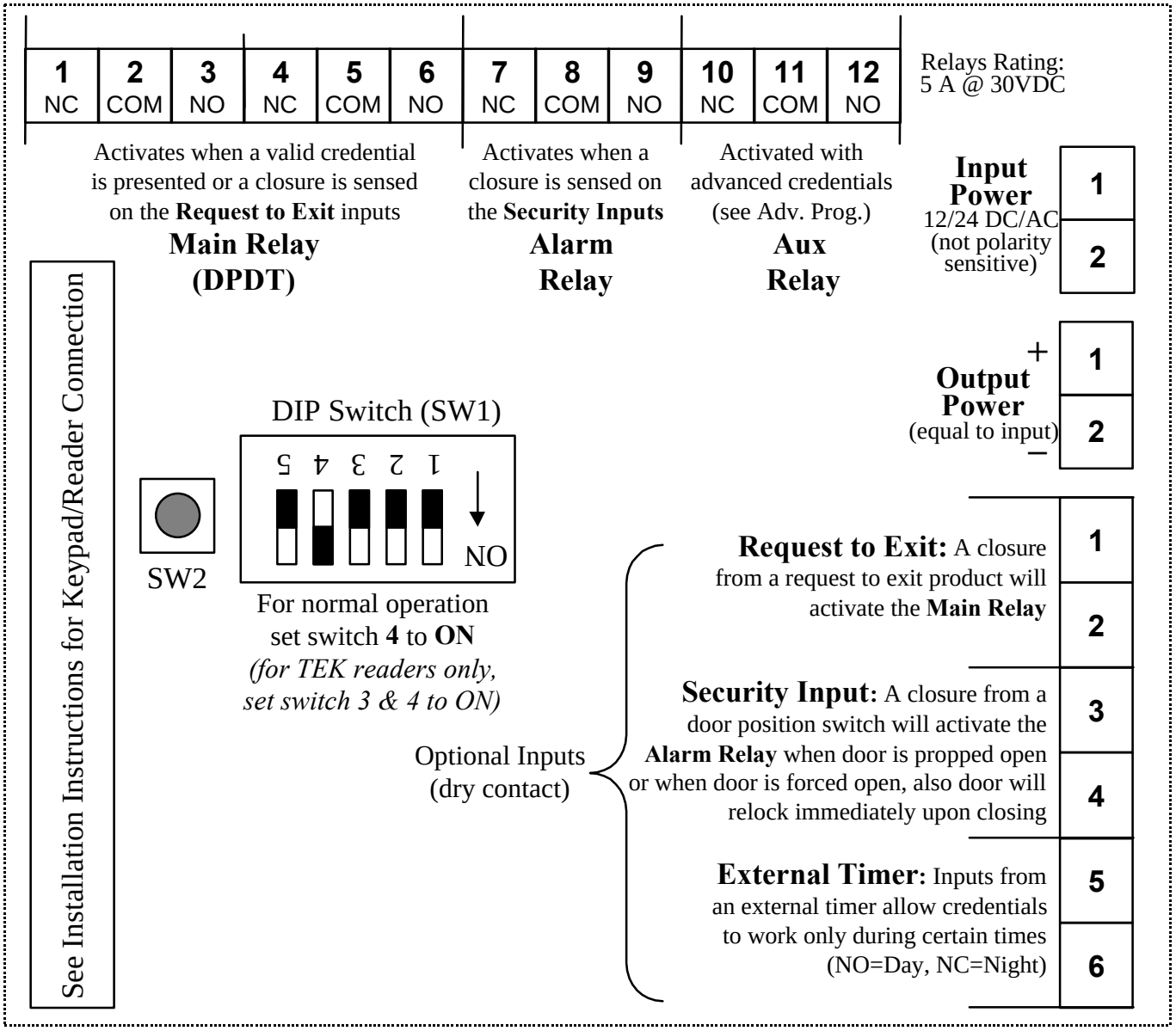
Universal Controller Manual Programming Guide

LOCKNETICS
Security Engineering
575 Birch Street, Forestville, CT 06010
Phone (860) 584-9158 ▪ Fax (860) 584-2136
WWW.LOCKNETICS.COM

Controller Board Layout

Refer to the Installation Instructions (Form77080) for additional information.

