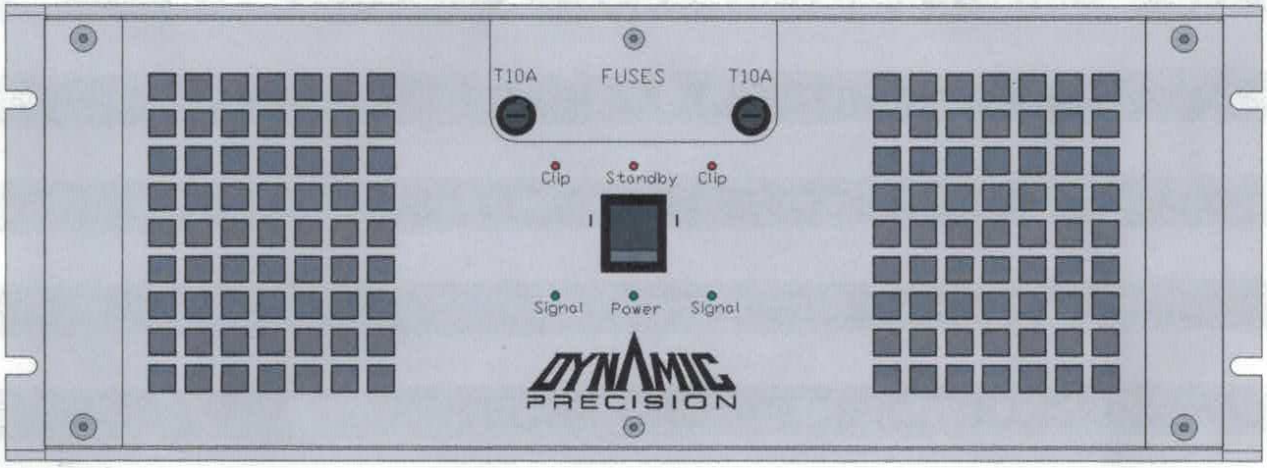
DYNAMIC PRECISION



USERS GUIDE

STEREO POWER AMPLIFIERS

PA 402

PA 402

INDEX

UNPACKING page 2

GENERAL INFORMATION page 3

SWITCHES AND INDICATORS page 4

CABLES AND CONNECTIONS page 5

PARALLEL MONO / BRIDGING SET-UP page 7

TROUBLESHOOTING page 9

TECHNICAL SPECIFICATIONS page 10

WARRANTY page 11

PA 402

UNPACKING

Please read the **User Guide** carefully before attempting to use this apparatus. The **Users Guide** comprises general and specific information on adaptations/adjustments to give you the best possible performance of the apparatus. Please store the packing materials for later use.

When the apparatus is unpacked, please check that it has not been exposed to any damage and that the package contains the following items:

1 pc. Dynamic Precision PA 402

2 pcs. mains fuses T10A.IEC127

1 pc. users guide for PA 402

Note: Please reports immediately any damages, defects or shortcomings to your dealer.

PA 402

GENERAL INFORMATION

We congratulate you on your choice of a Dynamic Precision PA 402.

The technical performance of this product is based on the company's unique electronics circuit design to achieve the best possible musical reproduction.

This apparatus is electronically balanced and DC-coupled to optimise pulse response and low noise.

This amplifier has a temperature-regulated fan cooling system, requiring at least 30 cm of unused space on front and rear.
Keep the fan and the cooling channels free from dust.
Damage from Insufficient cooling caused by dust will not be covered by the warranty.

CAUTION: READ THIS BEFORE OPERATING Dynamic Precision PA 402.

1. Do not open the amplifier's cabinet as this might result in damage to the set, or electrical shock.
2. To prevent lightning damage, pull out the power cord during an electrical storm.
3. When removing the power plug from the wall outlet, always pull directly on the plug, never pull the cord itself.
4. Do not use force when operating the switches and connectors.
5. When moving the unit, be sure to first pull out the power plug and remove cords connected to other equipment.
6. Do not attempt to clean the unit with chemical solvent as this might damage the finish. Use a clean dry cloth.
7. Be sure to read the «Troubleshooting» section for advice on common operating errors before concluding that your unit is faulty.
8. Keep this manual in a safe place for future reference.

