</u>.*

8)	With the display showing:-
	Press No.

```
Program   Keypad
Function Keys ?
```

9)	The display will show:-

```
Program Keypad
No.  &  Keyswitch ?
```

This option is used to program the Number of Keypads you have on the system and whether a Keyswitch has been selected. It should be noted the there are 4 jumpers in the RKP to ident them, for example the jumper on RKP 1 should be placed in the A1 position and on RKP 2 it should be placed in A2 position and so on.

10)	Press Yes. The display will show:-

```
Kpad = 01      Mult = Off
Keyswitch = Off
```

The Multi option is only used when more than 4 RKPs are fitted to the system. You may only program up to 4 RKPs, if for example you have 8 RKPs you would program the system for 4 and turn the Multi option On. You would then have 2 RKPs with the jumper in the A1 position, 2 RKPs with the jumper in the A2 position and so on.

11)	Press No **twice**. The display will show:-

```
Kpad > _ _      Multi = Off
Keyswitch = Off
```

12)	Enter the number of RKPs fitted (1 to 4 see
	note above). Followed by Yes.
	The display will show, for example:-

```
Kpad = 04      Multi > Off
Keyswitch = Off
```

13)	Press No until the required setting is displayed
	for the Multi option (see note above). Then press
	Yes. The display will show:-

```
Kpad = 04      Multi = Off
Keyswitch > Off
```

Options available for Keyswitch are.

Off	Keyswitch not fitted.

Biased	Momentary type keyswitch.

Normal	Keyswitch type may be Open/Close.

Locked	Keypads locked when used.

14)	Press No until the required setting is displayed. Then press Yes. The display will show:-	Program Keypad No. & Keyswitch ?
15)	Press No. The display will show:-	Program Keypad Backlight Mode ?
16)	Press Yes. The display will show:-	Backlight . . . = On if EE/Key
17)	Press No until the setting you require is displayed. Then press Yes. The display will show:-	Program Keypad Backlight Mode ?
18)	Press No. The display will show:-	Program Keypad ACE/Prox ?
19)	Press Yes. The display will show:-	ACE Installation = Auto - Only

Options available are.

Auto Only   ACE units will be auto recognised when programming them onto the system.

Auto/Manual   The system will ask 'Is this Code For ACE' when programming codes onto the system.

20)	Press No until the required setting is displayed then press Yes. The display will show:-	Prox Tamp. Detect =Off
21)	Press No until the required setting is displayed then press Yes. The display will show:-	Program Keypad ACE/Prox ?
22)	This concludes the programming for Keypad. Press 0 (zero) to return to:-	Program . . . . _ _ _ Keypad / Kyswitch ?
	Or	
	Press 0 (zero) until the display show:-	01 Jan 00: 00: 01

Programming Digicom / STU Adaptor

Within this section we will program the Digicom and Modem. The Digi or DigiModem is an integral part of the main PCB. Only the main functions will be covered within this Step by Step Guide.

Digicom Type   Mod+F/F
Modem Mode   No Return

This will allow for connection to GardTec Remote for programming functions.

1)   Enter into Engineer Mode
          To do this follow Steps 1 to 4 on page 79
          With the display showing:-

```
Program . . . .       _ _ _
Zones ?
```

2)   Press No **five times**. The display will show:-

```
Program . . . .       _ _ _
Digicom ?
```

3)   Press Yes. The display will show:-

```
Program Digicom
Type or Test ?
```

4)   Press Yes. The display will show:-

```
Digicom Type . . . .
=None
```
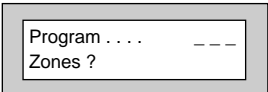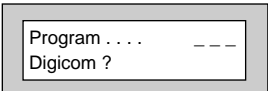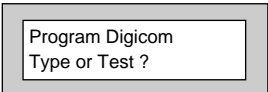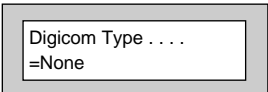
Digicom Types available are.

None   No Comms, Bells only.

Gardiner   Prodigi Comms.

Normal   Output for Red Care.

Note: *To enable the STU adaptor, the Digicom type needs to be set to one of the following:-*

Mod+F/F   Modem enabled and Ademco Fast Format Central
                            Station protocol enabled.

Mod+PID   Modem enabled and Point ID Central Station protocol
                            enabled.

For programming details on PID (Point ID Protocol) please refer to page 160.

5) Press No until the required option is displayed. Then press Yes. The display will show:-
Note: This step by step tutorial assumes Mod + F/F has been selected.

```
STU Adaptor
=Off
```

7) Press No **twice** to turn the STU adaptor On. The display will show:-

```
STU Adaptor
>On
```

8) Press Yes. The display will show:-
Press No until the required option is displayed. Then press Yes.
Note: Pos:- STU Adaptor Ch. O/Ps & Pin 11 (ATS) are + 5V active.
Neg:- STU Adaptor Ch. O/Ps & Pin 11 (ATS) are 0V active.

```
STU Adaptor O/P
=Pos
```

9) The display will show:-
Press No until the required option is displayed. Then press Yes.
Note: Pos:- RC Reset (Pin 6), FTC (Pin 7), LF (Pin 15) are +5V active.
Neg:- RC Reset (Pin 6), FTC (Pin 7), LF (Pin 15) are 0V active.

```
STU Adaptor I/P
=Pos
```

10) The display will show:-
Leave as default when connecting to a STU.

```
STU Adaptor  Pin 7
=Power  O/P
```

11) Press Yes. The display will show:-
Testing the channels should be conducted after the STU has been configured and enabled.

```
Test  Digicom
Channels  ?
```

12) Press Yes. The display will show:-

```
Make a STU
Test Call  ?
```

13) Press Yes. The display will show:-

```
Test  Chan.   is  On
Restore  ?
```

*Note: An extra channel **(channel 9)** is available and will be shown when programming channels or testing channels. **This will only be displayed if the STU has been selected to ON**.*

Note: STU Adaptor will work in parallel with normal comms device. E.g. MOD+xxx.

When programming as MOD+PID or MOD+SIA then programming for both the Digi channels and the triggers will be available.

Remote Reset from the STU input (pin 6) can reset the Control Panel provided that the STU Adaptor option is ON and Remote Reset is ON.

---

14) Press Yes. The display will show:-

```
Chan.    123456789
On/Off   000000000
```

Pressing the appropriate button will test the relevant channel. E.g. 3. That channel is now active showing that a signal is being transmitted.

Pressing 3 again will reset that channel.
Testing is now complete.

---

15) To escape press **0**. The display will show:-

```
Program Digicom
Type or Test ?
```

16) Press No. The display will show:-

```
Program Digicom
Delay / Part  ?
```

17) Press Yes. The display will show:-

```
Fire Zone Delay
=90 Secs
```

18) Press No **twice**. The display will show:-

```
Fire Zone Delay
> -- Secs
```

19) Enter the number of seconds you require for the Fire Zone Delay, followed by Yes. The display will show:-

```
Digi  Delay  = 00s
Part - Alarm  = On
```

20) Press No **twice**. The display will show:-

```
Digi Delay = _ _s
Part - Alarm = On
```

21) Enter the number of seconds you require for
the Digi Delay in Part Set, followed by Yes.
The display will show, for example:-

```
Digi Delay = 99s
Part - Alarm > On
```

22) Press No until the required setting is displayed,
then press Yes. The display will show:-

```
Program Digicom
Delay  /  Part ?
```

With Digi Delay programmed, the alarm transmission to Central Station will be delayed for the number of seconds programmed.

With Part Alarm programmed to Off there will be no transmission of Alarm, Alarm B or Alarm Abort if the system is Part Set.

23) Press No. The display will show:-

```
Program Digicom
Channels  ?
```

24) Press Yes. the display will show:-

```
D1  =Off
D2  =Off
```

25) Press No until the required option is displayed.
Then press Yes.

```
D3  =Panic
D4  =Alarm
```

26) Repeat step 25 for the remaining channels.

Note: D1 - D4 are panel outputs and are not required for the STU Interface.

27) Once complete the display will show:-

```
Channel  Start
=Neg
```

28) Press No until the required setting is displayed,
then press Yes. The display will show:-

```
Ch1 = Off
Ch4 = Off
```

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When programming Digicom Channels Channel 1 is normally Fire, Channel 2 is normally PA, Channel 3 is normally Alarm (unconfirmed) and Channel 4 is normally Open/Close.

Channels 5, 6, 7 & 8 will be advised by your Central Station.

Other signals you may require for DD243 are.

Alarm Abort
Zone Exclude
Alarm B (Confirmed)

Channel settings available are.

Off
Zone 24Hr
Gen. Tamper
Alert
Fire
Part-Set
Open/Close
Panic
Alarm
Alarm B
Alarm Abort
Power Fail
Watchdog
Mains Fail
Perimeter
Zone Exclude
Const. Lo-Bat   (Radio)
Radio Lost   (Radio)
Const. Jam.   (Radio)
Any Fault
Any Mask
Power Fail Latch
Area 1 to 7 variations of the above will also be displayed.
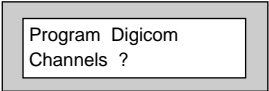
29)   Press No until the required setting is displayed.

30)   Press Yes. The display will show, for example:-

```
Ch1 = Fire
Ch4 >Off
```
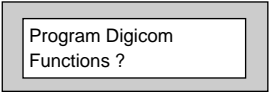
31) Press No until the required setting is displayed.

32) Press Yes and repeat as above for the remaining channels 4 - 9 followed by Yes. The display will show:-
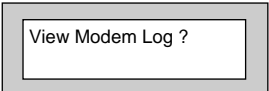
```
Program  Digicom
Channels  ?
```

33) Press No. The display will show:-
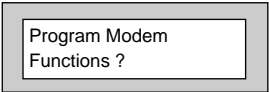
```
Program Digicom
Functions ?
```

34) Press Yes. The display will show:-
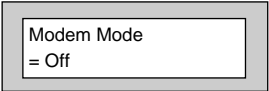
```
View Modem Log ?
```

35) Press No. The display will show:-

```
Program Modem
Functions ?
```
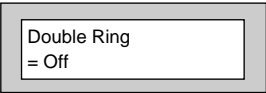
36) Press Yes. The display will show:-

```
Modem Mode
= Off
```

Choose from the following settings.

