TD | Touch Drive

TouchDrive and Carbonite Black
Control Panel User Manual

v3.2

ROSS

Thank You For Choosing Ross

You've made a great choice. We expect you will be very happy with your purchase of Ross Technology.

Our mission is to:

1. Provide a Superior Customer Experience
   - offer the best product quality and support

2. Make Cool Practical Technology
   - develop great products that customers love

Ross has become well known for the Ross Video Code of Ethics. It guides our interactions and empowers our employees. I hope you enjoy reading it below.

If anything at all with your Ross experience does not live up to your expectations be sure to reach out to us at *solutions@rossvideo.com*.

David Ross
CEO, Ross Video
david.ross@rossvideo.com

Ross Video Code of Ethics

Any company is the sum total of the people that make things happen. At Ross, our employees are a special group. Our employees truly care about doing a great job and delivering a high quality customer experience every day. This code of ethics hangs on the wall of all Ross Video locations to guide our behavior:

1. We will always act in our customers' best interest.
2. We will do our best to understand our customers' requirements.
3. We will not ship crap.
4. We will be great to work with.
5. We will do something extra for our customers, as an apology, when something big goes wrong and it's our fault.
6. We will keep our promises.
7. We will treat the competition with respect.
8. We will cooperate with and help other friendly companies.
9. We will go above and beyond in times of crisis. *If there's no one to authorize the required action in times of company or customer crisis - do what you know in your heart is right. (You may rent helicopters if necessary.)*

Document Information

- Ross Part Number: **4880DR-110-03.2**
- Release Date: November, 2024. Printed in Canada

The information contained in this document is subject to change without notice or obligation.

Copyright

Patents

Patent numbers US 7,034,886; US 7,508,455; US 7,602,446; US 7,802,802 B2; US 7,834,886; US 7,914,332; US 8,307,284; US 8,407,374 B2; US 8,499,019 B2; US 8,519,949 B2; US 8,743,292 B2; US D752,530 S; GB 2,419,119 B; GB 2,447,380 B; and other patents pending.

Software Licenses

This product may use one or more software components subject to licenses. Refer to *Third-party Licenses* on page 54 for a complete list of licenses that apply to this product.

Important Regulatory and Safety Notices to Service Personnel

Before using this product and any associated equipment, refer to the "**Important Safety Instructions**" listed in the front of this manual to avoid personnel injury and to prevent product damage.

Product may require specific equipment, and/or installation procedures to be carried out to satisfy certain regulatory compliance requirements. Notices have been included in this publication to call attention to these specific requirements.

Symbol Meanings

Protective Earth: *This symbol identifies a Protective Earth (PE) terminal, which is provided for connection of the supply system's protective earth (green or green/yellow) conductor.*

Important: *This symbol on the equipment refers you to important operating and maintenance (servicing) instructions within the Product Manual Documentation. Failure to heed this information may present a major risk of damage or injury to persons or equipment.*

Warning: *The symbol with the word "Warning" within the equipment manual indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.*

CAUTION: *The symbol with the word "Caution" within the equipment manual indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.*

Warning Hazardous Voltages: *This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product enclosure that may be of sufficient magnitude to constitute a risk of shock to persons.*

ESD Susceptibility: *This symbol is used to alert the user that an electrical or electronic device or assembly is susceptible to damage from an ESD event.*

General Safety Instructions

1. ⚠ **Warning:** *Read these instructions.*

2. Keep these instructions.

3. Heed all warnings.

4. Follow all instructions.

5. Do not use this apparatus near water.

6. Clean only with a dry cloth.

7. Do not block any ventilation openings. Install in accordance with manufacturer's instructions.

8. Do not install near heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11. Only use attachments/accessories specified by the manufacturer.

12. Unplug this apparatus during lightning storms or when unused for long periods of time.

13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

14. Do not expose this apparatus to dripping or splashing, and ensure that no objects filled with liquids, such as vases, are placed on the apparatus.

15. To completely disconnect this apparatus from the AC Mains, disconnect the power supply cord plug from the AC receptacle.

16. The mains plug of the power supply cord shall remain readily operable.

17. ⚠ **Warning:** *Indoor Use: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.*

18. The safe operation of this product requires that a protective earth connection be provided. A grounding conductor in the equipment's supply cord provides this protective earth. To reduce the risk of electrical shock to the operator and service personnel, this ground conductor must be connected to an earthed ground.

19. ⚠ **Warning:** *This apparatus, when equipped with multiple power supplies, can generate high leakage currents. To reduce the risk of electric shock, ensure that each individual supply cord is connected to its own separate branch circuit with an earth connection.*

20. ⚠ **CAUTION:** *These service instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.*

21. Service barriers within this product are intended to protect the operator and service personnel from hazardous voltages. For continued safety, replace all barriers after servicing.

22. This product contains safety critical parts, which, if incorrectly replaced, may present a risk of fire or electrical shock. Components contained within the product's power supplies and power supply area are not intended to be customer-serviced and should be returned to the factory for repair.

23. Use only power cords specified for this product and certified for the country of use.

24. The safe operation of this equipment requires that the user heed and adhere to all installation and servicing instruction contained within the equipment's Setup Manuals.

25. ⚠ **Warning:** *This product includes "Ethernet Ports" which allow this product to be connected to local area networks (LAN). Only connect to networks that remain inside the building. Do not connect to networks that go outside the building.*

26. For use at altitude 2000m or lower.

27. For use in non-tropical locations.

28. ⚠ *CAUTION: Do not make mechanical or electrical modifications to the equipment or add metallic items, such as metallic foil labels, to the printed circuit boards. Modifications can impair regulatory compliance, or performance and may void your warranty.*

29. ⚠ *CAUTION: **RISK OF ABNORMAL SUPPLY LOADING:** USB connected accessory loading not to exceed 5 USB unit loads. Each USB unit Load on Rear panel is limited to 250mA max.*

EMC Notices

United States of America — FCC Part 15

This equipment has been tested and found to comply with the limits for a class A Digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

🛈 *Important: Changes or modifications to this equipment not expressly approved by Ross Video Limited could void the user's authority to operate this equipment.*

Canada

This Class "A" digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe "A" est conforme a la norme NMB-003 du Canada.

Korea — Class A Statement

이 기기는 업무용 환경에서 사용할 목적으로 적합성 평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

This device has been evaluated for conformity for use in a business environment. When used in a home environment, there is a danger of interference.

Europe

This equipment is in compliance with the essential requirements and other relevant provisions of **CE Directive 93/68/EEC**.

International

This equipment has been tested to **CISPR 22:1997** along with amendments **A1:2000** and **A2:2002**, and found to comply with the limits for a Class A Digital device.

🛈 *Important: This is a Class A product. In domestic environments, this product may cause radio interference, in which case the user may have to take adequate measures.*

General Handling Guidelines

- Careful handling, using proper ESD precautions, must be observed.
- Power down the system before PCB removal.

A Word About Static Discharge

Throughout the many procedures in this manual, please observe all static discharge precautions.

⚠ *CAUTION: Avoid handling the switcher circuit boards in high static environments such as carpeted areas, and when synthetic fiber clothing is worn. Touch the frame to dissipate static charge before removing boards from the frame, and exercise proper grounding precautions when working on circuit boards. Exercise proper grounding precautions when working on circuit boards.*

Warranty and Repair Policy

Ross Video Limited (Ross) warrants its switchers and related options, to be free from defects under normal use and service for a period of ONE YEAR from the date of shipment. Fader handle assemblies are warranted for the life of the product. If an item becomes defective within the warranty period Ross will repair or replace the defective item, as determined solely by Ross.

Warranty repairs will be conducted at Ross, with all shipping FOB Ross dock. If repairs are conducted at the customer site, reasonable out-of-pocket charges will apply. At the discretion of Ross, and on a temporary loan basis, plug in circuit boards or other replacement parts may be supplied free of charge while defective items undergo repair.

Return packing, shipping, and special handling costs are the responsibility of the customer.

Software upgrades for switchers may occur from time to time, and are determined by Ross Video. The upgrades are posted on the Ross Video website, and are free of charge for the life of the switcher.

This warranty is void if products are subjected to misuse, neglect, accident, improper installation or application, or unauthorized modification.

In no event shall Ross Video Limited be liable for direct, indirect, special, incidental, or consequential damages (including loss of profit). Implied warranties, including that of merchantability and fitness for a particular purpose, are expressly limited to the duration of this warranty.

This warranty is TRANSFERABLE to subsequent owners, subject to Ross Video's notification of change of ownership.

Environmental Information

Waste Electrical and Electronic Equipment Directive (WEEE Directive)

The equipment that you purchased required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment.

To avoid the potential release of those substances into the environment and to diminish the need for the extraction of natural resources, Ross Video encourages you to use the appropriate take-back systems. These systems will reuse or recycle most of the materials from your end-of-life equipment in an environmentally friendly and health conscious manner.

The crossed-out wheeled bin symbol invites you to use these systems.

If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration.

You can also contact Ross Video for more information on the environmental performances of our products.

Use of Hazardous Substances in Electrical and Electronic Products (China RoHS)

Ross Video Limited has reviewed all components and processes for compliance to:

" Management Methods for the Restriction of the Use of Hazardous Substances in Electrical and Electronic Products " also known as China RoHS.

The " Environmentally Friendly Use Period " (EFUP) and Hazardous Substance Tables have been established for all products. We are currently updating all of our Product Manuals.

The Hazardous substances tables are available on our website at: *http://www.rossvideo.com /about-ross/company-profile/green-practices /china-rohs.html*

电器电子产品中有害物质的使用

Ross Video Limited 按照以下的标准对所有组件和流程进行了审查：

"电器电子产品有害物质限制使用管理办法" 也被称为中国RoHS。

所有产品都具有 "环保使用期限" (EFUP）和有害物质表。目前，我们正在 更新我们所有的产品手册。

有害物质表在我们的网站：
http://www.rossvideo.com/about-ross /company-profile/green-practices/china-rohs.html

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Technical Support

At Ross Video, we take pride in the quality of our products, but if a problem does occur, help is as close as the nearest telephone.

Our 24-Hour Hot Line service ensures you have access to technical expertise around the clock. After-sales service and technical support are provided directly by Ross Video personnel. During business hours (eastern standard time), technical support personnel are available by telephone. Outside of normal business hours and on weekends, a direct emergency technical support phone line is available. If the technical support personnel who is on call does not answer this line immediately, a voice message can be left and the call will be returned shortly. Our Technical support staff are available to react to any problem and to do whatever is necessary to ensure customer satisfaction.

Supporting Documentation

Ross Video provides a wide variety of helpful documentation for the setup and support of your equipment. Most of this documentation can be found either on the Product Resources disk that came with your equipment, on the Ross Video website (*www.rossvideo.com*), or on the Ross Video Community site (*discussions.rossvideo.com/*)

- **TouchDrive webhelp** — visit *help.rossvideo.com/switcher-panels.*
- **Software Licenses (4841DR-502)** — third-party software licences.
- **Carbonite Multilingual Safety Information (4802DR-503)** — translated product safety information

Contents

Control Panel Overview

This chapter provides a basic introduction to the control panel, including an overview of the different areas on the control panel, using the menu system, as well as an introduction to the various ports, and video buses.

TouchDrive Control Panels

Each TouchDrive control panel is made up of a number of distinct areas that control different aspects of the switcher. Some of these areas may vary in size or function, depending on the control panel you have.
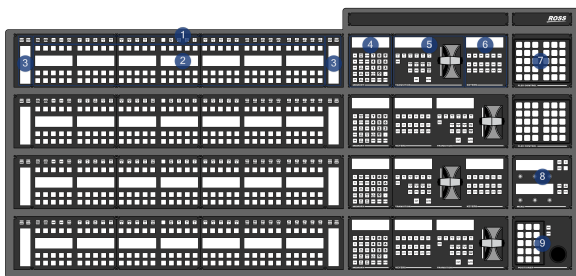
Note: The configuration shown is for a Carbonite switcher. Button label are different when the control panel is configured for Acuity®.

Note: Not all control panels have the same modules. For example, the Flex Control module is only available on the TD3 and larger panels.

1. User Buttons

The default user button assignments differ between Carbonite and Acuity®. All the user buttons can be assigned to different functions.

Carbonite Configuration

These buttons can be assigned to various functions or buses on the switcher. The default assignments are labelled on the buttons.
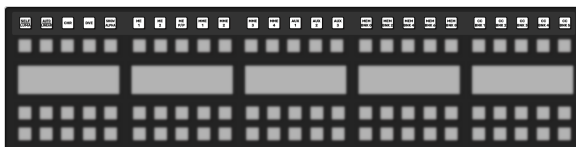
Note: The exact buttons assignments and placement vary depending on the size of your control panel.

Button	Function
SELF/LUMA	Assign Self as the key type for the selected key.

Button	Function
AUTO/LINEAR	Assign Auto Select as the key type for the selected key.
CHR	Assign the key bus to chroma key 1. Press and hold the button to select a different chroma key.
DVE	Assign DVE as the key type for the selected key.
SHOW ALPHA	View the black and white alpha signal for the selected keyer. This alpha signal is routed to the preview output of the selected ME. Press and hold to turn on the show alpha feature. Double-press the button to latch the show alpha state until the button is pressed again.
ME X	Assign the panel row to ME *X*. Press and hold the button to select a different ME.
MME X	Assign the panel row to MiniME™ *X*. Press and hold the button to select a different MiniME™
AUX x	Assign the key bus to aux bus *X*. Press and hold the **AUX** button and use the source buttons on the keyer row to select the aux you want to use.
MEM BNK X	Recall a memory using the source buttons on the key bus. Press the **MEM BNK** button for the memory bank you want to recall a memory from and then press the button on the key bus for the memory you want to recall. Press and hold the **MEM BNK** button to select a different bank using the source buttons on the key bus.
CC BNK X	Run a custom control using the source buttons on the key bus. Press the **CC BNK** button for the bank you want to run a CC from and then press the button on the key bus for the CC you want to run. Press and hold the **CC BNK** button to select a different bank using the source buttons on the key bus.

Tip: Press and hold the ME, MiniME™, AUX, MEM BNK, or CC BNK button and use the buttons on the key bus to assign the row to a different target.

Acuity® Configuration

These buttons can be assigned to various functions or buses on the switcher. The default assignments are labelled on the buttons.

Note: The exact buttons assignments and placement vary depending on the size of your control panel.

Button	Function
SELF/LUMA	Assign Self as the key type for the selected key.
AUTO/LINEAR	Assign Auto Select as the key type for the selected key.
CHR	Assign Chroma Key as the key type for the selected key.
DVE	Assign 2D DVE as the key type for the selected key.
PST PATT	Assign a Preset Pattern as the key type for the selected key.
MASK	Turn on the Mask function.
KEY INV	Reverses the polarity of the key alpha. For example, if a self key, such as a title camera, has white letters on a black background, the white letters will normally cut the key hole. When the key invert feature is used, the polarity of the key is inverted so that black lettering is used to cut the hole.
MATTE FILL	Fill the selected keyer with a matte color.
BORD	Apply a border to the selected keyer. When pressed, the border menu is displayed, and the last selected border is applied. Press the button again to turn the border off.
AUX	Press and hold the **AUX** button and use the source buttons on the keyer row to select the aux you want to use.
SHOW ALPHA	View the black and white alpha signal for the selected keyer. This alpha signal can either be routed to the main preview output of the switcher, or to the preview output of the selected ME. Press and hold the **SHOW ALPHA** button, for the selected keyer and ME, to show the alpha for that keyer on the preview output of the switcher, or double-press the **SHOW ALPHA** button to lock it on until the button is pressed again. This allows you to record the alpha signal for a selected keyer independent of the fill.
KEY PV	Temporarily force the program output of the selected keyer to the preview output of the switcher. The ME remains in the key preview state for as long as you hold the **KEY PV** button, and returns to normal as soon as you release the button. You can also double-press the **KEY PV** button to latch the ME in the key preview state until the button is double-pressed again.
PST BKGD	Insert a transition to black as the next transition without losing what is currently selected as the next transition.
KEY PRIOR	Change the priority of the keyers on the ME.

Button	Function
SEL	Quickly navigate to the **ME Selection** menu. Press and hold the **SEL** button and use the source buttons on the Key and Background buses to select what the panel row is assigned to.
MEM BNK *X*	Recall a memory using the source buttons on the key bus. Press the **MEM BNK** button for the memory bank you want to recall a memory from and then press the button on the key bus for the memory you want to recall. Press and hold the **MEM BNK** button to select a different bank using the source buttons on the key bus.
CC BNK *X*	Run a custom control using the source buttons on the key bus. Press the **CC BNK** button for the bank you want to run a CC from and then press the button on the key bus for the CC you want to run. Press and hold the **CC BNK** button to select a different bank using the source buttons on the key bus.

