LCD Keypad   ELK-M1KP2

APPLICATION

The ELK-M1KP2 is a low profile, addressable LCD Keypad for the M1 family of Cross Platform Controls. Being only slightly larger than a 2 gang electrical switch plate, it features a 32 character blue/white backlighted display, blue lighted keys, 4 programmable function keys, along with the ELK menu navigation keys. The standard configuration is surface mountable with or without an electrical pre-wire box. It may also be recess 'flush' mounted using with a separately purchased back box kit (ELK-M1BBK2). The M1KP2 is compatible with "external" proximity readers which utilize the 26 bit Wiegand format, allowing cards or fobs to be used for arming, disarming, or limited door strike control, etc.

FEATURES

- Blue/white Backlighted Hi-Contrast LCD Display
- Four (4) Programmable Function Keys
- Unique Menu Navigation/Direction Keys
- Operates from the M1/EZ8 'RS-485' Data Bus
- Built-in Piezo Sounder with adjustable pitch
- Accepts "External" 26 bit Weigand Prox Reader (Optional)
- Input for 1 Supervised Zone
- One Programmable "Switched Positive" Voltage Output
- Exit, Stay, Chime, and Bypass Keys
- Surface mounts to a standard 1 or 2 gang electrical box
- Optional recess 'flush' mount kit available (ELK-M1BBK2)

SPECIFICATIONS

- Connection: 6 Pin Plug-in "Flying Lead" Connector (Included)
- Color: White
- Operating Voltage: 13.8 VDC
- Current Draw: 40 - 50 mA Idle (low back light level, sounder silent) 160 mA Fully Active (max. back light & sounder active)
- Size: 4.658" W x 5.5" H x .95" D (.375" D with recess mount)

Features and Specifications subject to change without notice.

ACCESSORIES

- ELK-W039A - 2 Wire Cable Assembly for connecting an External Prox Reader such as the ELK-106055
- ELK-M1BBK2 - Recess Mount Back Box Kit
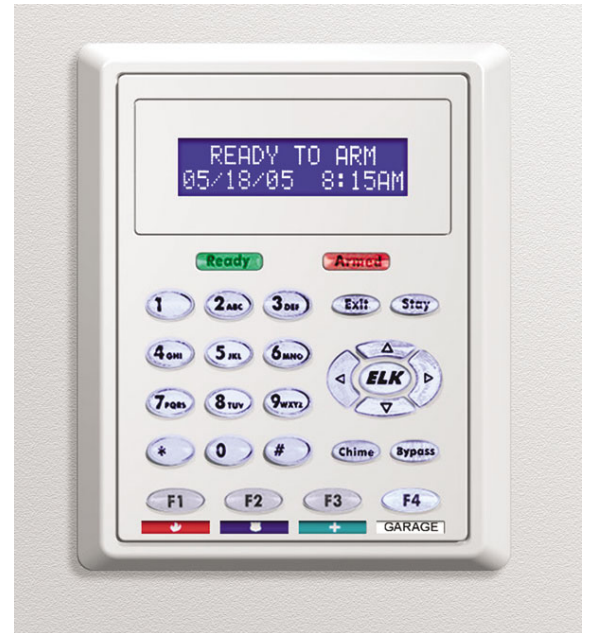
This side profile helps to visualize the ELK-M1KP2 surface mounted vs. recess mounted.

ELK PRODUCTS, INC.

INSTALLATION AND ENROLLMENT OF ELK-M1KP2 KEYPAD

Ideal keypad mounting height is 50-58 inches above the floor. Select a location with an ambient temperature range between 32° and 120° F (0° to +49° C). Avoid direct sunlight if possible. CAT5 or CAT6 wire (4 pair, 8 conductor) is highly recommended for all data bus cables and the extra wires may be required for data return paths where multiple homeruns or devices are installed. **NOTE: Please refer to the M1 or EZ8 Installation Manual for important information about Data Bus termination when multiple homerun cables are installed.** Minimum conductor size is 22 or 24 gauge. Maximum resistance per wire is 25 Ohms. Device placement beyond 1000' is not recommended. **DO NOT SPLICE OR CONNECT WIRES WITH THE CONTROL POWER ON.**

