PAC 2000
User Manual

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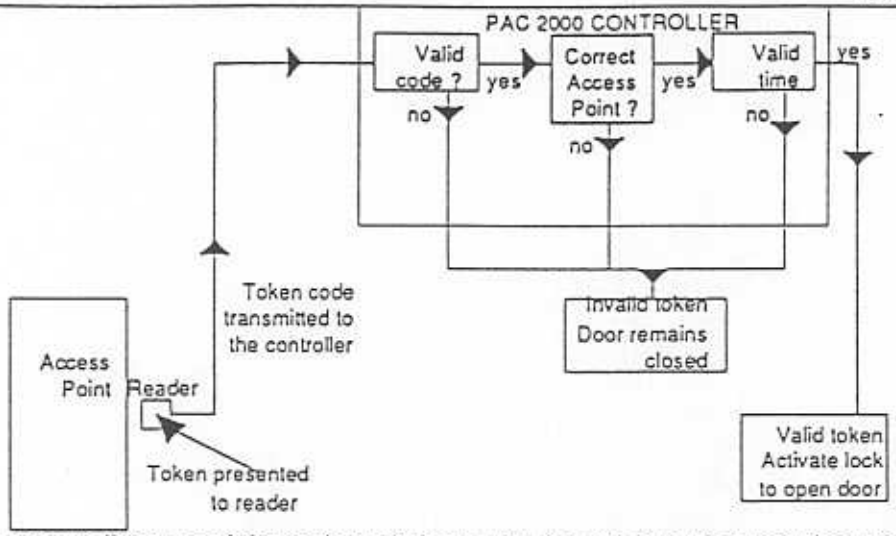


3. Valid time : the controller stores information relating to the times that a token may be used, these are referred to as 'Time Profiles' e.g. personnel may be allowed to enter a point between 9.00 and 16.30 Monday to Friday but prevented from entering at any other time.

Having satisfied these requirements, the token holder can gain access as show in figure 1. 4 A .

All access points are monitored continuously, all events are stored in a *transaction file.*

Before normal operation can be initiated, the system needs to be instructed (programmed) of the individual requirements of the installation.

2 . The Editing System

The PAC 2000 editor is designed so that data held in the PAC 2000 databases (files) can be altered according to the needs of the user. This is achieved through the programming facilities offered by the system. All programming procedures are summarised in diagramatic form in the quick reference section.

To enter the PAC 2000 editor, you must possess one of the *Editor tokens-*

Please note if a key is not pressed over a 2 minute period during programming the PAC 2000 will show a blank display indicating the editor has been exited.

2 .1. Entering the Editor

To be able to proceed with any programming, the PAC 2000 display must show the CMD (command) prompt (indicating you are in the editor mode), this is achieved by following the instructions below :

1. Present Editor Token to the PAC 2000 reader.
2. If the system has been assigned a password the display will provide you with the prompt PAS, enter the password.
3. Press the ENT key
4. The prompt CMD will appear on the display

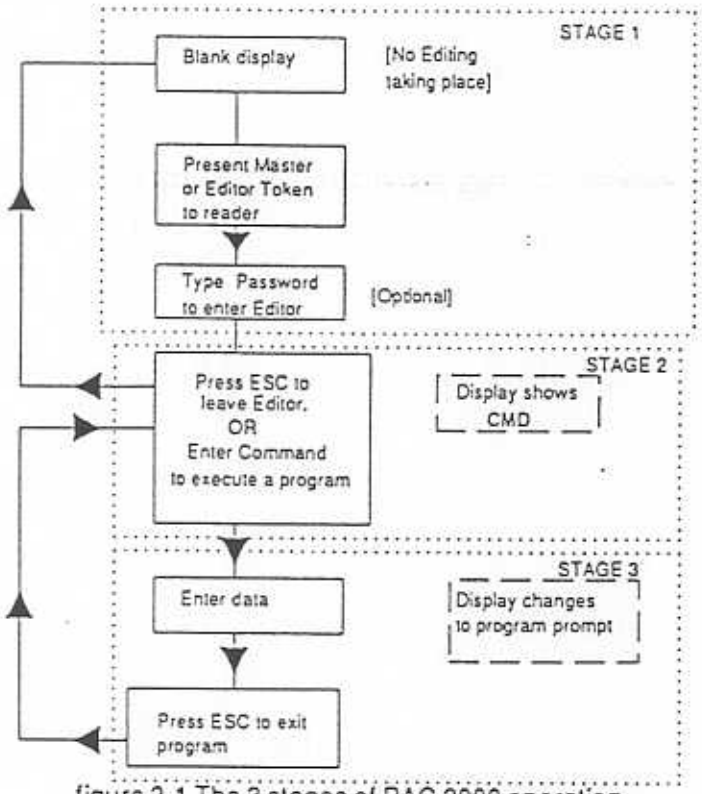


figure 2-1 The 3 stages of PAC 2000 operation

You are now in the editor mode from here you may carry out any programming you require - this relates to a wide range of factors that affect the site operation.

From now on the manual will refer to the process of entering the edit mode as the 'Entry Procedure'

To exit the Editor at any stage, press the ESC key.

From the chart, you can see that there are 3 main stages that can be identified as:

1. Non editing mode.
2. Editor mode.
3. Program mode.

Notice the ESC key is used to exit either from the program or the editor to the previous stage.

2 .1. 1. Programmingterminology:

Data field - detail relating to a particular aspect of a PAC 2000 system. e.g. the identifiction code assigned to a token.

Record - a collection of data fields

File (database) - a group of records.

2 .2. Keypad Functions.

The keypad has a range of alphanumeric and symbol characters, those with special functions are described below:

ESC - as described in the figure 2-1 this key acts as an exit key taking the user out of the programming/editing mode.

+ - This key causes movement to the next data field of the same record.

▼ -This key causes movement down to the same data field of the next record.

▲ -This key causes movement up to the same data field of the previous record.

◄ ► - These keys move the cursor backwards and forwards along the display panel.

? - expands any abbreviated prompt to full form for about 2 seconds eg, A-L, when ? is pressed, Access Level is displayed.

CLR - This clears data from the display panel, it can be used if the programmer has mis-keyed data CLR is also pressed before entering a password or name in a data-field.

ENT - This key enters data into the database and must always be pressed after keying in any data. Failure to press ENT means data will not be saved and consequently 'forgotten' by the system.

SPC -Inserts a space.

Reference to how to move around a database are covered in more detail in Appendix 1..

2 .3. Programming Hints

1. Preparation
Make sure you have the information that you require before you start programming.
Note the system has a time out - which will cause the system to exit edit mode if a key has not been pressed for over 2 minutes.

2. Keep a Record of Your Data
Remember to keep records of the contents of the database for reference. If you have a printer, make a habit of printing out the contents of the databases when changed.

3. Exit
can be obtained from any programming procedure by pressing ESC. If pressed again this aborts the editing system.

5. Printers
The printers recommended by PAC International are either an Epson LX80/86/800 or a Microline OKI. The units supplied have been factory tested using one of the aforementioned printers. No guarantee is made upon the suitability of other types of printer.

2 .4. System Databases

The editing process will affect 1 or more of the system databases (files stored in the PAC 2000). These databases are linked to look up specific records in different files.

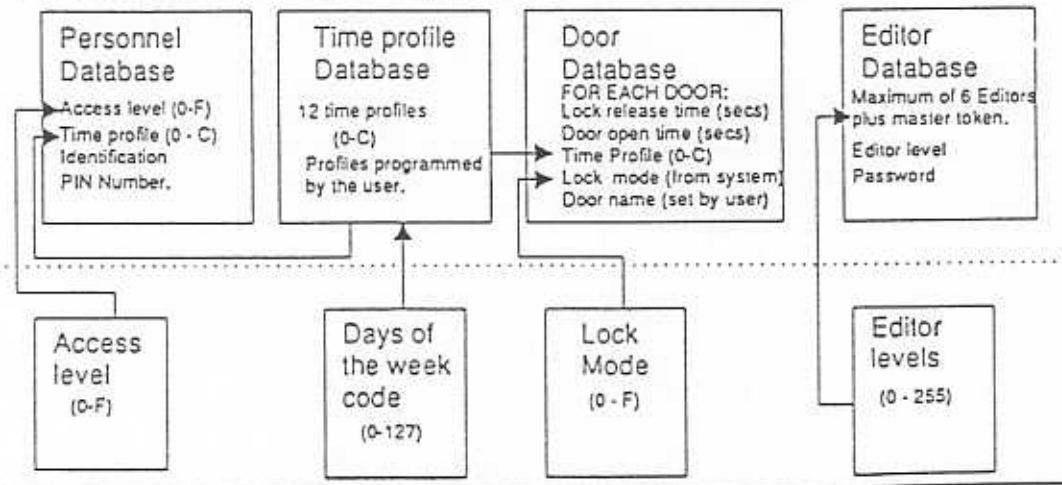
The lines linking the databases indicate those databases that can use information held in another file, e.g. the time profile database provides information for both the personnel and door databases.

The 4 files that you will come across during editing (above the dotted line), can be accessed and the contents changed:

1. Personnel
2. Time Profiles
3. Door

figure 2-2 Database relationships

PAC 2000 Relational Database (description of links between PAC 2000 files)



4. Editor
Each box describes the fields that are held within each database.

Refering to the diagram, there are sections below the dotted line: These contain a range of settings that can be used for reference only.

