K1 Series
All-In-One 12-Pad

Multi-Format
Keypad Reader

INSTALLATION & INSTRUCTION MANUAL

ESSEX ELECTRONICS INCORPORATED

K1 Series All-In-One 12-Pad
Multi-Format Keypad Reader

Document Information

Product Information

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference including interference that may cause undesired operation.

Trademarks

Keyless Entry® is a registered trademark of Essex Electronics, Inc.

Contact Information

Essex Electronics, Incorporated
1130 Mark Avenue, Carpinteria, CA 93013
(805) 684-7601 or (800) 539-5377 (KEY-LESS)
FAX (805) 684-0232

Website: keyless.com
General email: essex@keyless.com
Technical Support email: support@keyless.com

Table of Contents

Introduction

■ Overview – The K1 Series

The Essex K1 Series All-In-One 12-Pad Multi-Format is an extremely versatile Keypad that can be configured in the field as any one of the following:

- 26 Bit Wiegand Keypad Reader
- 8 Bit Word Keypad Reader
- BCD Keypad Reader
- Serial ASCII Keypad Reader
- ABA Track II Clock & Data Reader
- 4 Bit Word Keypad Reader
- 500 user-code, stand-alone Keyless Entry® System (See the "K1 Series All-In-One 12-Pad Self-contained Keyless Entry® System" manual)

■ 3x4 Keypad (left) and 2x6 Keypad (right)

Keypad

■ Keypad Specifications

Input Voltage:	5VDC or 12 to 24VDC (Jumper Selectable)
Standby Current Draw:	25mA
Outputs:	4 Open Collector, 1/4 A Max to Ground
Keypad Switch Life:	>1 Billion Cycles
Keypad Operating Environment:	-40°C to +70°C (-40°F to +160°F), 100% Relative Humidity

Keypad

■ Keypad Specifications, cont'd.

3x4 Keypad Dimensions:	5-1/8"H x 3-3/8"W x 7/16"D (13 x 8.6 x 1.1 cm)
2x6 Keypad Dimensions:	7-1/8"H x 1-3/4"W x 3/4"D (13 x 8.6 x 1.1 cm)
3x4 Keypad Weight:	16 oz (454 gm)
2x6 Keypad Weight:	4.4 oz (125 gm)
LED's:	1 Red, 1 Green

■ Keypad Part Numbers

3x4 Keypad

K1-34B	Brass Finished* Bezel
K1-34S	Stainless Steel Bezel
K1-34K	Black Bezel
K1-34X	No Bezel

2x6 Keypad

K1-26B	Brass Overlay
K1-26I	Illuminated
K1-26S	Stainless Steel Overlay
K1-26R	Braille Overlay

*Bezel is brass in appearance. Actual bezel is PVD-coated stainless steel.

■ Keypad Configuration

Voltage Selection

The factory default setting for the Keypad voltage is 12-24VDC. Verify that the jumper is removed or placed over only one pin. For 5VDC, the jumper should be placed across both pins. If changing the voltage is necessary, make sure the power is removed first.

Keypad Output Selection

Once the voltage jumper is verified or correctly set:

1. Remove power.

2. Jumper the two pins above the connector labeled "CONFIG."

3. Apply appropriate power. (You should hear 4 beeps and the RED LED will flash and the GREEN LED will be solid.)

4. Now that the Keypad is in configuration mode, select the desired output by entering the configuration number followed by #.

    a. Keypad Output

Keypad Output	Configuration	Site Code
26 Bit Wiegand (default)	1 #	000
8 Bit Word	2 #	
BCD	3 #	
Serial ASCII	4 #	
ABA Track II Clock & Data	5 #	
4 Bit Word	6 #	
Self-contained- ERM-3*	98 #	
Self-contained- Non-encoded	99 #	

    *Requires Essex Encoded Relay Module, which contains a serial interface to connect a computer for programming and reading codes, or a printer for real-time print-out of activities. Refer to the manual for the "K1-ERM Encoded Keyless Entry® Access Control System."

b. To change the audible beep, enter

Code   Audible Beep
201 #   Normal Beep (factory default)
200 #   Short Click (quieter)

c. To change the illumination on the K1-26 only, enter the code as follows:

Code	Standby Mode	Normal Operation
210 #	Off (factory default)	Off (factory default)
211 #	Off	Dim
212 #	Off	Bright
213 #	Dim	Dim
214 #	Dim	Bright

You should hear 3 beeps indicating successful configuration (the RED LED will continue to flash and the GREEN LED will be solid). If you hear a long error beep, re-enter the configuration number followed by #.

5. Remove power.

6. Remove configuration jumper.

7. Re-apply power.

8. RED LED on, GREEN LED off.

IMPORTANT: Once the configuration is selected, you must remove power, remove the configuration jumper and then re-apply power in order to complete the configuration procedure. Note: If the configuration jumper is not removed, the LED's will flash and the Keypad will beep continuously.

Keypad Reset

In certain cases you may want to erase all user codes and restore system defaults. To perform this procedure:

CAUTION: This procedure completely erases the memory and restores factory defaults! Once the memory is cleared, all programmed User Codes are erased and factory default settings are restored.

