

ESL20XL Electronic Lock Operating Instructions

The ESL20XL uses a fixed length 6-digit combination. Your AMSEC ESL20XL Electronic Safe Lock has a default factory combination of: 1-2-3-4-5-6.

Opening Your ESL20XL Lock for the First Time

1. Press the "C" key.
2. Key in the factory preset combination.
3. Press the "#" key.

If the combination was entered correctly, the lock will cycle open for three seconds. During this 3-second period, turn the handle of the safe to the unlocked position and pull the door open.

Changing the ESL20XL Master User Combination

You may change your combination any time you'd like and as many times as you'd like. To insure security once your safe is installed, you must change the factory preset combination to a new 6-digit combination.

CAUTION: *Combination changes should always be done with the door OPEN to prevent accidental lockout.*

1. Press the "C" key.
2. Press the "#" key. You should hear a short warbling tone and see the red LED flash.
3. Key in your old 6-digit combination.
4. Press the "#" key. You should hear a short good combination tone.
5. Key in your new 6-digit combination.
6. Press the "#" key. You should hear a short good combination tone.
7. Re-key in the new 6-digit combination again.
8. Press the "#" key. If the combination input matches the first pass, you should hear a long good combination tone indicating your new combination has been recorded.
9. Test your new combination several times prior to closing and locking the safe.

Note:

- See the ESL20XL Beep and LED Patterns table on Page 10.
- See ***Changing User Combinations*** section for instructions on changing combinations for Users other than the Master User.

A Few Things to Remember

- With each keystroke, the red LED on the keypad will flash and the beeper will chirp.
- If 4 incorrect combinations are entered, the lock will go into Penalty Lockout for 15 minutes to prevent trial-and-error attempts at opening the lock. The red LED will flash once every 5 seconds during this period. If you press any key during the Penalty Lockout Period, the red LED will flash and you will hear 8 rapid chirps. Removing power does not reset the Penalty Lockout.
- Before keying the combination, be sure that the handle of the safe is centered in the locked position to allow the lock to open freely.
- If the lock fails to open or acts strangely, replace the batteries with fresh alkaline 9-volt batteries. See "*Replacing the Batteries*" on Page 2 of these instructions. It is a good practice to replace your batteries once a year to prevent corrosion damage from leakage and assure you always have ample power to open the lock.

- During the input sequence, if you make a mistake, you can press "C" to clear the previous input and start over again.
- Use only your fingers to key the combination. Sharp objects will result in damage, which is not covered by the warranty.
- If at any time during opening the lock or changing the combination, no keys are pressed for 10 seconds, the lock will return to a resting condition. If this occurs during a combination change, the old combination is retained.
- When opening or changing the combination on your lock, the ESL20XL will register the first 5 digits of the combination into the buffer that receives input. The 6th digit will be the last numeric key pressed. For example, if you press **C-1-2-3-4-5-7-4-5-2-7-6-#** the program recognizes only the C-1-2-3-4-5-6-# input. The last numeric key pressed continues to replace the one prior until the "#" key is pressed to indicate completion. This is a security feature that allows you to baffle any onlookers who may be trying to memorize your combination.

Replacing the Batteries

Always use a fresh set of name-brand Alkaline Batteries for best results.

1. Grip the keypad and rotate approximately 1/8 turn counter-clockwise to disengage the keypad from the base.
2. Carefully pull the keypad away from the base, taking care to not stress the cable that connects the keypad to the lock inside the safe.

Do not allow the keypad to hang on the cable.

3. Lift the two 9-volt batteries out of the pockets where they are retained.
4. Carefully remove the battery clips from the end of the batteries, making sure you don't pull on the wires and disconnect the battery clip from the PC board.
5. Snap on two new 9-volt batteries onto the clips, making sure they are tight with no loose contacts.
6. Press the two batteries back into their pockets, taking care to route the wires in the open cavity so they are not positioned where they will get pinched under the batteries when the keypad is placed on the base.
7. Replace the keypad on the base, starting with the top of the keypad around the 11:00 position, pressing down to seat it where the three retaining tabs go into the receiving slots, then rotate clockwise to vertical. You should feel a bit of a snap as it locks into position when the keypad is level.

Advanced Access Control Features

The ESL20XL is a Digital Safe Lock with many advanced features that address commercial and retail safe access control. These features include the following. Note that reference to Function Codes are abbreviated to F(2-digit code). See the Function Code Table for reference.

