

DIGITAL MIXER

D-901



DESCRIPTION

The D-901 Digital Mixer is perfect to take the important audio role in AV-based presentation systems. The compact unit features a modular design that allows configuring the unit as requirements dictate as well as to expand its scope of operation. Its 12 in/8 out capability allows use with various source equipment and advanced functions include sophisticated automixing, intelligent automatic feedback suppression, EQ, memory presets as well as full remote control capability. D-901 modules include monaural and stereo input modules, line output modules and a remote control module.

FEATURES

- **Ready for any requirement.**

The new TOA D-901 Digital Mixer is a fully modular, cost-effective digital mixer featuring a 12-input, 8-bus, 8-output channel configuration (12 x 8 matrix) with easy operation that can be expanded as applications require.

- **All-in-one design.**

The compact D-901 is just 3U-sized but incorporates several of the most important functions. These include a digital mixer, feedback suppression, auto mixing, parametric EQ, compression, delay and echo. Its remarkable operational scope allows it to do the work that conventionally requires several different pieces of equipment, providing a cost-effective solution that is perfect for any requirement.

- **Feedback suppressor.**

This sophisticated and TOA proprietary function automatically processes feedback at certain frequencies through constant monitoring then automatically attenuates only the precise problematic frequencies, keeping the audio sounding natural.

- **Automatic mixing function**

The D-901's automatic mixing function adjusts input level automatically to make operating easier. It features smart Number of Open Microphones (NOM) attenuation that sets the gain for all microphone inputs according to the number of microphone inputs utilized. This allows satisfactory levels to be set without feedback problems. A "Ducker" function operates when an input channel is open, to enable that channel's priority to initiate the the low channel signal that will attenuate the other channels.



- **Sound processing**

As a full-featured digital mixer, the D-901 incorporates several useful built-in functions to ensure maximum performance without needing other equipment. A compressor can be switched in to reduce the dynamic range between the smallest and largest signals, preventing amplifier clipping at high levels. The flexible crossover function allows setting speaker crossover points and filter slopes to optimize multichannel speaker systems. An overload protection circuit will automatically activate to protect the speakers from overload and distortion, helping to save costs. Full equalization and filter setting configurations can be saved in up to sixteen memories for instant recall. The time delay function can be used to align remote speakers.

- **Ergonomic control layout**

Convenient front panel controls and display make it easy to perform all functions and confirm parameter settings without requiring a PC. Another advantage is the ability to store up to 16 sound parameter setting configurations in memory for instant recall when required. These include crossover, EQ, filter slope settings, time delay and other parameters. Control settings can also be locked to prevent unauthorized tampering.

- **Wide application scope and remote control ability.**

The D-901 can be externally controlled with an external signal trigger or the RS-232C port on the back panel which enables the D-901 to easily interface with external equipment.

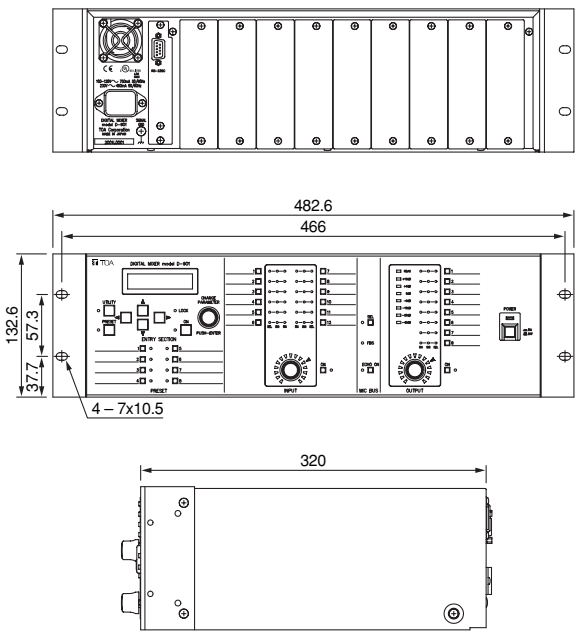
Note: The D-901's heatsinks and aircooling are located at the bottom of the unit, requiring a perforated ventilation panel to be placed directly below the unit when rack-mounting is desired.

