

Kleiner Muk MK3



All Tube Guitar Amplifier User Guide V 3.4

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Congratulations to the purchase of a Nepomuk Kleiner Muk all-tube amplifier!

With its 2 ½ channels and its clear yet efficiently working controls and switching functions *Kleiner Muk* covers sounds from clean jazz to blues, rock, fusion and more and is also perfectly suitable for acoustic guitars (with magnetic pickups), resonator guitars or mandolins.

Furthermore - thanks to its 4 switchable power levels - you can enjoy a rich tube sound full of overtones in any situation from bedroom level to club stage.

The whole amplifier circuitry is built in pure tube technology, only reverb and the FX-loop are implemented with high-grade, sound-neutral ICs of studio equipment.

Of course a noble outfit may not be absent with such a top product. The control panel is made of true walnut wood and is marked with luxurious engraving. An additional precious wood logo adorns the speaker grill made of "Vienna Weave" and the whole housing is covered with finest, eco-friendly tanned real leather.

Also we use only FSC-certified wood & pay attention with the remaining components - as far as it is possible anyhow - on modern, environmental- & people-friendly made articles.

In the following chapters you find more exact description, service and other useful tips.

ATTENTION - before the first startup read the important safety instructions!

1 Quick-Start-Guide

- 1. Please read the **safety instructions** on the next page!
- 2. Check the correct fit of the power tubes. Though the power tubes are fixed by holding clamps, however, in a rare case, it could be possible that a tube has loosened, e.g., after a dispatch with a package service or a long transport over rough streets. The tubes must sit straight on stop in the socket and the clamps must hold them tightly.
- 3. **Connect power cord.** The local mains voltage must correspond to the specification of the amplifier (±5%).
- 4. **Footswitch:** if the footswitch is used and plugged in correctly, you have to set all switches assigned to the respective functions on the amplifier's control panel to "on" position (= left position) to ensure, that all footswitch functions work.
- 5. At 1st startup set MASTER & ev. both VOLUME controls to a low value.
- 6. **Turn on the power switch.** FULL/HALF switch should be at middle position = standby.
- 7. After approx. 1 2 min warm up, you can switch from standby to FULL or HALF.
- 8. Set volume controls (MASTER, VOLUME, GAIN) as desired. You can get the loudest possible undistorted clean sound with MASTER set fully cw.
- To get nice crunch sounds in the CLEAN channel, set TONE far right (cw) and VOLUME as high, as you want the twang- or crunch- distortions. MASTER controls the overall volume. Turn MASTER up to get some poweramp saturation & overtones added.
- 10. In **DRIVE channel**, if you want a **'creamy' sound**, turn **EDGE far left** (ccw) & perhaps set TIGHT left for less bass. If you want **more treble & 'bite'** set **EDGE more cw**.
- 11. **Before TURNING OFF** or in longer breaks, turn the amplifier to **STANDBY** (middle position of the FULL/HALF switch = STBY). If the amp is not required any more, after it was switched to standby it can be switched off immediately.
- 12. Should the amp be carried away or relocated, let it **COOL DOWN** for about **5 to 10 min** after switching off. Otherwise the tubes may be damaged by heavy vibrations or shock.

2 Important Savety Instructions

The device was produced by audio SCHMITRONIX technology according to EN 60065 and has left the factory in technically flawless condition. To keep this condition and to guarantee a safe operation, the user must follow the instructions which are included in this user's guide. The device corresponds to the protective class I (safety-earthed) – mains voltage $230V \pm 5\%$.

THE SECURITY, RELIABILITY AND ACHIEVEMENT OF THE DEVICE IS WARRANTED BY SCHMITRONIX audio technology ONLY IF:

- » assembly, enlargement, new setting, changes or repair is done by SCHMITRONIX audio technology or by authorized service personnel.
- * the electrical installation of the relevant area complies with the requirements of IEC (ANSI) specifications. (Mains voltage requirements please refer to sector 'Technical Specifications')
- » the device is used according to the instructions of this user's guide.