1. Remove power.

2. Jumper the two pins above the connector labeled "CONFIG."

3. Apply appropriate power. (You should hear 4 beeps and the RED LED will flash and the GREEN LED will be solid).

4. Once the Keypad is in configuration mode, enter 0099#. The Keypad will beep twice and both LEDS will flash for approximately 10 seconds. (During this time, the Keypad will appear dead. Do NOT remove power!)

5. Once the reset is complete, you will hear 4 beeps and the RED LED will flash and the GREEN LED will be solid.

6. Enter the configuration number followed by #.

    a. Keypad Output

Keypad Output	Configuration	Site Code
26 Bit Wiegand (default)	1 #	000
8 Bit Word	2 #	
BCD	3 #	
Serial ASCII	4 #	
ABA Track II Clock & Data	5 #	
4 Bit Word	6 #	

a. Keypad Output cont'd.

Keypad Output	Configuration Site Code
Self-contained- ERM-3*	98 #
Self-contained- Non-encoded	99 #

*Requires Essex Encoded Relay Module, which contains a serial interface to connect a computer for programming and reading codes, or a printer for real-time print-out of activities. Refer to the manual for the "K1-ERM Encoded Keyless Entry® Access Control System."

b. To change the audible beep, enter

Code	Audible Beep
201 #	Normal Beep (factory default)
200 #	Short Click (quieter)

c. To change the illumination on the K1-26 only, enter the code as follows:

Code	Standby Mode	Normal Operation
210 #	Off (factory default)	Off (factory default)
211 #	Off	Dim
212 #	Off	Bright
213 #	Dim	Dim
214 #	Dim	Bright

You should hear 3 beeps indicating successful configuration (the RED LED will continue to flash and the GREEN LED will be solid). If you hear a long error beep, re-enter the configuration number followed by #.

7. Remove power.

8. Remove configuration jumper.

9. Re-apply power.

10. RED LED on, GREEN LED off.

26 Bit Wiegand Keypad Reader

■ 26 Bit Wiegand Specifications

The All-In-One 12-Pad is capable of generating standard 26 Bit Wiegand data. DATA 1 and DATA 0 signals are open collector outputs with 2.2K pull-ups to the internal +5v. The data is sent at 1 msec per bit with a pulse duration of 50 usec. An annunciator beeps with each key press. When the LED control input is pulled low, the GREEN LED will be on and the RED LED will be off. When the input goes high the RED LED is on and the GREEN LED is off. The LED that is illuminated will blink off with every key press. The LED control input is pulled to the internal +5v with a 2.2K resistor. An output is generated with each key press, which can be used to drive a CCTV or Security Light. Located through the Blue wire (see Connector Wiring), this is an open collector output capable of sinking 1/4 A with a 30 second on time.

The following WIEGAND output is sent each time the # (enter) key is pressed:

```
      P S S S S S S S  N N N N N N N N N N N N N N  N P
BIT   1 2              9 10                        25 26
```

- ■ BIT 1 is an even parity for the following 12 bits.
- ■ The sum of bits 1-13 is even.
- ■ BITS 2-9 are the SITE CODE.
- ■ BITS 10-25 This is the number(PIN) entered prior to pressing # (enter).
- ■ Leading 0's are added as required. Bit 10 is most significant.
- ■ BIT 26 is an odd parity over the previous 12 bits. The sum of bits 14-26 is odd.
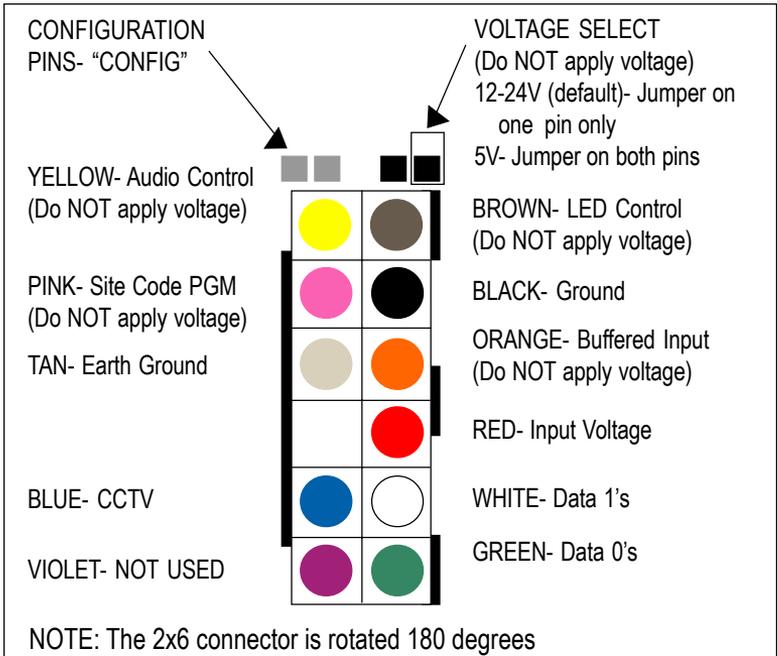
Example: Site Code of 004 and a code of 123 entered

1 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 0 1 1 1

Note: An error code, which sends all binary 1's to your panel, is generated by any of the following:

a. Pressing the # key with no preceding digits.

b. Pressing any number of only 0's prior to pressing the # key.

c. Pressing 65,535 or any number above 65,535. Do NOT program your panel to accept code number 65,535.

