

Appendix C: Technical Info

Onyx 80 Series Specifications

Frequency Response

Mic Input to Main Output (Gain @ Unity)
 +0, -1 dB, <10 Hz to 80 kHz
 +0, -3 dB, <10 Hz to 130 kHz

Distortion (THD & IMD)

Mic Input to Main Output (@ +4 dBu)
 THD: < 0.007% max, 0.005% typical, 20 Hz to 20 kHz
 SMPTE IMD: < 0.005% (7 kHz/60 Hz, 4:1)

Dynamic Range

>105 dB, 24 channels assigned
 >115 dB, one-channel assigned

Noise Floor

Signal-to-Noise Ratio:
 -87 dBu (ref. +4 dBu, Mic In to Main Out,
 48 channels and Main Mix levels at unity)
 -90 dBu, (ref. +4 dBu, Mic In to Main Out,
 24 channels and Main Mix levels at unity)
 Equivalent Input Noise (E.I.N.), 20 Hz to 20 kHz Bandwidth,
 150Ω source impedance
 -129.5 dBu @ +60 dB gain
 Mic Output Noise:
 Direct Output: -98 dBu (minimum gain)
 Residual Output Noise:
 Main Out: -100 dBu (Channel and Main Mix levels off)
 Main Out: -83 dBu (48 channels and Main Mix levels
 at unity)
 -86 dBu (24 channels and Main Mix levels
 at unity)

Common Mode Rejection Ratio (CMRR)

Mic In: >70 dB @ 1 kHz, Gain @ maximum

Crosstalk

Adjacent Inputs: < -95 dB @ 1 kHz
 Input to Output: < -85 dB @ 1 kHz

Input Gain Control Range

Mic In: 0 dB to +60 dB
 Line In: -20 dB to +40 dB, mono channels

Phantom Power

+48 VDC

Equalization

Mono Channel EQ:
 High: ±15 dB @ 12 kHz
 High Mid: ±15 dB, sweepable from 400 Hz to 8 kHz
 Low Mid: ±15 dB, sweepable from 100 Hz to 2 kHz
 Low: ±15 dB @ 80 Hz
 Stereo Channel (Aux Input) EQ:
 High: ±15 dB @ 12 kHz
 High Mid: ±15 dB @ 2.5 kHz
 Low Mid: ±15 dB @ 400 Hz
 Low: ±15 dB @ 80 Hz

Mixer Rated Output

Main Outs: +4 dBu
 Aux Send: +4 dBu
 Group Send: +4 dBu
 Monitor Out: +4 dBu
 Matrix Out: +4 dBu
 Maximum Rated Output:
 +21 dBu @ Main XLR and TRS outputs

Maximum Input Levels

Mic Input: +21 dBu, Gain @ unity
 Line Input: +30 dBu, Gain @ -20 dB
 Aux Input: +21 dBu

Maximum Voltage Gain

Mic Input to:
 Main Out: 90 dB
 Group Send: 80 dB
 Aux Sends: 86 dB
 Monitor Out: 102 dB
 Matrix Out: 105 dB
 Phones Out: 102 dB
 Line Input to:
 Main Out: 70 dB
 Group Send: 60 dB
 Aux Sends: 66 dB
 Monitor Out: 82 dB
 Matrix Out: 85 dB
 Phones Out: 82 dB
 Stereo Aux Input to:
 Main Out: 50 dB
 Group Send: 40 dB
 Aux Sends: 39 dB
 Monitor Out: 62 dB
 Matrix Out: 65 dB
 Phones Out: 62 dB

Input Impedance

Mic Input: 2.4 kΩ, balanced
 Mono Channel Line Input: 30 kΩ balanced;
 15 kΩ unbalanced
 Stereo Aux Inputs: 20 kΩ balanced;
 20 kΩ unbalanced

Output Impedance

Main Out: 150 Ω balanced, XLR outputs;
 150 Ω TRS outputs
 Direct Out: 300 Ω
 Group Sends: 100 Ω
 Monitor Out: 100 Ω
 Matrix Out: 100 Ω
 Aux Sends: 100 Ω
 Phones Out: 25 Ω