TOA

Digital Mixer

D-901

Perfect to take the important audio role in AV-based presentation systems, the D-901 Digital Mixer features a compact, modular design with a 12 in/ 8 out configuration for a variety of source equipment, with automixing, feedback suppression, equalization, 16 memory presets and full remote control capability.

safe&sound

TOA

High-resolution sound quality and rem

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. 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 placed directly below the unit when rack-mounting is desired.

D-901 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

Monaural type

A/D Converter	XLR Connector	Removable Terminal Block Connector
20 bit	**D-922F** 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.	**D-922E** 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.
24 bit	**D-921F** 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.	**D-921E** 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.

Stereo type

D-936R

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.

Line Output Modules*

XLR Connector	Removable Terminal Block Connector	RCA Pin Jack Connector
D-971M The D-971M has 4-channel line outputs with XLR connectors.	**D-971E** The D-971E has 4-channel line outputs with removable terminal block connectors.	**D-971R** The D-971R has 4-channel line outputs with standard RCA pin jack.

Remote Control Module

D-981

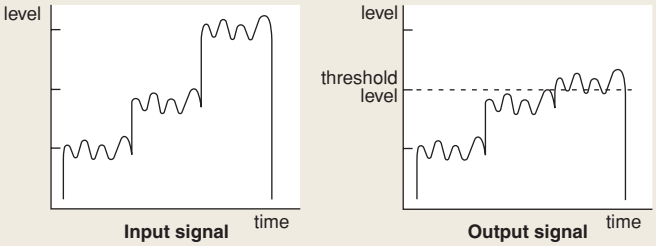
The D-981 allows external remote control of memory presets, volume control, stereo input selection and channel ON/OFF operation.

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

ote control capability in a compact, all-

Compression

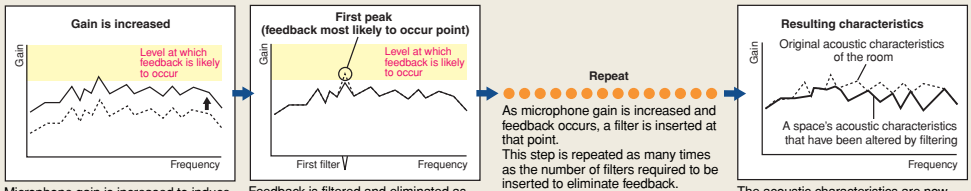
All audio below a selected threshold is allowed to pass while audio above the threshold is compressed, reducing the dynamic range of the loudest sounds. This prevents signals from clipping and distortion.



Feedback Suppression

Conventional suppression

Manual cancellation of feedback is imprecise as filtering problem frequencies affects neighboring frequencies as well. This tonally impacts the signal and often results in audio that does not sound natural.



Microphone gain is increased to induce feedback so that feedback susceptible frequencies can be located.

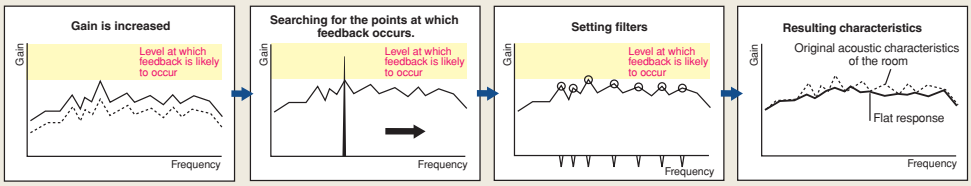
Feedback is filtered and eliminated as soon as it starts. The intensity of filtering required will impact tonal characteristics resulting in altered sound.

As microphone gain is increased and feedback occurs, a filter is inserted at that point.
This step is repeated as many times as the number of filters required to be inserted to eliminate feedback.

The acoustic characteristics are now radically different from the original, resulting in sound with little resemblance to the original sound.

TOA feedback suppressor

This proprietary technique works by automatically detecting the frequencies where acoustic feedback is occurring. Once these frequencies are detected, the suppressor automatically sets precise notch filters that drastically attenuate just those those frequencies with accurate pinpoint filtering.



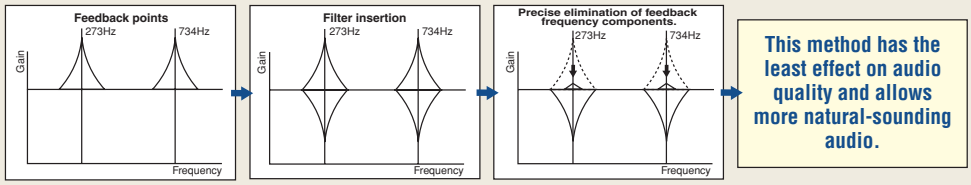
Microphone gain is automatically raised till feedback is induced.

