1700 iD ALARM CONTROL SYSTEM

INSTALLATION INSTRUCTIONS

This information is relevant to systems fitted with Issue 2.7 (or later) System Software

Bona fide alarm engineers may obtain technical support for this product from Castle Care-Tech Ltd. on 01344 469470

NOTES:

1700 Systems fitted with Issue 1 printed Circuit Boards, and Software issues prior to 2.0, are NOT compatible with LCD (English Text) keypads (CT1030).

Castle Care-Tech Ltd. reserves the right to adjust the specifications of this system at any time in the interests of product improvement.

Castle Care-Tech Ltd. is a permitted user of iD

Castle Care-Tech Ltd. cannot be held responsible for problems arising from failure to follow the specifications shown in this manual.

1. Introduction

1.1 The Company and its Quality Statement

Castle Care-Tech Ltd. is an independent British Company, established in 1973, specialising in the design and manufacture of security control equipment.

Our Quality Assurance procedures are approved to British Standard BS.EN.ISO.9002, and are rigidly applied in all aspects of production and service of all products.

1.2 The Product

The Care-Tech 1700 Alarm Control system has been designed and manufactured to provide the facilities required by British Standard BS.4737, to form the heart of a comprehensive alarm system.

A wide range of facilities is available, which should be programmed as described in this manual, to meet the requirements of the individual site. Additional information is provided in the accompanying Operating Instructions, alternative issues are provided to suit the different display types, the appropriate one should be provided to the user on commissioning the system.

1.2.1 Main Features

Suitable for all alarm systems, includes remote (police call) signalling triggers.
Accepts any standard (12v powered) detector, interfaced by 'iD' detection techniques.
20 detection zones.
Operated by system keypad (up to three supported), or optional keyswitch.

Castle Care-Tech Ltd. reserves the right to adjust the specifications of this system, in the interests of product improvement.

Castle Care-Tech Ltd. is a permitted user of iD

1.3 Warranty

The product should operate successfully for many years, if installed and maintained correctly. However, should a fault develop within 18 months of purchase, Castle Care-Tech Ltd. undertake to repair, or replace, the product at our discretion, free of all charges. Such items should be returned to the factory for attention.

Should investigation show that the fault was caused by operating the system outside of its specification, by physical damage, or by unauthorised modifications, we reserve the right to raise an appropriate charge.

Outside of the warranty period, goods returned for repair will be charged at the rate shown in the current price list.

Products returned for repair should be suitably packed to prevent damage (including damage from electrostatic discharges), and be accompanied by full details of the fault, and of any additional work required.

2 CE Marking Directive

This product complies with the requirements of the EMC Directive (89/336/EC) and the Low Voltage Directive (73/23/EC and 93/68/EC)

An alarm installation built around this product will be considered compliant with the requirements of the EMC Directive, PROVIDED THAT all other equipment used carries the 'CE' mark, AND that the installation follows the guidelines specified in this manual.

Mains installation MUST be performed by a qualified electrician in acordance with the Electrical Wiring Regulations (BS.7671)

Paper must NOT be left loose in the housing in such way that it could constitute a fire hazard.

3 Mains Electricity

IT IS OF VITAL IMPORTANCE THAT YOU READ THE FOLLOWING:

3.1 Mains Electricity

MAINS ELECTRICITY IS DANGEROUS !

a. Mains wiring MUST be installed by a competent electrician.
b. Remove all mains power BEFORE removing panel lid and working on the equipment.
c. The system MUST be connected to a good, clean, EARTH.
d. The lid MUST be connected to the mains earth terminal by the wiring loom provided before being secured in position.
e. The pcb 'Gd' terminal is NOT a safety earth connection, but is for filtering applications, - see 4.1.5

3.2 Specifications

Mains input: Nominal 230 to 240v AC

Max current: 150mA, Fused at 250mA

4 Electromagnetic Compatibility

Whilst this product has been designed to meet, or exceed, all relevant emission and susceptibility standards, this cannot guarantee that no compatibility problems will be experienced, especially with older equipment not designed to the same standards. Additionally, exceptional environments can produce unpredictable results. Should problems be experienced, the other equipment should also be checked. Re-siting of the alarm control or other equipment may be the only solution to the problem.

Further information concerning EMC is available in the BSIA publication "EMC Guidelines for Installers of Security Systems."

4.1 Installation Guidelines

4.1.1 Siting of Equipment

Avoid locating control equipment, or detectors, close to equipment which switches high currents, or uses radio frequencies in its operation.

4.1.2 Mains Supply

Avoid using mains supplies contaminated by interference generated by switching, arcing, etc. If practical, wire direct from the consumer unit, rather than from a lighting circuit, or, especially, a ring main. If a clean supply is not available, consider fitting a suitable mains filter (IS1000) and transient suppressors.

4.1.3 Earthing

It is essential that the system is connected to a good, clean, earth. A poor earth can induce interference into the system.
The earth connection to the lid of the metal housing is mandatory.

4.1.4 Cable routing

It is essential that cable types and maximum lengths specified in this manual are adhered to, and that connections are terminated correctly.

Cable routes should be selected to avoid possible sources of interference. NEVER run alarm cables close and parallel to mains cables, where it is necessary to cross such, do so at right angles. Avoid running cables close to fluorescent lighting, electrical switchgear, etc.

Data cables, ie those connecting keypads or **iD** detectors, should not be routed with each other, or with connections to loudspeakers, telephone wiring, etc. unless they are screened and correctly terminated.

Cable screens should be terminated at the End Station end only. For best results, the termination should be made to the metalwork immediately at the point of cable entry into the housing, with a 'pigtail' not exceeding 5cm.

Cables should NOT be looped inside the housing across or underneath the pcb.

Mains cable should enter the housing through the entry hole adjacent to the mains termination point, and be terminated immediately.

4.1.5 AC Noise

After installing cables, measure the AC voltage between mains earth and 12v supply. If more than 1v is measured, AC Noise filters should be brought into operation by connection of the pcb 'Gd' terminal to mains earth.

4.1.6 Severe airborne RFI from Radio Transmissions, etc.

May be attenuated by using screened cable. Alternatively, the use of the AC Noise filters described above may help.

4.1.7 Voltage Transients

Very high voltage transients may be induced into a system from lightning, industrial equipment, etc.; either via the mains or directly into alarm cables. The more serious effects are almost always mains-borne. This may be minimised by the addition of a set of transient suppression devices (IS1020) fitted to the mains input.

4.1.8 Electrostatic Discharge (ESD)

Care should be taken to avoid handling the product unnecessarily. The resistance to damage from ESD is enhanced by the connection of pcb 'Gd' connection to mains earth.

In areas of high static risk (eg large carpeted areas), earth yourself by touching the panel fixing screw before working on the unit.

Loose printed circuit boards should be stored in anti-static packaging.

5 The System

The Care-Tech 1700 consists of an 'End Station' with blank lid, controlled from Remote Keypads (up to three) or optional remote keyswitch. The system is able to communicate with up to 20 '**iD**' detection devices. For details of the '**iD**' system, refer 7.4.

Two versions of the Keypad are available:

Cat: CT1030	Liquid Crystal Display	Display shows two lines of English text
Cat: CT1000	7-Segment Display	Display shows two characters of coded information

The keypad includes 10 numeric digits used for entering codes, etc.

The ABCD keys are used in 'Simple setting' the system. These functions are available on alternative keys if older style keypads without letter keys are used on the system.

The * (NO) and # (YES) keys are used in selecting choices whilst programming, and in confirming code entry.

NOTE: The LCD Keypad is NOT compatible with 1700 End Stations of pcb Issue 1, fitted with software issue 1.0
It is NOT possible to upgrade the software on such End Stations.

The keyswitch (if fitted) provides alternative means to set and unset the control. It is possible to set the control from keypad and unset with keyswitch, and vice versa.

6 Installation

6.1 The End Station

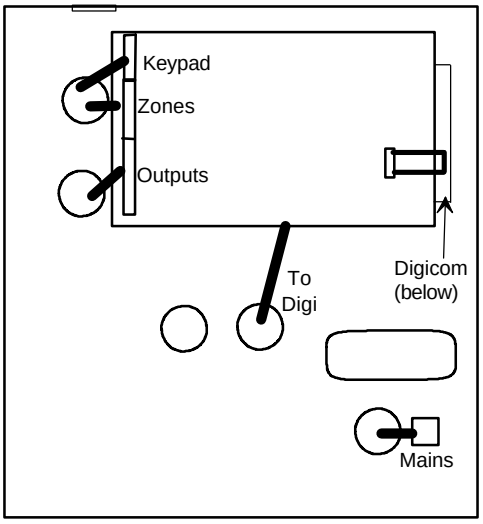
6.1.1 Mounting the Unit

Remove the four fixing screws from the front cover and lift off the panel front. Decide on the form of cable entry to be used, and remove the appropriate knockouts, **keeping at least 5 mm clearances between alarm and telecom cables, and at least 25 mm clearances from mains cables.** See 6.1.2 for recommended cable routing into the End Station.

