TOA

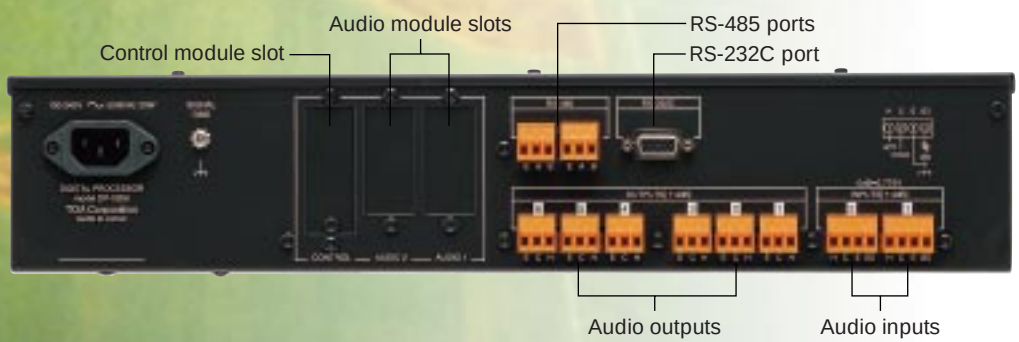
DP-0206
TOA Digital Signal Processor

Computer-driven DSP-based processing and a built-in matrix ensure that the TOA Digital Signal Processor can help you make easy work of even the most challenging installations.

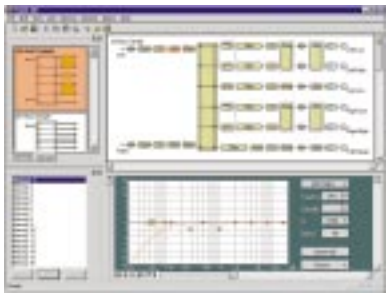
The TOA Digital Signal Processor combines easy, versatile installation with a powerfully precise array of operating functions, and time-saving computer-based configuration.

DP-0206

Digital Signal Processor



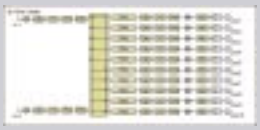
Computer-Driven Set-up and Operation



Main Window

Configuring the DP-0206 is carried out on a computer, with all possible signal flow choices shown clearly on the computer display, making even the most challenging installations simple and easy.
The carefully thought-out design of the TOA DP-0206 makes it easy to set up signal flow configurations containing multiple signal processing functions, each with a large array of parameter controls. The unit's built-in mixer makes the I/O pattern configuration available easier and less time-consuming. Besides the system's matrix function, a wide array of signal processing possibilities are available, including filtering, crossovers, parametric equalization, compression, delay and noise gating.

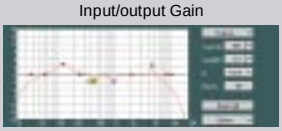
Software is provided for inputting all configuration and parameter decisions from a PC, and the processing unit is equipped with 16-on-board memories for storing set-ups. Pre-set memory recall can be carried out with a PC, directly on the unit, or via remote contact closures by installing an optional DQ-C01 control module.
It is even possible to import speaker frequency response data, to establish the best parameters that will match the speakers to the rest of the system.



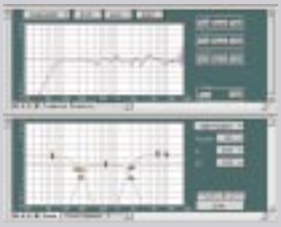
2 inputs/10 outputs Signal Flow

6 inputs/6 outputs Signal flow

Input/output Gain



Parametric Equalizer



Crossover

Delay

Compressor/Limiter/Noise Gate

Compressor/Limiter/Noise Gate

2 inputs/6 outputs Matrix

6 inputs/6 outputs Matrix

TOA Modular Design and CLEAR Conversion Technology*

The modular design of the DP-0206 not only ensures optimal flexibility, it also contributes to enhanced system capability, translated by TOA's CLEAR (Cross-Linked Exact A/D Resolution) Conversion Technology* into less noise and distortion, and a wider dynamic range. The audio signal produces a clearer high-frequency sound, while also ensuring a more crisp and distinctive audio response in the low-frequency response.

