

**PAC 1000SA,
PAC 1000SA/P
User Guide &
Installer Manual**

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Table of Contents

About this manual	1
The User of the System.....	1
The Installation or Maintenance Engineer.....	1
1. The PAC 1000SA.....	2
How it Works.....	2
Features	2
2. System Administration.....	3
The Controller Keypad and Display.....	3
Editor Keys	3
How to use the Editor.....	3
3. Displays and Alarms	5
Normal Displays	5
Door Left Open Warning	5
Unauthorised Access Alarm.....	5
Cable or Reader Tamper Alarm.....	6
4. Adding and Voiding Keys	7
Key Numbers.....	7
Access Levels & Time Profiles.....	7
Adding a New Key.....	8
Adding Several Keys	9
Editing a Key	9
Voiding a Key	10
Identifying a Key.....	11
5. Time Profiles.....	12
How They Work.....	12
How to Set Time Profiles.....	13
6. Editor Keys.....	15
Adding an Editor Key.....	15
Voiding an Editor Key.....	15
7. Other Functions.....	16
Setting the Clock	16
Manual Lock and Unlock.....	16
Printer Functions	17
8. Installation of the Controller.....	20
Power Supply	20
Battery Backup	21
Fitting the Controller	21
The Printer.....	21
9. Installing Readers and Locks.....	22
Readers	22
Request to Exit (DR2)	23
Door Monitoring (DR1)	24
Cable/Reader Anti-Tamper	25
Emergency Override/Free Exit.....	25
Alarm Output Relay.....	26
Lock Output.....	26
10. Setting Up the System	28
Switching On	28
Installing the Master Editor Key.....	28
Replacing the Master Editor Key.....	29

11. Setting the Door Data	30
Description of Parameters.....	30
The DOORS Function	30
12. Installer Facilities	32
Setting the Clock	32
Upload/Download	32
Editor Keys	33
Anti-Pass Back	33
Software Version Display	33
Appendix A - Equipment	34
Appendix B - Transactions	35



About this manual

This document covers the installation and use of the **PAC 1000SA**, part number 20690 and the **PAC 1000SA/P**, part number 20696. All information applies to both models with the exception of the printer facilities and upload/download which are available on the PAC 1000SA/P model only.

This document is designed both for the end user who administers the system on a day to day basis and the installing or maintenance engineer.

The User of the System

The first part of this manual is aimed at the end user who should become familiar with the following chapters:

- 1.The PAC 1000SA.** This chapter describes how your PAC system works and its various features, not all of which may be implemented in your system. **Read this first as it will help you understand your system.**
- 2.Displays and Alarms.** Here all the displays and alarms that may be produced by the system are described. If your system starts beeping or flashing you should find out why here.
- 3.System Administration.** The use of Editor Keys and how to use the Editor.
- 4.Adding and Voiding Keys.** The most common activities of key administration are described here. There are step by step instructions on how to add and remove keys from the system.
- 5.Time Profiles.** A Description of Time Profiles, how they are used and how to set them.
- 6.Editor Keys.** How to administer the keys that allow changes to be made to the system.
- 7.Other Functions.** This chapter describes some of the less frequently used actions such as setting the clock, manually opening or closing a door and the printer facilities.

The Installation or Maintenance Engineer

The second part of the manual describes how to install, commission and maintain the system. All engineers working on the PAC 1000SA should be familiar with the following chapters:

- 1.The PAC 1000SA.** This chapter describes how your PAC system works and its various features. **Read this first as it will help you understand the system.**
- 8.Installation Of The Controller.** Describes power supply requirements (including battery backup), controller siting and fitting and the installation of a printer (PAC 1000SA/P).
- 9.Installing Readers and Locks.** The fitting of PAC readers, Request to Exit switches, door monitoring and lock requirements are described.
- 10.Setting Up the System.** This chapter describes how to install or change the Master Editor Key, set the system clock and set the door data. Checking the system to ensure all features are working is included.
- 11.Setting the Door Data.** How to set up lock release time, door left open time, apply time profiles and door options etc.
- 12.Installer Facilities.** Describes upload/download, anti-Pass back etc.

1. The PAC 1000SA

The PAC 1000SA is a two door access control system using PAC's proximity key technology. The complete system consists of a door controller with a key pad and display, one or two door readers sited at the controlled doors and a number of PAC electronic keys, either the key fob or ID card type. See Appendix A for a list of parts suitable for use with the PAC 1000SA.

How it Works

The system operates when a PAC key is presented close to a door reader. A unique code built into the key at manufacture is transmitted to the reader and back to the controller. When the controller receives the code it checks:

1. Is the key one that has been programmed into its memory?
2. If so, is it allowed through this door?
3. .. and at this time and on this day?

If the answer to all these questions is yes then the door controller will operate an electric lock (or possibly some other type of locking mechanism) for a set number of seconds, allowing the key holder to pass through the door.

Often there will be push button of some type on the secure side of the door, the Request to Exit switch, to allow anyone to leave the area.

Features

Access Points

The PAC 1000SA will control either one or two doors each of which may be up to 1000m away from the controller. Several types of PAC reader may be used (see Appendix A) along with Request to Exit switches. The door controller will supply 12v dc in either fail-safe (power to lock) or fail-secure (power to unlock) modes.

Personnel

Up to 1000 individual keys can be stored in the memory of the controller. Each key can be allowed through either door, both doors or no door at all (locked out) and have a *Time Profile* assigned to restrict access to certain days and times.

Door Monitoring Alarms

Optionally each door may be monitored through a door contact switch. This enables the system to generate *Unauthorised Access* alarms - when a door is opened without a valid key being presented or a request to exit signal - and *Door Left Open* warnings.

Time Profiles

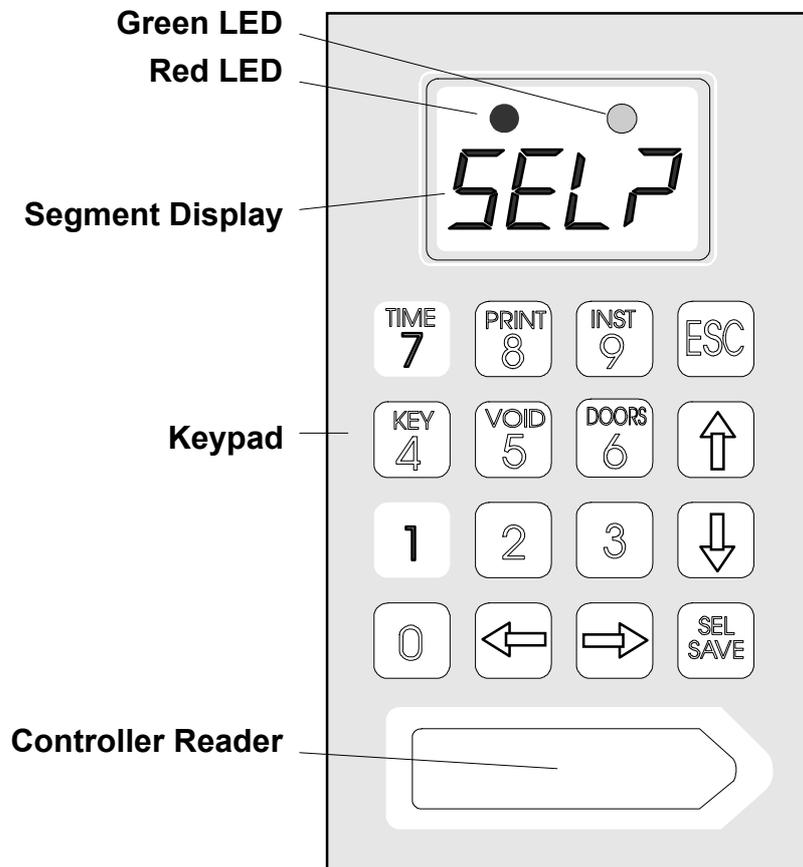
Both doors and personnel can be assigned time profiles. A door can be programmed to open, say between 9.00am and 5.00pm Monday to Friday but require a key outside those hours. Similarly a time profile can be assigned to a key which will only allow it to be used on certain days and at certain times. Up to 8 different time profiles can be created; each containing up to 3 time periods.

Printer Facilities (PAC 1000SA/P only)

When a printer is fitted the system will print each event as it happens and stores up to 1000 events for printing later. The database information, keys, time profiles and door information and the movements of individual keys can be printed.

2. System Administration

The Controller Keypad and Display



Editor Keys

In order to perform any administration on the system an Editor key is required. This allows the operator access to editing functions at the controller and also to accept alarms.

There are two types of Editor key, the Master Editor key and up to 5 Sub Editor keys. The difference between the two types is that only the Master Editor can add or remove Sub Editor keys otherwise both types have exactly the same function.

The Master Editor is created when the system is first installed, although it can be changed at a later date if lost or stolen.

How to use the Editor

Whenever any changes need to be made to the system the Editor key should be presented to the built-in key reader. If the key is valid the screen will display **SEL?** From this point press one of the following keys:

KEY/4	Allows keys to be added or edited.
VOID/5	Allows keys to be removed from the system.
DOORS/6	Used to edit the door information including manual lock/unlock.
TIME/7	Used to set up and alter time profiles.

