Operator's Manual

Quantum Plus

Version 2.0

by INTELLIKEY® CORPORATION

Technical Support

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1Introduction

Quantum Plus

This manual is a User's Guide for operation of the INTELLIKEY® Quantum Plus™ software. Quantum Plus provides the functions necessary to implement a key and access control system based on the INTELLIKEY Electronic Keys and Controllers.

With its easy-to-use, Microsoft® Windows™ based interface, Quantum Plus simplifies the task of defining the parameters of your access control system. The Quantum Plus software then allows you to program the access information into your controllers and keys, and keeps track of how each item has been programmed. As your system grows, Quantum Plus tracks the relationships between keys, keyholders, and controllers, and provides you with up-to-date reports on the status of your INTELLIKEY system.

Quantum Plus Versions

The Quantum Plus software is available in three versions, the Standard version, the *Mutli-Site* version and the Network version. The Standard and Network versions are for a site or facility that has all of the programming equipment necessary to perform all functions associated with an INTELLIKEY-based access control system. The Multi-Site version has additional functions that allow an INTELLIKEY supplier or service center to support several smaller sites with one copy of the Quantum Plus software, and one set of programming equipment. The Network version adds functionality for communicating with INTELLIKEY lock controllers connected to a local area network.

Most operations are identical between the three versions. The few that are different are pointed out at the appropriate places in this manual. There is a supplemental manual supplied with the Multi-Site version that describes the extra functions available in that version.

In the earlier Quantum and EZ123 software programs, the Multi-Site version was called the Dealer version. The name has been changed to reflect the fact that the INTELLIKEY product is sold and serviced through a broader network of suppliers.

Terminology

Quantum Plus is a replacement for two earlier INTELLIKEY programs – Quantum and EZ123. Because these two programs were intended for different markets and applications, different terms were used in the two programs to refer to the same thing. Quantum Plus mostly uses the same terminology as the original Quantum program. Here are some of the EZ123 terms, and how they are referred to in Quantum or Quantum Plus:

EZ123 Term	**Quantum Plus Term**
Facility	Site
Facility Code	Site code
Facility Authorization Key	SiteCode Key
Restricted Keyway	Not used

The older Quantum also used a couple of terms that have been changed:

Quantum Term	**Quantum Plus Term**
Controller Programming Unit	Lock Programming Unit

Software Installation

Refer to Appendix B for information on installing your Quantum Plus software.

Software Registration

Quantum Plus must be registered within 30 days of its first use to continue operation. After 30 days, all functions are disabled exception the registration function. For registration information, select **Help | Registration**.

Registering your software allows INTELLIKEY to notify you when software updates or other product enhancements are available.

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Additional Disclaimer

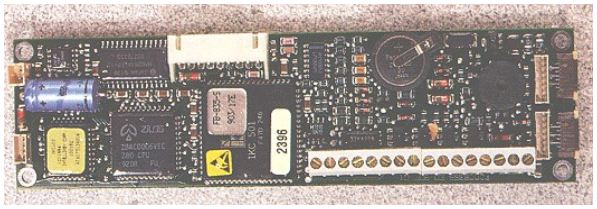
All of the company and institution names used in the examples in this manual are, as far as we know, fictional. If we have used any real names (other than friends and relatives who either said it was okay or who will never read the manual), it was unintentional.

2System Overview

Hardware

The Lock Controller

The INTELLIKEY Electronic Controller controls access to doors. The INTELLIKEY controller consists of an electronic cylinder attached to an electronics assembly. The controller communicates through an infrared link with the INTELLIKEY key to exchange access control information. Based on this information, the controller decides whether or not the key should be allowed to operate it.



Throughout this manual, we will refer to the key *operating* the controller, rather than unlocking or opening it. Since INTELLIKEY controllers can be used in a variety of control applications, as well as standard locking mechanisms, operate is a more appropriate term. You can think of operate as meaning "had this been a mechanical lock, the person using the key would have been able to rotate the key after inserting it". Also, since the controllers are controlling access to locks and doors, I will use the terms "controller", "lock", and "door" interchangeably throughout the manual.

INTELLIKEY controllers are available in two configurations: fixed cylinder and rotating cylinder. Fixed cylinders function as reader devices only -- when you insert your key into the cylinder, the controller reads the key's information and activates an output signal which causes an external locking mechanism to function. This type of cylinder would be used in conjunction with an electric strike or magnet, for example. Rotating cylinders fit into standard locking mechanisms. When you insert your key, the controller releases the cylinder, allowing you to turn the key and activate the

mechanical locking mechanism. This type of cylinder fits into existing mortise and rim cylinder applications.

The Electronic Key

The INTELLIKEY Electronic Key allows each keyholder access to a specific set of controllers. Each key has a special feature memory which may be programmed with the keyholder's access control information. The key has an infrared communications system which allows it to transmit this access control information to an INTELLIKEY controller.

The Key Processing Unit

The KPU is the device by which the electronic keys are programmed with features and access codes. The KPU is also used to query (interrogate) programmed keys to determine their contents. The KPU connects to a standard personal computer and is controlled by the Quantum Plus software.

The Lock Programming Unit

The Lock Programming Unit (LPU) is the device by which the electronic controllers are initially programmed with features and access codes. The LPU may also be used to update and query (interrogate) controllers. The LPU connects to a standard personal computer and is also controlled by the Quantum Plus software.

The Restricted Authorization Key

The Restricted Authorization Key (RAK) is a hand-held programming device for modifying and interrogating the electronic controllers. There is a separate *RAK User's Manual* which describes operation of the RAK in more detail.

The Freedom Module

The Freedom Module …..

Site Codes

Each INTELLIKEY site (end customer) is assigned a site code that uniquely identifies all controllers and keys associated with that site. The site code programmed into an INTELLIKEY key must match that of the controller into which it is inserted before the controller will allow the key to operate it. INTELLIKEY Corporation has set up a site code distribution system which guarantees that no two sites will ever have the same site code.

The 'SiteCode Key™' is the mechanism by which site codes are distributed to the end user. A SiteCode Key is a specially programmed INTELLIKEY key which contains your unique site code. The Quantum Plus Installation program reads the site code from the SiteCode Key, and records it for insertion into each of your controllers and keys.

Identifying the Components

In order to maintain the proper relationships between the elements of the INTELLIKEY system, each component (key, controller, and keyholder) must be uniquely identified. The easiest method of identifying parts is by each one a meaningful name. Thus, each user has a first and last name, each controller has a building and door name, and so forth.

The concept of meaningful names carries over into all Quantum Plus components. For example, Timezones are given names such as "First Shift" or "Office Hours". Groups of users can be identified by department ("Marketing") or title ("Engineers").

User Identification

Users (persons having keys) are identified in the Quantum Plus database by name. Each user has a first and last name ("John" "Smith"), each 25 characters long. A user may have just a first name, or just a last name, but at least one must be specified. The names may consist of letters, numbers, and symbols (!@#$%). Each user may also given an optional identification code, such as an employee number or Social Security number.

Controller Identification

Controllers in your system are identified by a building and door name. This allows you to identify doors by logical names, such as "Research 104B". All reports and data entry screens which refer to your controllers will use these names. You must assign both the building and the door name for each controller. You may use the same building name or the same door name for a number of controllers, but the combination of Building+Door must be unique for each controller. You may have, for example, controllers "Admin 205" and "Admin 206", but you may not have two controllers identified as "Admin 206".

Optional Data Fields

Quantum Plus provides four optional data fields for both users and controllers. These fields may contain information specific to a site. For example, the user fields might contain such things as the user's title, department, or phone number. The controller

fields may contain the type of lock or the date of the next battery change. The data in these fields may be used to select specific users and controllers when generating reports. For example, if one of the user's fields is designated as the user's department, you could print a report listing only users from the "Maintenance" department.

Each optional field may be either a standard text field which many contain any data, or may be a list field, which is restricted to a specific selection of values. Text fields would be used for information such as employee numbers, which would be different for each person, while list fields might be used for the employee's department, and would be restricted to a pre-defined list of departments.

Key and Controller Numbers

Quantum Plus assigns each key and each controller in your system a unique number. These key and controller numbers are used to relate the keys and controllers to the users. For example, when a key is issued to a user, the key ID number of the key is stored in the database along with the user's name. Thus, the controller needs only store the key number to identify which user used the door; the Quantum Plus software can match the key number with the user's name. Quantum Plus assigns each user a key number when the user is added to the system. The user retains the same key number until he loses the key, or is deleted from the system. In a similar fashion, Quantum Plus assigns lock numbers as you add controllers to the database.

Other Components

In addition to the physical components (users and controllers) of your INTELLIKEY system, Quantum Plus supports names for other commonly used items. In fact, just about everything you use in setting up your system can be given a meaningful name. For example, you can give Timezones names describing the period they cover such as "Office Hours" or "Weekend".

With the exception of user names, all items within a particular category must be unique. This means you can't have two Timezones named "First Shift" or two controller default configurations named "Front Doors". This restriction only applies to similar items. It is possible to have a user access group and a controller access group both named "Security Department". The user group would contain a list of users who work in the Security Department; the controller group would contain a list of doors belonging to the Security Department.

Defaults

To simplify the process of data entry when adding users and controllers, Quantum Plus allows you to enter and store common data ahead of time, similar to creating a document template in a word processing program. This data, know as the **default** data, will be added to a new user or controller's database information when the user or controller is first added to the system. For example, if everyone in the Cleaning Department will have the same access rights (e.g. the ability to enter the front door of any building during second shift), you can define a default configuration known as "Cleaning Dept" which contains these settings. When you add a new user, you can select to use the "Cleaning Dept." default configuration and the user will automatically be authorized for the front doors during second shift.

You can customize the settings for each user after selecting the defaults. For example, the shift supervisor might need access to other doors besides just the front doors. You identify the shift supervisor as belonging to the Cleaning Dept group to give her access to the front doors, then add access to the specific additional doors.

The Quantum Plus User and Controller menus have options for creating and updating default information.

User and Controller Groups

It is sometimes convenient to be able to refer to several users or controllers as a group. For example, when granting access to a user, it is much easier to specify "All doors in the Administration Building", rather than "Administration Building, Front Door", "Administration Building, Conference Room", and so on. **Access Groups** allow you to group users and controllers in logical groupings: "All front doors", "All Security Personnel", etc. A user or controller may belong to any number of groups.

The Quantum Plus User and Controller menus have options for creating and updating access group information.

User Activity Log

Quantum Plus maintains a file of information known as the User Activity Log. This file contains a list of dates and times at which users have accessed controllers. Information may be added to the log from several sources - reading the audit information from users' keys, reading Controller Audit Keys, and querying controllers directly. Quantum Plus supplies a report option for displaying the information from this file.

Security

Since the information maintained by Quantum Plus is potentially very sensitive, the Quantum Plus software supplies a number of security features.

Operators

Like most secure systems, Quantum Plus requires that each person operating the software be authorized. Quantum Plus allows the establishment of **operators** who are allowed to perform the access control functions necessary to maintain your site.

Each operator may be authorized for specific Quantum Plus operations. This allows you to have, for example, clerks who may enter keyholder and controller information, but not actually issue keys. Quantum Plus's menus automatically adjust for the operator's security rights. If an operator is not allowed to perform a specific function (Issuing a Key, for example) he will not be able to select that function from the Quantum Plus menu

Each operator is assigned an operator identification code and password, which he must supply to Quantum Plus before being allowed to operate the software. This process is known as **logging on**.

The Operator identification code consists of 1-9 characters. These would typically be the user's initials, but any combination of letters, numbers, and symbols is allowed. The operator's password consists of 1-6 characters. This also can be any combination of letters, numbers, and symbols. Operators can easily change their passwords at any time. The "Utilities" chapter describes the procedure for doing this.

Quantum Plus initially creates an operator with the name **System Manager.** The system manager is authorized for all Quantum Plus functions, including adding other operators. The first time you use Quantum Plus, you log on using the System Manager's ID and password (both "1234"). You should now add the appropriate operators for your site, each with his or her own ID and password, and specific authorizations.

Operator Activity Log

The Quantum Plus software maintains an activity log file, or "audit trail" of all significant operator activity. Quantum Plus records the Operator ID, date, and time for events such as adding users and controllers, modifying information for users and controllers, issuing keys, creating access groups, etc. You may view or print the contents of the activity log, and may delete the contents when the log file gets too large or out of date.

Operating on a LAN

You may configure Quantum Plus to work on a Local Area Network. This allows you to have two or more operators simultaneously entering data or programming keys from different PC's connected to the LAN.

In this configuration, Quantum Plus performs the functions necessary to guarantee that two operators aren't trying to change the same information. For example, if two operators both try to modify the feature information for a controller, one of them will be informed that the other is already using the information. The second operator will not be allowed to make any changes to the information until the first operator has finished.

For the most part, using Quantum Plus on a LAN is no different than using it on a single PC. The only differences you will likely see are the occasional conflict when two operators try to modify the same database information, or when printing reports. Quantum Plus will take longer to print reports when running on a LAN, since it must verify that nobody is trying to change each piece of information before it prints it.

3Features

What the INTELLIKEY System Can Do

This chapter describes the operational features and capabilities of your INTELLIKEY controllers and keys. Feature information is stored in special memory devices in the controller and key. The controller reads the feature information from the key's memory and from its own memory and determines whether the key is allowed to operate the controller.

You use your Quantum Plus software to specify the feature information for each component in your system. This information is stored in your Quantum Plus database files. Quantum Plus in turn uses your KPUand Lock Programming Unit to transfer the feature information from your Quantum Plus database files to your controllers and keys. The procedures for specifying feature information and transferring it to your controllers and keys are described in later chapters.

Controlling Access

The fundamental purpose of any access control system is to control who is allowed to enter specific areas. Under Quantum Plus, the person setting up the access control system selects from a list of users and controllers, using a simple "point-and-click" method of selecting which users are authorized for each controller. The access selection process is described in more detail in the next chapter.

Features

Activation and Expiration date

Each key may be programmed with dates to determine the "lifetime" of the key - a time frame during which the key will be allowed to operate. The activation date may be used, for example, to program and issue keys before they are supposed to be used. The keys will not operate until the specified activation date. The expiration date might be used for construction keying, or in a hotel, where it is desirable to have the key cease functioning after a specific date if it is not returned.

Timezones

Both the controller and key contain Timezone tables. These tables define 'windows' during which the controller or key is allowed to operate. Each table contains seven windows. A window may cover only a few hours, such as a normal work shift, or may cover several days.

Holidays

Each key may be programmed for up to 16 periods during which it will not operate. These may be holidays or days during which the user's place of employment is closed. Each controller may also be programmed for 16 periods during which features such as Automatic Unlock are disabled.

Controller Configurations

The controller may be programmed to operate with two basic types of lock mechanism. The correct choice is dependent on the INTELLIKEY controller hardware.

Rotating cylinder

In the rotating cylinder configuration, the controller electronics unlocks the cam on the cylinder, allowing the cylinder to be rotated. The cam, in turn, throws a latch or deadbolt mechanism to unlock a door when the key is turned.

A rotating cylinder controller may be programmed to function in two modes:

Single turn - In this mode, the controller unlocks the cylinder long enough to allow it to be turned once. As soon as the key is rotated in the cylinder, the controller releases the locking mechanism. When the key is rotated back to the original insertion position again, the cylinder will be locked, requiring that you remove and reinsert the key to operate the lock again.

Multi-turn - In this mode, the controller holds the cylinder unlocked for a fixed period of time, allowing the key to be rotated more than once in the cylinder. Certain types of locks require more than one turn to be completely unlocked. This mode may also be used when the controller is first installed, since it allows users the opportunity to rotate their key in both directions, assuming they turned the key the wrong way the first time.

Fixed cylinder

In the fixed cylinder configuration, the controller functions as a data reader, reading information from the key, and activating some type of latching mechanism. The key is inserted into the controller, but not turned. This configuration is used with locking devices such as electric strikes and magnetic locks.

A fixed cylinder controller may be programmed to function in two modes:

Relock - In this mode, the controller unlocks itself for a specified period of time, then automatically relocks. This mode would be used for hotel guest rooms, or high security areas that should normally remain locked.

Toggle - In this mode, the controller alternates between the locked and unlocked states each time it is activated by a key.

Daylight Savings Time adjustment

The controller may be programmed to automatically adjust its clock by one hour at the beginning and ending of Daylight Savings Time. The beginning and ending dates and times may be programmed for up to 3 years in advance.

Automatic Unlock/Relock

The controller may be programmed to automatically unlock itself at a specified time, then automatically relock itself at a later time. This feature is useful for the front door of a building to which a large number of people would have access. There are seven programmable windows that, like Timezones, may span any length of time during the week. This feature is available only on doors configured for Fixed cylinder operation, and having an external power source.

Audit Trail in Controller

The controller may be programmed to record key accesses, and thus provide an audit trail of keyholders who have used the door. The data to be recorded is selectable, and includes legal accesses, illegal accesses, or both.

Audit Trail in Key

The key may also be programmed to record a list of controllers in which the key has been used. The data to be recorded is selectable, and includes legal accesses, illegal accesses, or both.

Dual-key operation

INTELLIKEY controllers may be programmed for dual-key operation. In this configuration, you must insert two specific keys into the controller within a 15 second period in order to open the controller. This operation is similar to a safety-deposit box which requires both a bank manager's key and the box owner's key.

Anti-Passback

The Anti-Passback feature prevents you from using a key twice in a row in the same door. This feature can be used, for example, in a parking garage. After the keyholder uses his key to open the entrance gate, he must use it to open the exit gate before it will open the entrance gate again. This prevents the keyholder from opening the entrance, then "passing back" the key to someone else to open the entrance illegally.

AREST®

The Automatic Restraint System feature is intended for use in high security areas. Both the controller and key may be programmed to keep track of how many illegal (unauthorized) access attempts it has been involved in. Each unit maintains a separate count. The key tracks how many times it has been inserted into controllers to which it does not have access. The controller tracks how many unauthorized keys have been inserted into it. Each unit also has a programmable limit. When the unit reaches its limit for illegal accesses, the controller will take protective action. This action is also programmable and includes disabling either the key or controller or both. The controller also records the keystamp number, date, and time in its memory,

and the lockstamp number, date and time in the key's memory. These values can be read using the Quantum Plus software. A disabled key must be either updated or reset using the Key Processing Unit before it can be used in a controller. A disabled controller must be reset using a Restricted Authorization Key before it can be operated with a normal key.

Authorizing Keys in Controllers

The most difficult part of maintaining any electronic access control system is updating the authorization information in the various components. As new users are added to the system, the controllers must know which ones are authorized. As controllers are added, the existing users' keys must be updated to operate the new controllers. The INTELLIKEY system provides several authorization techniques which simplify the process of maintaining your access control system:

Grandmaster Keys

"Grandmaster Keys" are keys that are automatically authorized in all controllers. Quantum Plus allows you to specify at installation time how many Grandmaster Keys your system will contain. Grandmaster Keys have a selectable limited lifetime that eventually automatically disables a lost key.

Authorizing Keys at Controller Programming Time

When a new controller is added to the system, its memory can be pre-programmed with a list of authorized users. This allows you to add controllers without having to recall and reprogram keys.

