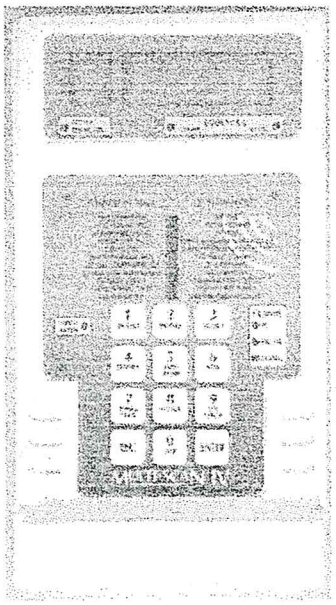
MULTI-SCAN IV



U S E R M A N U A L

impro
TECHNOLOGIES (PTY) Ltd

Multi-Scan IV User Manual
Issue : 7
Ref: MS4USR06
July 1997

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C O N T E N T S

This manual is part of a series of 3 manuals and should be read in conjuction with these manuals:

Multi-Scan IV Controller
Multi-Scan IV Single Channel Terminal
Multi-Scan IV Dual Channel Terminal

Introducing the Multi-Scan IV Access System

The Multi-Scan IV is designed around the latest "passive transponder" tag technology, and complements the range of Impro Technologies Access Control Systems.

The product was developed as a totally stand-alone, manually programmable access system, able to control up to four doors individually configured. Each door requires an access terminal to operate. Two types of terminals are available. Non anti-passback doors require only a "Single Channel Terminal" and full anti-pass back doors require a "Dual Channel Terminal". The system consists of :

- The Multi-Scan IV Controller
- 1 to 4 Multi-Scan IV Terminals (one per door)

Although the Dual & Single Channel Terminal have built-in readers, they will support optional remote readers as well as a barcode reader if requested. Dual Channel & Single Channel Terminals may be mixed in one system.

The Multi-Scan IV makes all the decisions on the access request at the various terminals, and keeps a transaction buffer history file of the past events.

The Multi-Scan IV has two main modes of operation:

- Run Mode
- Setup Mode
  - Program Tags Mode
  - System Setup Mode

The Multi-Scan IV normally operates in run mode, where it polls up to four remote terminals, controlling access for up to 2000 personnel individually through four independent doors. "Program Tags Mode" and "System Setup Mode" are programming and setup modes that require a master tag to be presented, or a password to be entered, before they can be used.

The start and end of 'Normal Working Hours' for each day of the week can be programmed into the Multi-Scan IV unit, for each door (up to 4 doors), or all doors together (door 0).

The Multi-Scan IV supports 4 levels of tags:

- Master Tags
- Privileged Tags
- Normal Tags
- Visitor Tags

Typical Installation

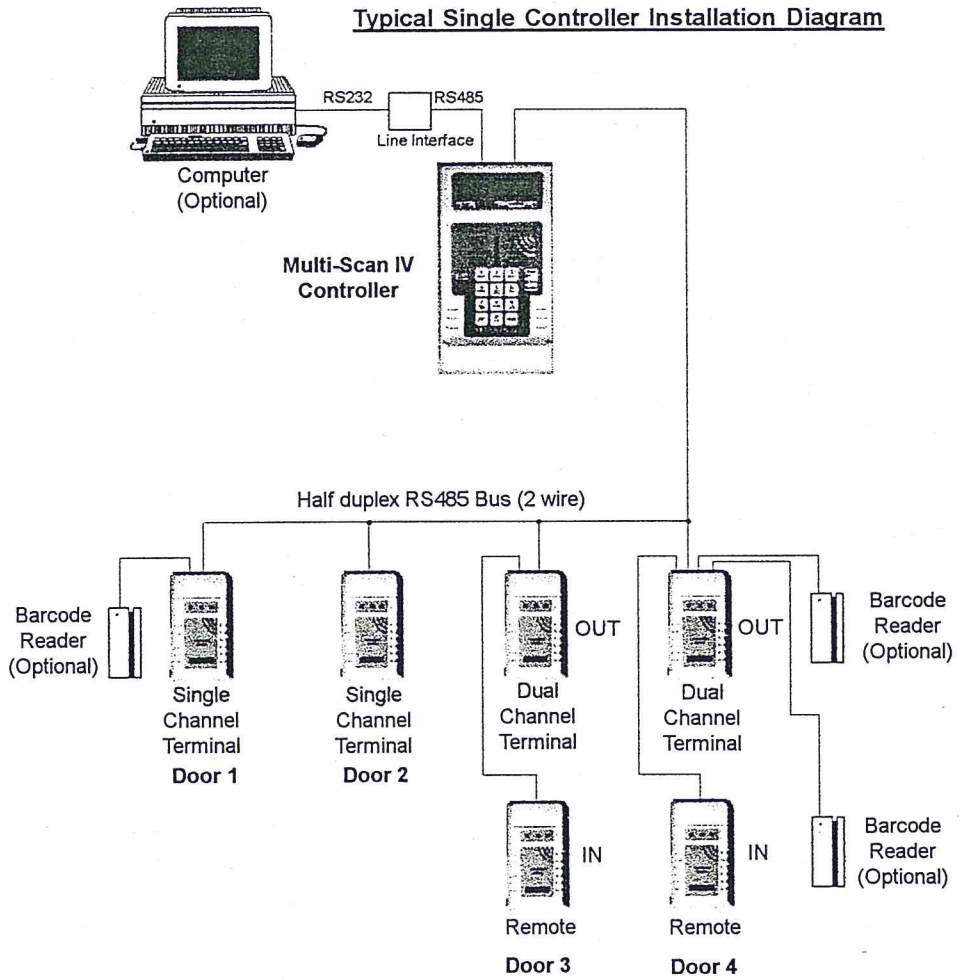
Master Tags may be used to program new tags and change the Multi-Scan IV system setup. The Multi-Scan IV supports multiple master tags. Master tags are not subject to Anti-Passback, and have access to ALL doors, at ALL times.

Privileged tags are allowed access at all times of the day, but may be restricted to specified doors. Privileged tags can be subject to Anti-passback control if configured, and are allowed access during public holidays.

Normal tags are allowed access only during 'Normal Business Hours'. They are denied access during public holidays and are subject to Anti-Passback and 'Supervisor Unlock' control.

Visitor Tags are similar to normal tags but their validity expires automatically at the end of the day, and must be re-entered every day.