Mount the panel chassis, initially by the top, slotted, screw hole only, then mark the positions of the other fixing holes and complete the mounting.
Do not drill for fixings through the holes in the chassis. Resulting dust and swarf could result in damage to the panel, and may invalidate warranty.

Before replacing the lid, check that the fuse covers are correctly in place, that the tamper switch arm is correctly adjusted, and ensure that the battery is clear of the lid fixing screws, to avoid the battery being punctured. It is mandatory that the lid is electrically connected to mains earth by the wiring loom provided.

6.1.2 Recommended cable access to End Station



6.1.3 System Paperwork

System paperwork must NOT be left loose in the housing in such a way that it could constitute a fire hazard.

6.1.4 Mains Connection

Mains connection should be made by a qualified electrician, in accordance with the Electrical Wiring Regulations (BS.7671).

A good, clean, EARTH connection is essential to avoid interference being injected into the system. The earth connection to the lid of the housing is mandatory.

NOTE: The pcb 'Gd' connection is NOT a safety earth connection, but is provided for filtering purposes, as described at 4.1.5

6.1.5 Alarm Circuit Wiring

The 1700 system uses iD point detection techniques for up to 20 points. For details of iD point wiring, etc. refer section 7.4. Care should be taken in siting detectors, and in selecting the best possible cable runs, to avoid potential sources of interference.

6.1.6 Input Wiring

KEYSWITCH	Terminals are provided for the connection of a remote keyswitch (see 7.2)
PTS	Accepts a momentary 0v signal from a push button (normally located immediately outside the final exit door) to terminate exit time and complete the setting procedure.
SABT	Input for Tamper return from SAB. Remove the factory link to 0v and wire to return of HO- from SAB

NOTE: These inputs are designed for -ive (0v) connections - wiring to +12v supply could result in damage.

6.1.7 Alarm and Outputs Wiring

Output	Function	Rating
12v	Supply to detectors, etc.	Fused (+) 800mA
HOLD OFF	Supply to SAB	Fused (-) 500mA
BELL **	Transistor driven 0v output to feed sounder, via SAB	Max 800mA *
STROBE	Transistor driven 0v output to feed Strobe (wire to HO+)	Max 800mA *
SPKR	Transistor driven output to feed loudspeaker.	Max two 16 ohm speakers in parallel *
OUT 1 and 2	Programmable transistor driven outputs (see 10.1.9)	Max 65mA *
D'COM **	Connector for addition of Digital Communicator	See 6.1.7
PRINTER	Connector for printer	See 6.1.8

* - Individual maximum, total load MUST be within system capacity (see 14).
** - These outputs may be inverted - see 10.1.14

6.1.8 Remote Signalling

A connector on the End Station pcb enables a communicating device to be wired. This is done by means of a loom (cat. CT.1105). The connections are as follows:

PIN	Loom Colour	Application
1	BROWN	Line Sense Input (+) from Communicator
2	RED	NOT USED
3	ORANGE	+12v supply to Communicator
4	YELLOW	Trouble output (see 6.1.8.1
5	GREEN	Fire / Aux output
6	BLUE	Confirmation (see 6.1.8.2)
7	MAUVE	Intruder output
8	GREY	PA output
9	WHITE	0v supply to Communicator
10	BLACK	Set/Unset output OR Abort output (see 6.1.8.3)

These connections provide +5v outputs, which may not trigger certain communicators designed for +12v signals only, for which purpose, the 'DCIF' interface is available (see section 14). The outputs may be inverted (see 10.1.14)

Incorrect connection of this loom could result in damage to the equipment.

6.1.8.1 Trouble Output

This output will be triggered by:

Engineer Access
Tamper alarm in 'DAY' mode
Set with (manual) omissions - with SET output live as well.

6.1.8.2 Sequential Confirmation Output

A 'sequential confirmation' output is available, and functions as follows:

a) the output is inhibited for 90 seconds after the system has set, and after the creation of an alarm on entry.
b) The output will trigger when a further zone* goes into fault condition following the end of the inhibit period.
c) The output will trigger at the second zone* trigger following a rearm.
d) The output will reset at the next code entry.

* - applicable to 'Intruder,' '24 Hour Tamper,' and 'Walk Through' zone types only, except that a 'Walk Through' zone will NOT trigger a confirmation signal if an 'Entry Exit' zone has previously been triggered.

It is essential that the system installation complies with the requirements of DD243 (NACP14) if this facility is to be used. The 1700 cannot be programmed to signal 'confirmation' from individually selected zones only.

6.1.8.3 Misoperation (Abort) Signalling

Misoperation (abort) signalling is available by removal of the Code 3 intruder signal, in conjunction with Set/Unset signalling.

Alternatively, a choice may be made between this and exception reporting of 'abort' without Set/Unset signalling.

In either case, the abort signal is generated when the system is unset following an alarm which has generated a code 3 'Intruder' signal.

Refer 10.1.11 for details.

6.1.8.4 Connection of Digital Communicator

A suitable Digital Communicator may be wired to the 1700 control, using a 'GP' Loom (CAT: CT.1105). This must be plugged on with pin 1 (BROWN) connection towards the TOP of the pcb.

NOTE: If the End Station is ordered in the 'small' housing, the SCANTRONIC 8440 'Mini-Com' will fit below the 1000 pcb within the panel, other communicators require the use of the standard, larger, housing, or mounting externally. If mounted externally, a buffered interface, such as the 'DCIF' module should be used (see section 14)

6.1.8.5 Red Care 'STU' Connection

The Digital Communicator outputs are compatible with the stand-alone 'EURO-STU.' The STU PROM should be programmed for CODE 1 for all channels EXCEPT channel 4, which should be programmed for CODE 3. If mounted externally, a buffered interface, such as the 'DCIF' module should be used (see section 14)

6.1.9 Connection of Printer

The printer, of standard IBM PC-compatible 'Centronics' parallel type (eg Datec DP1014.0400K, Seiko DPU40, Epson P40, etc.) should be connected to the 'PRINTER' port on the End Station, using the correct cable (Part No. CT5400 or CT5500) by the installing engineer, connecting the BROWN wire to PIN 1 of the connector (ie towards the bottom of the pcb).

The printer, or its associated loom should NOT be left connected to the system when 'off line' or not in use.

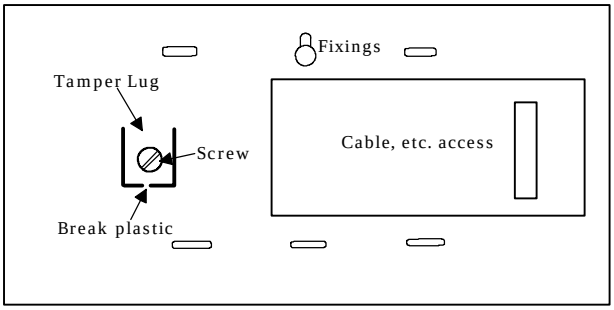
Due to the wide variety of software driving requirements, it is NOT possible for the 1700 to correctly drive all types of printer, or for Castle Care-Tech to advise on correct printer 'dip switch' settings, etc.

6.2 The Remote Keypad

6.2.1 Mounting the unit

Open the hinged cover on the front of the housing, and remove the single fixing screw at the right hand side of the unit. The complete front of the unit may now be removed by sliding slightly to the right and lifting.

BEFORE MOUNTING THE HOUSING ON THE WALL, note that the rear of the housing includes a lug designed to bear onto the tamper switch mounted on the printed circuit board. View housing from rear, and adjust as follows:



Note that the tamper lug is anchored by a small flash of plastic at the lower end; this should be broken by gentle pressure whilst the unit is dismantled, to permit the lug to be pressed against the switch inside the housing

The height of the screw fitted to this lug should be adjusted to ensure that the switch is correctly depressed **against a hard surface** when the unit is secured to the wall. Any wallpaper, etc. should be removed from the point at which the screw bears.

The back of the unit should be mounted in a suitable location, **on a smooth surface**, and the unit wired (and address coded) before reassembling (see 7.1). Mounting on a rough surface may result in the cover lifting from the back.

Before the keypads can report tampers, they must be enabled in software (see 10.1.12)

NOTE: Wiring between keypad and control unit should NOT exceed 100 metres. Nor should the cable used include cores used for other functions, especially connections to bells, loudspeakers, etc., or be run close and parallel to mains, telephone, etc. wiring. Wiring connections for 12v supply can usefully be doubled up - other connections must NOT be so treated.

After installation, the protective film covering the window of the Liquid Display (LCD) version should be removed or legibility may be impaired.

6.3 Powering Up

Power should be applied from the Mains first, then the standby battery connected. The standard housing will accommodate batteries up to 7AHr, the small housing up to 2.8AHr.

After a short initialisation sequence, the control display will show

Liquid Crystal Display	7-segment Display	Significance
System Ready (/ #)*	d	'day' mode - system ready for use
If an alarm tone sounds, it may be silenced with 1234# If a fault is present on the system, the display will show one of the following:		
First to Alarm Sys tamper	F 1	System (SAB or Box) Tamper
Mains Fail (/ #)*	F 2	Mains Failure
First to Alarm Lo volts	F 3	Low voltage fault
Batt fault (/ #)*	F 4	Battery fault
Line fault (/ #)*	F 5	Telecom line fault signalled by communicator

NB If the system is operated without a standby battery fitted, it is possible that the SAB may trigger momentarily at 30 second (approx.) intervals, as the battery test function is performed.