PRINT/8	Only used with the PAC 1000SA/P, allows use of print functions.
INST/9	Access to clock setting, add/delete Editor keys, set anti-pass back and upload/download (PAC 1000SA/P only).
ESC	Leaves the editor.
Other keys used when in the Editor are:	
←→↑↓	Arrow keys for moving around.
SEL/SAVE	Used when entering data or to confirm operations

Entering Data

You will need to enter different types of data at certain points in the Editor. Important points to remember:

- Whenever you add or change any data item you must press SEL/SAVE to confirm.
- You can press ESC to leave the data unaltered.

Different types of data use different methods:

Typing, for instance when you need to enter a key number or a time in a time profile. When pressed each number appears at the *cursor position*, a flashing underline. You can use the arrow keys, **←→**, to move the cursor position.

Toggling, in this case pressing certain keys changes the state of the data. For example when changing days of the week in time profiles, pressing 1 for Monday, 2 for Tuesday etc., will change the current state, if it is on then pressing the key will switch it off and vice versa.

Editor Time-out

If after entering the Editor no keys are pressed, or no key is presented to the controller reader for 3 minutes, then the Editor will 'time-out'. This means it will return to the normal display and the Editor key will have to be presented again. This can be a useful feature if you are not sure how to get out of the system - just leave it and it will automatically leave the Editor.

3. Displays and Alarms

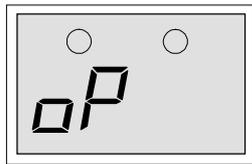
The PAC 1000SA door controller will display various characters on its 4-character screen and produce a sound as a response to certain conditions. These are described below.

Also included in this section are example printer reports produced when a printer is attached to a PAC 1000SA/P.

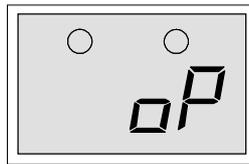
Normal Displays

When nothing is happening the display is blank and no sounds are produced.

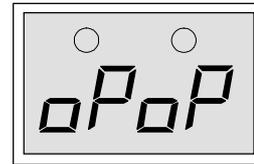
Whenever a door is opened normally, either with a key or by using a request-to-exit button, the display will show:



Door 1 Open



Door 2 Open



Both Doors Open

Printer example:

	DATE	TIME	DOOR	USER	TRANSACTION
[0123]	12/06/92	10:34	1	0092	Access Authorised
[0124]	12/06/92	10:35	2		Request to Exit

Door Left Open Warning

This warning will only be given if door monitoring is being used - check with the installer of the system to see if this is the case.

If a door is left open longer than the time set then the **oP**, as above, will start to flash for the particular door left open. The **oP** will continue to flash until the door is closed. There is no sound associated with this warning.

Printer example:

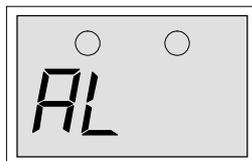
	DATE	TIME	DOOR	USER	TRANSACTION
[0233]	12/06/92	12:34	1		Door Left Open
[0234]	12/06/92	12:35	1		Door Closed

Unauthorised Access Alarm

This alarm will only be given if door monitoring is being used - check with the installer of the system to see if this is the case.

If a door is opened without a key being used or a Request to Exit button being pressed then the controller interprets this condition as *Unauthorised Access*. In this case the alarm has to be accepted by presenting an editor key, either the Master or a Sub Editor, to the controller reader.

This alarm gives exactly the same displays and sounds as *Cable or Reader Tamper*, (see below). However the printer report is different.

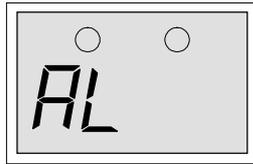


Display **AL**, Flashing

Sound Every 2 seconds

Unauthorised access or cable tamper.

Present editor key to accept, the sound will stop.



Display AL, Steady

Sound Silent

Accepted alarm or cable/reader tamper.

The alarm condition still exists, either the door is still open or the cable/reader is still tampered.

Printer example:

	DATE	TIME	DOOR	USER	TRANSACTION
[0278]	12/06/92	13:34	1		Unauthorised Access
[0282]	12/06/92	13:35	1	MASTER	Local Alarm Accepted
[0285]	12/06/92	13:37	1		Alarm Cleared

Cable or Reader Tamper Alarm

This alarm will only be given if the reader has been wired to detect this condition - check with the installer of the system to see if this is the case.

This alarm gives exactly the same displays and sounds as unauthorised access (see above). However the printer report is different.

Printer example:

	DATE	TIME	DOOR	USER	TRANSACTION
[0278]	12/06/92	13:34	1		Anti-tamper Alarm
[0282]	12/06/92	13:35	1	EDITOR - 1	Local Alarm Accepted
[0285]	12/06/92	13:37	1		Alarm Cleared

4. Adding and Voiding Keys

Key Numbers

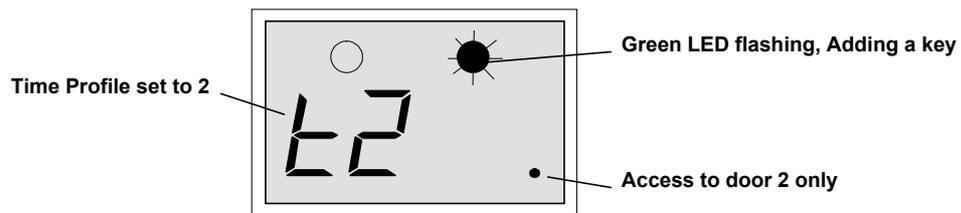
A key, when added into the system, is given a number between 0001 and 1000. Normally when a key is added it will be given the first available number in the list. For example if a system contained keys 0001, 0002, 0003, 0004 and 0006 the next key added would be given number 0005, the following keys would be 0007, 0008 and so on. However it is possible to override the automatic number and give a key a specific number, provided the number is not already in use - see *Adding a New Key* below.

It is important to keep a record of key numbers issued as it may be necessary to void a lost key at a later date, in which case the number given to the key must be known.

Access Levels & Time Profiles

Each key added to the system can be assigned an *Access Level* and a *Time Profile*. This defines which doors the key is allowed through and at what times and days the key can be used.

If you decide to use access levels and/or time profiles then it is a good idea to group all keys with the same access requirements together as this makes adding blocks of keys much easier.



How the system displays access level and time profile when adding a key.

Access Levels

A key may be allowed access to door 1 only, door 2 only, both doors or neither door. Allowing a key access to neither door can be useful when a key is lost or stolen. Rather than using VOID it may be better to lock the key out then, if a printer is fitted, there will be a record if an attempt is made to use the key.

When adding or editing a key the access level is displayed as two dots on the right of the display, the left half of the display indicating time profile e.g. 60 . . . If the first dot is lit then that key will have access to door 1, the second dot indicates access to door 2. If neither dot is lit then the key is locked out.

Time Profiles

A key may be restricted to which days and on what times it may be used. This is done by assigning one of 8 different time profiles to the key. If a key is assigned a time profile of 0 then there will be no time restriction at all, it will operate 24 hours a day, 7 days a week.

See the *Time Profiles* section for more details on how to create and use time profiles.

Adding a New Key

Follow the procedure shown below for adding a new key. If you are adding more than one new key then see the next section, *Adding Several Keys*.

Step	Example Display	Action
1		Present an editor key to the controller reader.
2	<i>SEL?</i>	Press the KEY/4 key.
3	<i>0000</i>	Present a new key to the controller reader.
4	<i>0019 / t0..</i>	<p>At this point if both the green and red LEDs come on then the key already exists in the database and may be edited (see <i>Editing a Key</i> below). If this is a new key then the green LED only will flash and the display will alternate between the next available key number and the time profile and access level. The example shows key 0019 as the next available number.</p> <p>At this point you may wish to select your own number rather than the number given by the system. If not then go to step 6 below.</p> <p>To select an alternative number press SEL/SAVE, the display will change to:</p>
5	<i>0000</i>	Now either type in the number you require and press SEL/SAVE, or use the ↑ and ↓ keys to go up and down the list of numbers. Numbers already assigned will flash with the red and green LEDs steady, free numbers will alternate with their time profile and access level and the green LED flashing.
6	<i>0019 / t0..</i>	Now any changes can be made to the access level and time profile. If no changes are to be made go to step 8.
7	<i>0019 / t1 .</i>	<p>To change the time profile press 1-8 for the time profile you wish to apply. (As soon as you press a key the display will stop alternating). Press SEL/SAVE to confirm. The display will start flashing again.</p> <p>To change access levels press ← to toggle on/off the dot for door 1, and → to toggle on/off the dot for door 2.</p> <p>The example shows key 0019 with time profile 1 and access through door 2 only.</p>
8	<i>0020 / t1 .</i>	<p>Present the editor key (it must be the same one as used in step 1 above) to the controller reader. The green LED will now go steady and the next available number will flash.</p> <p>If you wish to add more keys see <i>Adding Several Keys</i> below, otherwise press ESC.</p>
9	<i>SEL?</i>	Press ESC to leave Editor.

