



Field Notes Bulletin

TECHNICAL SUPPORT

P/N FN00063

EST4: Functional Changes Between 4-SxDC/4-SDC and 3-SxDC2/3-SDC1 Signature Controller Modules

Introduction

This tech facts bulletin provides information on the functional differences between the new 4-SSDC, 4-SDDC, and 4-SDC Signature controller modules and legacy 3-SSDC2, 3-SDDC2, and 3-SDC1 Signature controller modules used with an EST4 life safety system.

This bulletin also provides 4-SxDC controller module compatibility with configuration utilities, control panels, FireWorks, ConnectedSafety+ (CS+), and FSB-PC5 field server bridge (FSB) supplementary applications.

Helpful FAQs are located at the end of this bulletin.

For more information on the 4-SSDC and 4-SDDC controller modules, refer to *4-SSDC and 4-SDDC Signature Controller Module Install Sheet* (P/N 3102854). For more information on the 4-SDC data circuit card, refer to *4-SDC Signature Data Circuit Card Install Sheet* (P/N 3102851).

Overview

The 4-SxDC controller modules position an EST4 system for future new features that the legacy controller modules could not support. The 4-SxDC release allows an unimpeded forward focus on EST4 signaling line circuit (SLC) enhancements.

The legacy 3-SxDC2/3-SDC1 controller modules are discontinued for use on EST4 and EST3X control panels in UL and ULC markets.

- For EST3 systems, 3-SxDC2/3-SDC1 controller modules are only available for service replacements (RMA).
- For EST3X systems, replace 3-SxDC2/3-SDC1 controller modules with the new 3X-SxDC2/3X-SDC1 controller modules. The new 3X controller modules are UL Listed as replacements and will be supplied for all new EST3X applications.
- For EST4 systems, replace 3-SxDC2/3-SDC1 controller modules with the new 4-SxDC/4-SDC controller modules.

The 4-SxDC controller modules mount in the same rail space as legacy controller modules. Wire runs and current draws are also the same, which helps with EST4 service replacements, expansions, and new installations. As with most new technology, keeping 100% backward compatible is always the goal but is not always possible. There are differences in operation between the new and legacy controller modules.

Agency listings

For EST4 sales in UL/ULC markets, the 4-SxDC controller modules are UL/ULC Listed.

For EST4 sales in EN 54 and CCCF markets, the first release of 4-SxDC controller modules does not yet have EN 54 or CCCF listings. A future announcement will advise 4-SxDC support for these markets. Therefore, for EN54 and CCCF marketplace deployments, continue to use 3-SxDC2-E/3-SDC1-E and 3-SxDC2-C models.

Product compatibility

See Table 1 below for 4-SxDC controller control panel compatibility. See Table 2 on page 3 for supplementary applications: FireWorks, CS+, and FSB compatibility requirements.

Table 1: Control panel compatibility

	4-SSDC	4-SDDC	4-SDC
EST3X	No [1]	No [1]	No [1]
EST3	No	No	No
EST4	Yes [2]	Yes [2]	Yes [2]

[1] For EST3X, use 3X-SSDC2 and 3X-SDDC2 controller modules.

[2] Requires the use of 4-CU V7.20.02 or higher and 4-CPU firmware V7.20.02 or higher.

Each controller module ships with an Attention label (Figure 1) that shows the differences between legacy controller modules and the new 4-SxDC controller modules. The differences need consideration when migrating an EST3 system to an EST4 system or where a new controller module is used to service an EST4 system containing legacy controller modules.

Please review the Attention label for important compatibility information and firmware support.

For a complete list of EST4 compatible devices please refer to the latest *EST4 Compatibility List* (P/N 3102304). You can download the compatibility list from My-Eddie at <https://myeddie.edwardsfiresafety.com>.