D-901

Main Unit (Installation rackmount only)



The D-901 is a 19" rack-mounted (3U high) digital mixer configured with 12 inputs, 8 buses, and 8 outputs. It features signal processing functions necessary for sound systems such as feedback suppression and auto-mixing. Modular construction permits flexible configuration of inputs and outputs, from 2-IN/4-OUT to 12-IN/8-OUT systems. All functional parameters can be set at the unit. Settings can be stored in the unit's internal memory as "preset memory" and can be recalled using the front panel-mounted operation keys.



Unit: mm

SPECIFICATIONS

* 0dB = 0.775V

Model	D-901
Power Source	AC 100 – 120V, 230V, 50/60 Hz
Power Consumption	40W
Operating Temperature	+5° C to +40°C
Frequency Response	20 – 20,000Hz, ±1dB (±4dB* Input)
Input	Max. 12 channels, modular construction (modules optional)
Output	Max. 8 channels, modular construction (modules optional)
Signal Processing	
Feedback Suppression Function	12 filters (auto/dynamic)
Auto Mixing Function	Ducker (automatic muting), NOM attenuation
Equalizer/Filter	Parametric equalizer: 20 – 20,000Hz, ±15dB, Q: 0.267 – 69.249 Filtering: High-pass filter 20 – 20,000Hz, 6dB/oct, 12dB/oct. Low-pass filter 20 – 20,000Hz, 6 dB/oct, 12 dB/oct Notch filter 20 – 20,000Hz, Q: 8.651 – 69.249 All-pass filter 20 – 20,000Hz, Q: 0.267 – 69.249 High shelving filter 6 – 20,000Hz, ±15dB Low shelving filter 20 – 500Hz, ±15dB Horn equalizer 20kHz, 0 to +18dB (1dB steps) Crossover filter: 20 – 20,000Hz, 6dB/oct, 12 dB/oct, 18dB/oct, 24dB/oct
Compressor	Threshold: –20dB to +20 dB Ratio: 1:1, 2:1, 3:1, 4:1, 8:1, 12:1, 20:1, ∞:1 Attack time: 0.2ms to 5s Release time: 10ms to 5s Gain: – ∞ to +10dB
Delay	Delay time: 0 – 682.6 ms (0.021 ms steps)
Matrix	12 x 8
Preset memory	16
Auxiliary Function	System Locking function
Control	RS-232C, D-sub connector (9 pins), Remote control module (option)
Front Panel Section	Preset memory recall key: 8, LCD Screen, Screen shift key (up/down/left/right), setting knob Input level indicator: Dual color LED Output level indicator: Dual color LED Channel selector key: 12 (input channel selection) 8 (output channel selection) Channel volume control: 1 (input channel selection) 1 (output channel selection)
Rear Panel	Input module slot: 6 (input/output module slot: 2) Output module slot: 2 Remote control module slot:1
Finish	Panel: Aluminum, hair-line finish, black Others: Pre-coated steel plate, black, 30% gloss
Dimensions	482.6 (W) x 132.6 (H) x 320 (D)mm (excluding projection)
Weight	6.9 kg
Accessory	Power cord (2m) x 1, Rack mounting screw x 4, Rack mounting bracket (preinstalled on the unit) x 2, Module mounting screw (spare) x 4, Blank panel (preinstalled on the module slot) x 9, Fiber washer x 4

Note: When installing the unit, never block the intake vents provided in the unit's bottom near the rear.

