351 Installation and Reference Manual

ITI

ACCESS CONTROL

Security
Automation
Access Control

351 Access Point Manager
Installation and Reference Manual

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WIRELESS

Security
Automation
Access Control

Notice

State and local fire/life safety codes prohibit the use of access control devices on emergency exits without providing an approved alternate method of exiting the controlled area. Emergency exits must be capable of operation by people who are physically handicapped and by those who have no knowledge of the system. The approval of an alternative exit method should always be obtained in writing from the appropriate agency involved. In most cases, this is the state or local fire marshal. The owner should be instructed to obtain this approval in writing before installing the equipment.
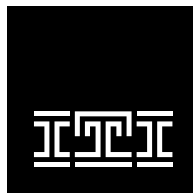
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1.   About This Manual

This section describes the parts of this manual and the text conventions used within it.

1.1.   Parts of This Manual

The *351 Installation and Reference Manual* is for installers and users. It contains detailed information about how to install your APM and how to enter and maintain optional settings.

The *351 Installation and Reference Manual* contains the following sections:

Section 1: About This Manual

This section describes how your APM works, provides an overview of the installation process, and explains how to use this manual.

Section 2: Product Overview

This section is a general introduction that describes how to use your APM. General terminology and concepts specific to your APM are explained here.

Section 3: Installation Planning

This section describes how to plan and document an installation, for both your APM and peripherals.

Section 4: Mounting and Wiring

This section describes how to mount and wire your APM and peripherals.

Section 5: Introduction to Programming

This section describes a basic introduction to programming the APM and lists the commands supported by your APM.

Section 6: Reports

This section describes how to run several reports on your APM.

Section 7: Programming

This section provides instruction on using many APM commands.

Section 8: Setting-Up and Maintaining the Cardholder Database

This section provides instruction on setting-up and maintaining your cardholder database.

Section 9: Testing and Troubleshooting

This section lists testing procedures, as well as describes possible problems and solutions.

Appendix A: Specifications

This appendix provides a list of the specifications for the APM.

Appendix B: The *351 Installation Planning* Form

This appendix contains a master copy of the *351 Installation Planning Form,* which is essential in setting up your APM.

Appendix C: The *351 Schedules Planning* Form

This appendix contains a master copy of the *351 Schedules Planning Form,* which is essential in setting up your APM.

Appendix D: The *351 Database Planning Form*

This appendix contains a master copy of the *351 Database Planning Form,* which is essential in setting up your APM.

Appendix E: Error Messages

This appendix contains command and event error messages for the APM.

Appendix F: Glossary

This appendix contains terms and definitions used in the *351 Installation and Reference Manual*.

1.2.   Manual Conventions

This section defines graphical and typographical conventions used in this manual.

Below are the graphical conventions used in this manual:

❖   A diamond in the left margin indicates steps for accomplishing a
                           task.

CAUTION!   Text in a box preceded by the word CAUTION indicates that you
                           should read the information carefully or grave consequences may
                           result.

Below are the textual cues used within this manual:

`APM OK`   This text indicates information displayed on your terminal.

ABC   This text indicates exact text you should type, such as commands.
                           It appears in boldface.

APM_NAME   This text indicates information you provide, such as names and
                           numbers. It appears in boldface and italics.

[Esc] [Rtn]   This text indicates keys you should press. It appears in boldface
                           and brackets.

When the following terms are used in this manual, the intended meanings are listed below:

APM   "APM" refers to the ITI Access Point is used interchangeably with
                           the term "351 APM is a card access, alarm point monitoring, and
                           device control processor for buildings, rooms, parking lots, etc.

Terminal   "Terminal" refers to any device, linked to your APM via an RS-
                           232 communications interface, that is used to program or display
                           data from the APM. The terminal most often used for
                           programming your APM is a CRT and keyboard. The terminal
                           used for displaying APM data can be a CRT or a printer device.

2.   Product Overview

This section is a general introduction, which describes how to use your APM to control access and monitor alarms. General terminology and concepts are introduced and explained below.

2.1.   Basic Operations

The *351 Installation and Reference Manual* is for installers and users. It contains detailed information about how to install your APM and how to enter and maintain optional settings.

1. A person slides a card through a reader, which is mounted near the door and wired to the 351 APM.

2. If the card has access to the door at the current time, your APM sends a signal to the electronic lock (door strike) to unlock the door.

3. The person opens the door and enters.

4. A sensor on the door verifies that the door has closed or sends an alarm to the APM.

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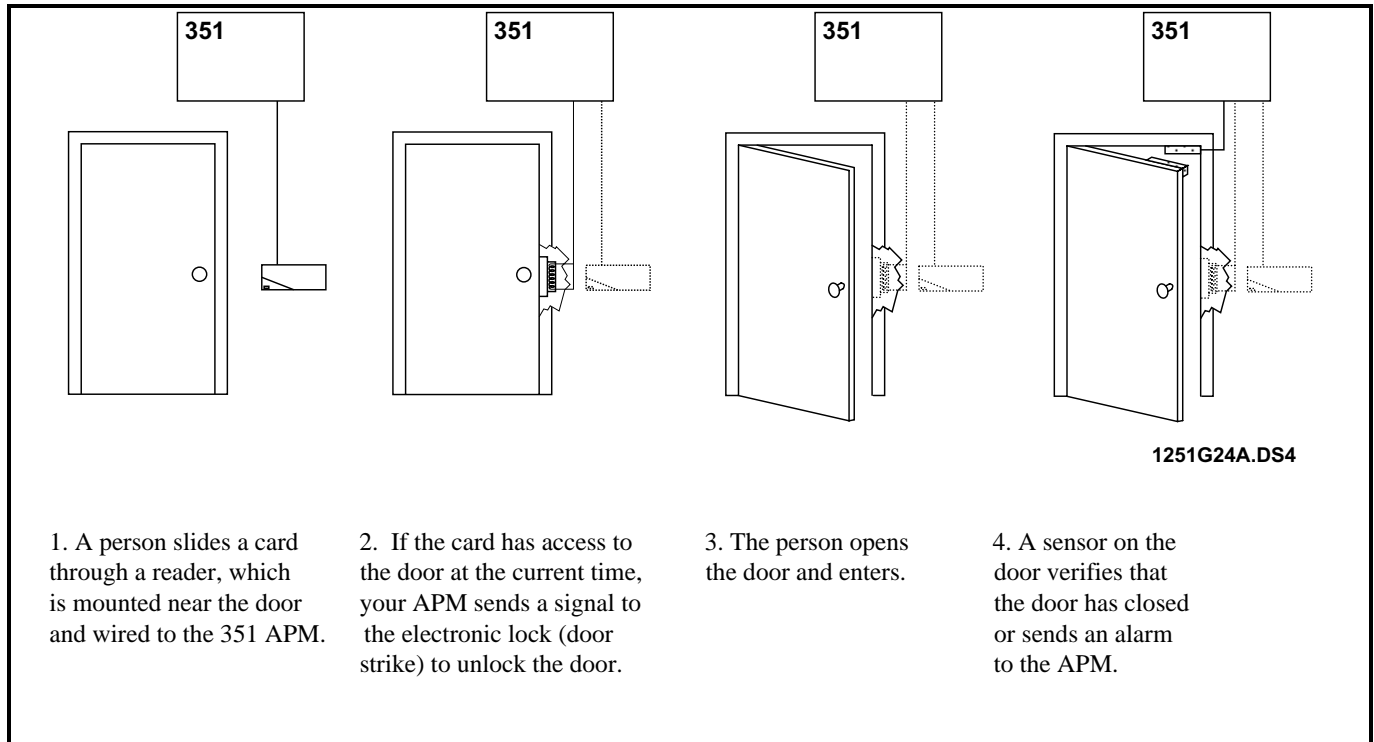
Figure 1: How the 351 Handles Access Control

1. The door position sensors are wired to the 351 APM's incoming connections (inputs).
An input tells the 351 when a sensor is in the alarm state.

2. The 351 responds to the open door event, as programmed. It sends an alarm message to the terminal and may also send a signal to one of its relays (outputs), which is wired to a device such as an alarm, light, or closed circuit camera.
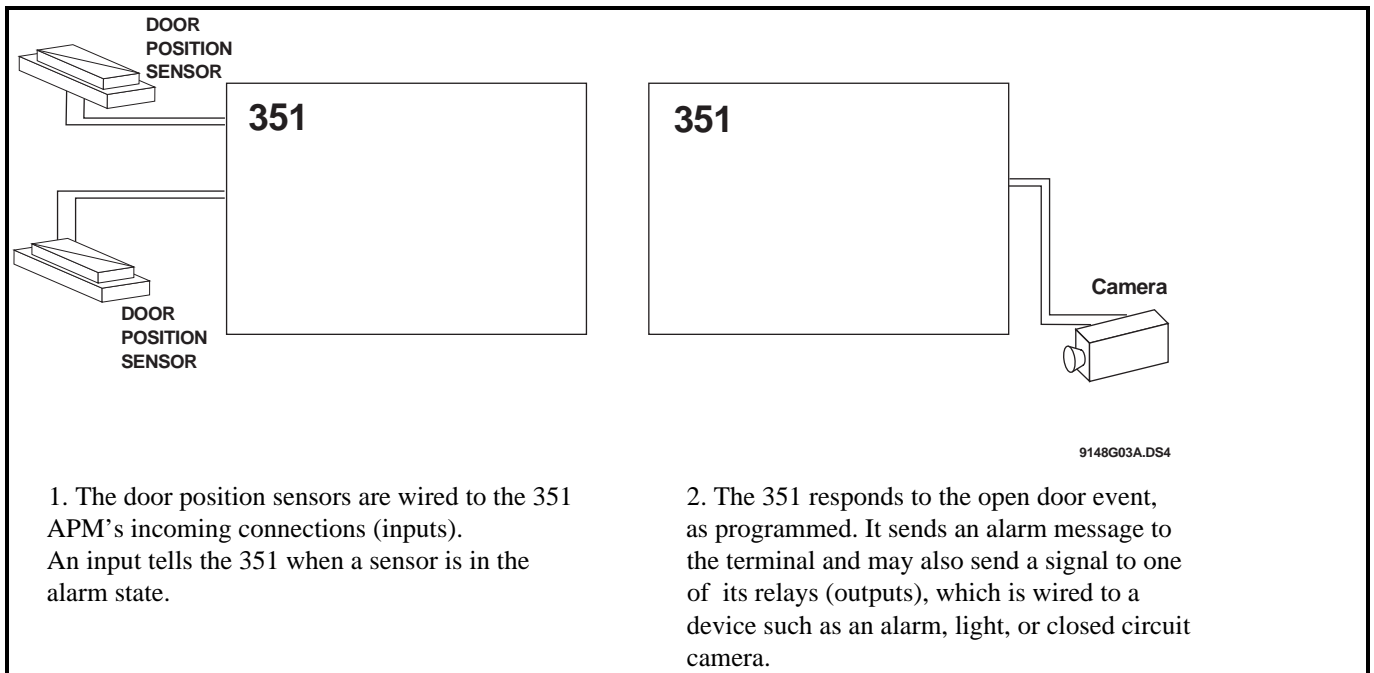
Figure 2: How the 351 Handles Alarm Monitoring

2.2.   Schedules

Access control is accomplished by evaluating two main criteria:

- the presentation of a token (a card or PIN) for access, and
- the date and time of the access attempt.

Schedules provide the means for controlling the date and time considerations of access control.

2.2.1. Holidays

A holiday is a date/time interval. During a holiday, normal time schedules are overridden by the holiday schedule. That is, the normal time schedule is not used during a holiday, the holiday schedule is used instead. Holiday schedules can restrict or prevent access, depending on how you program them. Up to 10 holidays can be defined and each holiday can consist of one or more days.

For example, you could program a time schedule to allow cardholders access from 8 AM to 5 PM, Monday through Friday, but not holidays. Then, if a holiday occurs on a weekday, normal cardholder access is not allowed. However, once the holiday is over, normal cardholder access will resume.

The APM uses two types of holidays:

- **Fixed**— the holiday occurs on the same day(s) every year, such as New Year's.
- **Variable**— the holiday occurs on different day(s) each year, such as Memorial Day.

2.2.2. Time Schedules

A time schedule is a combination of a time interval and one or more days of the week. Holidays are a special type of day of the week.

Time schedules are used when assigning access times to tokens in the database, selecting when to ignore (or shunt) message from alarms, or specifying when an output device is normally on.

For example, one time schedule could consist of the hours from 8 AM to 5 PM Monday through Friday. Another time schedule could be set up for the hours from 8 AM to 5 PM Monday through Friday, plus Saturday, Sunday, and holidays. The first time schedule might be used to allow access for general office personnel. The second schedule could be used for supervisors.

To ignore alarm messages from a motion sensor during the regular office hours, the sensor could be assigned the first time schedule. The motion sensor alarms would not be recorded during the hours from 8 AM to 5 PM Monday through Friday.

If the lights are controlled by your APM and assigned the first time schedule, then they will be on automatically from 8 AM to 5 PM Monday through Friday.

Up to 4 access schedules can be defined. There are also two special time schedules:

- always and
- never.

2.2.3. Daylight Savings

Since an access control system is very dependent on the current time and date, time changes, like Daylight Savings Time, could be a problem. Therefore, twice each year your APM automatically adjusts the current time to a time you specify.

2.3. Doors

2.3.1. Entrance/Exit Devices

Entrances or exits from the door can be controlled with card readers and/or keypads. Further, exiting can also be controlled by a switch.

Card readers are used to pass along information encoded on a card. There are several types of card readers:

- Wiegand
- Proximity
- Bar code
- Magnetic stripe

The RF Access Receiver is a special device that is used like a standard Wiegand card of cards. In addition to the ID and site code, the wireless receiver sends keypress information. Sending this information enables the APM to perform special functions like door selection, panic, and wireless point control.

Keypads are used to enter Personal Identification Numbers (PINs), which can be used alone or along with cards.

An egress (exit) input can be used for a simple way of unlocking the door for exit. The input can be a button, motion detector, or crash bar.

2.3.2. Door Strike

The door strike is a device that locks or unlocks the door. It is controlled by the APM, which is set up by the user.

There are three strike types supported by the APM:

- **Memory—** The door locks when it opens. This is typically used with spring-bolt type locks
- **Non-Memory**— The door locks when it closes. This is typically used with magnetic or dead-bolt type locks
- **Fixed Time**— The door locks at the end of the strike time. This can be used on spring-bolt, dead-bolt, and magnetic types of locks.

The **strike time** is the length of time that the door is unlocked during access.

The **ajar time** is the length of time after the strike time has expired, but before a door-open message is sent.

2.4. Inputs

Inputs are essentially switches monitored by the APM. There are four general-purpose inputs, plus a tamper input.

2.4.1. Normal State

Inputs can be set up as either normally open (NO) or normally closed (NC):

- **Normally Open**— The input is considered to be in the alarm state when it becomes a short circuit.
- **Normally Closed**— The input is considered to be in the alarm state when it becomes an open circuit.

2.4.2. Supervision

Inputs can be supervised or unsupervised:

- **Unsupervised**— The input has only two states: electrically a short circuit (closed) or electrically an open circuit (open).
- **Supervised**— The input is wired with a fixed resistor to detect tampering, which allows the input to have three states : open, closed, or resistive.
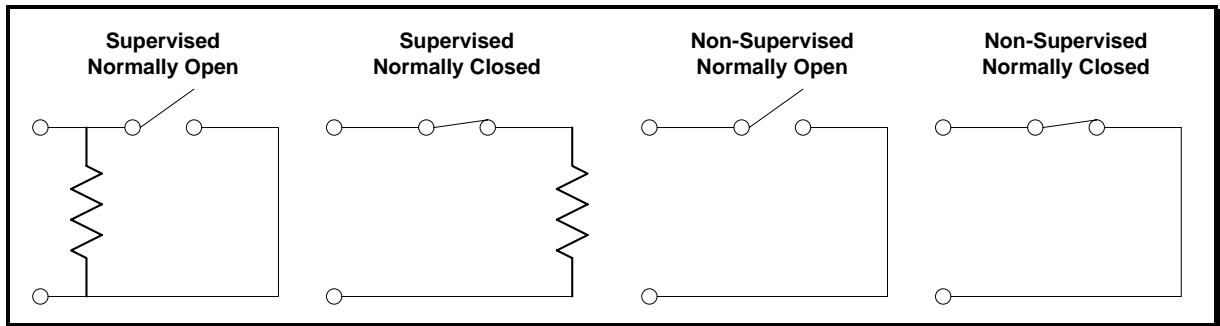
Figure 3: 351 Input Configurations

Supervised inputs are considered to be in the "normal state" when the input is resistive. The alarm state is a short (is closed) for a normally open connection or is open for a normally closed connection. A trouble state is open for a normally open connection or a short (is closed) for a normally closed connection.

2.4.3. Scheduling

Inputs are assigned a time schedule, which is when input state changes will not be reported. Inputs are assumed to be in the normal state when the time schedule is active.

2.4.4. Door Position and Egress

The APM's four inputs are generally used as door position (open or closed) and egress (exit request) for each of the two doors. However, you can alter this setup for custom installations.

2.5. Outputs

Outputs are essentially switches controlled by the APM. There are two outputs used for the door strike and two general-purpose outputs. All four outputs are form-C type voltage-free relays, rated at 3 Amps, 24 V_{AC} or 30 V_{DC}.

2.5.1. Operation

Each output is in either an active or inactive state:

- **Inactive**— Results when there is a closed circuit between the normally closed and common terminals.
- **Active**— Results when there is a closed circuit between the normally open and common terminals when the relay switches.

The output device is typically connected to power at the normally open and common points, through the associated relay. Normally, the device is off. However, when the output is activated, the device turns on.

It is possible to connect output devices that behave in the reverse fashion. That is, a can be connected so that it is normally on and is turned off when the output is activated.

2.5.2. Scheduling

Outputs can be assigned a time schedule, which is when a relay will be active.

2.6. Options

"Options" are conditions that can be set up for controlling the operation of the two general-purpose outputs. Several types of options are defined in this section.

2.6.1. Denied Access

The Denied Access Option pulses (turns on) for 10 seconds whenever an invalid access attempt occurs. This option is associated with a specific door and reader.

2.6.2. Interlocking

The Interlocking Option turns on an output when one or more interlocked (mapped) inputs are in the alarm state.

2.6.3. Security System Arm / Disarm

The Arm / Disarm Option is designed to be an interactive control for arming and disarming a security system. When the output is inactive, the security system reads an open circuit, which is interpreted as a request to arm. When the output is active, the security system is presented with a closed circuit, which is interpreted as a request to disarm.

Since the output state can be assigned a time schedule, your APM can automatically arm a security system. For example, if a time schedule ends at 5 PM, the alarm system will automatically arms itself then.

The security system will not automatically disarm when the time schedule begins, say at 9 AM. Instead, the security system will remain armed, until a card with disarm privileges is swiped at the door

Tokens, such as the above mentioned card, can have Arm / Disarm privileges. With such a card, a single swipe at the card reader disarms your system (the output becomes active). Similarly, with a double swipe of such a card arms your system (the output becomes inactive).

Note: The actual state of the security system must be provided at the tamper input of the APM.

2.6.4. Panic

The Panic Option can only be used with the ITI RF Access Receiver[®] (ITI P/N 60-663-95). The receiver sends keypress information with the ID number. The **[ARM]+[DISARM]** keypress generates a panic signal from either the 2- or 4-Button Keychain Transmitter. Additionally, a panic signal can come from pendant panic transmitters.

If the transmitter's ID number is valid and a panic keypress was sent, an output is activated.

The amount of time, or "duration," the output is active can be selected by the user. There are two time settings used to determine this duration:

- An "initial on time a length of time the output must be active.

Note: The initial on time cannot be canceled.

- There is also a "time-out duration," after which the output is inactive

The output is on for at least as long as the initial on time. After the initial on time, the output can be deactivated by any valid access attempt. However, if a valid access attempt is not made, the output turns off when the time-out is reached.

2.6.5. Wireless Point Control

The Wireless Point Control Option can only be used with the RF Access Receiver and 4-Button Keychain Transmitters. The receiver sends keypress information with the ID number. The **[LIGHTS]** and **[STAR]** keypresses can control the state of an output.

Tokens can be assigned a point control privilege. When a valid token with this privilege is presented at the reader, with either the **[LIGHTS]** or **[STAR]** keypress, the output state is switched.

The Wireless Point Control Option can turn on an output it controls before its time schedule begins. When its time schedule expires, the output will automatically turned off. If it is turned on outside its normal hours, the output should be manually turned off. However, in both situations, the output returns to its normal time schedule on the next day.

For example, you could wire your neon open sign as a Wireless Point Control Option. The sign's time schedule could automatically turn it on at 9 AM and off again at 6 PM. However, you could turn the sign on earlier, say at 8:30 AM, or keep it on later, say until 7 PM, and manually turn it off before you leave. In both examples, the sign would resume its normal time schedule for the next business day.

2.6.6. Occupancy Monitoring

The Occupancy Monitoring Option turns on an output when a maximum occupancy is reached. In addition to this, card readers can be disabled when the maximum occupancy is reached. This option is associated with a specific door and reader.

2.7. Cardholder Database

The database stores the ID numbers of each cardholder. The ID can be a card, a PIN, or both. The APM can store up to 250 IDs.

2.7.1. ID Attributes

Each ID is associated with specified attributes, which are listed below:

- Name of cardholder
- Time schedule for each door (which can be different)
- Category, for reporting purposes
- Security system Arm / Disarm privilege
- Wireless Point Control privilege

2.7.2. Master Learn / Delete Cards

Five special cards can be set up to add or remove cards to or from your APM database at the card reader.

Four of the cards can be used to add cards to the database. Each of these Master Learn Cards is assigned attributes that are transferred to new cards added to your system. When a Master Learn Card slides through or is presented to the reader, the next card that is presented will be assigned the Master Card's attributes and be added to your APM database.