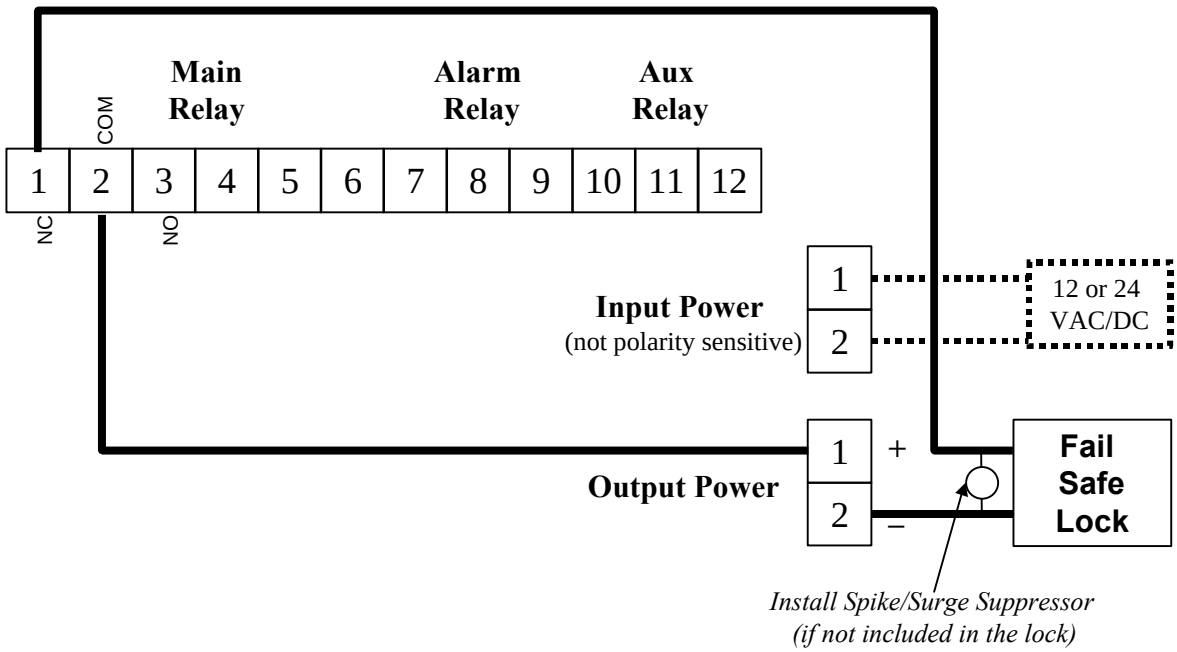


There are also four configurable onboard timers:

- **Relock Timer A**, **B**, and **C**, that can be applied to user credentials
  (see *Advanced Programming* to use a relock other than the A Relock Timer (8sec. default)
  (see *Configuring Timers* to change the relock time of any Relock Timer)
- **Door Prop Alarm Delay Timer**
  (see *Configuring Relays and Timers* to turn on the Door Prop Alarm Delay and change the delay time)

