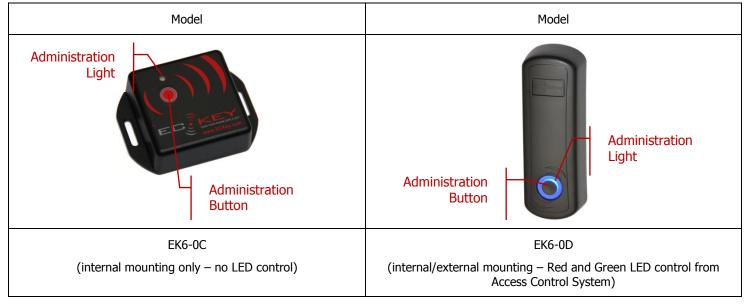
ECKey EK6 Installer Guide



Models



Installation Summary

The following is the general process for installing an EK6. For more details please browse the ECKey Knowledge Base in the support section of **www.ECKey.com**

- 1) Install the ECKey Management Application. This requires Windows XP or Vista and an internet connection to check for Microsoft .Net updates.
- 2) Plug the USB programming cable into the computer.
- 3) Open the ECKey unit and plug in the USB programming cable into the red connector.
- 4) Open the ECKey Management Application and register your application. This requires an internet connection.
- 5) Follow the wizard prompts to configure the ECKey unit to your specifications or select from one of the templates provided.
- 6) Apply the settings to the ECKey unit.
- 7) Install on site as per wiring diagram connecting to access control system as a Wiegand prox reader.
- 8) Determine Bluetooth address for the user phones and load into access control system.
- 9) Tune the range using Command Files if required (see below).

Operation Summary

The following diagram describes the overall process flow of how ECKey operates when controlled by selected settings. For more details please browse the ECKey Knowledge Base in the support section of <u>www.ECKey.com</u>

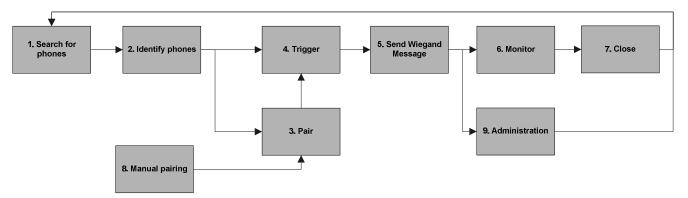


Figure 1 ECKey Stages of Operation

- 1) The ECKey unit searches for discoverable phones. All phones must be discoverable. The Status Light will be slowing flashing blue.
- 2) When the ECKey unit detects a phone the unit determines whether to consider the phone based on the **Identification** setting. The options are: All Phones (default – no pairing required), Paired Phones (pairing required) or Authenticated Phones (pairing required, see description of settings below for more details). The Status Light will be slowing flashing blue on the EK6-0C and red on the EK6-0D.
- 3) If pairing is required a new phone is found within the **Pairing Range** and **Pairing** is Automatic (see description of settings below for more details) ECKey will automatically try to register the phone by requesting to pair with it. When this is occurring the Status Light will quickly flash blue.
- 4) Once a phone is identified, its range is monitored until a trigger event is received as defined by the **Trigger** setting. The options are: when the phone is In Range Only (default), In Range and a PIN is Entered, In Range and a Sensor is Triggered. The range is defined by the **Range** setting. The Status Light will be slowing flashing blue on the EK6-0C and red on the EK6-0D.
- 5) Once the phone has met the trigger criteria, ECKey will create a Weigand message associated with the Bluetooth address of the phone and the passkey. If the relay is configured it will also trigger at this time. The Status Light will be solid blue for 3 seconds.

Model: EK6 Install Guide





- 6) The EK6 does not monitor the phones. While the phone is in range ECKey will keep sending the Wiegand message through every **Delay** period.
- 7) 8)
- There is no close message associated with the EK6. The ECKey unit will continue to search for phones. Pairing may be manually initiated through a button sequence or a command file. The Status Light will quickly flash blue when ECKey is available to accept pairing requests.
- 9) After the Wiegand message has been sent, the Administration Button can be used to administer the ECKey unit. The Administration Features include: Delete All Phones, Allow Command Files to Change Settings, or Accept Connections from Management Application. The Status Light will flash various patterns of blue indicating different Administration Features.