When feedback is detected, do not increase gain. Staying at the same gain setting, start to look for other feedback-susceptible points across the entire frequency range.

Because filters are simultaneously inserted at all detected feedback points, there is minimal impact on tonal characteristics.

Flat equalization eliminates acoustic anomalies to allow clear PA reproduction.

Audio signals are therefore minimally affected because only the problem frequencies are attenuated to negligent levels through the suppressor's action.



Using a continuously variable filter makes it possible to insert filters at different frequencies.

For example, accurate pinpoint filters are set at frequencies of 273 Hz and 734 Hz.

Since dividing filters are not used, sound quality does not deteriorate.

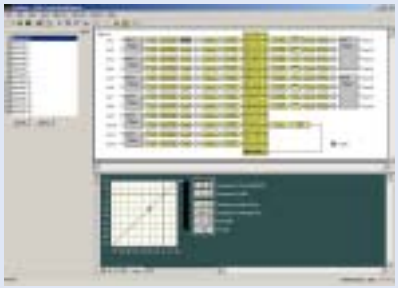
This method has the least effect on audio quality and allows more natural-sounding audio.

D-901 PC Software

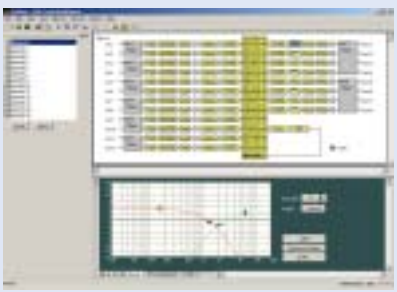
The D-901 comes standard with dedicated software to assist in D-901 system configuration, parameter setting and general setup using a PC. The software features menu-driven operation with an easy to understand GUI. The software offers comprehensive control over virtually every possible function. For set 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 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.

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

Input/output Gain



Compressor/Limier/Noise Gate



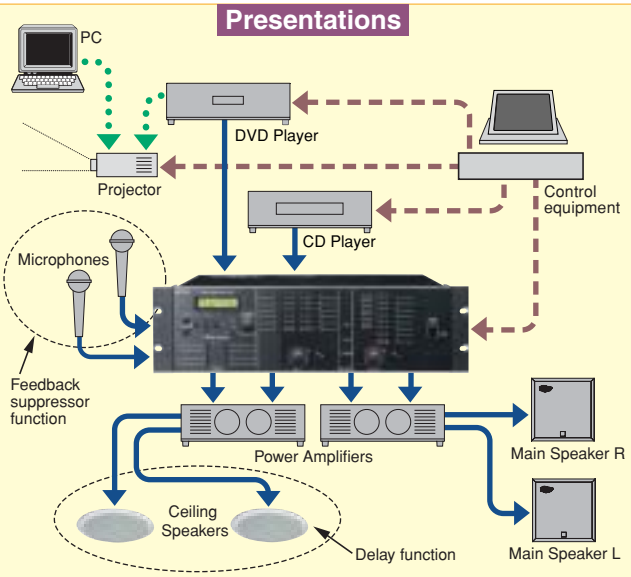
Crossover

Delay

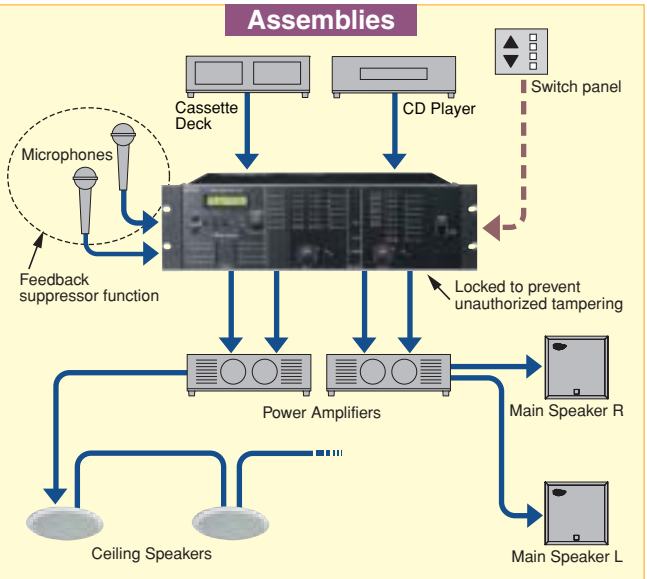
in-one modular digital mixer.

