

# Model 719S

## 2 Door Switching Unit

PD-008 Issue 4

### General Description

The Model 719S Switching Unit provides a means of operating a door entry telephone system from two entrances. Several 719S units may be combined to extend operation up to a maximum of eight entrances.

#### OPERATION

When a telephone is called from a given entrance, the switching unit connects the telephone to the speech amplifier ( model 51) of that entrance panel only. The unit remains active for a preset period ( 30 - 120 secs), during which time the resident may converse with the caller by lifting the telephone handset and, if required, allow the caller to gain access, by pressing the telephone 'lock button'; the lock release (of the active entrance only) will operate for a preset period ( 3 - 20 secs).

When a given entrance panel is in use, all other entrances are ' locked out' for the active period (30 - 120 secs), during which time it is not possible to call any of the telephones from these entrances. This engaged condition may be indicated to other callers by an optional 'engaged lamp' installed at each door.

#### TELEPHONES

The 719S switching unit is compatible with the telephones listed below:-

Telephone type	Models	Diagram
801 Series (AC/DC*)	801, 801S, 801P, 801PS	1 and 3 (AC) or 2 and 4 (DC)
500 Series (AC)	500A, 500PA	1 and 3
500 Series (DC)	500D, 500PD	2 and 4
500X Series (DC)	500X, 500PX, 500LX, 500LXT, 500PLX, 500PLXT	2, 4, 5 and 6

\* Only 801 Series phones manufactured after April 2000 are DC compatible.

#### POWER SUPPLY

The 719S is powered from a 12V AC 2A PSU (M225) for AC telephones or 12V DC 2A PSU (M440) for DC telephones. A separate power supply is required for each 719S unit in multi-door systems (see Diagrams 3 or 4).

It is also possible to operate a fail-safe lock release on an AC system with the addition of a 12V DC 1A PSU (M340), see diagram 1.

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A maximum of 20, 500X series telephones can be powered directly from a 719S unit. For up to 60 telephones an additional M440 PSU must be used. Refer to diagram 6. **For larger systems contact your distributor or the manufacturer for further guidance.**

### ELECTRIC LOCK RELEASE

Either fail-secure (AC/DC) or fail-safe (DC only) type electric lock releases can be operated directly from the 719S switching unit. Use the 'FAIL SECR' connections for fail-secure releases. Use the 'FAIL SAFE' connections for fail-safe releases and magnetic locks. The Lock outputs are rated at a maximum current of 0.5A.

### EGRESS FACILITY

An 'egress' button may be installed, on the inside of each door, to allow residents to freely exit. Momentarily pressing this button will operate the lock release for a fixed period (3 - 20 secs). As illustrated in diagram 1 or 2 the egress button is connected to the 719S switching unit using the terminals marked 'EXIT'.

### TRADESMAN FACILITY

The entrance panels may be ordered with an optional 'Tradesman' button to allow free access during certain hours (used in conjunction with a time-clock). Momentarily pressing this button will operate the lock release for a fixed period (3 - 20 secs). As illustrated in diagrams 1 & 2, the tradesman's button should be connected in series with the isolated contacts of a time-clock and then to the 'EXIT' terminals of the switching unit.

### DOOR STATUS INDICATION

Some models of telephone (500LX, 500LXT, 500PLX & 500PLXT) have a green LED indicator to show the status of the entrance doors; the indicator illuminates when one or more of the doors are open.

The door must be fitted with a suitable switch (rated 1.0A @ 12V for 60 phones) which has normally-open contacts (ie when the door is closed). The switch is connected to the terminals marked 'DOOR SW' on the 719S unit - refer to diagram 2.

### SYSTEMS WITH 3 OR MORE DOORS

One 719S unit is required for every two doors up to a maximum of eight doors (e.g. 5 doors requires 3 x 719S units). Refer to diagram 3 (AC telephone models) or diagram 4 (DC telephone models).

A separate power supply is required for each 719S unit. **The 719S units should be installed no more than 2 metres apart.**

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### SPEECH ACTIVE TIME

The duration for which speech remains active (from the moment a telephone is called) can be set between 30 and 120 seconds using the PCB DIP switch marked 'SW2':

Time (s)	'SW2' DIP Switch setting	
	3	4
30	off	off
60	on	off
90	off	on
120	on	on

### LOCK TIME

The Lock Release time can be set between 3 and 20 seconds using the PCB DIP switch 'SW2':

Time (s)	'SW2' DIP Switch setting	
	1	2
3	off	off
5	on	off
10	off	on
20	on	on

### MODE SETTING

For the system to operate correctly the operating mode MUST be set as below:

Operating Mode	SW2 DIP Switch setting
	8
2 Door Switching Unit	off

Do NOT switch '8' on

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### TEST BUTTON

There are two Test buttons on the PCB marked 'TEST 1' and 'TEST 2'. Pressing the appropriate button will force entrance 1 or 2 into an active state for a fixed period (speech active time). Telephone models with privacy must also be buzzed to enable speech. This feature is provided to assist in fault diagnosis during installation and commissioning.

