COPLEY MODEL 232HC HIGH POWER AMPLIFIER CHARACTERISTICS

Specification typical @25°C/forced air @400 fpm, HV=+160V. Current mode load=0.5 mH+33 mΩ. Capacitor each side to grnd 0.1µF

	Current Mode							Voltage Mode (-V)		
Model	**Output (±A Peak) Pulse Duration / Off time (ms)**							**Output (kVA) Sine Burst Duration/ Off time (ms)**		**Load**
232HC	∞ (DC)	500/500	100/100	10/20	170/1000	25/1000	20/100	∞ (DC)	500/500	**(Ω)**
	120	150	170	200	200	250	250	13	18	1.8 1.3

PEAK CURRENT SHUTDOWN 260 A

VOLTAGE OUTPUT ±140V, across output terminals with 200 A pulses

INPUT LIMITER Adjustable
- Current Mode ±15 to ±250 A
- Voltage Mode ±15 to ±160 V

SATURATION RESISTANCE 0.035 Ω

GAIN Adjustable with programmable span
- Current Mode 14 to 23A/V
- Voltage Mode 25.0 V/V, 28 dB

OUTPUT OFFSET ±50 mA, adjustable to zero
- Current Mode Span 0.7 A
- Voltage Mode Span 0.9 V

INPUT CHARACTERISTICS
- Main Input 1 Differential
- Impedance 100 kΩ minimum 50kΩ differential
- Max Input Voltage ±15 V either input or differential
- Common Mode Rejection 70 dB min, from DC to 360 Hz
- Input 2 Same as Input 1
- Gain Programmable

DC OUTPUT RESISTANCE
- Current Mode 1000 Ω
- Voltage Mode 0.0024 Ω

LOAD
- Current Mode 500 µH + 33 mΩ, 0.47 µF each side to ground
- Voltage Mode 0.90 Ω
- Adaptable Range 20 µH to 2.5 H, 0.012 Ω to Open

CURRENT MODE RESPONSE
- Small Signal Bandwidth –3 dB @ 5 kHz (Typical)

CURRENT SETTLING TIME
- Time Reference End of input ramp
- Input Ramp Slope ±200 A/800 µsec
- Ramp 0 to ±200 A 100 µsec to within 2.0 A, 1%
200 µsec to within 400 mA, 0.2%
- Ramp ±200 A to 0 A 100 µsec to within 2.0 A, 1%
200 µsec to within 400 mA, 0.2%

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VOLTAGE MODE RESPONSE	Flat to DC
Load Resistance	0.90 Ω
Small Signal	–1 dB @ 10 kHz –3 dB @ 20 kHz
Open Load	+0.5, –3 dB from DC to 20 kHz
TOTAL HARMONIC DISTORTION	
Current Mode	200 Hz, 120 A RMS, 0.2% max
Voltage Mode	200 Hz, 9 kVA, 0.3% max
Load	500 µH + 33 mΩ
DC DRIFT	After 1 hour
Current Mode Offset	4 mA/°C
Self Heating Drift, 0 to ±120 A	65 mA/10 minutes maximum
Scale Factor	60 ppm/°C
Voltage Mode Offset	0.5 mV/°C
Scale Factor	50 ppm/°C
SWITCHING FREQUENCY	51 kHz
Synchronization	Input or output
NOISE/ RIPPLE OUTPUT	
Differential	0.01Hz to 5 Hz <200µArms 5Hz to 10Khz <350-30*f µArms (f in Hz) >10Hz <5*f µArms
Each Side ref. to Ground	6 V RMS max, each output
Output, Differential	2 V RMS max, at 80Vdc output
DC POWER SUPPLY SENSITIVITY	
Current Mode	0.8 mA/V max
CURRENT MONITOR	Front and rear D connectors ±1 V/40 A ±1%
Source Resistance	0.1 Ω
VOLTAGE MONITOR	Front and rear D connectors ±1 V/20 V ±1%
Source Resistance	940 Ω
PROGRAMMING HEADER	Sets to Voltage or Current Modes or Fixed Output Resistance. In Current Mode sets gain and response for specific load
Accessibility	Rear panel D connector
REMOTE SHUTDOWN	Switch closure enables output Selectable ENABLE or INHIBIT Grounded or optoisolated input Display Panel **Inhibit** switch must be off
SWITCHES (on optional display panel)	**Inhibit** , with LED **Reset**, also on rear panels

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LOAD PROTECTION	
Voltage or Current	Adjustable input limiter Soft Start
Shutdown	Current vs. time All four bridge arms open
Diode Clamps	To +HV and ground
AMPLIFIER PROTECTION	
Overload	Input limiter
Current vs Time and H.S. Temp.	Shutdown
Each Heat Sink Temp	Shutdown 87 °C
Overvoltage Shutdown	170 V
Undervoltage Shutdown	40 V
5 V CMOS STATUS OUTPUTS	Fault is Low
+5V	HV>20V
CHANNEL ON	Amplifier enabled and operating
NORMAL	Amplifier operates if enabled
FAULT	Inverted normal
DC	One or more DC voltages out of range
HOT	Heat sink over-temperature
OVER-CURRENT	Too much current for too long
MODULE	Power Stage Module fault
Maximum Current Output	±10 mA
SYNCHRONIZING I/O (51kHz)	Rear D connector
REAR PANEL LED	NORMAL
POWER REQUIREMENTS	
High Voltage Supply	+50 V to +160 V
Current	See Note 1
Quiescent Current	0.7 A
Internal Capacitance	16200 µF
THERMAL REQUIREMENTS	
Power Dissipation at 120 A RMS	750 W
Peak Dissipation at 250 A	2400 W
Forced Air 1800 fpm	-20 °C to +35 °C
Storage	-30 °C to +85 °C
MECHANICAL	
Size	18.8" L x 9.44" H x 5.1" D 47.75cm L x 24 cm H x 13cm D
Fins & Air Flow	Horizontal
Weight	22lb, 10 kg

NOTES

1. Current required to supply load I^2R losses plus amplifier losses.