A · C · U · I · T · Y

Ultrix Acuity
Configuration Guide

v12.0

www.rossvideo.com

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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.

Contents

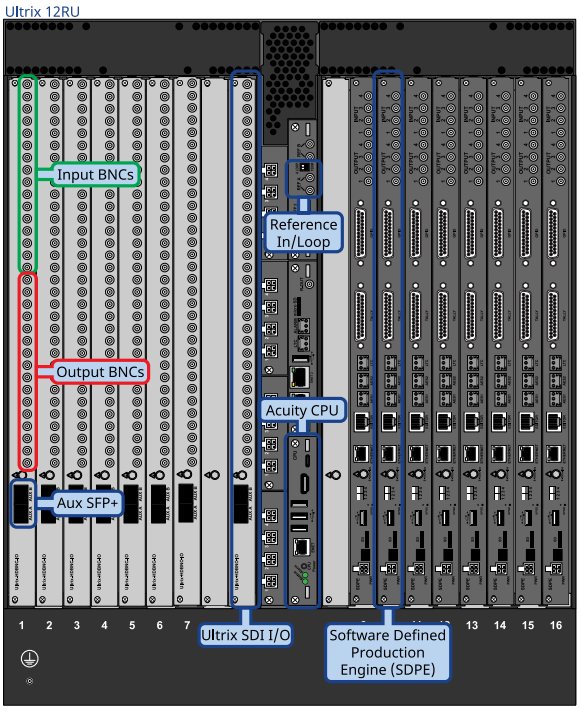
Feature Enhancements

A number of features have been added, or updated, to this version of software. This section provides a brief introduction to these features, and how to use them.

12.0a Features

Ultrix FR12 Support

Ultrix Acuity is now available for the Ultrix FR12 router.



8 ME Support

With the introduction of support for the Ultrix FR12, Ultrix Acuity can now support up to 8 MEs.

Color Gamut and Dynamic Range

Color Gamut and Dynamic range can now be set from the **Reference** menu for the switcher.

Note: *The switcher does not perform color gamut or dynamic range conversion. Setting the color gamut and dynamic range only inserts that information in the ancillary data for downstream devices.*

Features

Thank you for considering a Ross Video Ultrix Acuity Hyper Converged Production Platform. The Ultrix Acuity is a completely new segment in the market that combines the award winning Ultrix™ routing system and the new Acuity® Software Defined Production Engine blades to bring you a truly integrated and compact solution.

Analog/Tri-Level Reference Input

Ultrix™ provides the reference input and internal signals that the switcher uses for timing. Both the router and switcher must be set to the same reference format and video format for trigger 1 on the router.

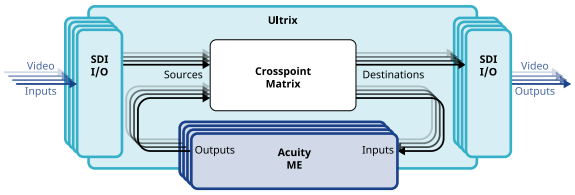
Depending on the input reference format the switcher is receiving from the router, you will only be able to operate the switcher in certain formats.

Table 1: Compatible Video Formats

Video Format	Required Reference
720p 50Hz	576i
	720p 50Hz
	1080i 50Hz
720p 59.94Hz	480i
	720p 59.94Hz
	1080i 59.94Hz
1080i 50Hz	576i
	1080i 50Hz
1080i 59.94Hz	480i
	1080i 59.94Hz
1080p 23.98Hz	1080p 23.98Hz
1080p 24Hz	1080p 24Hz
1080p 25Hz	576i
	1080i 50hz
	1080p 25Hz
1080p 29.97Hz	1080i 59.94Hz
	1080p 29.97Hz
1080p 30Hz	1080i 60Hz
	1080p 30Hz
1080p 50Hz (A)	576i
	720p 50Hz
	1080i 50Hz
1080p 59.94Hz (A)	480i
	720p 59.94Hz
	1080i 59.94Hz
1080p 60Hz	1080i 60Hz
1080pSF 23.98Hz	1080pSF 23.98Hz
1080pSF 24Hz	1080pSF 24Hz
UHDTV1 23.98Hz (UHD-2SI)	1080p 23.98Hz
UHDTV1 24Hz (UHD-2SI)	1080p 24Hz
UHDTV1 25Hz (UHD-2SI)	576i
	1080i 50Hz
	1080p 25Hz
UHDTV1 29.97Hz (UHD-2SI)	1080i 59.94Hz
	1080p 29.97Hz
UHDTV1 30Hz (UHD-2SI)	1080i 60Hz
	1080p 30Hz
UHDTV1 50Hz (UHD-2SI)	576i
	1080i 50Hz
	720p 50Hz
UHDTV1 59.94Hz (UHD-2SI)	480i
	1080i 59.94Hz
	720p 59.94Hz
UHDTV1 60Hz (UHD-2SI)	1080i 60Hz

Video I/O

Video signals come into the router through the SDI IO blades and are passed from the router crosspoint as destinations that are available to the switcher as inputs. All inputs to the router are available to the each ME in the switcher. Video outputs from the switcher are then made available to the router as sources that can be routed to destinations. Unlike the inputs, the switcher cannot control which output on the router a video signal from the switcher is sent to. This routing is done by the router matrix.



Important: *The switcher can only access the first 4000 destination and source database entries on the router. Destinations or sources with an ID beyond 4000 are not addressable by the switcher.*

Media-Store

Media-Store allows you to load stills, animations, or audio from the hard drive and make them available as a source on the switcher. Each ME Media-Store has 8 GB of cache for 2 channels of audio and 4 channels video, with alpha.

UltriScape Multi-Viewer

Some of the outputs from each ME are available as PiPs for the software defined UltriScape MultiViewer in the router.

Note: *Refer to the documentation that came with your router for information on licensing and setting up UltriScape.*

The switcher makes the following sources available as PiPs from ME 1. All other MEs in the switcher have similar outputs. You must assign tally IDs to the router sources to have the switcher tally sources on the Multi-Viewer.

- ME1 PGM A
- ME1 PVW A
- ME1 PGM B
- ME1 PGM C
- ME1 User Out 1
- ME1 User Out 2
- ME1 User Out 3
- ME1 User Out 4

2D DVE

Each ME comes standard with 14 channels of advanced 2D DVE (6 in UHDTV1) that can be used for performing over the shoulder or picture in picture shots with full DVE key-framing with smooth interpolation. This allows preset pattern keys to be zoomed, cropped, a border or edge effect added, and repositioned horizontally and vertically to create the look you want, or you can use one of the useful pre-built 2D effects to perform 2D background transitions.

ME Effect System

Each Software Defined Production Engine (SDPE) in the system provides a single ME (Multi-level Effect) with 6 advanced keyers, border and pattern generators, and utility buses.

- **Keyer** — supporting matte fill, key invert, pattern mask, box mask, garbage mask, self-key, linear key, and preset pattern key. The 2 UltraChrome advanced chroma keyers are standard for each ME and are available to each keyer.
- **Border Generator** — provides border, shadow, and outline effects to the keyers with either hard or glowing edges. You can then move the border to any position on the screen - even above the key. Borders are flown in real time with the joystick in the same manner as wipe patterns and DVE effects. This border generator was designed as a creative tool and it can add an impressive visual impact to your keys.
- **Pattern Generator** — two advanced pattern generators provide rotary wipes, matrix wipes, heart, star, spade, modulation, and pattern rotation. Two additional pattern generators are dedicated to color wash generators. A single simple pattern generator is available to each key.
- **Utility Bus** — utility buses provide video-in-border and garbage mask applications, as well as being used for the buses of the B-side of a split ME.

Ultrix Acuity can support up to 4 MEs in the Ultrix FR5 and 8 MEs in the Ultrix FR12.

UltraChrome

The UltraChrome chroma keyers uses patented advanced video processing technology to provide exceptional blue spill reduction and clean edges, even with difficult source material. Glass, smoke, translucent materials, and natural shadows are handled superbly.

Chroma key shadows can either be extracted from the source image or simulated using the optional border generators.

There are 2 floating Chroma Keys available to each ME and can be assigned to any keyer.

Color Correction

Color correction is performed by either Processing Amplifiers (Proc Amps) in the HSL

(Y-Cr-Cb) color space or by RGB Color Correctors in the RGB color space. Both Proc Amps and RGB Color Correctors allow you to apply color correction to video sources on the fly to input video signals, entire buses, or aux bus outputs.

- **ME Input Based Correction** — color correction is applied to a video input on the ME. Color correction is only applied to the video signal when it is selected on an ME, and not when the same signal is selected on a MultiViewer or Aux. Color correction will follow the source from ME to ME.
- **ME Bus Based Correction** — color correction is applied to the entire bus of the selected ME. Any source selected on that bus has the color correction applied to it. Unlike the other color correction types, bus-based color correction is stored and recalled with memories. This allows you to include a color correction element as part of an effects dissolve.