INSTRUCTIONS:

- » Never break off the ground pin on the power supply cord.
- » The amplifier has to be protected from moisture and should be protected against dust.
- » The unit must not be exposed to vibrations during and until at least 10 min. after operation.
- » Do not place this product on an unstable cart, stand or table. The product may fall, causing serious damage to it or to persons!
- » Opening of the device may be carried out only by qualified service personnel. If covers are opened or case parts are removed, unless this is possible without tools, parts can be exposed which conduct dangerous voltage.
- » If an opening of the device is necessary, the device must be disconnected from the power outlet.
- » ATTENTION! Because of high voltage conducting and buffering components, an interval of at least 5 minutes must be kept after switching off the device and before any intervention the voltage on the big capacitors must be checked for a value below 50 V! Consider this before a servicing, repair or replacement of parts.
- » Adjustment, maintenance and repairs carried out when the unit has been opened and is still live may only be performed by authorized specialist personnel who are aware of the associated dangers.
- » A use of "repaired" fuses or short-circuiting the fuse holder is inadmissible.
- » All fuses may only be replaced with the same type & value.
- » Back panels or covers (also with cooling slits), as well as tubes and their covers, are purposely designed to dissipate high temperatures and should therefore not be touched. They can remain hot up to 15 min. after switching off the device.
- » The unit must be positioned so that the amplifier is well ventilated at least 10 cm away from walls. Any ventilation openings and the whole rear opening must never be blocked or covered.
- » Keep away from other hot objects like heating elements, radiant heaters or similar devices.
- » Keep away from wet areas, water, baths, wash basins or similar.

3 Handling Notes

ENVIRONMENT The amplifier should not be operated or stored in humid environment and should be protected from dust. Operation or storage at a humid room - like in cellar or a not frequently heated room - decreases lifetime and reliability. Under circumstances this can lead to the loss of warranty claims.

COOLING DOWN PHASE After switching off, the tubes have to cool down for approx. 5-10 min. before the amplifier is moved or transported. Hot tubes are very sensitive to vibrations and also light pushes can lead to tube damages.

CLEANING The sensitive real leather cover should be maintained accordingly and be treated carefully. Soiling should be removed possibly immediately with a soft humid cloth, if necessary with the use of a bit of a soft hand- or dishwashing detergent.

4 Operation 4.1 Top Side



		NOT THE OWNER OF THE PROPERTY
Controls	INPUT	Input jack for the electric guitar.
Channel 1 Clean - Channel	TONE	Very effective working tone control, which is situated prior to the VOLUME. Control range: left: much bass / right: much treble, whereby with high VOLUME (& also MASTER) you can generate a nice Crunch-Sound.
	BRIGHT	Enhancement of the brilliant highs, depending on the position of the VOLUME control.
	VOLUME	= gain & sound volume of the Clean - channel
Channel Selection	CHANNEL	Changeover between Clean- and Drive- Channel. In Lead- Channel, the LED shines red. Remote-able via footswitch jack #1.
Channel 2 Drive - Channel	GAIN	Preamp gain from light crunch to heavy Lead-Overdrive.
	BOOST	Adds an additional tube stage, resulting in a richer distortion structure and producing a very creamy lead sound with high gain Remote-able via footswitch jack #2.
	EDGE	Tone control - full cw means more treble, full ccw means more mids and bass (in this position maximum mids = very creamy sound, if you want less bass, use the TIGHT switch). For fat sounding guitars or pickups, resulting in a muddy tone at the lower or palm-muted strings, it is recommended to use the Tight switch.
	TIGHT	Reduces the basses and some of the deep mids at the 1. tube-stage to create a tight tone and to avoid muddy sounds when with high gain (e.g. at high gain with the neck-humbucker on).
	VOLUME	sound volume of the Drive - channel
Master- Section	SMOOTH	Creates a softer tone by slightly softening the presences. This can also be used to achieve more bite when switching from a more temperate rhythm play to solo play. Remote-able via footswitch jack #2.
	REVERB	Controls the TAD™ spring reverb. Remote via footswitch jack #1.
	MASTER	Allover Volume
	FULL/HALF (STANDBY)	Reduction of the max. output power by 50% by switching the operating mode of the output tubes. Thereby you can reach a nice, full tube - tone also with bedroom levels. And with turned up Volume control a harmonious tube-saturation is added.
		In middle position, the amp is in STANDBY.
	SE/PP	Single-Ended / Push-Pull: Switches the poweramp from class-A-operation (SE, only one power tube active) to class-AB-operation (PP, both power tubes). Thereby the max. output power is lowered far & tone is getting more warm and softer.
	POWER	Mains power switch.

