

Bell System (Telephones) Ltd



Digibell

Digital Audio Door Entry System Vandal Resistant Installation & Operation Guide



Digibell Vandal Resistant System

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Digibell Vandal Resistant System

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Introduction

The Digibell digital door entry telephone system is designed primarily for large blocks of flats in the private or public housing sector, where reliability and serviceability are of prime importance.

The Digibell system offers two levels of cable isolation: 'Full Isolation' (between individual dwellings) for buildings where vandalism by residents may be high and 'Zonal Isolation' (between floors or zones) for a more cost effective system.

The use of a Digital entrance panel (with keypad and display) affords a more compact solution when compared with a standard door entry panel (i.e. one button per flat) which may be impractical due to its size.

Features

- Capacity for over 400 flats and 16 entrances per block
- Large 4-digit LED display with informative messages, e.g. 'CALL', 'TALK', 'OPEN'
- Alphanumeric flat numbers, e.g. 20A, B102
- High quality full-duplex speech.
- Ring and lock reassurance tones
- 4-Digit coded entry facility for resident access
- Optional Proximity Access
- Tradesman's access (time restricted and/or with access code)
- Dedicated Porter/Reception button.
- Compliance with Disability Discrimination Act (DDA) (selected panels)
- Choice of Phone isolation or Zone isolation depending on requirements
- 12V DC System with optional battery backup
- Control equipment optionally supplied in lockable Steel cabinets for greater security
- Uses standard CAT5 cable.
- Compatible with model 801 & BS-LX telephones

System Operation

Entrance Panel

0-9, A>, <Z Enter a flat number up to 4 digits. **A>** & **<Z** are used to enter the alphabetic characters (A-Z); Press **A>** to enter A; subsequent presses advance through the alphabet, while **<Z** can be used to step backwards.

For example to enter flat number "C21", press **A> A> A> 2 1**

Call Press to call a flat once the correct number is displayed.

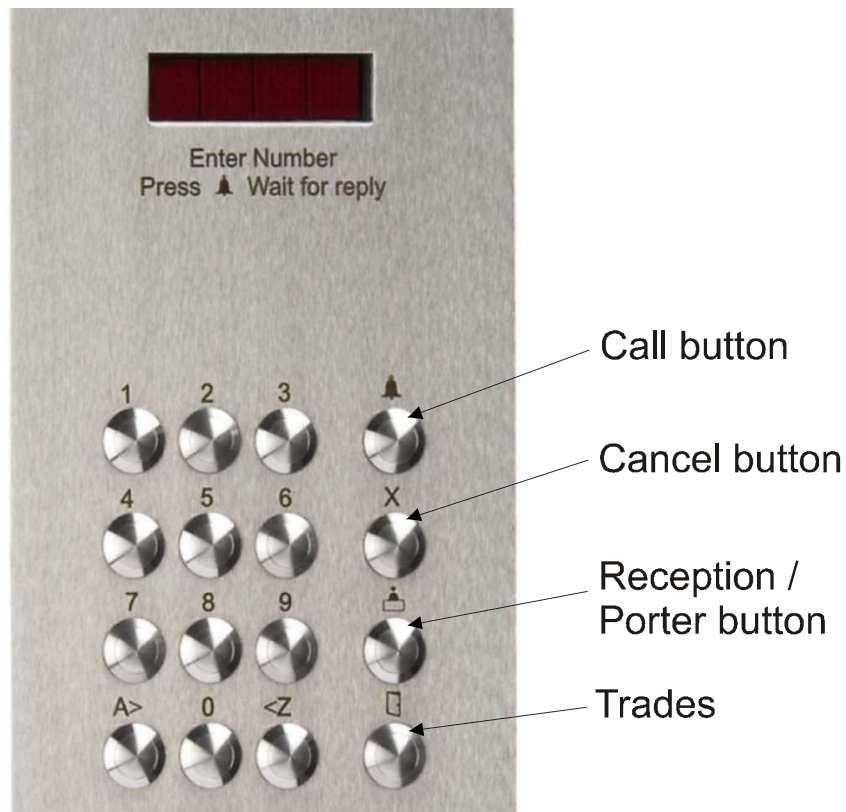
Cancel Cancels the current entry leaving a blank display.

Reception Press to call the Porter / Reception / Concierge

Trades Press to gain direct access during restricted hours or using an access code.

Call sequence

The caller firstly approaches the entrance panel and enters the required flat number followed by the call button. This causes the phone to ring in the selected flat. The phone will continue to ring for typically 30 seconds if not answered or until the resident responds by picking up the handset. The call may be terminated by replacing the handset or more usually by pressing the lock/key button to allow the visitor access through the entrance.



Phone Controls

All phones have 2-way speech and a lock button to release the door. For security, phones must be called first and taken off the hook before the lock release button will function; a stuck lock button will be ignored.

Ringer Mute

With some models of telephone (801PS, 801S & BS-LX) the resident can mute the ringing sound of their phone when they do not wish to be disturbed.

Model **801PS/801S** phones: Sliding the switch on the right hand side to the ON position enables the ringer whilst the OFF position disables (mutes) the ringer.

Model **BS-LX** phone: Ringer mute is activated by pressing the mute button on the phone, which illuminates 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 'Phone settings' in the reference section). 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-LX Only

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

Design Considerations

Please read in conjunction with the cable overview drawings starting on page 14 to determine the equipment required for your system.

Entrance panels

All entrance panels are Stainless Steel Vandal Resistant and have a 4-digit red LED dot-matrix display mounted behind a protective LEXAN window. Both flush and surface types are available. Surface entrance panels can also be supplied fitted to Stainless Steel posts of varying heights for vehicle entrances or where it is impractical to fit directly on a building. The 'LCP' version is a flush Stainless Steel panel with welded back-box and laser cut bezel for enhanced vandal resistance. Security screws are supplied with all entrance panel.

The entrance panels feature reassurance tones for lock and call operations and a trade's button/coded access facility (which requires a TS2000-BST time clock).

Part No.	Description
DBAP-VR	Flush Stainless Steel digital entrance panel
DBAP-VRS	Surface/Flush Stainless Steel digital entrance panel
DBAP-LCP	Flush Stainless Steel digital entrance panel with welded backbox and laser cut front bezel
DBAP-DDA	Flush Stainless Steel digital DDA* entrance panel
DBAP-DDA-S	Surface Stainless Steel digital DDA* entrance panel
Stainless Steel Posts for surface panels DBAP-VRS & DBAP-DDA-S (not included):	
CHP1	Car height post, 1200mm
PHP1	Pedestrian height post, 1600mm
DHP1	Dual height post, pedestrian and car, 1200mm & 1600mm
DHP2	Dual height post, HGV and car, 1200mm & 2000mm

*DDA entrance panels include yellow halo buttons and have a raised pip on the 5 button. Various other DDA options are available on request.

Proximity

Fob readers can be integrated into the entrance panels. A standard 40mm square cut-out is used. To specify our standard Paxton Fob reader add the following to each entrance:

- 1 x PROX/CO Proximity reader cut-out
- 1 x PAX1 Proximity reader

Bell system can also supply Proximity/Fob access systems with added features such as PC management, audit trails, on or offsite management.

Other third party readers can be accommodated depending on the size and fitting required.

Control units

All control equipment must be placed in a protected indoor environment or enclosure.

Part No.	Description
BSD-DIG	Digital door controller (1 required per entrance panel)
DBA-4I	4 Way phone isolator (1 required every 4 flats)
DBA-8Z	8 Way zone isolator (1 required every 8 flats)
TS2000-BST	Time clock with BST correction (1 required per system for trades facility)

Various options are available when the control equipment is placed in one of our Steel lockable cabinets; please contact your sales representative for advice.

Power Supplies

Please refer to the safety information at the end of this literature

Part No.	Description
PS4	12V DC 4A Regulated power supply
840	12V DC 3A with battery backup (requires a BAT01 12V 7AH battery)
BAT01	12V 7AH Lead acid battery

Power Supply Requirements (refer to overview drawings starting page 14)

1 x PS4 or 840	1 entrance + 32 phones															
	2 entrances (2 x BSD-DIG)															
	64 Phones:															
	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding-right: 10px;">8</td> <td style="padding-right: 10px;">DBA-8Z Isolators</td> <td style="padding-right: 10px;">with</td> <td>1 phone in each flat</td> </tr> <tr> <td style="padding-right: 10px;">4</td> <td style="padding-right: 10px;">DBA-8Z Isolators</td> <td style="padding-right: 10px;">with</td> <td>2 phones in each flat</td> </tr> <tr> <td style="padding-right: 10px;">16</td> <td style="padding-right: 10px;">DBA-4I Isolators</td> <td style="padding-right: 10px;">with</td> <td>1 phone in each flat</td> </tr> <tr> <td style="padding-right: 10px;">8</td> <td style="padding-right: 10px;">DBA-4I Isolators</td> <td style="padding-right: 10px;">with</td> <td>2 phones in each flat</td> </tr> </table>	8	DBA-8Z Isolators	with	1 phone in each flat	4	DBA-8Z Isolators	with	2 phones in each flat	16	DBA-4I Isolators	with	1 phone in each flat	8	DBA-4I Isolators	with
8	DBA-8Z Isolators	with	1 phone in each flat													
4	DBA-8Z Isolators	with	2 phones in each flat													
16	DBA-4I Isolators	with	1 phone in each flat													
8	DBA-4I Isolators	with	2 phones in each flat													

Compatible Phones

Model	Privacy of Speech	Buzzer mute		Door open indicator
		Slide switch (on/off)	Button with indicator; adjustable mute time	
801	x	x	x	x
801S	x	✓	x	x
801P	✓	x	x	x
801PS	✓	✓	x	x
BS-LX	✓	x	✓	✓

Phones connected to a DBA-4I Phone Isolator have privacy of speech inherent in the design therefore models 801P and 801PS should not be used. All phones connected to the same DBA-8Z Isolator must be the same model (a mixture of desk or wall mounting is allowed).

As standard a maximum of two phones are allowed in each flat. Contact your distributor if more are required.

The phones specified above are wall mounting. For a desk-mount model, add '-DESK' to any of the 801 phone series part numbers.

Phones can be supplied with a hearing aid induction loop fitted: add '-IDL' to the part number.

Privacy of Speech

Once a call has been initiated from an entrance panel only the phones which are ringing may answer the call. The conversation cannot be overheard by another phone except an extension phone in the same flat (i.e. one which had also been ringing). This feature is available on systems with Full Isolation (all phone models) and on Zonal Isolation (801P, 801PS and BS-LX models only).

Extension sounders and flashing strobe

The RT27 extension sounder can be fitted instead of a 2nd phone and has a similar volume level and sound to the 801 series phones.

The SG1 sound generator has an adjustable volume level and 8 different tones. The volume is louder than an RT27, but requires an extra 12V DC power supply such as a model 340C. This power supply should be fitted close to the SG1. There is a maximum of 3 units per flat.

A FB31 flashing beacon is also available for the hard of hearing. The device requires an extra power supply such as the 340C which should be a short distance from the FB31. There is a maximum of 3 units per flat.

Note it is not possible to have a DBA-4I or DBA-8Z Isolator phone output connected to just extension sounders or a strobe, a phone must be present.

Lock Releases

The BSD-DIG door controller supports both fail-secure and fail-safe lock releases including magnetic locks of up to 1A rating at 12V DC. Suitable transient voltage protection must be fitted across any Maglock or lock release (Some Maglocks have protection inbuilt).

If a voltage free output is required for an automatic gate trigger, or connection to another system, an additional 12V DC relay will be needed, e.g. model 89.

Whether the lock is released from the phone, the Trades button or Exit button the door will unlock for a pre-programmed time (adjustable 1-99 seconds, default 3 seconds).

Various lock releases can be supplied for standard timber frame doors, please contact your sales representative for advice.

Exit button (Egress)

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. The button must be of the 'push to make' type.

Fireman's switch, Break glass or Emergency exit button

These should all be wired directly in series with the Fail safe lock release or Maglock itself, so that they break the connection when operated.

Trades Facility

The **Trades** button allows access to the postman or other authorized tradesmen usually during restricted hours and, if so programmed, after entering a four digit access code (requires a TS2000-BST time clock).

Coded Access Facility

The system can allow access with two 4 digit codes. Normally 1 is allocated for use with the Trades facility and the other is used for general resident or caretaker access. The **Trades** button is used to initiate entry of either code.

Multiple Entrances

The Digibell system allows multiple entrances to be catered for (up to a maximum of 16) with the addition of a door controller and entrance panel for each entrance and additional power supplies as necessary.

DDA Functionality

There are a range of options for entrance panels to help meet the requirements of the Disability Discrimination Act (DDA), including Braille characters and hearing aid induction loop. Contact your sales representative for further details.

Gate and Block Systems

Sites with 2 or more blocks sharing a vehicle or pedestrian gate are catered for with a BSSW Gate/Block isolator (1 per block). The blocks can then work independently but will receive calls from the shared entrances/gates. Please refer to 'Digibell Gate and Block Supplement'.

Cable requirements

All system wiring must be carried out using CAT5 data cable except where otherwise specified. CAT5 is necessary as it has a guaranteed noise performance and meets the requirements of the EMC directive.

Flex or 'Twin and Earth' (1.0mm² min.) is specified for 12V power connections etc (see table below).

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.

- UTP CAT5 Patch cable is normally more expensive, but is suitable.
- STP (Shielded Twisted Pair) cables are **not** recommended.

