F-Drive RX

Configuration Manual

Version 1.0.0

Part Number: 7148M1400-1.0.0 Rev: A

Released: 2025-11

Table of Contents

Introduction

The F-Drive RX LED driver solution provides a modular, centralized approach for controlling LED luminaires. The F-Drive RX is an enclosure that holds up to 10 low-voltage output cards, providing power and data to multiple circuits per card. By maintaining remote, easy access to the output cards and power supplies, LED-based systems can be easily installed and serviced, while ensuring critical components are readily accessible to support staff.

Document Conventions

This document uses the following conventions to draw your attention to important information.

Note: *Notes are helpful hints and information that is supplemental to the main text.*

CAUTION: ***A Caution statement indicates situations where there may be unwanted consequences of an action, potential for data loss or an equipment problem.***

WARNING: A Warning statement indicates situations where damage may occur, people may be harmed, or there are serious or dangerous consequences of an action.

WARNING: RISK OF ELECTRIC SHOCK! This warning statement indicates situations where there is a risk of electric shock.

All ETC documents are available for free download from the ETC website (etcconnect.com).

Email the Tech Comm team (TechComm@etcconnect.com) with comments about this manual.

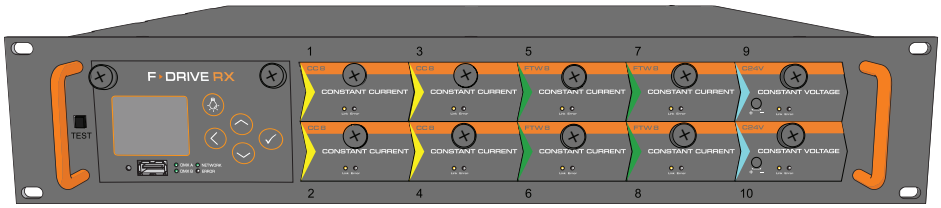
Help from ETC Technical Services

If you have questions that are not answered by this document, try the ETC support website (support.etcconnect.com) or the ETC website (etcconnect.com). If none of these resources are sufficient, contact the ETC office nearest you (etcconnect.com/contactETC). Emergency technical support is available from all ETC offices outside of normal business hours.

When calling for help, take these steps first:

- Prepare a detailed description of the problem.
- Go near the equipment for troubleshooting.
- Find your ticket number if you have called in previously.

Overview



F-Drive RX Enclosure

Features

- Local configuration via full-color user interface.
- Front-mount USB 2.0 port for easy configuration management.
- Hot-swappable output cards.
- RJ45 output connectors.
- Dual RJ45 to terminal adapters (C24V Card only) for constant-voltage loads and higher gauge/existing 1–2.5 mm^2 (18–12 AWG) wire.
- Powered by 56 VDC input from an external power supply.
- Up to 2800 W output.
- Power with individual control.
  - Up to 80 channels of constant current control.
  - Up to 40 channels of constant voltage control.
- Dual DMX512 control inputs.
- Network port for sACN.
- Emergency input for remote triggering of output channels.
- Each output can be configured to be included or excluded from the emergency configuration.
- 24 VDC pass-through for connection to downstream sense equipment.
- Compatible with S-Box for extended support of Navis 50 White and Fade to Warm luminaires and low-voltage luminaires by other manufacturers.
- Compatible with B-Box for wiring loads in star topology.

User Interface

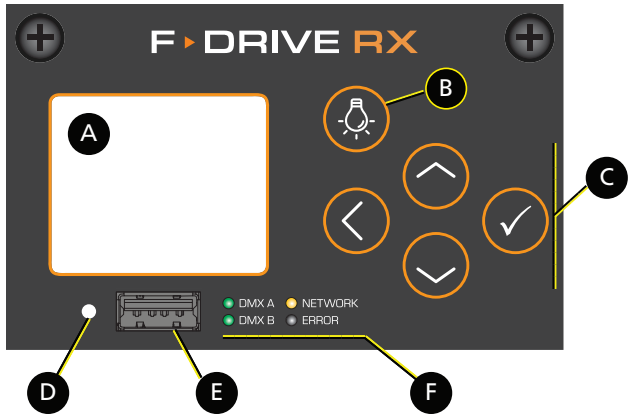


Figure 1. F-Drive RX user interface. See Table 1

A	Display, see *Display on page 7*
B	**[Lightbulb]** (), see *Lightbulb Button on page 8*
C	**[Back]** (◄) button, **[Enter]** (✓) button, **[Up]** (▲) button, and **[Down]** (▼) button
D	Reset switch, see *Reset Switch on page 8*
E	USB port, see *USB Media on page 9*
F	LED Status indicators, see *Advanced Control Card LED Status Indicators on page 10*

Table 1. Description of labeled items in Figure 1.

Display

The F-Drive RX features a backlit, color LED screen.

By default, the user interface backlight turns off after one minute. Press any button to wake the user interface. See *Inactivity Time on page 25* and *Backlight on page 25*.

The status screen displays when the user interface becomes inactive. You can reach the status screen from the Main Menu by pressing the **[Back]** (◄) button. See *Status Screen on page 12*.

When the system is in an active emergency state, the status screen shows the Emergency Active screen. See *Status Screen on page 12*.

The Main Menu displays when you press a button to wake the system. Press the **[Back]** (◄) button to view the Status Screen. Press **[Enter]** (✓) to access the Main Menu from the Status Screen. See *Main Menu on page 12*.

A scroll bar displays on the right side of the screen, indicating there is more content to be displayed. Use **[Up]** (▲) and **[Down]** (▼) on the user interface to scroll through the available menus.

Lightbulb Button

The **[Lightbulb]** (💡) button is shown in *Figure 1*, *B* on *page 7*.

- Press once to enter the Output Control menu (*Output Control on page 18*).
- Press twice rapidly to display the Set All Levels screen (*Set All Levels on page 18*).
- Press the **[Lightbulb]** (💡) button from the Set Channel Levels screen with an output card slot selected to access the Set Channel Levels screen for that output card slot. See *Set Channel Levels on page 18*.
- Press the **[Lightbulb]** (💡) button from the Set Channel Levels screen when the screen displays "Press **[Lightbulb]** (💡) to Identify" to identify a connected load and press **[Lightbulb]** (💡) a second time to stop the identify command. See *Set Channel Levels on page 18*.

Navigate the Menu

List Menu

In a list menu, use **[Up]** (▲) or **[Down]** (▼) to navigate through the menu options. Options are highlighted when they are selected. Press **[Back]** (◀) to return to the previous menu selection. Press **[Enter]** (✓) to select the highlighted menu option.

Main Menu
About
Output Setup
Output Control
Rack Setup
File Operations
View Errors

Settings Menu

Use **[Up]** (▲) or **[Down]** (▼) to navigate through the menu options. Edit values in the settings menus using **[Up]** (▲) or **[Down]** (▼). Press **[Enter]** (✓) to begin editing the option and to commit the select selection and move to the next item.

Output Setup	
Slot: 1	Channel: 1
Mode:	FTW Warm Trim
Patch:	5,100,12345/1
Curve:	Navis FTW
Resp Time:	300ms
Max Level:	255
Min Level:	000
On Below Min:	True
Output Current:	Navis 100 FTW
Max CT:	3000K

Reset Switch

Reset the F-Drive RX hardware and software by pressing the reset switch (*Figure 1*, *D* on *page 7*). Access this reset switch using a blunt push tool (for example, the tip of a ballpoint pen).

During a powered reset, the Data Loss & Power On settings will determine how the controlled loads behave until the processor has rebooted and takes control. See *Data Loss & Power On on page 21*

USB Media

The F-Drive RX Advanced Control Card includes a USB type A socket (*Figure 1*, *E* on *page 7*). A USB device is not included and must be purchased separately. Use a compatible USB device (FAT32 format) to save and load backup files of your configuration and to update the F-Drive RX firmware. See *File Operations on page 25* for more information about saving and loading configuration files.

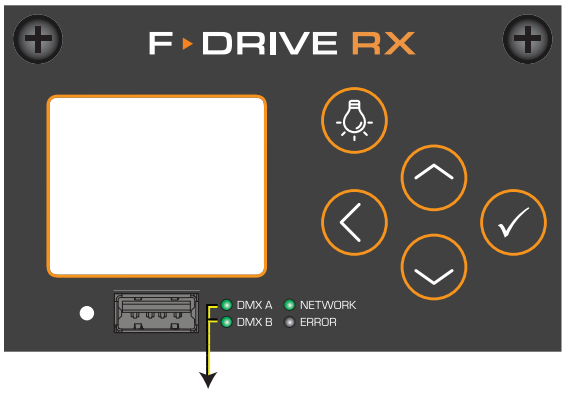
Errors

An illuminated red "Error" LED on an Advanced Control Card or output card can mean several things, depending on the type of card.

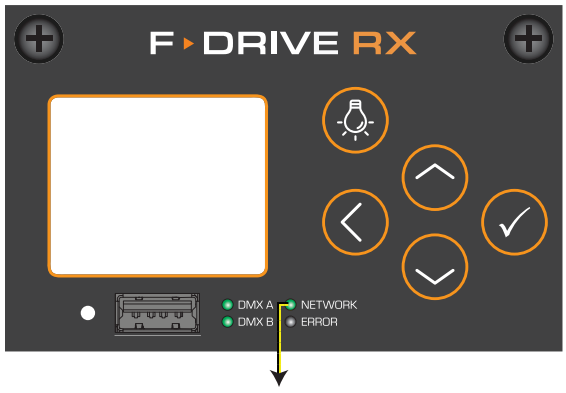
Check the user interface display for a status message. See *View Errors on page 28* for more information.

UI Message	Red "Error" LED State		Notes
	Advanced Control Card	Output Card	
Emergency Active	Solid on	Off	Displays while the emergency state is active.
Driver Slot "Y", Over Temp	Solid on	Off	Indicates the number of the slot with the over temperature (0–10) in place of "Y". The over temp error will clear when the temperature is in normal operating range.
Slot "Y", Output "Z", Overcurrent	Solid on	Solid on	Indicates the number of the slot (0–10) in place of "Y" and the output channel number with the overcurrent in place of "Z".
Internal Storage Error	Solid on	Off	The microSD card is missing in the Advanced Control Card. Check that the microSD card is securely installed in the Advanced Control Card.
Driver Slot "Y", High Temp	Solid on	Off	Indicates the number of the slot with the high temperature (0–10) in place of "Y". The high temp error will clear when the temperature is in normal operating range.
Invalid Config	Solid on	Off	The configuration file is invalid. The system uses the live default configuration while this error is active.
Slot "Y", Driver Card Missing	Solid on	Off	Indicates the number of the slot (0–10) that is missing a driver card in place of "Y". If you have configured a slot for an output card and no output card is found, the user interface will prompt you to set the card type to "None" or "Ignore". "None" clears the configuration of the missing output card. "Ignore" maintains the configuration for the missing output card.
Fan "X", Failure	Solid on	Off	Indicates the number of the failed fan (1, 2, or 3, starting at the front of the enclosure) in place of "X".
Slot "Y", Driver Card Type Mismatch	Solid on	Off	The output card in slot Y does not match the output card type in the configuration file.
Set Levels Active	Solid on	Solid on	Displays while any output is controlled by a level set in **Set All Levels** or **Set Channel Levels**. Release Set Levels to resolve this error. See *Output Control on page 18*.
Slot "Y", Driver Firmware Mismatch	Solid on	Off	The firmware version of the output card in slot Y does not match the firmware version for slot Y in the configuration file.

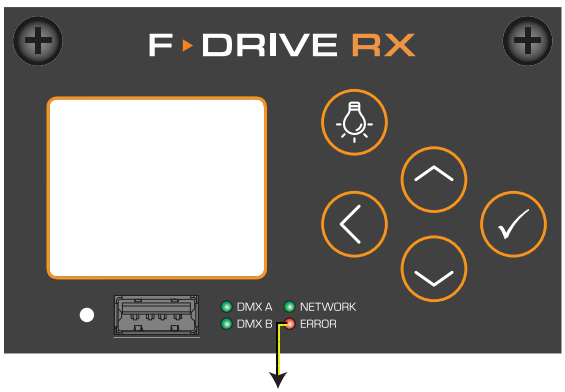
Advanced Control Card LED Status Indicators



Green "DMX A" or "DMX B" LED	
Behavior	**Status or Error**
Off	The port is disabled.
Solid On	DMX data is present and the port is enabled.
Fast Blink (2 Hz)	There is a data error.
Slow Blink (1 Hz)	The port is enabled but no data is present.
Triple Blink	Firmware download is in progress.

