

## Technical Data

Weight:	9.75 lbs
Dimensions:	19" x 1 3/4" x 9 1/4"
Power Supply:	120 volts, 60 cps
Power Consumption:	~9 watts
Tube complement:	(1) EF86/EF806, (1) EF844s
Input impedance:	20 To 20,000 cps Variable 1K to 20K Ohms
Output impedance:	600 Ohms
<b>Note:</b> unit doesn't require a min. load, may be operated without load.	
Gain:	22dB to 60 dB
Adjustable in 3 dB steps (+/- 0.5 dB)	22dB to 46 dB
Adjustable in 6 and 4 dB steps (+/- 0.5 dB)	52dB, 56dB and 60 dB
Harmonic distortion: At output level +10 dB, (0dB=0.775V) measuring load resistance 600 ohms, gain 60 dB	
40 cps	1000/5000 cps
$K_2 \leq 0.2\%$	$K_2 \leq 0.1\%$
$K_3 \leq 0.2\%$	$K_3 \leq 0.1\%$
Hum and noise level: Related to the input, tested with J77 (through ear response filter according to CCIR 1949 and peak voltage indication)	
At gain 0 dB	P (total) $\leq -100$ dB
At gain 60 dB	P (total) $\leq -90$ dB
Measuring load resistance at the input:	200 ohms

Low cut is a 120 Hz high pass filter with -6 dB per octave  
Phantom power is +48V DC and ramps up over 5 seconds  
Polarity reverses via relay with switch and indicator on the faceplate  
Switchable 100 Ohm ground resistive buffer

Unit ships with either Telefunken AG or Philips/Valvo NOS tubes. The V78M may be operated with an EF86/6267 in the first stage and an EF80/6BX6 in the second stage if replacement tubes are unavailable. Please note an EF80 reduces the output level by several dB's and will change the sound character.

## Maintenance Requirements

Unit must be sent to TAB Funkenwerk every two years for routine maintenance checks. It is necessary to check all voltages and functionality of the tubes. Customer pays only shipping and handling.

## Warranty

If the maintenance requirements are followed the unit has a limited warranty of 5 years. Otherwise, the warranty voids at the end of 2 years. This warranty covers all parts & labor, except vacuum tubes. Customer pays for shipping and handling charges. Warranty period starts on the date of sale from the dealer and your dealer's invoice is

referenced as the warranty slip. The warranty is not transferrable from the original purchaser.

For more information on this and other products, please visit our website at:

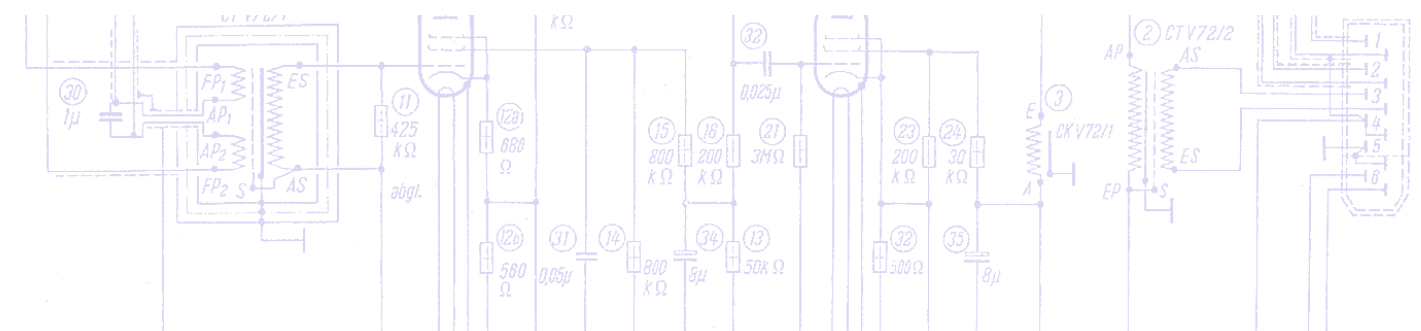
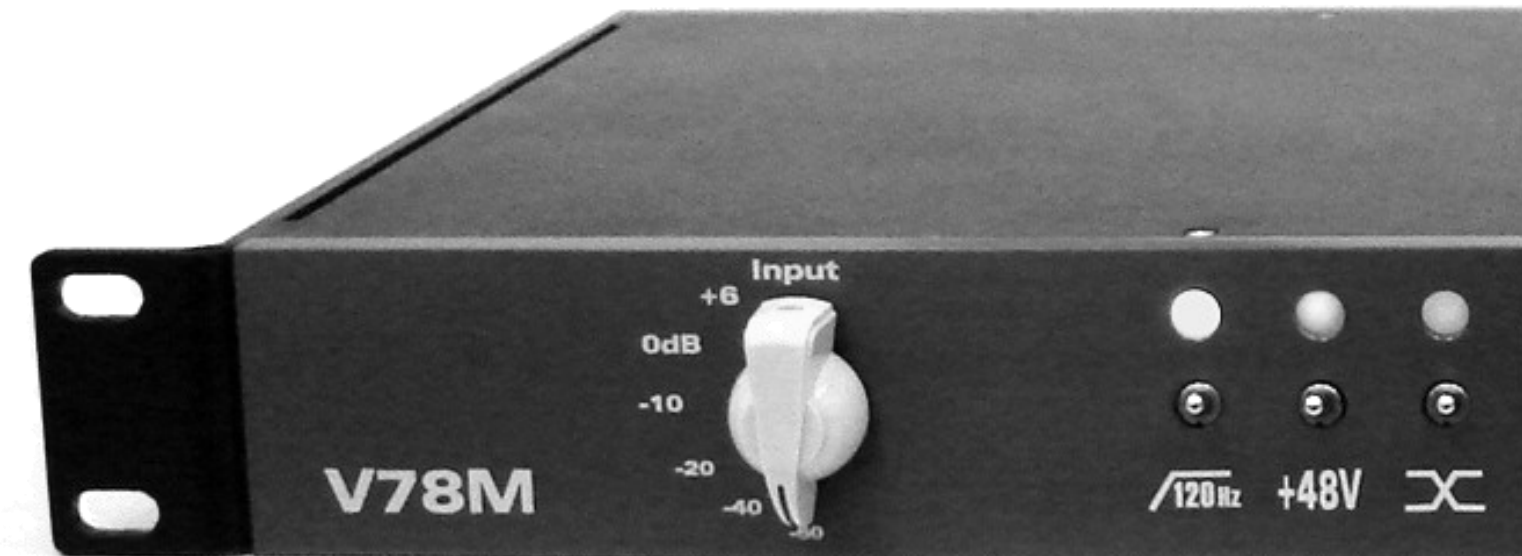
[www.tab-funkenwerk.com](http://www.tab-funkenwerk.com)

