

## Onyx 820i

The Onyx 820i features two full mono mic/line channels (each with 3-band Perkins EQ with a sweepable mid), two stereo channels (each with 3-band Perkins EQ) and one unique mono/stereo hybrid channel (featuring 4-band Perkins EQ), two aux sends on all channels with pre/post capability and a powerful master section.

The Onyx 820i is equipped with 8x2 FireWire capability, allowing all channels, aux sends and main L/R to be routed to any desired DAW, including Pro Tools® 9 and M-Powered™ 8. The FireWire output from the computer may be brought back straight into a channel strip for easy mix integration. FireWire aggregation allows multiple Onyx 820i mixers to be connected.

Each mono channel has an Onyx mic preamp, phantom power, an input Gain control with 60 dB of gain, a sharp 18 dB/octave, 75 Hz Low Cut filter, Pan, Mute, Solo and a Channel Insert jack for connecting an external processor.

There are built-in DIs on the first two channels for direct connection of guitars or bass and a dedicated talkback section for easy communication with band members on stage or during recording sessions.

Other features include a stereo tape input and output, a 1/4-inch stereo headphone jack, stereo 12-segment LED meters and XLR and TRS stereo output jacks.

The Control Room/Phones section has its own level control, outputs and input matrix for selecting any combination of Main Mix, Tape In and Alt 3-4.

The Onyx 820i is compact and rack-mountable. Plus, it's a Mackie which means it is "Built-Like-A-Tank" and will survive years of abuse.

## APPLICATIONS

Live sound mixing, houses of worship, clubs, gymnasiums, banquet halls, conference rooms, boardrooms, multitrack studio and field recording, video post-production, multimedia applications, broadcast, and many, many more.



## FEATURES:

- 8-channel premium analog mixer with integrated 24-bit / 96 kHz FireWire I/O
- Three Onyx boutique quality mic preamps
- 3-band Perkins EQ with sweepable mids on mic/line channels
- 3-band Perkins EQ on stereo line channels
- Hybrid mono/stereo channel with 4-band Perkins EQ
- 8x2 FireWire routing, including aux sends, main L/R and pre/post EQ assignment for all channels
- Compatible with most major DAWs
  - Pro Tools® 9 / M-Powered™ 8
  - Logic®
  - SONAR™
  - Cubase®
  - Ableton® Live
  - Final Cut Pro®
  - ...and more
- Stereo playback from DAW, returned to control room or into channel for integration into mix
- Built-in DI on first two channels for direct connection of guitars, bass, etc.
- Individual 48V phantom power switches on all mic inputs
- Talkback section with built in mic and flexible routing
- "Planet-Earth" switching power supply for worldwide use
- Optional rack kit available
- Includes Tracktion 3™ Music Production Software for Mac or PC

## Onyx 820i SPECIFICATIONS

### Noise Characteristics

Equivalent Input Noise (EIN), mic input at insert, 150 Ω source impedance, 20 Hz to 20 kHz	
60 dB (max) gain:	-127 dBu
40 dB gain:	-126.5 dBu
Equivalent Input Noise (EIN), mic input at insert, 50 Ω source impedance, A-weighted	
60 dB (max) gain:	-130.5 dBu
40 dB gain:	-130 dBu
Output Noise Figure (1/4" Main out, all channels assigned to main, Gain knobs at unity, 20 Hz to 30 kHz)	
Main Mix knob down, channel Level knobs down:	-107 dBu (-111 dB SNR, ref +4 dBu)
Main Mix knob unity, channel Level knobs down:	-95.5 dBu (-99.5 dB SNR, ref +4 dBu)
Main Mix knob unity, channel Level knobs unity:	-91.5 dBu (-95.5 dB SNR, ref +4 dBu)
FireWire Through (Record + Playback) Dynamic Range: (0 dBu in, mic input to FireWire send, returned to Control Room, all gain stages at unity, 20 Hz to 20 kHz)	
44.1 kHz sample rate:	-104 dB
96 kHz sample rate:	-106.5 dB

### Frequency Response

Mic input to any output (all gain stages at unity, +0 / -0.5 dB)	20 Hz to 20 kHz
Stereo channel line input to any output (all gain stages at unity, +0 / -0.5 dB)	20 Hz to 20 kHz
FireWire in and out (mic input to FireWire send, returned to Control Room, all gain stages at unity):	
44.1 kHz sample rate (+0 / -0.5 dB)	20 Hz to 20 kHz -3 dB at 21 kHz
96 kHz sample rate (+0 / -0.5 dB)	20 Hz to 20 kHz -3 dB at 45 kHz