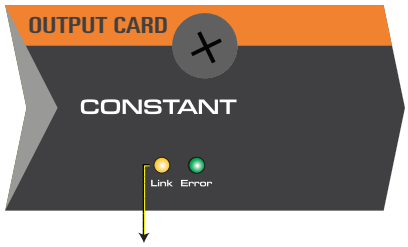


Green "NETWORK" LED	
Behavior	**Status or Error**
Off	Network activity is not present.
Fast Blink	Network activity is present.

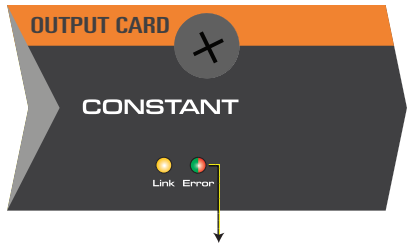


Red "ERROR" LED	
Behavior	**Status or Error**
Off	Normal operation.
Solid On	The emergency state is active, there is an active error, or Set Levels is active. See *Errors on page 9*.

F-Drive RX Output Card LED Indicators



Yellow "Link" LED	
Behavior	**Status or Error**
Off	Communication is inactive.
Fast Blink	Communication is active.

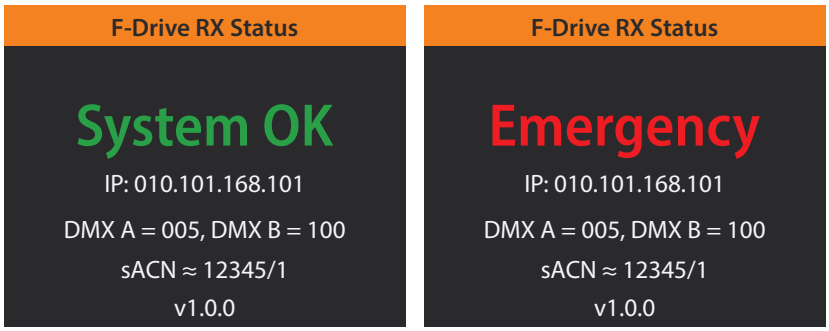


Green/Red "Error" LED	
Behavior	**Status or Error**
Off	All outputs are off. There are no active errors.
Green, Solid On	At least one output channel is receiving a control signal.
Red, Solid On	There is an active error. See *Errors on page 9*.

Menu Structure

Status Screen

The status screen displays when the user interface becomes inactive. You can reach the status screen from the Main Menu by pressing the **[Back]** (◄) button.

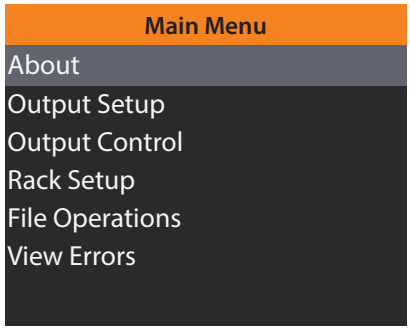


The status screen displays:

- System Messages: Error messages and "Emergency" appear red. "System OK" appears green.
  - While the system is in an active emergency state the status screen displays the message "Emergency" and ignores all button presses.
- IP Address or "Offline" if the Ethernet input is inactive.
- DMX Start Addresses: An equal sign (=) indicates outputs are consecutively patched. An almost equal sign (≈) indicates addresses are non-consecutive. A dash (-) indicates the port is enabled but unpatched. "Off" indicates the port is not enabled.
- sACN Universe and Start Address: An equal sign (=) indicates outputs are consecutively patched. An almost equal sign (≈) indicates addresses are non-consecutive. A dash (-) indicates sACN is unpatched.
- The Advanced Control Card firmware version number.

Main Menu

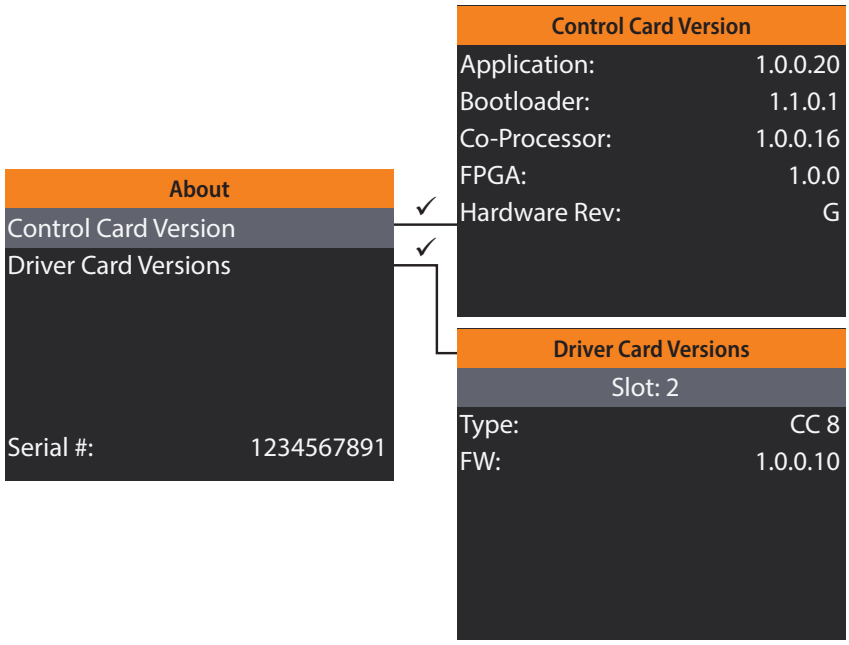
The Main Menu displays when you press a button to wake the system. Press the **[Back]** (◄) button to view the Status Screen. Press **[Enter]** (✓) to access the Main Menu from the Status Screen.



The Main Menu contains the following options:

- *About on page 13*
- *Output Setup on page 14*
- *Output Control on page 18*
- *Rack Setup on page 19*
- *File Operations on page 25*
- *View Errors on page 28*

About



Driver Card Versions

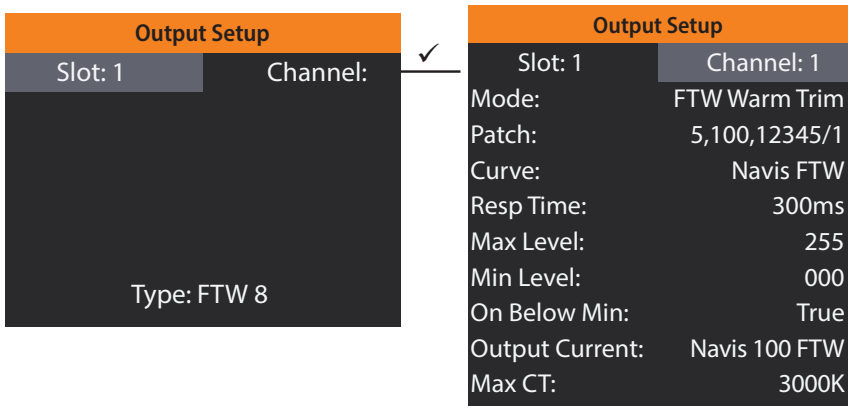
Use **[Up]** (▲) or **[Down]** (▼) to navigate through output cards (slots).

Output Setup

Select a Slot

Use **[Up]** (▲) or **[Down]** (▼) to navigate to the slot you want to configure and then press **[Enter]** (✓).

You must select a channel before you can edit its properties. Use **[Up]** (▲) or **[Down]** (▼) to navigate to the channel you want to configure and then press **[Enter]** (✓).



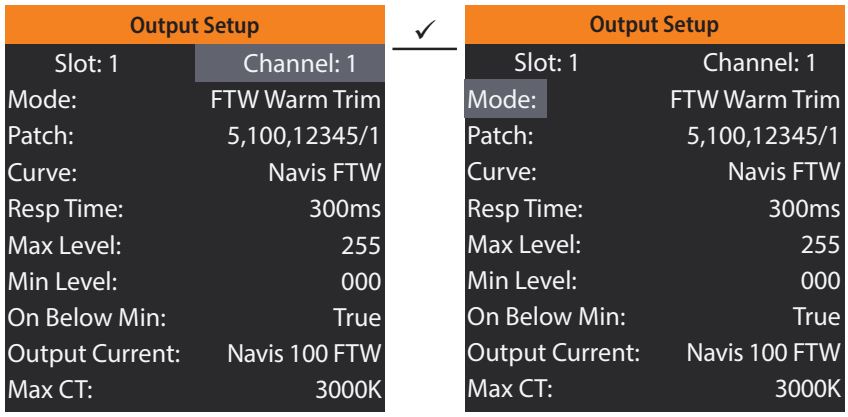
Patch on the **Output Setup** screen displays the following values, separated by commas: DMX A Address, DMX B Address, sACN Universe, sACN Address. Select **Patch** and press **[Enter]** (✓) to edit these values.

Different properties are displayed for different output cards and modes:

- **Output Current** is only displayed for CC 8 Cards and FTW 8 Cards. See *Output Current on page 17*.
- **Max CT** is only displayed for FTW 8 Card outputs with their **Mode** set to **FTW Warm Trim**. See *Mode on page 15* and *Max CT on page 18*.

Select a Channel

Use **[Up]** (▲) or **[Down]** (▼) to navigate to the channel you want to configure and then press **[Enter]** (✓). Different output cards have different numbers of channels.



Mode

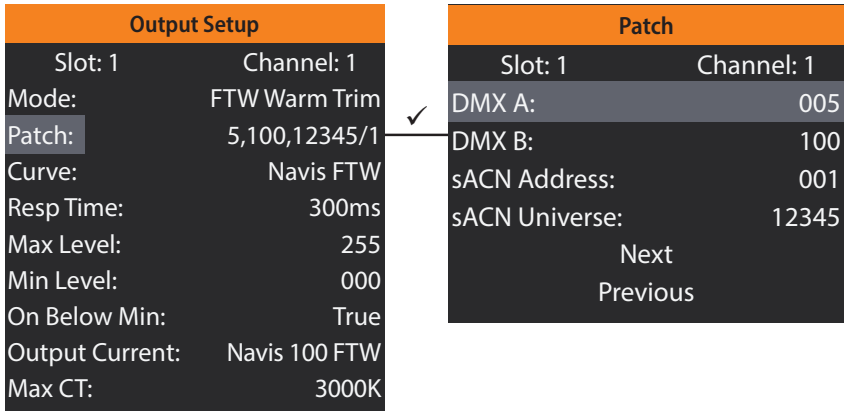
Mode is the luminaire personality and DMX footprint.

- CC 8 Card: **Intensity**
- FTW 8 Card: **Intensity** (default) or **FTW Warm Trim**
- C24V Card: **Intensity**

For more information about the personality for F-Drive-compatible luminaires, see *Navis Luminaire DMX Personalities on page 29*.

Patch

Select **DMX A**, **DMX B**, **sACN Address**, or **sACN Universe** and press **[Enter]** (✓) to edit the value. Select **Next** or **Previous** and press **[Enter]** (✓) to patch other channels.



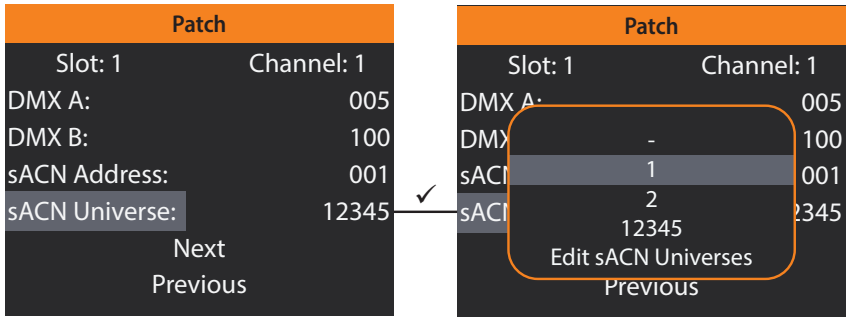
- **DMX A** and **DMX B** accept a DMX start address between 001–512.
- **sACN Address** accepts an sACN start address between 001–512.

After patching each channel, use the **Next** or **Previous** selection at the bottom of the screen to move to the next or previous output channel.

sACN Universe

Navigate to **sACN Universe** and press **[Enter]** (✓) .

- Use **[Up]** (▲) or **[Down]** (▼) to choose an sACN universe from the list of configured sACN universes and press **[Enter]** (✓) .
- Select **Edit sACN Universes** and press **[Enter]** (✓) to go to the Network Settings >sACN Addresses screen (see *sACN Universes on page 20*).



After configuring each channel, use the **Next** or **Previous** selection at the bottom of the screen to move to the next or previous output channel.

Curve

Curve is the dimming curve.