5. Access Levels
6. Days of the week codes.
7. Lock modes
8. Editor levels

The data held in these sections cannot be altered, the programmer simply selects from the range of modes, codes or levels available.
The purpose of having these 'reference sections', is to make the process of programming the PAC 2000 easier, but this does require careful attention to the available settings. Section 4 explains the contents of these databases and their applications in detail.

3 . Primary Commands

The primary commands refer to those programs that are essential in every day use of the system. In the following chapter (secondary Commands) the less frequently used commands will be reviewed. This section concentrates on:

- Editing facilities for the Personnel database.
- Print facilities
- Transaction records

Introduction to the Personnel Database

The first database to examine is the file that contains details about individual token users - the personnel database. It is possible to Add, Void or Edit details in this database.

During the explanations, a worked example will be shown for you to try. The format will be as follows :

STAGE	PROMPT	KEYBOARD ENTRY (EXPLANATION)
Sequence of operation	What you see on the display	Keys you press.

The STAGE refers to the sequential order of program operation.

The PROMPT appears at the left hand side of the PAC 2000 display.

KEYBOARD ENTRY will indicate what to enter (with any explanation if required).

Important

It is essential that you remember to press the ENT key after each stage, this enables the system to save the entries.
The ESC key will exit you from any program.

3 .1. Adding Tokens to Personnel Database

Command - A

From the chart in the previous chapter you will be aware there are 3 data fields for each token user record -

- Access Level
- Time profile
- Identification (name or number).

In the following practical example the value of 1 for Access Level and 0 as the time profile are used for convenience (more explanation regarding Access Levels and Time Profiles, will be forthcoming in section 4)

Read through the example and explanation first before attempting any programming.

Example

STAGE	PROMPT	ENTER AT KEYBOARD
1.		Entry procedure
2.	CMD	A (initaite Add program)
3.	A-L	1 (Access Level)
4.	TPN	0 (Time Profile)
5.	I-D	1234
6.	KEY	Present token to the reader (or type in the code, if known)
7.	UPDATING DATA	
8.	I-D	(this is a repetition of stage 5, the cycle may be repeated as oftem as required)

If your work is not saved during the example, check that you press the ENT key after each stage.

Notice that the program will run in a cycle from stage 5 to 7, this means that providing the tokens contain the same access level and time profile, a series of tokens can be added quickly . This does highlight the importance of preparation, providing you can identify those tokens with the same access levels and time profiles the adding process can be carried out efficiently.

With reference to stage 5, under certain circumstances, the I-D number will automatically increment to the next number up.
You should know whether your system is designed to accept 4 digit I-D or 12 character I-D .

A long beep will sound at stage 6. if you attempt to present a token that has already been added to the system. The system will only accept unique I-D codes at stage 8, thus there cannot be any repetition, if you should happen to enter an I-D code which is already present in the system, it will be rejected and the I-D prompt will remain until you enter a new I-D code.

On successful completion of the above example the data fields for the record will contain:

Access Level = 1
Time Profile = 0
I-D = 1234

3.1.1. Adding AVR Transmitters:

The program is identical to the Add Tokens, with an exception at STAGE 5 -

STAGE	PROMPT	KEYBOARD ENTRY
5.	KEY	Enter the last 8 digits of the transmitter code

To view or change the contents of this record (or any others) use the Edit Command.

3 .2. Edit the Personnel Database.

Command = E

This allows you to investigate the contents of the records in the Personnel Database and make alterations relating to the 3 personnel data fields - Access Level, Time Profile and I-D.
In the example, remember to press the ENT key after each stage.
ESC will exit you from edit program.

STAGE	PROMPT	KEYBOARD ENTRY
1.	(Entry procedure)	
2.	CMD	E
3.	I-D	(a. Type token identity or b. press the ENT key to see the first record or) (c. Present token to reader)
4.	I-D TP A-L	(The display shows identification, the time profile and access level.)

Note: Stage 3 - If a token is presented to the reader, the display will show the token ID, the time profile and access level *are not displayed.* If this information is required simply press ENT. A partial ID code or name an be typed in which the editor will recognise.

The arrow keys will allow movement between data fields (left / right keys), or between records (up / down keys). The cursor may disappear if moved off the right hand side of the display, the cursor can be retrieved by pressing the left arrow key once.

3 .2. 1. Identifying 'Lost' Tokens

The edit program as you may have realised, can be used to identify tokens that have mislaid their owner by simply presenting the token to the reader (stage 3).The I-D will be displayed and the token can be either returned to its owner or removed from the database by using the void command.

3 .3. Removing Tokens from the personnel database (Void).

Command = V

Removing a token from the database, renders that token unuseable in the system, which may be necessary n the event of a token being lost, or a token holder leaving a site permanently.

The procedure for voiding tokens is as follows:

STAGE	PROMPT	KEYBOARD ENTRY
1.		Entry Procedure
2.	CMD	V
3.	I-D	a. Type in token identity NB. The ID entered must be accurate in detail..
4.	OK?	Y (to confirm void) or N (to halt void)
5.	UPDATING DATA	(on confirmation of void)

3 .4. Assigning PIN Numbers to Tokens

Command = N

For systems with PIN readers.
This program allows you to identify the PIN number allocated to a token.

STAGE	PROMPT	KEYBOARD ENTRY
1.		Entry Procedure
2.	CMD	N
3.	PRESENT TOKEN	Present token to reader
4.	PIN number displayed.	

Stages 3 and 4 can be repeated as often as required. Press ESC to exit.

The assigned PIN number must be used with a PIN reader. The PIN number cannot be changed.

3 .5. Printer Commands

For users with a printer attached to the PAC 2000 a print out can be obtained of the following .

3 .5. 1. Print out the contents of all databases

Command = P

All changes made to the databases should be documented, with a printer this task can be carried out quite easily.

This program sends out to the printer the contents of the following databases :

Time Profiles
Door
Key Descriptors (Personnel)

Example:

STAGE	PROMPT	KEYBOARD ENTRY
1.		Entry Procedure
2.	CMD	P

3 .6. Transaction File

The transaction file records stores the events that are monitored by the system such as access authorised, exit authorised, emergency override etc. these can be stored in the system or printed out as they occur.

3 .6. 1. Repeat print out of transactions.

Command = R

A system may have a printer connected permanently to the PAC 2000 to record the transactions on paper as they happen. In the event of a paper jam or a printer not attached to a PAC 2000 permenantly, the Re-

peat Print command will print out the contents of the file (700 transactions maximum) recorded by the system.

Example:

STAGE	PROMPT	KEYBOARD ENTRY
1.		Entry Procedure
2.	CMD	R

3 .6. 2. Erase (KIII) Contents of Transaction File

Command = K (Kill)

All transactions will be erased form the system memory. There is no means by which to recall the transactions after this command has been issued. Use the command with care.

Example :

STAGE	PROMPT	KEYBOARD ENTRY
1.		Entry Procedure
2.	CMD	K

This page intentionally left blank.

4 . Secondary Commands

This chapter looks at those functions of the PAC 2000 which are less frequently used on a day-to-day basis, but are essential to the effective operation of the system. To gain confidence and a clear understanding of the databases, Appendix 1 offers an explanation to the ways and means of moving around the database.

This chapter examines :

- Editor Token Database
- Time Profile Database
- Access Levels Reference Section
- Door Descriptors Database
- Setting The System Clock.

4 .1. Editor Database

Command = 1

The editor database contains details relating to standard tokens that are assigned special levels of access to the system - only editor tokens can carry out the programming functions descibed in the manual. The master token must be used in the entry procedure to assign any editor tokens to the system. An editor token can also be entered into the Personnel Database.

The amount of editing 'power' that a given editor token possess depends on the Editor Level assigned. The level is determined by adding the values of the editing functions.

Editing Functions	Value
Cancel Alarms only	0
Print	1
.ock / unlock doors	2
Edit	4
Door descriptors	8
Time profiles	16
Set clock	32
Void token	64
Add token	128

E.g. an editor token to only carry out the functions described in the previous chapter.

Add = 128
Edit = 4
Void = 64
Print = 1
the editor token would have a total value of 197
A token with *all editing functions* has a value of 255.
The only program that cannot be carried out with an editor token is to add or edit other editor tokens.

	EnC	*EnL*	*EnP*
Editor Number	Editor Code	Editor Value	Editor Password
1	0025D02A	197	ALICE
2	7895E89F	0	G15
3	1097F6B8	24	
4	5107A354	255	HP
5	3684C3D1	128	SCL
6	00684E35	1	

n = editor number 1 - 6

Six editor tokens plus the master token can be kept in the system at one time.

The following table identifies the 6 editor tokens with editor codes, values and passwords - (upto 12 characters - optional).

It is advisable to keep a record of editor tokens assigned to the system for reference.

The table shows the the programming prompts that you will see on the display i.e. EnC, EnL and EnP. The n represents the number 1 to 6 depending on which editor token is being programmed.

eg. from the table, E3L (Editor token 3, editor level) = 24 (which represents editing function to change the door database and time profile database).

NOTE
At certain points this program the editor program will require you to press the ENT key followed by the + key to move the program on to the next stage.

