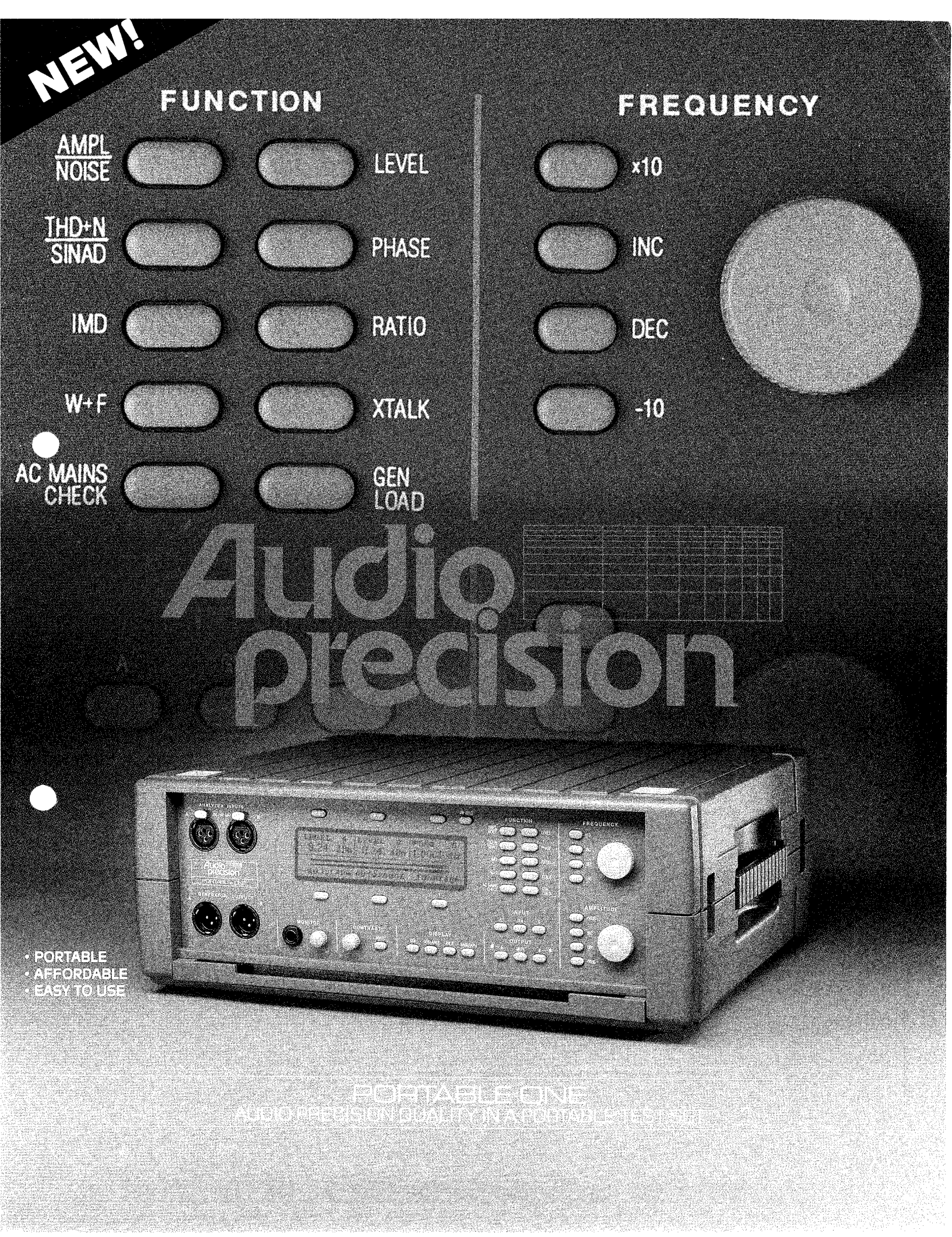

NEW!
FUNCTION
FREQUENCY
AMPL
NOISE
LEVEL
x10
THD+N
SINAD
PHASE
INC
IMD
RATIO
DEC
W+F
XTALK
-10
AC MAINS
CHECK
GEN
LOAD
Audio
precision
• PORTABLE
• AFFORDABLE
• EASY TO USE
PORTABLE ONE
AUDIO PRECISION QUALITY IN A PORTABLE TEST SET

