DATA SHEET — MS 1

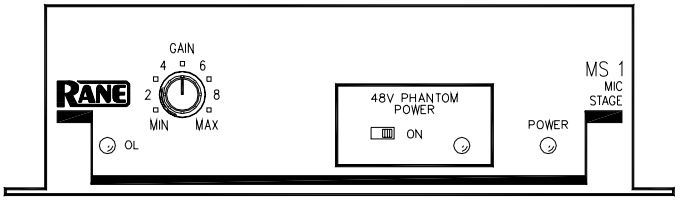
MICROPHONE STAGE

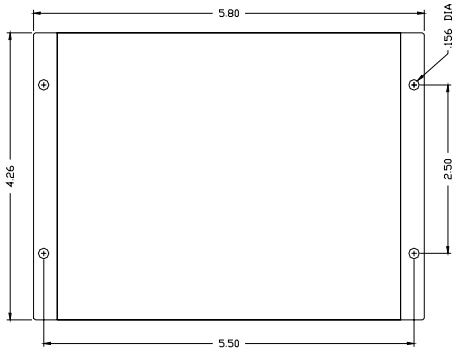
General Description

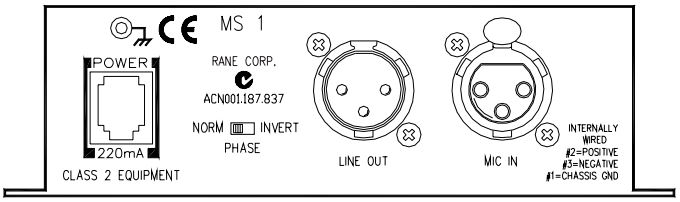
The Rane MS 1 Mic Stage preamplifier provides the answer when you need just one microphone input in an otherwise line-level world. Give us a call to go from either a dynamic, condenser or electret microphone to a line level input with a minimum of noise, distortion, cost and hassle.

The MS 1 provides 48 V switchable Phantom Power with indicator LED, continuous rotary Gain trim between 21.5 dB and 60 dB, overload LED, and XLR balanced Input & Output connectors. A Phase Invert switch and high-current cross-coupled output line drivers round out the features.

The MS 1 utilizes one of the finest ultra low noise amplifier designs available. Featuring a true differential input with high common-mode rejection, use of the MS 1 guarantees performance usually found only in mixing consoles costing thousands of times as much. Of course, for all of that extra money you receive a proportional increase in KPSI (knobs per square inch).







Features

- Gain Control with Overload Indicator
- Phase Invert Switch
- Switchable 48V Phantom Power
- Ultra Low Noise Design
- True Differential Input
- Cross-Coupled Line Driver
- UL/CSA/CE and 100/120/230 VAC Remote Power Supply

Parameter	Specification	Limit	Units	Conditions/Comments
Input Impedance	1k	1%	W	Balanced 500 + 500
Gain Range	+21.5 to +60	1.5	dB	
Phantom Power	+48	4%	VDC	DIN 45596 & IEC 268-15
Max Input Level	0/-38	1	dBu	21.5/60 dB gain
Equivalent Input Noise	-130/-117	2	dBu	20k BW, 60/21.5 dB gain, Rs=150 ohms
Signal-To-Noise Ratio	102/75 (re +4 dBu)	typ	dB	20k BW, 21.5/60dB gain
Frequency Response	20-20 kHz	0.1	dB	-3 dB @ 130/90 kHz, 21.5/60 dB gain
THD+Noise	0.007/.03	.001	%	+20 dBu, 20-20 kHz, 21.5/60 dB gain
IM Distortion (SMPTE)	0.008	.002	%	60 Hz/7 kHz, 4:1, +20 dBu
Slew Rate	6	1	V/µs	Fully symmetrical
Max Output Level	+20	1	dBu	Balanced out, 600 ohms
Output Impedance	50	1%	W	Balanced
Output Cable Length	1000' (305 m)	typ		Belden 8451 or equivalent
Unit: Agency Listing				
.....120 VAC model	Class 2 Equipment			National Electrical Code
	UL & CSA			Exempt Class 2 equipment
.....230 VAC model	CE-EMC			EMC directive 89/336/EEC
	CE-Safety			Exempt per Art. 1, LVD 73/23/EEC
Power Supply: Agency Listing				Class 2 Equipment
.....120 VAC model	UL			File no. E88261
	CSA			File no. LR58948
.....230 VAC model	CE-EMC			EMC directive 89/336/EEC
	CE-Safety			LV directive 73/23/EEC
.....100 VAC model	Built to JIS			Japan only
Power Supply Input	18 VAC w/center tap	10%	Vrms	Rane RS 1 supplied with MS 1
Max Current Consumption	220		mA	
Unit Size	1.65" H x 5.1" W x 4.25" D			(4.2 cm x 13 cm x 10.8 cm)
.....Weight	1 lb			(0.45 kg)
Shipping Size	3.6" H x 11.75" W x 7.2" D			(9.5 cm x 30 cm x 18 cm)
.....Weight	4 lb			(1.8 kg)

