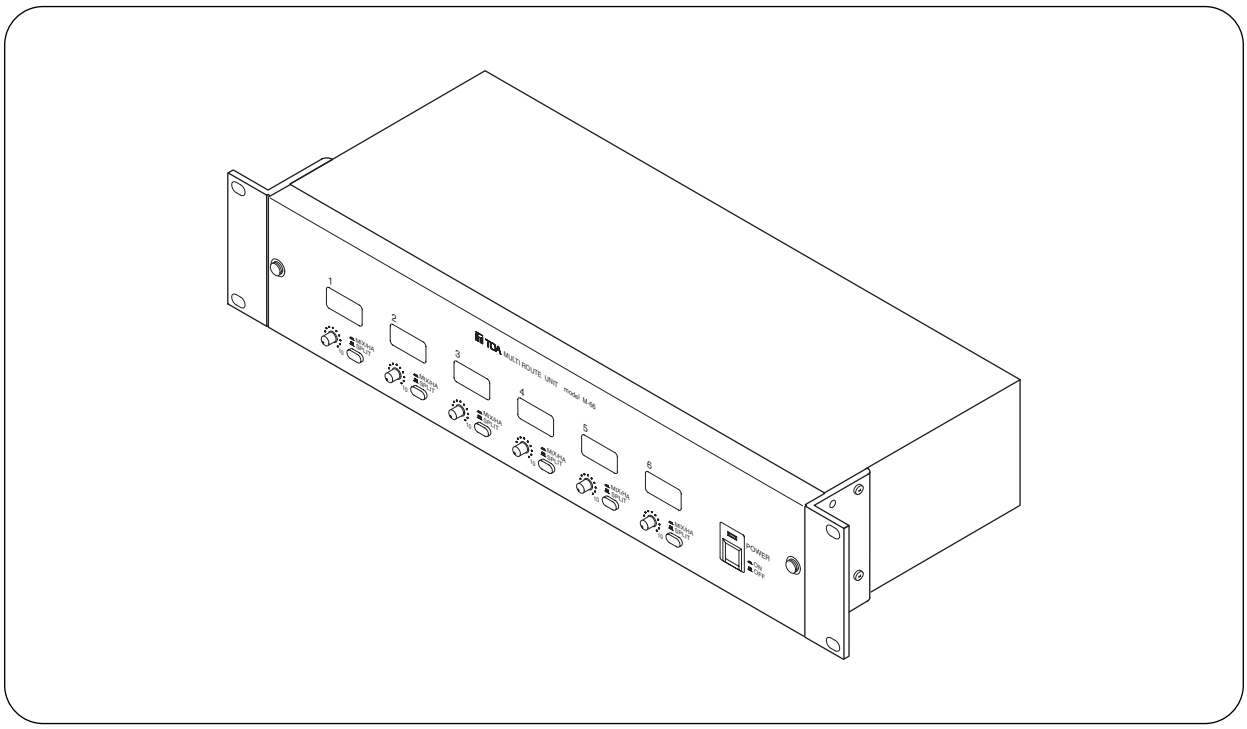
TOA

OPERATING INSTRUCTIONS

MULTI-ROUTE UNIT M-66



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Thank you for purchasing TOA's Multi-Route Unit.
Please carefully follow the instructions in this manual to ensure long, trouble-free use of your equipment.

TOA Corporation

1. SAFETY PRECAUTIONS

- Before installation or use, be sure to carefully read all the instructions in this section for correct and safe operation.
- Be sure to follow all the precautionary instructions in this section, which contain important warnings and/or cautions regarding safety.
- After reading, keep this manual handy for future reference.

Safety Symbol and Message Conventions

Safety symbols and messages described below are used in this manual to prevent bodily injury and property damage which could result from mishandling. Before operating your product, read this manual first and understand the safety symbols and messages so you are thoroughly aware of the potential safety hazards.

⚠ **WARNING**	Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.
⚠ **CAUTION**	Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.

⚠ WARNING

When Installing the Unit

- Do not expose the unit to rain or an environment where it may be splashed by water or other liquids, as doing so may result in fire or electric shock.
- Use the unit only with the voltage specified on the unit. Using a voltage higher than that which is specified may result in fire or electric shock.
- Do not cut, kink, otherwise damage nor modify the power supply cord. In addition, avoid using the power cord in close proximity to heaters, and never place heavy objects -- including the unit itself -- on the power cord, as doing so may result in fire or electric shock.
- Since the unit is designed for in-door use, do not install it outdoors. When it gets wet with rain, there is a danger of electric shock.
- The apparatus shall be connected to a main socket outlet with a protective earthing connection.
- The socket-outlet shall be installed near the equipment and the plug shall be easily accessible.

