Bell System (Telephones) Ltd.

Bellcall

Digital Door Entry System

Installation & Operation Manual

This manual applies to : -

BCP1 – Version 3

BSD-DIG – Version 2 Build 3 & 4

BSC4-AD – Version 2 Builds 4 to 7

BSSW – Version 2 Build 1

Bellcall Digital Door Entry System

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Bellcall Digital Door Entry System

Introduction

Description

Bellcall is a digitally signalled phone system with keypad style flat number entry.

A Bellcall door entry system consists of a door panel, positioned at the entrance of a building, door entry phones, placed inside of the building for the convenience of the occupants, a power supply and controller which are usually located inside an electrical cupboard. The door panel comprises of a two-way speech unit, an LED display and sixteen push buttons – which are used by a visitor to initiate a call. The phone, which rings in response, allows a two-way conversation via a handset. The operator can selectively allow visitors access to the building by pressing a button on the phone and so electrically releasing the door.

The Bellcall digital door entry system is suitable for any building requiring to address more phones than considered practical for a conventional pushbutton panel.

The Bellcall digital system is supplied with a dedicated door controller, for each entrance (the standard unit includes this in the panel assembly). The basic system supports 1 phone per address and a number of extension phones, consideration must be given to cabling and power supply's for the extra ringing current. Multiple entrances can be supported with the addition of one panel (and one door controller if vandal resistant) for each entrance.

Main Features

- 12V d.c. operation
- BCP1 surface or BCP1F flush mounted panel with integrated controller.
- BCP1/xxx vandal resistant panel types with separate controller for security.
- BS-A audio version of bellissimo videophone with ringer volume, ringer mute and door left open indicator.
- BC801 digital version of the popular 801 phone.
- High quality full-duplex speech amplifier.
- Inherent privacy of speech.
- Coded access facility built in (single 4 digit code).
- Facility for exit button.
- Timed lock release, fail safe or fail secure and magnetic locks (maglock).
- Reception (Porter) facility built in.
- Simple parallel wired system with a 6 wire bus.
- Simply add door controllers onto the bus for multiple entrances.
- Systems with over 1000 phones possible.
- Trades facility built in (requires external time clock).

The standard BCP1 integrated version needs no other control equipment, just the required number of entrance panels, phones and a power supply. (Extra doors may need extra power supplies). The system works on a 6-wire bus (6 common wires) with only the requirement to take care of power supply distribution on larger systems (see table later in this document). The use of standard Cat5 or CW1308 phone cable makes cable installation extremely economic.

The vandal resistant version of the panel uses a separate controller which normally needs to be positioned within 50m of the panel. This has added security as opening the panel gives no access to door lock circuitry.

Clear and concise display messages are presented to the visitor. Simple commissioning with user-friendly display messages.

The Bellcall system is very flexible and can be as simple as the system detailed above to larger systems with BSC4-AD group isolators and possibly BSSW gate switchers. It is also feasible that other bell*issimo* BSD8 or BSD72 controllers may be used in mixed systems to provide small blocks with 1 button per flat panels. See 'Design Considerations' for more detail.

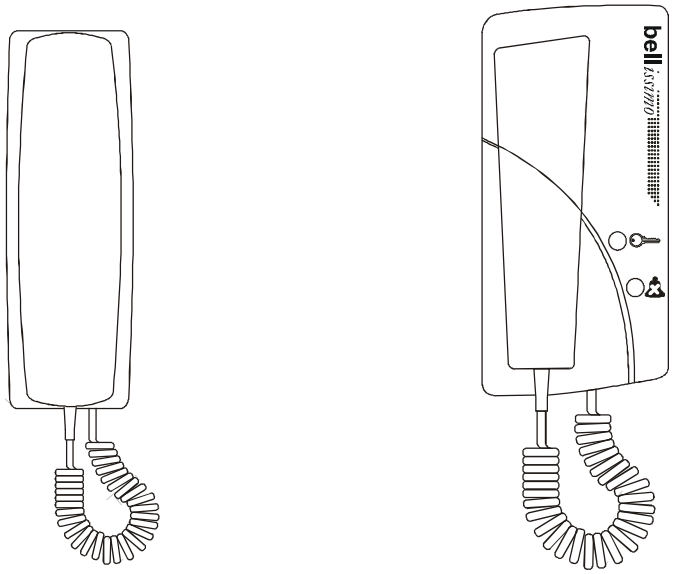
N.B. The term "Flat" is used generically to mean Flat, House or Office etc.

Phone Details

The BC801 phone is identical in style to our popular model 801 phone but contains the necessary electronics for connection onto the Bellcall digital bus. The phone is manufactured in white and grey high-impact ABS plastic that imparts high durability and compliments most wall furnishings. It incorporates a 'lock release' push-button discreetly positioned on the base, and under the handset, to prevent inadvertent use. It has an Electronic Ringing Tone.

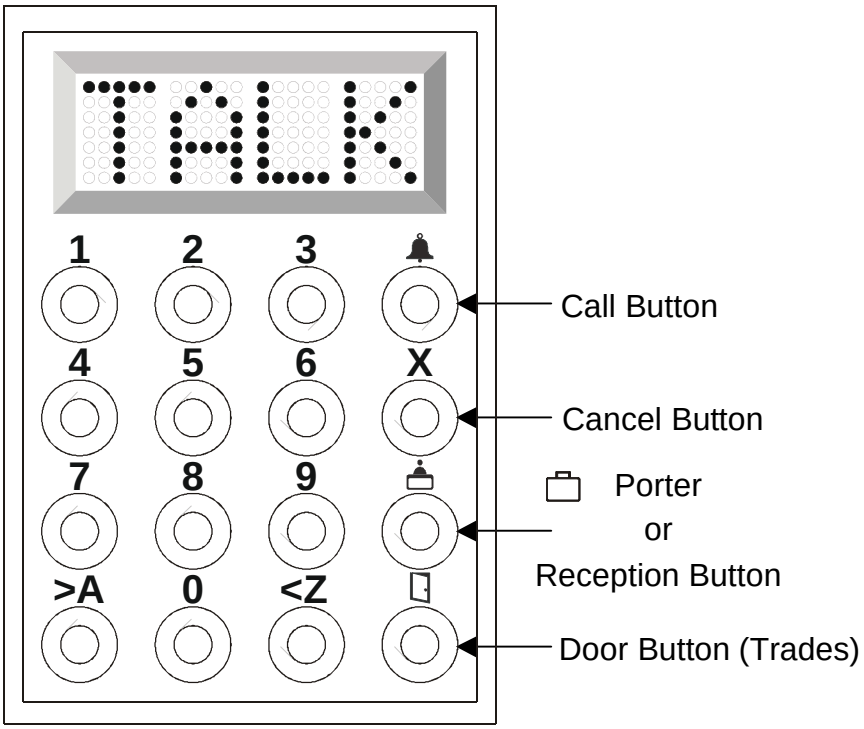
The BS-A phone is styled like our bell*issimo* videophone for audio only digital systems. The phone is manufactured in white and grey high-impact ABS plastic that imparts high durability and compliments most wall furnishings. It incorporates both ***mute*** and ***lock*** illuminated buttons. It has an Electronic Ringing Tone with rotary preset volume.

Diagram 1: **BC801 Phone** **BS-A Phone**



Bellcall Digital Door Entry System

Basic System Operation



Number and Letter Buttons

The numbers 0 to 9 are used to enter numbers. The letter button >A enters letters beginning with A and each press advances through the alphabet, while the letter button <Z does the reverse starting with Z. For example pressing >A three time will give C then pressing <Z once will give B, or starting with pressing Z 5 times will give V and then pressing >A twice will give X. To end the entering of a character is done by pressing a number button or ***call***.

The ***call*** button is used to call flats or end sequences, in effect OK.

The ***cancel*** button cancels the current entry leaving a blank display.

The ***reception*** or Porter (Suitcase) button calls a phone dedicated to that location.

The ***door*** or Trades button is used to gain direct access either directly or via a code.

Call sequence

When the callers address entered and the ***call*** button is pressed at the entrance panel it causes the phone to ring and the red ***mute*** lamp to flash. The phone will continue to ring for up to 30 seconds or until the resident responds by picking up the handset. The green ***lock*** lamp will flash to highlight the ***lock*** button.

The call may be terminated by replacing the handset or more usually by pressing the ***lock*** button to allow the visitor access through the entrance.

Phone Controls

Diagram 1 shows the BS-A phone and its controls.

The ringer volume setting is inside.

The use of the ***mute,*** and ***lock*** buttons are described below.

Call Mute – BS-A Only

The resident can mute the phones ringing sound when they do not wish to be disturbed. Call mute is activated by pressing the ***mute*** button on the phone, which illuminates in red as a reminder. Pressing the ***mute*** button a second time will disengage the mute function. During installation it is possible to set a time limit for the mute function in various values from 2 minutes up to 10 hours or indefinitely. When this time period has elapsed the mute function will automatically disengage. (See 'mute timer', page 18).

The mute feature stops the audible ring, but the red ***mute*** light will still flash to indicate a call and all other functions work normally. Ringer mute will continue for the preset time even if a call is answered.

Door Status Indication – BS-A Only

The green ***lock*** lamp on the phone will illuminate to warn the resident that a door has been left open following a call. This feature requires a door monitor contact to be fitted.

Call Privacy

Once a call has been made from an entrance panel only the phone(s) which is/are ringing may answer the call. Once answered, if another phones handset is picked up, the phone will not activate (including extensions of the active phone).

Extension Phones

Additional phones may be added to each 'flat'. The number of extensions is limited only by power supply and cabling considerations. All phones for that 'flat' will ring when called. Once a phone is 'picked-up' the conversation will only be with that phone.

Lock Type and Operation

The door controller supports both fail-secure and fail-safe locks including magnetic locks of up to 0.5A rating (1A BSD-DIG). The lock output is provided by a relay contact (transistor on BSD-DIG) switching Lock -, which in the event of power failure does not drive.

On pressing the ***lock*** button the lock timer will start and the door will unlock. For Lock Time settings see page 19.

Exit Button

An input is provided for an exit button, which can be installed on the inside of the door and allow residents to exit freely. Momentary operation of this button will operate the lock release for the programmed lock time.

Trades Facility – Timed

Use of a time clock in conjunction with the ***door*** button allows free or coded access during the programmed time. Without the time clock coded access can be used or disabled.

DDA Functionality

The vandal resistant version of Bellcall has a range of options for entrance panels to help meet the requirements of the Disability Discrimination Act (DDA), including Illuminated Tactile buttons and reassurance tones to indicate phone ringing and door released. Contact your sales representative for further details.

Multiple Entrances

The Bellcall system allows multiple entrances to be catered for by the addition of a door controller and entrance panel for each entrance and additional power supplies.

Design Considerations

Equipment List

A Bellcall digital audio systems can vary in content significantly, but comprise of the following items: -

- A number of phones, either the new BS-A phones or the older BC801
- None or more BSC4-AD Audio controllers as required to break up the wiring into 4 smaller segments each.

Then for each door:- Either

- BCP1(F) Integrated door panel and controller.

Or a door panel and controller.

- BCP1/LCP Vandal resistant panel LCP option.
- BCP1/VR(S) Vandal resistant panel standard VR option.
- BSD-DIG Door controller.
- 61 speech unit.

And common items

- Power supply, see below for alternatives.
- 203 Fail-secure lock release, alternate types available.
- **DDA** panels (Contact sales for further information).

Equipment Options

At the simplest all the door controllers and phones can be connected on a single bus, and this works for smaller systems. However there is a data limitation of 128 items (phones or controllers) on a single bus, and a total cable length limitation of about 1000metres.

BSC4-AD audio controller. This controller performs group isolation and allows both of the above limits to be overcome. Each controller can split the phones into 4 groups which are isolated from each other. Installation and maintenance are also improved in that if a fault develops in a group of common wired phones, the fault is already isolated to just those few phones.

Full Isolation. This is achieved by using the above BSC4-AD controllers with just one flat per output. When doing this it becomes more efficient to use the BSC4-AD's ability to use unprogrammed or programmed phones with the BSC4-AD decoding the address.

BSSW Gate switcher block isolator. This controller is used wherever 2 or more blocks of phones share a common door or gate and independent operation of the blocks is required.

That is in a fully common wired system only 1 door can make a call at a time, in a block isolated system there can be a call in every block simultaneously.

BSD8 and BSD72. These one button per flat controllers can be used to ring phones with addresses of 1 to 8 and 1 to 72 respectively and would normally be used for a small block in conjunction with a BSSW which can translate phone addresses. The bell*issimo* manuals for these controllers would be used to determine switch settings. Application would normally be as a result of contacting the technical department.

Mixed Audio Video Systems. A Bellcall system can be connected to a bell*issimo* video system where there are shared entrances, the BSSW would be the recommended method. All wiring carrying video **must** be installed to the requirements of the relevant bell*issimo* installation manuals, however the Bellcall wiring may be added to any convenient point. Do not connect the video signal into the Bellcall wiring.

Power Supply Requirements

The system is powered by 12V power supplies only: -

PS4	12V 4A	Standard Supply
340C	12V 1.5A	Standard Supply
840	12V 4A	Battery backed supply
640	12V 1A	Battery backed supply

Exact power supply requirements depend upon many factors. The number of power supplies included for a system may assume that all boxed controllers are installed in one location and that there are no extensions. More equipment may be required for distributed installations.

Cable Specification.

DO NOT USE Alarm cable.

All system wiring must be carried out using either **Cat5** signal or **CW1308** telephone cable and where necessary 1mm² (or greater) power cable as tabulated below. Cat5 cable is strongly recommended as it has a better performance and may allow future upgrades with less re-cabling.

Bell System will be unable to offer any warranty or support for systems installed using incorrect cables.

Cat5 Cable Specification

Cat5 is our short reference for EIA standard UTP Category 5 Unshielded Twisted Pair data cable. This is a standard 0.5mm diameter 0.2mm² solid core twisted pair cable having 4 pairs (8–cores) and no shield. The cores are in pairs where Blue and 'Blue with a White stripe' are twisted together as the first pair. The other three pairs are similar with main colours Orange, Green and Brown.