6.4 Clean Starting the System

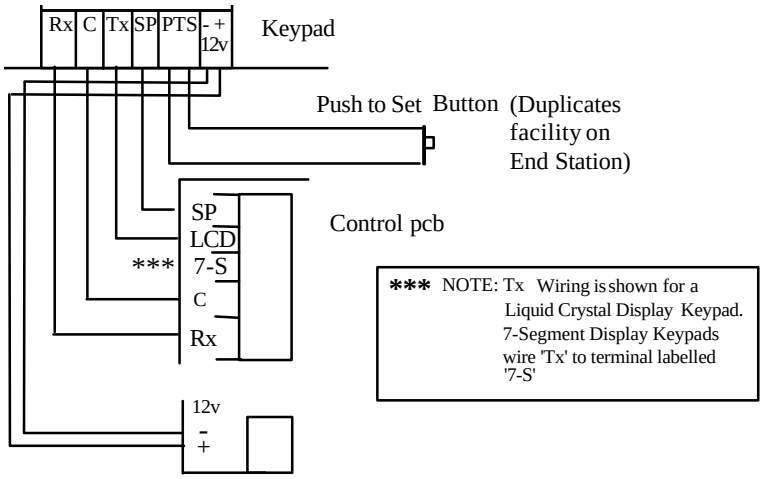
To clear all information from the NVM prior to reprogramming (eg in the event of reprogramming the system after a 'take-over,') follow this procedure:

1. Power the system down
2. Remove 'NVM' chip (located as shown on page 47)
3. Power the system up. This will initialise the system with factory defaults
4. Enter programming mode with default code (1111) - see 10.1
5. Carefully replace NVM, ensuring correct polarity.
6. Key in 80# (ie 'Clear logs')
7. Key in 83# (ie 'Clear zone text')
8. Press '*' to return to 'day' mode

The system is now ready to reprogram as described in section 10.

7 Wiring the System

7.1 Remote Keypad wiring



Additional keypads wire in parallel.

KEYPAD ADDRESS CODING

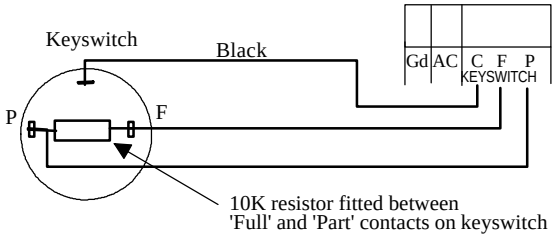
Each Keypad must be address coded by having ONE of the coding switches on the Keypad pcb closed, and each be coded to a different address (starting at 1), or the housing tamper circuit will not be functional.

RECOMMENDED CABLE TYPES FOR KEYPAD WIRING:

Up to 10 metres	6-core alarm cable
10 to 50 metres	8-core cable. Additional cores should be used to 'double-up' supply connections.
50 to 75 metres	8-core (double up supply connections as above) SCREENED cable.
The 1700 system is NOT suitable for installations requiring the keypad to be mounted in excess of 75 metres. For such situations, the MERiDIAN, or 2500 system should be used.	
NOTE: Additional cores in the same cable should NOT be used for other signals, especially speaker feeds, nor should the cable be run close to telephone or mains wiring.	

7.2 Remote Keyswitch Wiring

A remote keyswitch may be fitted the system, and wired to the 'Keyswitch' terminals on the End Station pcb as follows:

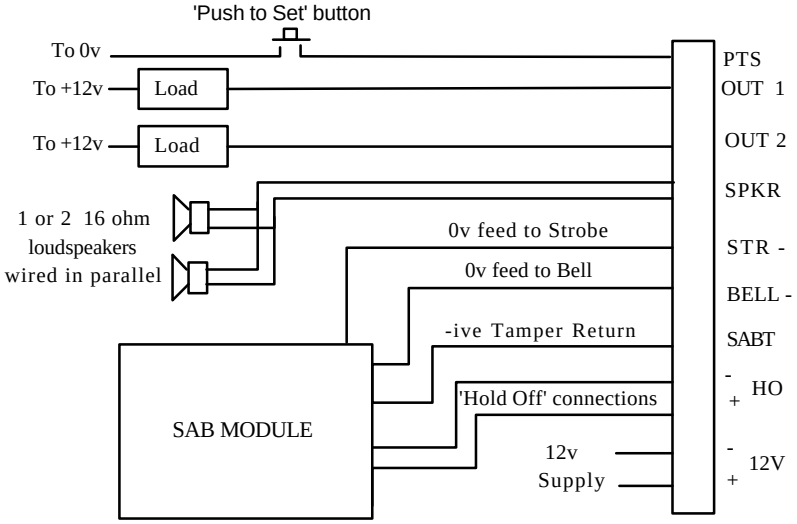


It is essential that the resistor (supplied fitted direct to terminals) is fitted as shown, as this provides tamper protection for the keyswitch connections.

Removal of this resistor from the terminals without fitting a keyswitch, or failure to fit the resistor at the keyswitch, will initiate a system tamper alarm.

The keyswitch may be used interchangeably with the keypad(s).

7.3 Outputs Wiring

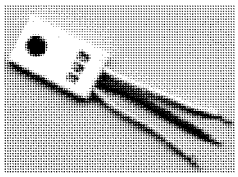


7.4 Detection Wiring

7.4.1 An introduction to iD

The **iD** (intelligent device) is not a detection device, but a means of interfacing detection devices to the control panel to provide a simple means of detector identification with very simple wiring. Two cores only are required for the monitoring of up to 20 detection devices, along with supply connections for detectors requiring power - thus greatly simplifying wiring.

The interface device, consists of a silicon microchip packaged ready for use in a plastic 'biscuit' such as is illustrated below, note that each device is numbered, and that numbers should never be duplicated within a single system.



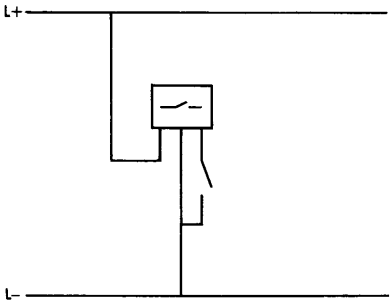
7.4.2 Features

1. Each device has its own identification number, from 01 to 30, which enables it to be individually controlled and identified. The 1700 will accept devices of any number up to its maximum capacity.

2. Each device continuously sends out two signals:

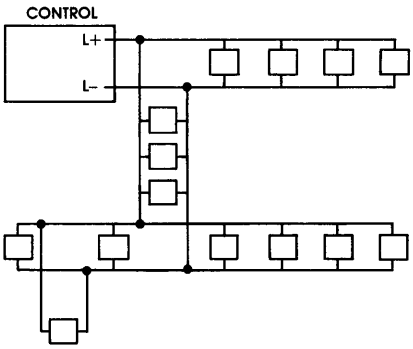
   a) A diagnostic signal, showing that the **iD** device is correctly connected and working.
   b) A signal reporting the status of the internal sensor contained in the **iD** device.

3. The status of the **iD** device may be changed by an electrical switch - such as a Passive Infra Red detector:



7.4.3 Wiring

Each device is connected in parallel across the two wire sensing line, which supplies the voltage from which the devices operate. The connections are identified as L+ and L-. Any parallel wiring configuration may be employed - including star, T and ring (as shown below) - so long as correct polarity of connection of each device is observed! Separate connections are required for power supply to detectors, such as PIRs.



The number of devices which may be connected per cable length is governed by ohms law. For standard 7 strand 0.2mm^2 cable, the maximum cable length between the Control Panel and the furthest **iD** device, with all 20 biscuits fitted, is120m. For longer cable lengths, see 7.4.7.

In practice, it would probably be simpler to spur off cables from the Control to connect devices in different parts of the building.

7.4.4 Detectors

Detector manufacturers supply products which are directly **iD** compatible, either by containing a special socket for an **iD** device to be plugged into, or by having the device built in - and carrying the appropriate **iD** device number. Alternatively any standard detector may be used, with an appropriate **iD** device wired into the terminals.

iD devices may be connected to the Control in any order, but it is essential that device numbers are NOT duplicated.

Devices used for 'Walk Through' zones should be numbered immediately higher than the Final Exit-Entry zone to which it refers.

It is ESSENTIAL that iD detection cabling, along with Keypad data cables are kept separate from any cables carrying mains, loudspeaker signals, telephone wiring, etc. to avoid disturbance to the detector scanning routines.

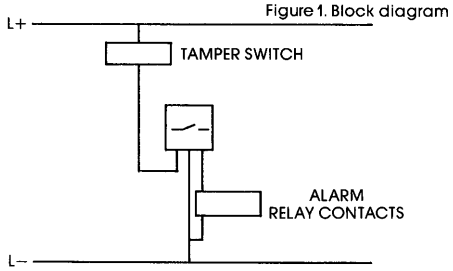
It is essential that detectors are not located more than 1 metre from the interfacing biscuit.