4.2 Rear Side



1	-	
Power Inlet	Mains Cable	IEC connector cable for 230V AC, length ~2m.
	Mains Fuse	The mains fuse is located just besides the mains connection. microfuse 5x20mm T1A / 250V
	HV-Fuse	High voltage fuse microfuse 5x20mm T250mA / 250V
FOOTSWITCH- Connectors	general	Here you can either plug in the <i>Nepomuk 4-way Footswitch NFS4-K</i> or usual 1- or 2- way footswitches - with or without LED (Each button switches to ground, with the LED connected in series). To ensure that all footswitches work, set all mini-switches assigned to the respective functions on the amp's control panel to "on" - position (= left position).
	#1: Channel / Reverb	tip- contact switches the channel (NFS4-K button #1) ring- contakt switches reverb (NFS4-K button #4)
	#2: Boost / Smooth	tip- contact schaltet BOOST (NFS4-K button #2) ring- contakt switches SMOOTH (NFS4-K button #3)
FX-LOOP	general	The effects loop is built up 'serial'. That means, if you connect any effects pedal, the internal connection of the preamp signal to the poweramp is interrupted. For best sound-results we recommend high quality effect devices and cables. Typically modulation effects like chorus, phaser, etc. or 'time' effects like reverb or delay are connected here. You can use single effect pedals or multieffect devices. For proper signal matching, adjust the following controls carefully.
	RETURN	Connector for the output of an FX-unit or feed of any signal directly into the poweramp. If a jack is plugged in, the internal connection of the preamp signal to the poweramp is interrupted.
	SEND	Connector for the input of an FX-unit. It also can be used as a line- out. This connector is located prior the master volume & poweramp, so it is useable also in standby, e.g to feed a tuner or another (power-) amp.
	SEND-LEVEL	Potentiometer to adjust the send-level to the FX-unit. Set this level so that the FX-unit doesn't be overdriven or clipping at any of your setted VOLUME levels (note: SEND is located prior MASTER) and that the sonic volume is equal to the volume with no FX-gear connected. If necessary, switch RETURN-GAIN to high position.
	RETURN-GAIN	Control of the gain of the return signal (left = low gain, right = high gain). Only set to 'high' if the FX-unit isn't able to deliver a high enough output level.
LINE OUT	LINE OUT	Here you can connect the amps output signal to other units like other guitar amp, power amp, DI-Box, speaker simulators or other audio devices. Note, that this signal is being taken from the loudeneaker, so the sound is also influenced from the neweramp

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loudspeaker, so the sound is also influenced from the poweramp

(poweramp-saturation/distortion) and the speaker.

EXTERNAL
SDEVKED

16 OHM Connection to an external speaker cabinet with an impedance of

16 Ohms. Hereby the INTERNAL SPEAKER is switched OFF.

8 OHM Connection to an external speaker cabinet with an impedance of

8 Ohms. Hereby the INTERNAL SPEAKER remains ON.

ATTENTION!

If connected, the external speaker cabinet's impedance should not differ from the specification noted above!