- Also available and acceptable are:

  UTP Category 5e (Cat5e)

  UTP Category 6 (CAT6)

  UTP Category 6e (CAT6e)

  The exact cable can be chosen from the above on cost and availability grounds.

- STP (Shielded Twisted Pair) cables are **not** recommended.

NOTE: Cat5 cable is easily identifiable as the specification is printed on the sheath.

UTP Patch cable is normally more expensive, but is otherwise suitable for audio and data use.

CW1308 Cable Specification

CW1308 is the international standard for telephone cable which is available in sizes from 1 pair to in excess of 25 pair. The standard CW1308 has 0.5mm diameter 0.2mm² cores. Different grades are available including a cheaper 0.4mm diameter 0.12mm² core and a 1.38mm diameter 1.5mm² core for long distance, though these are not normally available through common outlets. All our calculations are based on the 0.5mm diameter cores which are the same as Cat5 cores.

Cable Dimensions

Cable Types	
0.5mm dia. = 0.2mm^2	Solid core twisted pair, Cat5 or BT Spec. CW1308
1.12mm dia = 1.0mm^2	1.0mm^2, e.g. 'Twin & Earth' or flexible cord

Cable Distances

Volt drop along the 12V DC + and – power connections is the limiting factor. Where needed these are increased to 1mm^2. Please check the table below.

Phones may need either larger power cores or doubling up depending on the distance involved. E.g. when using 4 pair cable (8 cores) instead of 3 pair cable (6 cores), the distances would be double those indicated for 6 cores below.

Connections to the junction box - refer to diagram ?			
Connection	**No. of Cores**	**Cable Length**	**Core Size**
Power Supply to junction box	2	2m	1mm^2
TS2000 Time Clock	4	50m	0.5mm dia.
Phones per branch: 1	6 (3 pairs)	80m	0.5mm dia.
2		70m	
5		50m	
10		30m	
20		20m	
Phones per branch: 1	8 (4 power + 2 pairs)	165m	0.5mm dia.
2		140m	
5		100m	
10		65m	
20		40m	
5	2 + 4 (2 power + 2 pairs)	150m	2 @ 1mm^2 + 4 @ 0.5mm dia.
10		125m	
20		75m	

BCP1 Entrance Panel Connections			
Connection	**No. of Cores**	**Cable Length**	**Core Size**
Junction Box (see diagram 1)	6 (2 + 2pairs)	10m	0.5mm dia.
		40m	2 @ 1mm^2+ 4 @ 0.5mm dia.
If using a TS2000 Time Clock	2	50m	0.5mm dia.
Exit Button (optional)	2	50m	0.5mm dia.
Lock Release (0.5A)	2	5m	0.5mm dia.

Panel to BSD-DIG Door Controller			
Connection	**No. of Cores**	**Cable Length**	**Core Size**
BCP1/LCP (16 VR buttons + LED display)	18	50m	0.5mm dia.
BCP1/VR(S) (16 VR buttons + LED display)	18	50m	0.5mm dia.
Lock Release (1A)	2	10m	0.5mm dia.
	2	50m	1mm^2
Option: Exit button	2	50m	0.5mm dia.
Option: Door Monitor Switch	2	50m	0.5mm dia.
Power supply to controller	2	3m	1mm^2

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Installation & Commissioning

The following checklist is a reminder of what is required. Refer to the relevant pages for further details.

- Review the section headed ‘Important Safety Information’ on page 45.
- Ensure that ‘Design Considerations’ on page 8 have been understood.
- Confirm that Cat5 cable (or CW1308) has been specified.
- Install the system according to instructions in this section.
- Check/set the audio controller BSC4-Ax switch settings.
- Check/set each phone dipswitch and or jumper settings.
- Check/set the door controller BCP1 or BSD-DIG settings.
- Program the phones/phones if required.

Wiring

Refer to Diagrams A through E as appropriate for the equipment you have.

All wiring is carried out using a mixture of Cat5 or telephone cable for the signal wiring and 1mm² (or greater) cores for the power wiring; refer to Page 11 for further details. It is strongly recommended that a consistent colour code be used throughout such as that indicated on the connection diagram. Certain signals must be interconnected using a twisted pair from the Cat5 cable. These are clearly marked on the connection diagram and should be strictly observed.

Entrance Panel

The panel should be mounted at an optimum height of 1.6 m, measured between the ground and top of panel. With flush mounting panels it is advisable to apply mastic to the top and side edges of the panel to prevent water ingress behind the panel, but not the bottom edge. On construction sites the panel must be protected from corrosive substances such as 'brick acid'. The panel should be cleaned only with a damp cloth containing dilute detergent.

Phone

The phone is designed to be wall mounted onto plasterboard or other masonry, DDA considerations may dictate a lower height. It should be fixed with No 6 screws (not supplied). If the cable is to be feed from the wall cavity then make a hole for this at the same time. The top cover of the BS-A phone is secured by clips at both sides. Before replacing the Front Cover check that the DipSwitch settings are correct or change as necessary (see Page 18).

Electric Door Release

Both fail-secure and fail-safe lock releases (including magnetic locks) use the same terminals. To set the lock type, refer to the 'Door Controller Settings'. When installing lock releases please allow a little movement on the door, as operation will be impaired if fitted too tight.

NB. Magnetic locks (maglocks) must be fitted with a suppressor at the lock terminals. Some manufacturers fit an acceptable internal suppressor.

Fail Safe Exit Notes

Fail safe exits require an exit button and this should be normally open so that the controller can be used to give a timed exit. If the exit button has both normally open and normally closed contacts, then the normally closed contact can be wired in series with the release / maglock along with the break glass in case of equipment failure.

A not uncommon problem with maglocks is being locked out of the building due to equipment failure, lost codes or fobs. So consider an alternate building entrance, or an externally accessible secure keyswitch, or a reliable method of disabling the system during overnight secure lockup.

Fail Secure Exit Notes

Commonly fail secure exit doors incorporate a thumb-turn, door handle or mini push bar rather than use of an exit button. Fire officers usually require a minimum of door handle or push bar to open a door on a fire exit route – not thumb-turn.

Most fail safe locks are not continuously rated and if an electrical hold open system is used for say busy times, then a continuously rated release must be used.

Powered bolt, shoot-bolt or other more secure door locking systems may require the use of separate power supplies or having suppressors fitted. Shoot-bolt systems for instance tend to require at least 1.5A peak current and this will require the use of an isolation relay and normally a separate power supply for the lock.

Exit Button Input

The exit button is used to unlock the door for the lock operating time. The input is only for a normally open push button. 'Exit +' is the input and 'Exit –' is internally connected to 0V.

The input can also be used for connection to other equipment to open the door as shown in the interconnection diagrams K and L.

Door Open Switch – BSD-DIG only

The door open switch is used to provide an indication at the phone that the door has been left open. This switch can have closed contacts when the door is closed or open contacts when the door is closed, the choice being made in Panel Programming. The default of 'contacts open when door closed' must be selected when this feature is not required.

Time Clock Sharing

In a large system the time clock can be shared between distributed entrances by using one of the Cat5 common wires for the common time clock signal. Se the detailed diagram on page 42.

Commissioning

The many components of the Bellcall Digital system are fitted with high quality pluggable screw terminal blocks. This enables all the connections to the system to be fully completed, whilst easily isolating individual pieces of equipment during testing and commissioning.

When powering up for the first time, it is highly recommended that only the most basic system be connected. i.e. 1 phone, 1 door controller and panel, the remaining equipment can be isolated by removing terminal blocks at the video and door controllers.

Proceed to test the system by calling the phone from the door panel in the usual way. Any problems can be resolved by rechecking wiring and connections, assisted by the various suggestions and tests in the section "Troubleshooting". Once the basic system is fully functioning, continue to reconnect and test the remaining equipment item by item until completed.

Programming the Phones – BS-A or BC801 not BC801-P or BS-A-P

Each phone on a Bellcall system must be programmed with a unique 1-4 digit flat number, including one or two alphabetic characters.

Valid numbers: 6, 23, 2001, A47, 103G, B1A, 1A1A, A1A1.

Adjacent alphabetic characters cannot be programmed: LG, 1AA, AA1, 1AB2, 21AA.

Alphabetic Characters are selected by first pressing A> or <Z, subsequent presses of A> will step through the alphabet in a positive direction (A, B, C, …), whilst the <Z button will step in a negative direction (Z, X, Y, …).

BC801-P phones are supplied pre-programmed.

Program procedure: (Two man operation)

1. Ensure phones to be programmed are on the hook.
2. Enter Phone Security Code at any panel (default 1212) followed by CALL.
3. Display says WAIT.
4. Pick-up Handset to be programmed ; Display says TALK. Panel and handset may talk to each other; confirm phone new identity.
5. Type new number followed by CALL; Display says OK to confirm.

Program procedure: (One man operation)

Prepare a power supply controller and phone connection either in situ or at a convenient location and follow the above procedure one phone at a time. Mark each phone with its address and then install them.

Test procedure:

1. Instruct second man to hang-up phone.
2. Call phone from panel using new address e.g. 123 CALL
3. Second man awaits phone ringing then pick-ups to talk.
4. Second man Presses Lock button; first man confirms lock is released at panel.
5. Hang-up and repeat Program procedure for next phone.

It is strongly recommended that the Phone Security Code (TSEC) be changed from its factory setting to prevent unauthorised access (see next page). Record the new number carefully as it cannot be easily changed if lost.

Programming the Panel – BCP1

The BCP1 is programmed from the panel for all settings.

Security

It is strongly recommended that the Panel Security Code (PSEC) be changed from its factory setting to prevent unauthorised access. Record the new number carefully as it cannot be easily changed if lost. It is also recommended that the Phone Programming Code (PPRG), and Coded Access Code (ACOD) are all changed from default even if not used.

To access panel programming without the code requires physical access to the controller. Now pressing the test button will enter panel programming for 10S when the panel security code can be read or set..

Panel Programming

To use Panel Programming Mode :-

- firstly type the Panel Security Code (initially 3434) followed by the ***call*** button.
- The display will show the first programmable parameter (MODE).
- Press the ***door*** button to alternate between the current value of the parameter and the name of the parameter.
- Press the ***porter*** button to step through the programmable parameters:
- To change a parameter simply type a new 4-digit value and then press ***call***.
- To exit Panel Program Mode press ***cancel***.
- If no button is pressed for 10S then programming mode will auto-cancel.

Code	Action	Default	Action	Description
⇐		⇒		
MODE		5003	⇓	Multi-Function (See Below)
CODE		1234		Access Code
PORT		0101		Reception/Porter's Phone Number
PSEC		3434	⇓	Panel Security Code
TSEC		1212		Phone Security Code – Program Phone

MODE parameter

Enter a 4-digit number ABCD, Where:-

A is the Trade Mode 0-9 (see table).

B is the lock type; 0= fail secure, 1=fail-safe.

C is unused, set to 0.

D is the lock duration 0-9 secs.

Default 5003; Trade Mode 5, Fail-Secure Lock, Lock Duration 3 seconds

A Trade Mode:

Code = Pressing the ***door*** button prompts for the access code to open the door.

Door = Pressing the ***door*** button opens the door.

None = No function pressing the ***door*** button is ignored.

E.g. 5105; Trade Mode 5, Fail-Safe Lock, Lock Duration 5 seconds

Time Input	Trade Mode Setting									
	0	1	2	3	4	**5**	6	7	8	9
Open	None	Door	Code	None	Door	**Code**	None	Door	Code	None
Closed	None	None	None	Door	Door	**Door**	Code	Code	Code	None

CODE – Access Code

Code to open the door. Valid whenever the display indicates CODE. The Trades mode needs to be set to Code as per the table above. The default is 1234 and it is recommended that this is changed for security.

Letters cannot be used in this code, and 4 digits must be used, leading 0 is OK.

PORT – Porter Phone Address

The ***porter*** button is used to call a porter or reception desk or similar. The number is that of the called phone. The default is 101 which is unlikely to be used by a flat.

PSEC – Panel Security Key

The security key is required to gain access to panel programming.

The code is entered then pressing the ***call*** button, the default is 3434 and it is recommended that this be changed for security.

This code can contain letters and numbers for added security.

TSEC – Phone Programming Security Key

The phone programming security key is required to gain access to flat number programming of telephones. The default is 1212 and it is recommended that this be changed for security.

This code can contain letters and numbers for added security.

Programming the Panel – BSD-DIG

The BSD-DIG is programmed from the panel for all settings.

Security

It is strongly recommended that the Panel Security Code (PSEC) be changed from its factory setting to prevent unauthorised access. Record the new number carefully as it cannot be easily changed if lost. It is also recommended that the Phone Programming Code (PPRG), Coded Access Code (ACOD) and Trades Access Code (TCOD) are all changed from default even if not used.

To access panel programming without the code requires physical access to the controller PCB, borrow a jumper from say video gain (remember the setting) and place it on the 5 pin programming header between pins 1 & 2. Now pressing the test button will enter panel programming for 30S when the panel security code can be read or set. When the programming is finished replace the jumper back to its original location.

Panel Programming

To use Panel Programming Mode :-

- First type the Panel Security Code (initially 3434) followed by the ***call*** button.
- The display will show the first programmable parameter (ACOD), and then alternating at 1S intervals will be the data and the parameter name.
- Press the ***door*** button to step down through the programmable parameters.
- Press the ***reception*** button to step up through the programmable parameters.
- The list rolls over bottom to top and vice versa.
- To change a numeric parameter simply type a new 1-4-digit value and then press ***call***.
- To change other values simply press ***call*** to choose the next value.
- To exit Panel Program Mode press ***cancel***.
- If no button is pressed for 30S then programming mode will auto-cancel.