1. Fasten mounting plate to electrical box (or directly to wall) using flat head screws to prevent shorts to the back of the circuit board.
2. Splice the Black, Red, White, and Green wires of the plug-in connector to the data bus cable. Plug connector into keypad. Tuck wires neatly into back plate and install Keypad on mounting plate using the provided #4 plastite screws. Snap on the picture frame trim ring with the edge having the two notches facing down.

Setting the Data Bus Address and Enrolling Device(s) into the System

Keypads and expander devices communicate with the control over the RS-485 4-wire data bus. Each device must have a unique address setting (from 1 to 16) within it's device type. Keypads are device TYPE 1, input (zone) expanders TYPE 2, output expanders TYPE 3, etc. The purpose of device types is so that the address numbers can be re-used in each different device type. It is OK to have a Keypad, a Zone Expander, and a Output Expander all set to address 2 and on the same data bus since each device is a different device type. **It is NOT OK to have duplications of addresses within the same device type. I.E. Multiple keypads on the same control cannot be set to 'like' addresses.**

SETTING THE ADDRESS: From the factory all keypads are set to address 1. Valid keypad addresses are 1 to 16. The first keypad on the system (Keypad 1) is automatically enrolled upon power up. Each additional keypad must be assigned a unique address and then manually enrolled from "Menu 1 - Bus Module Enrollment".   (See M1 Instruction Manual, Menu 01, for complete instructions on Bus Module Enrollment)

1. Press and hold the " * " key for 10 seconds until the LCD displays:
   Exit when done. F1 Set Addr.   (This is Keypad setup mode)
   NOTE: This mode may also be accessed by removing power from the keypad (unplugging the data bus cable) and then applying power while holding any key pressed.
2. Press the F1 key to display the current address setting.
3. Set the desired address by entering a number from 1 to X.
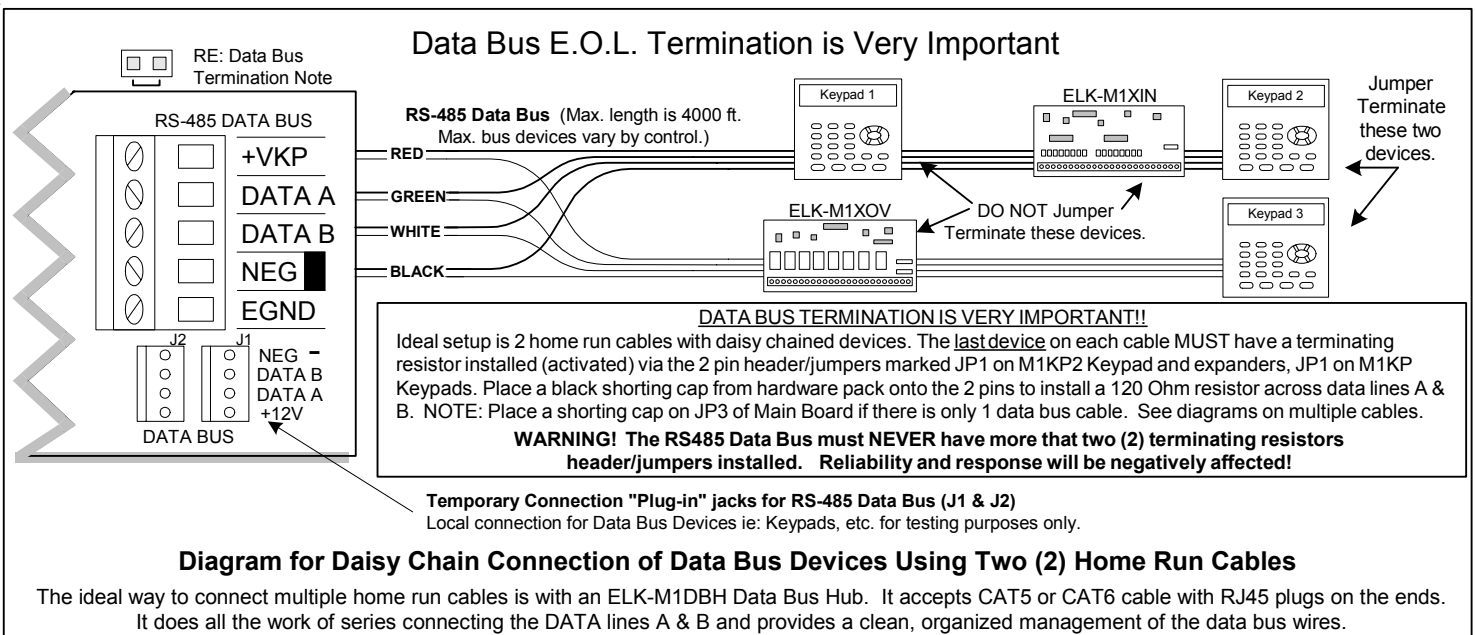4. Press the Exit key when done.

