# IEI 212e Standalone™ Keypad Installation/ Programming Manual

## Contents

# 1. Features and Product Description

## 1.1 Features

- Flush Mount
- Indoor and Outdoor Use
- Keypad Programmable
- Illuminated Backlit Keys
- Keypress Feedback via Built-In Sounder
- Bi-Color Red/Green LED Indicates Relay Status
- Yellow LED Indicates Program Mode
- 120 Users
- 10 to 30 Volt DC Operation
- 12 to 24 Volt AC Operation
- 2 Amp Main Relay
- Remote Trigger Input (REX)
- 5-Year Warranty

## 1.2 Product Description

The 212e Keypad is designed for convenience, and features a single relay output to control any device requiring an on/off switch. The output is timed or latched and operated by a user's PIN code. Additionally, the 212e Keypad can provide basic keyless entry by controlling a door locking device where security is not an issue. It allows 120 users as well as various keypad options.

All e style keypads are designed for both indoor and outdoor flush mount applications. The electronics for each e keypad are conformal coated in the manufacturing process in order to provide this level of application flexibility. In addition, each e style keypad uses hardened keys to assure long-term, high-quality performance. Each e style keypad contains illuminated clear keys that make operation in low-light situations easy and accurate. Installation is easy. All e style keypads mount to any standard single-gang electrical box or directly to any wall.

# 2. Specifications

| Parameter | Range/Description |
|---|---|
| Voltage | 10-30 VDC,<br>12-24 VAC |
| Current | 65mA @ 12VDC,<br>84mA @ 24VDC,<br>50mA @ 12VAC, and<br>80mA @ 24VAC |
| Environment | Indoor and Outdoor |
| Temperature Tolerance | -20 °F to 130 °F |
| Dimensions | 4.5" H x 2.75" W x 0.60" D |
| Main Relay (Form C) | Contact Rating:    2A @<br>30VAC/DC |

# 3. Mounting

The 212e Keypad is designed to be flush mounted using a standard single-gang electrical box. In addition, it can be flush mounted directly to the wall surface by cutting a hole in the wall. In order to properly size the mounting and wire access hole, use the installation template on the last page of this manual and on the unit's container. Mounting height can vary depending on requirements. An appropriate range is typically between 48 and 52 inches on center off the floor.

For outdoor installations, use a weatherproof backbox and seal the wire entry locations with silicone. In addition, use the anti-oxidant grease pack for the wire harness connectors.
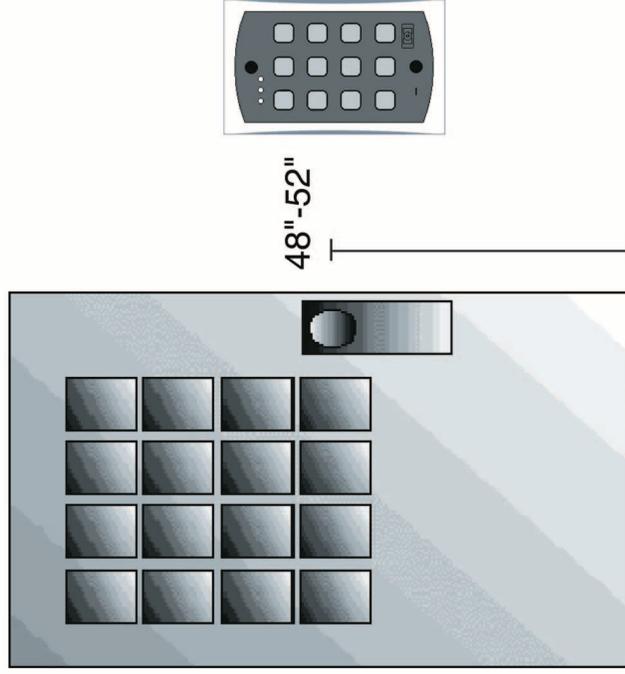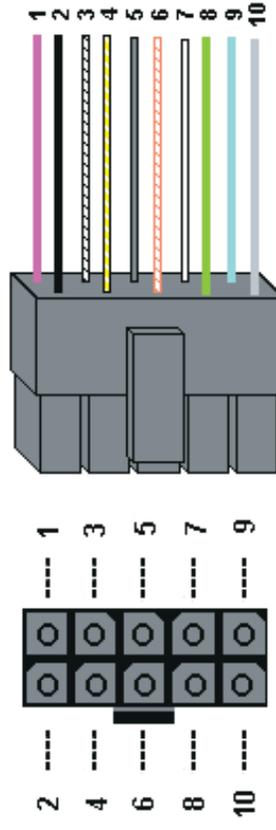
48"-52"

