Keri Systems PXL-500/510 Family Architectural Bid Specification

This document has been prepared to assist design professionals in the preparation of project or office master specifications including proximity access control systems. Modify this document as necessary and delete items that are not applicable.

I.   The access controller shall be a single door control, 'smart' to the entry with expansion ability to add a second 'smart" door via a plug-in option board.   The controller will operate in a 'stand-alone' mode or within a network of other like controllers. All decisions regarding the user access, alarms, and automatic timed functions are made at the controller, independent of a computer.

   A. The controller shall contain and operate various outputs for controlling access:

   1. A 1.0 amp, (24VDC max.) dry circuit, single pole, double throw relay for application of power to an electric locking device, automatic gate, or door operator.
   2. An alarm output consisting of a 1.0 amp, Form C, dry circuit closure.
   3. The alarm output must be configurable to annunciate the following conditions either via the same relay or separately via an auxiliary relay located on the option board:

      a. Door forced condition.
      b. Door held open condition.
      c. Both conditions.
      d. Neither condition.

   4. An RS485 network communications output capable of linking up to 128 controllers (256 doors) into one network.

      a. The connectors shall be quick disconnect connectors for easy service.
      b. The RS-485 shall be configured to automatically detect an open, shorted or crossed line condition.

   5. A standard RS232 serial output will provided that can be configured for direct connection, modem or Ethernet connection to a personal computer.

      a. The connector shall be a quick disconnect connector.
      b. The RS232 port shall be directly adaptable to an on board Ethernet connection.
      c. The controller shall offer the option for an additional RS-232 output for integration with an alarm panel.

   B. The controller/option board shall contain various inputs and outputs for managing a door, gate or similar entry/exit point::

   1. A door status input for sensing a normally closed switch.
   2. TWO user configurable request to exit inputs

3. A general, normally open input that can provide a global release of all lock relays in the network.
4. A special purpose, multi-pin connector for adding an auxiliary board for increasing the functionality of the main controller.
5. Two reader inputs, which can be ordered in either Wiegand-compatible format or Keri high security MS Series proximity format.

C. The controller shall contain special visual aids for viewing diagnostic tests and ID functions.

1. An LCD display to be used as a programming and diagnostic aid.
2. A segmented LED display to be used as a controller address display and volt meter
3. LED status indicators that display improper controller voltage conditions, crossed-wired power connection (positive and negative input wiring reversed), as well as over-current draw conditions
4. A single push-button switch for setting the controller address, and for selecting and performing diagnostic tests.
5. LED indicators to confirm that the option board is properly seated and configured.
6. Visual LED indicators for lock and alarm relay position status.

D. The controller's database memory shall be nonvolatile (supported by a lithium battery) with an expected life of five years.

1. The database shall maintain a memory capacity to manage up to 65,000 card/tag holders per controller.

   a. Cards can be enrolled into the system using a block enrollment method by card number sequence.
   b. Card and tag enrollment can also be accomplished by a "learn" method, where individual cards/tags can be presented to an enrollment reader.

2. The database shall maintain a memory capacity capable of storing at least 3,600 transactions.

   a. When the transaction memory becomes full, old transactions will be deleted on a first in, first out basis to make room for new transactions.
   b. The controller's transaction memory shall have the ability to record of all transactions performed by the controller, but alternately programmable to record only those transactions required by the operator.
   c. The transaction memory shall operate independent of other controllers within the network of controllers.

3. The Master controller (address #1) shall be capable of communicating with a personal computer at a remote location via a direct connection, Ethernet, or a telephone modem. All secondary or slave controllers will communicate via high security 9 bit RS-485 protocols

   a. The controller shall automatically sense if connected directly to a PC or if connected via modem and adjust its communication protocols accordingly.
   b. If the controller is using a modem, the modem shall communicate at 9600 baud or faster.
   c. The controller shall contact the host and upload the contents of the controller's buffer when the buffer reaches an operator-definable pre-programmed percentage of its event database memory capacity. Should the communication connection be broken during the upload process, the controller shall try to re-establish the communication connection every 15 minutes until a successful connection is made and all data is uploaded.

E. The controller shall provide two reader inputs. These inputs can either both be proximity or both be Wiegand interface inputs:

   1. Two readers can be operated simultaneously.
   2. The readers can be configured to indicate direction – ingress and egress, or
   3. The second reader can be used to operate a second door with fully independent controls.