Code	Default	Access	Description
ACOD	1234		Coded access code – must be 4 digits
TCOD	6789		Trade access code – must be 4 digits
LTIM	0003		Lock Time: 1-99 seconds
LOCK	Secr		Lock Type: Secr (fail secure), Safe (fail safe)
CAM2	No		Camera 2: No (absent), Yes (present)
TRAD	0005		Trade Function: 0-9 – see table
DMON	Cwo		Door Monitor Polarity: Cwo, Owo
RECP	9898		Reception / Porter phone number
PSEC	3434		Panel security code
PPRG	1212		Phone programming security code
RING	0015		Ring Time – see table
TALK	0015		Talk Time – see table
TONE	Both		Ring and Lock Buzz-Tone enable, 4 settings
CANC	Yes		Allow ***Cancel*** button to terminate Call
BCAL	No		Bellcall BCP1 compatibility mode
12A?	No		Allows user entry of 12A to call BSC4 output 13

ACOD – Primary Access Code

Main code to open the door. Applies whenever the display indicates [Code]. The Trades mode (TRAD) needs to be set to 'Code' or 'Trade' as per the table below.

The code must be 4 digits and no letters, leading 0 is OK (e.g. [0246]).

TCOD – Secondary Access Code or Tradesmen's Code

Secondary 'tradesmen's' code to open the door. Valid only when the display indicates [Code] and the time clock selects the Trade option as per the table below.

The code must be 4 digits and no letters, leading 0 is OK (e.g. [0137]).

LTIM – Lock Release Operating Time

Door unlocked duration. Range 1 to 99 seconds. Only the last 2 displayed digits are used. A value of 0 will default to 1 second and a value containing alpha characters will default to 3 seconds.

LOCK – Lock Type

[Secr] = Fail secure lock: - Requires alternate mechanical means, key or thumb-turn to open on power failure.

[Safe] = Fail safe lock: - Lock opens on power failure.

CAM2 – Second Camera Present?

[No] = Only 1 camera,

[Yes] = Second camera present.

TRAD – Door Button Trades Mode

'None' = No function; pressing the ***door*** button is ignored.

'Door' = Pressing the ***door*** button opens the door.

'Code' = Pressing the ***door*** button prompts for the [ACOD] access code to open the door.

'Trade' = Pressing the ***door*** button prompts for either the [ACOD] or [TCOD] code to open the door

Setting	[0]	[1]	[2]	[3]	[4]	**[5]**	[6]	[7]	[8]	[9]
Time Clock Off	None	None	None	None	Code	**Code**	Code	Trade	Trade	Door
Time Clock On	None	Door	Code	Trade	Trade	**Door**	Code	Trade	Door	Door

DMON – Door Status Switch

[Owc] = Contacts open when door is closed: - The default allows for no switch fitted.

[Cwc] = Contacts closed when door is closed: - Standard normally closed switch.

RECP – Reception Phone Address

The ***reception*** button is used to call a reception desk or similar. The number is that of the called phone. The default is [9898] which is unlikely to be used by a flat.

PSEC – Panel Security Key

The security key is required to gain access to panel programming.

The code is entered then pressing the ***call*** button, the default is [3434] and it is recommended that this be changed for security.

This code can contain letters and numbers for added security.

PPRG – Phone Programming Security Key

The phone programming security key is required to gain access to flat number programming of telephones. The default is [1212] and it is recommended that this be changed for security.

This code can contain letters and numbers for added security.

RING – Ringing Time/Call Time and Ring Effect

Enter from 0 to 15 as per the table

Setting	Ring Time	Ring Cadence or Sound Effect
0	5s	1 in 3 – 1 ring every 3 seconds
1	8s	1 in 3 – 1 ring every 3 seconds
2	10s	1 in 3 – 1 ring every 3 seconds
3	15s	1 in 3 – 1 ring every 3 seconds
4	20s	1 in 3 – 1 ring every 3 seconds
5	30s	1 in 3 – 1 ring every 3 seconds
6	40s	1 in 3 – 1 ring every 3 seconds
7	45s	1 in 3 – 1 ring every 3 seconds
8	50s	1 in 3 – 1 ring every 3 seconds
9	60s	1 in 3 – 1 ring every 3 seconds
10	30s	1 in 3 (Reserved For future use)
11	30s	1 in 3 (Reserved For future use)
12	30s	2 in 15 – 2 rings, 15S silence, repeat
13	30s	1 in 15 – 1 ring, 15S silence, repeat
14	30s	1 in 5 – 1 ring every 5 seconds
15	**30s***	**1 in 3* – 1 ring every 3 seconds**

- Default setting

TALK – Talking Time/Phone Active

Enter from 0 to 15 as per the table

Setting	Talk Time		Setting	Talk Time		Setting	Talk Time		Setting	Talk Time
0	15s		4	60s		8	150s		12	60s
1	20s		5	75s		9	180s		13	60s
2	30s		6	90s		10	60s		14	60s
3	45s		7	120s		11	60s		**15**	**60s***

TONE – Re-assurance Tone

To conform to DDA requirements the controller provides a re-assurance tone when a phone is being called and also when the door lock has been operated from the door panel or the called phone, but not the exit button. So to give some customer flexibility especially when these tones are a nuisance, they are controllable.

Four settings are available: -

[Both] = Ringing and lock tones.

[Call] = Ringing tone only.

[Lock] = Lock tone only.

[None] = No tones.

CANC – Cancel Key Compatibility

For use with a new controller in older systems with any BSC4 video Controller below Build 4, or BS801 audio phone below Build 6, or BC801 or BC801P audio phones below Build 6. These older systems are not capable of cancelling a call and the phones will continue to ring even though the door controller has closed down.

If this situation applies then ensure [CANC] is set to [No] otherwise the default is [Yes].

BCAL – Bellcall Compatibility Mode

For use in mixed systems with a BCP1 panel revision V2.0 upwards. Switching compatibility mode to [Yes] changes the number format for addressing a phone and removes the 3 Second overhang of speech when operating the lock from a phone.

BS801 audio phones from Build 6, or BC801 or BC801P audio phones from Build 6, and all BSA phones already have number format transparency built in and do not need this switch.

Default is [No], set to [Yes] only when in a mixed BCP1 with older phones.

Must be set to [No] when addressing any videophones.

12A? – Flat 13 Numbered as 12A (From build 4)

For use when flat numbering is … 11, 12, 12A, 14, 15 … When set to [Yes] entering “12A ***call***” will actually send “13” so that the BSC4’s can be set to respond to … 11, 12, 13, 14, 15 …

BSD-DIG Door Controller Jumper Settings

All the jumpers apply to video only, so settings are irrelevant.

BS-A and BC801 Phone Switch Settings

BS-A(-P) Settings

Mute Time Setting SW1 (1-4)

4	3	2	1	Mute Time
On	On	On	On	Disabled[1]
On	On	On	Off	2 minutes
On	On	Off	On	5 minutes
On	On	Off	Off	10 minutes
On	Off	On	On	15 minutes
On	Off	On	Off	20 minutes
On	Off	Off	On	30 minutes
On	Off	Off	Off	45 minutes
Off	On	On	On	1 hour
Off	On	On	Off	2 hours
Off	On	Off	On	4 hours
Off	On	Off	Off	5 hours
Off	Off	On	On	6 hours
Off	Off	On	Off	8 hours
Off	Off	Off	On	10 hours
Off	**Off**	**Off**	**Off**	***Indefinite[2]**

SW1

OFF ↔ ON

*Default setting

[1]Disabled means pressing the ***mute*** button has no effect.

[2]Indefinite; the ***mute*** is cancelled by pressing the button again.

Master / Slave Jumper

There is a jumper in the BS-A phone marked MA for master and EX for slave

BC801(-P) Settings

The BC801 has a master / slave jumper which is detailed on the internal label. If the phone does not have a label then it is of a revision which is master only.

BSC4-AD Audio Isolator Settings

The BSC4-AD is an audio isolator which may have multiple audio phones (with individually programmed addresses) connected to each output (not just extensions).

The BSC4-AD is also capable of individual flat isolation with just one flat per output and can take care of the address decoding, SW6 settings as below and the phones do not need programming.

All Video jumper settings are irrelevant for audio only systems, so ignore.

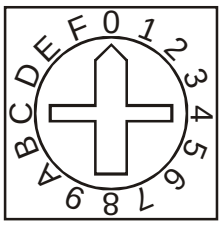
Switch settings

For Audio Distribution (multiple flats per output) SW6 is set to 0

SW6 is a rotary 16 position switch which sets the videophone addresses as per the following table. These numbers represent actual flat numbers for the digital controllers, they also correspond to the inputs on the BSD8 or BSD72.

SW6 Setting				
Pos	**Phone 1**	**Phone 2**	**Phone 3**	**Phone 4**
0	None	None	None	None
1	1	2	3	4
2	5	6	7	8
3	9	10	11	12
4	13	14	15	16
5	17	18	19	20
6	21	22	23	24
7	25	26	27	28
8	29	30	31	32
9	33	34	35	36
A	37	38	39	40
B	41	42	43	44
C	45	46	47	48
D	49	50	51	52
E	53	54	55	56
F	57	58	59	60

SW6



Shown at 0

ATTENTION

Each SW6 MUST be set correctly for the phones to ring.

This switch is shipped set to 0 to prevent multiple phones ringing on initial installation.

Address Offset SW7 – Builds up to 6C

SW7 is a 4 bit switch that is used to increase the addressing range. For each bit that is switched ON add the corresponding value to the address set by SW6. This allows phone 1 flat addresses up to 240 to be set.

Bit	Offset
1	+60
2	+120
3	+1
4	+2

Each bit on SW7 adds the corresponding amount to the address set by SW6.

SW7

OFF ↔ ON

Extended Addressing Jumper PROG pins 2-3 – Build 6C

This jumper adds +240 to the phone 1 address set using SW6 and SW7. Custom versions will show the custom offset on the build label. The jumper is stored on pins 4-5.

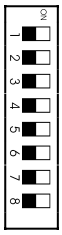
Address Offset SW7 – Build 7 onwards

SW7 is an 8 bit switch that is used to increase the addressing range. For each bit that is switched ON add the corresponding value to the amount set by SW6. This allows flat addresses up to 3210 to be set (6410 or higher with the jumper below).

Bit	Offset
1	+1
2	+2
3	+50
4	+100
5	+200
6	+400
7	+800
8	+1600

Each bit on SW7 adds the corresponding amount to the address set by SW6. Do not set a total value above 9995

SW7



OFF ↔ ON

Extended Addressing Jumper PROG pins 2-3 – Build 7

This jumper adds +3200 to the phone 1 address set using SW6 and SW7. Phone addresses up to 6410 (Phone 1 output) can be set. Custom versions will show the custom offset on the build label.

The use of this jumper precludes the use of Odd/Even addressing by PROG pins 1-2, if both are required contact Bell System Technical. The jumper is stored on pins 4-5.

Custom Alternate Addressing

Special versions of the BSC4 can be ordered to allow addressing above 6413. For instance by making the jumper add 5000 the BSC4 would be able to address from 1 to 3210 and 5001 to 8210 (Phone 1 output).

Extended Addressing Jumper PROG pins 2-3 – Build 7A

This jumper adds +nn00 to the phone 1 address set using SW6 and SW7. The value +nn00 is shown on the build label. The jumper is stored on pins 4-5.

The use of this jumper precludes the use of Odd/Even addressing by PROG pins 1-2, if both are required contact Bell System Technical. The jumper is stored on pins 4-5.

Odd/Even Addressing Jumper PROG pins 1-2 – Builds 5C, 6C and 7 onwards

This jumper alters the addressing of Phone outputs 2, 3 and 4 such that they all become either odd or even numbers. So if the address of phone 1 is 12 say the other outputs become 14, 16 and 18. If the address were 31 then the other outputs are 33, 35 and 37.

The use of this jumper precludes the use of extended addressing by PROG pins 2-3, if both are required contact Bell System Technical. The jumper is stored on pins 4-5.

Troubleshooting

Common Faults

A very high percentage of calls to our technical support number, regarding new installations, are resolved to faulty wiring. The reasons for these are various:-

Broken cores, especially short links, sometimes inside the insulation!

Connectors clamped onto insulation instead of copper. Wire in the wrong side of a rising clamp connection, the clamps need to be unscrewed far enough to stop the wire going "underneath".

Shorts or opens due to cables having been stapled or nailed through.

A common fault even we make is wiring a connector left to right instead of right to left, or one or more twisted pairs the wrong way round.

Warning. The heads of screws on connectors are not a reliable means of making a connection, try pushing the probe into the wire entry point.

Normal System Operation

First a quick run down on how the system should work. A phone can only be picked up and be active while it is ringing, and only be rung when it is on hook. For the BSA phone if the red mute LED is flashing the phone is, off hook and cannot converse with the panel. The system indicates busy when the controller 'thinks' another panel is making a call.

Entering a flat number and pressing the ***call*** pushbutton causes a call to that phone which replies with an acknowledge and starts to ring, on receipt of the acknowledge the controller turns on the Status LED.

Answering the phone by picking up the handset sends a corresponding message to the controller which turns on the Audio relay.

Finally finishing the call by replacing the handset or due to timeout, all the relays and the status LED will go off. Or finishing the call by operating the lock button will flash the Status and operate the Lock LED, after 3S the relays (and phone) will go off, at the end of the lock time the Status LED and the Lock LED will go off. N.B. The 3 S overhang is only with the BSD-DIG.

In addition to this the Status LED will have diagnostic flashes corresponding to the button press and the data sent and received. These visually merge with the Status LED going on and just an off flicker is visible. The pickup and any subsequent phone operation will cause an off flash.

Quick Fault Reference

Display Problems – BCP1	
Display does not indicate version on power up.	• BCP1 – No power
Display does not update when pressing keys.	• BCP1 – Internal fault. • No Power

Panel Display Problems	
No display	• No power at display, check for a minimum of 10V. • To test display, cycle the power on BSD-DIG and check for both version numbers displayed. "BDV1" then "V4.0"
Display indicates "F 1 – –"	• "D" connection open circuit.
Display indicates "F 2 – –"	• "D" connection no data reception.

