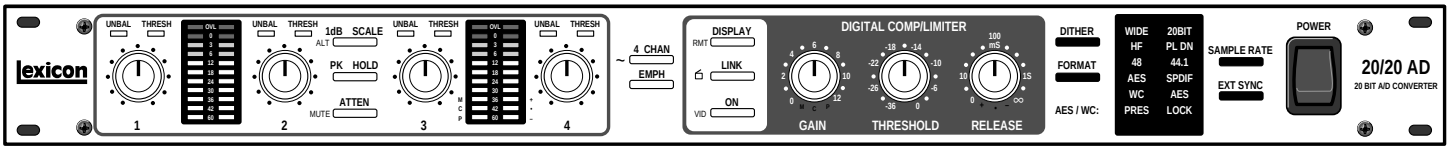
20/20 AD Quick Reference Guide



Getting Started

Input Connections		
	Balanced	Unbalanced
pin 1	Screen (Shield)	Screen and Return
pin 2	Positive Polarity	Positive Polarity
pin 3	Return	Open or Return

ATTEN reduces input level by 6dB. Use sparingly, and only on balanced input signals.

Make sure the rear panel BALANCE switches are set to match the type of input. (IN = unbalanced; OUT = balanced) The red UNBAL light will indicate an error if there is a mismatch.

Note: Non-linearity of the potentiometer can cause the signal to become unbalanced when the level knob is set to 11:30. To correct this, turn the knob slightly in either direction until the UNBAL light goes out.

EXT SYNC allows you to synchronize to an internally derived sample clock, or to an external AES or Word Clock signal in the range of 41-51kHz.

Note: The Word Clock input is not transformer-isolated, and requires a ground connection between the 20/20 AD and the signal source.

Dither types vary in spectral distribution of noise:

WIDE produces white noise

HF produces noise whose amplitude is lower than WIDE at low frequencies, but higher at high frequencies.

20 BIT has the same spectrum as HF, but with lower amplitude. Use this setting when recording to 20-bit media.

<u>Before</u> switching between Internal and External modes, be sure to reduce monitor volume, as some D/A converters do not mute when they lose lock.

Level Meters

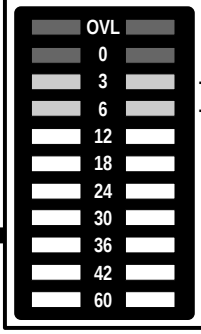
When the compressor is OFF, the behavior of the level meters is determined by settings of 1 dB SCALE and PK HOLD.

Press 1dB SCALE to select 1dB scale on level meters.

Press PK HOLD to cause the level meters to hold at the highest level received.

When the compressor is ON, pressing DISPLAY will cause gain reduction (in dB) to be displayed on the right two meters (2-channel mode) or on all four meters (4-channel mode).

	Switches ON	Meters 1 & 2	Meters 3 & 4
4-Channel Mode	none	Normal	Normal
	1 dB SCALE	1 dB Scale	1 dB Scale
	DISPLAY	Gain Reduction	Gain Reduction
2-Channel Mode	none	Normal	(Blank)
	1 dB SCALE	Normal	1 dB Scale
	DISPLAY	Normal	Gain Reduction



	NORMAL	1dB SCALE	GAIN REDUCTION
- red -	OVL	OVL	1
- red -	0	0	2
- yellow -	-3	-1	3
- yellow -	-6	-2	4
- green -	-12	-3	5
- green -	-18	-4	6
- green -	-24	-5	7
- green -	-30	-6	8
- green -	-36	-7	9
- green -	-42	-8	10
- green -	-60	-9	11

Alternate Modes

To activate the alternate modes...

press and hold **1dB SCALE** (ALT)

...then press one of these.

ATTEN (MUTE) **DISPLAY** (RMT) **DITHER**

4 CHAN (~) **LINK**

ON (VID)

Repeat to exit the alternate mode.

ALT-ATTEN will mute the outputs. The level meters will still work.

ALT-4 CHAN activates output of a digital sinewave at the AES ports.

ALT-DISPLAY activates remote mode/front panel lockout. When activated, the 1dB SCALE and DISPLAY LEDs flash and front panel controls are locked into their current settings.

In 4-channel mode, ALT-LINK activates a synchronized short tone burst.

ALT-ON is reserved for future enhancements.

ALT-DITHER activates psychoacoustically optimized noise shaping. (Disables 4-channel mode, compression and mute functions.)