When the Unit is in Use

- Should the following irregularity be found during use, immediately switch off the power, disconnect the power supply plug from the AC outlet and contact your nearest TOA dealer. Make no further attempt to operate the unit in this condition as this may cause fire or electric shock.
  - · If you detect smoke or a strange smell coming from the unit.
  - · If water or any metallic object gets into the unit
  - · If the unit falls, or the unit case breaks
  - · If the power supply cord is damaged (exposure of the core, disconnection, etc.)
  - · If it is malfunctioning (no tone sounds.)
- To prevent a fire or electric shock, never open nor remove the unit case as there are high voltage components inside the unit. Refer all servicing to qualified service personnel.
- Do not place cups, bowls, or other containers of liquid or metallic objects on top of the unit. If they accidentally spill into the unit, this may cause a fire or electric shock.
- Do not insert nor drop metallic objects or flammable materials in the ventilation slots of the unit's cover, as this may result in fire or electric shock.
- Do not touch a power supply plug during thunder and lightning, as this may result in electric shock.

⚠ CAUTION

When Installing the Unit

- Never plug in nor remove the power supply plug with wet hands, as doing so may cause electric shock.
- When unplugging the power supply cord, be sure to grasp the power supply plug; never pull on the cord itself. Operating the unit with a damaged power supply cord may cause a fire or electric shock.

- When moving the unit, be sure to remove its power supply cord from the wall outlet. Moving the unit with the power cord connected to the outlet may cause damage to the power cord, resulting in fire or electric shock. When removing the power cord, be sure to hold its plug to pull.

- Avoid installing the unit in humid or dusty locations, in locations exposed to the direct sunlight, near the heaters, or in locations generating sooty smoke or steam as doing otherwise may result in fire or electric shock.

- Be sure to follow the instructions below when rack-mounting the unit. Failure to do so may cause a fire or personal injury.
  · Install the equipment rack on a stable, hard floor. Fix it with anchor bolts or take other arrangements to prevent it from falling down.
  · When connecting the unit's power cord to an AC outlet, use the AC outlet with current capacity allowable to the unit.
  · The supplied rack-mounting screws can be used for the TOA equipment rack only. Do not use them for other racks.

When the Unit is in Use

- If dust accumulates on the power supply plug or in the wall AC outlet, a fire may result. Clean it periodically. In addition, insert the plug in the wall outlet securely.

- Switch off the power, and unplug the power supply plug from the AC outlet for safety purposes when cleaning or leaving the unit unused for 10 days or more. Doing otherwise may cause a fire or electric shock.

The lighting flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operation and maintenance (servicing) instruction in the literature accompanying the appliance.

2. GENERAL DESCRIPTION

TOA's M-66 Multi-Route Unit functions as a splitter, a mixer, or a microphone head amplifier featuring 6 inputs and 6 outputs. Because functions can be selected individually for each channel, a wide range of signal routing configurations can be achieved. The M-66 can be mounted in an EIA Standard equipment rack (2-unit size).