- CC 8 Card: **Navis** (default) or **Linear**
- FTW 8 Card: **Navis FTW** (default), **ArcSystem FTW**, or **Linear**
- C24V Card: **Linear** (default) or **Navis**

Resp Time

Resp Time (response time) is the amount of time it takes the output to fade from the current output level to a new output level. **Resp Time** can be set between **instant** and **1000ms**. 300ms is default.

Max Level

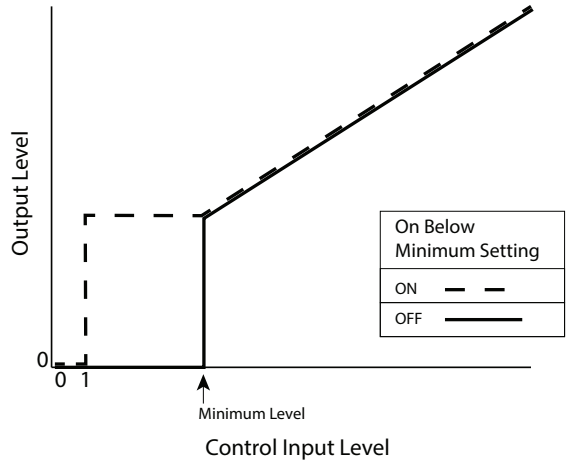
The maximum level for the output between 001–**255**. **255** is default.

Min Level

The minimum level for the output between 000–**254**. **000** is default.

On Below Min

When **On Below Min** is set to **True** (ON), the channel's minimum level will hold until the DMX level is 0. Any non-zero input level below the set minimum level will cause fixtures connected to the channel to output at the set minimum level. When **On Below Min** is set to **False** (OFF), the fixtures connected to the channel turn off when the DMX level is below the minimum level.



Output Current

Some output card types allow you to select the output current per output channel.

- CC 8 Card: 200–700 mA in 50 mA increments, **200 mA** is default
- FTW 8 Card: **Navis 100 FTW** (450 mA, default) or **Navis 50 FTW** (700 mA)
- C24V Card: This feature is not available for the C24V Card.

ETC Luminaire	Driver Output Current Setting
ArcSystem Navis 50 White	700 mA
ArcSystem Navis 50 Fade to Warm	Navis 50 FTW (700 mA)
ArcSystem Navis 100 White	600 mA
ArcSystem Navis 100 Fade to Warm	Navis 100 FTW (450 mA)
ArcSystem Pro One-Cell Micro White	200 mA
ArcSystem Pro One-Cell Small White or Fade to Warm	600 mA
ArcSystem Pro One-Cell White or Fade to Warm	600 mA
Irideon FPZ for F-Drive or Irideon WLZ for F-Drive	450 mA
Irideon FPZ Plus for F-Drive or Irideon WLZ Plus for F-Drive	700 mA (see note)
Source Four Mini LED for F-Drive	350 mA
Source Four Mini LED Plus for F-Drive	450 mA

Note: *Choose the maximum setting (700 mA) for each output of an F-Drive RX CC 8 Card for best performance with Irideon FPZ Plus or Irideon WLZ Plus luminaires.*

Max CT

This feature is only available for outputs on the FTW 8 Card that have their **Mode** set to **FTW Warm Trim** (see *Mode on page 15*). This feature allows you to set a maximum color temperature (1800 K–3000 K) that a Navis Fade to Warm luminaire will achieve. Default **Max CT** is 3000 K.

Output Control

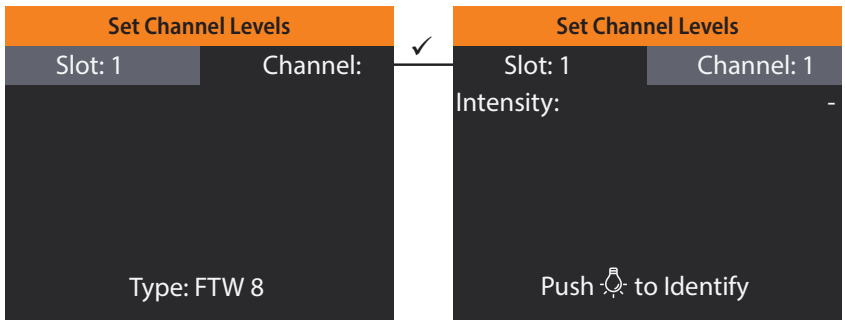
Set All Levels

Set All Levels controls the intensity of all outputs of all output cards in the F-Drive RX.

Select **ALL to 100%**, **ALL to 50%**, or **ALL to 0%** to control the intensity of all outputs on all output cards. Select **All to:** and press **[Enter]** (✓) to enter a custom percentage from 000–100 (0%–100%). Press **[Enter]** (✓) to apply your selection.

Set Channel Levels

Use **[Up]** (▲) or **[Down]** (▼) to navigate to the slot you want to configure, then press **[Enter]** (✓) to confirm the slot selection. Use **[Up]** (▲) or **[Down]** (▼) to navigate to the channel you want to configure, then press **[Enter]** (✓) to confirm the channel selection.



Configure the Channel Intensity

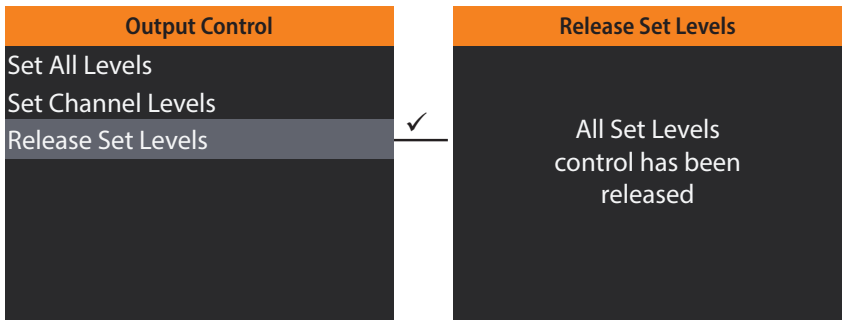
Use **[Up]** (▲) or **[Down]** (▼) to increment the digits and press **[Enter]** (✓) or **[Back]** (◀) to move between digits to set the **Intensity** of the selected channel to a value between **0**–**255**. The **Intensity** value is "**-**" (released) by default. Press **[Enter]** (✓) on the ones digit to confirm the **Intensity**.

Identify

Press the **[Lightbulb]** (💡) button to identify the selected channel. Press the **[Lightbulb]** (💡) button a second time to stop the identify command. See *Identify on page 29* for more information about the identify command.

Release Set Levels

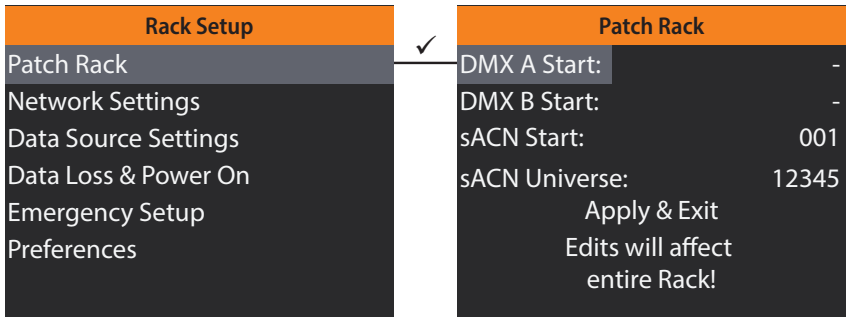
Press **[Enter]** (✓) to release set levels and return control to an external source.



Rack Setup

Patch Rack

Use **[Up]** (▲) and **[Down]** (▼) to make a selection and press **[Enter]** (✓) to edit a field. Scroll to **Apply & Exit** and press **[Enter]** (✓) to apply your changes.

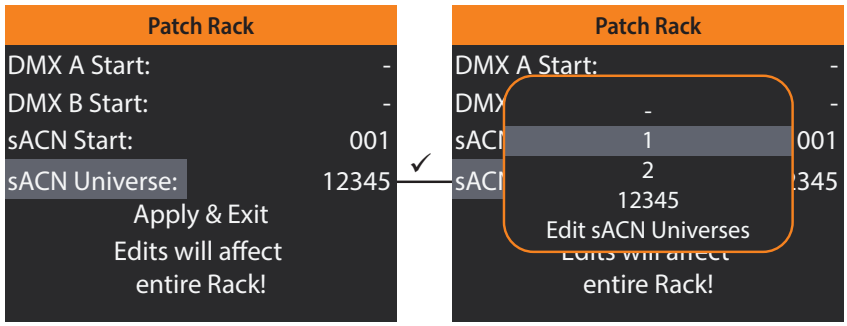


- **DMX A Start** and **DMX B Start** accept a DMX start address between 1–512.
- **sACN Start** accepts an sACN start address between 1–512.

sACN Universe

Navigate to **sACN Universe** and press **[Enter]** (✓) .

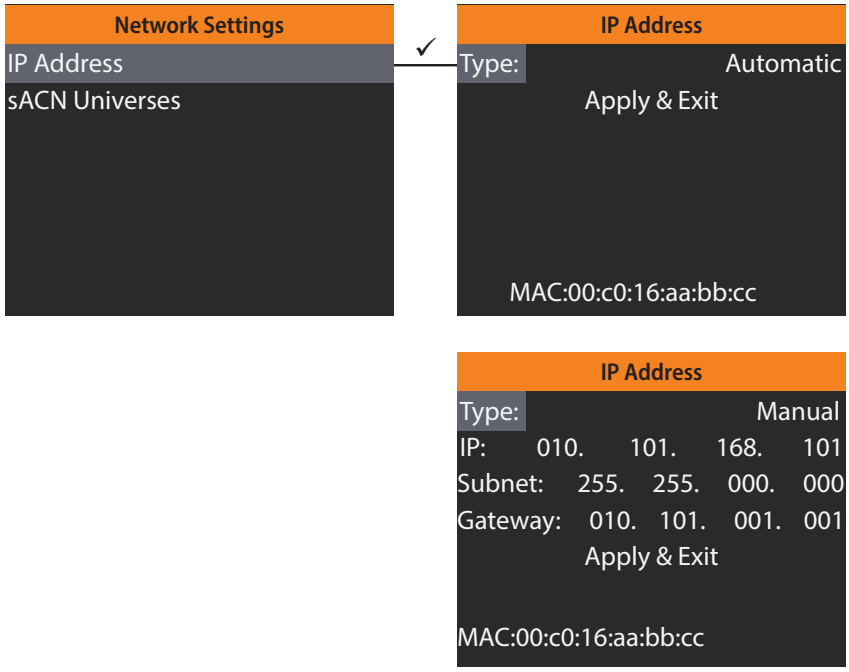
- Use **[Up]** (▲) or **[Down]** (▼) to choose an sACN universe from the list of configured sACN universes and press **[Enter]** (✓) .
- Select **Edit sACN Universes** and press **[Enter]** (✓) to go to the Network Settings >sACN Addresses screen (see *sACN Universes on page 20*).



Network Settings

Use **[Up]** (▲) and **[Down]** (▼) to make a selection and press **[Enter]** (✓) to edit IP or sACN settings.

IP Address



- **Type**: **Automatic** or **Manual**
- **MAC**: a read-only display of the MAC address

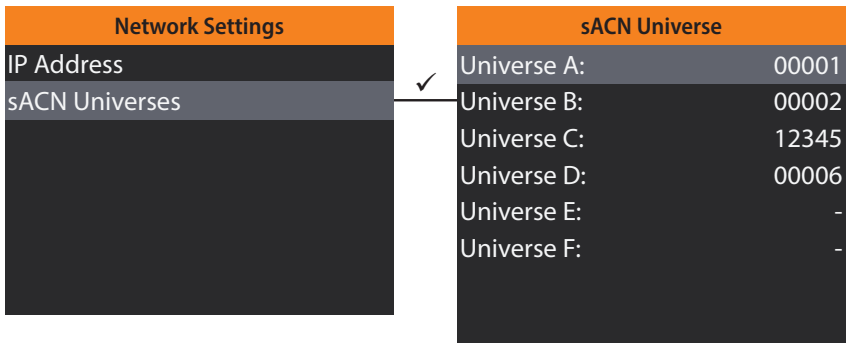
The following fields are only available if **Type** is set to **Manual**. Use **[Enter]** (✓) and **[Back]** (◄) to move between octet fields.