Color correction is additive, allowing you to apply any combination of Proc Amp and RGB Color Corrector based adjustment to a video signal on the input, as well as on the bus. If multiple color corrections are applied, the input-based correction is applied first, and the bus-based correction is applied after that.

MultiPanel

You can connect one main panel and up to eight satellite panels to a single frame. Each of the control panels can control some, or all, of the MEs. Only the Main Panel supports all device control or OverDrive®.

SoftPanel

SoftPanel allows you to run the menu system of the switcher from a computer. The switcher treats the SoftPanel interface as a satellite panel, allowing it to control all aspects of the switcher that the menu system of a satellite panel can control.

The SoftPanel application uses the Oracle® VM VirtualBox to interface with the computer hardware and operating system, and connect to the switcher frame.

Tip: *You can also point your Google Chrome™ browser to the SoftPanel to access the Acuity Virtual Panel.*

Custom Controls

A custom control is a series of commands, or button presses, that are recorded together into a single macro. When you run that custom control, the switcher runs all the commands and button pressed that were recorded in the macro. This allows you to simplify complex sequences of commands into simple button presses. For example, you can create a custom control that will recall a camera shot to preview, add a lower third, and then transition the background and key on-air.

The switcher supports up to 2304 custom controls.

Memory Functions

A memory register is a snapshot of the current state of the switcher that can include multiple MEs. Up to 1,000 memory registers per ME can be stored and recalled on the switcher. Each of these memory registers can store as little as the information of one ME, or as much as the current state of the entire switcher, including all MEs, Aux Buses, and DVE settings.

Effects Dissolve

An Effects Dissolve allows you to have the switcher slew from one memory to another using a memory recall. The switcher will interpolate from the starting memory to the destination memory, creating a smooth, two keyframe effect.

Only elements such as clip level, pattern position, and DVE settings can be interpolated in the effects dissolve. Other elements, such as key priority, crosspoint selection, pattern, and next transition data are recalled first, and then the switcher will slew to the recalled memory.

The speed at which an effects dissolve is performed is either the Effect Rate. If you store an effects dissolve in a memory register, the effects dissolve rate stored with that memory is used. The effects rate of the destination memory is used for any effects dissolve. You can set a default effects dissolve rate that is used when an ME, or the switcher, is defaulted. This rate does not override the rate that is stored in the memory.

GPI Control

General Purpose Interface (GPI) is a high/low voltage signalling protocol that allows the switcher to send simple commands to an external device, or receive commands from a device. Each pin on the GPI is set as either high (+5 Volts), or low (0 Volts), and it is the switching between high and low that sends commands to the external device, or to the switcher.

Each SDPE blade has 24 GPIs that can be assigned as inputs or outputs.

Live Edit Decision Lists

Edit Decision Lists are files used by non-linear editing (NLE) suites to aid in post-production. Your switcher can capture EDL data in a file that you load into your NLE suite.

The switcher supports the **CMX3600** format for recording EDL files.

Note: *The CMX3600 specification only supports a maximum of 999 events per ME or aux bus. If another event occurs beyond the 999 limit, a new file is created using the incremental file number.*

Tallies

Tallies are simple open collectors that the switcher uses to signal other devices, and users, that a particular video source is on-air. Typically, tallies are used to light a red light on a camera to show people that they are on-air and what camera they should be looking at.

You can only assign a single source to a tally, but you can assign multiple tallies to the same source.

Tally ports are located on the Acuity™ control panel (panel tallies) and the SDPE blade (ME tallies).

Device Control

The switcher can control a number of external devices, such as video servers and robotic cameras. For a complete list of supported devices, and information on how to set up and control these devices, visit the Ross Video website (*help.rossvideo.com/acuity-device/*).

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.

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.

Product Comparison

Use the following tables to compare the different switcher components.

Note: *Refer to the Ultrix™ marketing material for information on the configurations and features of the Ultrix™ router.*

TouchDrive Control Panels

	TD1C	TD1	TD2	TD2S	TD3S
Control Panel					
Panel Source Buttons per Row	15	15	15	25	25
Number of User Assignable Buttons per Row	15	15	25	25	25
Number of Control Panel Rows	1	1	2	2	3
DashBoard Interface	Yes				
Touchscreen Monitor	Optional				
Integrated Touchscreen Panel Displays	Yes				
Button Colors	Full HSL				
Mnemonic Colors	20 (background and text)				
Source Mnemonic Icons	Yes				
Legendary Ross Fader Handle with Lifetime Guarantee	Yes				
Positioner	Z Axis				
In Row Memory Keypad	No	No	No	Yes	Yes
Engineering and Networking					
Redundant Power	Yes (optional)				
Ethernet Connectivity	1 × GigE				
USB	4 × USB 2.0, 1 × USB 3.0				

Acuity® Control Panels

Table 2: Acuity® Control Panel Comparison (Standard Control Panel)

	A1S	A2M	A2X	A3M	A3	A4
Custom Control Buttons	24	24	32	24	32	40
Max. Panel Tallies	36	72	72	72	72	108
Number of Rows	1	2	2	3	3	4
Source Buttons per Row	24	24	32	24	32	40
Max. Source Buttons	24	48	64	72	96	160

Table 3: Acuity® Control Panel Comparison (Double-Down Control Panel)

	A1S DD	A2M DD	A2X DD	A3M DD	A3 DD	A4 DD
Custom Control Buttons	21	21	29	21	29	37
Max. Panel Tallies	36	72	72	72	72	108
Number of Rows	1	2	2	3	3	4
Source Buttons per Row	22	22	30	22	30	38
Max. Source Buttons	22	44	60	66	90	152

Switcher Options and Configurations

A typical configuration includes a control panel and an Ultrix™ router with and the Acuity CPU and a number of SDPE blades. For example, the following options create a system with an A2X control panel with redundant power, a 3 MEs, 32 SDI video inputs, 32 video outputs, 72 panel tallies, and redundant power, plus a 3-year extended warranty on both the panel and frame, an Auxiliary Control Panel, and 2 days of commissioning.

Option	Description	Code	Qty.
Control Panel			
A2X Panel	The A2X control panel.	A2X-PANEL	1
Redundant Power - Panel	Adds a redundant power supply for the A2X control panel.	A2XP-REDPSU	1
Control Panel Tallies, 36-72	Adds tally options up to 72 tallies.	AP-TALLY-72	1
Auxiliary Control Panel	Adds the Auxiliary Control Panel (Backsplash) that has the same number of source buttons as the A2X control panel.	AP-AUX2RU32	1
Extended Warranty (Panel)	Adds two additional years to the standard 1-year warranty on the panel.	A2XP-ROSSCARE	2
Frame			
Ultrix FR5 Frame	The Ultrix FR5 frame with no blades.	ULTRIX-FR5	1
Ultripower	The Ultripower power supply provides power to the router and SDPE blades.	ULTRIPOWER	2
Ultripower PS	Additional power connections for the Ultripower.	ULTRIPOWER-PS	2
Ultrix HDBNC IO	The 16-in, 16-out HD BNC IO Blade.	ULTRIX-HDB-IO-A	2
Acuity CPU	The CPU for the Ultrix Acuity switcher.	ACUFR-CPU	1
SDPE	The hardware for 3 MEs.	SWR-SDPE	3
MEs	The software license for 3 HD MEs.	ACUFR-HD-ME	3
Extended Warranty (SDPE)	Adds two additional years to the standard 1-year warranty on the SDPEs.	SWR-SDPE-HW	2
Extended Warranty (Frame CPU)	Adds two additional years to the standard 1-year warranty on the Acuity CPU.	ACUFR-CPU-HW	2
Commissioning	Adds 3-days of on-site commissioning of your new switcher.	ACUITY-COM-1DAY	3

TouchDrive Panels

TouchDrive Control Panel

Select the control panel that meets the needs of your production environment.

Option	Description
TD1C-PANEL	A compact rack-mountable panel with 15 source buttons, 15 user select buttons (plus 3 in the transition area), independent keyer and transitions areas, updated 3-knob menu interface, and an advanced z-axis positioner.
TD1-PANEL	The same features as the TD1C panel but in a standard panel row design.
TD2-PANEL	The same features as the TD1 panel, but with 2 panel rows.
TD2S-PANEL	The same features as the TD2 panel, but with 25 source buttons, 25 user select buttons (plus 3 in the transition area), and an Acuity® style memory area with keypad and rate buttons.
TD3S-PANEL	The same features as the TD2S panel, but with 3 panel rows.

Note: *The TouchDrive control panels do not come with power supplies. You must pick either a standard brick power supply (CUF-PSU), or a rack power option (CUF-RACKPWR) to provide power for the control panel.*

TouchScreen Display

A 15.6-inch touchscreen monitor that connects directly to the TouchDrive control panel for power, menus, and touch-control.