Figure 1: Attention label

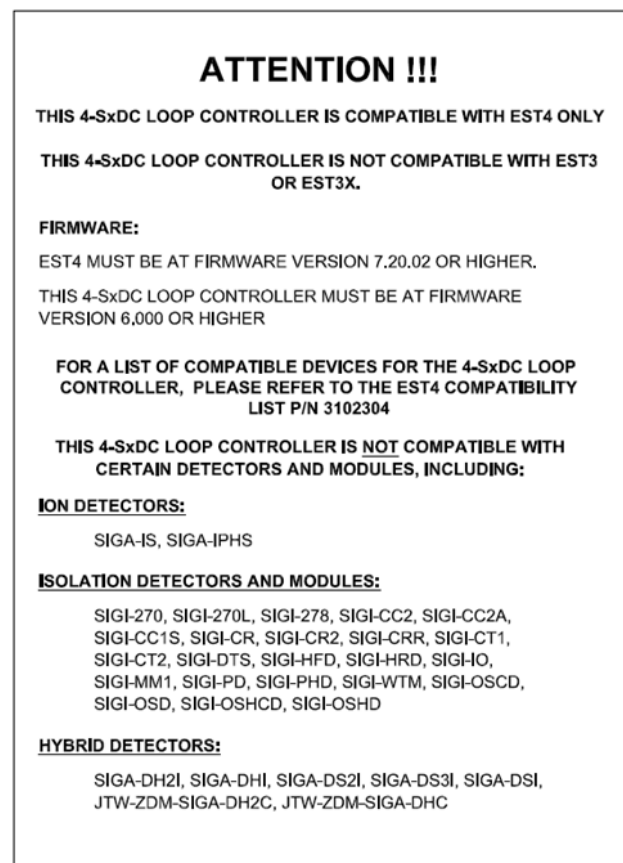


Table 2: Supplementary applications compatibility

Application	Version compatibility
FireWorks [1]	V9.31 and higher
CS+	N/A [2]
FSB-PC4	V2.1.4 and higher [3]
FSB-PC4LW	V2.1.4 and higher [3]
FSB-PC5	V2.1.4 and higher [3]

[1] FireWorks version 9.31 is available for download from My-Eddie at

<https://myeddie.edwardsfiresafety.com>.

[2] CS+ is a web-based application that provides a remote connection to the control panel. CS+ event reporting is not affected by controller module versions.

[3] FSB firmware version V2.1.4 will be released at a future date. At that time, a field notification will be issued to advise the availability for downloading the firmware from My-Eddie.

Changes with the 4-SSDC and 4-SDDC controller modules and 4-CU V7.20.02

The following is an overview of the new 4-SxDC features and 4-CU and 4-CPU firmware changes in support of the new controller modules.

New features and updates include:

- Enhanced trouble event details
- Added granularity to trouble reports
- Updated Ground queue reporting for 4-SxDC controller modules
- Enhanced troubleshooting for unconfigured devices
- Updated Map Mismatch pseudo point for 4-SxDC controller modules
- Improved stand-alone mode
- Enhanced ECP connection for FireWorks and FSB communication
- Improved firmware upgrade process
- Added new pseudo points

Enhanced trouble event details

Trouble event details have been expanded to provide help when troubleshooting.

Added granularity to trouble reports

Additional trouble report granularity helps determine the source of a trouble. Rather than only seeing “Common Trouble,” additional details now help isolate specific troubles.

For example, if a module has both a Trouble Open event and an Internal Trouble event, the 4-SxDC reports both troubles separately, which helps determine the cause of trouble. Trouble event details can be viewed on the control panel UI by tapping the details button for the event. The expanded troubleshooting feature adds to EST4 remote diagnostics flexibility.

Table 3 below lists possible device troubles that may occur on an EST4 system and where each can display.