- **IP**
- **Subnet Mask**
- **Gateway**

Navigate to **Apply & Exit** and press **[Enter]** (✓) to apply your changes. Press **[Back]** (◄) to exit the screen without applying changes.

sACN Universes

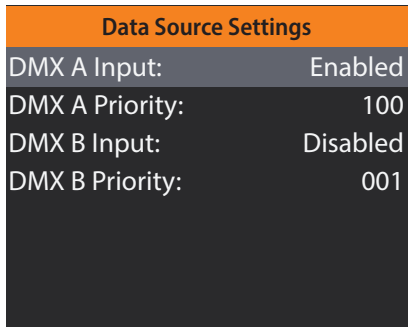
You can configure a maximum of six universes, Universe A through Universe F, to a number between 00001–63999. By default the value for each universe is empty, "-".



Data Source Settings

Use **[Up]** (▲) and **[Down]** (▼) to make a selection and press **[Enter]** (✓) to edit a field.

- **DMX A Input** and **DMX B Input**: **Enable** or **Disable**
- **DMX A Priority** and **DMX B Priority**: a value between 001–200. 200 is highest priority.



Data Source Arbitration and Priority

When multiple sources of data are present, the source with the highest priority takes precedence. Sources with the same priority are evaluated on a per-address Highest Takes Precedence (HTP) basis.

The following internal and external sources are listed in order from highest to lowest priority:

- Emergency Levels (during an active emergency state). See *Emergency Setup on page 22*.
- Identify. See *Set Channel Levels on page 18*.
- Set Levels. See *Set All Levels on page 18* and *Set Channel Levels on page 18*.
- External sources including DMX and sACN.
  - See *Data Source Settings on page 21* for DMX priority.
  - sACN priority is set by the transmitting device.

Data Loss & Power On

Use **[Up]** (▲) and **[Down]** (▼) to make a selection and press **[Enter]** (✓) to edit a field.

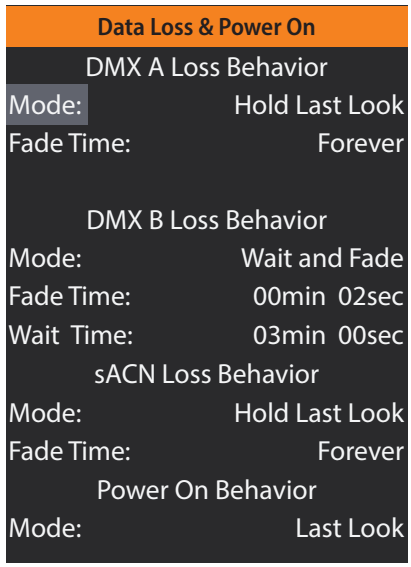
Loss Behavior

Configure the behavior when data is lost. **DMX A Loss Behavior**, **DMX B Loss Behavior**, and **sACN Loss Behavior** have the same configuration options.

Mode: **Hold Last Look** (default) or **Wait and Fade**

These fields are only available if **Mode** is set to **Wait and Fade**:

- **Fade Time**: **0**–**59** minutes and **0**–**59** seconds. **00min 03sec** is default. If **Mode** is set to **Hold Last Look** the **Fade Time** displays "Forever" and is read-only.
- **Wait Time**: **0**–**59** minutes and **0**–**59** seconds. **03min 00sec** is default.



Power On Behavior

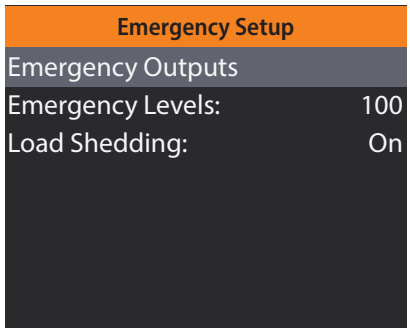
Configure the behavior when the system powers on and before new control is received from DMX A, DMX B, or sACN input.

Mode: **Last-Look** (default) or **None**

Last-Look means the system powers on with the outputs at the levels present prior to losing power and maintains those levels until new control is received via DMX or sACN.

Emergency Setup

Use the Emergency Setup screen to configure the emergency look that happens while the emergency state is active.



- **Emergency Levels:** 1%–100%. Default is **100%**.
- **Load Shedding: On** or **Off**. Default is **On**. Load shedding controls the behavior of the output channels that are excluded from the emergency look. See *Emergency Outputs on page 23* for information about including or excluding output channels from the emergency look.
  - When **Load Shedding** is **On**:
    - All outputs set to **On** in the **Emergency Outputs** screen are set to the **Emergency Level** when the emergency state is active.
    - All outputs set to **--** (Off) in the **Emergency Outputs** screen **are turned off while the emergency state is active**.
  - When **Load Shedding** is **Off**:
    - All outputs set to **On** in the **Emergency Outputs** screen are set to the **Emergency Level** while the emergency state is active.
    - All outputs set to **--** (Off) in the **Emergency Outputs** screen **follow normal operation while the emergency state is active**.

Note: *The settings in the **Emergency Setup** screen are only applied if the Advanced Control Card emergency mode switch is set to DEFAULT. See Advanced Control Card Emergency Mode Switch on page 24.*

Emergency Outputs

Select whether an output is included in the emergency look (**On**, default) or excluded from the emergency look (**--** [Off]).

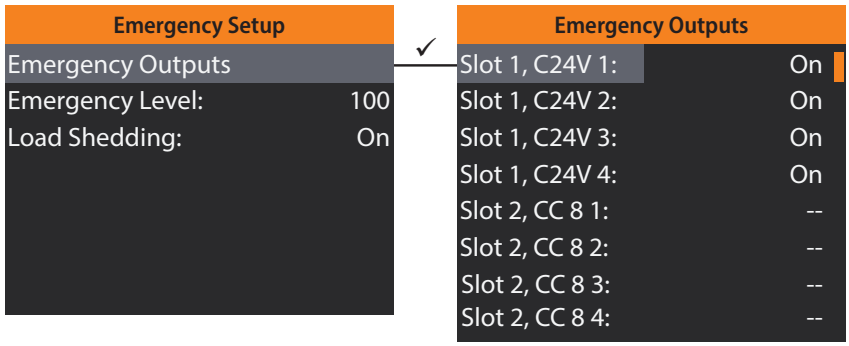
- All outputs set to **On** in the **Emergency Outputs** screen are set to the **Emergency Level** when the emergency state is active (regardless of the **Load Shedding** setting).
- See *Emergency Setup on page 22* for how **Load Shedding** affects the behavior of outputs that are excluded from the emergency configuration (set to **"--"** (Off) on the Emergency Outputs screen).

Note: *F-Drive RX is a global product and proper configuration is the responsibility of the installer. Always defer to the Authority Having Jurisdiction (AHJ) for compliance with local codes and requirements.*

The National Electrical Code (NEC) requires emergency circuits to be separate from non-emergency circuits. An output card must not contain both emergency and non-emergency circuits.

To comply with the NEC, set Emergency Outputs the same for all outputs on a single output card (all outputs On or all outputs Off for a single output card).

See "Identify, Separate, and Protect Emergency Circuits" in the F-Drive RX Installation Manual *for more information.*



To configure which outputs are included in the emergency look (**On**) or excluded from the emergency look (**"--"**) :

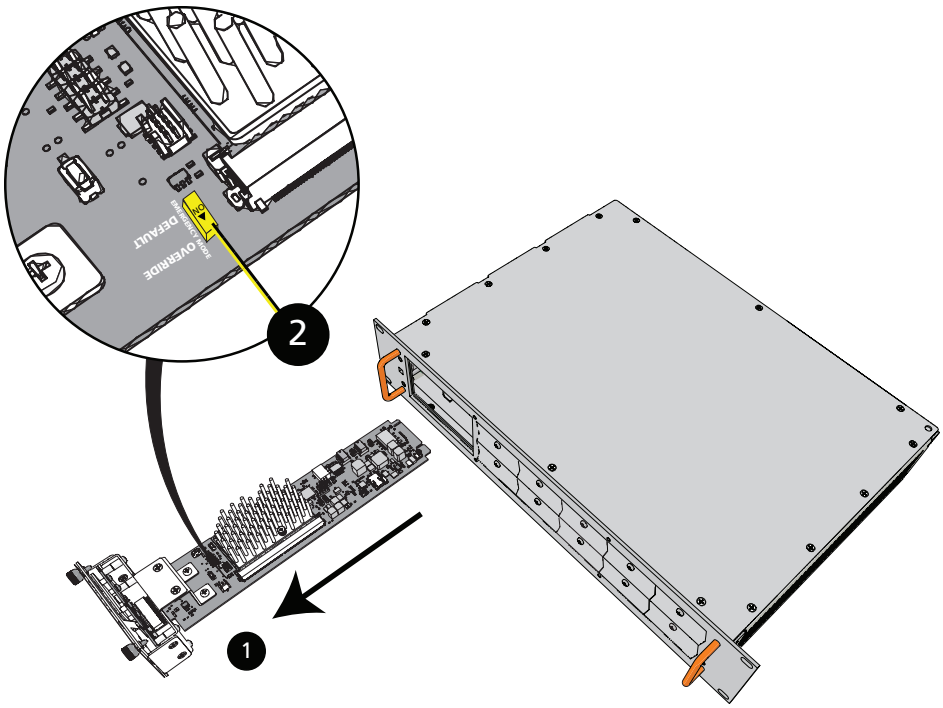
1. Use **[Up]** (▲) and **[Down]** (▼) to scroll through the outputs.
2. Press **[Enter]** (✓) to toggle between **On** and **--** (Off).

Advanced Control Card Emergency Mode Switch

There is an emergency mode switch located on the Advanced Control Card, visible when you remove the Advanced Control Card from the enclosure.

The position of the emergency mode switch affects what happens when a contact input triggers the active emergency state and what happens when you push and hold the test button:

- "DEFAULT":
  - All configured **Emergency Outputs** are driven to their configured **Emergency Levels**. See *Emergency Setup on page 22*.
  - All outputs that are configured as **--** (Off) in **Emergency Outputs** will turn off if **Load Shedding** is **On** or will continue normal operation if **Load Shedding** is **Off**. See *Emergency Setup on page 22*.
- "OVERRIDE" (ON):
  - All outputs of all output cards go to 100%.
  - Any configured **Emergency Levels**, **Emergency Outputs**, or **Load Shedding** are ignored.



F-Drive RX Driver with *1*, Advanced Control Card and *2*, emergency mode switch

To access the emergency mode switch:

1. Loosen the two thumb screws securing the Advanced Control Card to the F-Drive RX and remove the Advanced Control Card.
2. Set the emergency mode switch.
3. Replace the Advanced Control Card and tighten the two thumb screws to secure it in place.

For more information about **Emergency Outputs** and **Emergency Level**, see *Emergency Setup on page 22*. See "Emergency Operation and Test" in the *F-Drive RX Installation Manual* for more information about the test button.

Preferences

Inactivity Time

When the user interface is inactive, press any button to turn on the backlight and access the Main Menu. Set the time before the UI becomes inactive following the last button press between **Never** (always on) and **15 mins**. **1 min** is default.

- **Never** (always on)
- **30 secs**
- **1 min** (default)
- **5 mins**
- **15 mins**

Backlight

Set the time before the backlight turns off following the last button press:

- **Auto**: The backlight stays on for 1 minute after you stop pressing buttons.
- **On**: The backlight is always on.

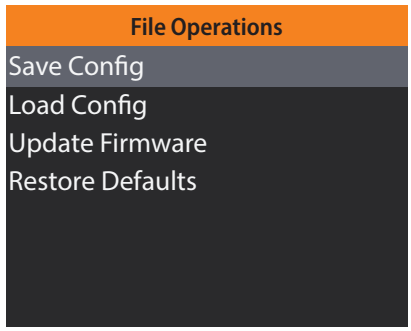
Language

English is the default language and the only user interface language option for F-Drive RX at this time.

File Operations

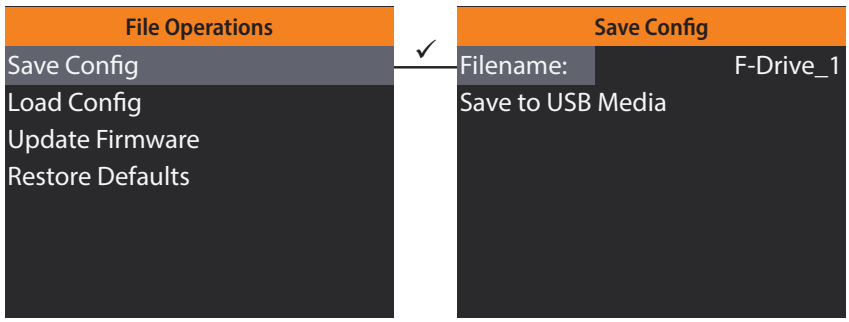
Use **[Up]** (▲) and **[Down]** (▼) to make a selection and press **[Enter]** (✓) to make a selection.