7.4.5 Basic Operation

Figure 1 shows the block diagram of an **iD** device connected to the sensing lines, and incorporating a tamper switch and a set of alarm contacts. These switches are identical to those found in any standard normally closed detector.

If the tamper switch opens, the device is disconnected from the line, and a tamper condition is initiated at the Control. If the alarm contacts open, the status of the internal sensor changes, this is recognised at the Control and signalled accordingly.

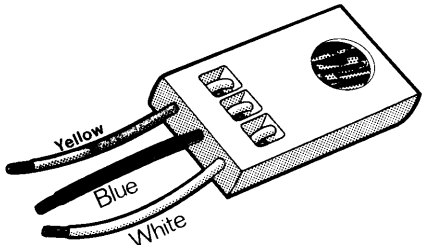
Figure 1. Block diagram



7.4.6 Connections

Absolute parallel wiring makes **iD** installation easy, quick, neat, and cost effective. Figure 2 shows an **iD** 'WIRED' biscuit, designed for direct connection into the terminal block of any detector.

Figure 2. An **iD** wired biscuit

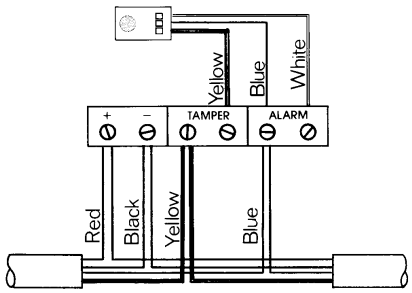


Connections using standard 4-core cable are simply colour to colour:

L+	(Yellow)	to YELLOW
L-	(Blue)	to BLUE
Supply	(for detectors)	to RED and BLACK
Switch wire	(white)	to detector, as shown above.

Figure 3 shows the connection of a wired biscuit to a typical PIR detector. Note the use of the PIR terminals as a junction box for the cables - that from the left of the diagram coming from the Control, and that to the right going on to the next detector.

Figure 3. Typical PIR used with an **iD** wired biscuit



On completion of wiring, the biscuit should be positioned neatly against the terminal block or cable form, ensuring that it does not obstruct any moving parts (eg tamper switch) or the operation of the sensor in the detector, or cause a short circuit.

Note that the **iD** biscuit may be concealed within a junction box, whilst providing tamper protection should the cover be removed

Remember the simple rule: JUST CONNECT COLOUR TO COLOUR.

NOTE: For maximum effectiveness of the system, the iD biscuit mustbe mounted in the detector, or directly connected to its terminals.

If this is impossible, an iD 'DP' junction box should be used for the connection.

In the event of difficulty making connections, or housing the biscuits, special iD junction boxes are available:

iD 'T'	For simple cable extension, or 'T' junctions
iD 'IL'	Now OBSOLETE Accepts a plug-in biscuit, provides interface from biscuit to double pole circuit, BUT can only be used immediately adjacent to detector..
iD 'DP'	Requires a 12v supply. New type accepts WIRED biscuit and provides double pole circuit, including fully identified tamper loop, and which can be used with no restriction on location. NB. Original type, now OBSOLETE accepts a plug-in biscuit. Provides a full double pole circuit, **neither of which is identified as a tamper circuit**. Suitable only for 24 Hr tamper circuits and similar, eg window foil, multiple 24 Hr fire doors, etc. .

7.4.7 Recommended Cable Types

SCREENED cable should be used for all **iD** installations.

Be sure to maintain the screen conductor through detectors and junction boxes in the wiring. The screen should be terminated to the metalwork of the End Station as close as possible to the point of entry. Terminal blocks are provided for this purpose.

Avoid running **iD** cables close to other cables carrying AC or digital signals.

Do NOT use highly capacitive cable types, such as 'PYRO' or very heavy gauge cables.

7.4.8 Recommended Cable Distances

In normal circumstances, using standard screened alarm cable, a maximum distance of 100 metres between the End Station and furthest biscuit is recommended to maintain optimum operation of the signalling.

Where practical, the End Station should be located to minimise **iD** cable distances. Multiple short cable runs are preferable to a single long one, even if the total cable length is greater.

To check voltage levels of the iD line, connect a DVM between L+ and L- at the furthest point in the wiring, set the system in 'Slow Scan' mode and note the readings. For correct operation, these should be:

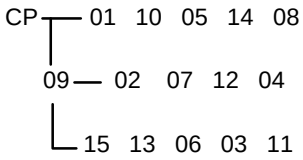
2.8 (Reset), 6.5 (Mid) and 11.0 (High).

The Mid and High voltage readings should be within +0, -0.5v tolerance.

7.4.9 Connection Order for iD Biscuits

There is no restriction as to which order biscuits are wired (other than the allocation of Walk Through zones - see 10.1.1)

However, when fault finding, it will be found very useful to have a simple chart available to identify the connection order actually used on each wiring spur, eg



iD REMINDERS:

Use screened cable, with the screen correctly terminated.

Do NOT run **iD** cables with mains, or with other AC or digital signal

Ensure all biscuits are wired to correct polarity

Ensure that biscuits are located **AT** the detector.

Allocate Walk Through zones as next higher biscuit number to its Entry Exit zone.

8 iD COMMISSIONING READINGS

The commissioning readings for detection circuits stipulated in BS4737 are not directly appropriate to an iD system. The following procedure is recommended to provide the equivalent measurements expected:

1. Complete the installation, but do not secure the detector housings
2. Remove the Yellow and Blue iD wires from the End Station, and twist them together.
3. Power the system up, and silence any tamper alarms (using 1234#)
4. On each separate wiring leg, measure and record the following readings at each detector:
   a) The resistance between the iD + and - (Yellow and Blue) wires. This is the WIRING resistance and is dependent solely on the length of cable run and cable gauge.
   Ensure reading is correct for amount of cable used.
   NOTE 100 metres of standard alarm cable should measure approx 16 ohms.
   b) The supply voltage to the detector (if applicable)
5. Secure the detector housing, ensuring that the tamper switch is correctly closed.
6. Move to the next detector and repeat the above measurements.
7. Untwist the Yellow and Blue wires at the End Station. Measure and record the resistance between them. This is the system iD resistance reading, and should agree broadly with the table at 8.1.
8. Measure for Earth or Voltage leakage to either of the iD wires, and eliminate any such that are indicated.
9. Replace the yellow and blue wires in the terminals
10. Carry out normal system Walk Test, etc.

NOTE that all of the above measurements are made with wiring still in place at all detectors, and with power applied. The presence of the iD biscuits will not affect the readings.

8.1 Table of Resistance Readings for iD system

No. of biscuits	Typical resistance	No. of biscuits	Typical resistance	No. of biscuits	Typical resistance
1	87K	8	10.9K	15	5.8K
2	43.5K	9	9.7K	16	5.4K
3	29K	10	8.7K	17	5.1K
4	21.8K	11	7.9K	18	4.8K
5	17.4K	12	7.3K	19	4.6K
6	14.7K	13	6.7K	20	4.4K
7	12.5K	14	6.2K		

These readings will vary due to component tolerances, but should fall between the adjacent values, and are provided as a guide to wiring integrity, NOT for identifying faulty biscuits.

9 Fault Finding iD Detection Systems

9.1 Voltage levels

To check voltage levels of the system, connect a DVM between L+ and L- terminals, set the system in 'SLOW SCAN' mode (78# from Engineer menu), and note the readings. For correct operation, the voltages should be:

2.8 (Reset), 6.5 (Mid) and 11.0 (High).

For the Med and High readings, +0, -0.5v tolerance applies.

These measurements may be repeated at the end of wiring runs to verify correct voltages.

9.2 False Alarms

If ***not*** reported as tampers, the normal checks on the detector and its siting should be performed. It could be caused by a faulty biscuit (rare), but **not** a wiring fault.

9.3 Tamper Faults

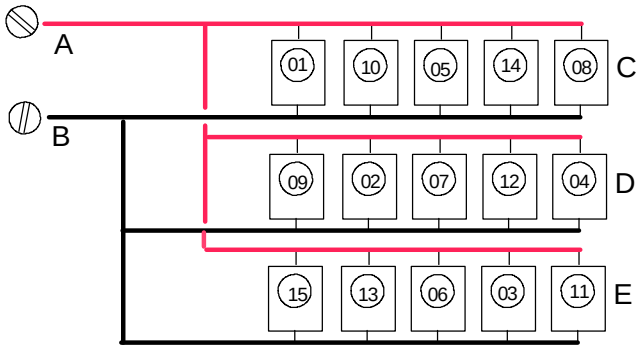
Tamper faults can be caused by

A tamper switch open, or broken cable or connection.
Two biscuits reporting at the same address
A faulty biscuit
Cable faults
RF Interference.

ALWAYS ascertain the complete picture of devices in tamper condition, and think about possible possible causes, before investigating individual faults.

Remember iDA: information - Deliberation - Action, in that order!