Examples of common system configurations

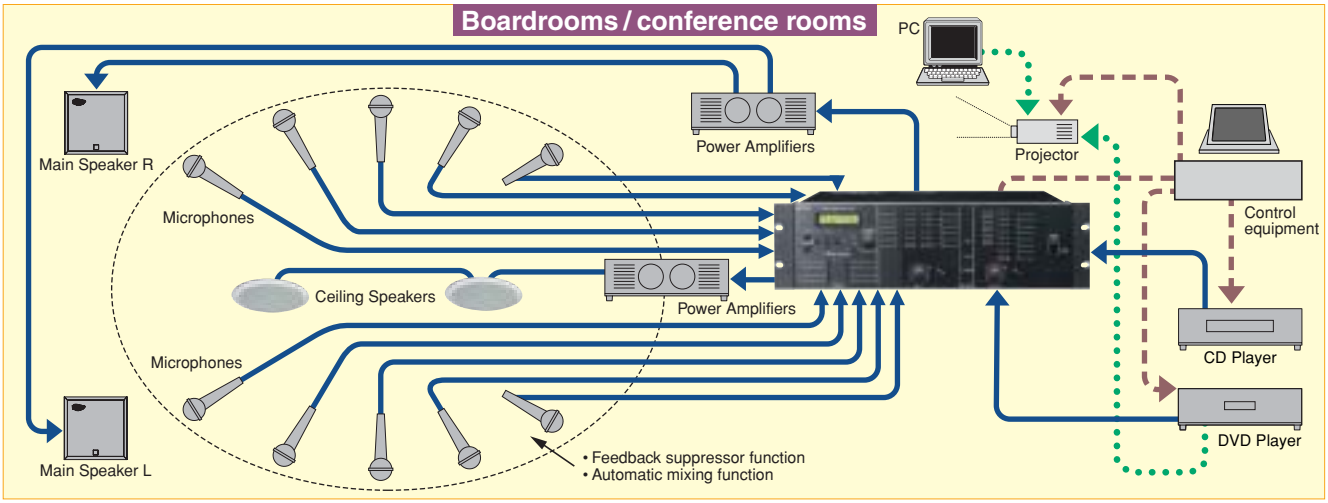
Presentations



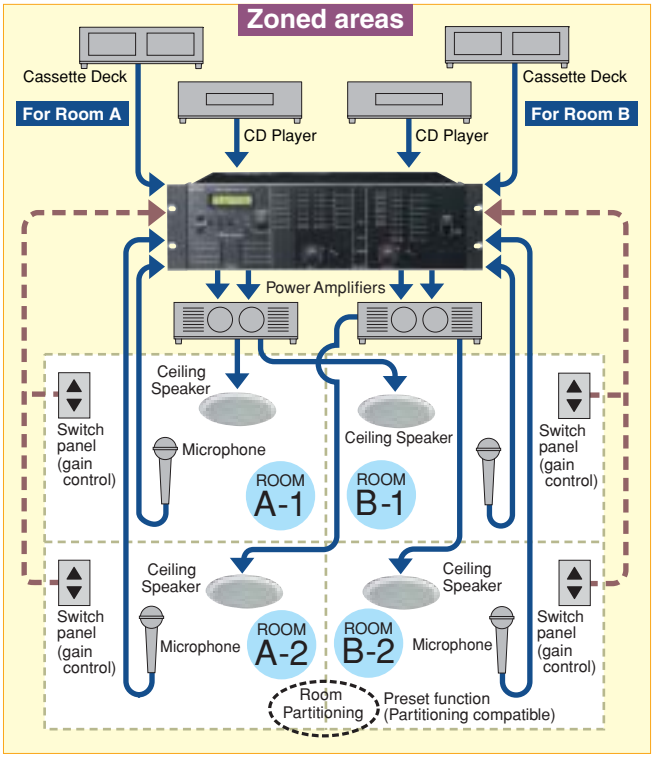
Assemblies



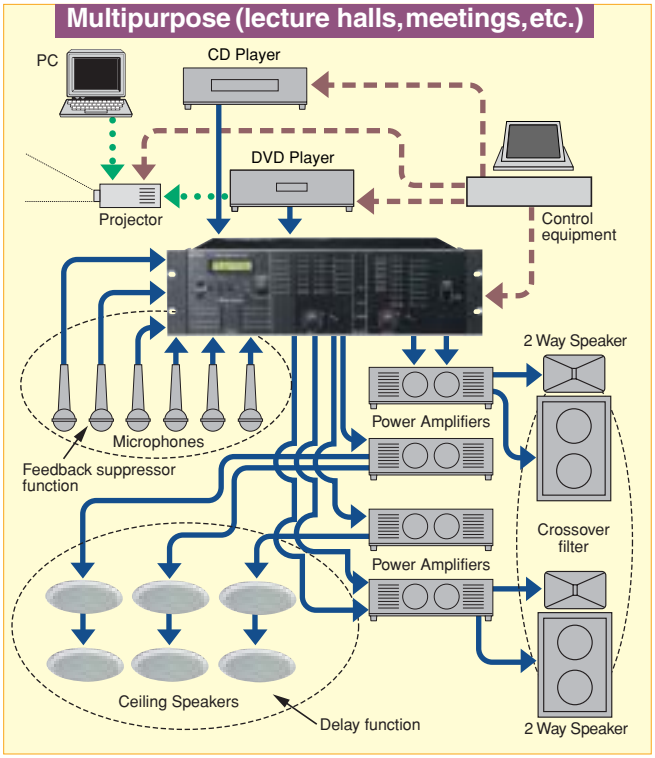
Boardrooms / conference rooms



Zoned areas



Multipurpose (lecture halls, meetings, etc.)



Video Control Sound

SPECIFICATIONS

■D-901 Main Unit (Installation rackmount only)

*1 0dB = 0.775V

Power Source	100 – 120V, 230V AC, 50/60Hz
Power Consumption	40W
Operating Temperature	+5°C to +40°C
Frequency Response	20 – 20,000Hz, ±1dB (±4dB*1 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)
Aouto 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, 6 dB/oct., 12dB/oct. Low-pass filter 20 – 20,000Hz, 6 dB/oct, 12dB/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 +20dB Ratio: 1:1, 2:1, 3:1, 4:1, 8:1, 12:1, 20:1, ∞:1 Attack time : 0.2ms – 5s Release time: 10ms to 5s Gain: – ∞ to +10dB
Delay	Delay time: 0 – 682.6ms (0.021ms 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	6.9kg
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.

●Input Module Specifications

*1 0dB = 0.775V

Model	D-921F	D-921E*2	D-922F	D-922E*2	D-936R
Input	2 channels, Mic/Line changeable Mic: –50/–36dB*1, 4.7kΩ, electronically-balanced Line: –10/+4dB*1, 10kΩ, electronically-balanced Phantom power supply (+15V, can be used when set for the microphone) Ground lift switch		2 channels, –50/–36/–10/+4dB*1 (Selectable with the DIP switch), 4.7kΩ, electronically-balanced Phantom power supply (15V, can be set with the DIP switch) Ground lift switch (can be set with the DIP switch)		4 stereo inputs (selection of 1 stereo or mixing or all 4 stereo inputs) –10dB*1, 10kΩ