Note: *A separate VESA®-100 (VESA® MIS-D, 100, C) mounting arm is required for the display.*

Option	Description
TD-TOUCHSCREEN	The 15.6-inch touchscreen monitor.

Note: *Third party touchscreens are not supported. If you want to use a different display with the TouchDrive control panel, it must be a standard display used in conjunction with a mouse and keyboard.*

Power Supplies

Note: *The TouchDrive control panel does not come with a power supply. You must pick either a standard brick power supply (CUF-PSU), or a rack power option (CUF-RACKPWR) to provide power for the control panel.*

The redundant power supply options provides protection against AC power failure. It allows two external power supplies to receive power from independent power sources. Complete failure of one source, or power supply, will not affect standard operations. If the main AC power fails, power is drawn from the remaining source. The transition from one power source to the other is totally transparent and has no effect on operations; a critical feature should one power source fail during an on-air broadcast.

Tip: *You can order a second CUF-PSU option to provide redundant power for the control panel.*

Option	Description
CUF-PSU	Adds a brick power supply for the control panel.
CUF-RACKPWR	Adds the Ultripower rack power supply for the control panel.

Extended Warranty

This extends the standard one-year warranty on your control panel by one year. Additional years can be purchased if required.

Option	Description
TD1C-PANEL-HM	Adds an additional year of warranty to the TD1C control panel.
TD1-PANEL-HM	Adds an additional year of warranty to the TD1 control panel.
TD2-PANEL-HM	Adds an additional year of warranty to the TD2 control panel.
TD2S-PANEL-HM	Adds an additional year of warranty to the TD2S control panel.
TD3S-PANEL-HM	Adds an additional year of warranty to the TD3S control panel.
TD-TOUCHSCREEN-HM	Adds an additional year of warranty to the touchscreen display.

Acuity Panels

Standard Acuity™ Control Panel

Any Acuity™ control panel can be matched with either Acuity™ frame and have full access to all the features that are available from the frame. The size of the control panel only limits the number of source buttons, panel rows, and tallies, and the placement of modules.

Option	Description
A1S-PANEL	A single panel row with 24 source and custom control buttons, VESA mountable touchscreen display, USB ports for keyboard or mouse control, 1,000 switcher memories, preview overlay, 36 parallel tally outputs, panel glow and user defined button color schemes, and 1-year transferable warranty with lifetime fader handle warranty.
A2M-PANEL	The same features as the previous panel, but with two panel rows with 24 source and custom control buttons each.
A2X-PANEL	The same features as the previous panel, but with two panel rows with 32 source and custom control buttons each.
A3M-PANEL	The same features as the previous panel, but with three panel rows with 24 source and custom control buttons each.
A3-PANEL	The same features as the previous panel, but with three panel rows with 32 source and custom control buttons each.

Option	Description
A4-PANEL	The same features as the previous panel, but with four panel rows with 40 source and custom control buttons each.

Double-Down Acuity™ Control Panel

Any Acuity™ control panel can be matched with either Acuity™ frame and have full access to all the features that are available from the frame. The size of the control panel only limits the number of source buttons, panel rows, and tallies, and the placement of modules.

Option	Description
A1SDD-PANEL	A single panel row with 22 source buttons and 21 custom control buttons, VESA mountable touchscreen display, USB ports for keyboard or mouse control, 1,000 switcher memories, preview overlay, 36 parallel tally outputs, panel glow and user defined button color schemes, and 1-year transferable warranty with lifetime fader handle warranty.
A2MDD-PANEL	The same features as the previous panel, but with two panel rows with 22 source buttons and 21 custom control buttons each.
A2XDD-PANEL	The same features as the previous panel, but with two panel rows with 30 source buttons and 29 custom control buttons each.
A3MDD-PANEL	The same features as the previous panel, but with three panel rows with 22 source buttons and 21 custom control buttons each.
A3DD-PANEL	The same features as the previous panel, but with three panel rows with 30 source buttons and 29 custom control buttons each.
A4DD-PANEL	The same features as the previous panel, but with four panel rows with 38 source buttons and 37 custom control buttons each.

Acuity Rack Panel (AP-SERVER-PANEL)

The Acuity Rack Panel (ARP) server provides the hardware to host the Acuity Virtual Panel which is a browser based virtual representation of an Acuity™ control panel with menu system. The Acuity Rack Panel replaces the need for the control panel, with the exception of not having any of the ports (Remote and Tally) that are present on the back of the control panel, and is upgraded in the same way as a normal panel.

The tally ports on the frame can be used instead of the panel tallies.

Redundant Power (Panel Only)

The redundant power option adds an additional power supply to the control panel. In the event that one power supply should fail, or the power to that supply is interrupted, the other power supply carries the load of the control panel.

Option	Description
A1SP-REDPSU	Adds redundant power to the A1S control panel.
A2MP-REDPSU	Adds redundant power to the A2M control panel.
A2XP-REDPSU	Adds redundant power to the A2X control panel.
A3MP-REDPSU	Adds redundant power to the A3M control panel.
A3P-REDPSU	Adds redundant power to the A3 control panel.
A4P-REDPSU	Adds redundant power to the A4 control panel.

Auxiliary Control Panels

The Auxiliary Control Panel is designed to extend the control surface of your Acuity™ control panel by providing access to another source bus that can be quickly assigned to any aux bus on the switcher. Additional Auxiliary Control Panels can be daisy-chained together from the same external link port on the control panel. The maximum number of Auxiliary Control Panels that can be daisy-chained together depends on the size of the Auxiliary Control Panel.

- AP-AUX2RU24 – up to 6 daisy-chained together
- AP-AUX2RU32 – up to 6 daisy-chained together
- AP-AUX2RU40 – up to 4 daisy-chained together

The Auxiliary Control Panel is a self contained unit that has both primary and redundant power supplies. It is designed to mount either on the back of the control panel or into a desk.

Table 4: Auxiliary Control Panel

Option	Description
AP-AUX2RU24	Adds the Auxiliary Control Panel with a single panel row with 24 source buttons, 6 bank select and 8 aux buttons, and 14 control buttons. Fits the A1S, A2M, and A3M control panels.
AP-AUX2RU32	The same features as the previous panel, but with 32 source buttons. Fits the A2X and A3 control panels.
AP-AUX2RU40	The same features as the previous panel, but with 40 source buttons. Fits the A4 control panels.
PSU-12V4A-2PIN	Adds a redundant power supply for the Auxiliary Control Panel Panel.

Extended Panel Tallies

The control panel comes with 36 tally relays. Additional tallies can be added in 36-tally increments. The maximum number of tallies that can be added depends on the model of control panel. Each tally option only adds 36 additional tallies. If you want 108 tallies, you must order the 72 and 108 tallies options.

Option	Description
AP-TALLY-72	Installs 36 additional tallies to all control panels for a total of 72 tallies.
AP-TALLY-108	Installs 36 additional tallies to the A4 control panel for a total of 108 tallies.

Replacement Mnemonics (AP-8MNEMONIC)

In the event that the mnemonics on one of your Crosspoint modules needs to be replaced, this option provides a replacement kit with an 8-mnemonic board and installation instructions.

Replacement Touchscreen Display (AP-TOUCHSCREEN-A)

A replacement touchscreen display kit can be ordered as a field replacement of the touchscreen display that comes with the control panel. You cannot use more than one touchscreen display at the same time.

Ultritouch

The 2RU rack mountable Ultritouch adaptable system control panel allows you to control some aspects of switcher operation using a DashBoard interface.

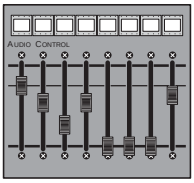
The DashBoard interface on Ultritouch provides control over aux bus source selections. You must connect to the switcher from Ultritouch to be able to control the switcher functions. Refer to the Ultritouch documentation for information on navigating the Ultritouch menu and manually connecting to a device.

Table 5: Auxiliary Control Panel

Option	Description
ULTRITOUCH-2	Adds the 2RU Ultritouch adaptable system control panel.
ULTRITOUCH-PS	Adds a redundant power supply for Ultritouch.

Audio Control Module

The Audio Control module provides eight motorized audio faders with source mnemonics that can be mapped to audio channels, or groups, from an audio mixer controlled by the switcher.



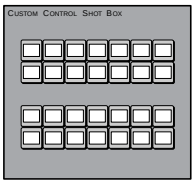
When ordering a module with a new control panel, you must specific the empty slot on the control panel that you want the module installed into. Refer to *Panel Dimensions with Slot Locations* on page 27 for slot locations.

Option	Description
AP-AUDIO-SL1	Installs the Audio Control module in slot 1 of your control panel. Can only be ordered with a new control panel.
AP-AUDIO-SL2	Installs the Audio Control module in slot 2 of your control panel. Can only be ordered with a new control panel.