This will provide clues to trace the true source of the problem, *which may not be at the zone indicated* - eg imagine that a tamper fault has been indicated on zone 2 of a system wired as follows:



a) If zone 2 alone is in fault, the problem will be a tamper switch open, poor connection, or faulty biscuit at zone 2.
b) If zones 2, 4, 7 and 12 all show a tamper fault, the problem is a break in the cable between biscuits 2 and 9, or poor connection at 2 or 9.
c) if zone 13 (say) is also showing a tamper fault, either one of the biscuit numbers is duplicated, or one of these biscuits is faulty.

Similar conclusions can be drawn for other combinations of indications.

Other tamper problems may occur as follows:

a) **A tamper fault generated when a detector is triggered** is invariably caused by the detector being wired incorrectly (tamper should be in yellow connection, switch connection between blue and white.)

b) **A tamper fault generated when a different detector is triggered** is almost certainly due to a wiring problem, with an excessive resistance between the panel and the detector being tripped. Check the resistance readings at section 8 (step 4), checking the results against those expected for the cable distance used.

c) **Random tamper faults** can be induced by a biscuit with the WHITE wire connected to YELLOW instead of BLUE.

d) **Tamper problems when the loudspeaker is sounding** are likely to be caused by the connections being run with, or very close to, the iD network. Adjust wiring as necessary.

e) **The entire network giving random tamper problems** is likely to be caused by interference induced into the cabling from mains, telephones, etc. Examine the routing and adjust, or use screened cable.

9.4 Checking the iD Line for Shorts

A short on the iD line will result in the iD fuse on the End Station pcb failing. The line may be checked by removing the L+ and L- (Yellow and Blue) connections, and measuring the resistance. See table at 8.1 for correct resistance values.

Any reading LESS THAN 2KΩ, or substantially less than the table suggests, would indicate a short of some kind, or faulty biscuit. When the fault is cleared, replace the fuse ***with one of the correct value (160 mA)***, replace the wiring in the terminals, and re-test.

9.5 Use of Test Meters

iD biscuits do NOT need to be disconnected during normal voltage or resistance measurements, ***provided that*** no voltages in excess of 12v are applied by the meter. Do NOT therefore use a 'megger' or similar instrument for testing.

Additional checks are possible using the 'iD Test Meter' marketed by ACT Meters Ltd

iD FAULT FINDING:
Follow iDA: information - Deliberation - Action, in that order!
Check that all specifications summarised after 7.4.9 have been followed.

10 Programming the System

The system requires certain information to be programmed into the memory in order for it to function. The engineer should familiarise himself with the options available and how they are selected. A form is provided to enable the system parameters to be decided upon before commencing to program the system.

Programming is performed via the keypad.

10.1 Programming Options

To programme the system, enter 'Programming mode' as follows:

Action	Text Display	7-Segment Display
Enter 1111 (default Engineer Code), followed by #	Engineer Mode Enter command	P Flashing

The range of options available to be programmed is as follows:

Set Zone Parameters and Attributes
Set Timers
Set Sounder Options
Set Alarm Response in 'Part Guard'
Assign Outputs
Set Site Options
Select Keypads
Engineer Tests
View or Clear Logs

Each of the options is selected direct from the Programming prompt by a 2-digit code, as shown on the succeeding pages.

Return to 'day' mode is by use of the 'NO' (*) key.

Remember:

The # key steps through and confirms options.
The * key aborts the current option
The '0' (zero) key changes the option.

10.1.1 Zone Programming — Command 1x#

The 1700 Control Panel is despatched from factory with all circuits 'isolated' and awaiting programming, which is performed as follows:

Action	Text Display	7-segment Display
Select zone number, preceded by 1 (eg 13# for zone 3, 115# for zone 15, etc.)	Zone 03 Isolated	07 (ie zone type)
Use numeric keys to select zone type required, from table below, eg 3	Zone 03 Intruder	3
Press #	Zone 03 Non-omit Off	0 (Flashing) (ie zone attribute)
Use 0 to select/ deselect attribute	Zone 03 Non-omit On	0 (steady)
Press # to select next attribute	Zone 03 Chime Off	1 (steady) etc.
#	Zone 03 Omit in B Off	3 (steady) etc.
#	Zone 03 Active in C Off	4 (steady) etc.
#	Zone 03 iD assignment 03	3
Use number keys to enter number of iD biscuit to be used -eg 28	Zone 03 iD assignment 28	28
Care should be taken to avoid having a biscuit number assigned to more than one zone - even if one is programmed as 'isolated'		
Press #	Zone 03 Zone 3	_ _
The system is ready to accept the entry of an alternative zone description.	SEE 7.1.2	NOT APPLICABLE
Press * to accept	Engineer mode Enter command	P (flashing)

Table 1: Zone Type and Attribute codes.

ZONE TYPES	
0	PA **
1	Silent PA **
2	24 Hr Tamper
3	Intruder
4	Entry-Exit (final door)
5	Walk Through *** (Entry -exit in 'Part set')
6	Fire **
7	Isolated

ZONE ATTRIBUTES	
0	Non-omit
1	Chime
2	Soak
3	Part 'B' omit
4	Active in Part 'C'

** - These zone types **MUST** have the 'Live in C' attribute as ON (if part C is in use).

*** - A Walk Through zone should use biscuit numbered immediately higher than that for the Final Exit-Entry zone to which it relates.

10.1.1.1 Programming English Text Zone Descriptions (Liquid Crystal Display Systems only)

At the appropriate stage of zone programming, as described at 10.1.1, up to 16 text characters may be entered one at a time using the 2-digit codes shown in the following table:

A	33	N	46	a	65	n	78	0	16	Space	00
B	34	O	47	b	66	o	79	1	17	,	12
C	35	P	48	c	67	p	80	2	18	-	13
D	36	Q	49	d	68	q	81	3	19	.	14
E	37	R	50	e	69	r	82	4	20	/	15
F	38	S	51	f	70	s	83	5	21	"	02
G	39	T	52	g	71	t	84	6	22	&	06
H	40	U	53	h	72	u	85	7	23	(	08
I	41	V	54	i	73	v	86	8	24	)	09
J	42	W	55	j	74	w	87	9	25	*	10
K	43	X	56	k	75	x	88				
L	44	Y	57	l	76	y	89				
M	45	Z	58	m	77	z	90				

After entering each code, press # - the cursor will move to the next position, revealing the character programmed.

Press '*' key to terminate text string, and return to the programming prompt. This text will be shown on the Display in place of the Zone number.

10.1.1.2 Clean Zone Text **Command 83#**

All text strings are initially blank, until programmed. To initialise these as 'Zone 1,' etc. perform 'Clean Zone Text' by entering command 83#.

This may also be used to clear all existing programmed text if a system is being reprogrammed, etc.

10.1.2 Set Exit Mode and Time — Command 21#

The exit mode to be used for the system, and the required exit time are programmed as follows:

Action	Text Display	7-Segment Display	
Enter 21#	Exit mode Timed	t flashing	Timed exit mode selected
Change mode as required with 0 key	Exit mode Terminated	t steady	Terminated exit mode selected
Press # to register selection in memory	Exit time 030 secs (Not available if 'terminated' selected)	30 (alternately) then '.'	Exit time set at 30 seconds
Use number keys to select time required (3 digits)	Exit time 020 secs	20 (alternately)	Exit time adjusted to 20 seconds
Press # to register selection in memory	Engineer mode Enter command	P flashing	

When using 'Terminated' option, exit time is automatically endless, and is terminated by closure of the Final exit zone. When 'Part' setting, the system will default to 'timed' exit. To program the exit time required for 'Part' setting, first select 'Timed' mode, and the time required, then enter the option again and change to 'Terminated.'

To use a 'Push to Set' facility, set exit mode as 'TIMED' with a setting ending in '**9**' (eg 19, 29 etc secs). When 'FULL' setting, exit time will be ENDLESS, until terminated by making the 'Push to Set' input live. When 'PART' setting, the system will apply the programmed time in the normal way.

10.1.3 Set Entry Time — Command 22#

The required Entry Time is programmed as follows:

Action	Liquid Crystal Display	7-Segment Display	
Enter 22#	Entry time 030 secs	30 (alternately) then '.'	Currently set at 30 seconds
Use number keys to select time required (3 digits)	Entry time 045 secs	45 (alternately)	Entry time adjusted to 45 seconds
Press # to register selection in memory	Engineer mode Enter command	P flashing	

10.1.4 Bell Duration and Bell Delay — Commands 23# and 24#

The Bell Duration and Delay times are programmed as follows:

Action	Text Display	7-Segment Display	
For Bell DURATION Enter 23#	Bell time 015 mins	15 (alternately then '.'	Current setting 15 minutes
OR: For Bell DELAY Enter 24#	Bell delay 000 mins	0 then '.'	No delay set
To amend setting:			
Use number keys to select time required (up to 3 digits) ... eg	Bell delay 012 mins	12 (alternately)	Bell duration time adjusted to 12 minutes
Press # to register selection in memory	Engineer mode Enter command	P flashing	

Regardless of the 'BELL DELAY' setting, the bell output will trigger INSTANTLY in the following circumstances:

An alarm created within 90 seconds of the system being set.
An alarm following the commencement of Entry time (either expiry of entry time or deviation from entry route)
An alarm generated whilst 'Full' alarm response is not valid.

