

SEC 3500 HMI- Emergency Restore Procedure Bulletin

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Purpose

To provide customers affected by power-related SEC 3500 HMI irretrievable firmware corruption with a means of recovery in the field without the need to cross-ship a new panel.

Those Most Likely Affected

Any customer that has put in place a backup power protection solution that does not immediately cut power to the SEC 3500 HMI Panel once the voltage level drops below 18VDC (or 21VDC if the power is dropping rapidly). In some extremely rare circumstances, it may happen with a normal supply that drops very slowly after power is removed, and the load does not bleed off power very rapidly.

Nature of Problem

In certain rare circumstances, when an SEC 3500 HMI Panel is placed on a customer's backup power supply after losing primary 24VDC supply, if the **backup supply does NOT shut its output** off if the level falls **below 10% of full voltage** and operational current is further compromised, the Panel may corrupt its permanent internal storage of its program code in flash memory and display the message **"INVALID DATABASE" and be unresponsive and unusable**. The Panel requires 24VDC +/-20% for normal, reliable operation, however proper shut down of the panel should always be observed and especially followed if operational supply power is expected to fall below 10% of nominal (20VDC) and the trend is anticipated to consistently decay downward. This would likely be the result of a backup system in its final downward spiral decay of supply power that should shut itself off but does not, or was not designed to do so. These circumstances cause extremely unpredictable conditions for electronics powered by them and can bring about program firmware corruption and possible electronic damage if allowed to continue operation while under the minimum rated voltage of 20% of nominal (18VDC).

Example Screen Display:

INVALID DATABASE

- OR -

-Failed to Start

-Option 1- Clear Memory

-Option 2- Try Again

Preventing the Problem



Supplying the SEC 3500 HMI with reliable, stable 24VDC at +/-10% tolerance regardless of the source is the best solution. When intentionally powering down power to the Panel, following SEC guidelines by first pressing the ***“Power Down” menu option*** on the HMI and waiting for confirmation before removing power is the certain, safe method to an ***organized, controlled shutdown*** that should not result in any loss of data/configuration or cause for firmware corruption. However, when the main power supply cannot be guaranteed without the use of ***generator or other backup power system, a buffered supply placed between the backup system and the panel*** to boost the level to maintain 24VDC for as long as possible, and ***immediately cut power*** to the panel should it not be able to maintain 24VDC to the Panel is absolutely crucial. ***Contact Sensor Electronics for more information and possible availability.***

It is also very crucial that customers ***do not leave firmware update compact flash cards inserted*** in their panels, as this may be a key contributor to the panel’s internal program flash becoming corrupted once the power source is severely incapable of handling the extra load of compact flash power and write/update power for internal panel storage. Only compact flash cards that contain data logs should ever remain installed in the panel. When panel firmware is updated in the field, it should only be for the duration of the update and then removed from the unit (after a controlled power down procedure). Likewise, ***update firmware should never be copied to a data logging compact flash card*** to accomplish an update.

Restoring Panel Operation after Corruption Occurs

To perform this Emergency Restoration Procedure, you will need to first download the latest Emergency 3500 Restore Kit Zip File (Emergency3500RestoreKit.zip) from the Sensor Electronics website Software Downloads page, unzip the file contents to your hard drive (such as c:\SECTemp), then follow the directions in this PDF bulletin (SEC 3500 HMI Emergency Restore Procedure Bulletin.pdf) as described in the next two sections titled “Create Your Restore Flash Cards” and “Emergency Restoration Steps”.

Create Your Restore Flash Cards

You will need two Compact Flash Cards (such as SanDisk 256MB or greater CompactFlash {SanDisk 512MB CF Card  #SDCFB-512-A10} or Wintech Industrial Grade 256MB or greater CompactFlash {Wintech 512MB CF Card  #W7CF512M1XA-H30PB-002} or equivalent Compact Flash Card) and a computer that can write to CompactFlash cards of type 1 or 2, or have an external all in one multi-card reader/writer. You will also need to determine which firmware file-sets to copy to your CF card, which you can determine from your Panel Hardware version. The Panel hardware version can be located by looking at the back of the panel and examining the center white label containing the prefix “PT# xxxxxxxxxxxx” where “xxxxxxxxxx” is either “G308C000” or “G308C100”, where “G308C000” indicates version one hardware (V1HW files correspondingly), and “G308C100” indicate version two hardware (V2HW files correspondingly). It is crucial that the correct files are applied to the correct

hardware. If you are at all unsure, please contact Sensor Electronics Technical Support for help at 1-800-285-3651.