No Return   Communication to the panel is from GardTec Remote via
Patch Lead or PC Modem.

Return PC   The panel will ring the PC back on the number the PC has passed
to the panel.

**Return
#1 or #2**   The panel will ring back the PC on the #1 or #2 number programmed
into the panel.

Return #1 Only   The panel will ring back the PC on the #1 number programmed
into the panel.

Return #2 Only   The panel will ring back the PC on the #2number programmed
into the panel.

From Site Only   Remote Access will be initialised by the user On-Site.

Off   Modem Functions are disabled.
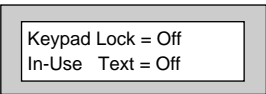
37)   Press No until the required setting is displayed,
then press Yes. The display will show:-

> Double Ring
> = Off

**This option may be used when the panel is on a shared line and GardTec
Remote is also used**.
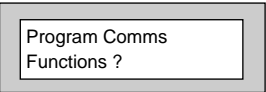
38)   Press No until the required setting is displayed,
then press Yes. The display will show:-
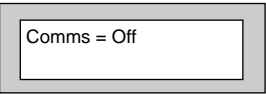
> Keypad Lock = Off
> In-Use   Text = Off

You may continue to program other Modem options if required. For the purpose of this
Step by Step Instruction.

39)   Press 0 (zero). The display will show:-

> Program Comms
> Functions ?

40)   Press Yes. The display will show:-

> Comms = Off

41) Press No **twice**. The display will show:-

```
Comms  > On
```

42) Press Yes. The display will show, for example:-

```
Site ID Code
Is Un-Programmed
```

In the UK the Site ID Code is normally a four digit number, your Central Station may have supplied you with a six digit number. If this is so, please use the last four digits.

43) Press No. The display will show:-

```
Site ID Code
_ _ _ _ _ _ _ _
```

44) Enter your Site ID Code followed by Yes.
The display will show:-

```
Phone Number 1
is Un-Programmed
```

We will be entering two Phone Numbers. If your Central Station has only supplied you with one Phone Number, please use the same one twice.

45) Press No. The display will show:-

```
Phone Number 1
_ _ _ _ _ _ _ _ _ _ _ _
```

46) Enter Phone Number one followed by Yes.
The display will show:-

```
Inhibit Display
of New Number ?
```

47) Press Yes. The display will show:-

```
Phone Number 2
is Un-Programmed
```

48) Press No. The display will show:-

```
Phone Number 2
_ _ _ _ _ _ _ _ _ _ _ _
```

49)   Enter Phone Number 2 followed by Yes.
        The display will show:-

```
Inhibit Display
of New Number ?
```

50)   Press Yes. The display will show:-

```
Line Monitor
= Tone + Volts
```

This option refers to the line mode of the telephone line. In the UK most telephone lines are Tone Dial.

Settings available for Line Monitor are.

Tone + Volts   The Line Monitor will check the Dial Tone and the Line Voltage **This setting should be used when the control panel is connected to a dedicated telephone line.**

Off   Line Monitor is turned Off

Dial Tone   The Line Monitor will only monitor the Dial Tone. **This setting should only be used on a dedicated telephone line.**

Line Volts   Then Line Monitor will monitor the Line Voltage. **This setting should be used when the control panel is connected to a telephone line that has other telephone equipment on it (shared line).**

51)   Press No until the required setting is displayed,
        then press Yes. The display will show:-

```
Line Security
= High
```

Settings available for Line Security are:-

High   The Line Voltage is monitored at a High Level. **This setting should be used on dedicated lines only.**

Low   The Line Voltage is monitored at a Low Level. **This setting should be used when the control panel is sharing the line with other telephone equipment.**

52) Press No until the required setting is displayed
then press Yes. The display will show:-

```
Channel 1 2 3 4 5 6 7 8
R/Rep = 0 0 0 1 0 0 0 0
```

This option determines what Digi Channels will send a Restore Signal to Central Station when the system is Reset. Most Central Stations will require a Restore Report for all channels.

53) Press No. The display will show:-

```
Channel 1 2 3 4 5 6 7 8
R/Rep = _ _ _ _ _ _ _ _
```

54) Enter **eight** ones so the display shows:-

```
Channel 1 2 3 4 5 6 7 8
R/Rep = 1 1 1 1 1 1 1 1
```

55) Press Yes. The display will show:-

```
Open/Close
Channel/s = 4
```

Channel 4 normally needs an inversion of the signal that is sent to Central Station. By having 4 as the setting for this option channel 4 will be inverted. If you have reports from the Central Station that the Open/Close channels are the wrong way around proceed as follows to remove the inversion on the control panel.

56) If you do not need to change this option, press
Yes and jump to Step 58.

Or

To change the setting. Press No.
The display will show:-

```
Open/Close
Channel/s > _ _
```

57) Press 0 followed by Yes. The display will show:-

```
Program Advanced
Functions ?
```

Note: For EN requirements, a Test Call *MUST* be sent to the Central Station once every 24 Hrs. This can be found under advanced function, under Test Call Time.

You may continue to program other Advanced options if required. For the purpose of this Step by Step Guide.

58)   Press 0 (zero) **five** times. The Display will show:-

```
01 Jan      00: 00: 01
```
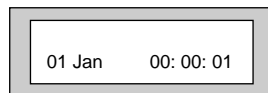
Programming Linefault Modes

1) Enter into Engineer Mode
   To do this follow Steps 1 to 4 on page 79
   With the display showing:-

   ```
   Program . . . .      _ _ _
   Zones ?
   ```

2) Press No **six times**. The display will show:-

   ```
   Program . . . .      _ _ _
   Linefault Modes ?
   ```

3) Press Yes. The display will show:-

   ```
   Program Linefault
   Sounders ?
   ```

4) Press Yes. The display will show:-

   ```
   Linefault Sounders
   = ON  if  Un-Set
   ```

5) Press No until the required setting is displayed
   then press Yes. The display will show:-

   ```
   Program Linefault
   Sounders ?
   ```

6) Press No. The display will show:-

   ```
   Program Lineflt
   Mode in Exit ?
   ```

7) Press Yes. The display will show:-

   ```
   Lineflt Mode . . .
   = Detect  in  Exit
   ```

8) Press No until the display shows the required
   setting, then press Yes. The display will show:-

   ```
   Program Lineflt
   Mode in Exit ?
   ```

9)   Press No. The display will show:-

```
Program Lineflt
Log Mode ?
```

10)   Press Yes. The display will show:-
      Note: Line Fault is defaulted to Limited and may not be changed.
      This limit is set to 3 events.

```
Lineflt Log
: Limited
```

11)   Press Yes. The display will show:-

```
Program Lineflt
Log Mode ?
```

12)   Press No. The display will show:-

```
Program Lineflt
Detect Time ?
```

13)   Press Yes. The display will show:-

```
Detect
= 30 Secs
```

**With Detect programmed as 00 Linefault detection is instant or it may be delayed
if required**.

14)   Press No twice. The display will show:-

```
Detect
> _ _ Secs
```

15)   Enter the time you require (in seconds), followed
      by Yes. The display will show:-

```
Program Lineflt
Detect Time ?
```

16)   This concludes the programming for
      Linefault Sounders. Press 0 (zero) to return to:-

```
Program . . . .      _ _ _
Linefault Modes ?
```

      Or

      Press 0 (zero) until the display shows:-

```
01 Jan       00: 00: 01
```

Programming Panic / Duress

Note: Duress is defaulted to Off and cannot be changed. Duress 7 is now no longer available.

You should also check current legislation if Panic & Duress signals are allowed for the grade of system that you are fitting.
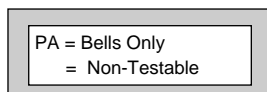
1)   Enter into Engineer Mode
        To do this follow Steps 1 to 4 on page 79
        With the display showing:-

```
Program . . . .      _ _ _
Zones ?
```
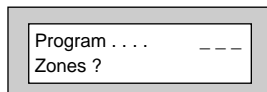
2)   Press No **seven times**. The display will show:-

```
Program . . . .      _ _ _
Panic / Duress ?
```

3)   Press Yes. The display will show:-

```
PA = Bells Only
   = Non-Testable
```
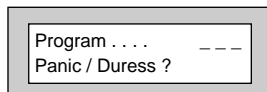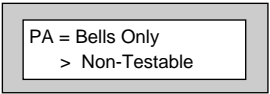
It should be noted that with PA = Bells Only no PA signals will be sent to Central Station.

Available setting for PA are

Bells Only   Activating a Panic will only sound the Bells.

Bells Always   Activating a Panic will Sound the Bells and send a signal
                          to Central Station provided that a Digi Channel is
                          programmed as Panic.

Silent Always   Activating a Panic will only send a signal to Central Station
                          providing that a Digi Channel has been programmed as
                          Panic.

Bells if LFlt   As Silent Always but will revert to Bells if a Linefault is
                          present.

4) Press No until the required setting is displayed then press Yes. The display will show:-
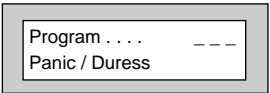
```
PA = Bells Only
   > Non-Testable
```

5) Press No until the required setting is displayed then press Yes. The display will show:-
Note: Duress is defaulted to Off and may not be changed.

```
Duress : Off
```

6) Press Yes. The display will show:-

```
Program . . . .      _ _ _
Panic / Duress
```

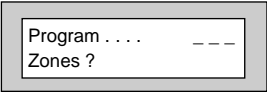7) Press 0 (zero) until the display shows:-

```
01 Jan      00: 00: 01
```

Programming Rly / PGM3 / Timers

PGM3 Refers to the Strobe terminal, if this is not used for the Strobe (for example if a NovActive Bell Box is used) it may be re-programmed for other uses.
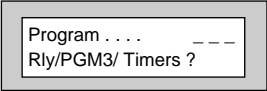
One timer is available on the *800*, *816* and three on the *872* control panel. It should be noted that the times programmed will operate seven days per week, you are not able to program separate time for weekends etc.