### Distortion (THD+N)

(20 Hz to 20 kHz bandwidth)	
Mic input at insert (+4 dBu in, 0 dB gain, +4 dBu out)	0.001%
Mic input at insert (-36 dBu in, +40 dB gain, +4 dBu out)	0.007%
Stereo channel line input to any output (+4 dBu in, all gain stages at unity, +4 dBu out)	0.005%
FireWire in and out (+4 dBu in, mic input to FireWire send, returned to Control Room, all gain stages at unity)	
44.1 kHz sample rate:	0.01%, 20 Hz to 2 kHz 0.02%, 2 kHz to 20 kHz
96 kHz sample rate:	0.01%, 10 Hz to 1 kHz 0.03%, 1 kHz to 47 kHz

### Attenuation and Crosstalk

@1 kHz	
Main Mix knob down	-80 dBu
Channel Alt/Mute switch engaged	-90 dBu
Channel Level knob down	-80 dBu

### Common Mode Rejection Ratio (CMRR)

Mic input to insert, max gain, 1 kHz	-70 dB
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### Maximum Input Levels

Mic input, gain at min (0 dB)	+22 dBu
Mic input, gain at max (60 dB)	-38 dBu
Line input, gain at -20 dB	+22 dBu
Instrument input, gain at -20 dB	+22 dBu
Tape input	+12 dBu
Aux return	+22 dBu

### Maximum Output Levels

All outputs	+22 dBu
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### Equalization

Mono Channels	
Low	±15 dB @ 80 Hz
Mid frequency	100 Hz to 8 kHz
Mid gain	±15 dB
High	±15 dB @ 12 kHz
Hybrid Channel	
Low	±15 dB @ 80 Hz
Low Mid	±15 dB @ 400 Hz
High Mid	±15 dB @ 2.5 kHz
High	±15 dB @ 12 kHz
Stereo Channels	
Low	±15 dB @ 80 Hz
Mid	±15 dB @ 2.5 kHz
High	±15 dB @ 12 kHz

### FireWire

Sample Rates Available	44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz
Buffer Size	32 (44.1 kHz and 48 kHz only), 64, 128, 256, 512, 1024, 2048 samples
Resolution	24-bit

### Onyx 820i SPECIFICATIONS continued...

#### Meters

2-segment pre-fader channel meters	OL (+18 dBu), -20 dBu
12-segment pre-fader Control Room meters	OL (+20 dBu), +15, +10, +6, +3, 0, -2, -4, -7, -10, -20, -30 (0 dB = 0 dBu)

#### Input Impedance

Mic input	2.8 k $\Omega$ balanced
Hi-Z input	1 M $\Omega$ unbalanced
Mono channel line input	30 k $\Omega$ balanced 15 k $\Omega$ unbalanced
Stereo channel line input	20 k $\Omega$ balanced 10 k $\Omega$ unbalanced

#### Output Impedance

Main XLR output	100 $\Omega$ balanced
Phones output	75 $\Omega$
All other outputs	300 $\Omega$

#### AC Power Requirements

Power Consumption	25 watts
Universal AC Power Supply	100 – 240 VAC, 50 – 60 Hz
Operating Temperature	0° – 40°C 32° – 104°F

#### Physical Properties (packaged product)

Height	7.5 in / 191 mm
Width	12.0 in / 305 mm
Depth	16.0 in / 406 mm
Shipping Weight	11.3 lb / 5.1 kg

#### Physical Properties (product)

Height	3.8 in / 96 mm
Width	9.0 in / 229 mm
Depth	14.2 in / 361 mm
Net Weight	10.0 lb / 4.5 kg

