

Ultra

Carbonite Ultra

Specifications

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

Resources

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

Resource	SD and HD	UHDTV1
MEs (Min/Max) ²	1/3	1/2
MiniME™ Engines	4	2
Keyers per ME	4 + Trans	4 + Trans
Canvas Generators	2 ¹	1 ¹
Video Processor MultiViewer (Min/Max) ²	1/2	1/1
I/O MultiViewer (Min/Max) ²	1/2	0/1
MultiViewer Boxes	16	
MultiViewer Layouts	44	
I/O Processor (Min/Max) ²	8/34	-- ³
Input FSFCs/Output FCs (Min)	-- ³	2 ⁴
Input FSFCs (Max) ²	-- ³	7+1 FC ⁵
Output FCs (Max) ²	-- ³	4
Frame Delay (Max Frames)	0	7
Proc Amp/Color Correctors (Min/Max) ²	-- ³	2/8
2D DVE Channels Switcher Wide	8	2
Aux Buses	28	
Chroma Keys (floating)	4	2
Custom Controls	256 (8 Banks × 32 CCs)	
Max Events per CC	998	
GPI I/Os	24	
Matte Generators per ME	2	
Media-Store Channels (Video + Alpha)	4	2
Media-Store CACHE	8 GB	
Memories per ME	100	
Pattern Generators per ME	2	
Matte Generators	4 (ME+Global)	1 (Global)
Tallies	24	
SDI Video Inputs	24	18
SDI Video Outputs	14	10

Resource	SD and HD	UHDTV1
Frame IP (default)	192.168.0.123	
Panel/CarboNET IP (default)	192.168.0.129	

Notes:

¹ Each Canvas consumes MiniME™ engines to generate the output. The number of Canvas outputs that are available depends on the number of MiniME™ engines that are available.

² Software options are required to be installed to activate the maximum number of resources.

³ In SD or HD, the total number of color correctors, input FSFCs, and output FCs is shared. In UHDTV1 there are dedicated color corrector, input FSFC, and output FC resources.

⁴ There are 2 FSFCs that are shared between inputs and outputs.

⁵ Input FC 8 can only be used to up-convert HD video signals to UHDTV1. You cannot use this resource to frame-sync a UHDTV1 video signal.

Hardware Weights

Hardware	Weight
CB2S Panel	26 lbs (11.79 kg)
CB3X Panel	40 lbs (18.14 kg)
Ultra	13 lbs (5.90 kg)

Environmental Characteristics

All Switchers	
Ambient Temperature Range	0 - 40°C (32 - 104°F)
Frame Cooling	Active, Front-to-Back airflow
Control Panel Cooling	Passive

Video Input Specifications

Input Specification	Value
UHDTV1 Video Formats	UHDTV1 50/59.94/60 (UHD-2SI)
HD Video Formats	1080p 23.98/25/29.97/50/59.94 1080pSF 23.98/25/29.97 1080i 50/59.94 720p 50/59.94
SD Video Formats	480i, 576i
Dynamic Range Support (UHDTV1 only)	<ul style="list-style-type: none"> Standard Dynamic Range (SDR) Hybrid Log Gamma (HLG) Perceptual Quantizer (PQ) Sony® S-Log3.
Color Gamut Support (UHDTV1 only)	<ul style="list-style-type: none"> BT.709 BT.2020
Equalization (using Belden 1694 cable)	>40m @ 12Gb/s
	>50m @ 3Gb/s
	>100m @ 1.5 Gb/s
	>300m @ 270 Mb/s (5°-40°C)
Impedance	75 ohm, terminating
Video Inputs, SDI	SMPTE 259M/292M/424M/ST-2082 (non-looping)
Reference Inputs (terminating)	Standard Definition — analog black
	High Definition — tri-level sync