The fifth Master Card, a Master Delete Card, is used to delete cards from your APM database. When the Master Delete Card is presented to the reader, the next card that is presented will be removed from your APM database.

Note: Swiping a Master Learn / Delete Card through a card reader will not provide access through a door.

2.8. System Status

2.8.1. Event Reporting

"Events" are conditions that your APM can detect, such as access attempts, whether valid or invalid, and changes of the state of an input.

All events that occur are reported at the terminal and stored in the event log. Up to 250 events will be stored in the event log, which can be displayed or printed.

2.8.2. Reader LED Indications

Each reader LED (light-emitting diode) responds to access attempts with a valid access or invalid access response. If the security system Arm / Disarm Option is selected, the reader LED also displays the current Arm / Disarm state. When a Master Learn / Delete Card is presented, the reader LED response shows that the reader is ready to add or delete a card.

The reader LED responds slightly differently for some conditions, depending on whether it is a red-only or red/green type.

Indicated State	Red-Only LED	Red/Green LED
Door Secure	solid red	solid red
Granting Access	½ second ON ½ second OFF	solid green
Denied Access	¼ second ON ¾ second OFF	½ second red ½ second green
Security Armed	0.9 second ON 0.1 second OFF	0.9 second red 0.1 second green
Security Disarmed	0.1 second ON 0.9 second OFF	0.1 second red 0.9 second green
Card Learning	very fast blinking	very fast blinking

Table 1: Reader LED States

2.9.   Miscellaneous

2.9.1. Password

Commands used to set up and control APM operation are password protected. The APM setup can be altered only after logging on with the correct password.

2.9.2. Site Code

The APM has a site code that can be selected by the users. Every card used at the reader has a site code, as well as an ID number. Every card's site code must match the APM's site code.

Note: If the card's site code match the APM's site code, no access is given.

2.9.3. Customizable Magnetic Stripe Format

Magnetic stripe cards can have different formats. The format used by your APM to determine the card number and site code encoded in the magnetic stripe, which can be customized by the user.

2.10. Power Supply

2.10.1. Power Input

The APM can be powered using a 16 V_{AC} or 18-24 V_{DC} power supply. Additionally, a battery backup kit (ITI P/N 34-006) is available to supply power if primary power fails.

2.10.2. Power Output

The APM can provide a total power of 600 mA at 12 V_{DC} or 5 V_{DC}, for all external devices, including card readers, keypads, door strikes, and all input and output devices.

3.   Installation Planning

Planning an installation should be done before mounting, wiring, and programming your system. Please copy and complete the *351 Installation Planning*, *351 Schedules Planning,* and *351 Database Planning* forms (found in Appendices B, C, and D).

Use this section to answer questions that may arise during system setup. This will make programming easier and provide documentation about your system.

Throughout this section, you will see examples that relate to the planning forms. These examples are intended to guide your installation planning.

3.1.   Schedules

Schedules are used for both hardware and database setups.

Note: Your setup is much easier if all schedules are completed first.

3.1.1.   Holidays

Holidays are a special type of day that can be used on an access schedule. Whenever possible, complete the holiday table before the time schedule table.

❖ How to Select Each Holiday Interval

1.   On your planning form, record a description of the holiday.
2.   Determine and mark the type of holiday:
   •   fixed or
   •   variable.
3.   Determine and write down the date and time the holiday will begin.
4.   Determine and write down the date and time the holiday will end.

See the table below for an example on planning your APM holidays:

HOLIDAYS						
Holiday	**Description**	**Type**	**Start Date**	**Start Time**	**End Date**	**End Time**
1	New Year's	■ Fixed ❑ Variable	12/31	00:00	01/01	23:59
2	Memorial Day	❑ Fixed ■ Variable	05/25/98	00:00	05/25/98	23:59
3	Independence Day	■ Fixed ❑ Variable	07/04	00:00	07/04	23:59
4	Labor Day	❑ Fixed ■ Variable	09/01/97	00:00	09/01/97	23:59
5	Thanksgiving	❑Fixed ■ Variable	11/27/97	00:00	11/28/97	23:59
6	Christmas	■ Fixed ❑ Variable	12/24	00:00	12/25	23:59
7	Memorial Day	❑ Fixed ■ Variable	05/31/99	00:00	05/31/99	23:59
8	Plant Closed	❑ Fixed ■ Variable	08/05/97	08:00	08/07/97	16:59
9		❑ Fixed ❑ Variable	__/__/__	__:__	__/__/__	__:__
10		❑ Fixed ❑ Variable	__/__/__	__:__	__/__/__	__:__

Example 1: Planning APM Holiday Intervals

3.1.2. Time Schedules

Each of the time schedules you define is divided into four time zones. Each time zone consists of one or two time intervals, as well as the days of the week that these hours will be active. Since you have four time schedules, you have a total of 16 time zones and a maximum total of 32 time intervals.

❖ How to Select Each Time Schedule, Time Zone, and Time Interval

1. Determine and write down the first interval's start and end time on your planning form.
2. Determine and write down the second interval's start and end time (if used).
3. Determine and mark the days of the week each interval will be active.

See the table below for an example on planning your APM's Time Schedules:

TIME SCHEDULES													
Schedule	**Zone**	**Interval 1**		**Interval 2**		**Days**							
		Start Time	**End Time**	**Start Time**	**End Time**	**(1) Mon.**	**(2) Tues.**	**(3) Wed.**	**(4) Thurs.**	**(5) Fri.**	**(6) Sat.**	**(7) Sun.**	**(8) Hol.**
A	0	00:00	07:59	__:__	__:__	■	■	■	■	■	■	■	❏
	1	08:00	08:29	23:30	23:59	■	■	■	■	■	■	■	❏
	2	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
	3	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
B	0	08:00	15:59	__:__	__:__	■	■	■	■	■	■	■	❏
	1	07:30	07:59	16:00	16:29	■	■	■	■	■	■	■	❏
	2	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
	3	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
C	0	16:00	23:59	__:__	__:__	■	■	■	■	■	■	■	❏
	1	00:00	00:29	15:30	15:59	■	■	■	■	■	■	■	❏
	2	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
	3	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
D	0	08:00	16:59	__:__	__:__	■	■	■	■	■	■	■	■
	1	06:30	07:59	17:00	18:29	■	■	■	■	■	❏	❏	❏
	2	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
	3	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
X		00:00	23:59	(always)		■	■	■	■	■	■	■	■
Y		00:00	00:00	(never)		❏	❏	❏	❏	❏	❏	❏	❏

Example 2: Planning APM Time Schedules

3.1.3. Daylight Savings Time Changes

Two automatic time changes can be programmed in your APM.

❖ How to Select Automatic Time Changes

1. On your planning form, record a description of each time change (see Example 3).

2. Determine and write down the dates for the time change to take effect.

3. Decide upon what hour you want the time change to take effect.

Note: Daylight Savings Time changes are traditionally made at 2 AM. However, you can set your time changes to take effect at any time.

4. Write the above time in the "old time" column on your planning form.

5. Determine and write down the new hours that the time change will assume.

See the table on the next page for an example on an planning your APM's automatic time changes:

DAYLIGHT SAVINGS TIME CHANGES				
Time Change	**Description**	**Date**	**Old Time**	**New Time**
1	Daylight savings time starts.	04/26	02:00	03:00
2	Daylight savings time ends.	10/26	02:00	01:00

Example 3: Planning APM Time Changes

3.2. Hardware

This section outlines planning the hardware used with your system.

3.2.1. Option Kits

Select any add-on option kits used with the APM.

See the table below for an example on planning option kits:

ADD-ON OPTION KITS	
❏ Keypad	❏ Battery Backup Kit

Example 4: Planning APM Add-On Options

3.2.2. Doors

Door hardware involves the electromechanical strikes used to lock or unlock the doors.

❖ How to Plan Each Door Strike

1. On your planning form, record the make, model, and voltage of the strike being used (see Example 5).

2. Select the appropriate contact type, depending on how the strike is to be connected.

Note: Normally open door strike contacts can also be referred to as "fail-secure." Power is applied to the strike to open the door. If power is lost, the relay will remain open, and the door will remain in its secure state.

Normally closed strike contacts can be referred to as "fail-unsecure." Power is applied to the strike when the door is secure. If power is lost, the relay will open and the door will be unlocked.

3. Select the appropriate type of door strike based on the requirements of the strike for proper operation.

4. Determine and write down the strike time for the door.

5. Determine and write down the door ajar time.

See the table below for an example on planning your APM's door strikes:

DOOR STRIKES						
Door	**Make & Model**	**Voltage**	**Contact Type**	**Type**	**Strike Time**	**Ajar Time**
1	ABC Locks SpringBolt 12	12 V	❏ Norm. Open ■ Norm. Closed	■ Memory ❏ Non-Memory ❏ Fixed Time	5	15
2	ABC Locks MagLock 1000	24 V	■ Norm. Open ❏ Norm. Closed	❏ Memory ■ Non-Memory ❏ Fixed Time	15	30

Example 5: Planning APM Door Strikes

3.2.3. Inputs

Inputs can be a variety of devices that provide a switch open/closed state. This can be a simple switch, push-button, or a sensor, such as a motion detector.

❖ How to Plan Each APM Input

1. On your planning form, record a name (10 characters or less) and description for each input (see Example 6).

2. Using the time schedule table, determine a schedule when alarm messages will be ignored (shunted).

3. Select the appropriate contact type, depending on how the input device is to be connected to the APM.

4. Include other setup information and select the appropriate options:
   - select interlocked if the input will be interlocked to an output.
   - select supervised if the input will be supervised by using an end-of-line resistor.
   - select egress if input 2 and / or 4 will be used for opening the door on exit.

See the table below for an example on planning your APM's inputs:

INPUTS				
Input	**Name and Description**	**Schedule**	**Contact Type**	**Setup**
1	DOOR1_POS Position Switch	Y	❏ Norm. Open ■ Norm. Closed	■ Supervised ❏ Interlocked to: ②　④
2	EGRESS_1 Crashbar	D	■ Norm. Open ❏ Norm. Closed	❏ Supervised ■ Egress (set by default) ■ Interlocked to: ❷　④
3	DOOR2_POS Position Switch	Y	❏ Norm. Open ■ Norm. Closed	❏ Supervised ❏ Interlocked to: ②　④
4	EGRESS_2 Motion Sensor	D	■ Norm. Open ❏ Norm. Closed	■ Supervised ■ Egress (set by default) ■ Interlocked to: ②　❹

Example 6: Planning APM Inputs

3.2.4. Outputs

Outputs can be a variety of devices that are switched on or off by the APM, including the strikes used for the doors. The other two outputs are general purpose, and can be used for such devices as a siren, light, or camera.

❖ How to Plan Each APM Output

1. On your planning form, record a name (10 characters or less) and description for each output.

2. Using the time schedule table, determine a schedule when the output will be active.

3. Include other setup information that could be beneficial in the notes area of your form.

See the table below for an example on planning your APM's outputs:

OUTPUTS			
Output	**Name and Description**	**Schedule**	**Notes**
1	STRIKE_1 SpringBolt 12	Y	Default door 1 strike
2	CCTV_1 Camera outside of Door 1	D	Set to show entry from parking
3	STRIKE_2 MagLock 1000	Y	Default door 2 strike
4	CCTV_2 Camera outside of Door 2	D	Set to show entry from parking

Example 7: Planning APM Outputs

3.2.5. Options

Options are selected to define the behavior of outputs 2 and 4. Multiple options can be selected for each output.

The Denied Access and Occupancy Monitoring options are associated with one of the doors (readers). When selecting these options, select the door that this output will correspond to.

For the Occupancy Monitoring Option, determine the maximum number of cardholders in the door. The current number of cardholders in the door will also be requested when programming. If the reader is to be disabled once the maximum has been reached, make this selection for the option as well.

See the table below for an example on planning your APM's options:

OPTIONS						
Output	**Denied Access**	**Security System Arm/Disarm**	**Panic**	**Wireless Point Control**		**Occupancy Monitoring**
				Lights	**Star**	
2	■ Door 1 ❑ Door 2	❑	■	■	❑	■ Door 1 ❑ Door 2 Maximum: __25__ Current: __4__ ❑ Disable Reader
4	❑ Door 1 ■ Door 2	❑	■	❑	■	❑ Door 1 ■ Door 2 Maximum: __100__ Current: __62__ ❑ Disable Reader
Note: If "Panic" is selected, choose			*the initial on-time (minimum) 10 seconds and the time-out (minimum) 9000 seconds*			

Example 8: Planning APM Options

3.2.6. Readers and Keypads

Readers can be used by themselves or with keypads. Their output can be in Wiegand or magnetic stripe format. The reader LED (light-emitting diode) can be one- or two-colored.

❖ How to Plan Each Reader

1. Record a description of the reader/keypad configuration on your planning form.
2. Select whether or not a keypad is used (see Example 9).
3. Select the appropriate output format, Wiegand or magnetic stripe.

Note: Keypads, proximity, and bar code readers typically use Wiegand output format.

4. Select the appropriate reader LED (light-emitting diode) type for your system.

See the table below for an example on planning your card readers and keypad use:

CARD READERS AND KEYPADS				
Reader	**Description**	**Keypad**	**Type**	**LED Type**
1	HID MaxProx Proximity reader	❑ Yes ■ No	■ Wiegand ❑ Magnetic Stripe	❑ Red Only ■ Red/Green
2	Essex Keypad Keypad Only	■ Yes ❑ No	■ Wiegand ❑ Magnetic Stripe	❑ Red Only ■ Red/Green

Example 9: Planning APM Card Readers and Keypads

3.2.7. Site Code and Terminal Baud Rate

The site code for Wiegand cards is generally less than 255. The APM site code must match the site code of the cards being used.

Note: For magnetic stripe cards, the site code can be up to an 8-digit number.

The terminal baud rate is the speed that the terminal connects to the APM. For any communication with the APM, the baud rate of the terminal must match the setting at the APM.

❖ How to Select Your APM Site Code and Baud Rate

1. Record the site code of your APM on your planning form.

2. Select the appropriate terminal baud rate.

See the table below for an example on planning your APM's information:

APM INFORMATION			
Site Code	129	**Terminal Baud Rate**	❑ 300 ❑ 1200 ❑ 2400 ■ 9600

Example 10: Planning APM Site Code and Terminal Baud Rate

3.2.8. Magnetic Stripe Card Data Format

Note: This section is not required if all of your card readers are Wiegand format.

The magnetic-stripe format defines positions of data fields on track 2 of the magnetic-stripe card. Letters for start, end, and separator characters are hexadecimal values. Each value must be unique. Each and card format contains one digit for the longitudinal redundancy check (LRC), a computed value that determines if the data fields on the card have been read correctly. The LRC is always the next character after the end character.

If a site code field is used, the site code for your APM must match the site code for each card before any further data validity checks are made.

If the ID number is defined, the ID number is reported with the card number on any event involving this card. However, the ID number is not used by your APM for access control.

For magnetic stripe cards, the data format can be defined by you. If this format differs from APM defaults, the data format settings can be customized for the cards being used. The magnetic stripe

data format is critical to the operation of the APM. If the positions and lengths of the fields do not agree with those on the cards, your APM cannot interpret them and will not grant access.

The magnetic-stripe card contains up to 40 sequentially numbered character positions, starting with the start character at position 1.

Note: Magnetic stripe card format fields cannot share character positions.

The SETMAG command (described fully in Section 7) is used to define the magnetic stripe card format. A list of both required and optional SETMAG fields are described below:

Required SETMAG Fields	
Start character	A letter A to F that marks the beginning of the data area.
End character	A letter A to F, different from the start character, that marks the end of the data area.
Card number	A 1- to 16-digit number unique to this card. The number can be divided into three fields, which do not need to be consecutive.
Optional SETMAG Fields	
Site code	A 1- to 8-digit number that uniquely identifies the site to be used with this card. Site codes are used if several sites are set up with similar card formats.
ID number	A 1- to 36-digit, user-defined number. The number can be divided into two fields, which do not need to be consecutive. The ID number is displayed for access events for the card, and is not used for any other purpose.
Separator character	A letter A to F, different from the start and end characters, used to separate fields.

Table 2: Magnetic Stripe Card Data Format and the SETMAG **Command**

The default magnetic-stripe format used by your APM has the following items:

- a start character of B in position 1
- a three-digit site code field in positions 2-4
- a seven-digit card number field in positions 5-11
- a separator character of D in position 12
- an end character of F in position 39

❖ How to Set the Magnetic Stripe Data Format

1. On your planning form, record the character (A-F) used for the start sentinel (see Example 11).

2. On your planning form, record site code information, including the following:
    *   the number of digits and
    *   the positions at which the site code starts and ends.

3. On your planning form, record card number information pertaining to numbers:
    *   the number of digits and
    *   the positions where the card number starts and ends.

Note: Up to three fields can be used for the card number.

4. On your planning form, record the information pertaining to the ID number:
    *   the number of digits and
    *   the positions at which the ID number starts and ends.

Note: One or two fields can be used for the ID number.

5. On your planning form, record the character (A-F) used for the separator and its position.

6. On your planning form, record the character (A-F) used for the end sentinel and its position.

See the table below for an example on planning your APM's card data format:

Field	Character	Digits	Position 1		Position 2		Position 3	
			Start	End	Start	End	Start	End
Start Sentinel	B							
Site Code		3	2	4				
Card Number		7	5	11	-	-	-	-
ID Number		-	-	-	-	-		
Separator	D		12					
End Sentinel	F		39					

MAGNETIC STRIPE CARD DATA FORMAT

Example 11: Planning your APM Magnetic Stripe Card Data Format

3.2.9. System Power

Your system power information is valuable for future reference and troubleshooting.

❖ How to Select the System Power Information

1. Record the voltage and location of the power supply on your planning form.
2. Record the circuit breaker number and location (if applicable) on your planning form.
3. Select whether or not a backup battery is used.

See the table below for an example on planning your APM's system power:

SYSTEM POWER				
Power Supply		**Circuit Breaker**		**Backup Battery**
Voltage	**Location**	**Number**	**Location**	
115V$_{AC}$	Room 105 ceiling	23	South wing breaker box	■ Yes ❑ No

Example 12: Planning the System Power

3.3. Database

3.3.1. Cardholders

The cardholders database associates an "access token" (a card, PIN, or both) with time schedules for each door.

❖ How to Plan Each Cardholder

1. On your planning form, record the name of the cardholder (18 characters or less). See Example 13.
2. On your planning form, record the cardholder's card number (if used).
3. On your planning form, record the cardholder's PIN (if used).
4. Determine and write down time schedules for access to each door for the cardholder.
5. Choose a category to group the cardholder (if desired).
6. Assign the security system Arm / Disarm or Wireless Point Control privilege if the cardholder will be using either of the options.

See the table below for an example on planning your cardholder database:

CARDHOLDERS DATABASE							
Name	**Card**	**PIN**	**Schedule**		**Category**	**Privileges**	
			Door 1	**Door 2**		**Security System Arm/Disarm**	**Wireless Point Control**
MASTER	1000	3870	X	X	M	✔	✔
SUPERVISOR		1997	X	X	S	✔	✔
FORTE_BOB	215575	1234	A	A	A		
KEMPER_GREG	215577		D	D	Q	✔	
MOORE_PAUL		1122	C	C	C		
SINKULA_DAVE	215576		B	B	B		
WETTERLIND_ERIC	215576		D	D	D		✔
TEMP	200000		Y	Y	T		
	1234567		D	D			

Example 13: Planning the Cardholder Database

3.3.2. Master Learn / Delete Cards

Master Learn Cards are used to add cards directly to the database at the card reader. Master Learn Cards A-D are used to add new cards with the attributes set for them.

Master Delete Cards are similar to Master Learn Card, except they delete cards directly from the database when used at the card reader. Card E is used to delete a card from the database.

❖ How to Plan Each Master Learn / Delete Card

1. On your planning form, record the name of the cardholder (18 characters or less). See Example 14.
2. On your planning form, record the Master Learn / Delete Card number.
3. Determine and write down time schedules for access to each door for the cardholder.
4. Choose a category to group the cardholder.
5. Assign the security system Arm / Disarm or Wireless Point Control privilege if the cardholder will be using either of the options (if desired).

See the table below for an example on planning your APM's Master Learn / Delete Cards:

MASTER LEARN / DELETE CARDS							
Card	**Name**	**Card Number**	**Schedule**		**Category**	**Privileges**	
			Door 1	**Door 2**		**Security System**	**Wireless Control**
A	SHIFT_A	1001	A	Y	A		
B	SHIFT_B	1002	B	Y	B		
C	SHIFT_C	1003	C	Y	C		
D	OFFICE	1004	D	D	O		✔
E	*[Delete]*	1005					

Example 14: Planning Master Learn / Delete Cards

4.   Mounting and Wiring

This section describes how to mount your APM. It also gives general guidelines for mounting APM peripherals, such as readers, keypads, sensors, switches, devices, and a terminal device.

4.1.   Equipment List

The following is a list of the equipment needed for the installation:

4.1.1.   Power Supply

❏ AC or DC power source

❏ For AC power, a transformer (provided with APM)

❏ An 18 AWG (or larger) 3-conductor cable, such as Belden 9453.

4.1.2.   Door Peripherals

The following peripherals can be used for each door:

❏ Door position sensor

❏ Exit Switch Kits (ITI P/N 805134)

❏ Wiegand card reader, or

❏ proximity card reader, or

❏ magnetic-stripe card reader (many models are available)

❏ and/or keypad (ITI P/N 60-330)

❏ Door strike

❏ Output devices (such as alarms, sirens, CCTV, etc.)

4.1.3.   Optional Add-On Kits

❏ Optional Backup Battery Kit (ITI P/N 34-006)

4.1.4.   Communications

❏ RS-232 terminal (ITI P/N 60-481) or a computer with terminal emulation software

❏ Terminal cable (ITI P/N 49-334 - provided with terminal # 60481)

❏ Database Backup and Restore Software (ITI P/N 60-480)

4.2.   Mounting the APM and Peripherals

❖ How to Mount the APM

Mount your APM on the secure side of the doors it will monitor. Use the dimensions shown in Figure 4 for mounting your APM.