3. FEATURES

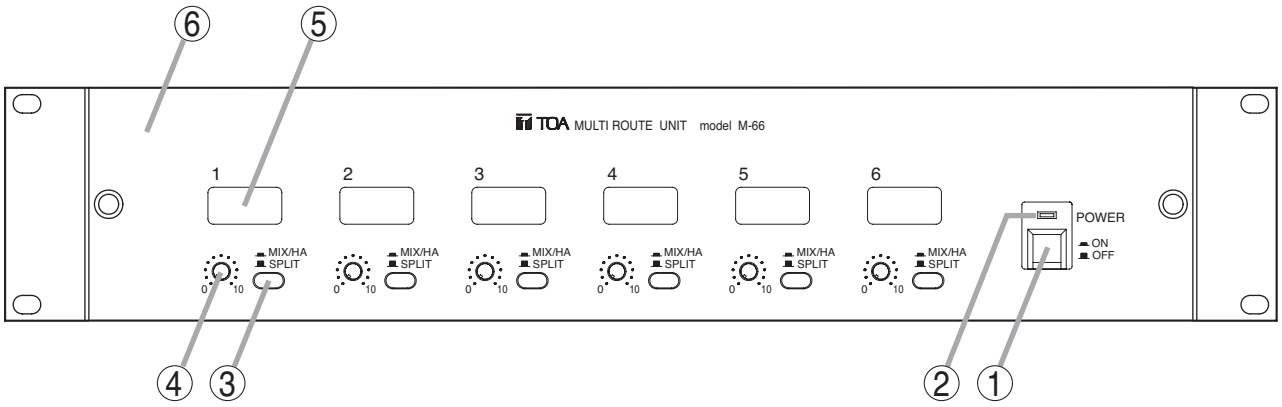
- Inputs 1 through 6 are compatible with a wide range of signal levels from microphone to line levels.
- The function of each channel can be easily set using the mode switches mounted on the front panel. Setting can also be easily checked.
- A bridge output terminal and a mixing input terminal are also provided. When using the M-66 as a splitter or mixer, channels can easily be expanded with the addition of other M-66 units.
- Inputs and outputs are all electrically balanced. (#1: Ground, #2: Hot, #3: Cold)
- Built-in security cover prevents accidental setting changes.

4. HANDLING PRECAUTIONS

- Line voltage must not exceed ±10% of that indicated at the unit's AC inlet. Line frequency can be 50 Hz or 60 Hz.
- The operating temperature range is between 0 and 40°C with less than 90% humidity (and no condensation).
- To clean, wipe down with a soft, dry cloth. Never use a chemically-treated cleaning cloth or volatile liquids, such as benzine and thinner, because the unit's parts may be deformed or its finish discolored.

5. NOMENCLATURE AND FUNCTIONS

[Front]



1. Power switch [▂ ON, ▀ OFF]
Power is switched on and off with each depression of this switch.

2. Power lamp [POWER]
Lights when the power is switched on.

3. Mode switch [▂ MIX/HA, ▀ SPLIT]

▂ MIX/HA: The channel functions as a mixer and a head amplifier.

▀ SPLIT: A signal to the SPLIT IN terminal is distributed to the corresponding outputs.

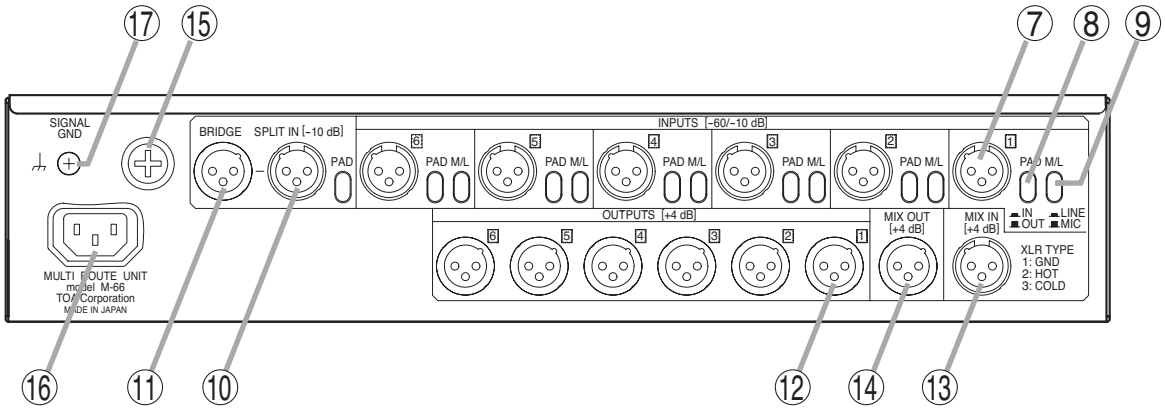
4. Volume control
Adjusts the volume of each channel.

- Mixer/head amplifier mode
  (Mode switch position: ▂ MIX/HA)
  Adjusts the volume of each input signal, which goes to the mixing bus (for use as a mixer) and also directly goes to the output of the same input channel (for use as a head amplifier).
- Splitter mode
  (Mode switch position: ▀ SPLIT)
  Adjusts each output volume.

5. Name label
Write the name of each input and output in this label.

6. Security cover
Attach this cover after completing all settings to prevent accidental setting changes. Push in both the left and right knobs to attach the cover, and pull those knobs to detach.

[Rear]



7. Input terminal (XLR-3-31 or equivalent) [INPUTS 1 – 6]
This electrically-balanced terminal receives the signal to be used for mixer/head amplifier applications. Use the XLR-3-12C connector or its equivalent for connection.