Option	Description
AP-AUDIO-SL3	Installs the Audio Control module in slot 3 of your control panel. Can only be ordered with a new control panel.
AP-AUDIO-UPG	Provides the Audio Control module as a field upgrade kit. Can only be ordered for an existing control panel installation.
AP-SIDESLIDE-E	Provides the Audio Control module in a SideBoxNet enclosure. The SideBoxNet enclosure allows you to mount a single module separate from your control panel. Each enclosure has independent primary and secondary power supplies and an ethernet port to connect the enclosure to your switcher.

Shot Box Module

The Shot Box module provides an additional 28 assignable custom control buttons. Custom Controls from various banks can be grouped together on a single Shot Box Page. Each Shot Box can access up to 28 pages of buttons.



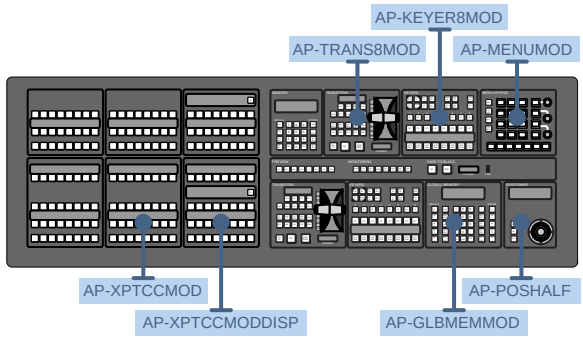
When ordering a module with a new control panel, you must specific the empty slot on the control panel that you want the module installed into. Refer to *Panel Dimensions with Slot Locations* on page 27 for slot locations.

Option	Description
AP-SHOTBOX-SL1	Installs the Shot Box module in slot 1 of your control panel. Can only be ordered with a new control panel.
AP-SHOTBOX-SL2	Installs the Shot Box module in slot 2 of your control panel. Can only be ordered with a new control panel.
AP-SHOTBOX-SL3	Installs the Shot Box module in slot 3 of your control panel. Can only be ordered with a new control panel.
AP-SHOTBOX-UPG	Provides the Shot Box module as a field upgrade kit. Can only be ordered for an existing control panel installation.
AP-SIDESHOT-E	Provides the Shot Box module in a SideBoxNet enclosure. The SideBoxNet enclosure allows you to mount a single module separate from your control panel. Each enclosure has independent primary and secondary power supplies and an ethernet port to connect the enclosure to your switcher.

Replacement Control Panel Modules

Replace an existing module that came installed in your control panel.

Use the same module ordering code for all sizes of control panels.



Option	Description
AP-KEYER8MOD	A replacement 8-Key Keyer module.
AP-TRANS8MOD	A replacement 8-Key Transition module.
AP-XPTMOD	A replacement Crosspoint Bus module. This module is only used on the upper rows of the control panel.
AP-DD-XPTMOD	A replacement Double-Down Crosspoint Bus module. This module is only used on the upper rows of the control panel.
AP-XPTMODDISP	A replacement Crosspoint Bus module with display. This module in only used in the right-most position of the upper rows of the control panel.
AP-DD-XPTMODDISP	A replacement Double-Down Crosspoint Bus module with display. This module in only used in the right-most position of the upper rows of the control panel.
AP-XPTCCMOD	A replacement Crosspoint/Custom Control Bus module. This module is only used on the bottom row of the control panel.

Option	Description
AP-DD-XPTCCMOD	A replacement Double-Down Crosspoint/Custom Control Bus module. This module is only used on the bottom row of the control panel.
AP-XPTCCMODDISP	A replacement Crosspoint/Custom Control Bus module with display. This module in only used in the right-most position of the bottom row of the control panel.
AP-DD -XPTCCMODDISP	A replacement Double-Down Crosspoint/Custom Control Bus module with display. This module in only used in the right-most position of the bottom row of the control panel.
AP-GLBMEMMOD	A replacement Global Memory module. Only one module of this type can be installed in the control panel.
AP-MENUMOD	A replacement Menu Keypad module. Only one module of this type can be installed in the control panel.
AP-POSHALF	A replacement Positioner module. Only one module of this type can be installed in the control panel.

Extended Warranty

Extends the standard one-year warranty on your control panel by one year. Additional years can be purchased if required.

Option	Description
A1SP-ROSSCARE	Extends the warranty on the A1S by a year.
A1SDDP-ROSSCARE	Extends the warranty on the A1SDD by a year.
A2MP-ROSSCARE	Extends the warranty on the A2M by a year.
A2MDDP-ROSSCARE	Extends the warranty on the A2MDD by a year.
A2XP-ROSSCARE	Extends the warranty on the A2X by a year.
A2XDDP-ROSSCARE	Extends the warranty on the A2XDD by a year.
A3MP-ROSSCARE	Extends the warranty on the A3M by a year.
A3MDDP-ROSSCARE	Extends the warranty on the A3MDD by a year.
A3P-ROSSCARE	Extends the warranty on the A3 by a year.
A3DDP-ROSSCARE	Extends the warranty on the A3DD by a year.
A4P-ROSSCARE	Extends the warranty on the A4 by a year.
A4DDP-ROSSCARE	Extends the warranty on the A4DD by a year.

Frames

These options apply to the Ultrix Acuity frame hardware.

Ultrix™ Hardware

The Ultrix™ chassis contains both the router and switcher hardware. The size of the Ultrix™ router defines the maximum number of MEs the switcher has.

Option	Description
ULTRIX-FR5	An Ultrix FR5 frame with support for up to 4 SWR-SDPE (ME) blades. The system comes with no blades installed.
ULTRIX-FR12	An Ultrix FR12 frame with support for up to 8 SWR-SDPE (ME) blades. The system comes with no blades installed.
ULTRICOOL	An external cooling system for the ULTRIX-FR5 frames.
ULTRCOOL-PS	Redundant power supply for the ULTRICOOL.
ULTRIPOWER	The external power supply for Ultrix™.
ULTRIPOWER-PS	An additional power supply for the Ultripower.

Ultrix Acuity Hardware

The SDPE blade provides the hardware for the switcher software options. Software licences are required to properly operate the switcher on the hardware.

Tip: *You can purchase additional SDPE blades as spares for critical hardware replacements.*

Option	Description
ACUFR-CPU	The Frame CPU that is installed into the Ultrix FR5 and supports the switcher software. Only one ACUFR-CPU can be installed in the Ultrix FR5.

Option	Description
ACUFR12-CPU	The Frame CPU that is installed into the Ultrix FR12 and supports the switcher software. Only one ACUFR12-CPU can be installed in the Ultrix FR12.
SWR-SDPE	The SDPE blade that is installed into the Ultrix FR5 or Ultrix FR12 and supports a single ME. The number of SDPE blades that can be installed depends on the size of the router. • Ultrix FR5 can support up to 4 SWR-SDPE blades. • Ultrix FR12 can support up to 8 SWR-SDPE blades.

Note: *Each SWR-SDPE has a separate power connector. As you add SDPE blades, you must also add Ultripower resources to power them.*

MEs

Important: *Each ME in the system must be licensed. The SWR-SDPE blade does not come with any ME licenses installed.*

Add an ME license for each SWR-SDPE blade you want to use for an ME.

Option	Description
ACUFR-HD-ME	Adds 1 HD ME license.
ACUFR-UHD-ME	Adds 1 HD/UHD ME license.
ACUFR-HD-UHD -ME-UPG	Upgrades an HD ME license to a HD/UHD ME license.

Ultrix™ Software Options

The switcher needs some Ultrix™ software options in order to operate properly.

Option	Description
ULTRIMIX	Add support for audio routing. Ultrix Acuity uses the audio routing for Media-Store audio.
ULTRISPEED-FR5	Add support for 12G video in the Ultrix FR5. Ultrix Acuity uses 12G video for UHDTV1.
ULTRISPEED-FR12	Add support for 12G video in the Ultrix FR12. Ultrix Acuity uses 12G video for UHDTV1.
ULTRISCAPE	Added support for the Ultrix™ Multi-Viewer. Ultrix Acuity uses UltriScape to replace the MultiViewer.

3D DVE

The 3D DVE option allows every type of key to be squeezed or zoomed, cropped, repositioned, and rotated in 3D space. It can also perform 3D key or background transitions, or build sequences with complex timelines, keyframe editing, and quick sequence recall. 3D DVE also comes equipped with preprocessor effects such as defocus and strobe.

Each 3D DVE option provides 4 channels of 3D DVE per ME (1 in UHDTV1). Each 3D DVE channel has 2 channel resources, allowing for up to 2 channel resources to be dedicated to each key. This allows you to fly a key, or combine two preset pattern keys in a single keyer for a 2-box. Preset pattern keys only use a single DVE channel resource and all other key types use 2.

Table 6: 4RU Frame

Option	Description
ACUFR-3DDVE-LIC	Adds 4 channels of 3D DVE in HD (1 in UHDTV1) to each ME.