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

Cable Distances

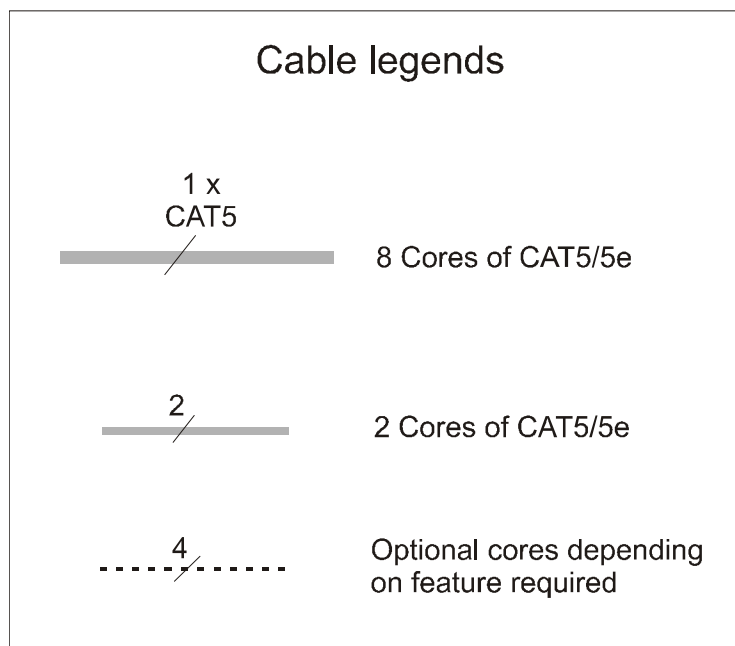
Connection	No. of cores	Cable length	Core Type	
Phone connections				
DBA-4I/8Z to 1 x 801, 801S or 801PS phone	5	70m	CAT5	
DBA-4I/8Z to 2 x 801, 801S or 801PS phones (in the same dwelling)	5	35m		
DBA-4I/8Z to 1 x BS-LX phone	7	65m		
DBA-4I/8Z to 2 x BS-LX phones (in the same dwelling)	7	30m		
Entrance to Control equipment (BSD-DIG Door controller)				
Entrance Panel DBAP-VR Also –VR(S), -LCP, -DDA(S)	18	50m	CAT5	
PAX1 Fob reader (extra to any entrance panel)	+3		CAT5	
Lock release	0.5A			4
	1A			8
	1A		2	
Exit button	2		CAT5	
Door monitor contact / switch	2			
System Interconnections				
DBA-4I / DBA-8Z to Power Supply/BSD-DIG	8	**2	CAT5	
BSD-DIG to BSD-DIG + Trades facility (optional)	6 +1	**1		
Misc				
Power Supply to BSD-DIG	2	3m	1.0mm ²	
TS2000-BST Time clock to BSD-DIG Door controller (optional)	4	50m	CAT5	

**1 There is no restriction on this distance, except, the maximum overall cable distance between the furthest 2 points (entrance panel to phone via the control equipment) on the system must not exceed 300m.

**2 Refer to the cable overview diagrams 1, 2, 3, 4 or 5

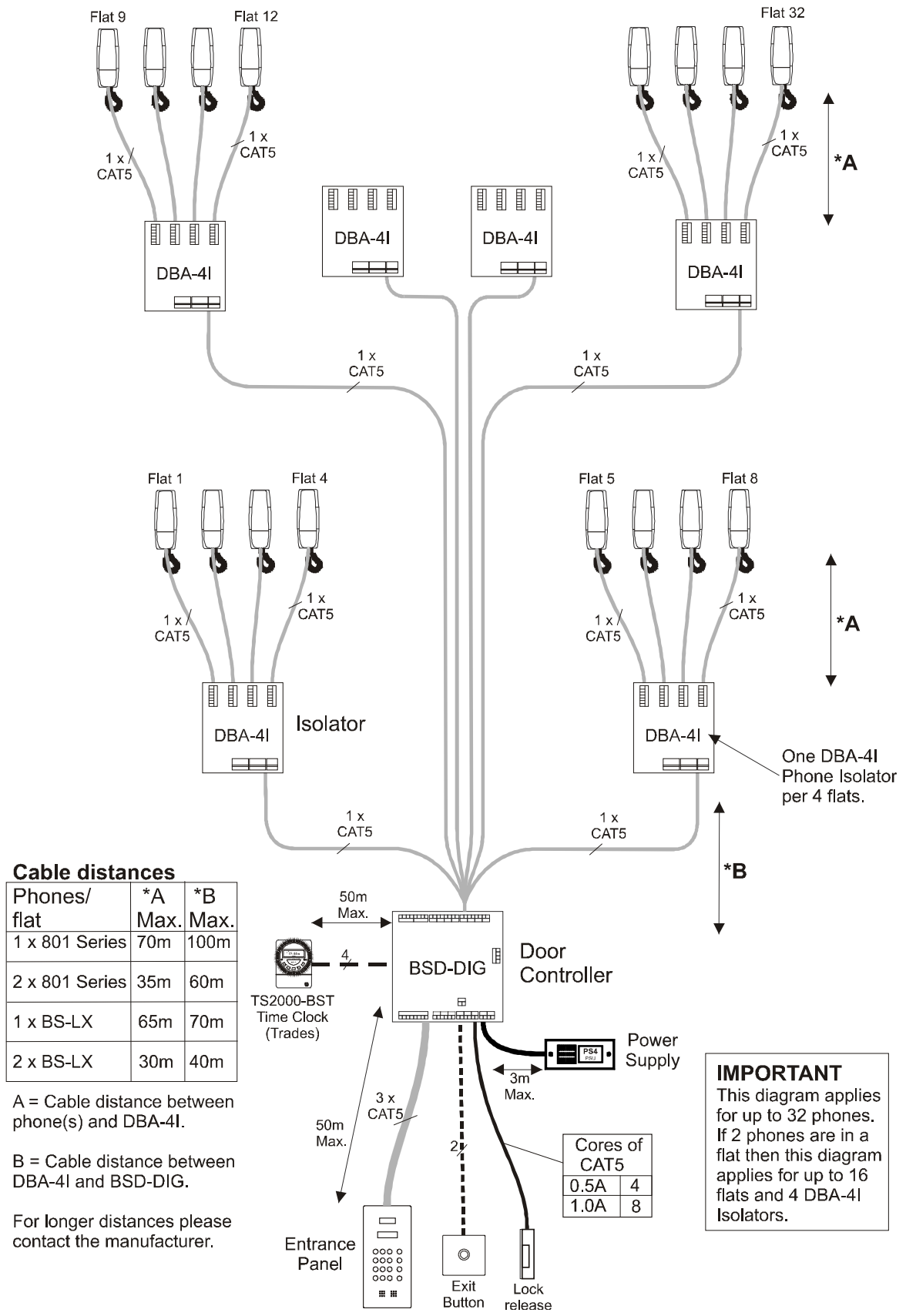
For larger cable distances please contact the manufacturer.

Cable overviews



Cable Overview

Diagram 1 – Full Isolation, 1 entrance up to 32 phones



Cable distances

Phones/ flat	*A Max.	*B Max.
1 x 801 Series	70m	100m
2 x 801 Series	35m	60m
1 x BS-LX	65m	70m
2 x BS-LX	30m	40m

A = Cable distance between phone(s) and DBA-4I.

B = Cable distance between DBA-4I and BSD-DIG.

For longer distances please contact the manufacturer.

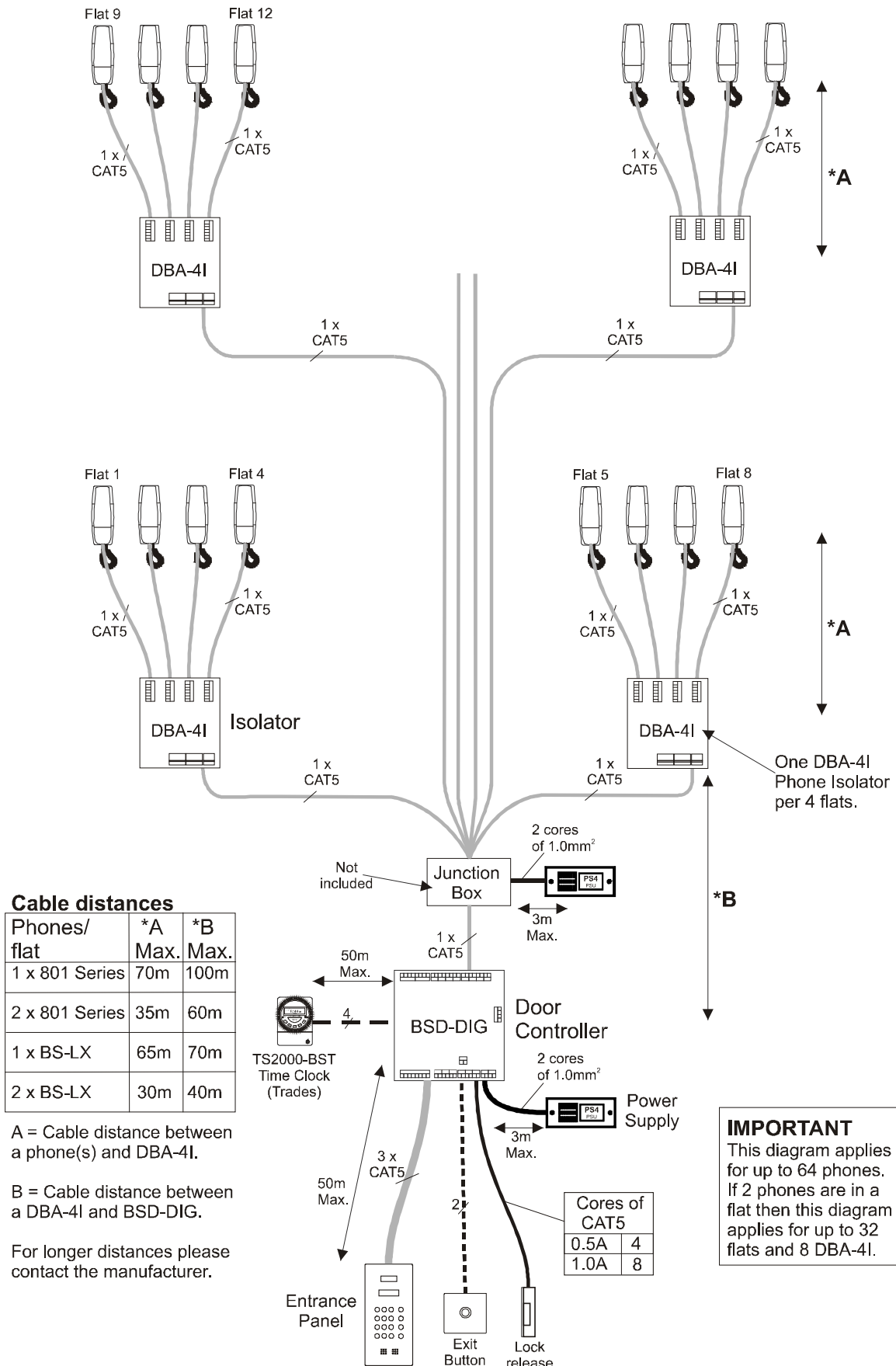
IMPORTANT
This diagram applies for up to 32 phones. If 2 phones are in a flat then this diagram applies for up to 16 flats and 4 DBA-4I Isolators.