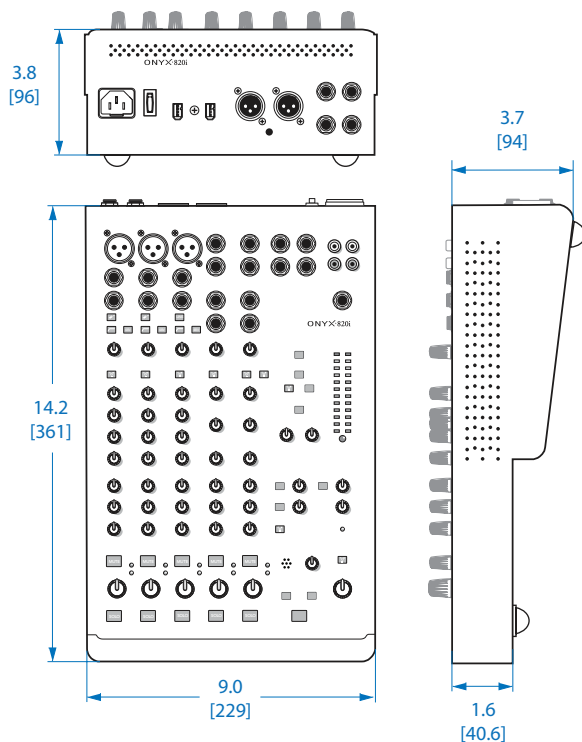
#### Options

Rack Mount Kit	0031909-00
Mixer Bag	0032335

#### Ordering Information

Onyx 820i 8-Channel Premium Mixer with FireWire, US	P/N 0031419-00
Onyx 820i 8-Channel Premium Mixer with FireWire, EU	P/N 0031419-01