Typical Single Controller Installation Diagram



MULTI-SCAN IV FEATURES

- On board keypad, seven segment readout and light emitting diode displays, supports manual editing and renders host PC optional, not mandatory (single system).
- Maximum 2 000 Tags.
- Maximum 4 doors individually selected as anti-passback or non anti-passback.
- Each Multi-Scan IV controller polls up to 4 terminals and makes access decisions for them.
- The Multi-Scan IV controller buffers time stamped access transactions. Up to 6000 transactions can be stored. Access transactions may be retrieved by PC host.
- Barcode (optical) units are supported on all readers, upon request.
- Less than 1 second response time upon tag presentation.
- Each Multi-Scan IV controller supports only one Anti-passback zone, with up to 4 doors into the zone.
- All Multi-Scan IV terminals support
    - Door Open Sensing
    - Push Button Request
    - Anti-Tamper
    - Single Relay (single channel) or Dual Relay (dual channel)
- Alarm Functions supported by Multi-Scan IV controller.
    - Door Open Alarm
    - Anti-Tamper Alarm
    - Transaction Buffer Full
    - Dual General Purpose Alarm Inputs with Arming/Disarming Function
- An internal "ALARM RELAY" is triggered when an alarm occurs.
- The Multi-Scan IV has a 'POWER CONTROL' relay. The relay remains activated while there is at least one person in the anti-passback zone. When all persons have exited, the relay deactivates. At least one dual channel terminal is required to use this function as anti-passback facility determines if all personnel have left the area.

The 'POWER CONTROL' feature can be used to automatically switch off lights and air conditioning equipment after everybody has left. (Energy Saving).

- The Multi-Scan IV with the host PC supports on-line editing using the Multi-Scan IV software for either MS-DOS or Windows (two suites).
- The Tag Editing features of the Multi-Scan IV are based on the 'ENTRY NUMBER' of the tag in the tags table. Tags may be :
    - ADDED to the table
    - DELETED (when you have the tag)
    - DELETED when the tag is lost but the entry number is known

  Other editing functions are supported.
- The Multi-Scan IV has two programming and setup modes:
    - PROGRAM TAGS MODE (for entering and editing tags)
    - SYSTEM SETUP MODE (for setting up and changing the system parameters).
- The Multi-Scan terminals will ***NOT*** read the SAME tag if presented within 5 seconds of a previous read.
- Any tag held to the controller reader, will display the tag position and the tag type will also be shown by the appropriate led.
- For increased security the device can be configured so that in addition to a valid tag, the entry of a PIN code is required for access to a particular door.
- The validity of tags can be controlled if necessary, by the entry of start and expiry dates. Tags are thus valid from the start date until midnight on the expiry date.

Part 1: **System Initialization**

Getting started

Throughout this manual, the '*ENTER*' key is the lefthand arrow key on the bottom row righthand side, (←), and the *ESCAPE*' (ESC) key is the bottom row, lefthand side (x). The '*STEP*' key is key '0', bottom row, middle key.

The following steps need to be taken in order to set up a Multi-Scan IV System.

1. Set Multi-Scan IV internal DIP switches. (refer to Installation Manual) and then power on.
2. Set up a master tag (add master tag).
3. Set the Multi-Scan IV time\date.
4. Set start and end of normal working hours for each day of the week, for each door.
5. Set public holidays.
6. Set the door latch strike time for each door.
7. Change the Multi-Scan IV system password from the default (0).
8. Add user tags (Normal Tags and Privileged Tags).

Power on

Power can be applied to the Multi-Scan IV unit without any other connections being made. Ensure that the lower and upper limits of the input voltages are **NEVER** exceeded!

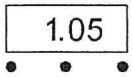
When the Multi-Scan IV Controller is first powered up, it may display the message 'ÉRR1' . This means that the Controller has detected that the internal tables are corrupt, and all previously stored information is lost. Press the ESC key to reinitialize the tables.

On applying power to the unit, the system goes through a test procedure, each phase taking about one second.

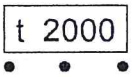
Step 1
All the LED's and 7 segment display bars light up for about one second, to allow the user to confirm their operation

Step 2

The version of the microcode in the Multi-Scan IV is displayed.

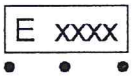


Step 3



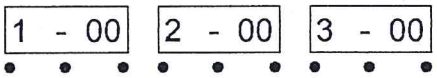
displays the maximum size of the Tag code table.

Step 4



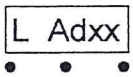
"xxxx" displays the number of VALID TAGS found in the table.

Step 5



displays the configuration of the 3 onboard DIP switches.

Step 6

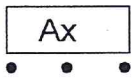


displays the Multi-Scan IV address (xx = 00 to 15) as set by the DIP switches.

Step 7

"x" displays the number of Terminals found. These could be either single or dual channel units.

Step 8



"x" displays the number of Dual Channel (Anti-PassBack) Terminals. The difference between step 7 and 8 is obviously the total of "Single Channel" terminals found.

Step 9

The left most 7 segment display in the top window, references a particular door. The three led's directly below the 7 segment displays, indicate the condition of that specific door. The 4 right hand side 7 segment displays show the current time.

Step 10
The system starts its communication sequence and if OK, the "Present Tag" led on the terminals begins to flash.

Note: The dual channel terminal will keep all 3 leds lit, to indicate a Power fail has occurred, until reset.

The system is now in "RUN" mode, and, had it been previously correctly setup, would begin operating immediately.

Part 2 : Tag Types

Tags entered into the Multi-Scan IV are one or four types.

- Master Tags
- Privileged Tags
- Normal Tags
- Visitor Tags

Visitor Tags and Normal Tags are allowed access only during 'Normal Business Hours'. Privileged Tags and Master Tags are allowed access at any time.

Master tags

Master Tags may be used to program new tags and change the Multi-Scan IV system setup. The Multi-Scan IV supports multiple master tags. Master tags are not subject to Anti-Passback, and have access to ALL doors, at all times.

Privileged tags

Privileged tags are allowed access at all times of the day, but may be restricted to specified doors. Privileged tags can be subject to Anti-Passback control if configured, and are allowed access during public holidays.

Normal tags

Normal tags are allowed access only during 'Normal Business Hours'. They are denied access during public holidays and are subject to Anti-Passback and 'Supervisor Unlock' control.

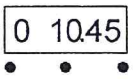
Visitor tags

Visitor Tags are similar to normal tags but expire automatically at the end of the day.

Part 3 : **Modes of operation**

Run mode

In run mode, the seven segment displays show the number of the door currently being viewed, and the time of the day. The first digit of the seven segment display is the door number, and may be 0,1,2,3 or 4. Door 0 represents all doors. A specific door parameter may be viewed by pressing the appropriate key 0,1,2,3 or 4 on the keypad.



Directly below the five 7 segment displays are three LEDs. These represent the condition of the specific door (1 of 4) as indicated by the first (left most) digit

Access Restricted Condition

The Access Restricted LED lights up when, for the door being currently viewed, access is allowed to master tags, and privileged tags only (It is after 'Normal Working Hours'). If door 0 (all doors) is currently being viewed, then the access restricted LED will be lit when access is allowed to master and privileged tags only for all 4 doors (it is after 'Normal Working Hours' for all 4 doors).