Device Support

The Ultrix Acuity comes standard with support for controlling external VTR (BVW-75), video servers (VDCP, AMP protocols), audio servers, and monitor walls, as well as devices that support the native RossTalk, serial tally, and PBus II protocols. Support for additional classes of devices can be added as required.

The functionality that is supported for a particular device depends on the protocol that is used to control the device and the features that the device has available.

Tip: *Visit the help.rossvideo.com/acuity-device/ for device setup information.*

Table 7: 4RU Frame

Option	Description
ACUFR-ROUTER	Adds support for controlling a routing switcher.
ACUFR-ROUTER-ROSS	Adds support for controlling a Ross® routing switcher.
ACUFR-ROBOCAM	Adds support for controlling a robotic camera system.
ACUFR-ROBOCAM -ROSS	Adds support for controlling a Ross® robotic camera system.
ACUFR-CGCII	Adds support for controlling a character generator.

Option	Description
ACUFR-CGCII-ROSS	Adds support for controlling a Ross® character generator.
ACUFR-AUDMIXSM	Adds support for controlling a small audio mixer (16 and fewer inputs).
ACUFR-AUDMIXSMY	Adds support for controlling a Yamaha® O1V96 audio mixer.
ACUFR-AUDMIXLG	Adds support for controlling a large audio mixer (17 and more inputs).
ACUFR-AUDMIXLGY	Adds support for controlling a large Yamaha® audio mixer, except the O1V96.
ACUFR-AUDMIXLG -ROSS	Adds support for controlling a large Ross® audio mixer.

Extended Warranty

Extends the standard one-year warranty on your hardware by one year. Additional years can be purchased if required.

Option	Description
SWR-SDPE-HW	Extends the warranty on the SDPE blades by a year.
ACUFR-CPU-HW	Extends the warranty on the ACUFR-CPU by a year.
ACUFR12-CPU-HW	Extends the warranty on the ACUFR12-CPU by a year.

Training and Commissioning Options

Commissioning, 1-Day

Once the customer has installed and cabled the equipment, a Ross Commissioning expert will come on site to get the switcher configured, verify that all peripheral interfaces are operating properly, provide a basic technical orientation, and help you get on the air.

Table 8: 4RU Frame Options

Option	Description
ACUITY-COM-1DAY	One Day of commissioning conducted at the customer's facility on their equipment.

Training is provided on the customer's equipment at their site. Expenses are extra, and billed at the completion of the visit. Ross Video cannot guarantee the availability of a local Trainer, as such, travel costs to all locations will be invoiced at cost. Two (2) days, or more, of training is recommended for multiple ME systems. Four (4) weeks advanced scheduling notice is required. Additional days of training can be added if required.

Customers cancellation or rescheduling of services without seven (7) calendar days advanced notice will incur full invoice.

Note: *Commissioning does not replace operator or technical training. Contact your Ross Video Sales Representative to discuss which types of assistance are best suited to your needs.*

Online Training, 1-Day

Comprehensive, web-based, online training is available from Ross Video trainers.

Table 9: 4RU Frame Options

Option	Description
ACUITY-ONL-1DAY	One Day of online training.

Two (2) days, or more, of training is recommended for multiple ME systems. Four (4) weeks advanced scheduling notice is required. Additional days of training can be added if required.

Customers cancellation or rescheduling of services without seven (7) calendar days advanced notice will incur full invoice.

Operations Training, 1-Day

Operations training is highly recommended to ensure that the process of taking your Ross Video switcher to air is a smooth one.

Table 10: 4RU Frame Options

Option	Description
ACUITY-OTR-1DAY	One Day of operations training conducted at the customer's facility.

Expenses are extra, and billed at the completion of the visit. Ross Video cannot guarantee the availability of a local Trainer, as such, travel costs to all locations will be invoiced at cost. Two (2) days, or more, of training is recommended for multiple ME systems. Four (4) weeks advanced scheduling notice is required. Additional days of training can be added if required.

Customers cancellation or rescheduling of services without seven (7) calendar days advanced notice will incur full invoice.

Technical Training, 1-Day (ACUITY-OTT-1DAY)

Onsite technical training introduces the user to some of the technical aspects of switcher operation and maintenance. This includes, but is not limited to; Basic operation, Switcher installation and configurations, Peripheral interfaces, Video signal flow, System timing requirements, Circuit block diagrams, Circuit board overviews, Jumpers and indicators, Troubleshooting tips, Software upgrading, and Routine maintenance.

Table 11: 4RU Frame Options

Option	Description
ACUITY-OTT-1DAY	One Day of technical training conducted at the customer's facility.

Training is provided on the customer's equipment at their site. Expenses are extra, and billed at the completion of the visit. Ross Video cannot guarantee the availability of a local Trainer, as such, travel costs to all locations will be invoiced at cost. Two (2) days, or more, of training is recommended for multiple ME systems. Four (4) weeks advanced scheduling notice is required. Additional days of training can be added if required.

Customers cancellation or rescheduling of services without seven (7) calendar days advanced notice will incur full invoice.

Specifications

The information is this section is subject to change without notice.

Switcher Resources

The number of resources specific to your switcher depends on the options installed.

Table 12: Switcher Resources in HD and UHDTV1 Modes

Resource	HD	UHDTV1
Custom Controls	2304 (48 Banks × 48 CCs)	
Custom Controls Running	96 (running at the same time)	
Aux Buses	64 (8 Banks × 8 Buses)	
Keyers per ME	6	6
Proc Amp/Color Correctors per ME	8	8
Chroma Keys per ME	2	2
2D DVE Channels per ME	14	6
3D DVE Channels per ME	4	1
3D DVE Warp channels per ME	0	0
Maximum DVE Sequences	1000	
Maximum GPI Inputs or Outputs	24 per ME	
Maximum Frame Tallies	24 per ME	
Ethernet Ports (virtual)	64	
UltriScape PiPs	8 per ME	
Maximum Video Inputs	80	
Maximum Video Outputs	18	
Max MEs (Ultrix FR5)	4	
Max MEs (Ultrix FR12)	8	
Memories	1,000	
Media-Store Video Channels	4 per ME (Video + Alpha)	
Media-Store Audio Channels	2 per ME	
Media-Store RAM CACHE per ME	8 Gigabytes	
Clip Register List (VTR/Video Server)	31,837 Clips	

Hardware Weights

Note: *Refer to the documentation that came with your router for weight information.*

Table 13: TouchDrive Panel Weights

Hardware	Weight
TD1C Panel	10 lbs (4.54 kg)
TD1 Panel	14 lbs (6.35 kg)
TD2 Panel	21 lbs (9.53 kg)
TD2S Panel	27 lbs (12.5kg)
TD3S Panel	54 lbs (24.5kg)

Table 14: Acuity® Panel Weights

Hardware	Weight
A1S Panel	48 lbs (21.8 kg)
A2M Panel	57 lbs (25.9 kg)
A2X Panel	62 lbs (28.1 kg)
A3 Panel	75 lbs (34.0 kg)
A3M Panel	74 lbs (33.6 kg)
A4 Panel	103 lbs (46.7 kg)

Power Rating

Table 15: TouchDrive Panel Power Consumption

	TD1C	TD1	TD2	TD2S	TD3S
Power (4880AR-xxx-03)	97W 6.4A 15V	102W 6.8A 15V	123W 8.2A 15V	138W 9.2A 15V	173W 11.53A 15V
Power (4880AR-xxx-02)	50W 3.33A 15V	73W 4.87A 15V	85W 5.67A 15V	107W 7.13A 15V	165W 11A 15V
Input Voltage	100 - 120V~, 220 - 240V~, 47-63Hz				

Table 16: Acuity® Panel Power Consumption

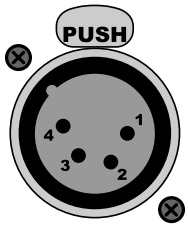
	A1S	A2M	A2X	A3M	A3	A4
Power	159W	247W	289W	340W	379W	526W
Input Voltage	100 - 120V~, 220 - 240V~, 47-63Hz					

Ports

Aux Power Ports (Acuity® Panels)

The aux power ports on the back of the control panel provide power for the touchscreen display and an auxiliary control panel.

CAUTION: *Only use the cables provided to connect your Acuity Auxiliary Control Panel or Touchscreen display to the Auxiliary Power module.*



Tip: *The status LEDs just below the port indicate whether each port is ok (green), or if there is a fault (red). Specific faults are reported on the Status menu.*

Table 17: Aux Power Rating

Specification	Value
Output Voltage	12VDC
Maximum Current	4A

Pin	Signal
1	GND
2	n/c
3	n/c
4	+12VDC

Serial Ports (Acuity® Panels)

The serial ports on the back of the control panel support the RS-232 (TIA/EIA-232) and RS-422 (TIA/EIA-422) transmission standards.