STAGE	PROMPT	KEYBOARD ENTRY
1.		Entry Procedure. USE MASTER TOKEN
2.	CMD	I
3.	EOC	(display the master token code)
4.	EOP	(display the master token password)
5.	E1C	Present token to reader, code appears of display.
6.	E1L	Type in Editor Value
7.	E1P	Type in password

You can see from the programming procedure that the master token details are displayed, it is possible to assign a different master token at this stage.
ESC will stop the program.

It is possible to use the arrow keys, to move between different editor token data fields.

4 .2. Time Profile Database

Command = T

The time profile database provides data for use with the personnel and door databases. The time profiles are used to set token access times, or door lock/unlock times.
Each of the 12 Time Profiles may consist of upto 3 separate time periods, each with its own start and stop-

times and 'Days of the week' allocation. The time periods are continuous, 24 hour clock time. NB. midnight is defined as 00-00, not 24-00.

Time Profiles can be described in the following examples:

Time Profile 1 provides access from 8am-5pm Monday, Tuesday,Thursday,Friday and 8am-1pm Wednesday and Saturday.
(Day Code Mon,Tues,Thur,Fri = 1+2+8+16 = 27 and Wed,Sat = 4+32 = 36 - see explanation of day codes on following page) .

Time Profile 2 is for a cleaner requiring access in the morning Mondays and Wednesday and in the evenings Tuesdays and Fridays.
(Day Codes Monday and Wednesday = 5
Tuesday and Friday = 18)

Time Profile 3 for day workers needing to gain access from 8.30 to 6.00 at night Mondays to Fridays.
(Day code Monday to Friday = 31)

Time Profile 4. for night workers to obtain access from 9.00pm to 7.00 am. Mon to Fri.(Day Code = 31)

Time Profile No.	TnS on off	TnA Start 1	TnB Stop1	TnC Day 1	TnD Start 2	TnE Stop 2	TnF Day 2	TnG Start 3	TnH Stop 3	TnJ Day 3
1	1	08-00	17-00	27	08-00	13-00	36	00-00	00-00	000
2	1	6-30	8-00	5	18-00	21-00	18	00-00	00-00	000
3	1	8-30	18-00	31	00-00	00-00	000	00-00	00-00	000
4	1	21-00	23-59	31	00-00	07-00	31	00-00	00-00	000
5	1	09-30	17-30	31	00-00	00-00	000	00-00	00-00	000
6	0	00-00	00-00	000	00-00	00-00	000	00-00	00-00	000
7	0	00-00	00-00	000	00-00	00-00	000	00-00	00-00	000
8	0	00-00	00-00	000	00-00	00-00	000	00-00	00-00	000
9	0	00-00	00-00	000	00-00	00-00	000	00-00	00-00	000
A	0	00-00	00-00	000	00-00	00-00	000	00-00	00-00	000
B	0	00-00	00-00	000	00-00	00-00	000	00-00	00-00	000
C	0	00-00	00-00	000	00-00	00-00	000	00-00	00-00	000

Time profile chart.

Headings indicate the prompt displayed on the PAC 2000 display.

n = time profile number 1-C

eg. T2C represents time profile 2 Day

Note: as the time profile crosses over midnight, two time groups are required .

Time Profile 5 is for reception door which is unlocked from 9.30am to 5.30pm.

These groups require different time profiles to enable access when required without compromising security to the site.

The time profile database can be pictured as a table, using the previous examples the table can be filled in::

Explanation:
Each time profile consists of 3 groups of start, stop and days of the week.
(n=time profile number 1-C)
TnS = Time Profile status (time profile on or off 1 or 0)

TnA to TnJ = Start, Stop times and Day code e.g. T2F is the day code for time profile 2 = 18 (2+ 16 Tuesday and Friday)

Day Codes:
Each day is represented by values, depending on the number of days that are required in the time profile.:

Day of the Week	Value
Monday	1
Tuesday	2
Wednesday	4
Thursday	8
Friday	16
Saturday	32
Sunday	64

eg. Day code for Monday to Friday inclusive, (1+ 2+ 4+ 8+ 16) = 31

4 .2. 1. Programming Time Profiles.

To program the database similar to the description. Remember to press the ENT and + keys to save settings and move onto the next stage. NB. the hours and minutes are seperated by a *hyphen.*

STAGE	PROMPT	KEYBOARD ENTRY
1.		Entry Procedure.
2.	CMD	T
3..	T1S	1
4.	T1A	00-00
5.	T1B	00-00
6.	T1C	127
7.	T1D	use arrow keys to find T2S prompt
8.	T2S	1
9.	T2A	6.00

The program example shows the program settings for time profile 1 (access for emergency personnel), to move to the start of the next time profile use the arrow keys to move between the data fields until you obtain the prompt T2S at which point you can commence programming for time profile 2.

4 .3. Access Level Reference Section

ENTER	DOOR NUMBERS 1	2	3	4	Access to Doors
0					Denied
1	•	•	•	•	1,2,3,4
2		•	•	•	2,3,4
3	•		•	•	1, ,3,4
4			•	•	3,4
5	•	•		•	1,2, ,4
6		•		•	2, 4
7	•			•	1, 4
8				•	4
9	•	•	•		1,2,3
A		•	•		2,3
B	•		•		1, 3
C			•		3
D	•	•			1,2
E		•			2
F	•				1

There are 16 levels of access allowed, (this is the total combinations possible to the 4 doors) the level at which a token user is set in the personnel database, will determine through which doors the token can gain access.

The selection of an access level relates to the personnel database.

Access Levels are represented by values 0 to F:

The door numbers relate to reader positions. The programmer must be able to identify the position of the readers to be able to successfully program the access level into the personnel database.

e.g. A token requiring access to doors 1,3 and 4 would have an Access Level of 3

4 .4. The Door Descriptor Database

Each door in a system can be assigned 5 parameters. In the following descriptions, the bracketed letters show the prompt that is provided at the PAC 2000 display, n represents the door number (1 to 4). Only a brief reference is made to the lock mode setting which is implemented by the installation engineer, further details can be found in the commisioning section of the Installation Manual

Door release time (DnL)- Number of seconds that the electric lock is open

Door open time(DnO) - Number of seconds door allowed to be left open, this is used for door monitoring (to detect a door jammed open).

Door Time Profile(DnP) - the period of time a door is unlocked in a day, for further information see Time Profiles.

Lock mode(LnP) - lock settings required by the system set by the installation engineer.

Door name (DnN)- for identification. e.g. FRONT DOOR

Programming the Door Database

STAGE	PROMPT	KEYBOARD ENTRY
1.		Entry Procedure.
2.	CMD	D
3.	D1L	6 (lock release time in secs)
4.	D1O	6 (Door open time in secs)
5.	D1P	5 (Door time profile)
6.	L1P	2 (Lock mode number - set by engineer do not alter)
7.	D1N	FRONT DOOR
8.	D2L	6
9.	D2O	6
10.	D2P	5
11.	L2P	0
12.	D2N	BACK DOOR

4 .5. Lock Control

. is possible to lock or unlock doors directly from the controller. NB. Only the Unlock command can cancel the lock command and visa versa.

4 .5. 1. To Unlock a door

Command = U

Program to unlock door 2.

STAGE	PROMPT	KEYBOARD ENTRY
1.		Entry Procedure
2.	CMD	U2

4 .5. 2. To Lock a Door

Command = L

Program to lock door 2

STAGE	PROMPT	KEYBOARD ENTRY
1.		Entry Procedure
2.	CMD	L2

4 .6. Setting The System Clock

Command = C

The 'real time' and date will need to be changed between GMT and BST.
The date is entered when you see the DAT prompt, using the hyphens to separate the day, month, and year. The day of the week is represented by pressing the SPC key and typing the first 2 letters of the day. Tuesday 14th February 1989 is shown as

DAT 14-02-89 TU

When entering the time, the 24 hour clock is used, the hyphen is used to separate the hours and minutes. e.g. 17-30

E.g. Programming of the clock for Wednesday 15th March 1989 at 16.45 :

Remember to press ENT and + key after each stage.

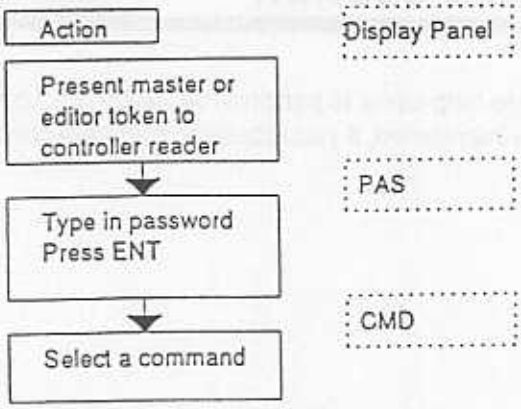
STAGE	PROMPT	KEYBOARD ENTRY
1.		Entry Procedure
2.	CMD	C
3.	DAT 15-03-89 WE	Use left and right arrow keys to move cursor and enter date and day.
4.	TIM 16-45	Type hours and minutes

ESC will end the program.