Door mode

Each door can be in one of two modes:

- Normal Mode
- Secure Mode

A door usually operates in Normal Mode. This means that at the start of 'Normal Working Hours', the door will allow access not only to Master and Privileged Tags, but to Normal and Visitor tags as well. If the door is put into Secure Mode, then the door will allow access to Master and Privileged tags only, regardless of the start and end of 'Normal Business Hours'. The door will continue to deny access to Normal and Visitor tags, until it is taken out of Secure Mode, and put back into Normal Mode. (Using a password, or a master tag).

Secure Mode is useful for example, during long weekends, where all doors can be put into Secure Mode at the start of the long weekend, and put back into Normal Mode on the first working day thereafter.

If door 0 (all doors) is being viewed, then the "Door Mode Normal" LED will be lit as long as at least one of the 4 doors is in Normal Mode. The Secure LED will be lit only when all 4 doors are in Secure Mode.

A door's mode may be swopped (Normal ⇔ Secure) by either keying in a password or by presenting a master or privileged tag to the unit and pressing the Enter key. If door 0 is being viewed when the door mode is swopped (by pressing the enter key), then all 4 doors will change mode.

NOTE: If a door is in Secure Mode, then the Access Restricted LED will always be lit when this door is viewed.

Supervisor unlock

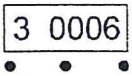
SW2, position 8 must be set 'ON' to enable the supervisor unlock function.
(Only used for a system configured for Anti-Passback).
This DIP switch setting ensures that even during "Normal Business Hours", the system will **NOT** allow a Normal or Visitor tag access, unless at least one Master or Privileged tag holder has entered the site before them. This could be used, for example to ensure that workers cannot enter a factory until the Foreman (who has a privileged or master tag), has arrived.

The Multi-Scan IV unit has to be powered down and then powered up again or a software reset must be done, for any changes to the DIP switches to take effect.

Tag status display

When the Multi-Scan IV is in "RUN MODE" and a Tag is presented to the Multi-Scan IV scanner, the Multi-Scan IV will beep to indicate that it can read the Tag. In addition, if the Tag has already been entered into the Multi-Scan IV, the first digit of the display will show the level of the Tag being presented.

	First Digit of Display
❖ Visitor Status	1
❖ Normal Status	2
❖ Privileged Status	3
❖ Master Status	4

The 4 right hand side digits will show the entry number of the tag.
e.g on presenting a Privileged Tag which is entry number "6" in the tag codes table the display will show 

Adding Visitor Tags quickly from Run Mode

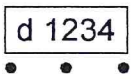
Visitor tags may be added very quickly to the Multi-Scan IV system from run mode. It is necessary to have a master or privileged tag in order to add a visitor tag from run mode.

NOTE: Visitor tags added in this manner will be deleted when a full download from the PC is carried out.

a) Hold the master or privileged tag to the Multi-Scan IV scanner, and press the **VISITOR** key. The display will show 

prompting for the visitor tag.

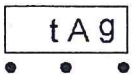
b) Hold the visitor tag to the Multi-Scan IV scanner and press the **ENTER** key. The Multi-Scan IV will beep, and briefly display a list of allowable doors which may be assigned to the visitor tag

e.g. 

Thereafter, the display will show 

prompting for a list of doors to be assigned to the visitor tag.

c) Type in the list of doors to which this visitor tag will be allowed access, followed by **ENTER**. e.g. **1 3 ENTER.** Only doors in the original list briefly displayed (when the visitor tag was held to the scanner, and the enter key pressed) will be accepted. This is to ensure that a privileged tag which does not have access to certain doors, cannot be used to create a visitor tag with access to those doors. (This would constitute a security violation).

d) The display will again show 

after the door list is entered. At this point, the Multi-Scan IV is ready to accept another visitor tag. Another visitor tag may be held to the Multi-Scan IV Scanner and the **ENTER** key pressed, as described above.

e) When all the visitor tags are entered, press the **ESC** key to put the Multi-Scan IV back into (Run Mode), where the time is displayed.

Setup Modes

The Multi-Scan IV has two setup modes:

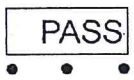
- Program Tags
- System Setup

A Master Tag or the system password is required before any of the setup modes can be used.

Enter Setup Mode using a Password

The password can be up to 9 digits long (numeric only). The default password is "**0**". The password may be changed by using the 'Set Password' menu item in the System Setup menu.

When in Run Mode, press the **PASSWORD** Key. The Multi-Scan IV will respond by displaying



Enter Setup Mode using a Master Tag

Should a master tag have been assigned, FIRST present the tag to the Multi-Scan IV controller and then key the 'PASSWORD' key (key 5). If valid, the display will blink the time. If a non valid tag is presented, the action is ignored.

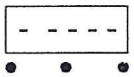
Type in the password, followed by the **ENTER** key. The display will start blinking and revert to the time display if the correct password has been entered.

NOTE: When the Multi-Scan IV display is blinking, the unit is at 'Editing Level'. Access to all editing functions is now possible, as detailed below:

ENTER KEY	⇨	Toggle door mode (normal ⇔ secure) for door being viewed.
7 KEY	⇨	Enter Program Tags menu.
9 KEY	⇨	Enter System Setup menu.
ESC KEY	⇨	Pressed on completion of all editing functions - causes exit from 'Editing Level' and a return to normal Run Mode. The display stops blinking. A master tag or the password has to be used to access the editing functions again.

A) *Program tags mode*

The Program Tags menu can be entered by pressing the **PROG. TAGS** key when the Multi-Scan IV is at "Editing Level', with the seven segment display blinking. "Editing Level' is reached when the password is correctly entered, as described previously.

The display will show  in the program tags menu.

The **STEP** key may be used to step through the Program Tags menu and select the program tags menu item required. The **ENTER** key causes the particular menu function to be executed.

An alternative way to access the Program Tags menu from Run Mode is to present a Master Tag to the Multi-Scan IV and press the **PROG. TAGS** key. The Multi-Scan IV will go directly into Program Tags Mode. 'Editing Level' is not required in this case.

The program tags menu supports the following functions.

- Add visitor tag
- Add normal tag
- Add privileged tag
- Add master tag
- Delete tag
- Delete block of tags
- Set tag allowed/denied
- Set block allowed/denied
- Set block in/out
- Clear transactions
- Clear memory

Multi-Scan IV Tag Codes Table

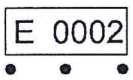
The Multi-Scan IV keeps a TAGS TABLE of up to 2000 tags. Entries in this table are numbered 1 to 2000 and may be blank, or alternatively have tags assigned to them. Various parameters are stored for each tag in this table, including the tag code, the tag level (visitor/normal/privileged/master), and the doors for which access is allowed.

Add Visitor/Normal/Privileged/Master Tag

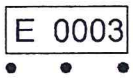
All the functions which add a new tag to the Multi-Scan IV system work in a similar manner, and are described in this section.