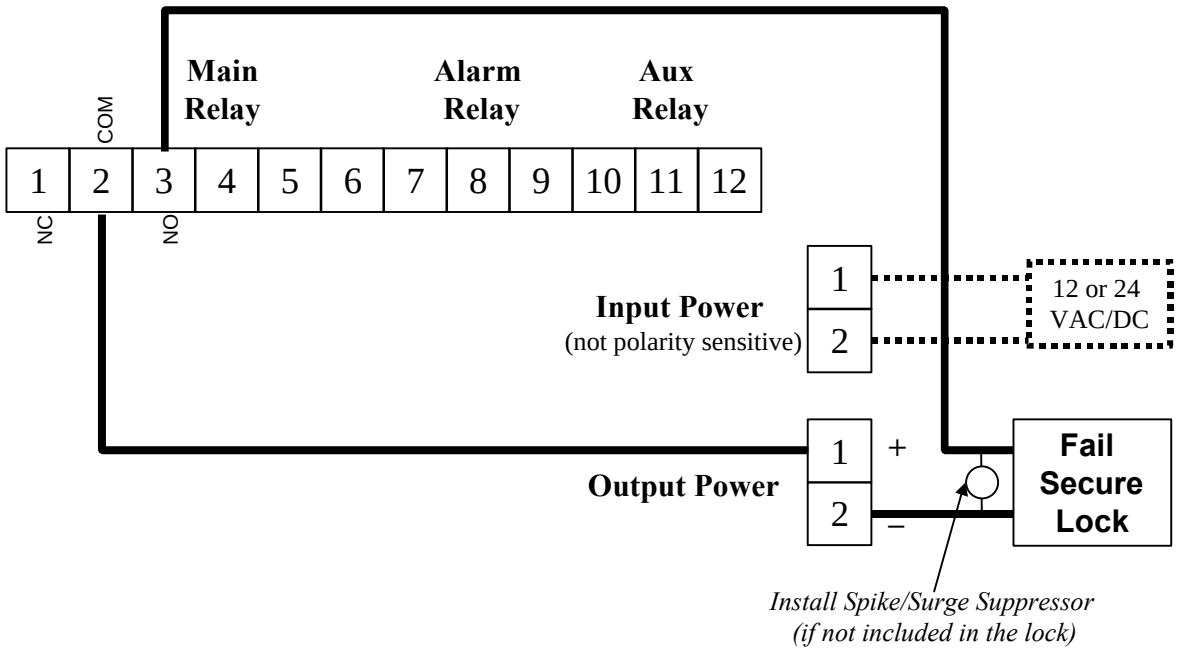
FAIL SAFE Wiring

Refer to the installation instructions (Form77080A) for additional information.



FAIL SECURE Wiring

Refer to the installation instructions (Form77080A) for additional information.



Code Functions / Factory Default Codes

Factory Code	*Function*	*Description (applies to Codes, TEKs, Mag Cards, and Prox)*
13579	***Normal Use***	Normal Use codes will release a lock. While the lock is released the green LED will flash quickly. The lock remains released for a programmable amount of relock delay time.
135135	***Toggle***	Toggle codes will release a lock, the lock will remain released until any Toggle code is entered to reset the lock to a locked position.
9115 A Lockout code is also required to reset a lock that has been ignored beyond the initial low battery indication (see Low Batt. Indications)	***Lockout***	Lockout codes disable all codes from operating the lock until any Lockout code is entered to reset the lock to an accessible state. When a valid code is entered while a lock is in Lockout mode, the red LED will flash quickly twelve times (indicating that the code is valid but access is not permitted.) Think of the Lockout function as a "freeze" function, it will freeze the lock in its current state (locked or unlocked) not allowing any codes to operate the lock, until a Lockout code is entered to return the lock to an accessible state.
none	***One Time Use***	One Time Use codes will only release the lock one time.
none	***Supervised Access***	Supervised Access codes require two users to be present to release the lock, two Supervised Access codes must be entered within approximately five seconds to release the lock.
97531 **For security reasons, change the factory default Master Programming Code (or make a Master Programming TEK / Card / Prox) this process deletes all factory default codes**	***Master Prog.***	A Master Programming Code allows access to programming functions. **The Master Programming Code will not release a lock**, it just initiates programming. When a Master Programming Code plus ✻ is entered, the LEDs alternately flash several times indicating the lock is in programming mode. If more than 30 seconds pass between programming entries, the lock returns to the normal operational state. **For security reasons the factory default Master Programming Code should be changed. Changing the default Master Programming Code (or creating a Master Programming TEK/Card/Prox) automatically deletes all default factory codes.**

When entering codes, if a wrong button is pressed, press ✻ to clear the keypad then reenter the entire code. The keypad will clear itself if no button is pressed within approximately five seconds.

If any keypad buttons are pressed forty times in succession, without a successful code being entered, the keypad will shutdown for approximately thirty seconds.

Clearing / Resetting Memory

Clearing the memory of the Universal Controller **deletes all** information that has been manually or computer programmed and configured, and **restores** the factory default values.

To clear memory and return to the default Factory Codes	1. Open the cover of box that houses the Universal Controller board 2. Press and release the microswitch pushbutton labeled **SW2**, <u>three</u> times. *You will hear three quick relay clicks, then a fourth after about 10 seconds.* 3. Close the cover.

Creating a Master Programming TEK, Mag Card, or Prox

Creating a Master Programming credential (TEK, Mag Card, or Prox) deletes all the default factory codes. Master Programming credentials only initiate programming they will not release the lock.

A Master Programming TEK, Mag Card or Prox must be used to initiate programming if you intend to manually add user TEK, Mag Card, or Prox credentials. (If you intend to issue only User Codes, a Master Programming Code may be used to initiate programming.)

Only one Master Programming TEK, Mag Card or Prox is allowed, any of which can be used to manually program any user credential. (Since TEKs and Prox are each unique only one TEK or Prox can be the Master Programmer for all locks - so keep it in a safe place! If a Master Mag Card is used, multiple similar coded cards may be used.)

To make a Master Programming TEK, Master Card, or Master Prox	1. Open the cover of box that houses the Universal Controller board. 2. Set the DIP switch **5** to the **ON** position (leave the rest as is). 3. Press and release the microswitch pushbutton labeled **SW2** once. *The red LED will light.* 4. Momentarily touch/swipe the credential (TEK, Mag Card or Prox) to the reader. *The green and red LEDs will alternately flash several times, then the red LED remains on.* 5. Press and release the microswitch pushbutton labeled **SW2** once. *The red LED will go out.* 6. Return the DIP switch **5** to the **OFF** position. 7. Close the cover.