Automatic Key Enable

INTELLIKEY keys may be programmed to automatically authorize themselves in controllers the first time they are used. This eliminates the need to go to each door to manually enable new keys. The keys have a programmable cutoff date after which the automatic enable feature will no longer work.

With the Quantum Plus Software

The Quantum Plus software itself can be used to update the authorization lists in controllers. If Quantum Plus is run on a laptop computer, the computer can be carried door-to-door to perform any necessary updates to the controller programming, and will maintain a log of all changes made.

Disabler Keys

Disabler Keys (described below) provide a simple method of disabling lost or stolen keys.

Special Key Functions

INTELLIKEY keys may be programmed to perform special functions apart from their normal access control functions. All of these functions may be performed by standard INTELLIKEY keys. See "Creating Special Function Keys" for information on programming and using these special purpose keys.

Key	Description
Shutout	When a Shutout key is inserted in a controller, all standard keys are prevented from operating the controller until the Shutout key is inserted again. This function may be used when a room must be temporarily secured. For example, a room containing dangerous materials may be temporarily sealed to all users.
Disabler	A Disabler key may be used to disable a user's key in several controllers. This key is used when someone loses a key with wide access privileges.
Guard Tour	A Guard Tour key records the lockstamp number and date and time of each insertion into a controller. This function can be used to verify that a guard or maintenance person visited each door or station. The Quantum Plus software can read and display the tour information.
Emergency Key	An Emergency key overrides several controller security features, allowing it to operate a controller in an emergency situation. An Emergency key overrides any time-related features, such as Timezones and holidays, and other features such as Display/Shutout.
Controller Audit Key	A Controller Audit key reads the audit trail information from a controller and stores it in the key's memory. The Quantum Plus software can read and display the information.
Controller Update Key	A Controller Update key can be used for reprogramming an INTELLIKEY Controller.

4Setting Up Your Access Control System

The INTELLIKEY System

The INTELLIKEY system programs access information into both the key and controller, allowing updating of access rights through either device.

The key's memory contains two time zone configurations and a table with an entry for each of 4000 controllers. The entry for each controller specifies how the key is authorized for that controller. Possible values are:

- The key is not authorized for the controller
- The key is authorized for the controller at any time
- The key is authorized for the controller during the periods specified by the key's first time zone
- The key is authorized for the controller during the periods specified by the key's second time zone
- The key was previously authorized for the controller, but is no longer authorized

For example, the key may be authorized in one group of controllers any time, a second group only between 7:00 AM and 5:00 PM Monday through Friday (time zone #1) and a third group only on weekends (time zone #2).

INTELLIKEY keys will automatically authorize themselves in controllers the first time they are used. This eliminates the need to go to each door to manually enable new keys. The keys have a programmable cutoff date after which the automatic enable feature will no longer work. Selecting the cutoff date is a tradeoff between convenience and security. The cutoff date should give enough time for the keyholder to use the key in each of the doors for which it is authorized, but should not be so long that the key will be a threat if it is lost or stolen (during the auto-enable period, there is no way to permanently disable the key). The automatic enable function can also specify a keystamp number to be disabled. This allows a key made to replace a lost key to automatically enable itself and disable the lost key with a single insertion.

Assigning Access Rights

Methods of Choosing Access

Quantum Plus provides three methods for assigning access, or selecting which users will have access to which doors:

Individual Users and Controllers

This is the simplest and most flexible method of assigning access rights. You simply specify each authorization: "John Smith is granted access to Front Door, Side Door, North Door during second shift, and South Door during third shift." Or "Conference Room 1 grants access to Bill Jones, Terry Brown, and Susan Baker." This method also involves the most work to maintain, since all changes have to be made manually. For example, all janitors' keys might have access to the front door of every building. If you add ten new front doors to your system, you must remember to add the new doors to each janitor's key or to add all of the janitors to each of the new doors.

Groups

User and Controller groups allow you to combine groups of people or doors together so that they can be referenced as a single entity. This is similar to granting access to individual users and controllers, with the advantage that as new members are added to a group, the access information is automatically updated for all items that reference the group. To continue the janitor example, you could create a controller group called "Front Doors" and rather than giving the janitors' keys access to each individual front door, they could have access to the "Front Doors" controller group. When you add the ten new front doors, you make each of them a member of the "Front Doors" group. Thus, the janitors' keys will automatically have access to these doors without having to specify individual access to each door.

Masterkeying

Quantum Plus implements a hierarchical masterkeying system similar to the system used with mechanical keys. You can create a multi-level keying system in which you have groups of doors, each group with a "master" key that can open any door in the group, "grandmaster" keys that can open any door in any of several "master" groups, etc. Quantum Plus provides a visual interface for configuring the keying system and assigning users (keys) and controllers positions in the masterkeying hierarchy.

Which Method is Best?

That really depends on your site. If you have a small number of users and doors, say 100 users and 20 doors, the individual method is probably best, especially if each user only has access to a few doors. If you have a larger site, especially with multiple buildings or multiple departments, the Groups approach would probably be simpler would be easier to set up and maintain. The Masterkeying system works best for sites where the INTELLIKEY system is replacing an existing mechanical system, or where access rights are a little more structured.

The different methods can be combined. For example, John Smith can have access to all doors in the "Therapy Rooms" door group, and individual access to his own

office. Jane Smith can have access at the "Great Grand Master B" level, and to the "Vault and Records" group.

The best advice we can give is to select a method and stick to it. For example, create door groups to manage the bulk of the access, but allow individual access to specific doors, such as offices. When creating groups, think about how access rights will be assigned. If a building is logically split into floors for access rights (some people get access only to the first floor, some only to the second floor, and some to both floors, etc) create a controller group for each floor.

Whichever approach you choose, document your procedures for assigning access and make sure they're followed. If there is a set procedure for selecting which doors a key will have access to, there is much less likelihood of the key being programmed with the wrong information – missing doors or too many door.

Most of the problems encountered with the INTELLIKEY system are caused by someone getting "creative" with assigning access.

Overriding Access Rights

Access can also be restricted by date or time. Even though a user's key has been granted access to a controller, it may be temporarily denied access because it is a holiday, or it is outside the time frame during which the user should be allowed through the door.

Priority of Time Zone and Holiday Restrictions

When determining a key's authorization, the controller tests the date and time-related functions in the following order:

a. If the controller's time has not been set, and either the key or controller is programmed with a time-related function, the key is denied access

b. If the current date is earlier than the key's activation date, or later than either the key or controller's expiration date, the key is denied access

c. The controller can be programmed with a lockout time zone during which no key is allowed access. If the controller is programmed with such a time zone, and the current time is within that time zone, the key is denied access

d. If the key's access to this controller is restricted to a specific time zone, and it is not within that time zone, the key is denied access

e. If the key is programmed with holiday information, and the current day is defined as a holiday, the key is denied access

Updating Access Rights

INTELLIKEY controllers are standalone devices – they are not connected to any central access control system. When a key is inserted into the controller, the controller decides whether the key is allowed access based on the key's access rights and other restrictions such as date and time.

This has some implications for the design and – more importantly – the maintenance of your access control system. When changes are made to someone's access rights – for example, a person moves from one office to another and must have their key work in the new office but not the old – there must be a way to transfer this information to the keys and controllers.

The INTELLIKEY system is designed to handle this. Access rights can be programmed through either the key or the controller, whichever makes the most sense. For example, when a new door is added to the system, it can be programmed with a list of all the users who already have keys that should be able to access the door. This is all that is necessary to give those users access; the first time they use their key in the newly programmed door, it will work.

Similarly, for the example where someone changes offices, their key can be updated to reflect the change, or both office doors updated to reflect the change. Which approach you use depends on your environment. If both doors are near to each other and near the INTELLIKEY programming equipment, it might be easier to update them, instead of having the user bring his key in for updating. If the doors are located in another building but the user is readily available, it's obviously easier to update the key.

Operator Permissions

Quantum Plus provides a system for restricting which doors and users operators may work on. This functionality isn't really part of the access control system, but is incldued in this chapter because it does influence the overall design of your access control system.

Each Quantum Plus operator may be assigned specific rights or permissions for each user and controller group in the system. For example, an operator may be given permission to modify the settings for any user in the "Physicians" user group, but may only grant or deny access to users in any other group. This allows you to distrubute the workload of maintaining your system.

This is commonly used in university applications. Quantum Plus is installed on computers in each department using the INTELLIKEY system – Athletics, Humanities, the Library, etc. Doors in the system are assigned to groups related to each department – "Gym Doors", "Library Doors", etc. The Quantum Plus operators in each department are then given permission only for the groups that they are responsible for – the librarian only has permission for the "Library Doors" controller group and "Library Employees" user groups. With this setup, the operator for the Athletic department can create keys with access to doors in the gym or training areas, but not to doors in the library. Of course, operators in the lock shop would have permission to all groups, so that they could maintain doors for the whole campus.

The capability of restricting operator rights to specific groups should be taken into consideration when creating user and controller groups. Since a controller can be a member of more than one group, care must be taken in assigning permissions. For example, if the front door of the library is a member of both the "Library Doors" and "Front Doors" groups, any operator with permission for either group will be able to change the controller's settings.

An operator may have two different types of rights to an item: *Modify* and *Grant*. In general, if an operator has Modify rights, he may make changes to the item's settings – a controller's hardware settings, for example. Grant rights allow the operator to

change the access settings for the item, but nothing else. For example, if an operator has Grant rights to a user group, he may grant access to any member of the group to any controller to which he also has Grant rights, but the operator cannot add members to the user group. The chart below summarizes what functions an operator can perform, based on permissions:

Item	***Modify* Rights**	***Grant* Rights**
User group	operator may edit data for members of this group and add/delete group members	operator may grant access to this group or members of this group
Individual user	operator may edit data for this user	operator may grant access to this user
User defaults	operator may modify settings for default configuration	operator may create new users based on default
Controller group	operator may edit data for members of this group and add/delete group members	operator may grant access to this group or members of this group
Individual controller	operator may edit this door	operator may grant access to this door
Controller defaults	operator may modify settings for default configuration	operator may create new locks based on default
Masterkeying node	operator may edit information for node	operator may assign keys and locks access at node

An operator automatically has Modify and Grant rights to any item – user, controller, group or default that he creates, although this can be changed. Refer to the section on “Operators” in the “Utilities” chapter for details on specifying operator permissions.

5Running Quantum Plus

Starting and Leaving Quantum Plus

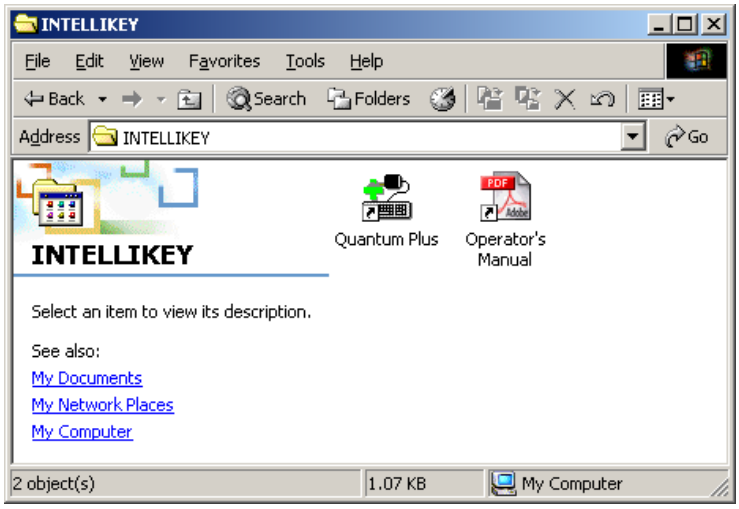
Installing Quantum Plus

Before running Quantum Plus, you must install it on your hard drive or network drive. If you have not done so already, refer to Appendix B for installation instructions.

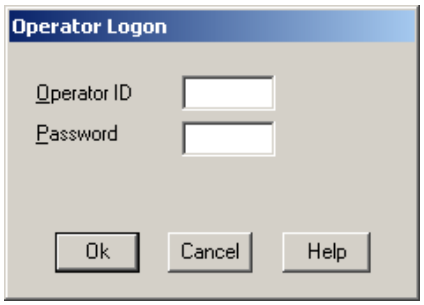
Starting Quantum Plus

Before you may use the Quantum Plus software, you must have a valid Operator Identification code and password. The Quantum Plus System Manager assigns ID codes, passwords, and adds Quantum Plus operators. This person should be the one to provide you with this information.

Start Quantum Plus by clicking on its: icon:



Before you use the Quantum Plus software, you must **log on**. Logging on means to enter your Operator ID and password for Quantum Plus to verify. Quantum Plus first presents you with the logon screen:



*When running Quantum Plus for the first time, use **1234** for both the Operator ID and password.*

The cursor should be positioned in the text field following the label Operator ID. If it isn't, press the **TAB** key until it is. Enter your Operator Identification code, then press **TAB**. The cursor next jumps to the field following Password.

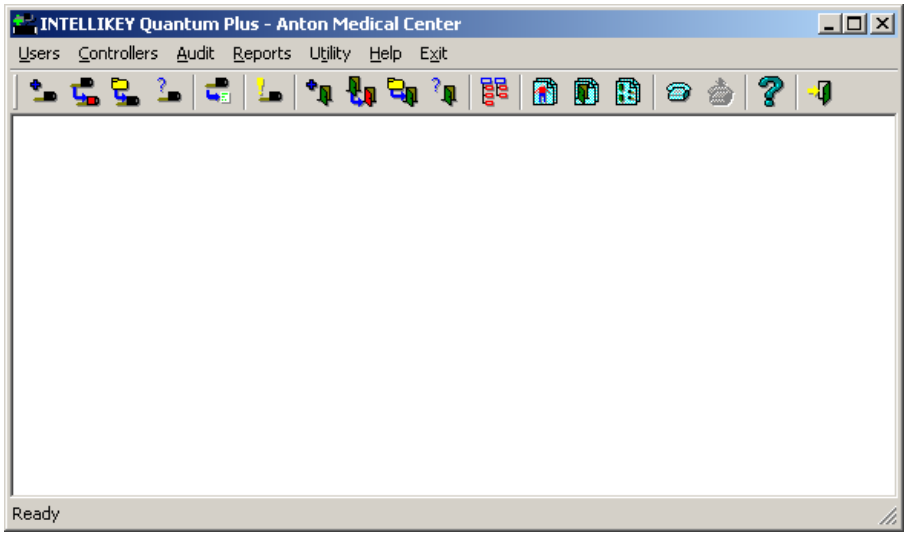
Enter your password exactly as given to you by the System Manager. As you type your password, the characters will appear as "*****". This prevents someone looking over your shoulder from learning your password.

After you have entered your password, press **ENTER** or click on the ***OK*** button. If you have entered your ID and password correctly, the logon box will disappear, leaving you with the Quantum Plus main menu. If you made a mistake, Quantum Plus displays a warning message asking you to reenter your codes.

If you don't want to use Quantum Plus, simply select the ***Cancel*** button from the logon box. You can do this by pressing the **TAB** key until ***Cancel*** is highlighted, then pressing **ENTER**, by selecting the ***Cancel*** button with your mouse, or by pressing the **ESC** key.

The Quantum Plus Main Menu

The Quantum Plus Main Menu bar displays the top level options available to you:



Each of these options is explained in detail in a separate chapter:

Choice	Chapter	Function
Users	Managing Users and Keys	Add new users; update user information; Issue keys to users; Return, Query, Update, and Delete keys.
Controllers	Managing Controllers	Add and maintain controllers
Audit	Audit Operations	Read and report on various audit data.
Reports	Reports	Generate reports for Controller, Key, and User information.
Utility	Utilities	Maintenance functions: add and delete Quantum Plus operators, make changes to the way the Quantum Plus software has been installed on your computer, backup your database files, etc.
Help		Help on using Quantum Plus.
Exit	Below	Leave the Quantum Plus program or allow another operator to use the system

The Quantum Plus menus are arranged for convenient operation of an established system. The operations which you perform most often are the first choices on the menus. The descriptions given in the following chapters, however, are arranged for the novice Quantum Plus operator. Each chapter describes operations in the order in which they would be used when setting up a new keying system for a site.

The "toolbar" immediately below the main menu provides quick access to the most commonly used Quantum Plus functions. Clicking the mouse on one of the buttons in the toolbar is equivalent to selecting the corresponding operation from the menu. For example, clicking the Add Controller button

is the same as selecting **Controllers** from the main menu, then selecting **Add** from the Controller pop-up menu. Whenever a toolbar button can be used in place of a menu selection, the button will be shown in the left margin of the manual, as shown in the next section.

Leaving Quantum Plus

The Exit menu allows you to tell the Quantum Plus software that you will no longer be using the system. If you select the **Exit** option, the Quantum Plus program will terminate and return to Windows. If you select the **New Operator** option, the logon screen will appear, requiring the next operator to enter a valid ID and password before the system may be used again.

Data Entry Screens

To simplify the operator interface, Quantum Plus uses the same data entry screens throughout its various functions. For example, the same Timezone Screen is used whenever viewing or modifying Timezone information, whether for the system Timezone settings, a user's key or a controller's automatic unlock function. This

consistent use of screens makes learning to use the Quantum Plus software much easier, since the operator sees a consistent interface whenever the same type of information is presented.

Each screen contains an ***Ok***, ***Close, Cancel,*** or ***Help*** button. Selecting the ***Ok*** or ***Close*** button saves any changes you have made to the data in the screen, closes the screen, and returns you to the previous menu or screen. If you select the ***Cancel*** button (or press the ESC key), Quantum Plus will close the screen but will not keep any changes you have made to the screen data. The ***Help*** button will take you to the on-line Quantum Plus Operator's Guide, which describes the contents of the screen in detail.

Some of the features and functions shown on the screens are simply on or off - the feature is active or it isn't. Some features are simply numeric values. And some features are a combination of the two -- when the feature is turned on, it requires additional data.

The screens allow you to set all of the types of parameters. For example, features which may be turned off and on are shown with a checkbox beside them. If the box is checked, the feature is turned on, otherwise it is turned off. If a feature has numeric or text data associated with it, the data is shown next to the description of the feature, and may be modified. If the feature is turned off, Quantum Plus will retain the data setting, but will not use it.

Getting Help

Getting Help for Using Quantum Plus

The **Help | Contents** function activates the Quantum Plus on-line help system. In addition, most data entry screens have a ***Help*** button which may be selected to provide information about the fields on the screen.

Getting Help for Using Help

The **Help | Using Help** function activates the on-line manual for the Windows Help system.

Determining Quantum Plus Version Number

The **Help | About** function displays the version number of your Quantum Plus software.

6Managing Controllers

Controller Names

Controllers in your system are identified by a Building name and a Door name. This allows you to identify doors by logical names, such as "Research 104B". All reports and data entry screens which refer to your controllers will use these names. You must assign both the building and door names for each controller

You may use the same building name or the same door name for a number of controllers, but the combination of Building+Door code must be unique for each controller. You may have, for example, controllers "Admin 205" and "Admin 206" or "Admin Front" and "Research Front", but you may not have two controllers identified as "Admin 206". If you try to enter a duplicate controller, Quantum Plus will display an error message and ask you to enter new values.