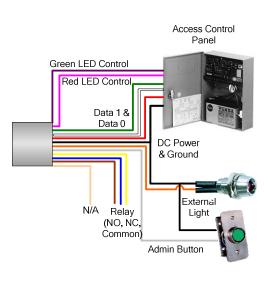


How do I Install ECKey?

You will need an access control system or door controller that accepts 26 bit Wiegand messages.

Connect the Green wire to the Wiegand Data 0 and White wire to the Wiegand Data 1 to your Access System or Door Controller. These can be connect in parallel to an existing 26 Bit Wiegand card reader.

By default the range is 1-3metres. Use the management application for other range settings. An optional Administration Light can be connected to the Orange wire and ground.



Wire	Description	
Red	AC/DC Supply (V+)	EK6-0C 12 to 24 VDC EK6-0D 12 to 24 VDC/AC
Black	Ground (G)	Ground power supply Administration Button 2 External Blue LED ground
Green	Wiegand Data 0	Data 0
White	Wiegand Data 1	Data 1
Yellow	Relay Common (C)	As required
Blue	Relay N/C (NC)	As required
Brown	Relay N/O (NO)	As required
Orange	External Status Light (L)	External Blue LED positive output
Grey	Administration Button (B)	Administration Button 2
Purple	Green LED (EK6-0D only)	Green LED Input
Pink	Red LED (EK6-0D only)	Red LED Input
Tan	AC Input	None

LED control (EK6-0D Only)

On the EK6-0D the Red and Green Colors of the Administration Light can be controlled from any external access control system. If the Pink wire is connected to Ground the status light will be Red. If the Purple is connected to Ground the status light will be Green. On both models the Blue Administration Light is mirrored on the External Light is used to indicate a Wiegand message has been sent and for ECKey Administration.

Model	EK6-0C	EK6-0D	EK6-0D	EK6-0D
Wiring	Purple and Pink not connected	Purple and Pink not connected	Purple connected to Green output and Pink connected to Red output of access control system	Purple connected to Green output of access control system and Pink connected to ground
Power on	One blue flash	Red	Red	Red
Searching	Blue flash every 5 seconds	Red	None	Red
Send Wiegand Message	Blue for 3 seconds	Blue for 5 seconds	Blue for 5 seconds or until a success or failure is received.	Blue for 5 seconds or until a success or failure is received.
Access Success as reported by access control system	None	None	Green	Green
Access Failure as reported by access control system	None	None	Red	Red
Pairing	Blue flashing quickly every second	Blue flashing quickly every second	Blue flashing quickly every second	Blue flashing quickly every second
Administration	Blue triple flashing	Blue triple flashing	Blue triple flashing	Blue triple flashing
External Light	As the Blue of the Status Light	As the Blue of the Status Light	As the Blue of the Status Light As the Blue of the Status Light	

How do I register my phone from an access control system?

- 1. Set up your access control system as you would to register a Wiegand card with the ECKey unit connected.
- Make your phone discoverable (visible) by consulting your phone documentation (usually in Setting -> Connectivity-> Bluetooth-> Find Me or Setup).
- 3. With the Bluetooth phone in range a virtual Wiegand card number will be sent to the access control system with a site or facilities code of 250.
- 4. Follow the instructions of the access control panel to accept this virtual Wiegand card number and associate access rights to it.

How to I register my phone from a computer?

- 1. You will require the Bluetooth phone that is to be registered and Windows XP or Vista machine with Bluetooth capability.
- Make your phone discoverable (visible) by consulting your phone documentation (usually in Setting -> Connectivity-> Bluetooth-> Find Me or Setup).







- 3. Open the chosen site and click add phone. The ECKey EK6 Management Application which will search and connect to your phone and display the virtual Wiegand card number and the site/facilities code for your phone.
- 4. Cut and paste the virtual Wiegand card number and site code into the Access Control System Administration screen to register a new card and associate the access rights to it.

How do I unlock the door?

- 1. Make your phone discoverable (visible to all) by consulting your phone documentation (usually in Setting -> Connectivity-> Bluetooth-> Find Me or Setup). Videos on this for select phones are available on www.ECKey.com. We recommend creating a shortcut to managing Bluetooth on your phone. See your phone documentation on how to do this.
- 2. Every five seconds while the phone is in range ECKey will send the unique virtual Wiegand card number for that phone to the access control system. The Administration Light will be Blue for 1 second when the message is sent.
- 3. The access control system will authorise the virtual Wiegand card number and send a message to unlock the door.

