



# ***e/eM Style Open Technology Keypad Installation/ Programming Manual***

This manual applies to these models: SSWe and SSWeM.

This equipment is designed to be installed and serviced by security and lock industry professionals.

**Put Service Company Contact Information Here:**

**Company Name:** \_\_\_\_\_

**Service Number:** \_\_\_\_\_

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Manual Revision Date: 12/10/04

Firmware Version: 1.0b

# 1. Features and Product Description

## 1.1 Keypad Features

- Flush Mount, Single Gang
- Rugged Construction for Indoor and Outdoor Use
- Durable Metal Braille Keys (e keypad only)
- Keypress feedback via Built-In Sounder
- Illuminated Backlit Keys (eM keypad only)
- Bi-Color Red/Green LED Indicators
- Yellow LED Indicates Program Mode
- Works with all IEI Secured Series Hub Control Products
- Works with all 26-Bit Wiegand Access Control Panels
- Wiegand Format and Site Code ID Programmable
- 10 to 30 Volt DC Operation
- 12 to 24 Volt AC Operation

## 1.2 Keypad Product Description

The keypad works as a front end for all IEI Secured Series access systems as well as all 26-Bit Wiegand Access Control products. For quick installation, the keypad can be configured for either operation using a simple programming command or special loopback configurations using the wire harness. The keypad can also be programmed to operate with seven other Wiegand formats and the site code ID is programmable, along with other various keypad options.

All keypads are designed for both indoor and outdoor flush mount applications. The electronics for each keypad are conformal coated in the manufacturing process to provide this level of application flexibility. All keypads mount to any standard single-gang electrical box or directly to any wall.

## 2. Specifications

Parameter	Range/Description
Voltage	10-30 VDC, 12-24 VAC (auto-adjusting)
Current	<b>SSWeM:</b> 12mA@10VDC, 22mA@30VDC, 25mA@12VAC, 40mA@24VAC <b>SSWe:</b> 42mA@10VDC, 70mA@30VDC, 70mA@12VAC, and 114mA@24VDC
Environment	Indoor and Outdoor
Temperature Tolerance	-20° F to 130° F (-28° C to 54° C)
Dimensions	4.5" H x 2.75" W x 0.60" D

Open Keypads Default Settings	
Parameter	Default Setting
Local Program Code	6789
Visual Keypress Feedback	Enabled
Audio Keypress Feedback	Enabled
Front End Mode	Hub Front End
Wiegand Format	26 Bit

## 3. U.L. Requirements

**NOTE:** This section applies to the SSWe keypad only. The SSWeM keypad is not U.L. Listed.

The SSWe keypad is a U.L. Listed access control accessory that complies with UL 294. This section contains information regarding all the requirements necessary to meet U.L. requirements.

This system must be installed in accordance with the National Electrical code (NFPA70), local codes, and the authorities having jurisdiction. In addition, all wires and cables used must be stranded and shielded U.L. Listed and/or recognized wire.

This keypad must be connected to either a U.L. Listed IEI Door Controller or a U.L. Listed Wiegand control panel.

A U.L. Listed access control power limited power supply must be used to power the keypad.

**NOTE:** The relay on the circuit board is not used in this product and was not evaluated by U.L.

## 4. Mounting

The 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. To properly size the mounting and wire access hole, use the installation template on the last page in 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 and provide a drain hole. In addition, use the anti-oxidant grease pack for the wire harness connectors.