Another thing to keep in mind is that Quantum Plus always treats the information in the Building and Door fields as characters, even if they contain numbers. This can cause some unexpected results when you look at an alphabetized listing of your controllers. For example, if you enter ten controllers, all in the "Admin" building, with door numbers of "1", "2", "3", "4", "5", "6", "7", "8", "9", and "10", Quantum Plus will display them alphabetically as

Admin 1
Admin 10
Admin 2
Admin 3
Admin 4
Admin 5
Admin 6
Admin 7
Admin 8
Admin 9

This happens because Quantum Plus (like most computer programs) alphabetizes the information based on the first character it sees in a description. Thus, the "1" in "10" causes the "10" to appear before "2" or "3", instead of after the "9", as you would expect. If you had doors 11 - 19, they would appear alphabetically between "10" and "2". Similarly, doors 21 - 29 would appear between "2" and "3".

It's very simple to keep your listings in the correct order. All you have to do is put enough characters in front of the digits to make all of your number descriptions the same length. For example, if you know that your largest door number will be 100, you should make sure that all descriptions contain 3 characters. You could enter door number 1 as either " 1" (two blanks, followed by a 1) or "001". If you enter

any numeric building or door descriptions in this manner, they will always appear in the correct order in any Quantum Plus reports.

Communicating With The Controller

Communication with the controller is necessary when programming and updating feature information. Communication will also allow you to interrogate the controller for audit information. There are several methods of communication with a controller. The method of communication that is utilized is determined by whether your site has been setup as a standalone system or a network system, as well as what controller model the site has been equipped with.

Using Your Lock Programming Unit

The Lock Programming Unit (LPU) can be utilized to directly interrogate and/ or program any controller. Quantum Plus will utilize this method of communication when you select ***Use Lock Programming Unit*** from the Program /Update dialogue box. This method of communication requires you to physically go to the controller and insert the LPU into the controller.

In order to establish a communication link, you must have your Lock Programming Unit connected to the serial channel specified in your Operator setup. Quantum Plus will then prompt you to insert the LPU into the cylinder connected to the controller.

Insert the key portion of the LPU into the keyway of the controller. Quantum Plus will automatically begin communication with the controller. While Quantum Plus is communicating with the controller, it displays a status box.

You should leave the LPU inserted in the controller until Quantum Plus prompts you to remove it. Most operations require several transfers of information between the PC and the controller, which must not be interrupted. If Quantum Plus should ever appear to "freeze up" for more than a few seconds, you should try to clear the communications link between the PC and the controller by pressing CTRL-C (press the Ctrl and C keys at the same time). Quantum Plus should display a message such as "*Unable to communicate with LPU. Retry?*". Select ***Yes*** to have Quantum Plus attempt to reestablish communications with the controller.

If for any reason the communications link between the PC and controller is completely lost, remove the LPU, press **ESC** repeatedly until you are returned to the Controller menu, then restart the controller operation.

To return to the controller menu without inserting the LPU, select the ***Cancel*** button in the prompt box, or press the **ESC** key. Since Quantum Plus is monitoring both the LPU and the PC, you may have to press **ESC** more than once to cancel the prompt.

Communication with the Controller via Special Function Keys

A Controller Update Key and a Controller Audit Key can be used to communicate with the controller. The Controller Update Key can be used to transfer new feature and access information to the controller. A Controller Audit Key can be used to read audit trail information from the controller. Refer to "Key Operations - Controller Update Key" and "Key Operations - Controller Audit Key" for details on creating

and utilizing these special function keys. Quantum Plus will utilize this method of communication when you select ***Make Controller Update Key*** from the Program/ Update dialog box. This method of communication does require you to physically go to the controller and then insert the key into the controller.

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Controller Defaults

The Controller Defaults option allows you to create one or more configuration settings that can be used as a starting point when adding new controllers to your system (similar to templates in word processing programs). Each time you add a new controller to your database, its feature settings will be initialized to the values specified by one of the controller default configurations. You may then set specific features for the controller before it is added to the database.

Quantum Plus creates an initial controller default configuration, named *Individual*. If most of your controllers will have similar feature or access settings, you may modify the *Individual* configuration to refleet those settings. Or, you may create as many different default configurations as you need. For example, you may have a default configuration for each building at your site that grants access to all users who should have access to the building.

Selecting a Controller Default Configuration

For all operations which require you to select a controller configuration, Quantum displays a selection screen to allow you to select the appropriate one. Select the desired default configuration by double-clicking on its name, or by highlighting it in the list, then selecting ***Ok***.

Until you add more configurations, Quantum Plus will automatically select the *Individual* configuration, rather than prompt you to select one.

Adding Controller Defaults

To add a controller default configuration, select **Controllers | Defaults | Add**. Quantum Plus will display the Controller Settings screen to allow you to enter the configuration settings.

You should give the configuration a meaningful name, such as "Front Doors", or "Admin Building". You can't leave the Controller Description screen to enter other information until you have given the configuration a name. You may not have two controller configurations with the same name.

Specify the settings for the configuration. Enter feature, security, and other configuration information which applies to all or most controllers that will be added with the specified configuration. For example, if you want all doors in the Administration Building to have the anti-passback function enabled, check the appropriate boxes in the Features Screen. Once you have completed the configuration from the Controller Settings Screen, select ***OK***. At this point, you can either enter the name of the next configuration you wish to establish or you can select ***Cancel*** to close the Settings window.

If the configuration you are creating is similar to an existing group, you may copy the existing group and change only the appropriate information for the new group. See "Copying Controller Defaults" below.

Changing Controller Defaults

You may change the settings for a controller default configuration by selecting **Controller | Defaults | Change**. Quantum Plus prompts you to select the configuration to change, then presents you with the Controller Settings Screen to allow you to set the default values for the configuration. You may change any of the settings here, including the name of the configuration. Once you have made your changes, select ***OK***. If you wish to change the settings for another configuration, select it from the list box and make your changes. Otherwise, select ***Cancel*** to close the window.

You may modify the controller defaults at any time. For example, if you use the Daylight Savings Time adjustment feature, you will want to adjust the start and end times each year to reflect the current settings. Changing the default settings will not affect any controller information already stored in the database, only new controllers added to the system.

Copying Controller Defaults

If you want to create a controller configuration which is similar to an existing configuration, you may copy the existing configuration and change only the appropriate information for the new configuration. Select **Controllers | Defaults | Copy**, select the existing configuration, and then enter a name for the new configuration. Quantum Plus then presents the Controller Settings Screen to allow you to make the changes necessary for the new configuration. Select ***OK*** once you have completed your changes from the Controller Settings Screen.

Deleting Controller Defaults

To delete a controller configuration, select **Controllers | Defaults | Delete**. Next, select the configuration to be deleted and select ***OK***. If you wish to delete another controller defaults, select it from the list box and complete the deletion process as previously described. Otherwise, select ***Cancel*** to close the window.

Controller Operations

Adding a controller to your system

Adding a controller sets up a new database record with information to be used in programming a controller. To add a new controller, select **Controllers | Add** from the Main Menu.

If you have more than one controller default configuration defined, Quantum Plus will prompt you to select the configuration to base the new controller on. If you have not created any new configurations, the *Individual* configuration will be used. Also note that there is a checkbox on the default selection screen that allows you to specify that you want to use the same default configuration for all controllers you are adding. If you check this box, Quantum Plus won't prompt you to select a default configuration for each controller, until the next time you select **Controllers | Add**.

Quantum Plus next displays the Controller Settings screen to allow you to fill in all of the settings for the new controller. The initial settings will be based on the default configuration you selected. You can override any of these settings for the new controller, for example to change the list of authorized users. You must supply Building and Door names; the rest of the information is optional. The section on "Controller Names" describes the requirements for naming a controller.

When you have finished making your changes, select ***Ok*** from the Controller Main Screen. Quantum Plus will next ask you how to program the controller. If you are ready to program the controller now, select the appropriate method of communication from the programming dialog box (see "Communicating With The Controller"). Otherwise, select ***Don't Program/Update Now***. You will be able to program the controller later as described under Programming a Controller.

Quantum Plus will next prompt you to select the default configuration for the next controller (or skip straight to the Controller Settings screen if you checked the *Use this configuration ...* checkbox). You can add another controller, or select ***Cancel*** if you don't wish to add any more controllers.

Changing a Controller's Settings

This function allows you to modify the database information for an existing controller. You may edit the information before the controller is programmed, in which case the new information is what will be programmed into the controller. You may also edit the information after a controller has been programmed, then transfer the new information to the controller using the **Controllers | Update** option.

Activate the Edit Controller function from the Main Menu by selecting **Controllers | Change**. Enter the Building and Door information for the controller(s) to be edited. For each controller you selected, Quantum Plus reads the information for the selected controller from the database, and displays the Controller Main Screen. Make any changes desired for the controller, then select ***Ok*** from the Controller Parameters menu to update the settings. Select ***Cancel*** to leave the original settings unchanged.

If more than one controller was selected from the list box, Quantum Plus will prompt for the next controller to be edited. To edit another controller, enter the description, then select ***Ok***. To return to the Controller menu without editing another controller, select ***Cancel***.

Programming a Controller

The Program Controller operation transfers information from the database to a new controller. You may program each controller only once. After you have programmed a controller, you may not program the same database information into another controller unless you first Cancel the controller (see " Canceling a Controller"). This guarantees that Quantum Plus has an accurate record of the information programmed into each controller.

Activate the controller programming operation by selecting **Controllers | Program** from the Main Menu. Quantum Plus prompts you to select the controller(s) for programming . Quantum Plus will only list the controllers which haven't already been programmed.

For each controller to be programmed, Quantum Plus prompts you to select the appropriate method of communication from the programming dialogue box. The

methods of communication are ***Use Lock Programming Unit, Make Controller Update Key*** and ***Don't Program/Update Now***.

If you select the ***Use Lock Programming Unit*** method**,** Quantum Plus will request that you insert your LPU into the controller. Quantum Plus then verifies that the controller is not programmed and will transfer the programming information from the database to the controller. After the controller is programmed, Quantum Plus will then prompt you to remove the LPU.

If you select the ***Make Controller Update Key*** method, Quantum Plus will request that you insert the key into the KPU. Quantum Plus will then program the key with database information for the controller. Once, the key is programmed it will request that you remove the key. To use the key, simply insert it into the Model 4 controller which it is programmed to update. The controller beeps once, then emits a series of "chirps" while it transfers the programming information to its memory. When the controller is finished, it beeps twice. You may then remove the key. If you insert the key into a controller other than the one for which it is intended, the controller will beep twice, and will not read the information from the key.

If you don't want to program the controller at this time, you can select ***Don't Program/Update Now.*** This selection acts as a cancellation function and returns you to the main screen. You will still have the ability to program the controller at a later time.

Updating a Controller

The Update Controller operation transfers updated programming information from the database to a controller. This option is used to keep the information in the controller database synchronized with the information programmed in the controller.

The Update Controller operation can be activated by selecting **Controllers | Update** from the Main Menu.

Quantum Plus will prompt you to insert the LPU into the lock to be updated. Quantum Plus then reads the controller ID number from the controller to identify it. Then Quantum Plus reads the controller's programming information from the database. If the database information does not match the information read from the controller, Quantum Plus reprograms the controller with the new database information.

When Quantum Plus finishes the update operation, it prompts you to first remove the LPU from the current controller, and then to insert the LPU into another controller. To update another controller, insert the LPU into it. To return to the Controller Main menu, select ***Cancel***.

Querying a Controller

The Query Controller operation allows you to read and display the current settings of a controller, but not to modify them.

When you select **Controllers | Query,** Quantum Plus prompts you to insert the LPU into the controller to be read. Quantum Plus reads the programming information from the controller, and displays the Controller Settings Screen to allow you to view the individual settings. You will not be able to change any of the settings. When you have finished viewing the controller data, select ***Close*** from the Controller Settings Screen.

Note: You must leave the LPU inserted in the controller the entire time. The Query operation requires several transfers of information between Quantum Plus and the controller.

Quantum Plus then prompts you to remove the LPU from the current controller, and to insert it into another controller. To read another controller, insert the LPU into it. To return to the Controller menu, select ***Cancel***.

Reporting the Controller's Audit Information

While you are querying a controller, you may display its audit trail information by selecting the ***Query*** tab from the Controller Settings Screen, then selectling the ***Audit*** button. Quantum Plus reads the audit information, then asks you to select how the information should be reported.

Select the type of records to be reported (***legal*** and/or ***illegal***), and the date range of interest. Select ***View*** to see the report on your screen; select ***Print*** to print the report on the currently selected Windows printer; Select ***Print to File*** to save the report as an ASCII file. The report shows the date and time (if recorded) for each access, whether the access was Legal (authorized) or Illegal (unauthorized), and the name of the person to whom the key was issued. Select ***Add to Log*** to add the information to Quantum Plus's User Activity log. Select ***Cancel*** when you are finished viewing the data.

Checking the Controller's Hardware

While you are querying a controller, you may test and examine some of its hardware functions. Select the ***Query*** tab for a list of options. The functions you may select are:

Button	Function
Unlock	Instructs the controller to perform its normal unlock sequence.
Lock	Instructs the controller to perform its normal lock sequence; note that this function will typically produce obvious results only following an uncontroller command to a controller programmed for Fixed Cylinder, Toggle mode; controllers programmed for other modes will normally be in a locked state.
Set time	Sets the controller's clock to match the PC running the Quantum Plus software.
Read time	Display the current setting of the controller's clock.

Deleting a Controller

This option allows you to delete all database information for a particular controller. This option should only be used if the controller which was programmed with the information has been removed from your INTELLIKEY system.

Activate the Delete Controller option from the Main Menu by selecting **Controllers | Delete**. Select the controller(s) to be deleted. Quantum Plus will display the building and door for each controller, and then it will verify that you want to delete it. Select ***Yes*** to remove the controller from your database.

Quantum Plus will then prompt for the next controller(s) to be deleted. To return to the Controller menu without deleting another controller, select ***Cancel***.

Canceling a Controller

The Quantum Plus system will not allow you to program two controllers with information from the same database record. This is done to guarantee that the database contains a unique and accurate record of information for each controller in your system. It may, however, be necessary from time to time to reprogram a controller from the database. If, for example, the controller electronics for a door is upgraded to a newer model, the new controller should be programmed identically to the old controller. To do this, the status of the controller information in the database must be changed to 'not programmed into a controller' before it can be used to program the new controller hardware. This is the purpose of the Cancel Controller option.

Activate the Cancel Controller option from the Main Menu by selecting **Controllers | Cancel**. Select the controller(s) to be cancelled. For each controller you select, Quantum Plus will display the building and door, and it will then verify that you want to cancel it. Select ***Yes*** to mark the database information as available for programming. You may now use the Program Controller function to transfer the information to a new controller.

Quantum Plus will then prompt for the next controller to be canceled. To cancel another controller, enter the description or select a controller from the controller list box, then select ***Ok***. To return to the Controller menu without canceling another controller, select ***Cancel***.

Returning a Controller

Returning a controller is similar to cancelling a controller. When you return a controller, you not only mark its database information as being available, you also remove the programming from the existing controller. You would use this function, for example, on a temporary controller, installed for a short time. When you are finished with the controller, you "return" it to your stock, so that it may be programmed again for another function. You can also use the Return function to un-program a networked controller programmed with the wrong infomation.

To return a controller, select **Controllers | Return**. Quantum Plus prompts you to insert the LPU into each controller to be returned.

7Managing Users and Keys

User Names

Quantum Plus defines a user as someone who has a permanent Quantum Plus database record, and to whom an INTELLIKEY key has been (or will be) issued. The User menu allows you to enter or modify data for users, delete users from the system, or to modify the default settings for user groups.

Each user is identified by a first name ("John") and a last name, or surname ("Smith"). You must supply at least one of the name fields; either First Name or Last Name may be left blank, but not both. You may have two or more users with the same name, but each should have a different ID field (see below) to distinguish them.

If a user has only one name (Janitor or Security1, for example), you should enter the name in the slot which makes the most sense for your system. If you leave the last name blank, the user will appear at the beginning of an alphabetized list. This allows you to have all "special" user names together in your list. If you leave the first name blank, the name will appear in it's proper alphabetical location (Janitor would appear with the J's, for example).

The User ID is an optional field which may consist of any combination of letters, numbers, and symbols (!@#$%). You may use whatever system you like to assign ID codes. The ID field is long enough to hold Social Security numbers, or you may use employee numbers or student numbers.

One thing to keep in mind is that Quantum Plus always treats the information in the user's name fields as characters, even if it contains numbers. This can cause some unexpected results when you look at a listing of your users sorted by name. For example, if you decide to assign users sequential numeric names, and enter the first ten users with names of "Janitor 1", "Janitor 2", "Janitor 3", "Janitor 4", "Janitor 5", "Janitor 6", "Janitor 7", "Janitor 8", "Janitor 9", and "Janitor 10", Quantum Plus will display them alphabetically as

Janitor 1
Janitor 10
Janitor 2
Janitor 3
Janitor 4
Janitor 5
Janitor 6
Janitor 7
Janitor 8
Janitor 9

This happens because Quantum Plus (like most computer programs) alphabetizes the user information based on the first character it sees in a description. Thus, the "1" in "10" causes the "10" to appear before "2" or "3", instead of after the "9", as you would expect. If you had users with names "Janitor 11" through "Janitor 19", they would appear alphabetically between "Janitor 10" and "Janitor 2". Similarly, users 21 - 29 would appear between "2" and "3".

It's very simple to keep your listings in the correct order. All you have to do is put enough characters in front of the digits to make all of your similar names the same length. For example, if you know that your largest number will be 100, you should make sure that all numbers in user names contain 3 characters. You could enter the user number 1 as either " 1" (two blanks, followed by a 1) or "001". If you enter all numeric user names in this manner, they will always appear in the correct order in any Quantum Plus reports.

User Defaults

In a large installation with many users, it's common for groups of users to have similar access needs. For example, everyone who works for the maintenance department of a university will need access to the same doors, or all of the second shift employees might have the same Timezone settings.

To simplify the user setup process, Quantum Plus supports user default configurations. You can define different access information for each of these configurations. Whenever you add a user to your system, you simply select the default configuration that most closely defines the user's settings, and Quantum Plus fills in the user's information with the confiiguration settings. All you have to do then is to change the few items which are unique to the user, such as access to a particular office.

You may give each group a meaningful name. For example, you might assign the first group to all employees who work first shift, and call the group "First Shift". You may set the Timezone information for this group to correspond to the work times assigned to the shift. Similarly, a second group might be the second shift employees, with a different set of Timezones.

Quantum Plus creates an initial user default configuration, named *Individual*. If most of your users will have similar feature or access settings, you may modify the *Individual* configuration to refleet those settings.

Adding User Defaults

To add a user default configuration, select **Users | Defaults | Add**. Quantum Plus displays the User Settings Screen. You should give the configuration a meaningful name, such as "Maintenance Dept.", or "Third Shift". You may not have two user configurations with the same name. You must supply a name for the configuration before you can move to any of the other tabs.

Specify the settings for the configuration. Enter feature and access information which applies to all or most users who will be added with this configuration. For example, if you want all users in the Maintenance Department to have a fixed expiration date on their keys, check the appropriate boxes on the User Feature Screen.

If the configuration you are creating is similar to an existing configuration, you may copy the existing configuration and change only the appropriate information for the new configuration. See "Copying User Defaults" below.