- **Time Delay** – Time delay forces the User to wait a pre-determined time period before the safe can be opened. This feature is a robbery deterrent, whereby the User can cooperate with a robber in opening the safe, but forces the robber to wait before access is granted. The idea is that a robber is too impatient to wait very long and gives up. Time delay periods are typically set for 10 or 15 minutes.
 - This feature must be Enabled (F01).
 - The ESL20XL can be set for a Delay Period from 1 to 99 minutes. (F02)
 - If a User keys in a valid combination, the Time Delay is started.
 - A flash of the LED lamp approximately 2 times per second indicates the Delay Period.
 - At the end of the Delay Period, a long warbling tone is sounded to indicate the completion of the delay.

- The Open Period begins timing after the completion of the Delay Period, and is indicated by a repeating 4 beeps and LED flashes every five seconds.
- During the Open Period, the User must key a valid combination to cause the lock to open.
- The Open Period can be set for 1 to 9 minutes long. (F03)
- Time Delay can be canceled during the delay period by pressing "C – (any number key) - #".
- **Armored Car Time Delay Bypass** - This feature allows the Time Delay to be used under normal access situations, but provides a means to bypass time delay when cash handling methods require that an Armored Car courier can take deposits without waiting for the delayed access.
 - This feature must be Enabled (F40).
 - It still requires that a valid resident User be present to open the safe.
 - The Armored Car Code (User 9) can be keyed in first, followed by a valid User code or, the Armored Car Code can be used during the Delay Period to stop the delay, then the local User can open the lock with a valid code.
 - The Armored Car Bypass can be restricted to use by only the Manager User. (F41)
- **Multiple Users** - Many cash handling protocols require that several people have access to the safe. The ESL20XL provides several tools to manage a Multi-User environment. These controls are uniquely tailored to support retail loss prevention.
 - This feature must be Enabled (F10).
 - The Master User, or Manager, is the only User with Administration capabilities.
 - In Multi-User mode, there is no need for all Users to share the same combination, as is the case with a mechanical combination lock.
 - This feature allows the supervisor the ability to control the subordinate Users individually and makes employee turnover easier to manage because individual Users can be added and deleted at will without affecting others.
 - The ESL20XL allows up to eight (8) subordinate Users to be enrolled.
 - A "Poor Man's Time Lock" effect can be implemented daily where the Master User can disable the Multi-User Mode (F13) at the end of the day and then re-enable the mode at the beginning of the next business day. This causes the lock to reject all the Subordinate User Codes during off-business hours. The individual subordinate User codes are not lost, just disabled.
- **Subordinate User Control** - The Master User has the option of allowing, or not allowing, certain capabilities of the Subordinate Users as follows.
 - The Subordinate User changing their own combination. (F60)
 - Two Subordinate Users opening the safe in Dual Combo Mode. (F31)
 - The Subordinate User authorizing Armored Car Time Delay Bypass. (F41)
- **Dual Control** - This feature provides a higher level of security, where two different combinations are required to open the safe.
 - This feature must be Enabled (F30).
 - When Dual Control is Enabled, the lock requires two Users key their individual combinations, one after the other, before the lock will open.
 - The second User has 10 seconds to start code entry before the system discards the login and goes to sleep.

- After the first User keys a valid combination, a short warbling tone is sounded, and the second User is then required to key a valid code.
 - If no second code is keyed within 10 seconds, the lock goes to the resting condition and the process must be started again.
 - The two User Codes must be different Users.
 - A complementing feature can be enabled (F31) that prevents two subordinate Users from opening the safe. If this mode is Enabled, the Manager must be one of the two Users entering valid combinations.
- **Duress Alarm** - This feature allows a User to secretly signal that they are under Duress, typically in the act of being forced to open the safe in a robbery situation.
 - This feature must be Enabled (F20).
 - This feature requires that one of the optional Expansion Modules (ESL20EXP1, ESL20EXP2 or ESL20EXP3) is attached to provide electrical connection to external systems like alarms and monitoring services.
 - When a User keys a combination, finishing the code entry with the last number of the combination either 1 digit high, or 1 digit low, Duress output relay in the Expansion Module responds with a contact closure of for one (1) second.
 - The Lock opens normally, allowing the User to open the safe, without revealing they have sent a silent alert.
 - This Duress output contact closure is the same as if someone had pushed a "panic" button to summon help. By signaling secretly at the safe, the User doesn't risk angering the robber and risking possible personal injury.
- **External Control** - This feature allows the ESL20XL to be disabled and enabled by an auxiliary device like an Access Manager, a Key Switch, external Alarm System, or any other external switching method.
 - This feature must be Enabled (F50).
 - To use this feature, you must install an optional Expansion Module (ESLAC, ESL20EXP1 and ESL20EXP2), which provides terminals for external device input connection.
 - When the External Control Mode is Enabled and the Lock Enable input circuit is OPEN, the lock will not open when a combo is entered, it will indicate with a quick 4 beep/flash.
 - When the External Control Mode is Enabled and the Lock Enable input circuit is CLOSED, the lock will open normally when a combo is entered.
 - The external switching that closes the Input should be a dry-contact relay. Solid State switching (MOSFET) from an external device (Alarm system) will Fproperly if polarity is correct.
 - The Factory Reset Code will clear this condition if it was set accidentally.
- **Reset All Functions** - A function has been provided to reset all the functions to what is considered "default" settings. It disables all of the various modes, deletes all the Users and their codes, and cleans up any unknown settings.
 - This feature is executed by F99, and a confirming acknowledgement.
 - This is useful tool to get a fresh start after programming has been lost track of or for personnel changes at the Master User level.

