

PXL-100: SMART ENTRY CONTROLLER

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Related Document List

Each of the following products has a Quick Start Guide associated with it. Please refer to them when installing other Keri systems networkable access control products. A list is provided below for reference.

OB-1	01814-001	OB-2	01814-002
OB-3	01814-003	OB-7	01814-007
OB-9	01814-009	OB-100	01814-100
KDF-3E	01815-003	KWS-5E	01815-004
KSI-10E/12E	01815-005	KMI-20E/22E	01815-006
MS-3000	01815-001	MS-5000	01815-002

Quick Start Guide

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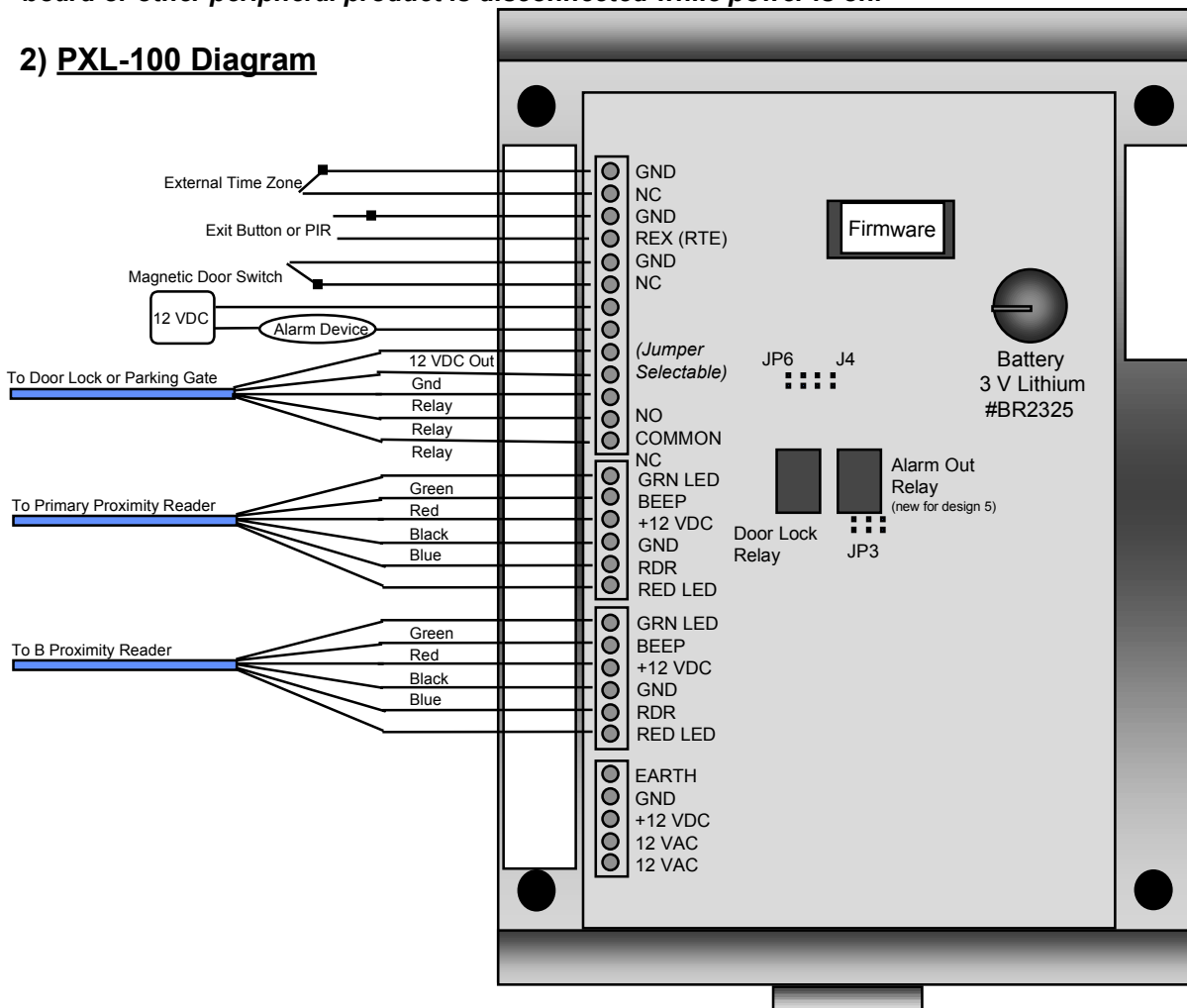
PXL-100: SMART ENTRY CONTROLLER