SWITCHES AND INDICATORS

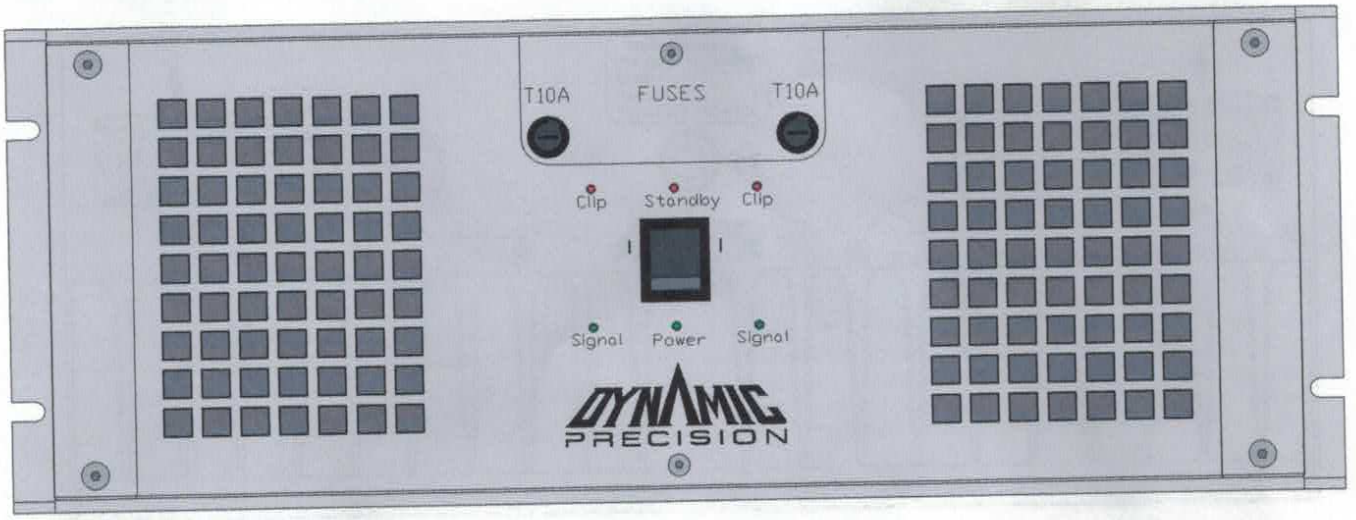


Figure 1. PA 402 front panel

SWITCHES

Power supply OFF/ON switch.

INDICATORS

SIGNAL: Indicates an input signal of at least 5 mV.

CLIP: Indicates ≥ 1% harmonic distortion on the output signal.

POWER: Indicates that the amplifier is turned on.

STANDBY: Illuminates for a while when the power is turned on, and during the following situations:

1. Temperatures higher than 90 °C measured on the cooling bracket.
2. DC-voltage on either input or output terminals.
3. High frequency signals on either input or output terminals.

Note: High frequency signals is here defined as frequencies higher than 200kHz.

When «STANDBY» is lit, the input signal is muted, and in turn, the amplifier's power supply will be shut down, and simultaneously the loudspeaker outputs will be short-circuited. The «STANDBY» LED will start to flicker to indicate periodic muting of the input signal due to a high degree of signal clipping in the range of 15-20 kHz.

FUSES:

A defective fuse shall only be replaced by an equivalent fuse. **T10A IEC127**.
Using a fuse with an incorrect value can cause serious damage to the amplifier which is not covered by the warranty, and could start a fire.