14.50"

13.88"

14.50"
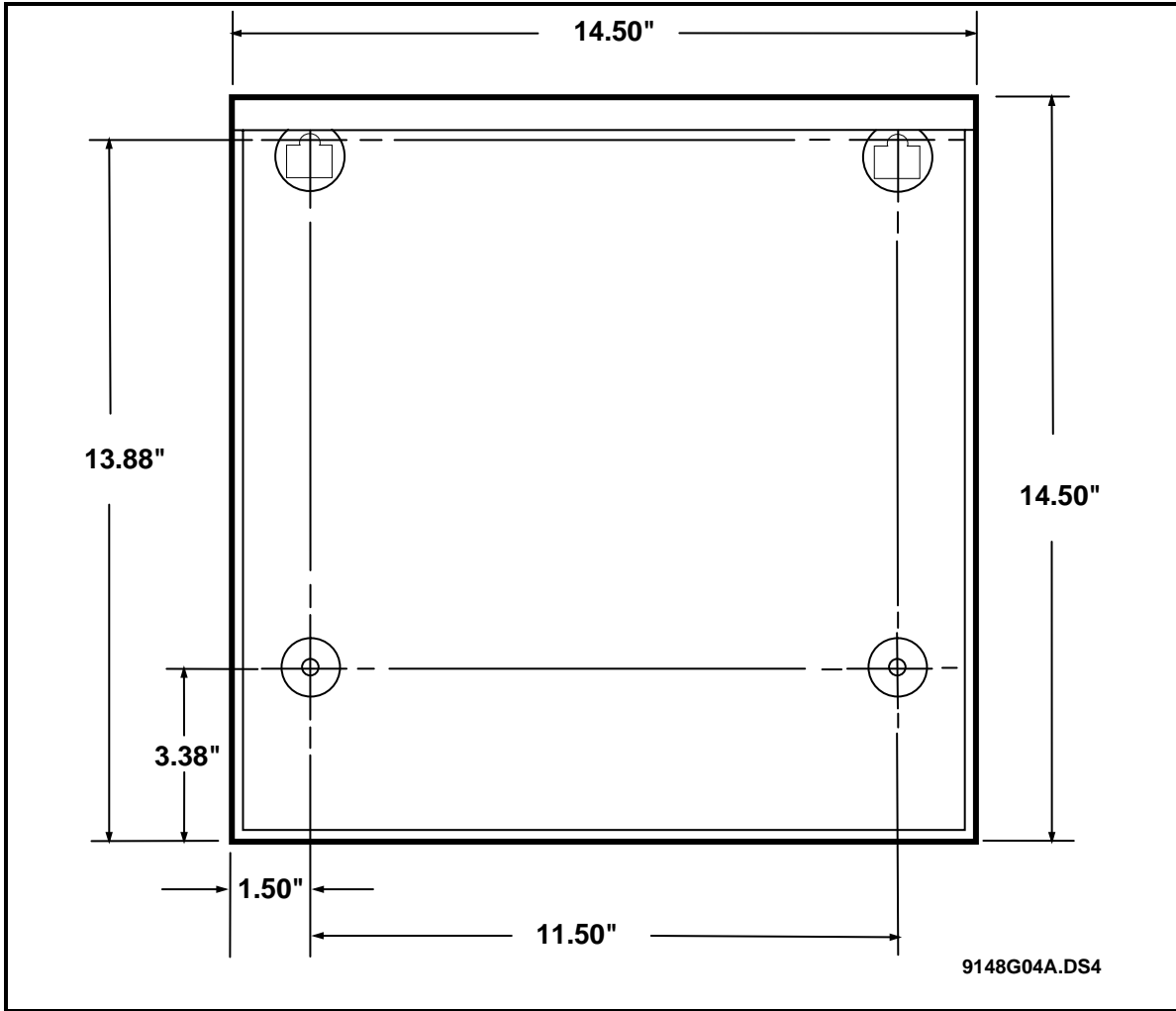
3.38"

1.50"

11.50"

9148G04A.DS4

Figure 4: 351 Mounting Dimensions

Use the following guidelines when mounting your APM peripherals:

- Mount the peripherals according to the instructions provided with the manufacturer's packaging.
- A reader or keypad must be mounted on the unsecure side of each door, near the door, at a convenient height for users.

4.3.   Wiring the APM and Peripherals

Wire your APM and peripherals by connecting all devices as shown in Figure 5, *351 Wiring Diagram*.

4.3.1. Wiring Guidelines

Proper wiring connections and shielded cable grounding are essential for a reliable system. Poor wiring connections, ground loops, or ungrounded shielded cable cause most system problems.

*Warning: **The APM enclosure should not be used as a pull box or pass-through for wiring unrelated to your APM and its associated equipment.***

4.3.2. Stripping Shielded Cable

When stripping the outer jacket off the shielded cable, carefully inspect the insulation on the wires for any nicks or cuts. After the excess shield has been cut off, pull the outer jacket of the shielded cable over any exposed shield. Only the shield wire should be exposed.

When preparing the individual wires, strip off 1/4" of insulation. Tightly twist the strands together and tin the wire. Beware of loose strands of wire touching adjacent screw terminals, as they can cause problems.

4.3.3. Grounding Shielded Cable

Throughout the system, shielded cable must be properly grounded to prevent noise or ground loops. The ground screw for the enclosure is terminal 3. This terminal must be connected to a known ground (incoming power ground, telephone system ground, cold water pipe, or grounding rod) for proper operation. Connect the shield wire of a shielded cable to the nearest ground terminal on the APM's terminal strip.
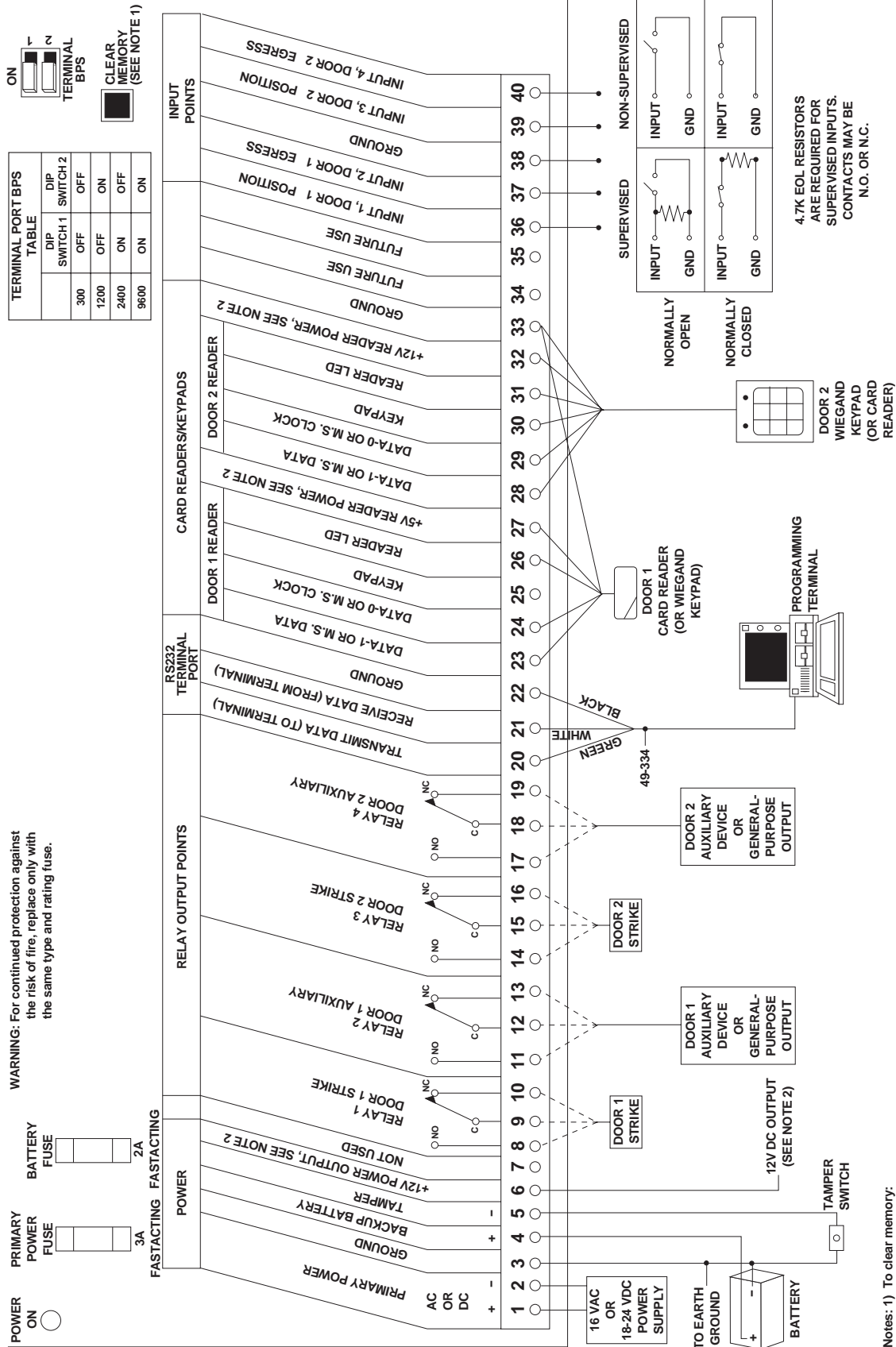
9148G01B.DSF

TERMINAL PORT BPS TABLE

	DIP SWITCH 1	DIP SWITCH 2
300	OFF	OFF
1200	OFF	ON
2400	ON	OFF
9600	ON	ON

ON
1 2
TERMINAL BPS

CLEAR MEMORY (SEE NOTE 1)

INPUT POINTS

40	INPUT 4, DOOR 2 EGRESS
39	INPUT 3, DOOR 2 POSITION
38	GROUND
37	INPUT 2, DOOR 1 EGRESS
36	INPUT 1, DOOR 1 POSITION
35	FUTURE USE
34	FUTURE USE

NON-SUPERVISED
INPUT GND / INPUT GND

SUPERVISED
INPUT GND / INPUT GND

NORMALLY OPEN / NORMALLY CLOSED

4.7K EOL RESISTORS ARE REQUIRED FOR SUPERVISED INPUTS. CONTACTS MAY BE N.O. OR N.C.

CARD READERS/KEYPADS

DOOR 2 READER
33	GROUND
32	+12V READER POWER, SEE NOTE 2
31	READER LED
30	KEYPAD
29	DATA-0 OR M.S. CLOCK
28	DATA-1 OR M.S. DATA

DOOR 1 READER
27	+5V READER POWER, SEE NOTE 2
26	READER LED
25	KEYPAD
24	DATA-0 OR M.S. CLOCK
23	DATA-1 OR M.S. DATA

DOOR 2 WIEGAND KEYPAD (OR CARD READER)

DOOR 1 CARD READER (OR WIEGAND KEYPAD)

RS232 TERMINAL PORT
22	GROUND
21	RECEIVE DATA (FROM TERMINAL)
20	TRANSMIT DATA (TO TERMINAL)

BLACK
WHITE
GREEN
49-334

PROGRAMMING TERMINAL

RELAY OUTPUT POINTS

RELAY 4 DOOR 2 AUXILIARY
19	NC
18	C
17	NO

DOOR 2 AUXILIARY DEVICE OR GENERAL-PURPOSE OUTPUT

RELAY 3 DOOR 2 STRIKE
16	NC
15	C
14	NO

DOOR 2 STRIKE

RELAY 2 DOOR 1 AUXILIARY
13	NC
12	C
11	NO

DOOR 1 AUXILIARY DEVICE OR GENERAL-PURPOSE OUTPUT

RELAY 1 DOOR 1 STRIKE
10	NC
9	C
8	NO

DOOR 1 STRIKE

POWER
7	NOT USED
6	+12V POWER OUTPUT, SEE NOTE 2
5	TAMPER
4	BACKUP BATTERY
3	GROUND
2	PRIMARY POWER
1	

12V DC OUTPUT (SEE NOTE 2)

TAMPER SWITCH

AC OR DC − +

16 VAC OR 18-24 VDC POWER SUPPLY

TO EARTH GROUND

BATTERY

POWER ON

PRIMARY POWER FUSE 3A FASTACTING

BATTERY FUSE 2A FASTACTING

WARNING: For continued protection against the risk of fire, replace only with the same type and rating fuse.

Notes: 1) To clear memory: Press and hold the clear memory button until the power indicator goes out (about 5 seconds) then release.
2) Total current sourced from terminals 6, 27, and 32 must not exceed 600 mA.

Figure 5: 351 Wiring Diagram

CAUTION!	DO NOT apply power or connect backup batteries to your 351 yet!

❖ Wiring the APM and Peripherals

1. Wire your APM and peripherals as shown in Figure 5, *351 Wiring Diagram*.

2. Connect the power supply cables (but do not apply power) and connect the grounding wire.

Warning: Do NOT connect the backup battery at this time.

3. Connect the output devices.

4. Connect the terminal and set the baud rate switches.

5. Connect the card readers and/or keypads.

6. Connect the input devices.

*Note: Installation and wiring should be done in accordance with the National Electrical Code ,
           NFPA No. 70, and any other applicable state or local codes.*

4.4. Wiring the Power Supply and Grounding

*Warning: Do not apply power to your APM or connect the backup battery yet! Only connect
           the power supply cable to your APM now.*

The APM's main electronics module can be powered two ways:

- AC— 16 V_{AC}, 50/60 Hz
- DC— 18-24 V_{DC}

Proper earth grounding must be used with either type of power source. Refer to Figure 6 or Figure 7 when making the power supply connections.

4.4.1. Wiring an AC Power Supply

1. Connect the AC terminals of the power transformer to terminals 1 and 2.

2. Connect the ground terminal on the transformer to terminal 3.

Warning: Do not plug the transformer into the AC power supply at this time.
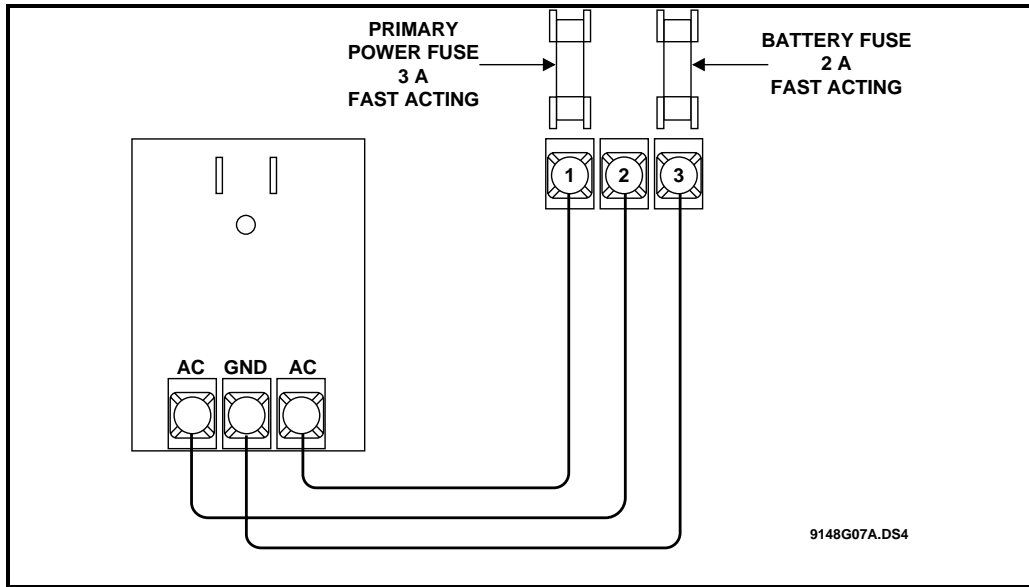
Figure 6: Wiring a 16 V$_{AC}$ Power Supply

4.4.2. Wiring a DC Power Supply

1. Connect the AC terminals of the power transformer to terminals 1 and 2.

2. Connect terminal 3 to a proper ground.

Warning: Do not connect the DC power supply at this time.
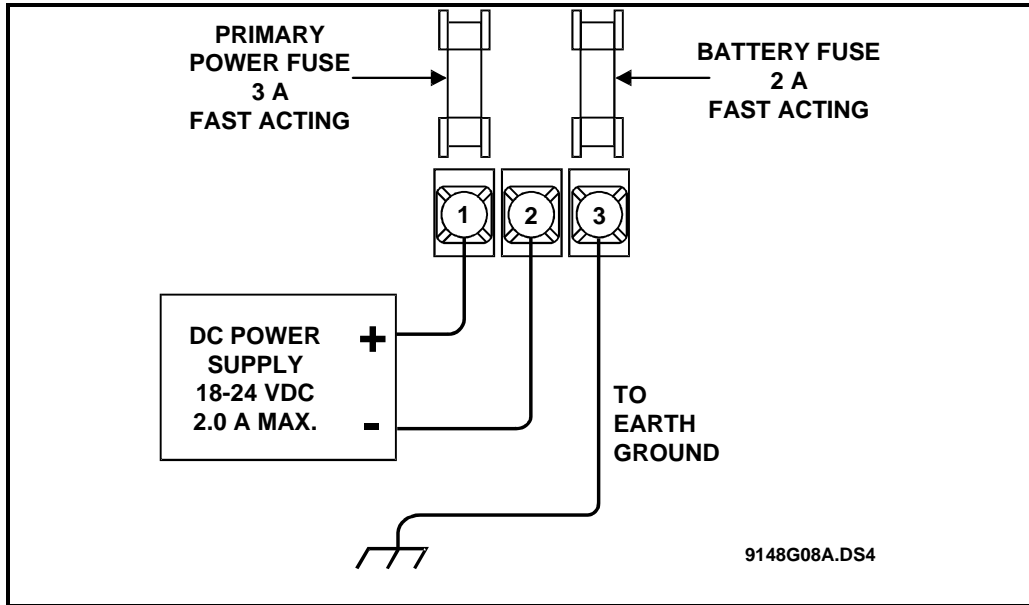
Figure 7: Wiring a DC Power Supply

CAUTION!	The DC power source MUST have a voltage output between 18 and 24 or the APM's power supply can be damaged.

4.5.   Wiring the Outputs

The APM controls four outputs:

- Outputs 1 and 3 are used to control the door strikes.
- Outputs 2 and 4 are used for APM options, interlocking, or other general-purpose outputs.

All of the output contacts are voltage-free, Form C type, rated at 3 Amps, 24 V_{AC} or 30 V_{DC}.

❖ How to Wire the Outputs

Complete the connections shown in Table 3. Refer to Figure 5, *351 Wiring Diagram*, for the location of these connections. Specific wiring for the strike(s) depends on the type of lock used. Follow the manufacturer's instructions for the lock used.

Some examples of strikes are shown in Figure 8 and Figure 9 (found later in this section).

Note: Wire a diode across all DC-powered strikes or other inductive devices (see Figure 8 and Figure 9).

Output	Device	Terminal Connections
1	Door 1 Strike	8, 9, 10
2	Device used with another general output device.	11, 12, 13
3	Door 2 Strike	14 15 & 16
4	Device used with another general output device.	17, 18, 19

Table 3: The Output Connections

Note: When powering up the APM, all outputs are set to OFF.

CAUTION!	The total power consumption of all external devices (strikes, outputs, readers, etc.) must not exceed 600 mA at 12 V_{DC}.
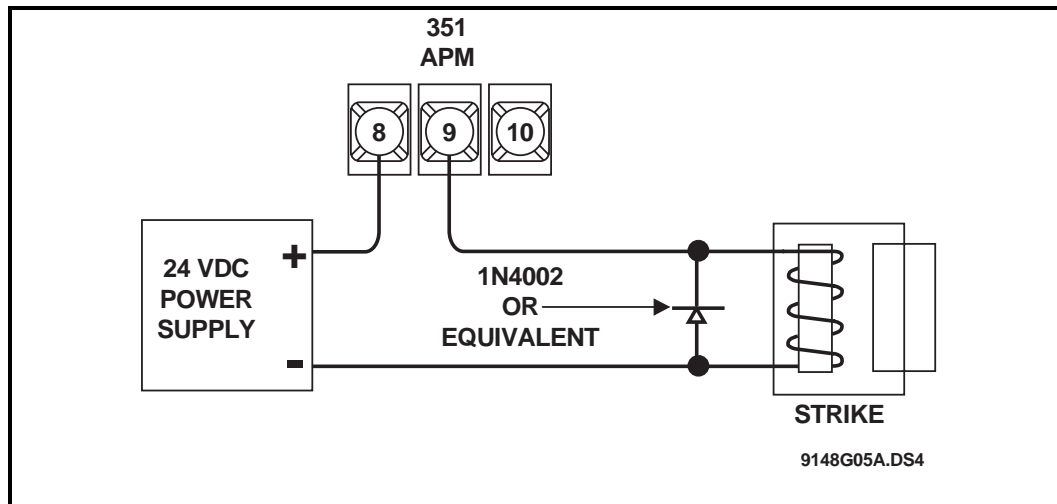
Figure 8: Normally Open Strike at Door 1
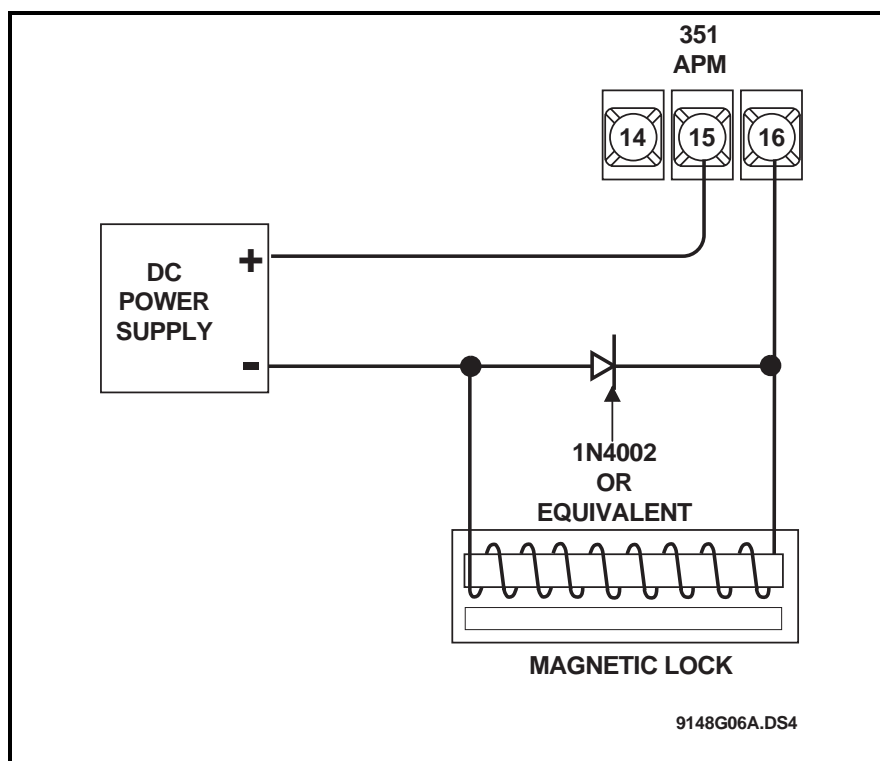
Figure 9: Magnetic Strike at Door 2

4.6.   Wiring the Terminal

Each APM requires an RS-232 terminal or a computer with terminal emulation software for programming and displaying events. Setting up the terminal includes wiring the terminal to your APM and setting two DIP switches on the APM. The DIP switches are located near the upper right of the inside of your APM (see Figure 5, *351 Wiring Diagram*) and indicate the baud rate for the terminal.

