

Appendix C: Technical Info

Onyx 800R Specifications

Frequency Response

Mic Input to Line Output (Gain @ unity):
 +0, -0.1 dB, 20 Hz to 30 kHz
 +0, -3 dB, 10 Hz to 170 kHz

Mic Input to Digital Output (AES, 192 kHz sample rate):
 +0, -0.2 dB, 20 Hz to 85 kHz
 +0, -1 dB, 10 Hz to 90 kHz

Distortion (THD & IMD)

Mic Input to Line Output (@ +4 dBu output):
 THD+N: < 0.0007%, 20 Hz to 20 kHz BW, 1 kHz input
 @ +4 dBu, preamp at unity gain
 THD+N: < 0.002%, 10 Hz to 30 kHz BW, 1kHz input
 @ 10mV rms (-37.8 dBu)
 SMPTE IMD: < 0.005% (4:1 IMD)

Mic Input to Digital Output (AES, 48 kHz sample rate):
 THD+N: < 0.004%, 10mV rms input,
 gain at -1 dB FS output

Dynamic Range

>123 dB (Mic In to Line Out)
 >113 dB (through A-to-D converters)

Noise

Signal-to-Noise (A-weighted):
 >103 dB (ref. +4 dBu, Mic In to Line Out, Gain @ unity)

Equivalent Input Noise (E.I.N.), 20 Hz to 20 kHz Bandwidth,
 150Ω source impedance:
 -129 dBu @ +60 dB gain

Residual Output Noise:
 Line Out: < -102 dBu (Channel Gain at unity)
 Digital Out (AES, 48 kHz): < -113 dB FS

Common Mode Rejection Ratio (CMRR)

Mic In: >60 dB @ 1 kHz, Gain @ maximum

Crosstalk

Mic Input to Line Output:
 < -100 dB @ 1 kHz, +10 dBu signal on adjacent
 input, 150Ω source impedance

Input Gain Control Range

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

Phantom Power

+48 VDC

Equalization

High-Pass Filter: 75 Hz @ 18 dB/octave

Rated Output

Line: +4 dBu
 Maximum Rated Output:
 +24 dBu @ Balanced Line-Level Outputs

Maximum Input Levels

Mic Input: +22 dBu, Gain @ unity
 Inst Input: +21 dBu, Gain @ -20 dB
 Line Input: > +22 dBu, Gain @ -20 dB

Input Impedance

Ch 1 and 2 Mic Input:
 300Ω, 500Ω, 1.3 kΩ, or 2.4 kΩ balanced

Ch 3 through 8 Mic Input:
 2.4 kΩ balanced

Inst Input: 1 MΩ
 Line: 20 kΩ balanced, 10 kΩ unbalanced

Output Impedance

Line: 100 Ω balanced

Signal Level LEDs

-20 dBu, 0 dBu (normal operating level), OL = 22 dBu

Sample Frequency Selections

32 kHz, 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz,
 176.4 kHz, 192 kHz, External

Bit Depth Selections

24-bit (full range from converters), 16-bit (dithered)

Analog Input Connectors

Eight balanced XLR mic inputs
 Two 1/4" TS high-impedance instrument inputs
 One DB25 connector with eight balanced line-level inputs

Analog Output Connectors

One DB25 connector with eight balanced line-level
 outputs

Digital Input Connectors

One BNC connector for external word clock input

Digital Output Connectors

Two Toslink Optical Connectors
 Both transmit channels 1-8 at 44.1/48 kHz operation

One transmits channels 1-4 and one transmits
 channels 5-8 at 88.2/96 kHz operation using
 S/MUX standard

One transmits channels 1-2 and one transmits
 channel 3-4 at 176.4/192 kHz operation using
 S/MUX standard

One DB25 Connector

Transmits AES/EBU or S/PDIF formatted digital
 audio with single-wire/dual-wire options available at
 all sample rates