Keypad Initialization

The following steps must be performed **only if you have a keypad connected with a three-wire cable** (100CAB), typical 12 wire cabling does not require initialization. Three-wire keypads will not function unless the following initialization procedure is performed.

Initializing 3-wire keypads only (not required for 12-wire keypads)	1. Open the cover of box that houses the Universal Controller board. 2. Set the DIP switch **5** to the **ON** position (leave the rest as is). 3. Press and release the microswitch pushbutton labeled **SW2** once. *The red LED will light.* 4. Momentarily touch a TEK to the reader ports on the keypad (this TEK is now the Master Programming TEK). *The green and red LEDs will alternately flash several times.* 5. After the the LEDs stop flashing press the keypad in the following order: *The LEDs will alternately flash after each key is pressed, wait for flashing to stop before pressing the next key.* 1 2, 3 4, 5 6, 7 8, 9 0, ✻ 6. Return the DIP switch **5** to the **OFF** position. 7. Close the cover.

Manually Programming User Codes using a Master Programming Code

User Codes programmed in this fashion will activate the Main Relay on the controller board. The Main Relay relock time is based upon the programmed value of "A" Timer (8 sec. default). If more functionality is required see Advanced Programming procedure tables.

Programming Guidelines:

- After each step of a procedure, **the red and green LEDs will alternately flash several times**, WAIT FOR THE FLASHING TO STOP before continuing with the next step.
- **If at any time the red LED remains on while the green LED flashes, an error has occurred** (refer to page 12 for Error Code Descriptions).
- Entered codes must be 3-8 digits in length.

Add Normal Use Code ⇩	*Add Toggle Code* ⇩	*Add Lockout Code* ⇩	*Add One Time Use Code* ⇩	*Add Supervised Access* ⇩
MasterCode ✲	MasterCode ✲	MasterCode ✲	MasterCode ✲	MasterCode ✲
3 ✲	**3 3 ✲**	**3 3 ✲**	**3 3 ✲**	**3 3 ✲**
	1 9 1 ✲	**1 1 5 ✲**	**1 1 3 ✲**	**1 1 7 ✲**
NewCode ✲	NewCode ✲	NewCode ✲	NewCode ✲	NewCode ✲
to add more	*to add more*	*to add more*	*to add more*	*to add more*
✲ to complete	✲ to complete	✲ to complete	✲ to complete	✲ to complete

Change a Code ⇩	*Delete a Code* ⇩	*Delete a Code with Alarm*† ⇩	*Change Master Code* (5 digit min)⇩	*Change "A" Timer Relock Time*⇩
MasterCode ✲	MasterCode ✲	MasterCode ✲	MasterCode ✲	MasterCode ✲
1 ✲	**5 ✲**	**5 5 ✲**	**7 ✲**	**9 9 ✲**
OldCode ✲	OldCode ✲	OldCode ✲	NewMaster ✲	**1 ✲**
NewCode ✲	*delete more*	*delete more*	NewMaster ✲	Press and hold ✲ for the desired time
Automatically completed	✲ to complete	✲ to complete	Automatically completed	Release ✲ to complete

† *Deleting a user code with alarm will deny access to specified user and will activate the alarm relay.*

Manually Program User Credentials (Codes, TEKs, Cards, Prox) using a Master Programming TEK/Card/Prox

User Credentials programmed in this fashion will activate the Main Relay on the controller board. The Main Relay relock time is based upon the programmed value of "A" Timer (8 sec. default). If more functionality is required see Advanced Programming procedure tables.

Programming Guidelines:

- After each step of a procedure, **the red and green LEDs will alternately flash several times**, WAIT FOR THE FLASHING TO STOP before continuing.
- If at any time **the red LED remains on while the green LED flashes, an error has occurred** (refer to page 12 for Error Code Descriptions).
- When adding a user credential (TEK, Mag Card, or Prox) a code (3-8 digits) is entered just prior to swiping or touching the credential. This code becomes an identifier used to identify the credential (this allows a credential to be deleted by entering the identifying code during the deletion procedure - without physically having the credential to be deleted). Codes used to identify a credential will NOT operate the lock (unless the lock is also computer programmed – mixing manual and computer programming on the same lock is not recommended).