ENROLLING:
1. Press the ELK key, then press 9 (or scroll up) to display 9 - Installation Programming. Press the RIGHT arrow key to select this menu. The Installer Program Code (PIN) must be entered to access this menu.
2. Enter the Installer Program Code. (See M1 Manual for the default Code)
3. The first Installer Programming menu displayed will be "Bus Module Enrollment"
4. Press the RIGHT arrow key to select this menu. "Enrolling Bus Modules" will display
5. The M1 will transmit an enrollment message to all data bus devices, following by a display showing the total Bus Modules that are enrolled. To view the enrolled devices and/or remove a device press the RIGHT arrow key to select Edit mode.
6. Press the * or Exit keys to exit Installer Programming.

```
Auth. Required
Enter Valid Pin
```
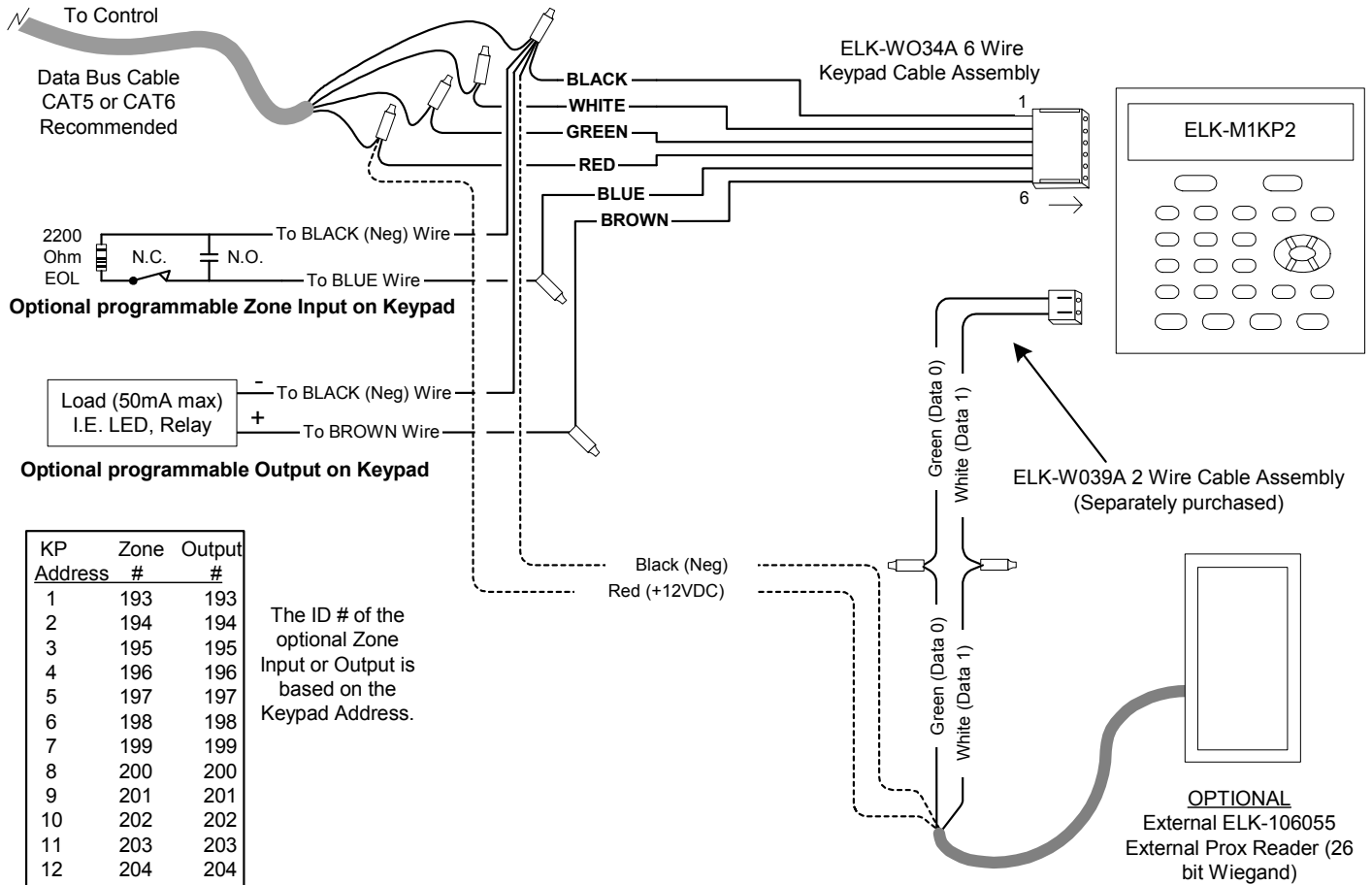
```
01-Bus Module
Enrollment
```

```
XX Bus Modules
Enrolled, Edit▶
```