### LED STATUS INDICATORS

To assist in testing and fault diagnosis there are 4 LED Indicators on the 719S PCB which can be interpreted as follows:-

- |               |                              |
|---------------|------------------------------|
| LED 1 (GREEN) | - Speech Active Door 1       |
| LED 2 (RED)   | - Lock Release Active Door 1 |
| LED 3 (GREEN) | - Speech Active Door 2       |
| LED 4 (RED)   | - Lock Release Active Door 2 |

## Important Safety Information

Connections to the 240V AC mains supply must be carried out by a qualified electrician or similar competent person, and made in accordance with accepted safety practices. 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, BS6500, or equivalent, within the following specified limits:

	Min	Max
Conductor Diameter	1.0 mm (0.8 mm <sup>2</sup> )	2.25 mm (4 mm <sup>2</sup> )
Cable Diameter	4.0 mm	8.0 mm

The Model 225, 340 or M440 Power Supply (where used) must be wall-mounted onto plasterboard, wood or a similar non-conductive material, in a protected indoor environment such as an electrical cupboard. The internal transformer is protected by a fuse; always replace with the correct type and rating.

Power Supply Model	Fuse
225	T125mA 250V
340	T200mA 250V
440	T250mA 250V

The fuse must be of the 20mm glass, 250V, time delay type approved to BS EN 60127 or equivalent).

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.

All equipment except the entrance panel must be placed in a protected indoor environment.

## Installation

Initially connect all the equipment to one telephone ONLY. With the power applied, test the system is fully operational. Connect one telephone at a time and test before proceeding.

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### CABLE REQUIREMENTS

Use standard 0.5mm solid core twisted-pair telephone cable for all telephone connections unless otherwise specified (e.g. BT spec# CW1308). **Do not use stranded alarm cable.** For optimum speech clarity a twisted-pair should be used for the 'R' and 'O' connections to telephone and speech unit. Avoid running any cables alongside mains or other transmission wiring.

The Total number of cores depends on the requirement for each telephone model as shown in the table below. In all cases there is an individual call line for each phone, while the remainder of the cores are common to all phones in the system. All telephone models, except the 500X series, may be wired either with an individual cable or by looping from phone to phone.

Care must be taken with 500X, 500PX, 500LX, 500PLX, 500LXT and 500PLXT models to avoid voltage drop problems (due to LED currents from mute and door status features). Refer to the tables on diagram 5 and below before planning the cable layout for these models. **If in doubt please contact your distributor or the manufacturer for further guidance.**

CONNECTIONS	No. CORES	MAX LENGTH	CONDUCTOR DIA.
<b>Telephones:</b>			
801, 801S, 801P, 801PS	5	100m	0.5mm
500A, 500D, 500PA, 500PD	5	100m	0.5mm
500X, 500PX 500LX, 500LXT 500PLX, 500PLXT	6 7 7	Refer to diagram 5	
Power Supply	2	2m 2m	0.5mm (1A PSU) 1.0mm (2A PSU)
Speech unit	5	50m	0.5mm
Lock Release (up to 0.5A)	2	25m 100m	0.5mm 1.0mm
EXIT/Trades Button (inc. Time Clock)	2	100m	0.5mm
Door Monitor Switch.	2	Refer to diagram 5	



## System Troubleshooting

### NOTE

Voltages below refer to AC for AC telephone systems and DC for DC telephone systems unless otherwise specified.

PROBLEM	COMMON CAUSE AND ACTION
Low speech volume.	<ul style="list-style-type: none"> <li>! 'Vol A' or 'Vol B' adjustment required on the Speech Unit.</li> <li>! Speech Unit is not tight against the panel grill.</li> <li>! Panel grill is blocked.</li> <li>! Speech Unit supply voltage low. Check 11.5V-15V across 'C' and 'H' on unit.</li> <li>! More than one active telephone is off the hook.</li> </ul>
Constant tone/feedback when in use.	<ul style="list-style-type: none"> <li>! 'Vol A' or 'Vol B' adjustment required on the Speech Unit.</li> <li>! Missing 'O' connection on telephone.</li> <li>! Speech Unit is not tight against the panel grill.</li> <li>! Entrance panel and telephone to close together.</li> <li>! The entrance panel is surrounded by reflecting walls.</li> <li>! Panel grill is blocked.</li> </ul>
Speech not audible when phone is buzzed.	<ul style="list-style-type: none"> <li>! No/low supply to Speech Unit. Check 11.5V-15V across 'C' and 'H' on the unit.</li> <li>! Faulty 'R', 'O', or 'T' line between Switching Unit and phone or Switching Unit and panel.</li> </ul>

