

# The Garnet Microphone

User manual



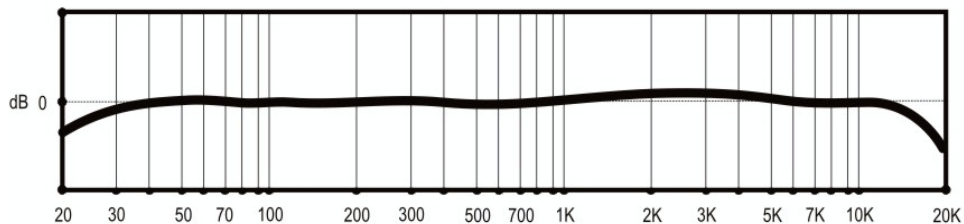
## Thank you for your choice of "The Garnet" !

You bought a high-end class electrostatic vacuum tube microphone which is the result of years of experience in leading studio microphone design, manufacturing and restoration, and the latest technologies merge with the highest qualification handcraft work.

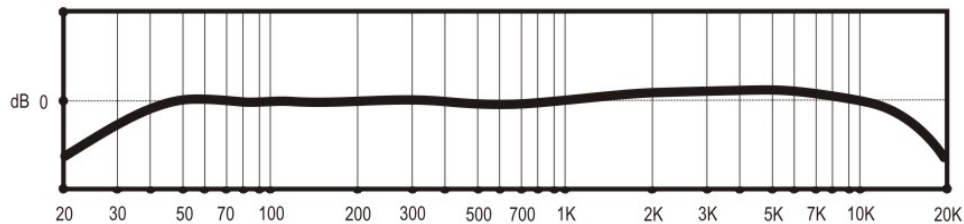
### "THE GARNET"

"THE GARNET" vacuum tube microphone is designed for the highest quality audio recording. The large dual diaphragm electrostatic capsule provides sweet, dense tone, known from the most famous vintage vocal microphone. Vacuum tube electronics removes dynamic distortion resulting in clean, warm and natural sound. Large output transformer additionally warms the sound. Microphone provides nine selectable directional polar patterns.

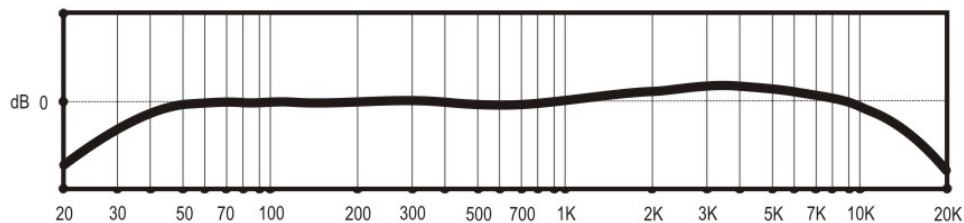
THE GARNET – OMNI



THE GARNET – CARDIOID



THE GARNET - FIGURE OF EIGHT



The above diagrams provide rather subjective visualisation of the sound because the microphone reaction depends on a number of internal and external factors - selected polar pattern, room parameters - volume, resonance, reflections, reverberation; microphone location - distance and angle to the sound source and different surfaces; external devices - used microphone preamplifier's input impedance and electronics type, microphone cable quality and parameters, etc. The resulting sound comes from the "know-how" of the artist and engineer!

### DESCRIPTION

"THE GARNET" microphone is based on our original true electrostatic capsule and vacuum tube electronics.

The capsule diaphragms are made of the special, highest quality, calibrated polymer film. Unique irregular sputtering with our special formula of gold mixture gives them faster impulse transient response with minimized resonance, sound coloration, high and low frequencies reduction, and possibility to handle higher sound pressure levels. Using our original technology the diaphragms are tensioned and adjusted on our precisely made brass back-plates. At the end of the manufacturing process every

capsule is carefully checked for electrical parameters and measured in an anechoic chamber for optimum of audio performance.

The acoustically transparent multilayer mesh head's construction supports polar patterns, keeps sound transparency almost unaffected and minimizes head's internal resonances, the same time reducing plosive sounds and wind noise, and shielding capsule from external interference.

"The Garnet" microphone's internal preamplifier is based on class-A discrete vacuum tube circuit designed under the highest audiophile standards. Carefully selected vacuum tube and the best quality components provide linear audio frequency range, natural dynamics, minimum self noise and very low audio distortion of all types.

Massive metal body stabilizes thermal regime of vacuum tube electronics. Tube is mounted on an internal damper to protect it from mechanical resonances and acoustical feedback. Large size, noise cancelling design custom wound audio transformer provides even more warmth to the sound, and balances the output circuit separating microphone from RF and other kind of interference.

Gold plated contact 7-pin XLR output connector provides stable microphone connection.

Microphone is powered from an external soft starting PSU-5 smart power supply unit, providing stabilized and protected polarization, plate and heater voltages. Included special audiophile quality VTC-06 tube microphone cable with gold plated contact 7-pin XLR connectors must be used between microphone's output and power supply unit's input. Cable minimizes all types of internal and external interference, noise and signal loss.