8. Pad switch [PAD]

▂ IN: Select this position when an input level is too high to correct the sound distortion with the volume control. This switch attenuates the level by 20 dB.

▁ OUT: Select this position for normal use.

Tip
Input level can be selected from –60, –40, –10, and +10 dB, by using the pad switch in combination with the input sensitivity selector switch.

9. Input sensitivity selector switch [M/L]

▂ LINE: Select this position when connecting a wireless tuner or line signal level equipment. Input sensitivity is –10 dB.

▁ MIC: Use this position when connecting a microphone. Input sensitivity is –60 dB.

10. Split input terminal (XLR-3-31 or equivalent) [SPLIT IN]
This electrically-balanced terminal receives a line level signal to be distributed. Use the XLR-3-12C connector or its equivalent for connection.

11. Bridge output terminal (XLR-3-32 or equivalent) [BRIDGE]
Used to connect other M-66 units to increase the number of split outputs. This bridge output terminal is for the split input terminal. Use the XLR-3-11C connector or its equivalent for connection.

12. Output terminal (XLR-3-32 or equivalent) [OUTPUTS 1 – 6]
This electrically-balanced terminal outputs the signal in mode set with the mode switch (3).
Use the XLR-3-11C connector or its equivalent for connection.

- Mixer/head amplifier mode
  (Mode switch position: ▂ MIX/HA)
  The signal to the input goes to its corresponding output when the channel is used as a head amplifier.
- Splitter mode
  (Mode switch position: ▁ SPLIT)
  The signal to be distributed from the split input terminal is output.

13. Mixing input terminal (XLR-3-31 or equivalent) [MIX IN]
This electrically-balanced terminal is an input terminal to the unit's mixing bus. By connecting this terminal to other M-66's mixing output or other mixer, the number of mixing channels can be increased. Use the XLR-3-12C connector or its equivalent for connection.

14. Mixing output terminal (XLR-3-32 or equivalent) [MIX OUT]
This electrically-balanced terminal outputs the mixed signal of each channel input and mixing input. Use the XLR-3-11C connector or its equivalent for connection.

15. Fuse holder
When the fuse has blown off, remove the cause and replace it with the fuse of the rating indicated on the unit.

16. AC inlet
Using the supplied power cord, connect this inlet to a wall outlet.

17. Grounding terminal [SIGNAL GND]
Ground this terminal.

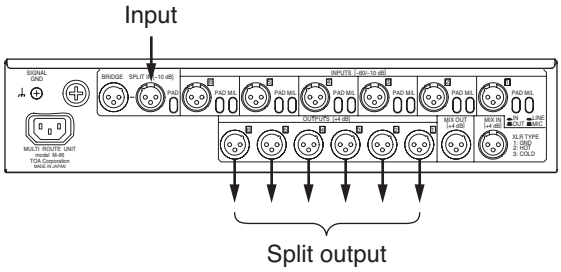
6. FUNCTIONS

6.1. Signal Splitting

6.1.1. Single input/6 outputs

The volume of outputs 1-6 is adjustable.

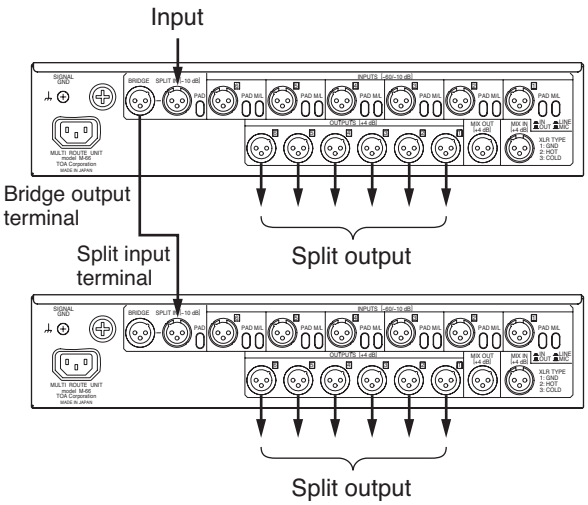
[Mode switch setting]
Set the switch of each channel (1-6) to [SPLIT] position.



6.1.2. Single input/12 outputs

Output can be expanded by connecting 2 M-66 units. It is also possible to adjust the volume of outputs 1-6 of both units.