Register a phone

You will need a phone to trigger a Wiegand message. Note that in the default setting of "All Phone" no phone information is stored on ECKey and so there is nothing to delete.

- 1) When the Wiegand message has been triggered and the Status Light is blue; press and release the Administration Button 4 times and then press the Administration Button a fifth time and hold for 3 seconds.
- 2) The Status Light will start repeated flashing blue 4 times. Release the Administration Button.
- 3) ECKey is currently pending the deletion of all paired phones. You can now;
 - a. Confirm the deletion: press and hold the Administration Button for 3 seconds. The Status Light will turn solid blue for 5 seconds to confirm that all phones have been the deleted. Release the Administration Button.
 - b. Cancel the deletion: press and release the Administration Button.
- 4) ECKey will return to normal operating mode and the Status Light will slowly flash blue.

Delete all paired phones

You will need a phone to trigger a Wiegand message. Note that in the default setting of "All Phone" no phone information is stored on ECKey and so there is nothing to delete.

- 5) When the Wiegand message has been triggered and the Status Light is blue; press and release the Administration Button 4 times and then press the Administration Button a fifth time and hold for 3 seconds.
- 6) The Status Light will start repeated flashing blue 4 times. Release the Administration Button.
- 7) ECKey is currently pending the deletion of all paired phones. You can now;
 - a. Confirm the deletion: press and hold the Administration Button for 3 seconds. The Status Light will turn solid blue for 5 seconds to confirm that all phones have been the deleted. Release the Administration Button.
 - b. Cancel the deletion: press and release the Administration Button.
 - ECKey will return to normal operating mode and the Status Light will slowly flash blue.

Troubleshooting

8)

- 1. Check power
- 2. EK6-OC: The Status Light should flash blue when powered on. After power on the Status Light should flash once every 5 seconds.
- 3. EK6-OD: The Status Light should be red when powered on.
- 4. Check that your phones Bluetooth is enabled, see www.ECKey.com/phones
- 5. Check that the phone has Bluetooth set to be discoverable, see <u>www.ECKey.com/phones</u>.
- 6. Check the wiring as per the diagrams.
- 7. Access requests on the access control system event log while a phone is in range.

Register for Support

- 1. You will need an internet connection, ECKey EK6 Serial Number and an email address for registration.
- 2. Go to www.ECKey.com and register with the ECKey Serial Number printed on your unit in this form EK6-XX-XXXXXXX.
- B. Logon into the Support Site and select Knowledge Base-> EK6.

Frequently asked questions

Is it secure?

Yes – Each phone has a unique Bluetooth address that is converted to one of 65535 virtual 26 bit Wiegand numbers. The access rights for the virtual Wiegand card numbers is determined by the access control system.

Can I still use my phone?

Yes - You can still use your phone as a phone (including Bluetooth Headset) at the same time as locking and unlocking the door.

Can I still use a prox card?

Yes – ECKey can be connected in parallel with an existing 26 bit Wiegand prox reader.

Can I use a PIN, change the site code, use other card formats or other settings?

The EK5 is a preconfigured unit. For variable configuration options please use the EK6. The EK6 has over 20 configuration options including restricting access requests from registered phones, requiring a PIN to send the request, changing rights based on time of the day, Wiegand length and others.





Administration from the ECKey Management application

The recommended approach for configuring and administrating ECKey is to use the ECKey Management Application on a Windows XP or a Vista computer connected to the ECKey unit via a USB cable or Bluetooth. If the computer is not near the ECKey unit a Bluetooth phone can be used to send and retrieve the configuration settings, audit trail and list of paired phones.

Unlock/open without making the phone discoverable.

The phone must be discoverable to unlock the door with the EK6.

Factory reset with the Master PIN

You will need a paired phone to unlock the door or open the gate.

- 1) When the Wiegand message has been triggered and the Status Light is blue; press and release the Administration Button 4 times and then press the Administration Button a fifth time and hold for 3 seconds.
- After 3 seconds the Status Light will start repeated flashing 4 times. Continue to hold for a total of 9 seconds until the Status Light starts repeated flashing 8 times. Release the Administration Button.
- 3) ECKey is currently pending a factory reset of all settings and PIN numbers. You can now;
 - a. Confirm the factory reset: press and hold the Administration Button for 3 seconds. The Status Light will turn solid blue for 5 seconds to confirm that all settings have been returned to the factory defaults. Release the Administration Button.
 - b. Cancel the factory reset: press and release the Administration Button.
- 4) ECKey will return to normal operating mode and the Status Light will return to slowly flashing blue.