CABLES AND CONNECTIONS

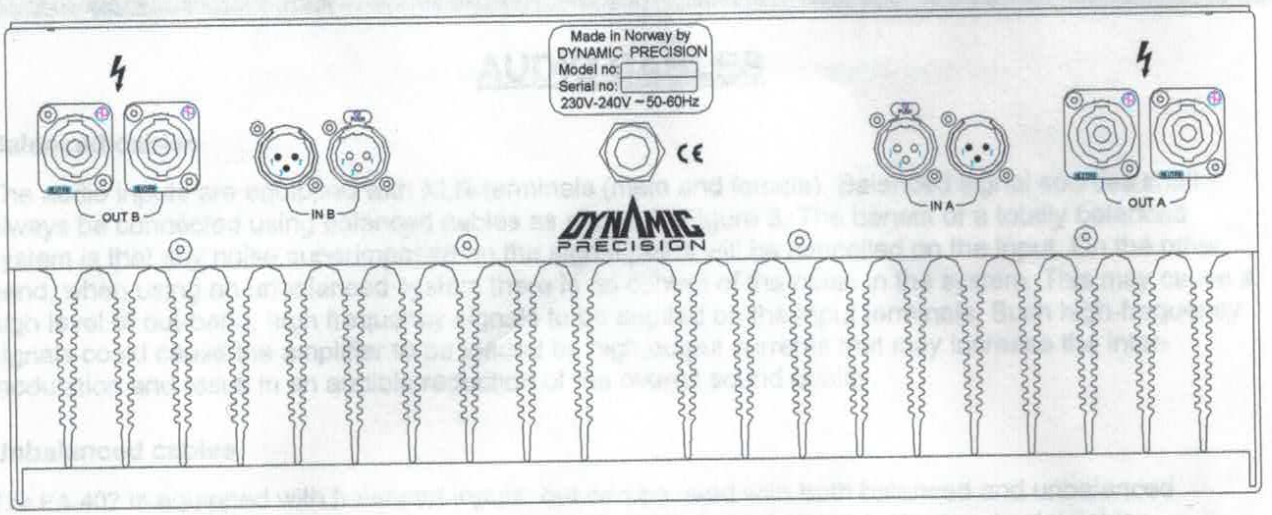


Figure 2. PA 402 back panel.

CONNECTIONS

Note: ***All cables to be connected prior to turning the power on. The pre-amplifier, crossover network or any other equipment shall be turned on prior to the power amplifier.***

SIGNAL INPUT AND OUTPUT TERMINALS:

This power amplifier is equipped with electronically balanced inputs using XLR-terminals (female).

Pin allocation is as follows:

- Pin 1 = GND/shield
- Pin 2 = signal (+) in phase
- Pin 3 = signal (-) anti-phase

PA 402 also has a set of (L and R channels) XLR-terminals (male) in parallel with the input terminals. These terminals shall be used when paralleling L and R channels or paralleling several PA 402.
A specially prepared cable shall be used when paralleling or bridging PA 402, see pages 7 and 8.

LOUDSPEAKER TERMINALS:

The amplifier is equipped with 2 sets of binding post (screw fastening terminals),and 2 sets of Neutrik Speacon terminal ,with pin allocation as follows:
Pin 1(+) and 2(+) = signal (+). Pin 1(-) and 2(-) = Signal (-) GND.

CABLES AND CONNECTIONS

AUDIO CABLES

Balanced cables

The audio inputs are equipped with XLR-terminals (male and female). Balanced signal sources shall always be connected using balanced cables as shown in Figure 3. The benefit of a totally balanced system is that any noise superimposed on the signal paths will be cancelled on the input. On the other hand, when using an unbalanced system there is no control of the noise in the system. This may cause a high level of out-band, high frequency signals to be applied on the input terminals. Such high-frequency signals could cause the amplifier to be loaded by high output currents that may increase the inter-modulation and result in an audible reduction of the overall sound quality.

Unbalanced cables

The PA 402 is equipped with balanced inputs, but can be used with both balanced and unbalanced control amplifiers. When connecting unbalanced signal sources to the PA 402, a «special cable» consisting of two inner-conductors and a shield shall be used. All conductors shall be terminated in both ends as shown in Figure 4.