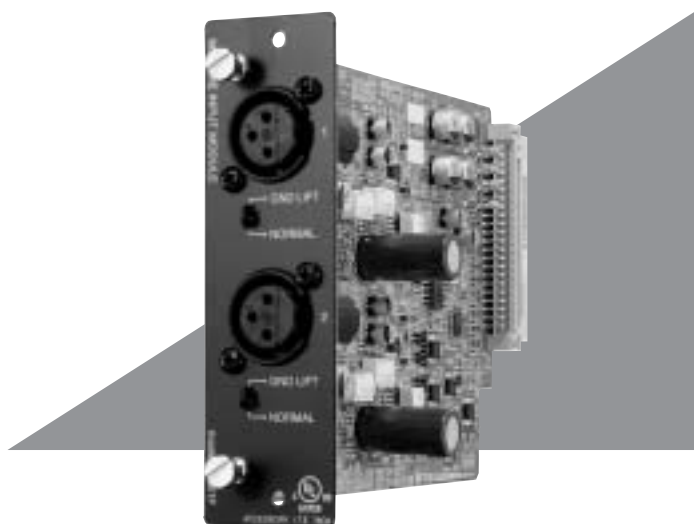
D-901 Modules

The D-901's modular design allows you to configure the most cost-effective design for each application. TOA offers a range of modules to suit a variety of input and output requirements.

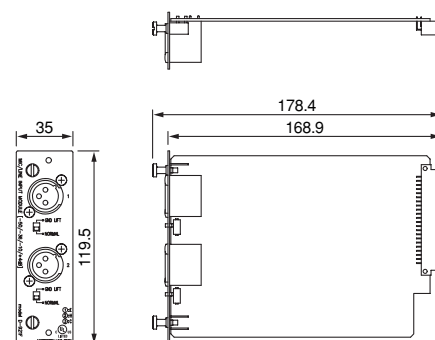
Mic/Line Input Modules			Line Output Modules			Remote Control Module
Monaural Type			Stereo Type			
A/D Converter	XLR Connector	Removable Terminal Block Connector	D-936R	XLR Connector	Removable Terminal Block Connector	RCA Pin Jack Connector
20 bits	D-922F	D-922E		D-971M	D-971E	D-971R
24 bits	D-921F	D-921E				
						D-981

D-921F

Mic/Line Input Module (24 bits Monaural Type)



The D-921F is a 2-channel input module that accepts mic and line level inputs (selectable). It is equipped with XLR connectors, adjustable input sensitivity as well as phantom power.



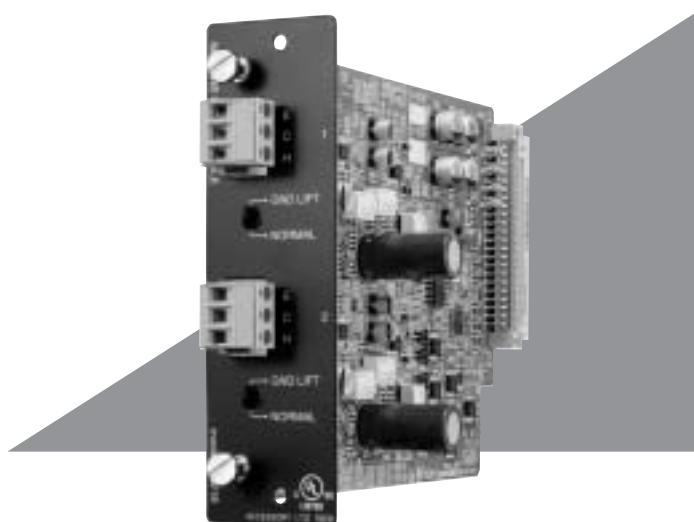
SPECIFICATIONS

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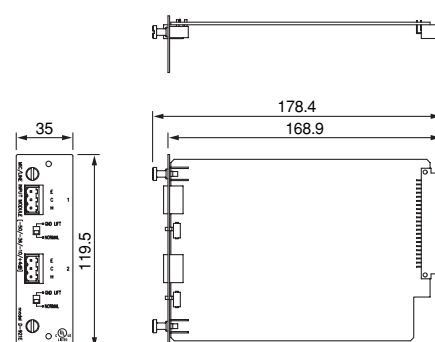
Model	D-921F
Input	2 channels, Mic/Line changeable Mic: -50/-36dB*, 4.7k Ω , electronically-balanced, equivalent to XLR-3-31 type Line: -10/+4dB*, 10k Ω , electronically-balanced, equivalent to XLR-3-31 type Phantom power supply (+15V, can be used when set for the microphone) Ground lift switch
A/D Converter	24 bits
Frequency Response	20~20,000Hz, ± 1 dB (+4dB* input)
Sampling Frequency	48kHz
Dynamic range	Over 100 dB (IHF-A weighted) (+4dB* input)
Total Harmonic Distortion	Under 0.05% (+4dB* input)
Finish	Panel: Pre-coated steel plate, black, 30% gloss
Dimensions	35 (W) x 119.5 (H) x 178.4 (D) mm
Weight	150g

