

# X-keys®

USB Keypad with LCD Display by  
**P.I. Engineering, Inc.**

## Preliminary Developer's Information



**This document is relevant to all X-keys USB LCD Keypads**  
**For the most current and detailed information, please see the help section of our**  
**Software Development Kit on the included CD or download it from our web site:**  
**[www.xkeys.com](http://www.xkeys.com)**

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## The X-keys LCD Keypad

P.I. Engineering offers three versions of **X-keys<sup>®</sup> LCD Keypads**:

- XLCD-178-WO (without Card Reader)
- XLCD-180-TK12 (with Magnetic Strip Reader)
- XLCD-181-LED (with Optical Barcode Reader)

The X-keys LCD keypad provides convenient, direct communication between user and application via USB interface. The Software Development Kit provided by P.I. Engineering allows the programmer access to input from all 16 keys and the card reader, and output to the LCD display and individual LEDs on the 16 keys. A variety of key cap options give the keypad the flexibility of a custom layout with a professional finished look.

### Features

- USB interface
- 16 x 2 LCD display
- 16 keys with LED indicators
- Clear key caps protect printed key legends
- Beep option on key press, LCD write, or valid card swipe
- Supports simultaneous connection of multiple units
- Supported by P.I. Engineering's Software Development Kit

### USB Interface

Compatible with USB 1.1 through 2.0. The LCD X-keys is a low speed USB device which reports data to the HID Consumer Page and uses P.I. Engineering's SPLAT Mode to communicate with your application. The USB port is also the sole source of power for the LCD X-keys.

### 16 x 2 LCD Display

The LCD display offers 16 text characters on each of two lines. Displaying instructions to the user, feedback from key input, or messages from your application are just a few of the possible uses. Delivery of these messages is supported in our software development kit.

### 16 Keys

The rugged, reliable Cherry mechanical switches are guaranteed for over 2 million operations. Each switch has a red LED indicator available for backlighting the key legend or activation via software.

### Clear Key Caps

Shipped with 16 single key caps featuring clear covers that hold paper legends securely. Custom legends printed on an inkjet or laser printer may easily be fitted under the clear caps to give the keys a professional look. Optional accessories include double wide, double tall, and large square key caps. Industrial key caps, also available, make it more difficult for the user to tamper with your installed legends. Standard numbered keys are also available.

### Beep Options

Audible beep response can be set for any or all of four actions: key press, LCD write, valid card swipe, or individual key.

## Support for Multiple Units

Unit Identification numbers may be easily assigned to individual X-keys to provide a convenient method for differentiating between them. These Unit Ids are saved in the X-keys non-volatile memory and maintained even if the unit is unplugged.

## P.I. Engineering's X-keys SDK

The code examples and documentation included on the enclosed CD offer programmers and software developers a start to establish communication between an application and the X-keys device. Included are examples in Visual Basic, C Builder, and Visual C.

### Specifications for X-keys LCD

<b>LCD Display</b>	16 text characters x 2 lines, .25" (6mm) H characters
<b>Key Caps</b>	16 keys with clear caps for custom legends (other options available)
<b>Switch Type</b>	Cherry MX switches with red LED indicator
<b>Included Software</b>	X-keys SDK for Visual Basic, Visual Studio, C++, and Visual C++
<b>Bar Code Reader</b>	Full ASCII Code 39, Interleaved 2 of 5 Code, 2 of 5 Code, EAN 8 and EAN 13 UPCE and UPCA, Code 128, CODABAR, Code 93, Code 11
<b>Magnetic Strip Reader</b>	ISO 7811 standard track 1 and track 2
<b>Connector</b>	USB "A" plug
<b>USB type</b>	Compatible with USB 1.1 through 2.0
<b>Dimensions</b>	4.13 x 7.28 x 1.57 inches (105 x 185 x 40 mm)
<b>Cord length</b>	9.8' (3 m)
<b>Weight</b>	0.85 lbs (0.36 Kg)
<b>Power Source</b>	USB port power, nominal voltage = 5 vdc
<b>Power Consumption</b>	W/O reader: Low power USB device, less than 85 ma @ 5 vdc
	W/mag strip reader: Low power USB device, less than 95 ma @ 5 vdc
	W/barcode reader: High power USB device, less than 120 ma @ 5 vdc
<b>Warranty</b>	1 yr repair or replacement on hardware (see details below)