Adding Several Keys

On occasions when you want to add several keys in one go then this can be easily done by following the *Adding a Key* procedure described above until the end of step 8. At this point instead of pressing ESC take the following steps:

Step	Example Display	Action
1	0020 / t1 .	<p>The green LED will be steady and the next available key number will be alternating with its access level and time profile.</p> <p>Make any changes to the access level and time profile as described above.</p> <p>Notice that any changes are carried over to the next key making it very convenient for adding keys with the same access requirements.</p> <p>Present the new key to the controller reader - there is no need to present an editor key.</p>
2	0021 / t1 . 0022 / t1 . 0023 / t1 .	<p>Keep on presenting new keys, one after the other, until all keys are recorded.</p> <p>If a key is presented that is already in the database then its number will briefly be displayed before the display returns to the next available number.</p> <p>If you fill the database with 1000 keys then the display will show FULL.</p>
3	0024 / t1 .	When finished either press ESC or present the Editor key.
4	SEL?	Press ESC to leave Editor.

Editing a Key

If you want to change the access level or time profile assigned to a key then use the following procedure. This can be done either with the key or by entering its number.

Step	Example Display	Action
1		Present an editor key to the controller reader.
2	SEL?	Press the KEY/4 key.
3	0000	<p>Either: present the key to the controller reader,</p> <p>or: type the key number and press SEL/SAVE,</p> <p>or: use $\uparrow\downarrow$ to select the key number and press SEL/SAVE.</p> <p>If the green LED is flashing then the key presented is not in the system or the number selected is unused.</p>
4	0019 / t1..	<p>If the key presented or the number selected is in the database then both red and green LEDs will be on, and the display will be alternating between the key number and the access level/time profile. In the example key 0019 has been selected and has time profile 1 assigned and is allowed through both doors.</p> <p>Make any changes as described in Step 7 of Adding a Key.</p>
5	t2 .	The display will go steady, press SEL/SAVE to confirm.

6	<i>0019 / t2 .</i>	You will be returned to the alternating display. Return to step 3 if you want to change other keys (press SEL/SAVE if you want to type another number). Otherwise press ESC .
7	<i>SEL?</i>	Press ESC to leave the Editor.

Voiding a Key

A key can be removed from the database provided you have the key or you know its number.

Tip: If a key has been lost or stolen then, if you have a printer fitted, it may be better to edit its access level (see above) rather than void it. This will then show if an attempt is made to use the missing key.

To void a key use the following procedure:

Step	Example Display	Action
1		Present an editor key to the controller reader.
2	<i>SEL?</i>	Press the VOID/5 key.
3	<i>0000</i>	The red LED will be lit. Either: present the key to the controller reader. If you present a key that does not exist then there will be a long beep. or: type the key number and press SEL/SAVE, or: use $\uparrow\downarrow$ to select the key number and press SEL/SAVE. Valid keys will flash along with the red LED, Invalid keys will flash with red and green LEDs steady.
4	<i>0019</i>	Present the editor key to delete the key. There will be a confirming beep and the display will return to:
5	<i>SEL?</i>	Return to step 2 above to delete more keys or press ESC to leave the Editor.

Identifying a Key

If a key is found it can quite easily be identified by presenting it to the controller reader:

Step	Example Display	Action
1		Present an editor key to the controller reader.
2	<i>SEL?</i>	Press the KEY/4 key.
3	<i>0000</i>	Present the key to the controller reader.
4	<i>0019 / t1 .</i>	<p>If the key exists in the controllers database then the red and green LEDs will be steady and the key number alternating with its access level/time profile.</p> <p>Press ESC twice to leave the Editor or follow the <i>Editing a Key</i> procedure if you wish to make any changes.</p>

5. Time Profiles

Time profiles are a powerful tool for restricting access of personnel or automating the opening and closing of doors.

Typical examples are:

1. A public access door through which anybody can pass between 9:00am and 5:00pm, Monday to Friday, but outside these hours a key is required.
2. Some staff are only allowed access between 8:30am and 5:30pm, Monday to Friday; 8:30am to 12:00pm Saturday.
3. Cleaners are allowed access only between 7:00am and 9:00am Monday to Saturday.
4. Shift workers can gain access between 8:00pm and 6:00am Monday to Friday.

Note: If you give a door a time profile of zero it will require a key 24 hours a day, 7 days a week. If you give a key a time profile of zero it will have access 24 hours a day, 7 days a week. If you are never going to use time controls of any type then there is no need to set up any time profiles at all, just use a time profile of zero for both doors and keys.

How They Work

There are 8 different time profiles. Each time profile consists of up to three time periods. A time period consists of a begin time, an end time and the days of the week to which it applies. For instance example 1 above requires just one time period, 9:00am (begin time) to 5:00pm (end time) Monday to Friday (days of the week). Example 2 requires two time periods, 8:30am to 5:30pm Monday to Friday plus 8:30am to 12:00pm Saturday only.

- Time profiles applied to doors will automatically open the door at the begin time of each time period and automatically close the door at the end time of each time period. See also *Manual Lock/Unlock*.
- Time profiles attached to a key will allow access only when the time at which the key is presented falls within the time profile.

Tip: Use different time profiles for doors and personnel even if they are identical. This means that if a change is required to the door opening times at a later date then these can be achieved without affecting the personnel access times and vice versa.

Tip: When using time profiles it is important to check the time and date at regular intervals, say once a month, to ensure that the system operates accurately. See *Setting the Clock*.

- A time profile always starts at the beginning of the first minute of the time period. That is, in example 1 for instance, when the time changes from 8:59 to 9:00.
- A time profile always finishes at the end of the final minute of the time period. That is when the time changes from 5:00pm to 5:01pm.

A time period cannot cross midnight. When, as in example 4 above, it is necessary to cover such a time then two time periods are required, one from the begin time up to midnight (use 23:59), with another time period from midnight (use 00:00) to the end time.

In addition to the 3 time periods, each time profile has a status setting, either ON or OFF. When a time profile is in use its Status will be ON, when it is OFF the effect depends on the application:

- When applied to personnel a time profile that is switched OFF will lock out all personnel with that profile until the time profile status is switched back ON.

- When applied to a door a time profile that is switched OFF will stop the door automatically opening, it will also lock a door that is currently open according to that time profile.

How to Set Time Profiles

Setting up time profiles is achieved by presenting an Editor key and pressing the TIME/7 key. The first display you will see is the Status of Time Profile 1 shown as *t1St* alternating with *on* or *OFF*.

It is best to think of the Time Profile database as a grid, 8 rows representing Time Profiles, 10 columns being one for the Status and three for each time period. You use the ←→↑↓ keys to move a 'window' around the grid. If you attempt to move outside the window there will be a beep.

		←			→						
		Time Period A			Time Period B			Time Period C			
<i>n</i>	Stat. <i>tnSt</i>	begin <i>tnAb</i>	End <i>tnAE</i>	days <i>tnAd</i>	begin <i>tnbb</i>	End <i>tnbE</i>	days <i>tnbd</i>	begin <i>tnCb</i>	End <i>tnCe</i>	days <i>tnCd</i>	
↑	1	<i>on</i>	0900	1700		0000	0000		0000	0000	
	2	<i>on</i>	0830	1730		0830	1200		0000	0000	
	3	<i>on</i>	0700	0900		0000	0000		0000	0000	
	4	<i>on</i>	2000	2359		0000	0800		0000	0000	
↓	5	<i>OFF</i>	0000	0000		0000	0000		0000	0000	
	6	<i>OFF</i>	0000	0000		0000	0000		0000	0000	
	7	<i>OFF</i>	0000	0000		0000	0000		0000	0000	
	8	<i>OFF</i>	0000	0000		0000	0000		0000	0000	

Wherever you are in the grid you will see the item name alternating with the item value. When you press a number key to make a change the display will go steady. Work through the example given below as this show you in detail how to change values.

- You change the status by pressing the 1 key, i.e. pressing 1 will reverse whatever is currently displayed. Press SEL/SAVE when the correct status is displayed.
- You change times by typing the 4 digits in 24 hour format, e.g. for 1:00pm you would press 1300 followed by SEL/SAVE to confirm.
- The day periods are set by switching on or off seven vertical bars in the display. For instance, Monday to Friday is represented as *|||||*, while Saturday only would be represented as *||||*. Each bar is changed by pressing 1-7, where 1 represents Monday, 2 Tuesday up to 7 for Sunday.

Example: Add time profile 5 with two time periods, 8:00am to 1:00pm Monday to Friday and 2:00pm to 6:00pm Monday to Thursday (i.e. no access allowed at lunch times or Friday afternoon):

Step	Example Display	Action
1		Present an editor key to the controller reader.
2	<i>SEL?</i>	Press TIME/7
3	<i>t1St / on</i>	The status of time profile 1 (may be either <i>on</i> or <i>OFF</i>). Press ↓ 4 times to get to time profile 5.