If you connect a speaker with a higher impedance as marked at the connector, the output stage of the amplifier can suffer a serious, costly damage.

The use of both connectors at the same time is prohibited!

If not otherwise possible, a cabinet with half the impedance can be connected. This doesn't damage the amplifier but you can't get the maximum power and a slightly change in the given tone will occur.

Use only high-quality cables - marked as a loudspeaker cable - with high-quality plugs! Never us a guitar cable! Bad or faulty cables or plugs can lead to bad sound, but also to a damage of the output stage!

5 Hidden Features

ATTENTION!

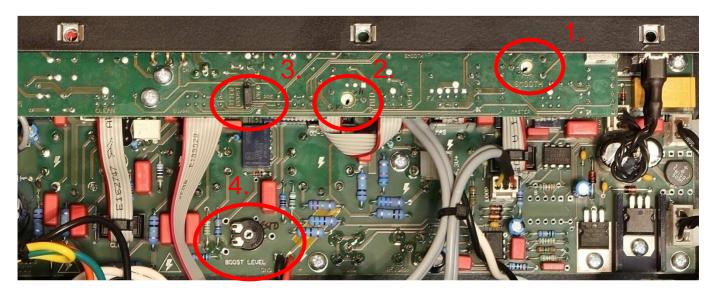
Because the amplifier must be opened here & high life-threatening voltages can exist, the following modifications only may be carried out by a technical expert or a technically experienced layman considering the following safety measures:

- Remove the mains cable!
- The device must be switched off for at least 5 min, so that all high voltage has discharged!
- Remove the upper back cover on the amplifier chassis!
- After modification the back cover must be mounted again (at least with just 4 screws for now)!

5.1 Summary

The following values are changeable:

- 1. the reduction of the presences of the 'SMOOTH' function
- 2. the amount of the Mids in drive channel
- 3. TIGHT on @ BOOST
- 4. Boost Level



5.2 Presence - Reduction

With this trimm-potentiometer you can tweak the reduction-value of the presences (highest treble frequencies) with switched on 'SMOOTH' - function. According to the sound of the used speaker or personal taste you can carry out adaptations. The mark assigns our standard position with speaker Eminence Wizard.

• Obey the safety instructions as noted above at point 5!

Note: no dangerous voltages exist on the potentiometer-PCB.

- The trimm-pot is located at the upper right area of the potentiometer-PCB.
- The more left (ccw), the less presences.

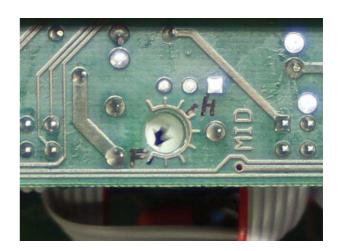
5.3 Mid - Adjustment

Here you can set the value of the mids of the drive channel.

 Obey the safety instructions as noted above at point 5!

Note: no dangerous voltages exist on the potentiometer PCB

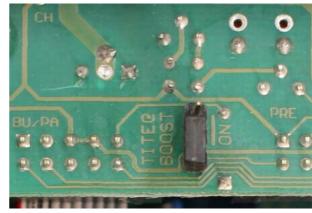
- The trimm-pot is located at the middle area of the potentiometer-PCB.
 Standard position F = Full, like shown here (H = Half ≜ center position like on a usual 3-band tone control)
- The more left (ccw), the less mids



5.4 Tight on @ Boost

By means of a jumper you can define, if desired, that 'Tight' is automatically turned on when 'BOOST' is switched on (regardless of the position of the 'TIGHT' switch).

- In Drive channel without 'BOOST', the TIGHT switch operates normally.
 - Obey the safety instructions as noted above at point 5! Note: no dangerous voltages exist on the potentiometer PCB
 - The jumper is located at the middle area of the potentiometer-PCB.
 - Jumper at upper position = the automatic 'TIGHT'
 function is active.