Selecting a User Default Configuration

When changing, copying, or deleting, Quantum Plus displays a selection screen listing all of your user configurations. You may select the appropriate default configuration by double-clicking on its name, or by highlighting it in the list, then selecting ***Ok***.

Until you add more configurations, Quantum Plus will automatically select the *Individual* configuration, rather than prompt you to select one.

Changing User Defaults

You may change the settings for a user default configuration by selecting **Users | Defaults | Change**. Quantum Plus prompts you to select the configuration to change, then presents you with the User Settings Screen to allow you to set the default values for the configuration. You may change any of the settings here, including the name of the configuration.

Copying User Defaults

If you want to create a user configuration which is similar to an existing configuration, you may copy the existing configuration and change only the appropriate information for the new configuration. Select **Users | Defaults | Copy**, and select the existing configuration. Quantum Plus then presents the User Settings Screen to allow you to make the changes necessary for the new configuration, including a unique name for the configuration.

Deleting User Defaults

To delete a user configuration, select **Users | Defaults | Delete**, and select the configuration to be deleted. Once the configuration has been selected, click the ***OK*** button. Quantum Plus will then verify that the selected user defaults are to be deleted. Click ***Yes*** for the deletion to occur or click ***No*** to cancel the deletion process. Quantum Plus will then prompt for the next controller(s) to be deleted. To return to the Controller menu without deleting another controller, select ***Cancel***

Using The Key Processing Unit (KPU)

Most of the Key operations involve inserting a key into the Key Processing Unit (KPU). Quantum Plus prompts you to do so with a message box. Quantum Plus will monitor the KPU until a key is inserted, then will continue with the operation. If you wish to skip the operation, select ***Cancel*** or press the ***ESC*** key**.**.

While Quantum Plus is communicating with the KPU, it displays a message box indicating the operation being performed. Quantum Plus will prompt you to remove the key when it has finished reading or programming the key. In general, you should not remove the key until Quantum Plus prompts you to do so. There is an exception to this, however. Occasionally, the KPU will report to Quantum Plus that a key has already been removed after a programming operation. When this happens, Quantum Plus will not prompt you to remove the key, but will instead prompt you to either

insert the next key, or for the information necessary to restart the operation you are doing. If this occurs, it is safe to remove the key.

When you insert your key into the KPU, and as long as the KPU recognizes that the key is present, the green light on the front of the KPU should be lit. If the light ever changes to red, or goes out completely, the KPU is having trouble communicating with the key.

If Quantum Plus should ever appear to "freeze up" for more than a few seconds, you should try to clear the communications link between the PC and the KPU by pressing CTRL-C (press the Ctrl and C keys at the same time). Quantum Plus should display a message such as *Unable to communicate with KPU. Retry?*. Select ***Yes*** to have Quantum Plus attempt to reestablish communications with the KPU. If the "unable to communicate" message appears several times in a row, press the reset button on the back of the KPU, then wait until the KPU indicator light flashes green twice before selecting ***Yes***.

User Operations

Adding a User

The Add User function adds a new user to your database. This creates a user who may be given access to any existing doors. If you want to create a Grandmaster Key, which will be able to access any door in your system, including those which haven't been defined yet, refer to the section Creating Special Function Keys**.**

If you have more than one user default configuration defined, Quantum Plus will prompt you to select the configuration to base the new user on. If you have not created any new configurations, the *Individual* configuration will be used. Also note that there is a checkbox on the default selection screen that allows you to specify that you want to use the same default configuration for all users you are adding. If you check this box, Quantum Plus won't prompt you to select a default configuration for each user, until the next time you select **Users | Add**.

Quantum Plus next displays the User Settings screen to allow you to fill in all of the settings for the new userr. The initial settings will be based on the default configuration you selected. You can override any of these settings for the new user, for example to change the list of controllers to which the user will have access. You must fill in at least one of the name fields; either *First Name* or *Last Name* may be left blank, but not both. Quantum Plus will search the user database to see if there is already a user with the same name. If so, Quantum Plus will tell you so, and ask you if you still want to add this user. It is possible that you have already entered the user's information, or that there is another user in your system with the same name. If you want to add this user, select ***Yes***; otherwise select ***No***, and Quantum Plus will let you modify the user's description again.

If you have entered access information for user, and your Quantum Plus operator rights allow it, Quantum Plus will next ask you if you wish to issue a key to the user.

If you are ready to program a key for the user, select ***Yes***, otherwise select ***No***. If you select ***No***, you may program the user's key later using the Issue Key option.

If you select ***Yes***, Quantum Plus prompts you to insert key into the KPU Unit. Quantum Plus verifies that the key is not already programmed, then programs the key with the settings entered for the user. Remove the key when Quantum Plus prompts you to do so.

Quantum Plus will next prompt you to select the default configuration for the next user (or skip straight to the User Settings screen if you checked the *Use this configuration ...* checkbox). You can add another user, or select ***Cancel*** if you don't wish to add any more users.

Changing a User's Information

This option allows you to modify the database information for an existing user. You will typically use this option when a user's access requirements change. For example, if a user needs access to controllers for which he was not initially authorized, this change must be entered in the user database, then transferred to the user's key.

Activate the Change User operation from the Main Menu by selecting **Users | Change**. Quantum Plus prompts you to select the user or users whose information is to be changed (see "Selecting Users"). For each user you select, Quantum Plus will display the User/Key Main Screen to allow you to make the necessary changes to the user's feature or access information. When you are finished, select ***Ok***. If you made any changes, Quantum Plus will ask you if you want to update the user's key now. If the key is available, select ***Yes***, otherwise select ***No***. If you select ***No***, you may update the key later using the **Users | Update Key** command.

If you select ***Yes***, Quantum Plus prompts you to insert the user's key into the KPU. Quantum Plus verifies that the key is the one originally issued to the user, then programs the key with the new settings. Remove the key when Quantum Plus prompts you to do so.

Quantum Plus will prompt you to enter the name of the next user(s) to be changed. To change more users, select the appropriate ones from the list box and select ***Ok*** . To return to the main menu without changing another user, select ***Cancel***.

Deleting User(s)

The Delete User operation removes all information pertaining to a user or users from the database. This option would typically be used when an employee leaves a company, or at the end of the school term when students leave for the summer.

Before deleting a user, Quantum Plus verifies that there are no keys currently issued to the user. Since each issued key is connected, through the database, to a user, Quantum Plus will not allow you to delete a user until all keys issued to the user have been accounted for. Keys must be returned to the database, or logged as lost or not returned. These operations are described below, under "Key Operations".

Activate the Delete User operation from the Main Menu by selecting **Users | Delete**. Quantum Plus will prompt you to select the user or users to be deleted. Quantum Plus will locate and read each selected user's information from the database.

After Quantum Plus verifies that the user may be deleted (has no keys issued), it prompts you with the user's name and ID code, and asks you to verify that this is the user to be deleted. To delete the user, select ***Yes***; to leave the user in the database, select ***No***.

Quantum Plus next prompts you to select additional users to be deleted. To return to the User menu without deleting another user, select ***Cancel***.

Key Operations

Quantum Plus keeps track of the relationship between users and keys. When you issue a key to a user, Quantum Plus records this fact, and will not allow you to issue a second, duplicate key to the user. This protects the integrity of your access control system. You will always know which users have keys, and which controllers they are allowed to operate.

Issuing a key

Issuing a key involves transferring access control information into a key's memory, and maintaining a record indicating to whom the key was issued. Issuing a key to a user involves programming a key with information you have entered earlier in the user database.

Quantum Plus will also print an issue receipt, indicating the key number, to whom the key was issued, the date and time, and the controllers which the key will operate. The receipt is printed on your currently selected printer, and provides lines for the user to sign when receiving the key. You can select whether or not you want tickets printed from the Key menu. This feature is enabled by selecting **Users | Print Receipt**. To deactivate the issuing of a receipt, select **Users | Print Receipt** so that the check mark no longer appears next to it.

Activate the Issue Key operation by selecting **Users | Issue Key** from the Main Menu. Quantum Plus prompts you to select the users to whom keys are to be issued.

For each user you select, Quantum Plus verifies that the user's database information is valid, and that no key has been issued to the user. Quantum Plus then prompts you to insert a key in the KPU, verifies that the key is not programmed, then transfers the user's access information to the key. If you have the Print Issue Receipt feature enabled, Quantum Plus prints the issue receipt for the key. Quantum Plus then asks you to remove the key.

Quantum Plus next prompts you for the names of additional users to be issued keys. To return to the main menu without issuing another key, select ***Cancel***.

Creating Special Function Keys

Quantum Plus can program standard INTELLIKEY keys to perform special functions. Each special function key is created from the **Users | Special Keys** menu.

Special function keys are added to the Quantum Plus database and assigned key numbers just like any other key. Many of the special function keys store information read from controllers. To read this information, use the **User | Query Key** function. When you are finished with a special function key, use the **Users | Return Key** function (see "Returning a key", below) to remove it from your database.

Controller Audit Key

A Controller Audit Key is used to read audit trail information from a controller into the key's memory. Quantum Plus can then read this information from the key and generate a report based on the controller's audit information. Each key may audit one controller at a time, and holds the most recent 250 records from the controller.

To create a Controller Audit Key, select **Users | Special Keys | Controller Audit**. Insert a blank key in the KPU when prompted.

You may use this Audit key in any controller. Each time you insert the key in a controller, the controller overwrites any data stored in the key with new audit information.

To use the key, simply insert it into the controller that you wish to audit. The controller beeps once, then emits a series of "chirps" while it transfers its audit information to the key. When the controller is finished, it beeps twice. You may then remove the key.

To read the audit information, select either the **Users | Query Key** or **Audit | User Key** functions. Refer to "Audit Operations - Reading a Controller Audit Key" for details on reading the information from the key.

Controller Update Key

A Controller Update Key is used to transfer new feature and access information to a controller. You first edit the controller's information using Quantum Plus's Change Controller function, then load the information into the key through the KPU, then transfer the information to the controller by inserting the key into it.

To create a Controller Update Key, select **Users | Special Keys | Controller Update**. Quantum Plus next prompts you to select the controller which this key will be used to update. Insert a blank key in the KPU when prompted.

To use the key, simply insert it into the controller that it is programmed to update. The controller beeps once, then emits a series of "chirps" while it transfers the programming information to its memory. When the controller is finished, it beeps twice. You may then remove the key. If you insert the key into a controller other than the one for which it is intended, the controller will beep twice, and will not read the information from the key.

Whenever you create a Controller Update Key, Quantum Plus marks the controller's information in the database as "Update Key created". This notation, which shows up in a controller report, indicates that the controller may not be in synch with the database. After you have updated the controller with the key, and returned the key, Quantum Plus marks the database information as "Programmed" to indicate that the controller now matches the information in the database.

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Emergency Key

An Emergency Key overrides the shutout function and any time-related access control functions, such as Timezones or holidays. If you are using the Vertical keying system, an Emergency Key also overrides the copy number checking function.

To create an Emergency Key, select **Users | Special Keys | Emergency Key.** Quantum Plus next prompts you for a list of controllers for which the key will be authorized. Insert a blank key into the KPU when prompted to do so.

An emergency key is utilized just like any other key. Due to its extreme power, especially its inability to be disabled from a door, an Emergency Key is automatically assigned only a 24-hour lifetime by the Quantum Plus software.

Guard Tour Key

A Guard Tour key records the lock ID number and date and time of each controller into which it is inserted. You may optionally select a list of controllers that the key will be able to open. These would include doors to areas where a guard needs to check that everything is turned off or locked up.

To create a Guard Tour Key, select **Users | Special Keys | Guard Tour** . Quantum Plus will next prompt you to select controllers that the key will be authorized to open. Note that the Guard Tour function will work in any controller, but the key will only be able to open those that you specify.

To use the key, simply insert it into the designated controllers along the Guard Tour route. The controller will sound one long beep followed by one short beep to indicate that it has recorded the appropriate date and time information in both the key and controller. If the key is authorized to open the door, the Guard may unlock the door and enter the room for inspection.

To read the tour information from the key, select either the **Users | Query Key** or **Audit | Guard Tour Key** function. Refer to "Audit Operations - Guard Tour Functions" for details on reading the information from the key.

Disabler Key

A Disabler Key will disable keys in controllers. You would use this function typically when someone loses a high level key that is authorized for many controllers. You can create several copies of a Disabler Key to be used in deleting the lost key from all affected controllers.

To create a Disabler Key, select **Users | Special Keys | Disabler**. Quantum Plus prompts you to select the user whose key is to be disabled. Insert a blank key into the KPU when Quantum Plus prompts you to do so. Note: Each disabler key will only disable one user. You must create a separate Disabler key for each key you wish to disable.

To use a Disabler Key, insert it into any controller for which the lost key might have been authorized. The controller will sound a short beep to indicate it has recognized the key. If the key was authorized, the controller will remove the key from its list of authorized keys. When the controller is finished, it will sound three short beeps to indicate that you may remove the key.

Refer to "Audit Operations - Disabler Key Functions" for details on reading the information from the key.

Shutout Key

A Shutout Key temporarily blocks access to a controller by an key except an Emergency key.

To create a Shutout Key, select **Users | Special Keys | Shutout**. Quantum Plus next prompts you to select the controllers for which the shutout key will work. Insert a blank key into the KPU when prompted to do so.

To use a Shutout Key, insert it into the controller that is to be locked with the shutout function. The controller will sound two short beeps to indicate that the shutout function has been activated. At this point, no standard key will operate the controller. Controller Audit Keys and Controller Update keys will work in the controller.

To take the controller out of shutout mode, insert the Shutout Key again. The controller will sound a short beep to indicate that it is back to normal operating mode. An Emergency Key will also take a controller out of shutout mode.

Grandmaster Key

A Grandmaster Key is automatically authorized to operate all controllers. You must enable the Grandmaster Key function and specify how many keys to configure as Grandmaster keys when you first install Quantum Plus.

To create a Grandmaster Key, select **Users | Special Keys | Grandmaster Key**. Insert a blank key when prompted to do so.

A Grandmaster Key is used like any standard key. The only limitation on it is that its lifetime is limited, to reduce security problems if the key is lost. The lifetime of Grandmaster Keys can be set by selecting **Utility | Site Setup** . If a Grandmaster Key expires, you can reauthorize it by updating the key (see "Updating a key").

Updating a key

The Update Key operation transfers new database information to a user's key. You would typically use this option after you have updated a user's database information. For example, if you add masterkeying information for a user, you must update the user's database information first, then update the user's key.

Activate the Update Key operation by selecting **Users | Update Key** from the Main Menu. Quantum Plus prompts you to insert the key to be updated into the KPU. Quantum Plus reads the key ID number from the key, matches the number to the user to whom the key was issued, and reads the user's access information from the database.

If the database information does not match the information already programmed into the key, Quantum Plus reprograms the key with the new database information. If you have the **Print Receipt** feature enabled, Quantum Plus prints an update receipt for the key. Quantum Plus then asks you to remove the key.

Quantum Plus then prompts for another key to be inserted for update. To update another key, insert it in the KPU. To return to the main menu, select ***Cancel***.

Turning Receipt Printing On and Off

The **Users | Print Receipt** option allows you to control the printing of issue tickets or receipts. The menu item will have a check mark next to it if receipt printing is enabled. The check mark alternates between checked and not checked each time you select the **Print Receipt** menu item. When receipt printing is enabled, each time a key is issued or updated, Quantum Plus will print a recept for the key, with a space for the keyholder to sign. You can also print receipts at any time from the **Report** menu.

Returning a key

When you return a key, Quantum Plus updates its database to reflect the fact that the key is no longer issued to anyone, and disables the key so that it may not be used until it is reprogrammed and reissued.

When you select the Return Key operation, Quantum Plus first asks you if you want to delete the user after returning the key. If you are returning a user's key and know that you no longer need the user's database information, select ***Yes***, otherwise, select ***No***. If you select ***No***, Quantum Plus will retain all of the user's information, but will note that the user has not been issued a key.

Using the "delete user after returning key?" feature simplifies some of your database operations, but does take longer than simply returning the key. If you are in a situation where you are returning a large number of keys at once, (students checking out at the end of the term, for example) you might want to simply return the keys now, and use the Delete User functions (see "Deleting User(s)", above) to delete the user information later.

Activate the Return Key option by selecting **Users | Return Key** from the Main Menu. Quantum Plus will then prompt if you want to "delete user after returning key?". If you select ***Yes***, Quantum Plus prompts you to insert the key to be returned into the KPU. Quantum Plus reads the key ID number from the key, and displays a message at the bottom of the screen indicating to whom the key was issued. Quantum Plus then updates the database information to reflect the fact that the key is no longer issued. Do not remove the key from the KPU until Quantum Plus prompts you to do so.

Quantum Plus then prompts for another key to be inserted for return. To return another key, insert it in the KPU. To return to the Key menu, select ***Cancel***.

Querying a key

The Query Key operation allows you to read and display the current settings of a key, but not to modify them. You can use this function to verify the programming of a key or to identify a key.

Activate the Query Key option by selecting **Users | Query Key** from the Main Menu. Quantum Plus prompts you to insert the key to be read into the KPU. Quantum Plus reads the programming information from the key, and displays the

User/Key Main Screen to allow the individual settings to be viewed. Note that all of the data entry items on each screen are grayed out -- you may not change any of the displayed information. When you have finished viewing the key data, select ***Ok*** from the User/Key Main Screen.

Quantum Plus then prompts for another key to be inserted for reading. To read another key, insert it in the KPU. To return to the Main menu, select ***Cancel***.

Canceling a key

The Cancel Key operation provides a method of removing keys from the Quantum Plus database without having the key physically present. You would typically use this option when a key is lost, or otherwise not returned by a user. Quantum Plus removes the key from its active database and marks the key as not being issued to anyone. Quantum Plus creates a record in a separate database, however, of the key ID number, the user at the time it was deleted, and the reason it was deleted. Thus, if someone finds and attempts to use a lost key, its history can still be tracked.

Canceling a key also releases the user's access information to be reprogrammed into another key. Thus, if a user loses a key, you may cancel the key, then issue another key to the user using the **Users | Issue Key** function.

Activate the Cancel Key operation from the Main Menu by selecting **Users | Cancel Key**. Quantum Plus prompts you to select the user whose keys are to be canceled. For each key to be canceled, Quantum Plus prompts you to supply a reason. Select the appropriate reason, then select ***Ok***. Note that if you select ***Some other reason*** you may fill in the explanation box to give more detail. This information will be included in a key or user report. To return to the main menu without canceling the key, select ***Cancel***.

8Audit Operations

Keeping Track of Everybody

In addition to determining who is allowed to go where, an access control system must also provide **accountability**. In this context, accountability means the ability to determine, after the fact, where a person has been, and when. Quantum Plus's audit functions provide this capability. These functions allow you to do such things as read the audit trail from a user's key or from a controller's memory, and to determine if a user's lost key has been denied access to all controllers.

The reports created by the Audit functions may be viewed in two ways: either on the screen or printed. Refer to "Displaying and Printing Information" in the "Reports" chapter for details. You may stop the generation of a report by pressing the **ESC** key.