1)   Enter into Engineer Mode
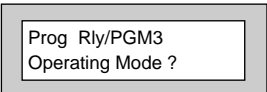To do this follow Steps 1 to 4 on page 79
With the display showing:-

```
Program . . . .      _ _ _
Zones ?
```

2)   Press No **eight times**. The display will show:-

```
Program . . . .      _ _ _
Rly/PGM3/ Timers ?
```

3)   Press Yes. The display will show:-

```
Prog  Rly/PGM3
Operating Mode ?
```

4)   Press Yes. The display will show:-

```
Relay
=Bell                =+V
```

Options available for Relay are.

Bell
Alert
Any-Fire
Any-Panic
Alarm   (Unconfirmed)
AlarmB   (Confirmed)
Alm Abort   (Alarm Abort)
O/C Cleaner
Cleaner Set
Gen.Tamper
Zone-24Hr
Part-Set

cont-
Strobe
Latch Any
Any Set
Power-Fail
Power OK
Const. LoBat   (Radio Low Battery)
Radio Lost   (Lost Radio Detector etc)
Const. Jamm.   (Radio Signal Jamming)
Any Fault
Any Mask
Watchdog
Mains-Fail
Any-Digi
Status
Perimeter
Zon Exclude
Custom 1- 8
Off
Timed 1 - 3
Any-Closed
Pulse Off
Pulse On
After Alarm
Walktest
Pulse Set
Int. Sounder
E/E

Area variants of the above will also be displayed.

5)   Press No. The display will show:-
        Choose from one of the options displayed. E.g. If 9
        is selected, the Relay will operate when ANY
        detector is triggered.

> Choose . .   1 - 7 = Area
> 8=All 9=Any

6)   The display will show:-

> Relay
> >Bell   =+V

7)   Press No until the required setting is displayed,
        then press Yes. The display will show, for example:-

> Relay
> =Bell   >+V

With the Relay programmed as Bell, the output will operate with the Bell when this is
set as +V. With this set as -V the output will be inverted e.g On, turning Off with the
Bell.

8) Press No until the required setting is displayed. Then press Yes. The display will show:-

```
PGM3  O/P
=Strobe          =+V
```

9) Repeat steps 5 - 8 for PGM3 O/P. The display will show:-

```
Prog Rly/PGM3
Operating Mode ?
```

10) Press No. The display will show:-

```
Program   Rly/PGM3
Timer 1   ON  Time ?
```

11) Press Yes. The display will show:-

```
Timer 1   ON   Time
= 00:00   Hrs
```

12) Press No **twice**. The display will will show:-

```
Timer 1   ON   Time
> _ _ : 00 Hrs
```

13) Enter the On Time hours, followed by Yes. The display will show:-

```
Timer 1   ON   Time
= 10:>00 Hrs
```

14) Press No. The display will show:-

```
Timer 1  ON   Time
= 10:>_ _ Hrs
```

15) Enter the On Time minutes, followed by Yes. The display will show:-
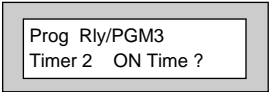
```
Prog Rly/PGM3
Timer 1  ON  Time ?
```

16) Press No. The display will show:-
Repeat for Timer 1 OFF Time.

```
Prog Rly/PGM3
Timer 1  OFF  Time ?
```

17) Press Yes. The display will show:-

```
Prog  Rly/PGM3
Timer 1  OFF  Time?
```

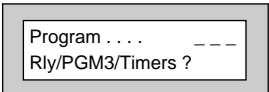18)   Press No. The display will show:-

```
Prog  Rly/PGM3
Timer 2    ON Time ?
```

19)   Repeat the sequence for Timers 2 & 3 On & Off Times.

20)   This concludes the programming for Rly / PGM3 / Timers.

21)   Press 0 (zero) to return to:-

```
Program . . . .        _ _ _
Rly/PGM3/Timers ?
```

or

Press 0 (zero) until the display shows:-

```
01 Jan        00: 00: 01
```

Programming Reset Modes

1)   Enter into Engineer Mode
To do this follow Steps 1 to 4 on page 79
With the display showing:-

```
Program . . . .     _ _ _
Zones ?
```

2)   Press No **nine times**. The display will show:-

```
Program . . . .     _ _ _
Reset / Mains ?
```

3)   Press Yes. The display will show:-
Note: Default is set at 20 minutes. Will delay the display and the
necessity to reset a mains fault for the time programmed.

```
Mains Fail Delay
=20m
```

4)   Press No **twice**, then enter the Mains Fail Delay
time you require.Then press Yes.
The display will show:-
This is Area 1 Reset Mode. Repeat for all
Areas used.
Note: This works in conjunction with Alarm Confirm Reset Mode.

```
Alarm1 Reset
= Master
```

5)   Press No until the required setting is displayed,
then press Yes. The display will show:-

```
Tamper Reset
= Eng. +Anti
```

6)   Press No until the required setting is displayed,
then press Yes. The display will show:-

```
Remote Rst = Off
Source = LF
```

Note: *If Remote reset is used in conjunction with RedCare the Remote Reset line to
the panel should be connected to Line Fault source terminal that has been selected.*
Not applicable when STU is used.

7)   Press No until the required settings are displayed,
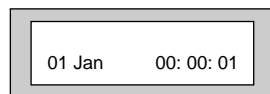then press Yes. The display will show, for example:-

```
Alrm Restore = Off
Abort Time = 60s
```

8)   Press No until the required abort time is set followed
by Yes. (0-180 seconds in increments of 20
seconds). The display will show:-

```
Program . . . .     _ _ _
Reset / Mains  ?
```

9)   This concludes the programming for Reset Modes.

10)   Press 0 (zero) until the display shows:-

01 Jan	00: 00: 01

Programming Sounder Levels

1) Enter into Engineer Mode
To do this follow Steps 1 to 4 on page 79
With the display showing:-

```
Program . . . .     _ _ _
Zones ?
```

2) Press No **ten times**. The display will show:-

```
Program . . . .     _ _ _
Sounder  Levels ?
```

3) Press Yes. The display will show:-

```
Program Sounder
Chime Level ?
```

4) Press Yes. The display will show:-

```
Chime Level . . . . .
= 05
```

5) Press No **twice**. The display will show:-

```
Chime Level . . . . .
= _ _
```

6) Enter a value 1 to 9 (1=Low 9=High) followed by Yes. The display will show:-

```
Program Sounder
Chime Level ?
```

7) Press No. The display will show:-

```
Program Sounder
Ent / Exit Level ?
```

8) Press Yes. The display will show:-

```
Ent / Exit Level
= 05
```

9)   Press No **twice**. The display will show:-

> Ent / Exit Level
> = _ _

10)   Enter a value 1 to 9 (1= Low 9 = High) followed by Yes. The display will show:-

> Program Sounder
> Ent / Exit Level ?

11)   Press No. The display will show:-

> Program Sounder
> Key Beep Level ?

12)   Press Yes. The display will show:-

> Key Beep Level . .
> = 05

13)   Press No **twice**. The display will show:-

> Key Beep Level . .
> = _ _

14)   Enter a value 1 to 9 (1 = Low 9 = High) followed by Yes. The display will show:-

> Program Sounder
> Key Beep Level ?

15)   This concludes the program Sounder Levels press 0 (zero) to move back to:-

> Program . . . .   _ _ _
> Sounder Levels ?

16)   Then Press 0 until the display shows:-

> 01 Jan   00: 00: 01
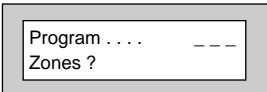
Programming Sens / Xp / Custom

Up to 8 custom output may be programmed. **(Model dependant)**.
A custom output may be used so that the output can follow a zone or a user code.

1)   Enter into Engineer Mode
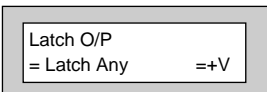   To do this follow Steps 1 to 4 on page 79
       With the display showing:-

```
Program . . . .      _ _ _
Zones ?
```

2)   Press No **eleven times**. The display will show:-

```
Program . . . .      _ _ _
Sens / Xp / Custom ?
```
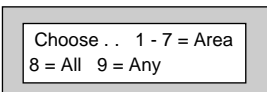
3)   Press Yes. The display will show:-
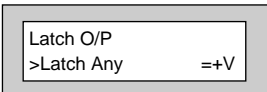
```
Latch O/P
= Latch Any        =+V
```

4)   Press No. The display will show:-
       Choose from one of the options displayed. E.g. If 9
       is selected Latch will operate when ANY detector
       is triggered.

```
Choose . .   1 - 7 = Area
8 = All   9 = Any
```

5)   The display will show:-

```
Latch O/P
>Latch Any        =+V
```
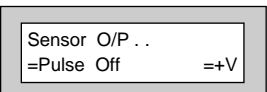
6)   Press No until the required setting is displayed,
       then press Yes. The display will show:-

```
Latch  O/P
=Latch  Any        >+V
```

With the Latch programmed as Latch Any, the output will switch high when this is set
as +V. With this set as -V the output will be inverted.

7)   Press No until the required setting is displayed
       then press Yes. The display will show:-

```
Sensor O/P . .
=Pulse  Off        =+V
```

8)   Press No. The display will show:-
             Choose from one of the options displayed.

```
 Choose . .  1 - 7 = Area
8 = All   9 = Any
```

9)   The display will show:-

```
Sensor  O/P . .
>Pulse  Off           =+V
```

10)   Press No until the required setting is displayed,
            then press Yes. The display will show:-

```
Sensor  O/P . .
=Pulse  Off          >+V
```

11)   Press No until the required setting is displayed,
            then press Yes. The display will show:-

```
Expander 1  O/P  1
=Off                 =+V
```

12)   Press No. The display will show:-
            Choose from one of the options displayed.

```
 Choose . .  1 - 7 = Area
8 = All   9 = Any
```

13)   The display will show:-

```
Expander 1    O/P  1
>Off                >+V
```

14)   Press No until the required setting is displayed
            then press Yes. The display will show:-

```
Expander 1    O/P  1
=Off                >+V
```

With Expander 1 programmed as Bell, the output will operate with the Bell when this is set as +V. With this set as -V the output will be inverted, e.g On, turning Off with the Bell.