All specifications are subject to change without notice, and this manual may contain errors which we will happily edit as they are pointed out. V71DI, V72S, V72M, V76M, V77M, and V78M are all Copyright 2010, AMI, Inc. V72 and TAB-Funkenwerk are registered trademarks at the USPTO. Other product names mentioned may be service marks, trademarks or registered trademarks of their respective companies and are hereby acknowledged. The V78M is designed by Oliver Archut and is made in the USA.

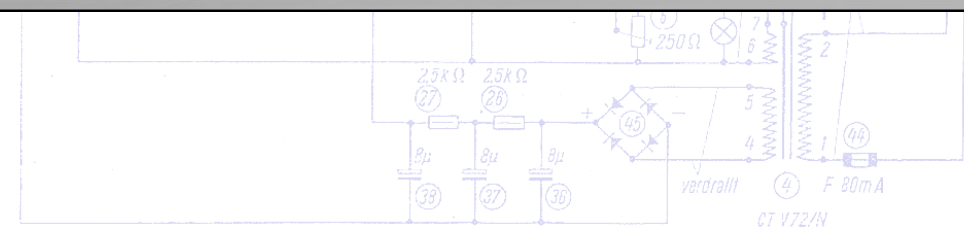
**TAB**  
Funkenwerk

# V78M

## Owner's Manual



### Mono Tube Microphone Preamp





## Overview

unique aspect of the V78M is the split sensitivity and gain control that enables the flexibility to deal with the most challenging recording problems while providing the head room and sound character to make a 57 sound like a 47! The V78M is an enclosed plug and play unit in a 19" one rack space enclosure.

Congratulations on the purchase of your new TAB Funkenwerk V78M! This unit is a single channel, tube driven mic-preamplifier constructed to handle signals as low as ribbon microphones all the way to the hot line level signals used for mastering your final recording. Based on the circuit design of the historic V72s tube mic-preamplifier, the V78M uses transformers that we manufacture to the specs of the originals. The

## Getting Started

1. Make sure the V78M power switch on the front panel is down.
2. Turn the Input Sensitivity knob (on the left) up to the right to 0 dB.
3. Turn the Make Up-Gain knob (on the right) down to the left to 22vdB. (The unit is shipped at these settings)
4. Flip the three switches between the knobs (Low Cut, +48V, and Polarity Reverse) to their down positions.
5. Plug the AC cable into the back and then into a working AC outlet.
6. Plug a microphone cable into the XLR Output jack on the back (center of panel) and plug the other end into the mixing console, snake channel or recording unit.
7. Plug another microphone cable into the XLR Input jack on the back (right side of panel) and plug the other end into your microphone or microphone power supply unit.
8. Flip the power switch to the upright position. The light above the switch should light up.
9. **Warning!** Always allow any unit with vacuum tubes to warm up for at least 5 minutes before running signal through it. This will help the unit perform optimally and extend the life of your tubes.
10. Start experimenting!

1. Make sure the V78M power switch on the front panel is down.  
2. Turn the Input Sensitivity knob (on the left) up to the right to 0 dB.  
3. Turn the Make Up-Gain knob (on the right) down to the left to 22vdB. (The unit is shipped at these settings)  
4. Flip the three switches between the knobs (Low Cut, +48V, and Polarity Reverse) to their down positions.

