

R A D I O N I C S

READYKEY® K6100-SS Network Controller

Installation Manual

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Radionics, Inc.
Technical Writing Department
1800 Abbott Street
Salinas, California 93901

FCC Notice

This equipment generates and uses radio frequency energy. If not installed and used in accordance with the manufacturer's instructions, it may cause interference to radio and television reception. It has been tested and found to comply with the specifications Subpart F of Part 15 of FCC rules for Field Disturbance Sensors. If this equipment causes interference to radio or television reception - which can be determined by turning the equipment on and off - the installer is encouraged to correct the interference by one or more of the following measures: 1) Reorient the antenna of the radio/television, 2) Connect the AC power cord to a different outlet so the control panel and radio/television are on different branch circuits, 3) Relocate the control panel with respect to the radio/television.

If necessary, the installer should consult an experienced radio/television technician for additional suggestions, or send for the "Interference Handbook" prepared by the Federal Communications Commission. This booklet is available from the US. Government Printing Office, Washington DC. 20402, stock no. 004-000-00450-7.

FCC Registration Number: IDHM32Y6K2000

UL Listings

UL 294 - Access Control System Units

UL 1076 Proprietary Burglar Alarm Systems

Table of Contents

About this document	1
Single Site	1
Other Documents	1
Margin Notes.....	1
Description	2
Internal Settings	3
Single Site Network Controller - 128 doors	4
Specification	5
Dimensions	5
Power Requirements	5
Cables Supplied	5
 <i>K6100-SS Network Controller</i>	
Features	6
Front Panel Display	6
Installation	8
Relay Outputs	8
Six-Wire Bus	10
Appendix A	12
Readykey Equipment	12

About this document

This manual describes the installation of a K6100-SS Central Network Controller and the various communication options available. The K6100-SS allows Readykey door controllers to be administered from a central PC (personal computer). The central PC will be running Readykey administration software such as the K6000-SS MS-DOS system or Readykey for Windows™.

Windows is a trademark of Microsoft Corporation

Single Site

The Single-Site K6100-SS will allow up to 32 door controllers to be connected locally on the Readykey six-wire bus.

The system is administered from a PC running K6000-SS or K6100-SS Readykey for Windows software.

Other Documents

This document should be used in conjunction with the following other documents:

Door Controllers

K2100 / K1100 Installation Manual

Administration Software

K6000 Installation Manual

K6000 User Guide

K6100 Readykey for Windows Installation Manual

K6100 Readykey for Windows System Overview

Margin Notes

Throughout the manual wherever there are specific items referring to particular administration systems or particular models of door controller, a margin note will highlight the fact. For example:

K1100

A note specific to the K1100 2-door controller.

K6000-SS Readykey for Windows

Whenever something applies to a particular administration system...

... such as Readykey for Windows.