❖ How to Wire the Terminal

Connect the cable (ITI P/N 49-334) to the terminal block and to your APM terminals 20 (green wire), 21 (white wire), and 22 (black wire). Refer to Figure 5, *351 Wiring Diagram*, for the location of these connections.

The maximum recommended cable length between your APM and the terminal is 50 feet. ITI recommends the use of modems (80-067) for distances greater than 50 feet.

Note: *Communications with the terminal are possible at distances greater than 50 feet. However, these communications do not conform to the EIA RS232C specification and are not recommended by ITI.*

❖ How to Set the DIP Switches for the Terminal

Use the appropriate setting in Table 4 to set the terminal baud rate:

Baud Rate	DIP Switch 1	DIP Switch 2
300	OFF	OFF
1200	OFF	ON
2400	ON	OFF
9600	ON	ON

Table 4: The Terminal Baud Rate DIP Switch Settings

4.6.1. Configuring the Terminal

Configure the terminal to be used to program the APM.

Note: *Depending on the terminal used, configuration can mean setting DIP switches or running a configuration/setup program.*

If the terminal is a computer with terminal emulation software, ensure that the configuration matches the requirements below.

❖ How to Configure the Terminal

Follow the instructions provided in the terminal's manual. Configure the terminal setting as is indicated below:

Parameter	Setting
Baud Rate	300, 1200, 2400 or 9600
Word Size	7 bits
Parity	Even
Flow Control	XON / XOFF
Stop Bits	1
Duplex	Full

Table 5: Terminal Configuration Settings

❖ How to Install the Database Backup Software

Follow the instructions provided with the software.

4.7.   Wiring the Readers and/or Keypads

Each door must have a Wiegand or magnetic-stripe format reader and/or a keypad. When completing reader or keypad connections, refer to Figure 5, *351 Wiring Diagram*.

❖ How to Wire Readers

Follow the instructions provided with the reader packaging. For ITI magnetic-stripe and Wiegand readers, use the following specifications for cabling:

- **0 to 50 feet**— 24 AWG shielded cable (Belden 9535 or equivalent).
- **50 to 500 feet**— 18 AWG shielded cable (Belden 9553 or equivalent).

❖ How to Wire Keypads

Follow the installation instructions included with the Keyboard Option Kit.

4.8.   Wiring the Inputs

The APM monitors four inputs. Each input requires a single pole, single throw (SPST), normally open or normally closed, voltage-free contact.

The inputs are used for the door sensors position sensors and exit buttons. Each of the inputs can be supervised by installing end-of-line resistors.

❖ How to Wire the Inputs

Complete the connections in Table 6. Refer to Figure 5, *351 Wiring Diagram*, for the locations of these connections.

Input	Device	Terminals
1	Door 1 Position Sensor	36 & 38
2	Door 1 Exit Button	37 & 38
3	Door 2 Position Sensor	38 & 39
4	Door 2 Exit Button	38 & 40

Table 6: The Input Connections

4.9.   Applying Power

When all steps for mounting and wiring are completed, you are nearly ready to apply power to the APM. Complete the prepower checklist before applying power.

CAUTION!   Do not apply power to your APM until completing the prepower checklist!

4.9.1. Prepower Checklist

Confirm each of the following items before powering up the APM.

❏ The APM is mounted on the secure side of the door.

❏ The card reader (s) and/or keypads are mounted as specified in the Option Kit instructions.

❏ Terminal 3 is properly grounded.

❏ All shielded cables are properly grounded.

❏ All screw terminals are tightened.

❏ The door strike wiring is run in a separate cable.

❏ A diode has been placed across any DC-operated strikes and any other inductive devices.

❏ The power source cable has been wired, but is not plugged in.

❏ The baud rate DIP switch has been set properly.

4.9.2. Powering Up

The following procedure defines how to apply power to your APM for the first time.

Warning: Memory must be cleared when powering up the APM.

❖ How to Power Up an APM

1. Plug in your APM's AC or DC power supply.
2. Hold down the **[Clear Memory]** button until the green power light, located on the left inside of the unit, blinks. (Refer to Figure 5, *351 Wiring Diagram*, for the location of the button and power light.)

4.10. Wiring the Backup Battery

Optionally, your APM uses one l2-Volt, 6-Amp hour backup battery (ITI P/N 34-006). A float-type battery charger is included in your APM power supply.

❖ How to Wire the Backup Battery

Connect the battery to terminals 3 and 4. Refer to Figure 5, *351 Wiring Diagram*, for the location of these connections.

Note: The battery charger supplies up to 500 mA to the battery. How long your APM works depends upon the battery's condition and the load on the APM.

4.10.1. Testing Communications

After powering up the APM, use the following procedure to test communications.

Note: If your APM does not respond as described in the following procedure, go to Section 9, "Testing and Troubleshooting," for help identifying and resolving the problem.

❖ How to Test Communications

1. Verify the following things to test communications:

- The APM power light is on.
- The power indicator on the reader LED (light-emitting diode) is red.
- If keypads are used, the Ready LED is on.
- The terminal displays the following message:

  PRIMARY POWER RESTORED

- followed by a statement about the database (INTACT or LOST) and a statement about the backup battery (LOW or OK).

2. Type a few random characters on the terminal. All characters typed should appear on your display.

Note: All letters typed will appear only in uppercase.

3. Press **[Rtn]**. The BAD COMMAND message should display on the next line.

4. Log on to your APM and print the Full APM report. To do this, refer to the instructions in Section 6.

5.   Introduction to Programming

The following section introduces general procedures and conventions used to enter commands into your APM. Commands are used to set up your APM configuration, maintain the cardholder database, and control system devices.

5.1.   Programming Conventions

The following conventions are always used during programming.

Note: Uppercase (capital) letters must be used at all times when programming. Press the [Caps Lock] button on to ensure the use of uppercase letters.

5.1.1. The `Ready>` Prompt

The `Ready>` prompt is displayed when your APM is ready to receive a command.

5.1.2. Aborting Commands

When programming, press the **[Esc]** key at any time to quit the current command. After pressing **[Esc]**, the message `ABORTED` appears. Press **[Rtn]** to return to the `Ready>` prompt.

5.1.3. Command Responses

When a command is entered correctly, your APM displays an OK message, like this:

```
01/01/97 MO 12:00 APM_1 - OK
```

When a command is not entered correctly, your APM displays an error message, like this:

```
FORMAT ERROR (R-retry)>
```

Note: For a complete list of APM error messages, refer to Appendix E, "APM Error Messages."

5.2.   List of APM Commands

Command Function	Command	Page #	Used By Installers	Used By Owners
Command Entry Mode				
Enter command entry mode.	`LOGON`	52	✔	✔
Exit command entry mode.	`LOGOFF`	53	✔	✔
Accessing Information on the APM				
Print reports on APM configuration or cardholder information.	`REP`	54	✔	✔
List of all programming commands.	`HELP`	53	✔	✔
Basic APM Setup				
Set the name to the APM.	`APM`	65		✔
Set the current date.	`DATE`	65		✔
Set the current time.	`TIME`	66		✔
Set up of APM Schedules				
Set up holiday schedules.	`HOL`	67		✔
Enter the time schedules for cardholders and input and output devices.	`TS`	68		✔
Schedule time changes to/from daylight saving time.	`DLS`	70		✔
Set up of APM Hardware				
Define the door strike settings.	`DOOR`	71	✔	
Define input and outputs.	`IO`	72	✔	
Select options for outputs 2 or 4.	`OPT`	74	✔	
Set panic option timer values.	`PANIC`	77	✔	
Set the card readers	`RDR`	77	✔	
Miscellaneous Types of Setup Commands				
Change your APM password.	`PSW`	78		✔
Set your APM site code.	`SC`	79	✔	
Set the magnetic-stripe card reader format.	`SETMAG`	79	✔	

Setting Up Card Access				
Enter and maintain cardholder information.	**DBASE**	84-87		✔
Set up Master Learn / Delete Cards to add and delete cards at the card reader.	**LEARN**	89-90		✔
System Control Commands				
Lock or unlock the card readers or keypads.	**LOCK**	82		✔
Turn an output on, off, or pulse it.	**REL**	81		✔

Command Reference 1: APM Command Table

5.3. Command Entry Mode

The APM is normally in a secure state that will not accept commands. In order to program the APM the user must log on to enter command entry mode. Logging into this mode requires a password to prevent unauthorized access.

After programming is finished, you return your APM to the secure state by logging off.

Note: If you do not type anything for two minutes, your APM will automatically log off into the secure state.

5.3.1. Entering Command Entry Mode: **LOGON**

The LOGON command allows you to program your APM. To prevent unauthorized access, this command requires a password to enter command entry mode.

Each APM has a default password, ITI351. However, this password should be changed after installation. Changing the password is done with the PSW command, found later in this section.

Prompt	Response
How to log onto the APM:	
Ready>	Type **LOGON** and press **[Rtn]**.
ENTER YOUR PSW>	Type the *password* and press **[Rtn]**.
Note: As you type each character, the terminal displays an X to protect your password.	

Note: The default password is ITI351.

Command Reference 2: LOGON

5.3.2. Obtaining a List of Commands: `HELP`

The `HELP` command lists available commands. This provides an on-line reference to available commands while programming the APM.

Prompt	Response
To use the `HELP` command:	
`Ready>`	Type **HELP** and press **[Rtn]**. A complete command list will be displayed. To stop the scrolling list, press **Ctrl + S**. To start the list scrolling again, press **Ctrl + Q**.

Command Reference 3: `HELP`

5.3.3. Exiting Command Entry Mode: `LOGOFF`

To leave command entry mode, you must log off with the `LOGOFF` command. Use this command whenever you are done programming. Remember, your APM will automatically log off after 2 minutes of inactivity.

Prompt	Response
How to log off of APM:	
`Ready>`	Type **LOGOUT** and press **[Rtn]**.

Command Reference 4: `LOGOFF`

Note: Although the terminal prompt is "Ready," you must use the LOGON command. No entries are possible until a valid LOGON occurs.

5.4.   General Procedure for Entering Commands

Entering commands generally involves first logging on, issuing commands, responding to each command prompt, and logging off when finished.

Prompt	Response
How to type general commands into your APM:	
`Ready>`	Type **LOGON** and press **[Rtn]**.
`ENTER YOUR PSW>`	Type the *password* and press **[Rtn]**.
`Ready>`	Type the *appropriate command* and press **[Rtn]**.
	… Respond to each prompt. (The commands all have varying prompts.) …
`Ready>`	When finished programming, type **LOGOFF** and press **[Rtn]**.

Command Reference 5: General Procedure for Entering Commands

6.   Reports

The REP command is used to generate reports. Reports are used to display your APM configuration, stored events, or cardholder information.

You can generate several types of reports on your APM:

- **Full—** Displays your APM configuration, including settings for inputs, outputs, doors, time schedules, site code, and Master Learn / Delete Cards.

- **Event—** Lists all events stored in the APM.

- **Cardholder—** Searches for and lists cardholders in the database. A search can be by card, PIN, name, or category.

6.1.   Full Report

The Full Report, which you select by entering the Full option from the REP command, displays all current APM settings

Prompt	Response
How to display a Full Report:	
Ready>	Type **REP** and press **[Rtn]**.
B-badge N-name F-full C-cat E-events>	Type **F** (for Full Report) and press **[Rtn]**. To stop the scrolling, press **Ctrl** + **S**. To start the list scrolling again, press **Ctrl** + **Q**.

Command Reference 6: Full Report

Note: Always print a copy of the Full Report before changing your APM settings.

```
03/06/97 TH 13:04 NCS FULL REPORT
SYSTEM 351 V1.2 (C) 1996 ITI
POWER:
  PRIMARY-OK
  BATTERY-LOW
INPUTS:
  EAST_POS TROUBLE Y NC SUP INTERLOCKED
  INPUT2 NORMAL Y NO NON-SUP
  WEST_POS TROUBLE Y NO SUP INTERLOCKED
  INPUT4 NORMAL Y NO NON-SUP
OUTPUTS:
  EAST_STK OFF Y
  EAST_CCTV ON D
  WEST_STK OFF Y
  WEST_CCTV ON D
LOCK STATUS-UNLOCKED
TIME SCHEDULES:
A 00:00-07:59 --:-- --:-- MO,TU,WE,TH,FR,SA,SU
  23:45-23:59 08:00-08:14 MO,TU,WE,TH,FR,SA,SU
  --:-- --:-- --:-- --:--
  --:-- --:-- --:-- --:--
B 08:00-15:59 --:-- --:-- MO,TU,WE,TH,FR,SA,SU
  07:45-07:59 16:00-16:14 MO,TU,WE,TH,FR,SA,SU
  --:-- --:-- --:-- --:--
  --:-- --:-- --:-- --:--
C 16:00-23:59 --:-- --:-- MO,TU,WE,TH,FR,SA,SU
  15:45-15:59 00:00-00:14 MO,TU,WE,TH,FR,SA,SU
  --:-- --:-- --:-- --:--
  --:-- --:-- --:-- --:--
D 06:30-17:29 --:-- --:-- MO,TU,WE,TH,FR,
  10:00-15:59 --:-- --:-- SA,SU,HO
  --:-- --:-- --:-- --:--
  --:-- --:-- --:-- --:--
HOLIDAYS
1:  05/26/97  00:00 05/26/97 23:59 variable
2:  09/01/97  00:00 09/01/97 23:59 variable
3:  12/24  00:00    12/25 23:59 fixed
4:  12/31  00:00    01/01 23:59 fixed
DAYLIGHT SAVINGS:
1:  04/06  02:00  03:00
2:  10/26  02:00  01:00
OPTIONS:
 EAST_CCTV
   WIRELESS - LIGHTS
   DENIED ACCESS - DOOR_EAST
 WEST_CCTV
   WIRELESS - STAR
   DENIED ACCESS - DOOR_WEST
PANIC:
  INITIAL ON TIME=30
  TIME-OUT=240
```

```
     DOORS:
       DOOR_EAST
         STRIKE TYPE = FIXED TIME
         STRIKE TIME = 10
         AJAR TIME = 10

     DOOR_WEST
         STRIKE TYPE = FIXED TIME
         STRIKE TIME = 10
         AJAR TIME = 10
     SITECODE=0
     READER TYPE - wiegand
     READER LED TYPE - red/green
     LEARN CARDS:
      ADD:
       A=215574  NAME=SHIFT_A            TS1=A TS2=A CAT=A A/D=N PC=Y
       B=215575  NAME=SHIFT_B            TS1=B TS2=B CAT=B A/D=N PC=Y
       C=215576  NAME=SHIFT_C            TS1=C TS2=C CAT=C A/D=N PC=Y
       D=215577  NAME=REGULAR            TS1=D TS2=D CAT=R A/D=N PC=Y
      DELETE:
       E=215579
     7 IDS IN DBASE
     CARDHOLDER DBASE 2% FULL
     03/06/97 TH 13:05 NCS END FULL REPORT
```

Example 15: The Full Report

6.1.1. Power

This Full Report section indicates the information about your APM's power sources:

- **Primary—** The status of the primary power source (OK or NONE).

- **Battery—** The status of the backup battery (OK or LOW).

6.1.2. Inputs

This Full Report section indicates the settings for each input:

- **Input Name—** Default names are INPUT1, INPUT2, etc.

- **Status—** NORMAL or ALARM; if the input is supervised, the alarm status can also be TROUBLE.

- **Schedule—** The time schedules assigned to the input.

- **Contact Type—** Normally Open (NO) or Normally Closed (NC).

- **Supervision—** Supervised (SUP) or nonsupervised (NON-SUP).

6.1.3. Outputs

This Full Report section indicates the settings for each output:

- **Output Name——** Default names are OUTPUT1, OUTPUT2, etc.
- **State——** ON or OFF.
- **Schedule——** The time schedules assigned to the output.

6.1.4. Lock Status

This Full Report field indicates whether the card readers and/or keypads are locked (disabled) or unlocked.

6.1.5. Time Schedules

This Full Report section indicates the user-defined time schedules:

- **Schedule——** The letter assigned to the time schedule (A-D).
- **Intervals——** When each interval in the schedule begins and ends.
- **Days——** MO, TU, WE, TH, FR, SA, SU, and/or HO (holidays).

6.1.6. Holidays

This Full Report section indicates the assigned holidays and their settings:

- **Number——** System-assigned number (1-10).
- **Start——** The start date and start time
- **End——** The end date and end time.
- **Type——** FIXED or VARIABLE

6.1.7. Daylight Savings

This Full Report section indicates the dates and times when automatic time changes are scheduled:

- **Number——** System-assigned number (1 or 2).
- **Date——** The date the time change will go into effect.
- **Old Time——** The time the change will take place.
- **New Time——** The time after the change.

6.1.8. Options

This Full Report section indicates the options selected for outputs 2 and 4:

- If no options are selected for an output, NONE is displayed.
- If any of the options are selected, each is listed (INTERLOCKING, DENIED ACCESS, SECURITY SYSTEM ARM/DISARM, PANIC, WIRELESS POINT CONTROL, ,or OCCUPANCY MONITORING).
- If Denied Access is selected, the associated door is also displayed.
- If Occupancy is selected, the associated door is also displayed. Occupancy also displays the current and maximum number of occupants, and whether the reader is locked when the maximum is reached.

6.1.9. Doors

This Full Report section indicates the settings for each door:

- **Strike Type—** Either MEMORY, NON-MEMORY, or FIXED.
- **Strike Time—** The number of seconds this door is unlocked after valid access.
- **Ajar Time—** The number of seconds that a door can be held open, after the strike time, without causing an alarm.

6.1.10. Panic

This Full Report field indicates the settings for the panic timer:

- **Initial On Time—** The number of seconds the panic output must remain on.
- **Time Out—** The number of seconds when the panic output will turn off.

6.1.11. Site Code

This Full Report field indicates the current setting for your APM site code.

6.1.12. Reader Type

This Full Report field indicates the type of reader used at your APM. Readers are either Wiegand or magnetic stripe.

6.1.13. Reader Led Type

This Full Report field indicates the setting for the type of LED used at your APM. Reader LED types are either red only or red and green.

6.1.14. Master Learn / Delete Cards

This Full Report section indicates the information about Master Learn / Delete Cards:

- **Card Identifier—** A, B, C, D, or E.

- **Number—** The number for the Master Learn / Delete Card.

Master Learn / Delete Cards also display the following attributes, which will be assigned to cards added to the database at the reader:

- **Schedules—** TS1 and TS2 are the time schedules assigned for door 1 and door 2.

- **Category—** The category assigned to the cards.

- **Name—** The name assigned to the cards.

- **Privileges—** Y (yes) or N (no) for whether the cards are given Security System Arm / Disarm (A/D) or Wireless Point Control (PC).

6.1.15. NUMBER OF IDS IN DBASE

This Full Report field indicates the number of cardholders in the database. It is displayed in the format (#) IDS IN DBASE.

6.1.16. Cardholder Database Percentage Full

This Full Report field indicates the percentage of the cardholder database that is currently full. It is displayed in the format CARDHOLDER DBASE (#)% FULL.

6.2. Event Reports

The Event Report lists up to 250 events that are stored in the memory. Events included in Event Reports are power changes, alarm conditions, and access events.

Prompt	Response
How to display an Event Report:	
Ready>	Type **REP** and press **[Rtn]**.
B-badge N-name F-full C-cat E-events>	Type **E** (for Event Report) and press **[Rtn]**. To stop the scrolling list, press **Ctrl** + **S**. To start the list scrolling again, press **Ctrl** + **Q**.

Command Reference 7: Event Report

```
Ready>  REP E
03/06/97 TH 12:08 NCS EVENT REPORT
01/01/96 MO 12:00 NCS PRIMARY POWER RESTORED
01/01/96 MO 12:00 NCS RESTART DATABASE LOST *
01/01/96 MO 12:00 NCS BATTERY LOW   *
03/05/97 WE 13:27 NCS CCTV_EAST ON crd=92764 SINKULA_DAVE^35
03/05/97 WE 13:27 NCS DOOR_EAST crd=92764 SINKULA_DAVE^35
03/05/97 WE 13:29 NCS CCTV_EAST OFF crd=92764 SINKULA_DAVE^35
03/05/97 WE 13:29 NCS CCTV_WEST ON crd=92764 SINKULA_DAVE^35
03/05/97 WE 13:29 NCS CCTV_EAST OFF crd=92764 SINKULA_DAVE^35
03/05/97 WE 13:30 NCS DOOR_WEST crd=92764 SINKULA_DAVE^35
03/06/97 TH 12:09 NCS END EVENT REPORT
```

Example 16: An Event Report

6.3. Cardholder Reports

The Cardholder Reports lists information about cardholders by card number, PIN, name, or category.