- *Save Config on page 25*
- *Load Config on page 26*
- *Update Firmware on page 27*
- *Restore Defaults on page 28*



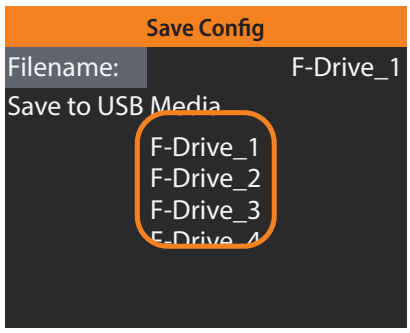
Save Config

Choose the filename for the config file or choose to save the current filename to USB Media.



Filename

Use **[Up]** (▲) and **[Down]** (▼) to select a filename, F-Drive_ #, where # is a number 1–16. Press **[Enter]** (✓) to confirm the filename.



Save to USB Media

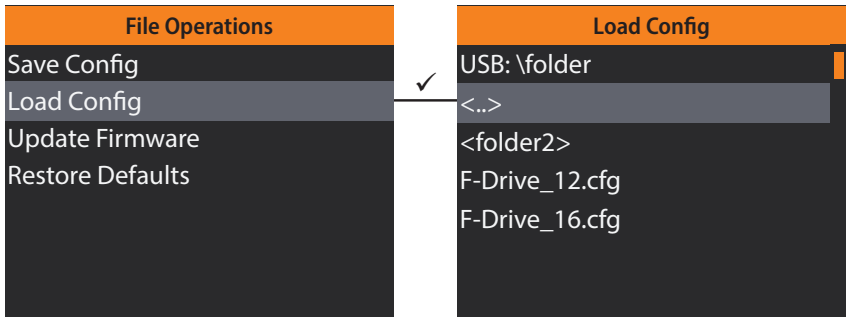
When you select **Save to USB Media**, the system will display a series of screens to confirm whether or not the file saved successfully to the root directory of the USB device.

- **Saving File**: This screen displays for a few seconds while the file is being saved. Do not remove the USB device or Advanced Control Card while this screen displays.
- **Save File Failed!**: These screens display if there is no USB device detected or if the USB device is full or has an error. The information on the screen will tell you what problem occurred during the file saving process. Press **[Enter]** (✓) to return to the **Save Config** screen.
- **Warning**: A message will display that a file with the same name already exists. Select **Yes** to overwrite the file. Select **No** to return to the **Save Config** screen.
- **File Saved!**: This screen displays after the file has been successfully saved to the USB device. Press **[Enter]** (✓) to return to the **File Operations** screen.

Load Config

The **Load Config** screen displays after you select **Load Config** and press **[Enter]** (✓) if a USB device is detected.

- If a USB device is not detected, the **Load File Failed!** screen displays. Press **[Enter]** (✓) to return to the **File Operations** screen.



The **Load Config** screen displays the following:

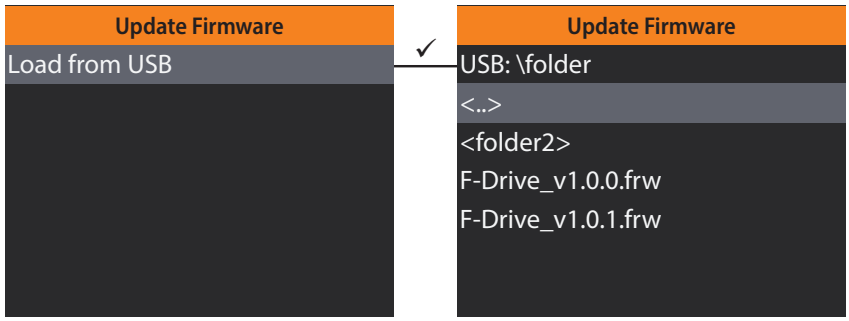
- The path of the current directory.
- **<..>**: Select **<..>** to move up one level in the USB device's file tree.
- **<folder2>**: The names of any other folders at this level are shown in angle brackets <>.
- The names of any configuration files in the directory with the *.cfg file extension.

Use **[Up]** (▲) and **[Down]** (▼) to navigate to a directory or file. Press **[Enter]** (✓) to enter the directory or to select the *.cfg file and begin loading the file. The system will display a series of screens to confirm whether or not the file loaded successfully.

- **Load Config**: This screen with the message "Loading config file [filename.cfg]" displays for a few seconds while the file is being loaded. Do not remove the USB device or Advanced Control Card while this screen displays.
- **Load Config**: This screen with the message "[filename.cfg] was loaded successfully." displays after the file has been successfully loaded from the USB device. Press **[Enter]** (✓) to return to the **File Operations** screen.
- **Load Config Failed!**: This screen displays if there is an error with the USB device or configuration file. Press **[Enter]** (✓) to return to the **Load Config** screen.

Update Firmware

1. Select **Update Firmware** from the **File Operations** menu. A message displays notifying you that updating firmware will reboot the controller.
2. Select **Yes** to continue or **No** to return to the **File Operations** menu. Press **[Enter]** (✓) to confirm your selection.
3. If you chose to continue, select **Load From USB** on the next screen and press **[Enter]** (✓) to continue.
    - The message "USB Media was not detected." displays if there is no USB device detected or if the USB device is full or has an error. The information on the screen will tell you what problem occurred during the file saving process. Press **[Enter]** (✓) to return to the **Load Config** screen.



The **Update Firmware** screen displays the following:

- The path of the current directory.
- **<..>**: Select **<..>** to move up one level in the USB device's file tree.
- **<folder2>**: The names of any other folders at this level are shown in angle brackets <>.
- The names of any firmware files in the directory with the *.frw file extension.

Use **[Up]** (▲) and **[Down]** (▼) to navigate to a directory or file. Press **[Enter]** (✓) to enter the directory or to select the *.frw file and begin loading the file. The system will display a series of screens to confirm whether or not the file loaded successfully.

- The message "Updating component(s)" displays while the firmware is being loaded. Do not remove the USB device or Advanced Control Card while this screen displays.
- The message "Enter exits to menu" displays after the file has been successfully loaded from the USB device. Press **[Enter]** (✓) to return to the **File Operations** screen.
- The message "Updating component [component] Failed." displays if there was a problem loading the firmware. Press **[Enter]** (✓) to return to the **File Operations** screen.

CAUTION: ***Restore Defaults will restore the configuration file to the default values. Outputs from installed option cards may change when you Restore Defaults. ETC recommends backing up your configuration file before selecting Restore Defaults. See Save Config on page 25.***

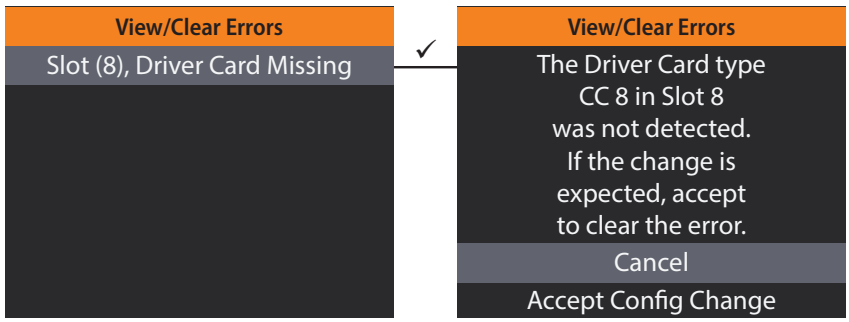
Restore Defaults applies default configuration values for all attached output cards.

1. Select **Restore Defaults** from the **File Operations** menu. A message displays notifying you that restoring defaults will reset all configuration data.
2. Select **Yes** to continue or **No** to return to the **File Operations** menu. Press **[Enter]** (✓) to confirm your selection.

View Errors

Use **[Up]** (▲) and **[Down]** (▼) to view any errors and press **[Enter]** (✓) to view or clear the error.

- Select **Cancel** to go back to the **View/Clear Errors** screen.
- If applicable, select **Accept Config Change** to clear the error.



See *Errors on page 9* for more information about error messages.

Configure and Control the F-Drive RX

DMX System Control

You can control the F-Drive RX over wired DMX from a lighting console.

- F-Drive products are compliant with DMX 512-A (ANSI E1.11-2008 (R2013)). See *Control Protocols on page 45*.
- DMX loss behavior is configurable via the user interface or Concert with two options: **Hold Last Look** or **Wait and Fade**.
- DMX Slot Footprint:
  - CC 8 Card: 1 per channel, 8 channels per card
  - FTW 8 Card: 2 per channel, 8 channels per card
  - C24V Card: 1 per channel, 4 channels per card

Note: *The output cards have different DMX footprints. When you first install an output card, or if you relocate an output card to a new slot in an F-Drive RX, you will have to reallocate DMX addresses.*

Navis Luminaire DMX Personalities

Navis Fade to Warm luminaires have two personality options: Intensity and Warm Trim. Navis White luminaires have a single personality: Intensity. The personality is set per output channel.

The Warm Trim DMX personality for Fade to Warm luminaires enables you to scale the intensity level at which the Red Shift color temperature changes begin to occur.

DMX Channel	Fade to Warm Luminaires		White Luminaires
	Intensity (default)	Warm Trim	Intensity
1	Intensity	Intensity	Intensity
2		Fade to Warm scaling	

Identify

You can send an identify command to individual channels of an output card using ETC Concert or the **[Lightbulb]** () on the user interface. See *Lightbulb Button on page 8* and the F-Drive RX Device Package Help in Concert for more information.

When you send an identify command to a channel, luminaires or loads connected to the channel will blink on and off: 500 ms on, 500 ms off until you stop the identify command.

Configure the CC 8 Card

CAUTION: ***Setting the driver card to output more current than the manufacturer's recommended fixture driver current may reduce the lifetime of the fixtures or cause damage to the fixtures.***

The F-Drive RX CC 8 Card can output 200–700 mA. Configure the output current using the user interface (see *Output Current on page 17*) or use ETC Concert to configure the output current for each output channel. Default output current is 200 mA.

ETC Luminaire	Driver Output Current Setting
ArcSystem Navis 50 White	700 mA
ArcSystem Navis 100 White	600 mA
ArcSystem Pro One-Cell Micro White	200 mA
ArcSystem Pro One-Cell Small White or Fade to Warm	600 mA
ArcSystem Pro One-Cell White or Fade to Warm	600 mA
Irideon FPZ for F-Drive or Irideon WLZ for F-Drive	450 mA
Irideon FPZ Plus for F-Drive or Irideon WLZ Plus for F-Drive	700 mA (see note)
Source Four Mini LED for F-Drive	350 mA
Source Four Mini LED Plus for F-Drive	450 mA

Note: *Choose the maximum setting (700 mA) for each output of an F-Drive RX CC 8 Card for best performance with Irideon FPZ Plus or Irideon WLZ Plus luminaires.*

Configure the FTW 8 Card

CAUTION: ***Setting the driver card to output more current than the manufacturer's recommended fixture driver current may reduce the lifetime of the fixtures or cause damage to the fixtures.***

The F-Drive RX FTW 8 Card has two output current settings: Navis 100 FTW (450 mA) or Navis 50 FTW (700 mA). Configure the output current using the user interface (see *Output Current on page 17*) or use ETC Concert to configure the output current for each output channel. Default output current is Navis 100 FTW (450 mA).

ETC Luminaire	Driver Output Current Setting
ArcSystem Navis 50 Fade to Warm	Navis 50 FTW (700 mA)
ArcSystem Navis 100 Fade to Warm	Navis 100 FTW (450 mA)

Edit Configuration Files

You can edit configuration files using the user interface. You can also edit configuration files offline using ETC Concert software v4.7.3 or later with the latest F-Drive RX device package and then load them on the F-Drive RX via USB. For more information about configuration and file operations in Concert, select Help from the menu of the Concert application. ETC Concert is available for free download on the ETC Concert page (etcconnect.com/Concert).

Edit Offline and Save Configuration Files to a USB Device

You can edit configuration files offline in ETC Concert v4.7.3 or later with the latest F-Drive RX device package, save them to a USB device, and insert the USB device into the front of the F-Drive RX user interface.

Save a Configuration File to a USB Device

1. Insert a USB device in the USB port below the display on the Advanced Control Card user interface (see *User Interface on page 7*). The USB device must be compatible with the processor. See *USB Media on page 9*.
2. Navigate to **File Operations**.
3. Select **Save Config** and press **[Enter]** (✓) .
4. The Save Config screen displays and the default "Filename: F-Drive_1" is selected. You can save your file under a name between F-Drive_1 and F-Drive_16.
5. To select a different filename, press **[Enter]** (✓) . The selection will focus on "F-Drive_#" (where # is a number between 1 and 16).
6. Use **[Up]** (▲) and **[Down]** (▼) to scroll through the list. Press **[Enter]** (✓) to select a filename.
7. Use **[Down]** (▼) to select **Save to USB Media** from the Save Config screen and press **[Enter]** (✓). The dialog will display "Saving File". See *Save Config on page 25*.