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<p>Telephone will not buzz.</p>	<ul style="list-style-type: none"> <li>! Faulty 'O' or 'I' line between Switching Unit and phone.</li> <li>! AC telephone systems only: Faulty 'H' or 'O' line between switching unit and panel. As a check, short 'H' to 'O' at the switching unit and try again.</li> <li>! Faulty 'V' connection to phone. Check 10-15V between 'O' and 'V' at the phone (500LXT and 500PLXT phones ONLY).</li> <li>! Faulty panel button.</li> <li>! No/low supply to Switching Unit - Check 11.5V-15V on Switching Unit supply input.</li> <li>! Power supply has been wired to wrong Switching Unit input. Check an AC supply has been wired to a 12V AC input and a DC supply wired to a 12V DC input, where installed.</li> </ul>
<p>Lock button does not operate release.</p>	<ul style="list-style-type: none"> <li>! AC telephone systems only: Fault on 'H' or 'O' between switching unit and panel. As a check, short 'H' to 'O' at the switching unit and try the lock button again, when active.</li> <li>! Fault on 'Z' or 'O' line. Check shorting 'Z' to 'O' at the Switching Unit, when active, operates the release.</li> <li>! Lock release supply low. Check 11.5V-15V across the release with the lock button pressed and the phone active.</li> <li>! Using a fail-safe output but no DC power supply present.</li> </ul>
<p>Tradesman/Exit button inoperative.</p>	<ul style="list-style-type: none"> <li>! Time-Clock is not running or incorrectly set (Tradesman button only).</li> <li>! Check connections to 'EXIT' input.</li> </ul>
<p>Lock release operates all the time.</p>	<ul style="list-style-type: none"> <li>! If the lock is a 'fail safe' type it has been connected to 'FAIL SECR'/'fail secure' output. If the lock is a 'fail secure' type it has been connected to 'FAIL SAFE'/'fail safe' output. Check to see if the release is inactive when the lock button is pressed or try swapping the connections over.</li> <li>! Lock button stuck down.</li> <li>! 'Z' and 'O' lines permanently shorted together.</li> <li>! 'EXIT' inputs permanently shorted together.</li> </ul>

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Supply voltage low (less than 10V, any system component).

!

Short circuit. Disconnect power supply loads and check the output is 11.5V-15V . Systematically disconnect components one at a time or isolate floors, etc. until the voltage is 11.5V-15V. Start with connections around the Switching Unit.

!

Cable voltage drop too high. Try doubling up with spare cores. Refer to the CABLE REQUIREMENTS section.

## Technical Specification

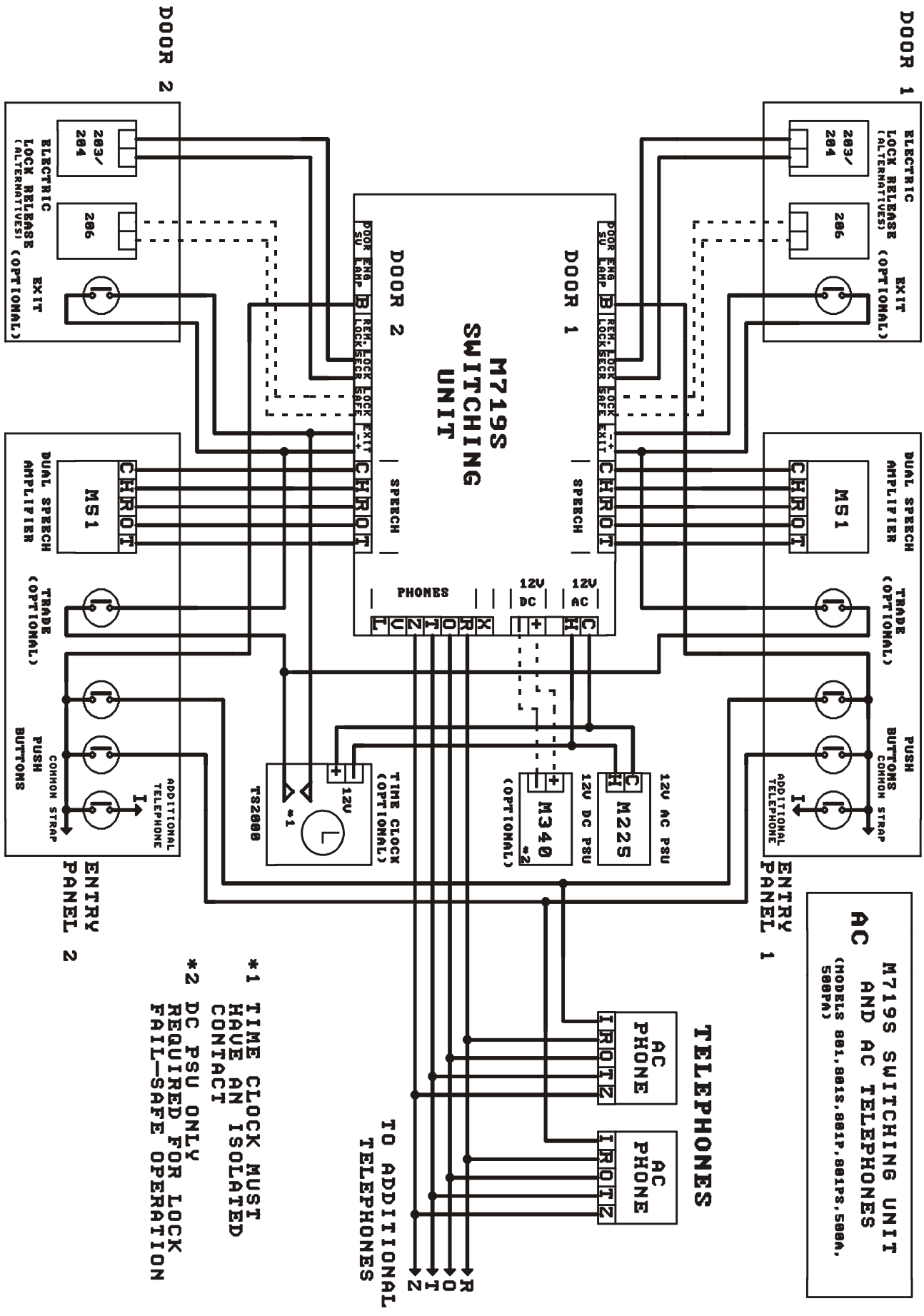
Size Boxed	238mm x 189mm x 50mm
Size PCB Only	177mm x 137mm x 18mm
Supply Voltage	11.5V - 15Vrms 50Hz AC or 11.5V - 15V DC
Current Consumption	590mA maximum AC or 290mA maximum DC
Fail-secure Lock output	Same voltage as AC/DC supply, AC if both present. 500mA maximum.
Fail-safe Lock output	Same voltage as supply, DC only 500mA maximum
Lock release duration	3, 5, 10 or 20 seconds (typical)
Active time	30, 60, 90 or 120 seconds (typical)
Engage lamp output	Same voltage as AC/DC supply, AC if both present. 100mA maximum.
Exit input	Normally open contact (must be voltage free)
Door Switch Input	Normally open contact, when the door is closed (must be voltage free). For DC phones only. Switch rating must be 1.0A @12V minimum for 60 phones.
No. of Doors	2 per unit, maximum of 8 doors per system
Operating Temperature	0°C to 50°C