All the 'Add Tag' functions are accessed from the 'Program Tags' menu. The program tags menu can be entered by presenting a master tag to the Multi-Scan IV, then pressing the **PROG.TAGS** key. Alternatively, the password can be used (refer to the section: ENTERING THE PASSWORD). The **STEP** key (key 0) is used to step through the program tags menu and select a program tags function, and the **ENTER** key (key ←) is used to execute the selected function.

When the 'Add Tags" function is first entered the display shows the entry number of the first blank entry in the table. The display in the 'Add Tag' functions usually shows the entry number of the tag currently being viewed/edited. This is first blank entry in the table when the 'Add Tag' function is entered.



It is possible to step from entry to entry by simply pressing the **STEP** key. Alternatively, to view a particular entry, simply type in the entry number, terminated by the **ENTER** key, e.g. **3 ENTER**. In this case, the display will show

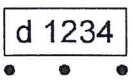


NOTE: The decimal point of the last digit of the entry number will be lit if the entry is non-blank (has a tag assigned to it.) This feature is useful for identifying blank entries when stepping through the entries.

WARNING! Please note that Master tags can be deleted in the same manner as other tags. It is possible to delete **ALL** the Master tags - in which case the Password **MUST** be remembered!

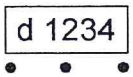
Adding New Tags

After a tag type has been selected, a new tag may be added to the Multi-Scan IV by simply holding the tag to the Multi-Scan IV scanner, and pressing the **ENTER** key. The display will briefly show 'Add' and then the doors assigned to this particular tag.

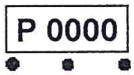


If the door list is as required, simply press the **ENTER** key. Otherwise, type in the doors for which access is to be allowed for this tag, terminated by **ENTER**. e.g. **1 3 4 ENTER**. The display will show the entry number again.

Entering "**0**" for the door number will default to All doors



Entering a PIN code



Enter a 4-digit PIN code, and press **ENTER**. (If a PIN code is not required, press **ENTER**.

Entering a Start Date

Enter a "Start Date", dd.mm, and press **ENTER**.

Entering an Expiry Date

Enter an "Expiry date", dd.mm, and press **ENTER**.

NOTE: ***If start and expiry dates are not required, press ENTER.***

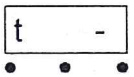
To add another tag, simply repeat the procedure.

Adding a New Tag using the Tag Code Number

Sometimes the need arises to add a new tag, but the tag cannot be conveniently presented to the Multi-Scan IV unit e.g. in the case of a vehicle tag, or one already given out.

To enter a tag into the Multi-Scan IV when the tag code number is known, simply

press the **ENTER** key 3 times quickly in succession. The display will show,



prompting for the entry of the tag code number, type in the Tag code number followed by the **ENTER** key, e.g. **9 6 5 1 8 2 0 ENTER**

The display will briefly show "**ADD**" and then the doors to be assign to the particular tag.

If the door list is as required, simply press the **ENTER** key. Otherwise, type in the doors for which access is to be allowed for this tag, terminated by **ENTER**. e.g. **1 3 4 ENTER**. Entering "**0**" for the door number will default to all doors. The display will show the entry number again.

To add another tag, simply repeat the procedure.

Editing existing Tag Entries

To edit an existing tag entry, the entry has to be found and viewed first.

Any of the 4 'Add Tags' functions may be used to search for an existing tag. However, it is preferable to use the (Add Visitor Tag) function. This is because if the tag is unexpectedly not found, then it will be added to the table automatically. If it is not required in the system as a new tag then the new entry will have to be deleted. However, visitor tags expire automatically at the end of the day.

When the display is showing an entry number in the "Add Tag' function, simply hold the tag you are searching for to the Multi-Scan IV Scanner and press the **ENTER** key. If the tag is found, the display will briefly show "Fnd' and then the entry number of the tag will be shown.

To edit the door list for this tag, simply press the **ENTER** key. The existing door list will be shown. e.g. **d134**. Type in the new door list if necessary, followed by **ENTER**. e.g. **1 3 ENTER**. The Multi-Scan IV will beep and accept the changes.

Note: Do not present a tag to the Multi-Scan IV scanner when you press **ENTER** to edit a door list. If a tag is presented, then the Multi-Scan IV will search for the tag, instead of editing the door list of the current entry.

An alternative way of finding an entry in any of the "Add Tag' functions is to simply type in the entry number, followed by **ENTER**. The entry corresponding to the

entry number typed in will be shown. Press the **ENTER** key to edit the entry, as described above.

The **STEP** key may also be used to sequentially step through the entries. The level of each tag (Visitor/Normal/Privileged/Master) is shown on the bank of green LED's as the entries are stepped through.

The **ESC** key is used to exit the "Add Tags' functions, and return to the program tags menu.

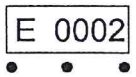
HINT: Tags with similar settings should be kept in contiguous blocks. e.g. all factory workers who are given 'Normal Tags' and have access to doors 1 and 2, are assigned entries between 100 and 200. The Multi-Scan IV supports certain 'Block' functions, making it easier to keep proper control of the system.

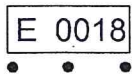
Delete Tag

The Delete Tag function is selected and executed from the Program Tags menu.

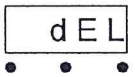
When the delete tags function is first entered, the display will show one more than the last usable entry in the table. 

To delete a tag, simply hold the tag to the Multi-Scan IV Scanner, and press the **ENTER** key. If the tag is found, the Multi-Scan IV will beep and delete the tag. The display will briefly show '**dEL**', then the entry number of the tag deleted will be shown. This entry will now be blank. e.g.

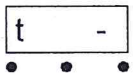


If the tag to be deleted is not available (is lost, for example), then either the entry number of the tag or the tag code number must be known. If the entry number is known, then simply type in the entry number terminated by **ENTER**. e.g. **1 8 ENTER.** The entry will be shown 

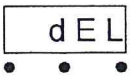
Press **ENTER** a second time to delete the ENTRY. The Multi-Scan IV will beep and delete the entry. The display will briefly show



If only the tag code number is known, the select an entry number of a blank entry (the last digit decimal point will not be lit). When the display is showing the entry number of the blank entry, press the **ENTER** key quickly 3 times in succession.

The display will show 

Key in the tag code number of the tag to be deleted followed by **ENTER** . The Multi-Scan IV will beep and briefly display

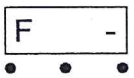


and then the Multi-Scan IV will delete the tag from memory.

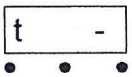
The **ESC** key must be used to exit the Delete Tags function.