Load a Configuration File from a USB Device

1. Insert a USB device in the USB port below the display on the Advanced Control Card user interface (see *User Interface on page 7*). The USB device must be compatible with the processor. See *USB Media on page 9*.
2. Navigate to **File Operations**.
3. Select **Load Config** and press **[Enter]** (✓) .
4. Use **[Up]** (▲) and **[Down]** (▼) to navigate to the desired directory and filename. Configuration files have the file extension ".cfg". Press **[Enter]** (✓) to continue.
5. The screen will display "Filename.cfg was loaded successfully." if the configuration file loaded successfully. See *Load Config on page 26*.

Upgrade Firmware

When commissioning a system installation, check all F-Drive family drivers to ensure that the latest firmware is present. If the firmware is not up to date, a qualified ETC technician can upgrade drivers in the field using ETC UpdaterAtor Software and a USB device. For more information on UpdaterAtor, download the *UpdaterAtor Software Quick Guide* for free on the UpdaterAtor web page (etcconnect.com/UpdaterAtor) .

CAUTION: ***Updating firmware causes the F-Drive RX to reboot.***

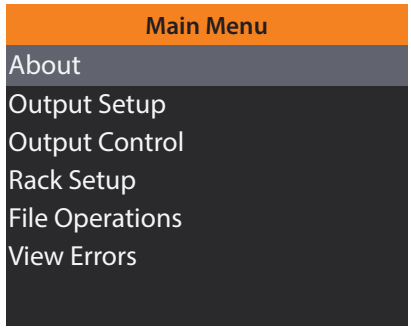
1. Save the F-Drive RX firmware files to a USB device.
2. Insert the USB storage device into the USB port below the display on the Advanced Control Card user interface (see *User Interface on page 7*). The USB device must be compatible with the processor. See *USB Media on page 9*.
3. Navigate to **File Operations** on the user interface (see *File Operations on page 25*).
4. Press **[Enter]** (✓) to select **Update Firmware**.
5. The Update Firmware screen displays with a notification that the F-Drive RX will reboot. Select **Yes** and press **[Enter]** (✓) to continue.
6. Choose **Load from USB** on the next screen and press **[Enter]** (✓) to continue.
7. Use **[Up]** (▲) and **[Down]** (▼) to navigate to the desired directory of the USB device and press **[Enter]** (✓) to continue.
8. Select a firmware file bundle with the extension **.frw** and press **[Enter]** (✓) to continue.
   - The screen will display "Updating component" followed by the name of the component of the bundle.

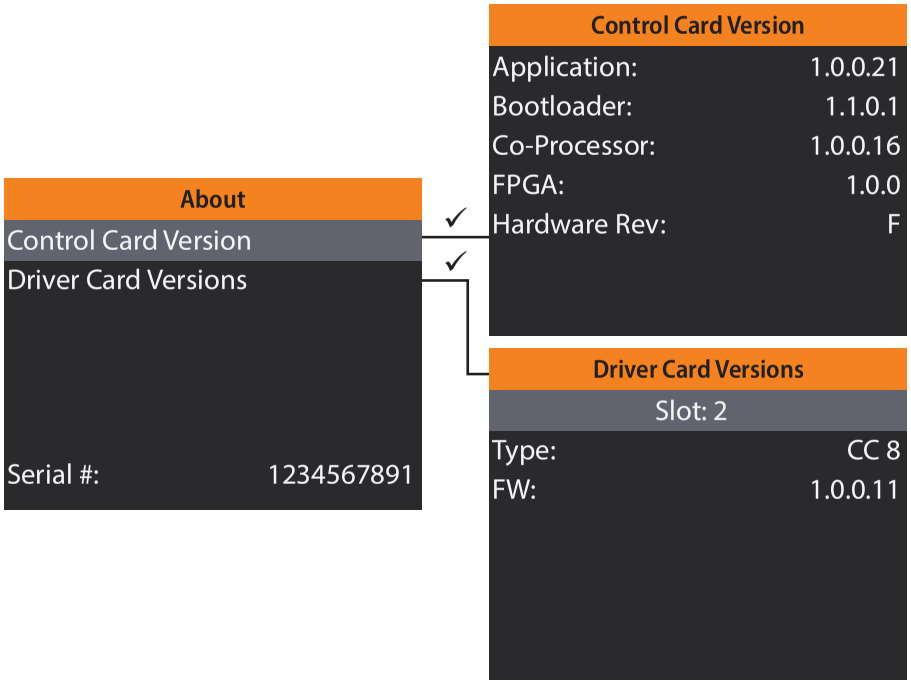
Note: *Status panel LEDs may flash while the driver updates its firmware. Do not disconnect power to the F-Drive RX while LEDs are flashing. Firmware upgrade typically takes several minutes, but may vary depending on connected loads.*

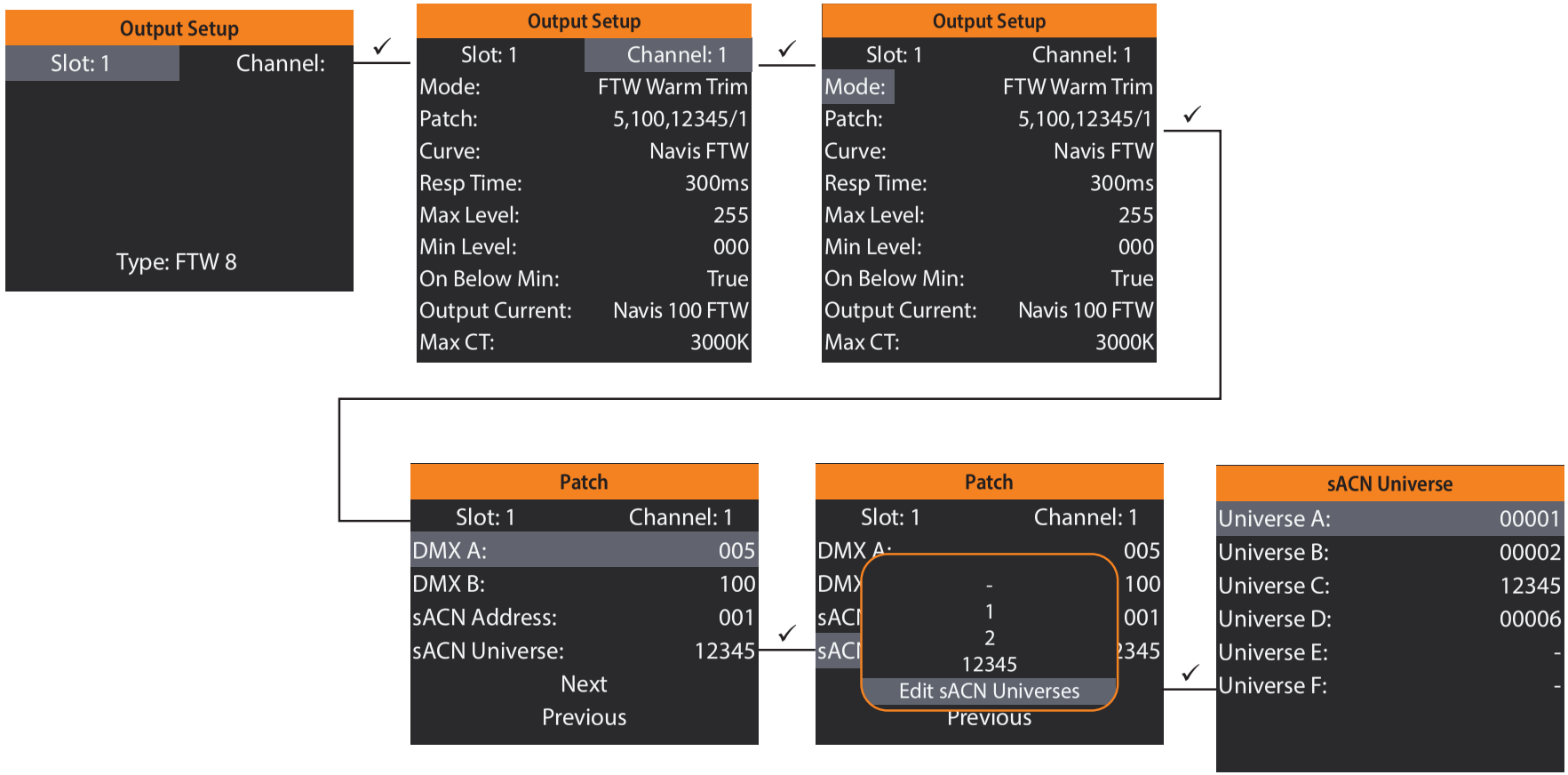
Firmware packages have the file extension ".frw" and include the following components:

- Advanced Control Card firmware
- C24V Card firmware
- CC 8 Card firmware
- FTW 8 Card firmware