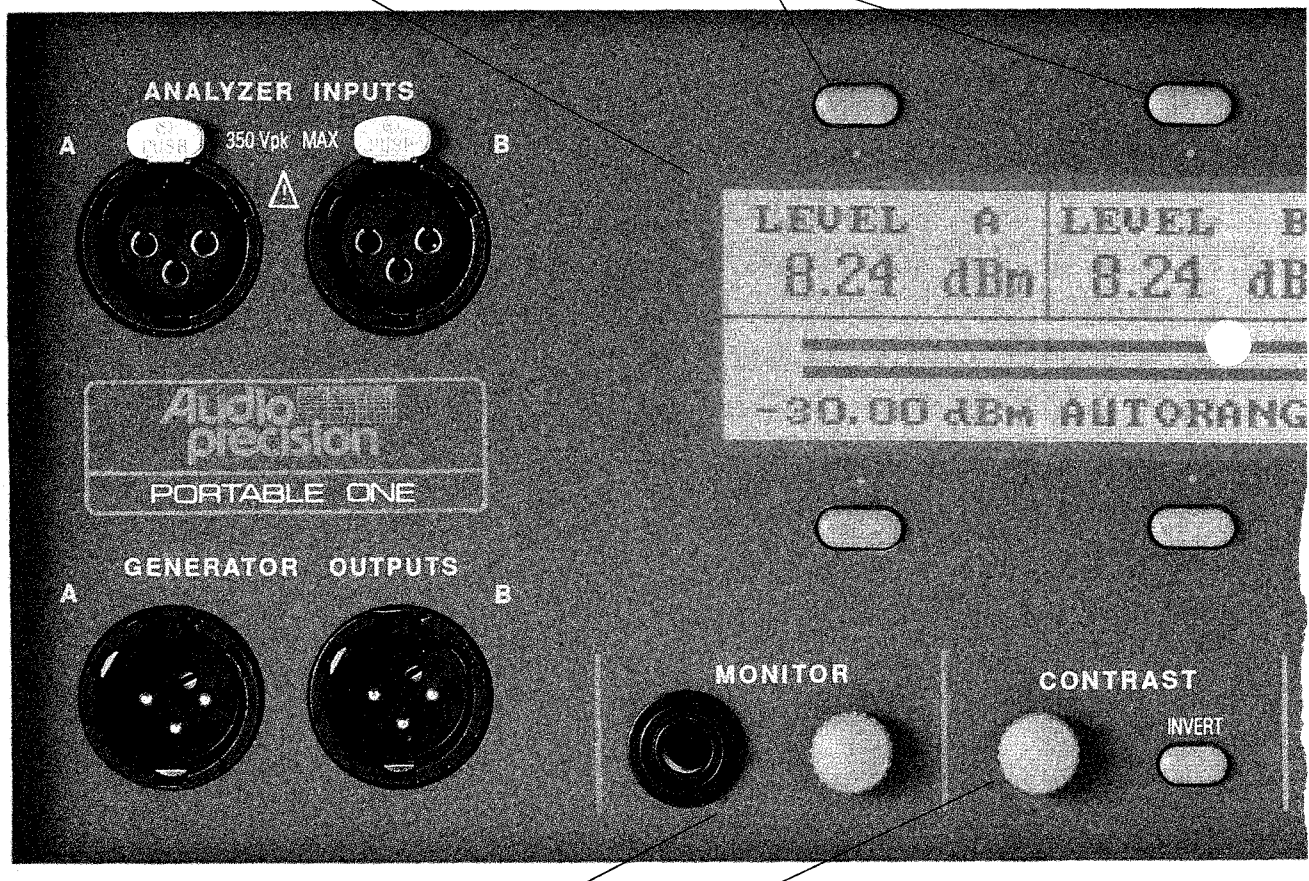
Actual panel size.