Delete Block of Tags

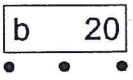
The Delete Block of Tags function is accessed from the Program Tags menu. Simply select the Delete Block of Tags function and press the **ENTER** key.

a) The display will show 

The Multi-Scan IV is prompting for the entry number of the start of the block ('**F**'rom). Type in the entry number of the start of the block you wish to delete, followed by **ENTER**. e.g. **1 0 ENTER.**

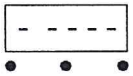
b) The display will now show 

The Multi-Scan IV is now prompting for the entry number of the last entry in the block you wish to delete ('**t**'o). Type in the entry number of the last entry in the block you wish to delete, followed by **ENTER**. e.g. **2 0 ENTER.**

c) The display will show the last entry number typed in 

At this point, pressing the **ENTER** key will confirm the block delete operation, and cause it to execute. The Multi-Scan IV will then beep, display '**dEL**' briefly and delete the block of tags. Pressing the ESC key instead of the enter key will cause the block delete operation to be aborted (no tags deleted).

d) The Multi-Scan IV will return automatically to the Program Tags menu. Display will show

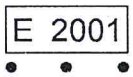


Set Tag Allowed/Denied

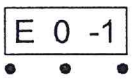
NOTE: Master tags cannot be suspended. This comand will be ignored by the Controller. Privileged tags can only be suspended if SW1-5 is set 'ON'.

This function which is selected from the Program Tags menu is used to set an individual tag's allowed/denied access flag.

a) The display shows one more than the last usable entry in the Multi-Scan IV tags Table when the function is entered.



b) If you have the tag for which the allowed/denied flag has to be set, simply hold the tag to the Multi-Scan IV Scanner and press ENTER. If the tag is found in the table, the display will briefly display 'Fnd', and thereafter

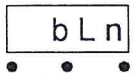


c) If the allowed/denied flag for this tag is currently set to allow entry, the '-' symbol in the display will be closer to the '**1**' otherwise the '-' symbol will be closer to the '**0**'.

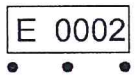
d) In either case, to allow access to this tag key in **1**, followed by **ENTER**. The Multi-Scan IV will beep and the display will briefly show '**ALL**', followed by the entry number. To deny access to this tag, key in '**0**' followed by **ENTER**. The Multi-Scan IV will beep and the display will briefly show 'den', followed by the entry number. If it is not required to change the allowed/ denied flag, press the **ESC** key instead.

e) An entry can be edited or viewed by simply typing in the entry number,

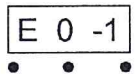
followed by **ENTER**. If the entry corresponding to the entry number typed in is currently blank, (not used) the display will show



otherwise the entry number typed in will be displayed. e.g. **2 ENTER**. The display will show



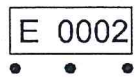
f) Simply press the ENTER key to view or edit this entry. The display will show the current status of the allowed/denied flag as described previously



The '**-**' symbol being closer to the '**1**' digit indicates that entry is currently allowed to this tag.

g) Key in **ESC** to exit to the entry number display, **1 ENTER** to allow access, or **0 ENTER** to deny access. If the allowed/denied flag is changed, the Multi-Scan IV will beep and briefly show '**ALL**' or '**dEn**'.

h) The display will then show the entry number again.

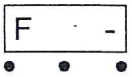


i) At this point, another entry may be edited/viewed. Alternatively, to return to the Program Tags menu, simply press the **ESC** key.

Set Block Allowed/Denied

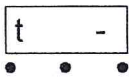
This function is used to suspend or reinstate a block. The set block allowed/denied function which is selected from the program tags menu is used to set the allowed/ denied flag for a whole contiguous block of tags in the tags table.

NOTE: Only normal and visitor tags will respond to this command. Privileged tags will only respond to this command if configured. Master tags cannot be suspended.

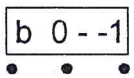
a) The Multi-Scan IV display shows 

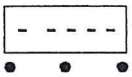
when this function is first entered. It is prompting for the start of the block ('**F**'rom) for which the allowed/denied flag is to be changed.

b) Type in the entry number of the start of the block, followed by **ENTER**. e.g. **1 0 ENTER**.

c) The Multi-Scan IV will display 

It is prompting for the end of the block ('**t**'o). Type in the entry number of the last entry in the block for which the allowed/denied flag is to be changed, followed by **ENTER**.

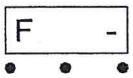
d) The display will show 

At this point keying **ESC** will abort this operation. Key in **1 ENTER** to set the whole block allowed access. The Multi-Scan IV will beep and briefly display '**ALL**' before returning to the Program Tags menu. Key in **0 ENTER** to set the entire block denied access. The Multi-Scan IV will beep briefly, display '**dEN**' and then return to the Program Tags menu (display showing 

Set Block IN/OUT

The set block in/out function is used to set a contiguous block of tags either in or out of the anti-passback zone that the Multi-Scan IV controls. This function is only relevant if there are dual channel (Anti-Passback) terminals in the system. The set block in/out function is selected and executed from the Program Tags menu.

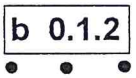
a) When the set block in/out function is first entered the display shows,



('**f**'rom), prompting for the start of the block for which the in/out status needs to be changed. Type in the entry number of the first entry in the block, followed by **ENTER**. e.g. **1 0 ENTER**.

b) The display will show 

('**t**'o), prompting for the last entry in the block which has to be changed. Type in the entry number of the last entry which has to be changed, followed by **ENTER**.

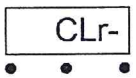
c) The display will show 

At this point, keying **ESC** will abort the operation. Key in **1 ENTER** to set all tags in the block in. The Multi-Scan IV will beep, briefly display '**In**', and then return to the Program Tags menu. Key in **0 ENTER** to set all tags out. The Multi-Scan IV will beep, briefly display '**Out**', and then return to the Program Tags menu. Key in **2 ENTER** to set all tags to 'Neutral' anti-passback state. The Multi-Scan IV will beep, briefly display 'APb-', and then return to the Program Tags menu. 'Neutral' anti passback state may be used when the anti passback state has become corrupt due to a power failure, fire drill, *etc.* When a tag is set to 'Neutral' anti passback, then the next access will not be denied if it is an anti passback violation. 'Neutral' anti passback affects one access only, after which the tag is returned to normal anti passback control.

Clear Transactions

The Clear Transactions function is used to clear all access/event transactions from the Multi-Scan IV memory. It is selected and executed from the Program Tags menu.

***NOTE*:** Once the transactions are cleared, they are irretrievably lost. Be quite sure that these transactions are not required before deleting them.

a) When this function is entered, the display will show 

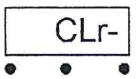
To abort the clear transactions operation, press the **ESC** key.

b) To clear the transactions key **1 ENTER**. The Multi-Scan IV will beep, clear all transaction, and return to the Program Tags menu.

Clear Memory

This function should be used with ***extreme caution!***. It clears the entire Multi-Scan IV memory. The tags table, password, start and end of normal working hours and all other tag and door parameters are either deleted, or reset to the default factory values.