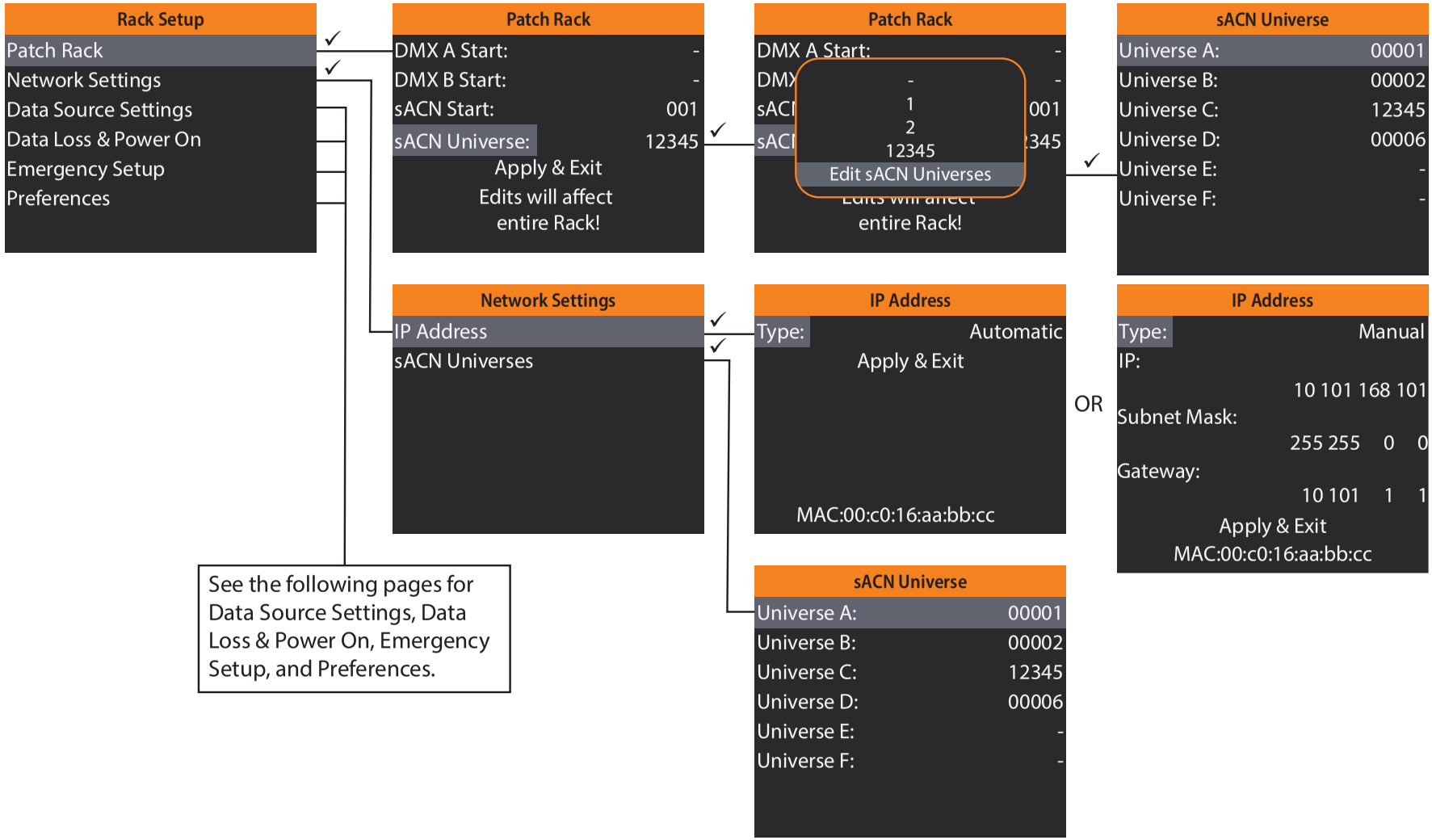
Menu Flow Chart



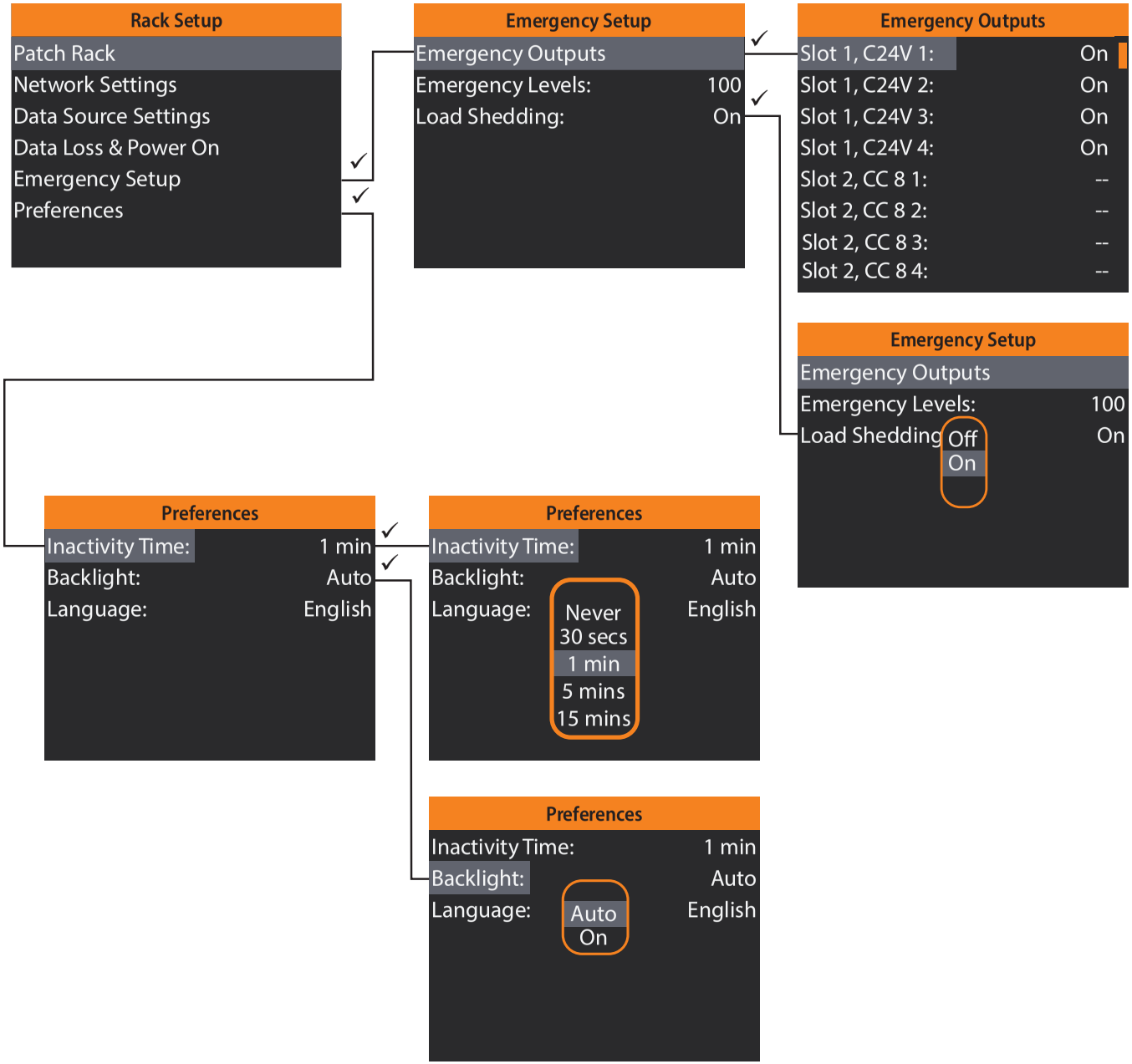

About
Control Card Version
Driver Card Versions
Serial #: 1234567891
Control Card Version
Application: 1.0.0.21
Bootloader: 1.1.0.1
Co-Processor: 1.0.0.16
FPGA: 1.0.0
Hardware Rev: F
Driver Card Versions
Slot: 2
Type: CC 8
FW: 1.0.0.11

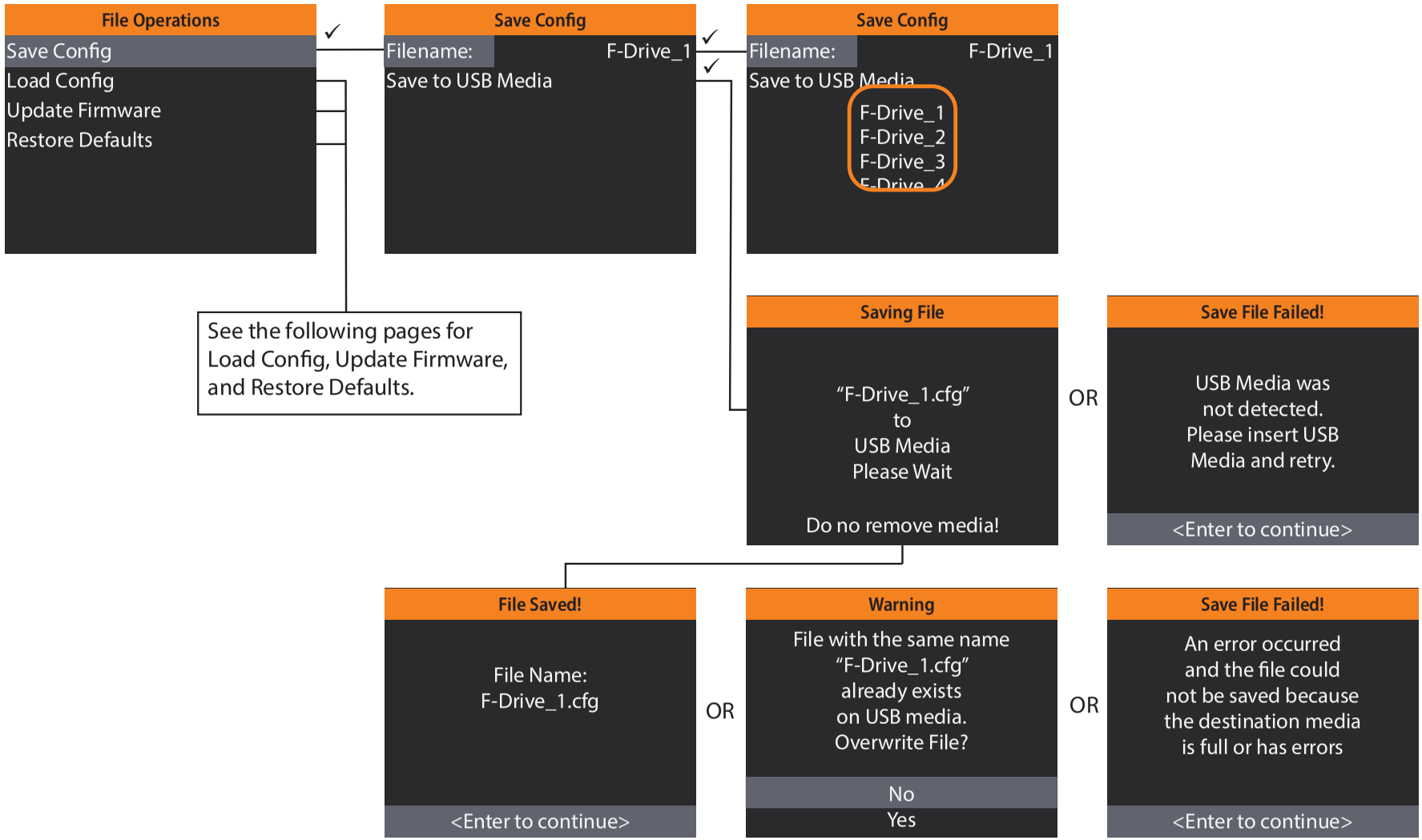

Output Setup
Slot: 1
Channel:
Type: FTW 8
Output Setup
Slot: 1
Channel: 1
Mode: FTW Warm Trim
Patch: 5,100,12345/1
Curve: Navis FTW
Resp Time: 300ms
Max Level: 255
Min Level: 000
On Below Min: True
Output Current: Navis 100 FTW
Max CT: 3000K
Output Setup
Slot: 1
Channel: 1
Mode: FTW Warm Trim
Patch: 5,100,12345/1
Curve: Navis FTW
Resp Time: 300ms
Max Level: 255
Min Level: 000
On Below Min: True
Output Current: Navis 100 FTW
Max CT: 3000K
Patch
Slot: 1
Channel: 1
DMX A: 005
DMX B: 100
sACN Address: 001
sACN Universe: 12345
Next
Previous
Patch
Slot: 1
Channel: 1
DMX A: 005
DMX 100
sAC 001
sAC 2345
-
1
2
12345
Edit sACN Universes
Previous
sACN Universe
Universe A: 00001
Universe B: 00002
Universe C: 12345
Universe D: 00006
Universe E: -
Universe F: -

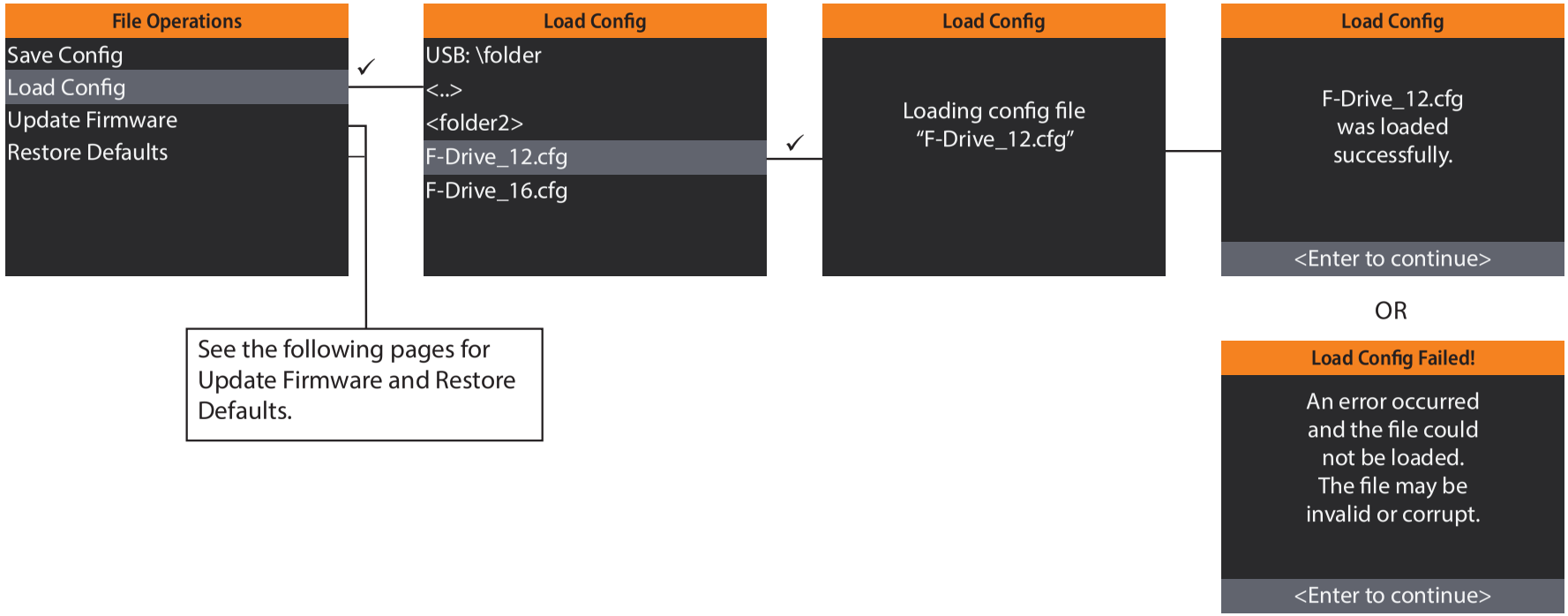

Output Control
Set All Levels
Set Channel Levels
Release Set Levels
Set All Levels
ALL to 100%
ALL to 50%
ALL to 0%
All to: 000
Sets ALL intensity values in the rack!
Set Channel Levels
Slot: 1
Channel:
Type: FTW 8
Set Channel Levels
Slot: 1
Channel: 1
Intensity: -
Push to Identify
Release Set Levels
All Set Levels control has been released