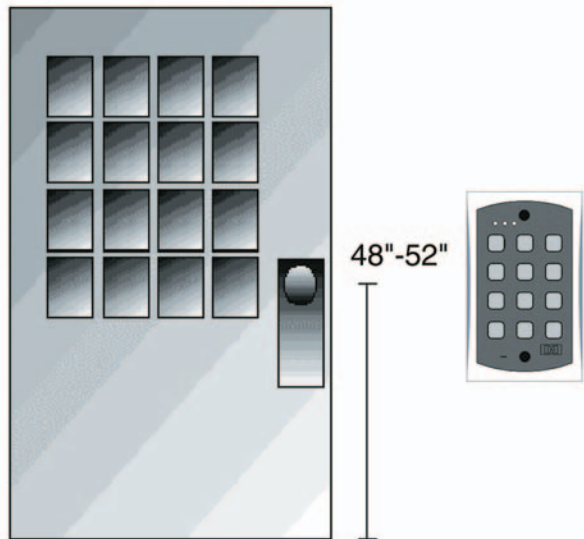


Figure 1 Keypad Mounting Height

## 5. Wiring

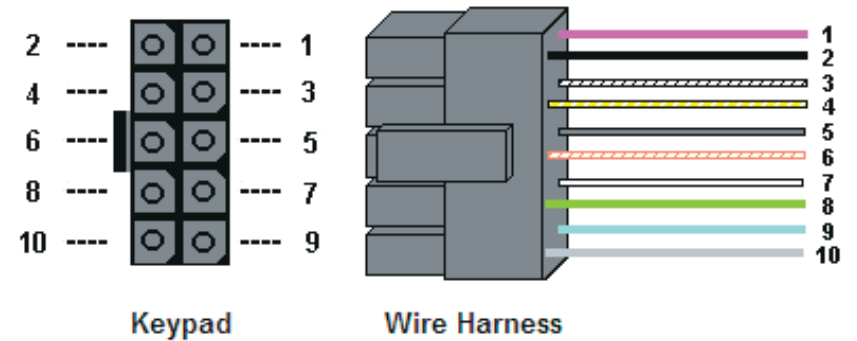


Figure 2 Connector Harness

Pin	Wire Color	Signal Name
1	Red	V+ (Keypad Power)
2	Black	V- (Keypad Power)
3	White/Black	Data 0
4	White/Yellow	Data 1
5	Brown	LED 1
6	White/Orange	Not Used
7	White	Not Used
8	Green	Not Used
9	Blue	Not Used
10	Gray	Not Used

## 5.1 Wire Specifications

Connecting the keypad to an IEI controller or Wiegand panel requires a stranded wire cable with overall foil shield and drain wire. Connect the drain wire at the controller end to your ground wire. At the keypad, you **must** cut back the drain wire and foil shield and tape with electrical tape. The maximum wire distance is shown in the table below.

Wire Gauge	Wire Distance
18 AWG	1000 Feet
20 AWG	500 Feet
22 AWG	250 Feet

## 5.2 Connecting the Keypad to an IEI Hub Door Controller

Only four wires are required to connect the keypad to an IEI Hub Door Controller. Connect the red (V+), black (V-), white/black (Data 0) and white/yellow (Data 1) wires to the corresponding wires on the IEI controller as shown in Figure 3.



Figure 3 Connecting the Keypad to Hub Door Controller



### 5.3 Connecting the Keypad to a Wiegand Panel

Only five wires are required to connect the keypad to a Wiegand panel. Connect the red (V+), black (V-), white/black (Data 0), white/yellow (Data 1) and brown (LED 1) wires to the corresponding wires on the Wiegand panel as shown in Figure 4.

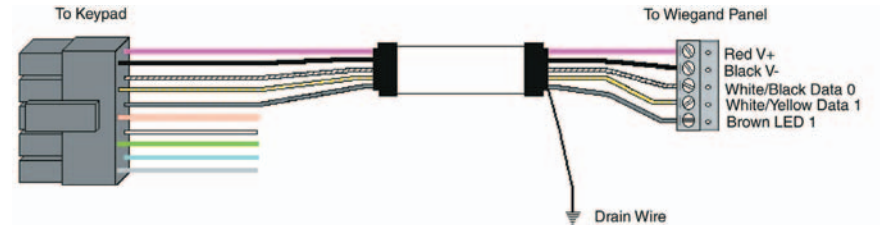


Figure 4 Connecting the Keypad to a Wiegand Panel

## 6. Testing the Keypad

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

- 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 three times followed by the sounder beeping three times.
- When finished (in Hub Front End mode only), the yellow LED starts flickering rapidly.
- Press \* to clear.