**Figure 1  212e Mounting Height**

# 4. Wiring



**Figure 2  212e Connector and Wire Harness**

## 4.1 Wire Harness Configuration

| Pin | Wire Color | Signal Name |
|---|---|---|
| 1 | Red | V+ |
| 2 | Black | V- |
| 3 | White/Black | Not Used |
| 4 | White/Yellow | Not Used |
| 5 | Brown | Remote Trigger (REX) |
| 6 | White/Orange | Loop Common |
| 7 | White | Not Used |
| 8 | Green | Main Relay - Normally Open |
| 9 | Blue | Main Relay - Common |
| 10 | Gray | Main Relay - Normally Closed |

## 4.2 Wiring the 212e Keypad to a Maglock (Fail-Safe)

Use the following steps to connect the 212e keypad to a Maglock (Fail-Safe):

1.  Connect the red wire (V+) to the blue wire (common), and then connect them to the positive on the power supply.

2.  Connect the gray wire (normally closed) to the positive on the maglock.

3.  Connect the black wire (V-) to the negative on the Maglock, and then connect them to the negative on the power supply.
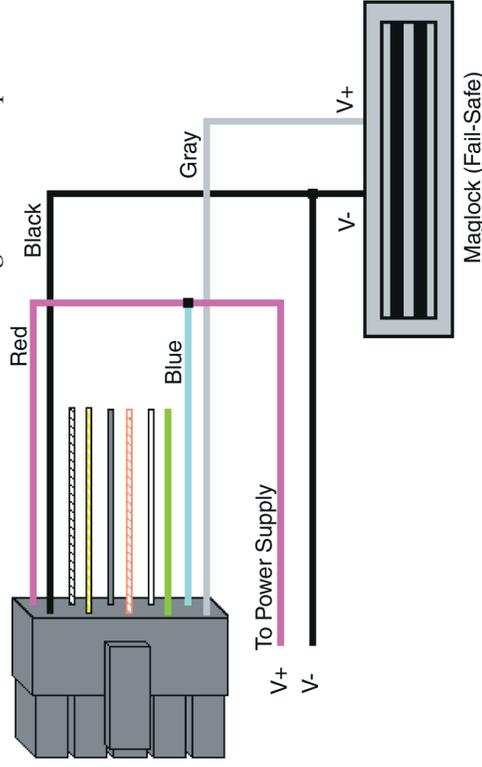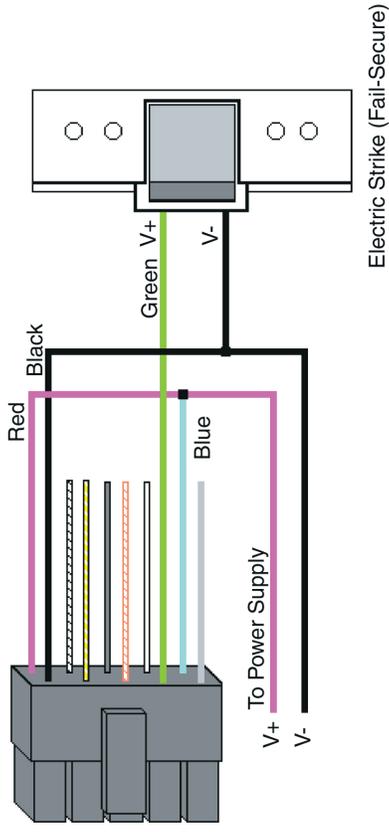