HIGH-CONTRAST BACK-LIGHTED DISPLAY: Super-twist LCD flat panel display, electroluminescent (EL) back-lighted. Provides large digits for key parameters, smaller digits for subsidiary parameters, analog bar-graphs for easy peaking/nulling adjustments. More rugged than mechanical meters, provides both analog and digital displays.

dBr ZERO: Push to set present signal level as zero dBr reference.

SOFT KEYS: Buttons select measurement units (Volts, dBV, dBu, dBm, Watts, dBr), generator source impedance, IMD test frequencies, weighting filters, etc.

ANALYZER INPUTS: Full 2-channel analyzer measures both channels simultaneously for real-time ratio (gain/loss), real-time crosstalk, phase; not just a single-channel analyzer with two selectable input connectors.



GENERATOR OUTPUTS: Dual output generator drives channel A, B, or A&B at touch of a button without moving cables.

MONITOR SPEAKER & JACK: Built-in loudspeaker, headphone jack, and volume control to monitor test signals and announcements on reference tapes.

CONTRAST: Adjust display contrast for optimum readability outdoors or in dimly-lit studios; invert dark and light areas of screen to suit your taste.

DISPLAY MODE: Principal measured parameter always displays in large digits, subsidiary displays selectable to show generator conditions, analyzer setup conditions, or display analog bar-graphs.

Audio Precision, makers of the industry standard System One audio test system, introduce Portable One.

PORTABLE: Portable One is lightweight and exceptionally rugged. The 17 pound (7.7 kg) weight seems even less due to careful attention to form factor and balance of the robust high-impact polycarbonate case. It carries comfortably with the retractable handle or via attachments for a shoulder strap. An optional soft case adds convenience and protection. Portable One sets flat on a shelf, tilts upwards on your bench, or stands on its rear on the floor. Unlike competitive products in generic packages, the Portable One case was designed to meet the needs of the audio professional in the field or lab.

AFFORDABLE: Highly-efficient circuit topology and component selection provide comprehensive capabilities and excellent performance below the price levels of lesser-capable, lower-performance units. Portable One is the most recent product from Audio Precision's Engineering Staff, who have been designing successive generations of state-of-the-art audio test equipment continuously since 1978.

EASY TO USE: Twelve different basic measurements are simply selected with function buttons; just press a button and make a measurement. A high-performance microprocessor manages the instrument, including autoranging for all measurements and auto set level and autonull for THD + N. The high-contrast super-twist LCD display is electroluminescent (EL) back-lighted for easy reading outdoors, indoors, and in dimly-lit control rooms. Large digits are displayed for key parameters, smaller digits for subsidiary parameters. Analog bar-graphs support

AMPL/NOISE: Push for AMPLITUDE measurement on selected input channel with both amplitude and frequency displays; push again for NOISE. Both extended dynamic-range modes have their own set of stored filter selections. Selective analysis mode with tunable ⅓ octave filter picks out dominant noise components.

THD+N/SINAD: Eliminates fundamental signal while measuring all harmonics and noise. THD + N mode (push once) tracks incoming signal frequency; SINAD (push again) locks filter at 400 Hz or 1 kHz (selectable) for noisy signal levels in two-way radio testing.

IMD: (Option) Measures Intermodulation Distortion to SMPTE/DIN standards.

W + F: Measure wow and flutter with 3.0 kHz/3.15 kHz test tapes/disks to IEC, NAB, JIS standards.

AC MAINS CHECK: Measure voltage, frequency, distortion of ac power mains at a button's touch; no cable changes or hazardous direct connections from power mains to input connectors.