## Mode of Operation

+6dB) depending on the type of microphone or buss level being input to the V78M. The Make-Up Gain knob allows the user to switch between 22 to 60 dB by 3dB increments over 12 steps, with the last three settings increasing by 6, 4 and 4 dB respectively (22 / 25 / 28 / 31 / 34 / 37 / 40 / 43 / 46 / 52 / 56 / 60).

This preamplifier utilizes a split control system featuring an Input Sensitivity adjustment knob coupled with a Make-Up Gain knob. This allows the user to set the system up in either the historic V72s setting (-60/40) or overdrive the input transformer to add tube harmonics to create your own sounds. The Input Sensitivity knob allows the user to switch between -60 to +6 dB in six positions (-60 / -40 / -20 / -10 / 0 / +6dB) depending on the type of microphone or buss level being input to the V78M. The Make-Up Gain knob allows the user to switch between 22 to 60 dB by 3dB increments over 12 steps, with the last three settings increasing by 6, 4 and 4 dB respectively (22 / 25 / 28 / 31 / 34 / 37 / 40 / 43 / 46 / 52 / 56 / 60).

Amplification and noise floor are rated at an optimum, therefore with wide range, the influence of the amplifier on the signal-to-noise ratio (dependent on the input signal itself) remains far below 1 dB. The noise level component of the input tube is unimportant and generally does not require selected tubes. When the tubes are in need of replacement you should use NOS tubes of Western manufacturing origin. The input stage uses an EF86 type tube (6267, EF806, E80F. or EF86). The output stage, having relatively small gain, is provided with a strong low impedance EF844 type tube (6BX6, EF80, EF800, EF860, EF844s) to drive any kind of resistive, inductive or capacitive loads.

All of the transformers are custom built and made of high quality NI/FE/CO, resistant against stray fields and magnetically screened with a multi-layer Mu-Metal shield. Low sensitivity against ring is achieved by shock mounting the input stage. In spite of the compact mounting of this enclosed unit, the development of heat remains within permissible limits. The wide open frequency response is designed to capture the entire acoustic range and resolution of the recorded instrument, and is inter-modulation stable to meet these requirements.

## Suggested Settings

These are suggested settings for input sensitivity vs. clipping with reference to 20/1K/20K Hz at 0dB gain.

- +6dB max input 23dBu (10V): mix buss, two bus, etc.
- +0dB max input 17dBu (5V): mix buss, two bus, etc.
- -10dB max input 12dBu (3V): high output modern condensers
- -20dB max input 6.6dBu (1.643V): classic condensers and their modern replicas
- -40dB max input 0dBu (0.775V): standard dynamics, dynamic condensers and modern ribbons
- -60 dB max input -8.5dBu (0.2945V) vintage ribbons and low output dynamics

These are suggestions with reference to 0dB or -0.775V. The V78M was designed for sound-forming by over or under loading the preamplifier input, enabling the V78M to sound like many different mic-pre's in one box! The V78M's input transformer can withstand input levels up to +30dBu without becoming damaged. All technical specs are given with the Input Sensitivity at -60dB and the Make-up Gain at 40 dB. Not only does this setting replicate the historic V72s specs used during countless classic recordings but also when changing the input sensitivity over the make-up gain, the frequency and harmonic distortion specs change as well. Which is precisely why we built the V78M with the split controls...

1. Power Cable Socket
2. 100  $\Omega$  Ground
3. XLR Output
4. TRS Output
5. TRS Input
6. XLR Input



7. Input Sensitivity
8. Low Cut
9. +48V Phantom Power
10. Polarity Reverse Switch
11. Make-up Gain
12. Power Switch



## Unit Layout

1. **Power Hookup:** Provides AC to the unit via standard IEC monitor cable
2. **100  $\Omega$ (Ohm) Ground Switch:** 100  $\Omega$  resistive buffer switch in between the audio and chassis ground
3. **XLR Output:** Standard XLR connector with 600  $\Omega$  (relative) output impedance, Pin 2 Hot
4. **TRS Output:** Hooked up to XLR Output in parallel, Tip Hot
5. **TRS Input:** Hooked up to XLR Input in parallel, Tip Hot
6. **XLR Input:** Standard XLR connector with adjustable input impedance, Pin 2 Hot
7. **Input Sensitivity Switch:** Six position rotary switch that sets the input sensitivity/impedance
8. **Low Cut Switch:** Switchable 120Hz high pass filter with 6dB per octave
9. **+48V Switch:** Activates the built-in microphone voltage supply with a 5 second ramped timing circuit
10. **Polarity Reverse Switch:** Reverses the output 180 degrees via relay
11. **Makeup Gain Switch:** Twelve position rotary switch that sets the output gain
12. **Power Switch:** Energizes the unit with either 115V/50Hz or 230V/60Hz, switchable by qualified technician