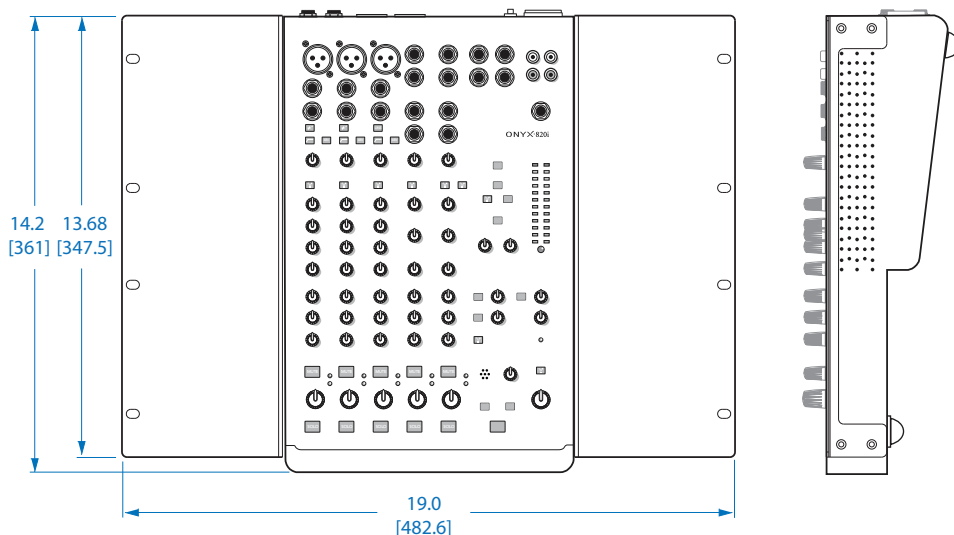
### Onyx 820i DIMENSIONS



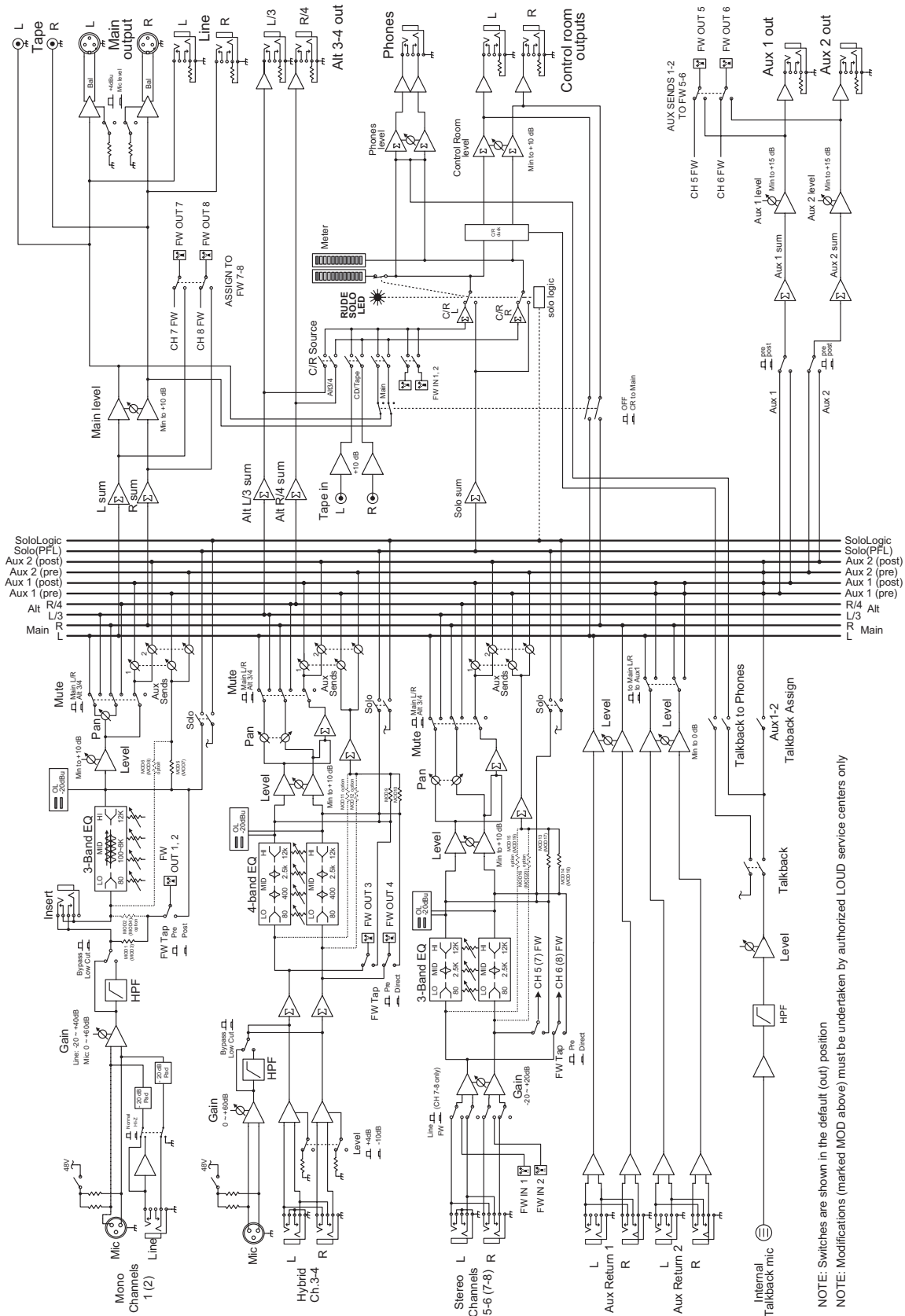
#### NOTES:

1. WEIGHT APPROX. 10.0 lb [4.5 kg].
2. SHIPPING WEIGHT APPROX. 11.3 lb [5.1 kg].

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN INCHES. DUAL [MM] DIMENSIONS FOR REF ONLY