■ 26 Bit Wiegand Connector Wiring

CONFIGURATION
PINS- "CONFIG"

VOLTAGE SELECT
(Do NOT apply voltage)
12-24V (default)- Jumper on
   one pin only
5V- Jumper on both pins

YELLOW- Audio Control
(Do NOT apply voltage)

BROWN- LED Control
(Do NOT apply voltage)

PINK- Site Code PGM
(Do NOT apply voltage)

BLACK- Ground

TAN- Earth Ground

ORANGE- Buffered Input
(Do NOT apply voltage)

RED- Input Voltage

BLUE- CCTV

WHITE- Data 1's

VIOLET- NOT USED

GREEN- Data 0's

NOTE: The 2x6 connector is rotated 180 degrees

PINK- Site Code Program

This Keypad is capable of having the SITE CODE programmed in the field. The PINK wire is used for this procedure.

■ With no voltage applied to the Keypad, connect the PINK wire to the BLACK wire on the wiring harness. Apply the appropriate voltage to the RED and BLACK wires. You will hear 4 rapid audible beeps and both the RED and GREEN LED's will flash at the same rate.

■ Enter the desired SITE CODE (between 0 and 255) on the Keypad and press # for enter. You will again hear 4 rapid audible beeps.

■ At this point the Keypad will appear non-functional and will not accept any entries. (If the wrong key is pressed during the programming sequence, pressing the * key will clear the entry. You will then hear 2 rapid beeps and both LED's will flash at the same rate. The Keypad will generate an error tone if you enter a SITE CODE over 255.)

■ Disconnect power to the RED wire and disconnect the PINK wire from the BLACK wire.

Now you can connect the standard Wiegand 5 wires to the Keypad and the programmed SITE CODE will be generated as part of the 26 Bit data when the enter key (#) is pressed.

This procedure may be repeated to change the SITE CODE.

The factory default site code is 000.

BLUE- CCTV
Pressing any position on the Keypad will generate a 30-second, 0.25 Amp, intermittent duty grounding output on the BLUE wire.

ORANGE- Buffered/Hold Line
When the Hold Line or ORANGE wire is pulled low, codes entered on the Keypad are stored in the buffer. When the Hold Line is released to a logic high, the buffered code is sent. This input is pulled high with a 2.2K resistor.

YELLOW- Audio Control
Pulling YELLOW low (grounding) causes the beeper to sound.

TAN- Case Ground
In higher static prone areas, the TAN wire is used to divert static discharge away from the microprocessor in the Keypad. Ideally, the TAN wire should be connected to a known Earth Ground at the Keypad installation point (Do NOT run back to the panel through the cable).
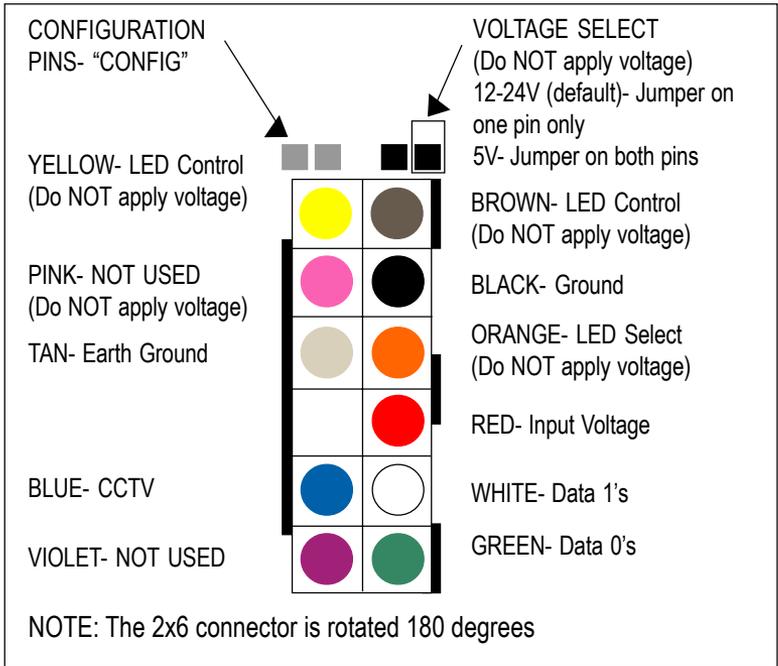
8 Bit Word Keypad Reader

■ 8 Bit Word Specifications

DATA 1 and DATA 0 signals are open collector outputs with 2.2K pull-ups to the internal +5V. The data is sent at 1 msec per bit with a pulse duration of 50 usec. An annunciator beeps with each key press. An output is generated with each key press which can be used to drive a CCTV or Security Light. Located through the BLUE wire (see Connector Wiring), this is an open collector output capable of sinking 1/4 A with a 30 second on time.