Specifications subject to change without notice

## How to Find Us

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 Technical Support > tech@piengineering.com

## Limited Warranty

For all **X-keys** products purchased and installed in the United States and Canada, P.I. Engineering warrants that the **X-keys** product will be free from defects in materials and workmanship under normal use and service, and will meet the specifications presented by P.I. Engineering at the time of original purchase, for one year as evidenced by a copy of the purchase receipt. Under this warranty, P.I. Engineering will, at its sole option, repair or replace any **X-keys** product which is defective, provided that you are responsible for (i) the cost of transportation of the product to P.I. Engineering or its designated service facility, and (ii) any loss or damage to the product resulting from such transportation.

Upon discovery of a defect in the product within the Warranty Period, you should notify P.I. Engineering Technical Support via telephone to obtain an RMA (return authorization number) and instructions for shipping the product to a service location designated by P.I. Engineering. You should send the product, shipping charges prepaid, to the designated location, accompanied by the return authorization number, your name, address, and telephone number, proof of purchase, and a description of the defect. P.I. Engineering will pay for return of product(s) to the customer.

P.I. Engineering shall have no responsibility to repair or replace the **X-keys** product if the failure has resulted from accident, abuse, mutilation, misuse, or repair/modification performed by any entity other than P.I. Engineering.

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In the event that the above limitations are held unenforceable, P.I. Engineering's liability for any damages to you or to any party shall not exceed the purchase price you paid, regardless of the form of any claim.

This limited warranty is valid for and only applies to products purchased and used inside the United States (and its territories) and Canada.

This limited warranty is governed by the laws of the United States of America and the state of Michigan.

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## Products from P.I. Engineering

Visit our web site ([www.xkeys.com](http://www.xkeys.com)) for detailed descriptions

### **X-keys® Professional**

- 58 user programmable keys
- USB or PS/2
- Put all of your shortcuts at your fingertips

### **X-keys® Desktop**

- 20 user programmable keys
- USB or PS/2
- An efficient companion to your keyboard

### **X-keys® Stick**

- 16 user programmable keys
- USB or PS/2
- Add 16 function keys to your keyboard

### **X-keys® Foot Pedal**

- 3 user programmable pedals
- USB or PS/2
- Use your foot to activate keyboard commands or mouse clicks.

### **X-keys® Switch Interface**

- 12 ports for 1/8" mini plugs
- Any external switch can activate keyboard commands

### **X-keys® Joystick Controller**

- Precision MDM joystick integrated with 46 programmable keys
- For any application requiring accurate, reliable control

### **X-keys® Jog & Shuttle Editor**

- Jog & Shuttle knob integrated with 46 programmable keys
- Great for non-linear editing applications

### **Custom/OEM Products**

- Y-mouse & Y-key key boards add dual ports to your OEM system
- X-keys matrix boards create a programmable key matrix for your custom input device

### **ReDAC I/O Module**

- 24 Analog and 48 Digital inputs
- 24 Digital Outputs
- Supported by P.I. Engineering SDK

### **ReDAC Gauge Module**

- 5 ReDAC Gauge and 12 Digital outputs
- 16 Digital Inputs
- Supported by P.I. Engineering SDK

### **ReDAC Duplex Gauges**

- Analog output from digital data
- 2" face with dual needles
- Requires ReDAC Gauge Module

### **Y-mouse® SPLAT Adapter**

- Turn any two PS/2 input devices into custom USB devices
- Supported by our SPLAT Mode SDK

### **Y-mouse® Dual Mouse Adapter**

- Use a mouse and a trackball simultaneously on a single port (PS/2 or Serial)
- Great for adding an alternative pointing device to your system

### **Y-key key® Dual Keyboard Adapter**

- Use two keyboards on one computer
- Great for adding an alternative keyboard to your system

### **Y-mouse® Keyboard and Mouse Adapter for USB**

- Convert standard PC (PS/2) keyboards or mice to USB
- Like a mini docking station on your laptop

### **Y-see two® Video Adapter**

- Connect two monitors to a single video port
- Great for presentations to clients or classes

## Products from *RailDriver* (a division of P.I. Engineering)

Visit our web site ([www.raildriver.com](http://www.raildriver.com)) for detailed descriptions

- Train Cab Controls
- Reproductions of Cyclopedias on CD-ROM
- Train Simulation Software and Add Ons
- Resources for the scale or digital train modeler