D-921E

Mic/Line Input Module (24 bits Monaural Type)



The D-921E is a 2-channel input module that accepts mic and line level inputs (selectable). It is equipped with removable terminal block connectors, adjustable input sensitivity as well as phantom power.



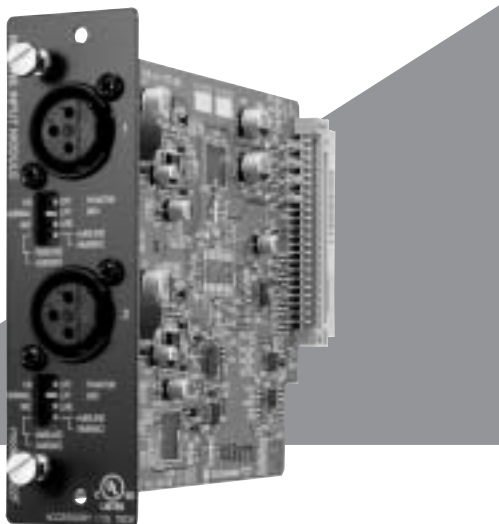
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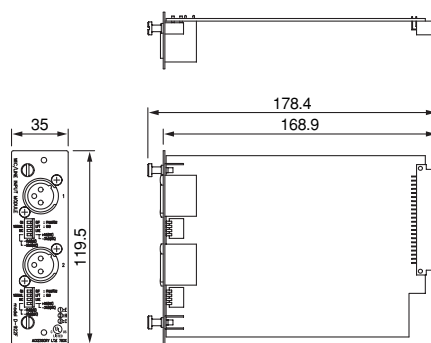
Model	D-921E
Input	2 channels, Mic/Line changeable Mic: -50/-36dB*, 4.7k Ω , electronically-balanced, removable terminal block type connector Line: -10/+4dB*, 10k Ω , electronically-balanced, removable terminal block type connector Phantom power supply (+15V, can be used when set for the microphone) Ground lift switch
A/D Converter	24 bits
Frequency Response	20 - 20,000Hz, ± 1 dB (+4dB* input)
Sampling Frequency	48kHz
Dynamic range	Over 100 dB (IHF-A weighted) (+4dB* input)
Total Harmonic Distortion	Under 0.05% (+4dB* input)
Finish	Panel: Pre-coated steel plate, black, 30% gloss
Dimensions	35 (W) x 119.5 (H) x 178.4 (D) mm
Weight	140g
Accessory	Removable terminal block type connector (preinstalled on the unit) x 2

D-922F

Mic/Line Input Module (20 bits Monaural Type)



The D-922F is a 2-channel input module that accepts mic and line level inputs (selectable). It is equipped with XLR connectors and DIP switches to adjust input sensitivity, phantom power and ground lifting.