Tip: *Press and hold the ME, MiniME™, AUX, MEM BNK, or CC BNK button and use the buttons on the key bus to assign the row to a different target.*

2. Video Source Buses

Single Delegation Row

Each single delegation panel row has three buses of video source buttons (Keyer, Background, and Preset). In Carbonite mode, when the panel row is assigned to a ME, MiniME™, or MultiScreen each bus of buttons is assigned to a video bus. If the keyer bus row is assigned to a chroma key or aux bus, the key bus row is assigned to that video bus while the background and preset buses remain assigned to the previous buses.
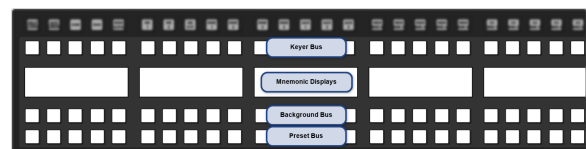
The mnemonic displays show the video sources that are assigned to the buttons on the keyer row and background/preset row.

Dual Delegation Row

Note: *Dual Delegation rows are only found on the TDx Series of panels.*

Each Dual Delegation (DD) panel row has four buses of video source buttons (2×Keyer,

Background, and Preset). In Carbonite mode, when the panel row is assigned to an ME, MiniME™, or MultiScreen each bus of buttons is assigned to a video bus. If the keyer bus row is assigned to a chroma key or aux bus, both key bus rows are assigned to that video bus while the background and preset buses remain assigned to the previous buses.
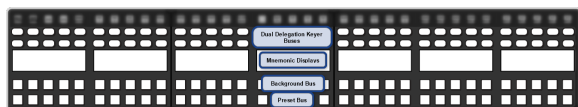
The Dual Delegation row has two independent buses with integrated mnemonic displays in the button. When the button is assigned to a source, memory, or custom control the name of the assignment is shown on the button.

> **Tip:** For Carbonite switchers, the User Assignable buttons control the top DD row, and the SEL buttons on the Keyer control the bottom DD row.

3. Row Control

The row control menu at the end of the panel row allows you to see what the row and buses are assigned to, as well as control some aspects of the row.

> **Tip:** The TD3 and TD4 panels have one of these vertical displays at either end of the row. The displays mirror each other.

The **TOUCH HOME** and **TOUCH LOCK** buttons are used to return the display to the **Home** menu (**TOUCH HOME**) and lock the display and mnemonics so that it can't be accidentally tapped (**TOUCH LOCK**).

4. Memory Area

The function of the buttons on the Memory area differ between Carbonite and Acuity®.

Carbonite Configuration

The memory area is used to store and recall memories, and to enter the various transition rates used by the switcher. The buttons in the left column assign the memory area to the

various ME, MiniME™, MultiScreen, or chroma key resources of the switcher.
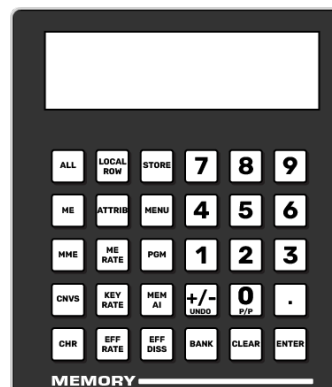
> **Tip:** Toggle the **STORE** button on to store a memory or off to recall.

| Button	Function
ALL	Select all ME, MiniME™, MultiScreen, and chroma key inclusions for with the memory action. Press **ALL** to include all the elements with the memory store or recall. The inclusions are shown on the display.
ME	Select only specific ME inclusions for the memory action. Press and hold **ME** and press the number buttons to add or remove an element from the inclusions for the memory store or recall. The inclusions are shown on the display.
MME	Select only specific MiniME™ inclusions for the memory action. Press and hold **MME** and press the number buttons to add or remove an element from the inclusions for the memory store or recall. The inclusions are shown on the display.
CNVS	Select only specific MultiScreen inclusions for the memory action. Press and hold **CNVS** and press the number buttons to add or remove an element from the inclusions for the memory store or recall. The inclusions are shown on the display.
CHR	Select only specific chroma key inclusions for the memory action. Press and hold **CHR** and press the number buttons to add or remove an element from the inclusions for the memory store or recall. The inclusions are shown on the display.
LOCAL ROW	Select only the ME that the panel row is assigned to as the inclusion for the memory action.
ATTRIB	Jump to the **Memory Attributes** page in DashBoard.
ME RATE	Set the background transition rate for the ME that the panel row is assigned to. Press **ME RATE** and use the keypad to enter the new rate. The rate is shown on the display in the **Transition** area.

Button	Function
KEY RATE	Set the key only transition rate for the ME that the panel row is assigned to. Press **KEY RATE** and use the keypad to enter the new rate. The rate is shown on the display in the **Keyer** area for each individual key.
EFF RATE	Set the effects dissolve rate. Press **EFF RATE** and use the keypad to enter the new rate.
STORE	Set the Memory area to store mode. By default, the Memory area is in Recall mode. Press **STORE** (On) to put the Memory area in Store mode to store memories. *Tip:* Press and hold **STORE** and press **LOCAL ROW** to reset only the row you are working on or **ALL** to reset all rows.
MENU	Set the Memory area to follow the menu selections. This allows you to use the keypad to select wipe pattern or media items. Press **MENU** (On) to turn the follow on.
PGM	Set the Program recall mode where all elements of the memory are recalled as they are stored.
MEM AI	Set the Memory AI mode where current on-air elements are unchanged and the transition area is configured to take the on-air elements of the memory on-air with the next transition.
EFF DISS	Turn on the Effects Dissolve effect for the memory recall. On-air elements are transitioned to the elements stored in the memory. The time it takes to go from the current elements to the elements in the memory is set with the **EFF RATE**.
+/- UNDO	Undo the last memory recall. When entering number values with the keypad, press **+/-** to toggle between positive and negative values.
BANK	Select the memory bank you want to use. Press and hold the **BANK** button and press the number for the custom control or memory bank you want to access.
CLEAR	Clear the current value being entered. For example, enter an incorrect value on the keypad and press **CLEAR** to remove it.
ENTER	Commit the currently entered value. For example, enter a new key rate using the keypad and press **ENTER** to apply it.
0-9	The keypad numbers are used to select ME inclusions as well as enter rate values or clip ids.

Acuity® Configuration

The memory area is used to store and recall memories, and to enter the various transition rates used by the switcher. The buttons in the left column assign the memory area to a specific ME.
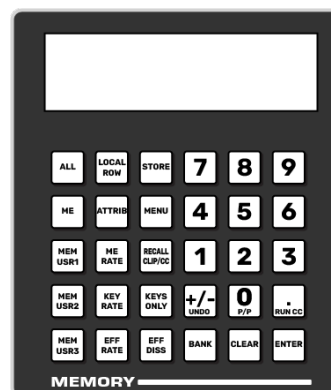
Tip: Toggle the **STORE** button on to store a memory or off to recall.

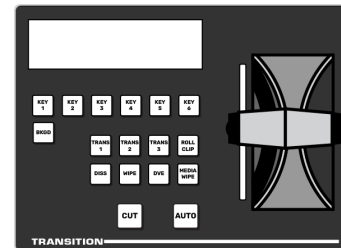| Button	Function
ALL	Select all ME inclusions for with the memory action. Press **ALL** to include all the elements with the memory store or recall. The inclusions are shown on the display.
ME	Select only specific ME inclusions for the memory action. Press and hold **ME** and press the number buttons to add or remove an element from the inclusions for the memory store or recall. The inclusions are shown on the display.
MEM USR#	User assignable buttons. You can assign any function to these buttons from the **Personality** menu.
LOCAL ROW	Select only the ME that the panel row is assigned to as the inclusion for the memory action.
ATTRIB	Allows you to view the memory attributes menu, or override the attributes stored with the memory with the default attribute settings. To override attributes, press and hold the **ATTRIB** button while recalling the memory.
ME RATE	Set the background transition rate for the ME that the panel row is assigned to. Press **ME RATE** and use the keypad to enter the new rate. The rate is shown on the display in the **Transition** area.
KEY RATE	Set the key only transition rate for the ME that the panel row is assigned to. Press **KEY RATE** and use the keypad to enter the new rate. The rate is shown on the display in the **Keyer** area for each individual key.
EFF RATE	Set the effects dissolve rate. Press **EFF RATE** and use the keypad to enter the new rate.

Button	Function
STORE	Set the Memory area to store mode. By default, the Memory area is in Recall mode. Press **STORE** (On) to put the Memory area in Store mode to store memories. *Tip:* Press and hold **STORE** and press **LOCAL ROW** to reset only the row you are working on or **ALL** to reset all rows.
MENU	Have the Memory area follow menu selections. Press the **MENU** button on a Memory area to have that Memory area follow menu selections, such as wipe pattern, DVE sequence, or media item selection.
RECALL CLIP/CC	Allows you to either recall a clip on the selected device using a Clip ID or Clip Number by entering it using the keypad, or run a custom control by entering the bank and custom control number. The functionality of the **Recall Clip/CC** button is set using the **CC Global Recall** personality option.
KEYS ONLY	Recall a memory on a panel row that does not include the program and preset bus selections. Only the keyer selections are recalled.
EFF DISS	Turn on the Effects Dissolve effect for the memory recall. On-air elements are transitioned to the elements stored in the memory. The time it takes to go from the current elements to the elements in the memory is set with the **EFF RATE**.
+/- UNDO	Undo the last memory recall. The **UNDO** button lights up after each memory recall, indicating that the action can be undone. If you perform 10 or more button presses after the memory recall, the **UNDO** button goes out, and the memory can no longer be recalled. When entering number values with the keypad, press **+/-** to toggle between positive and negative values.
BANK	Select the memory bank you want to use. Press and hold the **BANK** button and press the number for the custom control or memory bank you want to access.
CLEAR	Clear your current entry. For example, if you are entering a memory register to recall, but then decide not to recall the memory, you can press the **CLEAR** button to return to the previous state.
ENTER	Commit the currently entered value. For example, enter a new key rate using the keypad and press **ENTER** to apply it.
RUN CC	Run a custom control that you have recalled using the **RECALL CC** button.
0-9	The keypad numbers are used to select ME inclusions as well as enter rate values or clip ids.

5. Transition Area

The transition area is used to select which video source buses will be included in the next transition and what type of transition will be performed. The **Cut** and **Auto** buttons and the fader are used to perform transitions.

The function of the buttons on the Transition area differ between Carbonite and Acuity®.

Carbonite Configuration

Button	Function
BKGD	Include the background in the next transition.
KEY X	Include a key with the next transition.
TRANS X	User assignable buttons.
ROLL CLIP	Tie the playout of a clip to the next transition, or have the clip play immediately. Roll clip only works with external devices that are being controlled by the switcher.
DISS	Select a dissolve as the next transition type.
WIPE	Select a wipe as the next transition type.
DVE	Select a DVE wipe as the next transition type.
MEDIA WIPE	Select a MediaWipe as the next transition type.

Acuity® Configuration
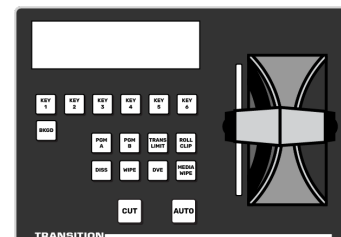
Button	Function
BKGD	Include the background in the next transition.
KEY X	Include a key with the next transition.

Button	Function
PGM A	Assign the Transition module and buses on that row to Program A of the configurable program output.
PGM B	Assign the Transition module and buses on that row to Program B of the configurable program output.
TRANS LIMIT	Set the point where a transition will stop. This allows you to have a transition proceed only half way and stop. The next transition is performed from that stop point, back to the original starting point.
ROLL CLIP	Tie the playout of a clip to the next transition, or have the clip play immediately. Roll clip only works with external devices that are being controlled by the switcher.
DISS	Select a dissolve as the next transition type.
WIPE	Select a wipe as the next transition type.
DVE	Select a DVE wipe as the next transition type.
MEDIA WIPE	Not used at this time.

6. Keyer Area

The keyer area is used to select and independently transition keys. The display shows the on-air status of each key and the source currently selected on that key. Used the **CUT** and **AUTO** buttons to perform cuts or auto transitions on keys directly, without having to include them as part of the next transition.
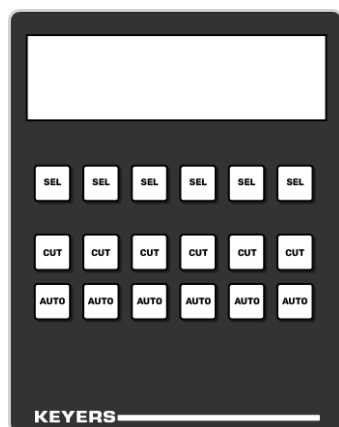
Tip: *Press the **SEL** button for a key to assign the key bus on that panel row to that key. The **SEL** button is lit when the key bus is assigned to that key.*

7. Flex Control Area

The Flex Control area is made up of a user selectable buttons, much like on the panel row, that can be have various functions assigned to

them. The functions that can be assigned to the buttons depends on the switcher the panel is connected to.

The default user button assignments differ between Carbonite and Acuity®. All the user buttons can be assigned to different functions.
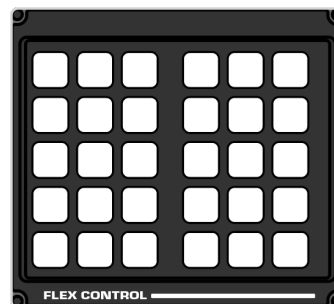
8. 3-Knob Menu

The buttons next to the 3-knob menu differ between Carbonite and Acuity®. The display and the knobs in both systems follow the main menu selections.

Carbonite

The 3-knob menu is used to access the legacy menu system of the switcher, as well as some auto-follow functions attached to video source selections.

Acuity®

The 3-knob menu provided physical knobs for menu selections. The 3-knob menu auto-follows the Main menu.

TD3 and 4 Panels

The TD3 and TD4 panels have a stacked version of the 3-knob menu. The menu operates the same as on the other panels, but can show two menu pages at the same time. For Acuity® the top display shows the upper menu area and the bottom display the lower menu area.
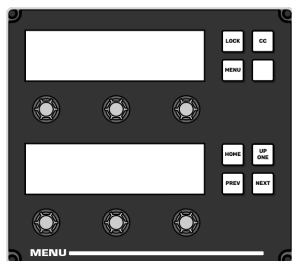
9. Positioner

The positioner is used to position and size keys in the DVE, control some wipe, border, and wash parameters, as well as control some external devices.
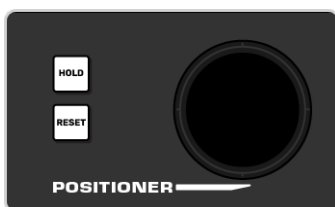
The **HOLD** and **RESET** buttons are used to lock the positioner to the current assignment (**HOLD**) or used with other panel buttons to reset different areas (**RESET**).

The TD3 and TD4 panels have an additional set of user selectable buttons, the same as on the Flex Control area. The functions that can be assigned to the buttons depends on the switcher the panel is connected to.

The default user button assignments differ between Carbonite and Acuity®. All the user buttons can be assigned to different functions.
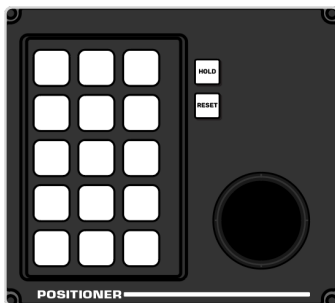
Carbonite Black Control Panels

Each Carbonite Black control panel is made up of a number of distinct areas that control different aspects of the switcher. Some of these areas may vary in size or function, depending on the control panel you have.
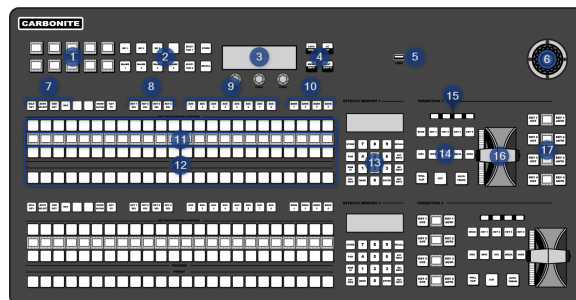
Figure 1: CB2S Control Panel

1. **Menu Selection Buttons** — These mnemonic buttons are used to access switcher menus and select wipe patterns.

2. **Global Memory** — These buttons are used to store or recall memories to one or more MEs at the same time. On the CB1 and CB2 control panels there are only store and recall buttons for MEs 1 and 2.

3. **Main Display and Selection Knobs** — The three selection knobs are used to adjust and select various menu items or values. The knobs are rotated to choose a value, and pressed to make a selection. The main display shows the menu system of the switcher.

4. **Menu Navigation Buttons** — These buttons are used to access switcher menus and move back and forth between menus.