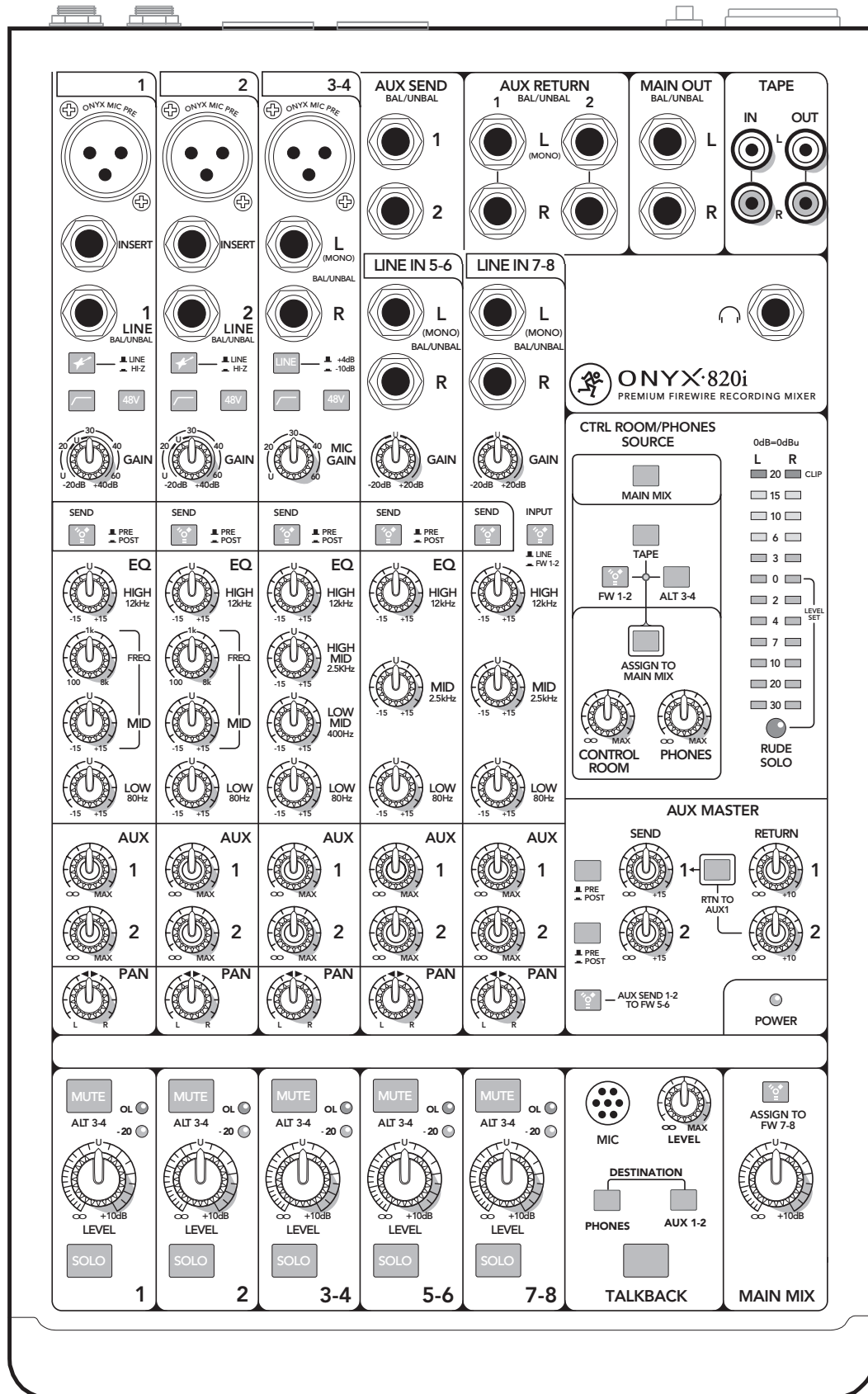


### Onyx 820i BLOCK DIAGRAM

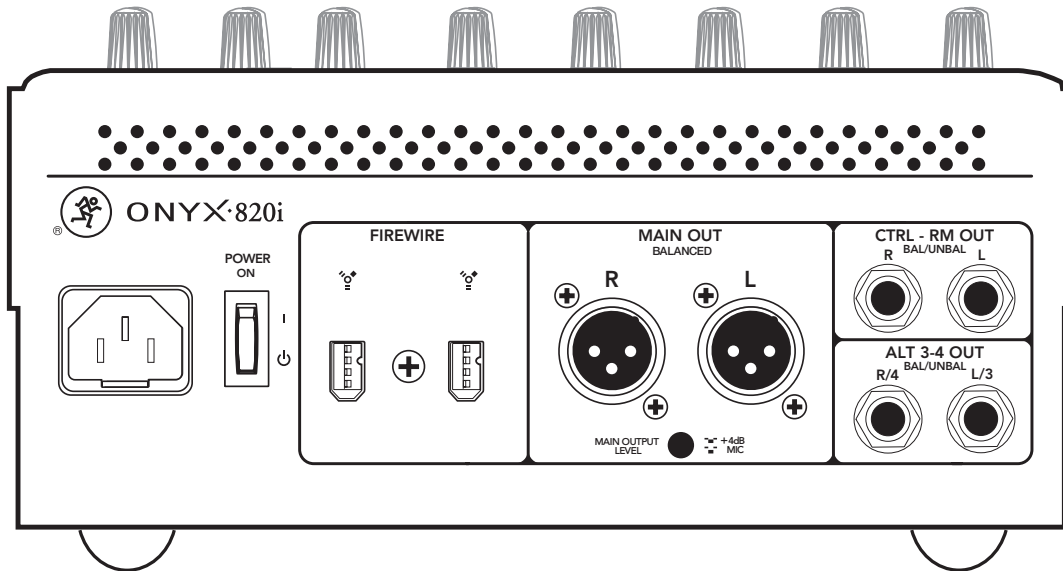


NOTE: Switches are shown in the default (out) position  
 NOTE: Modifications (marked MOD above) must be undertaken by authorized LOUD service centers only

### Onyx 820i FRONT PANEL



### Onyx 820i REAR PANEL



Electronic files for this product are available at:

[www.mackie.com](http://www.mackie.com)

Specification Sheet

Onyx820i\_SS.PDF

Owner's Manual

Onyx820i\_OM.PDF

# MACKIE®

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