This Product complies with European Directives:  
89/336/EEC for ElectroMagnetic Compatibility (EMC)  
73/23/EEC for Low Voltage Systems (LVD)

**Made in the United Kingdom**

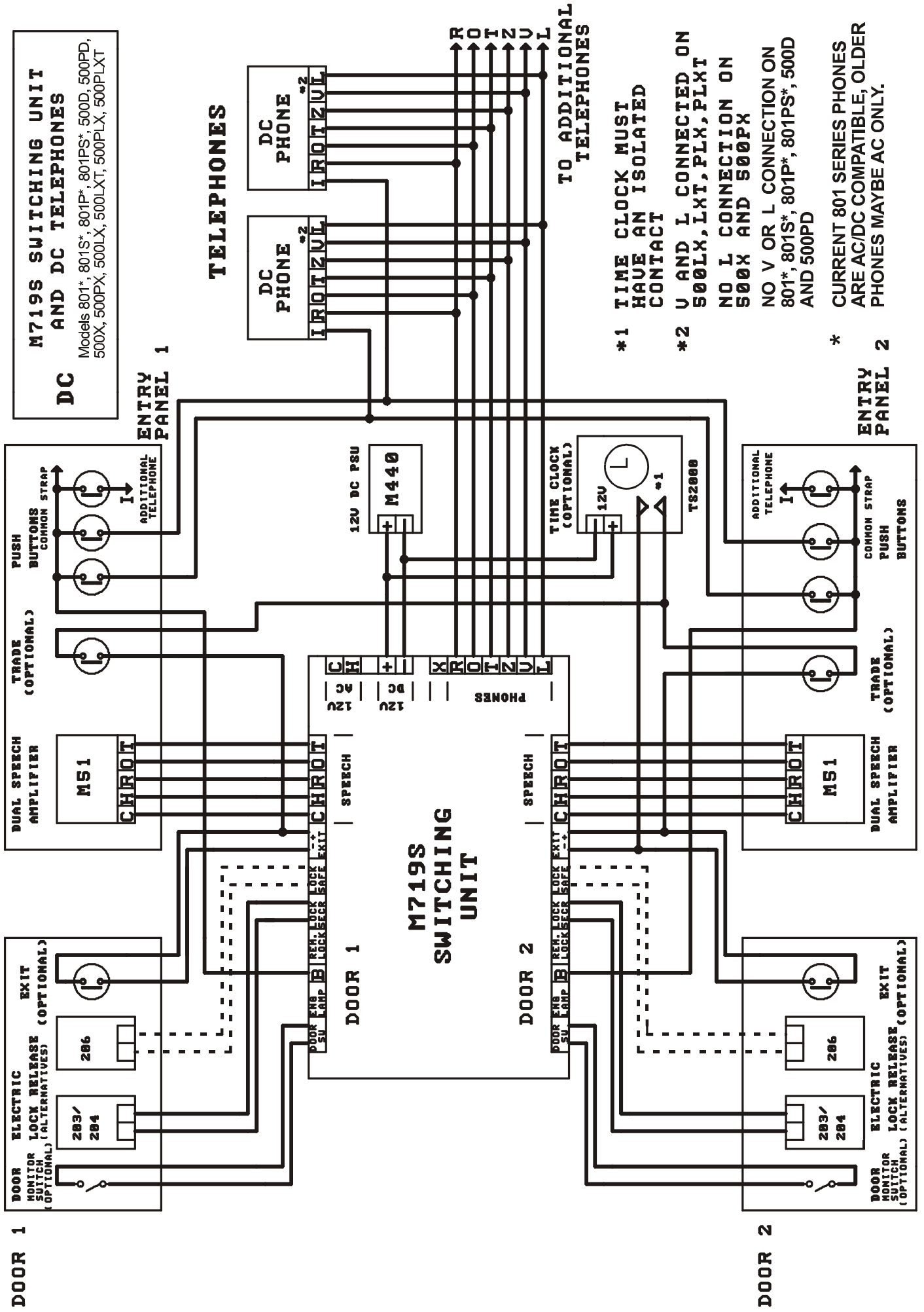
# DIAGRAM 1: WIRING DIAGRAM FOR 2-DOOR ENTRYPHONE SYSTEM



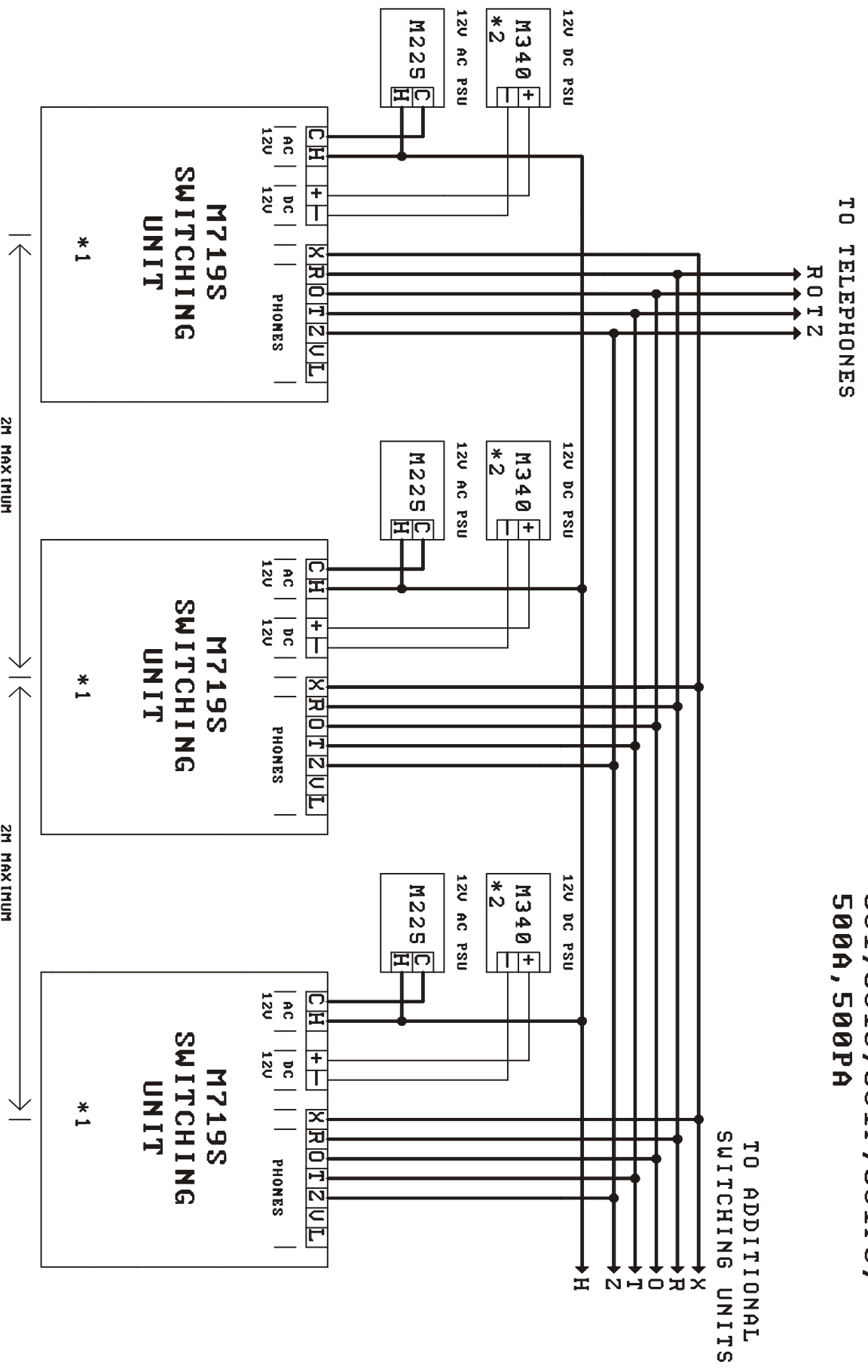
\*1 TIME CLOCK MUST HAVE AN ISOLATED CONTACT