Combination Changes in Multi-User Mode

One of the strengths of an electronic safe lock is the quick and easy changing of the combination(s). This adds to security because you can change it at will if you suspect your combination is known by others.

The combination change method for the primary User (Master User) can be done two ways, with or without a User Number. All combination changes require an authorization code and two entries of the new combo.

- In the event that F60 (Subordinate Combo Change) is set to Disable (F60=0), only the Master Code can authorize a code change for a Subordinate User.
- Each Subordinate User is assigned a single digit "User Number" (1 thru 8) during enrollment by the Master User. Master User is User 0. Armored Car User is User 9.
- **Master User Code change** - At any time, the Master User combo can be changed by keying:
C - # - (Old Master Code) - # - (New Master Code) - # - (New Master Code) - #
- **User Code Change and F60=1** - Changing of any combination, including the Master User Code, can be changed by the following sequence:
C - # - (User No.) - # - (Old User Code) - # - (New User Code) - # - (New User Code) - #
- **User Code Change and F60=0** - In the event F60 is Disabled (F60=0) or you are adding a new User, then the combo change must be authorized with the Master User's code:
C - # - (User No.) - # - (**Master Code**) - # - (New User Code) - # - (New User Code) - #

Combination Change Examples

The Master Combo is 159260 and you wish to change it to 918273. Do the following:
C-#-0-#-159260-#-918273-#-918273-# or C-#-159260-#-918273-#-918273-#

User 5's combination is 342312 and you wish to change it to 768798
C-#-5-#-342312-#-768798-#-768798-#

User 5's combination is unknown and you wish to set it to 768798, the Master Combo is 159260
C-#-5-#-159260-#-768798-#-768798-#

Feature Setting with Function Codes.

The ESL20XL's advanced features are controlled *only* by the Master User, and are set using Function Codes. A function can be turned on and off, or set, using the Function Code with the Master User code as authorization for changing or setting the function. A Function Code is a 2-digit code that is associated to a particular setting. Each Function Code has a default, or standard setting, which is in the lock when there have been no changes or after a Function Reset (F99) has been executed. They are as follows.

Function Code List		Enable=1, Disable=0	
Function	Function Description	Setting Range	Default
01	Time Delay Mode Enable/Disable	1 or 0	0
02	Set Time Delay Period	1 to 99	10
03	Set Open Period	1 to 99	5
10	Multiple User Mode Enable/Disable	1 or 0	0
11	Add/Enable a User Combo	1 to 8	
12	Disable a User Combo	1 to 8	
13	Disable All Users	1	
20	Duress Mode Enable/Disable	1 or 0	0
30	Dual Combo Mode Enable/Disable	1 or 0	0
31	Enable/Disable Two Subordinate Combos Opening	1 or 0	0
40	Armored Car Time Delay Bypass Enable/Disable	1 or 0	0
41	Enable/Disable Subordinate Authorization of TDL Bypass	1 or 0	1
50	External Control Port Enable/Disable	1 or 0	0
60	Subordinate User Combo Change Enable/Disable	1 or 0	1
99	Reset All Functions to Default settings	1	

A Function is "set" in the following standard sequence:

- C - # - (2 Digit Function Code) - # - (Master User Code) - # - (Function Setting) - #
- After each "#", a Short Good Combo Tone (Short Warble) will be given, until the last "#" of the sequence is pressed, at which time it sounds a Long Good Combo Tone (Long Warble) indicating the successful setting of a function.
- Any time during the sequence, if incorrect numbers are pressed, a Bad Combo Tone (4 short beeps) will sound and the lock will go to rest. A function that has an on/off condition rather than a numeric setting requires a 1 (on) or a 0 (off) as the Function Setting.