6.3.1. Category Reports

A Category Report is used to search for a group of database entries by the category attribute. The report can be generated with the actual list of cardholders or as a summary of the number of cardholders in the category.

Note: A complete listing of all cardholders in a database can be obtained by using the wild card category (*).

Prompt	Response
How to display a category report:	
`Ready>`	Type **REP** and press **[Rtn]**.
`B-badge N-name F-full C-cat E-events>`	Type **C** (for Category Report) and press **[Rtn]**.
`LIST (Y-yes N-no)>`	Type **Y** and press **[Rtn]** to list each cardholder, or type **N** and press **[Rtn]** for a summary of all cardholders.
`CATEGORY (a-z,*=all)>`	Type the ***letter of the desired category*** and press **[Rtn]**, or type ***** (the wild card character) for a list of all cardholders and press **[Rtn]**.

Command Reference 8: Category Report

```
Ready>  REP C,Y,*
03/06/97 TH 12:03 NCS CATEGORY REPORT
PIN  CARD  TS1  TS2  CAT  ARM/DIS  PT CTRL    NAME
    5804   D    D    R      N         Y       SINKULA_DAVE^26
   17925   A    Y    A      N         Y       MOORE_PAUL
   17926   B    B    B      N         Y       FORTE_BOB
   17927   C    C    C      N         Y       WETTERLIND_ERIC
   17930   D    D    M      Y         Y       DEEN_FRED
   46382   D    D    R      N         N       SINKULA_DAVE^29
   92764   D    D    R      N         N       SINKULA_DAVE^35
7 ID (S) IN CATEGORY
03/06/97 TH 12:03 NCS END CATEGORY REPORT
```

Example 17: The Category Report (for All Categories)

```
Ready>  REP C,Y,R
03/06/97 TH 12:03 NCS CATEGORY REPORT
PIN  CARD  TS1  TS2  CAT  ARM/DIS  PT CTRL    NAME
    5804   D    D    R      N         Y       SINKULA_DAVE^26
   46382   D    D    R      N         N       SINKULA_DAVE^29
   92764   D    D    R      N         N       SINKULA_DAVE^35
3 ID (S) IN CATEGORY
03/06/97 TH 12:03 NCS END CATEGORY REPORT
```

Example 18: The Category Report (for One Category)

6.3.2. Cardholder Attributes

Each cardholder database entry has the following attributes:

- **PIN—** If used, the cardholder's personal identification number, such as the access code.

- **Card Number—** The cardholder's unique card identification number.

- **Schedules—** TS1 and TS2 are the time schedules assigned to this cardholder for door 1 and door 2.

- **Category—** The category to which this cardholder is assigned.

- **Privileges—** ARM/DIS and PT CTRL indicate if Security System Arm / Disarm or Wireless Point Control privileges are assigned. The cardholder does have the privilege if a Y is displayed; the cardholder does not have the privilege if an N is displayed.

- **Name—** The name of the cardholder.

```
Ready> REP
B-badge N-name F-full C-cat E-events> C
LIST (Y-yes N-no)> Y
CATEGORY (a-z,*=all)> R
03/06/97 TH 12:03 NCS CATEGORY REPORT
PIN      CARD    TS1  TS2  CAT  ARM/DIS  PT CTRL    NAME
         5804    D    D    R      N         Y       SINKULA_DAVE^26
         46382   D    D    R      N         Y       SINKULA_DAVE^29
         92764   D    D    R      N         Y       SINKULA_DAVE^35
3 ID (S) IN CATEGORY
03/06/97 TH 12:03 NCS END CATEGORY REPORT
```

Example 19: Category Report for a Single Category

```
Ready> REP

B-badge N-name F-full C-cat E-events> C
LIST (Y-yes N-no)> N
CATEGORY (a-z,*=all)> R
03/06/97 TH 12:03 NCS CATEGORY REPORT
3 ID (S) IN CATEGORY
03/06/97 TH 12:03 NCS END CATEGORY REPORT
```

Example 20: Category Report With No Listing

6.3.3. Badge Reports

A Badge Report is used to search for a database entry by its card or PIN.

Prompt	Response
How to display a Badge Report:	
`Ready>`	Type **REP** and press **[Rtn]**.

`B-badge N-name`
`F-full C-cat`
`E-events>`
	Type **B** (for Badge Report) and press **[Rtn]**.
	To stop the scrolling list, press **Ctrl + S**.
	To start the list scrolling again, press **Ctrl +Q**.

`P-pin C-card>`	Type the *letter for the desired ID* (either P or C) to search for and press **[Rtn]**.
`CARD #>`	If Card was selected: Type the *card* for the report and press **[Rtn]**.
`PIN>`	If PIN was selected: Type the *PIN* for the report and press **[Rtn]**.

Command Reference 9: Badge Report

```
Ready> REP
B-badge N-name F-full C-cat E-events> B
P-pin C-card> C
CARD #> 17926
PIN      CARD   TS1  TS2  CAT  ARM/DIS  PT CTRL    NAME
         17926   B    B    B      N         Y       FORTE_BOB
```

Example 21: Badge Report for a Card

```
Ready> REP
B-badge N-name F-full C-cat E-events> B
P-pin C-card> P
PIN> 1234
PIN      CARD   TS1  TS2  CAT  ARM/DIS  PT CTRL    NAME
1234     17930   D    D    M      Y         Y       DEEN_FRED
```

Example 22: Badge Report for a PIN

6.3.4. Name Reports

A Badge Report is used to search for a database entry by cardholder name.

Prompt	Response
How to display a Name Report:	
`Ready>`	Type **REP** and press **[Rtn]**.

`B-badge N-name`
`F-full C-cat`
`E-events>`
	Type **N** (for Name Report) and press **[Rtn]**.
	To stop the scrolling list, press **Ctrl + S**.
	To start the list scrolling again, press **Ctrl + Q**.

`NAME>`	Type the *name of the cardholder* and press **[Rtn]**.

Command Reference 10: Name Report

```
Ready> REP

B-badge N-name F-full C-cat E-events> N

NAME> WETTERLIND_ERIC

PIN      CARD    TS1   TS2   CAT   ARM/DIS   PT CTRL    NAME

         17927    C     C     C       N         Y      WETTERLIND_ERIC
```

Example 23: Name Report

7. Programming Your 351

Programming commands are used to set up your APM configuration, maintain the cardholder database , and control system devices.

7.1. Basic Setup Commands

7.1.1. APM Name: `APM`

The `APM` command assigns a name to an APM. This name appears on reports and events. The name set at the factory is AP*X* (where *X* is the unit number).

An APM name can be up to 10 characters long. Each character can be a number or letter, as well as any of the following symbols:

```
:  <  =  >  ?  @  [  \  ]  ^  _  `
```

Prompt	Response
Setting your APM name:	
`Ready>`	Type **APM** and press **[Rtn]**.
`ENTER NEW APM NAME>`	Type the ***new name*** and press **[Rtn]**. The name can be up to 10 characters long. It can include numbers and letters, as well as the following characters: : < = > ? @ [\ ] ^ _ `
Note: The first character in the name cannot be a number, and the name cannot include spaces.	

Command Reference 11: `APM`

7.1.2. Current Date: `DATE`

The current date is set using the `DATE` command. The command can also be used to display the current date, time, and APM name.

Enter dates in mm/dd/yy format, where "mm" is the month, "dd" is the day, and "yy" is the year.

For example, enter "January 1,1994" as "01/01/94."

Prompt	Response
Changing the date:	
`Ready>`	Type **DATE** and press **[Rtn]**.
`S-set R-read>`	Type **S** and press **[Rtn]**.
`DATE mm/dd/yy>`	Type *today's date* in mm/dd/yy format (use leading zeros) and press **[Rtn]**.
Displaying the date:	
`Ready>`	Type **DATE** and press **[Rtn]**.
`S-set R-read>`	Type **R** and press **[Rtn]**.
	The date appears as follows:
	`01/01/97 MO 00:00`

Command Reference 12: `DATE`

Note: *The date value is used by your APM for event logging and in making date-based decisions. Set your APM calendar to match the current date.*

For dates, enter leading zeros for one-digit numbers, and do not omit the slashes.

7.1.3. Current Time: `TIME`

The `TIME` command is used to set the current system time. The command can also be used to display the current date, time, and APM name.

Enter times as "hh:mm," using the 24-hour format, where "hh" is the hour and "mm" is the minute. For example, enter "1:05 AM" as "01:05" and enter "1:05 PM" as "13:05."

Prompt	Response
Setting the time:	
`Ready>`	Type **TIME** and press **[Rtn]**.
`S-set R-read>`	Type **S** and press **[Rtn]**.
`TIME hh:mm>`	Type the *time* in hh:mm format and press **[Rtn]**.
Displaying the time:	
`Ready>`	Type **TIME** and press **[Rtn]**.
`S-set R-read>`	Type **R** and press **[Rtn]**.

Command Reference 13: `TIME`

Note: *Time is entered in 24-hour format (00:00 through 23:59).*
Enter leading zeros for one-digit numbers and do not omit the colon.

Note: *The time value is used by your APM for all event logging and all time-of-day-based decisions. Because access times will not correspond to the actual time if the APM's time is wrong, set your APM clock to match the current time.*

7.2. **Schedule Setup Commands**

7.2.1. **Holidays:** `HOL`

The `HOL` command adds or deletes a holiday interval for use with time schedules.

Each holiday interval has a start time, end time, start date, and end date can span more than one day. For example, the New Year's holiday could be from 12/31/97, 5 PM, to 1/2/98, 9 AM

Note: Up to 10 holidays intervals can be defined.

Enter dates in "mm/dd/yy" or "mm/dd" format, as indicated by the prompt, where "mm" is the month, "dd" is the day, and "yy" is the year. For example, enter January 1,1994 as 01/01/94.

Enter times as "hh:mm" format, using the 24-hour time, where "hh" is the hour and "mm" is the minute. For example, enter "1:05 AM" as "01:05" and enter "1:05 PM" as "13:05."

Prompt	Response
Adding a holiday:	
`Ready>`	Type **HOL** and press **[Rtn]**.
`A-add, D-delete>`	Type **A** and press **[Rtn]**.
`F-fixed V-var>`	Type **F** and press **[Rtn]** to add a fixed holiday, or type **V** and press **[Rtn]** to add a variable holiday.
`START DATE mm/dd>`	Type the *date the holiday begins* and press **[Rtn]**.
	For fixed holidays, use mm/dd format; for variable holidays, use mm/dd/yy format.
`START TIME hh:mm>`	Type the *time the holiday begins* (in hh:mm format) and press **[Rtn]**. Time is entered in a 24-hour format, and leading zeros must be used.
`END DATE mm/dd>`	Type the *date the holiday ends* and press **[Rtn]**.
Note: For fixed holidays, use mm/dd format; for variable holidays use mm/dd/yy format.	

(Continued)

END TIME hh:mm>	Type the ***time the holiday ends*** (in hh:mm format) and press **[Rtn]**. Time is entered in a 24-hour format, and leading zeros must be used.
Note: To verify your holiday additions, run a Full Report (see the "REP Command," in Section 6).	
Deleting a holiday:	
Note: You will need the holiday's sequential number to delete the holiday. If you do not know it, run a Full Report.	
Ready>	Type **HOL** and press **[Rtn]**.
A-add, D-delete>	Type **D** and press **[Rtn]**.
HOLIDAY NUMBER (1-10)>	Type the ***number of the holiday*** and press **[Rtn]**.
Note: Holidays in a holiday schedule are renumbered whenever one is deleted. If you plan to delete several holidays, we suggest you run a Full Report before deleting.	

Command Reference 14: HOL

Note: *For dates, enter leading zeros for one-digit numbers and do not omit the slashes. For times, enter leading zeros for one-digit number, and do not omit the colon.*

Note: *To delete a holiday, its sequential number is needed. To obtain a holiday's sequential number, run a Full Report.*

7.2.2. Time Schedules: TS

The TS command is used to add, delete, or change time schedules.

Time schedules are assigned a reference letter. Schedules A through D are user definable with the TS command. Schedules X (always) and Y (never) cannot be changed.

Note: Up to 4 time schedules can be defined.

Each time schedule includes up to four time zones, numbered 0 through 3. A time zone includes one or two intervals of time, entered in the 24-hour format, when the schedule will be active. The time schedule also includes the days of the week for which it applies.

The days of the week are numbered 1 through 7 starting with Monday. An "8th day" is defined as all the holidays in the holiday schedule.

For example, if assigning the days 1 through 5 and 8 to a time zone, it will be active Monday through Friday and on the scheduled holidays. Contiguous days are entered by using a hyphen (Monday through Friday is entered 1-5). Separate days are denoted with semicolons (Monday, Wednesday, Friday would be entered 1;3;5).

Prompt	Response
Adding a time schedule:	
Note: Repeat the following steps for every time zone you want in the time schedule.	
`Ready>`	Type **TS** and press **[Rtn]**
`A-add D-delete>`	Type **A** and press **[Rtn]**
`TIME SCHEDULE` `(A-D)>`	Type a *letter* (A-D) to name this time schedule and press **[Rtn]**.
`TIMEZONE (0-3)`	Type a *number* (0-3) to identify this time zone and press **[Rtn]**.
`TIME` `hh:mm-hh:mm;...>`	Type one *time interval,* in the hh:mm-hh:mm format, and press **[Rtn]**. Or, type two *time intervals,* in the hh:mm-hh:mm;hh:mm-hh:mm format, and press **[Rtn]**.
`DAYS (1-3,1-MO)>`	Type the *numbers for the days* of the week the time zone will be valid and press **[Rtn]** (1-7=Monday-Sunday; 8 = Holidays.)
	You can enter a contiguous set of days by using a hyphen (Monday through Friday is entered 1-5).
	Separate days are denoted with semicolons (Monday, Wednesday, Friday would be entered 1;3;5).
*Note: Print a Full APM report to verify your time schedules are correct (see "***REP*** Command" in this section).*	
Deleting a time schedule	
`Ready>`	Type **TS** and press **[Rtn]**
`A-add D-delete>`	Type **D** and press **[Rtn]**.
`TIME SCHEDULE` `(A-D)>`	Type the *letter* (A-D) of the time schedule and press **[Rtn]**.
`S-single B-block>`	To delete multiple time zones, type **S** and press **[Rtn]** to delete time zones from the schedule one at a time or type **B** and press **[Rtn]** to delete the schedule all at once.
`TIME ZONE (0-3)>`	To delete a single time zone, type the number of the *time zone* (0-3) and press **[Rtn]**.
Note: The "time zone" prompt applies only if you select "single."	

Command Reference 15: `TS`

Note: Times are always inclusive; a time interval is active up to, and including, the start and stop times. For example, a time interval from 00:00 to 11:59 is active from midnight to noon.

Time intervals are active during the start and stop time. The start time must be earlier than the end time. To span midnight, two intervals must be used.

Time zones assigned to holidays will only be used once the start time of the holiday begins.

7.2.3. Daylight Savings Time Changes: `DLS`

The `DLS` command is used to set the dates and times for time changes, allowing your APM to automatically adjust its internal clock.

Two dates can be set for time changes, typically these are used for:

- standard time to Daylight Savings Time and
- Daylight Savings Time to standard time.

Prompt	Response
Adding an automatic time change (Daylight Savings Time):	
`Ready>`	Type **DLS** and press **[Rtn]**.
`A-add D-delete>`	Type **A** and press **[Rtn]**.
`DATE mm/dd>`	Type the ***date*** (in mm/dd format) when the time change will go into effect and press **[Rtn]**.
`OLDTIME hh:mm>`	Type the ***time*** when the time change will go into effect (in hh:mm format) and press **[Rtn]**.
Note: Time is entered in a 24-hour format, and leading zeros must be used.	
`NEWTIME hh:mm>`	Type what the ***new time*** should be (in hh:mm format) when the time change goes into effect and press **[Rtn]**.
Deleting an automatic time change (Daylight Savings Time):	
`Ready>`	Type **DLS** and press **[Rtn]**.
`A-add D-delete>`	Type **D** and press **[Rtn]**.
`DLS (1 or 2)>`	Type the ***number*** of the time change to be deleted and press **[Rtn]**.
Note: "1" is the first time change entered, "2" is the second time change entered. (These correspond to 1 and 2 shown in the previous report example.)	

Command Reference 16: `DLS`

7.3.   Hardware Setup Commands

7.3.1. Door Setup: DOOR

The DOOR command is used to enter settings for each door, as follows:

- **Name ——** A descriptive name for the door (optional).

- **Strike type ——** Either memory, non-memory, or fixed.

- **Strike time ——** The number of seconds that the door strike is unlocked during access.

- **Ajar time ——** The number of seconds a door can be open, beyond the strike time, without causing an alarm.

Note: The default strike time is 10 seconds.
The default ajar time is 10 seconds.

The total time the door can be open without generating an alarm is the strike time plus the ajar time. Zero can be entered for either the strike time or the ajar time. However, a 0-second strike time will not open the door at all. A memory strike door with a 0-second ajar time generates an alarm every time the door is opened during a valid access.

Note: If no time value is entered for either the strike time or ajar time, your APM retains the previously entered value.

Prompt	Response
Entering door settings:	
Ready>	Type **DOOR** and press **[Rtn]**.
DOOR NAME>	Type the current *door name* and press **[Rtn]**. The default names are door_1 and door_2.
NEW NAME>	To rename the door: type the *new name* and press **[Rtn]**.
STRIKE TYPE (M-memory N-non-memory F-fixed time)>	Type the *letter* for the type of door used and press **[Rtn]**.
DOOR STRIKE TIME (0-99)>	Type the *time* (0-99 seconds) that this door should remain unlocked after a valid transaction and press **[Rtn]**.
Note: A strike time of 0 will not open the door.	
DOOR AJAR TIME (0-99)>	Type the *time* (0-99 seconds) that this door can be held open after a valid access without triggering an alarm and press **[Rtn]**.
Note: A memory strike door with a 0-second ajar time generates an alarm every time the door is opened during a valid access.	

Command Reference 17: DOOR

7.3.2. Inputs and Outputs: `IO`

The `IO` command is used to make changes to input and output settings.

For inputs, the settings include the following:

- **Point Name ——** Descriptive names, such as "hallmotion," are helpful because point names are listed in reports. The default names are `INPUT1`, `INPUT2`, etc.

  The point name can be up to 10 characters long. It can include numbers and letters, as well as the following characters:
  : < = > ? @ [\ ] ^ _ `

Note: The first character cannot be a number, and the name cannot include spaces.

- **Time Schedule ——** A time schedule for an input defines when alarm messages are ignored (shunted).

Note: The default time schedule for an input is Y (never).

- **Contact Type ——** Defines whether the point is normally opened or normally closed.
- **Supervised ——** A yes / no setting that indicates if the input is wired with a fixed resistor, to distinguish between alarm or trouble conditions.
- **Egress ——** A yes / no setting that indicates if the input is used for egress. If used for egress, an alarm event at the input causes the door to unlock for the strike time. By default, your system uses input 2 to unlock door 1 and input 4 to unlock door 2.

For outputs, the settings include the following:

- **Point Name ——** Descriptive names, such as "camera," are helpful because point names are listed in reports. The default names are `OUTPUT1`, `OUTPUT2`, etc.
- **Time Schedule ——** A time schedule for an output defines when the output will be active. If the security system Arm / Disarm Option is used with output 2 or 4, see the `DBASE` command, in Section 7.

Note: The default time schedule for an output is Y (never).

Prompt	Response
Defining an output	

`Ready>`
 	
`O-output I-input>`
	Type **IO** and press **[Rtn]**.
	
	Type **O** and press **[Rtn]** to enter settings for an output, or type **I** and press **[Rtn]** to enter settings for an input.

`POINT NAME>`	Type the *current name* for the point and press **[Rtn]**.
Note: If you do not know the point's current name, run a Full APM report. See "REP Command," in the previous section.	

(Continued)

NEW NAME>	If you are changing the point name, type the ***new name*** and press **[Rtn]**. Otherwise, leave the field blank and press **[Rtn]**.
Note: The first character cannot be a number, and the name cannot include spaces.	
TIME SCHEDULE (A-D,X,Y)>	If you want to assign a time schedule for the point, type the time schedule's ***letter***, and press **[Rtn]**. If you do not want to assign a time schedule to the point, press **[Rtn]**.
Defining an input:	
Ready>	Type **IO** and press **[Rtn]**.
O-output I-input>	Type **I** and press **[Rtn]** to enter settings for an input
POINT NAME>	Type the ***current name*** for the point and press **[Rtn]**.
Note: If you do not know the point's current name, run a Full APM report. See "REP Command," in the previous section.	
NEW NAME>	If you are changing the point name, type the ***new name*** and press **[Rtn]**. Otherwise, leave the field blank and press **[Rtn]**.
Note: The first character cannot be a number, and the name cannot include spaces.	
TIME SCHEDULE (A-D,X,Y)>	If you want to assign a time schedule for the point, type the ***time schedule's letter***, and press **[Rtn]**. If you do not want to assign a time schedule to the point, press **[Rtn]**.
CONTACT TYPE (O-normally open C-normally closed)>	Type **O** and press **[Rtn]** if this door contact is normally open, or type **C** and press **[Rtn]** if this door contact is normally closed.
SUPERVISED (Y-yes N-no)>	Type **Y** and press **[Rtn]** if this is a supervised point, or type **N** and press **[Rtn]** if this is a non-supervised point.
EGRESS (Y-yes N-no)>	Type **Y** and press **[Rtn]** if the input will be used for egress, or Type **N** and press **[Rtn]** if the input will not be used for egress.
Note: Only inputs 2 and 4 are allowed as egress points.	