1) Warnings

This document should only be used for the design 5 board or later versions. To identify a design 5 board, look for the two relays in the center of the PC board. If there are two next to each other, it is a design 5 board.

When disconnecting or reconfiguring any PXL-100 or peripheral products, ensure that the power has been disconnected. Serious damage such as RAM failure may occur if an option board or other peripheral product is disconnected while power is on.

2) PXL-100 Diagram



3) Features and Functions of the PXL-100 Smart Entry Controller

The PXL-100 can be used as a stand alone unit or function as a networkable access control system capable of controlling up to sixty-four doors (with the addition of an option board). Standard features include:

- a database capacity of 7000 unique users per controller
- transaction buffers capable of storing 3000 events per controller
- expansion port for adding special feature option boards
- built in power supply that can run off 12VDC or 12VAC and can power door strikes or magnetic locks
- RS-232 serial port configurable to communicate with a PC or printer
- an optional RS-485 network communication capable of linking up to 32 controllers on a single network
- I/O including door status, request to exit, two 10Amp Form-C relay for door strikes and alarm shunting.



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4) Switch and Jumper Settings

A) Tamper Switch Input

The PXL-100 comes with JP6 jumpered, which closes the tamper circuit. Installing a normally closed switch across JP6 will allow the unit to work. Removing the jumper or opening the switch will cause a tamper condition and shut the unit down. A network fault message will be created.

B) PIN Reset vs. PIN and RAM Reset

Installing a jumper on on J4 will cause both the RAM and the PIN to be reset when the S1 button is pushed at power up. **CAUTION - This feature should only be used to reset the RAM during a complete system reformat. Using this feature will cause all resident card and transaction data to be irretrievably lost.** Removing the jumper and pushing S1 at power up will only cause the PIN to be reset.

C) Normally Closed/Normally Open Selection for Alarm Out

JP3 controls whether the alarm out relay will be normally open or normally closed. To make it normally open, jumper pins 1 and 2. To configure it as normally closed, jumper pins 2 and 3. The marking for this jumper is very difficult to see. It is located just below the alarm out relay. Pin 1 is on the left side of the jumper if the PXL-100 is oriented with the serial port on the bottom.

5) Connections

BEFORE MAKING ANY OF THE FOLLOWING CONNECTIONS, ENSURE THERE IS NO POWER TO THE UNIT!!

Orient the PXL-100 so that the serial port is pointed down. With one exception (the serial port), all connections to the PXL-100 are made on the left side unit. Place each wire into the slot designated below and tighten the screw on the top of the terminal block. Do not over tighten! Please note that all of the terminal blocks also lift off the PXL-100 should it become necessary to disconnect anything. It is recommended to make the connections in the order listed to ensure that power is not prematurely applied to the system.

A) Request to Exit

Request to Exit devices (REX) generally unlock the door to allow for egress from the building. The PXL-100 may take input from switches, motion sensors or floor mats. These devices are installed on pins 3 and 4 on the thirteen position terminal block. Install the ground for the REX device on pin 3 and the signal wire on pin 4.

B) Door Status

The Door Status (also known as door switch) sensor indicates the state of the door (open or closed), and is connected to pins 5 and 6 on the thirteen position terminal block. Install the ground for the sensor on pin 5 and install the signal lead on pin 6. If a door switch is not used, install a jumper between pins 5 and 6.

C) Alarm Out

The Alarm Out provides the output to trigger an audible signal when the door is put in an alarm state. Optionally, it can provide an output to trigger a silent alarm. Install the ground at pin 7 and the signal at pin 8 on the thirteen position terminal block

D) Lock Power (12VDC Out)

The PXL-100 has a built in power supply capable of supplying 12VDC to power door strikes or magnetic locks. Install the 12VDC output to the lock on pin 9 and the ground on pin 10 of the thirteen position terminal block. Jumper pin 9 to pin 12 when the internal power supply of the PXL-100 will power the door lock.