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Using the Compressor

GAIN

THRESHOLD	1	2	3	4	5	6	7	8	9	10	11	12
0dB												
-3dB	1.50:1	3.00:1	4.00:1	4.00:1	4.00:1	4.00:1	4.00:1	4.00:1	4.00:1	4.00:1	4.00:1	4.00:1
-6dB	1.20:1	1.50:1	2.00:1	3.00:1	4.00:1	4.00:1	4.00:1	4.00:1	4.00:1	4.00:1	4.00:1	4.00:1
-8dB	1.14:1	1.33:1	1.66:1	2.00:1	2.66:1	4.00:1	4.00:1	4.00:1	4.00:1	4.00:1	4.00:1	4.00:1
-10dB	1.11:1	1.25:1	1.42:1	1.66:1	2.00:1	2.50:1	3.33:1	4.00:1	4.00:1	4.00:1	4.00:1	4.00:1
-12dB	1.09:1	1.20:1	1.33:1	1.50:1	1.71:1	2.00:1	2.40:1	3.00:1	4.00:1	4.00:1	4.00:1	4.00:1
-14dB	1.07:1	1.16:1	1.27:1	1.40:1	1.55:1	1.75:1	2.00:1	2.33:1	2.81:1	3.50:1	4.00:1	4.00:1
-16dB	1.06:1	1.14:1	1.23:1	1.33:1	1.45:1	1.60:1	1.77:1	2.00:1	2.28:1	2.66:1	3.20:1	4.00:1
-18dB	1.06:1	1.12:1	1.20:1	1.28:1	1.38:1	1.50:1	1.63:1	1.80:1	2.00:1	2.25:1	2.57:1	3.00:1
-20dB	1.05:1	1.11:1	1.17:1	1.25:1	1.33:1	1.42:1	1.53:1	1.66:1	1.81:1	2.00:1	2.22:1	2.50:1
-22dB	1.05:1	1.10:1	1.16:1	1.22:1	1.29:1	1.37:1	1.46:1	1.57:1	1.69:1	1.83:1	2.00:1	2.20:1
-24dB	1.04:1	1.09:1	1.14:1	1.20:1	1.26:1	1.33:1	1.41:1	1.50:1	1.60:1	1.71:1	1.84:1	2.00:1
-26dB	1.04:1	1.08:1	1.13:1	1.18:1	1.23:1	1.30:1	1.36:1	1.44:1	1.52:1	1.62:1	1.73:1	1.85:1
-30dB	1.03:1	1.07:1	1.11:1	1.15:1	1.20:1	1.25:1	1.30:1	1.36:1	1.42:1	1.50:1	1.57:1	1.66:1
-36dB	1.02:1	1.06:1	1.09:1	1.12:1	1.16:1	1.20:1	1.24:1	1.28:1	1.33:1	1.38:1	1.44:1	1.50:1

To minimize the audibility of compression artifacts, use ratios from the unshaded portion of the table.

Dynamic Range Compression

Start with compressor GAIN set between 4 and 6dB. → Set THRESHOLD between -18 and -36dB. → Set RELEASE to 100 mS. → Shorten the time constant for percussive program material and lengthen it for voice.

Overload Protection

Press PK HOLD and 1dB SCALE. Set input so that peaks read approximately -4dB. → Set compressor GAIN to 4dB. → Set THRESHOLD to 0dB. → Start with RELEASE set to 100mS and adjust it for the program material

Recognizing Machine States

Flashing	Machine State	Comment
1dB SCALE and ATTEN	Outputs muted.	To unmute, press and hold 1dB SCALE and press ATTEN.
1dB SCALE and 4-CHAN	Sinewave generator mode	To exit, press and hold 1dB SCALE and press 4-CHAN.
1dB SCALE and EMPH	Diagnostics mode	To exit, turn 20/20 AD POWER off, then on again.
1dB SCALE and DISPLAY	Front panel lockout	To exit, press and hold 1dB SCALE and press DISPLAY.
WC or AES	External sync source selected but not present	Connect the appropriate sync source or use EXT SYNC to select Internal Sync (neither WC nor AES lighted).
48 and 44.1	AES sync source not present or out of range	AES sync source must be within 41-51 kHz range.
Continuously Lit		
WIDE, HF and 20BIT	Psychoacoustically optimized noise shaping activated	4-CHAN, DISPLAY, LINK, compressor ON and ALT-MUTE are disabled. To exit, press DITHER.

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