Command Reference 18: IO

7.3.3. **Options:** `OPT`

CAUTION!	**The `OPT` command in previous releases deleted all of your option settings. In the latest software release, multiple options can be selected. However, exercise caution when doing this!**

The `OPT` command allows you to select one or more of the following options. For more information about APM options, see Section 2.

- Interlocking
- Denied Access
- Security System Arm / Disarm
- Panic
- Wireless Point Control
- Occupancy Monitoring

The `OPT` command issues a separate prompt for each option: a **Y** or a special selection enables the option, **N** disables the option, and **Q** quits the `OPT` command. Pressing the **[Rtn]** key leaves that particular option unchanged.

Both the Denied Access and Occupancy Monitoring Options can be associated with a door (reader). The first prompt of the `OPT` command will be for the associated door. If neither of these options are selected, the first prompt can be ignored by pressing the **[Rtn]** key.

The second prompt of the `OPT` command is for the output, which will be used for the option being selected. This may be for either output 2 or output 4.

Interlocking⸺ If interlocking is selected, an alarm event at the input activates the device wired to the output. For example, if a motion detector is tripped, it is in the alarm state. Therefore, an interlocked camera will turn on and record the identity of the person in that area. Interlocking can be used from any input(s) to outputs 2, output 4, or to both.

To select Interlocking for an output, enter the ***input number*** (1-4) that the output will be connected to. If two or more inputs are interlocked to the same output, repeat using the `OPT` command for every input .

To clear a previously interlocked inputs, type **N** and press **[Rtn]**. This will clear all interlocked inputs.

Denied Access⸺ The Denied Access Option configures your APM to respond to an invalid access attempt at a reader or keypad by pulsing (turning on briefly) output 2 or 4. This option can be useful for facilities in where an alarm, camera, or other device is used to handle such access attempts.

To select the Denied Access Option, you must select which door you want Output 2 or Output 4 activated from. When you select the door, the APM recognizes access attempts only at that door's reader. In the event of an invalid access attempt at a door with the Denied Access Option, the output will be activated for 10 seconds.

To clear this option, type **N** and press **[Rtn]**.

Security System Arm / Disarm— The Security System Arm / Disarm Option allows the security system to be armed or disarmed from either Door 1 or Door 2. To do this, when a card with Arm / Disarm privileges slides through the reader, your system is disarmed. When the card slides through the reader twice, within 10 seconds, your system is armed.

To select the Security System Arm / Disarm Option, type **Y** and press **[Rtn]**.

To clear this option, type **N** and press **[Rtn]**.

Note: If you are using the Security Arm / Disarm Option, do not use other options with this output.

Panic— The Panic Option allows the APM to activate an output, such as an alarm, if it receives a panic signal. Panic signals can come from 2- or 4-Button Keychain Transmitters or panic pendants. The output will remain active for your initial on time, but no longer than your time out setting.

To select the Panic Option, type **Y** and press **[Rtn]**.

To clear this option, type **N** and press **[Rtn]**.

Wireless Point Control— This option allows you to program your APM to use a remote access devices, such as a 4-Button Keychain Transmitter, to control outputs 2 and 4.

To select the Wireless Point Control Option, type **1** for the LIGHTS keypress and press **[Rtn]**. or type **2** for the STAR keypress and press **[Rtn]**. If both keypresses will be used for the same output, repeat the OPT command twice to select each keypress.

To clear this option, type **N** and press **[Rtn]**.

Occupancy Monitoring— If the Occupancy Monitoring Option is selected, your APM monitors the number of cardholders entering and exiting the facility. A valid access adds 1 to the count, an exit (egress) subtracts 1 from the count. When the occupancy level reaches a defined maximum, your APM turns on output 2 or output 4. The APM can also disable the entry reader to prohibit further entry.

This option is often used with parking lot entrances and can be used with a full sign. However, it can control equipment such as lights or HVAC (heating, ventilation, and air-conditioning) equipment. By setting the maximum occupancy number to one, the equipment will turn on when the first person enters and off when the last person leaves.

To select the Occupancy Option, type **Y** and press **[Rtn]**. You will then be prompted to specify the current occupancy number , the maximum occupancy number, and the number required to disable the reader

To clear this option, type **N** and press **[Rtn]**.

Setting the Options for Outputs 2 and 4:	
Prompt	**Response**
Ready>	Type **OPT** and press **[Rtn]**.
DOOR NAME>	Type the *door name* and press **[Rtn]**. The default door names are door_1 and door_2. Or, to skip this selection, press **[Rtn]**.
OUTPUT POINT (2 or 4)>	Type the *output number* (1- 4) and press **[Rtn]**. The default door names are door_1 and door_2.
INTERLOCKING (1-4=Input N-no Q-quit)>	To enable interlocking to an output, type the *input number* and press **[Rtn]**. Or, to clear previously selected interlocking, type **N** and press **[Rtn]**. Or, to keep the current selection, press **[Rtn]**. Or, to quit the OPT command, type **Q** and press **[Rtn]**.
DENIED ACCESS (Y-yes Q-quit)>	To enable the option, type **Y** and press **[Rtn]**. Or, to disable the option, type **N** and press **[Rtn]**. Or, to keep the current selection, press **[Rtn]**. Or, to quit the OPT command, type **Q** and press **[Rtn]**.
SECURITY SYSTEM ARM / DISARM (Y-yes N-no Q-quit)>	To enable the option, type **Y** and press **[Rtn]**. Or, to disable the option, type **N** and press **[Rtn]**. Or, to keep the current selection, press **[Rtn]**. Or, to quit the OPT command, type **Q** and press **[Rtn]**.
PANIC (Y-yes N-no Q-quit)>	To enable the option, type **Y** and press **[Rtn]**. Or, to disable the option, type **N** and press **[Rtn]**. Or, to keep the current selection, press **[Rtn]**. Or, to quit the OPT command, type **Q** and press **[Rtn]**.
WIRELESS OUTPUT CONTROL (1-lights 2-star N-no Q-quit)>	To enable the LIGHTS keypress, type **1** and press **[Rtn]**. Or, to enable STAR keypress, type **2** and press **[Rtn]**. Or, to clear any previous keypresses, type **N** and press **[Rtn]**. Or, to keep the current selection, press **[Rtn]**. Or, to quit the OPT command, type **Q** and press **[Rtn]**.
OCCUPANCY MONITORING (Y-yes N-no Q-quit)>	To enable the Occupancy Monitoring Option, type **Y** and press **[Rtn]**. Or, to disable the Occupancy Monitoring Option, type **N** and press **[Rtn]**. Or, to keep the current selection, press **[Rtn]**. Or, to quit the OPT command, type **Q** and press **[Rtn]**.

(Continued)

The following prompts appear only when the Parking Lot Option is selected:	
```CURRENT OCCUPANCY (0-9999)>```	Type the *number of cardholders* currently in the facility and press **[Rtn]**.
```MAX. OCCUPANCY (0-9999)>```	Type a *number for the maximum occupancy* value and press **[Rtn]**.
```DISABLE READER (Y-yes N-no)>```	To disable the entry reader when the maximum occupancy level is reached, type **Y** and press **[Rtn]**. Or, to allow entries after the maximum occupancy is reached, type **N** and press **[Rtn]**.

Command Reference 19: Setting Options for Outputs 2 and 4

7.3.4. Panic Settings: `PANIC`

The `PANIC` command is used to set the initial-on time and time-out for the panic output. If the Panic Option is not enabled, this command will not affect APM operation.

The initial-on time is the minimum duration that the panic will be active. The time-out is the maximum duration that the panic will be active. Once the initial-on time passes, the panic output can be canceled (reset) by any valid access attempt. If it is not canceled the output will automatically reset when the time-out duration expires.

Note: The initial-on time default setting is 30 seconds.
The time-out default setting is 4 minutes (240 seconds).

Prompt	Response
Setting Panic Output Parameters:	
```Ready>```	Type **PANIC** and press **[Rtn]**.
```INITIAL ON-TIME (0-9999)>```	Type the *minimum duration* (0-9999 seconds) the output will be active for and press **[Rtn].**
```TIME-OUT (0-9999)>```	Type the *maximum duration* (0-9999 seconds) the output will be active for and press **[Rtn].**

Command Reference 20: `PANIC`

7.3.5. Card Readers: `RDR`

The `RDR` command sets the type of card reader (Wiegand or magnetic-stripe) and the type of LED (light-emitting diode) on the reader.

Prompt	Response
Entering reader settings:	
`Ready>`	Type **RDR** and press **[Rtn]**.
`READER TYPE (M-magstripe W-wiegand)>`	Type **M** for a magnetic-stripe reader and press **[Rtn]** or type **W** for a Wiegand reader and press **[Rtn]**.
`READER LED TYPE (R-red only G-red/green)>`	Type **R** for a red LED or and press **[Rtn]** or type **G** for a red/green LED and press **[Rtn]**.

Command Reference 21: `RDR`

7.4. Miscellaneous Setup Commands

7.4.1. Password: `PSW`

The `PSW` command lets you change passwords. A password is required to program your APM, and change the password.

Note: The default password is ITI351, which you should change after installation.
Write down a copy of this new password and store it in a secure location.

Follow these guidelines for establishing your password:

- The password can be up to 6 characters long.
- The first character in the password cannot be a number.
- The password cannot contain spaces.
- It can be numbers, letters, and any of the following characters:
  : < = > ? @ [\ ] ^ _ `
- Write your password down and store it in a secure location.

CAUTION!	**If your password is forgotten, all of your memory settings must be cleared and manually be re-entered.**

Prompt	Response
Changing a password:	
`Ready>`	Type **PSW** and press **[Rtn]**.
`ENTER YOUR PSW>`	Type the *existing password* and press **[Rtn]**.
`ENTER NEW PSW>`	Type the *new password* and press **[Rtn]**.
Note: See the guidelines above for changing your password.	
`ENTER NEW PSW>`	Retype the *new password* and press **[Rtn]**.

Command Reference 22: `PSW`

7.4.2. Site Code: `SC`

The `SC` command lets you define your site code. A site code is an optional security measure that distinguishes access cards used at a particular site from cards with similar formats used at other sites.

Every ITI Wiegand and proximity card has a site code. However, magnetic-stripe cards can be programmed with a site code.

Note: The default site code is 0 (zero).

Prompt	Response
Setting the site code:	
`Ready>`	Type **SC** and press **[Rtn]**.
`SITECODE>`	Type the *site code* number and press **[Rtn]**. Wiegand cards are allowed 1-3 digits and magnetic-stripe cards 1-8 digits.

Command Reference 23: `SC`

7.4.3. Magnetic Stripe Card Format: `SETMAG`

The `SETMAG` command lets you define the data fields on magnetic-stripe cards. The placement of data on the magnetic-stripe card can vary from one installation to the next.

Prompt	Response
How to define the magnetic-stripe format:	
`Ready>`	Type **SETMAG** and press **[Rtn]**.
`START CHAR (A-F)>`	Type the *start character* (A through F) and press **[Rtn]**.
`SITECODE [02-38]>`	Type the *start and end positions* of the site code (up to 8 digits) with a hyphen between them and press **[Rtn]**. You must include leading 0s. For example, 03-08.

(Continued)

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CRD #(02-38 [;02-38;02-38])>	Type the ***character positions*** of the 1 to 3 field(s) that contain the card number (up to 16 digits) and press **[Rtn]**.
Note: The fields do not have to be consecutively located. Use a semicolon (;) between each field position. For example, 05-10;12-15;16-17.	
ID # [02-38;02-38]>	If you are using an ID number, type the ***character positions*** of the one or two fields that contain the ID number (up to 36 digits) and press **[Rtn]**.
	If you are not using an ID number, press **[Rtn]**.
SEP POS 'SP' S=(A-F),P=POS (02-38)	If you are using a separator character, type the ***character*** and its position without a space between them and press **[Rtn]**. For example, B11.
	If you are not using a separator character, press **[Rtn]**.
END POS 'EP' E=(A-F), P=POS(03-39)	Type the ***end character*** and its position without a space between them and press **[Rtn]**. For example, C20.

Command Reference 24: SETMAG

The following example shows how to use the SETMAG command:

Ready>	Type **SETMAG** and press **[Rtn].**
START CHAR (A-F)>	Type **A** and press **[Rtn].**
SITECODE [02-38]	Type **02-04** and press **[Rtn].**
CRD # (02-38 [;02-38; 02-38])>	Type **05-10** and press **[Rtn] [Rtn]** (twice).
ID # [02-38; 02-38]>	Press **[Rtn].**
SEP POS 'SP' S=(A-F), P=POS (02-38)>	Type **D11** and press **[Rtn].**
END POS 'EP' E=(A-F), P=POS (03-39>	Type **F39** and press **[Rtn].**

Example 24: Setting Magnetic Stripe Card Data Format

Note: All settings shown in Example 24 are factory defaults.

7.5. Control Commands

7.5.1. Unlock Readers: `REL`

The `REL` command lets you turn on, off, reset, or pulse relays. If you use `REL` to turn on a relay, it will remain on until you reset it with the `REL` command. Similarly, if you use `REL` to turn off a relay, it will remain off until you reset it with the `REL` command. However, if you use the `REL` command to pulse a relay, the "pulse" option temporarily turns on the relay. Therefore, you will not need to reset it. Once the pulse time has expired, it will again turn the relay off and all regular conditions will apply.

Note: When you reset the relay you return it to its regular condition.

Prompt	Response
How to command an output relay:	
`Ready>`	Type **REL** and press **[Rtn]**.
`POINT NAME>`	Type the *output name* and press **[Rtn]**.
How to turn off an output relay:	
`O-on F-off P-pulse` `R-reset>`	Type **F** and press **[Rtn]**.
How to turn on an output relay:	
`O-on F-off P-pulse` `R-reset>`	Type **O** and press **[Rtn]**.
How to reset the output relay to its normal state:	
`Ready>`	Type **REL** and press **[Rtn]**.
`O-on F-off P-pulse` `R-reset>`	Type **R** and press **[Rtn]**.
How to pulse an output on for a short time:	
`READY>`	Type **REL** and press **[Rtn]**.
`POINT NAME>`	Type the *output name* and press **[Rtn]**.
`O-on F-off P-pulse` `R-reset>`	Type **P** and press **[Rtn]**.
`PULSE TIME (0-99)>`	Type the number of *seconds* and press **[Rtn]**.

Command Reference 25: `REL`

7.5.2. Lock Readers: LOCK

The LOCK command lets you disable (lock) readers, keypads, or both at the doors.

Note: Locking a card reader prevents that reader from being used to gain access.

Prompt	Response
How to lock or unlock readers and/or keypads:	
Ready>	Type **LOCK** and press **[Rtn]**.
L- lock U-unlock	Type **L** and press **[Rtn]** to lock the readers and/or keypads. Or, type **U** and press **[Rtn]** to unlock the readers and/or keypads

Command Reference 26: LOCK

8. Setting Up and Maintaining the Cardholder Database

The cardholder database contains all token, such as cards or PINs, information used for access control.

The command `DBASE` is used to add or delete cards. Cards can be added or deleted in groups. Cardholder attributes can also be modified with `DBASE`.

The command `LEARN` is used to set up special cards, Master Learn / Delete Cards, which can be used to add or delete cards at the reader.

8.1. Attributes

The database stores the identification numbers of each cardholder. The ID can be a card number, a PIN, or both. The APM can store up to 250 IDs.

8.1.1. Card Number

The card number can be up to 16 digits long.

8.1.2. PIN (Personal Identification Number)

A PIN can be used with a card to verify access. The PIN can also be used by itself for keypad-only systems.

A PIN must be 4 digits long.

8.1.3. Cardholder Name

A cardholder's name can be up to 18 characters long. Each character can be a number or letter, as well as any of the following symbols:

  : < = > ? @ [\ ] ^ _ `

Note: *The first character in the name cannot be a number, and the name cannot include spaces.*

8.1.4. Time Schedules

The cardholder is assigned a time schedule for each door (each can be different).

8.1.5. Category

The category is an optional letter (A-Z) used to group IDs together. The category is generally used for report purposes or for deleting a group of cards. For example, temporary employees can be assigned to category T; office employees can be assigned to category O.

8.1.6. Option Privileges

Privileges are used to indicate if the cardholder has Arm / Disarm or Wireless Point Control privileges. See Section 2, *Product Overview*, for more details.

8.2. Adding Individual Cards or PINs

8.2.1. Adding Cards at the Card Reader

The APM allows you to add cards to the database using the card reader or keypad. You can set up privileges and attributes for four Master Learn / Delete Cards, which can use the reader to add or delete cards from the database. See the "LEARN Command" in this section.

8.2.2. Adding a PIN, Card, or a Group of Cards with DBASE

Note: You can add a groups of cards, but cannot add a group of PINs.

Using the following procedures, you can add one card, one PIN, or a group of cards to the database at a time.

To require a cardholder to use both a card and a PIN, enter both numbers in the same database entry. To allow a cardholder to use either a card or PIN, enter two separate database entries, one for the PIN and the other for the card number. If a group of users has consecutive card numbers and the same time schedule, category (if used), and Arm / Disarm privilege, you may find it convenient to add their cards in one group (block). You will have to modify the database later to add the individual names and PINs, if used.

Prompt	Response
Adding a single card or PIN:	
Ready>	Type **DBASE** and press **[Rtn]**.
A-add M-modify D-delete>	Type **A** and press **[Rtn]**.
S-single B-block>	Type **S** and press **[Rtn]**.
DOOR 1 TIME SCHEDULE(A-D,X,Y)>	Type the *letter* of the cardholder's time schedule for the first door and press **[Rtn]**.
DOOR 2 TIME SCHEDULE(A-D,X,Y)>	Type the *letter* of the cardholder's time schedule for the second door and press **[Rtn]**.
Note: If you do not choose a category, category C is automatically assigned.	
CATEGORY (A-Z)>	If you want to assign this cardholder to a category, type the *letter* to use as the identifier and press **[Rtn]**. Or, if you are not using categories, press **[Rtn]**.
PIN>	f you are using keypads at this installation, type the *four-digit PIN* for the card and press **[Rtn]**. Or, if you are not using keypads, press **[Rtn]**.

(Continued)

CARD #>	If you are using cards at this installation, type the ***card number*** and press **[Rtn]**. Or, if you are not using cards, press **[Rtn]**.
Note: Magnetic-stripe card numbers can be up to 16 digits long. Wiegand card numbers vary in length depending upon the format you purchase.	
NAME>	Type the ***cardholder's name*** and press **[Rtn]**. The name can be up to 18 characters long.
Note: The first character in the name cannot be a number, and names cannot use spaces.	
ARM/DISARM PRIVILEGE (Y or N)>	To assign Arm / Disarm privileges to this card, type **Y** and press **[Rtn]**. Or, type **N** and press **[Rtn]**.
WIRELESS POINT CONTROL PRIVILEGE (Y OR N)>	To allow Wireless Point Control privileges to cards, type **Y** and press **[Rtn]**. Otherwise, type **N** and press **[Rtn]**.

Command Reference 27: Adding an Individual Card or PIN with DBASE

8.3. Adding A Group of Cards

Prompt	Response
Adding a group (block) of cards:	
Ready>	Type **DBASE** and press **[Rtn]**.
A-add M-modify D-delete>	Type **A** and press **[Rtn]**.
S-single B-block>	Type **B** and press **[Rtn]**.
LIST (Y-yes N-no)>	Type **Y** and press **[Rtn]** to list added cards on the terminal as they are entered. Or type **N** and press **[Rtn]** to indicate you do not want to list cards on the terminal.
DOOR 1 TIME SCHEDULE (A-D,X,Y)>	Type the ***letter*** of the time schedule for the cards at Door 1 and press **[Rtn]**.
DOOR 2 TIME SCHEDULE (A-D,X,Y)>	Type the ***letter*** of the time schedule for the cards at Door 2 and press **[Rtn]**.
CATEGORY (A-Z)>	If you are using categories, type the ***letter of the category*** (A-Z) and press **[Rtn]**.
Note: If you do not choose a category, category C is automatically assigned.	
START #>	Type the ***first card number*** in the group and press **[Rtn]**.
Note: Magnetic-stripe card numbers can be up to 16 digits long. Wiegand card numbers vary in length depending upon the format you purchase.	
# OF CARDS>	Type the ***number of cards*** you will add and press **[Rtn]**.
NAME>	Type a ***name for the group*** of cards (for example, CONTRACTOR) and press **[Rtn]**.

(Continued)

Note: The card group's name can be up to 18 characters long. The first character cannot be a number and the name cannot include spaces. All cards added in this group will have the name you specify here.

Prompt	Response
`ARM/DISARM` `PRIVILEGE(Y or N)>`	To assign arm and disarm privileges to the cards, type **Y** and press **[Rtn]**. Or, type **N** and press **[Rtn]**.

`WIRELESS POINT`
`CONTROL PRIVILEGE`
`(Y OR N)>`
	To allow wireless point control privileges to cards, type **Y** and press **[Rtn]**.
	Otherwise, type **N** and press **[Rtn]**.

Command Reference 28: Adding a Group of Cards with `DBASE`

Note: Cards in the database can be modified at any time. If cards are added in groups, use the modify procedure, found below, to setup unique card features.

A group of cards can be added, but a group of PINs cannot be added.

8.4.   Modifying a Card or PIN

You can modify any card in the database at any time. Or, if you added cards in groups, you can use the modify procedure to setup the card features.