AC Power Requirements

Power Consumption: 45 watts

Universal AC Power Supply:
100 VAC – 240 VAC, 50-60 Hz

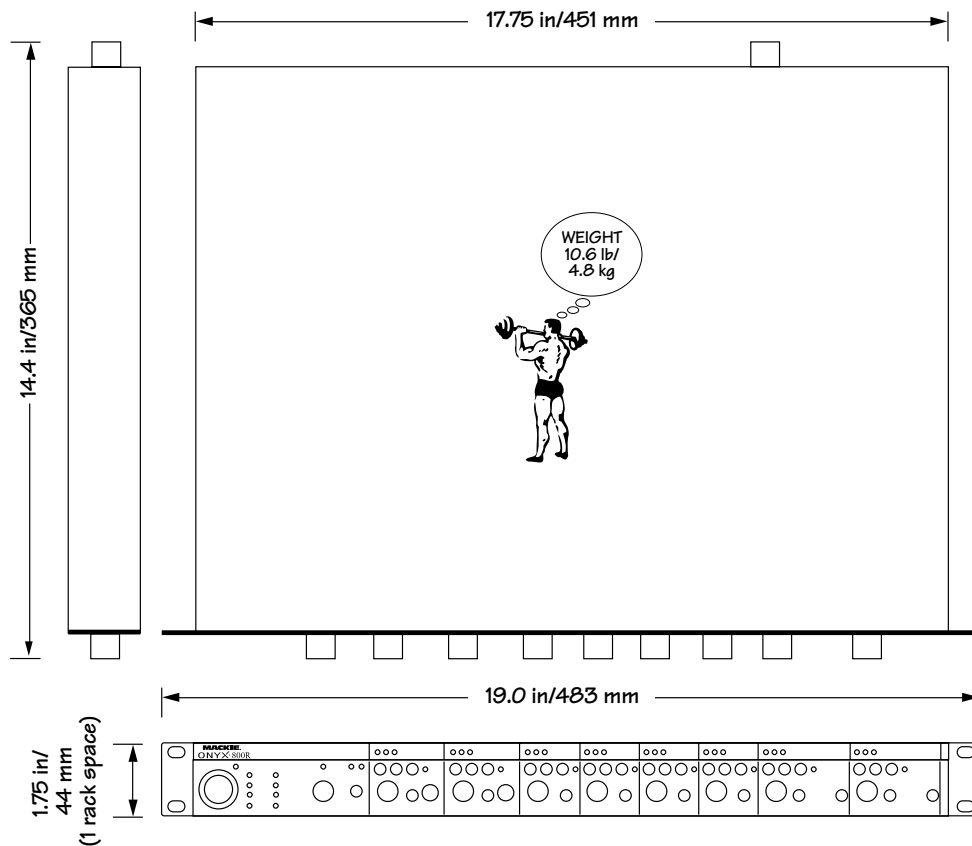
Physical Dimensions and Weight

Height: 1.75 in/44 mm
 Width: 17.75 in/451 mm (main body of unit)
 19.00 in/483 mm (with rack ears)
 Depth: 14.38 in/365 mm (including front knobs and rear BNC jack)
 Weight: 10.6 lb/4.8 kg

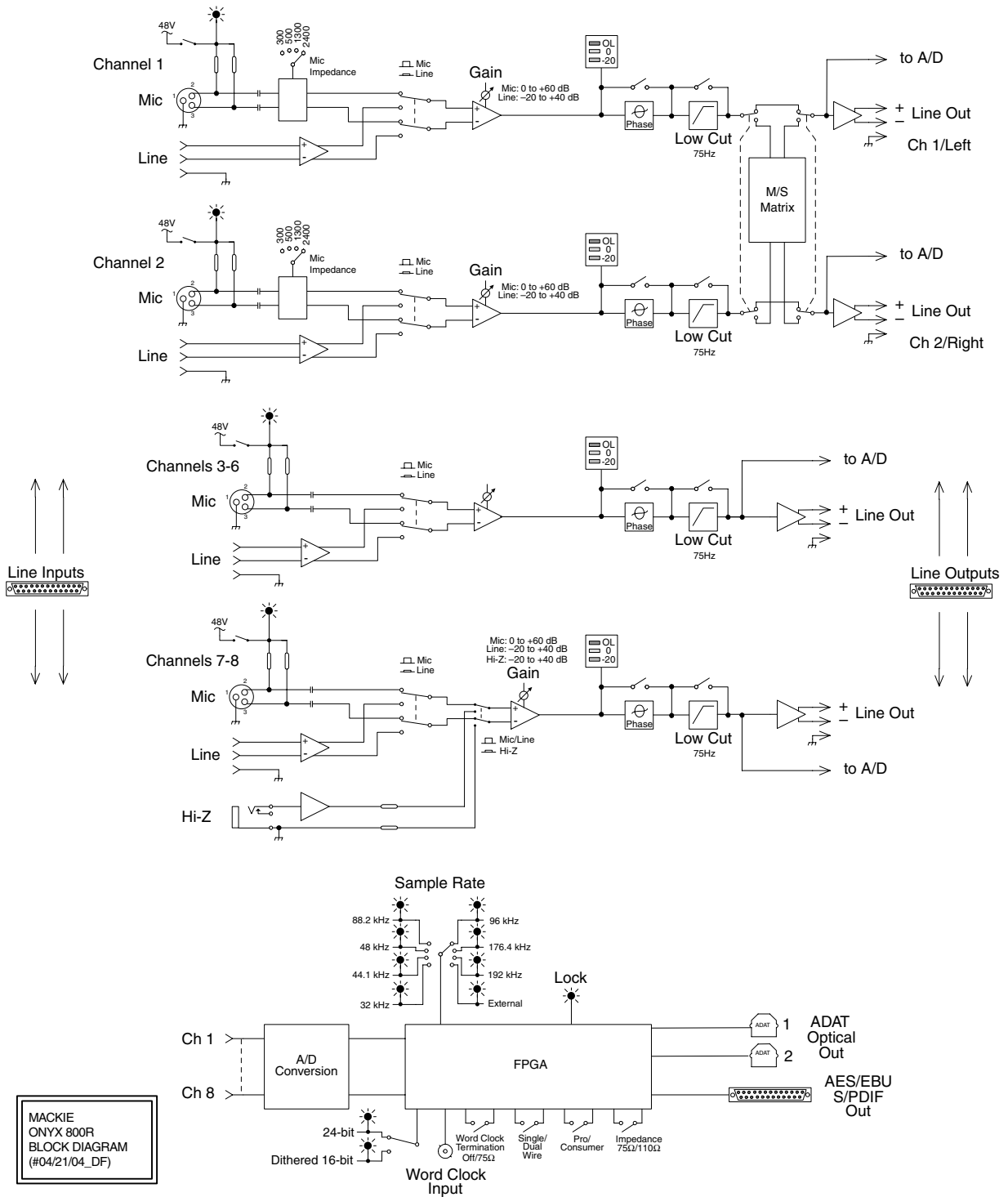
LOUD Technologies Inc. is always striving to improve our products by incorporating new and improved materials, components, and manufacturing methods. Therefore, we reserve the right to change these specifications at any time without notice.

“Mackie,” “Onyx,” and the “Running Man” are registered trademarks of LOUD Technologies Inc. All other brand names mentioned are trademarks or registered trademarks of their respective holders, and are hereby acknowledged.

©2004 LOUD Technologies Inc. All Rights Reserved.



Onyx 800R Block Diagram



MACKIE
ONYX 800R
BLOCK DIAGRAM
(#04/21/04_DF)