Time Delay Settings (Functions 01, 02 & 03)

- To Enable Time Delay:
 - C - # - 01 - # - (Master Code) - # - 1 - #
- To Disable Time Delay:
 - C - # - 01 - # - (Master Code) - # - 0 - #
- To set the Delay Period:
 - C - # - 02 - # - (Master Code) - # - (Delay Period, 1-99 minutes) - #
- To set the Open Period:
 - C - # - 03 - # - (Master Code) - # - (Open Period, 1-9 minutes) - #

Multiple User Settings (Functions 10, 11, 12 & 13)

- To Enable Multiple User Mode:
 - C - # - 10 - # - (Master Code) - # - 1 - #
- To Disable Multiple User Mode:
 - C - # - 10 - # - (Master Code) - # - 0 - #
- To Add or Enable a Subordinate User:
 - C - # - 11 - # - (Master Code) - # - (User Number, 1-8) - #
- To Disable a Subordinate User:
 - C - # - 12 - # - (Master Code) - # - (User Number, 1-8) - #
- To Disable all Subordinate Users (1-8):
 - C - # - 13 - # - (Master Code) - # - 1 - #

Note: Disabling a Subordinate User does not erase the combo associated to that user, so if you re-enable that User number it is not necessary to re-enter a combo for it unless you are treating it as a new user.

Duress Alarm (Function 20)

- To Enable Duress Mode:
 - C - # - 20 - # - (Master Code) - # - 1 - #
- To Disable Duress Mode:
 - C - # - 20 - # - (Master Code) - # - 0 - #

Dual Combo (Functions 30 & 31)

- To Enable Dual Combo Mode:
C - # - 30 - # - (Master Code) - # - 1 - #
Note: Enabling Dual Combo Mode turns on (enables) User 1 if a User 1 is not already active in Multi-User mode. The User 1 combo must be set before this feature will function. See Section 4 for changing instructions.
- To Disable Dual Combo Mode:
C - # - 30 - # - (Master Code) - # - 0 - #
- To Enable 2 Subordinate User Opening in Dual Combo Mode:
C - # - 31 - # - (Master Code) - # - 1 - #
- Disable 2 Subordinate User Opening in Dual Combo Mode:
C - # - 31 - # - (Master Code) - # - 0 - #

Armored Car TDL Bypass (Functions 40 & 41)

- To Enable Armored Car TDL Bypass:
C - # - 40 - # - (Master Code) - # - 1 - #
Note: Enabling Armored Car Bypass turns on (enables) User 9, which is the Armored Car User. The User 9 combo must be set before this feature will function. See Section 4 for changing instructions.
- To Disable Armored Car TDL Bypass:
C - # - 40 - # - (Master Code) - # - 0 - #
- To Enable Subordinate Authorizing User Armored Car TDL Bypass:
C - # - 41 - # - (Master Code) - # - 1 - #
- To Disable Subordinate Authorizing User Armored Car TDL Bypass:
C - # - 41 - # - (Master Code) - # - 0 - #

External Control (Function 50)

- To Enable External Control:
C - # - 50 - # - (Master Code) - # - 1 - #
- To Disable External Control:
C - # - 50 - # - (Master Code) - # - 0 - #

Subordinate User Combo Change (Function 60)

- To Enable Subordinate User Combo Change:
C - # - 60 - # - (Master Code) - # - 1 - #
- To Disable Subordinate User Combo Change:
C - # - 60 - # - (Master Code) - # - 0 - #

Reset All Functions (Function 99)

- To Reset All Functions:

C - # - 99 - # - (Master Code) - # - 1 - #

Mixed Modes

Any combination of modes can be active at the same time. Here are some situations that are possible and how they interact together.

- Dual Combo and Time Delay: Any one valid combo can start the Time Delay, but after the Delay Period, two different valid combo's are necessary to cause lock opening.
- Armored Car Code, Dual Combo and Time Delay: Armored Car TDL Bypass only allows the bypassing of Time Delay. Two valid User codes are still necessary to open the lock even the when Armored Car Code is used to bypass Time Delay.
- Duress Alarm output will be caused any time the Duress code is entered by any User during opening or starting of Time Delay. Requires Expansion Module.
- Enabling Dual Combo Mode automatically adds a User 1, even if Multi-User Mode is disabled. Don't forget to set a Code for User 1 or there will not be two codes to open the lock.

