

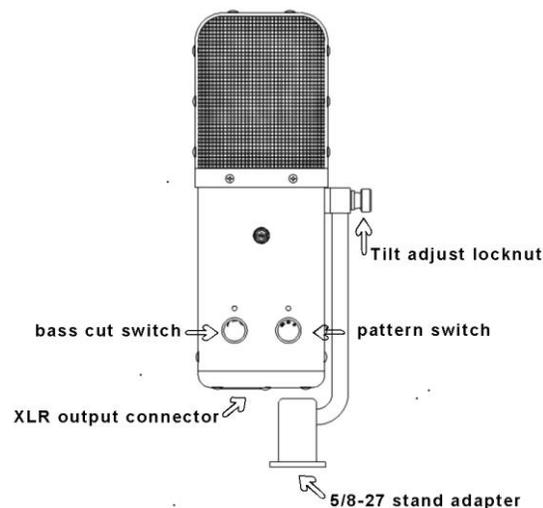
# *Polyribbon*<sup>TM</sup> variable pattern ribbon microphone

## INSTRUCTION MANUAL

### DESCRIPTION

The Polyribbon is a variable pattern dual ribbon microphone with switch selectable omnidirectional, hypercardioid, and figure 8 polar patterns. A 3 way bass cut switch is provided to compensate for various proximity effects or to tailor the bass response as desired. The microphone is passive and as such does not require phantom power for operation. Output impedance is 150 ohms. Connection is by standard XLR male connector.

### OPERATION



### Preamp connection

A standard balanced XLR can be used for preamp connection. The preamp should be a high quality low noise design with 2000 ohms differential input impedance or higher and be capable of up to 60 dB gain. Phantom power is not required.

### Figure 8 setting

Most ribbon microphones exhibit a figure eight polar pattern. The front and back have maximum sensitivity while the sides, top, and bottom reject sound. On the figure 8 setting the polyribbon will exhibit this type of pattern as well. The nulls are particularly deep and can be used to reject unwanted signals. Typical

situations where this is particularly useful is a live singer/ guitarist where the instrument microphone null is pointed toward the singer's voice and the vocal microphone null is pointed toward the instrument. This allows individual control with minimal bleed. Similar effects can very useful in drum overhead and many other applications.

Figure 8 pattern microphones are typically pressure gradient transducers and have a large proximity effect boosting low frequencies below about 200 Hz if the sound source is close. This can be used for effect, but if not desired the low cut switch can be engaged. Maximum clockwise setting of the low cut knob is calibrated for flat response at 300mm source distance in figure 8 mode. The center switch setting will give flat response at 1 meter.

The directivity factor of the figure 8 pattern is 3.0.

### **Hypercardioid setting**

This setting is primarily front sensitive and provides maximum off axis rejection in a diffuse sound field. Thus it is appropriate when one wants to minimize room sounds and suppress other noises from the back and sides . The directivity factor in this setting is 4.0, which is the maximum possible for a first order pressure/pressure gradient microphone.

Hyper cardioid exhibits a moderate proximity effect...not as much as figure eight. This occurs only from sources close and in front, The middle setting of the bass cut is calibrated for flat response at 300 mm source distance. Maximum clockwise setting can be used for additional bass cut if desired.

### **Omnidirectional setting**

As the name implies, this setting gives the broadest range of pickup. At low and middle frequencies pickup is equal from any direction. At high frequencies the front is favored. In this mode the unit becomes a pressure microphone. This setting can be well used as a room mic or to pick up broad widely space sources. A pressure microphone has no proximity effect, so for flat response the low cut knob should be fully counterclockwise. The other settings can still be used for effect if desired.

The directivity factor of the omni setting is 1.0.

### **Sound character and equalization**

Many ribbons have a greatly reduced high frequency response due to tradeoffs that were made to increase sensitivity. As such they have a fundamentally different sound from more common condenser microphones. The Polyribbon has a full frequency response AND high sensitivity. It does not have the sound of typical condensers however. There are several reasons...the response is much smoother than typical condensers, with no large high frequency peaks. The off

axis response is much smoother as well. Finally distortion mechanisms inherent in gradient condenser microphones are absent.