Add Normal Use *credential* ⇩	***Add Toggle*** *credential* ⇩	***Add Lockout*** *credential* ⇩	***Add One Time Use*** *credential* ⇩	***Add Supervised Access*** *credential* ⇩
Initiate programming, by touching/swiping the **Master TEK/Card/Prox**, then continue …				
3 ✲	**3 3 ✲**	**3 3 ✲**	**3 3 ✲**	**3 3 ✲**
	1 9 1 ✲	**1 1 5 ✲**	**1 1 3 ✲**	**1 1 7 ✲**
NewCode ✲	NewCode ✲	NewCode ✲	NewCode ✲	NewCode ✲
swipe/touch the user credential **or** press ✲ for User Code only	swipe/touch the user credential **or** press ✲ for User Code only	swipe/touch the user credential **or** press ✲ for User Code only	swipe/touch the user credential **or** press ✲ for User Code only	swipe/touch the user credential **or** press ✲ for User Code only
to add more	*to add more*	*to add more*	*to add more*	*to add more*
✲ to complete	✲ to complete	✲ to complete	✲ to complete	✲ to complete

Change a User Code or Identifier Code ⇩	***Delete*** *a credential* ⇩	***Delete*** *a credential* ***with alarm***† ⇩	***Change Master Prog.*** *credential* ⇩	***Change "A" Timer Relock Time*** ⇩
Initiate programming, by touching/swiping the **Master TEK/Card/Prox**, then continue …				
1 ✲	**5 ✲**	**5 5 ✲**	**7 ✲**	**9 9 ✲**
OldCode ✲	OldCode ✲	OldCode ✲	swipe/touch new Master Prog credential	**1 ✲**
NewCode ✲	*delete more*	*delete more*		Press and hold ✲ for the desired time
✲ ✲ to complete	✲ to complete	✲ to complete	Automatically completed	Release ✲ to complete

† *Deleting a user code with alarm will deny access to specified user and will activate the alarm relay.*

ADVANCED PROGRAMMING

The advanced programming procedures must be used to allow for:

- User credentials to have different relock delay timers (regular programming defaults to Timer A)
- User credentials to activate different relays (regular programming defaults to Main relay only)
- User credentials to work during the Day, Night, or 24hrs (for this functionality an external electronic timer, or switch, must be connected to the External Timer inputs of the Controller board)

The programming procedures below contain two variables Y and Z:	
Replace the Y with one of the following	***Replace the Z with one of the following***
1 = Day credential, activates Main relay only	**1 = apply the A Relock Timer (8 sec default)**
3 = Night credential, activates Main relay only	**5 = apply the B Relock Timer (2 sec default)**
5 = 24hr credential, activates Main relay only	**7 = apply the C Relock Timer (20 sec default)**
7 = 24hr credential, activates Aux relay only	
9 = 24hr credential, activates Main & Aux relay	

Add Normal Use *credential* ⇩	***Add Toggle*** *credential* ⇩	***Add Lockout*** *credential* ⇩	***Add One Time Use*** *credential* ⇩	***Add Supervised Access*** *credential* ⇩
Initiate programming, by touching/swiping the **Master TEK/Card/Prox**, then continue …				
3 3 ✲	**3 3 ✲**	**3 3 ✲**	**3 3 ✲**	**3 3 ✲**
Y Z 1 ✲	**Y 9 1 ✲**	**Y 1 5 ✲**	**Y Z 3 ✲**	**Y Z 7 ✲**
NewCode ✲	NewCode ✲	NewCode ✲	NewCode ✲	NewCode ✲
swipe/touch the user credential **or** press ✲ for User Code only	swipe/touch the user credential **or** press ✲ for User Code only	swipe/touch the user credential **or** press ✲ for User Code only	swipe/touch the user credential **or** press ✲ for User Code only	swipe/touch the user credential **or** press ✲ for User Code only
to add more	*to add more*	*to add more*	*to add more*	*to add more*
✲ to complete	✲ to complete	✲ to complete	✲ to complete	✲ to complete

