



AW2816

PROFESSIONAL AUDIO WORKSTATION



www.aw2816.com

The Compact, Affordable Digital Audio Workstation That Delivers Fully Professional Features and Performance

If you're one of the countless musicians, artists, or audio production professionals who believe that the Yamaha AW4416 is the perfect digital audio workstation - but a little "overpowered" for your needs - the AW2816 is here! If this is the first time you've heard about a Yamaha Professional Audio Workstation, read on! There's great news ahead! In one compact console-style unit you get a fully-digital 28-input/18-output mixer with the power and performance of the now-legendary Yamaha 02R Digital Mixer, a 16-track-plus-stereo 24-bit hard disk recorder, and a CD-RW drive to archive your masterpieces and master the final versions to CD.*

What are the benefits? Well, in addition to having the entire production chain right at your fingertips - in a fraction of the space and at a fraction of the cost that a system comprising comparable separate components would require, all signals remain in the digital domain from input to CD so there's no chance for degradation. In short, the sound is superb.

The AW2816 is a professional-quality recording studio that you can use just about anywhere.

* CD-RW drive sold separately.

The Hard Disk Recorder

16 or 24-bit recording (uncompressed)

16 tracks plus a stereo track ... and virtual tracks for as many as 130 tracks, total.

Precision editing and pinpoint location capability.

Accepts a wide range of 2.5" IDE hard disk drives (up to 64 gigabytes).

* When installing your own hard disk drive be sure to select a model listed in the compatibility chart on the Yamaha Pro Audio web site.

The Mixer

28 input channels, 18 mix busses.

Motor faders and full mix automation.

Powerful channels functions inherited from the industry-leading 02R Digital Mixer.

Dual top-quality DSPs for effects processing.



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CD-RW Mastering & Data Storage

CD-R or CD-RW drive.

Master your own audio CDs without leaving the digital domain.

Convenient, reliable data storage and retrieval.

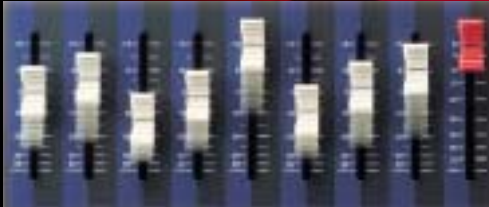
Directly load audio and other data from CD-ROMs.

* When installing your own CDR or CDRW drive be sure to select a model listed in the compatibility chart on the Yamaha Pro Audio web site.

28-channel/18-bus Digital Mixer

Smooth, Responsive Motor Faders

Much more than just a gimmick, the AW2816 motor faders accurately represent actual levels when using automation or switching between mix layers or scenes. There's no need to manually match fader levels – just reach for the faders and create in the most intuitive, natural way possible. These precision 60-millimeter motor faders are an indispensable part of the overall interface that makes the AW2816 one of the finest digital audio workstations available.

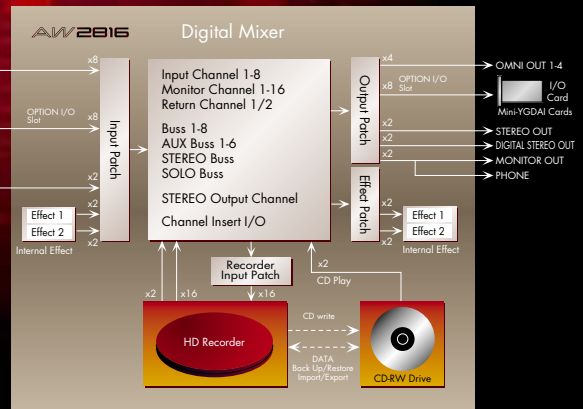


The 02R Lives On ... With Improved Sound and Performance

In fact, it keeps coming back stronger than ever. The AW2816 mixer offers the features and performance of the 02R Digital Mixer – the de-facto industry standard – plus a number of enhancements that place it well ahead of the rest. All AD and DA conversion is handled by state-of-the-art 24-bit converters, and all internal processing is 32-bit, with the exception of the EQ stages which employ 44-bit processing. The result is audio quality that is simply superb. In the AW2816 special attention has also been paid to the head-amp design – one of the very few analog circuits in the entire system that can affect the signal prior to the A/D converters. Their quality and performance is on a par with many of the finest component (and very expensive) head amps available.

Versatile I/O Configuration With Digital Patching

Right out of the box the AW2816 provides 8 balanced inputs including two XLR-contractor inputs with switchable phantom power for micro-phone input and 6 balanced TRS jacks for microphone or line input. Channel 8 also features a Hi-Z input for direct connection of electric guitar or bass. There's also a digital stereo input and dual stereo effect returns. An option slot accepts a range of optional input cards, providing up to 8 additional inputs. Routing all of these inputs to the AW2816's 16 hard-disk recorder tracks and/or 18 buses might seem like a daunting task, but digital patching actually makes it easy and efficient – and more importantly: degradation-free! No matter where you route your signals all patching is done digitally so, unlike the patch bays used in even the biggest commercial studios, there's no chance for signal degradation. Patch configurations can be saved in the internal "Patch Library" memory for instant recall when you need them again.