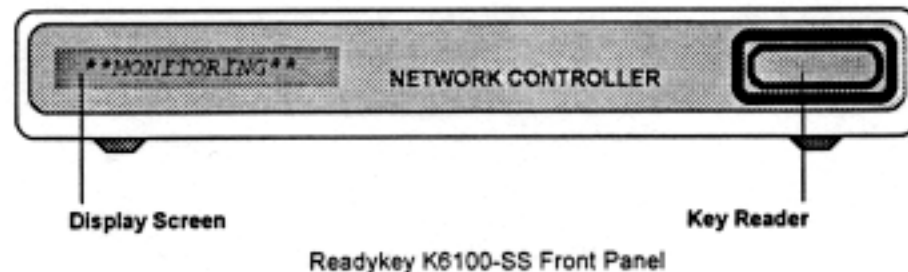
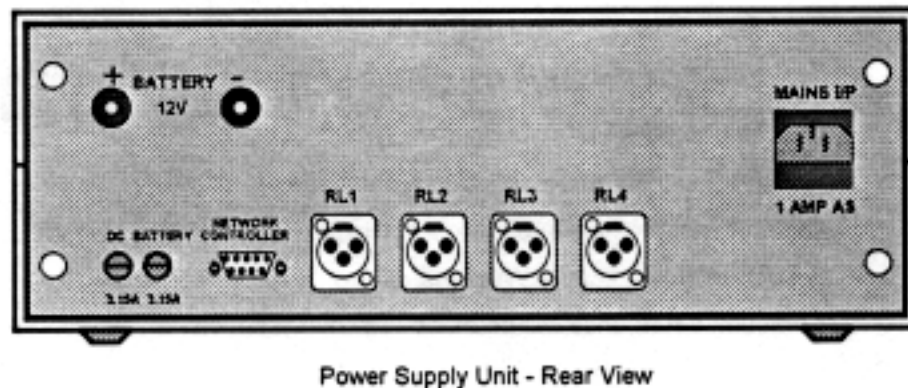
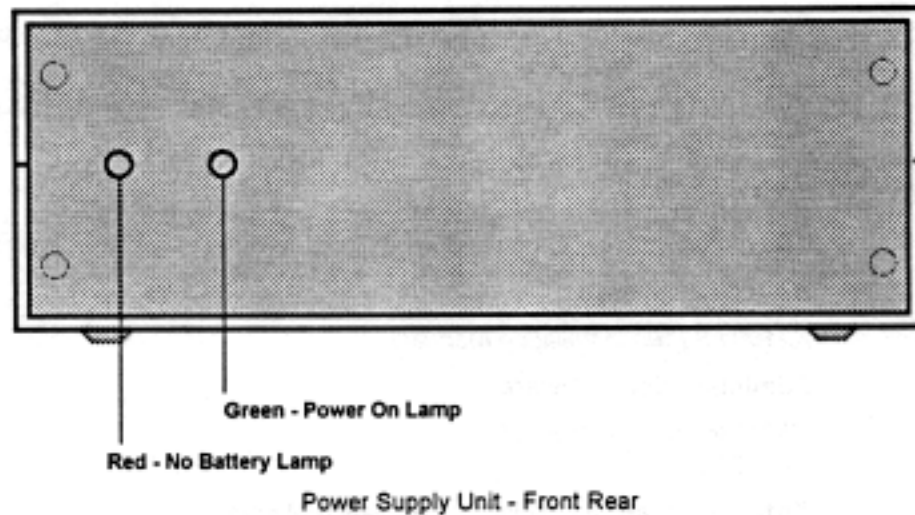
K2000-N

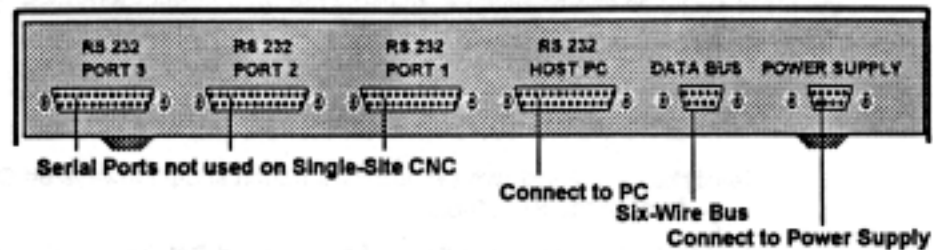
Sometimes reference will be made to earlier products.

Description

The Readykey K6100-SS is flat, steel enclosed unit ideally suited to being mounted between a PC system unit and the PC monitor. Power is provided to the K6100-SS by a separate power supply unit, supplied with every K6100-SS, which also contains four relay outputs.

The front of the K6100-SS has a 16 character display where system messages are displayed, and a key reader for key administration and alarm acceptance. The rear of the controller has six ports; power, six-wire bus, host PC used by both types of K6100-SS and 3 serial ports which are not used by the Single-Site version.