4	<i>t5St / OFF</i>	Press 1, the display will go to a steady on . Notice if you press 1 again the display will change back to OFF . Make sure on is displayed and press SEL/SAVE to confirm.
5	<i>t5St / on</i>	Press →.
6	<i>t5Ab / 0000</i>	The begin time of period A (00:00). Type 0800 followed by SEL/SAVE, notice how the display goes steady as soon as you press a key.
7	<i>t5Ab / 0800</i>	Press →.
8	<i>t5AE / 0000</i>	The end time of period A (00:00). Type 1300 (for 1:00pm) followed by SEL/SAVE.
9	<i>t5AE / 1300</i>	Press →.
10	<i>t5Ad / </i>	The days for period A (none at the moment). Type 12345 followed by SEL/SAVE. Notice that as each number is pressed the corresponding bar doubles in size. Press the same number again and it goes back to half size. Make sure the first 5 bars (Mon, Tue, Wed, Thu, Fri) are set.
11	<i>t5Ad / </i>	Press →.
12	<i>t5bb / 0000</i>	The begin time of period B (00:00). Type 1400 followed by SEL/SAVE.
13	<i>t5bb / 1400</i>	Press →.
14	<i>t5bE / 0000</i>	The end time period B. Type 1800 followed by SEL/SAVE.
15	<i>t5bd / </i>	The days for period B. Type 1234 followed by SEL/SAVE.
16	<i>t5dd / </i>	You have completed both time periods for this time profile. Now make sure that the third time period is clear. Press →.
17	<i>t5Cb / 0000</i>	Should show 0000, if not then press 0000 followed by SEL/SAVE. Press →.
18	<i>t5CE / 0000</i>	Should show 0000, if not then type 0000 followed by SEL/SAVE. Press →.
19	<i>t5Cd / </i>	Should show , if not press appropriate numbers to make all bars half size. Press ESC twice to leave Editor

This completes the setting up of a complete time profile.

6. Editor Keys

This section describes how to administer Editor keys. These functions can only be performed when using the Master Editor key.

The system allows up to 5 Editor keys to be assigned, each one being able to accept alarms, and use the Editor. Making a key an Editor will not automatically allow it to be used at a door. If this is required then it should be added as a user key as well.

Adding an Editor Key

Step	Example Display	Action
1		Present the Master Editor key to the controller reader.
2	<i>SEL?</i>	Press the INST/9 key.
3	<i>SetC</i>	Press ↓ 3 times.
4	<i>Edit</i>	Press SEL/SAVE.
5	<i>E000</i>	Present the new key to the controller reader.
6	<i>E002</i>	At this point if the red LED comes on and the number flashes then the key already exists as an editor. If this is a new key then the green LED only will flash and the display will flash. The example shows key 2 as the next available number.
7	<i>E003</i>	Present the Master Editor key to the controller reader. The green LED will now go steady and the next available number will flash. You may add more keys now if you wish.
8	<i>SEL?</i>	Press ESC to leave Editor.

Voiding an Editor Key

Step	Example Display	Action
1		Present the Master Editor key to the controller reader.
2	<i>SEL?</i>	Press the INST/9 key.
3	<i>SetC</i>	Press ↓ 3 times.
4	<i>Edit</i>	Press SEL/SAVE.
5	<i>E000</i>	Either: present the key to the controller reader, or: type the key number and press SEL/SAVE, or: use ↑↓ to select the key number and press SEL/SAVE. Existing keys will flash along with the red LED, Invalid keys will flash with red and green LEDs steady.
6	<i>E003</i>	Present the Master Editor key to delete the key. There will be a short beep and the display will return to:
7	<i>SEL?</i>	Return to step 2 above to delete more keys or press ESC to leave the Editor.

7. Other Functions

Setting the Clock

It is important when using Time Profiles or if you are using the printer to log events, that the clock and calendar are checked regularly. Use the following procedure for setting the clock.

- If at any point you enter an invalid value, like 15 for the month, you will get a long beep and the original value re-displayed.
- If the date is invalid, e.g. 31/06/93, then you will be returned to the year value, step 4 in the procedure below. Re-enter the correct month and date.

Step	Example Display	Action
1		Present an Editor key to the controller reader.
2	<i>SEL?</i>	Press INST/9
3	<i>SEtC</i>	Press SEL/SAVE
4	<i>Yr93</i>	Type new year value (e.g. 93) and press SEL/SAVE. Press ↓ to move to the next item.
5	<i>Mt05</i>	Type new month value (e.g. 05) and press SEL/SAVE. Press ↓ to move to the next item.
6	<i>dt06</i>	Type new day value (e.g. 06) and press SEL/SAVE. Press ↓ to move to the next item.
7	<i>dy2</i>	Type the day of the week, Mon=1, Tue=2, Wed=3, Thu=4, Fri=5, Sat=6, Sun=7, and press SEL/SAVE. Press ↓ to move to the next item.
8	<i>Hr11</i>	Type the hour and press SEL/SAVE. Press ↓ to move to the next item.
9	<i>Mn08</i>	Type the minute and press SEL/SAVE. The clock is now set. Press ESC.
10	<i>SEL?</i>	Press ESC to leave the Editor.

Manual Lock and Unlock

It is possible to manually lock and unlock a door from the controller. It may be necessary to do this, for instance when a door needs to be kept open while contractors are working in an area, or equipment is being moved around. Also a door normally open on a Time Profile may need to be locked while a receptionist or guard is not available.

Doors controlled by a Time Profile

- Manual lock will lock the door, keys will then be required to gain access. If no further action is taken the door will still unlock at its next automatic opening time.
- If the door is manually unlocked then it will lock again, if no further action is taken, at its next automatic closing time.

Doors not controlled by a Time Profile

- Manual unlock will unlock the door, it will stay unlocked until manually locked again.

Use the following procedure to lock/unlock a door:

Step	Example Display	Action
1		Present an Editor key to the controller reader.
2	<i>SEL?</i>	Press DOORS/6
3	<i>d1Lt / 0005</i>	Press → 4 times.
4	<i>d1UL / Loc</i>	The display now shows the current state of door 1 (<i>Loc</i> =locked, <i>ULoc</i> =unlocked). To lock/unlock door 2 press ↓.
5	<i>d1UL / Loc</i> or <i>d2UL / Loc</i>	To unlock a door press 1 followed by SEL/SAVE, the display will change to <i>ULoc</i> and the door will unlock. To lock a door press 0 followed by SEL/SAVE, the display will change to <i>Loc</i> and the door will lock. Press ESC.
6	<i>SEL?</i>	Press ESC to leave the Editor.

Printer Functions

These features apply to the PAC 1000SA/P only.

Transaction Logging

All PAC 1000SA door controllers keep a record of the most recent 1000 transaction. A transaction being all the different types of event that may occur such as access authorised, manual lock, automatic lock, editor on, etc. (see Appendix B for details of all the different types of transaction).

When a printer is connected then the controller will print these events as they happen. If the printer is switched off, or otherwise disconnected, then the events will be stored and printed from the point at which printing stopped when the printer is reconnected.

The only action the user need take is to ensure that the printer is kept supplied with paper and does not jam - make sure the paper flows freely through the printer.

Sample transaction printout:

	DATE	TIME	DOOR	USER	TRANSACTION	15/06/93
[0054]	15/06/93	12:09	2		Door Left Open	
[0055]	15/06/93	12:10	2		Door Closed	
[0056]	15/06/93	12:14	1	0045	Access Authorised	
[0057]	15/06/93	12:14	2	0052	No Access: Level	
[0058]	15/06/93	12:15		EDITOR - 1	Editor On	
[0059]	15/06/93	12:17		EDITOR - 1	Editor Off	
[0060]	15/06/93	12:18	1		Request to Exit	
[0061]	15/06/93	12:19	1	0045	Access Authorised	
[0062]	15/06/93	12:23	1	0045	Access Authorised	
[0063]	15/06/93	12:30	1		Automatic Unlock	
[0064]	15/06/93	12:33	2	0120	No Access: Time	
[0065]	15/06/93	12:42	2		Unauthorised Access	
[0066]	15/06/93	12:43	2	MASTER	Local Alarm Accepted	
[0067]	15/06/93	12:44	2		Alarm Cleared	

User Selected Reports

There are 3 features accessible to the user from the PRINT/8 key.

- Printout of the database including Personnel, Time Profiles and Door Data.
- Printout of transactions applying to an individual key.
- Clearing all transactions in the controller.

To print the database:

This function prints personnel, time profile and door data. The printer will automatically go to the top of a new page, the display will show the progress of the report.

Press ESC to interrupt the printout.

1		Present an Editor key to the controller reader.
2	SEL?	Press PRINT/8
3	PrdA	Press SEL/SAVE to start database printout.
4	db / Prnt tP / Prnt dr / Prnt	..printing personnel database ..printing time profiles ..printing door data
5	SEL?	Press ESC to leave Editor.