Each key press generates an 8-Bit sequence in the following output format:

KEY	OUTPUT	KEY	OUTPUT
0	11110000	6	10010110
1	11100001	7	10000111
2	11010010	8	01111000
3	11000011	9	01101001
4	10110100	*	01011010
5	10100101	#	01001011

■ 8 Bit Word Connector Wiring

CONFIGURATION
PINS- "CONFIG"

VOLTAGE SELECT
(Do NOT apply voltage)
12-24V (default)- Jumper on
one pin only
5V- Jumper on both pins

YELLOW- LED Control
(Do NOT apply voltage)

BROWN- LED Control
(Do NOT apply voltage)

PINK- NOT USED
(Do NOT apply voltage)

BLACK- Ground

TAN- Earth Ground

ORANGE- LED Select
(Do NOT apply voltage)

RED- Input Voltage

BLUE- CCTV

WHITE- Data 1's

VIOLET- NOT USED

GREEN- Data 0's

NOTE: The 2x6 connector is rotated 180 degrees

BLUE - CCTV
Pressing any position on the Keypad will generate a 30 second
0.25 amp intermittent duty grounding output.

ORANGE - LED Control
The ORANGE wire allows the choice of controlling the RED &
GREEN LED's on the Keypad with either 1 wire (BROWN) or 2
wires (BROWN & YELLOW).

ORANGE - LED Control, cont'd.

a. When the ORANGE wire is floating (not connected), two wires control the LED's. When the BROWN wire is pulled low (grounded), the GREEN LED is on. When the YELLOW wire is pulled low, the RED LED is on.

b. To control both LED's with one wire (BROWN), pull the ORANGE wire low. When the LED control input is pulled low, the GREEN LED will be on and the RED LED will be off. When the input goes high, the RED LED will be on and the GREEN LED will be off. The LED that is illuminated will blink with every key press. The LED control is pulled to the internal +5 with a 2.2K resistor.

BCD Keypad Reader

■ BCD Specifications

An Output is generated with each key press with a pulse duration of 75 msec. If a longer pulse width is required, grounding the PINK wire on the connector will increase the pulse width to 150 msec. An annunciator beeps with each key press.
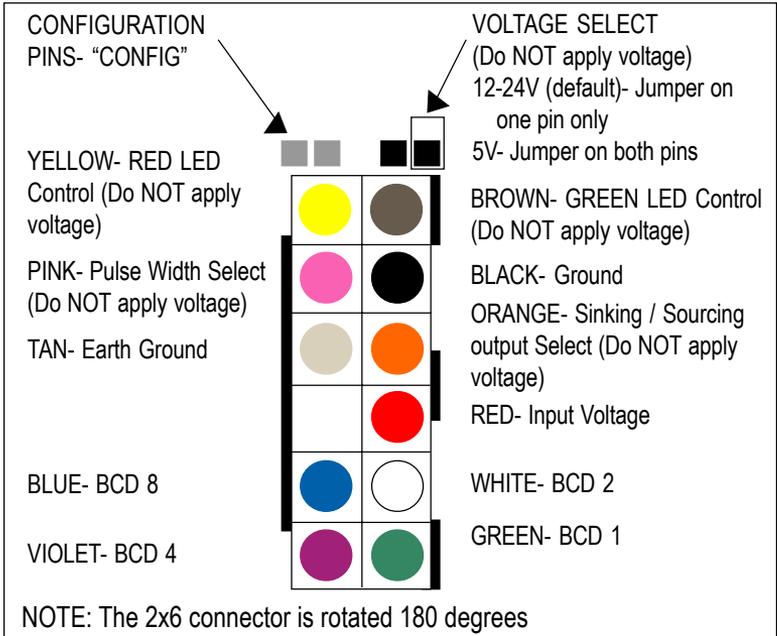
The output is BCD SINKING with internal 2.2K ohm pull-up resistors. If a BCD SOURCING output is required, grounding the ORANGE wire on the connector will convert the output to BCD SOURCING thru 2.2K ohm resistors. The resistors are pulled up to the internal 5V.

The BCD outputs are:

    1 GREEN
    2 WHITE
    4 VIOLET
    8 BLUE

■ Position "**0**" is sent as a 10

■ Position "*" is sent as an 11

■ Position "#" is sent as a 12

■ BCD Connector Wiring

CONFIGURATION PINS- "CONFIG"

VOLTAGE SELECT
(Do NOT apply voltage)
12-24V (default)- Jumper on one pin only
5V- Jumper on both pins

YELLOW- RED LED Control (Do NOT apply voltage)

BROWN- GREEN LED Control (Do NOT apply voltage)

PINK- Pulse Width Select (Do NOT apply voltage)

BLACK- Ground

ORANGE- Sinking / Sourcing output Select (Do NOT apply voltage)

TAN- Earth Ground

RED- Input Voltage

BLUE- BCD 8

WHITE- BCD 2

VIOLET- BCD 4

GREEN- BCD 1

NOTE: The 2x6 connector is rotated 180 degrees

YELLOW - Red LED
Grounding the YELLOW wire on the connector will illuminate the RED LED. (Do NOT apply voltage.)

BROWN - Green LED
Grounding the BROWN wire on the connector will illuminate the GREEN LED. (Do NOT apply voltage.)

RED - Input Voltage
The input voltage is 5V or 12-24V.

TAN - Earth Ground
The TAN wire or Earth Ground should be connected to a good ground close to the Keypad.

