

<b>Cello Audio Metrics</b>		
<b>MICROPHONE PRE-AMPLIFIER:</b>	Cello numbers	Notes-1
(measured to insert send)		
MIC GAIN:	+5dB to +78dB via Combo XLR;	Range includes pad in and out
LINE GAIN:	-10dB to +65dB via Combo TRS	Range includes pad in and out
PHANTOM POWER:	48 VDC up to 10mA / channel	
MIC EIN:	-127dBu (with 150R Z source)	
CMRR:	> 80dB (1kHz)	
MAXIMUM INPUT LEVEL:	+22dBu via combo-XLR; +30dBu via combo-TRS (with pad)	
INPUT IMPEDANCE (Mic):	> 2.4kOhm combo XLR	
INPUT IMPEDANCE (Line):	> 12kOhm combo TRS	
FREQUENCY RESPONSE:	"±/- 0.3 dB 10Hz to 70kHz	
CROSSTALK:	Better than 90dB rejection @ 10kHz	
THD+N @ 0dBu (1kHz):	-103dB (22Hz to 20kHz)	Referred to +22dBu; Av = 5dB ; pad in
SNR:	117dB (22Hz to 20kHz) A-weighted	Referred to +22dBu; Av = 5dB ; pad in
Pad:	20dB	
HPF:	Fc (-3dB = 100Hz) 20dB / decade	First order 20dB/decade
XLR:	Pin 2 (Hot), Pin 3 (Cold) & Pin 1 (Shield)	
1/4" JACK:	TIP (Hot), RING (Cold) & SLEEVE (Shield)	
<b>INSTRUMENT IN</b>		
(Measured to SPIDF out )		
INSTRUMENT GAIN:	-infinity to +20dB	
MAXIMUM INPUT LEVEL:	24dBu	
INPUT IMPEDANCE:	1MOhm Unbalanced	
FREQUENCY RESPONSE:	"±/-0.2dB 10Hz to 20kHz	
THD+N @ 0dBu (1kHz):	-107dB 0.00045%	
SNR:	113dB 0.00022%	
1/4" JACK:	TIP (Hot) & SLEEVE (Shield)	
<b>INSERT SENDS (Mic Pre Out):</b>		
MAXIMUM OUTPUT LEVEL:	"±22dBu	
OUTPUT IMPEDANCE:	200 Ohm balanced	
1/4" JACK:	TIP (Hot), RING (Cold) & SLEEVE (Shield)	
<b>ADC LINE INPUTS (Insert Returns):</b>		
(measured at optical output under AES-17)		
MAXIMUM INPUT LEVEL:	"±22dBu	
DIGITAL REFERENCE LEVEL:	0dBFS = +22dBu	
INPUT IMPEDANCE:	10k Ohm	
FREQUENCY RESPONSE:	"±/- 0.3 dB 10 to Nyquist freq (70kHz at octal sample rates)	
CROSSTALK:		not measured
THD+N @ -1dBFS (1kHz):	-106dB	rel +22dBu
DYNAMIC RANGE:	120dB	rel +22dBu
1/4" JACK:	TIP (Hot), RING (Cold) & SLEEVE (Shield)	
<b>DAC OUTPUTS (1-2):</b>		
(measured from optical input under AES-17)		
MAXIMUM OUTPUT LEVEL:	"±22dBu	
DIGITAL REFERENCE LEVEL:	0dBFS = +22dBu	
OUTPUT IMPEDANCE:	200Ohm balanced	
FREQUENCY RESPONSE:	"±/- 0.3 dB 10 to Nyquist freq (70kHz at octal sample rates)	
CROSSTALK:		not measured
THD+N @ -1dBFS (1kHz):	-104dB	
DYNAMIC RANGE:	127dB	
1/4" JACK:	TIP (Hot), RING (Cold) & SLEEVE (Shield)	

<b>HEADPHONE OUTPUTS (1 &amp; 2)</b>		
(measured from optical input under AES-17)		
MAXIMUM OUTPUT LEVEL:	"+17dBu	
DIGITAL REFERENCE LEVEL:	0dBFS = +17dBu	
OUTPUT IMPEDANCE:	200 Ohm balanced	
FREQUENCY RESPONSE:	"+/- 0.3 dB 10 to Nyquist freq (70kHz at octal sample rates)	
CROSSTALK:		not measured
THD+N @ -1dBFS (1kHz):	0.0018% -95dB	rel +17dBu
DYNAMIC RANGE:	108dB	
MAX LEVEL INTO 30hms:		
MAX LEVEL INTO 6ohms:		
MAX LEVEL INTO 600ohms:	0.0056% -85dB	
1/4" JACK:	TIP (Left), RING (Right), SLEEVE (Shield)	
<b>DIGITAL i/o:</b>		
ADAT 16 CHANNELS	44.1 - 48kHz	
ADAT 8 CHANNELS (SMUX)	88.2 - 96kHz	
STEREO S/PDIF	44.1 - 192kHz	
<b>USB2.0 HIGH SPEED</b>		
No. of INPUT CHANNELS 20	6 analogue, 16 digital	
No. of OUTPUT CHANNELS 24	6 analogue, 2 digital	
Connector:	USB2.0 Type B	
Included Cables:	USB2.0 Type B to USB2.0 Type A (1.8m)	
<b>Cello Mixer Roundtrip (in to out) Latency:</b>		
44.1 kHz	1.2ms	Dscope measured
48kHz	1.1ms	"
88.2kHz	458us	"
96kHz	417us	"
176.4kHz	229us	"
192kHz	209us	"
354.8kHz	42us	"
384kHz	38us	"
<b>DAW Playback Latency; 32 Sample Buffer for Software Instrument Playback:</b>		
44.1 kHz	3.4ms	Logic estimate
48kHz	3.2ms	"
88.2kHz	2.7ms	"
96kHz	2.6ms	"
176.4kHz	2.3ms	"
192kHz	2.3ms	"
354.8kHz		
384kHz		
<b>DAW Roundtrip Software Monitoring Latency; 32 Sample Buffer (in to out):</b>		
44.1 kHz	10ms	Measured Dscope
48kHz	8.5ms	"
88.2kHz	6.1ms	"
96kHz	5.9ms	"
176.4kHz	4.8ms	"
192kHz	4.6ms	"
354.8kHz	3.7ms	Linear regression
384kHz	3.6ms	"
<b>POWER SUPPLY:</b>		
	5VDC Centre positive DC adapter (2.1mm) - 1.5Amps	

	Internally conditioned to provide +48VDC, Bipolar & low voltage rails for digital processing core & converters. Cello can be bus powered from hosts able to supply 1500mA.	
<b>Weight:</b>	Unit: 1.1kg	
	Packaged: 1.6kg	
<b>Dimensions:</b>	Unit: 221mm (w) x 72mm (h) x 150mm (d)	
	Packaged: 254mm (w) x 158mm (h) x 208mm (d)	