Range Tuning

ECKey has a number of options for range tuning.

- 1) ECKey uses both speed and distance to measure the range. ECKey detects a phone at 10m and then monitors coming nearer. When testing the range, ensure that you start from more that 10m away as you would when you arrive. Similarly test at normal enter speed. The slower you walk up to the ECKey unit, the longer it will take ECKey to unlock.
- 2) Ensure the Range setting to the value appropriate for most phones.
- 3) Consider the environment the door or gate is installed in. Line of sight will increase the range, wood, glass and dry wall will have little effect.
- Concrete and metal will reduce the range. Enclosed metal boxes will all but block the signal.

Command files

2)

ECKey can be administered from a Bluetooth phone or device that supports file transfer. Note that the ECKey unit must be in Administration Mode to process these files.

Generate command files

Command files to update settings can be generated from the Management Application.

- 1) From the Management Application open a reader and click "Apply Settings" and select either
 - a. Transfer configuration settings via Bluetooth to a phone or PDA to transfer to ECKey at a later time
 - b. Save the configuration settings to a file on this computer to be applied to ECKey at a later time.
 - If the command file is saved to a computer it can be distributed via email or edited to adjust the settings.

Download command files

- 3) Register on the support section of <u>www.ECKey.com</u> using the product number of your ECKey unit (e.g. EK6-0C-0001000).
- 4) Open the knowledge base, select the model and open the article on Command Files. This article contains text command files that can be sent to the ECKey units to manage them from your Bluetooth phone or device.
- 5) Download the command files and transfer them (via Bluetooth or other means) to the Bluetooth device you will use to administer ECKey. Commands available include the following.
 - a. Retrieve settings.
 - b. Update one or more settings

Administration Mode

In normal operating mode, ECKey cannot be searched for, connected to or configured. To administer ECKey from a phone or computer via Bluetooth, the ECKey unit must first be in Administration Mode.

To enter Administration Mode, you will need a phone that can unlock/open ECKey

- 1) When the Wiegand message has been triggered and the Status Light is blue; press and release the Administration Button three times and then press the Administration Button a fourth time and hold for 3 seconds.
- 2) The Status Light will start triple flashing blue repeatedly. Release the Administration Button. While the Status Light is triple flashing blue, the ECKey unit is in Administration Mode.
- 3) ECKey will time out of Administration Mode after 60 seconds. To exit Administration Mode manually, press and release the Administration Button.

Send Command File to ECKey

- 1) Enter Administration Mode on the ECKey unit (see above).
- 2) Select the required Command File (see above) on the phone and select Send via Bluetooth. The phone will search for Bluetooth devices and find ECKey. Select ECKey on your phone and when prompted, enter the **Master PIN**.
- 3) The Command File will be transmitted to the ECKey unit. ECKey will read the commands and execute them.
- 4) Some Command Files such as getting settings involve a response. In this case ECKey will generate the required file and send it to back to the phone.
- 5) The file of settings can be uploaded into the ECKey EK6 Management Application for viewing and can be exported to other formats.





Retrieve Settings from EK6

- 1) Download the Command File to retrieve the settings and/or audit log (see above).
- Enter Administration Mode (see above).
- 2) 3) Send the Command File to retrieve the settings to ECKey (see above).
- 4) 5) Accept the file from ECKey of the settings.
- Transfer settings text file to computer with the Management Application via email or Bluetooth.
- 6) Import the settings into the Management Application to view.

Delete or blacklist a phone

1) Remove their access rights from the access control system.

Status Light

Status Light	Meaning	
Off	Not operating, check power supply	
Slowing flashing blue	Lock or closed and searching for phones	
Solid Blue	Sending Wiegand Message or confirming deleting/reset	
Quickly flashes blue	ECKey pairing with a phone or available to be discovered by phones to register them.	
Repeating triple flashes	ECKey available to be discovered for file and management application administration.	
One set of four flashes	ECKey has just being powered on or restarted.	
Repeating quadruple flashes	Pending deletion of all phones	
Repeating eight flashes	Pending factory reset	