Prompt	Response
Modifying a card or PIN:	
`Ready>`	Type **DBASE** and press **[Rtn]**.
`A-add M-modify` `D-delete>`	Type **M** and press **[Rtn]**.
`KEY TYPE` `(P-pin C-card)>`	Type **P** and press **[Rtn]** if you are modifying a PIN, or type **C** and press **[Rtn]** if you are modifying a card.
`CARD #>`	Displayed only if you are modifying a card: Type the ***card number*** and press **[Rtn]**.
`PIN>`	Displayed only if you are modifying a PIN: Type the 4-digit ***PIN*** and press **[Rtn]**.
`DOOR 1 TIME` `SCHEDULE(A-D,X,Y)>`	Type the ***letter*** of the card's Door 1 time schedule and press **[Rtn]**. Or, press **[Rtn]** to keep the same time schedule.
`DOOR 2 TIME` `SCHEDULE(A-D,X,Y)>`	Type the ***letter*** of the card's Door 2 time schedule and press **[Rtn]**. Or, press **[Rtn]** to keep the same time schedule.
`CATEGORY (A-Z)>`	Type the ***card category*** and press **[Rtn]**. Or, press **[Rtn]** to keep the same category.
Note: If you do not choose a category, category C is automatically assigned.	
`PIN>`	Displayed only if you are modifying a card: Type the 4-digit ***PIN*** and press **[Rtn]**.

(Continued)

`CARD>`	Displayed only if you are modifying a PIN: Enter a ***new card number*** and press **[Rtn]**.
`NAME>`	If you need to change (or add) the cardholder name, type the ***cardholder's name*** and press **[Rtn]**. Otherwise, leave the field blank and press **[Rtn]**.
Note: The cardholder's name can be up to 18 characters long. The first character in the name cannot be a number, and the name cannot include spaces.	
`ARM/DISARM PRIVILEGE (Y or N)>`	To assign arm and disarm privileges to this card, Type **Y** and press **[Rtn]**. Otherwise, Type **N** and press **[Rtn]**.
`WIRELESS POINT CONTROL PRIVILEGE (Y OR N)>`	To allow wireless point control privileges to cards, type **Y** and press **[Rtn]**. Otherwise, type **N** and press **[Rtn]**.
Note: To verify that cards have been correctly added to the database, run a Category Report (refer to "`REP` Command," in Section 6).	

Command Reference 29: Modifying Cards or PINs with `DBASE`

8.5. Deleting Individual Cards or PINs

Prompt	Response
How to delete a single card or PIN:	
`Ready>`	Type **DBASE** and press **[Rtn]**.
`A-add M-modify D-delete>`	Type **D** and press **[Rtn]**.
`S-single B-block>`	Type **S** and press **[Rtn]**.
`P-pin C-card>`	Type **P** and press **[Rtn]** to delete by PIN. Or type **C** and press **[Rtn]** to delete by card number.
`CARD #>` `PIN>`	Type the ***card number*** and press **[Rtn]**. Or, type the ***PIN*** and press **[Rtn].**

Command Reference 30: Deleting Individual Cards or PINs with `DBASE`

8.6.   Deleting a Group (Block) of Cards

Deleting a group of cards, by number:	
Note: You can delete cards in a group, but you cannot delete PINs in a group.	
`Ready>`	Type **DBASE** and press **[Rtn]**.
`A-add M-modify` `D-delete>`	Type **D** and press **[Rtn]**.
`S-single B-block>`	Type **B** and press **[Rtn]**.
`LIST (Y-yes` `N-no)>`	Type **Y** and press **[Rtn]** for a list of every card deleted, or type **N** and press **[Rtn]** for a summary of all deleted cards.
`C-cat N-number>`	Type **N** and press **[Rtn]** to delete by card number.
`START #>`	Type the *number* of the first card to be deleted and press **[Rtn]**.
`# OF CARDS>`	Type the *number* of cards to be deleted and press **[Rtn]**.
Note: PINs can only be deleted by category.	
Note: If you wish to cancel this deletion, press the [Esc] key now.	
Deleting a group of cards, by category:	
`Ready>`	Type **DBASE** and press **[Rtn]**.
`D-delete A-add` `M-modify>`	Type **D** and press **[Rtn]**.
`S-single B-block>`	Type **B** and press **[Rtn]**.
`LIST (Y-yes N-no)>`	Type **Y** and press **[Rtn]** for a list of every card deleted. Or type **N** and press **[Rtn]** for a summary of all deleted cards.
`C-cat N-number>`	Type **C** and press **[Rtn]** to delete by category.

`CATEGORY>`
`(Block delete by`
`Category only)`
	Displayed only when deleting a block of cards by category:
	Type the *letter of the category* being deleted and press **[Rtn]**.

`START #>`	Type the *number* of the first card to be deleted and press **[Rtn]**.
`# OF CARDS>`	Type the *number* of cards to be deleted and press **[Rtn]**.
Note: PINs can only be deleted by category.	
Note: If you wish to cancel this deletion, press the [Esc] key now.	

Command Reference 31: Deleting Groups of Cards with `DBASE`

8.7. Master Learn / Delete Cards: `LEARN`

The `LEARN` command is used assign Master Learn / Delete Cards to a card number. For add-type Master Learn / Delete Cards, `LEARN` is also used to set the card attributes for associated with the add card. These attributes are transferred to each card added with the Master Learn Cards.

- The four Master Learn Cards are designated A through D.
- The Master Delete Card is designated E.

8.7.1. Adding Master Learn / Delete Cards

Prompt	Response
Adding Master Learn / Delete Cards:	
`Ready>`	Type **LEARN** and press **[Rtn]**.
`A-add D-delete>`	Type **A** and press **[Rtn]**.
`WHICH MASTER CARD>`	Type the *letter* (A, B, C, D, or E) and press **[Rtn]**.
`ENTER MASTER NUMBER>`	Type the *card number* of the Master Learn / Delete Card.
Note: Displayed only for Master Learn Cards.	
`DOOR 1 TIME SCHEDULE (A-D,X,Y)>`	Type the *letter* of the time schedule for door 1 and press **[Rtn]**.
`DOOR 2 TIME SCHEDULE (A-D,X,Y)>`	Type the *letter* of the time schedule for door 2 and press **[Rtn]**.
`CATEGORY (A-Z)>`	The default is C, to accept the default simply press **[Rtn]**.
	To use a different identifier, type the *letter* to use and press **[Rtn]**.
`NAME>`	Type the *cardholder name* you want to assign to all cards and press **[Rtn]**.
`ARM/DISARM PRIVILEGE (Y or N)>`	The default is N, to accept the default simply press **[Rtn]**.
	To assign arm and disarm privileges to this card, type **Y** and press **[Rtn]**.
	To clear arm and disarm privileges for this card type **N** and press **[Rtn]**.
`WIRELESS POINT CONTROL PRIVILEGE (Y or N)>`	The default is Y, to accept the default simply press **[Rtn]**.
	To assign wireless point control privileges to this card, type **Y** and press **[Rtn]**.
	To clear wireless point control privileges for this card type **N** and press **[Rtn]**.

Command Reference 32: Adding Master Learn / Delete Cards with `LEARN`

8.7.2. Deleting a Master Learn / Delete Card

Prompt	Response
Deleting Master Learn / Delete Cards:	
`Ready>`	Type **LEARN** and press **[Rtn]**.
`A-add D-delete>`	Type **D** and press **[Rtn]**.
`WHICH MASTER CARD>`	Type the *letter* (A, B, C, D, or E) and press **[Rtn]**.

Command Reference 33: Deleting Master Learn / Delete Cards with `LEARN`

8.7.3. Adding or Deleting Cards With Master Learn / Delete Cards

To add a card at the reader, slide or present one of the four Master Learn / Delete Cards, cards A-D, through the reader, immediately followed by the card you want to add.

Note: Specific information such as the cardholder name can be entered later by using the modify procedure for the `DBASE` *command.*

To delete cards at the reader, slide or present the Master Delete Card, card E, at the reader, immediately followed by the cards to delete.

9. Testing and Troubleshooting

This section describes testing procedures for newly installed APMs and provides a troubleshooting guide, which lists possible problems and their solutions.

9.1. Testing Procedures

This section includes step-by-step procedures for testing your APM. Following these procedures lets you systematically verify the proper operation of each part of the system. The procedures test input and outputs, readers, keypads, and backup power.

If any part of a test fails, the problem should be identified and corrected before continuing. Refer to the troubleshooting, later in this section, to identify and resolve problems.

Note: We recommend performing these test procedures to ensure proper system operation. The testing procedures work best with two or more people who are equipped with two-way radios or some other portable means of communication.

9.1.1. Testing Inputs

Note: Perform the following steps to test each input used.

❖ How to Test an Input

1. Put the input in the normal state (for example, if the normal state is door closed, close the door).

2. Put the input in the alarm state (for example, if the alarm state is DOOR OPEN, open the door). An alarm message should display on the terminal for the input being tested. An example of an alarm message is as follows:

        01/01/97 WED 15:39 AP211 INPUT1 ALARM *
   The asterisk (*) is part of the alarm message.

   If you are testing an interlocked input, output 2 or 4 should be activated for the entire time the input is in the alarm state. For example, a siren at output 2 should remain on until you return the input   point to the normal state.

3. Put the input in the normal state (for example, if the normal state is door closed, close the door). A normal message should be displayed on the for the point being tested. An example of a normal message is as follows:

        01/01/97 WED 15:39 AP211 INPUT1 NORMAL.

Note: If a non-supervised point is being used, skip the remaining steps.

4. If the input is supervised, put the input in the trouble state: This is done by either of the following:

   - if normally closed contacts are used, shorting across the end-of-line resistor or
   - if normally open contacts are used, by removing the end-of-line resistor.

An example of a trouble message is below:
```
WED 15:40 AP211 INPUT2 TROUBLE *
```
The asterisk (*) is part of the trouble message.

5. Put the input in the normal state (for example, if the normal state is door closed, close the door). A normal message displays on the terminal for the input being tested.

9.2. Testing Outputs

Note: Perform the following steps to test the operation of each output used on the APM.

❖ How to Test Outputs

Follow the programming listed below to test outputs:

Prompt	Response
Put the output in the OFF state by entering the following:	
`Ready>`	Type **REL** and press **[Rtn]**.
`POINT NAME>`	Type the *output name* and press **[Rtn]**. The default names are OUTPUT1, OUTPUT2, etc.
`O-on F-off` `P-pulse>`	Type **F** and press **[Rtn]**.
Note: Verify that the outputs are in the OFF state as indicated by the state of the device controlled by the output (for example, the door is locked for output 1).	
Put the outputs in the ON state by entering the following:	
`Ready>`	Type **REL** and press **[Rtn]**.
`POINT NAME>`	Type the *output name* and press **[Rtn]**.
`O-on F-off` `P-pulse>`	Type **O** and press **[Rtn]**.
Note: Verify the outputs are in the ON state as indicated by the state of the device controlled by the output (for example, the door is unlocked for output 1).	

9.2.1. Testing Readers

❖ How to Test Entry Readers

Perform the following steps to test the operation of the entry readers.

1. If magnetic-stripe readers are used, set the card format using the SETMAG command. For information on this command, go to the "SETMAG Command" section in Section 7.

2. Slide or present the test card through each reader.
   If the reader has a red and green LED (light-emitting diode), it should turn green.
   If the reader has a red-only LED, it should flash long off and short on.
   Output 1 should pulse on and then off.

3. Complete the programming, as indicated below:

Prompt	Response
`Ready>`	Type **DBASE** and press **[Rtn]**.
`A-add M-modify` `D-delete>`	Type **A** and press **[Rtn]**.
`S-single B-block>`	Type **S** and press **[Rtn]**.
`DOOR 1 TIME SCHEDULE` `(A-D,X,Y)>`	Type **X** and press **[Rtn]**.
`DOOR 2 TIME SCHEDULE` `(A-D,X,Y)>`	Type **X** and press **[Rtn]**.
`CATEGORY (A-Z)>`	Type **C** and press **[Rtn]**.
`PIN>`	Press **[Rtn]**.
`CARD #>`	Type the *card number* and press **[Rtn]**.
`NAME>`	Press **[Rtn]**.
If a site code is used, set the site code by entering the following:	
`Ready>`	Type **SC** and press **[Rtn]**.
`SITECODE>`	Type the *site code* for the cards used at the installation (a 1- to 8-digit number) and press **[Rtn]**.

4. A message should display on the terminal, indicating a valid entry with the number of the test card used. An example message is as follows:

       01/01/97 WED I5:38 AP211 DOOR_NAME crd=###...#
       (where # is the card number)

9.2.2. Testing Keypads

❖ **How to Test All Keypad Operations**

1. If the red LED (light-emitting diode) on the keypad is on, press the following keys on the keypad (the keypad should produce a short beep for every key pressed):
   ```
   1234[#]
   ```

2. A `PIN ERROR` message with the number l234 as the PIN should display on the terminal. An example message is as follows:
   ```
   01/01/97 WED 13:57 AP211 ERROR-PIN PIN=1234 *
   ```
   The asterisk (*) is part of the ERROR message.
   The red and green LEDs on the keypad should flash on and off quickly
   at opposite intervals.

3. Press the following keys on the keypad:
   ```
   5678[#]
   ```

4. A PIN ERROR message with the number 5673 as the PIN should display on the terminal. An example message is as follows:
   ```
   01/01/97 WED 13:57 AP211 ERROR-PIN PIN-5678 *
   ```
   The asterisk (*) is part of the ERROR message.
   The red and green LEDs on the keypad should flash on and off quickly
   at opposite intervals.

❖ **How to Load a Test PIN**

1. Complete the following steps:

Prompt	Response
Ready>	Type **DBASE** and press **[Rtn]**.
A-add M-modify D-delete>	Type **A** and press **[Rtn]**.
S-single B-block>	Type **S** and press **[Rtn]**.
DOOR 1 TIME SCHEDULE (A-D,X,Y)>	Type **X** and press **[Rtn]**.
DOOR 2 TIME SCHEDULE (A-D,X,Y)>	Type **X** and press **[Rtn]**.
CATEGORY (A-Z)>	Type **C** and press **[Rtn]**.
PIN>	Type **7890** and press **[Rtn]**.
CARD #>	Press **[Rtn]**.
NAME>	Type a *name* for the test PIN and press **[Rtn]** (for example, TESTNAME).

2. Press the following keys on the keypad:
   ```
   56[*]7890[#]
   ```

3. A message should display, indicating a valid entry.
   ```
   01/03/97 WED 15:45 AP211 DOOR_1 TESTNAME
   ```

4. The red LED (light-emitting diode) on the keypad should turn off and the green LED should turn on for the duration of the strike time. Output 1 or 3 should pulse on and then off.

9.2.3. Testing Backup Power

If your system uses back up power and is not working properly, conduct the following test:

❖ **How to Test Back Up Power**

Complete the following steps if you use back up power with your APM:

1. Unplug the primary power source cable.

    The system power LED should begin to flash. A PRIMARY POWER FAILED message should display, followed by a BATTERY OK message.

2. Operate the door strike several times by sliding or presenting a valid card at the reader or by entering a valid PIN at the keypad. Each card or PIN event should appear in a valid card message at the terminal, and the door should unlock for each valid event.

    Allows your APM to operate from the battery for approximately 15 minutes. The System Power LED should flash for the entire duration of the test.

3. Plug in the primary power source.

9.3.   Reasons Why Outputs Are Active

If you are troubleshooting why an output is on, when any of the following conditions are met, the output will turn on:

❏ **It was Commanded —** the command REL was used to turn it on.
❏ **The Interlocked Option —** an interlocked input is in the alarm state.
❏ **By Wireless Point Control—** this option is enabled and switched to on by Wireless Point Control Option; may also override the time schedule and force the point off.
❏ **Its Time Schedule is Active—** the time schedule assigned to the output is active.
❏ **Its Timer is Active—** if the door strike timer or denied access timer is active.
❏ **It Received a Panic Signal—** this option is enabled and panic signal was received, has not been canceled, and has not timed out.
❏ **The Maximum Occupancy Option—** this option is enabled and maximum occupancy has been reached.
❏ **There is a Security Problem—** the Security Option is enabled and the tamper input is in alarm.

Note: Additional troubleshooting ideas are listed in the next section.

9.4.   Troubleshooting

Below you will find a list of problems common when installing and maintaining an APM. To help with troubleshooting, solutions follow each problem.

1. AC power is applied, but the SYSTEM POWER LED does not come on.

Cause	Solution
1. The power cable may not be plugged in.	Plug the power cable in.
2. The APM's memory may not have been cleared.	Perform the power-up procedure. Refer to the "Powering Up" section in Section 4, *Mounting and Wiring*
3. A wiring error may exist on the terminal block.	Correct the wiring error. See Section 4, *Mounting and Wiring*.
4. The AC power fuse on the power supply module may be blown.	Replace the fuse with a fuse of the same ratings as in Figure 5, *351 Wiring Diagram*.
5. If the 16-volt Power Supply is used, the class II transformer may be defective.	Replace the class II transformer.
6. The APM may be defective.	Replace the electronics module.

2. DC power is applied, but the SYSTEM POWER LED does not come on.

Cause	Solution
1. The APM's memory may not have been cleared.	Perform the power-up procedure. Refer Section 4, *Mounting and Wiring*.
2. A wiring error may exist on terminals 1 and 2.	Correct the wiring error. Refer to Section 4, *Mounting and Wiring*.
3. The APM may be defective.	Replace the electronics module.

3. A backup battery is connected to the APM, but the APM will not operate from battery power.

Cause	Solution
1. The battery may not be fully charged.	Allow the battery to charge for at least 16 hours.
2. The battery fuse may be blown.	Replace the fuse with a fuse of the same ratings. Refer to Figure 5, *351 Wiring Diagram.*
3. The battery may be defective.	Replace the battery.
4. The APM may be defective.	Replace the electronics module.

4. Power is applied to the APM, but the LED on one (or both) of the reader not on.

Cause	Solution
1. The APM may be configured for card readers with red and green LEDs, but the readers have red-only LEDs.	Set the LED type using the RDR command. Refer to the "RDR Command" section in Section 7.
2. The reader may be improperly connected to the APM.	Correct the wiring error. Refer to Section 4
3. The APM may be defective.	Replace the electronics module.

5. The LED on one (or both) of the readers is green.

Cause	Solution
1. The APM may be configured for readers with red-only LEDs, but the readers have red and green LEDs.	Set the LED type using the RDR command. Refer to the "RDR Command" section in Section 7, *Programming Your 351*.
2. The reader may be improperly connected to the APM.	Correct the wiring error. Refer to Section 4.
3. The APM may be defective.	Replace the electronics module.

6. Power is applied to the APM, but the red LED on one (or both) of the keypads is not on.

Cause	Solution
1. The keypad may be improperly connected to the APM.	Correct the wiring error. Refer to Section 4.
2. The keypad may be defective.	Replace the keypad.
3. The APM may be defective.	Replace the electronics module.

7. The reader LED flashes red/green for a valid entry or exit.

Cause	Solution
The APM may be configured for red-only LED readers, but the readers have red and green LEDs.	Set the reader LED type using the RDR command. Refer to the "RDR Command" section in Section 7, *Programming Your 351*.

8. The reader LED turns off for a valid entry or exit.

Cause	Solution
The APM may be configured for readers with red and green LEDs, but the readers have red-only LEDs	Set the reader LED type using the RDR command. Refer to the "RDR Command" section in Section 7, *Programming Your 351*.

9. The green LED on the keypad does not flash for an invalid PIN entry.

	Cause	Solution
1.	The keypad may be improperly connected to the APM	Correct the wiring error. Refer to Section 4.
2.	The keypad may be defective.	Replace the keypad.
3.	The APM may be defective.	Replace the electronics module.

10. APM messages are displayed on the terminal, but the APM does not respond to commands from the terminal.

	Cause	Solution
1.	The terminal may be improperly connected to the APM.	Correct the wiring error. Refer to Section 4.
2.	The terminal cable may be defective.	Replace the cable.
3.	The terminal may be defective.	Replace the terminal.
4.	The APM may be defective.	Replace the electronics module.

11. The APM does not communicate with the terminal.

Cause	Solution
1. The terminal may not be in the ON LINE mode.	Set the terminal to the ON LINE mode.
2. The terminal may not be configured for the proper word size, parity, or stop bits.	Set the terminal. Refer to the "Configuring the Terminal" section in Section 4.
3. The terminal may be improperly connected to the APM.	Correct the wiring error. Refer to Section 4.
4. The terminal may be defective.	Replace the terminal.
5. The APM may be defective.	Replace the electronics module.

12. Mask error messages display for every card swipe.

Cause	Solution
1. The APM may be configured for the wrong card type.	Set the reader type using the RDR command. Refer to the "RDR Command" section in Section 7, *Programming Your 351*.
2. If magnetic-stripe cards are used, the card format defined in your APM may not be consistent with the format on the card.	Check the card format and reprogram your APM if necessary. Refer to the "SETMAG Command" section in Section 7, *Programming Your 351*.
3. The reader may be improperly connected to the APM.	Correct the wiring error. Refer to Section 4.
4. The card may be defective.	Replace the card.
5. The card may be an unsupported Wiegand format.	Replace all cards with cards of a supported format.
6. The reader may be defective.	Replace the reader.
7. The APM may be defective.	Replace the electronics module.

13. Parity error messages display for every card swipe.

Cause	Solution
1. The APM may be configured for the wrong card type.	Set the reader type using the RDR command. Refer to the "RDR Command" section in Section 7, *Programming Your 351*.
2. The reader may be improperly connected to the APM.	Correct the wiring error. Refer to Section 4.
3. The card may be defective.	Replace the card.
4. The reader may be defective.	Replace the reader.
5. The APM may be defective.	Replace the electronics module.

14. A normal message displays when an input changes to the alarm state.

Cause	Solution
The APM may not be configured for the type of contact used	Set the contact type using the IO command.

15. No message displays for an input that changes from normal to the alarm state.

Cause	Solution
1. The APM may be configured for non-supervised inputs, but supervised points are used.	Set input supervisions using the IO command. Refer to Section 7, *Programming Your 351*.
2. The input may be improperly connected to the APM.	Correct the wiring error. Refer to Section 4.
3. The contact or detector may be defective.	Replace the contact or detector.
4. The APM may be defective.	Replace the electronics module.

16. Output 2 is not activated for an input when it is interlocked and in the alarm state.

Cause	Solution
1. The APM may not detect that the input is in the alarm state	Check if alarm and normal messages display on the terminal when the input is switched between alarm and normal states.
2. The APM may be defective.	Replace the electronics module.