Sample database printout:

```

PAC1000 SYSTEM      PERSONNEL PRINTOUT      05/06/93  11:10  page 01

  ID  DOORS      TIME 1      TIME 2      TIME 3
0001  Both
0002  One   08:30 17:30 MTWTF--  08:30 12:00 -----S-  00:00 00:00 -----
0003  Two   08:30 17:30 MTWTF--  08:30 12:00 -----S-  00:00 00:00 -----
0045  Both
0052  One
0064  Both  20:00 23:59 MTWTF--  00:00 08:00 -TWTFs-  00:00 00:00 -----

PAC1000 SYSTEM      TIME PROFILE PRINTOUT

RECORD STATUS      TIME 1      TIME 2      TIME 3
  1   On   09:00 17:00 MTWTF--  00:00 00:00 -----  00:00 00:00 -----
  2   On   08:30 17:30 MTWTF--  08:30 12:00 -----S-  00:00 00:00 -----
  3   On   07:00 09:00 MTWTFs-  00:00 00:00 -----  00:00 00:00 -----
  4   On   20:00 23:59 MTWTF--  00:00 08:00 -TWTFs-  00:00 00:00 -----
  5   Off  00:00 00:00 -----  00:00 00:00 -----  00:00 00:00 -----
  6   Off  00:00 00:00 -----  00:00 00:00 -----  00:00 00:00 -----
  7   Off  00:00 00:00 -----  00:00 00:00 -----  00:00 00:00 -----
  8   Off  12:30 13:30 MTWTF--  00:00 00:00 -----  00:00 00:00 -----

PAC1000 SYSTEM      DOOR DATA PRINTOUT

Door 1 LOCK TIME    = 005
      DOOR TIME     = 010
      TIME PROFILE  = 8
      OPTIONS       = Reverse Lock, Request to Exit
      DOOR          = Locked

Door 2 LOCK TIME    = 005
      DOOR TIME     = 010
      TIME PROFILE  = 0
      OPTIONS       = Request to Exit
      DOOR          = Locked

```

To print selected key transactions:

This will print all the transactions associated with a particular key number currently in memory. The period of time this covers will depend on how long the system takes to generate 1000 transactions.

Press ESC to interrupt the printout.

1		Present an Editor key to the controller reader.
2	SEL?	Press PRINT/8
3	PrdA	Press ↓.
4	Prtr	Press SEL/SAVE.
5	0000	Type the key number you require, press SEL/SAVE. There may be a short pause while the controller searches through all the transactions.
6	tr /Prnt	..printing transactions
7	SEL?	Press ESC to leave the Editor.

Sample transaction printout for user 45:

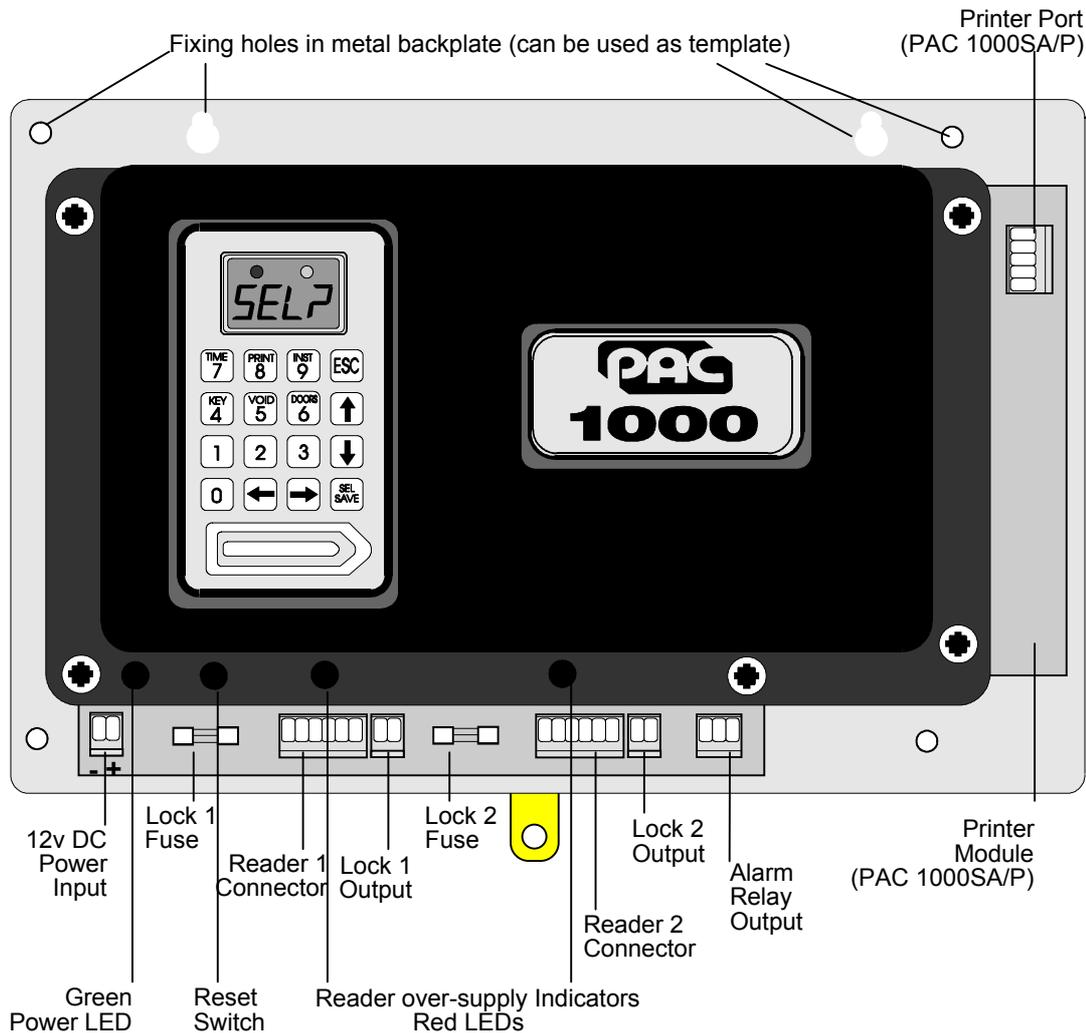
PAC1000 SYSTEM		PERSONNEL PRINTOUT		05/06/93 11:10 page 01	
	DATE	TIME	DOOR	USER	TRANSACTION
[0056]	05/06/93	12:14	1	0045	Access Authorised
[0061]	05/06/93	12:19	1	0045	Access Authorised
[0062]	05/06/93	12:23	1	0045	Access Authorised
[0092]	05/06/93	12:30	2	0045	No Access: Level

To clear the transaction memory:

This is useful if no printer has been connected for some time and you do not want up to 1000 old transactions to be printed.

1		Present an Editor key to the controller reader.
2	SEL?	Press PRINT/8
3	PrdA	Press ↓.
4	Prtr	Press ↓.
5	CLrt	Press SEL/SAVE.
6	CLr /ALL?	Press VOID/5 followed by SEL/SAVE to erase all transactions from memory. There will be a short confirming beep.
7	SEL?	Press ESC to leave the Editor.

8. Installation of the Controller



The PAC 1000SA will need an enclosure and a mains power supply. PAC supply separately a metal enclosure (part no. 10275) suitable for the PAC 1000SA door controller. There is room in this enclosure for one or two 6Ah lead acid batteries or one battery and a small 12v power supply.

Power Supply

The PAC 1000SA requires a 12v DC (+/- 2v) power supply.

The controller, the printer option board (when fitted) and two readers require 1.5 Amps. In addition enough current must be supplied to power the locks attached to the controller. Each lock output is capable of supplying up to 1 Amp continuously. Therefore a power supply capable of providing between 1.5 and 3.5 Amps in total should be used, depending on the current consumption of the locks.

A green LED close to the power terminal indicates power on.

Important: The database is stored in battery-backed memory and will be preserved whether the controller is powered or not. This backup will last between 5 and 8 years provided that the controller is normally powered.

Battery Backup

Battery backup is a feature of the power supply chosen by the installer. The capacity of the battery required should be calculated based on:

- The current consumption of the controller and readers (up to 1.5A).
- The current consumption of the locks when operating normally (up to 1 Amp each).
- The type of lock (fail-safe or fail-secure).
- The length of time the system should operate without mains power.

Example: A PAC 1000SA/P with two readers and 2 300mA fail-safe locks will draw about 2.1 Amps. A 6Ah battery will therefore provide about 2½ hours supply, a 12Ah battery will provide about 5-5½ hours supply.

Fitting the Controller

The controller should be mounted in a secure but accessible location bearing in mind that operators are going to have to program the system at the controller. The controller should be mounted so that the display is at about eye level.

If you are using a PAC enclosure then the controller will fit over the two tabs at the top of the case, secured by the tab at the bottom of the backplate with a self-tapping screw.

If you are not using the PAC enclosure then there are several holes on the backplate that may be used for mounting.

The Printer

This section applies to the PAC 1000SA/P only.

Printer Specification

An 80-column dot matrix printer with a serial interface is required. The serial interface must be set, using switches and/or jumpers, with the following parameters:

- 4800 baud
- 8 data bits, 2 stop bits
- No parity
- Hardware handshake using DTR/CTS. When the printer is busy then it should force DTR low.
- The printer must be capable of receiving at least 82 characters after a busy signal is sent (DTR going low).