A Quiet Signal with Smooth Switching

The modular design of the DP-0206 not only ensures Quantization and other noises produced during conversion of the audio signal from analog to digital (A/D) before it enters the DSP circuitry are reduced to a minimum by a separate A/D path for low signal levels, in which the signal is subject to boost and subsequent attenuation that proportionally lessen the impact of the noise. Next, TOA CLEAR Conversion Circuitry* combines a smooth cross-fade switching pattern for the changeovers to and from the "processed" to "unprocessed" A/D signal path with an anticipatory hysteresis function that works to make the changes occur exactly as often as needed, for an optimally smooth signal flow.

The Right System Size for Each Application

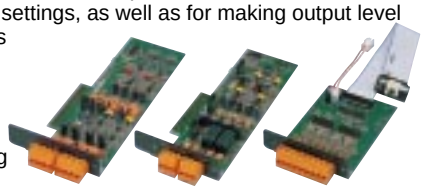
From small applications all the way to extra-large installations, you can easily create just the right size TOA DP-0206 unit. One laptop or desktop PC can control (via the unit's front or rear RS-232C connector) up to 30 units (linked via the rear RS-485 connector on each unit).

Customized System Set-ups

The TOA Digital Signal Processor can be configured in a wide range of system set-ups. This allows you to build precisely the system you need for each individual installation, for a maximum number of functions at a minimal cost. The software package supplied with the Digital Signal Processor contains a range of features that make a standard set-up and operation easy, while at the same time keeping even sophisticated professionals with a higher degree of audio expertise happy with all it can do.

Flexible Modular I/O Features

The DP-0206 Digital Signal Processor comes with a basic configuration of 2 inputs, which can be distributed as 6 outputs. Two audio module slots, for 2-channel DQ-A01 input or DQ-A02 output modules, can add up to 4 channels to either the input or the output channel, ensuring sufficient flexibility to match any application, as, for example, 6 inputs and 6 outputs, or 2 inputs and 10 outputs. TOA included a matrix distribution function on the DP-0206 to best meet the needs of the unit's high capacity of signal flow configurations.
A third module slot is available to accept DQ-C01 control modules for recalling preset memory settings, as well as for making output level (volume) setting changes with a remote control. "Euro-block" connectors are used for most rear panel connections, for easier installation, testing and removal.



DQ-A01 Analog Input Module
DQ-A02 Analog Output Module
DQ-C01 Control Module

*Patents pending for TOA CLEAR Conversion Technology.