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E) Lock Relay

The control relay for the door lock is hooked up to pins 11,12 and 13. Install the normally open line (N/O) on pin 11, and the normally closed (N/C) line on pin 13. The common for the relay is hooked up on pin 12.

F) Proximity Card Readers

These inputs only accept data from Keri Systems proximity readers. Install the reader on the terminal blocks labeled as READER: A. If a 2nd proximity reader is being installed, connect it to the block labeled READER: B. If the PXL-100 is being used in conjunction with an OB-9 the B reader may control another door. If an OB-9 is not being used, the B reader must be used on the same door as the primary reader (typically to control traffic moving in the opposite direction as the primary reader). Consult the Quick Start Guides for each reader for information on wiring the LED leads.

Color	Function	Primary Reader Pin #	B Reader Pin #
	Green LED	14	20
Green	Beeper	15	21
Red	12VDC	16	22
Black	Ground	17	23
Blue	Reader Input	18	24
	Red LED	19	25

H) Power Connections

ENSURE THAT THERE IS NO POWER PRESENT ON THE WIRES WHILE THE PXL-100 IS BEING INSTALLED. APPLY POWER ONLY AFTER ALL OF THE CONNECTIONS HAVE BEEN COMPLETED. INSTALL THE EARTH GROUND FIRST! CONNECT IT TO THE FIVE POSITION TERMINAL STRIP LABELED INPUT POWER ON PIN 1.

The PXL-100 can accept either a 12VDC or a 12VAC input.

DC Connections

Units powered by 12VDC must have the ground installed on pin 2 and +12VDC installed on pin 3 of the five position terminal strip.

AC Connections

Units powered by 12VAC must have power applied to pins 4 and 5 on the five position terminal strip.

I) Serial Port Connections

The serial port can interface with printers, PCs or modems. If you are using one of these devices, plug it into the serial port using one of the Keri Systems supplied cables. Do not use gender changers or 25 pin to 9 pin adapters as some of these have internal crossovers that can disrupt communications. Configure the port with either the Keri Systems HPP-100 or the TAP-100 software. For instructions on how to configure the serial port, consult the manuals for these products.

J) Global Lock or External Time Zone

In most instances these features are not used. If there is a requirement for one of them, connect the ground to pin 1 and the signal lead to pin 2 of the thirteen position terminal block.

6) Power On Procedure

Plug in power to the PXL-100 only after all connections to the unit have been made.



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7) PXL-100 Installation Verification

When operating correctly, a PXL-100 will store and process card information, store transactions for door operations and accept inputs from either a hand held programmer or a PC. To verify that the controller is working correctly, present a card to the reader. If the card has not yet been enrolled, the reader will beep once. Verify that the unit is working correctly by enrolling a card with the Keri Systems HPP-100 or the TAP-100 software. **Enroll it in Time Zone 0 (also known as level 0).** Consult the operation manuals for the products for instructions on how to enroll a card. Present the newly enrolled card and listen for a double beep from the reader. This indicates that the card has been successfully stored in memory. Wait five seconds and present the card again. Listen for the click made by the relay controlling the door lock. In noisy environments it may be necessary to place your finger on it to verify that it has actuated. Consult the trouble shooting guide below if the system does not respond as expected. Additional help may be obtained from the diagnostics guide beginning on page 8 of this document.