Cores of CAT5

0.5A	4
1.0A	8

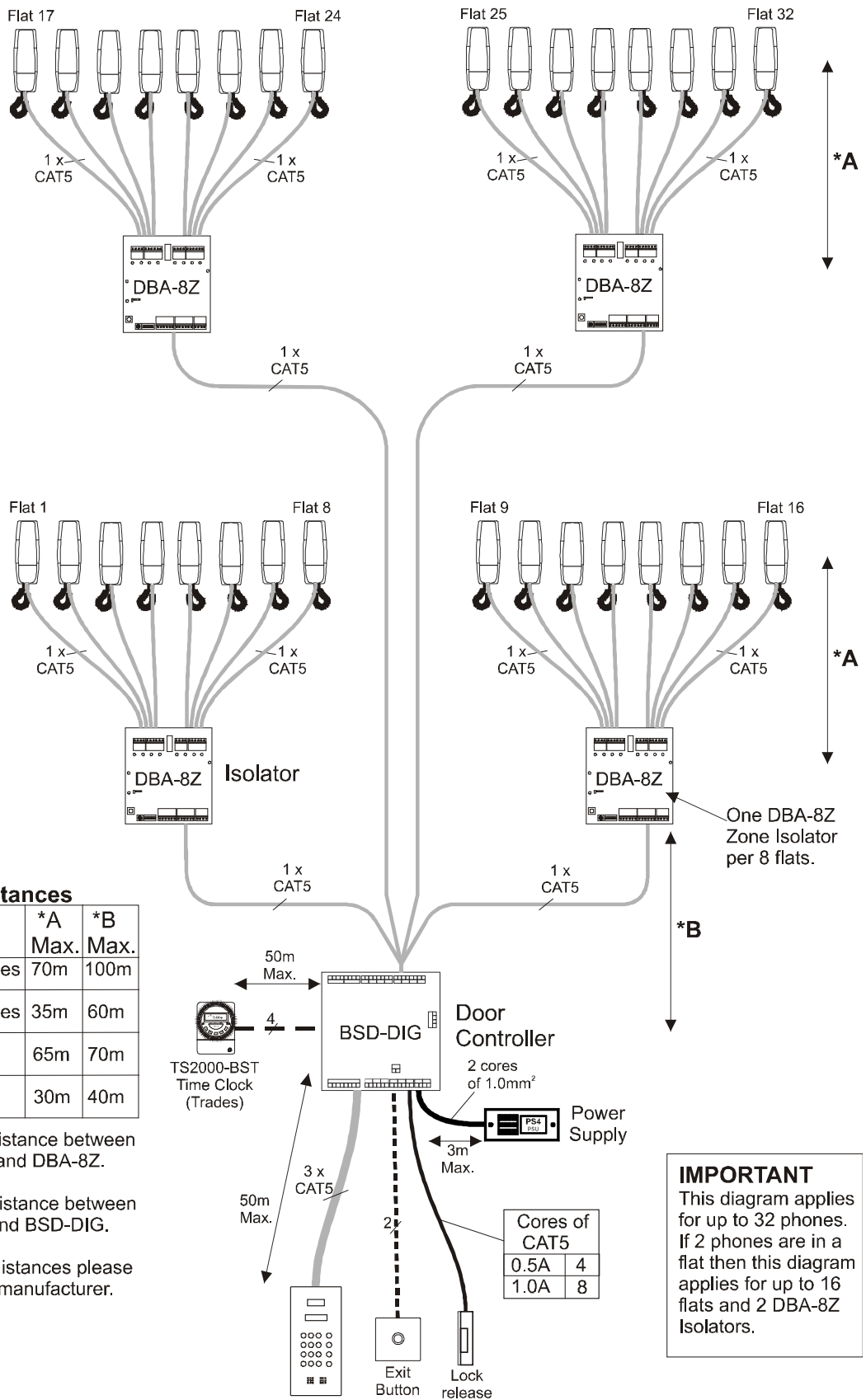
Cable overview

Diagram 2 - Full isolation, 1 entrance 33 to 64 phones



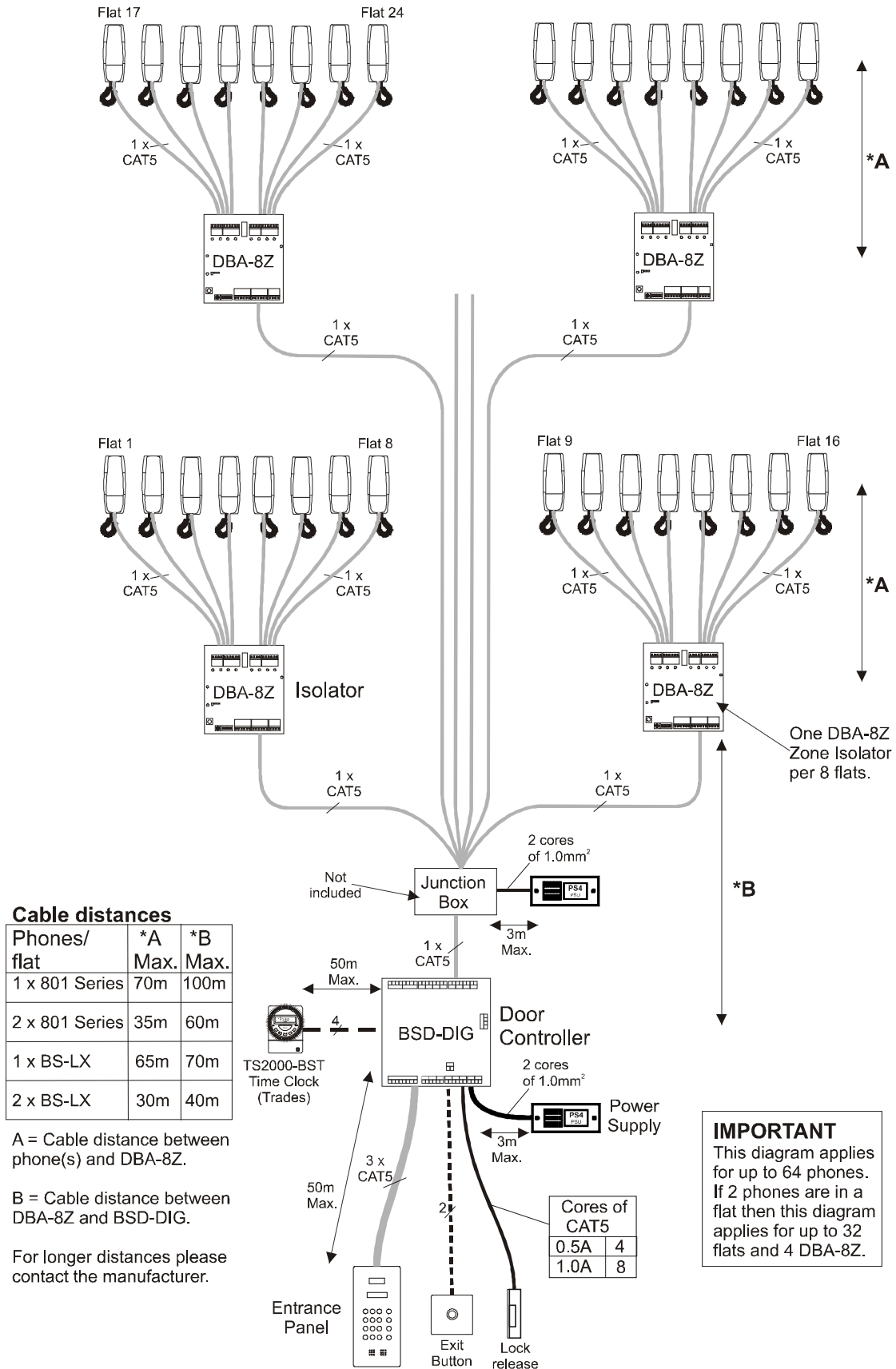
Cable overview

Diagram 3 - Zone isolation, 1 entrance up to 32 phones



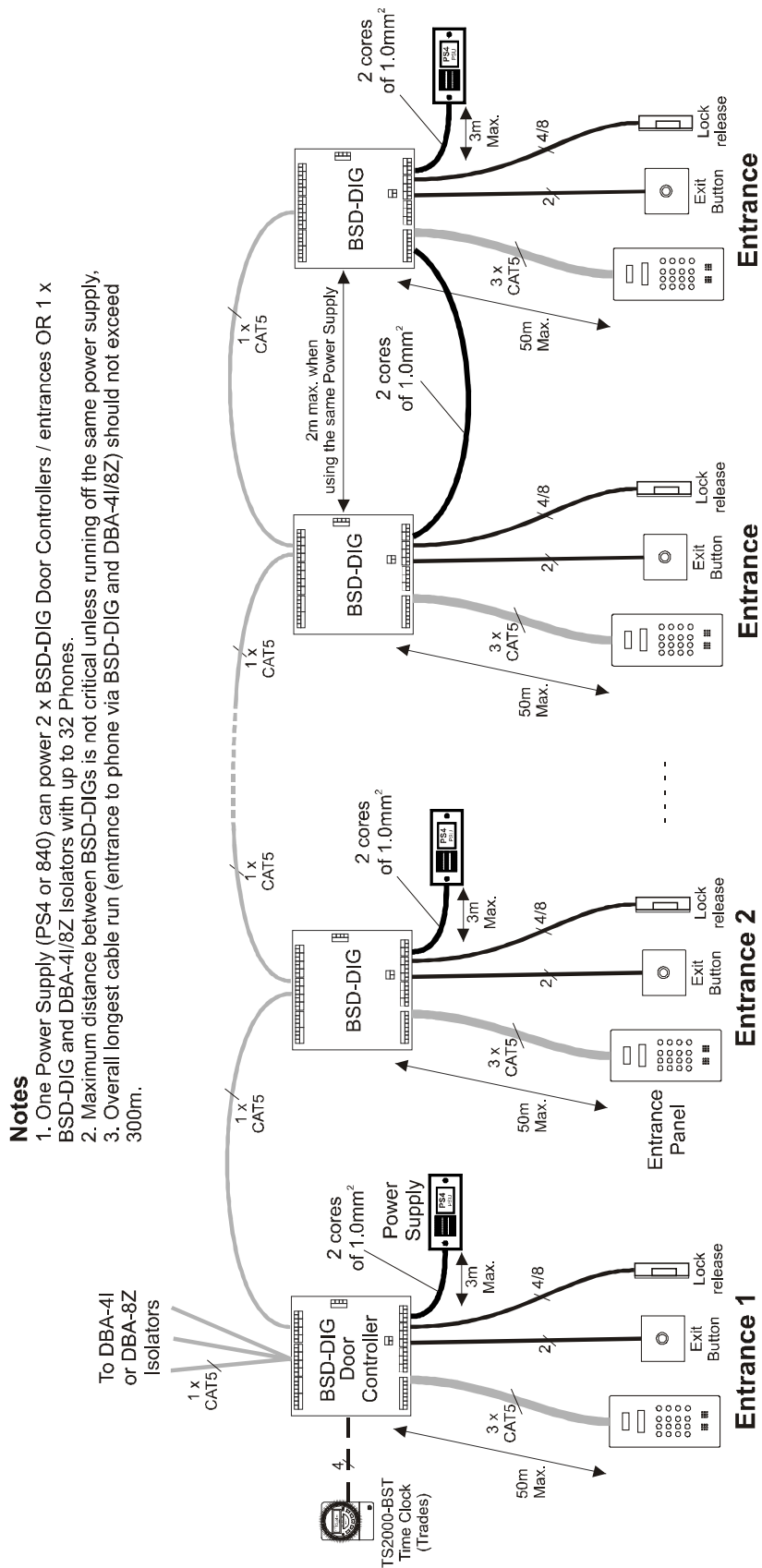
Cable overview

Diagram 4 - Zone isolation, 1 entrance 33 to 64 phones



Cable overview

Diagram 5 - System / Entrance interconnections



Notes

1. One Power Supply (PS4 or 840) can power 2 x BSD-DIG Door Controllers / entrances OR 1 x BSD-DIG and DBA-4I/8Z Isolators with up to 32 Phones.
2. Maximum distance between BSD-DIGs is not critical unless running off the same power supply.
3. Overall longest cable run (entrance to phone via BSD-DIG and DBA-4I/8Z) should not exceed 300m.

Installation & Commissioning Guide

Installation

1. Review the section headed 'Safety information' on Page 55.
2. Check the equipment supplied is as required; refer to the previous section if necessary.
3. Ensure the correct cable type is used (CAT5 and 1.0mm²).
4. Install the system according to instructions in this section.
5. For optional wiring such as a Trades time clock, Fob reader or gate trigger relay refer to diagrams 12, 13 or 14.
6. Fit each component, checking the maximum cable distances shown on the cable overviews in the previous section.

Commissioning

Settings

1. Set the flat addresses of each DBA-4I or DBA-8Z Isolator referring to the following sections.
2. Entrance and caller settings (speech time, ring time, unlock time, etc) are adjusted through each entrance panel at the associate entrance. Refer to the 'Entrance panel programming' section page 22.
3. Settings specific to each phone, such as ring volume and buzzer mute time, when available, are set inside each phone with a jumper or Dipswitch. Refer to the 'Phone Settings' section.
4. Speech levels are adjusted at each entrance panel behind the speech grill, with a separate adjustment for each direction of speech. A howling or whistling sound may indicate the volumes levels are set to high.

Testing / Connecting

The major components of the *Digibell* 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.

Any problems can be resolved by rechecking wiring and connections, assisted by the various suggestions and tests in the section 'Troubleshooting'.

Connect up one entrance first, leaving any connection to Isolators or phones unplugged:

1. When powered up for the first time, it is recommended that only the most basic system is connected, i.e. 4/8 phones, 1 BSD-DIG Door controller and entrance panel, 1 DBA-xx Isolator, the remaining equipment can be isolated by removing terminal blocks.
2. Check the display and buttons on the entrance panel work as expected.
3. If there is an exit button check the door will unlock.
4. Proceed to test the system by calling each phone from the entrance panel in the normal way, check any available phone features such as buzzer mute or door status. Once the basic system is fully functioning, continue to connect and test equipment item by item until completed.

Entrance Panel

The mounting height should be considered carefully and applicable standards checked, such as Building regulations and Disabled access. Entrance panels should have mastic applied to

the top and side edges of the front plate on the side touching the wall 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.

Electric Door Release

Both fail-secure and fail-safe lock releases (including Maglocks) use the same terminals. To change the lock type, refer to the 'LOCK' on page 24. When installing lock releases please allow a little movement on the door, as operation will be impaired if fitted too tight or the tongue of the lock extends too deeply into the lock release.

N.B. Magnetic locks (Maglocks) must be fitted with suitable transient voltage suppression device at the Maglock. Some Maglock manufacturers fit an internal suppressor.

Entry and exit considerations

Most fail-secure exit doors incorporate a mechanical means of egress rather than an exit button. Fire officers usually specify a door handle or push bar to open a door on a fire exit route – not, for example, a thumb-turn.

Fail secure lock releases are not generally continuously rated however if the entrance needs to be unlocked all day and the door entry system only used at night, then a continuously rated release must be used.

Powered bolt, shoot-bolt, Shear lock or other more secure door locking systems may require the use of a separate power supply and relay or a suppressor to be fitted.