Connector Type	XLR-3-31	Removable terminal block	XLR-3-31	Removable terminal block	RCA pin jack
A/D Converter	24 bits		20 bits		24 bits
Frequency Response	20 – 20,000Hz, ±1dB (+4dB*1 input)				
Sampling Frequency	48kHz				
Dynamic range	Over 100 dB (IHF-A weighted) (+4dB*1 input)		Over 85dB (IHF-A weighted) (+4dB*1 input)		Over 100dB (IHF-A weighted)
Total Harmonic Distortion	Under 0.05% (+4dB*1 input)		Under 0.2% (+4dB*1 input)		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	140g	135g	125g	145g

●Remote Control Module Specifications

Model	D-981*2
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

●Output Module Specifications

*1 0dB = 0.775V

Model	D-971M	D-971E*2	D-971R
Output	4 channels, +4dB*1, adaptable load of over 600Ω, electronically-balanced		4 channels (2 outputs for each channel), –10dB*1, adaptable load of over 600Ω
Connector Type	XLR-3-32	Removable terminal block	RCA pin jack
D/A Converter	24 bits		
Sampling Frequency	48kHz		
Frequency Response	20 – 20,000Hz, ±1dB		
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	140g	150g

*2Accessory: (D-921E/D-922E/D-981) Removable terminal block type connector (preinstalled on the unit) x 2
(D-971E) Removable terminal block type connector (preinstalled on the unit) x 4

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