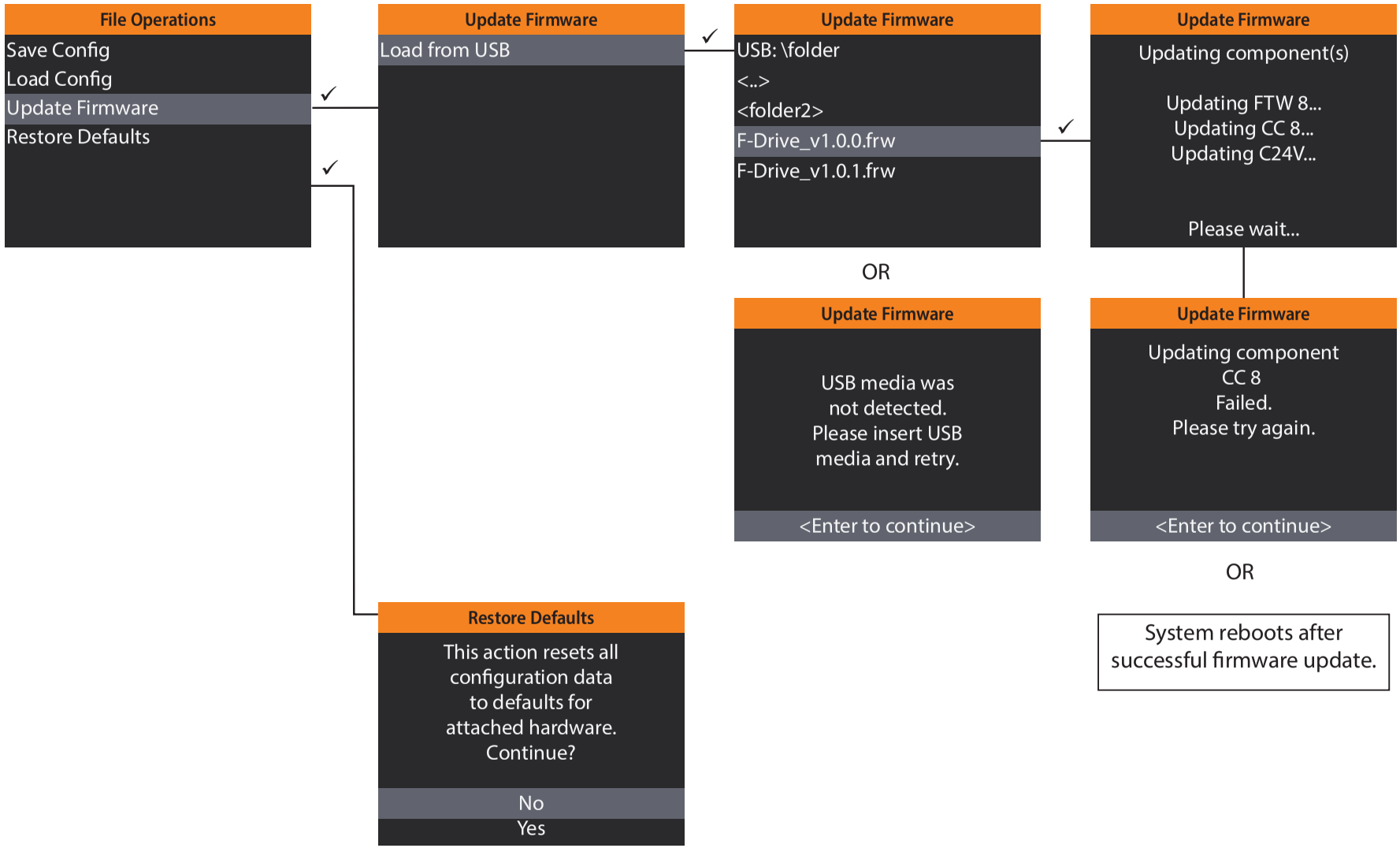

Rack Setup
Patch Rack
Network Settings
Data Source Settings
Data Loss & Power On
Emergency Setup
Preferences
Patch Rack
DMX A Start: -
DMX B Start: -
sACN Start: 001
sACN Universe: 12345
Apply & Exit
Edits will affect entire Rack!
Patch Rack
DMX A Start: -
1
2
12345
Edit sACN Universes
entire Rack!
sACN Universe
Universe A: 00001
Universe B: 00002
Universe C: 12345
Universe D: 00006
Universe E: -
Universe F: -
Network Settings
IP Address
sACN Universes
IP Address
Type: Automatic
Apply & Exit
MAC:00:c0:16:aa:bb:cc
OR
IP Address
Type: Manual
IP:
10 101 168 101
Subnet Mask:
255 255 0 0
Gateway:
10 101 1 1
Apply & Exit
MAC:00:c0:16:aa:bb:cc
sACN Universe
Universe A: 00001
Universe B: 00002
Universe C: 12345
Universe D: 00006
Universe E: -
Universe F: -
See the following pages for Data Source Settings, Data Loss & Power On, Emergency Setup, and Preferences.

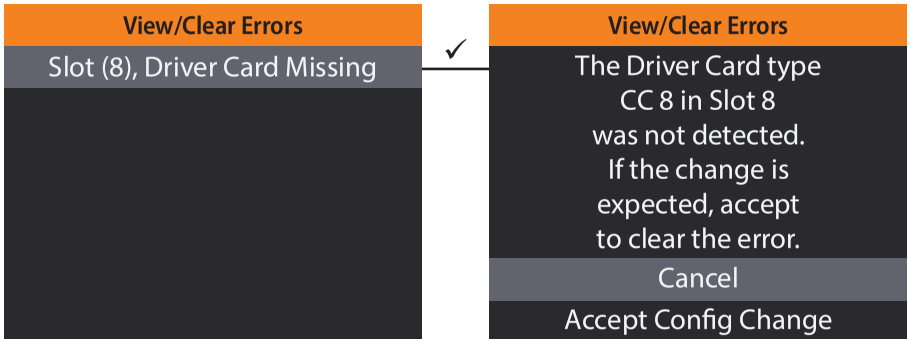

Rack Setup
Patch Rack
Network Settings
Data Source Settings
Data Loss & Power On
Emergency Setup
Preferences
Data Source Settings
DMX A Input: Enabled
DMX A Priority: 100
DMX B Input: Disabled
DMX B Priority: 001
Data Loss & Power On
DMX A Loss Behavior
Mode: Hold Last Look
Fade Time: Forever
DMX B Loss Behavior
Mode: Wait and Fade
Fade Time: 00min 02sec
Wait Time: 03min 00sec
sACN Loss Behavior
Mode: Hold Last Look
Fade Time: Forever
Power On Behavior
Mode: Last Look
Data Loss & Power On
DMX A Loss Behavior
Mode: Hold Last Look
Fade Tim Forever
Hold Last Look
Wait and Fade
Mode: Wait and Fade
Fade Time: 00min 02sec
Wait Time: 03min 00sec
sACN Loss Behavior
Mode: Hold Last Look
Fade Time: Forever
Power On Behavior
Mode: Last Look
See the following pages for Emergency Setup and Preferences.


Rack Setup
Patch Rack
Network Settings
Data Source Settings
Data Loss & Power On
Emergency Setup
Preferences
Emergency Setup
Emergency Outputs
Emergency Levels: 100
Load Shedding: On
Emergency Outputs
Slot 1, C24V 1: On
Slot 1, C24V 2: On
Slot 1, C24V 3: On
Slot 1, C24V 4: On
Slot 2, CC 8 1: --
Slot 2, CC 8 2: --
Slot 2, CC 8 3: --
Slot 2, CC 8 4: --
Emergency Setup
Emergency Outputs
Emergency Levels: 100
Load Shedding Off On
Preferences
Inactivity Time: 1 min
Backlight: Auto
Language: English
Preferences
Inactivity Time: 1 min
Backlight: Auto
Language: English
Never
30 secs
1 min
5 mins
15 mins
Preferences
Inactivity Time: 1 min
Backlight: Auto
Language: English
Auto
On


File Operations
Save Config
Load Config
Update Firmware
Restore Defaults
Save Config
Filename: F-Drive_1
Save to USB Media
Save Config
Filename: F-Drive_1
Save to USB Media
F-Drive_1
F-Drive_2
F-Drive_3
See the following pages for Load Config, Update Firmware, and Restore Defaults.
Saving File
"F-Drive_1.cfg" to USB Media Please Wait
Do no remove media!
OR
Save File Failed!
USB Media was not detected. Please insert USB Media and retry.
<Enter to continue>
File Saved!
File Name: F-Drive_1.cfg
<Enter to continue>
OR
Warning
File with the same name "F-Drive_1.cfg" already exists on USB media. Overwrite File?
No
Yes
OR
Save File Failed!
An error occurred and the file could not be saved because the destination media is full or has errors
<Enter to continue>


File Operations
Save Config
Load Config
Update Firmware
Restore Defaults
✓
Load Config
USB: \folder
<..>
<folder2>
F-Drive_12.cfg
F-Drive_16.cfg
✓
Load Config
Loading config file
"F-Drive_12.cfg"
Load Config
F-Drive_12.cfg
was loaded
successfully.
<Enter to continue>
OR
Load Config Failed!
An error occurred
and the file could
not be loaded.
The file may be
invalid or corrupt.
<Enter to continue>
See the following pages for
Update Firmware and Restore
Defaults.


File Operations
Save Config
Load Config
Update Firmware
Restore Defaults
Update Firmware
Load from USB
Update Firmware
USB: \folder
<..>
<folder2>
F-Drive_v1.0.0.frw
F-Drive_v1.0.1.frw
Update Firmware
Updating component(s)
Updating FTW 8...
Updating CC 8...
Updating C24V...
Please wait...
OR
Update Firmware
USB media was not detected. Please insert USB media and retry.
<Enter to continue>
Update Firmware
Updating component CC 8
Failed.
Please try again.
<Enter to continue>
OR
System reboots after successful firmware update.
Restore Defaults
This action resets all configuration data to defaults for attached hardware. Continue?
No
Yes


View/Clear Errors
Slot (8), Driver Card Missing
✓
View/Clear Errors
The Driver Card type
CC 8 in Slot 8
was not detected.
If the change is
expected, accept
to clear the error.
Cancel
Accept Config Change

Documentation for Compatible ETC Products

In addition to the information provided in the installation documentation listed below, see the *F-Drive RX Installation Manual* and the *F-Drive RX Wiring Reference Guide* at the F-Drive RX documentation page (etcconnect.com/F-DriveRX/Documentation). All documentation is available in PDF format for free at the ETC website (etcconnect.com).

Luminaires

F-Drive RX output cards are compatible with the ETC luminaires listed below. See the ETC Architectural Luminaires page (etcconnect.com/Products/Architectural-Fixtures) for installation documentation for these luminaires.

- *ArcSystem Navis 100 Installation Guide*
- *ArcSystem Navis 50 White and Fade to Warm Installation Guide*
- *Source Four Mini LED (F-Drive) User Manual*
- *Irideon WLZ (F-Drive) User Manual*
- *Irideon FPZ (F-Drive) User Manual*
- *ArcSystem Pro D1 and D2 Series Drivers Installation Guide* for information about ArcSystem Pro One-Cell luminaires

ETC Concert

F-Drive Series drivers can be configured using ETC Concert software. See etcconnect.com/concert for more information.

Control Protocols

DMX512-A

See *DMX System Control on page 29* for more information.

ANSI E1.11 - USITT DMX512-A Asynchronous Serial Digital Data Transmission Standard for Controlling Lighting Equipment and Accessories (DMX512)

- F-Drive RX supports two discrete physical DMX512 ports.
  - Contingent upon software configuration, either or both ports may receive DMX512 packets.
- Packet processing latency
  - F-Drive RX arbitrates data sources based on configured rules. See *Data Source Settings on page 21*.
- Null start code functionality
  - F-Drive RX receives null start code packets of up to 512 data slots, accepting data slot values of any single byte.
- Slot footprint
  - Slot footprint of a receiving F-Drive RX varies with configuration – responding to from 0 through 512 slot values.
    - CC 8 Card: 1 per channel, 8 channels per card
    - FTW 8 Card: 2 per channel, 8 channels per card
    - C24V Card: 1 per channel, 4 channels per card

sACN

ANSI E1.31 - Lightweight streaming protocol for transport of DMX512 using ACN (sACN)

- Merging and Arbitration
  - An individual F-Drive RX may receive between 0 and 36 sACN sources (unique transmitter/universe number combinations) dependent upon software configuration.
    - Additional sources may be ignored dependent upon available resources.
  - Arbitration rules between multiple sources and internally generated levels are software configurable. See *Data Source Settings on page 21*.

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7148M1400-1.0.0 Rev A Released 2025-11