Note: Additional suggestions for output troubleshooting are found in the preceding section, "Reasons Why Outputs are Active."

17. Output 4 is not activated for an input when it is interlocked and in the alarm state.

Cause	Solution
1. The APM may not detect that the input is in the alarm state.	Check if alarm and normal messages display on the terminal when the input is switched between alarm and normal states.
2. The APM may be defective.	Replace the electronics module.

Note: *Additional suggestions for output troubleshooting are found in the preceding section, "Reasons Why Outputs are Active."*

18. No message displays for an input that changes to the trouble state.

Cause	Solution
1. The APM may be configured for non-supervised inputs.	Set the input supervision using the IO command. Refer to the "IO Command" section in Section 7, *Programming Your 351*.
2. The APM may be defective.	Replace the electronics module.

19. No message displays for an input that changes from alarm to the normal state.

Cause	Solution
1. The APM may be configured for non-supervised inputs, but supervised inputs are used.	Set the point supervision using the IO command. Refer in the "IO Command" section in Section 7, *Programming Your 351*.
2. If the inputs are supervised, the end-of-line may be the wrong value.	Install the correct end-of-line resistor. Refer to the "Wiring Inputs" section of Section 4.
3. The contact or detector may be defective.	The APM may be defective.

20. One (or more) of the outputs on my APM cannot be set to the OFF state.

Cause	Solution
The APM may be defective.	Replace the electronics module.

21. The door does not unlock when a valid card or PIN is entered.	
Cause	**Solution**
1. The strike time may be set to zero.	Change the strike time using the DOOR command. Refer to the "DOOR Command" section in Section 7, *Programming Your 351*.
2. A PIN may also be required for this card.	If the cardholder database has both card number and PIN entries, the user must slide or present the card and then enter the PIN for access to be granted.
3. The door lock my be improperly connected to the APM.	Correct the wiring error. Refer to Section 4.
4. The reader or keypad may be defective.	Replace the reader or keypad.
5. The APM may be defective.	Replace the electronics module.

22. The keypad doesn't always beep when I hit keys.	
Cause	**Solution**
1. You may be pressing the keypad too quickly.	Type the numbers more slowly.
2. The keypad may be improperly connected.	Correct the wiring error. Refer to Section 4.

10.   Appendix A: Specifications

SIZE

> 14 1/2" x 14 1/ 2" x 3 1/2"
> (36.8 cm x 36.8 cm x 8.9 cm)

WEIGHT

> 22 pounds (including battery)
> (10 kg)

INPUT POWER

> 16 V_{AC} 50/60 Hz or
> 18-24 V_{DC} 2.5 A (Maximum)

OUTPUT POWER

> 12.8 V_{DC} $\pm$10% at 600 mA Maximum
> 5.0 V_{DC} $\pm$5% at 100 mA Maximum
> *Note: The total current sourced at 12V and 5V must not exceed 600 mA.*

DATABASE CAPACITY

> 250 IDs maximum

BUFFER CAPACITY

> 250 events maximum

TERMINAL INTERFACE

> Bi-directional RS-232 interface to 9600 BPS

INPUTS

> Two door position inputs, two egress inputs, supervised or non supervised modes, normally open or normally closed contacts.

- One nonsupervised, normally closed input for enclosure tamper.

- In supervised mode, 4.7K Ohm end-of-line resistor required. In non supervised mode, no end-of-line resistor required.

OUTPUTS

> Four relay outputs, Form C type, dry contacts.

CONTACT RATING

> 3.0 A at 24 V_{AC} or 30 V_{DC} Maximum

11. Appendix B: 351 Installation Planning Form

This appendix contains a master copy of the *351 Installation Planning Form*. Use this form to document your APM settings and options. Detailed instructions for completing this form are in Section 3, *Installation Planning*.

351 Installation Planning Form

APM NAME		LOCATION	

APM

Site Code		**Terminal**	❏ 300 ❏ 1200 ❏ 2400 ❏ 9600

DOORS

Strike	Make & Model	Voltage	Contact	Type	Strike Time	Ajar Time
1			❏ Normally Open ❏ Normally Closed	❏ Memory ❏ Non-Memory ❏ Fixed Time		
2			❏ Normally Open ❏ Normally Closed	❏ Memory ❏ Non-Memory ❏ Fixed Time		

INPUTS

Input	Name and Description	Schedule	Contact Type	Setup
1			❏ Normally Open ❏ Normally Closed	❏ Supervised ❏ Interlocked to output (s): ② ④
2			❏ Normally Open ❏ Normally Closed	❏ Supervised ❏ Egress *(set by default)* ❏ Interlocked to output (s): ② ④
3			❏ Normally Open ❏ Normally Closed	❏ Supervised ❏ Interlocked to output(s): ② ④
4			❏ Normally Open ❏ Normally Closed	❏ Supervised ❏ Egress *(set by default)* ❏ Interlocked to output(s): ② ④

OUTPUTS

Output	Name and Description	Schedule	Notes
1			*Default door 1 strike*
2			
3			*Default door 2 strike*
4			

351 Installation Planning Form

APM NAME		LOCATION	

OPTIONS

Output	Denied Access	Security System Arm/Disarm	Panic	Wireless Point Control		Occupancy Monitoring
				Lights	Star	
2	❏ Door 1 ❏ Door 2	❏	❏	❏	❏	❏ Door 1　　❏ Door 2 Maximum: _____ Current: _____ ❏ Disable Reader
4	❏ Door 1 ❏ Door 2	❏	❏	❏	❏	❏ Door 1　　❏ Door 2 Maximum: _____ Current: _____ ❏ Disable Reader

Note: If "Panic" is selected, choose　　the initial-on time (minimum):　　_____ seconds
the time-out (minimum):　　_____ seconds

READERS AND KEYPADS

Reader	Description	Keypad	Type	LED Type
1		❏ Yes ❏ No	❏ Wiegand ❏ Magnetic Stripe	❏ Red Only ❏ Red/Green
2		❏ Yes ❏ No	❏ Wiegand ❏ Magnetic Stripe	❏ Red Only ❏ Red/Green

MAGNETIC STRIPE CARD DATA FORMAT

Field	Character	Digits	Position 1		Position 2		Position 3	
			Start	End	Start	End	Start	End
Start Sentinel								
Site Code								
Card Number								
ID Number								
Separator								
End Sentinel								

351 Installation Planning Form

APM NAME		LOCATION	

SYSTEM POWER

Power Supply		Circuit Breaker		Backup Battery
Voltage	**Location**	**Number**	**Location**	
				❏ Yes ❏ No

ADD-ON OPTION KITS

❏ Keypad	❏ Battery Backup Kit

12.　Appendix C: 351 Schedules Planning Form

This appendix contains a master copy of the *351 Schedules Planning Form*. Use this form to document your APM settings and options. Detailed instructions for completing this form are in Section 3, *Installation Planning*.

351 Schedules Planning Form

APM NAME		LOCATION	

ACCESS SCHEDULES													
Schedule	**Zone**	**Interval 1**		**Interval 2**		**Days**							
		Start Time	**End Time**	**Start Time**	**End Time**	**(1)** Mon.	**(2)** Tues.	**(3)** Wed.	**(4)** Thur.	**(5)** Fri.	**(6)** Sat.	**(7)** Sun.	**(8)** Hol.
A	0	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
	1	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
	2	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
	3	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
B	0	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
	1	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
	2	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
	3	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
C	0	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
	1	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
	2	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
	3	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
D	0	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
	1	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
	2	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
	3	__:__	__:__	__:__	__:__	❏	❏	❏	❏	❏	❏	❏	❏
X		00:00	23:59	(always)		■	■	■	■	■	■	■	■
Y		00:00	00:00	(never)		❏	❏	❏	❏	❏	❏	❏	❏

351 Schedules Planning Form

APM NAME		LOCATION	

HOLIDAYS

Holiday	Description	Type	Start Date	Start Time	End Date	End Time
1		❏ Fixed ❏ Variable	__/__/__	__:__	__/__/__	__:__
2		❏ Fixed ❏ Variable	__/__/__	__:__	__/__/__	__:__
3		❏ Fixed ❏ Variable	__/__/__	__:__	__/__/__	__:__
4		❏ Fixed ❏ Variable	__/__/__	__:__	__/__/__	__:__
5		❏ Fixed ❏ Variable	__/__/__	__:__	__/__/__	__:__
6		❏ Fixed ❏ Variable	__/__/__	__:__	__/__/__	__:__
7		❏ Fixed ❏ Variable	__/__/__	__:__	__/__/__	__:__
8		❏ Fixed ❏ Variable	__/__/__	__:__	__/__/__	__:__
9		❏ Fixed ❏ Variable	__/__/__	__:__	__/__/__	__:__
10		❏ Fixed ❏ Variable	__/__/__	__:__	__/__/__	__:__

DAYLIGHT SAVINGS TIME CHANGES

Time Change	Description	Date	Old Time	New Time
1		__ / __	__:__	__:__
2		__ / __	__:__	__:__

13. Appendix D: 351 Database Planning Form

This appendix contains a master copy of the *351 Database Planning Form*. Use copies of this form to plan your APM database. For more information, see the "DBASE Command" in Section 7, *Programming Your 351*.

351 Database Planning Form

APM Name		**Location**	

Master Learn / Delete Cards

Card	Name	Card #	Schedule		Category	Privileges	
			Door 1	**Door 2**		**System Arm/Disarm**	**Wireless Point Control**
A							
B							
C							
D							
E	*[Delete]*						

Access Database

Name	Card #	PIN	Schedule		Category	Privileges	
			Door 1	**Door 2**		**System Arm/Disarm**	**Wireless Point Control**

351 Database Planning Form

ACCESS DATABASE							
Name	**Card #**	**PIN**	**Schedule**		**Category**	**Privileges**	
			Door 1	**Door 2**		**System Arm/Disarm**	**Wireless Point Control**

14. Appendix E: APM Error Messages

There are three types of error messages:

- command error messages
- event error messages
- communication (Net Error) messages

The most common error messages are command and event error messages. All of these error messages are described in this appendix.

14.1. APM Command Error Messages

Command error messages are produced by your APM in response to something you type. Below, all such error messages are listed, along with probable reasons for the messages:

BAD COMMAND	You entered a command that your APM did not recognize. Misspelling the command is usually the cause of this message.
FORMAT ERROR	You used illegal values while using the "unprompted" command entry (or command line).
	Examples: entering letters for a numeric field or entering a nine-digit site code.
FORMAT ERROR R-retry	The last parameter you entered contains illegal values
	Example: such as letters when only numbers are allowed. Pressing the R key allows the parameter to be entered again.
ID EXISTS	You attempted to add an ID (such as a card or PIN) that already exists in the APM database.
ID TOO LARGE	You attempted to add an ID to the APM database, but that number that is too large for the card format used.
ILLEGAL DEFAULTS	There were illegal default values set in one (or more) of the parameters you just tried.
	Examples: A **[Rtn]** was entered in response to a prompt, default values (or combination of default values) are not appropriate for the command; you tried to use the DBASE add command with default PIN and card number.
INVALID	The command you entered is correct, but is parameters are not consistent with the APM's current configuration.
INVALID PSW	You entered a password that doesn't match the password programmed into the APM.
MEMORY FULL	Your cardholder database memory is completely full.
NAME EXISTS	You attempted to add an APM name that already exists.

NOT FOUND	You requested the APM to do something with piece of data (a PIN, card number, or name) that wasn't found in the database.
PLEASE LOGON	You must log into the APM before any command (except **LOGON** and **LOGOFF**) can be executed.
	This message indicates that either the **LOGON** command was not executed or that 2 minutes passed without any commands being entered, so your APM logged off automatically.
PSW MISMATCH	When you change a password, the new password must be entered twice. This message indicates that the second password entry did not match the first.
TABLE FULL	You attempted to add a holiday or DLS entry, but the table is already full.
	Only 10 entries are in the holiday table and only 2 entries are in the DLS table.
UNABLE TO COMPLETE COMMAND	The command you entered didn't work. Perhaps, the network failed or is busy delivering higher priority messages.

14.2. Event Error Message

Event error messages are produced by your APM in response to external events. Below, all such error messages are listed, along with probable reasons for the messages:

ERROR-CARD	Someone presented a card that is not in the APM database.
ERROR-MASK	Someone presented a card, but its format doesn't match the format programmed into the APM.
	Examples: A data error is being read from the card, bad data might be sent from the reader to the, or the card is not compatible with your present APM configuration. In Wiegand mode, the number of bits read from the card may be incorrect. In magnetic-stripe mode, the number of digits read from the card was incorrect or defined constant(s) were not found.
ERROR-PARITY	A data error was detected on data sent from a reader to your APM.
	Example: In magnetic-stripe mode, this indicates a parity error on one (or more) digits or an LRC (Longitudinal Redundancy Check) error on data received.
ERROR-PIN	Someone used a card at the reader or typed at the keypad, but the PIN that is entered is not in your APM database.

ERROR-SC	Someone used a card at the reader, but its site code doesn't match the APM site code.
ERROR-SEC	Someone tried to enter the building when the security system was armed.
ERROR-TMP	Someone tried to use an expired, temporary token (a card or PIN).
	Examples: the token's valid time interval has expired, the number of uses has been exhausted, or both.
ERROR-TS	Someone tried a token (such as a card or PIN), but didn't have access privileges for that time.

14.3. The Net Error Message

The NET ERROR message appears is an internal communication error from your APM. Below, all such error messages are listed, along with probable reasons for the messages.

A Net Error Message has five parts:

- the error code,
- source APM address,
- source point address,
- destination APM address, and
- destination point address.

An example examples of a net error message is shown below:

```
    04/09/97 TU 9:43 LOBBY NET ERROR #111 src=266,10 dst=266,10*
```

This means that at 9:43 on April 9th, 1997, an error code 111 occurred where the source APM was AP266, the destination APM was AP366, and both source and destination point addresses were 10.

An APM address is a unique identifying number that is encoded in the software.

Note: A point address is useful primarily to ITI Technical Services and not the user.

Net error codes can be divided into three categories:

- Transmit-Side Codes,
- Receive-Side Codes, and
- Operating System Codes.

14.3.1. Receive-Side Net Errors

Receive-Side Net errors mean that an APM received an incomplete message, no messages, or a message from an unexpected source. These codes are listed below:

```
    102, 104, 106, 108, 110, 112, 113, 114, 120, 140, 141, 142
```

14.3.2. Transmit-Side Net Errors

Transmit-Side Net errors mean that an APM couldn't send a complete message, or the final destination didn't acknowledge it received the message, often due to APM failure. These codes are listed below:

```
100, 101, 105, 107, 111, 117
```

14.3.3. Operating System Net Errors

Operating System Net errors happen when your APM runs out of memory or is overloaded. These codes are listed below:

```
91, 92, 93, 145, 150, 151, 153, 154, 155, 156, 157
```

Note: Most of these net errors never occur. However, it is normal to see some net errors while powering up or powering down an APM.

14.4.   When Might Net Errors Appear?

14.4.1. Startup Errors

If your APM is being powered up, such as after a power failure, you might see a few net errors:

```
100, 103, or 111.
```

14.4.2. Shutdown Errors

If an APM fails, you might see a few error messages:

```
100, 110, 111, or 112
```

Also, your sba and sbd tallies, listed on the Full Report, might reflect six APM communication attempts.

15. Appendix F: Glossary of APM Terms

351

The model number of an ITI Access Point Manager. This ITI product is a card-access, -point monitoring, and device-control processor for buildings, rooms, parking lots, etc. The terms "APM" and "351" are used interchangeably.

access mode

A mode of operation in which an input cannot generate an alarm condition, or when an access point allows unrestricted access. Points can be put in this mode by using time schedules. (The other mode of operation is the secure mode.)

Access Point Manager (APM)

See "351."

Alarm Arm / Disarm

See "Security System Arm / Disarm."

APM (Access Point Manager)

See "351."

card reader

See "reader."

category

A grouping of cardholders in your APM database used for assigning time schedules and printing reports.

denied access indicator

A door access option that energizes an output when an invalid card/PIN is presented at the reader/ keypad. The output can activate an external annunciator, a camera, or other external circuitry specific to your system

door ajar time

The number of seconds, after the door strike time expires, when a door can be open without causing the "door open" alarm.

door position sensor

A device wired to a door that monitors whether the door is open or closed.

door strike

A type of lock that can be locked or unlocked by electronic switching.

door strike contact

The normal status of the door lock mechanism: normally open (NO) or normally closed (NC).

door strike time

The number of seconds that a door remains unlocked with a valid entry.

door strike type

An access setting that identifies which of three types of strikes is being used on the doors: fixed, memory, or non-memory

electronics module

A removable and replaceable board in the 351, which contains all necessary electronic components.

employee category

See "category."

holiday schedule

A group of up to 10 days during the calendar year, when the time schedule differs from the regular schedule. For example, if New Year's falls during the week, access to the facility might be handled like it is a weekend, rather than a regular weekday.

inputs

The separate channels through which your APM receives external information.

interlock

Connecting one or more inputs to one dedicated output. When interlocked inputs are in the alarm or trouble state, the interlocked output is activated.

learn function

An option that allows cards to be added or deleted from the database when using special cards at the reader.

LED

Light-emitting display.

lockout

An option that allows the operator to disable a reader. When in this mode the reader indicator lights are shut off, access requests are ignored, and no access events are logged.

map

See "interlock."

memory capacity

The amount of random access memory (RAM) in the 351. The memory capacity for your APM is 32,768 bytes.

non supervised

An input that is wired without an end-of-line resistor. These points can assume two states: normal and alarm.

occupancy monitoring

An option that monitors and controls occupancy within a secured area.

outputs

The separate channels through which your APM controls external devices.

output device

An electronic device that is attached to one of your outputs and responds to events at the entrance, based on the specific configuration rules.

personal identification number (PIN)

A number given to an individual for use with a keypad to access something that is APM controlled. A PIN is often used with a card.

presented

This term describes how you trip the reader with your toke. This term describes differing actions with the each token used: for a card you slide or swipe it through the reader, for a PIN you type it at the reader, for a proximity card you place it near the reader, for a keychain transmitter or panic you press the appropriate buttons near the reader.

RAM

Random Access Memory. See also "memory capacity."

reader

A device that detects and reads the unique token, often a card, required for access. The reader transmits the token data to the APM.

RS-232

A standard communications interface used between your APM and the terminal.

secure mode

A way of operating so that inputs can generate alarms. Points are put in this mode by using time schedules. (The other mode of operation is the access mode.)

Security System Arm / Disarm

A database option that allows a security system to be armed with a time schedule and be armed or disarmed with certain cards used at the reader.

supervised

An input that detects tampering with an end-of-line resistor. These points can assume three states: normal, alarm, or trouble.

terminal

Any device, linked to your APM via an RS-232 communications interface, that is used to either program your APM or display data from it.

time interval

A time period defined by an inclusive start time and an inclusive stop time.

```
  TIME SCHEDULES:

A 00:00-07:59 --:-- --:-- MO,TU,WE,TH,FR,SA,SU

  23:45-23:59 08:00-08:14 MO,TU,WE,TH,FR,SA,SU

  --:-- --:-- --:-- --:--

  --:-- --:-- --:-- --:--
```

ONE TIME INTERVAL ──▶ (points to line `A 00:00-07:59`)

9148G11A.DSF

time schedules

An option that includes up to four user-definable access time ranges, as well as Always and Never fixed-time ranges. A time schedule is active if the current time and date fall within its time zones.

```
  TIME SCHEDULES:

A 00:00-07:59 --:-- --:-- MO,TU,WE,TH,FR,SA,SU

  23:45-23:59 08:00-08:14 MO,TU,WE,TH,FR,SA,SU

  --:-- --:-- --:-- --:--

  --:-- --:-- --:-- --:--
```

ONE TIME SCHEDULE ──▶ (points to line `A 00:00-07:59`)

9148G12A.DSF

time zone

One of the four time periods a time schedule can be divided into; the period during the day when a time schedule is active. They are associated with days of the week and control inputs, outputs, and access.

```
┌─────────────────────────────────────────────────────────┐
│                                                         │
│    TIME SCHEDULES:                                      │
│                                                         │
│  A 00:00-07:59 --:-- --:-- MO,TU,WE,TH,FR,SA,SU         │
│                                                         │
│    23:45-23:59 08:00-08:14 MO,TU,WE,TH,FR,SA,SU         │
│                                                         │
│    --:-- --:-- --:-- --:--                              │
│                                                         │
│    --:-- --:-- --:-- --:--                              │
│                                                         │
└─────────────────────────────────────────────────────────┘
```

ONE TIME ZONE ⟶ (points to line A)
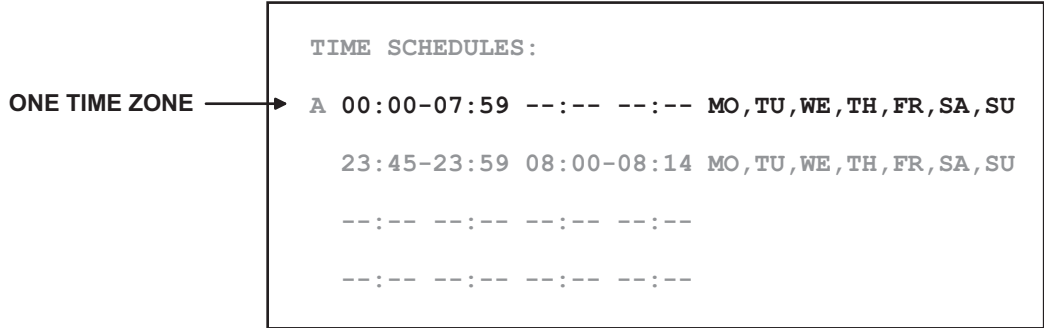
9148G10A.DSF

toggle

To alternate your display to show available options or to flip from one thing to another, such as "toggling off and on."

token

A unique ID stored in your database and recognized by your APM to grant entry or exit. A token can be a PIN, a card, or both.

trouble state

See "supervised."

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