15)   Repeat the sequence for Expanders O/P 2 - 4 if required.

16)   With the display showing:-
            Press Yes.

```
Expander 4    O/P  4
=Off                =+V
```

17)   The display will show:-
            Press No to change the Cus 1 to Zone, Code or
            Group as required to follow. Press Yes.

```
Cus 1 = Zone      #=000
=Day  = Fol+      t=00
```

18) The display will show:-

```
Cus 1 = Zone    #>000
=Day  = Fol+    t=00
```

19) Press No. The display will show:-

```
Cus 1 = Zone    #>_ _ _
=Day  = Fol+    t=00
```

20) Enter the Zone Number or Customer Number that you wish the output to follow. Then press Yes. The display will show for example:-

```
Cus 1 = Zone    #=009
>Day  = Fol+    t=00
```

21) Press No to select when you want the output to operate, followed by Yes. The display will show:-

```
Cus 1 = Zone    #=009
=Day  > Fol+    t=00
```

22) Press No until the mode you require is displayed, then press Yes. The display will show:-

```
Cus 1 = Zone    #>009
+Day  = Fol+    t>00
```
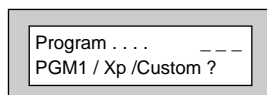
23) Press No. The display will show:-

```
Cus 1 = Zone    #>009
+Day  = Fol+    t> _ _
```

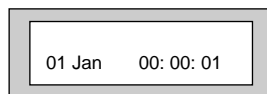24) Enter the time required, followed by Yes. The display will show:-

```
Cus 2 = Zone    #=000
=Day  = Fol+    t=00
```

The t = 00 setting only applies to Fol+
Fol- Pul+ Pul-

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25) Repeat Steps 17 to 25 until all the Custom
Outputs you require have been programmed.
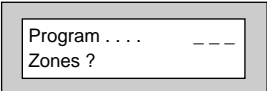When you have programmed Custom 8 the
display will show:-

```
Program . . . .        _ _ _
PGM1 / Xp /Custom ?
```

26) Press 0 (zero) until the display shows:-

```
01 Jan     00: 00: 01
```

Programming Engineer Code

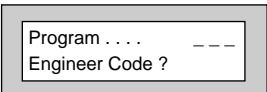1)   Enter into Engineer Mode
                 To do this follow Steps 1 to 4 on page 79
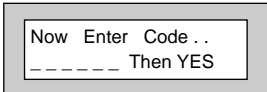   With the display showing:-

```
Program . . . .        _ _ _
Zones ?
```

2)   Press No **twelve times**. The display will show:-

```
Program . . . .        _ _ _
Engineer Code ?
```

3)   Press Yes. The display will show:-

```
Now   Enter   Code . .
_ _ _ _ _ _  Then YES
```
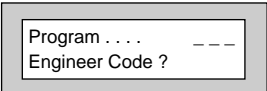
4)   Enter your New Engineer Code (4, 5 or six digits)
                 followed by Yes. The display will show:-

```
Code = Unlocked
```
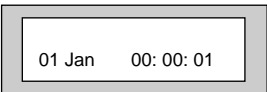
Be careful if you lock your code in. If the code is forgotten you may have to return the control panel to the factory to have it unlocked, this will be a chargeable service.

5)   Press No until the required setting is displayed,
                 then press Yes. The display will show:-

```
Program . . . .        _ _ _
Engineer Code ?
```

6)   This concludes the Program Engineer Code.
                 Press 0 (zero) until the display shows:-

```
01 Jan      00: 00: 01
```

Programming Service

Within this section you will program the Service Timer. The Service Timer has the ability to Lock a user out of the system when the Service Time expires. Trading Standards may take action if a Lockout occurs and no Service Contract exists. Please use with care.
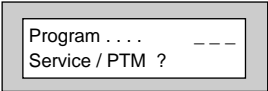
*Note: The PTM should only be used to transfer data between same model types i.e. 872 to 872. **NEVER** attempt to transfer data between different model types i.e 872 to 816 etc.*

1)   Enter into Engineer Mode
        To do this follow Steps 1 to 4 on page 79
        With the display showing:-
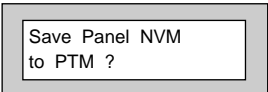
Program . . . .   _ _ _
Zones ?

2)   Press No **thirteen times**. The display will show:-

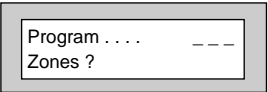| Program . . . .   _ _ _ |
|----------------|
| Service / PTM ? |

3)   Press Yes. The display will show:-
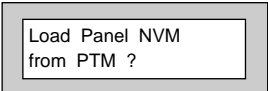
Save Panel NVM
to PTM ?

4)   Press Yes if you require to save to PTM.

        Otherwise

5)   Press No. The display will show:-
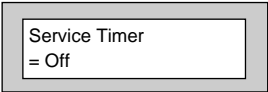
Load Panel NVM
from PTM ?

6)   Press Yes if you require to load from the PTM.

        Otherwise

7)   Press No. The display will show:-
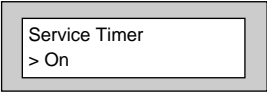
Service Timer
= Off

Note: To transfer data to and from the PTM a cable (part number - 04-091) will be required.
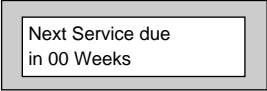
Note: When data transfer is in progress, the LED on the PTM will flash rapidly.

8)   Press No **twice**. The display will show:-
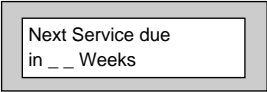
```
Service Timer
> On
```

9)   Press Yes. The display will show:-
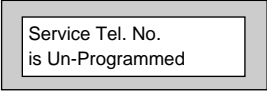
```
Next Service due
in 00 Weeks
```

10)   Press No **twice**. The display will show:-

```
Next Service due
in _ _ Weeks
```

11)   Enter the number of weeks you require to the
next service, then press Yes.
The display will show:-

        Note: The system will start to warn the end
user that the Service is due two weeks
before the time expires.

```
Service Tel. No.
is Un-Programmed
```

12)   Press No. The display will show:-

```
Service Tel. No.
_ _ _ _ _ _ _ _ _ _ _ _ _
```

13)   Enter the Telephone Number you wish your
customer to dial for service, followed by Yes.
The display will show:-

        With Lock - Out turned On the system will
Lock the users out when the Service Time
expires.

        With Lock - Out turned Off the system will
continue to warn of Service until the Service
Timer is reset.

```
 ! ! !  LOCK - OUT ! ! !
= On
```

14) Press No until the required setting is displayed then press Yes. The display will show:-

```
Engineer Mode
= Constant
```

With Engineer Mode programmed as Constant the panel will remain in Engineer Mode until the Engineer exits.

With Engineer Mode programmed as timed the panel will jump out of Engineer Mode after 1 hour if all the Tampers are clear. This prevents the Engineer accidentally leaving the panel in Engineer Mode.

15) Press No until the required setting is displayed, then press Yes. The display will show:-

```
Program . . . .      _ _ _
Service / PTM  ?
```
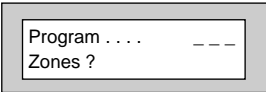
16) This concludes the Program Service. Press 0 (zero) until the display shows:-

```
01 Jan      00: 00: 01
```

Programming Custom Screens

1)   Enter into Engineer Mode
        To do this follow Steps 1 to 4 on page 79
        With the display showing:-
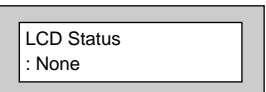
> Program . . . .   _ _ _
> Zones ?

2)   Press No **fourteen times**. The display will show:-

> Program . . . .   _ _ _
> Custom Screens ?
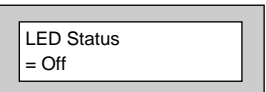
3)   Press Yes. The display will show:-

> LCD Status
> : None

> *Note: The LCD Status is defaulted to None and may not be changed. The display will only show the*
> *Set / Unset status of the system for ten seconds after a Set or Unset.*

4)   Press Yes. The display will show:-

> LED Status
> = Off

The LED Status refers to the LED in the G-Tag 'E' or 'I'
reader. Choose from:-
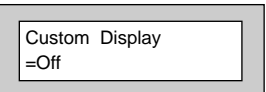
        Off   The reader LED will only show for
                            ten seconds after a Set / Unset

        On   The reader LED will always be active.

5)   Press No until the required setting is displayed.
        Then press Yes. The display will show:-

> Custom Display
> =Off

> *Note: If set to On, the custom text will be displayed when the system is Un-Set. This is only*
> *applicable if the Control Panel has been programmed to BS standard.*

6)   Press No until the required setting is displayed.
        Then press Yes. The display will show:-

> Program Text ?

        Press 0 three times to return to the date/time display (EN standard)
        Or
        If you wish to change the Custom Display (BS only), press Yes then No. You
        may now enter up to 32 characters.

7)   As you press Yes for the last character the display will change to:-

```
Program . . . .      _ _ _
Custom Screens ?
```

This concludes the Custom Screens.

Press 0 (zero) **twice** to return to:-

```
01 Jan        00: 00: 01
```

Programming Diagnostics / Log

The GardTec *800* series control panels has some limited diagnostic features available to the engineer. To access these proceed as follows.
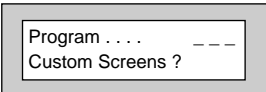
1)   Enter into Engineer Mode
To do this follow Steps 1 to 4 on page 79
With the display showing:-

```
Program . . . .      _ _ _
Zones ?
```

2)   Press No **fifteen times**. The display will show:-

```
Program . . . .      _ _ _
Diagnostics / Log ?
```

3)   Press Yes. The display will show:-

```
List
Event Log ?
```

4)   Press Yes. The display will show:-
Press No until the required setting is displayed, then press Yes.

```
Real - Time  Print
=Off
```

5)   The display will show:-

```
View  the Log  ?
```

6)   Press Yes if you wish to view the Event Log
The display will show:-

```
While  Viewing . .
1 = Printer  On / Off
```

Then, for example:-

```
Zone  003  12hr
01  Jan  02 : 50 : 04
```

This is the last event in the Log.
Use the No key to move backward in the Log.
Use the Yes key to move forward in the Log

7)   When you have finished viewing the Log press 0 (zero). The display will show:-

```
Program . . . .      _ _ _
Diagnostics / Log ?
```

8) Press Yes. The display will show:-

```
List
Event Log ?
```

9) Press No. The display will show:-

```
Change / List
Diagnostics ?
```

10) Press Yes. The display will show:-

```
PSU . . .
Diagnostics ?
```

11) Press Yes. The display will show:-

```
PSU Test Time
= 01 Hrs
```

A PSU/Battery test will be carried out at the time
interval set here and each time you leave Engineer
Mode. This may be turned Off by setting the Time
interval to 0 (zero).