5. **USB** — The USB port on the control panel is not implemented at this time.

6. **Positioner** — The positioner is used to position and size keys in the DVE, control some wipe, border, and wash parameters, as well as control some external devices.

7. **Key Type Buttons** — These buttons are used to choose the type of key you want to use. Use these buttons with the key select buttons to select the keyer and the type of key you want to use.

8. **Key Select Buttons** — These buttons are used to choose which keyer is selected. The key type buttons and key bus follow the selected keyer. These are user select buttons can be assigned to other functions if required.

9. **ME/Aux Selection Buttons** — These buttons are used to assign the control panel row to an ME, MiniME™, chroma key, or Aux. These are user select buttons can be assigned to other functions if required.

10. **Custom Control Bank Select Buttons** — These buttons are used to choose which

custom control bank is selected. The custom control bus follows the selected custom control bank. These are user select buttons can be assigned to other functions if required.

11. **Mnemonic Displays** — The mnemonic display shows the name of the source, or custom control, assigned to the button directly below it. The mnemonic display-name and color for each video source or custom control can be adjusted.

12. **Video Source Buses** — These buses are broken into the Preset, Program, and Key/Aux/Custom Control buses. The Preset bus is the bottom row of source buttons and selects the video source that will be taken on-air with the next background transition. The Program bus is the middle row of source buttons and selects the video source that is currently on-air on the background. The Key/Aux/Custom Control bus is the top row of source buttons and selects the video source that is chosen on the selected keyer or aux bus, or the custom control that is chosen on the selected custom control bank.

13. **Effects Memory** — These buttons are used to store and recall memories on the assigned ME, and to select the various transition rates used on the switcher. These buttons are assigned to the ME that the panel row has been assigned to.

14. **Transition Area** — These buttons are used to select which video source buses will be included in the next transition and what type of transition will be performed. The Cut and Auto Trans buttons are used to perform transitions. The user button is not implemented at this time.

15. **On-Air Lights** — These lights glow red to show which keyers are currently on-air.

16. **Manual Transition Fader Bar** — The fader is used to manually control the rate of a transition. What is being transitioned, and the type of transition, are controlled from the Transition Area.

17. **Keyer Transitions Buttons** — These buttons are used to perform cuts or auto transitions on keys directly, without having to include them as part of the next transition.

CB9 Control Panel

The CB9 control panel is made up of a number of distinct areas that control different aspects of the switcher.
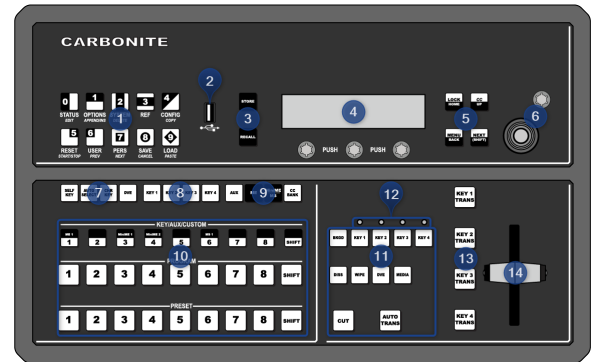
Figure 2: CB9 Control Panel

1. **Pattern/Menu Selection Buttons** — These buttons are used to select a pattern for a wipe transition, or to access switcher menus.

2. **USB** — The USB port on the control panel is not implemented at this time.

3. **Memory Store/Recall Buttons** — These buttons are used to store or recall memories.

4. **Main Display and Selection Knobs** — The three selection knobs are used to adjust and select various menu items or values. The knobs are rotated to choose a value, and pressed to make a selection. The main display shows the menu system of the switcher.

5. **Menu Navigation Buttons** — These buttons are used to access switcher menus, move back and forth between menus.

6. **Positioner** — The positioner is used to control some wipe, border, and wash parameters, as well as some external devices. Along with the 2D positioner is a knob used for additional input.

7. **Key Type Buttons** — These buttons are used to choose the type of key you want to use. Use these buttons with the key select buttons to select the keyer, and the type of key you want to use.

8. **Keyer Select Buttons** — By default these user select buttons are used to select which keyer the panel is assigned to. Each button can be assigned to a different selection.

9. **User Select Buttons** — These user select buttons are used to choose which keyer, aux bus, MiniME™, ME, or custom control bank the panel is assigned to.

10. **Video Source Buses** — These buses are broken into the Preset, Program, and Key/Aux/Custom Control buses. The Preset bus is the bottom row of source buttons and selects the video source that will be taken on-air with the next background transition. The Program bus is the middle row of source buttons and selects the video source that is currently on-air on the background. The Key/Aux/Custom Control bus is the top row of source buttons and selects the video source that is chosen on the selected keyer or aux bus, or the custom control that is chosen on the selected custom control bank.

11. **Transition Area** — These buttons are used to select which video source buses will be included in the next transition and what type of transition will be performed. The Cut and Auto Trans buttons are used to perform transitions.

12. **On-Air Lights** — These lights glow red to show which keyers are currently on-air.

13. **Keyer Transitions Buttons** — These buttons are used to perform auto transitions on keys directly, without having to include them as part of the next transition.

14. **Manual Transition Fader Bar** — The fader is used to manually control the rate of a transition. What is being transitioned, and the type of transition, are controlled from the Transition Area.

Menu Interfaces

The interface to the control panel can be accessed through DashBoard, the 3-knob menu, and the touchscreen displays.

The Carbonite and Acuity® based switchers use different menu systems. Both menu system are accessed using the touchscreen display, as well as the 3-knob menu. When accessing a Carbonite switcher from the TouchDrive control panel, the menu system is displayed using DashBoard with separate node for the control panel and frame. When accessing an Acuity® switcher from the TouchDrive control panel, the Main menu is displayed on touchscreen with control panel and frame functions integrated together.

DashBoard (Carbonite)

DashBoard provides the main menu system to the control panel and Carbonite switcher it is connected to.

When connected to a Carbonite switcher, TouchDrive runs a version of DashBoard locally on the control panel. You can use this DashBoard to control the control panel and switcher, or you can run DashBoard on a separate computer and use that version to control the control panel and switcher. Refer to the documentation that came with your switcher for information on connecting to it from DashBoard.

Download and install the latest version of DashBoard from *www.rossvideo.com/support/software-downloads/dashboard/*. Review the documentation that comes with DashBoard for information on installing and launching DashBoard.

> *Note:* *TouchDrive requires DashBoard v9.1, or higher.*

> *Tip:* *On TouchDrive, you can bring up a virtual keyboard by tapping the DashBoard title bar at the top. This is useful if you don't have a keyboard attached to your panel.*

> *Tip:* *Click the **USB Drive(s) Unmount** button to eject all USB drives installed into the panel.*

DashBoard Restart

You can restart DashBoard from the **Status** page by clicking **Save & Re-Launch**. This saves the current DashBoard layout then restarts DashBoard. This is only available for DashBoard running on the panel itself.

Panel Shutdown

You can shut down the panel application and DashBoard on the control panel from the **Status** page by clicking **Shut Down**. This closes the panel application and DashBoard and gets the panel ready to be powered off.
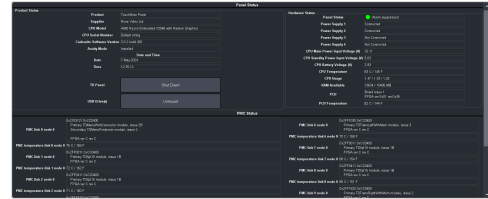
Touchscreens (TouchDrive)

The mnemonics, small displays, and 3-knob menu display on the TouchDrive control panel are all touch enabled. Tap a region of the display to make selections or show more information about the item.

Small Display Interface

The small displays are located on the Transition, Keyer, and Memory areas, as well as the vertical display at the end of the panel row. All of these displays show you have that component of the switcher is being utilized as well as allowing you to interact and control these settings.

For example, press **WIPE** on the **Transition** area and the display shows the current wipe settings.
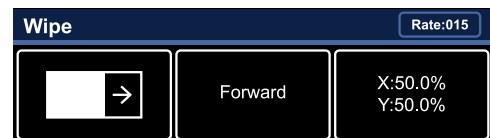
- Tap the left button to select a different wipe pattern.
- Tap the middle button to select a different direction for the wipe.
- Tap the right button to assign the positioner and the 3-knob menu to the wipe pattern.

Mnemonics

The mnemonics are the row of displays between the key and background buses on the panel row. By default, the mnemonics show the source that is assigned to the crosspoint buttons above and below the display. You can set the name, color, and icon for the source. The mnemonics can be set to only display the video sources, display only what the key bus row is assigned to, or both. When the key bus row is assigned to a

memory or custom control bank, the buttons on the row are assigned to the individual memories or custom controls. The **CC Mnemonics** option sets how the mnemonics show what the buttons on the key bus row are assigned to.
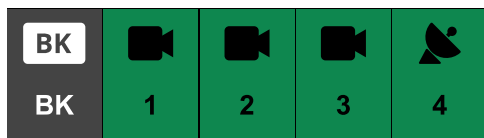
- Tap the mnemonic for a source to have the 3-knob menu jump to the menu that follows that source without selecting that source on the bus. If there is a follow menu, the mnemonic flashed white. If there isn't a follow menu, the mnemonic flashes gray.
- A mnemonic will flash white when pressing the mnemonic performs an action. The mnemonic flashes gray if no action is performed.

Control Panel 3-Knob Menu System

The 3-knob menu follows the main menu selections and provides physical knobs that can be used to make menu selections.

> **Tip:** The classic Carbonite menu can be accessed using the 3-knob menu.

Menu Navigation (Carbonite)

The menu system allows you to access all of the setup and configuration information for the switcher. In some cases, a menu can be accessed either by pressing the **MENU** button and navigating to the menu, or by double-pressing a button on the control panel.

1. Press **MENU**. The Menu Selection mnemonic buttons light up with the names of the menu trees.

Figure 3: TouchDrive Menu Buttons

Figure 4: Carbonite Black Menu Buttons

2. Press the Menu Selection button for the menu you want to navigate to. The first page of the menu is shown on the display.
3. Press **NEXT** to navigate to the next page of the current menu. If the **NEXT** button is not lit, there are no other pages to the current menu.

> **Tip:** If you want to return to the first page of a menu, press and hold **NEXT** and press **HOME**. You can also navigate up one level in a menu tree by pressing and holding **NEXT** and pressing **UP**.

Auto-Follow Menus

The menu system navigates to auto-follow menus automatically when you select certain functions on the switcher. For example, when you select a key the key adjustment menu is shown on the display.

The 3-knob menu auto follows the main menu on both Carbonite and Acuity® switchers.

Auto-Follow functionality also applies to video source buttons that have external devices assigned to them. If you select a source button that an external device is assigned to, the peripheral control menu for that specific device is shown.

> **Tip:** Tap the mnemonic for the source you want to show the auto-follow menu for. This jumps to the menu, but does not select the source. This can be used to configure a device without selecting it on the bus.

Panel Operation

All Ross® switcher control panels operate on the same basic principles for assigning a row to an ME and selecting sources on the buses of that ME.

> **Note:** Descriptions in this document can apply to both Carbonite and Acuity® switchers. References to MiniME™ and MultiScreen apply only to Carbonite, but references to ME apply to both Carbonite and Acuity®.

Bus Assignment

Each row on the panel can be assigned to a different ME or resource of the switcher. How the row is assigned to the resource depends on the model of control panel you have.

To Assign a Panel Row and Key Bus on TouchDrive

A panel row is assigned to an ME allowing the Background and Preset buses to be used to select sources. The Key bus can then be assigned to other resources on the switcher, such as an Aux.

1. The row control menu shows what that row is currently assigned to, as well as each bus.

> **Tip:** The color of the source buttons and displays on the row also indicate where the row is assigned. The colors are set by the color scheme that is applied to the panel. The keyers can have different colors than their ME.

> **Note:** The TDx Series panels have the Dual Delegation keyer rows with an extra row control menu item for the second keyer row.

2. Tap the **ME** button on the row control menu.

> **Tip:** The user select buttons can also be used to assign the row to a resource either by pressing the button

assigned to that resource directly, or by pressing and holding one of the assignment buttons and press the button on the key bus for the resource. The user select buttons can be assigned to select any bus on the switcher. If you change what the button is assigned to you should make sure to change the text on the button cap.

The **ME** button turns white and the mnemonics on the row list all the resources the row can be assigned to. For Carbonite, a row can only be assigned to an ME, MiniME™, MultiScreen, or chroma key.

3. Tap the mnemonic for where you want to assign the row.

> **Note:** The key, background, and preset buses are still all assigned to the previous resources in this assignment mode.

4. Tap the **Key** button on the row control menu. If you have a Dual Delegation row, tap the **Key** button for the keyer row you want to assign to a different area. The remaining keyer row is unchanged.

> **Tip:** The user select buttons can also be used to assign the key bus to a resource either by pressing the button assigned to that resource directly, or by pressing and holding one of the assignment buttons and tapping the source mnemonic for the resource. The assignment button must be of the same type as the resource you want to assign the bus to (**Aux** for an aux bus, **Mem Bank** for a memory bank).

> **Tip:** You can quickly assign the bus to a keyer by pressing one of the **SEL** buttons in the **Keyer** area.

The display lists the areas that the key bus can be assigned to and the mnemonics on the row list all the resources in that area that the row can be assigned to.

5. Tap the button for the area (**Key**, **Aux**, **Memory Bank**, or **CC Bank**) that you want to assign the key bus to.

6. Tap the mnemonic for where you want to assign the key bus to.

To Assign a Panel Row and Key Bus on Carbonite Black

A panel row is assigned to an ME allowing the Background and Preset buses to be used to select sources. The Key bus can then be assigned to other resources on the switcher, such as an Aux.

1. The color of the source buttons on the row indicate where the row is assigned.

> *Tip:* *The colors are set by the color scheme that is applied to the panel. The keyers can have different colors than their ME.*

2. Press the user select button for the resource you want to assign the row to. If there isn't a button for that resource press and hold one of the assignment buttons and press the button on the key bus for the resource. A row can only be assigned to an ME, MiniME™, MultiScreen, or chroma key.

> *Tip:* *The user select buttons can be assigned to select any bus on the switcher. If you change what the button is assigned to you should make sure to change the text on the button cap.*

3. Press the user select button for the keyer, aux bus, or custom control bank that you want to assign the key bus to. If there isn't a butto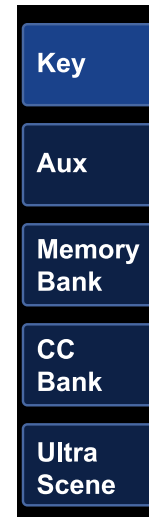n for that resource press and hold one of the assignment buttons and press the button on the key bus for the resource. The assignment button must be of the same type as the resource you want to assign the bus to (**Aux** for an aux bus, **Bank** for a custom control bank).

Video Sources

The switcher has access to three basic types of video sources, external, internal, and follows.

All video sources can be assigned to video source buttons. By pressing a video source button on a bus, the video source assigned to that button is selected on that bus.

- **External** — External video sources come from cameras, video servers, character generators, or other external devices into the switcher.

- **Internal** — Internal video sources come from internally generated video, such as Media-Store channels, matte color, and black.

- **Follows** — Follow video sources allow you to have one bus follow what is selected on another bus. For example, you can assign an Aux Bus to follow an MiniME™ Background so that a source selected on the background bus of that MiniME™ is also selected on the Aux Bus.

To Select a Source on a Bus on TouchDrive

The buttons on each bus of the panel row are used to select the source that is mapped to that button. For example, when you press the source button mapped to a Media-Store the video from that Media-Store is routed to the bus.

1. Assign the panel row to the resource that you want to select a source on.

> *Tip:* *If you only want to select a source on an aux bus or chroma key, you don't have to assign the panel row to a different resource, only the key bus.*

2. Press the source button for the video source you want to assign to that bus. Press and hold the **SHIFT** button to access the shifted bus.

> *Note:* *Ensure that the source selected on the bus you want to enter onto the ME, MiniME™, chroma key, MultiScreen, aux or keyer is valid for that destination. If the source is not valid, you will not be able to select the bus on the ME, MiniME™, Aux, chroma key, or keyer.*

> *Note:* *The **SHIFT** button only applies to the bus it was pressed for. When you press the **SHIFT** button for the Key, Background, or Preset bus, only that bus is shifted, even though the mnemonics will change to the shifted sources.*

> *Tip:* *Double-press the **SHIFT** button to lock the button row to the shifted bus. Press the **SHIFT** button again to return to the non-shifted bus. The Shift-Lock is reset when the ME is reset, but not when a factory default or switcher set is recalled.*

> *Tip:* *Selecting a source on the background bus, or 'hot punching', changes the video source on the background of the ME, MiniME™, or MultiScreen.*

To Select a Source on a Bus on Carbonite Black

The buttons on each bus of the panel row are used to select the source that is mapped to that button. For example, when you press the source button mapped to a Media-Store the video from that Media-Store is routed to the bus.