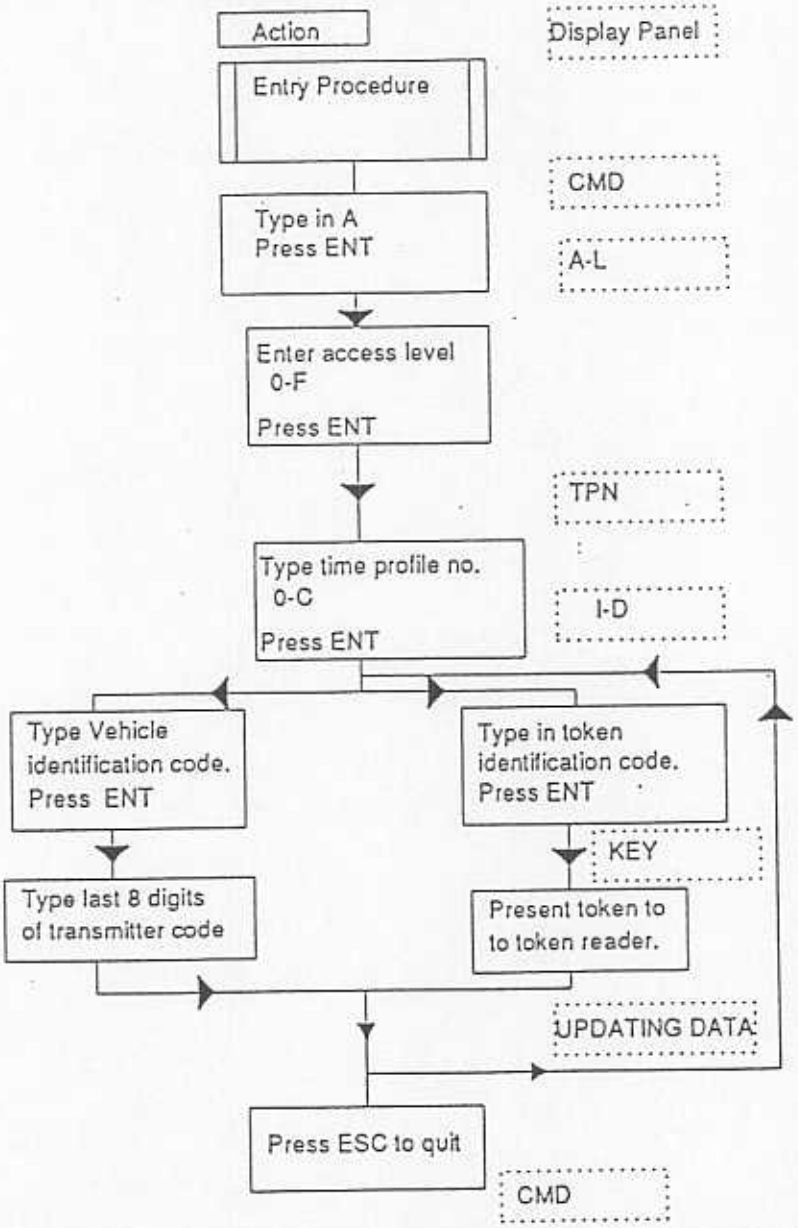
5 . Quick Reference Section

The following charts are designed to help users to perform PAC 2000 functions easily and quickly. Each chart refers to a section previously mentioned, if you require further help check back to the relevant section.

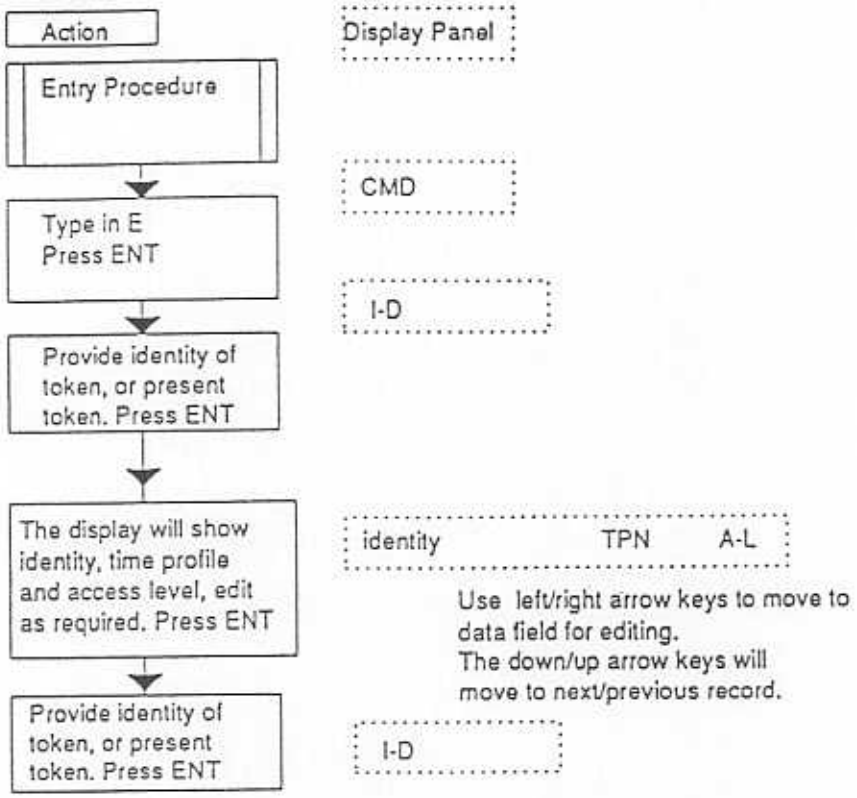
Entry Procedure



Add transmitters and/or Tokens

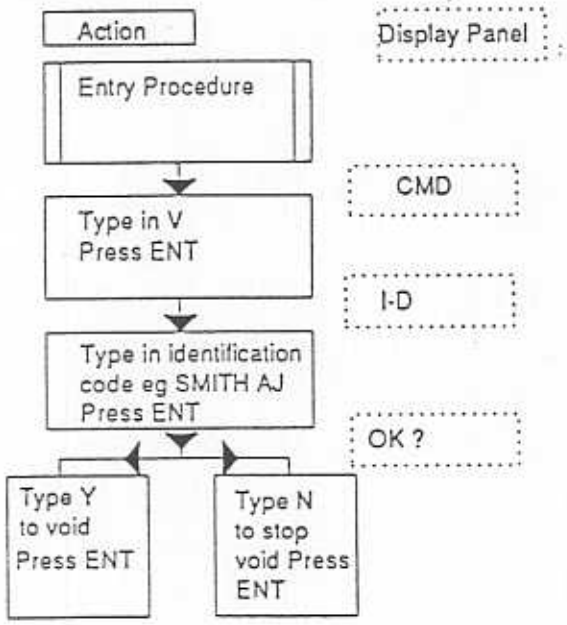


Edit database



This procedure can be repeated as often as required.
Press ESC to finish and return to command mode.