The serial ports use a female DB9 connector.

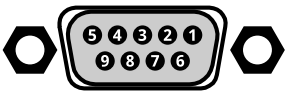


Table 18: Remote Port Pinouts

Pin	RS-232	RS-422
1	n/c	n/c
2	Tx	Rx-
3	Rx	Tx+
4	Ground	Ground
5	Ground	Ground
6	n/c	n/c
7	n/c	Rx+
8	n/c	Tx-
9	n/c	5V 1K Pull-up

External Link Ports (Acuity® Panels)

The external link ports use a female RJ-45 connector.

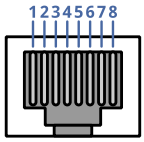


Table 19: External Link Port Pinouts

Pin	Signal
1	Rx+
2	Rx-
3	Tx+
4	PMC_SDI_Load+
5	PMC_SDI_Load-
6	Tx-
7	PMC_SDI_Latch+
8	PMC_SDI_Latch-

GPI Ports

There are GPI ports located on each SDPE blade.

The GPI ports use a female DB25 connector.

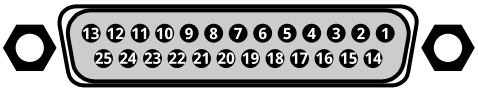


Table 20: GPIO Port (SDPE) Pinouts

Pin	Signal
1	GPI I/O 1
2	GPI I/O 2
3	GPI I/O 3
4	GPI I/O 4
5	GPI I/O 5
6	GPI I/O 6
7	GPI I/O 7

Pin	Signal
8	GPI I/O 8
9	GPI I/O 9
10	GPI I/O 10
11	GPI I/O 11
12	GPI I/O 12
13	GPI I/O 13
14	GPI I/O 14
15	GPI I/O 15
16	GPI I/O 16
17	GPI I/O 17
18	GPI I/O 18
19	GPI I/O 19
20	GPI I/O 20
21	GPI I/O 21
22	GPI I/O 22
23	GPI I/O 23
24	GPI I/O 24
25	Ground

Tally Ports

There are tally ports on the Acuity® control panel and each SDPE blade. The tally ports on the SDPE blade are identified by the ME.

The tally ports use a female DB25 connector.

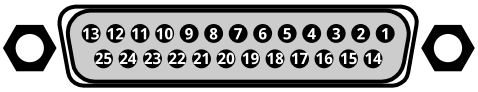


Table 21: Tally Rating

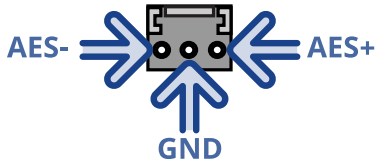
Specification	Value
Input Voltage	24VAC(rms)/40VDC
Maximum Current	120mA
Impedance	<15 ohm

Table 22: Tally Pinouts

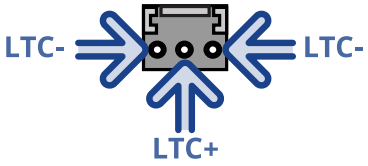
Pin	Tally #
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	Common

AES Output

The AES ports each support a single 24-bit (20-bit in SD) stereo pair.



LTC Input



Ordering Codes

Refer to the individual sections for more detailed information on each option.

Control Panels

Table 23: TouchDrive Panel Option Codes

	TD1C	TD1	TD2	TD2S	TD3S
Control Panels					
Panel	TD1C-PANEL	TD1-PANEL	TD2-PANEL	TD2S-PANEL	TD3S-PANEL
Brick Power Supply	CUF-PSU				
UltripowerRack Power Supply	CUF-RACKPWR				
Extended Warranty, Panel	TD1C-PANEL-HM	TD1-PANEL-HM	TD2-PANEL-HM	TD2S-PANEL-HM	TD3S-PANEL-HM
Touchscreen Displays					
TouchScreen Display	TD-TOUCHSCREEN				
TouchScreen Display Extended Warranty	TD-TOUCHSCREEN-HM				

Table 24: Acuity® Control Panel Options

	A1S	A2M	A2X	A3M	A3	A4
Standard Acuity™ Control Panel	A1S-PANEL	A2M-PANEL	A2X-PANEL	A3M-PANEL	A3-PANEL	A4-PANEL
Double-Down Acuity® Control Panel	A1SDD-PANEL	A2MDD -PANEL	A2XDD-PANEL	A3MDD -PANEL	A3DD-PANEL	A4DD-PANEL
Acuity Rack Panel	AP-SERVER-PANEL					
Panel Row - Add (Standard Panel)		A2MP-ROW -ADD	A2XP-ROW -ADD	A3MP-ROW -ADD	A3P-ROW -ADD	A4P-ROW-ADD
Panel Row - Add (Double-Down Panel)			A2XDDP-ROW -ADD			
Panel Row - Delete (Standard Panel)		A2MP-ROW -DEL	A2XP-ROW -DEL	A3MP-ROW -DEL	A3P-ROW-DEL	A4P-ROW-DEL
Panel Row - Delete (Double-Down Panel)			A2XDDP-ROW -DEL			
Redundant Power (Panel Only)	A1SP-REDPSU	A2MP-REDPSU	A2XP-REDPSU	A3MP-REDPSU	A3P-REDPSU	A4P-REDPSU
Auxiliary Control Panel - 24 Buttons with Mnemonics	AP-AUX2RU24	AP-AUX2RU24		AP-AUX2RU24		
Auxiliary Control Panel - 32 Buttons with Mnemonics			AP-AUX2RU32		AP-AUX2RU32	
Auxiliary Control Panel - 40 Buttons with Mnemonics						AP-AUX2RU40
Auxiliary Control Panel - Redundant Power	PSU-12V4A-2PIN					
Ultritouch Adaptable System Control Panel	ULTRITOUCH-2					
Ultritouch Redundant Power	ULTRITOUCH-PS					

	A1S	A2M	A2X	A3M	A3	A4
Extended Panel Tallies, 72 Total		AP-TALLY-72				
Extended Panel Tallies, 108 Total						AP-TALLY-108
Extended Warranty, 1 Year (Standard Panel Only)	A1SP -ROSSCARE	A2MP -ROSSCARE	A2XP -ROSSCARE	A3MP -ROSSCARE	A3P -ROSSCARE	A4P -ROSSCARE
Extended Warranty, 1 Year (Double-Down Panel Only)	A1SDDP -ROSSCARE	A2MDDP -ROSSCARE	A2XDDP -ROSSCARE	A3MDDP -ROSSCARE	A3DDP -ROSSCARE	A4DDP -ROSSCARE
Panel Module - Audio Control (Field Upgrade)	AP-AUDIO-UPG					
Panel Module - Audio Control (Slot 1)	AP-AUDIO-SL1			AP-AUDIO-SL1	AP-AUDIO-SL1	AP-AUDIO-SL1
Panel Module - Audio Control (Slot 2)	AP-AUDIO-SL2					AP-AUDIO-SL2
Panel Module - Audio Control (Slot 3)	AP-AUDIO-SL3					
Panel Module Replacement - 8-Key Keyer	AP-KEYER8MOD					
Panel Module Replacement - 8-Key Transition	AP-TRANS8MOD					
Panel Module Replacement - Crosspoint	AP-XPTMOD					
Panel Module Replacement - Double-Down Crosspoint	AP-DD-XPTMOD					
Panel Module Replacement - Crosspoint with Display	AP-XPTMODDISP					
Panel Module Replacement - Double-Down Crosspoint with Display	AP-DD-XPTMODDISP					
Panel Module Replacement - Crosspoint/Custom Control	AP-XPTCCMOD					
Panel Module Replacement - Double-Down Crosspoint/Custom Control	AP-DD-XPTCCMOD					
Panel Module Replacement - Crosspoint/Custom Control with Display	AP-XPTCCMODDISP					
Panel Module Replacement - Double-Down Crosspoint/Custom Control with Display	AP-DD-XPTCCMODDISP					
Panel Module Replacement - Global Memory	AP-GLBMEMMOD					
Panel Module Replacement - Menu Keypad Module	AP-MENUMOD					
Panel Module Replacement - Positioner	AP-POSHALF					
Panel Module - Shot Box (Field Upgrade)	AP-SHOTBOX-UPG					

	A1S	A2M	A2X	A3M	A3	A4
Panel Module - Shot Box (Slot 1)	AP-SHOTBOX-SL1		AP-SHOTBOX-SL1	AP-SHOTBOX-SL1	AP-SHOTBOX-SL1	AP-SHOTBOX-SL1
Panel Module - Shot Box (Slot 2)	AP-SHOTBOX-SL2			AP-SHOTBOX-SL2	AP-SHOTBOX-SL2	AP-SHOTBOX-SL2
Panel Module - Shot Box (Slot 3)						AP-SHOTBOX-SL3
Replacement Mnemonics	AP-8MNEMONIC					
Replacement Touchscreen Display	AP-TOUCHSCREEN-A					
Ethernet SideBox Module - SideShotNet	AP-SIDESHOT-E					
Ethernet SideBox Module - SideSlideNet	AP-SIDESLIDE-E					