12) Press No **twice**. The display will show:-

```
PSU Test Time
= _ _ Hrs
```

13) Enter the time you require (in hours) followed by
Yes. The display will show:-

```
Change / List
Test Limits ?
```

14) Press Yes. The display will show:-

```
Aux. Vmax = 14.0
Aux. Vmin = 13.0
```

In this example any voltage over 14V or below
13V will create a warning when the PSU test
is performed by the system.

15) To change these limits. Press No until the required
setting for V.Max is displayed, then press Yes.
The display will show, for example:-

```
Aux. VMax = 14.0V
Aux. VMin > 13.0V
```

16) Press No until the setting required for V.Min is
displayed, then press Yes.
The display will show:-

```
On - Chg. max = 14.0
On - Chg. min = 12.6
```

17) Press No until the required setting for On-Charge
Volts max (Battery) is displayed, then press Yes.
The display will show:-

```
On - Chg. max = 14.0
On - Chg. min > 12.6
```

18) Press No until the required setting for On-Charge
Volts min (Battery) is displayed then press Yes.
The display will show:-

```
Off - Chg. max = 14.0
Off - Chg. min = 12.6
```

19) Press No until the required setting for Off-Charge
Volts max (Battery) is displayed, then press Yes.
The display will show:-

```
Off - Chg. max = 14.0
Off - Chg. min > 12.6
```

20) Press No until the required setting for Off-Charge
Volts min (Battery) is displayed, then press Yes.
The display will show:-

```
PSU . . .
Diagnostics ?
```

21) Press Yes. The display will show:-

```
PSU Test Time
= 01 Hrs
```

22) Press Yes. The display will show:-

```
Change / List
Test Limits ?
```

**The readings given from this point on are intended as Indicator Only and should
be confirmed with a calibrated Test Meter.**

23) Press No. The display will show, for example:-

```
Aux. Volts
13.6V
```

24) Press Yes. The display will show, for example:-

```
Battery Volts
On  Charge 13.6V
```

25) Press Yes. The display will show, for example:-
The backlight will dim at this point.

```
Battery Volts
Off  Charge 12.9V
```

26) Press Yes. The display will show, for example:-

```
Aux. Volts
13.6V
```

27) Press 0 (zero). The display will show:-

```
PSU . . .
Diagnostics ?
```

28) Press No. The display will show:-

```
NovActive
Diagnostics ?
```

29) Press Yes. The display will show:-

```
Change / List
Test Limits ?
```

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30)	Press Yes. The display will show:-	Set Default Limits ?

31)	Press Yes. The display will show:- Select which battery type is installed in the NovActive sounder. Press **6** or **8**.	Which Battery ? (6)V or (8) . 4V

32)	The display will show, for example:-	H / Off Vmax = 14.0 H / Off Vmax = 11.0

33)	To change these limits. Press No until the required setting for Vmax is displayed, then press Yes. The display will show, for example:-	H / Off Vmax = 14.0 H / Off Vmax > 11.0

34)	Press No until the setting required for Vmin is displayed, then press Yes. The display will show:-	On - Chg. max = 7.40 On - Chg. min = 5.80

35)	To change the On-Chg limits. Press No until the required setting for max is displayed, then press Yes. The display will show, for example:-	On - Chg. max = 7.40 On - Chg. min > 5.80

36)	Press No until the setting required for min is displayed, then press Yes. The display will show:-	Off - Chg. max = 7.40 Off - Chg. min = 5.80

37)	To change the Off-Chg limits. Press No until the required setting for max is displayed, then press Yes.The display will show, for example:-	Off - Chg. max = 7.40 Off - Chg. min > 5.80

38)	Press No until the setting required for min is displayed, then press Yes. The display will show:-	Chg(mA) Max = 7.40 Chg(mA). Min = 5.80

39)	To change the Chg(mA) limits. Press No until the required setting for max is displayed, then press Yes. The display will show, for example:-	Chg(mA) Max = 7.40 Chg(mA). Min > 5.80

40)	Press No until the setting required for min is displayed, then press Yes. The display will show:-	Change / List Test Limits ?

41)	This concludes the Program Diagnostics. Press 0 (zero) until the display shows:-	01 Jan 00: 00: 01

Programming Alarm Confirm

This section is used to program options that are relevant to DD243. Before programming these options please take time to read the following notes that will help in your understanding of DD243.

All communications systems that require a Police URN will need to conform to DD243.

These notes intended as a guide only and should be read in conjunction with the relevant standards relating to the alarm system giving particular attention to EN50131-1and DD243. These may be obtained from the British Standards Institute.

DD243 options available are.

Confirm Time Window (default = 60)
This time window may be programmed between 1 and 120 minutes. To comply the required time should be between 30 and 60 minutes.

Confirm on Entry (default = On)
This option may be programmed to On or Off. If Confirm on Entry = Off then confirmed alarms to central station are disabled if the entry timer is started. If ACE or G-Tag is used then it is permissible to set this option to On.

Sounder Mode (default = Unconfirmed)
This option controls the system speakers fitted, options are confirmed or un-confirmed.
If Sounder Trigger = Confirmed then internal sounder will only trigger with a confirmed alarm.
If Sounder Trigger = Unconfirmed then internal sounders will trigger with un-confirmed alarms.
This feature is not mandatory for DD243

Reset Mode (default = Any)
Choose from Any or Normal.
If Unconfirm = Any then any code can be used to reset an un-confirmed alarm.
If Unconfirm = Normal then the programmed reset mode for alarm will still be required i.e. if alarm reset has been programmed as engineer and Unconfirm reset is Normal then an engineer reset will be required for Un-confirmed alarms.

Confirm Secondary Time Window (default = 60 minutes)
This time window may be programmed between 1 and 120 minutes we would suggest a time between 30 and 60 minutes but should typically be the same time as the confirm time window. This option affects zones that have been allocated as secondary zones only. For functionality please refer to Secondary Zones Below.

ET (Exit Terminator) Mode (default = Set)

If ET Mode = Set then the exit terminator zone will terminate the exit procedure.

If ET Mode = Door Lock and the ET zone (door lock) is operated on entry then all confirmed alarms will be disabled.

Bell Mode (default = Unconfirmed)

This option controls the bells fitted to the system, options are confirmed or un-confirmed.

If Bell Trigger = Confirmed then Bell will only trigger with a confirmed alarm.

If Bell Trigger = Unconfirmed then Bell will trigger with un-confirmed alarms.

This feature is not mandatory for DD243

Strobe Mode (default = Unconfirmed)

This option controls the Strobe(s) fitted to the system, options are confirmed or un-confirmed.

If Strobe Trigger = Confirmed then Strobe will only trigger with a confirmed alarm.

If Strobe Trigger = Unconfirmed then Strobe will trigger with un-confirmed alarms.

This gives the ability to show to the keyholder from outside the premises that a previously unconfirmed alarm has is now confirmed.

This feature is not mandatory for DD243

Confirmed Start Delay (default = 000m)

May be programmed between 0 & 120 minutes (default 0).

If programmed to anything other than 0 the panel cannot send confirmed signals until the time programmed has expired. This time starts when the system has set and will prevent confirmed alarms being generated in situations when a person has been accidentally locked in the building.

This feature is not mandatory for DD243

Ace Low Battery (default = On)

Options are On or Off. This option allows for the use of new control panel boards with V5.1 or later software to be used with earlier keypads. If older non DD243 compliant type keypads are used with V5.1 or later this option should programmed to Off. It is a requirement of DD243 2002 that when using ACE Low Battery is reported to the end user if the system is set using ACE.

See A.1 DD243 Portable ACE used for setting and unsetting.

Secondary Zones

The Program Part / Test /Chime option has now been renamed to Program Zone Attributes. Within this section you are able to allocate zones as Secondary Zones. Secondary type zones would be used for detectors that may be deemed as having an over sensitive nature, this will stop unwanted user call-outs. Zones that are entered as Secondary will follow the chain of events below.

Comms Restore

With Comms Restore turned on any outstanding alarm channels will be restored at the end of the Confirm Time Window.

This feature is mandatory for DD243

During a set period triggering a Secondary Zone will start the Secondary Time Window. This will be logged but no further action is taken. If the second zone to alarm during the same set period is also a Secondary Zone then it will be logged and the Secondary Time Window will be restarted.

If the time set within the Secondary Time Window is still running and a zone that is not allocated as a Secondary Zone is triggered the event will be logged an Alarm A (un-confirmed) and Alarm B (confirmed) will be transmitted.
This feature is not mandatory for DD243

Perimeter Zones
Within the Program Zone Attribute section you are able to allocate zones as Perimeter. Zones that are entered as Perimeter will follow the chain of events below.

When activated an unconfirmed alarm will be transmitted to the central station. An output or digi channel may be programmed as perimeter (or if using Point ID a new signal type of perimeter will be sent). This will allow central station to inform the keyholder that an unconfirmed alarm has been received and is a perimeter type device i.e window backdoor etc. etc. This feature is not mandatory for DD243.

Scenarios Relating to DD234.

Sounder / Bell Considerations
Please note careful consideration should be given when programming Confirm Sounder and Confirm Bell Modes. If both are programmed for confirmed and any of the above scenarios occur no local sounders will activate.

Other DD243 Notes to Consider
When a system auto re-arms with a zone in fault condition The GardTec control panel will omit the zone concerned. A signal should be sent to the central station indicating that a detector(s) has (have) been isolated. To achieve this a Digi channel should be programmed as Zone Exclude, this will automatically send the required signal as the detector is omitted.