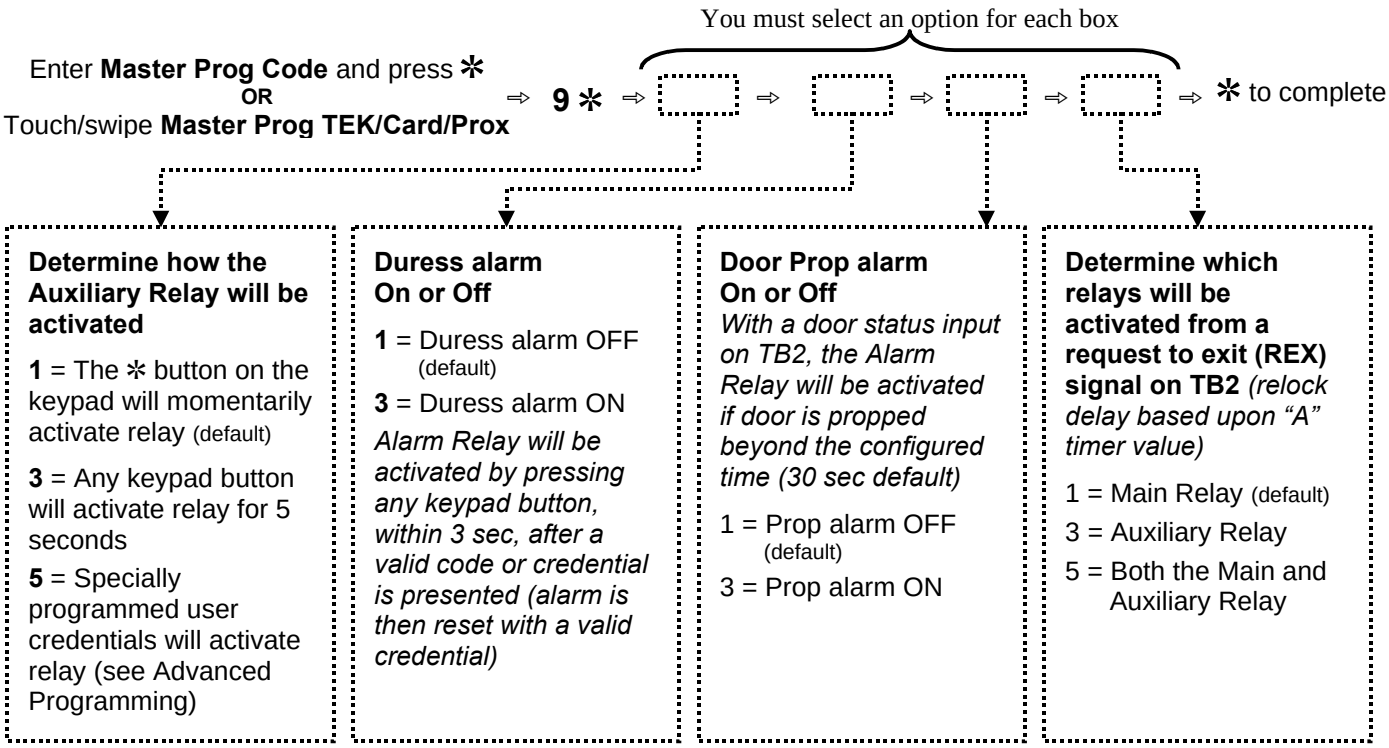
Change a User Code or Identifier Code ⇩	***Delete*** *a credential* ⇩	***Delete*** *a credential* ***with alarm***† ⇩	***Change Master Prog.*** *credential* ⇩	***Change Relock Time*** ⇩
Initiate programming, by touching/swiping the **Master TEK/Card/Prox**, then continue …				
1 ✲	**5 ✲**	**5 5 ✲**	**7 ✲**	**9 9 ✲**
OldCode ✲	OldCode ✲	OldCode ✲	swipe/touch new Master Prog credential	Choose timer ⇨
NewCode ✲	*delete more*	*delete more*		Press and hold ✲ for the desired time
✲ ✲ to complete	✲ to complete	✲ to complete	Automatically completed	Release ✲ to complete

1 ✲ for Timer A
3 ✲ for Timer B
5 ✲ for Timer C
7 ✲ for Door Prop Alarm Delay

† *Deleting a user code with alarm will deny access to specified user and will activate the alarm relay.*

Configuring Relay Activation

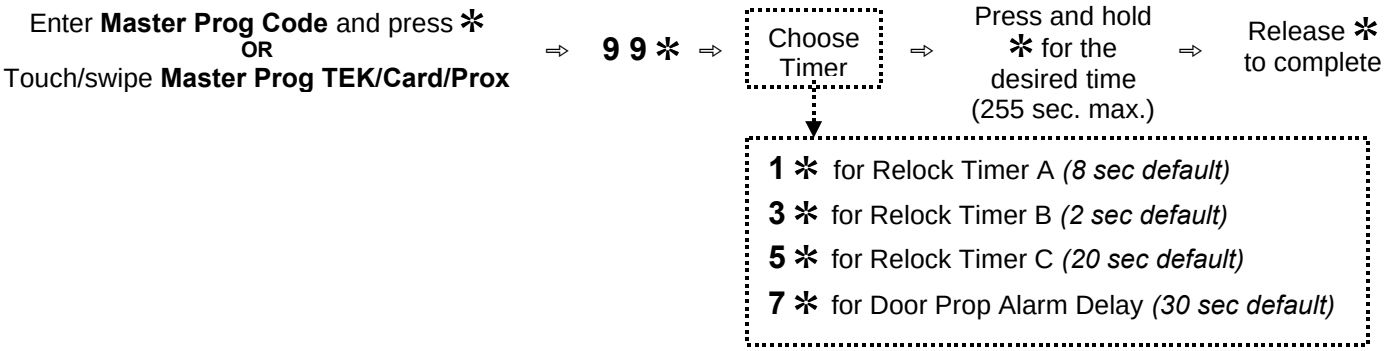
There are three configurable relays on the Controller Board; Main, Alarm, and Auxilary. If desired, configure how the relays are to be activated by performing the following programming sequence (left to right):