Video Output Specifications

Output Specification	Value
UHDTV1 Video Formats	UHDTV1 50/59.94/60 (UHD-2SI)
HD Video Formats	1080p 23.98/25/29.97/50/59.94 1080pSF 23.98/25/29.97 1080i 50/59.94 720p 50/59.94
SD Video Formats	480i, 576i
Return Loss	<-7.8dB @ 12GHz
	<-10dB @ 3GHz
	<-15dB @ 1.5GHz
Rise and Fall Time	26ps ±10% (UHD)
	240ps ±10% (HD)
	800ps ±10% (SD)
Signal Level	800mV ±10%

Output Specification	Value
DC Offset	0 Volts
Overshoot	<10%
Video Outputs, SDI HD Mode	10-bit SMPTE-292M/424M serial digital
Video Outputs, SDI UHDTV1 Mode	SMPTE ST 2082-1:2015 (Amendment 1:2016)

Audio Specifications

Specification	Value
Audio Depth	24-bit AES3 in HD (20-bit in SD)
Channels	1 Stereo Pair (2 channels)
Output	AES
File Format	Multi-channel Waveform Audio File (.wav)
Impedance	110 Ohms, differential
Minimum/Maximum output voltage swing	1.5/6V peak-to-peak
Rise and Fall Times	20ns, typical
Sample Rate	48kHz
Synchronization	Locked to Video

Jitter

Specification	Value
UHD - Tri-Level Sync	Alignment (> 100KHz) < 0.21UI
	Timing (<10Hz) < 1.84UI
UHD - Composite Reference	Performance not guaranteed with composite reference
HD - Tri-Level Sync	Alignment (> 100KHz) < 0.2UI
	Timing (<10Hz) < 1.0UI
HD - Composite Reference	Performance not guaranteed with composite reference
SD - Tri-Level Sync	Alignment (> 1KHz) < 0.2UI
	Timing (<10Hz) < 0.2UI
SD - Composite Reference	Alignment (> 1KHz) < 0.2UI Timing (<10Hz) < 0.5UI

System Timing

- All video inputs zero time relative to reference input, auto timing will correct for inputs out of time by up to +/- 0.25 line.
- System delay is less than 1 line.

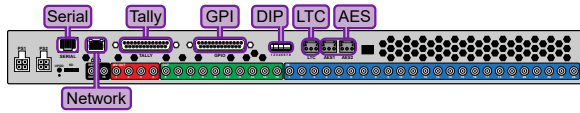
Power Consumption — Control Panel

				CB2S	CB3X
Power				45W 3.8A 12V	80W 6.7A 12V
Input Voltage	100 - 120V~, 220 - 240V~, 47-63Hz				

Power Consumption — Frame

Ultra	
Consumption	114W 7.6A 15V
Input Voltage	100 - 120V~, 220 - 240V~, 47-63Hz

Ports



Serial Port

The serial port supports the RS-422 transmission standard in the following format:

- 38.4k Baud
- 8 bits
- 1 stop bit
- Even Parity

Table 16: Serial Port Pinouts

Pin	Signal
1	Tx+
2	Tx-
3	Rx+
4	n/c
5	n/c
6	Rx-
7	Ground
8	Ground

GPI Port

The switcher supports 24 GPI I/Os.

Table 17: GPI I/O 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
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

Pin	Signal
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 Port

The switcher supports 24 fixed tallies.

Table 18: Tally Rating

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

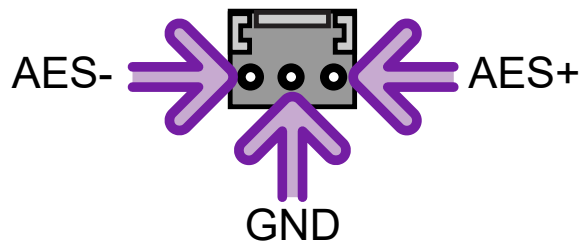
Table 19: Tally Pinouts

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

Pin	Tally #
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	Common

AES Port

The AES ports on the back of the frame each support a single 24-bit (20-bit in SD) stereo pair.



LTC Port

The LTC port on the back of the frame supports a single LTC connection.