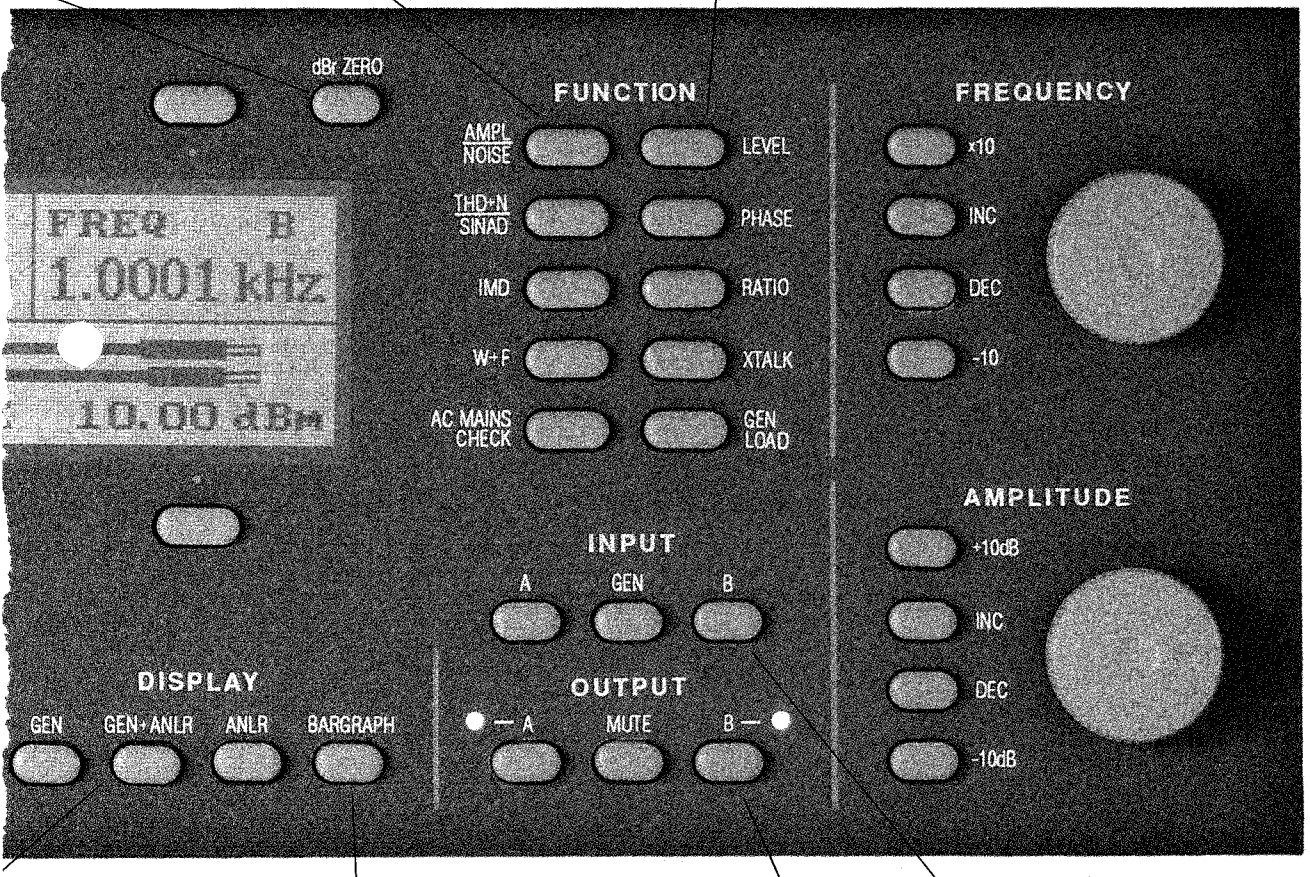
LEVEL: Measures A and B channels simultaneously, plus inter-channel phase.

PHASE: Displays phase plus amplitude and frequency. Phase can be stereo inter-channel, or input-output phase shift of a device.

RATIO: Measure gain, loss, channel balance by displaying real-time instantaneous amplitude ratio of signals at A and B inputs. Determine threshold of compression and limiting by displaying real-time gain through a device while adjusting generator amplitude.