10.1.5 Re-Arm Count — Command 25#

This option selects the number of times that the system will automatically re-arm before shutting down to await resetting.
NOTE: Fire and PA zones remain live after the remainder of the system is 'locked out.'

Action	Text Display	7-Segment Display	
Enter 25#	Re-arm count 000	0 then '.'	No re-arm set
Use number keys to select number required (up to 3 digits)	Re-arm count 003	3	System will re-arm 3 times before locking out
Press # to register selection in memory	Engineer mode Enter command	P flashing	

10.1.6 'Just in Case' Timer

This timer is fixed at 60 seconds.

10.1.7 Sounder Options — Commands 31# to 34#

The options available are:
Strobe flash (approx. 5 secs) to confirm exit
Sounders continue after bell cut off
Silent Keypad PA alarm
Strobe cease with bell time
These are selected as follows:

Action	Text Display	7-Segment Display	
For 'Strobe Output Confirms Set' Enter 31#	Sounder Options Strb cnf ext On	1 flashing	Option is selected
For 'Sounder Continues After Bell Time' enter 32#	Sounder Options Sdr aft bell Off	1 steady	Option is NOT selected
For 'Silent Keypad PA Alarm' enter 33#	Sounder Options Sil 2-key PA Off	1 steady	Option is NOT selected
For 'Strobe Cease with Bell Time," enter 34#	Sounder Options Str = bell Off	1 steady	Option is NOT selected
TO CHANGE SETTING:			
Use 0 key to change response ... eg	Sounder Options Str = bell On	1 flashing	Option is now selected
Press # to register selection in memory	Engineer mode Enter command	P flashing	

10.1.8 Alarm Response in 'Part Guard' — Command 40#

Programme the alarm response required when the system is 'PART SET' ('B' or 'C') as follows:

Action	Text Display	7-Segment Display	
Enter 40#	Response in Part Local	2	Option 2 is currently set
Use number keys to select number required (1 to 3 - see below)... eg	Response in Part Full	1	Option 1 now set
Press # to register selection in memory	Engineer mode Enter command	P flashing	

OPTION:	1	Full	Full Alarm
	2	Local	Bell, Strobe and Sounders
	3	Sounders only	Internal Sounders Only

10.1.9 Assign Outputs — Commands 50# and 51#

The programmable outputs may be programmed as follows:

Action	Text Display	7-Segment Display	
Enter 50# (Output 1) or 51# (Output 2)	Assign output 1 PIR latch	1	Option 1 is currently set
Use number keys to select number required (see below)... eg	Assign output 1 Viper reset	2	Option 2 now set
Press # to register selection in memory	Engineer mode Enter command	P flashing	

OPTION:	1	PIR latch	May be inverted - see 7.1.15
	2	Viper reset	
	3	Armed	
	4	Alarm	
	5	Pulse on chime	
	6	Medical	
	7	Lighting	

Refer to Section 11.4 for specifications of these output options.

10.1.10 System Reset — Command 61#

The system can be programmed for either Engineer or User Reset, as follows:

Action	Text Display	7-Segment Display	
Enter 61#	Site Options Eng reset Off	1 steady	Set for USER reset
Use 0 key to change option selected.	Site Options Eng reset On	1 flashing	Now set for Engineer reset
Press # to register selection in memory	Engineer mode Enter command	P flashing	

If the Engineer Reset option is selected, following a FULL alarm the keypad will display '***Engineer Reset***' (or a flashing 'd') and the system will be locked out, awaiting reset by an authority higher than the user.

Reset may be performed by entering the ENGINEER code, and returning to 'day' mode. Alternatively, if a 'user' code is entered, the display will show (or scroll through) a four digit number. This number may be referenced to a special lookup programme to generate a special code which may be quoted to the user by an Alarm Monitoring Centre, or Installing Company, to enable reset to be performed by the user.

10.1.11 Misoperation (Abort) Signalling — Command 62#

The system provides a measure of protection for the operator who makes a mistake in the Entry procedure. This may be adjusted as follows:

Action	Text Display	7-Segment Display	
Enter 62#	Site Options Abort Off	1 steady	Option is NOT set
Use 0 key to change option selected as required	Site Options Abort On	1 flashing	Option is now set
Press # to register selection in memory	Engineer mode Enter command	P flashing	

If the abort option is **NOT** selected, normal set and unset monitoring will be available. When the system is unset following the generation of a 'Full' alarm (including communicator 'Intruder' output) the communicator channel will restore, and also the 'Set' channel will restore, enabling the Central Station response to be aborted if received within an agreed time.

If the abort option **IS** selected, no set / unset monitoring will be available. Instead, dedicated 'abort' signalling will be valid. When the system is unset following the generation of a 'Full' alarm (including communicator 'Intruder' output) the communicator channel will restore, and a dedicated 'abort' signal will be generated (code 4), enabling the Central Station response to be aborted if received within an agreed time.

10.1.12 Programming Access Codes — Command 63# and 64#

The Engineer access code on all new systems is 1111, and the Manager code is 2222 These may be changed as follows:

Action	Text Display	7-Segment Display	
Enter 63#	Site Options Engnr code - - - -	'.'	
Use number keys to enter required code ..eg	Site Options Engnr code 2580	display follows keys	New code accepted
then	Engineer mode Enter command	P flashing	
Enter 64#	Site Options Mangr code - - - -	'.'	
Use number keys to enter required code ..eg	Site Options Mangr code 7890	display follows keys	New code accepted
then	Engineer mode Enter command	P flashing	

Note that the Manager code may also be programmed through the Manager menu. User codes may only be programmed through the Manager menu.

10.1.13 Select Keypads — Command 65#

Action	Text Display	7-Segment Display	
Enter 65#	Site Options Rem keypads 1	1	1 keypad only enabled
Use number key (0 to 3) to select number of keypads	Site Options Rem keypads 2	2	Now 2 keypads enabled
Press # to register selection in memory	Engineer mode Enter command	P flashing	

NOTE: If 0 keypads are selected, the system will accept code entries, etc. from any keypads which may be fitted, but will NOT generate a tamper alarm if the cover is removed from a keypad. Individual keypads should first be coded as described at 7.1

Enabling a keypad which is not fitted will result in a system tamper alarm being generated (indicating '***Sys tamper***', or '**F 1**').

10.1.14 Inversion of Outputs — Command 67#

Certain output configurations shown at 6.1.6 and 11.4 may be inverted to suit alternative requirements for some installations:

Action	Text Display	7-Segment Display	
Enter 67#	Site Options Invert PIR Off	L steady	Normal PIR Latch output selected
Use 0 key to change option selected	Site Options Invert PIR On	L flashing	Inverted output now set
Press # to move to next option	Site Options Invert bell Off	b steady	Normal bell output (-ive applied) selected
Use 0 key to change option selected	Site Options Invert bell On	b flashing	Inverted output (-ive removed, for SCB use) now set
Press # to move to next option	Site Options Inv digicom Off	c steady	Normal digicom outputs (+5v applied) selected
Use 0 key to change option selected	Site Options Inv digicom On	c flashing	Inverted outputs (+5v removed) now set
Press # to register selection in memory	Engineer mode Enter command	P flashing	

10.1.15 Keypad Alerts — Command 68#

This function enables the 'Simple Set' options to be used, and an additional range of warning signals to be triggered from the Keypad. These are:

Just in Case	Code 1 *	Triggers delayed PA (Keypad) alarm	Reset with normal code
Fire	Code 7 *	Triggers normal FIRE alarm	Reset with normal code

These are enabled by the Engineer as follows:

Action	Text Display	7-Segment Display	
Enter 68#	Site Options Alerts Off	1 steady	Option not enabled
Use 0 key to enable option	Site Options Alerts On	1 flashing	Option now enabled
Press # to register selection in memory	Engineer mode Enter command	P flashing	

This function must be selected to permit the Part On 'C' setting to be used.

10.1.16 Display version — Command 69#

Action	Text Display	7-Segment Display	
Enter 69#	Version no. 2.6	2.6 (alternately)	Software version number is 2.6
then	Engineer mode Enter command	P flashing	

10.1.17 View System Logs — Command 81#

The system logs are displayed in chronological order, starting with the most recent. The information is accessed as follows

Action	Text Display	7-Segment Display	
Enter 81#	Display indicates type of event which follows:		
	Type Activation	A	Entry records an **A**ctivation event
	Type Alarm	a	Entry records an **a**larm event
	Type Trouble	t	Entry records a **t**rouble event
Press # or 0	Advances to next part of log entry		
	If '0' is used, the information displayed will include time and date, use of # will by-pass this.		
Continue to press # or 0 to read information	Press * / #	'.'	Indicates end of log entry.
Press # (or 0)	Scrolls to next log entry		
Press *	Engineer mode Enter command	P flashing	Exits log display mode

Activation records:

Text Display	7-Segment Display	
Set	S	Records system being Set
Unset	U	Records system being Unset
User number [figure]:	[figure]	Identifies how system was activated:
0	0	Keyswitch or Simple Set
1,2,3 or 4	1,2,3 or 4	Number of customer code used
9	9	System set in Part 'C'
Full	F	System set as Full
Part	P	System set as Part. Part set 'C' distinguished from 'B' by code 9, as above.
Omitted zones 1 2	o 1 o 2 (in turn)	Zones 1 and 2 were omitted whilst setting
Time : 03:15 Date : 07/11	03 15 07 11 (in turn)	Event recorded at 3.15 am on 7th November (Displayed only if scrolling with '0')

Alarm or Trouble Events

An Alarm event records information relevant to an alarm condition, a Trouble event records information relevant to a fault condition whilst the system is unset.