28-channel/18-bus Digital Mixer

New-generation DSPs and Refined Effects

Inescapable fact: technology keeps getting better and more affordable. The Yamaha custom DSP (Digital Signal Processing) LSIs used in the AW2816 deliver approximately four times the audio processing power of the chips used in the O2R and AW4416. This provides a significant boost in overall audio performance as well as the quality of the effects provided. The AW2816 includes two refined effect stages that offer all the effect-processing capability you'll ever need for any mix. There is a full range of ambience, modulation, distortion, and amp simulator effects for guitar that can be used in a "send/return" configuration or inserted directly into input channels or the stereo bus as required. And so you don't have to spend a lot of time setting up detailed effect parameters (of course, you can if you want to), a preset "Effect Library" provides an impressive range of setups that can be used as is or as a starting point for your own variations. Original setups can also be stored in the library so you can recall them whenever they're needed.

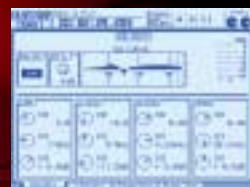


Effect Library

Reverb Effects	Reverb Hall • Reverb Room • Reverb Stage • Reverb Plate • Early Ref. • Gate Reverb • Reverse Gate
Delay Effects	Mono Delay • Stereo Delay • Mod.Delay • Delay LCR • Echo
Modulation Effects	Chorus • Flanger • Symphonic • Phaser • Auto Pan • Tremolo • H.Q.Pitch • Dual Pitch • Rotary • Ring Mod. • Mod.Filter
Guitar Effects	Distortion • Amp simulate
Dynamic Effects	Dyna.Filter • Dyna.Flange • Dyna.Phaser
Combination Effects	Rev+Chorus • Rev+Chorus • Rev+Flange • Rev+Flange • Rev+Sympo. • Rev+Sympo. • Rev+Pan • Delay+ER. • Delay+ER. • Delay+Rev • Delay+Rev • Dist+Delay
Other Effects	Multi.filter

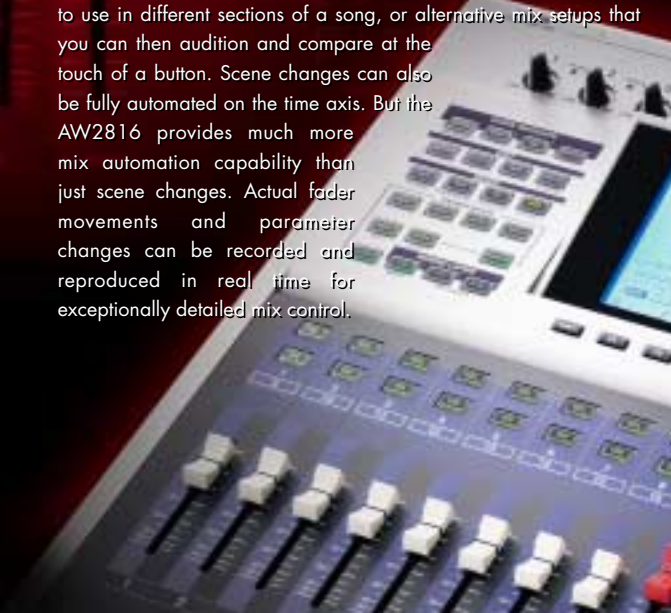
EQ and Dynamics On All Channels

With the exception of the dual stereo returns, the main stereo outputs and the remaining input channels all feature the same flexible 4-parametric equalization and dynamics processing found on the O2R and AW4416. The effect returns feature 4-band parametric EQ without the dynamics processing. This is a detail that can really make a difference to the overall sound of your mixes. Of course, there are also EQ and Dynamics Libraries that contain a range of professionally pre-configured EQ and dynamics settings for many specific recording tasks, and you can save your own setups so you don't have to redo a multitude of settings every time you want to create a specific sound.



96-scene Memory and Full Mix Automation

The AW2816 Scene Memory allows you to save up to 96 individual scenes – complete control and parameter setups – for each song you record. You can save different setups you might want to use in different sections of a song, or alternative mix setups that you can then audition and compare at the touch of a button. Scene changes can also be fully automated on the time axis. But the AW2816 provides much more mix automation capability than just scene changes. Actual fader movements and parameter changes can be recorded and reproduced in real time for exceptionally detailed mix control.