8) Trouble Shooting a PXL-100

Problem	Probable Cause	Corrective Action
The PXL-100 does not power up. I.E. there is no display on the LCD screen.	1) No power input applied, or inadequate power applied.	Check main power circuit breaker. Measure voltage input at POWER TERMINAL 12VAC at Pins 4 and 5 +/- 20%, or 12VDC at pins 2 (-) and 3 (+) +/- 2 volts.
	2) Wired incorrectly.	AC must be connected to Pins 4 and 5 of INPUT POWER TERMINAL. DC must be connected to Pins 2 (+) and 3(-) of INPUT POWER TERMINAL
Reader does not beep or reader LED does not flash when presenting a card	1) Reader is not plugged into the ANTENNA Terminal.	Check to see that the Reader is plugged into the terminal properly---a pin is not slipped.
Or, Controller keeps resetting.	2) Reader is wired incorrectly.	LED lead (BRN) must be connected to pin 1 of ANTENNA TERMINAL, BEEP lead (GRN) must be connected to pin 2 , (RED) lead to pin 3, (BLK) to pin 4 and (BLU) lead to pin 5. Check to ensure wire is making contact with the connector---connector contact is not crimped on wire insulation.
	3) Reader power is insufficient.	Measure reader voltage at ANTENNA TERMINAL pin 3 (+) and pin 4 (GND). Ensure 12volts +/- 2 volts is measured at the reader, using Belden 24# wire or larger, reader distance must be less than 500 feet.
With Reader connected, using the HPP-100 programmer, PXL-100 controller will not accept default PIN (0000)	1)PIN has been changed.	Reset PIN to default value by removing power and reapplying power with the S1 button on the main board depressed. Hold the button down until a double beep is produced by the reader.

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8) Trouble Shooting a PXL-100 (continued)

Problem	Probable Cause	Corrective Action
	2) RAM has been corrupted.	Reset RAM by placing PXL-100 (NODE) into the program mode (enter PIN) and entering the following command: 0999[SEND]---999[SEND]. CAUTION: This command will erase all programmed data.
The PXL-100 will not accept card enrollment commands.	1)Reader's Blue lead is connected to the ANT-B input instead of the ANT-A. Enroll cards through ANT-A only.	Connected the enrollment reader to the ANT A input, for card enrollment.
No response to HPP-100 commands---audible or visual.	1) Reader is inoperative.	Point HPP-100 within a few inches of the receiver board located at the base of the main board just above DB25M connector. Enter the PIN and LCD will prompt programming commands. If not, check reader wiring; measure voltage at pin 3(red) of the Antenna Terminal for 12volts+/-2volts.
	2)Programmer batteries are dead.	HPP-100 Programmer, replace batteries with two AA Alkaline (1.5volts) The batteries must be Alkaline.
Read Range is very short	1)Very poor ground.	Ground the PXL-100, pin 4 of TB-3, to a good earth ground.
	2)Unusual electronic noise hazard present in the reader location such as a computer monitor or a source producing an extremely high level of RFI.	Measure voltage at test point 3(TB3) or the receiver located on the main board just above the RS232 connector. Voltage should be <1volt.. If > 1 volt, turn off the monitor or relocate the source of RFI . Or, relocate the reader. Re-measure the voltage at TB3, must achieve less than 1 volt.
	3)Reader cable is not shielded and is installed in a location near a high source of electromagnetic energy,i.e., high voltage.	Add shielded cable and relocate the cable. Especially if the cable is installed in conduit with high voltage lines. Use voltage measurement as in step 1 above.
	4)Reader that is not designed to mount on metal is mounted on a metal surface.	Relocate reader to a nonmetallic surface or change reader for one designed to mount on metal
At power up, reader continuously beeps and PXL-100 will not accept a command.	1)Door sense input, pins 5 and 6 of Master Board Terminal is open.	Place jumper between pins 5 and 6 of Master Board Terminal, or , if using a door switch, check the switch for proper operation.

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8) Trouble Shooting a PXL-100 (continued)