[Mode switch setting]
Set the switch of each channel (1-6) of both units to [SPLIT] position.

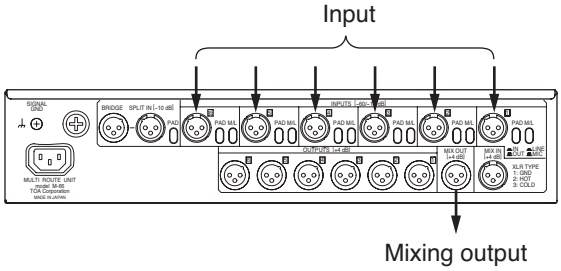


6.2. Signal Mixing

6.2.1. 6 inputs/single output

The volume of inputs 1-6 is adjustable.

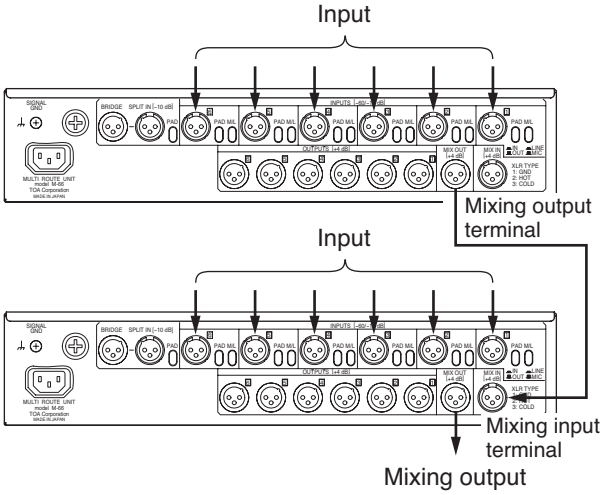
[Mode switch setting]
Set the switch of each channel (1-6) to [MIX/HA] position.



6.2.2. 12 inputs/single output

Input can be expanded by connecting 2 M-66 units. It is also possible to adjust the volume of inputs 1-6 of both units.

[Mode switch setting]
Set the switch of each channel (1-6) of both units to [MIX/HA] position.

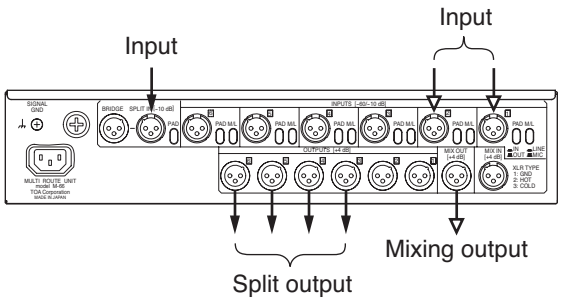


6.3. Mixing and Split (Simultaneous Use)

6.3.1. 2 inputs mixing and 4 split outputs

It is possible to adjust the volume of inputs 1 and 2, and that of outputs 3-6.

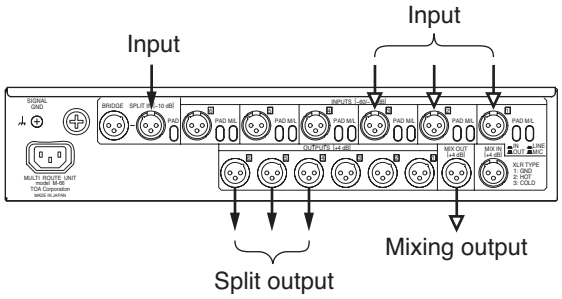
[Mode switch setting]
Set the switches of channels 1 and 2 to [MIX/HA] position, and those of channels 3-6 to [SPLIT] position.



6.3.2. 3 inputs mixing and 3 split outputs

It is possible to adjust the volume of inputs 1-3, and that of outputs 4-6.

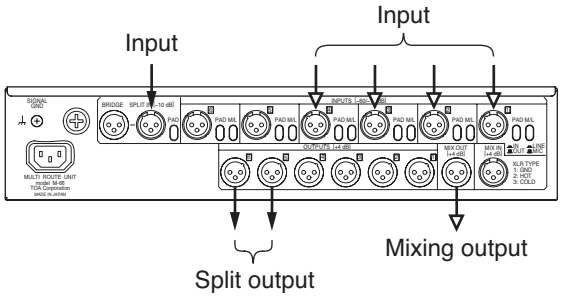
[Mode switch setting]
Set the switches of channels 1-3 to [MIX/HA] position, and those of channels 4-6 to [SPLIT] position.