Table 3: EST4 device trouble events

Type	Description	Displays on control panel UI LCD, History report, Status report	Displays in 4-CU Detailed Diagnostics Report
Trouble Open	The device has an open in field wiring.	Yes	Yes
Trouble Short	The device has a short in field wiring.	Yes	Yes

Type	Description	Displays on control panel UI LCD, History report, Status report	Displays in 4-CU Detailed Diagnostics Report
Communication Fault	An expected (configured) device is not communicating.	Yes	Yes
Bad Type	The actual device type doesn't match the configured type.	Yes	Yes
Base Type Fault [1]	The attached base does not match the expected base type.	Yes	No
Compatibility Fault	The device does not match the brand of the panel. Applies to detectors only or a device that is no longer supported. (See Figure 1 Attention Label on page 2.)	Yes	Yes
Dirty Detector	The detector is 100% or more dirty.	Yes	Yes
Unexpected Device	A device that has not been configured is attached to the SLC.	Yes	Yes
Riser Fault [1]	A device has a riser fault. For a SIGA-UM, voltage is out of range on the two wires that supply 24 VDC power to the SIGA-UM and SIGA-MAB.	Yes	No
Configure Fault [1]	A device configuration in the 4 CU is not valid. This fault occurs when a device's configured personality code is not valid.	Yes	No
End of Life Fault	The age of the CO type device has exceeded its end-of-life rating.	Yes	No
Internal fault	The device has an internal trouble.	Yes	Yes
Personality Trouble	The device personality code does not match expected. This trouble also generates if a device module timer does not match expected or a device's base group number does not match expected.	Yes	Yes
Device Init Trouble [1]	A failure occurred while initializing a detector. This can occur when messages failed while initializing a detector or when a specific EEPROM value is not within an expected range.	Yes	No
Sensitivity Trouble [1]	The device thresholds have changed unexpectedly. This is detected during background device supervision. The system will reprogram expected values to clear the trouble.	Yes	No

Type	Description	Displays on control panel UI LCD, History report, Status report	Displays in 4-CU Detailed Diagnostics Report
Ground Fault	The device has a ground fault on its field wiring.	Yes	Yes
Common Trouble	The controller module is simulating a device trouble because of executing the Test trouble command from the EST4 UI or a device has failed its RED LED communication test (as performed by the controller module).	Yes	No

[1] New trouble event type.

Updated Ground queue reporting for 4-SxDC controller modules

A 4-SxDC controller module field wiring ground fault trouble goes into the Ground queue as a ground fault event. Ground fault events are logged into history and are reported remotely as ground faults. This queue change helps identify a ground fault from another fault type.

Note: All legacy controller module field wiring troubles go into the Trouble queue as a common trouble event.

Enhanced troubleshooting for unconfigured devices

When there is an unconfigured device on the SLC, the 4-SxDC controller module assigns a temporary (unused) device address for each unconfigured device physically attached to a SLC and generates an unexpected device trouble for each unconfigured device. This new feature provides the number of unconfigured devices attached to the SLC without needing to upload diagnostics via the 4-CU.

Like legacy controller modules, 4-SxDC controller modules also generate an Unprogrammed Device pseudo point for each SLC that has an unconfigured device. In an EST3-to-EST4 retrofit, this allows legacy rules written against the Unprogrammed Device pseudo point to continue functioning when a legacy controller module is replaced with a 4-SxDC controller module.

Note: During the control panel configuration process, if the installer assigns a different device address than the temporary device address assigned by the controller module, there is a possibility that the unconfigured event will remain on the panel after the configuration has been downloaded. To clear the unconfigured trouble, perform a panel reboot.

Updated Map Mismatch pseudo point for 4-SxDC controller modules

The 4-SxDC controller module generates a Map Mismatch pseudo point when the actual map wiring is different than the expected map wiring. The pseudo point address appears on the control panel LCD along with the Map Fault pseudo point.

If the Map Mismatch pseudo point appears, upload the map and proceed with installing devices. A Map Fault pseudo point *and* no Map Mismatch pseudo point indicates that the map failed to be built and points to a wiring issue. It is recommended to upload SLC diagnostic details in order to determine the map fault type so the issue can be corrected.