Serial ASCII Keypad Reader

■ Serial ASCII Specifications

Normal Serial and Inverted Serial signals are open collector outputs with 2.2K pull-ups to the internal +5v. An annunciator beeps with each key press. When the LED control input is pulled low, the GREEN LED will be on and the RED LED will be off. When the input goes high, the RED LED is on and the GREEN LED is off. The RED LED will blink with every key press. The LED control input is pulled to the internal +5v with a 2.2K resistor. An output is generated with each key press which can be used to drive a CCTV or Security Light. Available through the BLUE wire (see Connector Wiring), this is an open collector output capable of sinking 1/4 A with a 30 second on time. The PINK wire is used to modify the Keypad baud rate, parity and mode. This can be accomplished in the field.

Modifying the Baud Rate, Parity and Mode

1. Baud Rate (first digit)

   With no voltage applied to the Keypad, connect the PINK wire to the BLACK wire on the wiring harness. Apply the appropriate voltage to the RED and BLACK wires. You will hear 4 rapid audible beeps and both the RED and GREEN LED's will flash at the same rate. Enter the desired first digit on the Keypad to select the baud rate:

1 = 300		**5** = 4800	
2 = 600		**6** = 9600	
3 = 1200		**7** = 19200	
4 = 2400		**8** = 38400	

   Note: All baud rates have a timing error of < 0.2% + Xtal Freq Error.

If the wrong baud rate is selected, pressing the * key before entering the parity option will clear the entry. The Keypad will generate an error tone if you enter an invalid number. You should hear 2 audible beeps and the RED LED will continue blinking fast while the GREEN LED will blink slow.

2. Parity Option (second digit)

    Next, enter the desired second digit on the Keypad to select the parity option:

    0 = None (8 Data Bits)

    1 = Odd (7 Data Bits + Odd Parity Bit)

    2 = Even (7 Data Bits + Even Parity Bit)

    Note: All Parity formats have a single Start and Stop Bit.

    If the wrong parity is selected, pressing the * key before entering the mode option will clear the entry. The Keypad will generate an error tone if you enter an invalid number. You should hear 2 audible beeps and the RED LED will continue blinking fast while the GREEN LED will be solid.

3. Mode (third digit)

    To select the desired mode option, enter the desired third digit on the Keypad:

    0 = NORMAL (Single character output with each keystroke)
    Sends ASCII - #Sends ASCII#

    1 = ALTCHAR (Single character output with each keystroke)
    *Sends ASCII <ESC> - # Sends ASCII <CR>

    2 = BUFFER

    BUFFER mode accepts up to 10 characters. If more than 10 characters are entered, you will hear an error beep and the buffer will be cleared. Pressing # sends buffered characters + ASCII <CR> at end. Pressing * clears the buffer and outputs 2 beeps. Clear buffer timeout set to 10 seconds.

You should hear 3 rapid audible beeps and see both LED's extinguish. At this point the Keypad will appear dead and not accept any entries.

Examples:

3   1   0   (Sets 1200 baud, odd pariety and normal mode)

7   0   2   (Sets 19200 baud, no pariety and buffered mode)

This procedure may be repeated to change the Baud Rate and Parity option. You must enter all three digits even if you wish to change only one setting. Factory default is 9600 baud, no parity, normal.

Disconnect power to the RED wire and disconnect the PINK wire from the BLACK wire.

NORMAL mode outputs the following codes:

0 - 0x30	**6** - 0x36
1 - 0x31	**7** - 0x37
2 - 0x32	**8** - 0x38
3 - 0x33	**9** - 0x39
4 - 0x34	* - 0x2A
5 - 0x35	# - 0x23

ALTCHAR mode outputs the following codes:

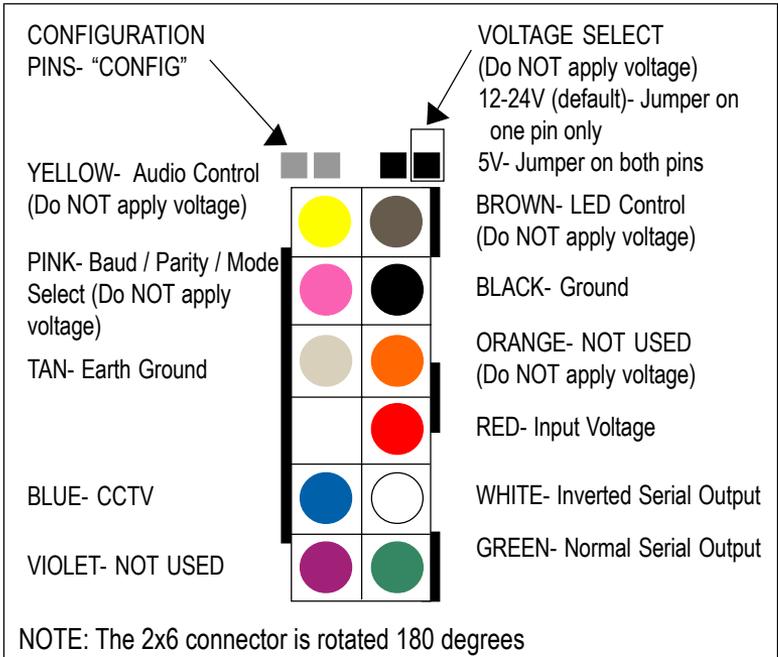|	
0 - 0x30	**6** - 0x36
1 - 0x31	**7** - 0x37
2 - 0x32	**8** - 0x38
3 - 0x33	**9** - 0x39
4 - 0x34	* - 0x1B
5 - 0x35	# - 0x0D

Note: All serial output formats use a single start and stop bit.