Auditing Keys

To read the audit information from a key, select **Audit | Audit Keys**. Quantum Plus prompts you to insert the key to be audited into the KPU, reads the key's information, then presents the audit information based on the type of key:

Standard User Keys

Quantum Plus reads the audit information from the key, and allows you to specify which information you want printed. Select the types of accesses (***legal*** and/or ***illegal***) which you wish to see, and the appropriate date and time ranges, then select ***View*** to see the report on your screen, or ***Print*** to have the report printed on the currently selected Windows printer. Select ***Print to File*** to have the report saved as an ASCII file. Select ***Add To Log*** to add the information from the user's key to the User Activity Log.

After viewing or printing the information, select ***Close.*** Quantum Plus will ask you if you want to clear the audit information from the key. Select ***Yes*** to clear it, or ***No*** to leave it intact. Since the key always maintains the most recent audit information for the user, there is usually no reason to clear it. Remove the key from the KPU when prompted to do so.

Controller Audit Keys

A Controller Audit Key reads audit trail information from a controller's memory. The key stores the records for the most recent 250 users who have accessed the

controller. See "Creating Special Keys" for a description of how to make and use a controller audit key.

Depending on the model and version of the controller, the audit key may contain additional information, such as the controller's battery level, and the reason a key was recently denied access. If this information is available in the key, Quantum Plus will display it. Select the types of accesses (***legal*** and/or ***illegal***) which you wish to see, then select ***View*** to see the report on your screen, or ***Print*** to have the report printed on the currently selected Windows printer. Select ***Save*** to add the information from the Controller Audit Key to the User Activity Log.

After viewing or printing the information, select ***Close***. Remove the key from the KPU when prompted to do so. You may now use the key to audit another controller.

Disabler Keys

A Disabler key allows you to disable lost or stolen keys using a standard INTELLIKEY key. See "Creating Special Keys" for a description of how to make and use a Disabler key. Disabler keys record an audit trail of the controllers into which they have been inserted.

When you audit a Disabler Key, Quantum Plus prompts you to specify how you want the information reported.

Select *List controllers updated by this disabler key* to see a list of controllers in which this Disabler key was used. Select *List controllers which still need to be updated* to see a list of controllers for which the user is still authorized.

You can also view the list of controllers that still need updating from the Reports menu: **Reports | Disabler Key | Discrepancy Report**.

Selecting **Reports | Disabler Key | Clear Disabler Data** allows you to delete information from the log file created by reading Disabler keys.

Guard Tour Keys

Guard Tour keys record an audit trail of the controllers into which they have been inserted, including the lock number, date, and time. The Guard function will display or print the information contained in a Guard Tour key, and allow you to clear the contents of the key for the next guard tour. See "Creating Special Keys" for a description of how to make and use a Guard Tour key.

TReading a Guard Tour key is almost identical to reading the audit information from a user's key.

After viewing or printing the information, select ***Cancel***. Quantum Plus will ask you if you want to clear the tour information from the key. Select ***Yes*** to clear it, or ***No*** to leave it intact. Remove the key from the KPU when prompted to do so. If you do not clear the information, the key will append new Guard Tour information to the end of the existing information. This allows a guard to keep a running summary of activities for an entire shift, for example. After the last tour of the night, you can clear the information so that the key is clean for the next night's tours.

Auditing Controllers

Select **Audit | Audit Controllers** to read the audit information from one or more controllers and automatically add it to the User Activity Log. This function doesn't display the audit information as it is being read; use the User Activity Report (refer to the next chapter) to view the information.

Setting Controller Time

Each INTELLIKEY controller contains a clock that keeps track of the current date and time. These settings are used for maintaining audit information, and for controlling access through timezones, expiration dates, and holidays. The controller's time is set automatically whenever the controller is programmed or updated with an LPU.

To manually update the time in one or more controllers, select **Audit | Set Controller Time.** Quantum Plus will prompt you to insert the LPU into a controller. When the LPU is inserted into the controller, Quantum Plus updates the controller's time to match that of the computer running the program, and adds a record to the Operator activity log indicating that the controller was updated.

Transferring audit information from laptop to desktop

Many sites maintain their Quantum Plus database on one or more desktop computers, but use a copy of the program on a laptop to update or audit controllers. In these situations, it is usually necessary to transfer the audit information collected on the laptop to the main database so that it can be added to the User Activity Log. The Audit Export/Import function provides this capability.

On the laptop containing the newly collected audit information, select **Audit | Export Audit**. Quantum Plus first prompts you to select where to save the audit information. This should be to either a removable storage device such as a floppy disk or "thumb drive" ("memory stick"), or to a network drive accessible from the desktop computers to which the information is to be transferred. Quantum then prompts you for a starting date for the audit information to tbe transferred. The default is for the most recent week, but can be changed. Select ***Ok*** to write the audit information to a file on the selected storage device.

If the data was written to a floppy disk or thumb drive, insert that device into the appropriate reader on the desktop computer. Select **Audit | Import Audit** and indicate the location of the device (*A:* or *G:\AUDIT*, for example). Quantum Plus will read the audit information from the file and add any new records to its User Activity log.

Quantum Plus automatically checks for duplicate entries when adding information to the User Activity log, so there is no harm in importing the same information more than once.

9Reports

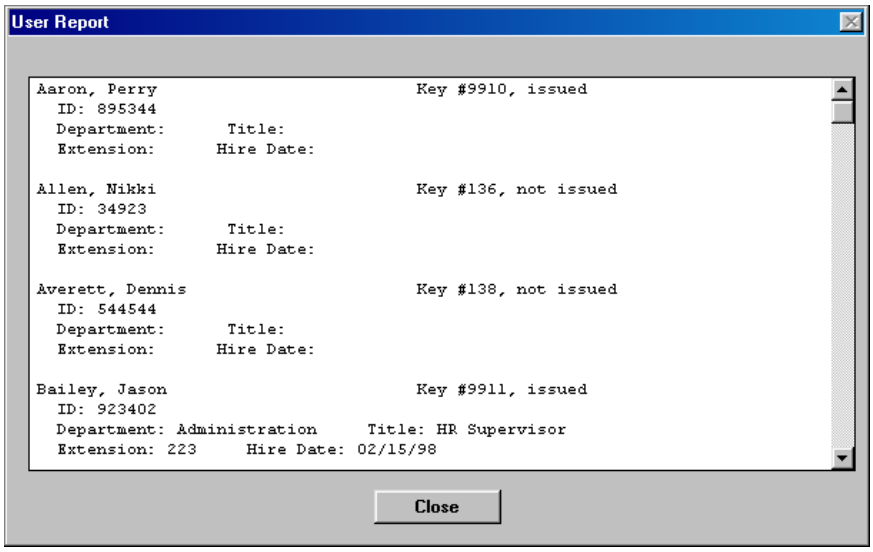
Displaying and Printing Information

The Report menu allows you to generate reports showing information about your users, keys, controllers, and system setup. You may either view the reports on your screen, print them on your printer, or save them as an ASCII file.

Quantum Plus reports do not use any special characters or printer functions, and so should print on just about any PC compatible printer. The reports are formatted to fit on an 8½ x 11" page, with a wide left margin for binding or insertion in a notebook.

While Quantum Plus is generating a report, it displays a progress box to indicate how far along it is in the process. You may cancel the report at any time by selecting the ***Cancel*** button on the progress box, or pressing the **ESC** key.

Reports may be viewed in two ways. The first way is to display the information on your screen. This option is typically activated by selecting the ***View*** button on the screen which defines your report options. Quantum Plus presents a scrollable viewing screen containing the report as follows:



Use the scroll bar at the right hand side of the screen to move forward or backward through the report. Select the ***Close*** button at the bottom of the screen when you are finished viewing the report.

Reports may also be printed. You can have reports printed by selecting the ***Print*** button on the report options screen. Normally, reports are printed on the currently selected Windows default printer. Refer to your Windows manual for information on selecting the default printer. If you want to print the report to another printer, press the left Shift key while selecting the ***Print*** button. Quantum Plus will present a screen allowing you to select a specific printer. Whichever printer you select, either the default or a specific printer, is referred to in the report descriptions as the "Windows Printer".

Reports may also be placed into an ASCII file. You can have a report placed into a file by selecting the ***File*** button. Next, assign a file name for the report, or if you are updating the contents of a report, you may reuse the filename that was previously given . If you are uncertain as to where to place the contents of a file, use the ***Browse*** button to select a directory and then apply a filename. Once you are done, select the ***OK*** button. If you are do not want to create another report, select the ***Cancel*** button.

For additional reporting options, see "Audit Operations".

User Reports

The User Reports function allows you to generate reports about your system users, or keyholders.

The User Reports Screen lets you specify which users should be contained in the report, and how much information should be reported for each of them. You can activate this function by selecting **Reports | Users**, and the above illustrated screen will appear. The first six text fields let you specify which user or users to report on. These correspond to the name and optional data fields entered when adding a user to your system. Quantum Plus will generate a report for users whose database record matches what you enter in these fields. To generate a report on a specific user, enter his first and last names in the appropriate fields.

If you leave a field blank, Quantum Plus matches any record for that field. So, to report on every user in your database, leave all of the fields blank. To report only on users whose last name is Smith, enter "Smith" in the *Last Name* field, and leave the other fields blank. To report on all users whose last name is Smith, and who work in the Maintenance Department (assuming the first optional field contains the user's department) enter "Smith" for the *Last Name*, and "Maintenance" for the first data field.

Quantum Plus will also match partial entries. For example, if you enter "Smith" for the *Last Name*, and "T" for the *First Name,* Quantum Plus will report on all users with the last name Smith and the first initial "T" (Tom Smith, Ted Smith, etc.) If you enter "Sm" for the Last Name, Quantum Plus will report on all users whose last name starts with "Sm" (Smith, Smythe, Smathers, etc.).

The check boxes in the area marked *Show* let you specify how much information to report about each user. If you select *Description*, the user's ID and optional data fields are reported. *Access Information* reports for which controllers the user is authorized, and *Features* reports on how the users' features (holidays, anti-passback, etc.) are configured. Generating a report with none of the boxes checked yields a report containing only the users' names and key numbers.

If the *New Page for Each User* check box is checked, Quantum Plus starts the report for each new user on a separate page. This feature comes in handy if you frequently

add or change user information, and need to keep an up-to-date printout of each user's information.

Note: Quantum Plus determines whether or not a key will operate a controller based solely on the key's masterkeying information. If the key's copy number is not enabled in the controller, the key will not be able to operate the controller, even though the access report says it should.

User Group Reports

The User Group Report list the members of one or more user groups.

To create User Group Reports, select **Reports | User Groups**, and the above illustrated screen will appear. Select the User Group(s) to report on, then select the appropriate **View**, **Print**, or **Print to File** button.

Controller Reports

Controller reports contain information about your system doors and locks. You can report on feature settings, and list users authorized for each controller.

The Controller Reports Screen lets you specify which controllers should be contained in the report, and how much information should be reported for each of them. To use this function, select **Reports | Controllers**, and the above illustrated screen will appear.

The first six text fields let you specify which controller or controllers to report on. These correspond to the Building, Door, and optional data fields entered when adding a controller to your system. Quantum Plus will generate a report for controllers whose database record matches what you enter in these fields. To generate a report on a specific controller, enter the Building and Door names in the appropriate fields.

If you leave a field blank, Quantum Plus matches any record for that field. So, to report on every controller in your database, leave all of the fields blank. To report only on the controllers in the Research Building, enter "Research" in the *Building* field, and leave the other fields blank. To report on all controllers in the Gymnasium which are offices (assuming the second optional field contains the door type) enter "Gym" for the *Building* and "office" for the second data field.

Quantum Plus will also match partial entries. For example, if you enter "Housing" for the *Building*, Quantum Plus will report on all controllers with the first word "Housing" in their name (Housing 1, Housing 2, etc.).

The check boxes in the area marked *Show* let you specify how much information to report about each controller. If you select *Description*, the controller's description and optional data fields are reported. *Features* reports on how the controller's features (operating mode, security settings, etc.) are configured. *Users* reports a list of users authorized for the controllers. Be careful with this setting, as it can generate lengthy reports at large sites. *Keying* reports the controllers masterkeying and copy number information, for the Vertical system. Generating a report with none of the

boxes checked yields a report containing only the controller' names and lock numbers.

If the *New Page for Each controller* check box is checked, Quantum Plus starts the report for each new controller on a separate page. This feature comes in handy if you frequently add or change controller information, and need to keep an up-to-date printout of each controller's information.

Controller Group Reports

The Controller Group Report list the members of one or more controller groups.

To create Controller Group Reports, select **Reports | Controller Groups**, and the above illustrated screen will appear. Select the Controller Group(s) to report on, then select the appropriate **View**, **Print**, or **Print to File** button.

User Activity Reports

User activity reports summarize the information stored in the Quantum Plus user activity log. This log is updated whenever you select the ***Save*** option on any controller audit or user audit report screen. Quantum Plus stores the audit trial information, including the key, controller, date, and time. The User Activity Report lets you generate a listing of this information by specifying a particular controller and date range.

The User Activity Report Screen lets you select the activity information on which to report. To use this function, select **Reports | User Activity Report**, and the above illustrated screen will appear. The two list boxes contain the names of the user and controllers for which audit trail information is available. Select the appropriate entries, specify which records to show (***legal*** and/or ***illegal***) and the date range of interest. Select ***View*** to see the report on your screen, or ***Print*** to send the report to the Windows printer.

Note: You must have something selected in both the *Report on these users* and *accessing these controllers* listboxes to enable the ***View*** and ***Print*** buttons.

Operator Activity Reports

Operator activity reports describe the day-to-day operations performed with the Quantum Plus software. The reports list all activities related to issuing and returning keys, and programming controllers.

The Operator Activity Reports Screen lets you specify what operator information should be reported. To use this function, select **Reports | Operator Activity**, and the above illustrated screen will appear. Next, select the appropriate category(s) and the date range of interest. Select ***View*** to see the report on your screen, or ***Print*** to send the report to the currently selected Windows printer.

Issue Receipt

The Issue Receipt function will allow you to print an issue receipt for a key that has already been issued. This is the same receipt that is printed when a key is issued or update. This function is useful if a receipt was not printed when a key was issued to a user.

10Utilities

Maintaining the Quantum Plus System

The Utility menu functions allows you to perform various maintenance or "housekeeping" operations associated with your Quantum Plus system:

Choice	Function
Site Setup	Specify how your site is configured. See "Site Setup".
Operators	Add, Delete, or Change the configuration of Quantum Plus operators. See "Operators"
Timezones	Add, Change, Copy, or Delete a Timezone definition
Devices	Transfer Site Code information into KPUs and Lock Programming Units
Data Files	Backup, Restore, archive or export your Quantum Plus data files
Remote Key Functions	Call a site and connect to a Remote Key Processing Unit. Add, Change, or Delete remote key programming sites.

Site Setup

Select **Utility | Site Setup** to display the Site Setup Screen which allows you to change some of the basic settings for your system.

Site Settings Tab

This screen allows you to change some of the descriptive information about your site. It also allows you to specify which INTELLIKEY features you use at your site. Only the features actually used will be enabled on the Key and Controller data entry screens, simplifying setting up your keys and controllers.

Daylight Savings Time Tab

This screen allows you to specify how Daylight Savings Time changes are handled at your site. Most locations around the world change the time for daylight savings

based on a pattern: the last Sunday in April through the last Sunday in October, for example. If your site follows such a pattern, check the *DST changes follow this pattern* checkbox, and fill in the appropriate information. Quantum Plus automatically calculates the DST change times for several years in advance and displays the information.

If your location uses a non-standard DST change plan, uncheck the *DST changes follow this pattern* checkbox. This causes the date and time controls in the bottom part of the screen to become enabled. Select each year, adjust the starting and ending dates and times, then click the ***Update*** button. The updated information will be displayed in the list box.

Holidays Tab

This screen allows you to define holiday dates for use by the system. Holidays in keys restrict access during the holiday periods. Holidays in controllers override the automatic unlock function.

This screen allows you to define holiday configurations for your site. Quantum Plus manages holidays in groups. Each group consists of up to 16 date ranges, each up to 120 days in length. A basic holiday group, named "Standard Holidays" is created when your site is first created. You can create additional groups. For example, a university might have one holiday group named "Student Holidays" that applies to all students and includes various holiday breaks, and another that applies to contractors and includes different dates for which the contractors are not allowed access.

The **Group** list box contains all of the defined holiday groups. To change the contents of a group, select it from the list box. All of the holidays defined for the group will be displayed in the list box below the Group box.

To add a new holiday period to the group, select the ***Add*** button, and fill in the description and date range information. You can add up to 16 holiday periods to a group. To change the information for a holiday period, select it in the list box, then select the ***Edit*** button. To delete a holiday period, select it, then select the ***Delete*** button.

The **Custom Holidays** section allows you to create and modify groups other than the Standard Holidays. You can create a new, empty group (***New Group***), copy an existing group to use as a starting point for a new group (***Copy Group***), rename a group (***Rename Group***), and delete a group (***Delete Group***). You can't rename or delete the Standard Holidays group. You cannot delete a group if it has been assigned to any user or controller.

You can enter data for several years in advance. For example, if Independence Day is a standard company holiday, you can enter it for this year, next year, the following year, etc. at one time. When Quantum Plus updates a key or controller, it loads the holiday ranges that should apply. For example, if a date has already passed, it will not be included in the block of dates to be used.

Optional Fields Tab

This screen allows you to set up the names and formats for the 4 optional fields available for users and controllers. These fields can be used to supply site-specific information about the user or controller - job titles, phone numbers, etc for users, or lock types, battery change dates, etc. for controllers.

These fields can be used to select specific items for reports. For example, if one of the user fields is defined to contain the user's department, then a report could be generated for everyone in the "Maintenance" department.

Each field can be in one of two formats - text or listing. The text format is the simplest, and allows you to enter the information for each user or controller separately. List format allows a system manager to specify a restricted set of choices for each field. An operator adding or editing a user or controller can select one of a predefined list of values for the fields.

The editing screen for the optional fields has two values for each field, the field name and the field type. The field names are intially set to "Field 1", Field 2", etc for both users and controllers. The names can be changed here to more accurately describe their contents. The new names will show up on any editing screen where the fields are used.

The checkbox beside each field name (under the heading **List?**) selects the format for the field. If the box is not checked, the field will use text format. If the box is checked, the field will be list format.

If list format is selected for a field, the editing controls on the right half of the screen will be enabled. The list box will contain the choices available for that field. To add a new choice, select the ***Add*** button and fill in the information. To change the wording of an existing choice, select the choice in the list box, then select ***Edit***. To delete a choice, select it in the list box, then select ***Delete***.

Note: The format for each field should be set up when the site is created, and not changed. Changing the format for a field, especially from list to text, can have unpredictable results as the software attempts to translate information from one format to the other.

Operators

You must log in to Quantum Plus program as an operator before you can make use of any of its functions. Quantum Plus initially creates an operator, named System Manager, who has the ability to perform all Quantum Plus operations. As the System Manager, you can create additional operators, each with their own set of access rights and functions to perform. For example, you can create an operator who can enter data for new users, but who cannot issue keys, and another operator who can issue keys to previously created users, but who cannot add new users or modify the information for existing users.

Operator Settings Screen

The Operator Settings screen provides the means for specifying an operator's login information and changing operator passwords and access rights.

Basic Information Tab

The Operator Basic Information Screen specifies information about a Quantum Plus operator. Any operator can change their own password; an operator must have the authority to change other operator information (*Add/Change/Delete Operators* function enabled on the Functions tab) to be able to change the other information.