# 7. Programming

To enter program mode, enter your local Program Code by pressing **099 # Program Code \***.

## 7.1 Programming Options Chart

Command/Action	Keys to Enter/Details
<b>Command 90.</b> Change Local Program Code	<b>90 # 0 # 0 # code * code *</b> (default=6789)
<b>Command 91.</b> Set/Clear Keypad Options (options below, defaults in bold)	<b>91 # option # set/clear # * *</b>
<b>Option</b>	<b>Clear</b> <b>Set</b>
0-visual keypress feedback	0=disabled <b>1=ENABLED</b>
1-audio keypress feedback	0=disabled <b>1=ENABLED</b>
3-front end select	<b>0=HFE</b> 1=wfe
4-HFE location	<b>0=OUTSIDE</b> 1=inside
5-WFE red led enabled	0=disabled <b>1=ENABLED</b>
6-WFE red led active state	<b>0=LOW</b> 1=high
7-WFE green led enable	0=disabled <b>1=ENABLED</b>
8-WFE green led active state	0=low <b>1=HIGH</b>
10-PIN size test	<b>0=DISABLED</b> 1=enabled
11-keypad illumination	0=disabled <b>1=ENABLED</b>
12-keypad dimming	0=disabled <b>1=ENABLED</b>
HFE=Hub Front End	WFE=Wiegand Front End
<b>NOTE:</b> Options 11 and 12 available only in e keypads.	
<b>Command 92.</b> Set Wiegand Parameters	<b>92 # parameter # value # **</b>
<b>Parameter</b>	<b>Value</b>
1-Wiegand format	1-8 (defaults to 1=26 bit) (see Wiegand Format chart)
2-Interpulse spacing	1-255 (defaults to 32= 64- microseconds)
3-Pulse width	1-255 (defaults to 8= 160 microseconds)

Command/Action	Keys to Enter/Details
<b>Command 93.</b> Set Wiegand ID's	<b>93 # ID Type # ID Value # * *</b>
<b>ID Type</b>	<b>ID Value</b>
0-site id	See Wiegand Format chart (default=0)
1-group id	See Wiegand Format chart (default=0)
<b>Command 96.</b> Reset keypad Settings to Default	<b>96 # 0 # 0 # * *</b> Reset keypad to Hub Front End <b>96 # 1 # N # * *</b> Reset keypad to Wiegand Front End using wiegand format N.

## 7.2 Wiegand Format Chart

Format Value	Wiegand Format	Largest PIN Value	Largest Site Value	Largest Group Value
1	26 bit	65535	255	N/A
2	28 bit	32767	255	N/A
3	29 bit	524287	255	N/A
4	30 bit	65535	255	15
5	31 bit	65535	255	31
6	32 bit	8191	2047	63
7	36 bit	1048575	255	N/A
8	29 bit	524287	255	N/A

## 8. Troubleshooting

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

Problem	Solution
The local program code is not allowing access to local program mode.	Perform the program mode loopback shown in the next section (Figure 7) and reset the local program code using command <b>90 # 0 # 0 # code * code *</b>
No LED's are lit on the keypad.	Power may not be reaching the keypad. Using a voltmeter, verify that voltage is reaching the keypad on the Red and Black wires. If there is no voltage, verify the voltage at the controller and power supply and verify that there is no break in the wires, then check continuity through the whole length of the wire run. Also, when using the keypad as a Wiegand front end, verify that the LED wire is connected.
The code works on the controller but does not work on the keypad.	The data lines may not be connected. Verify that both data lines are connected to the keypad and controller and make sure there is continuity through the whole length of the wire run.
After performing the keypad self-test, the yellow LED is on solid (not flickering rapidly, HFE mode only).	The data lines may not be connected. Verify that both data lines are connected to the keypad and controller and make sure there is continuity through the whole length of the wire run.

**DEALERS/INSTALLERS ONLY!** End users must contact dealer/installer for support. If the 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.

## 9. Wire Harness Loopback Connections

If the four data wires are shorted in one of the two configurations shown below on power up, the option is set. To connect, remove power after you hear the three beeps and then reconnect the data lines to their proper working configuration.