6.3.3. 4 inputs mixing and 2 split outputs

It is possible to adjust the volume of inputs 1-4, and that of outputs 5 and 6.

[Mode switch setting]
Set the switches of channels 1-4 to [MIX/HA] position, and those of channels 5 and 6 to [SPLIT] position.



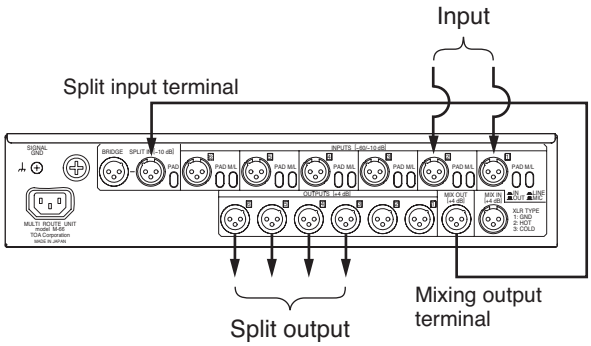
6.4. Mixing and Split (Monaural Bus Mixer)

By connecting the mixing output terminal to the split input terminal, signals mixed together can be distributed to multiple split outputs.

6.4.1. 2 inputs/4 outputs

It is possible to adjust the volume of inputs 1 and 2, and that of outputs 3-6.

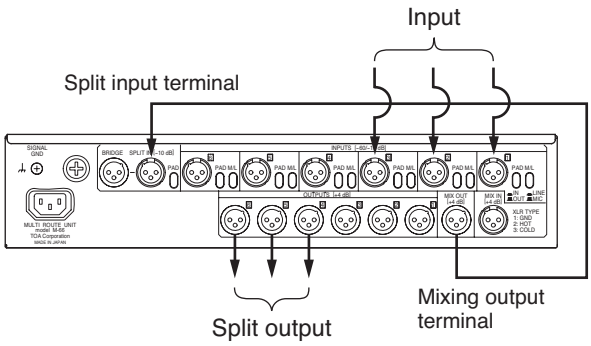
[Mode switch setting]
Set the switches of channels 1 and 2 to [MIX/HA] position, and those of channels 3-6 to [SPLIT] position.



6.4.2. 3 inputs/3 outputs

It is possible to adjust the volume of inputs 1-3, and that of outputs 4-6.

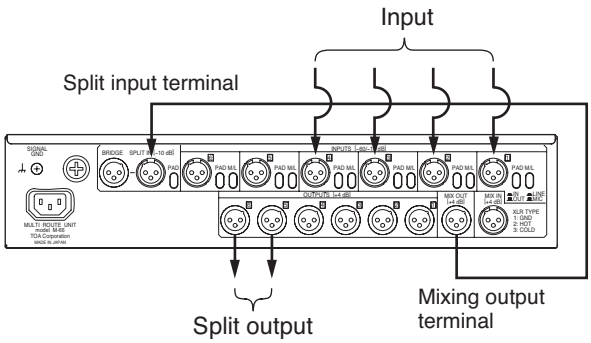
[Mode switch setting]
Set the switches of channels 1-3 to [MIX/HA] position, and those of channels 4-6 to [SPLIT] position.



6.4.3. 4 inputs/2 outputs

It is possible to adjust the volume of inputs 1-4, and that of outputs 5 and 6.

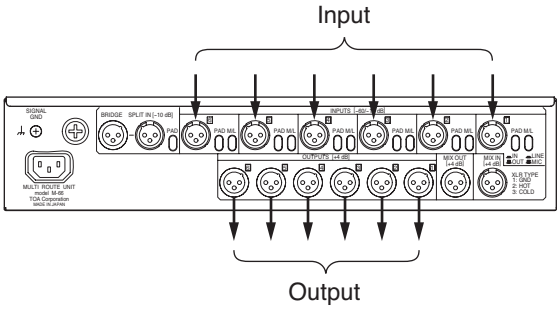
[Mode switch setting]
Set the switches of channels 1-4 to [MIX/HA] position, and those of channels 5 and 6 to [SPLIT] position.