SPECIFICATIONS

DP-0206 Hardware	
Power Source	AC Mains, 50/60 Hz
Power Consumption	30 W
Frequency Response	20–20,000 Hz, ±1 dB
Sampling Frequency	48 kHz
Dynamic Range	110 dB (IHF-A weighted)
Total Harmonic Distortion	Less than 0.05% at 1 kHz, +4 dB* (20–20,000 Hz, BPF)
Input	2 channels (expandable to up to 6 channels), +4 dB* (Max. +24 dB*), 10 kΩ, electronically-balanced, terminal block type connector (4 poles)
Output	6 channels (expandable to up to 10 channels), +4 dB* (Max. +24 dB*), connectable load: over 600 Ω, electronically-balanced, terminal block type connector (3 poles)
A/D Converter	24 bits
D/A Converter	24 bits
Signal Processing	
Level Control	+12 to –∞ dB, with polarity selector
Equalizer/Filter	Graphic equalizer: 1/3 octave band, 31 center frequencies (10 adjustable points) ±12 dB Q: 0.267–69.249, individually variable band Parametric equalizer: Continuously-variable frequency type (20–20,000 Hz), 10 points, ±12 dB Q: 0.267–69.249 Filtering: High-pass filter 20–20,000 Hz, 12 dB/oct, 6 dB/oct Low-pass filter 20–20,000 Hz, 12 dB/oct, 6 dB/oct Notch filter 20–20,000 Hz, Q/8.561–69.249 Parametric filter 20–20,000 Hz, ±12 dB, Q/0.267–69.249 All-pass filter 20–20,000 Hz, Q/0.267–69.249 High frequency boost or cut 6–20 kHz, ±12 dB Low frequency boost or cut 20–500 Hz, ±12 dB Horn equalizer 20 kHz, 0 to ±18 dB
Compressor	Threshold: –16 to +24 dB*, Ratio: 1 : 1 to ∞ : 1 Attack time: 0.02–100 ms, Release time: 10 ms – 5 s
Noise gate	Threshold: –∞ to –26 dB*, Attack time: 0.1 – 100 ms, Release time: 20 ms – 5 s
Delay	Delay time: 0–682 ms
Matrix	2 × 6 (Expanded I/O configuration: 2 × 8, 2 ×10, 4 × 6, 4 × 8 or 6 × 6) Level control: 0 to –∞ dB, with polarity inverter
Channel Divider	2-way, 3-way, 4-way Crossover frequency: Overlap mode, 20–20,000 Hz Slope: 6 dB/oct, 12 dB/oct, 18 dB/oct, 24 dB/oct Level: +12 to –∞ dB, with polarity selector Delay: 0–682 ms
Muting	Output muting
Memory	Pattern memory: 16 memories
Auxiliary Function	System Locking function
Control	Control software: PC software (Windows95/98/NT compatible)** Communications method: RS-232C, D-sub connector (9-pin) RS-485, terminal block type connector (3 poles), up to 30 units controllable Remote control module (option): Memory selection, output volume adjustment, and output muting can be remotely controlled from external equipment.
Panel Controls	Memory call-up key: 16 memories Unit ID indication key: 30 units Input level indicator: 6 channels, dual color LED Output level indicator: 10 channels, dual color LED Memory No./Unit ID indicator: Double-digit 7-segment LED Master indicator: Green LED
Finish	Panel: Aluminum, hair-line finish, black Others: Pre-coated steel plate, black, 30% glossy
Dimensions	482 (W) × 88.4 (H) × 325.2 (D) mm
Weight	4.65 kg
Accessory	Rack mounting screw × 4, Fuse × 1, Power cord × 1

DQ-A01 Analog Input Module	
Input	2 channels, +4 dB* (Max. +24 dB*), 10 kΩ, electronically-balanced, terminal block type connector (4 poles)
A/D Converter	24 bits
Sampling Frequency	48 kHz
Frequency Response	20–20,000 Hz (±1 dB)
Dynamic Range	110 dB (IHF-A weighted)
Total Harmonic Distortion	Less than 0.05% at 1 kHz, +4 dB* (20–20,000 Hz, BPF)
Finish	Pre-coated steel plate, black, 30% glossy
Dimensions	25.6 (W) × 76.5 (H) × 168 (D) mm
Weight	80 g
Accessory	Mounting screw × 2, Seal × 2, Terminal block type connector × 2