The clear memory function is selected and executed from the Program Tags menu.

a) When this function is entered, the display will show 

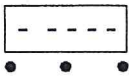
To abort the clear memory operation, press the **ESC** key.

b) To clear the Multi-Scan IV memory, key in **2 ENTER**. The Multi-Scan IV will beep, clear its memory and return to the Program Tags menu.

NOTE: The password is reset to the factory default (**0**).

B) System setup mode

The System Setup menu can be entered by pressing the **SYS. SETUP** key when the Multi-Scan IV is at "Editing Level', with the seven segment display blinking. 'Editing Level' is reached when the password is correctly entered.

The display will show 

in the system setup menu.

The **STEP** key may be used to step through the System Setup menu and select the system setup menu item required. The **ENTER** key causes the particular menu function to be executed.

An alternative way to access the System Setup menu from Run Mode is to present a Master Tag to the Multi-Scan IV and press the **SYS. SETUP** key. The Multi-Scan IV will go directly into System Setup Mode.

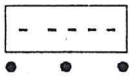
The System Setup menu supports the following functions:

- Set Time
- Set Day/Month
- Set Year
- Start of Normal Working Hours
- End of Normal Working Hours
- Set Public Holidays

- Set Latch Times
- Set Password
- Communications Mode
- Telephone Numbers (for future, not currently in use)
- Transmit/Print Database

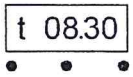
Set time \ date - month \ year

a) From run mode, hold the master tag to the Multi-Scan IV and press the **SYS. SETUP** key. The Multi-Scan IV should go directly into System Setup Mode, with the display showing



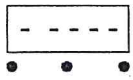
b) Since the set time function is the first menu item, it will be already selected.

c) Press the **ENTER** key to change the time. The display will show the present time.



Type in the new time in 24 hour format with no punctuation or spaces between the hours and the minutes, and press **ENTER**. The Multi-Scan IV should beep and accept the new time. e.g. **0 8 3 0 ENTER.**

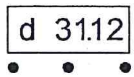
d) Use the **ESC** key to exit the set time function, and return to the System Setup menu. The display will show



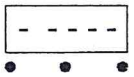
e) Use the **STEP** key to select the Set Day/Month item.

f) Press the **ENTER** key to change the Day/Month.

g) The display will show the current day then month, separated by a full stop.



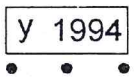
Type in the new day/month in the form "ddmm' and press the **ENTER** key. The Multi-Scan IV should beep and accept the new day/month. e.g. **3 1 1 2 ENTER.**

h) Press the **ESC** key to exit to the 'System Setup' menu. The display will show 

i) Use the **STEP** key to select the Set Year menu item.

j) Press the **ENTER** key to change the year.

k) The display will show the current year setting.



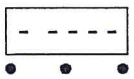
Type in the new year setting and press **ENTER**. The Multi-Scan IV should beep and accept the new year setting. e.g. **1 9 9 4 ENTER.**

l) Press the **ESC** key repeatedly to put the Multi-Scan IV into Run Mode. The display should now show the correct time.

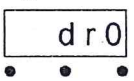
NOTE: The Multi-Scan IV automatically computes the day of the week from the date entered.

Set normal working hours (start and end)

NOTE: The default start and end of normal working hours for each door are 6:00 am to 6:00 pm for every day of the week.

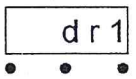
a) When in Run Mode present the master tag to the Multi-Scan IV and press the **SYS. SETUP** key. The Multi-Scan IV should go into System Setup Mode. The display will show 

b) Use the **STEP** key to select the Set Start of Normal Working Hours menu item.

c) Press the **ENTER** key to change the start of normal working hours. The display will show 

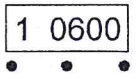
d) Changing the start of normal working hours for door 0 will cause the changes to be written for all four doors. If it is required to change the start

of normal working hours only for one specific door, then type in the door number and press the **ENTER** key. e.g. **1 ENTER**. (In this case, the display will show



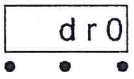
e) Press the **ENTER** key to start the change. The first digit of the display will show the day of the week (1 = Monday), and the rest of the display will show the start of normal working hours for that day of the week.

e.g.



f) If the setting shown for the start of normal working hours is correct, then simply press the **ENTER** key. Otherwise type in the new start of normal working hours for that day of the week, hours and minutes, 24 hour format, in the form 'HHMM' and press **ENTER**. The unit should beep and accept the new setting. In both cases the display will automatically show the next day of the week (2 = Tuesday).

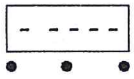
g) The start of normal working hours for all seven days of the week for the door selected may be set up in this manner. After the seventh day of the week is set up (7 = Sunday), the display will show the door number again



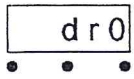
***NOTE*:** If there are no normal working hours for a particular day of the week, e.g. Sunday, then both the start and end of normal working hours must be set to 00.00.

h) Another door may now be selected for set up. Type in the door number and press **ENTER**. e.g. **2 ENTER**. If no further doors are required to be set up, press the **ESC** key to exit to the System Setup menu.

The display will show



i) Use the **STEP** key to select the end of normal working hours menu item. Press **ENTER** to change the end of normal working hours. The display will show



j) The procedure for changing the end of normal working hours from this point on is exactly the same as changing the start of normal working hours.

Change the end of normal working hours for each door for each day of the week as required.

k) When editing of the start and end of normal working hours is complete, use the **ESC** key repeatedly to put the Multi-Scan IV back into Run Mode. The display will show the time.

l) If the current time for the current day of the week for the door being currently viewed is out of normal working hours, then the Access Restricted LED will be lit. Step through each of the doors by typing in the door number, and ensure that the Access Restricted LED is indicating as expected. The changes that have been made to the start and end of normal working hours can be verified in this manner.

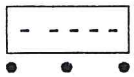
***NOTE*:** If a door is in Secure Mode (not Normal Mode), then the Access Restricted LED will always be lit.

m) To set the normal working hours for full 24 hour access, set the start of normal working hours and the end of normal working hours both to the same non-zero time. *eg* 06:00 (start) and 06:00 (end)

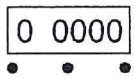
Set public holidays

No public holidays are defined by default.

a) When in Run Mode present the master tag to the Multi-Scan IV and press the **SYS. SETUP** key. The Multi-Scan IV should enter System Setup Mode.

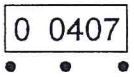
The display will show 

b) Use the **STEP** key to select the Set Public Holidays menu item, and press **ENTER** to change the public holidays. The display will show

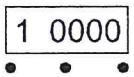


The left most digit is the holiday number. Up to ten public holidays may be defined, numbered 0 to 9. The remaining digits are the day and month of the public holiday, in the form "DDMM".

c) Type in a new public holiday in the form 'DDMM' and press **ENTER**. e.g. 0407 **ENTER** for the 4th of July. The Multi-Scan IV should beep and accept the new public holiday. The display will briefly show the Public

Holiday entered. 