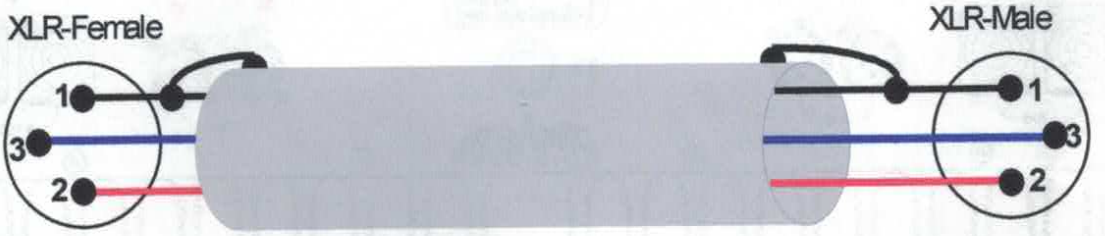


Figure 3: **Balanced to balanced XLR-cable.**

Figure 4: **Unbalanced to balanced cable**

Authorised dealers of Dynamic Precision's products can help and advice you how to choose the proper cables to be used.

PARALLEL MONO / BRIDGING SET-UP

BRIDGING:

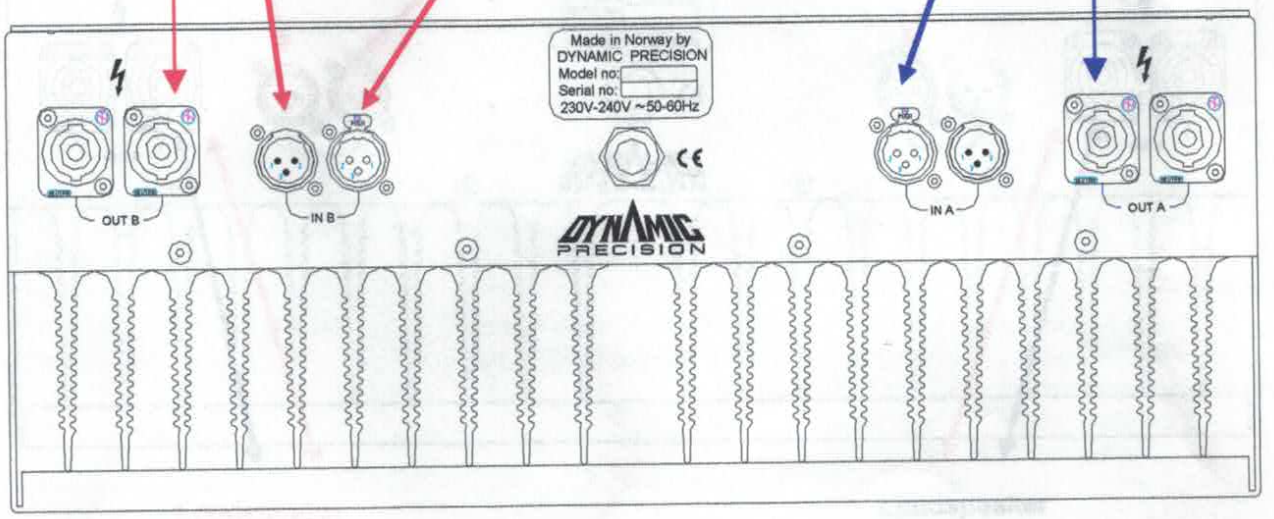
Figure 5 **Special cable used to bridge the power amplifier**

Input signal

Loudspeaker, plus (+)

Loudspeaker, minus (-)

Figure 6 **Bridging using a special cable.**



Note: Bridging will result in an output power four times higher than the single channel stereo output. Please consult the technical specifications on page 10.