**Figure 3   Wiring 212e Keypad to a Maglock (Fail-Safe)**

## 4.3 Wiring the 212e Keypad to an Electric Strike (Fail-Secure)

Use the following steps to connect the 212e keypad to an electric strike (fail-secure) (see Figure 4 for reference):

1.  Connect the red wire (V+) to the blue wire (common), and then connect them to the positive on the power supply.

2.  Connect the green wire (normally open) to the positive on the strike.

3.  Connect the black wire (V-) to the negative on the strike, and then connect them to the negative on the power supply.

Red
Black
Green V+
V-
Blue
To Power Supply
V+
V-
Electric Strike (Fail-Secure)

**Figure 4  Wiring 212e Keypad to Electric Strike**

# 4.4 Shunting a Normally Closed Zone

Use the following steps to employ the 212e keypad to shunt a nor-mally closed zone:

1.  Connect the blue wire (common) to the common connection on the door position switch.

2.  Connect the green wire (normally open) to the normally closed connection on the door position switch.

To Alarm Panel
Green
Blue
To Alarm Panel
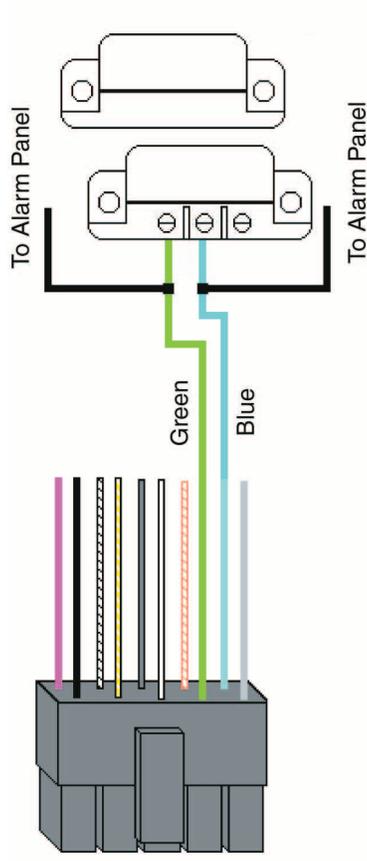
**Figure 5  Shunting a Normally Closed Zone**

# 4.5 Wiring Remote Trigger as Request to Exit (REX) Button

Use the following steps to connect the 212e keypad to a normally open REX device and normally closed door switch:

1. Connect the brown wire (REX Input) to the normally open connection the REX device.

2. Connect the white/orange wire (loop common) to the common on the REX device.
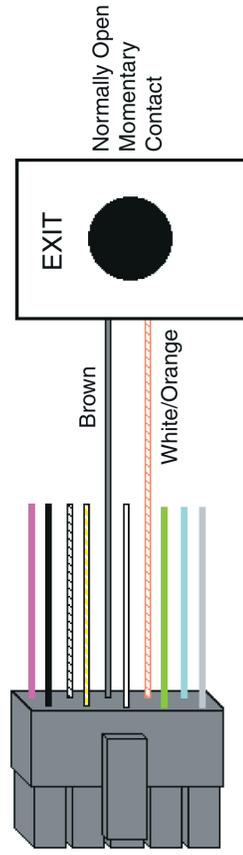
**Figure 6  Wiring a REX Button**

# 5. Testing the Keypad

After installing the keypad, IEI recommends that you perform the keypad self-test, to ensure that the keypad works properly.

1.  To perform the self-test, with the unit powered up, press the following keys on the keypad:

    **7890#123456***

    •   If all 12 keypresses are accepted, the keypad enters self-test mode.

    •   The LEDs alternate green, yellow, and red followed by the sounder beeping three times.