The display will automatically scroll to show the next public holiday.



If it is not desired to change a particular entry, simply press **ENTER**, to scroll to the next entry.

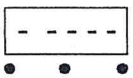
d) In this manner all 10 public holidays (0 - 9) may be defined. Unused entries in the public holidays table should be left to '0000'.

e) Press the **ESC** key repeatedly to put the Multi-Scan IV back into Run Mode (Display will show the time).

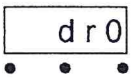
NOTE: The Multi-Scan IV Allows Access to master and privileged tags only, during the defined public holidays.

Setting the latch time (door strike durations) and PIN code enabling for doors

The door strike time is the duration for which the relay which drives the electric door strike is driven when access is allowed. This duration is programmable from 1 second to 999 seconds.

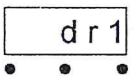
a) When the Multi-Scan IV is in (Run Mode), present a master tag to the Multi-Scan IV scanner and press the **SYS. SETUP** key to enter System Setup mode. The display will show 

b) Use the **STEP** key to step through the system set up menu and select the "Set Latch Time" menu option.

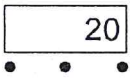
c) Press the **ENTER** key to change the door strike times. The display will show 

d) If the door strike time is changed for door 0, then since door 0 represents all 4 doors, the changes will be made for all four doors. If it is required to change the door strike time for a particular door only, then type in the door

number and press **ENTER**. e.g. **1 ENTER** for door 1. In this case, the display will show



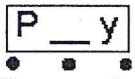
e) Press the **ENTER** key now to change the strike time for the door selected. The display will show the current setting for the strike time



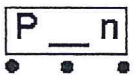
The strike time is shown in units where 1 unit = 0.1 second (1/10 second) A value of 20 therefore represents 2 seconds.

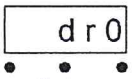
f) Simply enter a new value for the strike time and press the **ENTER** key. The Multi-Scan IV will beep and accept the new setting.

g) To enable the PIN code facility, press **1** and press **ENTER.**

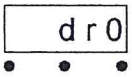


To disable the PIN code facility, press **0** and press **ENTER.**



NOTE: on 

(all doors), the PIN code facility can be enabled or disabled on all doors.

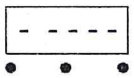
The display will again show the door selected. 

h) In this manner, the strike time for all four doors may be customized. When finished press the **ESC** key repeatedly to return the Multi-Scan IV to Run Mode. The display will show the time in Run Mode.

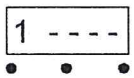
Set the Multi-Scan IV password

The password is up to 9 digit numeric. The default password is 0. The password should be changed to prevent unauthorised persons from making changes to the system.

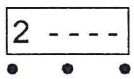
a) When in Run Mode present a master tag to the Multi-Scan IV and press the **SYS. SETUP** key. The Multi-scan IV will enter System Setup Mode. The display will show



b) Use the **STEP** key to step through the System Setup menu, and select the set password function. Press **ENTER** to change the password. The display will show



c) Type in the new password and press **ENTER**. the display will show



Type in the new password again and press **ENTER**. if the first entry of the new password matched the second entry, then the Multi-Scan IV will beep and accept the new password.

d) Write down the new password and keep it in a safe place.

e) Use the **ESC** key repeatedly to put the Multi-Scan IV back into Run Mode. The display will show the time.

Communications Mode

The Multi-Scan IV Multi-drop Controller may be connected to PC software for Windows.

Windows Software

- Full On-line Editing
- Transaction Logging with Names
- Report Generation
- RS485 Connection between PC and Multi-Scan IV Controllers. RS485 allows up to 16 Multi-Scan IV Controllers, multi-dropped in one system.

NOTE: The CV-02GB-MS required for RS485 to RS232 conversion for the PC connection is supplied with the soft ware.

Connecting the Multi-Scan IV Single user system to a Serial Printer

The Multi-Scan IV may be directly connected to an RS232C serial printer for immediate printing of the access transactions. A sample transaction printout is shown below.

1 Wed 94-04-20 10:35:37	E0001 Door A2 Out	Allowed Normal	155452342
2 Wed 94-04-20 10:35:40	E0001 Door A2 In	Allowed Normal	155452342
3 Wed 94-04-20 10:35:43	E0000 Door A2 Out	Denied Unknown Tag	98544172
4 Wed 94-04-20 10:35:49	E0001 Door A2 Out	Allowed Normal	155452342
5 Wed 94-04-20 10;35:51	E0001 Door A1	Allowed Normal	155452342

Since the Multi-Scan IV does not keep person names, they thus do not appear in the printout.

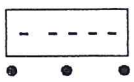
The printer's serial port parameters must be set as follows:

Baud Rate :	9600
Data Bits :	8
Parity :	None
Stop Bits :	1

The Multi-Scan IV may use either hardware handshake (Printer RTS to Multi-Scan IV CTS) or software handshake (Xon / Xoff flow control). If hardware handshake is not used, then the Multi-Scan IV CTS line must be jumpered (linked) to the Multi-Scan IV RTS line internally on the Multi-Scan IV terminal blocks. (Refer to the "Installation Manual" for wiring diagrams).

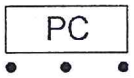
Enabling the Printer Function

The communications mode must be set to "Printer" using the 'System Setup' menu.

Hold a master tag to the Multi-Scan IV and press the 'SYS.SETUP' key. The display will show 

Use the step key to select the communications mode function. Press **ENTER** to change the communication mode.

The display will show the current communications mode and the PC LED will light.



Press the **ENTER** key to select the communication mode required ('**Prn**' for printer). Press the **ESC** key repeatedly to return to run mode.

NOTE: "**COMMS PC**" l.e.d. will flash when the PC software is running. *PROGRAM TAGS* and *PROGRAM SETUP* operations are disabled via the keypad while the PC software is running.

Setting Top of Form on the Printer

The paper should be adjusted to 'TOP OF FORM' in the printer before the printer and the Multi-Scan IV are switched on. If for some reason, the "TOP OF FORM' goes out of sequence, it may be reset using the following sequence:

1. Switch the printer off.
2. Adjust the paper to top of form.
3. Switch the printer on.
4. Type **ENTER 1 ENTER** on the Multi-Scan IV keypad, when the Multi-Scan IV is in Run Mode, and not at editing level (display must not be blinking).

The top of form will be reset. The Multi-Scan IV will print 60 lines per page on both 11 inch and A4 paper.

Printing the Tag Code Table

When the communications mode is set to "**PRINTER**", the tag codes table may be printed by executing 'Transmit/Print Database' in the system setup menu. Pressing **ESC** at any time will cause the printing to be aborted.

Part 4 : Miscellaneous Functions

Resetting the Multi-Scan IV

The Multi-Scan IV system may be reset without cycling the power to the system.