XTALK: Measure real-time instantaneous crosstalk between circuits connected to A and B inputs; automatically-steered ⅓ octave filter permits crosstalk measurements below wide-band noise level.

GEN LOAD: Display input resistance of your device connected to generator outputs.



FREQUENCY: Increase/decrease generator frequency (or analyzer selective filter frequency in selective analysis mode) in 10x steps, ⅓ octave steps, or continuously variable via knob with 0.02% resolution.

AMPLITUDE: Increase/decrease generator amplitude in 10 dB steps, 1 dB steps (dB modes) or 1.26:1 steps (Voltage modes); continuously variable via knob with 0.01 dB resolution.

BARGRAPH: Single or dual bargraphs for peaking, nulling, trends. Better resolution than meters, variable sensitivity, max/min peak hold feature.

INPUT: Select A or B input connector as principal measurement channel, or select internal cable to generator output connectors.

OUTPUT: Turn on/off generator A and B outputs individually or mute both at touch of a button.

easy peaking and nulling adjustments. Separate display areas show three measurements simultaneously; for example, THD + N, amplitude, and frequency, plus generator and analyzer settings. Soft keys permit selection of measurement units, analyzer filters, generator impedances, etc. Separate high-resolution knobs provide independent amplitude and frequency control. Decade frequency pushbuttons enable quick 20-200-2k-20k checks and 1k-10k changes during treble EQ alignment of tape recorders. Separate pushbuttons allow ⅓ octave frequency steps for medium resolution response and distortion testing across any range. 1 dB & 10 dB buttons augment the amplitude knob for fast, precise steps. Portable One remembers the filters in use for each type of measurement and engages them next time that function is selected.

COMPREHENSIVE: Measures THD + N, IMD (optional), amplitude, noise, two-channel level, real-time ratio, phase, wow & flutter, generator load resistance, ac mains check, SINAD, frequency, real-time crosstalk. Generates sinewaves, squarewaves, and (optionally) DIN/SMPTE IMD signals. Frequency-selective analysis mode permits location of noise sources such as power-mains-induced hum, power supply ripple, or video monitor noise.
A-weighting and CCIR weighting filters are standard, plus two internal sockets accept System One optional plug-in filters.

HIGH PERFORMANCE: High level generator supplies a full + 30.7 dBu output for headroom testing. Proper selectable generator source impedances (40, 150, 600 Ohms) allow correct response measurement of transformer-input devices or reactive-input equalized transmission lines, whose true frequency response is masked if measured with a zero-Ohm test generator. Stereo generator outputs provide A, B, A&B selection for quick separation, crosstalk, stereo multiplex testing.

NEW FUNCTIONS: GEN LOAD measures the input resistance of your device. AC MAINS CHECK permits quick measurement of voltage, frequency, and distortion of the power line without hazardous direct connection.

FULL STEREO: Dual XLR outputs and inputs. LEVEL (2-channel) mode measures and displays both inputs simultaneously, including dual bar-graphs. Full-time phase meter measures inter-channel phase shift. Real-time measurements of crosstalk, ratio, gain, and loss are provided by the true two-channel architecture.

SPECIFICATIONS (Preliminary)

GENERATOR CHARACTERISTICS

Signals	Sine, square, IMD signal (optional)
Frequency Range	10 Hz-120 kHz, sinewave 20 Hz-30 kHz, squarewave
Frequency Resolution	0.02%
Frequency Accuracy	±0.5%
Amplitude Range[1]	0.25 mV-26.66 V (−70 to +30.7 dBu) for 20 Hz-30 kHz sinewaves; 0.25 mV-12.28 V (−70 to 24 dBu) across full frequency range
Output Impedances	600 BAL, 150 BAL, 40 BAL, 40 UNBAL; all ±2 Ohms. Transformer coupled
Maximum Output Current	75 mA peak
Amplitude Resolution[2]	0.01 dB
Amplitude Accuracy[2]	±0.2 dB, sinewave; ±0.3 dB, squarewave and IMD
Sinewave Flatness	±0.05 dB, 10 Hz-20 kHz; ±0.3 dB, 20 kHz-120 kHz
Sinewave Distortion	0.0025% (80 kHz BW), 20 Hz-20 kHz; 0.010% (>300 kHz BW), 10 Hz-50 kHz
Residual Crosstalk	110 dB to 20 kHz
Squarewave Risetime	3 µsec. Overshoot typically <1%