Text Display	7-Segment Display	
First to Alarm Zone xx	xx	Records an alarm triggered by the zone numbered.
First to Alarm Sys tamper	F1	Records an alarm triggered by a System (SAB, box, Keyswitch or Keypad) tamper fault
First to Alarm Mains fail	F2	Records a failure of the Mains supply
First to Alarm Lo volts	F3	Records a system voltage fault
First to Alarm Batt fault	F4	Records a battery fault
First to Alarm Line fault	F5	Records a Telecom line fault
First to Alarm System Restart	F6	Records the system microprocessor restarting
First to Alarm 2-key PA	F7	Records an alarm generated from the keypad
Time : 23:10 Date : 21/04	23 10 21 04 (in turn)	Event recorded at 11.10 pm on 21st April (Displayed only if scrolling with '0')

10.1.18 Print Logs — Command 82#

By using the command 82#, the logs will be output to a printer connected to the system. See 6.1.8. This function is also available from the Manager menu.
The printer should NOT be left connected whilst it is not in use.
Alternatively the 'NVM Programmer' may be used to transfer the logs to a PC for printing.

10.1.19 Clear Logs — Command 80#

This function should be used ONLY when you are certain that all information is finished with, or when installing a new system, or new NVM chip.

Action	Text Display	7-Segment Display	
Enter 80#	Clearing logs	'.' flashing	Note this will remain for a few seconds.
then	Engineer mode Enter command	P flashing	

10.1.20 Returning to User Mode

Press * key when the Programming prompt is showing, to return to day mode

10.2 Engineer Tests

The following tests are available to the Engineer whilst setting up the system:

10.2.1 Output Tests — Commands 71#, 72#, 73#, 75# and 78#

Action	Text Display	7-Segment Display	
Enter 71#	Engineer tests Bell test	1 (flashing)	Bell output is live
Cancel test with #	Engineer mode Enter command	P flashing	Output is cancelled

Other output tests function in the same way, using the following codes:

Strobe test	72#	
Sounder test	73#	
Communicator test	75#	(tests ALL communicator outputs)
Slow Scan mode	78#	(provides means of testing iD scan voltages - refer 9.1)

10.2.2 Input tests — Command 76#

Action	Text Display	7-Segment Display	
Enter 76#	Engineer tests I/p test Off	1 (steady)	Input is inactive
Apply 0v to any of the inputs - Full or Part keyswitch, or 'PTS'	Engineer tests I/p test On	1 (flashing)	Input is active A brief tone will be heard on the sounder as the input is operated.
Remove signal, and repeat as required for other inputs			
Cancel test with #	Engineer mode Enter command	P flashing	Output is cancelled

10.2.3 Walk test — Command 77#

Action	Text Display	7-Segment Display	
Enter 77#	Walk test Zone 00	'.'	
When a detector is activated	Walk test Zone 02	2	Sounder chimes as zone is triggered.
As additional detectors are activated	Walk test Zone 04	4	Zone numbers cycle
Note that at any time, ALL zones which have been triggered will scroll on the display, enabling the engineer to return to the panel and check, until			
Cancel test with #	Engineer mode Enter command	P flashing	Output is cancelled

11 Notes for Guidance

11.1 System Measurements

11.1.1 System Voltage

Should be set to 13.8v DC to allow the standby batteries to charge at correct voltage.

Battery fault indication ('F 4') will show if the battery is disconnected, the battery fuse has failed, or the battery is discharged to at least 2v below system voltage.

11.1.2 Power Supply Rating

The system power supply is able to supply a maximum of 1.2 amps continuously, or 1.5 amps peak for a maximum of 20 minutes.

If the 1700 is ordered in the small (size 'A') housing, the supply is derated to 0.8 amps continuous, 1 amp peak.

11.1.3 System Current

The 1700 End Station typically draws 40mA in quiescent conditions, 120mA in alarm.
Keypads draw approximately 160 mA (LCD); 75mA. (7-segment)
A 16Ω loudspeaker fitted to the system will increase this by approx. 250mA in alarm condition.

11.1.4 System Fusing

The following fuses are fitted to the system

Mains	250mA 20mm SLO blow	150mA if 1A Power Supply
Battery	1.5A 20mm Quickblow	1.25A if 1A Power Supply
12v	800mA 20mm Quickblow	Supplies ALL 12v positive outlets from pcb
Hold Off	500mA 20mm Quickblow	Supplies NEGATIVE Hold off feed
iD Line	160mA 20mm Quickblow	Supplies +ive iD line feed

It is important that the fuse covers are correctly fitted before securing lid.

11.2 System Memory

The system programme information is held in non-volatile memory (NVM), and is retained indefinitely at power-down, as is all log information.

11.3 Volume Control

The speaker output signals are generated at the following volume levels:

Alarm	High	Maximum output level - not adjustable
Fire	High	
Entry	Medium	Adjustable, using control labelled 'VOL 1'
Exit	Medium	
Tamper	Medium	
Chime	Low	Further adjustable, using control 'VOL 0'

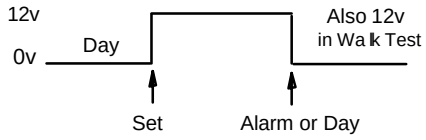
11.4 Output options

The output options are selected as shown at 10.1.9.

Output 1 is capable of driving a 65mA load, at both 0v and +12v. Output 2 will drive 65mA at 0v only.

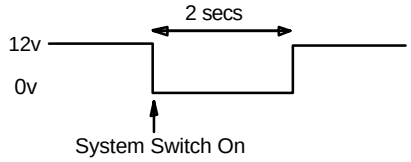
The options provide the following signals:

1. PIR Latch

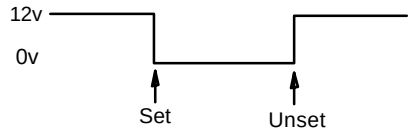


NOTE: This output configuration may be inverted, see 10.1.14

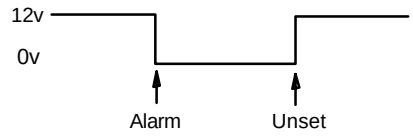
2. Viper 12v Reset



3. Armed

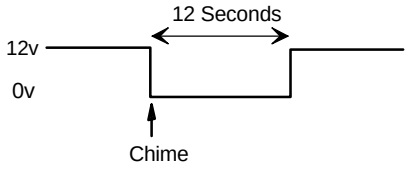


4. Alarm



This output is triggered by an alarm which generates a code 3 digicom signal.

5. Pulse on Chime



11.5 BABT Approval

The 1700 System is approved for connection to a public telecommunications system via an approved communicating device. Quote Approval Number: NS/G/23/J/100003

12 System Operation

Full details of the operation of the system are described in the "1700 Operating Instructions" - available to suit either LCD or 7-segment display keypads.

12.1 Using the System - Summary

12.1.1 Setting the System

Enter the 4-digit 'User' code, followed by # (to Full set) or * (to Part B set).

Pressing * additionally within two seconds will set the system silently.

A# will switch to the CHIME mode - to alert the user if someone enters a door or room designated as 'chime.' The display will show a musical note (or the 'Full stop') whilst this mode is selected. The chime can be switched off by keying in A# again.

If the Simple set options are selected:
B# will set the system in the 'PART ON B' mode, (B#* sets silently)
C# will set the system in the PART ON 'C' mode (C#* sets silently)
D# will set the entire system.

There is NO indication on the display when the system is set.

12.1.2 Unsetting the System

The system is unset from FULL or PART set conditions by entering the full 4-digit 'User' code, followed by #.

It is NOT now possible to unset from Part set 'C' with 'C#' - the full code must be used.

12.1.3 Silencing an Alarm

In the event of an alarm, this may be silenced by entering the 4-digit 'User' code, followed by #. After checking the indication, the display may be cleared by pressing #.

12.2 Keypad Alerts

The 1700 system provides the following functions, if programmed to be available:

1* will start the 'Just in Case' timer which will run for 60 seconds. If not cancelled by a valid user code, the alarm will sound. A brief pulsing tone will act as a reminder that the timer is running.
If the user is nervous about answering the door to a stranger, this timer can first be set to provide additional security.

7* will cause a FIRE ALARM to sound.