2.  Verify that the master code works correctly. (The master code accesses program mode and activates the main relay to verify that the locking device is working.)

    The default master code is 1234.

# 6. Programming

To program the 212e keypad, you must first enter program mode by pressing **99 # Master Code** *. The default Master Code is 1234.

## 6.1 Programming Main Relay Time

| Command/Action | Keys to Enter/Details |
|---|---|
| **Command 11,** Set Main Relay Time | **11 # time # 0 # *** (Time can be from 1-255 seconds.) |

## 6.2 Programming Users

| Command/Action | Keys to Enter/Details |
|---|---|
| Master Code | User #1 is the master code; it can access all commands in program mode. The default code is 1234. |
| Supervisor Code | User #2, when programmed, is the supervisor code. The supervisor can access program mode, but is limited to adding and deleting users, as well as enabling or disabling users. The supervisor code can not change, delete, or disable the master code or supervisor code itself. |
| Add User | **user location # code * code *** |
| Add User with Specific Unlock Time | unlock time # user location # code * code * (This command is used to program a user with a specific unlock. This user activates the main relay.) |
| Add Toggle User | **0 # user location # code * code *** (This user latches the main relay.) |
| Delete User | user location # * * |

| Command/Action | Keys to Enter/Details |
|---|---|
| **Command 56.** Enable/Disable User | **56 # enable/disable # user location # * *** |
| **Options:** | 1 = Disable<br>0 = Enable<br>The master code and supervisor code cannot be disabled. |

## 6.3 Programming Keypad Options

| Command/Action | Keys to Enter/Details |
|---|---|
| **Command 30.** Enable/Disable keypad options | **30 # option # enable/disable # * *** |

| Option | Set/Clear | |
|---|---|---|
| 0 - audio keypress feedback | 0=disabled, | **1=ENABLED** |
| 1 - visual keypress feedback | 0=disabled, | **1=ENABLED** |
| 2 - auto-entry enable | **0=DISABLED**, | 1=enabled |
| 3 - error lockout | 0=disabled, | **1=ENABLED** |
| 6 - keypad illumination | 0=disabled, | **1=ENABLED** |
| 7 - keypad dimming | 0=disabled, | **1=ENABLED** |
| **Defaults are in bold.** | | |

| | |
|---|---|
| Auto-entry | When auto-entry is enabled, users with codes the same length as the master code do not have to press the * key after entering their code. If you have a code greater than the master code, you can use Auto-Entry Suspend. Just enter the # key prior to your code followed by the * key. Example: **# 23456 *** if the master code is four digits. |
| Error Lockout | When enabled, the keypad keeps track of the number of consecutive invalid codes entered, including attempts to access program mode. When the threshold is reached, the yellow LED turns on solid and the keypad no longer responds to key presses for the programmed time duration. The count is reset by entering a valid code, including entering program mode. The error lockout threshold and duration is programmed with command 32. |
| Keypad Illumination | Keypad backlighting can be enabled or disabled. |

| Command Action | Keys to Enter/Details |
|---|---|
| Keypad Dimming | When enabled, the backlighting illumination level decreases 15 seconds after the last key press. When disabled, the backlighting remains at full illumination at all times. |
| **Command 32.** Change Keypad Parameters | **32 # parameter # value # * *** |
| **Parameter** 2 - error lockout threshold 3 - error lockout duration | **Value** 1 through 50 (defaults to 3) 1 through 255 (defaults to 10) |
| **Command 40.** Reset defaults only. | **40 # 00000 # 00000 # *** (master code, all keypad options and parameters) |
| **Command 46.** Erase Users and Reset Default Settings. | **46 # 00000 # 00000 # *** |

# 7. Troubleshooting

Refer to this section if the 212e keypad is not operating correctly as described in this manual.