\*2 DC PSU ONLY REQUIRED FOR LOCK FAIL-SAFE OPERATION

# DIAGRAM 2: WIRING DIAGRAM FOR 2-DOOR ENTRYPHONE SYSTEM



**DIAGRAM 3 : INTERCONNECTION OF M719S SWITCHING UNIT IN MULTI-DOOR ENTRYPHONE SYSTEMS (3-8 DOORS) : AC TELEPHONE MODELS  
801, 801S, 801P, 801PS,  
500A, 500PA**

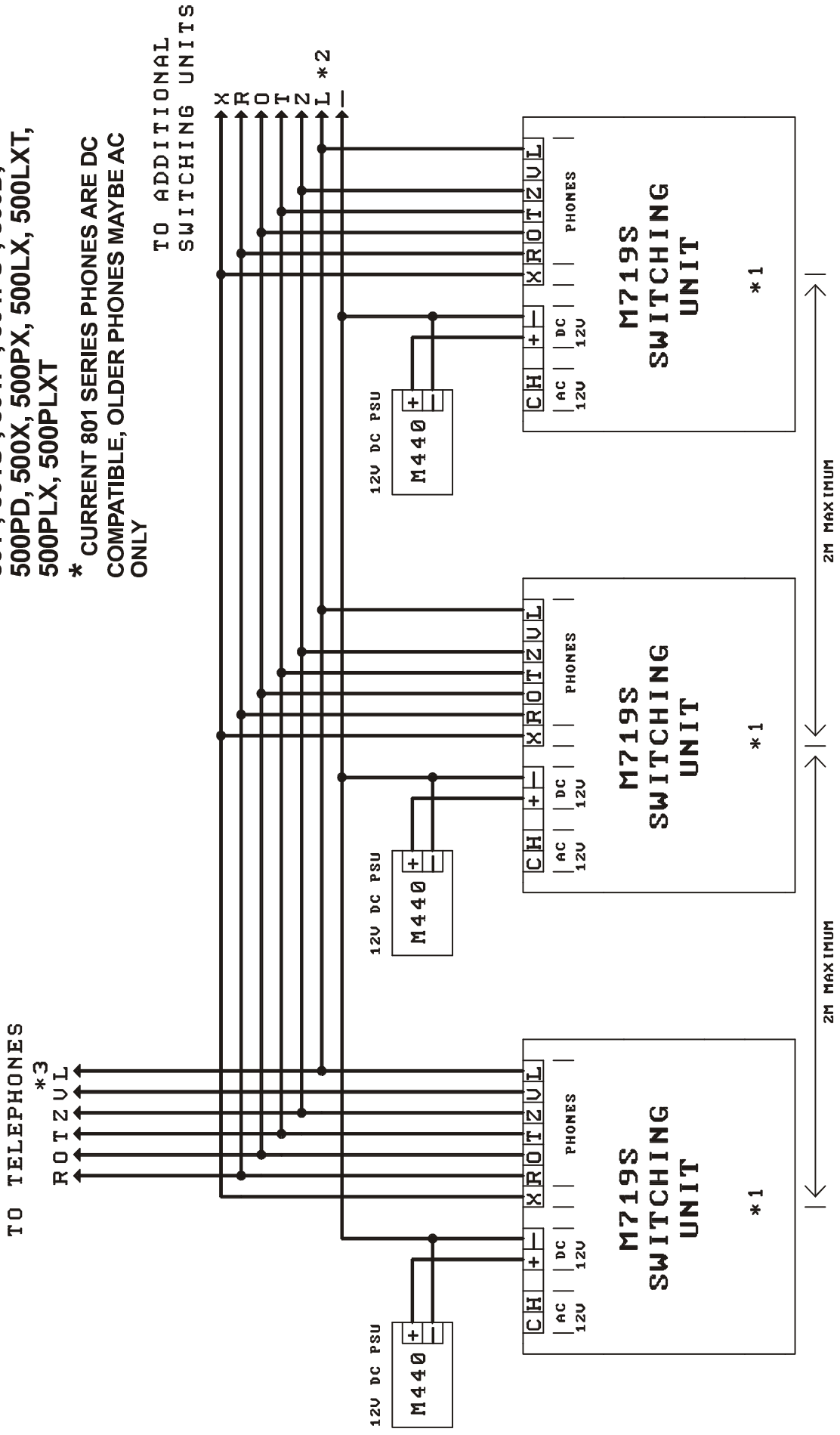


\*1 DOOR AND ENTRY PANEL WIRING OMITTED FOR CLARITY  
\*2 DC/M340 PSU ONLY REQUIRED WHEN USING LOCK SAFE OUTPUT

**DIAGRAM 4 : INTERCONNECTIONS OF M719S SWITCHING UNITS IN MULTI-DOOR ENTRYPHONE SYSTEMS (3-8 DOORS) : DC TELEPHONE MODELS**