For these reasons ribbon mics tend to take EQ better when it's desired for effect.

## Microphone care

Ribbon microphones are sensitive instruments and must be treated with care:

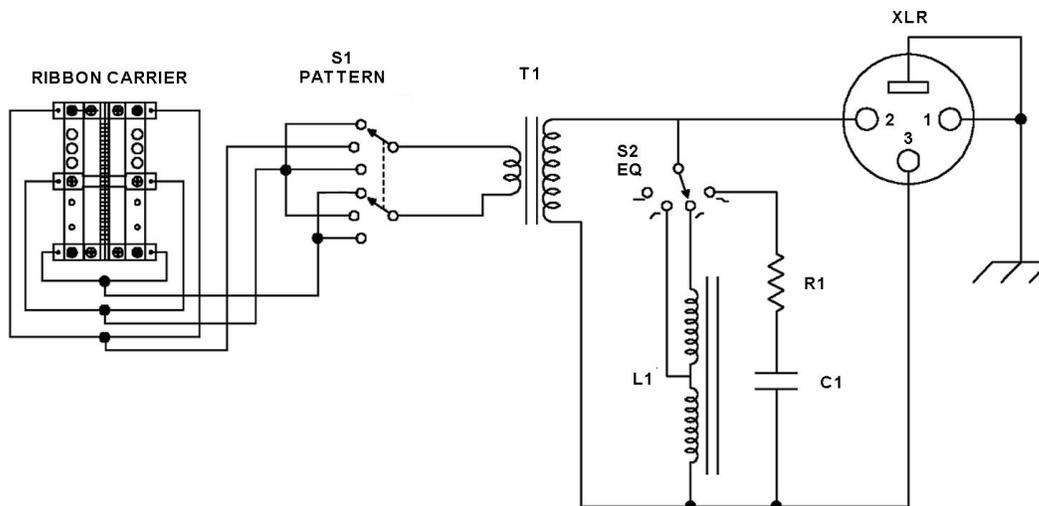
- 1) Never blow into the microphone
- 2) Do not use in very high wind conditions
- 3) Do not use in high velocity fields such as kick drum ports or speaker reflex ports

It is permissible to use the microphone in very high sound pressure fields like drums, electric guitar cabinets, and the like.

A word about phantom power:

Properly configured and connected phantom power will not harm the microphone. However a miswired or shorted cable can put phantom current through the transformer and can damage the ribbon. It is suggested to turn phantom off when using the unit as a safeguard.

## SCHEMATIC AND PARTS LIST



- RIB1 Ribbon carrier
- T1 Watts technology RT1 ribbon transformer
- S1 3PDT rotary pattern switch with knob Kprp
- S2 4PST rotary bass cut switch with knob Kprbc
- L1 LPR tapped pot core inductor, 0.26H and 0.5H
- R1 400 ohm 0.1W metal film resistor
- C1 0.1 uF 50V film capacitor
- J1 Neutrik XXXXXX male XLR connector

## **SPECIFICATIONS**

Polar Pattern: figure 8, hypercardioid, and omnidirectional switch selected

Construction:

Body: 6063 T6 aluminum with MIL spec wrinkle enamel finish

Grille and stand adapter: 260 yellow brass and 464 naval brass nickel plated

Maximum sound pressure: 145 dBA @ 1kHz

Self noise :15 dBA @1kHz

Output level:

3mV/Pascal figure 8

2mV/Pascal hypercardioid

1.5 mV/Pascal omni directional

Frequency response: 20Hz –20KHz (individual response plot supplied with each microphone)

Output impedance: 150 ohms balanced

Weight: 0.8 kg

Dimensions: 22.6 cm H x 8.8 cm W x 4.7 cm D with stand adapter



***L M Watts Technology***

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