F. The controller shall be programmed using a personal computer with the following requirements:

   1. The personal computer must use the Windows 95, Windows 98, Windows ME, XP, or Windows NT v4.0 operating system.
   2. The personal computer must use a 90 MHz, Pentium microprocessor (or faster).
   3. The personal computer must have 40 Mbytes of available hard disk space.
   4. The personal computer must have a minimum of 16 Mbytes of RAM.
   5. The personal computer must have an available COM port equipped with a 16550 UART.
   6. The personal computer must have a mouse or some similar pointing device.
   7. The personal computer must have a CD-ROM drive.
   8. SVGA color monitor with SVGA graphics card (800 x 600 minimum resolution.

G. The maximum dimensions for the controller within the enclosure shall be 9.25 inches high by 8.2 inches wide by 2.6 inches deep (24.65 cm H x 20.25 cm W x 6.60 cm D), with "knock-outs" to accept both USA and metric conduit.. The enclosure shall be metal and with equipped with a locking mechanism.

H. All cable/wiring connections shall be of quick disconnect type.

I. The controller shall operate using 12 volts DC with a current consumption of no more than 670 mA in an alarm state with all options installed.

J. The controller shall have MOVs across all relay outputs and transorbs across all inputs and non-relay outputs to provide electrical surge/transient protection.

K. The controller shall provide protection against incorrect input power connections (i.e. reversed power and ground, voltage too high or too low).

L. The operating temperature range of the controller shall be no less than 0º F to 140º F (-18º C to 60º C) at 0% to 90% Relative Humidity, noncondensing.

II. All configuration, programming, and monitoring of the controllers must be done through a software program that makes these tasks easy to perform and is supported by an optional two hour on-line training course.

A. The software program must have the ability to seamlessly integrate and manage access control, telephone entry, and alarm system control functions, and contain the following features:

1. Allows for up to 32 operators with individually assignable passwords and privileges.
2. Have the ability to manage up to 32 distinct time zones with each time zone subdivided into the 7 days of the week, 3 holiday schedules, and 4 start/stop time intervals.
3. Have the ability to configure up to 1024 input monitoring points (8 per individual controllers with option board installed) and 512 Form C, output relay points (4 per individual controller with option board installed) with the following features:

   a. All relay points must be programmable to either follow the state of an associated input point or be latched to a state based on an input point.
   b. The operation of all Form C, output relay points must be assignable to time zones, such that the output relay points can have time periods when they are active/operational, and time periods when they are inactive/idle.

        c. All input monitoring points must be linkable to output relay points, allowing input events to initiate output relay responses.

        d. For each controller, all input monitoring points and output relay points on that controller must be able to be used in multiple links on that controller, allowing any combination of controller inputs to drive any combination of controller outputs.

4. An unlimited number of access groups (combinations of access/egress points and time zones) shall be available for creation and assignment of cardholders access privileges.

5. The software shall contain a utility to automatically store archived event data in weekly, monthly or yearly files.

6. Have the ability to configure up to three, separately configurable, event monitoring windows, with each window capable of displaying operator-selectable event information.

7. Have the ability to automatically unlock and relock specific doors at specified times of the day and day of the week, with user defined overrides on user defined dates.

8. Have the ability to implement a "First Person In" feature such that an auto-unlock schedule is not activated until an authorized person has entered the premises. This feature should allow early entrance in fifteen minute increments up to one hour in advance of the specified unlock time.

9. Have the ability to disable the reporting of specified events that do not need to be tracked, to save event storage space on the controller.

10. Have the ability to poll the access control network and retrieve network hardware status information that the program uses to automatically setup and configure itself without manual data entry.

11. Allow the assignment of future activation and expiration dates and times to individual cardholders, which are stored at the controller level.

12. Provide event records including alarm panel operation when the controller is integrated with an alarm panel.

13. Provides event records including telephone access activity when the controller is integrated with a telephone access panel.

III. The access control network of controllers must be able to expand to meet future requirements as follows.

    A. An access control network must be able to expand to up to 256 doors in 1-door increments.

    B. The access control software and host PC must be able to communicate with up to 255 remote access control networks via modem or TCP/IP connection, each with up to 256 doors

IV. The primary type of reader shall be a high security proximity type of reader. The proximity reader shall be connected directly to the main controller without the need for an option card and it shall not require a special interface for data formatting. The proximity reader shall read a unique identification number from

each card or tag when the card or tag is presented to the surface of the reader, without a need for the card or tag to touch the reader.

A. The controller will support a variety of reader styles:

1. A door frame reader (mullion reader) that can be mounted directly on a standard metal mullion doorframe (1.75 inches or 4.5 cm).

    a. The read range using a standard proximity card shall be up to 4 inches (10 cm).
    b. The dimensions of the reader shall be 3.25 inches high by 1.40 inches wide by 0.375 inches deep (8.2 cm H x 3.5 cm W x 0.96 cm D).
    c. The reader shall be of a weatherproof, potted, rugged design.
    d. The reader shall provide a multi-color LED and a sound alert for status annunciation.