1. Assign the panel row to the resource that you want to select a source on.

> **Tip:** *If you only want to select a source on an aux bus or chroma key, you don't have to assign the panel row to a different resource, only the key bus.*

2. Press the source button for the video source you want to assign to that bus. Press and hold the **SHIFT** button to access the shifted bus.

> **Note:** *Ensure that the source selected on the bus you want to enter onto the ME, MiniME™, chroma key, MultiScreen, aux or keyer is valid for that destination. If the source is not valid, you will not be able to select the bus on the ME, MiniME™, Aux, chroma key, or keyer.*

> **Tip:** *Double-press the **SHIFT** button to lock the button row to the shifted bus. Press the **SHIFT** button again to return to the non-shifted bus. The Shift-Lock is reset when the ME is reset, but not when a factory default or switcher set is recalled.*

> **Tip:** *Selecting a source on the background bus, or 'hot punching', changes the video source on the background of the ME, MiniME™, or MultiScreen.*

Transitions

Transitions are used to change the background video and take keys on and off-air. A transition can include any combinations of background and keyers for an ME, MiniME™, or MultiScreen. The background and each keyer can be transitioned independently.

Transitions can be performed using either the control panel or menu, or some combination of the two.

Keep the following in mind:

Keep the following in mind when performing transitions:

- If any of the sources going on-air have an assigned GPI output, the GPI output is triggered and the switcher then waits the configured pre-delay interval before performing the transition. If you perform a transition with the fader handle, the GPI output is triggered but the pre-delay interval is ignored.
- If any of the sources going on-air are assigned to a video server, you can have the video server play when the source is taken on-air by toggling **Roll Clip** on.
- If any of the sources going on-air are assigned to a video server, the switcher waits for the configured pre-delay interval before

performing the transition. If you perform a transition with the fader handle, the pre-delay interval is ignored.

- If the fader is moved during an auto transition, control of the transition is passed to the fader. You must complete the transition with the fader. This allows you to override any auto transition in progress with the fader.
- The **Cut** and **Auto** buttons can be used to transition keys independently.
- You can pause an auto transition by pressing the **Auto Trans** button during the transition. Press the button again to continue the transition.
- If you turn the Transition Limit off when the transition has stopped at the transition limit point, the next transition starts from the transition limit point and goes forward to complete the transition, instead of going back to the start.

To Perform a Transition on TouchDrive (Memory Area)

All transitions, with the exception of cuts on the background or key bus, have the same basic setup. The control panel offers physical buttons and mnemonics to setup and perform the transition. Some panels have a memory area that can be used to set the transition rates.

> **Note:** *Carbonite button configuration and menus shown.*

1. Select the preset or key sources that you want to transition to on the buses.

> **Tip:** *You can perform a quick, or hot, cut on the background bus by simply selecting a different source.*

2. In the **Transition** area, select the elements you want to include with the transition. If you are including multiple elements, press and hold the first button and press the other buttons to include them in the same transition.

> **Note:** *A key should be included in the transition if it is going on-air or off-air. The transition changes the on-air state of the keyer. If a key is on-air, a red indicator is visible on the display just above the key and the **CUT**button for that key is red in the **Keyer** area.*

3. In the **Transition** area, select the type of auto transition you want to perform. Refer to the manual that came with your switcher for information on setting up these transitions.

  - **DISS** — perform a dissolve or WhiteFlash transition
  - **WIPE** — perform a wipe transition
  - **DVE** — perform a DVE transition
  - **MEDIA WIPE** — perform a MediaWipe transition (Carbonite only)

  > **Note:** *The **TRANS X** buttons are configurable and can be assigned different functions.*

  > **Tip:** *Press and hold **DISS** and press **Flash** on the row control menu to select a WhiteFlash transition.*

4. The display in the **Transition** area shows the current setting for the transition type. Tap one of theses settings to show additional options.

  > **Tip:** *Live Assist follows the transition type selection and shows the settings for that transition type.*

  - **Left** — the left button shows the current pattern for the wipe or DVE transition. Tap the button and swipe left or right on the display to select a different pattern. For a MediaWipe the button shows the name of the media item being used for the transition.
  - **Center** — the center button shows the current direction for the wipe, DVE, or MediaWipe transition. Tap the button and select a different direction for the transition to be performed in.
  - **Right** — the right button shows the current position of the pattern for the wipe transition or the settings for the MediaWipe transition. Tap the button to have the 3-knob display show the

position setting of the pattern and use the positioner to move the pattern around.

5. In the **Memory** area, enter the rate that you want the transition performed at. This is the speed, in frames, that it takes for the transition to complete. A Cut or manual fader transition does not use the transition rate.
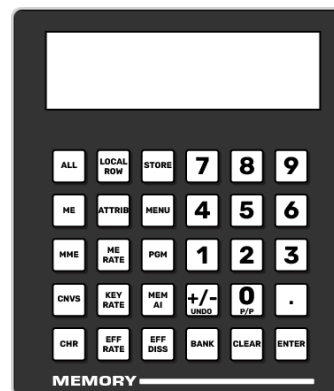
  - **Background** — press **ME RATE** and use the keypad to enter a new rate, in frames, and press **ENTER**. The rate is shown on the display on the **Transition** area.
  - **Key Only** — press **KEY RATE** and use the keypad to enter a new rate, in frames, and press **ENTER**. The rate is shown on the **Keyer** area for each individual key.

  > **Note:** *The KEY RATE is only used for key only transitions. Keys included in with the background are transitioned a the ME Rate.*

6. Perform the transition.

  - **Auto Transition** — press **AUTO**. The transition is performed at the set transition rate.
  - **Cut** — press **CUT**.
  - **Fader** — move the fader from one limit to the other. The rate at which you push the fader determines the speed of the transition.

7. If a pre-delay has been set, and the **ROLL CLIP** button is active, the switcher will apply the pre-delay interval before performing the transition.

To Perform a Transition on TouchDrive (No Memory Area)

All transitions, with the exception of cuts on the background or key bus, have the same basic

setup. The control panel offers physical buttons and mnemonics to setup and perform the transition.
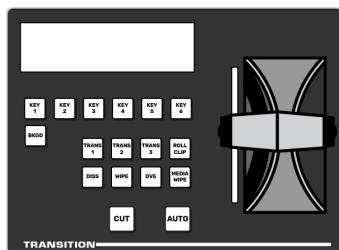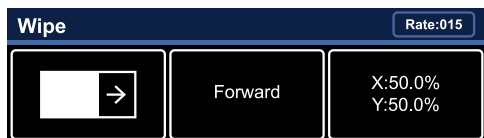
> **Note:** *Carbonite button configuration and menus shown.*

1. Select the preset or key sources that you want to transition to on the buses.

   > **Tip:** *You can perform a quick, or hot, cut on the background bus by simply selecting a different source.*

2. In the **Transition** area, select the elements you want to include with the transition. If you are including multiple elements, press and hold the first button and press the other buttons to include them in the same transition.

   > **Note:** *A key should be included in the transition if it is going on-air or off-air. The transition changes the on-air state of the keyer. If a key is on-air, a red indicator is visible on the display just above the key and the **CUT**button for that key is red in the **Keyer** area.*

3. In the **Transition** area, select the type of auto transition you want to perform. Refer to the manual that came with your switcher for information on setting up these transitions.

   - **DISS** — perform a dissolve or WhiteFlash transition
   - **WIPE** — perform a wipe transition
   - **DVE** — perform a DVE transition
   - **MEDIA WIPE** — perform a MediaWipe transition (Carbonite only)

   > **Note:** *The **TRANS X** buttons are configurable and can be assigned different functions.*

   > **Tip:** *Press and hold **DISS** and press **Flash** on the row control menu to select a WhiteFlash transition.*

4. The display in the **Transition** area shows the current setting for the transition type. Tap one of theses settings to show additional options.
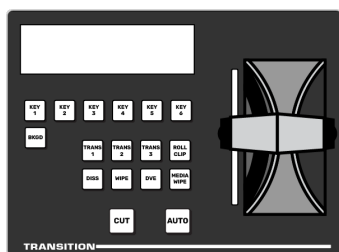
   > **Tip:** *Live Assist follows the transition type selection and shows the settings for that transition type.*

- **Left** — the left button shows the current pattern for the wipe or DVE transition. Tap the button and swipe left or right on the display to select a different pattern. For a MediaWipe the button shows the name of the media item being used for the transition.
- **Center** — the center button shows the current direction for the wipe, DVE, or MediaWipe transition. Tap the button and select a different direction for the transition to be performed in.
- **Right** — the right button shows the current position of the pattern for the wipe transition or the settings for the MediaWipe transition. Tap the button to have the 3-knob display show the position setting of the pattern and use the positioner to move the pattern around.

5. Set the rate for the transition you want to perform.

   - **Background**

     a. On the Transition area tap **Rate** and use the 3-knob menu to enter the new rate.
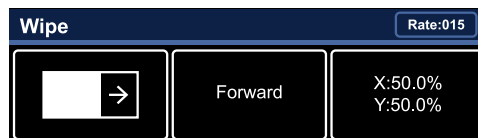
   - **Key Only**

     > **Note:** *The KEY RATE is only used for key only transitions. Keys included in with the background are transitioned a the ME Rate.*

     a. On the Keyer area tap the key you want to set the rate for.
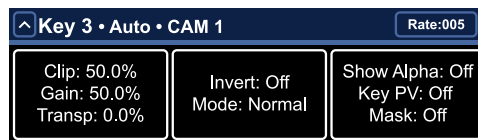
     b. Tap **Rate** and use the 3-knob menu to enter the new rate.

6. Perform the transition.

- **Auto Transition** — press **AUTO**. The transition is performed at the set transition rate.
- **Cut** — press **CUT**.
- **Fader** — move the fader from one limit to the other. The rate at which you push the fader determines the speed of the transition.

7. If a pre-delay has been set, and the **ROLL CLIP** button is active, the switcher will apply the pre-delay interval before performing the transition.

To Perform a Transition on Carbonite Black

All transitions, with the exception of cuts on the background or key bus, have the same basic setup. The control panel offers physical buttons and mnemonics to setup and perform the transition.

1. Select the preset or key sources that you want to transition to on the buses.

> **Tip:** You can perform a quick, or hot, cut on the background bus by simply selecting a different source.

2. In the **Transition** area, select the elements you want to include with the transition. If you are including multiple elements, press and hold the first button and press the other buttons to include them in the same transition.

> **Note:** A key should be included in the transition if it is going on-air or off-air. The transition changes the on-air state of the keyer. If a key is on-air, a red indicator is visible just above the include button for that key and the **CUT** button for that key is red in the **Keyer** area.

3. In the **Transition** area, select the type of auto transition you want to perform. Refer to the manual that came with your switcher for information on setting up these transitions.
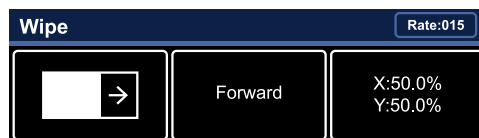- **DISS** — perform a dissolve or WhiteFlash transition
- **WIPE** — perform a wipe transition
- **DVE** — perform a DVE transition
- **MEDIA WIPE** — perform a MediaWipe transition

> **Note:** The **USER** button is configurable and can be assigned different functions.

4. In the **Memory** area, enter the rate that you want the transition performed at. This is the speed, in frames, that it takes for the transition to complete. A Cut or manual fader transition does not use the transition rate.

> **Note:** If your control panel does not have a memory area, you can use the **Time** knob on the 3-knob menu, or DashBoard, to set the background transition rate.

- **Background** — press **ME RATE** and use the keypad to enter a new rate, in frames, and press **ENTER**.
- **Key Only** — press **KEY RATE** and use the keypad to enter a new rate, in frames, and press **ENTER**.

> **Note:** The KEY RATE is only used for key only transitions. Keys included in with the background are transitioned a the ME Rate.

5. Perform the transition.
- **Auto Transition** — press **AUTO**. The transition is performed at the set transition rate.
- **Cut** — press **CUT**.
- **Fader** — move the fader from one limit to the other. The rate at which you push the fader determines the speed of the transition.

6. If a pre-delay has been set, and the **ROLL CLIP** button is active, the switcher will apply the pre-delay interval before performing the transition.

To Override the Pre-Delay Setting

During the pre-delay time, you can override the pre-delay count and cut the sources on-air immediately.

- While the switcher is waiting for the pre-delay countdown to complete, perform one of the following
  - Press the source button on the background bus that is going-on air. The pre-delay countdown and the transition are aborted and the source is cut to air on the background bus.
  - Initiate a transition with the fader handle. The pre-delay countdown is aborted and the transition proceeds as you move the fader handle.

To Abort a Transition During the Pre-Delay

During the pre-delay time, you can abort the transition completely.

*   While the switcher is waiting for the pre-delay countdown to complete, perform one of the following:

    *   Press any source button on any bus other than the source button on the background bus that is going-on air.
    *   Press the **BKGD** or **Key *X*** button in the next transition area.
    *   Press the **CUT** or **AUTO TRANS** button.
    *   If a key is included in the transition, press one of the dedicated key transition button.
    *   Recall a memory. The pre-delay countdown and transition are aborted and the memory register is recalled.

Keying

Keying is the term used to describe when you insert (or electronically cut) portions of one scene into another, or place titles over background images. Keys are made up of two basic components, an alpha, that cuts the hole in the background video, and a fill, that fills the hole with different video.

> **Note:** *Refer to the documentation that came with your frame for specific information on configuring the different types of keys.*

To Set Up a Key on TouchDrive

The TouchDrive control panel has a dedicated **Keyers** area that allows you to quickly assign the key bus to a keyer, transition the key on or off-air, and see the status and configuration of each key on the ME.

> **Note:** *Carbonite button configuration and menus shown.*

1. In the **Keyers** area, press the **SEL** button for the key you want to assign the key bus to.

    > **Tip:** *You can also tap the **Key** button on the row control menu and select the keyer you want to assign the row to.*
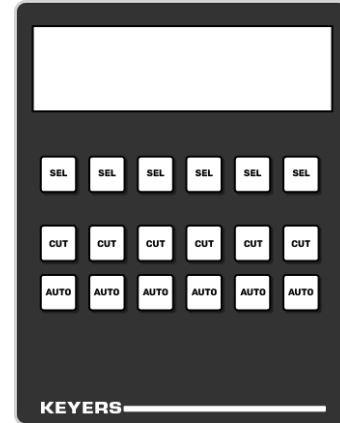
> **Tip:** *For Carbonite switchers, DashBoard Live Assist follows the keyer selection and shows the setup page for the key. If you source selected on the keyer has a custom page assigned to it, pressing **SEL** toggles between the key setup page and the custom page.*

> **Tip:** *For Acuity® switchers, the main menu follows the keyer selection and shows the setup page for the key.*

2. Select the key type you want to assign to the keyer.

    *   **Self/Luma** — press the **SELF/LUMA** user button.
    *   **Auto Select/Linear** — press the **AUTO/LINEAR** user button.
    *   **Chroma Key** — select the chroma key as a source (**CK*X***) on the key bus. The key bus is then assigned to that chroma keyer and you can select the source for the chroma key. The keyer switches to an auto select key when a chroma key is selected.
    *   **DVE** — press the **DVE** user button.

3. The display in the **Keyer** area shows how each keyer is currently configured.

4. Tap the keyer button on the display to show more information about that keyer.

    > **Note:** *The information will change depending on the type of key selected.*

5. Use DashBoard to set up the key.

To Set Up a Key on Carbonite Black

The Carbonite Black control panel allows you to quickly select a key type and video source for a key. The DashBoard menus follow your selection to allow easy setup of the key.

1. Press the **KEY *X* SEL** button for the key you want to assign the key bus to.

2. Select the key type you want to assign to the keyer.

- **Self**/**Luma** — press the **SELF KEY** user button.
- **Auto Select**/**Linear** — press the **AUTO SELECT** user button.
- **Chroma Key** — select the chroma key as a source (**CK*X***) on the key bus. The key bus is then assigned to that chroma keyer and you can select the source for the chroma key. The keyer switches to an auto select key when a chroma key is selected.
- **DVE** — press the **DVE** user button.

3. Use DashBoard to set up the key.

Memories

A memory register is a snapshot of the current state of the switcher that can include one or multiple resources of the switcher.

Memory attributes allow you to select what is stored and recalled with the memory. Refer to the documentation that came with your switcher frame for information on memory attributes.

Storing Memories

When you store a memory, you are storing the complete state of that panel row. This includes the current state of all the areas on the ME, including keyer settings, transition rates, wipe and pattern selections, and source selections. In addition to the current state of the panel, the current settings for the various keyers, such as chroma key settings, and clip and gain settings, are also stored.