Field	Function
Name	The operator's full name
Operator ID	The code the operator will enter into the Quantum Plus Logon screen. This is 1-9 characters long, and may consist of letters, numbers, and symbols (!@#$%^)
Password	The operator's password. This is 1-6 characters long, and may consist of letters, numbers, and symbols (!@#$%^).
Dialing Suffix	When connecting to a remote key programming site, Quantum Plus will send the text contained in this field to the modem after dialing the remote site. This field could contain a long distance authorization code, for example.
Logoff after … minutes	For extra security, Quantum Plus will automatically log an operator off if there has been no activity for the specified number of minutes. If this value is set to 0, the automatic logoff function is disabled for this operator.

Functions Tab

The Operator Functions screen allows you to select which Quantum Plus operations an operator is authorized for. If the checkbox beside the function name is checked, the operator will be allowed to perform it.

To create an operator who does not have access to this screen (i.e. who cannot change his own or any other operator's settings) uncheck the box marked *Add/Change/Delete Operators.*

Permissions Tab

This screen allows you to specify which user and controller groups and defaults and masterkeying levels an operator will have rights (or permission) to. Select the type of item – user groups, etc. – then highlight the items in the list for which the operator should have the appropriate permission.

Adding an Operator

The **Utility | Operators | Add** function allows you to add new Quantum Plus operators. Quantum Plus presents the Basic Information Tab to prompt you for information on the new operator. You must enter the operator's full name, a logon ID code (typically the operator's initials), and the operator's password. The logon ID and password are what the operator will use when logging on.

Next, you should select the **Functions** tab to choose the Quantum Plus functions for which this operator will be authorized. If you uncheck the box marked *Add/Change/Delete Operators* on the Operator Function screen, the new operator will be able to change his password, but will not be able to change his access rights.

Finally, select the **Permissions** tab to specify which groups the operator will have access control authority over.

Changing an Operator's Settings

The **Utility | Operators | Change** function allows you to change the information associated with an operator. An operator must be authorized to add and delete operators (*Add/Delete/Change Operators* on the Operator function screen). Quantum Plus first presents a list of system operators for you to select from. Select the operator whose information you wish to change, then select ***OK***. Quantum Plus

presents the Operator Settings Screen to allow you to change the operators settings and functions.

Changing an Operator's Password

If you are the current Quantum Plus operator, and do not have full Operator Add or Change authorization, you may still change your password. To do so, select **Utility | Operators | Change**. Quantum Plus displays the Operator Settings screen, with most of the fields disabled. You will be able to change your password and the settings associated with your programming equipment, but nothing else.

Deleting a Operator

If you are authorized to add and delete operators (Add, Delete and Change Operators on the Operator function screen), the **Utility | Operators | Delete** function allows you to delete operators from the system. Quantum Plus first presents you with the list of system operators to select from.

To delete a operator, select the operator from the list, then select ***OK***. Quantum Plus will display the operator's name and ask you to verify that you really want to delete the operator. Select ***Yes*** to delete the operator, ***No*** to leave the operator on the system.

Note that you cannot delete the System Manager.

Timezones

This function lets you set up and modify the Timezone information for your Quantum Plus system. Timezones are used for several functions - controlling access by users, controlling access to doors, and for automatically unlocking doors.

Adding Timezones

To add a Timezone , select **Utility | Timezones | Add**. Quantum Plus will present an empty Timezone Screen for which you must supply a name and the Timezone information. You should give the Timezone a meaningful name, such as "Office Hours", or "Third Shift". You may not have two Timezones with the same name.

If the Timezone you are creating is similar to an existing one, you may copy the existing Timezone and change only the appropriate information for the new Timezone. See "Copying Timezones" below.

Changing Timezones

You may change the settings for a Timezone by selecting **Utility | Timezones | Change**. Quantum Plus prompts you to select the Timezone to change, then presents you with the Timezone Screen to allow you to set the values for the new Timezone. You may change any of the settings here, including the name of the Timezone.

If you change the Timezone information, Quantum Plus will ask you if you want to update the keys and controllers which use that Timezone. Select ***Yes*** to have the new information transferred into the database records for the keys and controllers.

Copying Timezones

If you want to create a Timezone which is similar to an existing one, you may copy the existing Timezone and change only the appropriate information for the new Timezone. Select **Utility | Timezones | Copy**, select the existing Timezone, then enter a name for the new Timezone. Quantum Plus then presents the Timezone Screen to allow you to make the changes necessary for the new Timezone.

Deleting Timezones

To delete a user configuration, select **Utility | Timezones | Delete**, and select the Timezone to be deleted followed by the ***OK*** button. If you don't want to delete a Timezone, select the ***Cancel*** button.

Programming Equipment

The **Utility** | **Devices** option allows you to initialize Key Processing Units (KPUs), Lock Programming Units (LPUs), and Restricted Authorization Keys (RAKs) for use at your site. Initializing a device loads it with the appropriate site code and authorizes it to create new keys or controllers.

To initialize devices, select **Utility | Devices | Program,** then **KPU, LPU** or **RAK**. The steps for programming each device are described below.

Programming the KPU

If the KPU is not already connected to your computer, Quantum Plus first prompts you to connect it to the proper serial channel. Make sure the KPU is connected, then select ***Ok***. Quantum Plus verifies that the KPU is connected properly, then programs it with the proper site code. Quantum Plus then asks what function the KPU will be used for. Select the appropriate operating mode (*Standard KPU* is the most common):

Mode	KPU Function
Standard KPU	Normal KPU operation, connected a PC running Quantum Plus, used for programming and interrogating keys.
Auto Re-authorization Unit, any key	A standalone KPU configured to automatically re-authorize any legal key inserted into it. When the KPU is configured for this operation, the orange light on the front will be blinking.
Auto Re-authorization Unit, unexpired keys	A standalone KPU configured to automatically re-authorize any un-expired legal key inserted into it. When the KPU is configured for this operation, the orange light on the front will be blinking.
Audit Unit	A KPU configured to operate as part of a Key Reporting Unit, generating an audit report for any key inserted into it. The KPU must be connected to a printer to generate the report. When the KPU is configured for this

	operation, the orange light on the front will be blinking.

If you selected one of the special functions, such as Auto-reauthorization, Quantum Plus programs additional information into the KPU.

Programming the Lock Programming Unit

Lock Programming Units are programmed through the KPU. The programming sequence for Lock Programming Units depends on the state of the LPU - programmed one or more times, or never programmed. LPU's received from the factory have never been programmed.

Quantum Plus first asks you about the status of the Lock Programming Unit, in order to determine the proper programming sequence. You can determine the status of the Lock Programming Unit by inserting its keyblade into the keyway of the KPU (the power to the KPU must be plugged in). If the green light on the front of the KPU comes on, the LPU has never been programmed, so you should select ***New Device***. If the KPU light does not come on, the LPU has been programmed at least once, so you should select ***Reinitialize***.

You can also assign an ID number to the LPU. This is handy if you have more than one LPU at your site, and wish to know which one was used for programming or interrogating a controller.

The programming sequences will also vary slightly, depending on whether you are using the same serial port (COM1, for example) for both the KPU and LPU, or have them connected to different ports. Just follow Quantum Plus' prompts as to which device to connect at which step in the programming sequence.

Programming the RAK

Restricted Authorization Keys are also programmed through the KPU. The programming sequence for RAKs depend on the state of the RAK - programmed one or more times, or never programmed. RAKs received from the factory have never been programmed.

Quantum Plus first asks you about the status of the RAK, in order to determine the proper programming sequence. You can determine the status of the RAK by inserting its keyblade into the keyway of the KPU (the power to the KPU must be plugged in). If the green light on the front of the KPU comes on, the RAK has never been programmed, so you should select ***New Device***. If the KPU light does not come on, the RAK has been programmed at least once, so you should select ***Reinitialize***.

Programming a New RAK

If you select New Device, Quantum Plus next prompts you to insert the RAK into the KPU. Insert the keyblade of the RAK into the keyway of the KPU, make sure that the KPU is connected to the serial port specified in your operator setup, then select Ok. Quantum Plus then programs the RAK.

Reprogramming a RAK

If you select Reinitialize, Quantum Plus asks you to insert the keyblade of the RAK into the keyway of the KPU. Turn on the RAK, and select the LINK command from

the RAK's main menu. The green light on the front of the KPU should come on. Select Ok to reprogram the RAK. You must select Ok within 10 seconds of selecting the RAK LINK command, otherwise the RAK will assume that it was unable to communicate with the KPU, and will break the link between them. The green light on the KPU will go out if this happens, and you must remove the RAK from the KPU and restart the reprogramming sequence.

Disabling LPUs and RAKs

For security reasons, it is often desirable to disable Lock Programming Units and Restricted Authorization Keys when they are not in use. Disabling these devices removes their site code, and prevents their use. The devices can be reenabled by initializing them as described in "Programming Equipment".

Once a device is disabled, you don't need to disable it again. To determine if a LPU or RAK is disabled, insert its key blade into a KPU which has power connected. If the green light on the front of the KPU comes on, the LPU or RAK is already disabled. z

To disable LPU's select **Utility | Devices | Disable | LPU**. To disable RAK's select **Utility | Devices | Disable | RAK**. Quantum Plus will prompt you for each step in the process.

Selecting Serial Ports

Select **Utilty | Devices | Configure Serial Ports** to select which serial port(s) are used to communicate with the KPU and LPU. Serial port settings are saved for each computer running Quantum Plus. Thus, one computer may have the KPU connected to COM1 and the LPU on COM2, while another may have both on COM2.

Data Files

Backing Up Your Data

The Backup feature allows you to save a copy of all of your Quantum Plus files. This copy can be used to restore your database files in the event of hardware problems with your PC, or accidental deletion of critical information. The backup copy should be kept in a secure place, preferably at a different location from the PC running Quantum Plus. Ideally, the backup copy should be kept with a copy of the Quantum Plus program disks, to facilitate the file restore operation. The process for restoring backed up files is described in the next section.

You should backup your files as often as necessary to prevent losing important information. If you do frequent data entry or key issuing, you should backup files at least once a week. Quantum Plus "remembers" the date of your most recent backup.

If you allow 3 weeks to pass without a backup, Quantum Plus requires that you make a backup before performing any other function.

This section describes the backup process for the standard Quantum Plus version. If you are using the Multi-Site version, the procedures are slightly different. Refer to the Multi-Site Supplemental manual for details.

To make a backup copy of your files, select **Utility | Data Files | Backup Data**. Quantum Plus presents a screen from which you control the Backup operation. Select the location to hold the backup information; this can be a folder on your hard drive, or a network drive. You can use the ***Browse*** button to select the location.

When you select the ***Ok*** button, Quantum Plus begins the backup process. Quantum Plus will copy your database information to the selected location. Note that this backup is in a proprietary format that can only be read with the Quantum Plus restore function described below.

Restoring Files from a Backup

The Restore operation copies files saved with the Backup operation into your Quantum Plus database. This allows you to recreate your Quantum Plus System in the event of a hard disk failure, or if you accidentally delete important information from your files.

Note: The File Restore operation overwrites any existing data files, so it should be used with caution.

To restore files from a backup copy, select **Utility | Data Files | Restore Data**. Quantum Plus presents a screen from which you may control the Restore operation. Enter the location where the backup information is stored. Quantum Plus remembers the last location you used, and displays this as the default location. Select ***Ok*** to start the restore process.

Cleaning Up Log Files

Quantum Plus maintains two log files which chronicle events occurring in your system - the Operator Activity Log and the User Activity Log. The Operator Activity Log tracks events such as adding users, issuing keys, programming controllers, etc. Quantum Plus automatically adds entries to this log as the events occur. The User Activity Log tracks user access in doors - legal and illegal. Any function which reads audit information from a key or controller can add the information to the User Activity Log.

Both of these logs accumulate data, and can become very large. This not only takes up disk space, but can result in long delays in generating reports based on the logs. Quantum Plus provides functions for deleting older information from the logs. This ensures that the log files contain only the most recent information.

To remove information from one of the log files, select **Utility | Data Files | Cleanup User Activity** or **Utility | Data Files | Cleanup Operator Activity**. Quantum Plus prompts you for how much information to delete. To delete data before a specific date, select the appropriate date, then select ***Ok***.

Exporting and Importing User Data

To make its database information more accessible to other applications, Quantum Plus provides functions for importing and exporting its database settings.

Exporting User Data

The Export Users function writes user information to an ASCII file which may be read by other applications, such as spreadsheets or word processors. You may select which data fields to export, which users to export, and the format of the exported data.

To export user information, select **Utility | Data Files | Export Users**. Quantum Plus prompts you to specify the export settings. If you selected *Export Data for Selected Users*, Quantum Plus asks you to select which users. You may select individuals, or access groups.

Quantum Plus writes the selected fields, for the selected users, to the specified output file. See "Import/Export Data Format" for a description of the format for the exported data.

Importing User Data

At some sites, the information for new users is already available from another application, such as a university registration system or badging system. To simplify adding users, Quantum Plus allows you to import data provided by these other applications. You may import just user names, and manually add the rest of the user information, or import everything there is to know about the user. It all depends on how much information is available from the other application.

Another use for the User Import function is to simplify mass changes to user information. You may export settings for some or all of your users, use a word processor or spreadsheet to make changes to one or more fields (such as expiration date) for the users, then import the changed file. When you import data for a user who is already in your database, Quantum Plus updates the user's data rather than creating a new user. "Import/Export Data Format" describes the format Quantum Plus expects for each of the user data fields.

To import user data, select **Utility | Data Files | Import Users** . Quantum Plus prompts you to specify the import data.

When you select ***Ok***, Quantum Plus reads each record from the input file and updates the user database accordingly. If the record specifies a user who is already in the database, the user's data is updated to reflect the imported settings. If the record contains a new user, the user is added to the database, and assigned a key number. If the import file contains the user's access information, all you need to do is issue a key to the user; otherwise you may have to manually edit the user's information first.

Note: *It is very important that the data in the "Fields included in input file" list is correct. Quantum Plus attempts to interpret the data it reads from the import file based on what it expects to see for a particular field. Although Quantum Plus performs validity checks on the imported data before adding it to the database, it is possible that some data may be misinterpreted, resulting in invalid user settings*.

Considerations When Importing Users

When importing user data, Quantum Plus verifies all names – default settings, building and door names, Timezones, etc. – contained in the input file before adding a new user or updating an existing one. Names are not case sensitive (for example, "Individual" and "individual" are the same thing) but spelling is important ("Research Building" and "Research Bldg" are not the same thing). A misspelled name in any field of the import line is enough to prevent Quantum Plus from processing the information for a user. At the end of the import process, Quantum Plus displays a report listing any problems it found in the import file – unknown door names, for example. It's usually enough to correct the error(s) in the input file, then re-do the import. Any users who were added correctly the first time the import was done will simply have their database records updated with the same information.

When adding a new user through the import function, Quantum Plus follows these steps:

- If the import information includes a default configuration name, those settings are loaded as a starting point for the user's information. If no specific default configuration is given, Quantum Plus loads the default configuration named "Individual".
- The default settings are replaced by specific information from the import file: ID, activation and expiration dates, etc.
- If there is any access information specified in the default settings, it is assigned to the user. If there is access information included in the import file, it is added to the information from the default settings.
- The user is assigned a keystamp number and added to the database.

When updating a user's information through the import function, Quantum Plus follows these steps:

- The user's existing database information is loaded.
- If the import file specifies a default configuration, the information from the defaults replaces the user's information read from the database.
- The user's information (activation and expiration dates, etc) is replaced by specific information from the import file.
- The user's access information is handled differently, depending on whether or not the ***Treat existing users as new imports*** box is checked:
    - If the box is checked, the user's existing access information is retained (as if it had been read from a default configuration), and any access information in the import file is added to the user's information. This is the most common usage, and allows user information to be correctly imported more than once (to correct errors in the import file, for example).
    - If the box is not checked, the user's existing access information is deleted, and then only the access information contained in the import file is assigned to the user. This setting could be used, for example, to add or delete doors for several users. The user access information would first be exported to a file, the file edited to remove the door(s) and/or add new doors, then the information re-imported. The access

information from the import file would completely replace the access information for all of the users in the file.

Import/Export Data Format

This section describes the format for each field in the import or export data file. These files are standard ASCII text files, and may be created or read by most spreadsheet, word processor, or database applications.

An import/export data file is a collection of records, each representing one user. A record may span several lines, depending on how much data it contains. Each line starts at the left column. If a record requires more than one line, each line except the last must have the character string "+++" at the end of the line, following the last data field on the line. (See examples below). Each line ends with an ASCII "carriage return, line feed" sequence.

Individual fields within the record are delineated by a separator character, specified in the **Field Separator** field of the Import Settings or Export Settings dialogs. The most common separator is a comma (CSV or "comma separated value" file), although other characters may be used, depending on the application reading or writing the data file.

Quantum Plus expects the data for each field to be in a specific format, and exports data in this format. It is the responsibility of any application creating a file to be imported into Quantum Plus to ensure that the data is formatted properly.

Every record in an import file must contain all of the fields specified in the "Fields included in input file" listing. Empty fields are allowed, however. An empty field contains no data -- Quantum Plus will use whatever the current default is for the field. Empty fields are indicated in the import file by two adjacent separator characters. For example, if the input format for a comma separated file includes "**Last Name, First Name, ID, Defaults, Activation Date**", the following input record is valid:

Smith,John,,,10/03/96

The record contains values for **Last Name** and **First Name**, no data for **ID** or **Defaults**, and a value for **Activation Date**.

When Quantum Plus first reads a record from an import file, it sets up default values for the user, either based on the Default group specified in the input record, or from Quantum Plus's *Individual* default group. The only information you need to include in the import record is data which is different from, or in addition to the default data. For example, if the default settings specify an activation and expiration date for the user, you do not need to repeat the settings in the input record for each user, unless the user's settings differ from the default. Note that you do have to include an empty field (described above) in each record that does match the defaults.

The following sections describe the format for each field.

Last Name, First Name, ID, Site-specific Fields

These are all standard ASCII strings. They may contain any character, including blanks, except for the separator character.

Default Group

This field names the default group for the user. The name must match the name in Quantum Plus's database exactly. If an import file does not contain a Default group field, Quantum Plus assigns default values to the user from the *Individual* group.

Activation and Expiration Dates

These fields specify the dates on which the user's key becomes valid or expires. Either or both fields may be included in the import/export record. They are ASCII strings in the form MM/DD/YY or DD/MM/YY or YY/MM/DD, depending on the date format you have selected for your site.

Timezones

This field lists all Timezones specified for the user. In the Horizontal keying system, the user may have 2 Timezones, in the Vertical system up to 8. Timezones are listed by name, with a ~ character following each name, including the last. An example Timezone specification would be: **1st Shift~2nd Shift~**

Access

The user's access is always the last information contained in the import/export record, since its length may vary greatly from user to user. The access fields should only specify controllers not included in the user's default group settings, or which have different Timezone settings than the defaults.