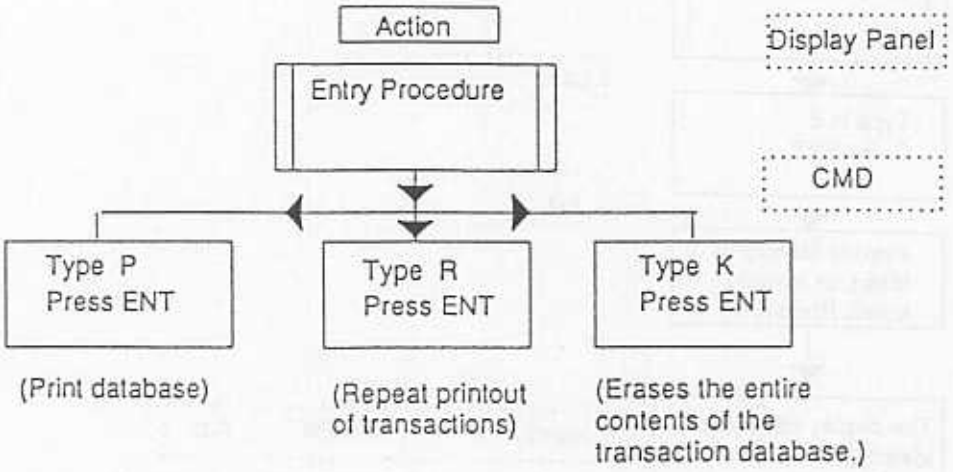
Void Token



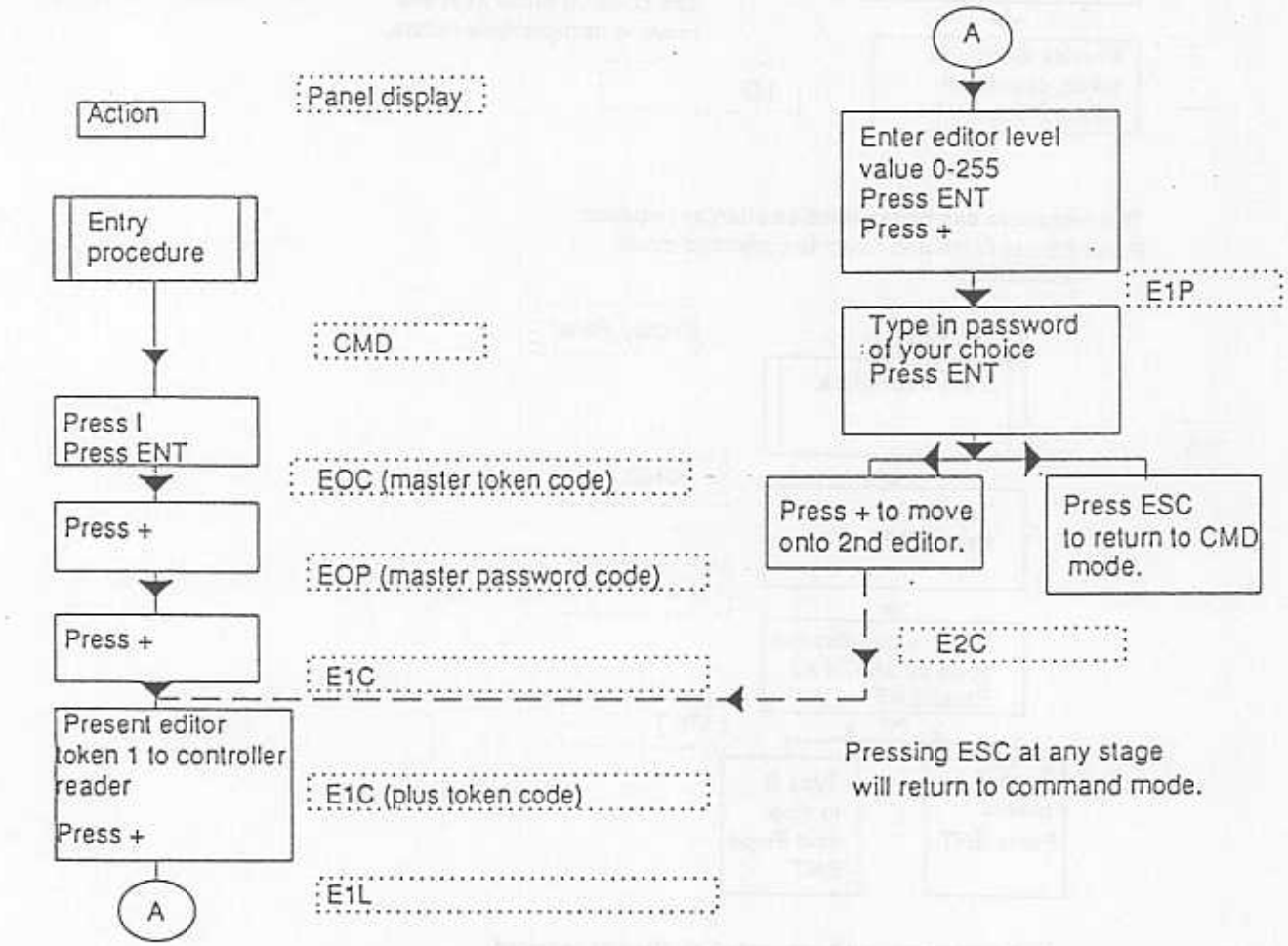
This procedure can be repeated as often as required.

Press ESC to finish and return to command mode.

Print Databases and Transaction File Commands

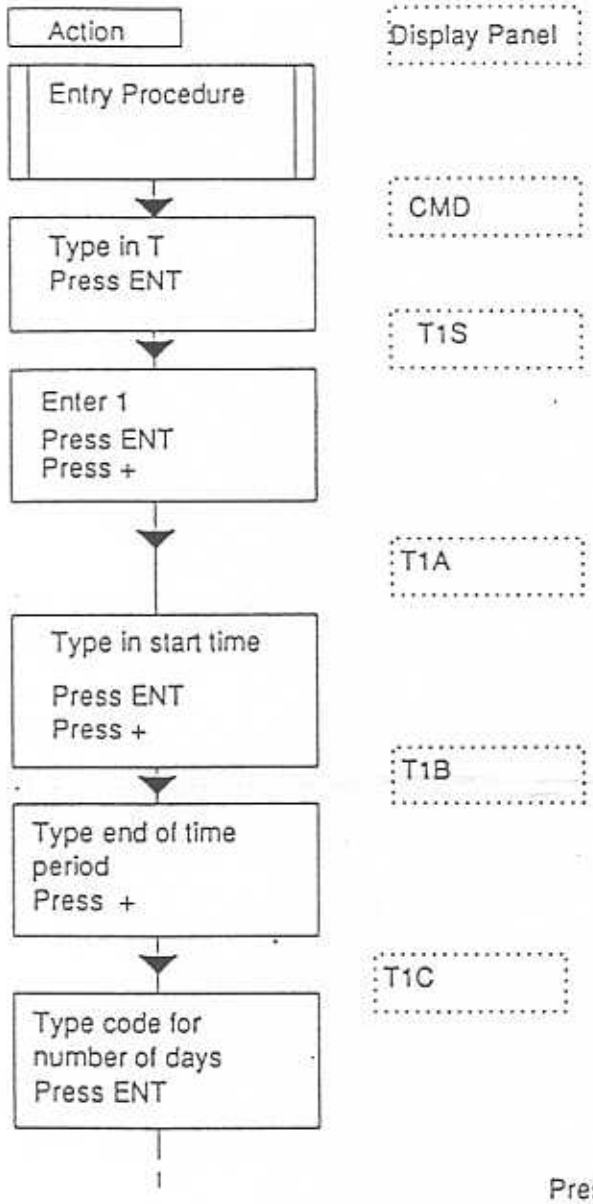


Install Editor Tokens Procedure



Time Profile

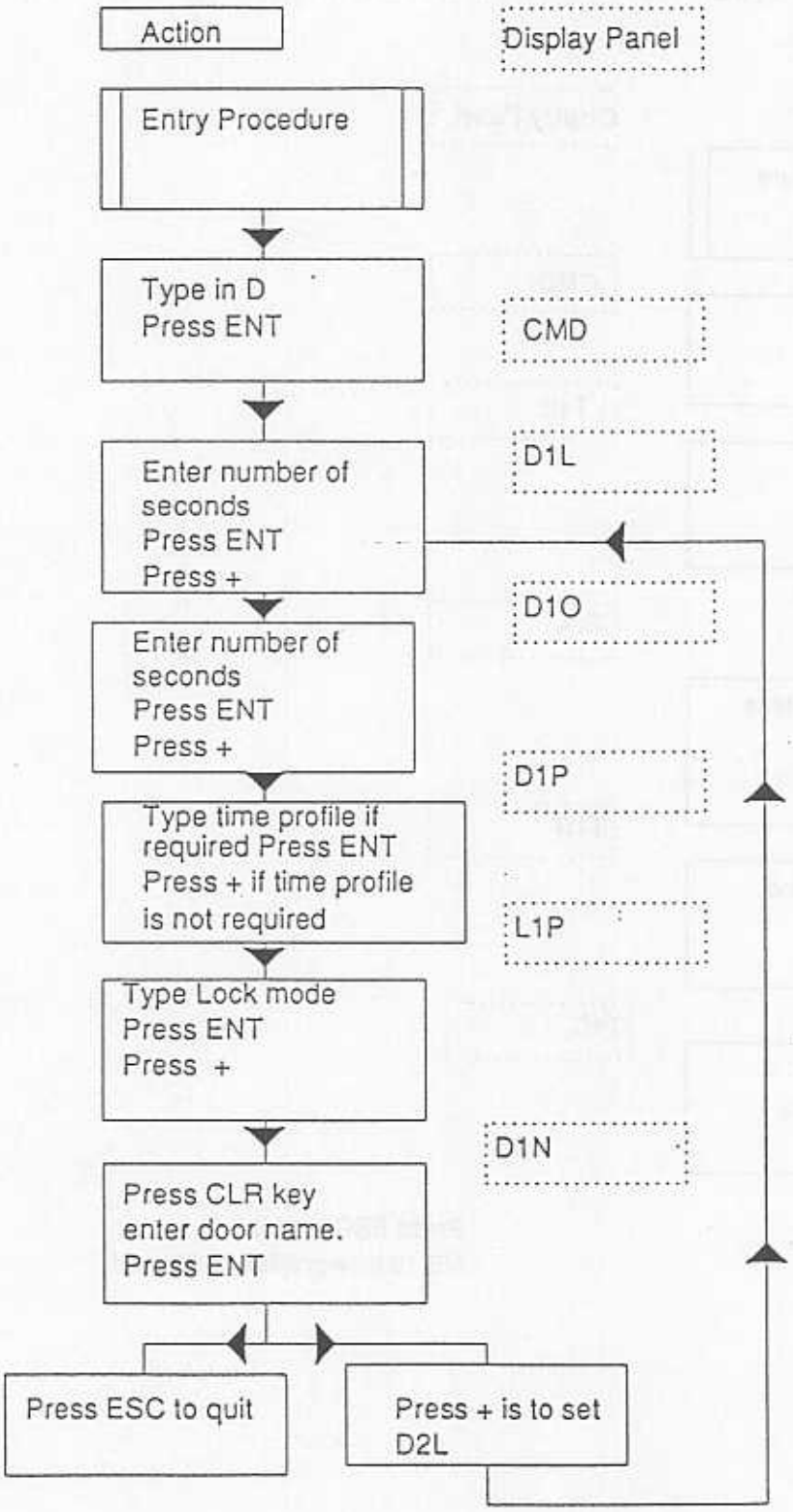
For each time profile, there are : 3 Start Times, 3 Stop Times, 3 Day Periods