Creating your restore flash card set is more easily accomplished if you use two separate compact flash cards (**NOTE: Neither of these cards may be your Data Logging Compact Flash Card (CF) if you are using one, or you risk deleting your log files or retaining restore or update files that will cause unintended consequences**), where one is used for and labeled as the “Emergency 3500 Restore Flash Card” and the other is used for and labeled as the “SEC 3500 Update Flash Card”. It is possible to use only one compact flash card if that is all you have at the moment, but that will involve deleting files from the root directory and copying the correct file-set for a given step. To create the cards, copy the following files to the root directory of each card and label them accordingly:

“Emergency 3500 Restore Flash Card”:

For Panel hardware version one (panel part number G308C000), delete any files that are in the root directory of the flash card and then copy the files from the expanded zip folder

“C:\SECTemp\SEC3500_V1HW_EmergencyRestoreFlashCard\”:

- dbase.cdi
- g308.bin
- g308.ldr
- g308.rom
- g308a.bin
- g308a.ldr
- g308a.rom
- g308a2.bin
- g308a2.ldr
- g308a2.rom

For Panel hardware version two (panel part number G308C100), delete any files that are in the root directory of the flash card and then copy the files from the expanded zip folder

“C:\SECTemp\SEC3500_V2HW_EmergencyRestoreFlashCard\”:

- dbase.cdi
- g308a2.bin
- g308a2.ldr
- g308a2.rom
- g308c2.bin
- g308c2.ldr
- g308c2.rom

“SEC 3500 Update Flash Card”:

For Panel hardware version one (panel part number G308C000), delete any files that are in the root directory of the flash card and then copy the files from the expanded zip folder

“C:\SECTemp\SEC3500_V1HW_LatestFirmwareFlashCard\”:

dbase.cdi
g308.bin
g308.ldr
g308.rom
g308a.bin
g308a.ldr
g308a.rom
g308a2.bin
g308a2.ldr
g308a2.rom

For Panel hardware version two (panel part number G308C100), delete any files that are in the root directory of the flash card and then copy the files from the expanded zip folder

“C:\SECTemp\SEC3500_V2HW_LatestFirmwareFlashCard\”:

dbase.cdi
g308a2.bin
g308a2.ldr
g308a2.rom
g308c2.bin
g308c2.ldr
g308c2.rom

Emergency Restoration Steps

After the latest restore kit zip file has been downloaded and extracted, and the correct file-sets determined as described in the previous sections, and copied to separate compact flash cards (root directories respectively) and appropriately labeled, perform the following steps:

1. **Remove power to the SEC 3500 Panel**
2. **Make sure you have proper power (not backup power) supplied to the SEC 3500 HMI (should be 24VDC +/-10%, stable and reliable)**
3. **Insert “Emergency 3500 Restore Flash Card” into the Panel**
4. **Power on the Panel, read/scroll through the directions and press “Ready...” when you are ready**
5. **Remove power from the Panel**
6. **Remove the “Emergency 3500 Restore Flash Card” from the Panel**
7. **Insert the “SEC 3500 Update Flash Card” into the Panel**
8. **Power on the Panel and allow the panel to update its firmware and the SEC panel**

9. **Once the Panel reboots and is displayed and appears to be operating normal, Do NOT change passwords, scan for devices or change configuration settings- these values may have been permanently lost during the event that caused the corruption**
10. **Perform the Power Down procedure by choosing the “Power Down” menu option from the SEC 3500 HMI. It will reset and indicate when it is safe to remove power.**
11. **Remove power from the Panel**
12. **Remove the “SEC 3500 Update Flash Card” from the Panel**
13. **Insert your data logging compact flash card (that does NOT contain any SEC 3500 update firmware files) into the Panel, if you were using one**
14. **Power the SEC 3500 HMI On. If it is running normal, go ahead and change your passwords as needed, change configuration options and scan for devices.**

Everything should be back up and running again. If not, contact Sensor Electronics Technical Support at 1-800-285-3651 for further assistance. You should notify Sensor Electronics Technical Support if you have performed this procedure and indicate what the event was and the circumstances surrounding the issue.

ALWAYS download the latest Emergency Restore Kit instead of relying on a copy on your hard drive from a previous restoration, since changes may be made and updates will be posted for the SEC 3500 HMI with the kit.

If you expect to continue to operate with backup power that does not automatically shut down its output supply below 20VDC, please contact Sensor Electronics to receive more information regarding a Power Supply Buffer, or for availability, to prevent further related issues or damage.

Appendix A- Emergency 3500 Restore Kit Contents

The latest zip file downloaded from the Sensor Electronics Website, Software Downloads page has the following contents:

Readme.txt

SEC 3500 HMI Emergency Restore Procedure Bulletin.pdf

SEC3500_V1HW_EmergencyRestoreFlashCard\ dbase.cdi
g308.bin
g308.ldr
g308.rom
g308a.bin
g308a.ldr
g308a.rom
g308a2.bin
g308a2.ldr
g308a2.rom

SEC3500_V1HW_LatestFirmwareFlashCard\ dbase.cdi
g308.bin
g308.ldr
g308.rom
g308a.bin
g308a.ldr
g308a.rom
g308a2.bin
g308a2.ldr
g308a2.rom

SEC3500_V2HW_EmergencyRestoreFlashCard\ dbase.cdi
g308a2.bin
g308a2.ldr
g308a2.rom
g308c2.bin
g308c2.ldr
g308c2.rom

SEC3500_V2HW_LatestFirmwareFlashCard\ dbase.cdi
g308a2.bin
g308a2.ldr
g308a2.rom
g308c2.bin
g308c2.ldr
g308c2.rom