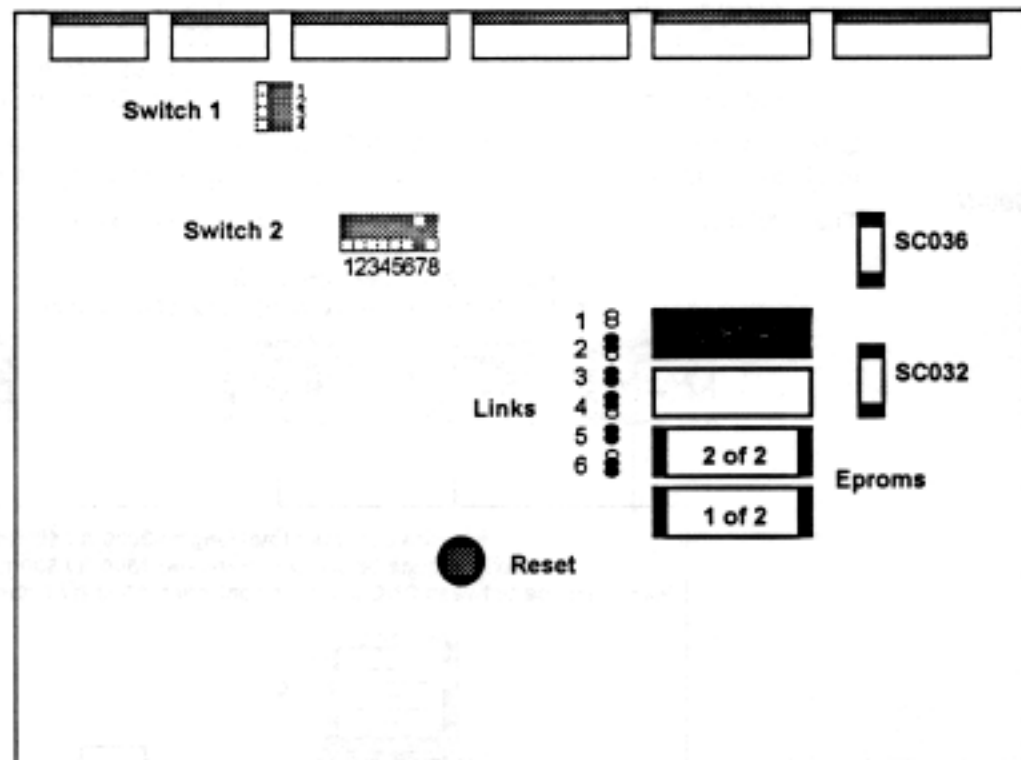




Readykey K6100-SS Rear Panel

Internal Settings

You should not need to remove the lid of the K6100-SS unless upgrading the software, or setting the communications baud rate. The electronics are contained on two circuit boards, one large board contains the power supply, EPROM software and all the external connections. A smaller board is connected, via a short ribbon cable, that contains the display, a sounder and the administration reader.



K6100-SS - Internal Components

Switches

There are 2 sets of switches on the main circuit board:

Switch Block 1 - Bus Termination

The 4 switches on this block should always be set ON, that is to the left when viewed from the front of the K6100-SS.

Switch Block 2 - Feature Selection

All these switches should be OFF, towards the front of the K6100-SS, except for:

Switch 7 - Baud Rate.

K6000-SS systems (19200) : This switch should always be ON, towards the back of the K6100-SS.

Readykey for Windows (9600): This switch should always be OFF, towards the front of the K6100-SS.

Switch 5 - Internal Sounder. When switched ON this switch inhibits the internal sounder when alarms are received, but the PC is Off-line.

Links

All links should be in the configuration shown in the diagram above.

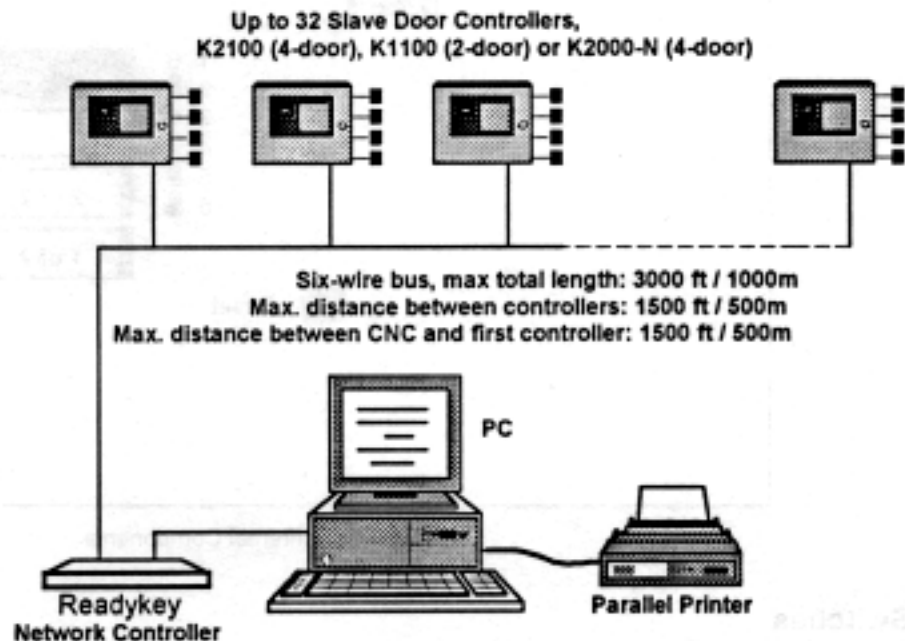
Single Site Network Controller - 128 doors

Maximum Number of Personnel	9999
Maximum Number of Visitors	750
Maximum Number of Doors	128
Access Codes	128
Time Profiles	32
Editors	32 (plus Master)
Extra Alarm Points	32 per Door Controller

Using a Single Site K6100-SS and K6000-SS or Readykey for Windows 128 software, up to 32 door controllers, all configured as slaves, are connected using the six-wire bus.