### 9.1 Defaulting Door-Gard/Setting in Hub Front End Mode

First, disconnect power from the system, then connect the White/Black Wire (Data 0) to the White Wire and connect the White/Yellow Wire (Data 1) to the Brown Wire (LED 1), as shown in Figure 5, and power up the keypad.

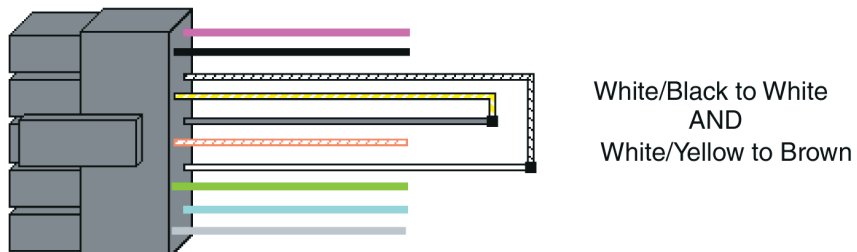


Figure 5 Hub Front End Loopback

## 9.2 Defaulting Door-Gard/Setting in 26-bit Wiegand Front End Mode

First, disconnect power from the system, then connect the White/Black Wire (Data 0) to the Brown Wire (LED 1) and connect the White/Yellow Wire (Data 1) to the White Wire, as shown in Figure 6, and power up the keypad.

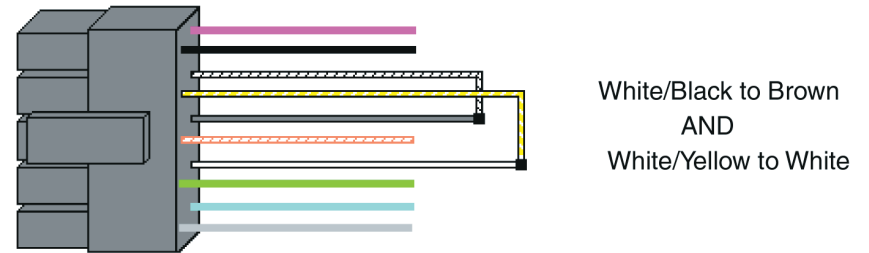


Figure 6 Wiegand Front End Loopback

## 9.3 Entering Program Mode Using the Wire Harness

If the local program code is either not working or forgotten, power down the system, connect the wire harness as shown below, and then power the system up again. Next, change your local program code and power down the system and restore the wire harness to its original configuration and turn the power on again.

First, disconnect power from the system, then connect the White/Yellow Wire (Data 1) to the Brown (LED 1) and White Wire, as shown in Figure 7, and power up the keypad.

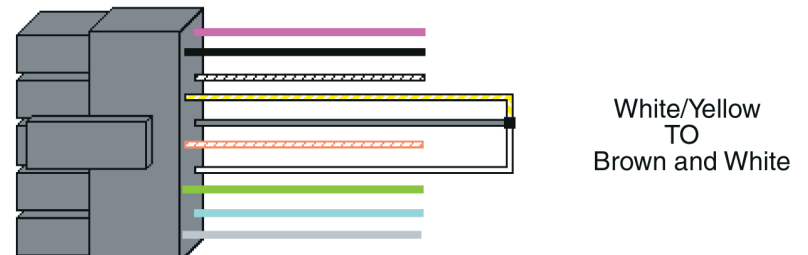


Figure 7 Program Mode Loopback

## 10. Warranty

International Electronics Inc. (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 Material 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.

Except as stated above, IEI makes no warranties, either expressed or implied, as to any matter whatsoever, including, and without limitation to, the condition of its products, their merchantability, or fitness for any particular purpose.

### Warranty Periods Are:

1 Year	PowerKey
2 Years	Door Gard & Secured Series Products
2 Years	LS Series
2 Years	Glass Break
5 Years	'e' and 'eM' Style Keypads

*All products have date code labeling to determine the warranty period. A 90-day grace period is added to all products to account for shelf life.*