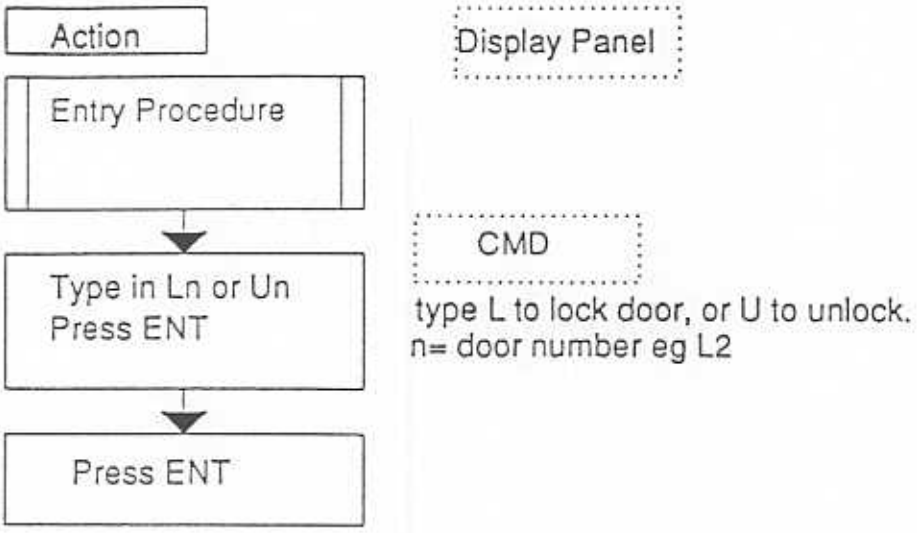
Press ESC to quit

NB 12 time profiles can be set.

Setting Door and Lock Descriptors

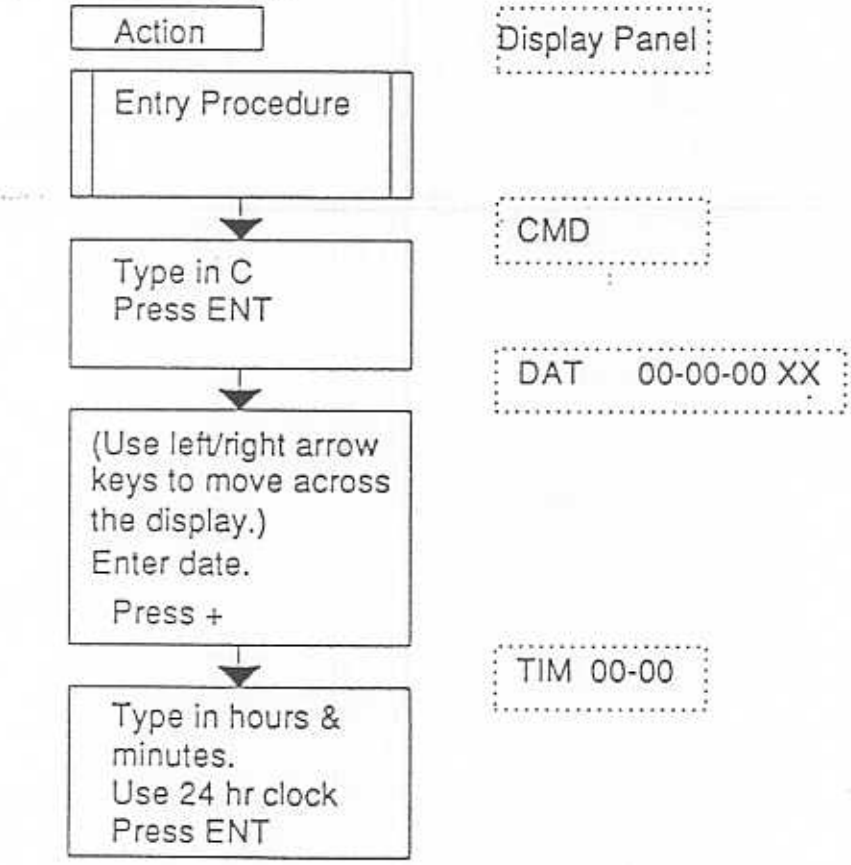


Door Lock/Unlock



Press ESC to finish and return to command mode.

Clock - set / modify



Press ESC to quit

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6. PAC 2000A

The following developments have been incorporated into the current PAC 2000A Controller.

- Timed Passback Option.
- Data Protection Facilities.
- Improved alarm display.
- Extention of lock mode facility to allow exit out of hours.
- PC Editing facility.

These facilities are available in Software Release SR621 onwards.

6 .1. The Installer program.

When the installer program is invoked, (either by typing INSTALLER or pressing the reset button twice).

The program prompts the user for information relating to the basic setup.

The procedure is as follows

prompt	response
CMD	INSTALLER
12?	Y for 12 character token ID, N for 4 digit ID
PBC	000000 see below for further details
PBT	timed passback type number of minutes required (30 mins max)
EOC	Master token code.
EOP	Master password.

The PAC 2000 Installer manual provides a comprehensive description of these features.

The intention here, is to descibe the new passback code (PBC) and the timed passback control (PBT).

6 .1. 1. Passback code.

From the PAC 2000 installer manual, you will have gathered the principles of passback control.
Once in the installer program, at the PBC prompt, you will see:

PBC 00000

the 5 digits may be set to 0 or 1, a function is assigned to each of the digits:-

Bit1	Bit 2	Bit 3	Bit4	Bit5
0	0	0	0	0

Bit 1 - Tailgate trapping
Bit 2 - antipassback reader 2&3
Bit 3 - antipassback Reader 1&4
Bit 4 - lock control doors 2 and 3 at lock 2
Bit 5 - lock control 1 and 4 at lock 1
A function is enabled if the bit is set to 1.

Tailgating is a new feature wich will prevent exit to a person if their token has not been registered at an entry reader. NOTE tailgating is not recommended for use with timed passback.

eg. PBC 01010

this allows passback control between readers 2 and 3, with lock control on lock 2.

6 .1. 2. Timed Antipassback

PBT
This will remove record of entry after a specified period of time. Thus allowing re-entry of a user regardless of whether the user has been logged as exiting the area after a specified length of time.
Thus at the PBT prompt, a value between 2 to 30 (number of minutes) may be entered, followed by the ENT key.

The PAC2000A has an additional set of records to that of the basic PAC2000 controller database. This new set of records contains all the alarm monitoring set-up data required to command and monitor alarm modules.

6 .2. Accessing the Alarm Module Records

Data for each alarm module is accessed by typing "M" followed by the number of the reader/channel and then pressing the [ENT] key. For example, to edit data for the alarm module attached to reader channel # 1:-

i) get into the editor by presenting a valid editor token and entering the password.

Display = [CMD _]

ii) press "M" followed by "1" and then press the [ENT] key.

Display = [CMD M1_] followed by:-

[A1S _]

6 .3. The Alarm Module Record

Having accessed an alarm module record by using the "M" command you can then use the [+] key to move forward from one item of data to the next. You will notice that there are twenty-four elements of data in the record. The first three fields refer to input 1 of the alarm module, the next three fields refer to input 2 of the alarm module, etc.. You can use the up and down arrow keys to move from the data of one alarm input to the next instantly.

6 .4. Set-up Data for an Alarm Input

We shall take as our example the first three fields in any alarm module record, i.e. the part of the record that refers to the modules' first alarm input.

6 .4. 1. A1S - Alarm Switch

A "0" or a "1" may be entered here. This field is included to give the user manual control of response to alarm activity at the alarm module input. Placing a "0" in this field will effectively cause any activity on the alarm input to be ignored, i.e. Alarm Isolated. Placing a "1" in this field re-enables responses to activity on the alarm input, i.e. removing Manual Alarm Isolation.

This feature is useful for temporarily removing alarm monitoring from a zone while essential maintenance work is carried out.

6 .4. 2. A1R - Alarm Response

This field allows the user to specify what happens to the relays on the alarm module if the alarm input should become active. This field is made up of eight bits of information which are explained below:-

```
                4  3  2  1     4  3  2  1
[  A1R          0  0  0  0     0  0  0  0  ]

                - Latched -     - Momentary -
                - Relay Data -  - Relay Data -
```

As can be seen above, the field is split into two sets of four bits. The right hand set defines the momentary action of the relays, and the second set specifies the latched action of the relays. Each bit of the two sets refers to one relay of the alarm module. For example:-

a) to make relay 1 latch ON if an alarm occurs at the input enter - 00010000

b) to make relays 2 & 3 latch ON enter - 01100000

) to make relay 1 pulse for one second enter - 00000001

d) to make all relays pulse for one second enter - 00001111

e) to make relay 4 pulse and relay 3 latch ON enter the following - 01001000

6 .4. 3. A1T - Alarm Time Profile

One can assign any of the twelve time profiles the PAC2000A offers to any of the alarm inputs of the alarm module by entering a number from 1 to 12. When no time period is active, the alarm input is monitored. As soon as a time period becomes active, the alarm input is no longer monitored.

This feature allows the user to switch on alarm monitoring in selected zones during certain time periods.

e.g. A1T 01

6 .5. Special Key Functions and Acceptance of Alarms

When the status display is showing, three keys are active on the front panel. The up and down arrow keys allow the user to display information on the reader channel chosen. The [+] key is used when accepting the alarms on a reader channel.