PAC have used the EPSON LX series and the OKI Microline 182 printers successfully in the past.

Printer cable

The following cable is required:

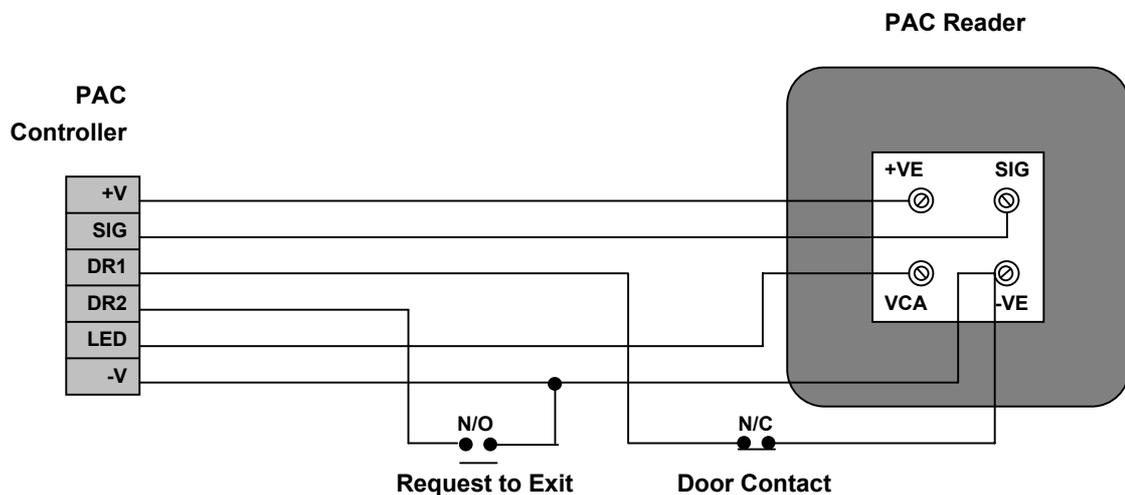
Use 0.22mm² 4-core unscreened signal cable, maximum length 15m

PAC 1000SA/P	Printer
5-way Terminal Block	25 pin male D-type connector
TXD	3 RX
CTS	20 DTR
RXD	
DTR	
GND	7 Signal Ground

9. Installing Readers and Locks

Readers

Reader Wiring Diagram



See Appendix A for a list of PAC readers suitable for use with the PAC 1000SA. Use the most appropriate reader for the location bearing in mind, internal or external, vandal resistance, decor, panel mounting etc.

Reader Fitting

See the data sheet supplied with the PAC reader for specific details for fitting that type of reader.

In general:

- Readers should be mounted at a convenient height, usually at about the height of a door handle, on the unhinged side of the door.
- Readers should be mounted at least 1 metre apart to prevent any interaction between them.
- Consider future service requirements such as access to cables etc.

Reader Cabling

Use unshielded multistranded tinned copper signal cable, the type commonly used in alarm installations. The gauge depends on the distance from the controller to the reader.

6-core cable should be used:

up to 200m	0.22mm ²
up to 500m	0.5mm ²
up to 1000m	1.0mm ²

4 cores are used to connect the reader itself, the other 2 cores are for the optional request to exit and door monitoring signals (see below)

The readers are not prone to electrical interference, however avoid routing cable close to heavy load switching cables and equipment. If this is unavoidable then cross the cable at right angles every 1-2m.

Reader Connections

All PAC readers have 4 terminals. +VE, VCA, SIG and -VE. Each reader is connected to the door controller Reader 1 or Reader 2 terminal block. The door controller has 2 further connections, DR1 and DR2. These provide door/cable monitoring and Request to Exit inputs respectively.

Reader Marking	Description	Suggested Cable Colour	Connects to Controller
Screw Terminals			6-way Terminal block
+VE	Supply: 18 volts.	Red	+V
VCA	Valid code accepted, illuminates the green LED at the reader.	Green	LED
	Request to Exit.	Yellow	DR2
	Door Monitoring.	White	DR1
SIG	The signal from the reader to the controller.	Blue	SIG
-VE	Supply: 0 volts.	Black	-V

Over Current Protection

Each reader channel is protected against overload, such as a short circuit. In the event of over-current the controller will shut down the supply to the reader. When this occurs the small red LED, visible through a hole above each terminal block, will light up. The other reader, if fitted, will not be affected.

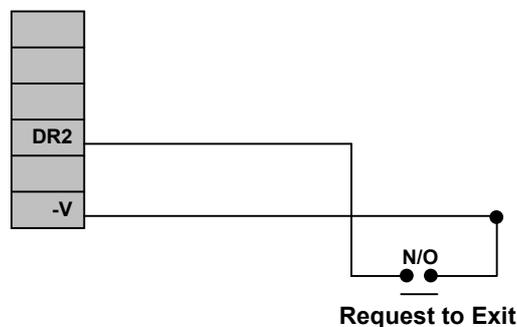
In order to restore the supply:

- Disconnect the reader at the controller.
- Remove the cause of the overload.
- Reconnect the reader (allow at least 20 seconds since disconnection).
- The red LED should now extinguish.

Request to Exit (DR2)

Wiring Detail

PAC
Controller



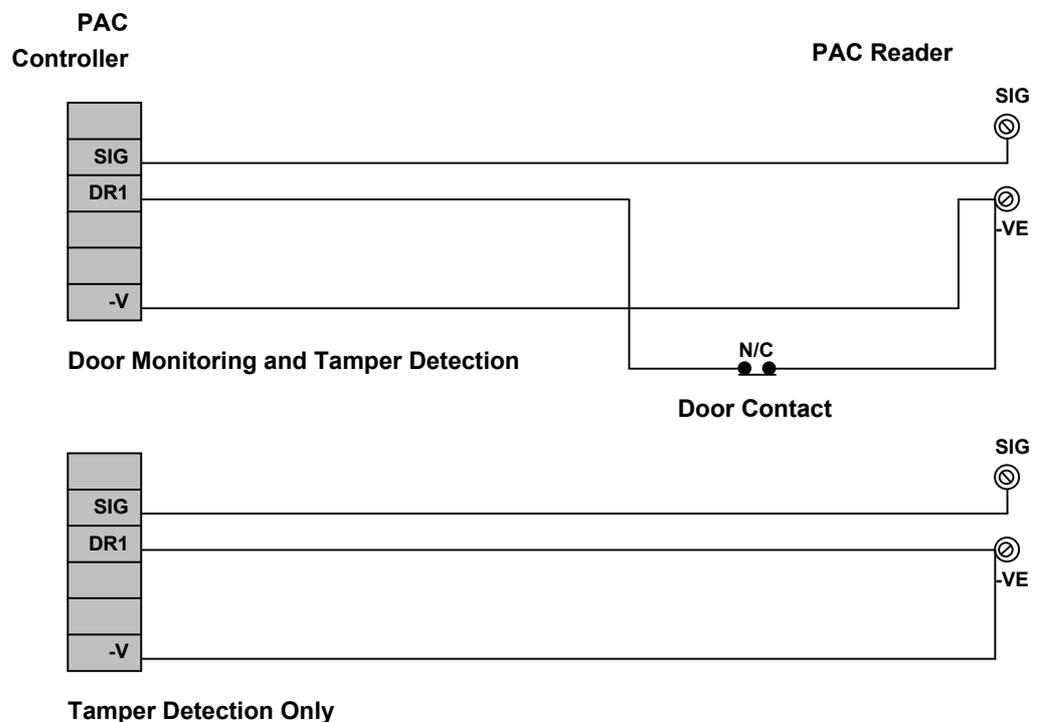
As connecting DR2 to ground (-V) will always operate the lock, ensure that the request to exit wiring is not accessible from outside the secure area (e.g. if the reader is removed from the wall.)

The request to exit switch (RTE) allows persons within the secure area to leave by signalling to the door controller to operate the lock without using a key. The switch is necessary when door monitoring is used (see below) to enable the controller to distinguish between a forced door and a valid exit.

- The switch should be 'normally open' which closes momentarily when pressed.
- It is quite possible to locate the switch away from the door, at a reception desk or as part of a door entry system. In which case it is possible to change the printed event report to *Request for Entry* (see *Setting the Door Data* below).
- More than one switch can be used if wired in parallel.
- If an attempt is made to keep the door open by holding down the RTE button then the door will lock after 5 cycles of the lock release time and, if a printer is fitted, an *RTE Button Held Down* report is produced.

Door Monitoring (DR1)

Wiring Detail



Door Contact Monitoring

The PAC 1000SA has the ability to monitor a door contact allowing:

- Unauthorised Access Alarms giving warning of a forced door.
- Door Left Open Warning after a set period of time. The time is set in the door database (see *Setting the Door Data* below).
- Cancellation of Lock Release Time allows the door to lock after someone has passed through even though the lock release time has not expired.

The Door Contact

The door contact should be a normally closed switch that is open whenever the door is open. Care should be taken when fitting door contacts to ensure that they operate only when the door is opened and close only when it is secure.