3 & 9, pressed simultaneously, will cause a PERSONAL ATTACK ALARM to sound.

These alarms are silenced by keying in the 'User' 4-digit code.

13 Manager Functions

The following functions are available through the Manager menu:

Change User Codes
Change Manager Code
Walk Test
Bell Test
Display and Print Logs

Accessing Manager functions:

Action	Text Display	7-Segment Display
Enter 2222 (default Manager Code), followed by #	Manager Mode Enter command	E Flashing

To return to 'user' mode, press *

13.1 Changing Codes

The MANAGER and USER codes may be changed from the Manager menu. The same procedure is used as described at 10.1.12, using the following codes:

1x# Change User code
15# Change Manager code

where x represents the number of the user code being changed, between 1 and 4.

To DELETE codes 2, 3 or 4, enter the code '0000.'
It is NOT possible to delete the Manager code, or User code 1.

Default codes are:
Manager: 1111
User 1: 1234

13.2 Testing the System

Test facilities duplicating the Engineer test facilities are available:
Walk Test: Code 20#
Bell Test: Code: 60# (test includes strobe)

13.3 Display System Logs

This function, duplicating the Engineer function, is accessed by code: 30#
The Manager menu does NOT permit the logs to be cleared.

13.4 Print System Logs

If the command 31# is used, the log will be output to a printer connected to the system. (see 6.1.8).

A printer should NOT be left connected to the system when 'off line' or not in use.

14 System Specifications

Designed to form the heart of an intruder alarm system complying with BS.4737. Fully compliant with requirements of ACPO policy and NACP14.

20 iD detection zone alarm control system, all zones fully programmable

Compatible with keypads (up to three) providing either English text, or 7-segment displays

Four User codes, plus Manager and Engineer codes, with Keyswitch option

'Full' and two 'Part' settings, along with 'Chime' option.

Programmed parameters, and system logs, stored in Non-Volatile Memory

Integrated Engineer Test facilities

Power Supply:

1.5 amp (1.2A continuous) **or** 1 amps (0.8 amps continuous)

System voltage: 13.80v DC

Current drain: End Station: 40mA standby, 120mA alarm.

Keypad: LCD:160mA 7-Seg: 75mA

Fuses fitted:

Mains	250mA	20mm SLO blow	150mA for 1A PS
Battery	1.5A	20mm Quickblow	1.25A for 1A PS
12v	800mA	20mm Quickblow	
Hold Off (-)	500mA	20mm Quickblow	
iD Line	160mA	20mm Quickblow	

Castle Care-Tech Ltd. reserves the right to adjust the specifications of this system in the interests of product improvement.

15 Accessories for the 1700

1000 Keypad - Liquid Crystal Display (Cat No. CT.1030)
NOT suitable for use with End Station pcbs of Issue 1, fitted software issue 1.0

1000 Keypad - 7-Segment Display (Cat No. CT.1000)

iD addressable 'biscuits: supplied in packs of 10, specify 1-10, 11-20 or 21-30
CT.2515 Plug-in Biscuits
CT.2516 Wired biscuits
CT.2517 iD contacts
iD Junction boxes - see 7.4.6
CT.2518 iD 'DP' junction box

8440 ('Mini-Com') Communicator (Cat. No. CT.1100)
NB other Digi-coms, and STUs are electrically compatible, but may not fit into the smaller housing.

GP Loom for connection of communicator (Cat. No. CT.1105) Refer section 6.1.7

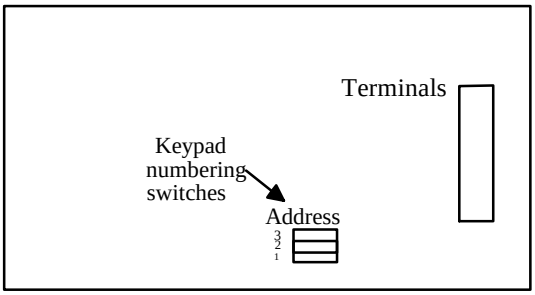
DCIF Interface (Cat No. CT.1107)
Interface module for buffering Communicator outputs for use with externally mounted communicating device, or for use with device requiring +12v trigger signals.

16Ω boxed loudspeaker (Cat No. CT.5700)

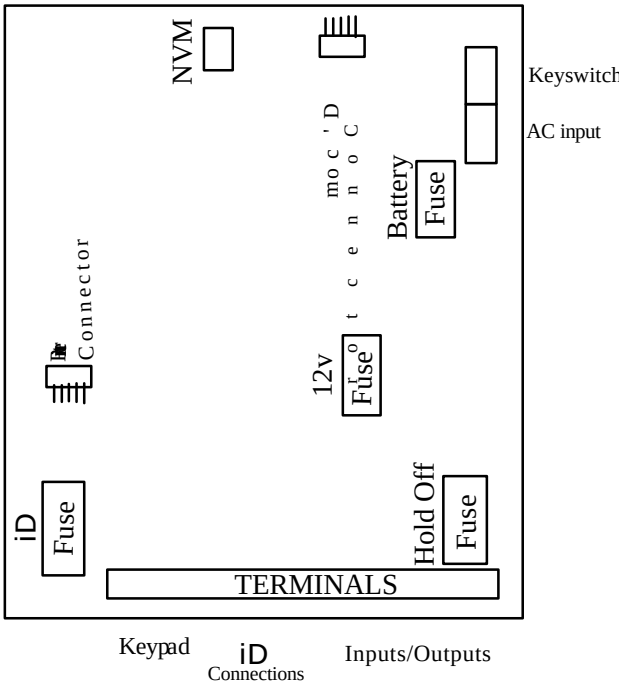
NVM Programmer
Permits the system NVM to be programmed from a PC and transferred to the Control unit, also transfer of system logs from NVM to PC to permit analysis and printing.

16 Printed Circuit Boards

16.1 The 1700 Keypad



The 1700 Control Printed Circuit Board



APPENDIX A: SUMMARY OF PROGRAMMING COMMANDS:

Programme Zones	1x#	x = number of zone
Exit mode and time	21#	
Entry time	22#	
Bell Time	23#	
Bell Delay	24#	
Re-Arm count	25#	
Just-in-Case Timer	-	Not programmable
Strobe confirm set	31#	
Sounder continue after bell time	32#	
Silent Keypad PA	33#	
Strobe cease with Bell time	34#	
Alarm response in Part Guard	40#	
Assign Output no. 1	50#	
Assign output no. 2	51#	
Engineer Reset	61#	
Abort (Misoperation)	62#	
Change Engineer code	63#	
Change Manager code	64#	
Change Customer codes	-	Via Manager menu
Set Date and Time	-	Via Manager menu
Select number of keypads	65#	
Output inversions	67#	
Enable keypad options	68#	
Display software version	69#	
Bell Test	71#	
Strobe Test	72#	
Sounder Test	73#	
Communicator Test	75#	
Input Test	76#	
Walk Test	77#	
iD Slow Scan mode	78#	
View logs	81#	
Print logs	82#	also via Manager menu
Clear logs	80#	**Use with care!**
Clear zone text (LCD models)	83#	

1. System Electrical Characteristics at Commissioning

Condition:	System Voltage	System Current	Battery voltage *	Battery Charge current	AC Noise	iD voltage levels (see 6.1) Reset:	Mid:	High:
Quiescent								
Full Alarm								
* Measured with mains disconnected from system								

2. Zone Options (see 10.1.1)

Zone No.	iD Device No.	Zone Type *	Non-Omit	Chime	Soak	Part B omit	Active in Part C	Text Description
1	1							
2	2							
3	3							
4	4							
5	5							
6	6							
7	7							
8	8							
9	9							
10	10							
11	11							
12	12							
13	13							
14	14							
15	15							
16	16							
17	17							
18	18							
19	19							
20	20							
* - Zone types: 0= PA; 1= Silent PA; 2= 24Hr Tamper; 3= Intruder; 4= Final E/E; 5= Walk Through; 6= Fire; 7= isolated.								

3. Timer Options (See 10.1.2 to 10.1.5)

Program	Function	Selection	Options:
21	Exit Mode		Timed or Terminated
	Exit Time		Seconds
22	Entry Time		Seconds
23	Bell Duration		Minutes
24	Bell Delay		Minutes
25	Re-arm		Number

4. Miscellaneous Options (See 10.1.7 to 10.1.15)

Programme	Option	Selection	Options:
31	Strobe confirm exit		Yes or No
32	Sounder cont. after bell cut off		Yes or No
33	Silent Keypad PA Alarm		Yes or No
34	Strobe cease with Bell time		Yes or No
40	Alarm response in Part Guard		1= Full, 2= Local, 3= Sounders
50	Programmed output 1		1= PIR; 2= VR; 3= Armed; 4= Alarm; 5= Pulse on Chime
51	Programmed Output 2		
61	Engineer reset enabled		Yes or No
62	Abort enabled		Yes or No
65	Number of keypads enabled		0 - 3
67	PIR Latch output inverted		Yes or No
	Invert Bell Output		Yes or No
	Invert Digicom Outputs		Yes or No
68	Keypad Alerts Enabled		Yes or No

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