To Store a Memory on TouchDrive (Memory Area)

Some of the TouchDrive control panels have a dedicated Memory area that allows you to store and recall memories for any ME.

1. Press **STORE** in the **Memory** area.

2. Press and hold **BANK** and use the keypad to select the memory bank that you want to store a memory to. The new bank selection is shown on the display.

3. Select the areas you want to include in the memory.

- **LOCAL ROW** — press **LOCAL ROW** to include the resource that the row is currently assigned to. For example, if the row is assigned to MiniME™ 2, the **LOCAL ROW** selects MiniME™ 2.

- **ALL** — press **ALL** to include all available resources in the memory.
- **ME** — press and hold **ME** and use the keypad to select which ME resources are included with the memory. The available selections glow and turn white when selected.
- **MME** (Carbonite only) — press and hold **MME** and use the keypad to select which MiniME™ resources are included with the memory. The available selections glow and turn white when selected.
- **CNVS** (Carbonite only) — press and hold **CNVS** and use the keypad to select which MultiScreen resources are included with the memory. The available selections glow and turn white when selected.
- **CK** (Carbonite only) — press and hold **CK** and use the keypad to select which chroma key resources are included with the memory. The available selections glow and turn white when selected.

> **Tip:** The buttons on the keypad light to show if a memory register already contains one of the resources that have been selected. For example, if memory register 3 includes an entry for ME 1, the **1** button on the keypad glows when ME 1 is part of the inclusions.

> **Tip:** Press **ATTRIB** to navigate to the memory attributes page. If the attributes settings are different than the default, the **ATTRIB** button lights.

4. Select the recall mode that you want to store with the memory.
   - **PGM** (Carbonite only) — press **PGM** to select the PGM recall mode.
   - **MEM AI** (Carbonite only) — press **MEM AI** to select the Memory AI recall mode.
   - **EFF DISS** (Carbonite only) — press **EFF DISS** to select the Effects Dissolve recall mode.

5. Press the number for the memory register you want to select.

6. Press **ENTER** to store the memory.

To Store a Memory on TouchDrive (No Memory Area)

Some of the TouchDrive control panels do not have a dedicated Memory area. On these panels, in Carbonite mode, you can use the source buttons and mnemonics to store a memory.

> **Note:** This functionality is not supported by Acuity® at this time.

> **Note:** Carbonite button configuration and menus shown.

1. Tap the **Key** button on the row control menu.
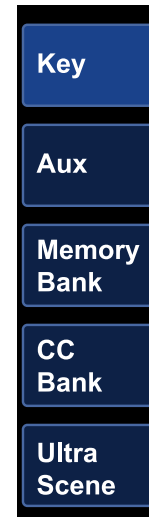
2. Tap **Memory Bank** and tap the source mnemonic for the bank you want to store the memory to.

> **Tip:** The **MEM BNK X** user select buttons can also be used to assign the key bus to the memory bank you want to use, or you can press and hold a **MEM BNK** button and tap the source mnemonic for the bank you want to select.
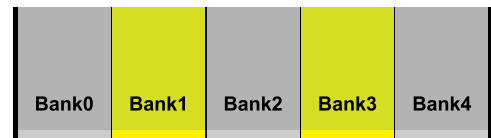
The key bus is now assigned to the selected memory bank. The source buttons on the bus represent the memory shown on the source mnemonic. The last recalled memory is highlighted.
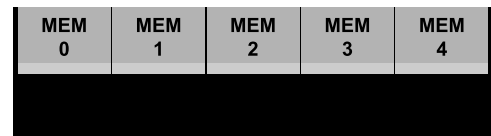
The last five source buttons, on the right of the key bus, represent memory functions.
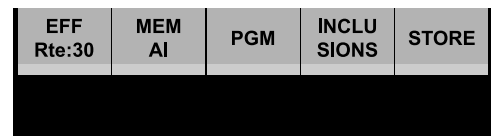
3. Press the source button for **STORE** to put the memory system in store mode. The button will remain lit when memory store mode is active.

4. Press and hold the source button for **INCLUSIONS** and press the source button for each area you want to include in the memory.

    •   **LOCAL ROW** — select **LOCAL ROW** (to the right of **INCLUSIONS**) to include the resource that the row is currently assigned to. For example, if the row is assigned to ME 1, the **LOCAL ROW** selects ME 1.
    •   **ME** — select which ME resources are included with the memory.
    •   **MME** (Carbonite only) — select which MiniME™ resources are included with the memory.
    •   **CNVS** (Carbonite only) — select which MultiScreen resources are included with the memory.
    •   **CK** (Carbonite only) — select which chroma key resources are included with the memory.

5. Select the recall mode that you want to store with the memory.

    •   **PGM** (Carbonite only) — press the source button for **PGM** to select the PGM recall mode.
    •   **MEM AI** (Carbonite only) — press the source button for **MEM AI** to select the Memory AI recall mode.
    •   **EFF Rte:*xx*** (Carbonite only) — press the source button for **EFF Rte** to select the Effects Dissolve recall mode. The current effects rate is shown instead of *xx*.

6. Press the source button for the memory register you want to store the memory to. Memory registers that already have a memory stored to them show the name of the memory in the mnemonic.
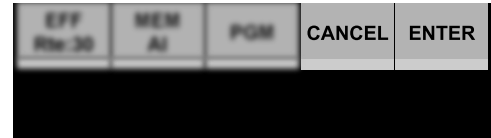
7. Press source button for **ENTER** to store the memory.

To Store a Memory on Carbonite Black (Global Memory Area)

Some of the Carbonite Black control panels have a Global Memory area that allows you to store and recall memories for any ME.

1. Press **STORE** next to the display.
2. Select the ME, MultiScreen, MiniME™, or chroma key outputs that you want to store the memory for.
3. Use the numbers on the mnemonic buttons to select the bank and register you want to store the memory to.

The memory is stored in the selected location and the Global Memory area is assigned to recall.

To Store a Memory on Carbonite Black (Effects Memory Area)

Some of the Carbonite Black control panels have an Effects Memory area for each row on the control panel. This allows you to store and recall memories for the ME the row is assigned to.

1. Press **STORE** in the Effects Memory area for the ME you want to store the memory to.
2. Select the recall mode that you want to store with the memory. Toggle the button on (lit) to have it stored with the memory.

    •   **PGM** — selects the PGM recall mode
    •   **MEM AI** — selects the Memory AI recall mode
    •   **EFF DISS** — selects the Effects Dissolve recall mode

3. Press **BANK**.

4. Press the number for the bank you want to select.

5. Press the number for the memory register you want to select.

> *Tip:* *The button will be lit if that memory register already has a memory stored in it.*

The memory is stored in the selected location and the Effect Memory area is assigned to recall.

To Store a Memory on Carbonite Black (CB1 and CB2)

The CB1 and CB2 control panels have a unique memory interface.

> *Note:* *This procedure only applies to the CB1, CB2, and CB9.*

To store a memory, you must select which ME, MiniME™, or MultiScreen to store the memory for, and then use the mnemonic buttons to select the bank and register to store the memory in.

1. Press and hold **STORE** and select the source buttons on the key bus to select the ME, MultiScreen, MiniME™, or chroma key that you want to store the memory for.

> *Note:* *If you have a CB9 control panel, you may not be able to access all MultiScreen or chroma key outputs.*

- **1** — ME P/P
- **2** — ME 1
- **3** — ME 2
- **4** — MiniME™ 1
- **5** — MiniME™ 2
- **6** — MiniME™ 3
- **7** — MiniME™ 4
- **8** — MultiScreen 1
- **9** — MultiScreen 2
- **10** — Chrome Key 1
- **11** — Chroma Key 2
- **12** — Chroma Key 3
- **13** — Chroma Key 4

2. Use the numbers on the mnemonic buttons to select the bank and register you want to store the memory to.

> *Tip:* *The button will be lit if that memory register already has a memory stored in it.*

The memory has been stored to the selected memory register and the **ME *X* RECALL** button is selected.

Recalling Memories

When you recall a memory, the existing configuration of that ME is replaced with the settings stored in the memory.

To Recall a Memory on TouchDrive (Memory Area)

Some of the TouchDrive control panels have a dedicated Memory area that allows you to store and recall memories for any ME.

> *Note:* *Carbonite button configuration and menus shown.*

1. Ensure that the **STORE** in the **Memories** area is not lit.
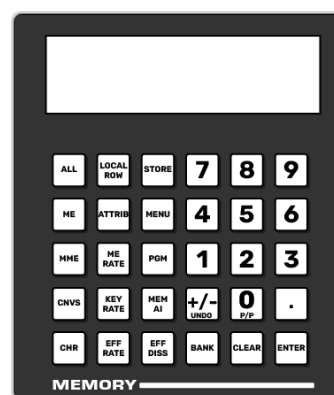
2. Press **BANK** and use the keypad to select the memory bank that you want to recall a memory from. The new bank selection is shown on the display.

> *Tip:* *Tapping the **Bank** button on the display is the same as pressing the **BANK** button.*

3. Select the areas you want to include in the memory recall.

> *Tip:* *The resources that are included (**Inclusions**) are shown on the display.*

- **LOCAL ROW** — press **LOCAL ROW** to include the resource that the row is currently assigned to. For example, if the row is assigned to MiniME™ 2, the **LOCAL ROW** selects MiniME™ 2.
- **ALL** — press **ALL** to include all available resources in the memory.
- **ME** — press and hold **ME** and use the keypad to select which ME resources are included with the memory. The available

selections glow and turn white when selected.

- **MME** — press and hold **MME** and use the keypad to select which MiniME™ resources are included with the memory. The available selections glow and turn white when selected.
- **CNVS** — press and hold **CNVS** and use the keypad to select which MultiScreen resources are included with the memory. The available selections glow and turn white when selected.
- **CK** — press and hold **CK** and use the keypad to select which chroma key resources are included with the memory. The available selections glow and turn white when selected.

4. Select the recall mode that you want to use to recall the memory.

- none — when none of the buttons are selected the memory is recalled in the mode that was stored with it.
- **PGM** (Carbonite only) — press **PGM** to select the PGM recall mode.
- **MEM AI** (Carbonite only) — press **MEM AI** to select the Memory AI recall mode.
- **KEYS ONLY** (Acuity® only) — press **KEYS ONLY** to select the Keys Only recall mode. Only the keys selections in the memory are recalled.
- **EFF DISS** — press **EFF DISS** to select the Effects Dissolve recall mode.

5. Press the number for the memory register you want to recall.

To Recall a Memory on TouchDrive (No Memory Area)

Some of the TouchDrive control panels do not have a dedicated Memory area. On these panels, in Carbonite mode, you can use the source buttons and mnemonics to recall a memory.

1. Tap the **Key** button on the row control menu.

2. Tap **Memory Bank** and tap the source mnemonic for the bank you want to recall the memory from.

The key bus is now assigned to the selected memory bank. The source buttons on the bus represent the memory shown on the

source mnemonic. The last recalled memory is highlighted.

MEM 0	MEM 1	MEM 2	MEM 3	MEM 4

The last five source buttons, on the right of the key bus, represent memory functions.

EFF Rte:30	MEM AI	PGM	INCLU SIONS	STORE

3. Press and hold the source button for **INCLUSIONS** and press the source button for each area you want to recall the memory for.

> *Note: Only memories that contain the selected inclusions are visible and can be recalled.*

- **LOCAL ROW** — select **LOCAL ROW** (to the right of **INCLUSIONS**) to include the resource that the row is currently assigned to. For example, if the row is assigned to ME 1, the **LOCAL ROW** selects ME 1.
- **ME** — select which ME resources are included with the memory.
- **MME** (Carbonite only) — select which MiniME™ resources are included with the memory.
- **CNVS** (Carbonite only) — select which MultiScreen resources are included with the memory.
- **CK** (Carbonite only) — select which chroma key resources are included with the memory.

> *Tip: Double-press the **INCLUSIONS** button to select or deselect all inclusions.*

> *Tip: When any inclusions other than Local Row are selected the **INCLUSIONS** button is lit.*

4. Select the recall mode that you want to use.
- **PGM** (Carbonite only) — press the source button for **PGM** to select the PGM recall mode.
- **MEM AI** (Carbonite only) — press the source button for **MEM AI** to select the Memory AI recall mode.
- **EFF Rte:*xx*** (Carbonite only) — press the source button for **EFF Rte** to select the

Effects Dissolve recall mode. The current effects rate is shown instead of *xx*.

> *Tip: Press and hold the source button for **EFF Rte** press the source button on the left for the rate you want to use or **As Stored** to use the rate stored with the memory.*

5. Press the source button for the memory register you want to recall. Only memory registers showing a name on the mnemonic can be recalled.

To Recall a Memory on Carbonite Black (Global Memory Area)

Some of the Carbonite Black control panels have a Global Memory area that allows you to store and recall memories for any ME.

> *Note: This procedure does not apply to the CB1, CB2, or CB9.*

To recall a memory, you must select which ME to recall the memory for, and then use the pattern buttons to select the bank and register to recall the memory from.

1. Press **RECALL** next to the display.
2. Select the MEs, MultiScreens, or MiniME™s that you want to recall the memory for.
3. Use the numbers on the mnemonic buttons to select the bank and register you want to recall the memory from.

> *Tip: Press the memory number button again to undo the last recall. This can be turned off from the **Personality** menu.*

To Recall a Memory on Carbonite Black (Effects Memory Area)

Some of the Carbonite Black control panels have an Effects Memory area for each row on the control panel. This allows you to store and recall memories for the ME the row is assigned to.

> *Note: This procedure does NOT apply to the CB1, CB2, and CB9.*

1. Press **Recall** in the Effects Memory area for the ME you want to recall the memory to.
2. Select the recall mode that you want use with the memory. Toggle the button on (lit) to select the recall mode, or toggle none of them on to have the memory recalled as it was stored.
- **PGM** — selects the PGM recall mode
- **MEM AI** — selects the Memory AI recall mode

- **EFF DISS** — selects the Effects Dissolve recall mode

3. Press **BANK**.
4. Press the number for the bank you want to select.
5. Press the number for the memory register you want to select.

> **Tip:** *Press the memory number button again to undo the last recall. This can be turned off from the* ***Personality*** *menu.*

To Recall a Memory on Carbonite Black (CB1 and CB2)

The CB1 and CB2 control panels have a unique memory interface.

> **Note:** *This procedure only applies to the CB1, CB2, and CB9.*

To recall a memory, you must select which ME, MiniME™, MultiScreen, or chroma key outputs to recall the memory for, and then use the mnemonic buttons to select the bank and register to recall the memory from.

1. Press and hold **RECALL** and select the source buttons on the key bus to select the ME, MiniME™ or MultiScreen that you want to recall the memory for.
   - **1** — ME P/P
   - **2** — ME 1
   - **3** — ME 2
   - **4** — MiniME™ 1
   - **5** — MiniME™ 2
   - **6** — MiniME™ 3
   - **7** — MiniME™ 4
   - **8** — MultiScreen 1
   - **9** — MultiScreen 2
   - **10** — Chrome Key 1
   - **11** — Chroma Key 2
   - **12** — Chroma Key 3
   - **13** — Chroma Key 4

2. Use the numbers on the mnemonic buttons to select the bank and register you want to recall the memory from.

> **Tip:** *Press the memory number button again to undo the last recall. This can be turned off from the* ***Personality*** *menu.*

Custom Controls

Custom controls record actions on the switcher. This allows you to create repeatable macros that can be used to automate some tasks.

Refer to the documentation that came with your switcher frame for specific custom control events and restrictions.

Recording Custom Controls

When you create a custom control, you record a series of events and special functions that are played back when you run the custom control. The process for creating a new cc and editing an existing one are the same, except when editing you have the option to insert events at different points in the existing cc.

> **Tip:** *Remember that some functions take time to perform and a pause should be added after the function to ensure that the command is completed before moving on to the next command.*

To Record a CC on TouchDrive (Carbonite Only)

> **Tip:** *To record a custom control on Acuity® use the menu system.*

1. Press **CC/UP** in the 3-knob menu area.

CC·CC201					1/3
Start Record	Edit	Delete	Append	Copy	Paste
Bank 2		**CC 1***			
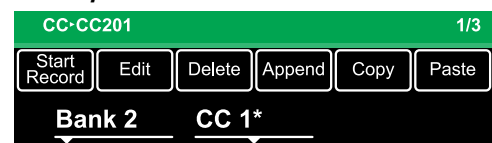
2. Use the **Bank** and **CC** knobs to select the custom control that you want to record to.