801\*, 801S\*, 801P\*, 801PS\*, 500D, 500PD, 500X, 500PX, 500LX, 500LXT, 500PLX, 500PLXT

\* CURRENT 801 SERIES PHONES ARE DC COMPATIBLE, OLDER PHONES MAYBE AC ONLY



TO TELEPHONES  
\*3  
R O T Z U L

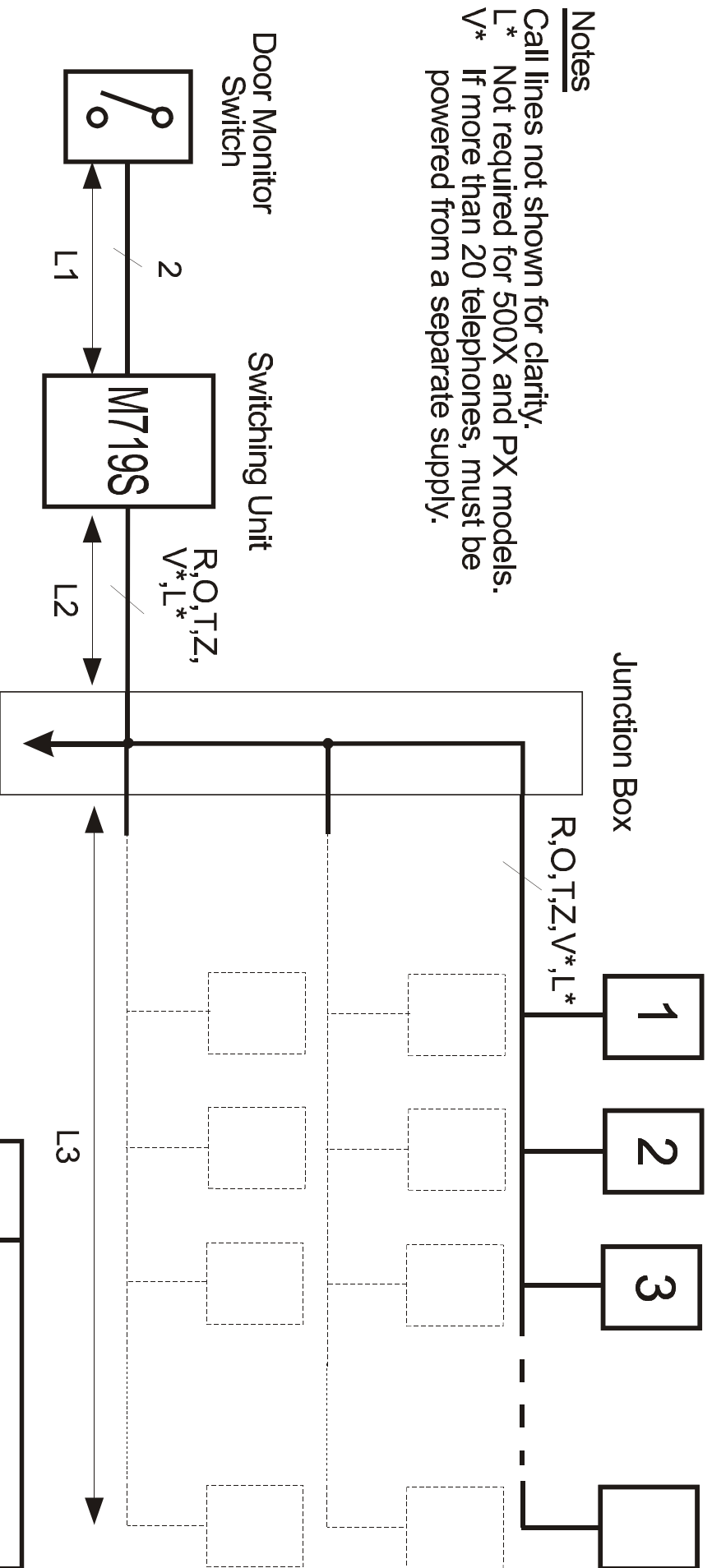
TO ADDITIONAL SWITCHING UNITS

- \*1 DOOR AND ENTRY PANEL WIRING OMITTED FOR CLARITY
- \*2 NO L CONNECTION REQUIRED WHEN USING 500D, 500PD, 500X, OR 500PX PHONES
- \*3 U AND L CONNECTION ON 500LX, 500LXT, 500PLX OR 500PLXT  
NO L CONNECTION ON 500X AND 500PX  
NO V OR L CONNECTION ON 801\*, 801S\*, 801P\*, 801PS\*, 500D, 500PD



DIAGRAM 5 : DISTRIBUTION OF COMMON CABLES FOR 500X SERIES OF TELEPHONES

1 - 20 Telephones



Notes

Call lines not shown for clarity.