Power Problems	
Display indicates version number on pressing call, during ring or on lock operation.	• Power supply intermittent short or overload. • Lock output short-circuit; see 'Lock Problems' • Output overload is causing current limit to operate, check grouping of controllers to power supplies • See Lock Problems below
Speech or ringing cuts off or is intermittent.	• Check the voltage at the phone while ringing is more than 10V. If less than 10V then:- • Cable distance to phone too far. • Not enough power cores. • Power supply or other fault.
Phone resetting (Indicators lights flash red then green and then go off).	• Power supply intermittent short or overload. • Lock output short-circuit; see 'Lock Problems'
Green LED does not light on controller.	• Temporarily remove connection to 12V+ output. If the LED now comes on there is a short on the phone cabling. • 12V input connections are reversed.
PS4 output voltage fluctuating, meter reading unstable.	• Output overload is causing current limit to operate, check grouping of controllers to power supplies • See Lock Problems below

Programming Problems	
Cannot find panel security code PSEC	• BCP1 – (latest issue only) Pressing the Test button puts the panel into programming mode – no values are changed. • BSD-DIG – Borrow a jumper from say video gain and put it on pins 1-2 of the 'Prog' 5 pin header. Press Test to enter Programming – no values are changed. Replace jumper when finished.
Cannot program phone.	• Data wiring fault on A or B wires. Check for A and B reversed, a short A to B, a short to ground or power.

Call Problems	
Cancel button does not work.	• Cancel button is only used to exit panel programming or delete a partly entered flat number. It does not cancel a call or phone programming.
Phone does not ring. Cannot program phone. Rings but no speech. Speech but no lock. Loud screech on hang-up or on pressing lock button.	• Data wiring fault on A or B wires. Check for A and B reversed, a short A to B, a short to ground or power. • Phone off hook or muted on full mute. • No power to phone; check that red lamp flashes when handset is picked up. • 0V to controller missing on separately powered phone. • Pushbutton wiring error, try short length at controller.
No extension phone rings or flashes when called.	• Master phone off hook or muted on full mute.
Green Lock light on phone flashes once when called.	• Phone set to slave with no master present or responding.

Speech Problems	
Loud tone at the entrance speaker. (Acoustic feedback).	• Volume controls set too high • Broken Audio 1 or 2 wire in the phone cabling. • Data wiring fault on A or B wires. Check for A and B reversed, a short A to B, a short to ground or power. • Intermittent or broken wire in Data A or B. • Phone has reset; see power faults. • Check model 61 is hard against the panel with no gaps. • Check model 61 speech unit is the right way round and that the microphone hole in the speech unit lines up with the hole in the panel.
Low volume speech in one or both directions	• Adjust pot on 61 speech unit marked A and with a speaker symbol for volume at the panel. • Adjust pot on 61 speech unit marked B and with a microphone symbol for volume at the phone. • If volume cannot be increased in one direction without feedback, the volume in the other direction may have to be reduced as a compromise. • Check model 61 is hard against the panel with no gaps. • Check model 61 speech unit is the right way round and that the microphone hole in the speech unit lines up with the hole in the panel.
No speech from phone to entrance.	• BCP1 – Internal fault. • BSD-DIG – Missing R core to door controller • Broken Audio 1 or 2 connections.
No speech from entrance to phone.	• BCP1 – Internal fault. • BSD-DIG – Missing T core to door controller • Broken Audio 1 or 2 connections.

Lock Release Problems	
TEST: Press '**Test'** Button on Door Controller (when system idle):	• Confirm 'LOCK' LED illuminates for 3 seconds. • Check Output Voltage at LOCK terminals.
Lock release does not operate Try shorting exit terminals, remove wiring first	• Confirm 'LOCK' LED changes state for the 'lock time'. N.B. LED goes ON for fail secure, OFF for fail safe. • Check the output voltage at LOCK terminals. • Connections to lock release are open or shorted. • Voltage drop due to insufficient cable capacity. • Lock current is too high; Power supply is resetting. • Power supply drop too high, cable or distance limits to controller exceeded. • Maglock or Solenoid bolt not suppressed will cause failures or damage.
Lock operates from the exit button but not the test button or phone.	• Normally closed switch has been used for exit button.
Lock release operates all the time or in reverse	• Check fail safe/fail secure selection matches the lock type. • Check that the exit button is not normally closed.
Lock release does not operate or clicks but does not open.	• Connections to Lock Release are open or shorted. • Voltage drop due to cable too thin. • Lock current is too high; Power supply is resetting. • Lock release jammed due to over tight fitting.
Maglock does not hold strongly.	• Voltage drop due to cable too thin.

Specifications

BCP1	
Size	288mm x 100mm x 43mm
Fixing	Wall Mounted
Supply Voltage	10V minimum. 15V maximum
Current Consumption	550mA @ 13.8V active, 60mA @13.8V idle

Model BC801 Phone	
Size	212mm x 85mm x 55mm
Supply Voltage	10V d.c. minimum, 15V d.c. maximum
Current consumption	10mA idle, 120mA ringing @13.8V

Model BS-A Phone	
Size	235mm x 105mm x 25mm
Supply Voltage	10V d.c. minimum, 30V d.c. maximum
Current consumption	20mA idle, 67mA ringing @13.8V

BSD-DIG Door Controller	
Size	185mm x 230mm x 42mm
Supply Voltage	10.8V min, 13.8V typical, 15V max
Current Consumption	80mA idle, 500mA max @13.8V Includes display and speech

BSSW Gate Switcher / Block Isolator	
Size	185mm x 230mm x 42mm
Supply Voltage	10.8V min, 13.8V typical, 15V max
Current Consumption	80mA idle, 210mA max @13.8V

BSC4-AD Audio Controller	
Size	185mm x 230mm x 42mm
Supply Voltage	10.8V min, 13.8V typical, 15V max
Current Consumption	80mA idle, 200mA max @13.8V

Model 61 Speech Unit	
Size	98mm x 60mm x 24mm
Supply Voltage	10V d.c. minimum, 15V d.c. maximum
Current consumption	100mA d.c. maximum

PS4 Power Supply	
Size	236mm x 105mm x 81mm
Output Voltage (regulated)	13.5V Min, 13.8V Nom, 14.1V Max
Output Current	3A continuous, 4A peak (5 minutes max)
Mains Supply Internal Fuse	Not user replaceable
Supply Voltage	230V 50Hz nominal
Temperature Range	0 ºC to 50 ºC

340C Power Supply	
Size	140mm x 60mm x 53mm
Output Voltage (regulated)	13.5V Min, 13.8V Nom, 14.1V Max
Output Current	1A continuous, 1.5A peak (5 minutes max)
Mains Supply Internal Fuse	Not user replaceable
Supply Voltage	230V 50Hz nominal
Temperature Range	0 ºC to 50 ºC

840 Power Supply – Battery Backed	
Size	350mm x 330mm x 80mm
Output Voltage (regulated)	13.5V Min, 13.8V Nom, 14.1V Max
Output Current	3A continuous, 4A peak (5 minutes max)
Mains Supply Internal Fuse	T2A 20mm HBC (HRC) Ceramic
Battery Fuse	F4A 20mm Glass
Supply Voltage	230V 50Hz nominal
Temperature Range	0 ºC to 50 ºC

Bellcall Digital Door Entry System

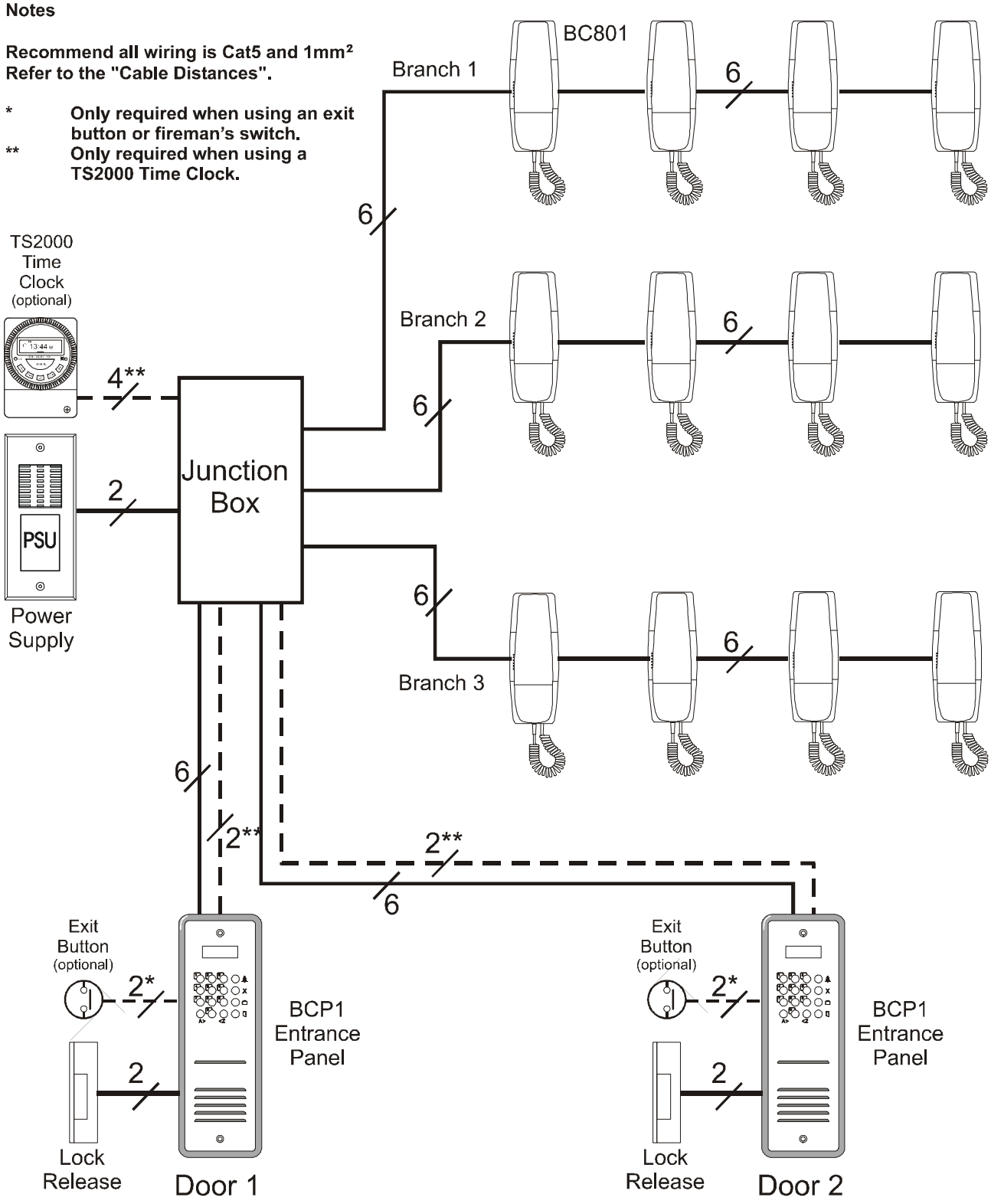
Diagram A – System Wiring – BCP1 Panels

Notes

Recommend all wiring is Cat5 and 1mm² Refer to the "Cable Distances".

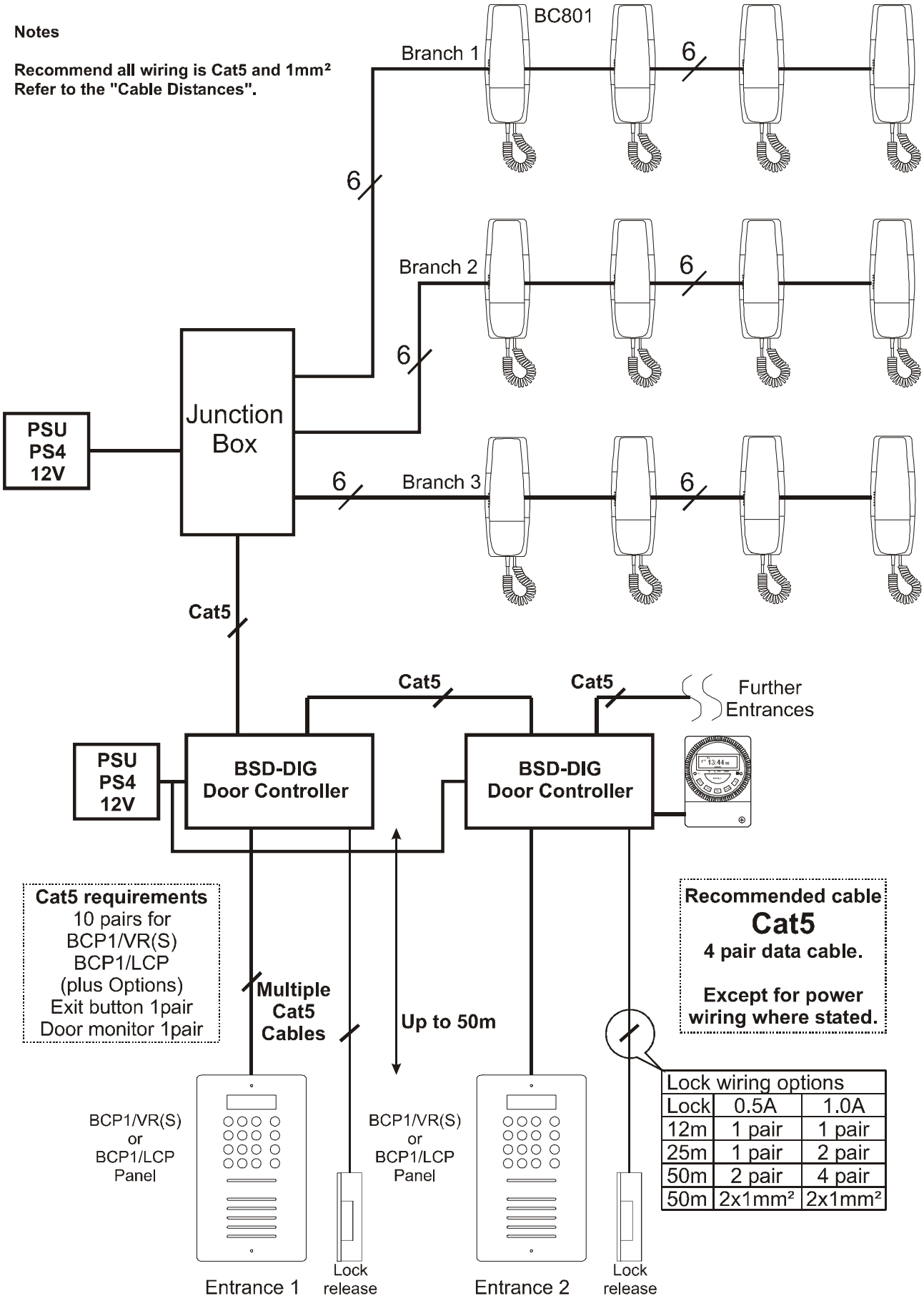
*** Only required when using an exit button or fireman's switch.**

**** Only required when using a TS2000 Time Clock.**



Bellcall Digital Door Entry System

Diagram B – System Wiring – BCP/VR Panels



Bellcall Digital Door Entry System

Diagram C – System Wiring – BCP/VR Panels

Single Entrance Up to 35 Phones

Notes

* Cable type depends on the Locking mechanism used.
** Requires a 230V Mains connection.