2. A single gang mount, wall switch reader that can be mounted onto a metal or plastic USA electrical junction box or on a non-metallic flat surface.

    a. The read range using a standard proximity card shall be up to 6.00 inches (15 cm).
    b. The dimensions of the reader shall be 4.40 inches high by 3.00 inches wide by 0.375 inches deep (11.13 cm H x 7.62 cm W x 0.96 cm D).
    c. The reader shall be of a weatherproof, potted, rugged design.
    d. The reader shall provide a multi-color LED and a sound alert for status annunciation.

3. A medium range reader that can be mounted to most building materials except metal.

    a. The read range using a standard proximity card shall be up to 14 inches (35cm).
    b. The dimensions of the reader shall be 8.50 inches high by 6.00 inches wide by 0.75 inches deep (21.59 cm H x 15.24 cm W x 1.91 cm D).
    c. The reader shall be of a weatherproof, potted, rugged design.
    d. The reader shall provide a multi-color LED and a sound alert for status annunciation.

4. A high-security, vandal resistant reader constructed of bullet and heat resistant material that is capable of withstanding severe shock. It can be mounted to most building materials including metal.

    a. The read range using a standard proximity card shall be up to 1.0 inches (2.54 cm).
    b. The dimensions of the reader shall be 5.25 inches high by 2.00 inches wide by 0.75 inches deep (13.35 cm H x 5.08 cm W x 1.91 cm D).
    c. The reader shall be of a weatherproof, rugged design.

B. The operating temperature of all readers shall be at least -22º F to 150º F (-30ºC to 65ºC).

C. Accidental or intentional transmission of radio frequency signals into the reader shall not compromise the security of the access control system.

D. The electrical connection between the reader and the controller shall be a color-coded, six conductor, #24 AWG or greater gauge, shielded cable. No coaxial cable or special connectors shall be required.

V. Cards and tags shall be uniquely encoded and not sensitive to facility code matching or other limiting factors.

A. Presentation of a card or tag to a reader will produce an audible 'beep' from the reader and will change the color of the reader LED.

1. The audio beep shall be a single beep for access denied and a double beep for access granted.
2. An Amber LED shall indicate power is on.
3. A Green LED shall indicate access is granted.
4. A Red LED shall indicate access is denied.

B. Several card/tag options shall be available, including a standard "clamshell" proximity card in the shape of a credit card and shall fit comfortably in a wallet, pocket, or purse.

1. The dimensions shall be 3.38 inches long by 2.13 inches wide by 0.065 inches thick (8.6 cm H x 5.4 cm W x 178 mm D).
2. The color shall be white with the encoded number and a date code printed on its surface.

C. A standard proximity key tag shall be in the shape of a teardrop. It will have an eyelet, allowing the tag to be attached to a key ring.

1. The dimensions shall be 1.57 inches long by 0.98 inches wide (at its widest area) by 0.157 inches thick (40 mm H x 25 mm W x 4 mm D).
2. The color shall be light gray with the encoded number and a date code printed on its surface.

D. A photo imageable "ISO" proximity card capable of accepting a direct print of photo and other graphics from a dye-sublimation printer.

1. The dimension shall be 3.38" x 2.13" wide x 0.031" thick (86 mm x 54 mm x 0.08mm).

2. The color shall be white with the encoded number and a date code printed on its surface.

3. The card shall be optionally available with a standard high coercivity three track magnetic stripe.

VI. The controller shall optionally be able to accept readers using a standard Wiegand interface in place of the high security MS Series proximity reader.

    A. The controller will support a variety of Wiegand interface types:

        1. Magnetic Stripe
        2. Wiegand Swipe or Insert
        3. Bar Code
        4. Keypad
        5. Biometric (such as hand-geometry, fingerprint, or retinal recognition)
        6. Electrical Discharge or Touch Devices

    B. Wiegand interface reader devices must output data per the Security Industry Association's (SIA) Wiegand Reader Interface Standard (SIA document number AC-01D-96).

VII. The product warranty to the user warrants the equipment to be free from defects in material and workmanship for the following time period from the date of purchase.

    A. A two-year unconditional warranty for the controller electronics.
    B. A lifetime warranty for the doorframe and single gang mount readers.
    C. A lifetime warranty for the medium and extended range proximity readers.
    D. A lifetime warranty for the high security, vandal resistant proximity reader.
    E. A lifetime warranty for standard proximity cards and key tags.
    F. A one-year warranty for the ISO card.