Output Option (Status)
This option has three operating modes and is intended to provide a visual indication of the system status.

System Set	Output On for 10 seconds
System Unset	Output On for 1s Output Off for 1s for a 10 second period
Confirmed Alarm	Output On for 3 seconds Output Off for 1s until system reset.

It is envisaged that this status output would be fitted to an indicator (i.e. LED) that can be seen from outside the premises.

a)   **Scenario specific to systems using completion of unsetting with ACE 6.4.5 DD243.**

Event 1   System Set
Event 2   Entry Time Starts
Event 3   Access Zone Triggered
Event 4   Entry Expired (including Entry Time 2) Unconfirmed
                         Transmitted
Event 5   non entry/access Zone Triggered
Event 6   Second non entry.access Zone Triggered Confirmed
                         Transmitted

To achieve the above
Confirm on entry = On
Ace Low Battery = On

b)   **Scenario Unlocking the initial entry door disables all means of conformation 6.4.3 DD243.**

Event 1   System Set
Event 2   Entry Door Unlocked Confirmed Alarms Disabled
Event 3   Open Entry Door (entry time starts)
Event 4   Entry Time Expires (inc Entry Time 2) Unconfirmed Alarm
                         Transmitted
Event 5   Any subsequent zones triggered No Confirmed Signals
                         Transmitted

Or

Event 1   System Set
Event 2   Entry Door Forced Open (entry time starts)
Event 3   Entry Time Expires (inc Entry Time 2) Unconfirmed Alarm
                         Transmitted
Event 4   non entry/access Zone Triggered
Event 5   Second non entry.access Zone Triggered Confirmed
                         Transmitted

To achieve the above
Confirm on entry = On
ET Mode = Door Lock
Door Lock Zone programmed as ET

c) **Scenario Opening the initial entry door disables all means of conformation 6.4.4 DD243 2002.**

Event 1   System Set
Event 2   Entry Door Opened (entry time starts) Confirmed Alarms
                                      Disabled
Event 3   Entry Time Expires (inc Entry Time 2) Unconfirmed Alarm
                                        Transmitted
Event 4   Any subsequent zones triggered No Confirmed Signals
                                      Transmitted

To achieve the above
Confirmed on entry = Off

1)   Enter into Engineer Mode
           To do this follow Steps 1 to 4 on page 79
           With the display showing:-

```
Program . . . .      _ _ _
Zones ?
```

2)   Press No **sixteen times**. The display will show:-

```
Program . . . .      _ _ _
Alarm Confirm ?
```

3)   Press Yes. The display will show:-

```
Program Confirm
Window Time ?
```

4)   Press Yes. The display will show:-

```
Confirm Window
= 060m
```

5)   Press No **twice**. The display will show:-

```
Confirm Window
> _ _ _m
```

6)   Enter the time you require, followed by Yes.

           The time *__MUST__* be between 30 & 60 minutes.

7)   The display will show:-

```
Program Confirm
Time Window ?
```

8)   Press No. The display will show:-

```
Program Confirm
On Entry ?
```

9)   Press Yes. The display will show:-

```
Confirm on Entry
= On
```

Confirm on Entry may be On only if you are
using an ACE device to Unset the system.

10) Press No until the required setting is displayed,
then press Yes. The display will show:-

```
Program Confirm
On Entry ?
```

11) Press No. The display will show:-

```
Program Confirm
Sounder Mode ?
```

12) Press Yes. The display will show:-

```
Sounder Trigger
= Unconfirmed
```

The term Sounder relates to the system speaker(s)

13) Press No until the required setting is displayed,
then press Yes. The display will show:-

```
Program Confirm
Sounder Mode ?
```

14) Press No. The display will show:-

```
Program Confirm
Reset Mode ?
```

15) Press Yes. The display will show:-

```
Unconfirm Reset
= Any
```

16) Press No until the required setting is displayed, then press Yes. The display will show:-

```
Program Confirm
Reset Mode ?
```

17) Press No. The display will show:-

```
Program Confirm
Secondary Time ?
```

18) Press Yes. The display will show:-

```
Secondary Window
= 060m
```

19) Press No **twice**. The display will show:-

```
Secondary Window
= _ _ _m
```

20) Enter the time required then press Yes. The display will show:-

```
Program Confirm
Secondary Time ?
```

21) Press No. The display will show:-

```
Program Confirm
ET Mode ?
```

22) Press Yes. The display will show:-

```
ET Mode
= Set Only
```

23) Press No until the required setting is displayed, then press Yes. The display will show:-

```
Program Confirm
ET Mode ?
```

24) Press No. The display will show:-

```
Program Confirm
Bell Mode ?
```

25) Press Yes. The display will show:-

```
Bell Trigger
= Unconfirmed
```

26) Press No until the required setting is displayed, then press Yes. The display will show:-

```
Program Confirm
Bell Mode ?
```

27) Press No. The display will show:-

```
Program Confirm
Strobe Mode ?
```

28) Press Yes. The display will show:-

```
Strobe Trigger
= Unconfirmed
```

29) Press No until the required setting is displayed, then press Yes. The display will show:-

```
Program Confirm
Strobe Mode ?
```

30) Press No. The display will show:-

```
Program Confirm
Start Delay ?
```

31) Press Yes. The display will show:-

```
Start Delay
= 000m
```

32) Press No **twice**. The display will show:-

```
Start Delay
> _ _ _m
```

33) Enter the time required, followed by Yes. The display will show:-

```
Program Confirm
Start Delay ?
```

34) Press No. The display will show:-

> Program Confirm
> Comms. Restore ?

35) Press Yes. The display will show:-

> Comms. Restore
> = On

36) Press No until the required setting is displayed, then press Yes. The display will show:-

> Program Confirm
> Comms. Restore ?

37) Press No. The display will show:-

> Program Confirm
> Keypad Opening ?

38) Press Yes. The display will show:-

> Keypad Opening
> = Always On

39) Press No until the required setting is displayed, then press Yes. The display will show:-

> Program Confirm
> Keypad Opening ?

Options available are:

Always On	Keypad(s) are always On
*Off in E/E	Keypad(s) not available during Entry/Exit. ACE must be used.
*Off in E/E/Alm	Keypads not available during Entry/Exit or if E/E has gone through to an alarm

*One of these options will be required by your inspectorate.

40) Press No. The display will show:-

> Program Confirm ?
> ACE Bat. Monitor

41) Press Yes. The display will show:-

> ACE Bat. Monitor
> =On

42) Press No until the required setting is displayed, then press Yes. The display will show:-

> Program Confirm ?
> ACE Bat. Monitor

43) This concludes the Program Alarm Confirm Press 0 (zero) **three times** to return to:-

> 01 Jan   00: 00: 01
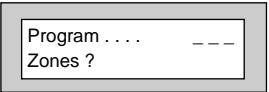
NovActive Description & Programming

NovActive utilises a four core bus to the NovActive sounders that are fitted to the system. This allows each individual Bell to to programmed and also gives access to unique Diagnostic Features that allow the individual NovActive sounders to be diagnosed from either the control panel or via GardTec Remote PC Software. GardTec Remote may be used from either a remote location via a Modem or on-site via a GardTec Modem Patch Lead.

To program the NovActive sounder(s) please follow the instructions below.
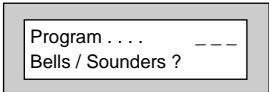
Wiring of the NovActive should be carried out in conjunction with the instructions supplied with the unit.

1)   Enter into Engineer Mode
           To do this follow Steps 1 to 4 on page 79
           With the display showing:-
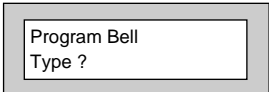
```
Program . . . .      _ _ _
Zones ?
```

2)   Press No **three times**. The display will show:-

```
Program . . . .      _ _ _
Bells / Sounders ?
```

3)   Press Yes. The display will show:-

```
Program Bell
Type ?
```
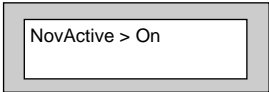
4)   Press Yes. The display will show:-
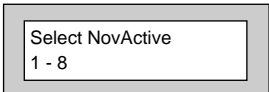
```
NovActive = Off
```

5)   Press No **twice**. The display will show:-

```
NovActive > On
```

6)   Press Yes. The display will show:-

```
Select NovActive
1 - 8
```

7)   Press the number of the NovActive you wish to program. The display will show:-

```
NovA1 = Off    LEDS = 0
Confirm = Off
```

8)   Press No **twice** to turn NovActive 1 On. Then press Yes. The display will show:-

```
NovA1 = On    LEDS > 0
Confirm = Off
```

To program the LED pattern press No until the
setting required is displayed.
Choose from.
0 = Alternating LEDs
1 = 1 Static LED
2 = 2 Pulsing LEDs
3 = No LEDs

9)   When you are happy with your selection press Yes. The display will show:-

```
NovA1 = On    LEDS > 0
Confirm > Off
```
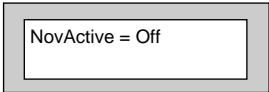
To program the Setting Confirmation press No
until the required setting is displayed, then press
Yes. The display will show:-

```
NovA1 A=1
PA=0    Alm=0    Tmp=0
```

10)   Press the No key to select which Area(s) the NovaActive will respond to. Then press Yes The display will show:-

```
NovA1 A=1
PA>3    Alm=0    Tmp=0
```

11)   To programme the sound, press No until the required setting is displayed, then press Yes.
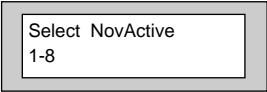
12)   Repeat for Alm, Tmp until the required settings are displayed.Then press Yes. The display will show:-

```
NovA1 Text  =
NovActive1
```

13)   Press No. The display will show:-

```
NovA1 Text      =>
-
```

14) Enter the text required. *E.g. Front Wall Bell*. Then press Yes. The display will show:-

```
Select  NovActive
1-8
```

You should now repeat until all the NovaActives on the system have been programmed.