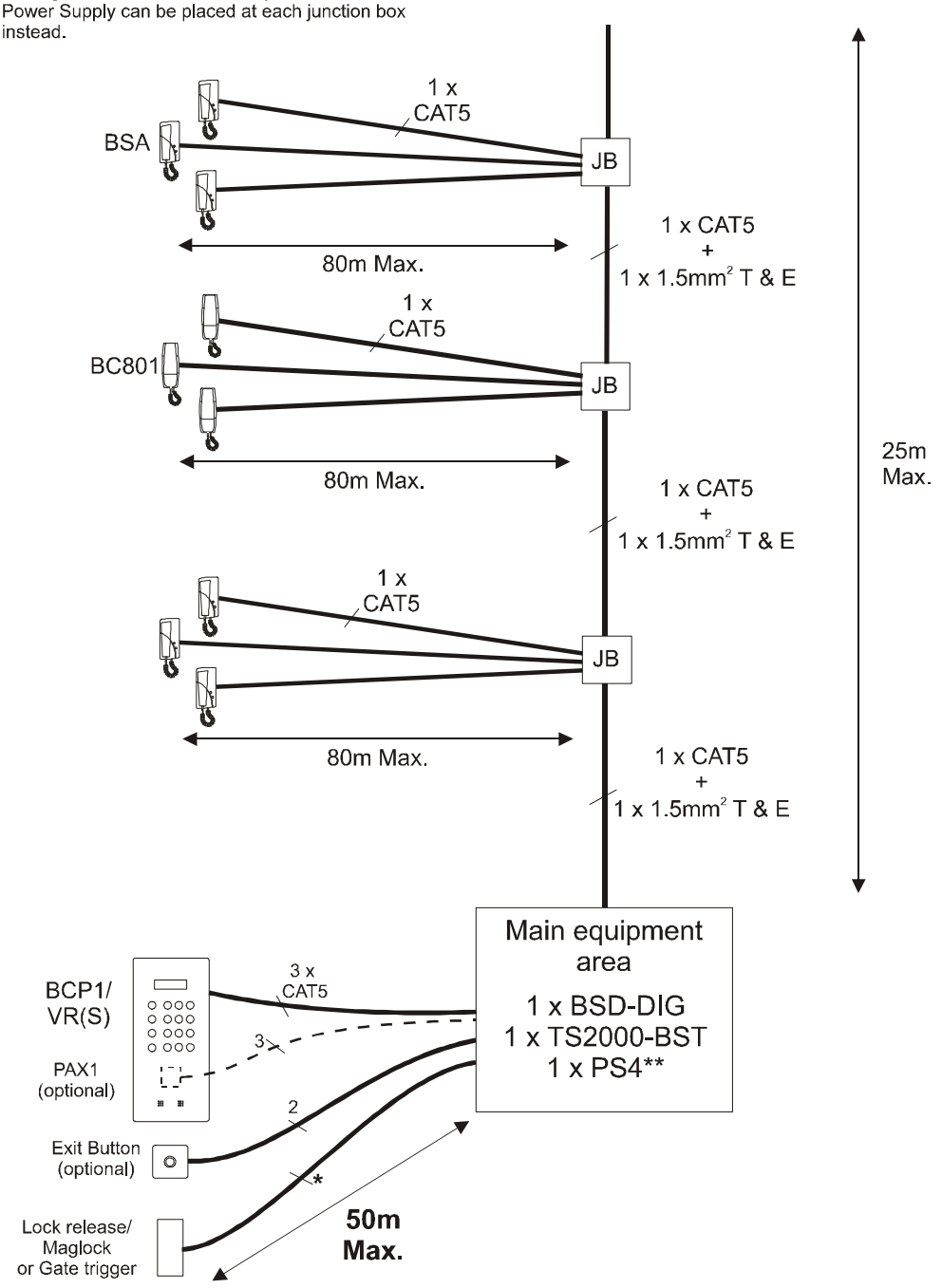
Use CAT5/5e unshielded cable, do not use Alarm cable.

1.5mm² T & E refers to Twin and Earth Mains Cable.

If using the 1.5mm² T & E is not preferred a 340C Power Supply can be placed at each junction box instead.

Parts

340C Power Supply
BSD-DIG Digital Door Controller (1 per entrance)
PS4 Power Supply
TS2000-BST Time Clock (for Trades facility)
BCP1/VR(S) Digital Vandal Resistant Entrance Panel
BC801 Standard Digital Phone
BSA Digital Phone with extra features
PAX1 Panel Mount Proximity Reader



Entrance 1

Bellcall Digital Door Entry System

Diagram D – System Wiring – BCP/VR Panels

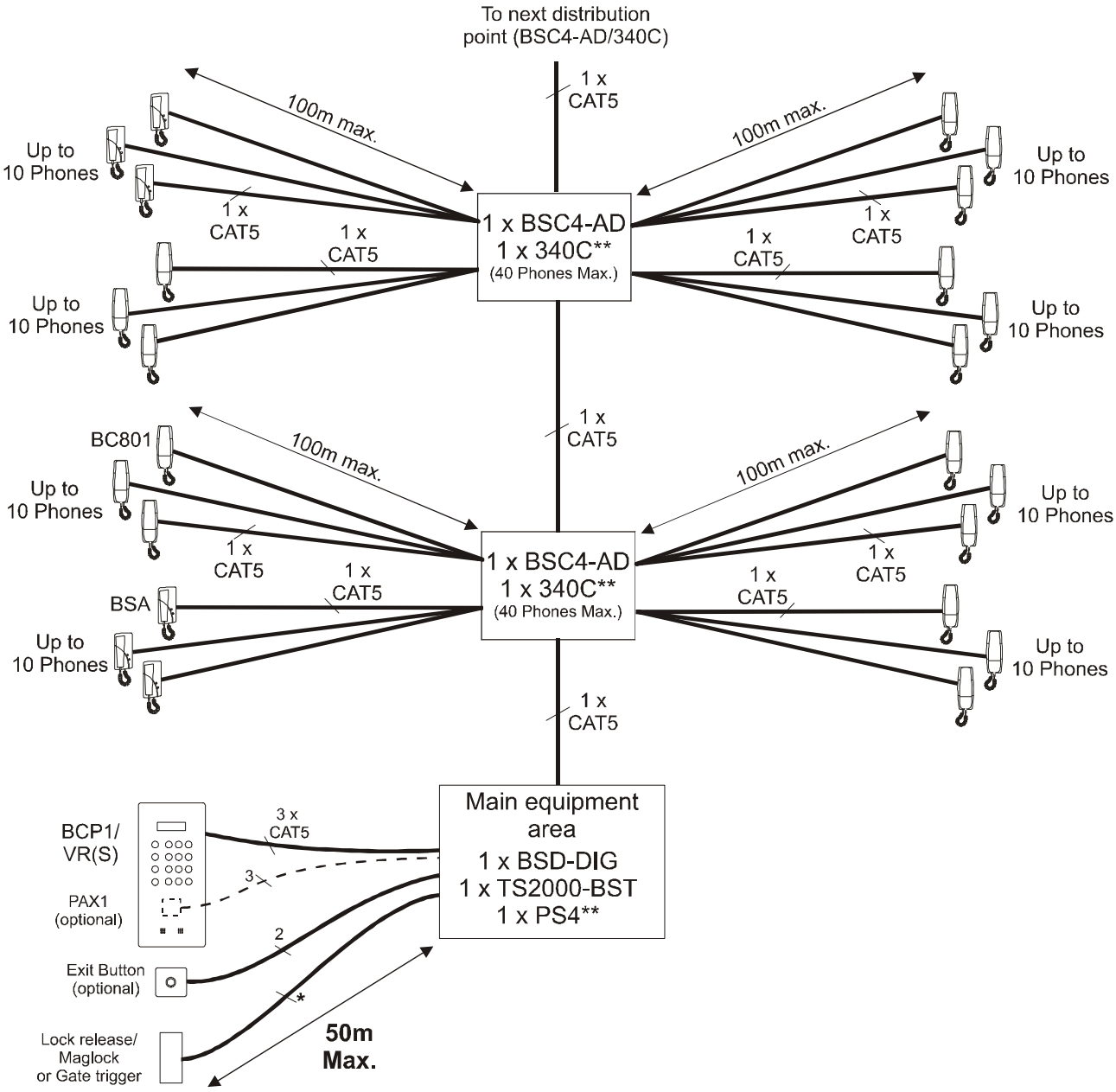
Single Entrance Above 35 Phones

Notes

* Cable type depends on the Locking mechanism used.
** Requires a 230V Mains connection.

Use CAT5/5e unshielded cable, do not use Alarm cable. 300m maximum between any phone and any entrance.

Parts
BSC4-AD Audio Distributor (4 isolated phone outputs)
340C Power Supply
BSD-DIG Digital Door Controller (1 per entrance)
PS4 Power Supply
TS2000-BST Time Clock (for Trades facility)
BCP1/VR(S) Digital Vandal Resistant Entrance Panel
BC801 Standard Digital Phone
BSA Digital Phone with extra features
PAX1 Panel Mount Proximity Reader



Entrance 1

Bellcall Digital Door Entry System

Diagram E – System Wiring – BCP/VR Panels
Two Entrance Up to 35 Phones

Notes

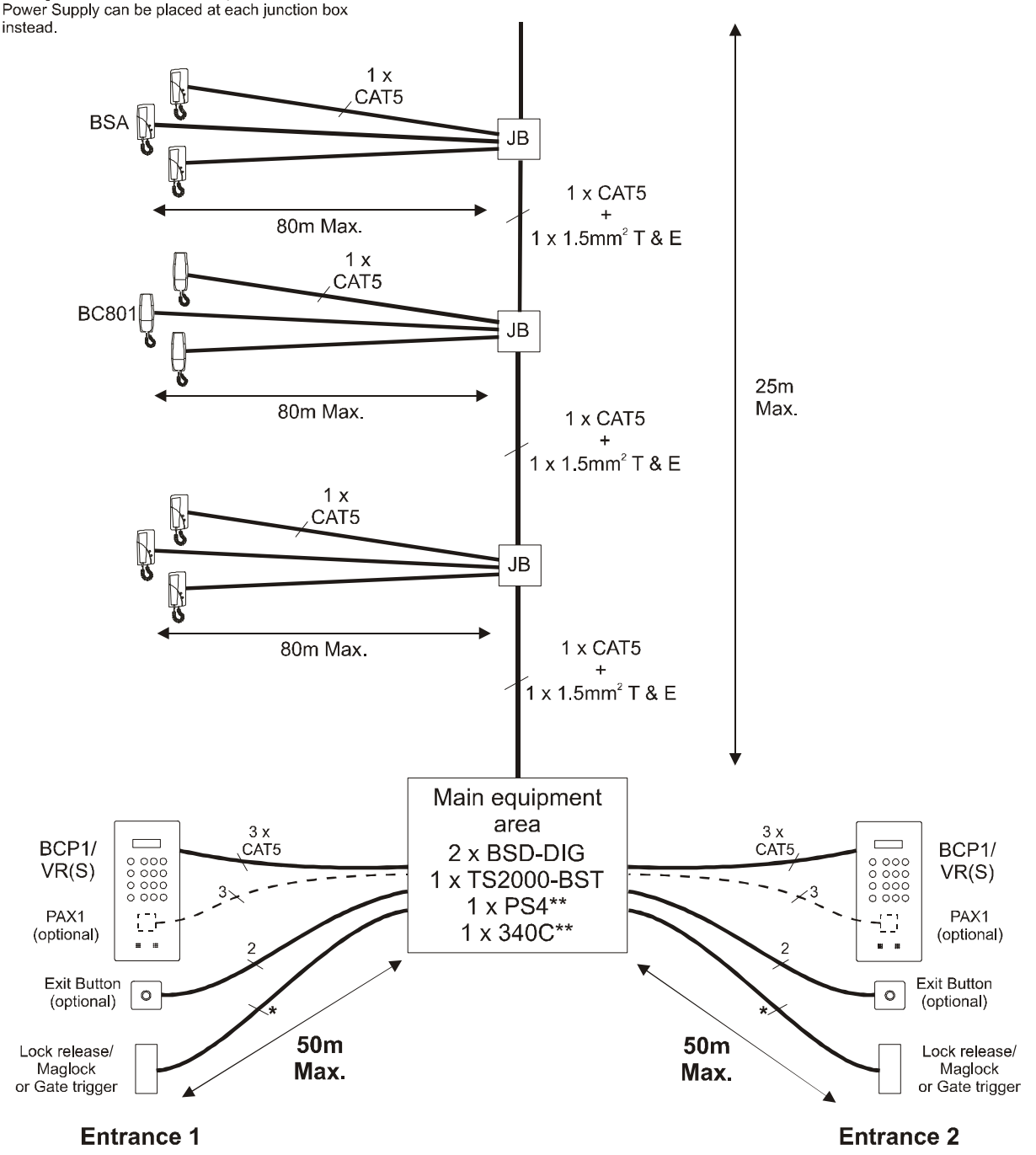
* Cable type depends on the Locking mechanism used.
** Requires a 230V Mains connection.