Wiring Options

Wire	Description	Connect to
Red	AC/DC Power Supply (V+)	12 to 24V DC in the EK3. 12 to 24V DC/AC in the EK4
Black	Ground (G)	Ground power supply Ground of external light, external button, trigger sensor, door position sensor and trigger sensor
Green	Reserved	Data 0
White	Reserved	Data 1
Yellow	Relay Common (C)	Input for the relay
Blue	Relay N/C (NC)	Connected to the Relay Common when the message is sent.
Brown	Relay N/O (NO)	Connected to the Relay Common when the message is sent.
Orange	External Light (L)	Positive of the External Light. The external light is the same as the Blue status light.
Grey	External Button (B)	One side of an external Administration Button. Ground is the other side.
Purple	Green LED (EK6-0D only)	Force the Administration Light Green by connecting to ground by the access control system to indicate unlocked.
Pink	Red LED (EK6-0D only)	Force the Administration Light Red by connecting to ground by the access control system to indicate failure or locked.
Tan	AC Input 2	N/A

Functions in the Management Application

Button	Text
Add Site	Create a new site.
Add Phone	This does not add phone to the ECKey unit. This using the settings of the ECKey reader to display the Wiegand number that the readers will generate at this site for a specific phone. Once the virtual Wiegand card number has been determined for a phone it can be cut and paste into the access control system and access rights assigned. This requires Bluetooth on the PC. Note that the virtual Wiegand card number can also be obtained from the access logs of the access control system or through the card enrolment process of the access control system using an ECKey reader.
Add Reader	This is creates a new reader for this site. All readers within a site generate the same Wiegand card numbers for each phone, though they may have different settings (range, PIN trigger, etc) associated with each reader.
Save	Saves the settings of the site or reader to the PC database.
Delete	Deletes the reader or site.
Set clock	Sets the clock of the ECKey unit used for day and night configuration.
Get settings	Reads the configuration settings from ECKey via command file, Bluetooth or USB cable.

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Applies the site and reader settings to the ECKey unit via command file, Bluetooth or USB cable.



Description of the Site Configuration Settings

Field	Text	
Name	This is the name of the site. A site is defined as the set off all ECKey readers that share the same configuration settings.	
Address	This is used as a description of the site location.	
Site Code	This is the site code that is used when generating standard 26-bit Wiegand virtual card numbers.	
Wiegand Length	This is the format of the Wiegand message that is produced. The virtual Wiegand card number is between the minimum and maximum card numbers and is generated from a combination of the Pass Key, unique Bluetooth address of the phone and Site Code. These parameters need to be stored on each ECKey EK6 reader in order for them to produce the correct virtual Wiegand card number for each phone.	
	26 bit:	
	This is the standard 26 bit Wiegand standard message.	
	48 bit:	
	This is the unique 48 bit Bluetooth address of a device and does not include a site code.	
Virtual Wiegand card number range	This is the minimum card number that will be automatically generated from the Bluetooth address of the phone.	
	This can only accept a number in the range of 0 to 65535.	
Pass key	This is the seed that is used for generating the Wiegand virtual card number and phone specific PIN.	
	This can be changed to anything and will ensure that the each phone will generate different Wiegand card numbers at different sites.	
	This value should be set before any readers and phones are added. If changed once readers and phones have been added, all readers will need to be updated with the new configuration and new Wiegand virtual card numbers and PINs generated for each phone.	
PIN to use	Fixed The PIN is the same for all phones. PIN Length field is ignored.	
	Individual The PIN is specific to each phone and generated at a length defined in PIN Length.	
Fixed PIN	The PIN is the same for all phones for pairing. PIN Length field is ignored.	
	This must contain between 1 and 8 numbers.	
Auto PIN Length	This is the length of the automatically generated PIN that is associated with each phone and used to register a phone with an ECKey reader. 8 digits is recommended.	
	This value should be set before any readers and phones are added. If changed once readers and phones have been added, all readers will need to be updated with the new configuration and new Wiegand virtual card numbers and PINs generated for each phone.	
	This only accepts a number between 1 and 8.	