Note: The Map Fault pseudo point displays in the 4-CU diagnostics screen. The Map Mismatch status *will not* appear in the 4-CU V07.20.02 diagnostics screen.

Non-latching Class A/DCLA open: With legacy controller modules configured for Class A/DCLA or Class X/DCLC, an open circuit will latch and must be reset after being corrected. The 4-SxDC controller module does not latch Class A/DCLA or Class X/DCLC open circuit faults. An open that occurs will generate a trouble and when corrected the system returns to normal without having to perform a panel reset.

Improved stand-alone mode

If the control panel CPU stops communicating with the 4-SDC data circuit card on the 4-SxDC controller module, the 4-SDC will enter a stand-alone mode. In stand-alone mode, any installed isolators continue to close and a search for alarms continues. If an alarm is detected, the 4-SDC activates the Fail Safe Alarm (FSA) and any output modules that are configured as stand-alone outputs are activated. Activating output modules while in stand-alone mode is a new feature with the 4-SDC that does not exist on the legacy 3-SDC1 data circuit cards.

Note: If the Fail Safe Alarm is activated by another module in the EST4 control panel and the 4-SDC is already in stand-alone mode, the 4-SDC does *not* activate stand-alone outputs on its SLC.

Enhanced ECP connection for FireWorks and FSB communication

An enhancement has been made to the EST4 control panel ECP connection. The control panel now determines if a connected Fireworks or FSB are 4-SxDC controller module compatible. If they are not, a Communication Service trouble is generated that warns you of an incompatible ECP client. See Table 2 on page 3 for FireWorks and FSB compatibility requirements.

Improved firmware upgrade process

The 4-SxDC controller module upgrades the firmware on the 4-SDC data circuit card. Upon startup, the 4-SxDC verifies that the firmware on the 4-SDC is the expected version. If it is not, the 4-SxDC upgrades it.

Notes

- The 3-SDC data circuit card firmware on legacy controller modules could not be upgraded.
- The 4-SxDC controller module does not report the 4-SDC data circuit card firmware version back to the control panel or the 4-CU. Since the 4-SDC firmware is bundled with the 4-SxDC controller module application firmware, the 4-SDC firmware version is determined by looking at the 4-SxDC application version.

Added new pseudo points

The 4-SxDC generates the new pseudo points listed in Table 4 below.

Table 4: New pseudo points

Address	Name	Description
0675	Device Maintenance Alert, Loop 1	• One or more sensors on the SLC are dirty (80% dirty or higher). • One or more CO devices on the SLC are within six months of their end-of-life.
0685	Device Maintenance Alert, Loop 2	• One or more sensors on the SLC are dirty (80% dirty or higher). • One or more CO devices on the SLC are within six months of their end-of-life.
0691	Map Mismatch Data, Loop 1	The controller module has determined that the actual map of devices does not match the configured (expected) map.
0692	Map Mismatch Data, Loop 2	The controller module has determined that the actual map of devices does not match the configured (expected) map.
0693	Too Many Devices, Loop 1	• There are too many devices attached to a particular loop. • The number of sensor short addresses exceeds 125. • The number of module short addresses exceeds 125.
0694	Too Many Devices, Loop 2	• There are too many devices attached to a particular loop. • The number of sensor short addresses exceeds 125. • The number of module short addresses exceeds 125.

Resolved field issues

The following known field issues are resolved with the release of the 4-SxDC controller modules, 4-CU V7.20.02, and 4-CPU firmware V7.20.02.