Problem	Probable Cause	Corrective Action
PXL-100 will not communicate with PC	1)Serial port is not configured properly.	Reset the PXL-100 which returns the PIN and serial port to the default values. Apply power while holding down the S1 button on the main board for 10 sec., or a until a double beep is produced. OR, use the HPP-100, input the PIN and press [Level 9 2 1 SEND]. Will not affect other system values or card file.
(cont.)	2)PXL-100 to PC cable is not correct.	Check manual for cable description. KDP-104 is correct cable for 25 pin PC Input . Note: KDP-104 can be installed backwards. Check cable labels or manual for correct pin assignments. KDP-105 is the correct cable for 9 pin PC input
continued	3)PC port configuration is not correct.	Using the TAP-100 under the Setup main menu, select Port Assignment and, assign the right comm port to Prox port .
PXL-100 will not communicate with a serial printer.	1)PXL 100 serial port is not configured to communicate with printer.	Using the HPP-100, enter PIN, command [LEVEL] 9 2 0 [SEND] . Correct command will produce a double beep.
	2)Cable is wrong.	Check PXL-100 manual for the correct cable. Check printer manual cable pin connections; cable connections may be different than specified in the manual. Cable should be the Keri KDP-106.
	3)Printer is not set up properly.	Check Printer manual and set controls for printer to a baud rate of 2400 and a format of 8 bit, no parity, one stop bit.
PXL-100 will not communicate with Modem.	1)PXL-100 serial port is not configured to communicate with modem.	Using the HPP-100, enter PIN, command [LEVEL] 9 2 2 [SEND] . Correct command will produce a double beep.
	2)Cable is wrong.	Check PXL-100 manual for the correct cable. Cable should be the KERI KDP-107.
	3)Modem is the wrong type.	Check s modem owners manual. Modem should be Hayes compatible communication baud rate of 9600 or faster.
	4) Modem is not initialized correctly	With the KDP-107 cable attached, reissue the [LEVEL] 9 2 2 [SEND] command

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8) Trouble Shooting a PXL-100 (continued)

Lock Relay Cycles on and off continuously.	1)Prom is not seated properly	Visually inspect the E-Prom labeled and located on the right side of the PXL-100 above the lithium battery, to ensure all pins are seated properly in the Prom socket
TAP-100 Software will not boot.	1)PC does not have enough conventional memory.	Must have 560K bytes available of conventional memory. Refer to DOS manual memory manager for instructions maximizing available free memory.
PC will not communicate with network.	1)Cable is wrong.	Review the Installation Manual, Figure 4. Proper cable for a PC 9 pin serial input is Model KDP-105. Cable for a PC 25 pin serial input is Model KDP-104(since both ends of the cable are sockets, ' polarity ' must be observed). KDP-104 cable is labeled indicating direction..
	2)Computer is not configured to communicate through the proper serial port.	Using the TAP-100 software, select [Setup] from the main menu. In the Setup submenu, select Port Assignments . Assign the correct port and [ENTER] The Prox port must indicate the PC port in which the cable is connected.
	3)PXL-100 serial connector is not configured to communicate with the PC.	Set the PXL-100 serial port to PC configuration by applying power with the reset button on the main board depressed for 10 seconds or until the reader produces a double beep. This reset procedure will also reset the PIN. This reset will not affect other programmed data.
PC will not communicate with network via a Modem.	1) Wrong type of modem	Must be Hayes compatible with baud rate of at least 9600
	2) PXL-100 is not configured to communicate with the modem.	Using HPP-100, configure the PXL-100 serial port for remote. [Level] 9 2 2 [SEND]
Some PXL-100's within the network are not communicating with the PC.	1)Address Clash.	Check the address dip switch setting on each controller option board.
	2)Corrupted RAM in one or more of the controllers.	In the Utilities menu, enter the Network sub-menu. Examine the network information and note the Responding PXL-100's number. On early models this number is Hexadecimal. Reset the faulty PXL100/s

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9) Diagnostics Guide

GENERAL INFORMATION:

A program for test and operation analysis (diagnostics) is built-in to every PXL-100 equipped with an option board and LCD display. Initiating the test does not require the TAP-100 software, PC or hand-held programmer. The program is designed to be used in the field to test certain card and controller functions. There are nine tests currently available:

1. **Tag Test**---tests that the tags/cards and readers are functioning reliably.
2. **Ram Stability Test**---determines whether RAM is affected by switch transients.
3. **Watchdog Test**---ensures the watchdog is working.
4. **Media Test**---provides a readout of coded information on a Wiegand or mag-stripe card.