If you reset the Controller memory, the relay settings will return to the factory default values.

Configuring Timers

There are four configurable timers on the Controller Board; A, B, and C Relock Timers, and Door Prop Alarm Timer. The A Timer is the default relock timer used on the Main Relay (see Advanced Programming for more functionality). If desired, configure the timer values by performing the following programming sequence (left to right):



If you reset the Controller memory, the timer settings will return to the factory default values.

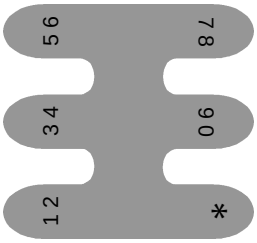
TEP1 and TEP2 Programmers

TEP1 and TEP2 Programmers are used to manually program locking devices that do not have an on-board keypad. The TEP1 and TEP2 Programmers act as the keypad during programming.

The TEP1 or TEP2 Programmers must be initialized with each lock in order for the lock to recognize the Programmers as a keypad. During the initialization procedure (outlined in the tables below), a Master Programming Credential (TEK, Card, Prox) is created.

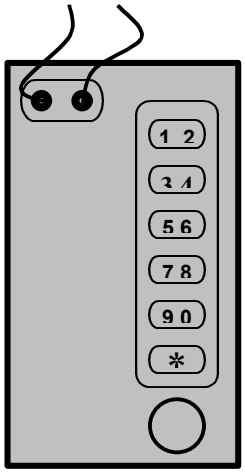
When programming with a TEP1 or TEP2 Programmer, the Master Programming Credential created during the initialization procedure is used to initiate programming, then the TEP1 or TEP2 Programmer is used as the keypad.

TEP1 Initialization



1. Open the cover of box that houses the Universal Controller board
2. On the DIP switch, set switch **5** to the **ON** position (keep others as is)
3. Press and release the microswitch pushbutton labeled **SW2** one time.
   The red LED will light.
4. Touch and release a TEK to the reader on the TEP2 **OR** swipe a credential (Mag Card or Prox) to the lock reader, this credential is now the Master Programming Credential.
   The green and red LEDs will alternately flash several times, then the red LED remains on.
5. Take the TEP1 Programmer and touch each TEK to the reader in the following order:
   1 2, 3 4, 5 6, 7 8, 9 0, * (*LEDs will flash after each entry)*
   Note: If more than 30 seconds pass between entries, you must start over.
6. Return the DIP switch **5** to the **OFF** position
7. Close the cover of box that houses the Universal Controller board

TEP2 Initialization



1. Open the cover of box that houses the Universal Controller board
2. Connect the TEP2 Programmer to the reader on the lock as follows:
   RED wire to LEFT SIDE of the reader
   BLACK wire to the RIGHT SIDE of the reader
3. On the DIP switch, set switch **5** to the **ON** position (keep others as is)
4. Press and release the microswitch pushbutton labeled **SW2** one time.
   The red LED will light.
5. Touch and release a TEK to the reader on the TEP2 **OR** swipe a credential (Mag Card or Prox) to the lock reader, this credential is now the Master Programming Credential.
   The green and red LEDs will alternately flash several times.
6. After the the LEDs stop flashing press the keypad in the following order:
   The LEDs will alternately flash after each key is pressed, wait for flashing to stop before pressing the next key.
   1 2, 3 4, 5 6, 7 8, 9 0, *
   Note: If more than 30 seconds pass between entries, you must start over.
7. Return the DIP switch **5** to the **OFF** position
8. Close the cover of box that houses the Universal Controller board

System 7 Programming

This procedure allows you to manually program up to 7 TEKs, Cards, or Prox credentials without the use of a programming computer or any knowledge of manual programming procedures. This method is primarily intended for the installer to quickly create a few credentials after installation (this method conveniently deletes the factory default codes; Normal, Lockout, and Toggle).