15) When you have finished programming all the NovaActives press 0 until the display shows:-

```
01 Jan       00: 00: 01
```

Programming Point ID Protocol

For the purpose of programming PID, it is assumed that the STU Adaptor has been left in the OFF state.

1)   Enter into Engineer Mode
To do this follow Steps 1 to 4 on page 79
With the display showing:-
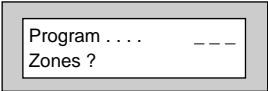
```
Program . . . .      _ _ _
Zones ?
```

2)   Press No **five times**. The display will show:-

```
Program . . . .      _ _ _
Digicom ?
```

3)   Press Yes. The display will show:-

```
Program Digicom
Type or Test
```

4)   Press Yes. The display will show:-

```
Digicom Type . . . .
= None
```

5)   Press No until the display shows:-

```
Digicom Type . . . .
> Mod + PID
```

6)   Press Yes. The display will show:-

```
STU Adaptor
=Off
```

7)   Press Yes. The display will show:-

```
STU Adaptor O/P
=Pos
```
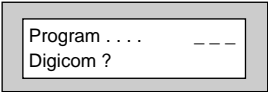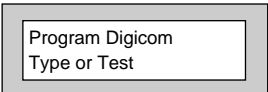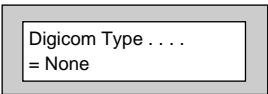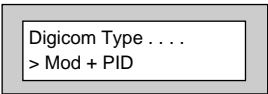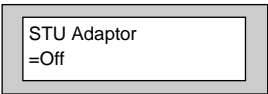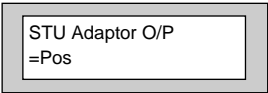
8)	Press Yes. The display will show:-	STU Adaptor I/P =Pos

9)	Press Yes. The display will show:-	STU Adaptor Pin 7 =Power O/P

10)	Press Yes. The display will show:-	Program Digicom Type or Test

11)	Press No. The display will show:-	Program Digicom Delay / Part

12)	Press No. The display will show:	Program Digicom Channels ?

13)	Press Yes. The display will show:-	D1 = Off D2 = Off

14)	Press Yes. The display will show:-	D3 = Panic D4 = Alarm

15)	Press Yes. The display will show:-	Channel Start = Neg

16)	Press Yes. The display will show:-	Program Triggers ?

17)	Press Yes. The display will show:-	Set = Off Alrm = Off UnSet = Off PA = Off

You MUST turn On the Triggers you require.

18) Use the Yes & No keys to accept or change the options on the following screens:-

```
Set = Off        Alrm = Off
UnSet = Off       PA = Off
```

```
24Hr = Off        E/E = Off
12Hr = Off        Bat = Off
```

```
Tamp = Off         AC = Off
LF = Off         Alert = Off
```

```
Fire = Off        W/D = Off
Duress = Off
```

```
Zone Remove = Off
Alrm - Restore = Off
```

```
AC - Restore = Off
LF - Restore = Off
```

```
After - Alarm = Off
Abort - Call = Off
```

```
Perimeter = Off
PA - Restore = Off
```

```
Radio  Lost = Off
Radio Jamm = Off
```

```
Zone  Fault = Off
Zone  Mask = Off
```

19) Press Yes. The display will show:-

```
Program Digicom
Channels ?
```

20) Press 0 (zero) three times. The display will show:-

```
01 Jan        00: 00: 01
```
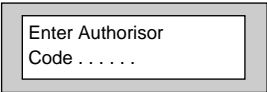
Engineer Reset

If the system is programmed as Engineer Reset, the system will need to be Reset by the Engineer Code. Please follow the procedure below to effect the Reset.
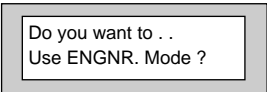
1)   If the system is still set, unset it via a valid User Code.

2)   Enter the Engineer Code. The display will show:-
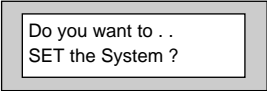
```
Enter Authorisor
Code . . . . . .
```

3)   Enter a valid User Code. The display will show:-

```
Do you want to . .
Use ENGNR. Mode ?
```

4)   Press No. The display will show:-

```
Do you want to . .
SET the System ?
```

5)   Press Yes. The system will start to Set.

6)   Enter the Engineer Code again.
        This will Abort the Setting.

7)   The System is now Reset.
        The display will show for example:-

```
01 Jan      00: 00: 01
```

Details of User Code Reset and Anti-Code Reset are given in the User Manual.

Linefault Sounders Description

The Linefault Sounder option determines how the system sounders (speakers) will react when a Linefault is detected. Below are the options available and a description of each option.

On if Set   Linefault Sounders will operate when the system is Set and a Linefault is detected (may be silenced by User Code).

On if Unset   Linefault Sounders will operate when the system is Unset and a Linefault is detected. (may be silenced by User Code)

FLT if Off   A fault tone will be generated when the system is Unset and a Linefault is detected (may not be silenced by User Code).

Beep if Off   A periodic beep will be generated when the system is Unset and a Linefault is detected (may not be silenced by User Code).

Always On   Linefault Sounders are always On (Set or Unset) (may not be silenced by User Code).

Clearing 'Test Fail' Indication

If the display shows:-

```
Unset Test Fail
01 Jan 00: 00: 01
```

The system has a zone On Test that has failed when the system was Set.

Please note: we recommend that the Test Attribute is only used on 12Hr type zones.

To clear the display proceed as follows.

1)   Enter the Engineer Code. The display will show:-

```
Enter Authorisor
Code . . . . . .
```

2)   Enter a valid User Code. The display will show:-

```
Do you want to . .
Use ENGNR. Mode ?
```

3)   Press No. The display will show:-

```
Do you want to . .
SET the System ?
```

4)   Press Yes. The system will start to Set.

5)   Allow the system to fully Set.

6)   Enter the Engineer Code again to Unset the system. The display will show:-

```
01 Jan        00: 00: 01
```

Programming ID Biscuits - 872 only

Two ID Expander Card may be fitted to the GardTec 872 control panel (please refer to page 50 for wiring details). The ID Expander Card will take up to 30 industry standard ID Biscuits (Biscuits numbers1 to 30).

No other form of Zone Expansion is possible when ID is being used.

To program the biscuits proceed as follows.

1)   Enter into Engineer Mode
      To do this follow Steps 1 to 4 on page 79
      With the display showing:-

```
Program . . . .      _ _ _
Zones ?
```

2)   Press Yes. The display will show:-

```
Program Zone
Types ?
```

3)   Press No. The display will show:-

```
Program Zone
Descriptors ?
```

4)   Press No. The display will show:-

```
Program Zone
Wiring ?
```

5)   Press Yes. The display will show:-
      Note: *Zone Response time is defaulted to 400ms and may not be changed.*

```
Zone Response
:400 mS
```

6)   Press Yes. The display will show:-
      Note: *Fault /Mask response time may be programmed as a global parameter and may be reprogrammed from 2 to 14 seconds. (increments of 2 seconds).*

```
Fault / Mask  Zones
Response=Norm
```

      The time programmed for this option will apply to all zones, there is no option for individual response times per zone. It is a global setting.

      Once the Fault / Mask as been triggered the response time for the Fault / Mask will revert to the default time of 400ms until the fault / mask problem has cleared.

7)   Press No until the settings you require are displayed. Then press Yes. The display will show:-

```
On-Board Zones
=16 <EOL>
```

Wiring Modes available are:-

16(2 Wire) Two wires are used for the zone and a global tamper is used.
(Version / Grade dependant - Cannot be used in Grade 3 installations).

8(4 Wire). May be programmed for 8 four wire zones. Wire 8 individual zones with their own tampers.

16(EOL) Two wires are used in conjunction with two resistors to give End Of Line wiring, this is the most secure wiring format.

Note: This tutorial assumes that 16(EOL) has been selected.

8) With the display showing:-
Press Yes.

```
On-Board Zones
=16 <EOL>
```

9) The display will show:-

```
On-Board EOL
=Norm
```

Three wiring options are available under 16 (EOL):

Norm: Standard GardTec wiring configuration without Mask or Fault detection.
Note: Does not give any Fault or Masking detection and should only be used with Zone pairing.

ELF1: ELF1 wiring is used for detectors that have a relay output (a pair of terminals) for Fault or Mask..

ELF2: ELF2 wiring is used for detectors that have a transistor output (a single terminal) for Fault or Mask.

Note: We would recommend that either ELF1 Format or ELF2 Format (dependant on detector output type, Relay or Transistor) is used. ELF1 or ELF2 wiring modes will allow for Alarm, Tamper, Fault and Masking to be monitored from a single zone without the need for zone pairing.

Note: The installer should check what output type the detector are, noting that all the detectors should be of the same type with regards to the Fault / Mask output.

10) Press No until the setting you require is displayed,
then press Yes. The display will show:-

```
Zone Expansion
= ZEX
```

Zone Pairing.

If the 16(EOL) wiring mode is used then a zone must be used to monitor for Masking and Fault. This is achieved by selecting Zone Pairing as on. Zone Pairing cannot be used in ELF1 or ELF2 wiring modes.

When using Zone Pairing each zone will have a corresponding paired zone that will be used for Masking and Fault signals. This is done by using the Odd numbered zones for the normal alarm detection and the Even numbered zones for Masking and Fault Detection. For example.

Please note that half the zones on the system would be lost for processing the Mask and Fault signals and it would be more prudent to use the ELF1 or ELF2 modes as described previously.

Alarm Zone	Pared Zone for Mask / Fault
Zone 1	Zone 2
Zone 3	Zone 4
Zone 5	Zone 6
Zone 7	Zone 8
etc...	

---

11)   Press No **twice**. The display will show:-

> Zone Expansion
> > ID

12)   Press Yes. The display will show:-

> ID Pairing
> = Off
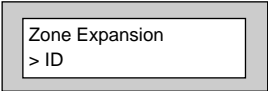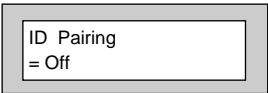
Note: All ID devices will be paired automatically.

13) Press No until the setting you require is displayed. Then press Yes. The display will show:-

```
Map ID Module
On SAD 1 ?
```

At this stage the ID should be wired up and all ID Biscuits connected. The Tamper on the Module should also be closed.