Table 5: Resolved field issues

QIT	Comments
47948490	<N> substitution is preventing responses from being generated. The release of 4-CU V7.20.02 resolves this issue.
47802209	EST4 3-SDUpde V6.0 warning messages for 3-SIGA-SEC2 and SIGA-MD for 3-SDDC1(2) even though the modules did not exist in the 3-SDU project. The 3-SDUpde has been updated to resolve the issue with the release of 4-CPU and 4-CU V7.20.02.
47825914	Using an '&' in the project name will cause an exception during build. The release of 4-CU V7.20.02 resolves this issue. Project names can now include the & character.
47885801	EST4 4-CU V7.0 causes the error message "Project Loading Error" when trying to open a project. The release of 4-CU V7.20.02 resolves this infrequent issue.
47901799	EST4 4-CU V7.0 posts exception event with no active ports assigned. The release of 4-CU V7.20.02 resolves this issue.
47904134	4-CU V7.0 does not post an error for the 3-ZA95 not having an audio output assigned. The release of 4-CU V7.20.02 resolves this issue.
47808804	4-CU configuration application error caused by duplicate 3-ZA95 second slot address 3-LDSM pseudo point label \$UnhandledCondition addresses 0604 and 0680. The release of 4-CU V7.20.02 resolves this issue.
47781809	4-CU Undefined Internal Fault for Siga-AAXX amps. The release of 4-CU V7.20.02 resolves this issue.
47940979	4-CU V7.0 device types are changing, not allowing the project to open. The release of 4-CU V7.20.02 resolves this issue.
47877843	4-CU V6.0 error message upon save as "An item with the same key already exists". The release of 4-CU V7.20.02 resolves this issue.

FAQs

1. Does EN 54 and CCCF markets support the new 4-SxDC controller modules?

The 4-SxDC controller modules do not support the EN 54 and CCCF markets with this initial controller module release. A marketing update will be provided once approvals are received.

2. Are all Signature devices supported by legacy 3-SxDC2 controller modules supported by the new 4-SxDC controller modules?

The 4-SxDC controller modules do not support ION type devices (i.e., SIGA-IS and SIGA-IPHS). If an ION type device is configured and installed on a 4-SxDC loop, a Compatible Fault trouble will be generated.

Note: The EST4 system will continue to support ION type devices on legacy Signature controller modules 3-SxDC1 and 3-SxDC2.

3. Are the hybrid type devices listed in Figure 1 Attention Label on page 2 supported by the new 4-SxDC controller modules?

- The 4-SxDC controller modules do not yet support hybrid type devices listed on the Attention Label. If a hybrid type device is configured and installed on a 4-SxDC loop, a Compatible Fault trouble will be generated. Mapping Enabled and Mapping Disabled modes for the 4-SxDC function the same way in all markets. Note that this functionality is different than legacy controller modules in international and China markets, where the Mapping Disabled mode is allowed for SIGA and hybrid device swapping by physically programming a device with the expected device address.
- Support for hybrid devices (see Figure 1) will be added in a future version of 4-SxDC.

Note: EST4 will continue to support hybrid type devices on the legacy Signature controller modules 3-SxDC1 and 3-SxDC2.

4. Are SIGI-xx type devices supported by the new 4-SxDC series controller modules?

The 4-SxDC controller modules do not yet support SIGI-xx type devices. There will be no trouble indication when a SIGI-xx device is configured and installed on a 4-SxDC loop. However, if the quantity of SIGI-xx devices is sufficient on a Class A/DCLA configuration, a Class A/DCLA fault could occur upon controller module power up, and devices may generate a device communication fault. Class A/DCLA and device communication faults will eventually restore.

Note: EST4 will continue to support SIGI type devices on the legacy Signature controller modules 3-SxDC1 and 3-SxDC2.

5. Are the new 4-SxDC controller modules compatible with EST3 and EST3X?

4-SxDC controller modules are not compatible with EST3 or EST3X systems and should not be installed in those control panels. For EST3X systems going forward, use 3X-SxDC controller modules. For EST3 systems, 3-SxDC1 and 3-SxDC2 controller modules are available for RMA service replacements only.