Use CAT5/5e unshielded cable, do not use Alarm cable.

1.5mm² T & E refers to Twin and Earth Mains Cable.

If using the 1.5mm² T & E is not preferred a 340C Power Supply can be placed at each junction box instead.

Parts
340C Power Supply (for the phones)
BSD-DIG Digital Door Controller (1 per entrance)
PS4 Power Supply (for the entrances)
TS2000-BST Time Clock (for Trades facility)
BCP1/VR(S) Digital Vandal Resistant Entrance Panel
BC801 Standard Digital Phone
BSA Digital Phone with extra features
PAX1 Panel Mount Proximity Reader



Bellcall Digital Door Entry System

Diagram F – System Wiring – BCP/VR Panels

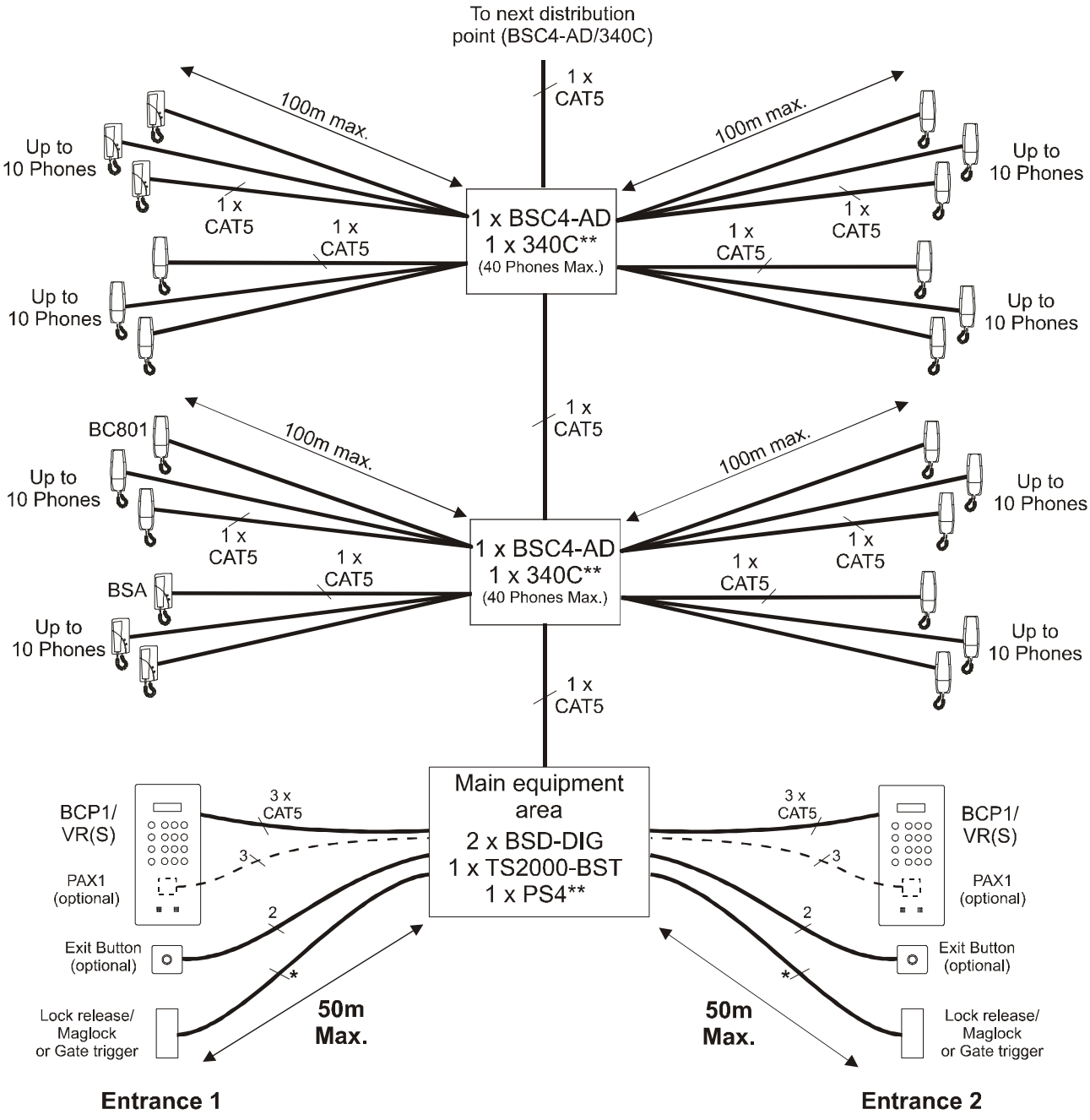
Two Entrance Above 35 Phones

Notes

* Cable type depends on the Locking mechanism used.
** Requires a 230V Mains connection.

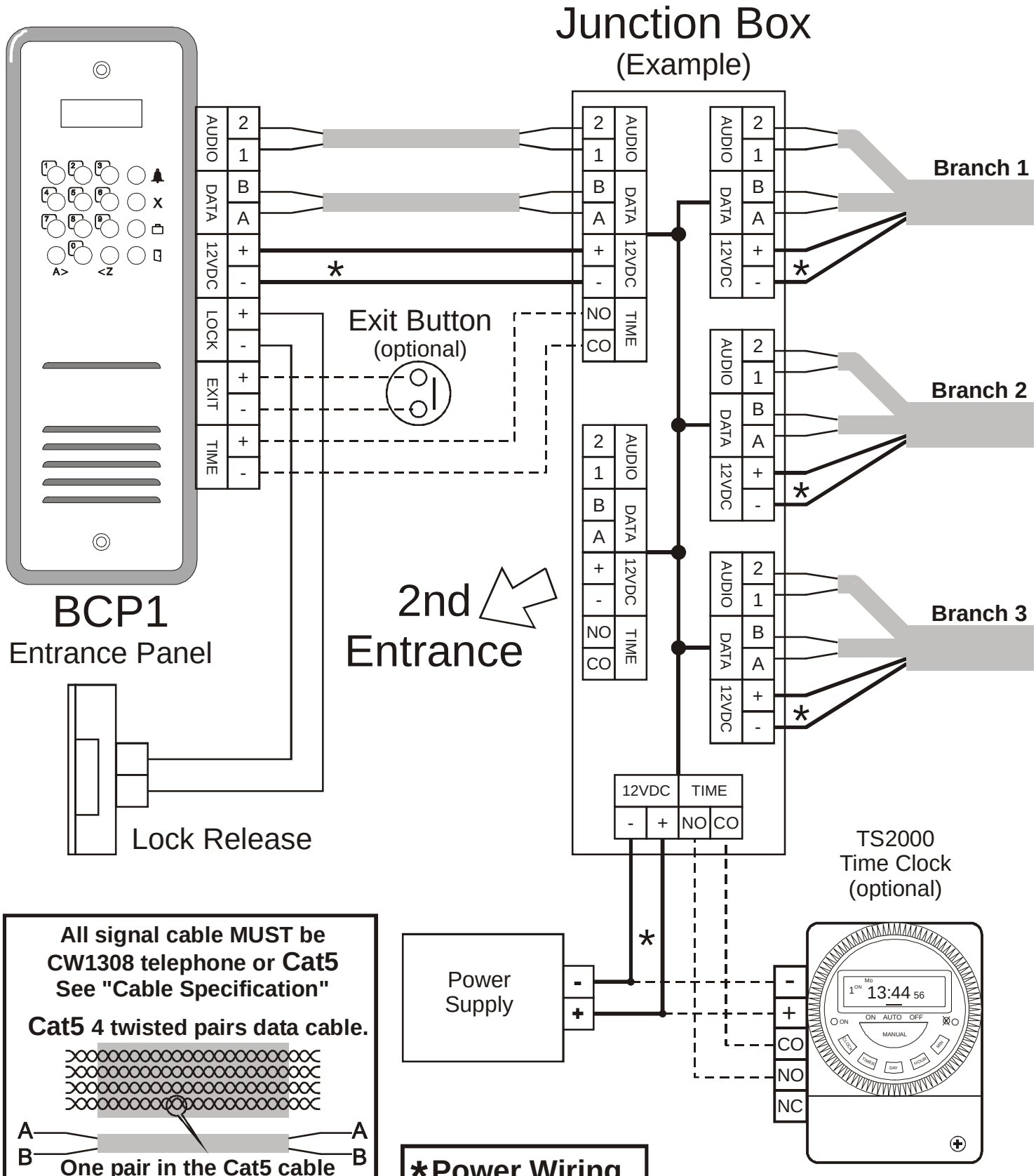
Use CAT5/5e unshielded cable, do not use Alarm cable. 300m maximum between any phone and any entrance.

Parts
BSC4-AD Audio Distributor (4 isolated phone outputs)
340C Power Supply
BSD-DIG Digital Door Controller (1 per entrance)
PS4 Power Supply
TS2000-BST Time Clock (for Trades facility)
BCP1/VR(S) Digital Vandal Resistant Entrance Panel
BC801 Standard Digital Phone
BSA Digital Phone with extra features
PAX1 Panel Mount Proximity Reader



Bellcall Digital Door Entry System

Diagram G – BCP1 Detail Wiring



Bellcall Digital Door Entry System

Diagram H – BSD-DIG VR or LCP Panel Detail Wiring

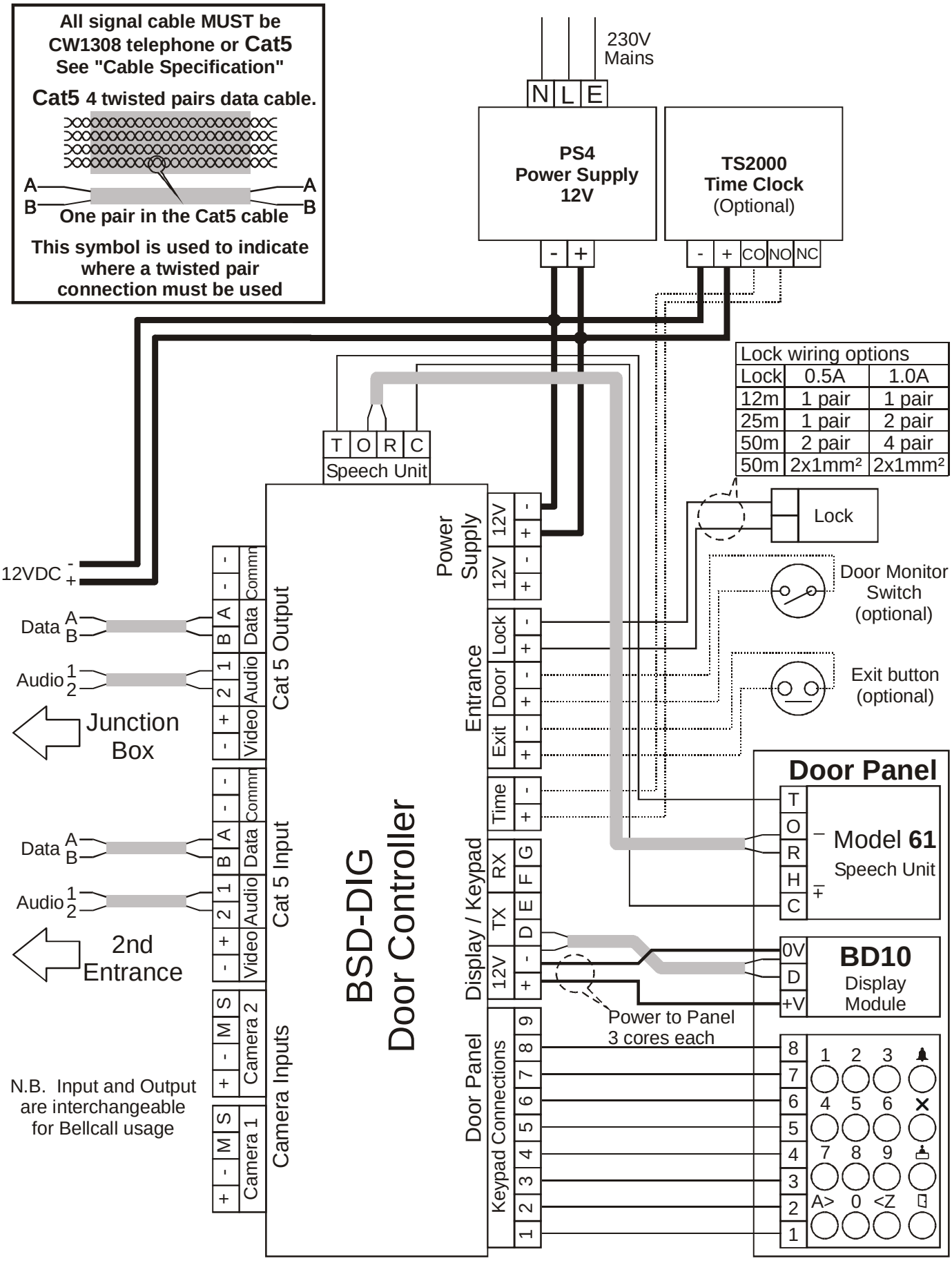
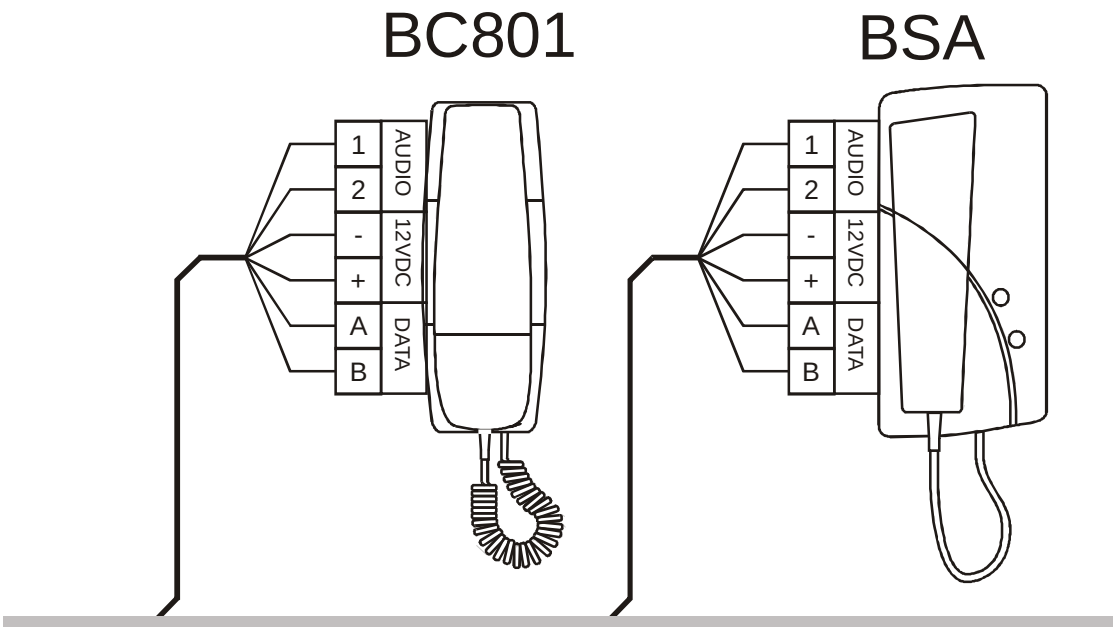