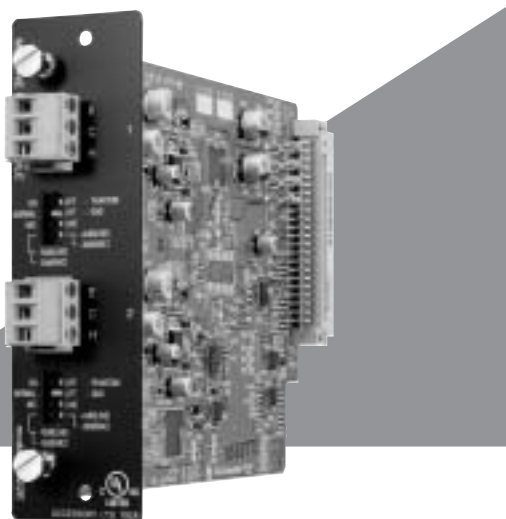
SPECIFICATIONS

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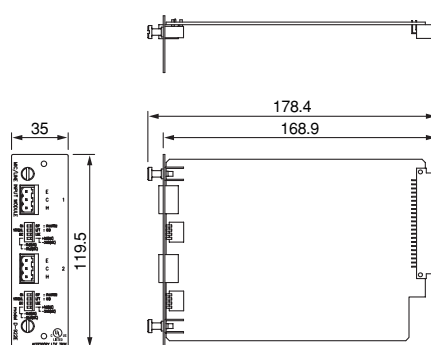
Model	D-922F
Input	2 channels, -50/-36/-10/+4dB* (Selectable with the DIP switch), 4.7k Ω , electronically-balanced, equivalent to XLR-3-31 type Phantom power supply (15V, can be set with DIP switch) Ground lift switch (can be set with the DIP switch)
A/D Converter	20 bits
Frequency Response	20 - 20,000Hz, ± 1 dB (+4dB* input)
Sampling Frequency	48 kHz
Dynamic range	Over 85dB (IHF-A weighted) (+4dB* input)
Total Harmonic Distortion	Under 0.2% (+4dB* input)
Finish	Panel: Pre-coated steel plate, black, 30% gloss
Dimensions	35 (W) x 119.5 (H) x 178.4 (D) mm
Weight	135g

D-922E

Mic/Line Input Module (20 bits Monaural Type)



The D-922E is a 2-channel input module that accepts mic and line level inputs (selectable). It is equipped with removable terminal block connectors and DIP switches to adjust input sensitivity, phantom power and ground lifting.



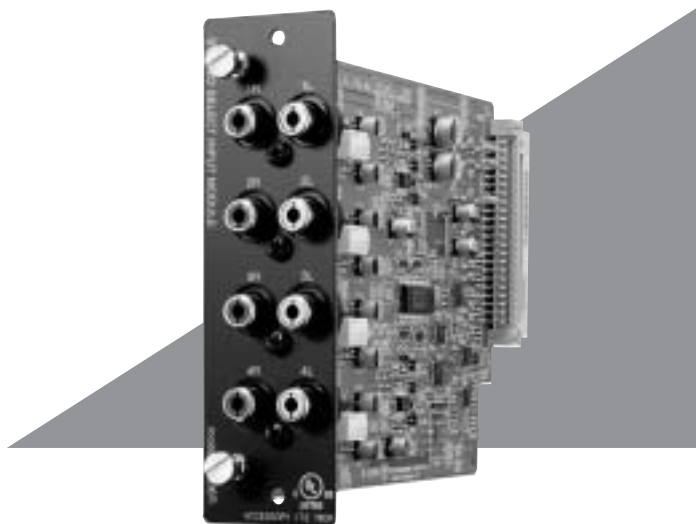
SPECIFICATIONS

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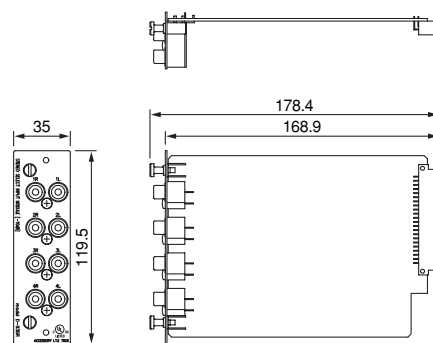
Model	D-922E
Input	2 channels, -50/-36/-10/+4dB* (Selectable with the DIP switch), 4.7k Ω , electronically-balanced, removable terminal block type connector Phantom power supply (15V, can be set with the DIP switch) Ground lift switch (can be set with the DIP switch)
A/D Converter	20 bits
Frequency Response	20 - 20,000Hz, ± 1 dB (+4dB* input)
Sampling Frequency	48 kHz
Dynamic range	Over 85dB (IHF-A weighted) (+4dB* input)
Total Harmonic Distortion	Under 0.2% (+4dB* input)
Finish	Panel: Pre-coated steel plate, black, 30% gloss
Dimensions	35 (W) x 119.5 (H) x 178.4 (D) mm
Weight	125g
Accessory	Removable terminal block type connector (preinstalled on the unit) x 2

D-936R

Mic/Line Input Module (Stereo Type)



The D-936R is a 4 stereo input module can be used to send one or a L+R mix of all the 4 stereo inputs to the D-901. Stereo/mono mode can be set on the front panel.