Frames

Table 25: Frame Options

	Ultrix FR5	Ultrix FR12
Router (speak with your Ultrix™ sales representative for options)		
Ultrix™ Frame	ULTRIX-FR5	ULTRIX-FR12
HDBNC IO (16-in, 16-out, 2 SFPs)	ULTRIX-HDB-IO-A	
Ultripower Chassis with 1 PSU	ULTRIPOWER	
Ultripower Additional PSU	ULTRIPOWER-PS	
Ultricool	ULTRICOOL	
Ultricool Redundant PSU	ULTRCOOL-PS	
UltriScape Multi-Viewer	ULTRISCAPE	
UltriSpeed (12G Support)	ULTRISPEED-FR5	ULTRISPEED-FR12
UltriMix Audio	ULTRIMIX	
Switcher Hardware		
Ultrix Acuity CPU	ACUFR-CPU	ACUFR12-CPU
SDPE Blade (requires ME license)	SWR-SDPE	
Switcher Software Licenses		
Single HD ME License	ACUFR-HD-ME	
Single UHD ME License	ACUFR-UHD-ME	
Single HD-UHD ME Upgrade License	ACUFR-HD-UHD-ME-UPG	
3D DVE License	ACUFR-3DDVE-LIC	
Routing Switcher Interface	ACUFR-ROUTER	
Routing Switcher Interface - Ross®	ACUFR-ROUTER-ROSS	
Audio Mixer Interface - Small (16 and fewer inputs)	ACUFR-AUDMIXSM	
Audio Mixer Interface - Yamaha® 01V96	ACUFR-AUDMIXSMY	
Audio Mixer Interface - Large (17 and more inputs)	ACUFR-AUDMIXLG	

	Ultrix FR5	Ultrix FR12
Audio Mixer Interface - Yamaha® (not 01V96)	ACUFR-AUDMIXLGY	
Audio Mixer Interface - Ross®	ACUFR-AUDMIXLG-ROSS	
Robotic Camera System Interface	ACUFR-ROBOCAM	
Robotic Camera System Interface - Ross®	ACUFR-ROBOCAM-ROSS	
Character Generator Interface	ACUFR-CGCII	
Character Generator Interface - Ross®	ACUFR-CGCII-ROSS	
Extended Warranty		
Extended Warranty for SWR-SDPE blade (Adds 1 Year)	SWR-SDPE-HW	
Extended Warranty for Frame CPU (Adds 1 Year)	ACUFR-CPU-HW	ACUFR12-CPU-HW

Training

Table 26: Training and Commissioning

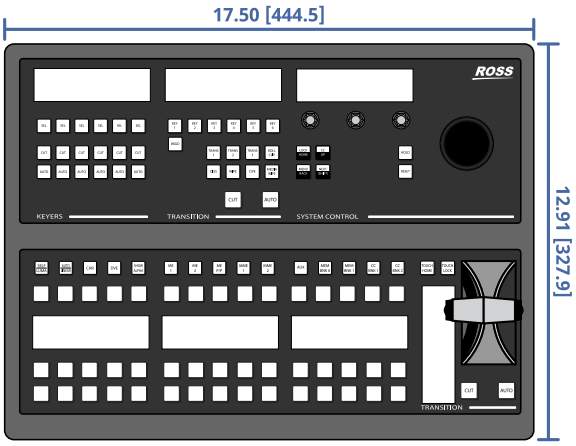
Commissioning - 1 Day	ACUITY-COM-1DAY
Online Training - 1 Day	ACUITY-ONL-1DAY
Operations Training (at Customer's Facility) - 1 Day	ACUITY-OTR-1DAY
Technical Training - 1 Day	ACUITY-OTT-1DAY

Panel Dimensions with Slot Locations

These dimensions are provided as a guide only. Contact Ross Video Technical Support for scale CAD drawings of the control panels and frames. The standard and Double-Down control panels are the same size.

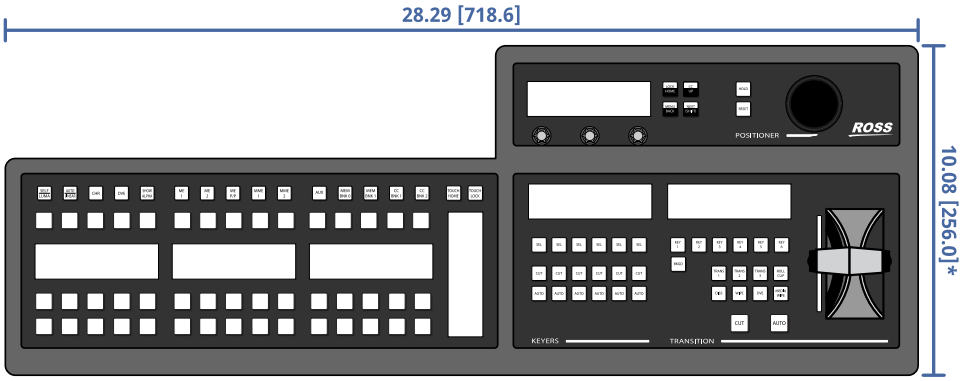
Dimensions are in inches with metric dimensions shown in brackets [mm].

TD1C



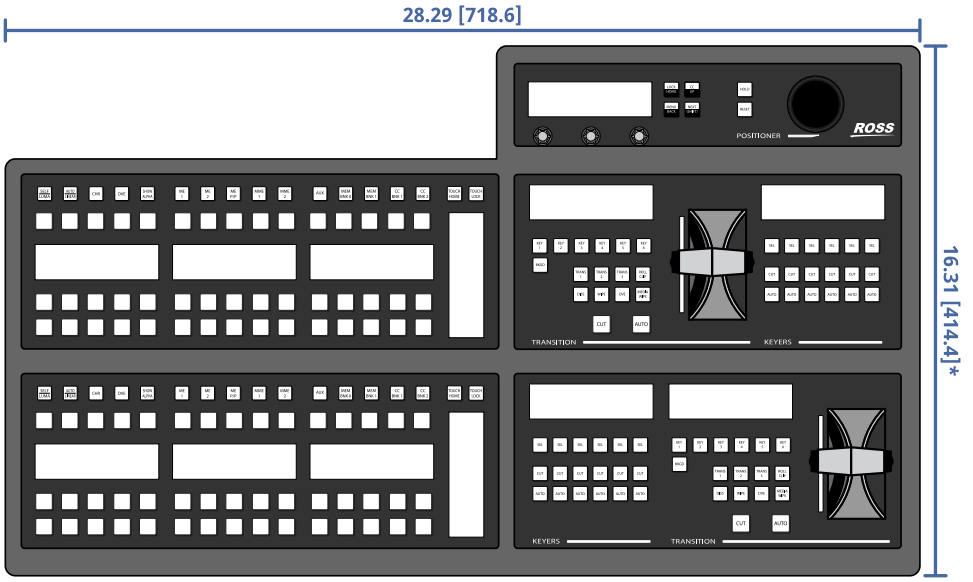
TD1

Note: ******* *Because the TouchDrive control panel is curved, the depth measurement is only approximate.*



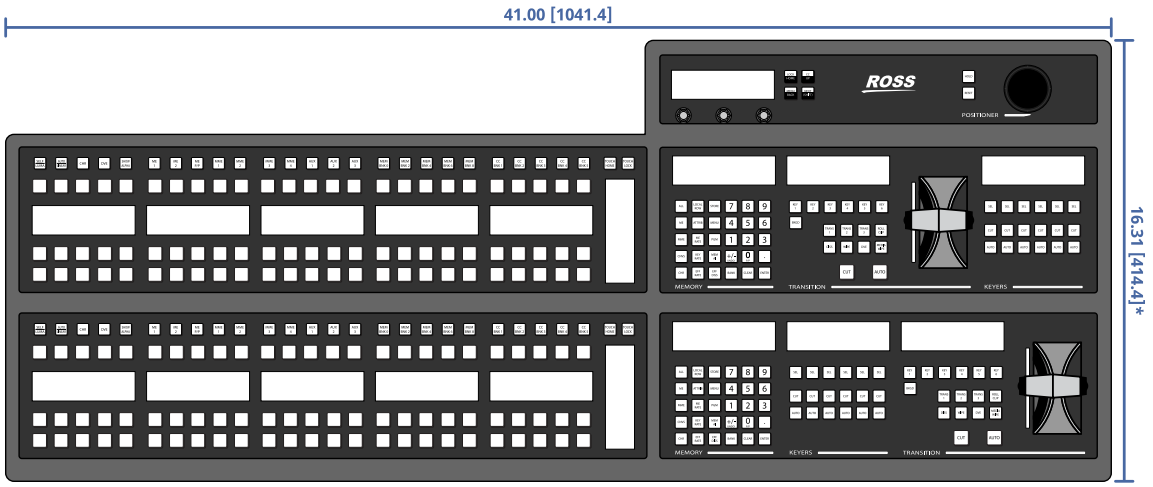
TD2

Note: ******* *Because the TouchDrive control panel is curved, the depth measurement is only approximate.*