If an alarm occurs on a reader channel, the PAC2000A will lock its status display onto that channel and flash a letter "A" for the alarm input that has been triggered. To accept the alarm(s) on the currently displayed channel press the [+] key and then present a valid editor token to the front panel reader within five seconds.

After presenting the editor token you may find the system is prompting you for a password. If this is the case then press the [ESC] key to escape the condition.

6 .5. 1. Description of the Alarm Monitoring Transaction Reports

There are seven transaction reports associated with the alarm monitoring outfit of the PAC2000A. Each transaction report refers to a "Zone" number to identify the alarm input. The zone number goes from 1 to 32. The first eight alarm inputs (reader channel 1) have zone numbers 1 to 8 respectively, the next eight (reader channel 2) have zone numbers 9 to 16 respectively, etc..

The transaction reports given are shown below:-

"ALARM POINT TRIGGERED" - an un-isolated alarm circuit has been tripped at the mentioned zone.

"ALARM POINT ACCEPT" - a triggered alarm input report has been accepted by the user.

"ALARM POINT CLEAR" - a previously tripped alarm circuit has now been reset AND the afore mentioned alarm accepted by the user.

"OPERATOR ISOLATED ALARM" - the user has switched off monitoring of an alarm input by manually entering a "0" into the appropriate "alarm switch" field of the alarm module record.

"OPERATOR ENABLE ALARM" - the user has switched on monitoring of an alarm input by manually entering a "1" into the appropriate "alarm switch" field of the alarm module record. Note that this report will NOT be given if the alarm input is already Time Isolated via the use of a time profile.

"ALARM TIME ENABLED" - monitoring of an alarm input has become active due to an alarm time profile becoming inactive. Note this report will not be produced if the user already has the alarm input manually isolated.

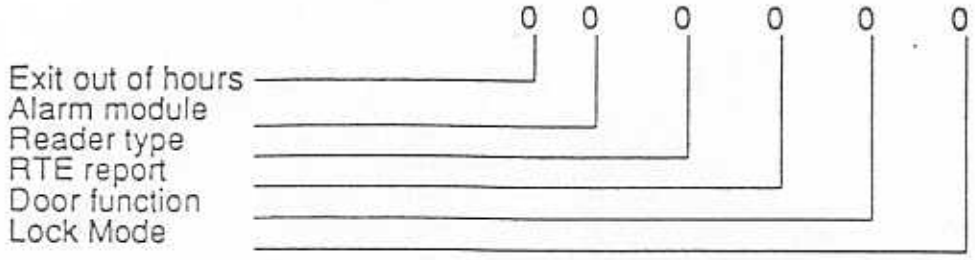
"ALARM TIME ISOLATED" - monitoring of an alarm input has ceased due to an alarm time profile becoming active.

6 .5. 2. PAC 2000A lock mode settings

When setting up the door descriptors, the procedure is identical to the standard PAC 2000, with the exception of the lock modes.

The lock mode value is defined by setting each of the 5 digits to one or zero at the LnP prompt at the display (n= channel 1 to 4). Each digit represents a particular function, these are as follows:

PAC 2000A Lock Mode Settings:



Description	Set (1)	Not Set (0)
Lock mode	Power to lock	Power to release.
Door contact function	Free exit & RTE emergency override	Door monitoring
RTE	Entry Authorised	Request to exit
Reader type	AVR	PAC
Alarm Module	On	Off
Exit out of hours	Enabled	Prevented,

6 .5. 3. Exit Out of Hours

A token holder will be allowed to leave a building, even if the token is outside the operable time profile. (previously the user would have to be let out of the building by a token holder with a valid time profile) eg. a worker staying until 6 o'clock may leave the building at a door with exit out of hours enabled although the worker's time profile stops at 5 o'clock.

6 .5. 4. Exit Data Protection Facility. TR Command

Transaction data may now be classified into 2 sections.
1. Site transactions - these reports do not refer to token user IDs. eg. DOOR LEFT OPEN.
2. Personal transactions report the ID as a result of the transaction, such as AUTHORISED ACCESS or ACCESS DENIED.
Control of transactions recorded is determined by using the TR command.
Description of programming prompts.

CMD TR invoke data protection program.
REC allow(1)/prevent(0) recording of personal transaction
POS allows(1)/prevent(0) positive transaction reports only .
RTP (1 to C) limit reporting to a specific time profile (see time profile section).
DEX exclude doors from transaction reports. Eg. 1000 prevents transaction reports at reader 1.

Example of programming procedure:

rember to press ENT key after each entry to save entry, if the next prompt does not appear, press the '+ ' key.

CMD TR
REC 1
POS 0
RTP 0
DEX 1011

This setup allows personal transactions to be reported (REC 1), as long as they are access denied transac-

tions (POS 0). No time profile has been assigned to the reporting period (RTP 0). No reports will be provided with regards to doors 1,3 and 4.

6 .5. 5. Personal Printouts. RN Command

Transactions relating to a specific token may be reprinted.

Procedure from PAC2000A Editor:

CMD RN
I-D type in I-D or present token to controller reader.

On pressing the enter key, the printer prints out a heading, on exiting the PAC 2000A editor the transaction field is searched for all transactions relating the the specific token I-D and printed out. If transactions cannot be found, the report will be blank.

6 .5. 6. Reprint command R

To facilitate the data protection facilities the reprint function will report transactions limited by the data protection setup.

6 .5. 7. DUMP command

Allows a copy of the database to be downloaded to another controller. The controller receiving the data must invoke the PC program to accept the data.
The dump command will add data to an already existing database rather than overwriting the database.

Connection between the two PAC 2000A is between the RS232 connectors the cable should be wired as shown in "Connections to PC"

6 .5. 8. Controller Alarm display:

DOOR N X YYYYYYYY

N = door number (1 to 4)

X = Door status
A = (flashing)Unackowledged alarm condition such as unauthorised access.
O = no alarm - all clear and a valid transaction currently occuring
A = (steady) alarm condition accepted by the operator, but still alarm condition.

Y = Alarm input states, describes the alarm state of each of the 8 inputs at the alarm module.
A = (flashing) Unacknoledged alarm condition.
C = no alarm - all clear
I = alarm isolated either by time profile or operator override.
A = (steady) alarm condition acknoledged by the editor, but still alarm condition.

6 .6. PAC 2000A PC Editor.

Cmd PC
This command puts the controller into tha PC Mode allowing the operator to edit token holder information at an IBM compatible PC rather than at the controller, which then may be transfered to the controller via the RS232 output.

6 .6. 1. Connections to PC

Connection between the PAC 2000A and the PC is by RS232 connection, the cable should be wired as follows:

Pin No at PC		2000A connector
2	Tx ----------	Rx
5	CTS----------	DTR
3	Rx ----------	Tx
20	DTR----------	CTS
	0V ----------	0V

6 .6. 2. Software Installation

1) Insert the PCeditor installation disk into drive A,

and type 'A:INSTALPC' at the DOS prompt 'C:'.

2) The computer will copy several files onto the hard disk before executing the PCeditor.

The will display the following menu:

(1) edit menu

(2) create empty file

(3) select old file for editing

(4) display data files

(5) download data file to PAC 2000A

(9)quit

Please enter your selection . .

6 .6. 3. Menu Options

1. Edit file - allows you to change data held within a particular database.

2. Create empty file - sets up a new database, ready to receive data.

3. select old file for editing - loads a previously saved database into the editor.

4. display data files - lists all database files on disc.

5. download data file to a PAC 2000A - sends the database to a PAC 2000A controller.

9. quit - exits the user from the pceditor to the operating system.

6 .6. 4. Key Functions and Fields:

Cursor Keys

1) Arrow Keys
Up & Down move from one record to the next within the same field.
Left & Right move within the field of the current record.

2) Home
This key positions the cursor on record 1 with the cursor at the beginning of the name field.

3) Page Keys
These keys move one page (10 records) at a time in the specified direction.

4) Tab
Tab & Shift Tab move forward or backwards across fields within the current record.

Function Keys

1) F1 - Help
This key displays the help screen which briefly describes the function key uses.

2) F2 - Select Record
This key may be used to find a record number and leave the records sorted in numeric order.
Alternatively, it may be used to find a particular name, and leave the records sorted alphabetically.

F2 followed by '1' will sort the records numerically and leave you at the first record.
F2 followed by 'a' will sort the records alphabetically and leave you at the first named record.
F2 followed by 'z' will sort the records alphabetically and leave you at the last named record.

3) F3 - Add

This key allows you to assign a token code to the current named record.
The Status line will show ADD.
It will prompt you for the code at the bottom of the screen where the template had been.
Hex digits (0..9 A..F) only are allowed if the token code is typed in.
Duplicate token codes will not be accepted.
ESC aborts the input without storing the code.
ENTER stores the code and displays a 'T' next to the record.
After add mode is finished the Template and the status line will be retored.

4) Shift F3 - Block Add
Similar to Add except that Add mode is left when ESC is pressed or there are no more named records wit out tokens.
The records are sorted into alphanumeric order and tokens assigned in order.

5) F4 - Void
This allows you to void the current named record.

The status line will show VOID and you are asked for confirmation.
ESC or 'N' do not delete the record.
'Y' will delete the record.
After this function the Template and status line are restored.

6) F5 - Field to Template
This key copies the current field contents to the corresponding position in the template.

7) Shift F5 - Clear Record Field
This will store the default value in the current field, but will not erase the name field (must use F4-void for this).