GETTING STARTED:

To use the test program, the PXL-100 must have a Reader, Option Board and an LCD connected. The Option Board can be any model with the exception of the OB-1. A hand-held programmer is required to configure the serial port for all controllers. To enter the program, perform the following procedure:

1. Remove power from the PXL-100 controller.
2. Locate the **Option Board** test push-button (S1) located in the upper left corner just above the **ID** switch (SW1) and just to the left of the network LED (D9).
3. Reapply power while holding the push-button down until the LCD displays the message **OPTIONS**.
4. Release the button and the first test title (**TAG TEST**) will appear on the LCD screen.

Step through the selection of tests by depressing the option board push-button **once**. The LCD screen will display each test in order. To initiate a test, press the push button **twice**. To leave a test, press the option board push-button once. Use one of the following methods to exit the **DIAGNOSTICS** program:

1. Remove and reapply power, or...
2. Using the option board push-button, step through tests until the LCD displays **EXIT**. Double press the push-button and the controller will reset to normal operation, or...
3. Select the **WATCHDOG** test. If the **WATCHDOG** is functioning, the system will automatically reset to normal operation.

NOTE: When the **DIAGNOSTICS** test is activated, the controller will not respond to normal door operation commands, i.e., the controller will not grant access, report attempts or alarms.

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9) Diagnostics Guide (continued)

TEST OPERATION:

Tag Test:

Object Of The Test: To test the operation and stability of the card/tag (s).

When To Use The Test: When a card operation is intermittent or quits working altogether. Assumes that other cards in the system are working.

Procedure: Place the PXL-100 in the diagnostics mode and step to the **TAG TEST** (first test in the series) and double press the option board button to enter the test. The LCD screen will display the message **TAG TEST: 125K**. Presenting the suspect card to the reader will be acknowledged by a double beep and the internal decimal number of the card will be displayed on the LCD. Example:

TAG TEST: 125K
A: 2206636772

Holding the card in the reader field or re-presenting the card to the reader should have no effect on the LCD display, i.e., the number displayed should not change---it should remain stable. If the number changes, it is an indication that the card is unstable and should be replaced. If the number remains stable, the test has ensured the operation of the card, reader and the signal path to the controller processor.

Since the card was working and the test has proven its stability, there are three possible reasons for the card not working:

1. **The Card number may have changed.** This possibility is unlikely since the TAG TEST should have revealed any instability in the card. If a PC was used with the TAP-100 software for the original programming, the card/tag number will be listed in the card file. This number can be compared to the number indicated in TAG TEST. If the numbers differ, the card is faulty. Discard the faulty card, void its original slot and enroll a new card.
2. **The Card was voided.** If voided the TAP-100 will not have the card on file. Re-enroll the card. If the card was voided using the remote programmer in which case the TAP-100 will show the card in file. Using the TAP-100 software, send the card file to the network.
3. **RAM has been corrupted.** Reset the RAM using the reset command. If using a PC and TAP-100 version 2.1 or later, use the 'Install New Reader' function found in the **UTILITIES** menu---**READERS** sub-menu.

If using the hand held programmer, enter PIN and the reset command---0999 SEND, 999 SEND.

Resetting the RAM will erase the entire data base of the controller. Be sure to have a back-up of the card file on disk, or ensure that the PC, TAP-100 card file is current. It is a good idea to perform the **Ram Stability Test** before resetting the RAM.

Ram Stability Test:

Object Of The Test: To test whether voltage transients caused by switching power to locks, motors or other loads, or electrical noise induced into the controller is corrupting the RAM.

When To Use The Test: Use when changes in the programmed data appear for no apparent reason, i.e., cards quit working, PIN is erased, time and date off, etc.. Also, us as a final installation test when connecting the controller to a large inductive load such as a gate motor or parking barrier. Test will ensure that the electrical isolation of the system is sufficient and to prove that the electrical noise caused by switching is not corrupting the RAM.

Procedure: Initiate the RAM test by double pressing the option board push-button with the RAM STABILITY message displayed on the LCD screen. This test is a nondestructive



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9) Diagnostics Guide

RAM test. It causes the 10 amp form C relay to toggle on and off while th RAM is scanned. The RAM check sum is read for each cycle of the relay. If the check sum changes, the change indicates a RAM failure. The LCD will show the number of times the relay is cycled and the number of RAM failures:

RAM STABILITY
P= 00000 F=00000

The number of times the relay is cycled is indicated by the **P** number; RAM failure is indicated by the **F** character.