A not uncommon problem with Maglocks, which cannot be mechanically overridden, is being locked out of the building due to lost codes, fobs or equipment failure. So consider an alternative building entrance, or an externally accessible secure key-switch, or a reliable method of disabling the system during overnight secure lockup.

Exit Button input

The exit button input is used to unlock the door for the set time (default 3 seconds). The input is designed for use with normally open push buttons.

'Exit +' terminal is the input/trigger and 'Exit –' is internally connected to 0V.

The 'Exit +' input can also be used for connection to other equipment to open the entrance. It is recommended that a relay is used to isolate/interface this connection when using third party equipment.

Door Open Switch

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; this selection is described in 'Panel programming'. The default of 'contact open when door closed' must be selected when this feature is not required.

Time Clock Sharing

In a large system a single time clock can be shared between distributed equipment areas by borrowing one of the 'commn –' wires in the interconnecting CAT5 to use as the shared 'Time clock common'. See the detailed diagram 12.

Entrance Panel Programming

Several useful settings can be changed using the Entrance panel. This includes.

- Lock duration
- Lock type
- Tradesman and Coded Access Codes

(see Table below for full list)

Security





It is strongly recommended that the Panel Security Code (PSEC) be changed from its factory setting to prevent unauthorized 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 associated BSD-DIG PCB, borrow a jumper from say video gain and place it on the 5 pin programming header between pins 1 & 2 (pin 1 is marked). 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.

Using 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),
(The display alternates, at 1 sec. Intervals, between the parameter name and its value.)
- Press the **Trades** 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**.
- Some parameters have a list of options; 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.

Settings

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		Not used
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		Not used
BCAL	No		Not used
12A?	No		Allows user entry of 12A to call DBA-xx output 13

ACOD – Primary Access Code

This is the main code to open the door. It is required when the display prompts with [CODE] after pressing the Trades button. The parameter 'TRAD' must 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

This is the tradesmen's or secondary code to open the door. It is required when the display prompts with [CODE] after pressing the Trades button. The parameter 'TRAD' must be set to 'Trade' in the active Time Clock setting, as per the table below.

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

LTIM – Lock Release 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, this includes Maglocks.

CAM2 - Not used on the Digibell system, leave on the default of [No]

TRAD – Door Button Trades Mode (0-9, default 5)

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

‘None’ = No function; pressing the **Trades** button is ignored.

‘Door’ = Pressing the **Trades** button opens the door.

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

‘Trade’ = Pressing the **Trades** button prompts for either the [ACOD] or [TCOD] access codes to open the door

DMON – Door Monitor Switch/Contact

[Owc] = Contacts open when door is closed: - This 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 (not normally required). 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*

* Default setting

TONE – Re-assurance Tone

To conform to DDA requirements the controller provides a re-assurance tone when a phone is ringing and also when the door lock has been operated from the door panel or the called phone, but not the exit button. In some situations these tones can be considered a nuisance and therefore can be turned off.

Four settings are available: -

[Both] = Ringing and lock tones.

[Call] = Ringing tone only.

[Lock] = Lock tone only.

[None] = No tones.

CANC – Not used, leave on the Default of [Yes]

BCAL – Not used, leave on the Default of [No]

12A? – Flat 13 Numbered as 12A

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 DBA-4I/8Z's can be set to respond to ... 11, 12, 13, 14, 15 ...

BSD-DIG Door Controller Jumper Settings

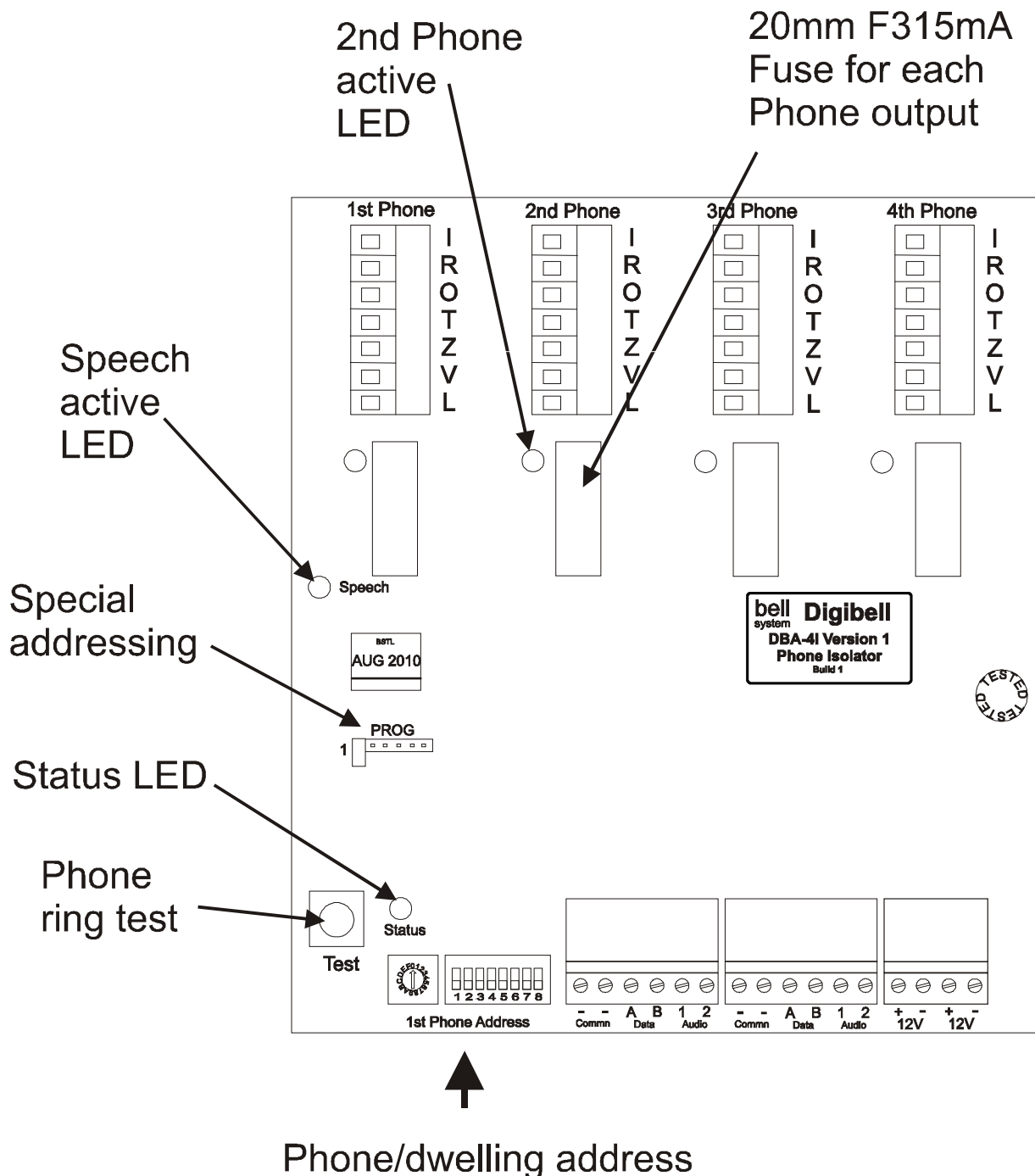
All the jumpers apply to video systems only, so settings have no effect.

DBA-4I 4 Way Phone Isolator

The DBA-4I Isolator is used to distribute wiring to up to 4 flats, whilst providing isolation between flats. This isolation ensures that a cable fault within one flat will not stop phones within other flats functioning.

There is a maximum of 2 phones in each flat. Adding a 2nd phone / extension phone reduces the maximum number of flats that can be powered from the same Power supply.

Isolator PCB's are normally supplied in an individual ABS plastic enclosure, but can be supplied in multiples in a lockable IP55 Steel cabinet (with or without power supplies). All control equipment must be placed in a protected indoor environment.



Programming flat addresses

The address is the flat number which is entered at the entrance panel in order to call a resident. These addresses are programmed on each of the Isolator PCB's by selecting the positions of the rotary switch SW6 and the 8-way dipswitch SW7. In the simplest scenario SW6 selects the address of the first phone on the isolator whilst the addresses of the other three follow in sequence as shown in the table below:

SW6 Value	Phone address (SW7:1-8 = OFF)				SW6 Value	Phone address (SW7:1-8 = OFF)			
	Phone 1	Phone 2	Phone 3	Phone 4		Phone 1	Phone 2	Phone 3	Phone 4
0	<address not set> (factory default)				8	29	30	31	32
1	1	2	3	4	9	33	34	35	36
2	5	6	7	8	A	37	38	39	40
3	9	10	11	12	B	41	42	43	44
4	13	14	15	16	C	45	46	47	48
5	17	18	19	20	D	49	50	51	52
6	21	22	23	24	E	53	54	55	56
7	25	26	27	28	F	57	58	59	60

Basic Addressing

In the most basic numbering scheme each isolator in the system has SW6 set to a different value to create a continuous range of flat addresses:

E.g. 32-way system numbered 1-32

Isolator	SW6 position	Address range
First	1	1 - 4
Second	2	5 - 8
Third	3	9 - 12
Fourth	4	13 - 16
Fifth	5	17 - 20
Sixth	6	21 - 24
Seventh	7	25 - 28
Eighth	8	29 - 32

Common Numbering Schemes

In many buildings the flat numbering does not follow a single sequence as illustrated above; there are often separate sequences for each floor and each sequence begins with a different number (e.g. 101.. 201..). Most requirements can be achieved by adding an offset address

to each Isolator. This offset enables any start address (i.e. the address of the first flat) to be set between 1 and 3200.

The offset address is set using dipswitch SW7:

SW7 switch	Offset
1	+1
2	+2
3	+50
4	+100
5	+200
6	+400
7	+800
8	+1600

Example



^ ^ ^
 +2 +100 +400

Total offset = +502

Simply add the Total offset value of SW7 switches to the addresses selected by SW6 (See the table on page 28).

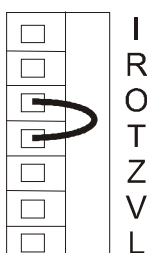
Example: First Floor 101-108, Second Floor 202-209:

Isolator (DBA-4I)	Address Range	SW6 Position	SW7 setting	Comment
1	101-104	1 (1-4)	4 ON (+100)	Choose 1-4 then add offset of +100
2	105-108	2 (5-8)	4 ON (+100)	Choose 5-8 then add offset of +100
3	202-205	1 (1-4)	1, 5 ON (+201)	Choose 1-4 then add offset of +201
4	206-209	2 (5-8)	1, 5 ON (+201)	Choose 5-8 then add offset of +201

Unused phone connections - Important

It may be desirable to use less than 4 connections on a given isolator for convenience of cable or building layout. E.g. if there are 3 flats on each floor: use one isolator per floor.

However it is important that in any numbering scheme there are no duplicate flat addresses or the corresponding phones may not operate correctly. **All unused outputs should therefore be disabled.**



Unused outputs must have a wire link placed between O and T on their terminal block.

Example:

If the 1st floor has flats 1, 2, 3 and the 2nd floor has flats 4, 5, 6 and one Isolator is used for each floor. The 4th Phone output on the 1st floor Isolator will need disabling; otherwise two outputs will try to ring flat 4.

Special addressing

On the rare occasion when flat numbers skip every other number, e.g. 1,3,5,7 or 2,4,6,8 etc the jumper on the 'PROG' 6 pin header can be moved to pins 3 and 4.

If flat numbers are required in the range 3200 to 6400 the jumper on the 'PROG' 6 pin header can be moved to pins 5 and 6. This simply adds an offset of +3200 to any address set on SW6 and SW7.

Alphanumeric Flat Numbers

Flat numbers requiring alphabetic characters (e.g. A1-A8, B101-B108, 101C-108C) cannot be programmed on the Isolators and must be programmed into each individual telephone. Please contact Bell System for instructions in this case.

Phone ring test

This test can be used to ring a phone on one of the four outputs of the DBA-4I isolator to verify basic operation. It can be used to test the ringer, hook switch and lock button operation but not the two way speech.