■ Serial ASCII Connector Wiring

```
CONFIGURATION                              VOLTAGE SELECT
PINS- "CONFIG"                             (Do NOT apply voltage)
                                           12-24V (default)- Jumper on
                                             one pin only
YELLOW- Audio Control                      5V- Jumper on both pins
(Do NOT apply voltage)                     BROWN- LED Control
                                           (Do NOT apply voltage)
PINK- Baud / Parity / Mode
Select (Do NOT apply                       BLACK- Ground
voltage)
                                           ORANGE- NOT USED
TAN- Earth Ground                          (Do NOT apply voltage)

                                           RED- Input Voltage

BLUE- CCTV                                 WHITE- Inverted Serial Output

VIOLET- NOT USED                           GREEN- Normal Serial Output
```

NOTE: The 2x6 connector is rotated 180 degrees

BLUE - CCTV
Pressing any position on the Keypad will generate a 30 second 0.25 amp intermittent duty grounding output.

YELLOW- Audio Control
Pulling YELLOW low (grounding) causes the beeper to sound.

TAN - Earth Ground
Case ground at the Keypad installation point, not through the cable.

Typical connection: WHITE to Pin 2 of DB-9 (232 RX), BLACK to Pin 5, and Power Supply Ground.

ABA Track II Clock & Data Reader

■ ABA Track II Specifications

GREEN <Clock> goes low to clock in data. WHITE <Data> output is determined by ORANGE. If ORANGE is low, then Data output is inverted. If ORANGE is high, then Data output is normal.

Clock and Data signals are open collector outputs with 2.2K pull-ups to the internal +5v. Clock Pulse is sent at 200 usec. Interbit delay is 750 usec. An annunciator beeps with each key press. An output is generated with each key press which can be used to drive a CCTV or Security Light. Located through the BLUE wire (see Connector Wiring), this is an open collector output capable of sinking 1/4 A with a 30 second on time.

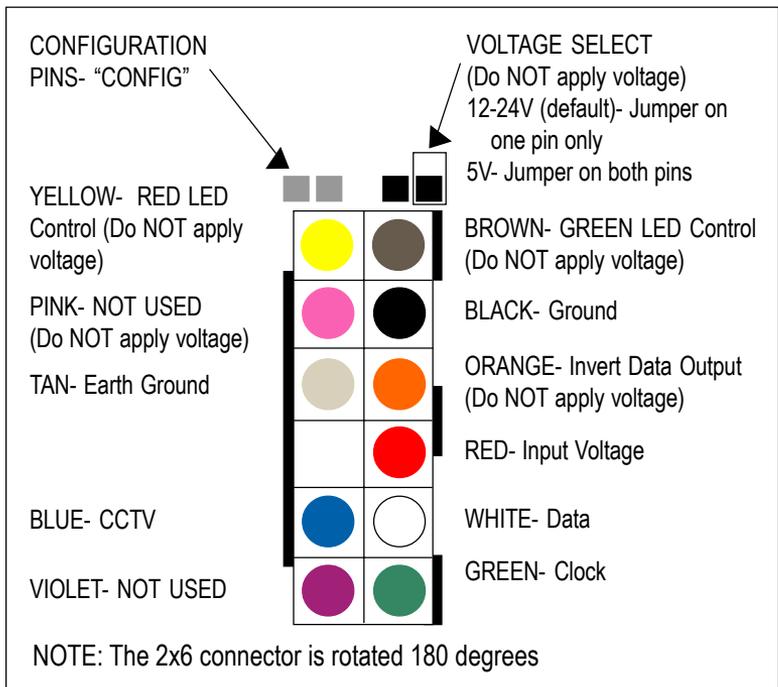Each key press generates an ABA Data Format as follows:

1. Each character is sent as a 5 bit value. The first 4 bits of each character are the data value LSB first. The last bit of each character is an odd parity bit. The first four 0's are sent as lead in.

2. The Start Character is sent next. The Start Character is a "B" with odd parity bit. Each entered character is now sent as 5 bits per character with odd parity and LSB first. There can be up to a max of 12 characters.

3. After all the keyed in characters have been sent, then the End Sentinel is sent. The End Sentinel is an "F" with odd parity. Next the LRC code is sent as a 5 bit character with odd parity. The LRC code is created by XORing all of the characters sent including the Start Characters, the Digit Characters and the End Sentinel. It is calculated as a 4 bit value from XORing all the previous characters. Its value is then sent as a 5 bit value, the 5th bit being its own odd parity.

Essex Electronics, Inc. | 805.684.7601 | 800.KEY-LESS | fax 805.684.0232 | keyless.com

4. Finally 7 0 bits are sent as lead out.

Notes:

■ # is the Enter key and * is the Clear key. If # is pressed with no data key first, there is no output from the keypad.