ANALYZER CHARACTERISTICS

Input Impedance	100 kOhms (±1%) // 150-200 pF, each side to ground.
Maximum Input	350 Vpeak; 140 Vrms, dc-20 kHz. (Protected up to 250 Vrms, 48-63 Hz)
Common-Mode Rejection	70 dB, 50 Hz-20 kHz, V_{in} ≤2 V; 50 dB, 50 Hz-1 kHz, V_{in} >2 V

AMPLITUDE/NOISE FUNCTIONS

Range	<1 µV-140 V (−118 to +45 dBu)
Response Modes	UNWEIGHTED, WEIGHTED, or SELECTIVE
UNWTD Mode Filters	20 kHz (7 pole + 20 Hz highpass), 30 kHz (3 pole), 80 kHz (3 pole), or >300 kHz LP; <10 Hz or 400 Hz (3 pole) HP
WTD Mode Filters	"IEC-A" per IEC 179 (rms det.); "CCIR-QPK" per CCIR Rec 468-3; "CCIR-ARM" per Dolby Bulletin 19/4; "CCIR-RMS" (0 dB at 1 kHz, rms det.)
Selective Tuning Range	20 Hz-50 kHz (2-pole, Q = 5)
Accuracy	±0.2 dB UNWTD; ±0.5 dB WTD or SEL
Residual Noise	1.5 µV (−114 dBu), UNWTD 20-20 kHz; 5.0 µV (−104 dBu), WTD CCIR-QPK; 1.0 µV (−118 dBu), WTD IEC-A

THD+N/SINAD FUNCTIONS

Fundamental Range	10 Hz-50 kHz, THD + N mode; 400 Hz or 1 kHz (±3%), SINAD mode
THD + N Tuning Modes (THD + N function only)	AUTO-TUNE (determined by input signal); GEN-TRACK (ganged to generator); or FIX-TUNE (±3% lock range)
Measurement Range	<0.0025%-100%
Accuracy[3]	±1 dB (rms detection)
BW Limiting Filters	20 kHz, 30 kHz, 80 kHz, >300 kHz LP; <10 Hz or 400 Hz HP
Minimum Input	800 µV (−60 dBu), FIX-TUNE or GEN-TRACK 25 mV (−30 dBu), AUTO-TUNE
Residual THD + N[4]	20 Hz-20 kHz: 0.0025% + 3 µV (80 kHz BW) 10 Hz-50 kHz: 0.010% + 10 µV (>300 kHz BW)
Nulling Time	Typically <2 seconds above 50 Hz. Increases in a 1/V rate for inputs below 25 mV (−30 dBu).

WOW & FLUTTER FUNCTION

Test Signal Frequency	3.00 kHz or 3.15 kHz, ±3%
Detection Modes	IEC (q-peak), NAB (avg), or JIS; WTD or UNWTD (0.5-200 Hz BW)
Measurement Range	<0.005%-3% (single range)
Accuracy	±(5% of reading + 0.002%)
Residual W + F	0.005% WTD; 0.01% UNWTD
Minimum Input	25 mV (−30 dBu)

LEVEL FUNCTION

Range	<10 mV-140 V (−38 to +45 dBu). Simultaneously displays both A and B input amplitudes.
Accuracy	±0.1 dB (rms detection)
Response Flatness	±0.05 dB, 20 Hz-20 kHz; ±0.3 dB, 10 Hz-120 kHz -3 dB at >300 kHz