1. Press the Test button twice to ensure the system is in idle.
2. Set SW7 to test the appropriate phone (only one phone at a time):
 - 1 ON 1st Phone
 - 2 ON 2nd Phone
 - 3 ON 3rd Phone
 - 4 ON 4th Phone
3. Press Test to ring the phone
4. If the phone is taken off-hook the speech light will come on, and go back off when the phone is replaced.
5. If the lock button is pressed, while the speech light is on, the status LED will come on for 3 seconds, if using the BS-LX phone the green LED on the phone will also come on for 3 seconds.
6. Press the test button at any time to cancel.
7. Restore SW7 to the required address setting

Diagnostic LEDs

LED	State	Action on LED
Status	Power up	Flashes 3 times
	Data is present on Data A/B.	Brief flash
	Phone lock button pressed during a call or test	On for 3 seconds
	Test button pressed and system idle	Brief flash
	Restoring factory defaults	On for 2 seconds
Speech	Speech active (call in progress); Ring Test active (no speech)	On
LED1	1 st Phone active	On
LED2	2 nd Phone active	On
LED3	3 rd Phone active	On
LED4	4 th Phone active	On

Fuse

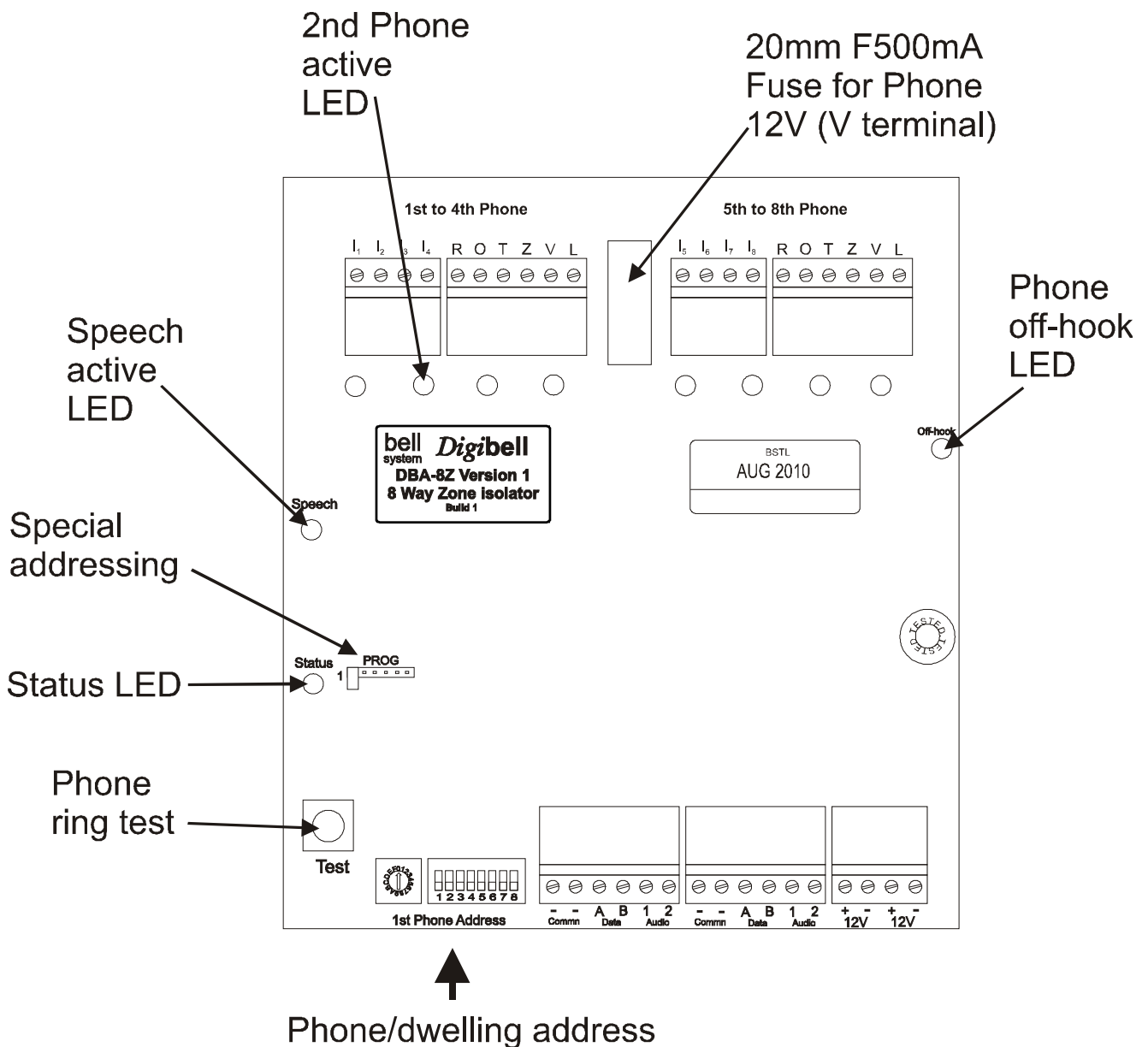
The 12V connection (V terminal) to each flat/phone is individually fused with a standard 20mm fuse, which will need replacing if it fails.

DBA-8Z 8 Way Zone isolator

The DBA-8Z Isolator is used to distribute wiring to a 'zone' of up to 8 flats whilst providing isolation from other zones. This isolation ensures that a cable fault within one zone will not affect the operation of phones within any other zone. It offers a good compromise between equipment cost and ease of maintenance. If greater isolation is required please refer to the DBA-4I Phone Isolator.

There is a maximum of 2 phones in each flat. Adding a 2nd phone / extension phone reduces the maximum number of flats that can be powered from the same Power supply.

Isolator PCB's are normally supplied in an individual ABS plastic enclosure, but can be supplied in multiples in a lockable IP55 Steel cabinet (with or without power supplies). All control equipment must be placed in a protected indoor environment.



Programming flat addresses

The address is the flat number which is entered at the entrance panel in order to call a resident. These addresses are programmed on each of the Isolator PCB's by selecting the positions of the rotary switch SW6 and the 8-way dipswitch SW7. In the simplest scenario SW6 selects the address of the first phone on the isolator whilst the addresses of the other seven phones follow in sequence as shown in the table below:

SW6 Setting	Phone address (SW7:1-8 = OFF)							
	Phone 1	Phone 2	Phone 3	Phone 4	Phone 5	Phone 6	Phone 7	Phone 8
0	<address not set> (factory default)							
1	1	2	3	4	5	6	7	8
2	5	6	7	8	9	10	11	12
3	9	10	11	12	13	14	15	16
4	13	14	15	16	17	18	19	20
5	17	18	19	20	21	22	23	24
6	21	22	23	24	25	26	27	28
7	25	26	27	28	29	30	31	32
8	29	30	31	32	33	34	35	36
9	33	34	35	36	37	38	39	40
A	37	38	39	40	41	42	43	44
B	41	42	43	44	45	46	47	48
C	45	46	47	48	49	50	51	52
D	49	50	51	52	53	54	55	56
E	53	54	55	56	57	58	59	60
F	57	58	59	60	61	62	63	64

Basic Addressing

In the most basic numbering scheme each isolator in the system has SW6 set to a different value to create a continuous range of flat addresses:

E.g. 32-way system numbered 1-32

Isolator	SW6 position	Address range
First	1	1-8
Second	3	9-16
Third	5	17-24
Fourth	7	25- 32

Common Numbering Schemes

In many buildings the flat numbering does not follow a single sequence as illustrated above; there are often separate sequences for each floor and each sequence begins with a different number (e.g. 101.. 201..). Most requirements can be achieved by adding an offset address to each Isolator. This offset enables any start address (i.e. the address of the first flat) to be set between 1 and 3200.

The offset address is set using dipswitch SW7:

SW7 switch	Offset
1	+1
2	+2
3	+50
4	+100
5	+200
6	+400
7	+800
8	+1600

Example



Total offset = +502

Simply add the Total offset value of SW7 switches to the addresses selected by SW6 (See the table on page 33).

Example: First Floor 101-116, Second Floor 202-217:

Isolator (DBA-8Z)	Address Range	SW6 Position	SW7 setting	Comment
1	101-108	1 (1-8)	4 ON (+100)	Choose 1-8 then add offset of +100
2	109-116	3 (9-16)	4 ON (+100)	Choose 9-16 then add offset of +100
3	202-209	1 (1-8)	1, 5 ON (+201)	Choose 1-8 then add offset of +201
4	210-217	3 (9-16)	1, 5 ON (+201)	Choose 9-16 then add offset of +201

Unused phone connections - Important

It may be desirable to use less than eight connections on a given isolator for convenience of cable or building layout. E.g. if there are 6 flats on each floor: use one isolator per floor.




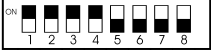
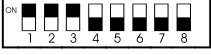

However it is important that in any numbering scheme there are no duplicate flat addresses or the corresponding phones may not operate correctly. **All unused outputs should therefore be disabled.**

Example:

Isolator (DBA-8Z)	Address Range	SW6 Position	SW7 setting	Comment
1	103-107	1 (1-8)	2, 4 ON (+102)	Choose 1-8 then add offset +102
2	108-112	2 (5-12)	1, 2, 4 ON (+103)	Choose 5-12 then add offset +103
3	114-122	4 (13-20)	1, 4 ON (+101)	Choose 13-20 then add offset +101

In the example above, Isolators 1 and 2 use only five phone connections each; the last three outputs of Isolator 1 would be 108, 109, 110 which, although unused, conflict with the first 3 addresses of Isolator 2; similarly with Isolators 2 and 3. Solution: disable the last three outputs of each isolator.

Disabling phone outputs: (Note 1st and 2nd phones cannot be disabled)

SW7 setting	Phone 1	Phone 2	Phone 3	Phone 4	Phone 5	Phone 6	Phone 7	Phone 8
	Seven Phones Used							disabled
	Six Phones Used						disabled	disabled
	Five Phones Used					disabled	disabled	disabled
	Four Phones Used				disabled	disabled	disabled	disabled
	Three Phones Used			disabled	disabled	disabled	disabled	disabled
	Two Phones Used		disabled	disabled	disabled	disabled	disabled	disabled

1. On the DBA-8Z isolator set SW7 from the table above:
2. Set SW6 to 0
3. Press the Test button briefly and confirm the Status LED flashes (2 sec. duration)
4. If required confirm the output status by following the directions below.
5. Return SW6 & SW7 to the correct address setting for the Isolator

Confirming status of Isolator Outputs

To confirm which phone outputs have been disabled, set SW6 to 0 and SW7 to 'All OFF' and press the Test button; each output will have its status LED flash once in turn except those outputs which have been disabled. Note it may be necessary to press the Test button a second time on a live system to ensure that the PCB has been reset.

Special addressing

On the rare occasion when flat numbers skip every other number, e.g. 1,3,5,7 etc or 2,4,6,8 etc the jumper on the 'PROG' 6 pin header can be moved to pins 3 and 4.

If flat numbers are required in the range 3200 to 6400 the jumper on the 'PROG' 6 pin header can be moved to pins 5 and 6. This simple adds an offset of +3200 to any address set on SW6 and SW7.

Alphanumeric Flat Numbers

Flat numbers requiring alphabetic characters (eg A1-A8, B101-B108, 101C-108C) cannot be programmed on the Isolators and must be programmed into each individual telephone. Please contact Bell System for instructions in this case.

Phone ring test

This can be used to ring a phone on one of the 8 outputs and see off hook and lock button operation. It does not test the speech.

1. Press the Test button twice to ensure the system is in idle
2. Set SW7 to test the appropriate phone (only one phone at a time):
 - 1 ON 1st Phone
 - 2 ON 2nd Phone
 - 3 ON 3rd Phone
 - 4 ON 4th Phone
 - 5 ON 5th Phone
 - 6 ON 6th Phone
 - 7 ON 7th Phone
 - 8 ON 8th Phone
3. Press Test to ring the phone.
4. If the phone is taken off-hook the speech light will come on and go back off when the phone is replaced.
5. If the lock button is pressed the status LED will come on for 3 seconds, if using the BS-LX phone the green LED on the phone will also come on for 3 seconds.
6. Press the test button at any time to cancel.
7. Restore SW7 to the required address setting

Diagnostic LEDs

LED	State	Action on LED
Status	Power up	Flashes 3 times
	Data is present on Data A/B.	Brief flash
	Phone lock button pressed during a call or test	On for 3 secs
	Test button pressed and system idle	Brief flash
	Restoring factory defaults	On for 2 secs
Speech	Speech active (call in progress); Ring Test active (no speech)	On
Off-hook	1 or more phones are off hook	On
LED1	1 st Phone active	On
LED2	2 nd Phone active	On
LED3	3 rd Phone active	On
LED4	4 th Phone active	On
LED5	5 th Phone active	On
LED6	6 th Phone active	On
LED7	7 th Phone active	On
LED8	8 th Phone active	On

Fuses

The 12V connection (V on either terminal block) is fused with a standard 20mm fuse, which will need replacing if it fails.

There is also an electronic fuse to protect against shorts on the door monitor / contact terminal L. This will reset once the short is removed.

Phone settings

801, 801S, 801PS Phones

These models have a ring volume with 2 settings high and low marked HI and LO. The default is HI. If the ring is too loud move the jumper at the top left of the PCB to over the 2 pins marked LO. No other adjustments are required.

The 801S and 801PS have a slide switch on the right to enable the user to turn the ringer on or off.

BS-LX Phones

DIP Switch Settings

The diagram shows the back of a Bellissimo phone with a keyhole, an unlock button, and a buzzer mute button. A callout points to a set of 8 DIP switches used for configuring ringer mute times. The table below details these settings.

Ringer Mute Times(5,6,7,8)									
<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	No Mute	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	1 hour
<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	2 mins	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	2 hour
<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	5 mins	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	4 hour
<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	10 mins	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	5 hour
<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	15 mins	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	6 hour
<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	20 mins	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	8 hour
<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	30 mins	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	10 hour
<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	45 mins	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	<input type="checkbox"/> ON	Toggle

Labels for the phone diagram:

- Ring Volume (3 Levels)
- Unlock button and Door Status Indicator (green)
- Buzzer Mute button and Ring Status Indicator (red)

Ringer volume

This model has 2 ring levels 'Low', 'Medium' and 'High', the default is 'High'. If the ringer is too loud move the jumper marked 'Ring Volume' on the PCB to the 'Medium' or 'Low' position.

Ringer mute time

The phone can be set so that after pressing the mute button the ringer is disabled for a set time and then automatically re-enables itself. This time is adjustable between 2 minutes and 10 hours. It can typically be used to silence the ringer over night. The default setting disables the ringer until the button is pressed again (not cancelling automatically). Refer to the table above or the label inside the phone.