MS 1

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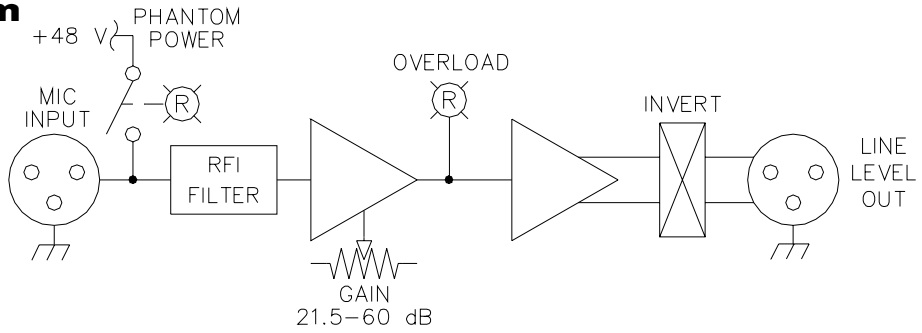
Block Diagram



Application Information

Uses and applications for the MS 1 should be obvious. But then again, its obvious to us our taxes are too high and nothing is being done about that. With this in mind, perhaps a few words on using the MS 1 might not be wasted.

BALANCED USE

The MS 1 provides a true cross-coupled balanced Output. This is equivalent to an electronic simulation of a transformer output. Rane follows the AES standard of pin 2 = hot.

When running a long cable back to the mixer, run a *line level* balanced line rather than a mic level line. The compact MS 1 can mount closer to the microphone, provide a local volume control (or not, just pull the knob off), while the stronger signal minimizes RF and hum irritations.

UNBALANCED USE

Balanced use is recommended to minimize noise. When you must drive an unbalanced device with the MS 1's balanced Output, connect pin 2 to the "+" or "hot" lead, and *tie pin 3 and ground together at the shield*.

MIXING

The MS 1 is designed to fill the need for adding one or two microphone channels to line level mixers, such as the Rane SM 26B or SM 82. Many installations using either of these products invariably wind up with one unused input that would do the job perfectly if only it could operate at mic level. In rides the MS 1 to the rescue.

DIGITAL RECORDING AND SAMPLING

Another handy use for the MS 1 is in recording applications. Many popular products do not have a high enough quality mic preamp to suit the resolution of the digital processing electronics! Such irony. Using the ultra low noise MS 1 to bring the mic inputs up to extremely high quality line level is an easy and affordable solution for this dilemma. No garbage in; no garbage out. Clippity-clop; clippity-clop.

MICROPHONE TYPES

The available gain range of the MS 1 allows the use of virtually any type of microphone. True 48V phantom power guarantees the MS 1 works with every microphone made. The better the mic, the better the MS 1 sounds.

Ah, the sound of the thundering hoofs is deafening.

Architectural Specifications

The microphone preamplifier shall be a single channel stand-alone unit with remote power supply. The power supply shall be U.L. listed, C.S.A. certified, and CE certified. The input and output shall be fitted with XLR connectors. A polarity inverting switch shall be included. Phantom power shall be provided in compliance with DIN 45596 & IEC 268-15 and be controlled by a slide switch with an LED indicator. A gain control shall be provided with 21.5-60 dB adjustment range. A power indicator and a system overload indicator shall be provided. High current cross-coupled active output line driver shall be standard, as well as input RFI filter protection.

The unit shall be a Rane MS 1 Microphone Stage.

CHASSIS GROUNDING

Units with outboard power supplies do not ground the chassis through the line cord. Make sure that these units are grounded either to another chassis which is earth grounded, or directly to the grounding screw on an AC outlet cover by means of a wire connected to a screw on the chassis with a star washer to guarantee proper contact.

Please refer to RaneNote 110, "Sound System Interconnection" (supplied in your manual and available on request separately) for further information on system grounding.