PARALLEL MONO / BRIDGING SET-UP

PARALLEL MONO SET-UP:

Figur 7 XLR-cable for parallel mono connection of the power amplifier

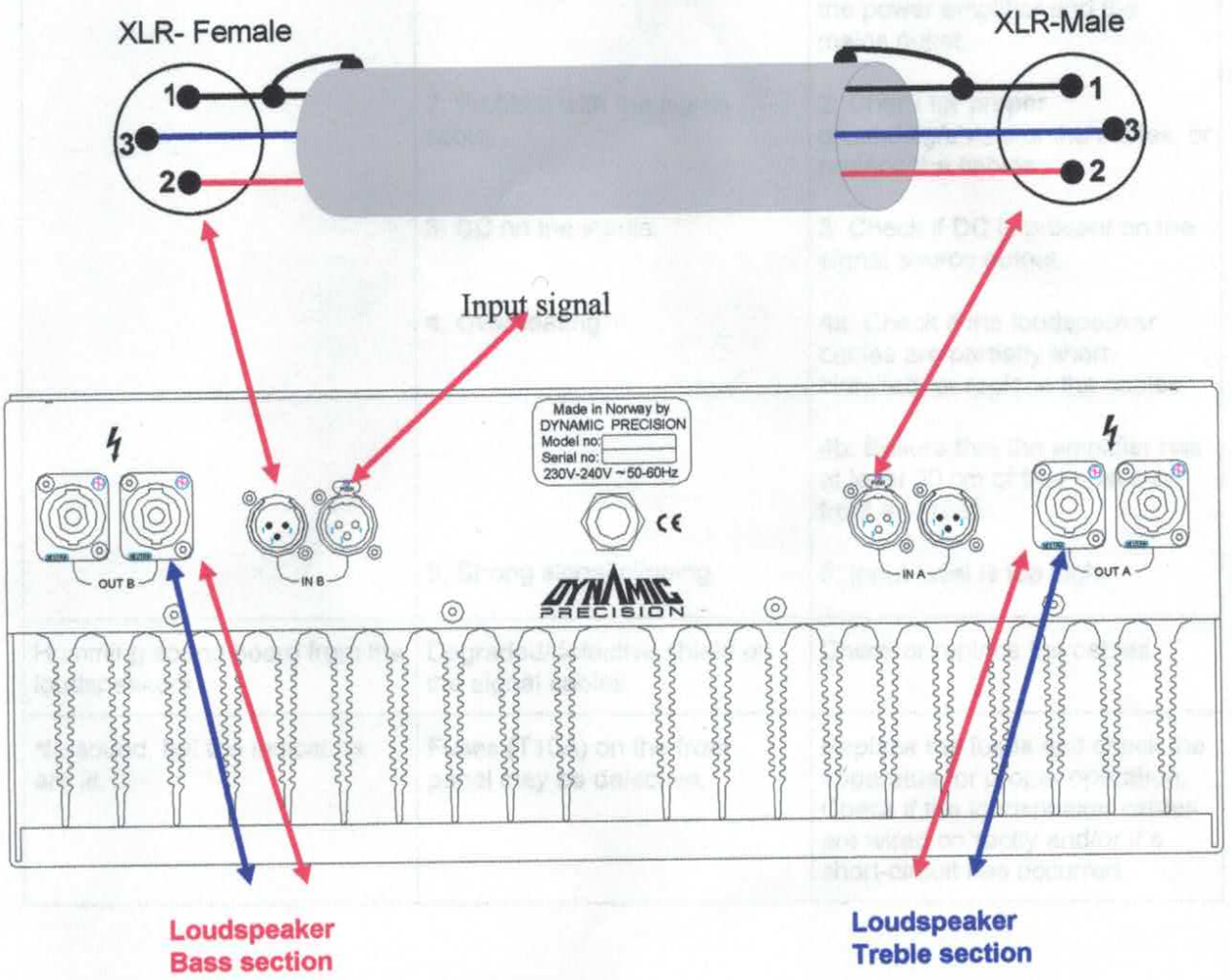


Figure 8. Parallel mono connection using an XLR-cable.