> **Tip:** *If events have already been recorded to a custom control, an* ******* *is shown next to the CC number.*

3. Tap **Start Record** to start recording new events to a custom control. Any existing events will be overwritten.

⌃ CC·CC201·Record				
Stop Record	Edit Event	Insert Event		Cancel
1/1 (00:00): End				

4. Add events as required.

> **Tip:** *Tap* ***Insert Event*** *and tap the event you want to enter. You can swipe left or right to view additional events. If the event requires additional selections the menu will display the required selections.*

> **Tip:** *Tap* ⌃ *or* ***SHIFT*** *+* ***UP*** *to move up to the previous menus.*

5. Tap **Stop Record** when you are done recording.

To Record a CC on Carbonite Black

1. Press **MENU** > **BANK 1** > **START/STOP**.

2. Use the **Bank** knob to select the bank that the custom control you want to record will be stored on.

3. Use the **CC** knob to select the custom control that you want to record to, or select the custom control on the bus directly. If the custom control already has a macro recorded, an ***** is shown next to the number.

4. Press **Record Start** to start recording.

5. Insert the events you want to record. These can include source selections, key types, transitions, and menu selection, for example. Special functions can also be inserted.

6. Press **Record Stop** to finish recording.

Editing a Custom Control

After you have recorded a custom control, you can go back and edit that custom control to add or remove events.

> **Tip:** Custom controls can also be edited from the **Custom Control** node in DashBoard.

To Edit a CC on TouchDrive (Carbonite Only)

> **Tip:** To edit a custom control on Acuity® use the menu system.

> **Note:** You can only add or remove events from the control panel. To edit individual events use the DashBoard interface.

1. Press **CC/UP** in the 3-knob menu area

```
CC·CC201                           1/3
┌──────┐┌─────┐┌──────┐┌──────┐┌─────┐┌──────┐
│Start ││ Edit││Delete││Append││ Copy││Paste │
│Record││     ││      ││      ││     ││      │
└──────┘└─────┘└──────┘└──────┘└─────┘└──────┘
     Bank 2          CC 1*
        ⌄              ⌄
```
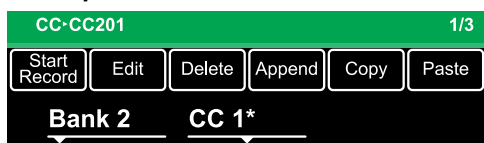
2. Use the **Bank** and **CC** knobs to select the custom control that you want to edit.

> **Tip:** If events have already been recorded to a custom control, an ***** is shown next to the CC number.

3. Tap **Edit**.

```
⌃ CC·CC201·Edit        00:01  2/3
┌──────┐┌─────┐┌──────┐┌──────┐┌─────┐┌──────┐
│Start ││ Run ││Insert││Delete││ Prev││ Next │
│Record││Event││      ││Event ││     ││      │
└──────┘└─────┘└──────┘└──────┘└─────┘└──────┘
  2: ME P/P Key 1 Auto
        ⌄
```
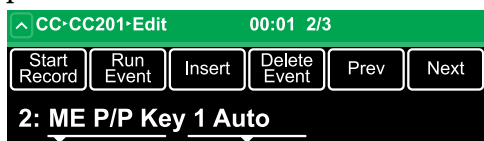
4. Use the left knob to select the event you want to edit, delete, or insert new events before.

> **Tip:** When editing a custom control, press **RUN EVENT** to run the currently selected event. This can help you diagnose problems in a custom control.

- **Delete** — use the left knob to select the event you want to delete and tap **Delete Event**.
- **Insert** — use the left knob to select the event you want to insert an event before and tap **Insert**.

5. Insert any new events as needed.

> **Tip:** Tap ∧ or **SHIFT** + **UP** to move up to the previous menus.

6. Press **Stop Record**.

To Edit a CC on Carbonite Black

> **Note:** You can only add or remove events from the control panel. To edit individual events use the DashBoard interface.

1. Press **MENU** > **BANK 1** > **EDIT**.

> **Tip:** When editing a custom control, press **RUN EVENT** to run the currently selected event. This can help you diagnose problems in a custom control.

2. Use the **Bank** knob to select the bank that the custom control you want to record will be stored on, or select the bank button directly.

3. Use the **CC** knob to select the custom control that you want to edit, or select the custom control on the bus directly. The custom control will have an ***** next to the number.

4. Use the **Func** knob to select where and how you want to edit the custom control.

- **Edit** — select the position in the custom control to edit events
- **Append** — add events to the end of the custom control

5. Press the **Func** knob to start editing.

> **Tip:** You can also start editing a custom control by pressing and holding **EDIT** and selecting the bank and custom that you want to edit to.

The display changes to show the name and duration of the custom control, and the currently selected event in the custom control.

6. Delete an event in a custom control as follows:

a) Use the left knob to select the event you want to delete. You can also use the **PREV** and **NEXT** buttons.

b) Press **DELETE**.

7. Insert an event into a custom control as follows:

a) Use the left knob to select the event you want to insert an event before. You can also use the **PREV** and **NEXT** buttons.

b) Press **INSERT**.

c) Insert new events as needed.

d) Press **START/STOP** to finish recording.

Running a Custom Control

Once a custom control has been programmed, you can run that custom control by pressing the button that the custom control was recorded to.

To Run a CC on TouchDrive

1. Press the **CC BNK *X*** user button for the custom control bank you want to run a cc from. This assigns the key bus to that bank. If there isn't a dedicated user button you can press and hold a **CC BNK *X*** button and press the button on the key bus for the cc bank.

> *Tip:* You can also tap the ***Key*** button on the row control menu. Tap ***CC Bank*** and then tap the mnemonic for the bank you want to assign the key bus to.

2. Press the source button on the key bus for the custom control you want to run. The button will light, depending on what the custom control is doing.

Carbonite

- **Flashing White** — the custom control is at a hold event while playing.
- **Flashing Red** — the custom control is being recorded to.
- **Black Text on White Background** — this is the last custom control that was run.

To Run a CC on Carbonite Black

1. Press the **CC BNK *X*** user button for the custom control bank you want to run a cc from. This assigns the key bus to that bank. If there isn't a dedicated user button you can press and hold a **CC BNK *X*** button and press the button on the key bus for the cc bank.

2. Press the source button on the key bus for the custom control you want to run.

Panel Shortcuts

There are a number of button combinations that allow you to reset, copy, or swap configurations.

Function	Description
Key Copy	Copy the entire contents of a keyer to another keyer in the same, or a different ME. The entire contents of the destination keyer are replaced with the contents of the source keyer. 1. Press and hold the **SEL** button for the keyer you want to copy to. 2. Press and **SEL** button for the keyer you want to copy from.
Key Swap	Swap the entire contents of any two keyers in the same, or different ME. The video source, position, and key type are all swapped between keyers. This allows you to change the apparent key priority, or layering, of the keys in the video output 1. Press and hold the **SEL** button for one keyer you want to swap. 2. Press the **KEY *X* button for the other keyer you want to swap.**
ME Copy	Copy the content of an ME, MiniME™, or MultiScreen to another. The entire contents of the destination are replaced with the contents of the source. 1. Press and hold the **BKGD** next transition button on the row assigned to the resource you want to copy to. 2. Press the **BKGD** next transition button on the row assigned to the resource you want to copy from.
Split Key	Assign a different alpha source for a key than the fill/alpha associations that are set up during configuration, or to use a separate alpha source for a Self key. 1. Select the video source that you want to assign a different alpha to. 2. Press and hold **AUTO/LINEAR** or **SELF/LUMA**. 3. Select the new alpha source on the key bus.

Function	Description
ME Reset	TouchDrive — reset a single resource (ME, MiniME™, MultiScreen, chroma key). 1. Press and hold the user button for the resource you want to reset (**ME *X***, **MME *X***, **CNVS *X***). You may have to assign user buttons to these resources. 2. Press **Reset ME** on the row control menu.
	TouchDrive — reset all resources (ME, MiniME™, MultiScreen, chroma key). 1. Press and hold **MENU**. 2. Press **Reset All**.
	TouchDrive (2S/3S only) — reset a single resource (ME, MiniME™, etc.). 1. Assign the panel row to the resource you want to reset. 2. Press and hold **STORE**. 3. Press **LOCAL ROW**.
	TouchDrive (2S/3S only) — reset all resources (ME, MiniME™, MultiScreen, chroma key). 1. Press and hold **STORE**. 2. Press **ALL**.
	Carbonite Black — reset a single resource (ME, MiniME™, MultiScreen, chroma key). 1. Assign the panel row to the resource you want to reset. 2. Press and hold **STORE**. 3. Press **RECALL**.
	Carbonite Black (1 and 2 only) — reset a single resource (ME, MiniME™, MultiScreen, chroma key). 1. Assign the panel row to the resource you want to reset. 2. Press and hold **ME *X* STORE**. 3. Press **ME *X* RECALL**.
Key Reset	TouchDrive — reset a single keyer. 1. Press and hold the **SEL** button for the keyer you want to reset. 2. Press **Reset Key** on the row control menu.
	Carbonite Black — reset a single keyer. 1. Press and hold the **KEY *X* SEL** button for the keyer you want to reset. 2. Press **RESET**.

Function	Description
Trans Reset	TouchDrive — reset the selected transition type. 1. Press and hold the transition type button for the transition you want to reset (**DISS**, **WIPE**, **DVE**, **MEDIA WIPE**). 2. Press **Reset Trans** on the row control menu.
	Carbonite Black — reset the selected transition type. 1. Press and hold the transition type button for the transition you want to reset (**DISS**, **WIPE**, **DVE**, **MEDIA WIPE**). 2. Press **RESET**.
Aux Reset	TouchDrive — reset the selected aux bus. 1. Press and hold the user button for the aux bus (**AUX *X***) you want to reset. 2. Press **Reset Aux** on the row control menu.
	Carbonite Black — reset the selected aux bus. 1. Press and hold the **AUX *X*** button for the aux bus you want to reset. 2. Press **RESET**.

Panel Setup

When the TouchDrive panel has been booted in Carbonite mode you can use DashBoard running on the panel to configure network setting and other aspects of the panel setup.

Note: *If the control panel has been started in Acuity® mode, the TouchDrive DashBoard interface is replaced with the Acuity® menus. Use the documentation that came with your Acuity® switcher for information on setting up the panel for Acuity®.*

Network Setup

All control panels come from the factory set with a static IP address (192.168.0.129) but can be set to use DHCP to automatically obtain an IP address.

The TouchDrive control panel is running a Linux® operating system that supports the DashBoard control system that provides the menu interface to the control panel. In addition to allowing control of the frame, DashBoard provides dedicated menus for setting up the control panel.

The Carbonite Black control panel is automatically discovered in DashBoard and appears as **CarbonitePanel** followed by the MAC address of that particular panel.

To Connect to the TouchDrive

! *Important:* *If ports 2222 or 3333 are blocked on your network, the panel will not be able to connect to the Carbonite family frame.*

1. From the tree view for the control panel, double-click **Configuration** > **Network**

2. Enter the ethernet settings for your control panel and frame you want to connect to.

Item	Description
Panel Name	Enter the name you want to apply to the panel. This is the name that appears in the DashBoard tree view. The default name is `TouchDrive` followed by the MAC address. *Note:* *The name cannot contain "<", ">" or "/" characters.*
MAC Address	The MAC address of the ethernet controller in the control panel.
Ethernet Status	The network status detected by the control panel.
Mode	Select whether to use a static IP address (**Static**), or obtain an IP address (**DHCP**). For a static IP address, enter the IP address (**Panel IP Address**), subnet mask (**Subnet Mask**), and gateway (**Gateway**) you want to use.
Panel IP Address	IP address you want to assign to the control panel.
Subnet Mask	The subnet mask for your network.
Gateway	The Default Gateway used by your network.
DNS1	The network address of your Domain Name Servers, if you are using one or more.
DNS2	
Carbonite IP Address	Enter the IP address of the frame you are connecting to.
Carbonite FTP Port	The FTP port that your switcher used to communicate between the panel and frame. • **8821** — select this option for Graphite CPC. • **21** — select this option for all other switchers. • **Disabled** — select this option to disable the use of FTP. If FTP is disabled the control panel uses SFTP to connect to the frame. The frame software must have the disable FTP option to connect to the panel using SFTP.
Carbonite SFTP Port	The port that the control panel uses to connect to the frame for SFTP.
Carbonite OGP Conn	Select the type of OPG connection that you are using to connect the control panel to the frame. • **Default** — when you are connecting the control panel directly to the frame. • **NAT** — when you are using a NAT to connect the control panel to the frame. Use this setting if you are connecting to a Graphite CPC on a cloud computing service.

Item	Description
Carbonite OGP Port	The port that DashBoard is using to connect to the frame.
Carbonite Comm Port	This feature is not used at this time.
Sending Logs to Frame	Select whether panel logs are sent to the frame (**Enabled**) or not (**Disabled**). Sending panel logs to the frame allows the frame to combine them with the frame logs so that there is only a single set of logs to send to technical support if required.
Panel ID	Select whether you want to assign the panel as the main panel (**Main**), or one of the satellite panels (**Sat. 1** or **Sat. 2**). The panel id sets what permissions the control panel has to the resources on the frame.

3. Click **Apply Changes**.

To Connect to the Carbonite Black

1. Double-click on the **ePCH** node and click on the **Ethernet** tab.

   *Note: The **Current DIP Switch** field shows the state of the DIP1 and DIP2 switches on the control panel. Some settings do not allow you to change the IP settings from DashBoard.*

   *Tip: Double-click on the **ePCH** node and click on the **Panel Name, Permissions** tab to change the name of the panel in the tree view.*

2. Click a **Method** button to select whether to use a static IP address (**Static**), or obtain an IP address (**DHCP**).

3. For a static IP address, enter the IP address (**IP Address**), subnet mask (**Subnet Mask**), and gateway (**Default Gateway**) you want to use.

4. In the **Carbonite IP Address** field, enter the IP address of the frame you are connecting to.

5. Click a **Send Logs to Frame** button to select whether panel logs are sent to the frame (**Enabled**) or not (**Disabled**). Sending panel logs to the frame allows the frame to combine them with the frame logs so that there is only a single set of logs to send to technical support if required.

   Note: Sending panel logs to the frame is not supported by all the frames at this time.

6. Click a **Panel ID** button to select whether you want to assign the panel as the main

panel (**Main**), or one of the satellite panels (**Sat. 1** or **Sat. 2**). The panel id sets what permissions the control panel has to the resources on the frame.

7. Click **Apply Changes**.

Date and Time (TouchDrive)

You can set the date and time for the TouchDrive control panel.

To Set the Date and Time

1. From the tree view for the control panel, double-click **Configuration** > **Date Time**.
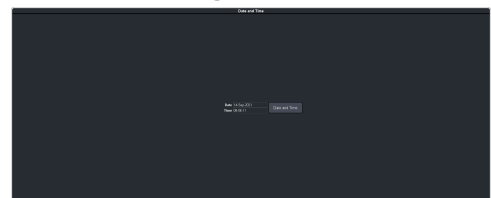
2. Click **Date and Time**.
3. Enter the new date and time.
4. Click **Save**.

Touchscreen Configuration

The touchscreen interface on TouchDrive can be set to show or hide the title bar at the top of the screen as well as change the layout of the onscreen keyboard.

In addition to configuring the touchscreen, this menu also allows you to enable VNC connection to the control panel.

To Configure the Touchscreen Interface

The title bar at the top of the DashBoard window can be hidden and you can select between different keyboard layouts.

Note: This setting only applies to the DashBoard window on the TouchDrive control panel.

1. From the tree view for the control panel, double-click **Configuration** > **Touchscreen Configuration**.
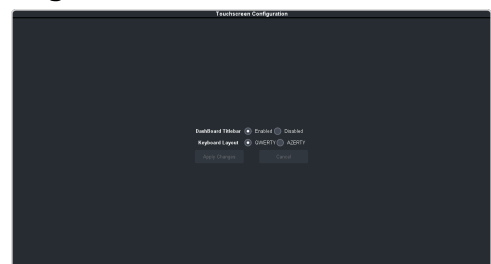
2. Select the settings you want to use:

Parameter	Description
DashBoard Title Bar	• **Enable** — show the title bar at the top of the DashBoard window. • **Disable** — hide the title bar at the top of the DashBoard window. *Tip: You can only access the virtual keyboard through the title bar. If you disable the title bar you cannot bring up the keyboard.*
Keyboard Layout	• **QWERTY** — configure the virtual keyboard with a QWERTY layout. • **AZERTY** — configure the virtual keyboard with a AZERTY layout.
VNC (only shown on actual panel)	• **Disabled** — disable VNC connections to the control panel (default). • **Enabled** — allow VNC connections to the control panel. *Important: The VNC connection is used by technical support to access your control panel remotely. The VNC setting should be set to **Disabled** unless instructed to enable it by technical support.*

3. Click **Apply Changes** to make the changes.

Alarms (TouchDrive)

DashBoard will show an alarm if certain conditions are detected. You can disable these alarms.

To Disable an Alarm

Important: Disabling an alarm is not recommended.

Note: The alarms shown may be different depending on the revision of control panel you have.