L\* Not required for 500X and PX models.

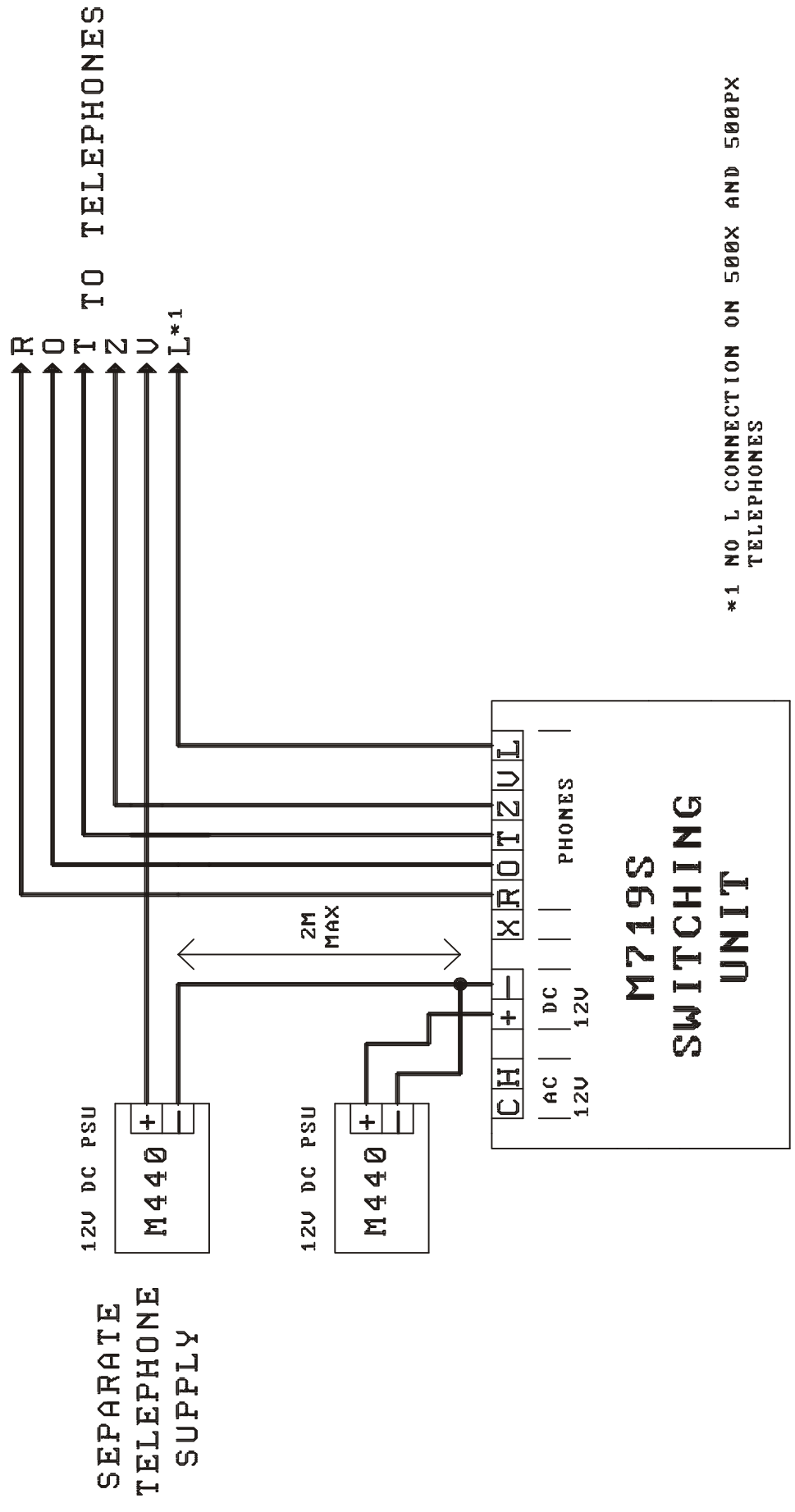
V\* If more than 20 telephones, must be powered from a separate supply.

L1 Max. (m)	500LX,500PLX, 500LXT,500PLXT	Min. core diameter (mm)
50	16	0.5
12	60	0.5
50	60	1.0

L2 Max. (m)	500X,500PX,500LX, 500LXT,500PLX, 500PLXT	Min. core diameter (mm)
4	40	0.5
11	60	1.0

L3 Max. (m)	500X,500PX,500PLX 500LX,500LXT,500PLXT	No. of telephones
100	4	4
80	5	5
50	8	8
30	13	13
20	20	20

DIAGRAM 6 : CONNECTION OF ADDITIONAL POWER SUPPLY FOR 500X SERIES TELEPHONES ( 21-60 TELEPHONES)



\*1 NO L CONNECTION ON 500X AND 500PX TELEPHONES