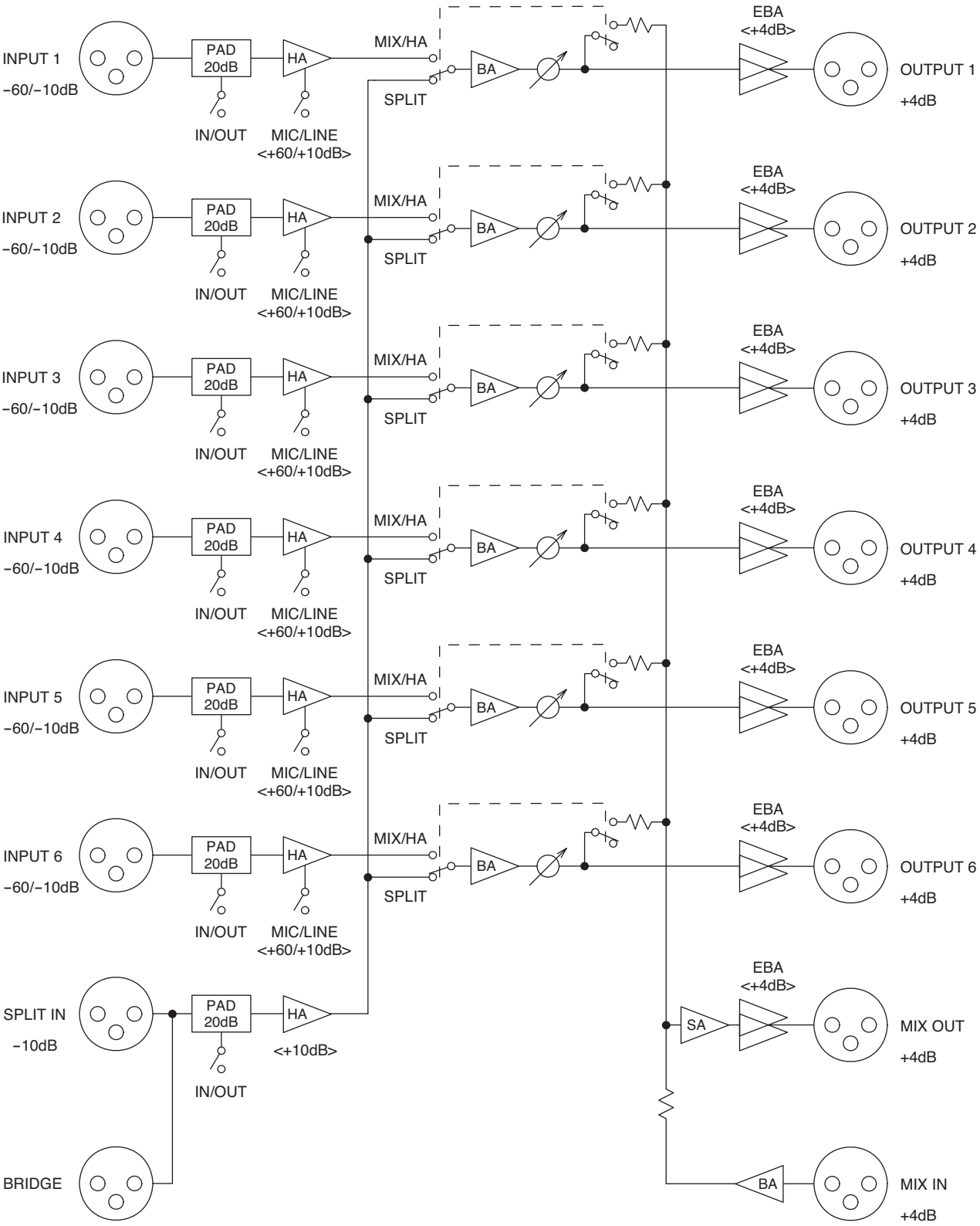
6.5. Head Amplifier

It is possible to adjust the volume of inputs 1-6.

[Mode switch setting]
Set the switches of channels 1-6 to [MIX/HA] position.



7. BLOCK DIAGRAM



Note: The brackets < > represent the amplifier gain.