1. From the tree view for the control panel, double-click **Configuration** > **Alarms Enables**

2. Clear the selection for the alarm(s) you want to disable.

Note: Power supplies 3 and 4 (PS 3/4) are only present on revision 03 hardware and are not used at this time.

Bus Map

The bus map assigns video sources to the source buttons on the control panel. When you connect the panel to the frame it is assigned a default bus map based on the number of sources on the frame and buttons on the control panel. You can customize the placement of sources on the bus, as well as the name, text size, and color of the mnemonics. On the TouchDrive control panel you can also add icons to the mnemonics.

Note: Bus maps are configured and stored on the frame based on the port that the control panel connects to (main, sat1, sat2).

The TouchDrive control panel allows you to update the bus map from the control panel.

To Update a Bus Map on TouchDrive

1. Tap **PST** on the row control menu to enter bus map mode.
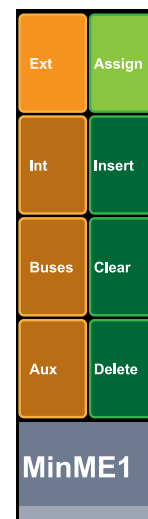
2. Press the source button on the Preset bus to select the position on the map you want to update. If you are inserting a source select the source button to the right of where you want to insert the new source.

Tip: Don't forget that you can assign sources to the shifted bus by pressing and holding the shift button and pressing the source button.

3. Select the function you want to perform.
   • **Assign** — assign a new source to the map position. This overwrites the source currently mapped to this position.

- **Insert** — insert a new source to the left of the map position. This shifts all source (except Shift) to the right.
- **Clear** — clear the current map position. This assigns a 'none' source to the position.
- **Delete** — delete the source assigned to the map position. This shifts all the sources on the right of the position left to fill the current position.

Note: *Moving source on the main bus of the map does not change sources on the shifted bus (sources don't wrap around). The exception is the Shift button which must exist on all buses. If you add Shift to the main bus it is also added to the same position on the shifted bus.*

4. Assign a new source to the current map position as follows:
   a) Tap the button for the type of source you want to assign to the position (external **Ext**, internal **Int**, re-entry/follow **Buses**, aux follow **Aux**.
   b) Tap the mnemonic button for the source you want to assign to the position. Up and down arrows at the end of the row allow you to scroll additional sources.

5. Insert a new source to the left of the current map position as follows:
   a) Tap the button for the type of source you want to insert (external **Ext**, internal **Int**, re-entry/follow **Buses**, aux follow **Aux**.
   b) Tap the mnemonic button for the source you want to insert to left of the current the position. Up and down arrows at the end of the row allow you to scroll additional sources.

6. Clear the current position as follows:
   a) Tap the mnemonic button for the map position you want to clear.

7. Delete the current position as follows:
   a) Tap the mnemonic button for the map position you want to delete the source from.

8. Press **TOUCH HOME** to exit the bus map mode.

Control Panel Button Inserts

Insert films can be installed into most buttons on the control panel. Insert films allow you to label specific source buttons, control buttons, or replace the default button names with those of a different language.

Button insert templates can be downloaded from Ross Video.

To Install a Button Insert

1. Remove the Cap Assembly from the Switch Assembly by grasping it firmly and pulling away from the control panel surface.
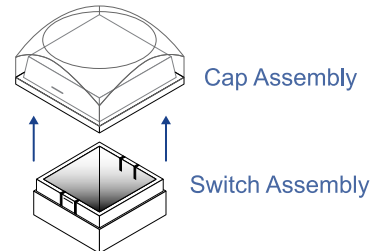
Figure 5: Removing Cap Assembly

2. Remove the Lens from the Diffuser using a common end micro screwdriver.
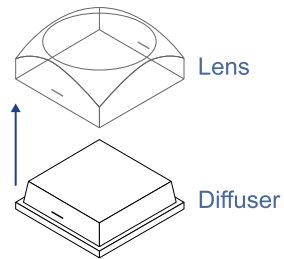
Figure 6: Removing Lens from Diffuser

3. Place the Insert Film into the Lens so the readable side is facing up. The notches on the sides of the Lens must be at the sides of the text on the Insert Film.
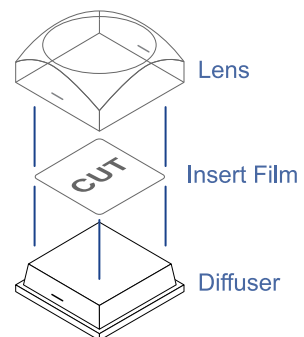
Figure 7: Inserting Film

4. Aligning the notches on the sides of the Lens and Diffuser, press the Lens and Diffuser together until they click.

5. Aligning the notches on the sides of the Cap Assembly to the tabs on the side of the Switch Assembly, press Cap Assembly down

onto the Switch Assembly with a rolling motion until they click together.

Cap Assembly

Switch Assembly
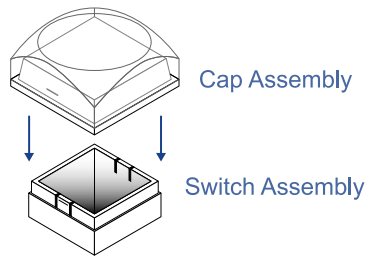
Figure 8: Replacing Cap Assembly

Mnemonics

The mnemonic displays on the control panel show the name of the video source and can be customized for font size, color, and in some cases icons can be added. The customization that is available depends on the control panel you are using.

> **Note:** *The SoftPanel uses the Carbonite settings.*

To Customize Mnemonics for TouchDrive

The TouchDrive control panels support RGB color mnemonics and icons.

1. Click **Navigation Menu** > **Configuration** > **Inputs** > if you are setting up a physical input, or **Internal** if you are setting up an internal input.
2. Click the **TouchDrive** button for the source you want to customize the mnemonics for.
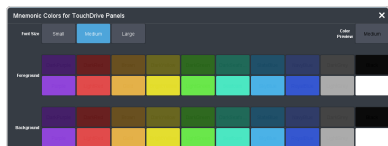
Setting	Description
Font Size	Click **Small**, **Medium**, or **Large** to select the size of the font used on the mnemonic display. The larger the font, the fewer characters that are visible on the mnemonic.
Foreground	Click a **Foreground** button to select the color you want to apply to the text and icon on the mnemonic.
Background	Click a **Background** button to select the color you want to apply to the background on the mnemonic.

3. Click the **Icon** button for the source you want to customize the mnemonics for and click the icon you want to use.
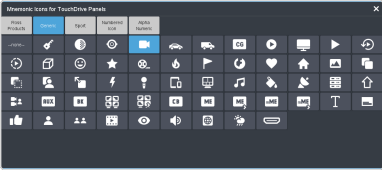
To Customize Mnemonics for Carbonite Black

The Carbonite control panels support three-color mnemonics without icons.

1. Click **Navigation Menu** > **Configuration** > **Inputs** > if you are setting up a physical input, or **Internal** if you are setting up an internal input.
2. Click the **Carbonite** button for the source you want to customize the mnemonics for.
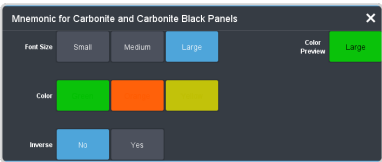
Setting	Description
Font Size	Click **Small**, **Medium**, or **Large** to select the size of the font used on the mnemonic display. The larger the font, the fewer characters that are visible on the mnemonic.
Color	Click a **Color** button to select the color you want to apply to the mnemonic. The color is applied either to the background or the font, depending on the **Inverse** setting.
Inverse	Click an **Inverse** button to have the color applied to the background (**No**) or the text (**Yes**).

Personality

Personality settings allow you to configure how you interact with the control panel and switcher, as well as how the buttons on the control panel appear. All of these settings are stored in the Personality register.

> **Note:** *Personality setting are provided for the Carbonite switcher only. Refer to the documentation that came with your Acuity® switcher for Acuity® personality settings.*

> **Note:** *Refer to the documentation for your switcher frame for information on additional personality settings.*

Double-Press Rate

Set how fast/slow you have to double-press a button for it to be recognised as a double-press.

You can set the double-press rate of the switcher to suit your preference. Setting a fast rate requires you to double-press the knobs in quick succession in order to be recognized as a double-press. Setting a slow rate allows more time between presses but may register two single presses as a double-press.

To Set the Double-Press Rate

1. Press **MENU** > **Pers** > **Double Prs Speed** (**DblPrs Speed** on Carbonite Black).
2. Double-press the **HERE** knob at the rate you want to use for double-pressed on the switcher.
3. Press **MENU** to store the new rate.

ME Select

The ME Select feature allows you to have the switcher automatically select the ME, MiniME™ etc. that is assigned to the panel when storing or recalling memories on the control panel.

> **Note:** *Only available on a single row panel.*

To Set the ME Select Behavior

1. Press **MENU** > **Pers** > **Next**.
2. Use the **MESel** knob to select where memories are stored and recalled.
   - **Hold** — you must select the ME, MiniME™ etc. that you want to store or recall a memory on.
   - **Follow** — the memory is stored or recalled on the ME, MiniME™ etc. that the panel row is currently assigned to.

Next Button Secondary Function

You can use the **NEXT** button on the Carbonite Black control panel to perform other functions.

> **Note:** *Not available on the TouchDrive.*

The **NEXT** button can be used to manually trigger GPI outputs. This allows you to use the GPI to manually roll a clip on a video server, or load the next page on a character generator. Refer to the External Device Setup Sheets for more information on setting up an using external devices.

To Set the NEXT Button Secondary Function

1. Press **MENU** > **Pers** > **NEXT** > **NEXT** > **NEXT** > **NextBn Func2**.
2. Use the **Func** knob to select the second function of the Next button.
   - **<none>** — no secondary function
   - **GPO** — you can manually trigger a GPI output

User Buttons

These buttons can be assigned to a number of functions, including and key selections, custom control, and memories. The number and position of the buttons on the control panel depend on the model of your control panel.

To Set A User Button

1. Click **Navigation Menu** > **Personality** > **User Select**.

   > **Note:** *The menu only shows the user buttons that are available on your control panel.*

2. Click the user button that you want to assign a function to and select the function you want to assign to that button.

   > **Tip:** *Each row on your control panel can have a separate set of user button assignment. These settings are tied to the row, and not the ME that is assigned to that row.*

   > **Tip:** *The **Trans** buttons are located on the Transition area of the TouchDrive control panel. The Flex and*

Positioner buttons are located on the Flex Control and Positioner modules on the TD3 and TD4 panels.
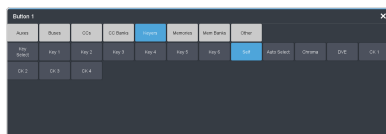
Note: *The functions that are available on your switcher may differ depending on the options you have installed and how your switcher is configured.*

TouchDrive Software Upgrades

Upgrade the software and operating systems on the TouchDrive control panel.

TouchDrive Software Upgrade

The control panel has two partitions that allow it to boot in either Carbonite or Acuity® modes. The software for each mode is independent and upgraded differently

- Carbonite — the software is made up of the DashBoard control system, and the panel application software.
- Acuity® — the software is uploaded from the frame when the panel connects.

*Note: The **Upgrade PMC & PCH** should only be used when you are instructed to do so by technical support.*

To Upgrade the Panel (Carbonite Mode Only)

Upgrade the software on the TouchDrive control panel when it is in Carbonite mode.

> ❗ *Important: Before starting the upgrade, check the revision of TouchDrive hardware you have. The revision of the hardware is shown on a label affixed to the bottom of the control panel. The part number (**PN:**) contains the series as the first four numbers and revision as the last two numbers in the sequence. So 4880AR-212-03 indicates the **4880AR** series and revision **03** hardware.*

> ❗ *Important: Do NOT turn the control panel power off during the upgrade. Doing so may corrupt the software or damage the control panel components.*

Tip: The control panel can be upgraded from a remote DashBoard computer or from the panel itself. If you are upgrading from the panel, you must put the upgrade file onto a USB and insert that USB into a USB port on the control panel.

1. Download the software for your revision of hardware:
   - **4880AR Series, HW Rev 01-02 (Qseven®)** — `touchdrive-HWRev02-V3.2.576.tgz`
   - **4880AR Series, HW Rev 03 (AMD Ryzen™)** — `touchdrive-HWRev03-V3.2.0.576.tgz`
   - **4882AR Series (AMD Ryzen™)** — `touchdrive-HWRev03-V3.2.0.576.tgz`

2. From the tree view for the control panel, double-click **Configuration** > **Upgrade Panel**.
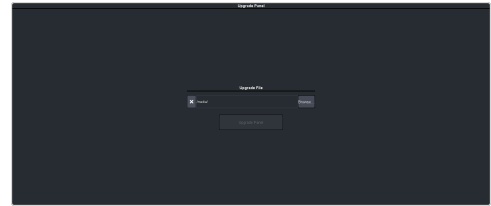
3. Click **Browse...** and navigate to the control panel upgrade file.
4. Select the panel upgrade file and click **Open**.
5. Click **Upgrade Panel**.
6. Click **Yes**.
7. Click **Continue** to upload the upgrade file to the control panel and start the upgrade.
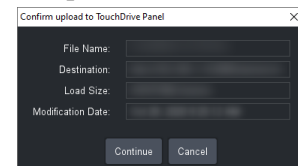
8. Wait for the DashBoard pages to come back up. This may take a few minutes.

To Upgrade DashBoard on the Control Panel (Carbonite Mode Only)

Upgrade the DashBoard control system software on the TouchDrive control panel when it is in Carbonite mode.

> ❗ *Important: Do NOT turn the control panel power off during the upgrade. Doing so may corrupt the software or damage the control panel components.*

Tip: The control panel can be upgraded from a remote DashBoard computer or from the panel itself. If you are upgrading from the panel, you must put the upgrade file onto a USB and insert that USB into a USB port on the control panel.

1. Download the `DB9.10.3_linux.gtk.x86_64.tar.gz` (the Linux® version) DashBoard software.

2. From the tree view for the control panel, double-click **Configuration** > **Upgrade DashBoard**.
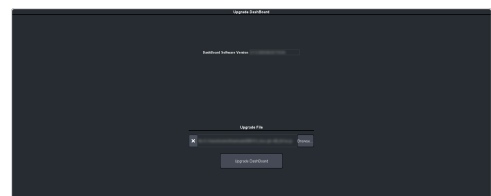
3. Click **Browse...** and navigate to the DashBoard upgrade file.

4. Select the DashBoard upgrade file and click **Open**.

5. Click **Upgrade DashBoard**.

6. Click **Yes**.

7. Click **Continue** to upload the upgrade file to the control panel and start the upgrade.
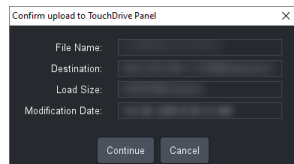
8. Wait for the DashBoard pages to come back up. This may take a few minutes.

TouchDrive Panel Boot Mode

The TouchDrive control panel can control either an Acuity® or Carbonite based switcher by booting in either Acuity® or Carbonite mode.

If you want to connect the TouchDrive panel to an Acuity® or Carbonite switcher, you must switch the panel to boot in that mode. If the panel is in Carbonite mode and you want to connect to an Acuity® frame, you must boot up the panel, navigate to the menu and switch it to Acuity® mode.

> *Note: To switch between Acuity® and Carbonite modes, you must be running Acuity® v12.1a, or higher, and TouchDrive 1.5, or higher.*

> *Note: Once you have booted the panel in the proper mode, refer to the documentation for your switcher for connecting a control panel to your frame.*

To Switch TouchDrive to Acuity®

> **❶** *Important: The Acuity® frame must be running software version **12.1a**, or higher, to connect to the TouchDrive control panel.*

1. Power on the control panel and wait for DashBoard to load on the touchscreen display.
2. From the tree view for the control panel, double-click **Configuration** > **Switch to Acuity mode** .
3. Click **Switch & Reboot.**

> *Note: This function is only available on the DashBoard menus running on the control panel. It is not available on remote DashBoard connections.*

The control panel will reboot into Acuity® mode.

To Switch TouchDrive to Carbonite

> **❶** *Important: The Carbonite frame must be running the minimum software to connect to the TouchDrive control panel that is configured as Dual Boot.*

1. Power on the control panel and wait for Acuity® menu to load on the touchscreen display.
2. Press the **Home** button three (3) times to put the panel into setup mode.
3. Press **HOME** > **More** > **System Shutdown** > **More** > **Switch to Carbonite** .

The control panel will reboot into Carbonite mode.

Diagnostic Tests

Diagnostics consist of a number of tests that are used to confirm the functionality of your equipment.

> **Note:** *Diagnostic setting are provided for the Carbonite switcher only. Refer to the documentation that came with your Acuity® switcher for Acuity® personality settings.*

Panel Status

The status menu shows information for various components of the TouchDrive control panel.