5.5 Boost Level

Hereby you can adjust the amount of BOOST (= the value of distortion and gain of the volume).

• Obey the safety instructions as noted above at point 5!

Note: at the trimm-pot & in close vicinity there are no dangerous voltages, but in the other sphere there are components, wires & traces which may conduct high voltages at operation and afterwards.

- The trimm-pot is located at the main PCB.
- · The mark assigns our default setting.
- The more left (ccw), the higher BOOST level.



6 Technical Specifications

6.1 General Data

Mains voltage: 230V ±5%, 50Hz

Powerconsumption: ~ 50W max.

Output Power: ~ 18W RMS (10% THD) max. (further settings: ~ 8W, 5W, 0,5W)

Power-Tubes: 6V6GT

Operating Modes: Single-Ended Class - A (SE) / Push-Pull Class - AB (PP)

Loudspeaker: Eminence Wizard 8 Ohms

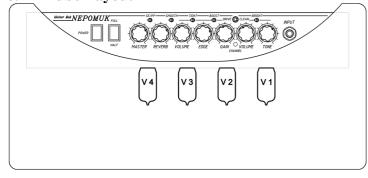
other speakers on request, e.g. Eminence Red Fang for a softer vintage tone or

Celestion (Neo-) Creamback

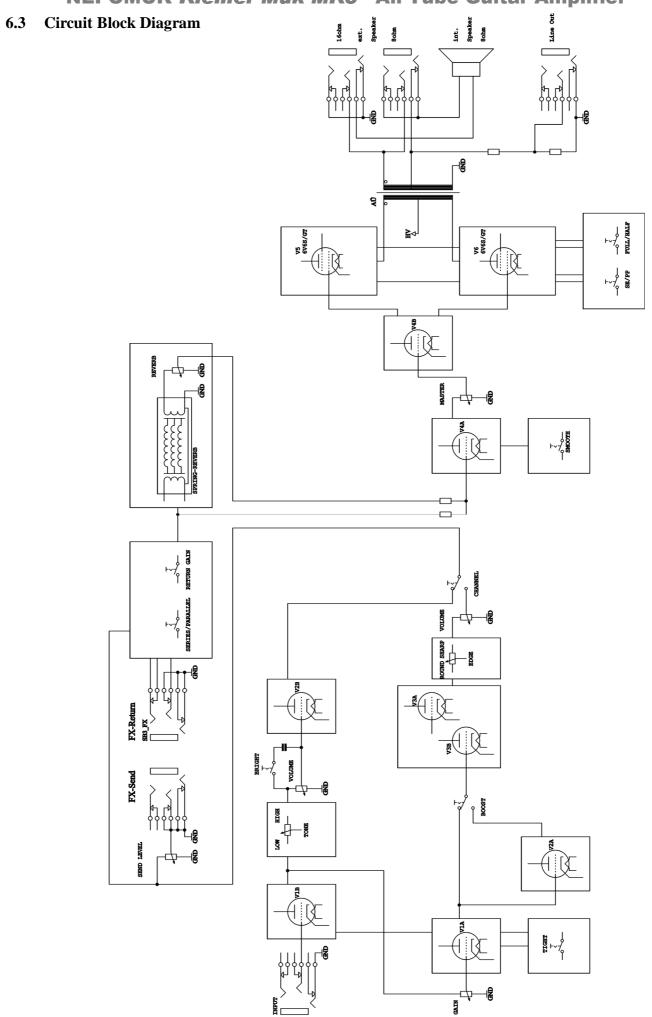
Dimensions: ~ 455 x 430 x 245 mm (WxHxD); height incl. 15mm rubber feet & without handle

Weight: ~ 16kg

6.2 Tube Layout







7 Tubes

7.1 Important Notes

If the metal sheath in the power tube (anode metal plate) should glow partially (not to mistake with the glowing of the heating filament), the amplifier must be switched off immediately and possibly the power tubes must be exchanged and / or a tube - expert must be attended. Otherwise the output stage can take serious damage.