6. Are there any changes in task times with the new 4-SxDC controller modules?

- Database conversion time: The amount of time it takes to DB Convert a project has been improved. Several timing tests were performed to estimate the time savings. Results showed an average time savings of between 40% for smaller projects (several minutes) and 70% for larger projects (several hours) for each time you DB Convert a project.
- Firmware download time: The length of time to upgrade 4-SxDC controller module firmware is longer than with the legacy controller modules. It could take approximately 12 minutes longer per 4-SxDC in the cabinet than it took for the equivalent 3-SxDCx controller module. The EST4 control panel will be in a trouble state during the upgrade. The trouble pseudo points Firmware mismatch and Executing bootloader will be restored and the firmware version updated in the Revisions list once the download is complete. Firmware download is only required if the firmware in the installed controller module is older than the firmware packaged with the 4-CU. At release, these firmware versions match and there will be no need for a firmware download.
- Device supervision: Updating personality codes and other configuration settings on devices will take longer than with the legacy controller module.

7. What happens when a new 4-SxDC controller module is installed before the 4-CU and 4-CPU firmware have been upgraded to V7.20.02?

When a 4-SxDC controller module is installed in a control panel that has not been upgraded (i.e., 4-CU and 4-CPU firmware version 7.20.02), the controller module configuration will download to the control unit 4-SxDC. However, a Firmware Mismatch trouble pseudo point will be generated. The trouble will remain until the 4-CPU firmware has been upgraded.

Also, any unconfigured devices on the 4-SxDC will generate a 4-CPU internal fault until they are configured.

Finally, existing rules designed to handle device troubles will not work fully. For example, if the trouble is tied to an LED state, the LED may not restore when the device trouble restores.

8. Are the new 4-SxDC controller modules supported by FireWorks Version 9.3 and earlier?

No. To fully support 4-SxDC controller module functions, FireWorks must be version 9.31 or higher. You can download FireWorks V9.31 from My-Eddie at <https://myeddie.edwardsfiresafety.com>. If you have not updated Fireworks to V9.31 or newer and are using 4-CU V7.20.02 or higher, the EST4 system will report a Communication Service trouble. To clear the trouble, update Fireworks to V9.31 or higher.

9. What happens if my system has an FSB-PC4, -PC4LW or -PC5 running V2.1.3 or older version of firmware?

The EST4 system will report a Communication Service trouble. To clear the trouble, update the FSB firmware to V2.1.4 or higher. Please note that firmware version 2.1.4 will be released at a future date. At that time, a field notification will be issued to advise the availability for downloading the firmware from My-Eddie.

10. What should I do to get ready to replace an existing 3-SxDC2 controller module with a new 4-SxDC controller module in an EST4 system?

- Review a list of devices that will be connected to the 4-SxDC. Remove any that are not compatible with the 4-SxDC and replace the removed devices.
- For Fireworks, FSB, and CS+ version compatibility, see Table 2 on page 3.
- Go to My-Eddie at <https://myeddie.edwardsfiresafety.com> and download 4-CU V7.20.02 or higher and 4-CPU V7.20.02 or higher. Install the new 4-CU and import the 4-CPU firmware.
- Add and configure the 4-SxDC controller module in the 4-CU.

Note: The 4-CU option for adding any controller module remains LRM type 3-SxDC1. The system firmware automatically identifies the controller module model.

- Power down the control panel, install the 4-SxDC controller module, and then power up the control panel and download the new configuration from the 4-CU to the control panel that contains the controller module.
- Use the same methodology of configuring 4-SxDC controller modules as used with legacy controller modules. Refer to the *EST4 Signature Mapping User Guide* (P/N 3102764) for 4-CU configuration information. You can download the guide from My-Eddie at <https://myeddie.edwardsfiresafety.com>.

11. What is the process for swapping a legacy controller module with a new 4-SxDC controller module?

1. Upgrade the 4-CPU firmware to V7.20.02 or higher, if it has not been done already.
2. Swap the legacy controller module with a 4-SxDC controller module.

Note: With the exception of upgrading the firmware version, no change is necessary to the controller module configuration. This will force the panel to automatically download the configuration to the 4-SxDC controller module. The time to download the configuration from the control panel to the 4-SxDC controller module remains the same as the legacy controller module.

Contacting support

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[Tech Support Ticket](#)

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