Each controller to which the user has access is listed as a separate field, followed by the separator character. The format of the information is *building~door@timezone*. The @timezone field is a number indicating which timezone in the list should be applied to the door. If the user's Timezone field is **1st Shift~2nd Shift~,** any controllers restricted to 1st Shift would have **@1** appended to the *building~door* name; any controllers restricted to 2nd Shift would have **@2**. The *@timezone* field is optional; if it is not included, the user will have access to the door at any time.

Example:

The user's Timezone fields are specified as **1st Shift~Office Hours~** . The user is authorized to enter "Research Front" at any time, "Research Lab 1" only during office hours (the second Timezone listed), and "Shipping Front" only during First shift (the first Timezone listed). The user's access fields would look like:

Research~Front,Research~Lab 1@2,Shipping~Front@1

Examples

This section shows some sample import/export records. For all examples, the list of fields included is:

Last Name
First Name
ID
Site Specific field 1 (Department)
Site Specific field 2 (Title)
Site Specific field 3 (Phone)
Default group
Activation Date
Expiration Date

Timezones
Access

The default group *Individual* grants access to "Admin Front", "Research Front", and "Shipping Front".

The default group *Shipping* grants access to "Shipping Front".

Example 1:

John Smith, ID #129323 has access to all doors in the Individual group, plus "Research Lab 1". His key is valid from January 1, 1996 until December 31, 1996. The import/export record for John would be:

Smith,John,129323,Research,Manager,x333,Individual,1/1/96,12/31/96,, +++ Research~Lab1

Note that since the record spans more than 1 line, the first line ends with +++. If the record were more than 2 lines long, then lines 2 through the next-to-last line of the record would end in +++. Also, since John's default settings come from the Individual group, that field could have been left empty. The following would also be valid for John:

Smith,John,129323,Research,Manager,x333,,1/1/96,12/31/96,, Research~Lab1

If the Individual group specifies a key's lifetime as being January 1, 1996 to November 31, 1996, John's record could be:

Smith,John,129323,Research,Manager,x333,,,12/31/96,, Research~Lab1

Note that you don't have to include John's activation date, since it matches the default setting, but you must include his expiration date since it is different.

Example 2:

Brenda Jones, no ID #, has access to "Shipping Front" only during first shift. Since the default group Shipping specifies access to "Shipping Front" without any time restrictions, you must supply Timezone information:

Jones,Brenda,,Shipping Team,Packer,,Shipping,,,1st Shift~,Shipping~Front@1

This line indicates that Brenda has no ID value, works in the "Shipping Team" department (field 1), has the job title of "Packer" (field 2), has no phone (field 3), gets all default settings from *Shipping*, has activation and expiration dates which match the defaults, has one assigned Timezone (1st Shift), and has access to one door, restricted to that Timezone.

Remote Key Programming

Some sites are spread out geographically. The headquarters may be located in one building, with other buildings some distance away, perhaps even in other cities. It is usually more efficient to maintain one Quantum Plus setup, with one site code, to allow users to have one key which can access doors at any of these sites.

Unfortunately, in this type of setup, it usually isn't convenient to have a single location for key programming and querying. When users have to come from miles

away to get new keys or to have their keys updated, the advantages of the INTELLIKEY system quickly evaporate.

To solve this problem, Quantum Plus supports key programming by means of a modem. This allows a site to have Key Processing Units (KPUs) located at remote locations. These KPU's are connected to a modem rather than to a PC, and the modem in turn connected to a phone line. The computer running the Quantum Plus software also has a modem by which it can communicate with the Remote KPU's.

When someone at a remote location needs a new key, or to have a key updated, or to have a key queried (a Controller Audit Key, for example), all they have to do is insert the key into the Remote KPU. The Quantum Plus operator uses Quantum Plus's Remote Key Programming functions to connect to the Remote KPU. Once connected, the operator can perform all of the standard key programming and query functions described under "Key Operations", just as if the key were inserted in a KPU connected to the Quantum Plus PC.

Note that this setup typically requires two phone lines between the central (Quantum Plus) location and the remote location. The first line is for voice communication, so the Quantum Plus operator can prompt the remote user when to insert or remove a key. The second line is for the modem connection between the Quantum Plus PC and the Remote KPU.

The functions to set up and modify the information needed for connecting to remote key programming sites are available from the **Utility** menu.

Adding a Remote Site

Select **Utility | Remote Key Functions | Add Site** to create a new remote site. Quantum Plus displays the Remote Site screen to allow you to enter the information for the site.

The only mandatory fields are *Site Name* and *Modem #*. The *Site Name* field specifies the name by which you will select the site for dialing or modifying, and must be unique. The *Modem #* field contains the phone number to connect to the modem at the site. Note that field contains only the phone number, and not any other modem codes, such as outside line or long distance codes. Modem control values are specified under the operator setup screen. (**Utility | Operators | Change**).

Connecting to a Remote Site

Before performing any remote key programming functions, you must first connect to the site. You must have entered the settings for one or more remote sites. See "Adding a Remote Site" below for how to add remote sites. Select **Utility | Remote Key Functions | Connect to Site** to call a remote site. Quantum Plus prompts you to select the remote site.

Select the appropriate name and select ***Ok***. Quantum Plus then calls the remote site and establishes connection with the KPU at the site. Once the connection is established, Quantum Plus displays a message box to this effect.

You can now perform any key programming or interrogation operation through the modem connection.

Disconnecting from a Remote Site

When you are finished with all remote key operations for a site, you must instruct Quantum Plus to disconnect from the site by selecting **Utility | Remote Key Functions | Disconnect**. If you attempt to exit from Quantum Plus while connected to a remote site, Quantum Plus automatically disconnects before closing.

Editing a Remote Site

Select **Utility | Remote Key Functions | Edit Site** to change the information for a remote site. Quantum Plus first prompts you to select the site. Double-click on the desired site, or scroll to the appropriate name and select ***Ok***. Quantum Plus then displays the Remote Site screen to allow you to change the information.

Deleting a Remote Site

Select **Utility | Remote Key Functions | Delete Site** to delete the information for a remote site. Quantum Plus first prompts you to select the site. Double-click on the desired site, or scroll to the appropriate name and select ***Ok***. Quantum Plus prompts you to verify that you want to delete the site; if you confirm the deletion, Quantum Plus removes the remote site from its list.

11Feedback

We want to hear from you

No software is ever complete or perfect. There will always be new features and improvements to make the product even better. Although the software is tested thoroughly, there will always be, unfortunately, a few bugs. (or, as one software developer calls them, "UFO's - Unintentional Features and Options").

We at INTELLIKEY want to provide you with the best products possible. The Software Feedback Form on the next page provides you with a method to let us know how we're doing. If you find a problem with the Quantum Plus software, or would like to see a feature added or enhanced to make your job easier, let us know.

Simply copy and fill out the Software Feedback Form, then send it to us:

Mail
INTELLIKEY Corporation
4325 Woodland Park Dr. Suite 102
W. Melbourne FL, 32904
Attn: Software Feedback

Fax
(321) 724-5695

If you have Internet access, you can fill out an electronic version of the form at INTELLIKEY's web site **www.intellikey.com .** Look in the **Support** section.

Make as many copies of the form as you need. We know you have lots of good ideas. The only thing we ask is that you limit yourself to one suggestion or problem report per form -- this makes our tracking process a lot easier.

Thank you again for selecting INTELLIKEY for your access control. Now let us know how we can serve you even better!

Software Feedback Form

One problem or request per sheet, please. And please type or print neatly.

Your Name	_____	Phone	_____
Site Name	_____	Fax	_____
Address	_____	Email	_____
	_____		

☐ Problem Report

Product _____ Version _____

Description of Problem (Please be as thorough as possible. Describe what you were trying to do, or expected to see, and what actually happened. Include any error messages that appeared).

☐ Feature Request

Product _____

What would you like to see added or changed?

For INTELLIKEY use

Log # _____ Date received _____

Disposition:

12Appendix A - Controller Signals

Controller Signals

During normal operation, the INTELLIKEY controller uses its built-in "beeper" to signal the result of various operations. These signals usually occur when a key is inserted.

Normal Operation

Signal	Meaning
1 long	Access is granted
2 long	Access is denied or the unlock period for a rotating cylinder has expired
1 long, 1 short	Guard Tour key. May be followed by 1 long if key is granted access to the lock.
1 short, (delay), 3 long	Disabler key
1 short, 1 long, 1 short	First key of dual-key pair inserted
4 short (after access)	Battery is low
1 short	Lock is unlocked during automatic unlock period and configured to remain unlocked.

Controller Audit Key

Signal	Meaning
1 short, series of "chirps", 2 short	Controller is loading audit information into key. The two short beeps indicate the operation is finished and the key may be removed.

Controller Update Key

Signal	Meaning
series of "chirps", series of "chirps" - different tone, 2 short	Controller is loading programming information into its memory. The two short beeps indicate the operation is finished and the key may be removed.

Shutout Key

Signal	Meaning
2 short	Lock is in shutout mode. Shutout key must be inserted again to return lock to normal mode.
1 short	Lock is in normal mode.

13Appendix B - Installing Quantum Plus

Installation

This section describes the installation process for the single-site or End-User version of Quantum Plus. If you are installing the Multi-Site version, refer to the separate *Multi-User Supplemental Manual* for installation instructions.

Quantum Plus uses the industry-standard InstallShield® technology in its setup program. If you have installed other Windows programs, you are probably familiar with InstallShield and its installation process. If not, the InstallShield setup program (referred to as *Setup* in the descriptions) walks you through the installation, prompting for each piece of information it needs, and allows you to move forward to the next step, or backward to change any previous entries.

In the current version of Quantum Plus, there is no option for running the program from a shared copy; you must install Quantum Plus on each computer in your system from which you wish to run the program.

Quantum Plus Database Setup

Quantum Plus stores its information in a database. The software supports two database configurations: single computer/local database and multiple computer/shared database.

In the local database configuration, Quantum Plus uses a Microsoft Access compatible database, created on the same computer running Quantum Plus. For this configuration, nothing else is needed; Quantum Plus contains everything it needs to create and maintain the database. This configuration would be used when the software will be run on one computer only.

In the shared database configuration, Quantum Plus uses a server based database such as Microsoft SQL Server, or the SQL Server Desktop Edition (MSDE). MSDE is free, and is available from the Microsoft website www.microsoft.com. This configuration would be used in situations where more than one computer will be running the Quantum Plus software. The installation and configuration of the MSDE software is beyond the scope of this manual. Refer to Microsoft's documentation for details.

To use Quantum Plus with SQL Server or MSDE, some database setup is required. If the server is using Windows authentication, then no setup is needed, other than supplying the name of the computer running SQL Server when prompted the first time Quantum Plus is run.

If the server is using SQL Server authentication, you must create the databases, and add a login/user with access to them:

- Create two databases, one named “QPROG”, and the other named “QSITE01”.
- Create a login with full access and privileges to both databases

There is a script file included in the Quantum Plus installation – DBSETUP.SQL – that creates the databases and creates a user with a login and password of “quantum” that has access to both databases.

The first time Quantum Plus is run on each computer, it prompts you for the database server information.

Running Quantum Plus on Networked PC's

Quantum Plus allows operation in a networked multi-user environment, in which several operators may be performing different functions -- adding users, editing doors, issuing keys -- at the same time. Quantum Plus keeps track of who is doing what, and prevents two operators from trying to change the same piece of information (such as the list of doors for which a key is authorized) at the same time. In this configuration, the Quantum Plus database must be set up as “shared” on a database server.

Installing Quantum Plus

Whether you are installing Quantum Plus for the first time, or are updating to the latest version, the first part of the installation process is the same. This involves running the InstallShield setup program to copy the new Quantum Plus files to your hard drive. Then, the first time you run Quantum Plus, it will complete any steps necessary for installation.

Note: If you are updating an existing copy of Quantum Plus or are upgrading from an earlier INTELLIKEY program, you are <u>STRONGLY</u> advised to backup your data files with the existing version before installing the new Quantum Plus. The installation program and subsequent file update functions have been thoroughly tested, but there is always the chance of something unexpected happening. It is much easier to restore files from a backup than to recreate lost data. (One corollary to Murphy's Law states that the probability of losing data is directly proportional to the difficulty of reproducing it).

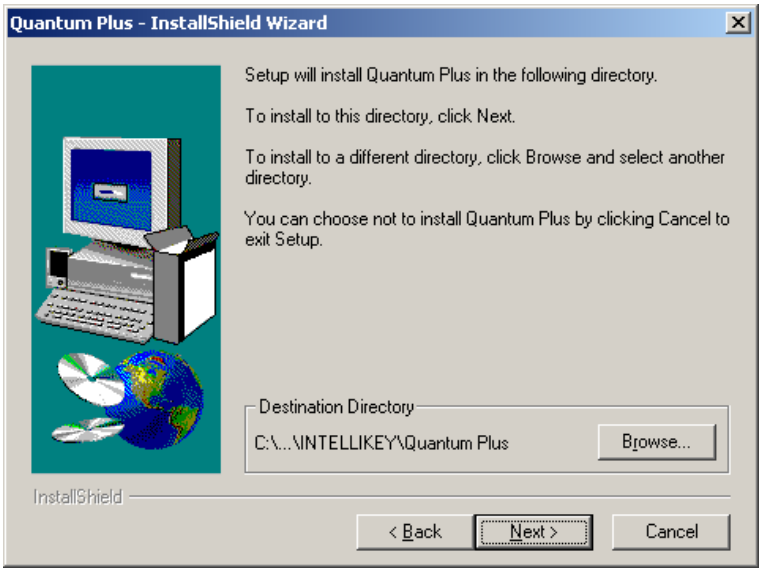
To install Quantum Plus from a CD, simply insert the CD into your computers CD drive. If auto-run is enabled for the drive, the setup program will start automatically. If auto-run is not enabled, open *My Computer*, select the CD drive containing the installation CD, then select the *Setup* icon.

You can also find the latest version of Quantum Plus at the INTELLIKEY website: **www.intellikey.com**. Select the **Support** option, then follow the links to the software downloads page. To run the installation program directly from the website,

click on the appropriate link; to download a copy of the installation program, right click on the link, select **Save Target As …**, and specify a location on your computer to save the installation file. Run the downloaded program to install Quantum Plus.

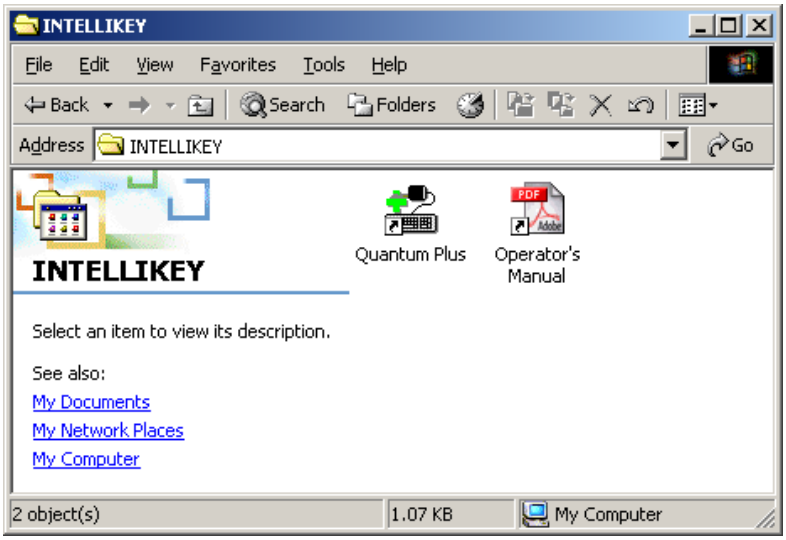
The InstallShield setup program will prompt you for various pieces of information. Follow the instructions presented on each screen, and enter the appropriate values. In general, you should use the default settings provided by InstallShield.

The only value you might typically change is the drive on which to install Quantum Plus:



Setup will default to installing Quantum Plus on your hard drive. If you plan to have several users sharing Quantum Plus over a Local Area Network, you should change the drive letter to match the shared network drive from which everyone will be able to access the program. Select ***Browse*** and change drive letter (J:, for example). Refer to the section on Quantum Plus Database Setup for information on installing Quantum Plus on a shared drive.

After installation, you can run Quantum Plus by selecting its icon in your **INTELLIKEY** group:



Running Quantum Plus for the First Time

The first time Quantum Plus runs, it finishes up the installation process. The steps involved in finishing the installation depend on whether you are a new end-user who has never had an INTELLIKEY product installed on your computer, or are upgrading an existing Quantum or EZ123 installation to Quantum Plus. If you are upgrading from an earlier software package, Quantum Plus will be able to use the configuration information from the earlier program; if you are a new user, you will have to supply the information.

Refer to the appropriate section below, based on what type of installation you are performing:

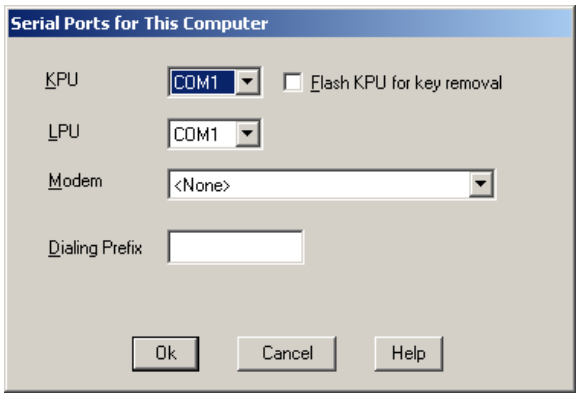
New Installation	You are installing Quantum Plus for the very first time, and have never had any INTELLIKEY products installed
Upgrade From Earlier Version	You are installing Quantum Plus for the first time on a computer that has an earlier version of Quantum or EZ123 installed
Additional PC	You have already installed Quantum Plus on another computer, and have set up the shared database. You can use this option whether you installed Quantum Plus as a New Installation, or as a Upgrade From Earlier Version.
Reinstallation/Moving	You are reinstalling Quantum Plus on a computer or are moving it from one computer to another. You must have performed a backup from the previous installation and have the backup file available.

New Installation

Before running Quantum Plus for the first time, you will need the following:

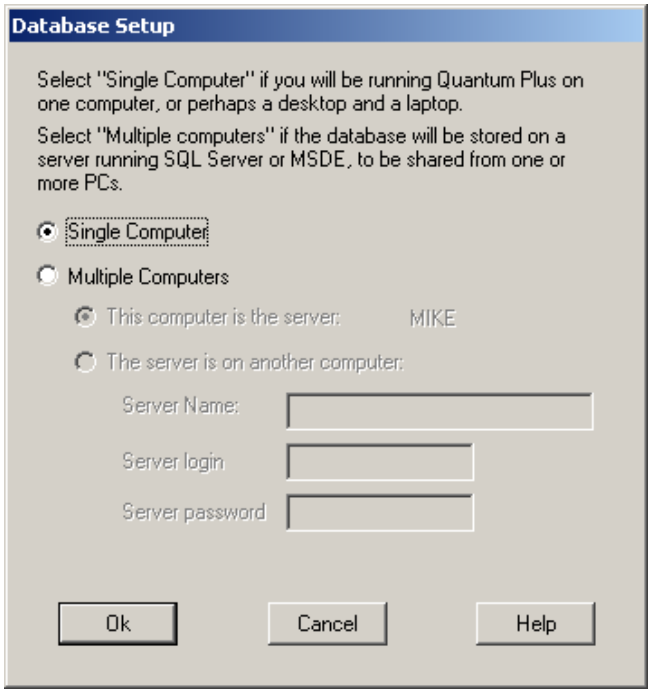
- A KPU unit, connected to a communications port (COM1 – COM9) on your computer, and plugged into its power supply. You may verify that the KPU is operating properly by pressing the Reset button on the back. The light on the front of the KPU should glow orange for about 2 seconds, flash green twice, then go out.
- A SiteCode Key, programmed with site code information.