■ If over 12 data keys are pressed before enter, there is no output from the keypad.

■ ABA Track II Connector Wiring

CONFIGURATION
PINS- "CONFIG"

VOLTAGE SELECT
(Do NOT apply voltage)
12-24V (default)- Jumper on
   one pin only
5V- Jumper on both pins

YELLOW- RED LED
Control (Do NOT apply
voltage)

BROWN- GREEN LED Control
(Do NOT apply voltage)

PINK- NOT USED
(Do NOT apply voltage)

BLACK- Ground

TAN- Earth Ground

ORANGE- Invert Data Output
(Do NOT apply voltage)

RED- Input Voltage

BLUE- CCTV

WHITE- Data

GREEN- Clock

VIOLET- NOT USED

NOTE: The 2x6 connector is rotated 180 degrees
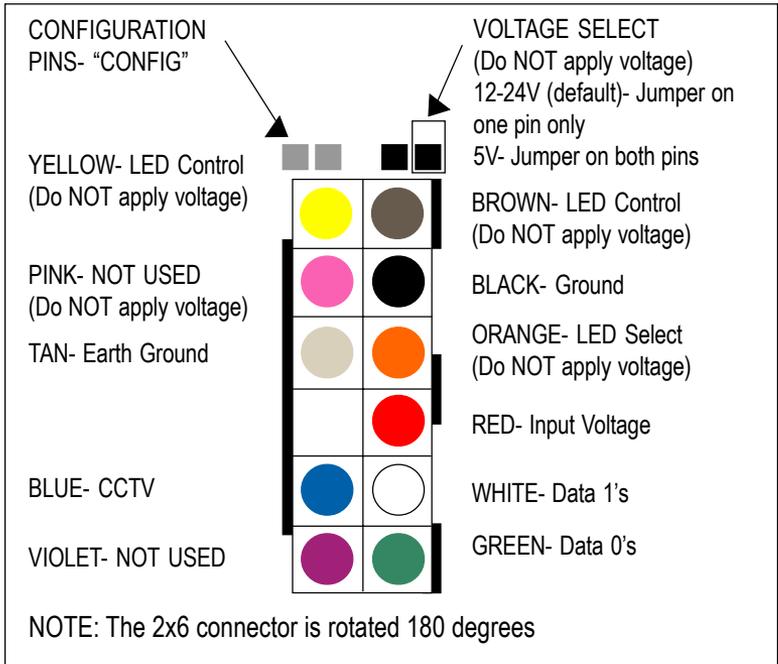
4 Bit Word Keypad Reader

■ 4 Bit Word Specifications

DATA 1 and DATA 0 signals are open collector outputs with 2.2K pull-ups to the internal +5V. The data is sent at 1 msec per bit with a pulse duration of 50 usec. An annunciator beeps with each key press. An output is generated with each key press which can be used to drive a CCTV or Security Light. Located through the BLUE wire (see Connector Wiring), this is an open collector output capable of sinking 1/4 A with a 30 second on time.

Each key press generates an 4-Bit sequence in the following output format:

KEY	OUTPUT	KEY	OUTPUT
0	0000	6	0110
1	0001	7	0111
2	0010	8	1000
3	0011	9	1001
4	0100	*	1010
5	0101	#	1011

■ 4 Bit Word Connector Wiring

CONFIGURATION PINS- "CONFIG"

VOLTAGE SELECT
(Do NOT apply voltage)
12-24V (default)- Jumper on one pin only
5V- Jumper on both pins

YELLOW- LED Control
(Do NOT apply voltage)

BROWN- LED Control
(Do NOT apply voltage)

PINK- NOT USED
(Do NOT apply voltage)

BLACK- Ground

TAN- Earth Ground

ORANGE- LED Select
(Do NOT apply voltage)

RED- Input Voltage

BLUE- CCTV

WHITE- Data 1's

VIOLET- NOT USED

GREEN- Data 0's

NOTE: The 2x6 connector is rotated 180 degrees

BLUE - CCTV
Pressing any position on the Keypad will generate a 30 second 0.25 amp intermittent duty grounding output.

ORANGE - LED Control
The ORANGE wire allows the choice of controlling the RED & GREEN LED's on the Keypad with either 1 wire (BROWN) or 2 wires (BROWN & YELLOW).

ORANGE - LED Control, cont'd.

a. When the ORANGE wire is floating (not connected), two wires control the LED's. When the BROWN wire is pulled low (grounded), the GREEN LED is on. When the YELLOW wire is pulled low, the RED LED is on.

b. To control both LED's with one wire (BROWN), pull the ORANGE wire low. When the LED control input is pulled low, the GREEN LED will be on and the RED LED will be off. When the input goes high, the RED LED will be on and the GREEN LED will be off. The LED that is illuminated will blink with every key press. The LED control is pulled to the internal +5 with a 2.2K resistor.