To help prevent false alarms:

- Keep reed switches away from large magnetic fields, such as those generated by magnetic locks. This is a particular problem with metal door frames.
- Ensure that the switch does not operate if the door moves in its frame, in draughty or windy conditions.
- An efficient door closer should be fitted that secures the door once someone has passed through.

Cable/Reader Anti-Tamper

In addition to monitoring a door contact the DR1 connection also provides a tamper detection function. Tamper is detected when the SIG line breaks at the same time as DR1 opening. This is achieved whether or not a door contact is fitted. To provide full protection of the cable and reader the DR1 core should be terminated at the reader -VE terminal to ensure that the DR1 to -VE circuit breaks when the reader is removed.

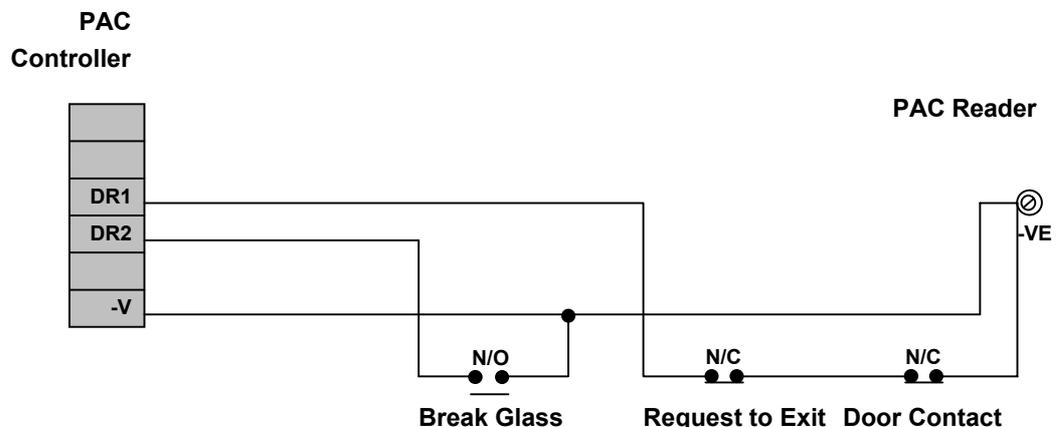
WARNING: Tamper detection does not operate when the door is manually unlocked, automatically unlocked via a time profile or while the door is open through the use of a key or RTE.

The functions described here are set up in the door database. See *Setting the Door Data* below for details on how these facilities are enabled.

Emergency Override/Free Exit

There is a special case where both the DR2 and DR1 signals are interpreted differently to those described above. The DR2 signal is used to monitor an emergency switch, such as a break glass, and DR1 provides a Free Exit report. See *Setting the Door Data, Door Options* below for how to enable this feature.

Note: when this feature is used there is no tamper detection and no door alarm monitoring.



Emergency Override

When connected as shown, operating the break glass will open the door and produce an *Emergency Override On* report at the printer. When the switch is restored an *Emergency Override Off* report is produced and the door will be locked again.

Note: this feature should not be fitted as the sole means of escape see *Lock Output - Safety* below.

Free Exit

In the case of DR1, this will produce a *Free Exit* report and operate the lock when the switch is opened. A normally closed switch may be used to operate as a request to exit switch in addition to having a door contact switch in series. The door contact will allow door left open warnings to be produced.

Note: the lock will operate whenever DR1 is opened - this means that care should be taken that the door contact cannot be broken from the secure side of the door .

Alarm Output Relay

Relay 1

NC1	Normally Closed
NO1	Normally Open
CM1	Common

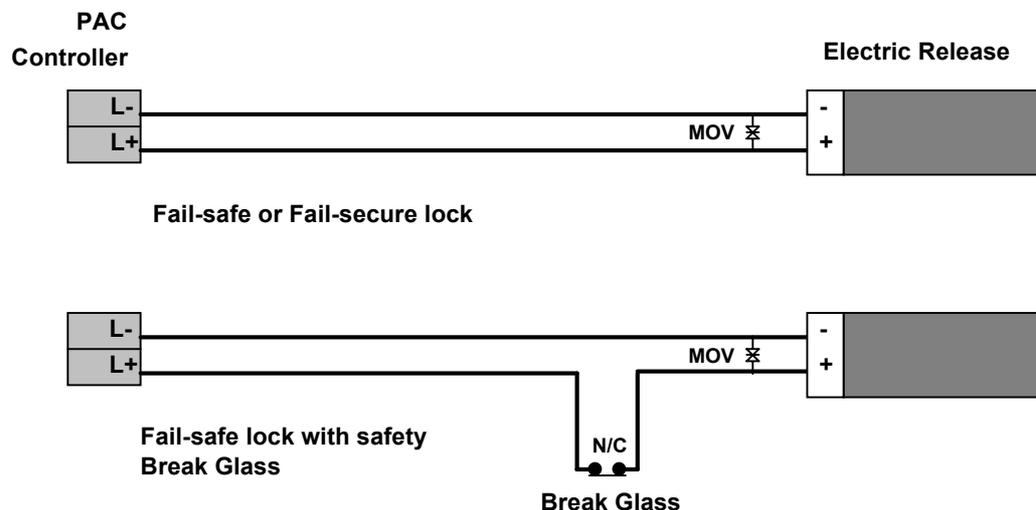
A relay is provided with Common, Normally Open and Normally Closed terminals. This relay changes over in the event of an Unauthorised Access alarm or a Cable/Reader Anti-Tamper alarm. It will change back when the alarm is accepted.

Note: the relay does not change over for the door left open warning.

The relay contacts are rated at 0.5Amps at 24V AC.

Lock Output

Wiring Diagram



All locks should be fitted according to the manufacturers instructions.

The PAC 1000SA provides a lock output for each reader channel. These outputs are capable of providing 12v DC at up to 1Amp each.

Each lock output is protected by a 20mm 1Amp Fast Blow fuse fitted next to the reader connector.

Each output can be independently set as fail-safe (power to lock) or fail-secure (power to unlock), see *Setting the Door Data* below.

The cable between the door controller and the lock should be of such a gauge as to provide at least the minimum voltage required to operate the lock. The resistance of the cable and the current drawn by the lock will determine the type of cable.

Lock Suppression

All locks **must** be fitted with a means of suppressing back e.m.f. ('spikes') generated by most electric releases, especially magnetic locks. All PAC readers are now supplied with a MOV (metal oxide varistor). This device should be fitted across the lock terminals. This device will prevent long term damage being done to the door controller.

Safety

Any door that is considered a fire door or is on an escape route must have some means of overriding the electric release in an emergency. Usually this is achieved by the use of fail-safe locks (power to lock) fitted with a normally closed break-glass in the lock supply. When the break-glass is operated the supply to the lock is broken and the door will be released without any intervention from the door controller.

10. Setting Up the System

Follow this section through to set up the system for the first time.

Switching On

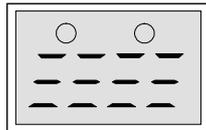
Once the door controller is fitted, readers and locks are in place then the unit can be powered up for the first time.

- First of all disconnect all reader, lock and printer terminal blocks at the controller.
- Apply the 12v DC power. The screen will briefly display *8888* an beep 4 times. The display will then be clear and the green power-on LED will be lit.
- Connect the first reader. If the red over-current LED comes on there is probably a short circuit in the reader wiring.
- If fitted, operate the RTE for the first reader. If no RTE is fitted then use a short piece of wire to short DR2 to -V at the terminal block. The display should show *oP* and the green LED on the reader should illuminate.
- Repeat for the second reader if required.
- Now install the Master Editor Key (see below).
- Set the Door Data. See the next section *Setting the Door Data*.
- Connect the locks and ensure they operate in accordance with the door data settings.
- Check the Clock. Follow the procedure in *Setting the Clock* above.

Installing the Master Editor Key

To install the Master Editor Key:

- Press the small Reset button, visible through the second hole at the bottom left of the black cover. The controller will beep 4 times. While it is beeping press the Reset button again. The display will flash all its horizontal bars.



- Present a key to the controller reader - this key will become the Master Editor Key.
- The controller will beep and the display will alternate between *CLr* and *ALL?* This means "Do you want to wipe out the whole database?" If this is a new, unprogrammed system then the answer should be "Yes". Press VOID/5 followed by SEL/SAVE to wipe out the database. If you do not want to wipe out the whole database then just press ESC.

WARNING: If you are replacing the Master Editor Key then press ESC.

- The display will clear.
- Present the new Master Editor Key. The display will show:



indicating that you are in the Editor and may select one of the functions.

When the Master Editor key is installed after wiping the database the following parameters are set.

- The Master Editor key is also installed as User Key 0001 with access through both doors and no time profile set.
- Each door is given a Lock Release Time of 5 seconds.
- Each lock is set to fail-secure (power to unlock).

When the database has not been wiped nothing is changed except that the Master Editor Key is installed in the key database with complete access. It will normally go into position 0001 replacing the old Master Editor unless another key has this number in which case it goes in the next available position.