"THE GARNET" microphone's rugged construction with balanced internal dampers-shock mounts for the capsule, vacuum tube, and all electronics module, together with included original construction JSM elastic external studio shock mount effectively reduces stand rumble, infrasonic interference and mechanical shocks.

We recommend using of our audiophile quality VMC-06 quad microphone cable with gold plated XLR connectors between power supply unit's output and your preamplifier's (console channel's, A/D convertors) input to minimize all types of external interference, noise and signal loss. VMC-06 quad microphone cable is available as option.

Under the special request "THE GARNET" microphones are available in matched stereo pairs to provide balanced recordings.

## **SAFETY, MAINS CONNECTION, SWITCHING ON AND WARMING UP**

Check the AC voltage selector position at the rear panel of the PSU-5 power supply unit and adjust it to your regional voltage BEFORE connecting unit to the mains ! There are four positions for your choice – 100 V, 120 V, 220 V, 240 V AC. Use only the original PSU-5 power supply unit, supplied VTC-06 tube microphone cable, and supplied std ground providing IEC mains cable. PSU-5 power supply unit must be grounded and used away from the heat, humidity and dust sources.

Put on minimum your microphone preamplifier (console channel or A/D convertor) input's gain and volume controls. Switch OFF Phantom power on respective input - it is unwanted and potentially can provide some noise. Connect the microphone to the power supply unit using VTC-06 cable. Connect PSU-5 unit to the respective input using optional VMC-06 or other quality symmetric microphone cable with XLR type connectors. Connect PSU-5 unit to the AC using supplied std IEC mains cable.

Switch the unit ON. Wait 2-3 minutes until power supply unit's LED indicator becomes green and displays voltage around 120 V, it means - vacuum tube is warmed up. Microphone is ready to start recording now, but we recommend to warm-up microphone for some additional 20-30 minutes for full stabilisation of vacuum tube's thermal and electrical regimes.

## **APPLICATIONS**

"THE GARNET" microphone is designed for the lead function recording - orienting on lead vocals and similar function lead sound sources, but the same time is excellent tool for most musical instruments and other sound sources recording as well.

"THE GARNET" microphone provides 9 selectable polar patterns from "Figure of Eight" pattern (right located miniswitch on power supply unit), step by step transformed into "Cardioid" pattern (mid located miniswitch), and then step by step transformed into "Omni" pattern (left located miniswitch). Right side located miniswitches always have ON priority over the left side located switches. It takes 1-2 minutes to stabilize new pattern regime after switching to another one.

Front side of capsule is marked with VIOLET logo on microphone body, so please take attention to use microphone from an active side(s) of the capsule depending from selected polar pattern.

Use „THE GARNET“ microphone with possibly higher quality linear microphone preamplifier. Vacuum tube units and switching impedance input transformers are preferable. Find the best tone manipulating with microphones distance, angle, pop filter, windscreen, reflectors, room's acoustic, etc, and changing preamplifier input's impedance (if there is such possibility). Lowering of input impedance will warmer and sweeten microphones tone and vice versa. Do not use equalizers, other corrections and dynamics processing at the process of recording, or use them as little as possible, orienting corrections to down (minus) side for minimum of phase distortion.

### **VOCALS**

"THE GARNET" provides warm classic vintage vocal tone. Use the microphone at 5 to 50 cm distance, try different capsule angles and polar patterns to get the best result. In case of need use studio pop filter or foam windscreen to reduce plosive sounds, breath, pop and wind noise. Use quality damped microphone stand.

### **PIANO**

There are many methods with close miking, distanced miking and combined miking of grand piano. Use a pair or more for stereo recording and add distanced microphones for room acoustics. The result highly depends on player, instrument quality and room's acoustics. The right microphone placement is the most important factor. Try different polar patterns. The best method is to use your own ears – go to instrument, listen and find the best location and position for microphone.

### **ACOUSTIC GUITARS**

Right placement is the most important factor. We recommend start with facing the microphone to guitars' neck, where it joins body, in some 10 to 30 cm distance from it. Use a pair of microphones for stereo recording, and add distanced microphones for more room acoustics.

### **ELECTRIC GUITARS**

"THE GARNET" is perfect for juicy, fat, dense and warm lead guitar or for jazzy tones recording as well. Place the microphone 10 to 20 cm from a loudspeaker cone. To get more upper frequencies move it closer to loudspeaker cone's center, or toward the cone edge to get fuller tone with more mid and low frequencies. Orient capsule diaphragm under some angle to the loudspeaker cone's surface to avoid low frequency wave peaks. Larger distance from the loudspeaker will add more air and room acoustics and soften high frequencies. There are endless methods of combined close miking, distanced miking, miking from a backside of an open speaker box, experimenting with different room acoustics, etc.