Data Bus E.O.L. Termination is Very Important

RE: Data Bus Termination Note

RS-485 DATA BUS

+VKP
DATA A
DATA B
NEG
EGND

J2   J1   NEG −
            DATA B
            DATA A
            +12V
DATA BUS

RS-485 Data Bus (Max. length is 4000 ft. Max. bus devices vary by control.)

RED
GREEN
WHITE
BLACK

Keypad 1
ELK-M1XIN
Keypad 2

Jumper Terminate these two devices.

ELK-M1XOV
DO NOT Jumper Terminate these devices.

Keypad 3

DATA BUS TERMINATION IS VERY IMPORTANT!!
Ideal setup is 2 home run cables with daisy chained devices. The last device on each cable MUST have a terminating resistor installed (activated) via the 2 pin header/jumpers marked JP1 on M1KP2 Keypad and expanders, JP1 on M1KP Keypads. Place a black shorting cap from hardware pack onto the 2 pins to install a 120 Ohm resistor across data lines A & B. NOTE: Place a shorting cap on JP3 of Main Board if there is only 1 data bus cable. See diagrams on multiple cables.
WARNING! The RS485 Data Bus must NEVER have more that two (2) terminating resistors header/jumpers installed.   Reliability and response will be negatively affected!

Temporary Connection "Plug-in" jacks for RS-485 Data Bus (J1 & J2)
Local connection for Data Bus Devices ie: Keypads, etc. for testing purposes only.

Diagram for Daisy Chain Connection of Data Bus Devices Using Two (2) Home Run Cables

The ideal way to connect multiple home run cables is with an ELK-M1DBH Data Bus Hub. It accepts CAT5 or CAT6 cable with RJ45 plugs on the ends. It does all the work of series connecting the DATA lines A & B and provides a clean, organized management of the data bus wires.

Hookup Diagram for M1KP2 Keypad
(see M1/EZ8 Instruction Manuals for multiple Keypad hookups.)
Splice wires from data bus cable to Keypad assembly using ELK-900-2 "B" Connectors.