Diagram I – Phone Detail Wiring

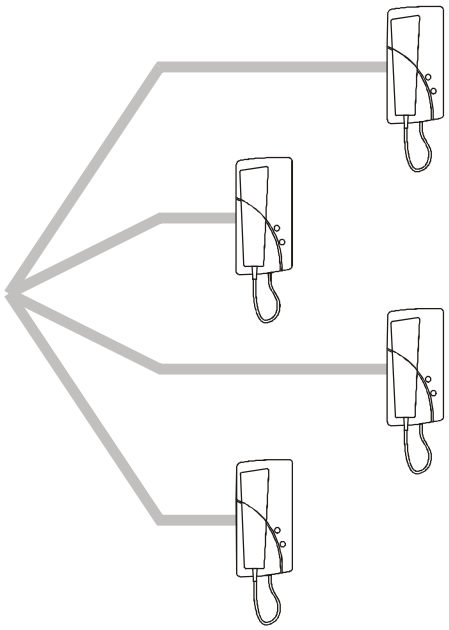


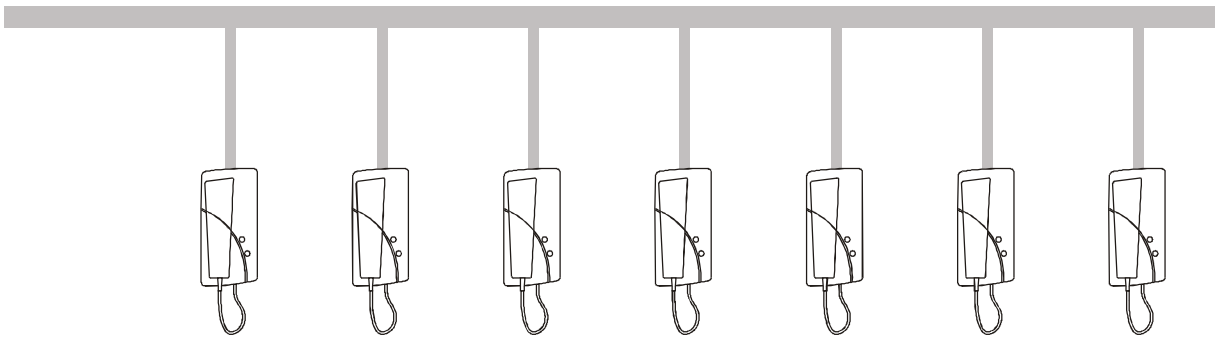
The cabling to the phones can be any or a combination of:- Star, Bus with spurs, or daisy chain.

The only limitation is that the voltage drop results in at least 10V at the phone while ringing.

Use the tables in the “Cable Requirements” section to estimate this

Using Cat5 allows 2 pair to be used for power and so double some distances.



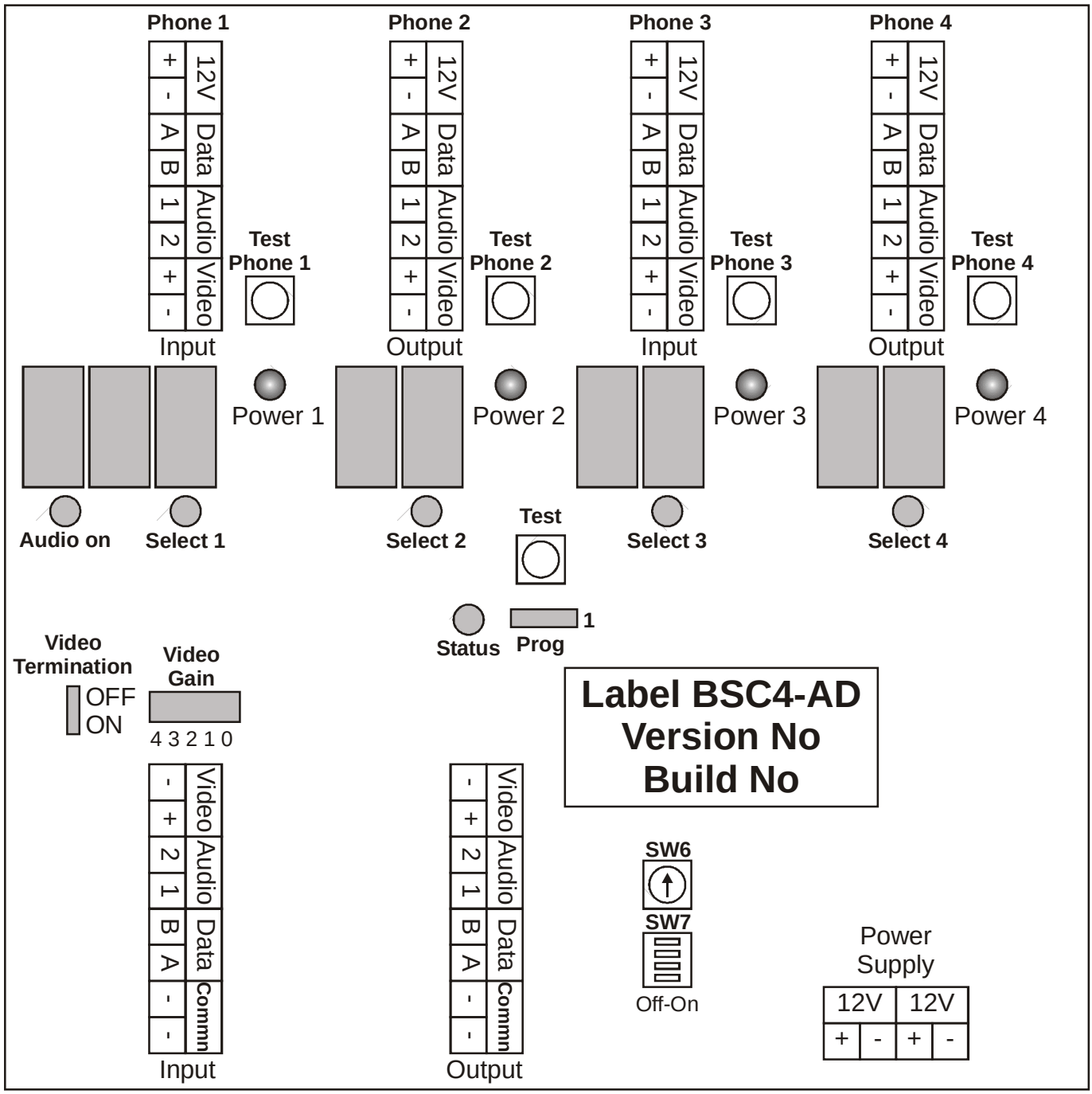


Daisy chain wiring is not recommended unless access can easily be obtained to all phones for maintenance and repair. Junction and spur wiring allows a faulty phone or spur to be isolated.

Bellcall Digital Door Entry System

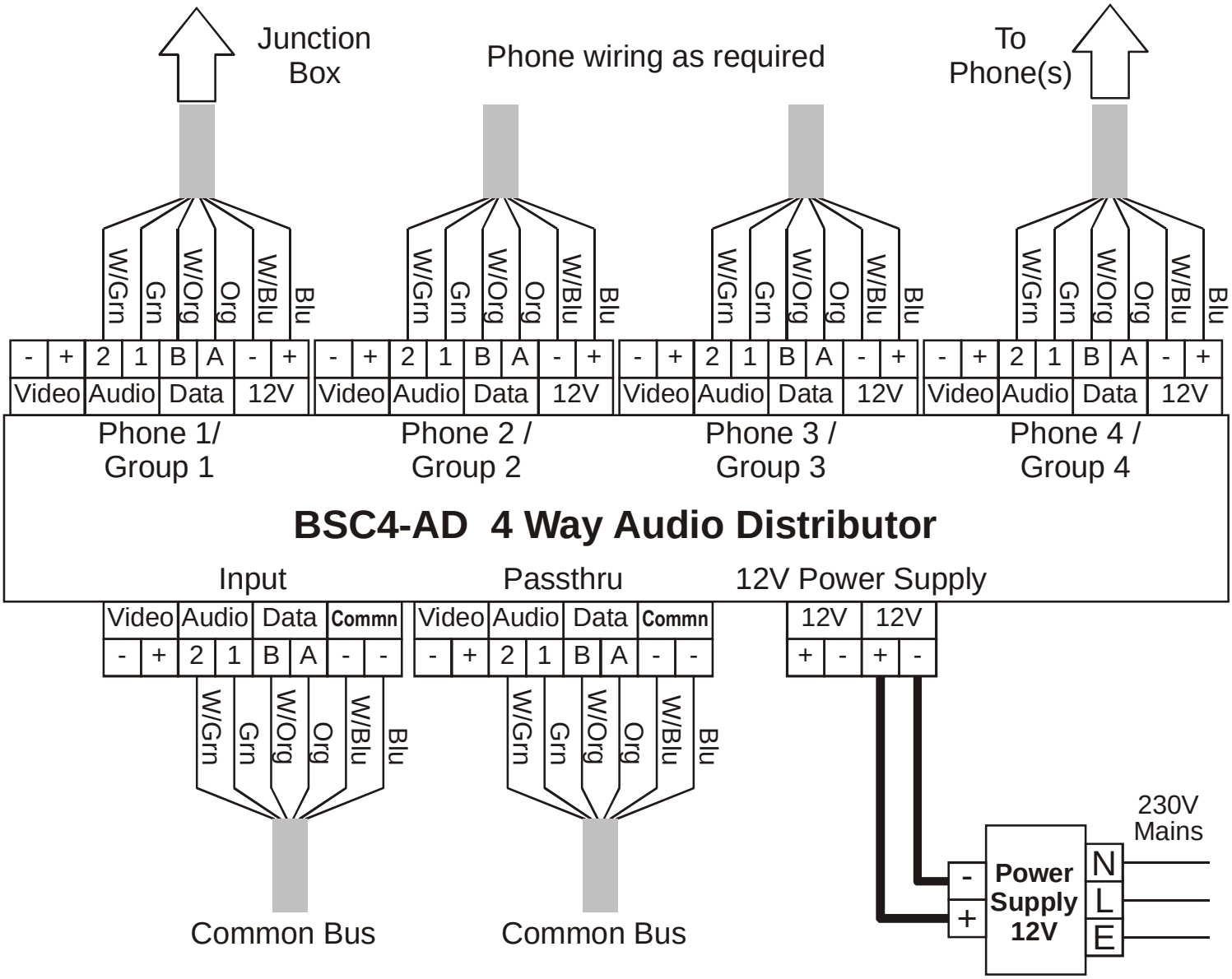
Diagram J – BSC4-AD

The BSC4-AD can be used for two different purposes. As an audio distributor it allows the phone wiring to be broken up into smaller more manageable isolated segments with less risk of data corruption. As a pure isolator it can isolate phone wiring on an individual flat level at 4 flats per BSC4.