The settings for 'Ring type', 'Door Monitor' and 'Unlock time' should be left on the defaults (DIP switch 1-4 should be all OFF) as they are not used on the *Digibell* system.

Phone connections

Terminal	Meaning
I	Call (12V to ring)
R	Microphone speech
O	Common for ring, speech and lock button (0V)
T	Speaker
Z	Lock button (Z shorts to O when the lock button is pressed)
V	12V Phone supply (BS-LX only)
L	Door Monitor (connecting L to 0V brings green LED on, BS-LX only)

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 broken inside the insulation.
- Connectors clamped onto the insulation instead of copper.
- Wires incorrectly positioned in the rising clamp connection of the terminal blocks; unscrew the terminal fully before inserting the wire to prevent it from going “underneath” the clamp.
- Short or open circuits due to cables having been stapled or nailed through.
- A common fault is wiring a connector left to right instead of right to left, or one or more twisted pairs the wrong way round.

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

The following tables provide a quick indication of the possible fault:

Lock Release Problems	
Lock release does not operate or click. (refer to Lock Test below)	Connections to the Lock release are open/short-circuited. Voltage drop; cable diameter is too small. Lock current is too high; (PSU is resetting or overloaded.) Lock release jammed due to over tight fitting; check there is some ‘play’ between the lock and lock release.
Version number displayed on Entrance Panel (e.g. ‘V3.0’) when operating the lock release	Short circuit on the Lock +/- terminals Lock release taking too much current, voltage dipping. Check PSU, cable diameter and Lock release rating.
Maglock does not hold strongly.	Voltage drop due to cable diameter too small. Holding plate does not fully contact magnet.
Lock release operates all the time or in reverse	Check that the correct lock type is selected: (See ‘Entrance Panel Programming – LOCK’ on page 24) EXIT +/- input short-circuit Exit button is ‘normally closed’ type (should be ‘normally open’)
Lock operates from the exit button but not the test button or phone.	Normally closed switch has been used for the exit button.

Lock Test:

Press ‘**Test**’ Button on Door Controller **BSD-DIG** (when system is idle):

Confirm: ‘LOCK’ LED illuminates for 3 seconds or goes out for 3 seconds depending on lock type selected; Check Output Voltage at LOCK terminals.

Entrance Panel Display Problems	
No display	No power at display module BD10; check for a minimum of 10V between +V and 0V. To test the display, turn the power off and then on and check the software version is displayed for a few seconds: Two version numbers are displayed, e.g. "BDV1" then "V4.0", the presence of the second number confirms the module is receiving data from the BSD-DIG controller (connection 'D').
Display indicates "F 1 --"	"D" connection open circuit: No message (data) received from the BSD-DIG controller.
Display indicates "F 2 --"	"D" connection shorted to 0V: No message (data) received from the BSD-DIG controller.

Telephone Ring Problems	
Phone doesn't ring	Address not set on the DBA-4I/8Z Isolator; refer to pg. 27/32. I or O terminal not connected on the phone. DBA-4I only – Phone is off-hook. BS-LX phone: <i>Phone is muted. Check red light is off.</i> <i>V, I or O terminal not connected:</i> <i>Check for 12V between V (+) and O (-).</i> <i>Check for 12V between I (+) and O (-)</i> <i>(when the phone should be ringing).</i> Data A or B cores to DBA-4I/8Z isolator open or short circuit or shorted to 0V or 12V at any point. (This would affect all phones on the isolator). Call button or keypad wiring fault; check the correct flat number is displayed and that pressing the Call button displays the word 'CALL'. Refer to pages 52 and 46.
Phone rings briefly then stops	Low voltage to the DBA-4I/8Z Isolator; Check the cable requirements page 13. Check there is at least 10V on the 12V+/- connection when the phone should be ringing. BS-LX only - Low Voltage to phone; Check the cable requirements page 13; Check voltage between 'V' and 'O' on the phone when ringing. Power supply voltage low, due to current overload. Check the voltage at the power supply is 13-14V.

<p>BS-LX phone flashes red and green periodically instead of ringing</p>	<p>No 12V to connection 'V', check 12V between V and O on the phone. Check the fuse on the DBA-4I/8Z isolator hasn't blown.</p>
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<p>Speech Problems</p>	
<p>Loud tone/howl at the entrance speaker. (Acoustic feedback)</p>	<ul style="list-style-type: none"> • Volume controls set too high at entrance • Broken Audio 1 or 2 wire in the cabling (between control equipment). • Intermittent or broken wire in Data A or B • DBA-4I/8Z Isolator has reset; Low voltage to the DBA-4I/8Z Isolator connected to that phone. Check the cable requirements page 13. Check at least 10V on the 12V+/- connection when the phone should be ringing. • Check model 61 speech unit is hard against the front plate with no gaps. • Check model 61 speech unit is the right way up and that the microphone hole in the speech unit lines up with the hole in the panel.
<p>Low volume speech in one or both directions</p>	<ul style="list-style-type: none"> • Adjust pot on 61 speech unit marked A (with a speaker symbol) for volume at the panel. • Adjust pot on 61 speech unit marked B (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. • Another phone (801 or 801S) connected to the same DBA-8Z is off-hook (does not apply to DBA-4I)
<p>No speech from phone to entrance</p>	<ul style="list-style-type: none"> • Missing 'R' connection to BSD-DIG door controller • Broken or shorted Audio 1 or 2 connections (no speech either direction).
<p>No speech from entrance to phone</p>	<ul style="list-style-type: none"> • Missing 'T' connection to BSD-DIG door controller • Broken or shorted Audio 1 or 2 connections (no speech either direction).

Specifications



Model 801/801S/801P/801PS Phone

Size	212mm x 85mm x 55mm
Supply Voltage	8V DC minimum, 15V DC maximum
Current consumption	0mA idle, 140mA max. @13.8V



Model BS-LX Phone

Size	235mm x 105mm x 25mm
Supply Voltage	8V DC minimum, 15V DC maximum
Current consumption	26mA idle, 150mA max. @13.8V



Model 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



Model DBA-4I 4 Way Phone Isolator

Size	185mm x 230mm x 42mm
Supply Voltage	10V DC min, 15V DC max
Current consumption	29mA idle, 75mA max @13.8V
Phone Fuses	F315mA, 20mm Glass

Model DBA-8Z 8 Way Zone Isolator



Size	185mm x 230mm x 42mm
Supply Voltage	10V DC min, 15V DC max
Current consumption	29mA idle, 75mA max @13.8V
Phone Fuse	F500mA, 20mm Glass

Model 61 Speech Unit



Size	98mm x 60mm x 24mm
Supply Voltage	10V DC min, 15V DC max
Current consumption	100mA DC maximum

PS4 Power Supply



Size	236mm x 105mm x 81mm
Reg. Output Voltage	13.8V Nom
Output Current	3A continuous, 4A peak (5 minutes max)
Mains Internal Fuse	Not user replaceable
Supply Voltage	230V 50Hz nominal
Temperature Range	0 °C to 50 °C

840 Power Supply – Battery Backup (requires battery)



Size	350mm x 330mm x 80mm
Reg. Output Voltage	13.8V Nom
Output Current	3A continuous, 4A peak (5 minutes max)
Mains Internal Fuse	T2A 20mm HBC (HRC) Ceramic
Battery Fuse	F4A 20mm Glass
Supply Voltage	230V 50Hz nominal
Temperature Range	0 °C to 50 °C

Wiring diagrams

System	Full Isolation Diagram Nos.	Zone Isolation Diagram Nos.
1 Entrance, Up to 32 ways	6, 8, 9 **Overview 1	6, 7, 9 **Overview 3
1 Entrance, 32 – 64 ways	6, 8, 10 **Overview 2	6, 7, 10 **Overview 4
Multi-entrance Up to 32 ways	6, 8, 9, 11 **Overview 1,5	6, 7, 9, 11 **Overview 3,5
Multi-entrance, 32 - 64 ways	6, 8, 10, 11 **Overview 2,5	6, 7, 10, 11 **Overview 4,5

** Refer to the cable overviews, pages 14 - 19

Diagram 6 – Entrance Connections

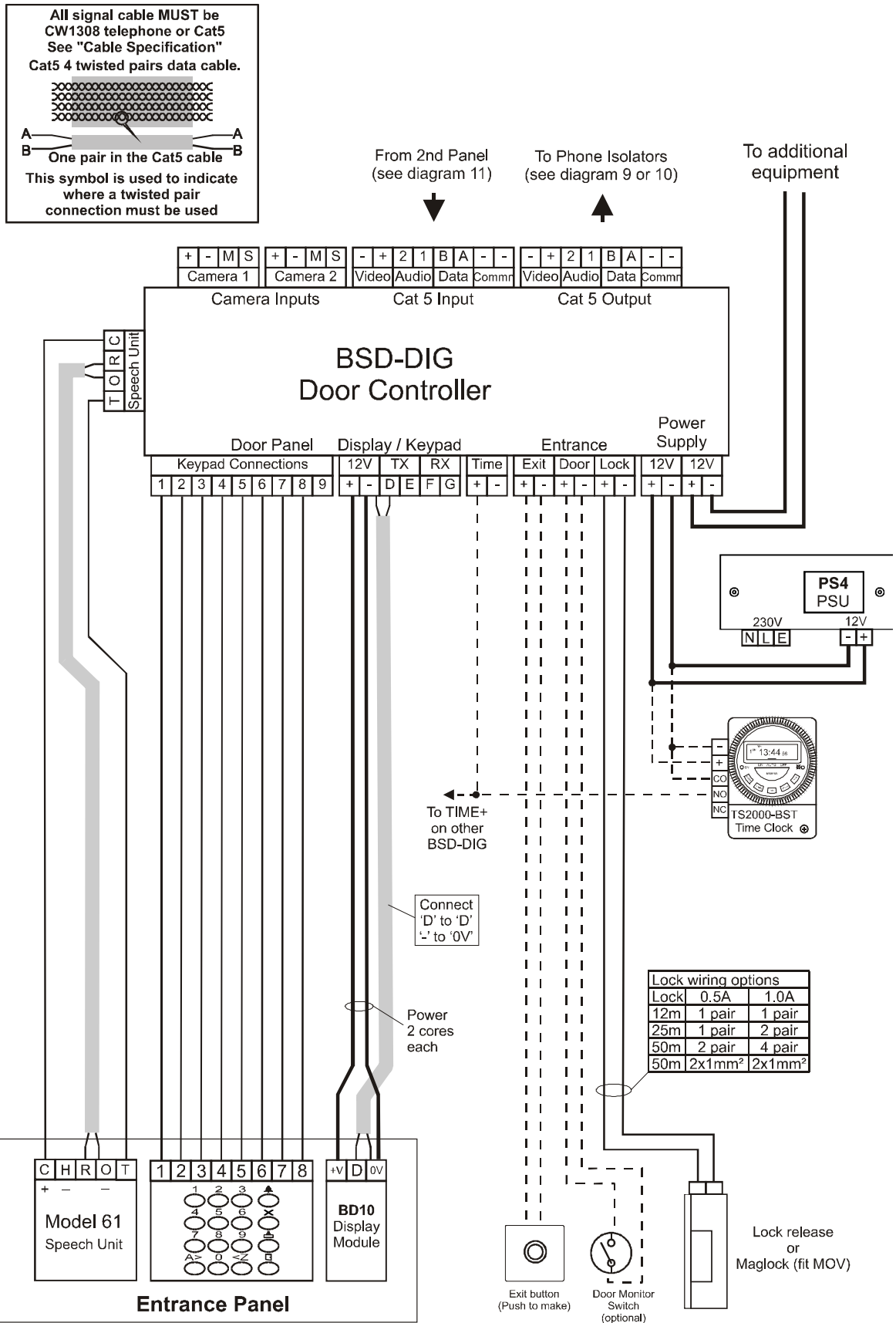


Diagram 7 – Phone Connections (Zone Isolation)