Description of Reader Settings

Field	Text			
Bluetooth Address	This is the unique Bluetooth Address of the ECKey Reader and can not be changed. It is updated when the settings are read from the unit.			
Device Name	This is the name of the ECKey EK6 reader that will be displayed on the user phone once they are paired. It is recommended to have a different name for each reader within a site so they can be easily identified.			
Operation Mode (Day/Night)	This is the mode used during day or night time. There are three modes of operation for EK6:			
	Mode A - All devices (Default):			
	- Automatic unlocking based on unique Bluetooth address			
	- PIN pairing required at centrally			
	- Virtual Wiegand card number sent for all Bluetooth devices			
	- Security level equivalent to proximity card			
	Mode B - Paired devices:			
	- Automatic unlocking based on unique Bluetooth address			
	- PIN pairing required at centrally and once at each reader			
	- Virtual Wiegand card number sent for all paired Bluetooth devices			
	- Security level equivalent to proximity card with PIN registration			



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TURN YOUR PHONE INTO A KEY



Mode		TURN YOUR PHONE		
	C - Authenticat	ed devices:		
- Aut	- Authenticated unlocking based on unique Bluetooth address with 128bit authentication everytime			
- PIN	- PIN pairing required at centrally and once at each reader			
- Virti	- Virtual Wiegand card number sent for all paired Bluetooth devices			
- Sec	- Security level equivalent to dual proximity card and PIN required for opening			
Trigger Mode (Day/Night) This i	This is the trigger mode used during the day or night. There are three modes of trigger for EK6:			
In ra	In range (default):			
The v	The virtual Wiegand message will be sent to the access control system for authorisation when the phone is in range.			
PIN	PIN to Open:			
		or a PIN (either the fixed PIN or device specific PIN). Once successfully entered the associated virtual Wiegand message will be sent to m for authorisation.		
Butte	n to Open: (Not	implemented)		
	a phone is in range control system fo	e and an external button is pressed or passive infrared sensor is triggered the associated virtual Wiegand message will be sent to the or authorisation.		
Range This i	the range that pr	none must be in to send the virtual Wiegand card number. The following are indicative ranges under normal use.		
Range	Wood	Concrete		
Minim	um 1m	0.5m		
Short	2-4m	1-3m		
Mediu		2-4m		
Long	5-10m	3-7m		
Maxir	Maximum 8-15m 6-12m			
	These are the factors that affect the range including environment, phone and number of hidden devices registered. Please see the installer manual or website www.ECKey.com for more details.			
Registration Range This is	the range that a	phone must be within in order to first register with ECKey. The following are indicative ranges when in normal use.		
Range	Wood	Concrete		
Minim	um 1m	0.5m		
Short	2-4m	1-3m		
Mediu	m 3-7m	2-4m		
Long	5-10m	3-7m		
Maxin		6-12m		
	ECKey.com for mo	at affect the range including environment, phone and number of hidden devices registered. Please see the installer manual or website re details.		
Delay This i	the delay betwee	en Wiegand messages being set from a single phone.		
	This is the length of time the relay is triggered when a virtual Wiegand card number is sent for authorisation. This can be used to drive a buzzer, light or other appliance.			
	When ECKey is in Operation Mode C with authenticated unlocking and the relay connected to an electronic lock, the EK6 will act as a 1000 user standalone door controller.			
Wher		er mode of PIN to Open and connected to an electronic lock the EK6 will act as a virtual key pad system. When the correct PIN is gger and door will unlock.		
enter				
	the PIN that is us	sed to connect to ECKey EK6 to transfer command files and configure the system.		
Master PIN This i		sed to connect to ECKey EK6 to transfer command files and configure the system.		
Master PIN This in Location This in	used as a descrip			
Master PIN This is Location This is Day Start Time This is	used as a descrip the time that defi	ation of the reader location.		
Master PIN This is Location This is Day Start Time This is The fe	the time that definition that is the twenty	otion of the reader location.		

Specifications

Dimensions	80x30x20mm	Power Supply	12-24VDC/AC (Recommended) 11-32VDC/AC (Maximum)
Weight	46g	Current	15mA (Nominal) 60 mA (Peak)
Users	1000	Latching	Latching or Pulse 0.5 to 60 seconds
Audit	1000 events	Outputs	Wiegand 26 or 48 bit, Dry contact relay (Common, N/C, N/O), Status Light
Range	From 1m (3 feet) to 10m (30 feet)	Inputs	Administration Button, Factory Reset

Model: EK6 Install Guide

EC

TURN YOUR PHONE INTO A KEY



Device Support	Hidden or discoverable BT devices	Range tuning	Manual, Automatic
International Patent	PCT/NZ2007/000069	Communications	Bluetooth 2.4 GHz
		Relay	30 VDC @ 2Amps

www.ECKey.com