SPECIFICATIONS

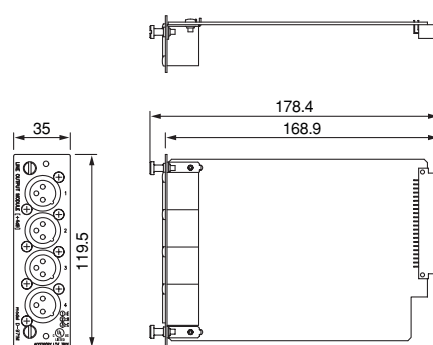
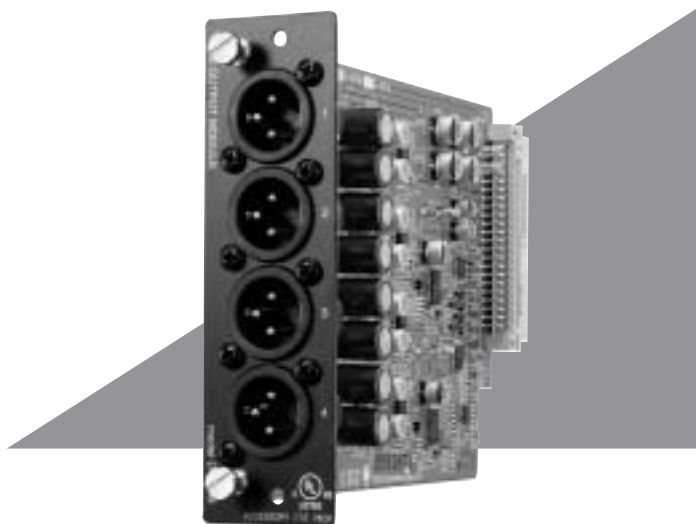
* 0dB = 0.775V

Model	D-936R
Input	4 stereo inputs (selection of 1 stereo or mixing or all 4 stereo inputs) -10dB*, 10 Ω , RCA pin jack
A/D Converter	24 bits
Frequency Response	20 – 20,000Hz, ± 1 dB (+4dB* input)
Sampling Frequency	48 kHz
Dynamic range	Over 100dB (IHF-A weighted)
Total Harmonic Distortion	Under 0.05%
Finish	Panel: Pre-coated steel plate, black, 30% gloss
Dimensions	35 (W) x 119.5 (H) x 178.4 (D) mm
Weight	145g

D-971M

Line Output Module

*The D-901 accepts up to nine modules but only two line output modules may be used at the same time.



SPECIFICATIONS

* 0dB = 0.775V

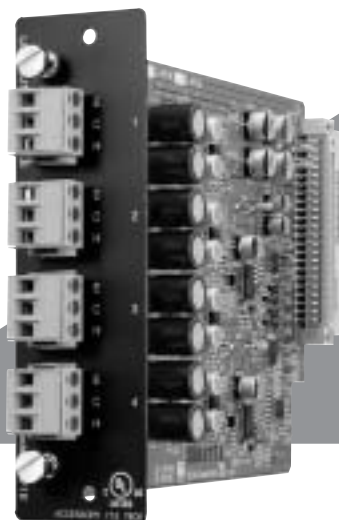
Model	D-971M
Output	4 channels, +4 dB*, adaptable load of over 600 Ω , electronically-balanced, equivalent to XLR-3-32 type
D/A Converter	24 bits
Frequency Response	20 – 20,000 Hz, ± 1 dB
Sampling Frequency	48kHz
Dynamic range	Over 100dB (IHF-A weighted)
Total Harmonic Distortion	Under 0.05%
Finish	Panel: Pre-coated steel plate, black, 30% gloss
Dimensions	35 (W) x 119.5 (H) x 178.4 (D)mm
Weight	165g

The D-971M has 4-channel line outputs with XLR connectors.