To reset the Multi-Scan IV system, enter the system password, and when the Multi-Scan IV goes to editing level, with the display blinking, press the **3** and **9** keys simultaneously. The reset function will not work if the keys are not pressed simultaneously. The Multi-Scan IV controller and all terminals will be reset. The Multi-Scan IV will retain its memory when this function is executed.

No-Key Timeout when out of Run Mode

If the Multi-Scan IV is not in run mode, and no key is pressed for longer than 8 ½ minutes, then the Multi-Scan IV will execute an automatic reset and re-enter run mode.

Multi-Scan IV Alarm Inputs

The Multi-Scan IV has two general purpose alarm inputs, which are triggered by a contact going open (active high). Security devices such as PIR detectors, magnetic reed contacts etc, may be connected to these inputs.

The Multi-Scan IV supports arming and disarming the inputs.

Arming and Disarming the Alarm Inputs

To arm the inputs, simply press the **ARM** key in run mode. The display will briefly show '**go**'. The inputs will arm 30 seconds after this. (the premises should be vacated within 30 seconds).

If either input 1 or input 2 is in violation (the system buzzer will sound, giving a warning), then the system will not arm. The display will show **"AL 1"** or **"AL 2"**, showing which input is in violation.

If any alarm is triggered whilst armed, the alarm relay is activated for 3 minutes after a delay of 30 seconds.

The 30 second delay is to allow a person who has validly entered the premises, time to disarm the alarms.

The alarm inputs are disarmed by holding a normal, privileged or master tag to the Multi-Scan IV scanner, and pressing the **ARM** key again. The display will briefly show '**dis**'.

Acknowledging Alarms

Once an alarm has been triggered, the Multi-Scan IV will activate the alarm relay, and keep beeping at regular intervals until a valid tag is presented to the Multi-Scan IV scanner, and the '**ESC**' key is pressed. The '**ESC**' key is also an acknowledge key for the purpose of acknowledging alarms. Pressing the '**ESC**' key together with a presentation of a normal, privileged or master tag, will also cause the alarm relay to be deactivated.

Another method of acknowledging an alarm is to enter the Multi-Scan IV system password. The Multi-Scan IV will go to editing level (with the display blinking). Pressing the '**ESC**' key when the Multi-Scan IV is at editing level will also cause the alarm to be acknowledged.

Auto Arming

Auto-Arming is a DIP switch function. It can be enabled by setting SW1 switch '8' to the 'ON' position. (The Multi-Scan IV must be reset when DIP switches are changed.)

If Auto-Arming is set, then the Multi-Scan IV will automatically arm the inputs, 30 seconds after the last person has left the Anti-Passback zone.

The Multi-Scan IV will automatically disarm, immediately the first person enters again.

At least one Dual Channel Terminal is required in the system to support this function.

Part 5 : Multi-Scan IV Beep Codes

Beep Codes

No. of BEEPS	MEANING
2	Door open
3	Power up
4	Transaction buffer full
5	Anti-tamper
6	Alarm input #1
7	Alarm input #2

Holding a Normal, Privileged or Master Tag at the Multi-Scan IV scanner and pressing the '**ESC**' key whilst in Run Mode, clears the Alarm.

Dip Switches

SW1	ON	OFF
1	Strict APB ON (Do not allow exit on APB violation)	Strict APB off (Allow exit on APB violation)
2	RESERVED - Must be OFF	
3	RESERVED - Must be OFF	
4	Store\Print only transactions which are violations (Rev.2.00 or later Firmware)	Store\Print all Transactions
5	Privileged tags APB control	No APB control for Privileged Tags
6	Stop access when transaction buffer full	Do not stop access when transaction buffer full
7	Alarm when transaction buffer full	No alarm when transaction buffer full
8	Arm inputs automatically when last person out	Manual arming of inputs

SW2	ON	OFF
1	Unit address bit 0 ┐	
2	Unit address bit 1 ├ (see below)	
3	Unit address bit 2 ├	
4	Unit address bit 3 ┘	
5	Input #3 and input #4 on Dual Channel Terminals are Scanner Disable Inputs (for vehicle loopdetectors, etc.)	Input #3 and Input #4 on Dual Channel Terminals are Door Open Sensors
6	RESERVED - Must be OFF	
7	RESERVED - Must be OFF	
8	Supervisor Unlock ON (Master or Privileged tag must be in already for Normal Tags to be allowed access)	Supervisor Unlock OFF

The unit address is configured as follows:

SW2 - 4	SW2 - 3	SW2 - 2	SW2 - 1	Controller Address
OFF	OFF	OFF	OFF	A
OFF	OFF	OFF	ON	B
OFF	OFF	ON	OFF	C
OFF	OFF	ON	ON	D
OFF	ON	OFF	OFF	E
OFF	ON	OFF	ON	F
OFF	ON	ON	OFF	G
OFF	ON	ON	ON	H
ON	OFF	OFF	OFF	I
ON	OFF	OFF	ON	J
ON	OFF	ON	OFF	K
ON	OFF	ON	ON	L
ON	ON	OFF	OFF	M
ON	ON	OFF	ON	N
ON	ON	ON	OFF	O
ON	ON	ON	ON	P

Since the unit address appears in all printed reports, the unit address may be used to differentiate the reports from different units, even in stand-alone operation (direct connection to serial printer).

SW3 - RESERVED **ALL Switches must be OFF**

When the Multi-Scan IV Controller is powered up the unit address is shown in HEX. *eg* "Ad00". The HEX address '00' corresponds to Controller address 'A', '01' corresponds to 'B', *etc.*

NOTE: When the Multi-Scan IV Controller is first powered up, it may display the message 'ERR1'. This means that the Controller has detected that the internal tables are corrupt. Press the ESC key to reinitialize the internal tables.

Multi-Scan IV Units with keypad
PIN Code Operating Instructions

- PIN codes are enabled from the Multi-Scan IV Controller for the Single Channel Terminal [see User Manual].
- **Present a tag to the Terminal.** The Terminal will beep and the "Present" LED stops flashing and remains lit. This indicates that the Terminal is waiting for the entry of a 4-digit PIN code.
- **Enter the 4-digit PIN code.** Immediately after the 4th digit is entered, the Controller will validate the tag and the PIN code, and either the "Access Allowed" or the "Access Denied" LED will be lit.
- If a tag is presented and a PIN code is not entered, the Terminal will return to its normal mode [not ready to receive PIN codes].
- If an incorrect digit of the PIN code is entered, press the Escape [*] key to erase all previous digits, and enter the correct PIN code.

NOTE: *The Escape [*] key can only be used after the 1st, 2nd or 3rd digit has been entered. If the 4th digit of an incorrect PIN code is entered, the code is immediately validated and the "Access Denied" LED will be lit. The user must now present the tag again, and enter the correct PIN code.*