> **Note:** *The status information shown varies with the version of software you are running and the revision of TouchDrive hardware you have.*
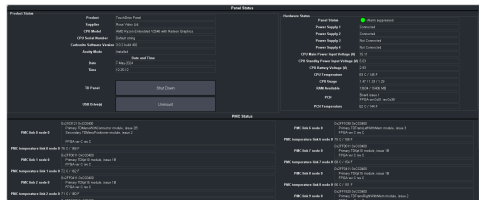
- **Product** — the product name of the control panel.
- **Supplier** — the manufacturer of the control panel.
- **CPU Model** — the model of CPU used in the control panel.
- **CPU Serial Number** — the serial number of the CPU in the control panel.
- **Carbonite Software Version** — the current version of the Carbonite mode software running on the control panel.
- **Acuity Mode** — indicates whether the Acuity® mode OS is installed.
- **Date and Time** — the current date and time.
- **Panel Status** — the overall status of the control panel.
- **Power Supply 1** — is power supply 1 connected to a power source.
- **Power Supply 2** — is power supply 2 connected to a power source.
- **Power Supply 3** — (revision 03 hardware only) is power supply 3 connected to a power source. Not used at this time.
- **Power Supply 4** — (revision 03 hardware only) is power supply 4 connected to a power source. Not used at this time.
- **CPU Primary Power Input Voltage (V)** — the primary voltage being supplied to the CPU.
- **CPU Standby Power Input Voltage (V)** — the standby voltage being supplied to the CPU.
- **CPU Battery Voltage (V)** — the voltage that the battery is outputting.
- **CPU Temperature** — the temperature of the CPU.
- **CPU Usage** — the percentage utilization of each core used by the system.
- **RAM Available** — the amount of system RAM that is currently unused.
- **PCH** — the hardware and FPGA version and firmware revision of the panel controller hub.
- **PCH Temperature** — the temperature of the PCH.
- **PMC Link *X* Node *Y*** — the address and hardware information for the panel module controller on each control surface board in the control panel.
- **PMC Temperature Link *X* Node *Y*** — the temperature of the PMC on each control surface board.

> **Note:** *The number of PMCs in the control panel depend on the size of the control panel.*

Hardware Revisions

It is important to know the revision of your hardware when navigating status menus and contacting technical support.

The revision of the hardware is shown on a label affixed to the bottom of the control panel, as well as the serial number label. The part number (**PN:**) contains the series as the first four numbers and the revision as the last two numbers in the sequence. So 4880AR-212-**01** indicates 4882AR Series and hardware revision **01**.


Table 1: Hardware Revision Comparison

Revision	Distinctions
01-02	• **CPU**: Intel® Celeron® • **PSU**: 2 × 4-pin power connectors
03	• **CPU**: AMD AMD Ryzen™ • **PSU**: 4 × 4-pin power connectors

Revision	Distinctions
4882AR Series	• **CPU**: AMD AMD Ryzen™ • **PSU**: 4 × 4-pin power connectors • Modular panel top.

Carbonite Black DIP Switches

The DIP switches on the back of the Carbonite Black control panel are used to override some network settings.

The up position for the DIP switch is OFF.

DIP				Function
1	**2**	**3**	**4**	
OFF	OFF			User IP Settings
OFF	ON			Force DHCP IP
ON	OFF			Force Static IP (192.168.0.129)
ON	ON			reserved
		OFF		reserved
		ON		reserved
			OFF	Default Boot
			ON	Boot from memory card

Note: When you force the static IP, the IP address that the control panel expects to find the frame is also set (192.168.0.123).

Diagnostic Tests

Perform diagnostics on your control panel to test button and control functionality, button colors, and mnemonic and display colors.

To Run the Control Panel Test

Test the functionality of any of the buttons, knobs or fader and positioner on the control panel.

🛈 *Important: This test disrupts the functionality of the control panel. If you are running this test from a remote computer, ensure that the control panel is available before performing the test.*

*Tip: If you have an older version of software you can access the test from the 3-knob menu (Press **MENU** > **System** > **NEXT** > **NEXT** > **Diagnostic Tests** (**Diag Tests** on Carbonite Black) > **Contrl Test**.)*

1. Click **Navigation Menu** > **Configuration** > **Diagnostics**.

2. Click **Start Control Test**.

The button shows Running and the 3-knob menu of the control panel shows the current button, knob, positioner, or fader being used.

3. Test the button, knob, positioner, and fader you want to check.

Note: On the TouchDrive control panel the displays show a touch pattern. Tap on the happy face to test the touch sensitivity and calibration. If the tap registers on the happy face, the happy face disappears. If the tap does not register on the happy face, a green X is shown where the tap was registered.

4. Click **Stop** or press **MENU** and **NEXT** on the control panel to end the test.

To Run the LED Test

Test the color range of all the LEDs on the control panel.

🛈 *Important: This test disrupts the functionality of the control panel. If you are running this test from a remote computer, ensure that the control panel is available before performing the test.*

*Tip: If you have an older version of software you can access the test from the 3-knob menu (Press **MENU** > **System** > **NEXT** > **NEXT** > **Diagnostic Tests** (**Diag Tests** on Carbonite Black) > **P-LEDs Test**.)*

1. Click **Navigation Menu** > **Configuration** > **Diagnostics**.

2. Click **Start P-LEDs Test**.

The button shows Running and all the buttons and indicators on the control panel cycle through different colors.

3. Click **Stop** or press **MENU** on the control panel to end the test.

To Run the Display Test

Test the displays on the control panel.

🛈 *Important: This test disrupts the functionality of the control panel. If you are running this test from a remote computer, ensure that the control panel is available before performing the test.*
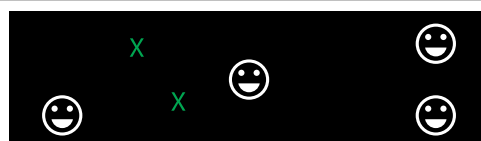
*Tip: If you have an older version of switcher software you can access the test from the 3-knob menu (Press **MENU** > **System** > **NEXT** > **NEXT** > **Diagnostic Tests** (**Diag Tests** on Carbonite Black) > **Contrl Test**.)*

1. Click **Navigation Menu** > **Configuration** > **Diagnostics**.

2. Click **Start Display Test**.

   The button shows `Running` and on the TouchDrive the displays and the mnemonics cycle colors.

   On the Carbonite Black a series of letters, numbers, and symbols scroll across the displays and the mnemonics cycle colors.

3. Click **Stop** or press **MENU** on the control panel to end the test.

Switcher Logs

Switcher logs can be used to identify and diagnose problems with the switcher. Use this information when contacting Ross Video Technical Support.

A copy of the working set from the switcher is also included with the logs to assist in diagnosing problems.

To Copy Logs To a USB

Switcher logs can be stored onto a USB to be sent to technical support to diagnose problems with your switcher.

> **Note:** *Logs must be copied before a reboot or power-cycle of the switcher, or the information in them will be lost.*

1. Insert USB drive into the USB port on the control panel. Wait 5 seconds after inserting the USB drive before using it.

2. From the tree view for the control panel, double-click **Configuration** > **Diagnostics**.
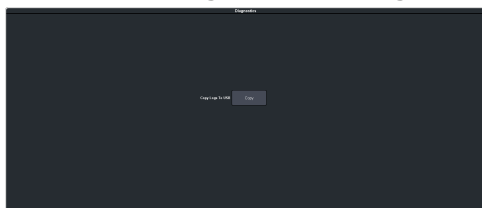
3. Click the **Copy Logs To USB** button to copy the switcher logs to the USB drive.

The logs have been copied into the `\switcher` directory on the USB drive.

Factory Default (TouchDrive Only)

You can factory default the DashBoard interface to the control panel to return it an default state. All settings except ethernet are returned to the default value.

To Factory Default the Panel

1. From the tree view for the control panel, double-click **Configuration** > **Factory Defaults**
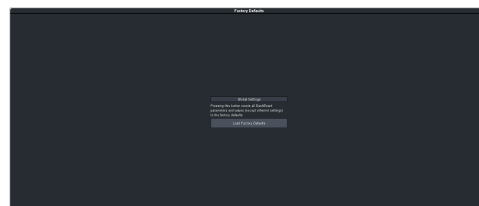
2. Click **Load Factory Defaults**.

PMC/PCH Upgrade (TouchDrive Only)

You can force an upgrade of the PMC (Panel Module Controller) and PCH (Panel Controller Hub) modules in the control panel. The PMC and PCH modules are located on the circuit boards in the control panel and make up the different control areas.

> **Important:** *The PMC and PCH Upgrade functionality is intended to be used by technical support only.*

If a circuit board in the control panel is replaced, or an area on the control panel is not functioning, you can force the upgrade of the software on these boards to ensure they are all at the same version and that the software is not corrupted.

To Upgrade the PMC and PCH Modules

Force upgrade the PMC and PCH modules in the control panel.

> **Important:** *Do NOT turn the control panel power off during the upgrade. Doing so may corrupt the software or damage the control panel components.*

1. From the tree view for the control panel, double-click **Configuration** > **Upgrade PMC & PCH**.
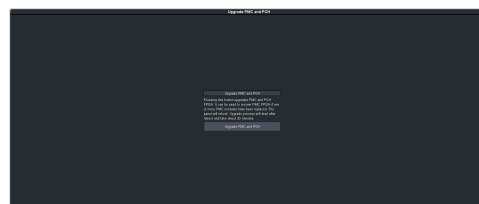
2. Click **Upgrade PMC and PCH**.

3. Click **Yes**.

4. Wait for the upgrade to complete.

Calibration

Calibration allows you to reset the limits of the faders on the control panel and re-center the positioner.

> **Note:** Calibration setting are provided for the Carbonite switcher only. Refer to the documentation that came with your Acuity® switcher for Acuity® personality settings.

To Calibrate the Control Panel

1. Press **MENU** > **System** > **NEXT** > **NEXT** > **Diagnostic Tests** (**Diag Tests** on Carbonite Black) > **NEXT** > **Calibration Reset**.

2. Move the positioner backwards and forwards, left to right, and twist the positioner left and right a few times.

3. Move each fader from one limit to the next a few times. Do not push the fader hard when it reaches the limit.

4. Press **MENU** to save the calibration information.

Specifications

Switcher resources, video specifications, power rating, and port pinouts.

Ports
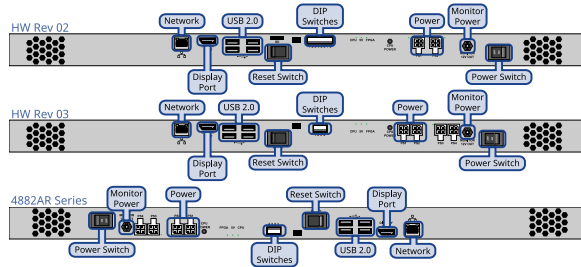
USB Ports

Note: *The panel software can only mount a single USB drive at a time. The remaining ports can be used for an external mouse and keyboard.*

* **File System:** FAT32
* **USB 2.0:** Type-A located on the back of the panel.
* **USB 3.0:** Type-A located on the side of the backsplash on some panels.

Hardware Weights

Hardware	Weight
TouchDrive Panels	
TD1C Panel	10 lbs (4.5 kg)
TD1 Panel	14 lbs (6.4 kg)
TD2 Panel	21 lbs (9.5 kg)
TD2S Panel	27 lbs (12.3 kg)
TD3S Panel	54 lbs (24.5 kg)
TD3 Panel	51 lbs (23.1 kg)
TDx3 Panel	51 lbs (23.1 kg)
TD4 Panel	64 lbs (29.0 kg)
TDx4 Panel	64 lbs (29.0 kg)
Carbonite Black Panels	
CB1 Panel	13 lbs (5.9 kg)
CB1S Panel	17 lbs (7.7 kg)
CB2 Panel	20 lbs (9.1 kg)
CB2S Panel	26 lbs (11.8 kg)
CB3S Panel	35 lbs (15.9 kg)
CB3X Panel	40 lbs (18.1 kg)

Hardware	Weight
CB9 Panel	8 lbs (3.6 kg)

Environmental Characteristics

All Switchers	
Ambient Temperature Range	Operating: 0 - 40°C (32 - 104°F) Storage: -20 - 70°C (-4 - 158°F)

Network Ports

The following network ports are used:

* DashBoard Main — 5253
* DashBoard Sat 1 — 5255
* DashBoard Sat 2 — 5256
* DashBoard SoftPanel — 5257
* SFTP — 2222
* Panel (port on panel) — 3333
* RossTalk — 7788
* SSH — 22
* TFTP — 69
* TSL 3.1 (TCP, Carbonite) — 5727
* TSL 3.1 (TCP, Ultrix™) — 5727
* TSL 3.1 (UDP, Ultrix™) — 4490
* TSL 5.0 (TCP, Carbonite) — 5728
* TSL 5.0 (TCP, Ultrix™) — 5729
* TSL 5.0 (UDP, Ultrix™) — 4492
* Web Server 1 — 80

TouchDrive DIP Switches

The DIP switches allow you to reset the root password.

There are a number of DIP switches on the back of the control panel.

Table 2: TouchDrive Panel DIP Switches

DIP	Description
1	This DIP switch is unused and should be left in the default up (off) position.
2	Reset the root password.
3	This DIP switch is unused and should be left in the default up (off) position.
4	This DIP switch is unused and should be left in the default up (off) position.

Max Power Consumption — Panel

Input Voltage — 100 - 120V~, 220 - 240V~, 47-63Hz

Table 3: TouchDrive Control Panels

Panel	Max Power	
	HW Rev 01-02 (Qseven®)	**HW Rev 03, 4882AR (AMD Ryzen™)**
TD1C	50W 3.33A 15V	97W 6.4A 15V
TD1	73W 4.87A 15V	102W 6.8A 15V
TD2	85W 5.67A 15V	123W 8.2A 15V
TD2S	107W 7.13A 15V	138W 9.2A 15V
TD3S	165W 11A 15V	173W 11.53A 15V
TD3	n/a	220W 14.66A 15V
TDx3	n/a	220W 14.66A 15V
TD4	n/a	250W 16.66A 15V
TDx4	n/a	260W 17.33A 15V

Panel	Max Power
CB9	24W 2A 12V
CB1	25W 2.1A 12V
CB1S	30W 2.5A 12V
CB2	35W 2.9A 12V
CB2S	45W 3.8A 12V
CB3S	65W 5.4A 12V
CB3X	80W 6.7A 12V

Third-party Licenses

This product may use one or more software components subject to the following licenses.

> *Note:* *As required by the GNU General Public License, and the Lesser GNU Public License (LGPL), source code can be obtained from Ross Video for at least 3 years. Contact Ross Video Technical Support for more information.*

> *Note:* *This software is based in part on the work of the Independent JPEG Group.*

TD HW Rev 1-2 (Qseven®)

- This software uses libXfixes:i686-5.0.3, X Fixes library, which is distributed under the terms of MIT.
- This software uses libstdc++:i686-5.3.1, GNU Standard C++ Library, which is distributed under the terms of GPLv3+ and GPLv3+ with exceptions and GPLv2+ with exceptions and LGPLv2+ and BSD.
- This software uses libselinux:i686-2.4, SELinux library and simple utilities, which is distributed under the terms of Public Domain.
- This software uses libXau:i686-1.0.8, Sample Authorization Protocol for X, which is distributed under the terms of MIT.
- This software uses expat:i686-2.1.1, An XML parser library, which is distributed under the terms of MIT.
- This software uses xz-libs:i686-5.2.1, Libraries for decoding LZMA compression, which is distributed under the terms of Public Domain.
- This software uses libXext:i686-1.3.3, X.Org X11 libXext runtime library, which is distributed under the terms of MIT.
- This software uses mesa-libGL:i686-11.1.0, Mesa libGL runtime libraries and DRI drivers, which is distributed under the terms of MIT.
- This software uses mesa-libGLU:i686-9.0.0, Mesa libGLU library, which is distributed under the terms of MIT.
- This software uses glibc:i686-2.22, The GNU libc libraries, which is distributed under the terms of LGPLv2+ and LGPLv2+ with exceptions and GPLv2+.
- This software uses libxml2:i686-2.9.3, Library providing XML and HTML support, which is distributed under the terms of MIT.
- This software uses freetype:i686-2.6.0, A free and portable font rendering engine, which is distributed under the terms of (FTL or GPLv2+) and BSD and MIT and Public Domain and zlib with acknowledgement.
- This software uses libX11:i686-1.6.3, Core X11 protocol client library, which is distributed under the terms of MIT.
- This software uses libdrm:i686-2.4.66, Direct Rendering Manager runtime library, which is distributed under the terms of MIT.
- This software uses libXdamage:i686-1.1.4, X Damage extension library, which is distributed under the terms of MIT.
- This software uses libXxf86vm:i686-1.1.4, X.Org X11 libXxf86vm runtime library, which is distributed under the terms of MIT.
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FreeType font driver for BDF fonts

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