### **DRUMS**

"THE GARNET" provides detailed high-dynamics recording of drums. The advisable distance is 5 to 15 cm from a drum rim, try different positions and angles. A bigger distance will add more air, environment, naturalness and blend with other drum set components. A smaller distance will increase the low frequencies and separation from other sound sources. Use a close as possible put together microphone stereo pair as overheads, starting at some 70 cm distance over the drum set, try different polar patterns and orienting angles of capsules. There are very different methods to record drums - from one right placed stereo microphone pair for perfectly balanced drum set in an optimal acoustics room, until individually close miked every sounding

drum component or even several microphones on such components as bass drum, snare drum, hi-hat, etc.

## **PERCUSSIONS**

Like on the drum recording "THE GARNET" microphone provides transparent, clean, and real results in percussions recording. The distance of 30 cm is the best to start. Closer distance will add more details, tone and separation. Larger distance will add room ambience, naturalness and blending with other instruments.

## **BOWED STRINGS**

"THE GARNET" is an excellent choice for bowed string instrument recording. The distance of 30 to 50 cm above the instrument bridge is preferable for violin and viola. The distance of 10 to 25 cm in front of bridge is right for double bass or cello. Try different polar patterns.

## **BRASS AND WIND**

The warm, full, natural tone of "THE GARNET" microphones makes them the best choice to record saxophone and other brass and wind instruments. For the clarinet and the soprano saxophone use the microphone 10 to 30 cm above the horn and lowest pads. For the other saxophones place microphone 5 to 15 cm in front of the lip of the bell.

For the flute place the microphone above the middle of the instrument. Use 10 to 50 cm distance for the trumpet, the trombone, the French horn, the tuba and other brass instruments.

## **SPECIFICATIONS**

Transducer type	electrostatic
Operating principle	pressure gradient
Diaphragm's active diameter	26 mm
Frequency range	20 Hz to 20 kHz
Polar pattern	9 selectable patterns
Output impedance	100 ohms
Rated load impedance	1000 ohms
Suggested load impedance	>250 ohms
Sensitivity at 1000 Hz into 1000 ohms load	25 mV/Pa
S/N Ratio CCIR 468-3 weighted	75 dB
S/N Ratio DIN/IEC 651 A-weighted	86 dB-A
Equivalent noise level DIN/IEC A-weighted	8 dB-A
Maximum SPL for 0.5% THD at 1000 ohm load	130 dB
Dynamic range of the internal preamplifier	122 dB
Output connector ( microphone )	7-pin XLR male, gold plated contacts
Signal polarity ( microphone )	toward pressure on a diaphragm produces positive polarity voltage on XLR pin #6 relatively to pin #5
Microphones dimensions and weight	H230 x 50 X 30 mm, 800 g
JSM dimensions and weight	H130 x W105 x D25 mm, 200 g
PSU-5 dimensions and weight	H55 x W225 x D185 mm, 1500 g
Selectable mains voltage, frequency	100/120/220/240 V AC, 45-65 Hz
Mains fuse	250 mA (100/120V), 125 mA (220/240V)
Power consumption	<20 W

## **INCLUDED ACCESSORIES**

JSM elastic studio shock mount  
PSU-5 power supply unit  
VTC-06 tube microphone cable 6m  
IEC grounding mains cable

## **OPTIONAL ACCESSORIES**

VMC-06 quad microphone cable 6m

## **WARRANTY**

We provide FIVE (5) year limited Warranty for all Violet Design microphones, and ONE (1) year limited Warranty for Violet Design microphone accessories and electronic vacuum tube components included into or with, or sold as options for Violet Design products. This Warranty relates to each original Customer of Violet Design product and is not transferable to other persons. The period of this limited Warranty commences at the official receipt date of product purchase from authorized Violet Design Distributor or Dealer.

Within a period of limited Warranty, Violet Design will remove defects in materials and manufacturing faults adversely affecting warranted product performance, by repairing, or by replacing parts, or by replacing the whole product, as we deem appropriate, free of charge. This limited Warranty does not apply to any defect, failure, or damage due to any cause other than defects in materials, parts or workmanship of the product. Violet Design will not be responsible for damage to, or failure of, or need for repair or correction of any product, which occurs as a result of user abuse or misuse, including, but not limited to the operation with wrong power supply, or excessive voltage, or other wrong application, or storage including unreasonable exposure to heat, cold, wind, water, or other elements, negligence or accident, and to material fatigue or degradation through very intensive normal usage. Serial number removing or altering, actual or attempted opening, correction, repair, service, modification or alteration of any Violet Design's product by persons not authorized to do it expires this limited Warranty.

Customer must contact his local Violet Design's Distributor to receive Product Return Authorization Number that will be used to track and identify the returned product. After receiving Product Return Authorization Number please deliver the complete product in the original packing or in such packing that is adequate to prevent damage to the product during the normal transportation to your local Violet Design Distributor. Transportation is the Customer's responsibility and is not covered by this limited Warranty.

In the interest of product development, the design, construction, appearance, materials, parts and specifications of this product are subject to change without prior notice and without obligation to install these improvements in any product previously manufactured.

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