Record Keeping

To track Function Settings, use this table:

			Date					
F	Function Description	Range						
01	Time Delay Mode	1 or 0						
02	Time Delay Period	1-99						
03	Open Period	1-9						
10	Multiple User Mode	1 or 0						
20	Duress Mode	1 or 0						
30	Dual Combo Mode	1 or 0						
31	Two Subord. Combos Open	1 or 0						
40	Armored Car TDL Bypass	1 or 0						
41	Subord. Auth. of TDL Bypass	1 or 0						
50	External Control Port	1 or 0						
60	Subord. User Combo Change	1 or 0						

To track User assignments, use this table:

User No	Assigned To	Date	Assigned To	Date	Assigned To	Date
0						
1						
2						
3						
4						
5						
6						
7						
8						
9						

Troubleshooting Tips

The two most common causes of opening issues with the ESL20XL are as follows.

1. Weak or Dead Batteries.

This is the #1 cause of opening issues. **Symptoms of a low battery can include lack of keypad response to input or lack of bolt actuation (clicking sound) after inputting your combo. The ESL20XL does not have a low battery indication.**

The ESL20XL uses two 9-volt alkaline batteries. The simple and reliable nature of the ESL20XL is centered on a large Solenoid that requires high current delivery very quickly. Batteries that may appear to have a good charge level may not have the capacity to deliver high current as they decay. Low quality batteries tend to show poor performance when they are placed in demanding conditions like this.

If you have changed your batteries, and there is still no keypad response to input:

- Remember to first press "C" when entering your combination
- Make sure the cable has not become disconnected from the keypad. Remove the keypad and check the connection to make sure the cable is securely installed in the socket. The locking tab should engage, so that pulling on the cable will not dislodge the plug.
- Make sure the Battery Contacts snap firmly onto the battery posts. A loose connection cannot deliver high current.

2. Bolt Binding.

- a. This is the second most common cause of opening issues. Bolt binding occurs when the locking mechanism (boltwork) presses on the locking bolt of the lock inside the door. The ESL20XL relies on a solenoid to actuate this bolt. That solenoid can only overcome so much resistance, and if that resistance is too great, the bolt does not retract.

To resolve this problem, you must find a handle position that does not push the locking system up against the lock's bolt. To find that place, it helps to know which way the handle turns when you open the door.

- If your handle turns clockwise to open, turn the handle all the way counterclockwise before attempting to open the lock.
- If your handle turns counterclockwise to open, turn the handle all the way clockwise before attempting to open the lock.
- If you don't remember which way your handle turns, you can find the center of the free-play. Move the handle clockwise and counterclockwise to the stopping points to find the range of motion. Then, move the handle to the center of that range before actuating the lock.

If the bolt pressure is causing the problem you are experiencing, this should solve that problem. Once you figure this out, make it a habit to position the handle in the best position when you leave the safe so it's ready for the next time you open it.

- b. If you have persisting intermittent opening success, and changing the batteries seems to make it better for a while, there may be a bolt binding condition in the Boltwork that should be corrected. Many assume the Batteries are getting drained at an abnormal rate, but in reality it is taking all the power of fresh batteries to reliably overcome the binding. This would be evident because you can't find a sweet-spot to position the handle to allow the lock bolt complete freedom to operate, and replacing the batteries seems to resolve the issue temporarily.

ESL20XL Beep and LED Patterns

Beeper Sounds

- Standard Beep: A short, distinct beep
- Warble: A high-low-high-low beep-chain, sounds like "dee-del-dee-del-deee."

Beeper Behavior

Beep Pattern	Description
1 Beep	- Response to any keystroke during input - Notice when lock exits Penalty Lockout
4 Beeps	This indicates an incorrect code was entered. After four incorrect attempts, the logic will enter a "penalty lockout" for 15 minutes. During this period, the lock will not accept any input. You must wait for the penalty lockout to expire. The lock will Beep/Flash once when this period ends.
4 Beeps, Repeating	Open Period Alert after Time Delay.
6 Beeps	The lock is in Penalty Lockout. During this period, the lock will not accept any input. You must wait for the penalty lockout to expire. The lock will Beep/Flash once when this period ends.
Short <i>Warble</i> – 3 high-low tones for about 2.5 seconds	Short "Good Combination Tone" indicates the input is accepted during a Combination Change
Long <i>Warble</i> – 13 high-low tones for about 10 seconds	- Long "Good Combination Tone" indicates the input is accepted at completion of a Combination Change - End of Time Delay Period

LED Behavior

LED On	Description
1 Flash	- Response to any keystroke during input - Notice when lock exits Penalty Lockout - Any time a beep is sounded - With each high-note in the Warble Sounds
1 Flash, Repeating	Once every 5 seconds without User Input, indicates Penalty Lockout
Rapid Flash	Time Delay Period is counting
On Solid (3 Seconds)	While lock is activated after successful code entry