Bellcall Digital Door Entry System

Diagram K – BSC4-AD Detail Wiring



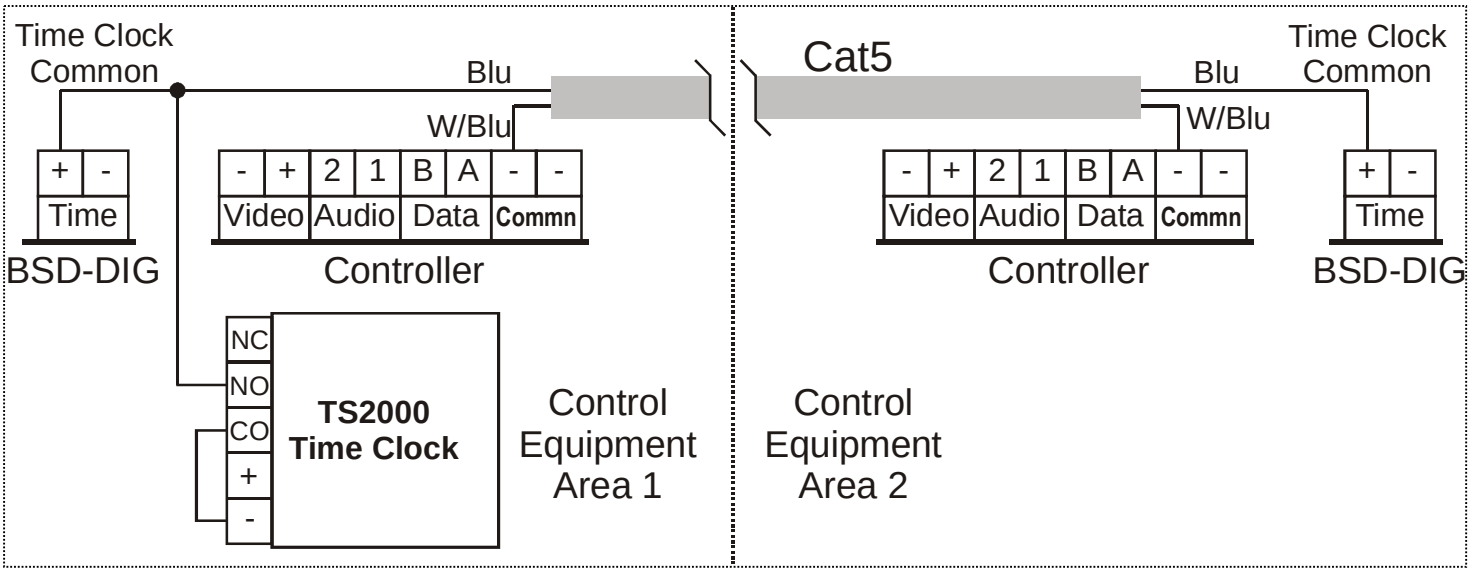
Bellcall Digital Door Entry System

Diagram L – Option Details

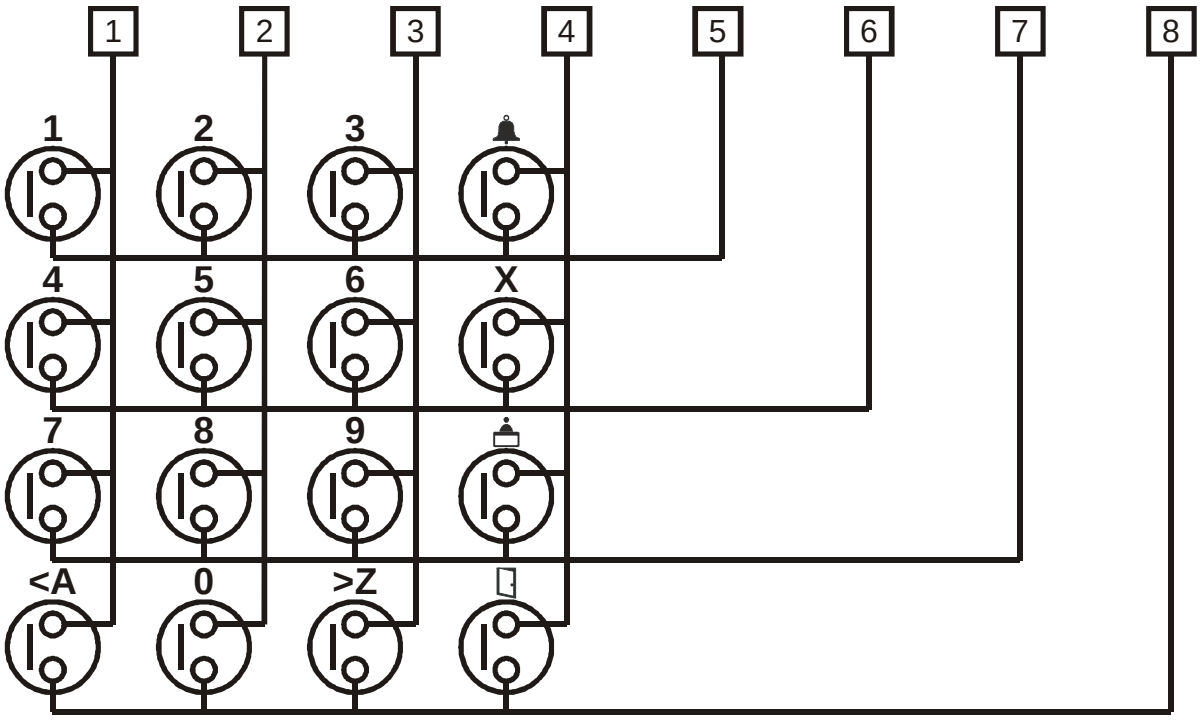
Time Clock Sharing

A time clock can be shared between distributed equipment areas by borrowing one of the ‘comm -’ wires in the interconnecting Cat5 to use as the shared “Time clock common”.

The “Time clock common” signal is sharable across all Bell controller types.



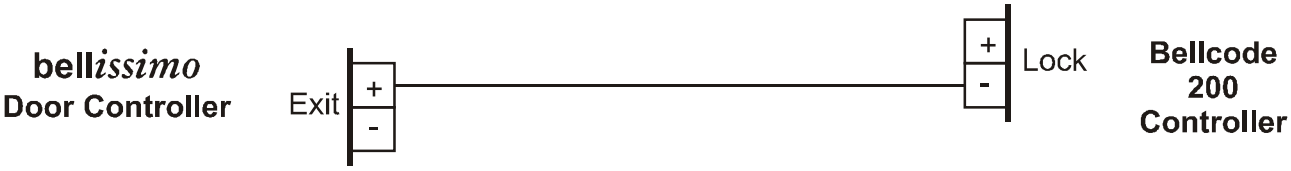
Keypad Matrix



Bellcall Digital Door Entry System

Diagram M – bell*issimo* Combined System Connections

Connecting a Bellcode Coded Access Controller



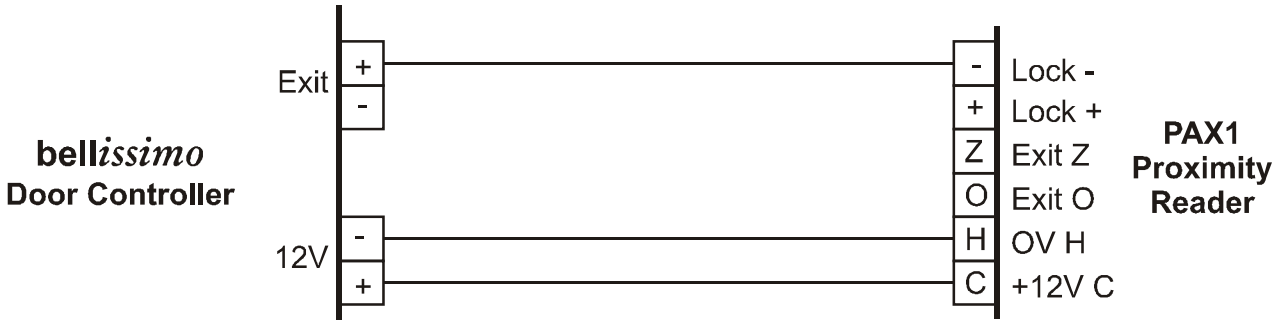
Connect the lock release as per this manual. Leave the Bellcode controller set to fail secure, the BSD controller sets the lock type.

See "Bellcode Manual inc CK200 CS109 (PD-078)" for the other installation and setting instructions.

Note 1. A normally open exit button can still be wired to the Bellcode unit in addition to the bellissimo wiring.

Note 2. A “12V -” connection will be required if the 2 units are not sharing a power supply.

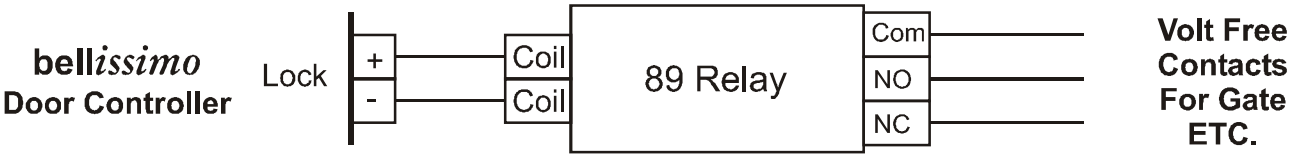
Connecting a Bell PAX1 Proximity Reader



Connect the lock release as per this manual. Leave the Proximity Reader set to fail secure, the BSD controller sets the lock type.

Note 1. A normally open exit button can still be wired to the BSD controller in addition to the proximity wiring.

Opening a Gate or Locks on Third Party Systems

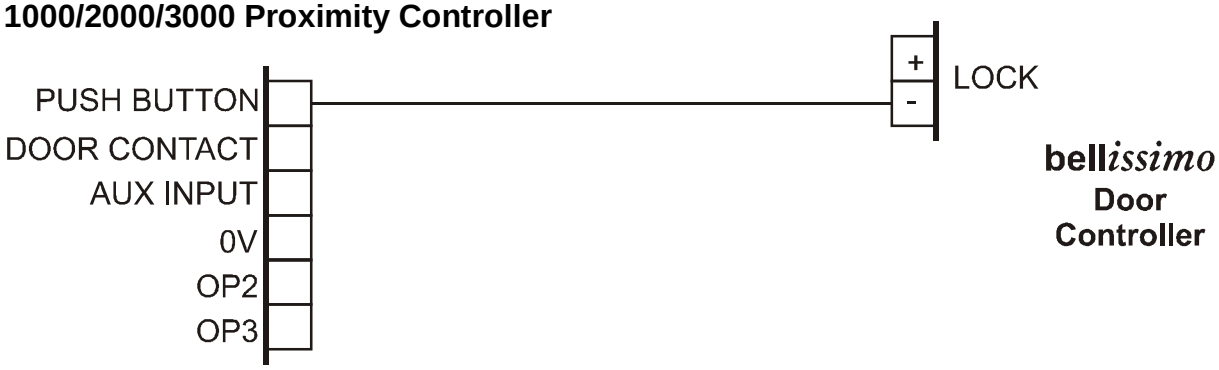


Leave the BSD controller set to Fail secure.

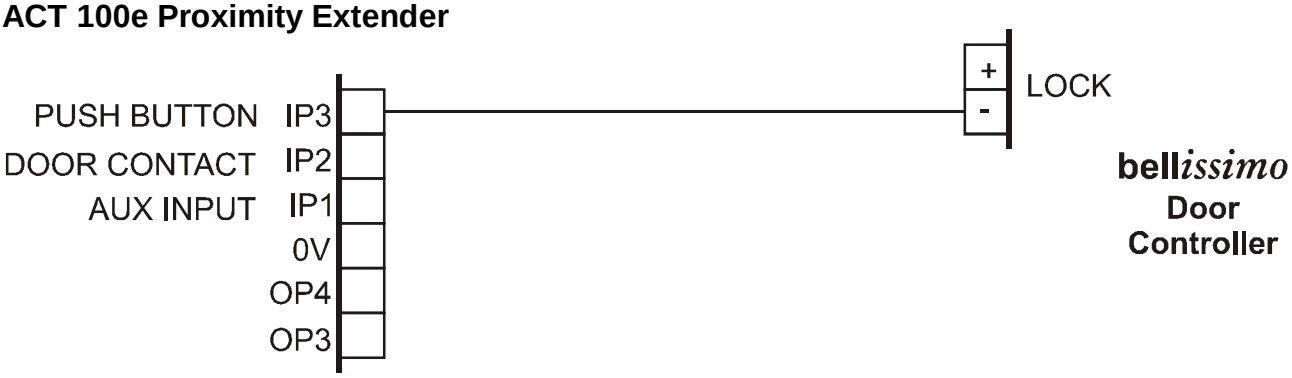
Use COM and NO or COM and NC as required for the gate controller or third party access system.

Diagram N – ACT Interconnections

ACT 1000/2000/3000 Proximity Controller



ACT 100e Proximity Extender



Notes

1. Connect the lock release or Maglock using the ACT Manuals.
2. Leave the BSD controller set to Fail Secure regardless of the type of release used.
3. A normally open exit button can still be fitted to the ACT controller in addition to the bell*issimo* wiring.
4. If the 2 units are not sharing a power supply, then a connection from BSD controller 12V - to ACT 0V will be required.
5. Look for the notes on the ACT installation diagram concerning the use of links when the door contact is not used and when a power supply without power fail is not used.

Safety Information and Declarations

Connections to the 240VAC mains supply must be carried out by a qualified electrician or similar competent person, and made in accordance with current legislative requirements. A two-pole switch (as provided by a Consumer Unit or Switch-Fuse) must be included to isolate both Live and Neutral during Installation or Maintenance. The circuit must be protected by a fuse or other current-limiting device, rated according to the capacity of the cable used, up to a maximum of 10A. Use only mains cable to BS6004 or equivalent, within the following specified limits:

	Min	**Max**
Conductor Diameter	1.0mm ($0.8mm^2$)	2.25mm ($4mm^2$)
Cable Diameter	4.0mm	8.0mm

Model 840 Power Supply (with battery standby)

The Model 840 power supply must be placed in a protected indoor environment such as an electrical cupboard. It must be secured to the wall with adequate fixings so that there is no possibility of it falling. The lead-acid battery for the standby power supply is shipped in separate packaging. It should only be connected once the system has been fully tested. Connection is made by 2 leads with spade terminals; observe the correct polarity - red to positive, black to negative. Care must be taken to ensure that the terminals of the battery are not shorted together by metal objects, as this may constitute a Fire Hazard. The Control Cabinet is IP55 rated (to exclude dust) and is vented to avoid the build-up of gases. Do not block any vents that may be apparent.

A good mains safety earth must be connected to the cabinet housing the power supply

Where the power supply is fitted with a replaceable internal mains fuse and or battery fuse, always replace with the same type as indicated on the power supply. The fuse must be approved to BS EN 60127 or equivalent.

Power Supply Model	**Mains Fuse (Time Delay)**	**Battery Fuse (Quick Blow)**
840	T2A 20mm HBC (HRC) Ceramic	F4A 20mm Glass

Model PS4 and 340C Power Supplies

These power supplies must be wall-mounted onto plasterboard, or a similar non-conductive material, in a protected indoor environment such as an electrical cupboard.

When fitting the power supply cable (both mains and low voltage) ensure the cable entry cut-outs in the enclosure lid are no larger than necessary for the cable diameter used and under no circumstances must they be taken beyond the outer cut-out zones.

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FAX: 01908 261116

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Tel: 0845 121 4008 (Sales and Technical Support)

FAX: 0845 121 4009

E-mail: sales@bellsystem.co.uk

technical@bellsystem.co.uk

Website: www.bellsystem.co.uk

Standards

This product complies with European directive 89/336/EEC on Electromagnetic Compatibility and Low Voltage Directive 72/23/EEC.

Emissions: Generic BSEN 61000-6-3

Immunity: Generic BSEN 61000-6-1

Low Voltage: Generic BSEN 60950

CE

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