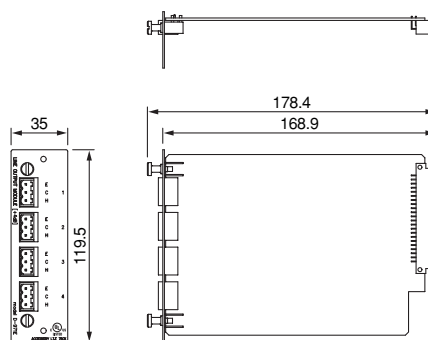
D-971E

Line Output Module

*The D-901 accepts up to nine modules but only two line output modules may be used at the same time.



The D-971E has 4-channel line outputs with removable terminal block connectors.



SPECIFICATIONS

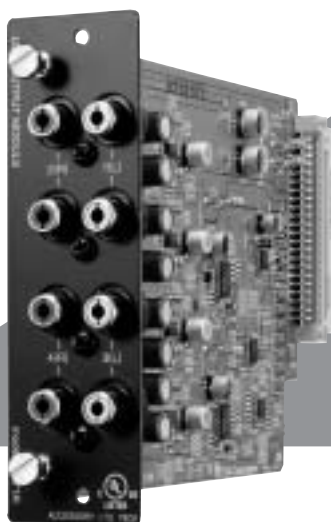
* 0dB = 0.775V

Model	D-971E
Output	4 channels, +4dB*, adaptable load of over 600Ω, electronically-balanced, removable terminal block type connector
D/A Converter	24 bits
Frequency Response	20 – 20,000 Hz, ±1 dB
Sampling Frequency	48kHz
Dynamic range	Over 100dB (IHF-A weighted)
Total Harmonic Distortion	Under 0.05%
Finish	Panel: Pre-coated steel plate, black, 30% gloss
Dimensions	35 (W) x 119.5 (H) x 178.4 (D)mm
Weight	140g
Accessory	Removable terminal block type connector (preinstalled on the unit) x 4

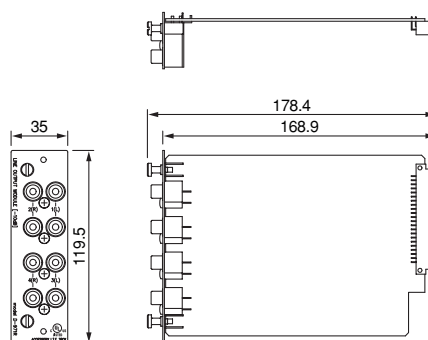
D-971R

Line Output Module

*The D-901 accepts up to nine modules but only two line output modules may be used at the same time.



The D-971R has 4-channel line outputs with standard RCA pin jack.