8. SPECIFICATIONS

Power Source	M-66 L: 120 V AC, 60 Hz M-66 H, M-66 CE: 230 V AC, 50/60 Hz
Power Consumption	12 W
Input	1 – 6: MIC (−60 dB)/LINE (−10 dB) changeable, 2 kΩ, XLR-3-31, electrically-balanced
Split Input	−10 dB, 2 kΩ, XLR-3-31, electrically-balanced
Mixing Input	+4 dB, 10 kΩ, XLR-3-31, electrically-balanced
Output	1 – 6: +4 dB, over 600 Ω (applicable load), XLR-3-32, electrically-balanced
Mixing Output	+4 dB, over 600 Ω (applicable load), XLR-3-32, electrically-balanced
Others	Bridge output: XLR-3-32 Input sensitivity selector switch: MIC/LINE (inputs 1 – 6) Pad switch: 20 dB (inputs 1 – 6, split input) Mode switch: MIX/HA and SPLIT (1 – 6) Security cover: Acrylic resin
Frequency Response	20 Hz – 20 kHz (+1, −3 dB)
Distortion	Under 0.01% (1 kHz, line level rated input and output)
Noise	Output: under −100 dB (BPF, volume control: minimum position)
Finish	Pre-coated steel plate, black (30 % gloss)
Temperature Range	0 to 40 °C
Dimensions	482.6 (w) x 88.4 (h) x 170 (d) mm (projections excluded)
Weight	3 kg

Notes
- 0 dB = 0.775 Vrms
- XLR connector: #1 Ground, #2 Hot, #3 Cold
- The equivalent connectors are also available for the XLR connectors.
- The design and specifications are subject to change without notice for improvement.

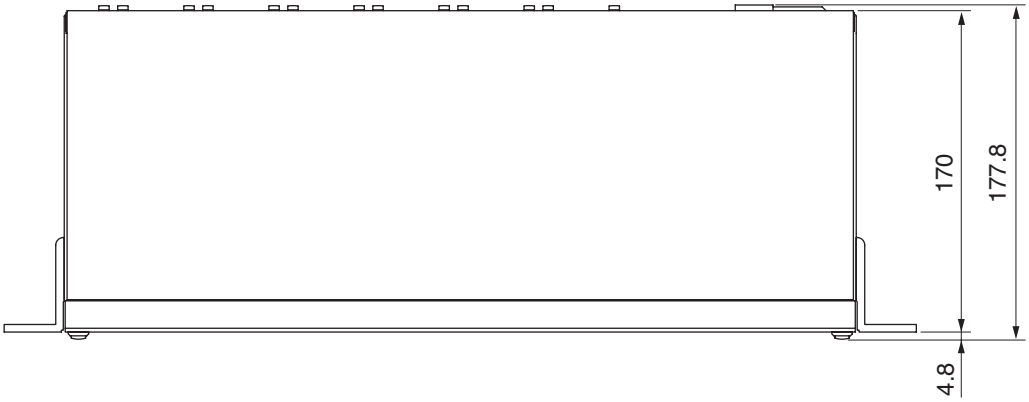
- **Accessories**

  Power cord (2 m) 1
  Rack mounting screw (M5 x 20) 4
  Security cover 1

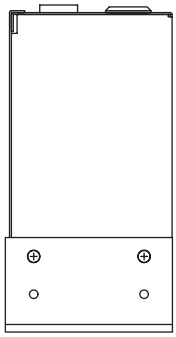
9. DIMENSIONAL DIAGRAM

(Unit: mm)

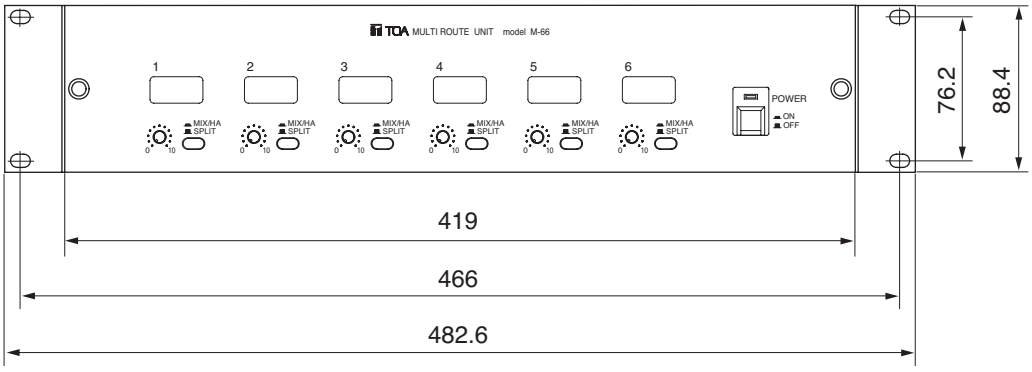
[Top]



[Side]



[Front]



Traceability Information for Europe (EMC directive 2004/108/EC)

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133-12-650-7A