

# HIGH VOLTAGE/HIGH CURRENT LOCK-IN AMPLIFIER

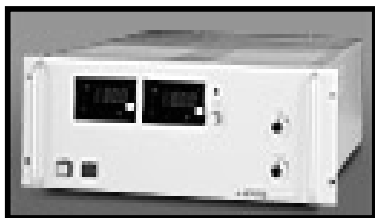
## MLOCKIN-Series

### Introduction:

MLOCKIN series of high voltage /low current lock-in amplifiers are available upto 100 VOLT RM /(15.0 to 1000 watts), in more than 20 different models working in constant voltage/current mode virtually offering solutions to vibration control, instrumentation, electrical Measurement, pollution control, electrostatic precipitators, Petrochemical industry, organic/inorganic chemical, heavy electrical/mechanical industries, high voltage testing, smart sensors and actuators, electrorheology, biotechnology, solids state physics application and many uncountable defense/nuclear applications. Updated design topology ensures better controllability and efficiency with additional integrated power/voltage and frequency control/protection. These converters may operate in parallel to make it more redundant. Company offers tailor made solution to custom requirement.

### Operating Principle:

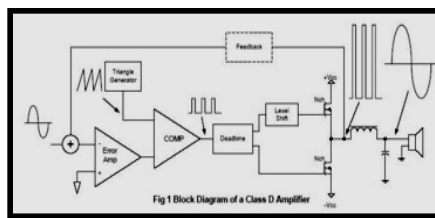
These lock-in amplifier are switching amplifier with switches are either fully on or fully off, significantly reducing The power losses in the output devices. The signal is used to modulate a PWM carrier signal which drives the output devices, with The last stage being a low pass filters to remove the high frequency PWM carrier frequency. The input signal is with a frequency ranging from 1.0 Hz to 20 kHz typically. This signal is compared with a high frequency triangle or saw tooth waveform to create the PWM signal seen below. This PWM signal is then used to drive the power stage, creating the amplified digital signal, and finally a low pass filter is applied to the signal to filter out the PWM carrier frequency and retrieve the sinusoidal amplified signal .



MLOCKIN-020010



MLOCKIN-050020



PICTORIAL PRESENTATION OF VOLTAGE AMPLIFIER

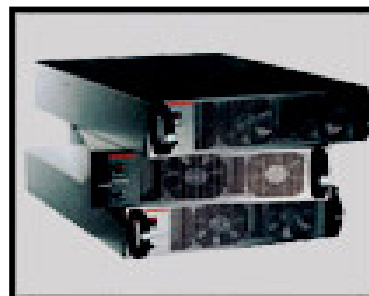
Lock-in Voltage amplifier

lock-in Current amplifier

Model	Power watts	K.Vout/Vin (100 m.v.)	Current m.a.	T.D.H.	Frequency K.Hz	Model	Power watts	Volts	Iout/Iin (100 m.v.)	T.D.H.	Frequency K.Hz
MLOCKIN-002005	200.0	05.0	40.0	0.3%	100	MHCCDCA-002005	200.0	05.0	40.0	0.3%	100
MLOCKIN-005005	500.0	05.0	100.0	0.3%	100	MHCCDCA-005005	500.0	05.0	100.0	0.3%	100
MLOCKIN-002010	200.0	10.0	20.0	0.3%	100	MHCCDCA-002010	200.0	10.0	20.0	0.3%	100
MLOCKIN-005010	500.0	10.0	50.0	0.3%	100	MHCCDCA-005010	500.0	10.0	50.0	0.3%	100
MLOCKIN-010010	1000.0	10.0	100.0	0.3%	100	MHCCDCA-010010	1000.0	10.0	100.0	0.3%	100
MLOCKIN-020010	5000.0	10.0	500.0	0.3%	100	MHCCDCA-020010	5000.0	10.0	500.0	0.3%	100
MLOCKIN-100020	10,000.0	10.0	1000.0	0.3%	100	MHCCDCA-100020	10,000.0	10.0	1000.0	0.3%	100
MLOCKIN-010020	1000.0	20.0	50.0	0.3%	100	MHCCDCA-010020	1000.0	20.0	50.0	0.3%	100
MLOCKIN-020020	2000.0	20.0	100.0	0.3%	100	MHCCDCA-020020	2000.0	20.0	100.0	0.3%	100
MLOCKIN-200020	20,000.0	20.0	1000.0	0.3%	100	MHCCDCA-200020	20,000.0	20.0	1000.0	0.3%	100