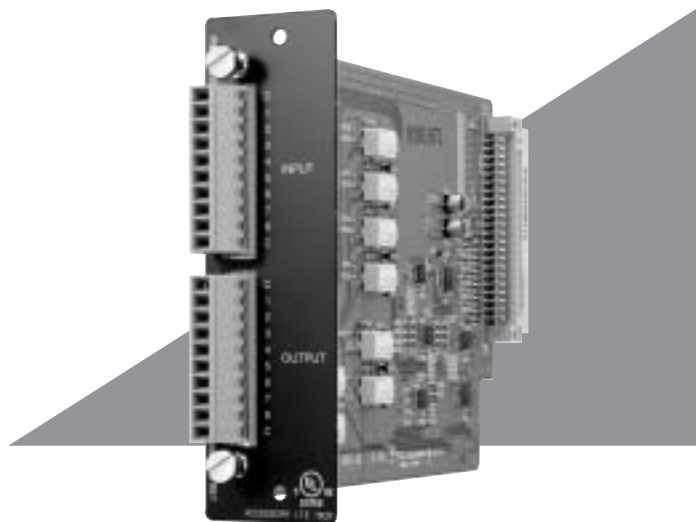
SPECIFICATIONS

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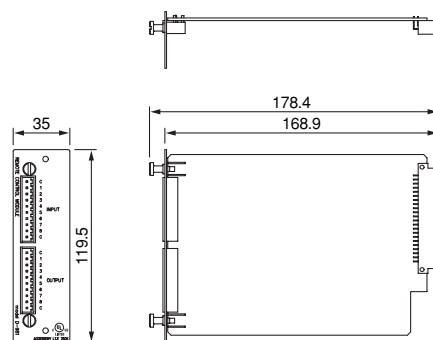
Model	D-971R
Output	4 channels (2 outputs for each channel), –10dB*, adaptable load of over 600Ω, RCA pin jack
D/A Converter	24 bits
Frequency Response	20 – 20,000 Hz, ±1 dB
Sampling Frequency	48kHz
Dynamic range	Over 100dB (IHF-A weighted)
Total Harmonic Distortion	Under 0.05%
Finish	Panel: Pre-coated steel plate, black, 30% gloss
Dimensions	35 (W) x 119.5 (H) x 178.4 (D)mm
Weight	150g

D-981

Remote Control Module



The D-981 allows external remote control of memory presets, volume control, stereo input selection and channel ON/OFF operation.



SPECIFICATIONS

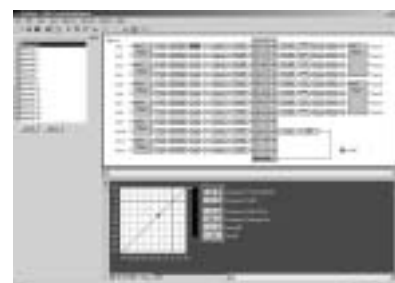
Model	D-981
Control input	COM + terminals 1 – 8: Open voltage: 5V DC, short-circuit current: 5mA removable terminal block type connector
Control	
Preset memory selection	Any preset memory can be recalled. Control method: No-voltage make of over 100ms/ no-voltage make single pulse of over 100ms
Volume	Volume can be turned UP or Down for any input and output channels. Control system: 1 step variation for no-voltage make single pulse of over 100ms 1 step continuous operation for every 70ms for no-voltage make of over 100ms. Can be reset when at break. Variable range: – ∞dB to +10dB
Channel	Any input/output channels can be turned ON and OFF. Control method: No-voltage make of over 100ms/ no-voltage make single pulse of over 100ms
Stereo selection	Any stereo input can be selected. Control method: No-voltage make of over 100ms/ no-voltage make single pulse of over 100ms
Control output	COM + terminals 1 – 8: No-voltage make contact input, contact capacity: 24V DC, 100mA removable terminal block type connector
Finish	Panel: Pre-coated steel plate, black, 30% gloss
Dimensions	35 (W) x 119.5 (H) x 178.4 (D)mm
Weight	125g
Accessory	Removable terminal block type connector (preinstalled on the unit) x 2

PC Software

The D-981 allows external remote control of memory presets, The D-901 comes standard with dedicated software to assist in D-901 system configuration, parameter setting and general setup using a PC. The software features menu-driven operation with an easy to understand GUI. The software offers comprehensive control over virtually every possible function. For set up these include crossover slopes, combinations, and storing crossover configurations. For operation, menus offer dedicated pages for viewing and adjusting matrix, trim, EQ, compression, automix, gating, filtering, delay, echo and feedback suppression settings as well as mic/line input modules and many others. Presets can be configured and stored for immediate recall when desired. In addition, the software allows determining user level as well as preparing the D-901 for remote control. Lastly, a full assortment of protection functions can be utilized.



Input/output Gain



Compressor/Limier/Noise Gate



Crossover



Delay

* Download installation program (TOA_D901PCv10E.exe) from TOA's homepage (<http://www.toa-products.com/international/>) and save it to the desktop.