One failure is too many. The RAM must be reset; but before resetting the RAM, isolate the source of the interference. Disconnect the load from the relay. Run the stability test. If the RAM does not fail, the problem is in the load. Check all connections and add suppression. If the RAM continues to fail, disconnect the network cable and rerun the test. If the test passes, check all network connections and try to isolate the area of network cable where an electrical interference is occurring. If the RAM continues to fail, add suppression to the AC power line input.

Watchdog Test:

Object Of The Test: To ensure the operation of the watchdog timing circuit is operating.

When To Use The Test: To check the watchdog, or if symptoms indicate the watchdog is not working---if the controller locks up and will not reset unless primary power is removed and reapplied.

Procedure: Perform this test after all other tests are completed because if the watchdog is functioning, the completion of the test will exit the diagnostics program. As soon as the watchdog test is initiated, the LCD will show the following:

WATCHDOG TEST
COUNTDOWN 4

The countdown number will continue to step to 1 and if the watchdog timer is functioning the controller will exit the diagnostics program and the LCD will show the KERI name the day and time.

Media Test:

Object Of The Test: To verify the encoded number on a Wiegand or mag-stripe card and the proper operation of the reader.

When To Use The Test: Final testing the system to check the reader and card operation.

Procedure: With the Wiegand or mag-stripe reader connected to the OB-7, initiate the Media Test function. Present the card to the reader. If successfully read, the card's encoded number will appear on the LCD.

Note: For PXL-100 versions with revision numbers of 2.4 or less, the card encoded number will be printed in HEXADECIMAL .

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10) I/O Configuration Guide

The I/O ports can be configured by using S1 on any of the option boards or by using the HPP-100, Hand Held Programmer. This activates an **OPTIONS MENU**. All commands below will have this message appearing above them. The PXL-100 must be a design 5 PC board (see section 1 **Warnings**, to identify a design 5 PXL-100) and must have version 2.3 or later firmware (see the PXL-100 diagram for an indication of where to look for this). If the controller is an earlier model, the port must be configured with an HPP-100. The system is navigated using the S1 button on the option board. Do not press the S1 button too rapidly. The system responds to quick depressions of the switch as a double click. A double click activates the menu or command you are currently viewing. A single click continues to move you through the menu. Anytime you select a command (double click), the unit will return you to the main **OPTIONS MENU**. You may then move through the menu again. To configure the serial port:

- 1) Locate S1 on the option board. Remove power from the PXL-100.
- 2) Depress S1 on the option board while reapplying power to the PXL-100.
- 3) The Display on the option board will read **DIAGNOSTICS**.
- 4) Press the S1 switch again and you will see **CONFIGURATION**. It should come immediately after the **DIAGNOSTICS** message.
- 5) Double click on the **CONFIGURATION** menu.
- 6) The message **VIEW PORT SETTNG** (sic) will appear.
- 7) Slowly click the S1 button until the desired port setting is reached. The options are:
 - **SET TO PRINTER**
 - **SET TO HOST** (direct connect to PC)
 - **SET TO MODEM**
 - **SET TO MEMORY MODULE**
 - **SYSTEM RESET**
- 8) Double click on the mode for which you which to configure the serial port.

WARNING!! SYSTEM RESET should only be used to completely reset the unit. Use of this command will completely and irretrievably erase all databases in the controller.

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11) Specifications and System Requirements

Controller Architecture - Single door networkable access control system

System Configuration - Accomplished with either the TAP-100 DOS based software or the HPP-100 Hand Held Programmer.