| Problem | Solution |
|---------|----------|
| The LEDs are slowly cycling from right to left and backlighting is off. | The 212e keypad is designed to monitor the input voltage and this is an indication of under-voltage. The under-voltage threshold is set to 8.5VDC, and when the voltage drops below this limit, the low voltage warning starts and backlighting is turned off. To solve, raise the voltage to between 12-24V. |
| The LEDs are rapidly cycling from left to right and the keypad has lost all operation. | The 212e keypad is designed to monitor the input voltage, and this is an indication of over-voltage. The over- voltage threshold is set to 36VDC, and when the voltage rises above this limit, the over-voltage warning starts and the keypad loses all operation. To solve, lower the voltage to between 12-24V. |
| The master code does not work. | Perform the programming mode loopback and reset the master code using the programming command. |
| No LEDs are lit on the keypad | Power is not reaching the keypad. Using a voltmeter, confirm that there is voltage at the keypad on the red and black wires. If there is no voltage at the keypad, verify that there is voltage at the power supply. If there is no voltage at the power supply, call the manufacturer of the power supply. If there is voltage at the power supply but not at the keypad, verify there is no break in the wires, then check continuity in the whole length of the wire run. To verify that the keypad is working, you can power the keypad with a 12-Volt Battery. |

**If the 212e Keypad still does not work after troubleshooting, please call IEI's technical support department at 1-800-343-9502 (outside MA) or 1-800-733-9502 (inside MA). Operating hours are Monday through Friday from 8:00 A.M. to 7:00 P.M. Eastern Standard Time.**

# 8. Programming Mode Loopback

If the master code is either not working or forgotten, power down the system, connect the wire harness as shown in Figure 9 below, and then power the system up again. Next, change your master code and power down the system and restore the wire harness to its original configuration and power the system back up.

White/Yellow
TO
Brown and White/orange
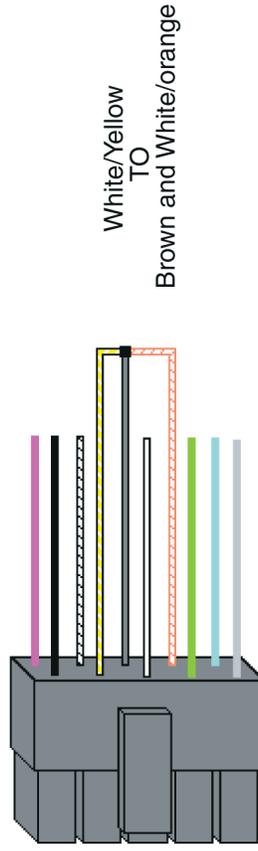
**Figure 7  Programming Mode Loopback Standalone**

First, disconnect power from the system. Next, connect the White/Yellow wire to the Brown (REX) and White/Orange (Loop Common) wire as shown in Figure 7. Finally, power up the keypad again.

# 9. Warranty

International Electronics Incorporated (IEI) warrants its products to be free from defects in material and workmanship, when they have been installed in accordance with the manufacturer's instructions, and have not been modified or tampered with. **IEI** does not assume any responsibility for damage or injury to person or property due to improper care, storage handling, abuse, misuse, normal wear and tear, or an act of God.

**IEI's** sole responsibility is limited to the repair (at IEI's option) or the replacement of the defective product or part when sent to **IEI's** facility (freight and insurance charges prepaid), after obtaining **IEI's** Return Merchandise Authorization. IEI will not be liable to the purchaser or any one else for incidental or consequential damages arising from any defect in, or malfunction of, its products.

This warranty shall expire five years after shipping date for Hub Access Control System products. Except as stated above, **IEI** makes no warranties, either expressed or implied, as to any matter whatsoever, including, without limitation to, the condition of its products, their merchantability, or fitness for any particular application.

*e-keypad surface-mount template*

1 1/4" dia.

1 1/4" dia.

4.50"

3.280"

2.756"

drill out hole **1** for **212** and **ssw-e** installation
drill out holes **1** + **2** for **232**, **242** installation