The quality of today produced tubes can vary strongly every now and then. This may concern working life and also sound. In rare cases it can occur that a new tube packs up suddenly. Unfortunately, in such a case we cannot take over any warranty. But all amplifiers are tested at least 24 hours at our manufactory, so such a failure is very unlikely.

7.2 Replacement of Power Tubes

Power tubes are wearing parts which will show loss of power sooner or later, depending on the amplifier's operating time. If the amplifier sounds rather flabby and less clear and direct as earlier, in most cases this lies in the power tubes. Increased hum, microphonics, loss of power / of treble and bass reproduction are other symptoms.

With very often played amplifiers a replacement may already make sense after 1 to 2 years.

The amplifier comes from factory with 2x 6V6GT output tubes from Electro Harmonics. You also can use all other 6V6 tubes from other manufacturers (see recommendations below). Other types of power tubes are not allowed.

The bias - current is setted automatically, so no adjustment or intervention inside the amplifier is needed → **Auto-Bias!** So a repalcement of the power tubes can simply be done by ordinary persons.

IMPORTANT by replacing tubes:

ATTENTION - danger of skin burns!

The amplifier must be turned off & the tubes be cooled so far, so that you can touch them without danger.

Carefully pull off the tubes just down straight under pressing of the holding clamps apart. Eventually, only light tilting of the tube is acceptable, otherwise the center pin of the tube socket could break.

The cooled tubes can be touched without doubt & need not to be wiped or to be degreased.

Tonal differences between power tubes of different manufacturers are absolutely noticeable. From us well-chosen 6V6 are currently the tonal & mechanically most stable derivatives in the market. Perhaps, you can fine-tune your individual (vintage-) sound-idea with certain, mostly rather expensive NOS (new old stock) - tubes.

7.3 Replacement of Preamp Tubes

In the preamp tube types of 12AX7 (ECC83) do their work. Because here exist many variations of this type with different sound qualities & gain values, you can readily change these tubes to the experimentation. Also types of 7025 or 5751 can be used, but typically have less gain - e.g. for a more clean tone (V1).

Preamp tubes generally show a much higher operating life than output tubes. They can often still do their clear work after 10 or 15 years.

7.4 Tube - Overview

The standard equipment of the little Muk is as follows:

V1: Sovtek 12AX7WB V2: Sovtek 12AX7WB

V3: JJ ECC83S V4: JJ ECC83S V5, V6: EH 6V6





Here is a small survey about recommended preamp tubes:

manufacturer	type	description
Sovtek	12AX7WB	Quasi "standard tube", relyable, fairly neutral sound, without distinct mids, suitable for hi-gain circuits (if other tubes are too "muddy") & sound-neutral circuits like effects loop, reverb, phase inverter
JJ	ECC83S	In preamp circuits it emphasizes rather the mids, especially the low mids. Good for "twangy" clean,blues & hardrock – sounds. Also suitable for sound-neutral circuits like effects loop, reverb, phase inverter.
Electro Harmonix (EH)	12AX7	High gain. Sound: highlighted bass-range, pleasant, discreet highs, low noise, good for warm and soft clean- & hi-gain- sound.
Tung-Sol	12AX7	"Big", warm, "musically" tone, high gain, lowest microphonics. Well suited for V1 (in clean to crunchy preamp stages)
Sovtek	12AX7LPS	Similar to 12AX7WB, but more gain, lower noise
Groove Tubes	12AX7 Mullard Design	Pleasant vintage – tone, but not recommended for hi-gain
Svetlana / SED	12AX7	Sonically similar to Elektro Harmonix 12AX7

and power tubes:

manufacturer	type	description
EH	6V6	Very good, open & "airy" tube. Very stable also in deep bass regions at high power levels; low microphonics.
Genalex	6V6 Gold Lion	Exzellent tube, soft in the highs, low microphonics, but expensive.
TAD	6V6GT-STR	This tube blazes with NOS - typical "sweet top end" and a surprising, tight low end at once. Unfortunately susceptible for microphonics when used in combo amps (manual sort out necessary).
JJ	6V6 (GT) S	Very stable in the bass regions & at high power levels. Soft, clear highs, exzellent overdrive-behaviour, high headroom, but susceptible for microphonics when used in combo amps (manual sort out necessary).