The loudspeakers must be equipped with separate connectors for the bass and treble sections. Remember to remove the strap between the bass and treble sections on the loudspeakers. This method is normally called BI-AMPING. Main advantages are the use of shorter loudspeaker cables and a separation of the bass and treble currents in the power amplifier.

TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	POSSIBLE SOLUTION
Apparatus is put in STANDBY.	1: High frequency noise	1: Insert a mains filter between the power amplifier and the mains outlet.
	2: Problem with the signal cable.	2: Check for proper grounding/shield of the cables, or replace the cables.
	3: DC on the inputs.	3: Check if DC is present on the signal source output.
	4: Overheating.	4a: Check if the loudspeaker cables are partially short-circuited, or replace the cables.
		4b: Ensure that the amplifier has at least 30 cm of free space on front and rear.
	5: Strong signal clipping.	5: Input level is too high.
Humming sound heard from the loudspeakers.	Degraded/defective shield on the signal cables.	Check or replace the cables.
No sound, but the indicators are lit.	Fuses (T10A) on the front panel may be defective.	Replace the fuses and check the apparatus for proper operation. Check if the loudspeaker cables are wired correctly and/or if a short-circuit has occurred.

PA 402

TECHNICAL SPECIFICATIONS

POWER OUTPUT,RMS,20Hz-20kHz, @ 1% THD (clipping point) :	8 Ω load, 450W 4 Ω load, 800W 2 Ω load, 1500W 4 Ω load, 3000W mono
MAXIMUM CURRENT SOURCE:	More than 120A
DISTORTION,THD @ 400W 10Hz-20kHz into 8 Ω load :	Less than 0.001 %
DISTORTION, THD @ 50V RMS, 1 kHz into 8 Ω load:	Less than 0,0004 %
IM DISTORTION, CCIR 13kHz and 14kHz, @250W 8 Ω load:	Less than 0,0003 %
FREQUENCY RESPONSE:	DC-63 kHz -3dB[1]
SLEW RATE (input filter bypassed):	More than 500V/µs
DAMPING FACTOR:	500:1 @ DC-20kHz/8Ω
SIGNAL-TO-NOISE RATIO, Ref.450W/8 Ω load:	10Hz-80 kHz 108dB 22Hz-22kHz 115dB 10Hz-CCIR-QPK 109dB IEC-A weighted 115dB
INPUT IMPEDANCE (balanced):	20 kΩ (150pF in parallel)
VOLTAGE GAIN:	44.7x 33dB, standard[2]
MAX RMS VOLTAGE SWING:	60 V
SENSITIVITY:	1.34 V RMS for 450 W/8 Ω
COMMON MODE REJECTION @ DC -100kHz:	More than 100dB
CROSSTALK REJECTION @ DC-20kHz:	More than 120dB
DIMENSION (WxHxD)in mm:	481 x 180 x 420
WEIGHT :	28 kg

***Dynamic Precision* reserves the rights to change or alter the specifications and/or the technical solutions without [3]prior notice.**

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[1] Frequency response may be change upon request

[2] Internal gain setting : 26dB 30dB and 33dB

WARRANTY

DURING THE WARRANTY PERIOD

The warranty and purchasers/vendors contractual obligations are according to «Lov om kjøp av 13.mai 1988. Valid from January 1989».

All warranties shall be void if any carelessness, misuse and/or unacceptable handling of the apparatus, or any other conditions which may be ascribed to the negligence of the purchaser of this product.

If a claim is raised concerning the operation of this product, please return it to the authorised dealer accompanied by a copy of the original purchase receipt and a brief description of the fault symptoms. The purchaser is requested to leave their telephone number and/or address in the event the manufacturer needs further information to resolve the problem to the purchaser's satisfaction.

EXTENDED WARRANTY

An authorised dealer may give an extended warranty on a case by case basis. This is solely an agreement between the purchaser and the authorised dealer.

Manufacturer

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