Software		
Matrix		Routing On/Off, Level Control, Polarity Invert/Normal
Character display		Up to 20 characters (alphanumeric)
Channel display		Up to 20 characters (alphanumeric)
Input	Gain	Gain, Polarity Invert/Nomal, Mute
	Compressor/Gate	Compressor-Threshold, Compressor-Ratio, Compressor-Synchronization, Compressor-Attack, Compressor-Release, Gate-Threshold, Gate-Attack, Gate-Release
	Parametric Equalizer	10 Bands Variable-Type [PEQ, HPF(–6, –12dB), LPF (–6, –12dB)], Bypass, Bypass All
	Graphic Equalizer	Frequency 1/3oct., Gain(+12dB to –12dB), Q [except HPF(–6dB)and LPF (–6dB)], Bypass, Bypass All
	Filter	2 Bands Variable-Type [Peaking, HPF (–6, –12dB), LPF (–6, –12dB), All pass, Low shelving, High shelving, Notch], Bypass, Bypass All
Output	Crossover	Single (Subwoofer), 2-way, 3-way, 4-way 2 Bands Variable-Type (–12 dB Bessel, –12 dB Butterworth, –12 dB Linkwitz-Riley, –12 dB Variable Q, –18 dB Bessele, –18 dB Butterwoth, –18dB Variable Q, –24 dB Bessele, –24 dB Butterwoth, –24 dB Linkwitz-Riley, Frequency, Gain, Time-Alignment
	Filter	12-Bands Variable-Type [Peaking, HPF (–6, –12dB), LPF (–6, –12dB), All pass, Low shelving, High shelving, Notch], Bypass, Bypass All
	Gain	Gain, Polarity Invert, Mute
	Compressor/Gate	Compressor-Threshold, Compressor-Ratio, Compressor-Syncronization, Compressor-Attack, Compressor-Release, Gate-Threshold, Gate-Attack, Gate-Release
	Delay	Time (0 – 682.63 msec)
	Attenuation	Attenuation, Mute
	Mute	Mute On/Off

DQ-C01 Control Module	
Control Input	COM and terminals 1–8: Open voltage: 5 V DC, short circuit current: 25 mA, terminal block type connector (9 poles)
Control	Memory selection: Direct: Max. 8 memories, Binary: 16 memories (Any one of 16 memories can be assigned to each terminal when set for "Direct" mode.) Control method: No-voltage make of over 500 ms/ No-voltage make pulse of over 500 ms (No-voltage make of over 500 ms only when set for "Binary" mode.) Volume control (Up/Down): Direct: Max. 4 groups, Binary: Max. 10 groups (Any output channel or channel group can be assigned to each terminal.) Control method: 1-step variation with no- voltage make pulse of over 500 ms. Continuous variation in 500 ms units with pulse of over 700 ms. Continuous up/down variation in 500 msec units with the addition of no-voltage make pulse of over 700 msec. Continuous volume variation stops when a break pulse is fed. Variable range: +12 to –∞ dB Muting (On/Off): Max. 8 groups (Any output channel or channel group can be assigned to each terminal.) Control method: No-voltage make of over 500 ms/ No-voltage make pulse of over 500 ms The above controls can be performed singly or in combination with other controls.
Setting	PC software (Windows95/98/NT compatible)*
Finish	Pre-coated steel plate, black, 30% glossy
Dimensions	25.6 (W) × 76.5 (H) × 101 (D) mm
Weight	60 g
Accessory	Mounting screw × 2, Terminal block type connector × 1

DQ-A02 Analog Output Module	
Output	2 channels, +4 dB* (Max. +24 dB*), connectable load: over 600 Ω, electronically-balanced, terminal block type connector (3 poles)
D/A Converter	24 bits
Sampling Frequency	48 kHz
Frequency Response	20–20,000 Hz (±1 dB)
Dynamic Range	110 dB (IHF-A weighted)
Total Harmonic Distortion	Less than 0.05% at 1 kHz, +4 dB* (20–20,000 Hz, BPF)
Finish	Pre-coated steel plate, black, 30% glossy
Dimensions	25.6 (W) × 76.5 (H) × 168 (D) mm
Weight	100 g
Accessory	Mounting screw × 2, Seal × 2, Terminal block type connector × 2

*0 dB = 0.775 V

**Windows95/98/NT is a registered trademark of Microsoft Corporation in the U.S.A.

TOA Corporation

URL : http://www.toa.co.jp/

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