Note:

The descriptions recommendations mentioned here refer only to tubes from topical new production.



8 Accessories

8.1 Footswitch NFS4-K

optional available or contained in the complete set

jack - assignments:

CHANNEL tip jack 1
BOOST tip jack 2
SMOOTH ring jack 2
REVERB ring jack 1
Marking jack 1 - red, jack 2 - blue cable length ~ 6m

8.2 Protection Cover

soft padded synthetic leather, black (Art.# COVER-K) optional available or contained in the complete set

9 Conformity

Hereby we confirm that the product with the type name **NEPOMUK** *Kleiner Muk* was developed, produced and placed on the market according to:

EU directive 2006/95/EG respectively 2014/35/EG (low voltage directive) EU directive 2004/108/EG (electromagnetic capability)

Applied Standards:

EN 60065 / VDE 0860:2015-11

Audio-, video- and similar electronic apparatus - safety requirements

EN 61000-6-3:2011

Generic standards - Emission standard for residential, commercial and light-industrial environments EN 61000-6-1:2007

Generic standards - Immunity for residential, commercial and light-industrial environments

Martin Schmitzberger Weng, 2016/03/21

schmitroni

10 Contakt

For questions about our products, please contact your dealer or the manufacturer directly:

SCHMITRONIX audio technology Burgstall 2 4952 Weng / Innkreis AUSTRIA

Tel. +43 - 650 - 455 17 20 Fax. +43 - 7723 - 43 43 2 email: info@schmitronix.com

www.nepomuk-amps.com





audio technology



11 Warranty

The manufacturer *SCHMITRONIX* audio technology guarantees for a legal warranty of 2 years from the date of your purchase, in case that all instructions in this manual are followed.

Registered customers (by enclosed registration card or email) will obain an expanded warranty of 3 years. Thus the high quality of Nepomuk amplifiers is underlined once again.

Take this chance to obtain this additional security and get the following BONUS:

Furthermore, registered customers obtain a high quality **Nepomuk - T-Shirt** of individual choice (size S-XXL, colors red or black), delivered free of cost within the EU.

Product fotos see our homepage or facebook.com/NEPOMUKamps - Fotos - Merchandising

Whether a case of warranty exists or a defect will be fixed for free by fair dealing can only be assessed and decided by the manufacturer. If needed, the customer has to bear the incurred transportation costs.

Warranty claims can be asserted only on presentation of proof of purchase. Furthermore, within the warranty period any guarantee claim expires if the unit has been opened, modified or repaired by from the manufacturer non-approved service personnel and if damage is caused because of a bad tube-replacement.

Excluded from warranty:

- » Wear parts such as tubes, potentiometers, fuses.
- » Damage and harm caused by external influences or improper handling (see previous chapters) e.g. oxidized or damaged socket contacts or tube sockets due to improper handling or storage (e.g. room or basement with high humidity or non-continuous heating).

11.1 Product Registration Card

Enclosed you will find the registration card for the granting of an extended 3 -year warranty and a free delivered Nepomuk T-Shirt (see above). Please note the information on this card.

Surely you can register your amplifier also **by email to** <u>info@schmitronix.com</u> Please note the following:

- name
- address
- Model
- serial number
- date of purchase
- dealer
- please add a scan of the original invoice (surely you may cover the purchase price)
- T-shirt color (red or black)
- T-shirt size (S-XXL)
- please note if you'd like to get our email newsletter

Your given data will be used internally for warranty management exclusively.