Seven credentials are programmed sequentially as follows:

Credential #1 – Normal User
Credential #2 – Toggle
Credential #3 – Lockout
Credential #4 – Normal User
Credential #5 – Normal User
Credential #6 – Normal User
Credential #7 – Normal User

Be sure to label credentials #2 and #3 since they have different functions.

System 7 Programming Procedure

1. Open the cover of box that houses the Universal Controller board.
2. On the DIP switch, set switch **1** to the **ON** position (leave other switches as is).
3. Press and release the microswitch pushbutton labeled **SW2** one time.
   The red LED will light.
4. Swipe/touch a credential to the reader.
   The red and green LEDs will alternately flash several times, indicating acceptance. Wait for the LEDS to stop blinking before continuing.
5. Repeat step 4 for the remaining credential (be sure to wait for the LEDs to stop blinking before swiping/touching the next credential).
6. If seven credentials are programmed the red LED will turn off after the seventh credential is accepted. If less than seven credentials are programmed, press the **SW2** microswitch once to end the programming.
   The red LED will turn off.
7. Return the DIP switch **1** to the **OFF** position .
8. Close the cover.

NOTES:

a) System 7 Programming will delete all factory default codes except for the default Master Programming Code

b) If the lock is later computer programmed, all System 7 programmed credentials will be deleted. **Manual programming does not delete any System 7 programmed credentials**.

c) Reprogramming using System 7 Programming procedures:
System 7 Programming can be done more than once for each credential type (TEK, Card or Prox). During the reprogramming of a credential type, any previously programmed System 7 data will be erased for that given credential type only (not both). Therefore, if the intent of reprogramming is to add new credential and delete any existing credentials, the lock memory must be cleared prior to reprogramming. (Refer to page 3 for instructions on clearing memory.) *For example, if a set of Cards and a set of TEKs were programmed using System 7, and then System 7 Programming was performed again for another set of Cards, all the previously programmed Card data would be deleted, but the TEK data would **not** be deleted. For the TEK data to also be deleted, the lock memory would have to be cleared **before** the reprogramming is done.*

Error Code Descriptions

If an error occurs during programming, the red LED remains lit while the green LED flashes an error code. **A flashing error code is repeated three times (with a pause in between each set of flashes).** Count the number of flashes to determine the error code, then consult the chart below.

Number of Green LED Flashes	*Error Description*
2	Code entered is too long, 8 digits max. (7 digits max. on Pro Series locks)
3	Memory full, user code capacity of lock has been exceeded
4	Master Prog Code must be changed with *Change Master Prog Code* procedure
5	The second entry for verification of a new Master Prog Code did not match the first
6	Invalid command, press ✻ and start over (previous programming, up to this error, may still be valid)
7	Code to deleted does not exist
8	Code entered is too short (3 digits min. for user codes, a Master Prog Code must be 5 digits min.)
9	Duplication, the code entered already exists
10	Manual programming has been disabled (a *Preference* option set during computer programming)

User Code Combinations

When entering codes, if a wrong button is pressed, press ✻ to clear the keypad then reenter the entire code. The keypad will clear itself if no button is pressed within approximately five seconds.

If any keypad buttons are pressed forty times in succession, without a successful code being entered, the keypad will shutdown for approximately thirty seconds.

User codes must be 3-8 digits in length (3-7 digits on Pro Series locks). Security increases as the number of digits in a user code increases. The chart below provides the total number of possible combinations, based upon the length of the user code.

User Code Length	*Possible Combinations*
3	125
4	625
5	3125
6	15625
7	78125
8	390625

Keep in mind that the keypads contain 5 buttons, and each button represents two numbers, so the code 2468 is identical to code 1357 (as far as the lock is concerned). If you plan to administer and track codes manually, **issue codes exclusively with all odd or all even numbers**, this practice will make it easier to spot duplicate codes (the final page of this document provides space for you to record issued codes). An error code will occur during programming if a duplicate code is attempted.

Codes of varying length can be used in the same lock but this will effect the total number of possible combinations. For example, if you choose five digit User Codes to be the standard, and then add a three digit User Code such as 246, no other five digit code beginning with 246 can be used.

User Records

Programming will be initiated with:
☐Master TEK ☐Master Card ☐Master Prox ☐Master Code_____

Credential	Function	User Name / Notes

User Records

Programming will be initiated with:
☐Master TEK ☐Master Card ☐Master Prox ☐Master Code_____

Credential	Function	User Name / Notes