K2000-N

The K2000-N door controllers may be used as slaves on the six-wire bus.



System Diagram - Single Site Network Controller

Specification

Dimensions

In both cases below at least 4 inches / 100mm clearance should be allowed behind each unit for cables and connectors.

K6100-SS

Length x Width x Height 15.0 x 13.8 x 2.3 ins / 380 x 350 x 57 mm

Power Supply Unit

Length x Width x Height 10.7 x 13.6 x 5.0 ins / 270 x 345 x 125 mm

Power Requirements

Input Voltage	240v AC or 110vAC (different versions supplied) 20mm 1.0 Amp time delay fuse in mains socket
Battery Output	13.8v DC at up to 370mA 20mm 3.15 Amp fast-blow fuse, on rear panel
Current Consumption	K6100-SS 12v DC @ 920 mA 20mm 3.15 Amp fast-blow fuse, on rear panel

Cables Supplied

Mains supply

One mains lead is supplied with a molded mains plug and 1.5m of cable. A standard molded IEC socket connects to the rear of the power supply unit.

Power Supply to K6100-SS

One lead with 8 ft / 2m of cable is used to connect the power supply to the K6100-SS. A male 9-pin D-type connector fits to the power supply, a female 9-pin D-type connector fits to the K6100-SS.

K6100-SS to PC

Two cables are supplied, both 8 ft / 2m long with a male 25-pin connector at one end to connect to the K6100-SS 'Host PC' port. One cable has a female 9-pin D-type connector, the other a female 25-pin, D-type connector. You only need to use the cable that connects to the appropriate serial port on you PC.

For full details of connecting the PC see:

K6000 Installation Guide

or:

Readykey for Windows Installation Manual

Six-wire Bus

A short length of cable is supplied with a male 9-pin D-type connector at one end, the other end is unterminated. If using the six-wire bus then use this cable to connect to the K6100-SS.

Features

Front Panel Display

At various times messages will appear on the K6100-SS display screen. This display screen consists of 16 green, LED segment characters. When a message is too long to fit on the display it will scroll past in a 'ticker tape' fashion. Some messages are accompanied by an audible bleep, especially alarms. All the messages have a priority given to them which determines which will be displayed when more than one condition exists that would generate a message.

The highest priority message is the **CLOCK SYNC** message followed by the alarm messages. The lowest priority is the **MONITORING** message which signifies nothing to report. In the descriptions of each message the following code is used to describe parts of the message:-

Snnn	Site Number, nnn=001 for a Single Site K6100-SS
Dnnn	Door Number, nnn=1-128
D/Cnn	Door Controller Number, nn=1-32
IDnnnn	Personnel ID Number, nnnn=1-9999

Clock Synchronization

**** CLOCK SYNC ****

This message is displayed for 6 seconds with the sounder pulsing and can occur on one of two occasions. The first being when 'Synchronize System Clocks' is selected by the user to force the K6100-SS and door controllers to be synchronized to the PC clock. The other occasion is when this occurs automatically at midnight and midday. All door controllers are immediately synchronized if they are connected.

Prioritized Messages when PC On-Line

Priority 1 - Buffer Full

****BUFFER FULL****

This message appears when the K6100-SS has only room for 1000 transactions left in its internal memory. This will occur if the PC is left disconnected for a long time. The length of time depends entirely on the rate transactions come into the K6100-SS from the Door Controllers. The message will clear when the K6100-SS has room for 1100 transactions.

Priority 2 - Updates

SITE nnn*nnnnn

This display indicates that the K6100-SS is storing updates waiting to be sent to a site. This display will usually appear either when a large amount of data is sent to a site, such as during a download.

- During a download the number of updates will increase rapidly. When all the data has been transferred from the PC to the K6100-SS the number will decrease more slowly.

Priority 3 - Monitoring

**** MONITORING ****

This message means that the PC is connected to the K6100-SS, there are no errors reported in the communications links to the door controllers and there are no alarms waiting to be acknowledged.