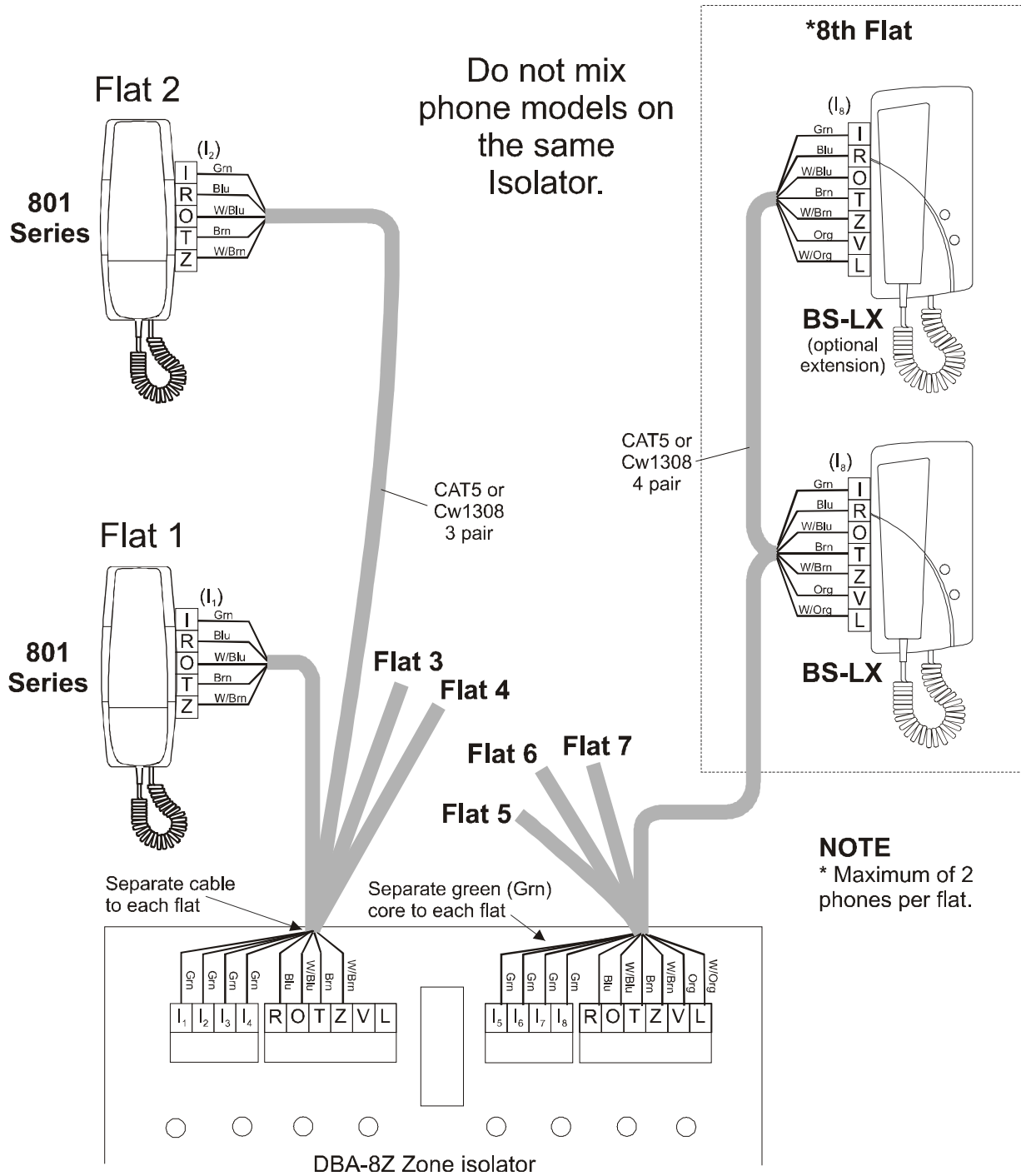


Diagram 8 – Phone connections (Full Isolation)

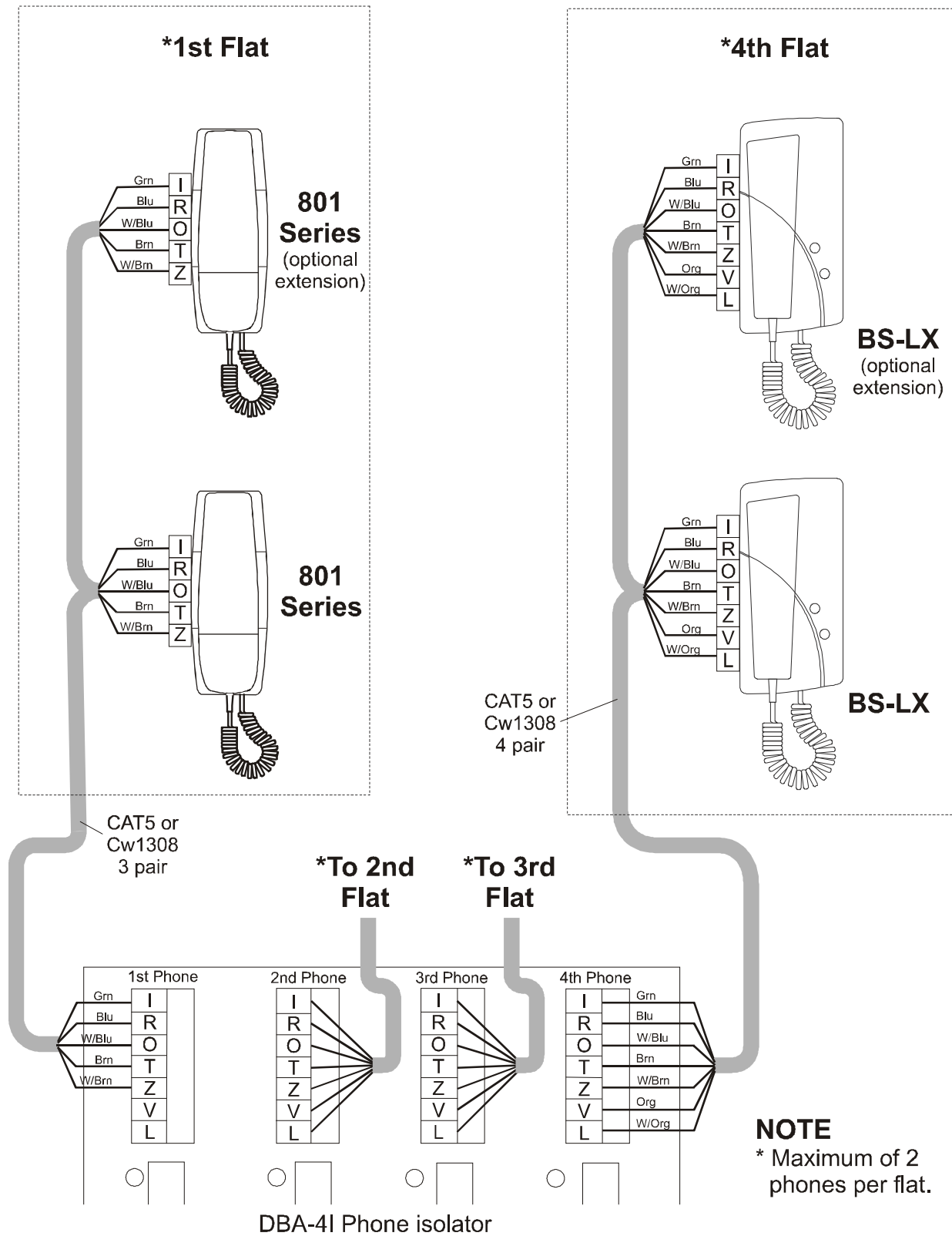


Diagram 9 – Isolator Interconnections (single PSU required)

For example 1 – 32 ways

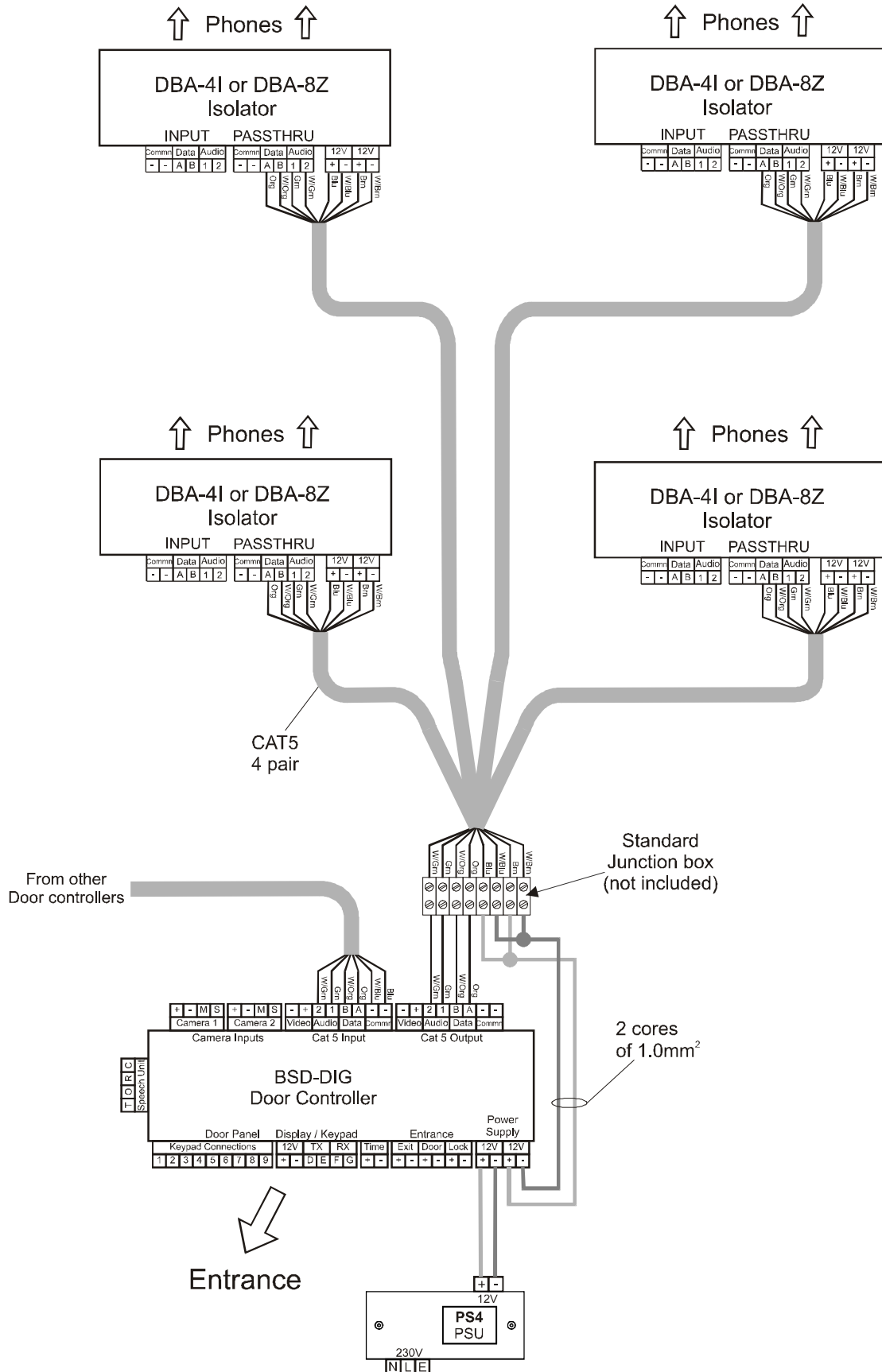


Diagram 10 – Isolator interconnections (separate Power supply)

For example 32-64 ways

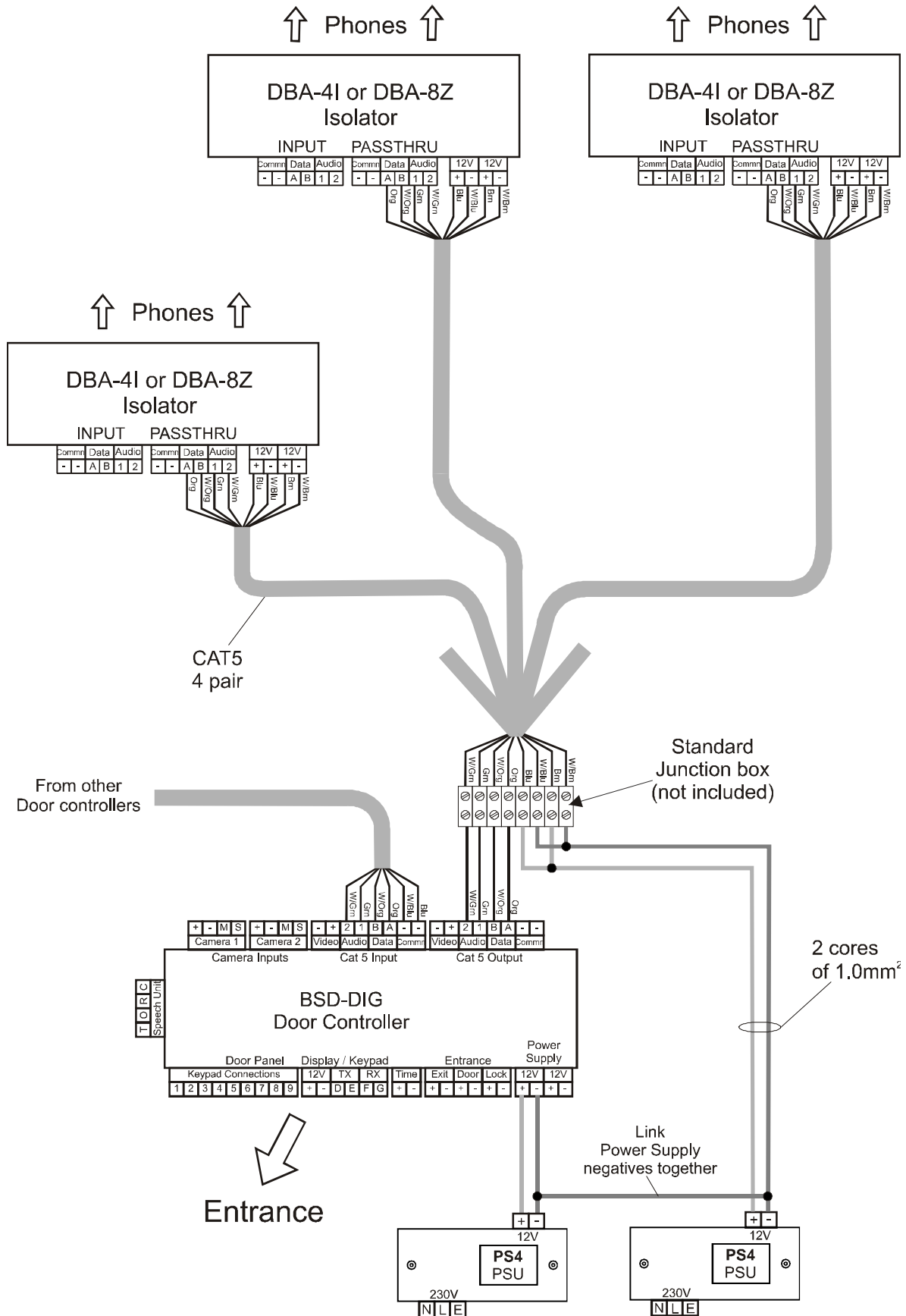


Diagram 11 – Entrance interconnections (BSD-DIG)