Notes

Notes

Essex Electronics, Inc. | 805.684.7601 | 800.KEY-LESS | fax 805.684.0232 | keyless.com

Notes

Warranty & Repairs

■ Limited Lifetime Warranty
(effective date May 1, 2006)

Essex Electronics Inc. warrants that at the time of original purchase from Essex Electronics Inc., the products specified below are free from defects in workmanship and material. Subject to the conditions and limitations set forth below, Essex Electronics Inc. will, at its option, either repair or replace any part of its products that prove defective by reason of improper workmanship or materials. Repaired parts or replacement products will be provided by Essex Electronics Inc. on an exchange basis, and will be either new or refurbished to be functionally equivalent to new. Essex Electronics Inc. reserves the right to discontinue a product for any reason, without notice, at any time. If a product that has been discontinued proves defective and if Essex Electronics Inc. is unable to repair or replace the product, within the terms expressed in this Limited Lifetime Warranty, a substitute product may be provided at the Essex Electronics Inc.'s election, as a replacement for the original discontinued product.

This Limited Lifetime Warranty extends only to the original retail or wholesale Buyer and the original site of installation. It does not cover any damage to this product or parts thereof, if the product is installed in violation of the applicable codes or ordinances, or is not installed in accordance with our installation instructions. This warranty will only include the normal operating life of the LED's which will be 10 years from the date of the original sale. It does not cover any damage that results from accident, abuse, misuse, natural disaster, insufficient or excessive electrical supply, abnormal mechanical or environmental conditions, or any unauthorized disassembly, repair, or modification. This Limited Lifetime Warranty

also does not apply to any product on which the original identification or date of manufacture information has been altered, obliterated or removed. In no event shall Essex Electronics Inc. be liable for any damage to persons, property or area surrounding the installation site caused by any malfunction of the product manufactured by Essex Electronics Inc.

Essex Electronics Inc. will not pay, nor be responsible for, shipping, transportation or delivery charges, or other cost of removal of a defective product or installation of a replacement product. The original component replaced under this Limited Lifetime Warranty in any system shall become the property of Essex Electronics Inc., and as such will, at our request, be returned to our factory with transportation charges paid by the Buyer.

Limited Lifetime Warranty

The Essex Electronics Inc. products with a manufactured date of 5/1/06 to the present date that are covered by this Limited Lifetime Warranty are Keypads, Keyless Entry Access Control Systems and accessories.

Essex Electronics, Inc.'s liability and Buyer's remedy under this warranty is limited to the repair or replacement at Seller's election of the product, or parts thereof, returned to Essex Electronics Inc. at Buyer's expense and shown to Essex Electronics Inc.'s reasonable satisfaction to have been defective.

Notice of any defect must be sent to Essex Electronics, Inc., 1130 Mark Avenue, Carpinteria, California, 93013, USA and must include the date code of the unit, description of the defect and factory assigned Return Authorization #. Upon receipt of such notification, Essex will determine whether to repair or replace. We also reserve the right to have our representative make any inspection or repairs, or furnish replacements.

This warranty excludes Elevator and Vehicle Keyless Entry Access Control Systems. A separate warranty applies to Keyless Entry systems manufactured for these applications.

Disclaimer of Warranties: Limitation of Buyer's Remedies

Except for the repair or replacement at seller's option which is expressly set forth above, Essex Electronics Inc. extends no warranty of any kind, express or implied, and disclaims any implied warranty of merchantability or suitability for purpose for which sold, with respect to the keypads, keyless entry coded access system or accessories. Except for the limited repair or replacement specified above, under no circumstances will Essex Electronics Inc. be liable to buyer under or in connection with any manufacture or sale of any of the products set forth above under any tort, negligence, strict liability, contract or other legal or equitable theory, or for incidental or consequential damages, or buyer's cost of effecting insurance coverage.

The foregoing limited lifetime warranty expressed herein constitutes the sole and entire warranty with respect to the products set forth above and is in place of any and all other warranties, express or implied.

This warranty may not be expanded or extended by any oral representation, written sales information, advertising, drawings or otherwise. Essex Electronics Inc. is not responsible hereunder for incidental damage to person or property, or other incidental or consequential damages. The remedies of the buyer shall be limited to those provided in this limited lifetime warranty to the exclusion of any and all other remedies, including, without limitation, incidental or consequential damages.

This Limited Lifetime Warranty shall be governed by and interpreted in accordance with the California Uniform Commercial Code and by the procedural laws of the State of California. Any

Essex Electronics, Inc. | 805.684.7601 | 800.KEY-LESS | fax 805.684.0232 | keyless.com

lawsuit or other action which arises out of, relates to, or is in connection with the manufacture or sale of the products set forth above shall be governed by California law, and the venue for any such action shall be the Superior Court of the State of California in and for Santa Barbara County, California.

■ Repair Policy

Should it be necessary for a component or a system to be returned for repair, it must be accompanied with an RA# (Return Authorization Number) issued by the factory. Please call 1-800-KEYLESS (800-539-5377) to obtain an RA#. All returns must be sent to the factory freight prepaid. Collect shipments will not be accepted at any time. Standard turnaround time is ten (10) working days from the date of receipt. Repaired components will be returned UPS Ground (or equivalent). Any other shipping requests or instructions will be at the customer's expense.

At the factory's discretion, warranty repairs will include repair or replacement, update and testing. Returns and repairs out of the warranty period or in warranty with damage not covered under warranty shall be subject to a repair charge. All non-warranty repair freight charges are paid for by the customer. Non-warranty repair charges are returned COD. (Factory Authorized Distributors are subject to standard terms).