Prioritized Messages when PC Off-Line

Note: that the PC will be unable to accept alarms when doing transaction analysis, creating download files and some other tasks. Therefore while the PC is performing these tasks alarms and communication errors may appear at the K6100-SS.

When they do occur all the following messages will be accompanied by a bleep which will remain until acknowledged with a valid Editor key. Even though the alarm is acknowledged at the K6100-SS it will need to be acknowledged again when the PC is running the administration system again.

Priority 1 - Alarms

Snnn Dnnn UNAUTHORIZED ACCESS

Snnn D/Cnn ANTI-TAMPER

Snnn Znnnn ZONE ALARM

Snnn Dnnn IDnnnn DURESS ALARM

Priority 2 - Comms Errors

Snnn D/Cnn ERRnn

This indicates an error in the communications link between the K6100-SS and a Door Controller. In this case **ERRnn** represents the error number. E.g. **S001 D/C03 ERR03**. Error numbers currently displayed are 01, 02 and 03. If there is more than one error at any one time then the display will show each in turn, allowing 3 seconds for each message.

Priority 3 - Buffer Full

****BUFFER FULL****

See the description in *PC On-Line* above.

Priority 3 - PC Off-line

**** PC OFFLINE ****

The PC is switched off, is not running the administration program or there is a fault in the link between the PC and K6100-SS. This may also be displayed if the PC is running a lengthy transaction analysis, starting a download, in the System Configuration section or some other tasks which mean it cannot also communicate with the K6100-SS.

Priority 4 - Updates

SITE nnn*nnnnn

See the description in *PC On-Line* above.

Installation

Two cables are supplied that connect the K6100-SS to the PC. Both have a 25 pin D-type male connector for fitting to the K6100-SS Host PC port. At the other end one of the cables has a 9 pin female connector, the other a 25 pin female connector. Two cables are provided to allow for the different ports provided on PCs, either a 9 pin or 25 pin male.

K6000-SS

The K6100-SS must be connected to the PC's COM1 port. If your PC has only one serial port, this will be COM1:. If there is more than one serial port then you should determine which is COM1:.

Readykey for Windows

You can use either serial port of the PC, COM1: or COM2:. When Readykey for Windows is installed the default serial port for the Master Controller is COM2:. Therefore use COM2: unless you wish to change the port from within Readykey for Windows.

K6100-SS, Host PC Port		PC	
25 pin male D-type connector		9 pin female D-type connector	
RX	2	3	TX
TX	3	2	RX
CTS	5	4	DTR
GND	7	5	GND
DTR	20	8	CTS

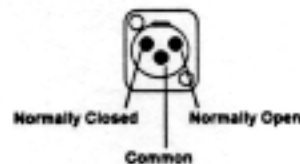
K6100-SS, Host PC Port		PC	
25 pin male D-type connector		25 pin female D-type connector	
RX	2	2	TX
TX	3	3	RX
CTS	5	20	DTR
GND	7	7	GND
DTR	20	5	CTS

Relay Outputs

Readykey for Windows

Important: these relays are not supported by Readykey for Windows.

4 Relay outputs are provided at the rear of the power supply unit. These are rated: 1 Amp @ 12v, 4 plugs are provided.



PSU Relay Connections

Each relay will activate when any of the events below occurs. Each relay will stay active until all occurrences of the event are cleared.

Important: The PC must be on-line in order for the relays to operate. No relay operation will occur if the PC is not connected to the K6100-SS and running K6000 administration software.

Six-Wire Bus

The six-wire bus is the Readykey proprietary communications format for local connection of door controllers. It uses up to 3000 feet / 1000m of standard unscreened signal cable to connect door controllers. No single length of cable should be longer than 1500 feet / 500m.