To Control

Data Bus Cable
CAT5 or CAT6
Recommended

ELK-WO34A 6 Wire
Keypad Cable Assembly

BLACK
WHITE
GREEN
RED
BLUE
BROWN

1

6

ELK-M1KP2

2200 Ohm EOL — N.C. — N.O. — To BLACK (Neg) Wire

To BLUE Wire

Optional programmable Zone Input on Keypad

Load (50mA max) I.E. LED, Relay
− To BLACK (Neg) Wire
+ To BROWN Wire

Optional programmable Output on Keypad

Green (Data 0)
White (Data 1)

ELK-W039A 2 Wire Cable Assembly
(Separately purchased)

Black (Neg)
Red (+12VDC)

Green (Data 0)
White (Data 1)

KP Address	Zone #	Output #
1	193	193
2	194	194
3	195	195
4	196	196
5	197	197
6	198	198
7	199	199
8	200	200
9	201	201
10	202	202
11	203	203
12	204	204
13	205	205
14	206	206
15	207	207
16	208	208

The ID # of the optional Zone Input or Output is based on the Keypad Address.

OPTIONAL
External ELK-106055
External Prox Reader (26 bit Wiegand)

An ELK-106055 External Prox Reader may be connected to the ELK-M1KP2 Keypad. This requires an ELK-WO39A 2 Wire Cable Assembly (purchased separately). Splice wires as indicated, and plug cable into connector J2. NOTE: The M1KP2 is also compatible with many other brands of 26 bit Wiegand compatible readers.

INSTALLING AN EXTERNAL PROXIMITY CARD READER (OPTIONAL)
1. Turn Off the control panel power. Remove the Keypad from its mounting plate and disconnect the 6 wire cable assembly.
2. Splice the Red (+) and Black (-) wires from the external prox reader to the Red and Black wires of the data bus and the 6 wire cable assembly.
3. Splice the Green (data 0) and White (data 1) wires from the external prox reader to the Green and White wires of connector W039A.
4. Turn On the M1 Master Power Switch and follow the instructions for enrolling cards or fobs.

ENROLLING PROX CARDS AND FOBS
Prox cards/fobs are enrolled into a User Code location using the same procedures used to add/change User Code PINs.
1. Press the ELK key, then press the 6 key (or scroll up) to display 6 - Change User Codes. Press the RIGHT arrow key to select this menu. A Master user code (PIN) must be entered to gain access to this menu.
2. Enter the three digit number of the desired User Code location (001 to 099) or use the UP or DOWN arrow keys to scroll through the codes. Then select CHG by pressing the RIGHT arrow key.
3. The keypad will display any existing 4 or 6 digit code that is programmed for this user along with any programmed name.
4. Present a new (not previously enrolled) prox card/fob to the reader. If accepted the Keypad will beep 3 times and display the card/fob 12 digit ID.
5. If the card/fob is rejected, a low error tone and Code Not Authorized, Redo will display. Causes for reject include: A. The card/fob has already been enrolled (duplicate codes are not allowed) OR B. The facility code in the card/fob does not match the reader facility code. A prox reader can only read cards/fobs with a matching facility code.
6. Once a prox card/fob is enrolled in a user code location, its capabilities are set by the User Code Options found in Menu 02 of the M1 Installer Level Programming. The commonly used options are: Arm the M1 Control, Disarm the M1 Control, or Access event.

An Access event occurs when a valid prox card/fob is read at a keypad. It will not do anything unless included in a Whenever/And/Then Rule from the Elk-RP software. An Access event can be used to create virtually any desired reaction. i.e., turn on an output, a light, close/open a relay, etc. The following is an example of a rule which will turn on Output 003 for 10 seconds whenever a valid prox card/fob (with Access Option enabled) is presented at Keypad 01. This output could be used to break or make power to a door strike.

WHENEVER Keypad 01 Access is Activated
THEN Turn On Output 003 for 10 seconds.