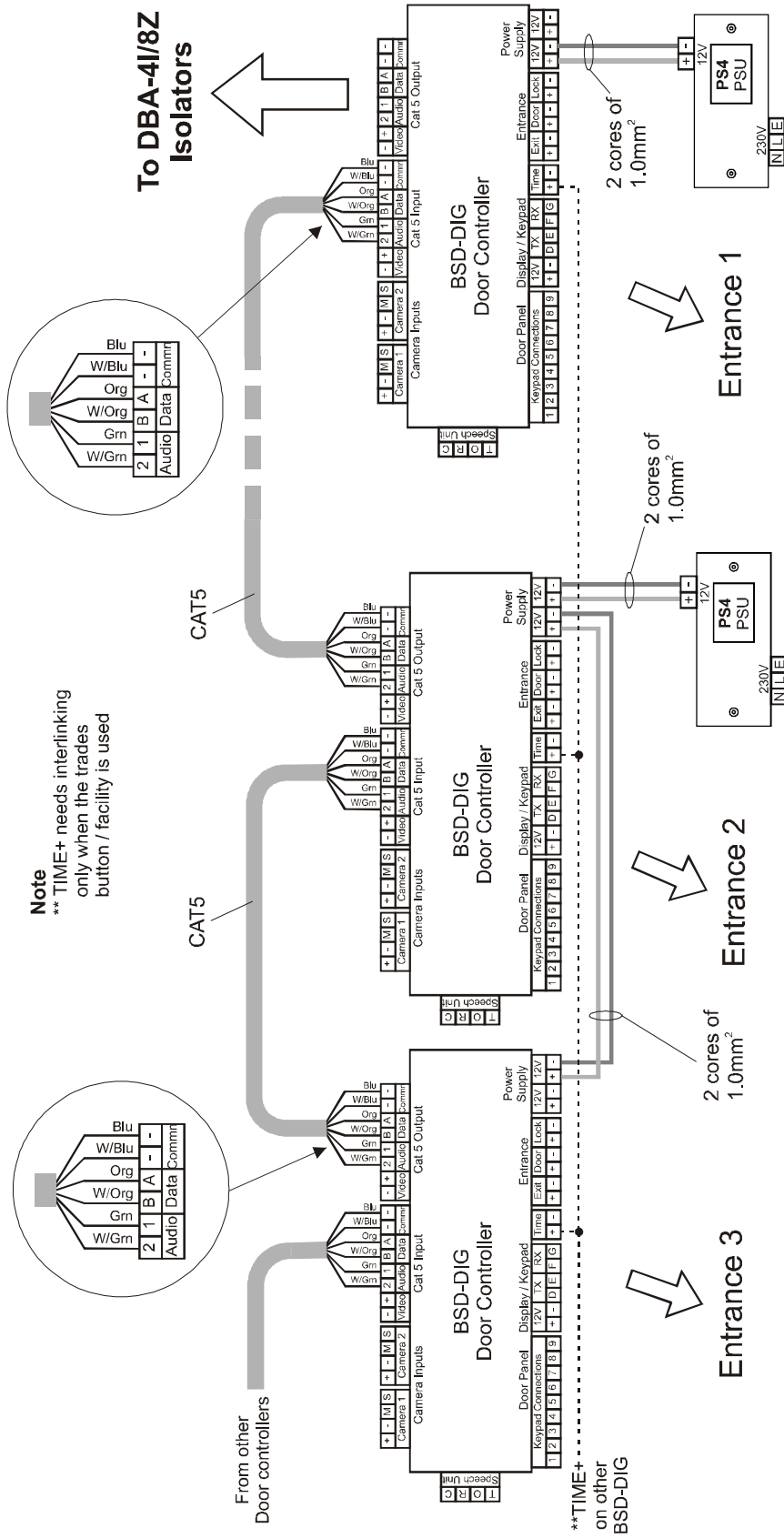
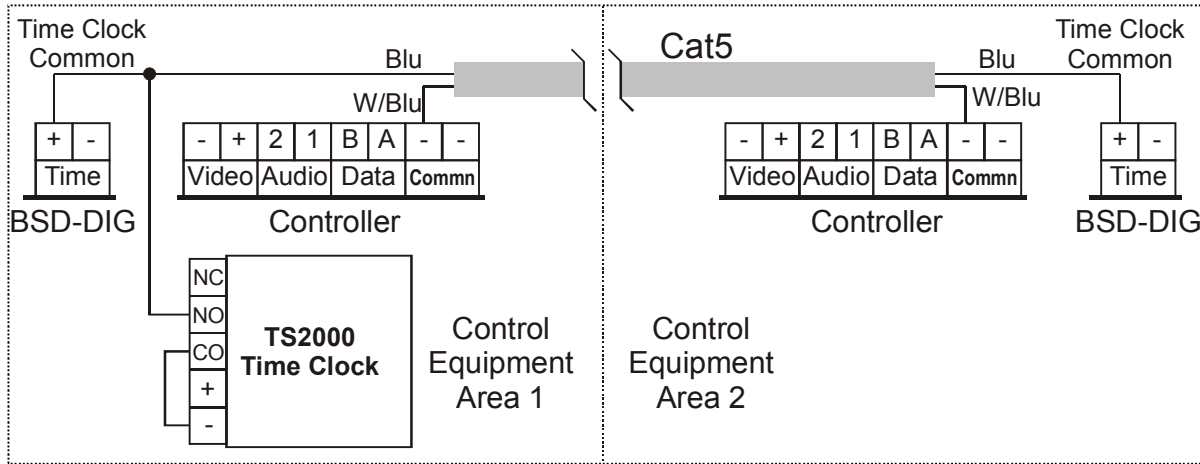


Diagram 12 – Optional Features

Time Clock Sharing

A time clock can be shared between distributed equipment areas by borrowing one of the 'commn -' wires in the interconnecting Cat5 to use as the shared "Time clock common".

The "Time clock common" signal is sharable across all BSD-DIG controllers.



Keypad Matrix

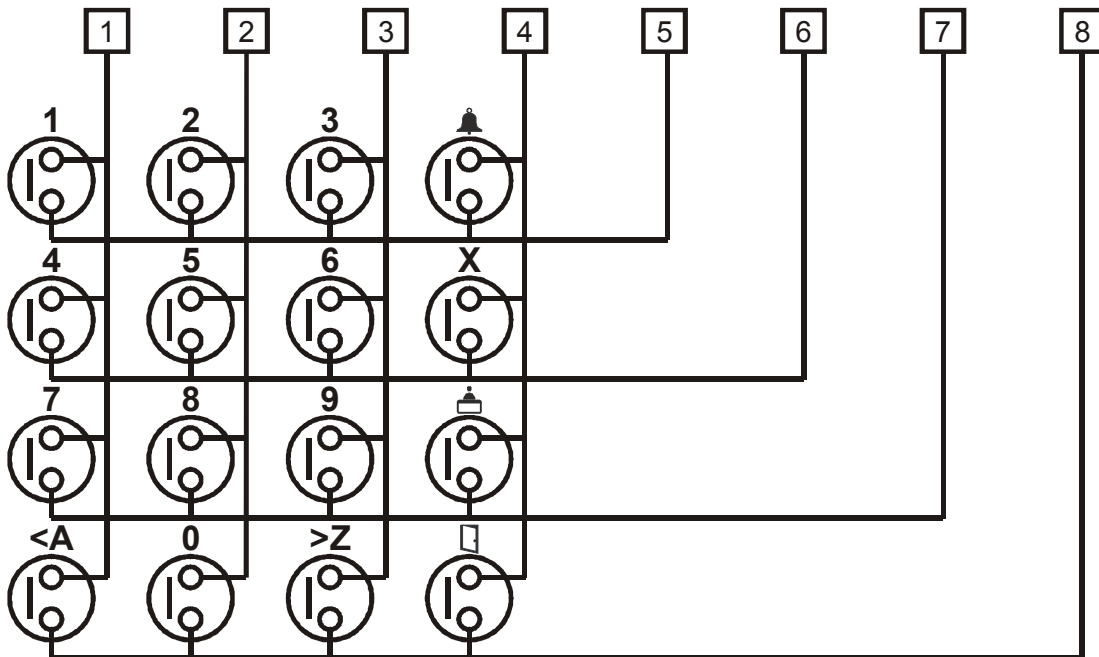
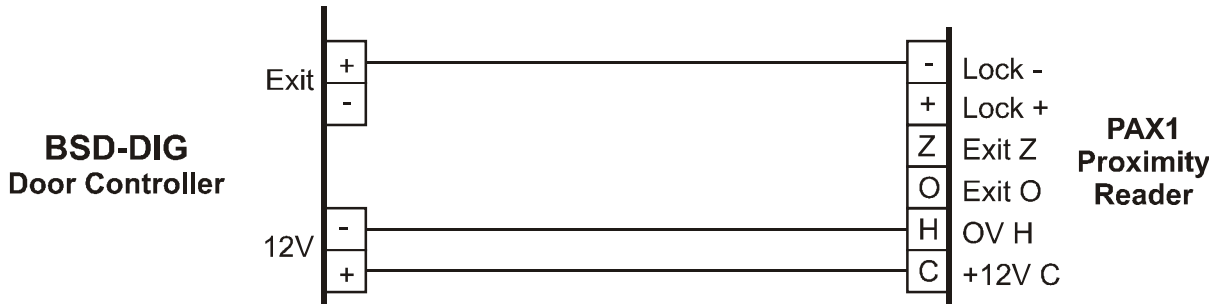


Diagram 13 – Combined System Connections

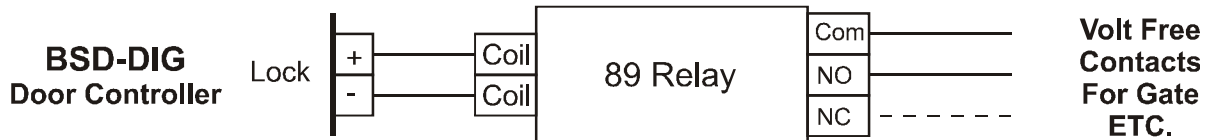
Connecting a Bell PAX1 Proximity Reader



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

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

Opening/Triggering a Gate or Locks on a Third Party System

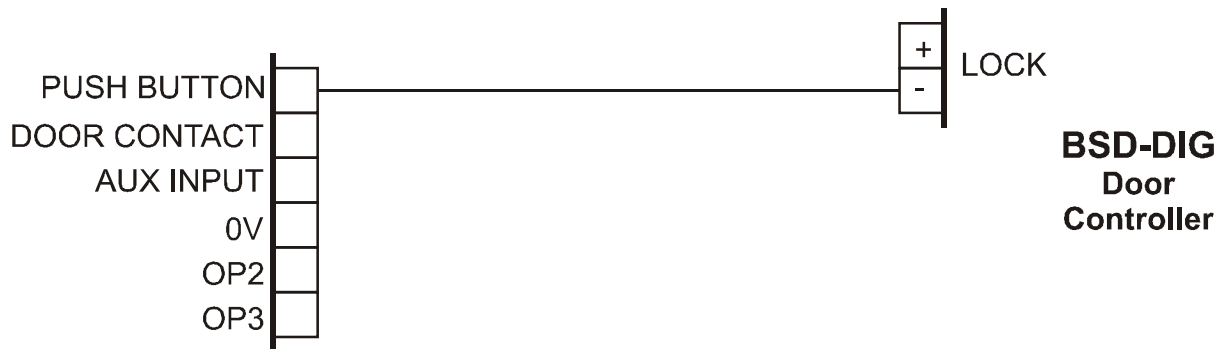


Leave the BSD-DIG controller set to Fail secure.

Generally when connecting to a third party system the lock release should be connected as recommended by the other manufacturer; the NO and COM connections from the 89 relay, as shown above, should be connected to a trigger input on the third party system, often marked RTE (request to exit). For further advice please contact your distributor.

Diagram 14 – ACT Proximity Fob system interconnections

ACTPro1000/2000/3000 Proximity Access Controller



ACTPro100/200 Proximity Door Extender



Notes

1. Connect the lock release or Maglock using the ACT Manuals.
2. Leave the BSD-DIG 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 *Digibell* wiring.
4. If the 2 units are not sharing a power supply, then a connection from BSD-DIG 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. A good mains safety earth must be connected to all sections of the enclosure.

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 Power Supply

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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E-mail: sales@bellsystem.co.uk
technical@bellsystem.co.uk

Website: www.bellsystem.co.uk

Standards

This product complies with Electromagnetic Compatibility directive 2004/108/EC and Low Voltage directive 2006/95/EC.

Emissions: Generic BSEN 61000-6-3

Immunity: Generic BSEN 61000-6-1

Low Voltage: Generic BSEN 60950



BS EN ISO 9001:2008 Certificate number GB2000389