14) Press Yes.

15) The system will now detect all connected Biscuits. The display will show for example:-

```
30 Devices Found
Y: Auto        N:Manual
```

16) Press Yes for Auto

17) All detected Biscuits are now active.

18) Press 0 (zero) until the display shows:-

```
01        Jan 00: 00: 01
```

Note: If the number of devices found does not correspond to the number fitted, check the wiring and re-map. If after checking, devices found still does not correspond, press No.

19) The display will show:-

```
Enter   ID #
```

20) Enter 1 then press Yes. The display will show:-

```
ID # 01  on SAD 1
= Off
```

If the zone has not been found, the display will show Off. If the zone has been found, the display will show the zone number.

Press Yes to continue to the next device number.

7   SPECIFICATION & RECORDS

Gardtec 800 Series Specification

800 **816** **872**

Unless otherwise stated

Power Input	230V a.c +/- 10% @ 50Hz
Max Loop Resistance	2K (not with E.O.L)
Loop Delay Time	400 milliseconds

FUSES

Bell	1A Quick Blow
R.K.P	500mA Quick Blow
Aux	1A Quick Blow. (2A QB for 2A PSU)
Gard	400mA Quick Blow
Mains	125mA Anti-surge. (315mA Anti-surge for 2A PSU)
Battery	2A Anti-surge

Low Voltage Output	13.8 Regulated
Battery Sizes	12V 1.2A, 2.0A, 3.0A, 7.0A (17A large metal)
Construction	3mm Polycarbonate or 1.2mm Mild Steel
Complies With	EN50131-1 PD6662 2004 CE tested
Conforms with	EMC Directive 89/336/EEC & LVD Directive 73/23/EEC
Number Of Zones (Standard)	8 (4 Wire), 16 (E.O.L or 2 Wire) **800** **816** **872**
Expandable To	16 (4 Wire), 32 (EOL or 2 Wire) **816**
	72 (4 Wire), 144 (E.O.L or 2 Wire) **872**
Expansion Type	Zones Per Card Expander Cards with 4 (4 Wire) **816** **872** Zones or 8 (E.O.L or 2 Wire)
	or
	ID Expander Cards (Max2) **872** 30 ID zones per Expander (Panel zones as normal)

Number Of Keypads	4 Normal	**800** **816** **872**
	or	
	8 using Multi Option	**872**
ACE compatible	Yes	
Onboard Relay Rating	24V 1A S.P.C.O	
Zone Descriptors	16 Characters	
	(last 3 omitted with tamper)	
Max No of Users	15 + Engineer	**800** **816**
	99 + Engineer	**872**
Default Codes All	Eng 1234 User 5678	

Note: *User Codes and Engineer Codes **MUST** be six digits in length for EN3 installations.*

Code Length	4, 5 or 6 Digits	**800** **816** **872**
User Names	9 Characters	
		816 **872**
Custom Screen	32 Characters	
Log Size	500 Event Log	**800**
	63 Event Modem Log	
	500 Event Log	**816**
	63 Event Modem Log	
	752 Event Log	**872**
	256 Event Modem Log	
Time & Date	Log & Display	
Non-Volatile Memory	Yes	

Quiescent Currents

Control Panel	80mA @ 12V d.c
LED RKP	40mA @ 12V d.c
LCD RKP	30mA @ 12V d.c
Zone Expander Card	10mA @ 12V d.c (Max 8 Per System)
Output Expander Card	40mA @ 12V d.c (Max 4 Per System
Digigard Communicator	15mA @ 12V d.c
ProDigi Communicator	80mA @ 12V d.c
Gardtec *872* Modem	80mA @ 12V d.c
Gardtec Speech Dialler	80mA @ 12V d.c

Maximum Output Current

Plastic	1A* *(See power supply rating).*
Small Metal	1A*
Large Metal	2A*

*Power Supply Rating

It should be noted that the **Plastic GardTec 800 Control Panel** has **1 Amp** available for the full system. However, for the purpose of compliance to EN and PD6662 standard, the capacities of the power supply have to be specified differently.

For a Grade 2 system you have 72 hours to charge the battery. With the Plastic *800* Control Panel, 90mA is available for battery charging. This defines a theoretical maximum standby battery capacity of 8.0Ah and a maximum of 666mA available for system power.
If a smaller capacity battery is used then the rating has to be reduced accordingly.

For example: If a 7Ah battery is used it will recharge in 72 Hrs
and will theoretically provide 910mA (1000-90mA) for the system. However, the supply rating for that system under PD6662 is still 7.0Ah/12hrs = 583mA. Sounders, detectors and other auxiliary items should be included when calculating current drawn by the system.

Any damage caused through overloading the Control Panel Supply will not be covered by the warranty.

We recommend that additional power supplies are used to supply detectors on long cable runs.

Note: For a Grade 3 system where the standby battery current is sufficient for 12Hr standby, the system must be capable of reporting mains fail to the ARC.

AUX 12V Terminals
This pair of terminals supply the + and - supply for the detectors. 1A is available from these terminals (see power supply rating above).

Strobe Terminals
This pair of terminals are the output for the Strobe. The negative terminal is switched during an alarm
period. A maximum of 600mA may be drawn from these terminals (see power supply rating above).

Bell Terminals
This pair of terminals are the output for the Bell or external sounder. The negative terminal is switched during an alarm period. A maximum of 1A may be drawn from these terminals
(see power supply rating above).

System Settings Record

Zone No.	Descriptor	Area(s)	Loop Ohm	V @ Sensor	Part Info
Example	Living Room	1&2	14 AZ 4 TZ	13.2V	A1 P1
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
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32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					

Zone No.	Descriptor	Area(s)	Loop Ohm	V @ Sensor	Part Info
44					
45					
46					
47					
48					
49					
50					
51					
52					
53					
54					
55					
56					
57					
58					
59					
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76					
77					
78					
79					
80					
81					
82					
83					
84					
85					
86					
87					
88					
91					
92					

Zone No.	Descriptor	Area(s)	Loop Ohm	V @ Sensor	Part Info
93					
94					
95					
96					
97					
98					

Aux Current (mA)	Bell Current (mA)	RKP Current (mA)

Customer Name:-   **Contact Name:-**

Tel No:-   **Fax No:-**

Modem No:-

Customer Address:-

Other:-

Service Due Dates	Completed Date	Signature

Extending RKP Wiring to 500mtrs

BELDEN CABLE ONLY - Normal Screen Cable Will NOT Be Suitable.

RKP Terminals

| 12V | OV | SCLK | Data A | Data B | SPKR |

PSU + | **PSU -**
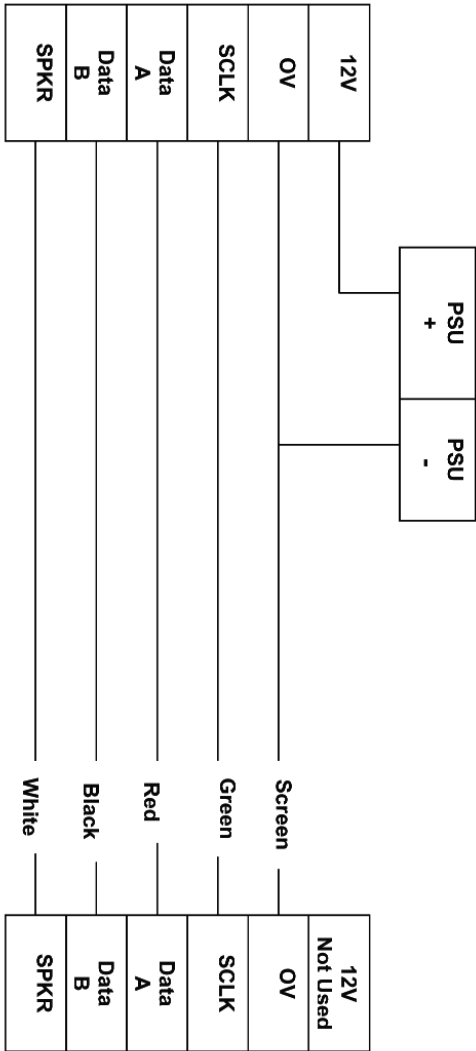
Control Panel Terminals

| 12V Not Used | OV | SCLK | Data A | Data B | SPKR |
| Screen | Green | Red | Black | White |

Remote Keypads can now be mounted up to 500 meters away from the gardtec 500/800 series control panels.

For the keypad to function correctly a local PSU should be fitted in the same location as the keypad.

The cable used should be Belden Cable type 8723 AFAA 22 AWG (7/0.25mm T/C) 4 Wire (2 Pair) Sheathed 500 meters Max (Gardtec Ltd will not guarantee this distance if the recommended cable or method is not used).

The connection for the keypad (including cable colours) must be as the drawing above.

Extending 816/872 Expander Wiring to 500mtrs

BELDEN CABLE ONLY - Normal Screen Cable Will NOT Be Suitable.

Output Expander Card

SCLK | Sad 2 | OV | 12v

Zone Expander Card

SCLK | Sad1 | OV | 12V

PSU + | PSU -

Zone expanders and output cards can now be mounted up to 500 meters away from the gardtec 500 800 Series control panels.

For the zone expanders and output cards to function correctly a local PSU should be fitted in the same location as the zex/output cards

The cable used **Must** be **Belden Cable type 8723 AFAA 22 AWG (7/0.25mm T/C) 4 Wire (2 Pair) Sheathed 500 meters Max (Gardtec Ltd will not guarantee this distance if the recommended cable is not used).**

The connection for the zex/output cards (including colours) must be as the drawing above.

Green | Red | Screen

EXP 1

12V Not Used	1
OV	2
Sad 1	3
SCLK	4

Black

EXP 2

Not Used	1
Not Used	2
Sad 2	3
Not Used	4

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RISCO Group UK Ltd

Tel: 0161 655 5500   Fax: 0161 655 5501

Internet: www.riscogroup.co.uk

Technical Support Tel: 0161 655 5600
Technical Support Fax: 0161 655 5610
Technical Support e-mail: technical@risogroup.co.uk

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