System Capacity - Controllers - From 1 to 32 controllers (1 to 64 Doors if using in conjunctions with an OB-9 2nd Door Control Option Board)

- **Cardholders** - 7000 cards stored locally at each controller
- **Transactions** - 3000 events stored locally at each controller
- **Time Zones** - 32 distinct time zones
- **Holidays** - 20 Days

Outputs - RS-232 serial port for external communications to PC, modem or printer
- RS-485 network communications when not using the system in stand alone mode
- General purpose inputs and outputs are configurable depending on system setup

Memory Retention - 5 year battery back up of RAM

Power Requirements - 12 VAC @20VA or 12VDC @1.5 Amp

Power Output -12VDC for lock power, 400 mA max, Relay (formerly open collector on design 4 units)

Current Draw - Not to exceed 900mA (including PXL-100, Reader, and Door Strike)
- PXL-100 + Option Board (400mA max)
- MS-3000/MS-5000/KDF-3E/KWS-5E (100mA max), KMI-20E/KME-22E (250mA max)

Relay Contact Rating - 32VAC @ 5Amp max
24VDC @ 2Amp max

Inputs - Door Sense - Normally Closed
- REX - Normally Open
- Gen Purpose - Normally Closed

Printer Requirements - Serial RS-232
2400 BAUD
8 Bit , no parity
1 stop bit

PC Requirements - IBM Compatible, 386 or better, Color monitor, 20 megabyte hard drive and 1 Mbyte of RAM and 520KB free of conventional memory. Keri recommends installing and running the software from the hard drive.

12) Cable and Wiring Requirements

Cable Requirements for Readers - Readers (Belden 9536, 22AWG or equivalent. Larger guages should be used for longer distances.)

Reader Type	Length with 24AWG	Length with 22 AWG
KDF-3E, KWS-5E	450'	600'
MS-3000, MS-5000	350'	500'
KSI-10E, KSE-12E	350'	500'
KMI-20E, KME-22E	300'	450'



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12) Cable and Wiring Requirements (CONT)

Input Power - 12VAC or 12VDC at the PXL-100. Allow for power drop over the length of the cable. (Belden 8461 or equivalent)

Lock Power - If using the PXL-100 lock power output do not run more than 500'. (Belden 8461 or equivalent)

RS-232 Cable - Four conductor shielded 22 AWG wire. Distances of more than 50' are not recommended. (Belden 9537 or equivalent, 22 AWG shielded cable, 7 conductor)

RS-485 Network Wiring - 2 twisted shielded pairs (one each data, and ground) is recommended. (Belden 1419A or equivalent)

13) Serial Cable Configuration

Versions 3.0 firmware of later revisions must use the series 5000 cables for serial connections. Pre-revision 3.0 units must use the 100 series cables. For pin outs of the 100 series cables, please consult the tables below. 5000 series cables will be introduced in Summer, 1996.

Model # Guide to Cables and Series

Function	100 Series	5000 Series
PXL-100 to PC (25 Pin)	KDP-104	KDP-5004
PXL-100 to Laptop (9 Pin)	KDP-105	KDP-5005
PXL-100 to Serial Printer	KDP-106	KDP-5006
PXL-100 to Modem	KDP-107	KDP-5007

KDP-104 Pin Out

PXL-100 (25 Pin Socket)	Color	PC (25 Pin Socket)
Pin 2	Green	Pin 3
Pin 3	Red	Pin 2
Pin 7	Black	Pin 7
Pin 8	White	Pin 20

KDP-105 Pin Out

PXL-100 (25 Pin Socket)	Color	PC (9 Pin Socket)
Pin 2	Green	Pin 2
Pin 3	Red	Pin 3
Pin 7	Black	Pin 5
Pin 8	White	Pin 4

KDP-106 Pin Out

PXL-100 (25 Pin Socket)	Color	Printer (25 Pin Plug)
Pin 2	Green	Pin 3
Pin 3	Red	Pin 2
Pin 7	Black	Pin 7
Pin 8	White	Pin 20

KDP-107 Pin Out

PXL-100 (25 Pin Socket)	Color	Modem (25 Pin Plug)
Pin 2	Green	Pin 2
Pin 3	Red	Pin 3
Pin 4	Brown	Pin 4
Pin 5	Orange	Pin 5
Pin 7	Black	Pin 7
Pin 8	White	Pin 8
Pin 20	Blue	Pin 20