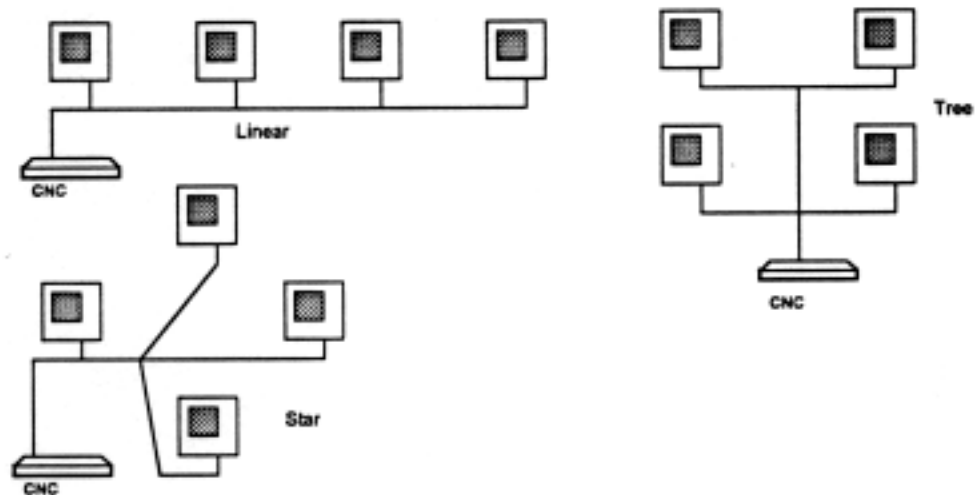
Cable Specification

Use multi-stranded, unscreened alarm or signal 6-core cable.

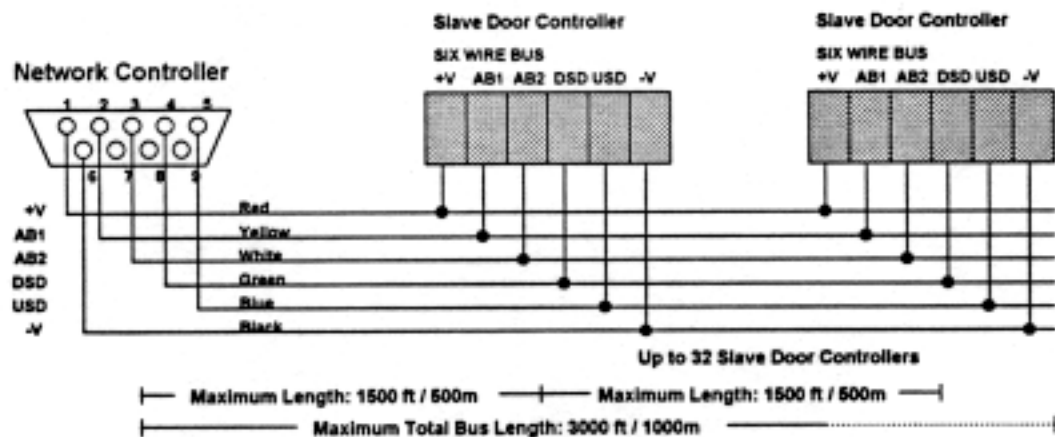
Up to 500m / 1500 ft: 0.22mm² / 24 AWG

If you do use screened cable then you should reduce the maximum distance by 3 times, that is to 1000 feet / 350m maximum.

The cable can be arranged in any pattern, straight line, star etc. as long as the total amount of cable does not exceed 3000 ft / 1000m, and no single length is longer than 1500 / 500m.



Possible Six-Wire Bus Wiring Configurations



Six Wire Bus Wiring - K6100-SS to Door Controller

Contact Rating		12v DC @ 1 Amp
Operation:	Relay 1	Door Left Open
	Relay 2	Unauthorized Access Alarm
	Relay 3	Zone Alarm (PAC Alarm Module)
	Relay 4	PIN Reader Duress Alarm
Terminals:	Each relay	Normally Closed, Common, Normally Open



Addresses

The six-wire bus works by each door controller having its own unique address. The order in which door controllers are addressed does not matter, neither do they have to be numbered consecutively. Depending on the type of administration the following are possible:

Single-Site Network Controller

Up to 32 slave door controllers, addressed 1 to 32.

Types of Door Controller

Slave door controllers may be:

- K2100 (4-door) set to System Type 3
- K1100 (2-door) set to System Type 3
- K2000-N

Setting the Door Controller Address

See the *K2100/1100 Installation Manual* for details on how to set a door controller's address.

Programming the System

See the *K6000 Installation Manual* for details on commissioning and programming the K6000-SS system.

Appendix A

Readykey Equipment

Network Controllers

K6100-SS Readykey for Windows 128 Door

K6000-SS with Single-Site K6100-SS



Radionics™

T H E Q U A L I T Y L E A D E R

Radionics, Inc., 1800 Abbott Street
P.O. Box 80012 Salinas, California 93912-0012
Technical Support: (800) 538-5807

Radionics, 1 Park Gate Close, Bredbury
Stockport, Cheshire, SK6 2SZ, England
Technical Support: (061) 494 0851

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