RATIO FUNCTION

Resolution	0.01 dB; 0.1 dB if over 100 dB
Accuracy	±0.1 dB, 20-20 kHz
Minimum Input	10 mV (−38 dBu), numerator signal; 10 µV (−98 dBu), denominator signal

PHASE FUNCTION

Measurement Ranges	-270/+90°, −180/+180°, or −90/+270°
Resolution	0.1° to 2 kHz; 1° to4 20 kHz
Accuracy	±2°, 20 Hz-20 kHz
Minimum Input	25 mV (−30 dBu), both channels

CROSSTALK FUNCTION

Frequency Range	10 Hz-50 kHz
Accuracy[5]	±0.5 dB
Filter Selectivity	2-pole, Q = 5
Residual Input Xtalk	−120 dB to 20 kHz, R_s ≤600 Ohms
Minimum Input	25 mV (−30 dBu) in reference channel

GEN LOAD FUNCTION

Operation	Simultaneously displays the equivalent resistive loading of both generator outputs
Measurement Range	<1 Ohm to >20 kOhm
Accuracy	±(5% +1 Ohm) for readings ≤1 kOhm. Accuracy degrades rapidly above 1 kOhm, or with reactive loads.
Frequency Range	20 Hz-20 kHz (1 kHz default)
Test Voltage	10 mV minimum (200 mV default)

AC MAINS CHECK FUNCTION

Operation	Simultaneously displays voltage, THD + N (20 kHz BW limited), and frequency of ac mains
Voltage Accuracy	±1%

FREQUENCY MEASUREMENT (all functions)

Range	10 Hz-200 kHz
Resolution	5 digits
Accuracy	±0.01% (100 PPM)
Minimum Input	25 mV (−30 dBu)

IMD OPTION CHARACTERISTICS

Generator Signal	Selectable 50-60-70-250 Hz (±1%) mixed with 7 kHz or 8 kHz (±1%), in a 4:1 ratio (LF:HF)
Analyzer Signal Compatibility	Any combination of 50-250 Hz (LF) and 3 kHz-20 kHz (HF) tones, mixed in any ratio from 0:1-8:1 (LF:HF)
Measurement Technique	SMPTE TH22.51, DIN 45403
Measurement Range	<0.0025%-20%
Accuracy	±1 dB
Residual IMD[4]	0.0025% (−92 dB), V_{in} ≥200 mV
Minimum Input	25 mV (−30 dBu)

AUXILIARY OUTPUT SIGNALS

Analyzer Signal	Buffered analyzer output signal. 3 V_{pp} max, R_{out} = 600 Ohm ±10%.
Input Monitor	Buffered version of selected input. 3 V_{pp} max, R_{out} = 600 Ohm ±10%.
Generator Sync	3 V_{pp} sinewave at same frequency as generator (LF tone only with IMD). R_{out} = 600 Ohm ±10%.

GENERAL CHARACTERISTICS

Temperature Range	0C to +40C, operating −20C to +60C, storage
Power Requirements	100/120/220/240 V (−15%/+10%), 48-63 Hz 50 VA max
Dimensions (WxHxD)	16.5 x 6.0 x 13.6 inches (41.9 x 15.2 x 34.5 cm) Weight Approx. 17 lbs (7.7 kg)

[1] Reduce maximum available open-circuit amplitude by a factor of 2 (−6 dB) with 40 Ohm UNBALanced source impedance selection.
[2] 2.9 µV minimum step size limits resolution and accuracy for amplitude settings below about 3 mV (−48 dBu).
[3] Input must be >10 mV with "%" or "dB" unit selection. (Accuracy excludes the $0.5f_o$-$2.0f_o$ rejection band.)
[4] Combined generator-analyzer system specification.
[5] Residual noise may additionally limit accuracy.

Optional soft case for added protection.

Audio precision
P.O. Box 2209
Beaverton, Oregon 97075-3070
503-627-0832 1-800-231-7350
TELEX: 283957 AUDIO UR FAX: 503-641-8906