Replacing the Master Editor Key

To replace the Master Editor Key follow the steps shown above for *Installing the Master Editor Key* but when the display alternates between **CLr** and **ALL?** , press ESC to preserve the existing database.

When the database is preserved nothing is changed except that the Master Editor Key is installed in the key database with complete access. It will normally go into position 0001 replacing the old Master Editor unless another key has this number in which case it goes in the next available position.

11. Setting the Door Data

Using the DOORS/6 key allows the operator to set up or change various parameters concerning the doors and locks. These parameters are described below, followed by a procedure for setting them.

Description of Parameters

Lock Release Time

This is the amount of time that the lock will be operated. Usually about 5 seconds is sufficient to allow people to open the door. You may need to set a longer time for older or disabled people. When door monitoring (see above) is used then any unexpired lock release time will be cancelled as soon the door closes.

Door Open Time

This is the amount of time allowed after the expiry of the lock release time before a door left open warning is given. Usually between 10 and 20 seconds is set.

A value **must** be entered here if door monitoring and/or cable tamper detection is required. **If this value is 0 then door and cable monitoring is disabled.** It may be useful at times to disable door monitoring while investigating the cause of false alarms.

Door Time Profile

Here a time profile, 1-8, is entered if automatic opening and closing is required. See *Time Profiles* for more details.

Door Options

There are 3 options that can be set. Each is displayed as a vertical bar, full height when set, half height when not set.

1 Lock Mode

UNSET Lock operates as fail-secure, power applied to unlock door.
SET Lock operates as fail-safe, continuous power to keep door secure, removed to unlock.

2 Free Exit

This option modifies the way that DR1 and DR2 are monitored.

UNSET DR1 monitors door contact and reader/cable tamper.
DR2 is request to exit.
SET DR1 will give Free Exit without an alarm.
DR2 gives Emergency Override On when closed, Emergency
Override Off when opened.

3 RTE Report

This option controls the type of report printed when RTE is operated.

UNSET Request to Exit
SET Request for Entry

The DOORS Function

Press **↑↓** at any time to move between door 1 and door 2.

Press **←→** at any time to move between parameters. The parameters are presented in the order described above.

Press ESC at any time to return to **SEL?**

Step	Example Display	Action
1		Present an Editor key to the controller reader.
2	<i>SEL?</i>	Press DOORS/6.
3	<i>d1Lt / 005</i>	Lock Release Time for door 1. Either: Type a new time, 0-255, followed by SEL/SAVE, or Press ↓ to go to door 2, or Press → to go to next parameter.
4	<i>d1dt / 000</i>	Door Open Time for door 1. Either: Type a new time, 0-255, followed by SEL/SAVE, or Press ↓ to go to door 2, or Press ←→ to change parameter.
5	<i>d1tP / 0</i>	Time Profile for door 1. Either: Type a new time profile 0-8 followed by SEL/SAVE, or Press ↓ to go to door 2, or Press ←→ to change parameter.
6	<i>d1oP /</i>	Door Options for door 1. See above for descriptions of each option. Either: Press 1,2 or 3 to set or unset followed by SEL/SAVE. or Press ↓ to go to door 2, or Press ←→ to change parameter.
7	<i>d1UL / LoC</i>	Manual Lock/Unlock for door 1. See <i>Manual Lock/Unlock</i> section.

12. Installer Facilities

This section describes facilities available using the INST/9 key.

Setting the Clock

This function is fully described in *Other Functions, Setting the Clock*.

Upload/Download

This facility is only available with the PAC 1000SA/P.

It is possible to use the serial ports on two PAC 1000SA/P controllers to copy the database from one to the other.

To do this a cable should be made up as follows:

Use 0.22mm² 4-core unscreened signal cable, maximum length 15m

PAC 1000SA/P		PAC 1000SA/P
5-way Terminal Block		5-way Terminal Block
TXD	————	RTX
RTX	————	TXD
GND	————	GND

Once the two controllers are connected the following procedure should be performed:

Note: The transfer can be cancelled at any time by pressing ESC at both controllers.

Step	Sending Unit	Receiving Unit	Action
1			Present an Editor key to each controller reader.
2	<i>SEL?</i>	<i>SEL?</i>	Press INST/9 at each controller.
3	<i>SetC</i>	<i>SetC</i>	Press ↓ at each controller.
4	<i>in</i>	<i>in</i>	Press ↓ again at sending controller only.
5	<i>oUt</i>	<i>in</i>	To start the transfer: Press SEL/SAVE on the receiving controller then: Press SEL/SAVE on the sending controller.
6	<i>oUt / nnn</i>	<i>in / in</i>	The sending controller will display <i>oUt</i> alternating with the percentage complete. The receiving controller will flash <i>in</i> . When complete both displays will return to <i>SEL?</i>
7	<i>SEL?</i>	<i>SEL?</i>	Press ESC to leave Editor.

Editor Keys

This function is fully described in the *Editor Keys* section.

Anti-Pass Back

When two readers are used to control both entry into an area and exit out of the area then anti-pass back may be set. This will prevent a key being used again after it has entered the area. If an attempt is made to use the key to enter the area again a **No Access: Pass Back** report will be generated on the printer.

Pass back may either be active until the key is used to leave the area, or a time limit may be assigned after which the key may be used to enter the area again. The time limit is useful if people are likely to leave the area without using their keys, without the time limit they would be unable to get back in the area.

Step	Example Display	Action
1		Present an Editor key to the controller reader.
2	<i>SEL?</i>	Press INST/9
3	<i>SetC</i>	Press ↓ 4 times.
4	<i>AP00</i>	Type a value followed by SEL/SAVE. 0 No pass back 1 Pass back with no time limit. 2-60 Number of minutes after which a key will work again if it is not used to leave the area.
5	<i>SEL?</i>	Press ESC to leave Editor.

Software Version Display

It may be useful at times to verify the software version used in the controller. You may be asked for this by PAC Technical Support.

Step	Example Display	Action
1		Present an Editor key to the controller reader.
2	<i>SEL?</i>	Press INST/9
3	<i>SetC</i>	Press ↓ 5 times.
4	<i>v808</i>	In this case version 808 is displayed. Press ESC.
5	<i>SEL?</i>	Press ESC to leave Editor.

Appendix A - Equipment

This appendix contains a complete list of all PAC equipment suitable for use with the PAC 1000SA. Any PAC item not contained in this appendix should be considered unsuitable for this product. If in doubt check with PAC Technical Support.

PAC Part No.	Description
Door Controllers	
20690	PAC 1000SA - 2 door controller.
20696	PAC 1000SA/P - 2 door controller with printer output.
PAC Readers	
20583	PAC Low Profile Reader - suitable for internal or external use.
20683	PAC Vandal Resistant Reader - stainless steel housing, suitable for internal or external use where extra durability is required.
20455	PAC Panel Mount Reader - suitable for mounting in metal surround, typically a door entry panel.
ID Devices	
21020	Token - key fob style.
20260	ID Card
Accessories	
10275	Metal case - no cut-out in front panel.
20701	Upgrade Kit - PAC 1000SA to PAC 1000SA/P

Appendix B - Transactions

Normal Entry and Exit

Access Authorised	Normal key authorisation.
Entry Authorised	Only used when anti-pass back is set. Key has entered area.
Exit Authorised	Only used when anti-pass back is set. Key has left the area.
Request to Exit	Normal use of request to exit switch.
Request for Entry	Special use of request to exit switch. See <i>Setting the Door Data</i> .
Free Exit	Special use of request to exit switch. See <i>Setting the Door Data</i> .

Alarms and Warnings

Unauthorised Access	A locked door has opened without a key being presented or request to exit being pressed.
Anti-tamper Alarm	The cable has been cut or the reader removed or disconnected.
Local Alarm Accepted	An editor key has accepted the alarm.
Alarm Cleared	The previous alarm condition has been cleared, i.e. the door has been secured or the cable/reader has been reconnected.
Door Left Open	The door has been left open longer than the pre-set time.
Door Closed	The door has closed again after being left open.
RTE Button Held down	The RTE switch is being held down.
Repeated Token Use	The same key has been presented more than 5 times without a break.

No Access

No Access: Unknown ID	A key has been presented that is not recognised by the controller.
No Access: Locked Out	A key with no access at either door has been presented.
No Access: Level	A key allowed at another door has been presented at this door.
No Access: Time	A key currently excluded from this door with a time profile.
No Access: Pass Back	A key has been excluded because it has not been recorded as leaving the area.

Door Events

Automatic Lock	The door has locked automatically by way of a time profile.
Automatic Unlock	The door has unlocked automatically by way of a time profile.
Manual Lock	An operator has manually locked the door.
Manual Unlock	An operator has manually unlocked the door.

Other Events

Editor On	An editor key has entered the Editor
Editor Off	An editor key has left the Editor or the Editor has timed-out.
Emergency Override On	Special use of request to exit. The switch is monitoring emergency switch (e.g. a break glass).
Emergency Override Off	Special use of request to exit. The switch is monitoring emergency switch (e.g. a break glass).
Unit Closed Down	Power removed from the door controller.
Unit Started Up	The door controller has been switched on.