### HIGH VOLTAGE/HIGH CURRENT LOCK-IN SPECIFICATIONS:

Operating voltage 220 volts, 1 phase, 40-60 Hz  
 Output current/voltage 0-10/20/optional/20000 m.a. (max)  
 Voltage/current ripple 10 micro volts-noload/ 100 micro volt-full loads  
 Operating frequency 5.0-200 K.Hz  
 Voltage/current control accuracy 99.9% of set point  
 Frequency/phase stability : 0.000001 % OF SET POINT  
 Resolution 0.1 volts/amps D.C.  
 Repeatability 100 percent  
 Response time 0.5 –1.1 mill-seconds  
 Phase margin/gain margin: 18degree/15 db  
 Interface Signal 0.0-12.0 volts D.C. [proportional to voltage/current]  
 Voltage control range 0.0-100%  
 FREQUENCY/wave forms: 0-100,000 Hz/ square/rectangle/elliptical  
 /programmable wave shape  
 Control options 1.cascade feedback control with soft start.



Low power voltage amplifier

Display : 6-1/ DIGIT FREQUENCY, VOLT,CURRENT

INTERFACE:R-3

### SWITCH MODE HIGH VOLTAGE/LOW CURRENT AMPLIFIERS SPECIFICATION:

MLOCKIN-002005	08X06X06	MLOCKIN-005050	14X12X12
MLOCKIN-005005	10X06X06	MLOCKIN-010050	16X14X14
MLOCKIN-002010	12X08X08	MLOCKIN-020050	18X16X16
MLOCKIN-005010	12X10X10	MLOCKIN-050050	20X18X18
MLOCKIN-010010	12X10X10	MLOCKIN-010100	20X18X18
MLOCKIN-020010	12X10X10	MLOCKIN-020100	20X18X18
MLOCKIN-050010	08X06X06	MLOCKIN-050200	14X12X12
MLOCKIN-010020	10X06X06	MLOCKIN-100100	16X14X14
MLOCKIN-020020	18X16X14	MLOCKIN-100200	18X16X16

Three numerals after MLOCKIN indicates power x100 of power supply and last three digit Indicates K.VOLTS.All dimensions are in inches.

Above models are in current range of production, however company

Undertake any tailor made specification power supply.

Voltage/current specs of above power supplies are of regular production, however company is regularly manufacturing power supplies of higher voltage/current options

### MOTORON SEMICONDUCTORS CORPORATION

33, Shri nagar colony, Shakti nagar extension, DELHI-110052. Tel: 011-2364418023655454  
 e.mail: motoron@hotmail.com

**General Electrical specification of Voltage amplifier:  
Lock-in Voltage amplifier**

**Lock-in Current amplifier**

Model	Power watts	Vout/Vin (100 m.v.)	Current m.a.	T.D.H.	Frequency K.Hz	Model	Power watts	Volts	Iout/Iin (100 m.v.)	T.D.H.	Frequency K.Hz
MLOCKIN-0020051	200.0	050	00400	0.3%	100	MHCCDCA-0020052	200.0	050	00400	0.3%	100
MLOCKIN-0050051	500.0	050	01000	0.3%	100	MHCCDCA-0050052	500.0	050	01000	0.3%	100
MLOCKIN-0020101	200.0	100	00200	0.3%	100	MHCCDCA-0020102	200.0	100	00200	0.3%	100
MLOCKIN-0050101	500.0	100	00500	0.3%	100	MHCCDCA-0050102	500.0	100	00500	0.3%	100
MLOCKIN-0100101	1000.0	100	01000	0.3%	100	MHCCDCA-0100102	1000.0	100	01000	0.3%	100
MLOCKIN-0200101	5000.0	100	05000	0.3%	100	MHCCDCA-0200102	5000.0	100	05000	0.3%	100
MLOCKIN-1000201	10,000.0	100	10000	0.3%	100	MHCCDCA-1000202	10,000.0	100	10000	0.3%	100
MLOCKIN-0100201	1000.0	200	00500	0.3%	100	MHCCDCA-0100202	1000.0	200	00500	0.3%	100
MLOCKIN-0200201	2000.0	200	01000	0.3%	100	MHCCDCA-0200202	2000.0	200	01000	0.3%	100
MLOCKIN-2000201	20,000.0	200	10000	0.3%	100	MHCCDCA-2000202	20,000.0	200	10000	0.3%	100

**MOTORON SEMICONDUCTORS CORPORATION**