Quantum Plus will first prompt you to specify the serial ports to be used to connect to your programming devices:



These settings can be changed later; for installation, the important setting is the KPU port.

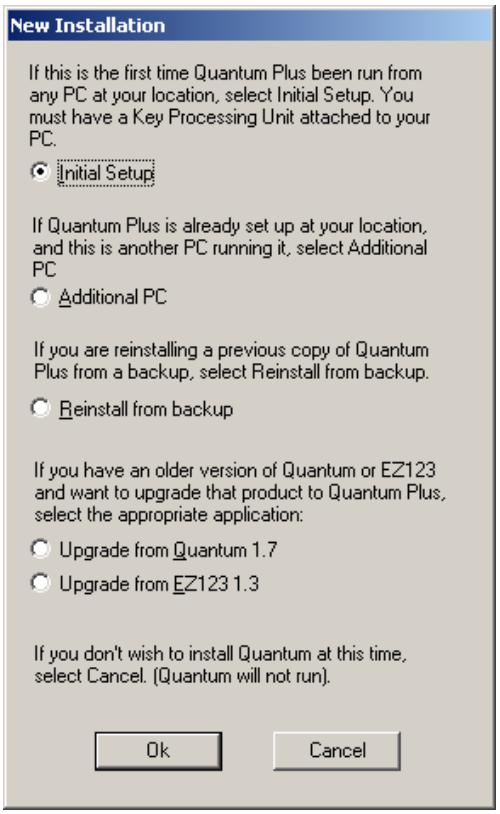
Next, Quantum Plus asks you for information on your database setup.



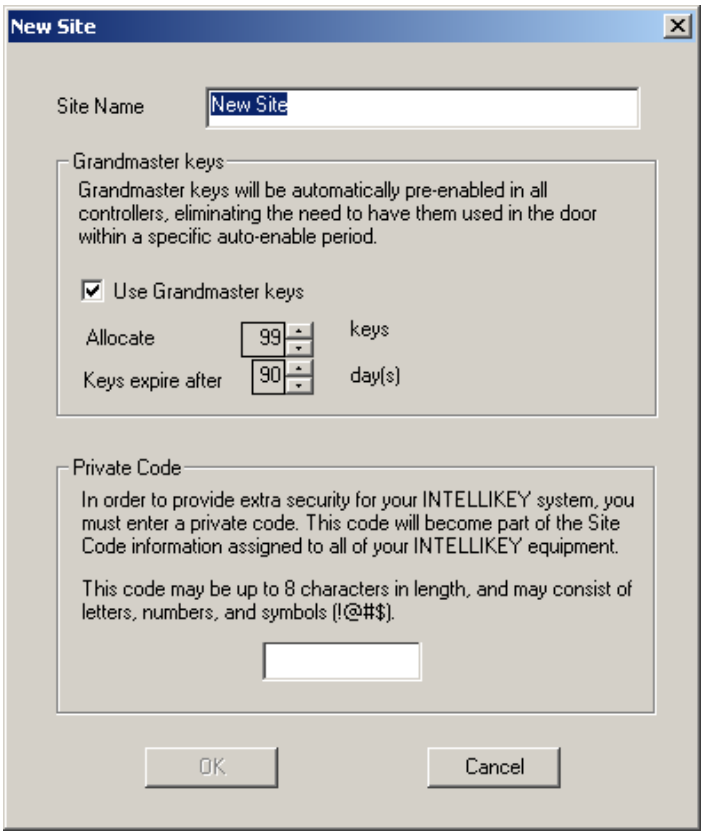
If the database will be maintained by SQL Server or MSDE, select the *Multiple Computers* option. If SQL Server is running on the same computer as the Quantum Plus software, select the *This computer is the server* option. If SQL Server is running on another computer, select *The server is on another computer* and supply the name of the computer.

If the SQL Server is using Windows authentication, don't fill in the Server Login or Server Password sections. If the SQL Server is using SQL Server authentication, fill in the login name and password of an account that has access to the QPROG and QSITE01 databases created earlier. (The login and password will both be "quantum" if the DBSETUP.SQL script was used to set up the databases).

Next, Quantum Plus asks for the type of installation you will be performing:



Select Initial Setup. Quantum Plus next asks you for some information about your site:



Fill in the appropriate information:

Site Name — A descriptive name for your site. This name will be displayed at the top of your Quantum Plus window, and on all reports. You can change this information later using the Site Setup function.

Grandmaster Keys — Grandmaster Keys are automatically enabled in all controllers, and would typically be issued to security or maintenance personnel. You must elect to use the Grandmaster Key function, and select how many keys to reserve as Grandmaster Keys now.

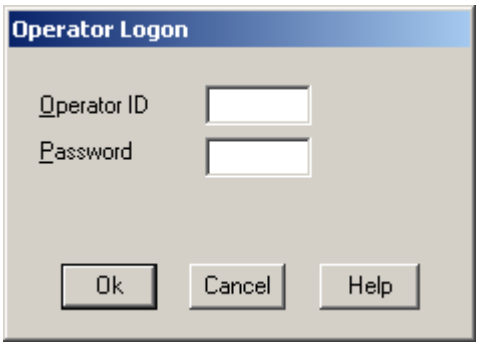
Note:You cannot enable the Grandmaster Key feature after you leave this screen, so if you don't enable it now, you will not be able to use this feature in the future. Also, the number of keys you reserve as Grandmaster Keys will be set permanently; you won't be able to change it later, either.

Private Code — This allows you to create a Site Code whose entire contents are known only to you. This prevents anyone else from creating keys which will be able to access your site. Enter a code, up to eight characters long, then select Ok.

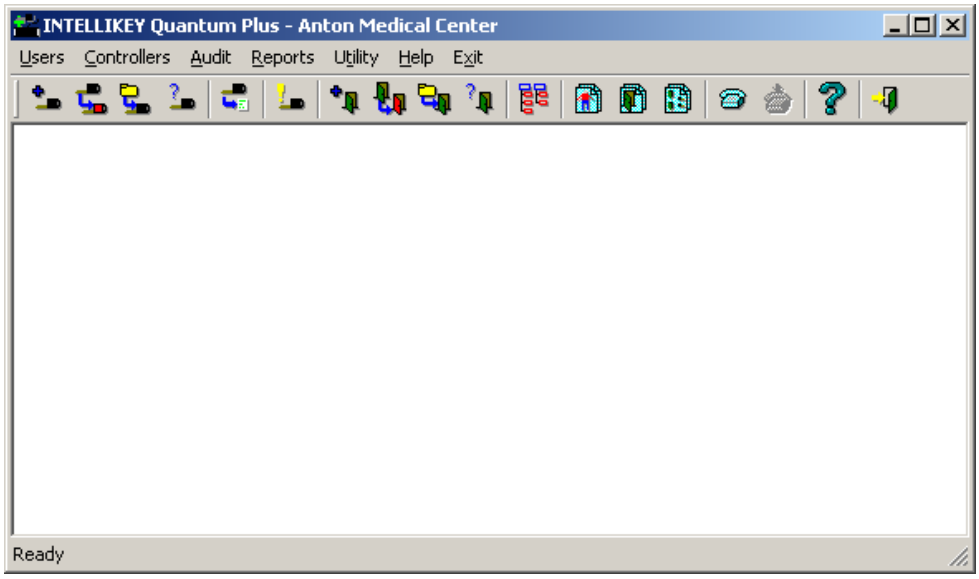
Quantum now asks you to insert your blue SiteCode key into the KPU. When you insert the key, Quantum Plus reads the site code information from the key, creates

its initial database files, then prompts you to remove the SiteCode key. At this point, the site code information in the key has been erased; the key cannot be used again.

You are now ready to log in to Quantum Plus for the first time:



Enter **1234** for both the Operator ID and Password, then select OK. This should now bring you to the main Quantum Plus screen:



At this point, you should finish configuring your software. The chapter on "Utilities" contains details on each of these operations.

- Enter site specific information such as which Quantum Plus features you will be using, Daylight Settings Time adjustments, holidays, and optional field information. (**Utility | Site Setup**).

- Create user and controller groups, based on your system access control design. (**Users | User Groups | Add** or **Controllers | Controller Groups | Add**)

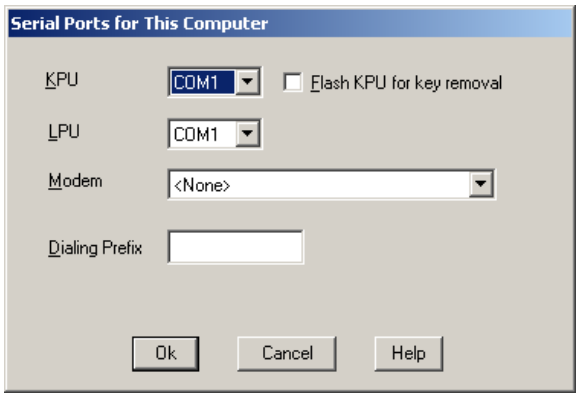
- Create additional operators, with specific rights as to which operations they may perform, and which user and controller groups they have access to. (**Utility | Operators | Add**)

This ends the installation process for a new installation

Upgrade from Earlier Version

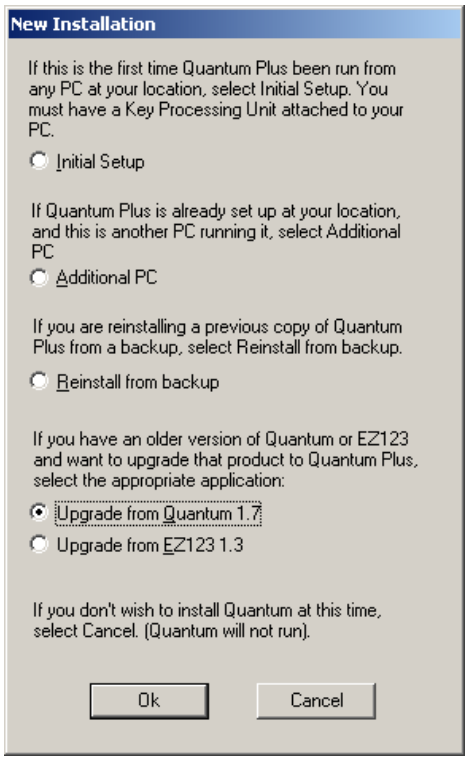
If you already have an earlier version of Quantum or EZ123 installed, the first time you run Quantum Plus it will copy your database information into its own database (the original data files are left unchanged). This process can take anywhere from a few minutes to a couple of hours, depending on the speed of your computer, and the size of your data files. When this process is complete, Quantum Plus is ready to use.

Quantum Plus will first prompt you to specify the serial ports to be used to connect to your programming devices:



Next, Quantum Plus asks you for information on your database setup. Enter the appropriate configuration information. An upgrade can be installed in either local or shared database configuration, depending on how the software is to be used.

Next, Quantum Plus asks for the type of installation you will be performing:



Select *Upgrade from Quantum 1.7* or *Upgrade from EZ123 1.3*, as appropriate. Quantum Plus then prompts you for the location of the existing Quantum or EZ123 database files. The default location that Quantum Plus selects is usually correct, you should typically only need to change it if you have the earlier software installed in a non-standard configuration.

After you specify the location of the earlier database, Quantum Plus performs its conversion routine to get the information into its own database. This can take anywhere from a few minutes to a couple of hours, depending on the size of your site and the speed of your computer.

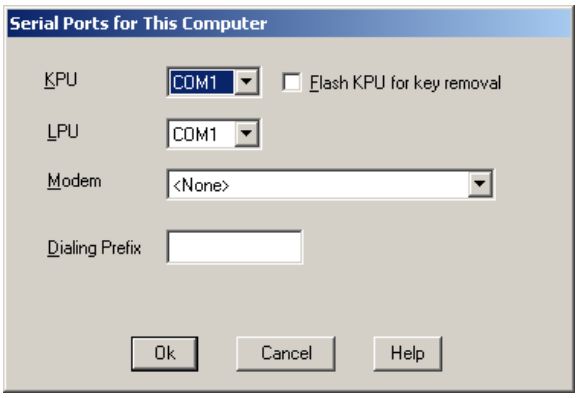
When the conversion is complete, Quantum Plus displays the operator login screen. Use the same login you used for the earlier software.

This ends the installation process for an upgrade installation

Additional PC

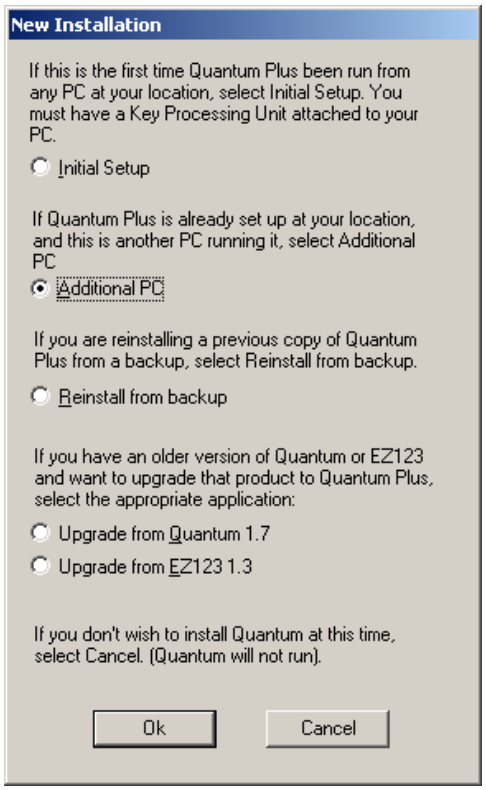
Before running Quantum Plus for the first time, you must have installed and run it on another computer to set up the shared database.

Quantum Plus will first prompt you to specify the serial ports to be used to connect to your programming devices:



Next, Quantum Plus asks you for information on your database setup. Enter the appropriate settings.

Next, Quantum Plus asks for the type of installation you will be performing:



Select Additional PC.

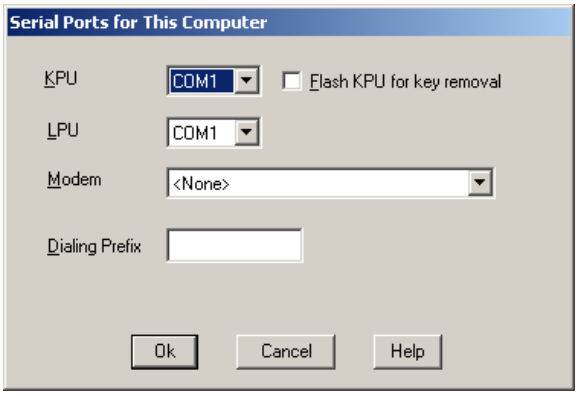
You are now ready to log in to Quantum Plus. Enter the Operator ID and Password created for you by the System Manager, then select OK. This should now bring you to the main Quantum Plus screen.

This ends the installation process for an additional PC

Reinstallation/Moving

You can reinstall Quantum Plus, or move the program to another computer if you have a backup of the database information available.

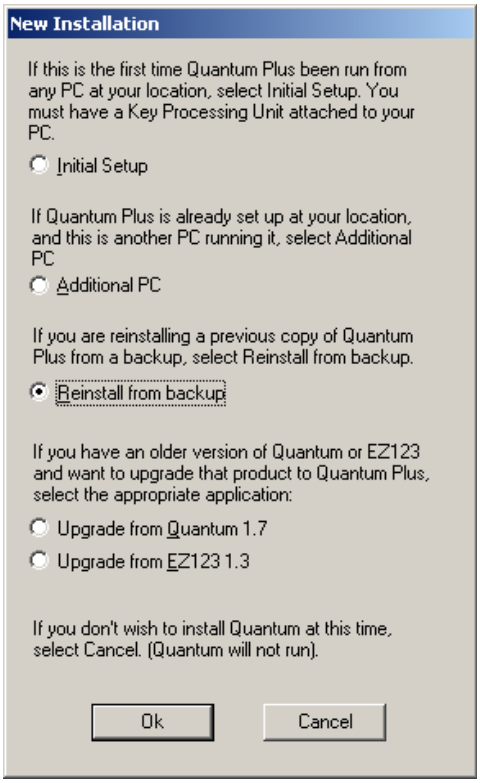
Quantum Plus will first prompt you to specify the serial ports to be used to connect to your programming devices:



These settings can be changed later; for installation, the important setting is the KPU port.

Next, Quantum Plus asks you for information on your database setup. Select the appropriate configuration.

Next, Quantum Plus asks for the type of installation you will be performing:



Select *Reinstall from backup*. Specify the location of the backup created by the previous installation. Quantum Plus then loads its database with the information from the backup file. You are now ready to log in to Quantum Plus using your login information from the previous installation.

This ends the installation process for a reinstallation

14Appendix C – Import File Format

15Glossary of Terms

Anti-Passback

Prevents a key from being used twice in succession in the same controller. The key must be used in another controller first.

audit trail

A list of access information, including location, date, and time, stored in the memories of INTELLIKEY keys and controlles.

automatic enable period

The time period during which a key will be authorized into a controller the first time it is used in the controller. This feature eliminates the need to update individual controllers when new users and keys are added to a site.

Backup

To make a copy of your data files, which can be used to restore your information in case something happens to the original copy.

Controller Audit Key

A key configured to read audit information from a controller.

Controller Update List

A list of controllers whose user access information is out of date as a result of changes to users.

Copy number

Part of the INTELLIKEY masterkeying system which distinguishes individual copies of a key from each other. The controller maintains a table of which copies are authorized.

Dealer Function Key

A special INTELLIKEY key which authorizes Quantum Plus to perform special functions required by dealers.

Defaults

The values initially configured for a user or controller.

Dual-key mode

A controller operational mode in which two specific keys must be inserted within 15 seconds of each other to operate the lock.

Emergency key

A key which overrides certain security functions.

Fixed cylinder

An electronic cylinder which functions as a key reader only. The key is inserted into the cylinder, but not turned.

IACS

INTELLIKEY Access Control System. IACS was a DOS-based ancestor of Quantum Plus.

Issue receipt

A form indicating to whom a key was issued, and the controllers for which the key is authorized. The receipt will be printed when a key is issued or updated. The Key Print Ticket Menu item turns this function on and off.

LAN

Local Area Network.

Online

Connected to the IntelliNet network

Relock mode

In Relock Mode, the controller automatically secures the locking mechanism after a selectable period of time.

Rotating cylinder

An electronic cylinder which activates a mechanical locking mechanism.

Site Code

A digital code which identifies the keys, controllers, Pathfinders, Lock Programming Units, and RAK's at a site. This information is loaded into the memory of each device and must match before the devices are able to communicate with each other.

Toggle mode

In Toggle mode, the controller alternates the locking mechanism between locked and unlocked as keys are inserted.

User Activity Log

A file containing audit trail information recorded from user keys, controller audit keys, and querying controllers. The file contains a list of dates and times various users accessed controllers.

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