8) Alt F5 - Record to Template
This function copies the current record into the template.

9) F6 - Template to Field
If the template field is not blank, it will be copied to the current field.
As duplicate names are not allowed, the original name must be edited before this field can be copied.

10) Alt F6 - Template to Record
This copies the whole template to the current record with the above priviso on the Name field.

11) F7 - Toggle Alphanumeric & Numeric ID
This determines whether the Key data sent to the PAC2000A will be in Alphanumeric or Numeric (Record no.) format.
The status line will display whichever format is chosen.
The default is Alphanumeric.

12) F8 - Send Single
This transmits the current record to the PAC2000A, if it has been assigned a token.
The data is sent in the currently selected format.
The Template line shows the result ot the transmission.
The Status line shows SEND.
You are prompted to press a key to confirm that you have seen the result before you are returned to Modify mode.

13) Shift F8 - Send Single with Increment
above, except that the cursor moves on to the next record after the current one has been sent.
This function allows you to manually sent a block of records.

14) F9 - Block Send
This prompts you for the first record, how many to send and whether a report is required.
The status line shows BLOCK SEND.
The records are sent in the selected format.
The report shows each record and the result as it is sent.
Without a report, only the record number is displayed.
As time is allowed for you to read the report, block send without a report is very much faster.

15) F10 or ESC - Quit
This returns you to the main menu.
You are first asked whether you wish to save your editing. 'Y' will save the GLOBAL files which you have been editing to the current file name.
If no file name had been specified, then you are asked to type it in before the GLOBAL files are copied.
When Editing is selected, the specified file name is displayed on the status line.

Fields

1) Name Field
This is 12 characters wide an should accept all characters in the ASCII range 32 to 126.
Names cannot begin with a space and should show in red as they are typed in.
When ENTER is pressed the name will turn white and be stored in the record.
Duplicate names are not allowed.
Moving off the field before enter is pressed should leave the field as it was.
Entered names can be edited by typing over the original name and pressing enter.

2) Access Level
This is a 4-digit binary number and should only accept 1 or 0.
Several records may have the same Access Level.

3) Time Profile
This is a decimal number in the range 0 to 12.
Only 0 to 12 will be accepted. Entering a number greater than 12 will result in 12 being stored.

6 .6. 5. Creating a new database

1. select option 2, create empty file.

2. at the prompt enter the name you wish to give the database, (this must be no more than 7 characters long) on pressing return, the program will inform you that it is setting up files for use.

You will then be asked if you want to replace this as the current file for editing Enter Y or N. As this is a new file you need to type Y.
Press any key to continue.
You have now created a file ready to receive data.

3. To enter new data or change existing data in a file, select Option 1 at the main menu (Edit File):
If this is a new file, the display will show an empty database with file name that you enteredin stage 2.

1. Select 'Edit File'.
The display will show the editing screen.
The top line will show the title together with the time and date which should change so as to keep time.
The status line should show: GLOBAL MODIFY ALPHANUMERIC
There will be 4000 records available each consisting of a name field, an access level, and a time profile.

A template at the bottom should span the fields.

6 .6. 6. Adding Tokens

a) Put the PAC2000A into PC mode.
The display will show 'Present Token'.
b) Check that Single Add (F3) and Block Add (Alt F3) both function as before except that you do not type in the token code, but instead you present the relevant token to the front panel of the PAC2000A.

6 .6. 7. Down Loading Records

a) Make a database print out to confirm that the PAC2000A has no tokens assigned.

b) Check that Send Single (F8), Send with increment (Shift F8) and Block Send (F9) give the report 'Sent OK' and that a subsequent database printout shows that the transmitted records are now in the PAC2000A.

The names should be identical.

The Access Level is shown in binary on the PCEditor and reads Door 1 to 4 from left to right with a 1 allowing access at that door. This is converted on the PAC2000A to correspond with the door information (0-F). Also the time profile is decimal on the PCEditor and hex on the PAC2000A, but again will be converted on transfer.

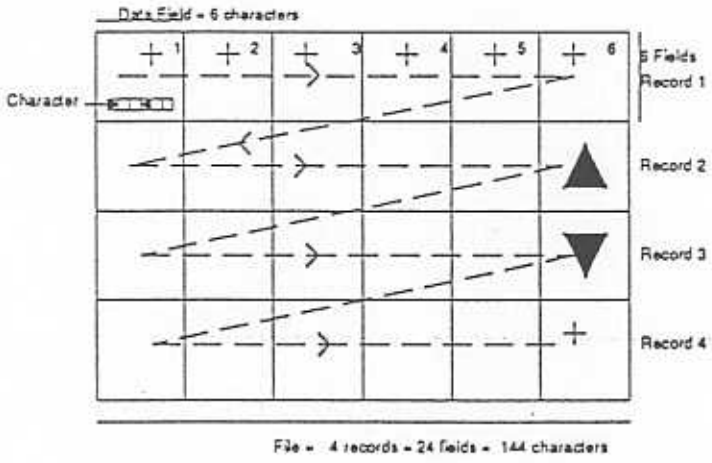
Note. To change controller from Alphanumeric to Numeric Token Types and vise versa reinitialise the PAC2000A .

A . APPENDIX

A .1. Moving about a Database

A database (or file) can be regarded as a table of rows and columns. One row constitutes a record each block within a row is a data field. The diagram shows a simple database structure.

The PAC 2000 allows the user to use the left/right arrow keys to move across the characters within a data field.
The plus (+) key allows movement between data fields, which effectively takes you across a record. You will find that pressing the + key will eventually take you onto the next record as indicated by the dached line on the diagram.
The up and down arrow keys will move between records to the data field in the corresponding position above or below its present place eg. If present position is Field 2 of record 3, using the up arrow key will move you to field 2 of record 2.



Moving through a database:
The + key will move onto the next field (and eventually onto next record)
The left and right arrow keys will move across a data field
The up/down arrows will move to the equivalent field in the next or previous record

A .2. PAC 2000 - Use of Back-up Batteries

1. Only sealed lead acid batteries should be used for the back- up supply.

2.The maximum charging current available from the unit is 0.5A.

In applications requiring short recovery times of fully discharged batteries, it is recommended that an external charging source be utilised, directly across the battery terminals.

To work out the battery capacity required to maintain total system operation during a power failure, the following formula should be used.

A/HR = (1.5 + (0.2* Nr) + L1 + L2 + L3 + L4) *Nhrs

L1-4 are the consumption of the locks (Ln) and are defined as follows :

Power to release locks (fail secure) : Ln= ((IL* Nop Lt)/3600)

Power to lock locks (fail safe) : Ln = IL

Key : Nr = Number of readers
IL = Lock current at 12 volts
Nop = Number of operations
Lt = Lock time in seconds
Nhr = Number of hours of operation required.

Note that the capacity of most batteries is specified at a 10 hour rate; i.e. if the formula shows a requirement for 2 AHrs, a 20 AHr battery should be used.

A .3. PAC 2000 Packaging for Transportation.

Please ensure that:-

1. The CPU PCB is secured via the connector and M3 screw (top right).

2. The mains transformer is secured via the M6 screw (centre of the transformer).

3. The top cover is secured via the top bracket and finger screws (bottom) to the base plate.

Adequate packaging is used prior to further transportation (see Terms and Conditions of Sale)

A .4. Dip Switch Settings for Microline Printer.

Super Speed RS232-C Board Function Switches

Switch Bank 1

SW1	FUNCTION	SETTING
1	Odd/Even Parity	Off
2		On
3	Data Bits	On
4	Protocol	On
5	Test Select	On
6	Mode Select	On
7	Busy Line	On
8	Selection	On

Switch Bank 2

SW2	FUNCTION	SETTINGS FOR 4800 BAUD RATE
1 9	Baud Rate	On
2 10	Selection	Off
3 11		On
4 12	DSR Input Signal	Off
5 13	Buffer Threshold	Off
6	Busy Signal Timing	On
7		Off
8		Off

A .5. Printer Parameters

Epson MX / LX or Microline 102 compatible which must be able to accept at least one line (82 characters) of data after a busy condition is signalled to the PAC 2000.

8 Data Bits
2 Stop Bits
No Parity
4800 Baud Rate
Hardware Handshake - DTR, CTS

If any other printer is used other than those recommended by PAC International Ltd., contact the printer supplier for information on dip-switch settings in accordance with the above parameters.

A .6. Glossary

AccessLevel - access priorities.

Alphanumeric - term to describe letters and numbers together.

AVR - Automatic Vehicle Recognition

Character - any type of symbol used on a display or keypad.

Controller - unit that co-ordinates and monitors all process relating to the PAC 2000 operations.

Cursor - A flashing line indicating the current display position.

Data - General term for numbers and characters.

Database - Organised 'rows and columns' of data.

Field - a section of a database relating to a single aspect, e.g. identification code.

Flowchart - Description of a sequence of events in a diagramatic format.

PAC - Proximity Access Control

PIN - Personal Identification Number

Program - a specially written series of instructions designed to control the system and carry out particular functions, eg. control access, accept data or instructions from the user.

Real Time - current time.

Record - A collection of fields in a database, normally a complete 'row'

System - combination of controller, readers and tokens.

Time Profile - Allocated time and 'days of the week'

Transaction - an occurance or event affecting the system.