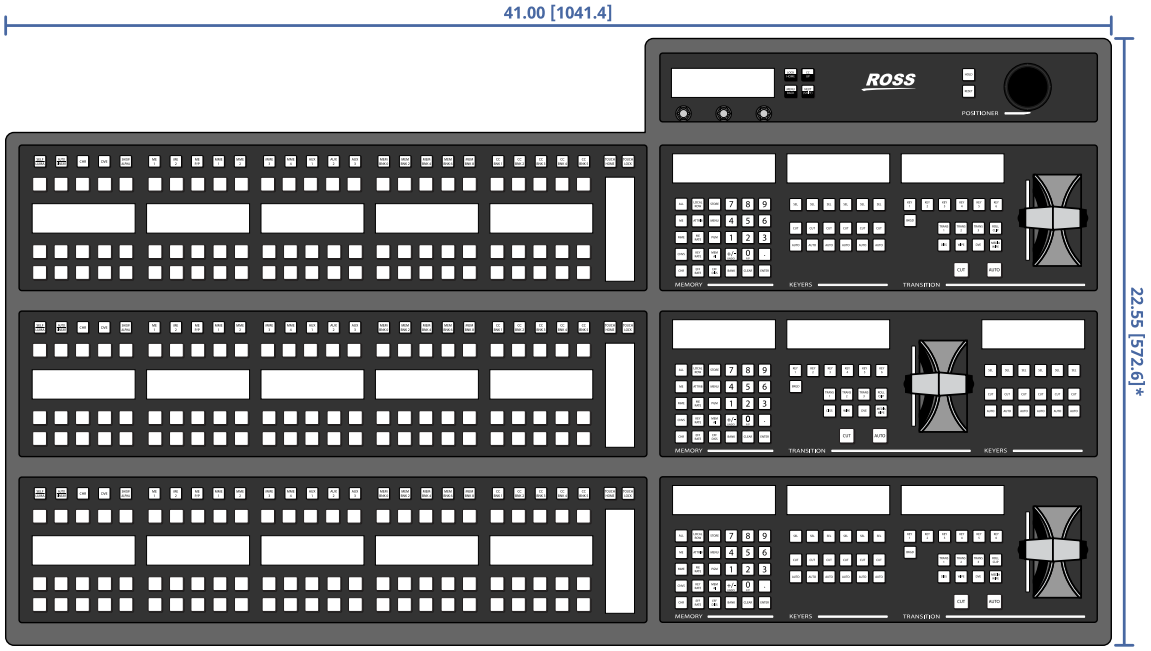
TD2S

Note: ******* *Because the TouchDrive control panel is curved, the depth measurement is only approximate.*

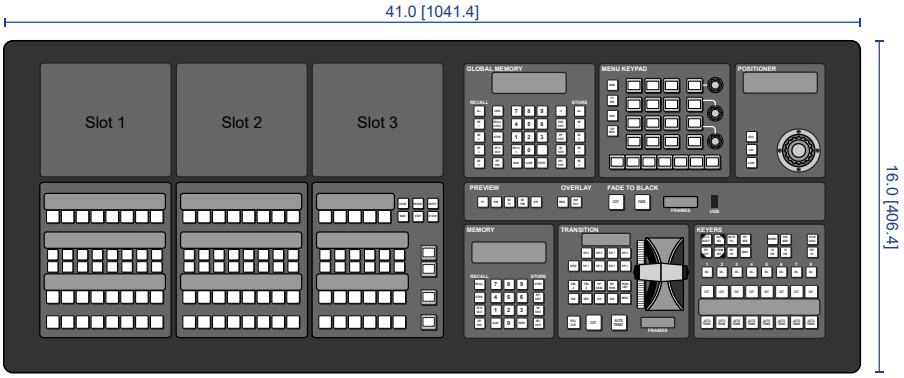


TD3S

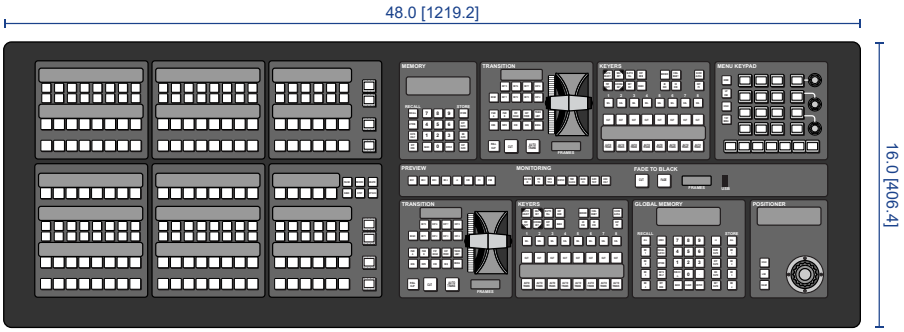
Note: ******* *Because the TouchDrive control panel is curved, the depth measurement is only approximate.*



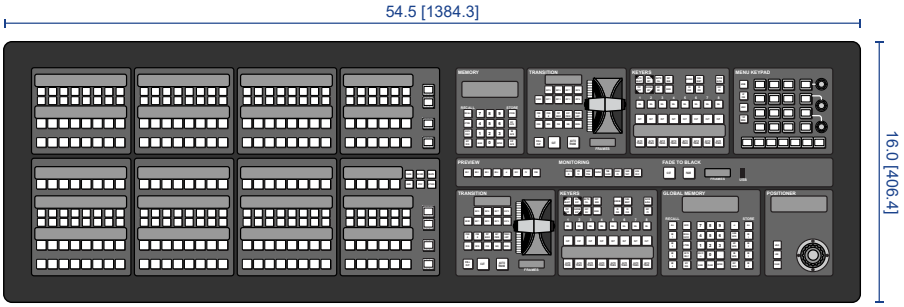
A1S/A1SDD



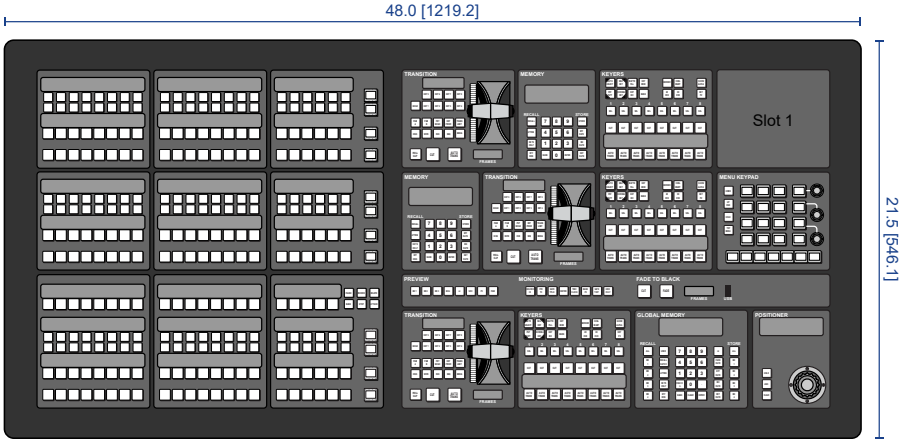
A2M/A2MDD



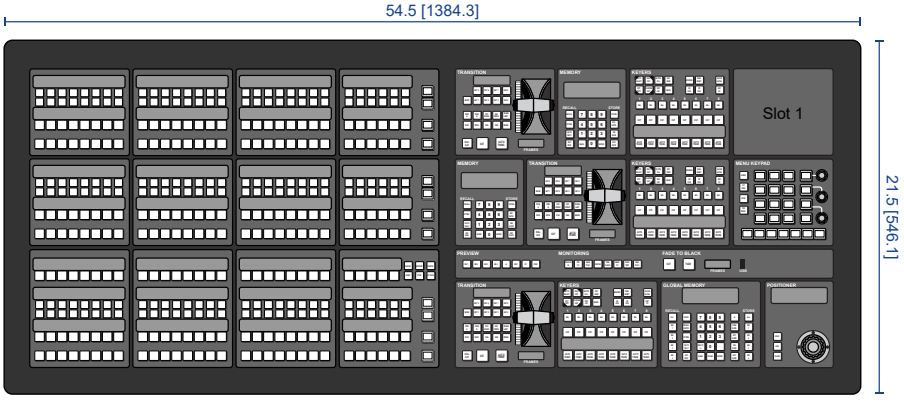
A2X/A2XDD



A3M/A3MDD



A3/A3DD



A4/A4DD