16-Track Hard-disk Recorder

24-bit Linear (Uncompressed) Recording On 16 Tracks, Plus Stereo

Although you can record in the 16-bit mode if you like, for maximum quality and resolution the AW2816 allows full 24-bit linear, uncompressed recording on 16 independent tracks and a stereo track. You also have a choice of

44.1 kHz or 48 kHz sampling frequencies. Furthermore, each main track allows recording of up to 8 virtual tracks for a maximum of 130 tracks. You can use the virtual tracks to record alternate takes, for example, and then audition and select the best take later during mixdown. The hard-disk recorder section also features an "All Rec" mode which allows up to 8 tracks to be recorded simultaneously – ideal for recording a band in one take, or for recording multi-miked drums, for example.



Advanced Editing Functions

One of the big advantages of hard disk recording is non-destructive editing capability. In this area the AW2816 excels. In addition to basic operations such as copy and move, the AW2816 offers advanced editing functions including time compression and pitch change – capabilities that give you extraordinary creative control. And since all editing is non-destructive (the original audio data is left untouched), you have as many as 15 undo/redo levels so there's plenty of margin to change your mind even if several edits don't turn out as expected.

Flexible, Intelligent Location

The same "intelligent location" capability provided on the acclaimed AW4416 makes pinpoint location on the AW2816 fast and easy. You have direct START, END, RTZ, A, B, LAST REC IN, LAST REC OUT, and ROLL BACK keys as well as up to 99 assignable locate points per song which can be specified in time or measure numbers. For even finer location precision a Wave Display lets you search for locate points while viewing the audio waveform. A tempo-map coupled metronome as well as auto punch-in/out with precisely programmable IN and OUT points provide even further control and versatility.



Convenient Recording Utilities

Although too numerous to cover completely here, the AW2816 includes many thoughtful features that can make recording and managing your audio data a pleasure rather than a chore. For example, you can enter comments for each song, a built-in calendar makes it easy to organize and manage your data by date, a hard-disk optimization utility which eliminates unnecessary data, and a defragmentation utility that ensures optimum performance from your hard disk at all times. And we can't forget the "Quick Record" function that automatically sets up 8 tracks (or up to 16 when an optional I/O card is installed) for recording when starting work on a new song.



Open-ended Potential ...

Internal CD-R or CD-RW Drive

Install an optional internal CD-R or CD-RW drive in your AW2816 and vastly increase your production power and creative potential. Choose a Yamaha CD-RW drive, or use any standard internal ATAPI type listed in the compatibility chart on Yamaha's AW2816 website (point your browser to <http://www.aw2816.com>). * With a CD-R or CD-RW drive installed you can take your projects from initial recording right through to creating audio CDs that will play on standard CD players. But there's more: use inexpensive, reliable CD-R or CD-RW disks to back up your valuable audio and mix data. You can also play back audio CDs, and load data from commercial CD-ROMs.

*External CD-RW drives must be SCSI types.



A Significant Evolution In Software

While carrying on the outstanding basic user interface introduced in the AW4416, the AW2816 provides a number of important refinements. The signal routing (patching) displays, for example, have evolved into a more graphic format, making the patching process much more easy and intuitive. And the QUICK REC function that was such a hit in the AW4416 has been even further refined for faster, easier setup in the AW2816. Another addition is the MIDI REMOTE function: AW2816 faders and channel ON keys can be assigned MIDI messages so they can be physically controlled from an external MIDI controller or sequencer. What's more, MIDI control data can be recorded as automix data for vastly enhanced automix versatility. And the AW4416 Shortcut Key function has been enhanced with the addition of a "Control Key Assign" function that allows you to assign your own operations to specific controls. All of these advanced features are brought together in a large 320 x 240 dot backlit LCD panel for smooth, stress-free operation.



Connect With Computers, SCSI Devices, and MIDI

The AW2816 comes equipped with a SCSI interface for direct connection to a wide range of data storage devices such as MO drives, hard-disk drives, and CD-RW drives. See the Yamaha AW2816 website for a complete listing of devices that have been tested and are compatible with the AW2816 (<http://www.aw2816.com>). MIDI and TO HOST connectors are also provided for direct connection to MIDI-capable computers and MIDI devices. The AW2816 can act as either master or slave for synchronization via MTC or MIDI CLOCK for virtually unlimited system expansion. The AW2816 is also MMC compatible, and allows remote control via MIDI control change and parameter change messages. There's even a footswitch jack that lets makes it easy to punch in or out while playing a guitar or other instrument. The details do count.



Open-ended Expandability

In addition to Yamaha Mini-YGDAI cards which can provide I/O in a range of formats – ADAT, TASCAM, AES/EBU, analog – the AW2816 expansion slot will accept a number of high-performance upgrades. There are the AP8AD and AP8DA AD/DA converter cards from Apogee – the world leader in AD/DA conversion technology. Or the *Y56K DSP card from digital signal processing frontrunner Waves, providing on-board access to industry-standard processors such as the L1 mastering limiter and TrueVerb high-resolution reverb effect.

*Y56K will be supported by future updating.

■ DIGITAL I/O card



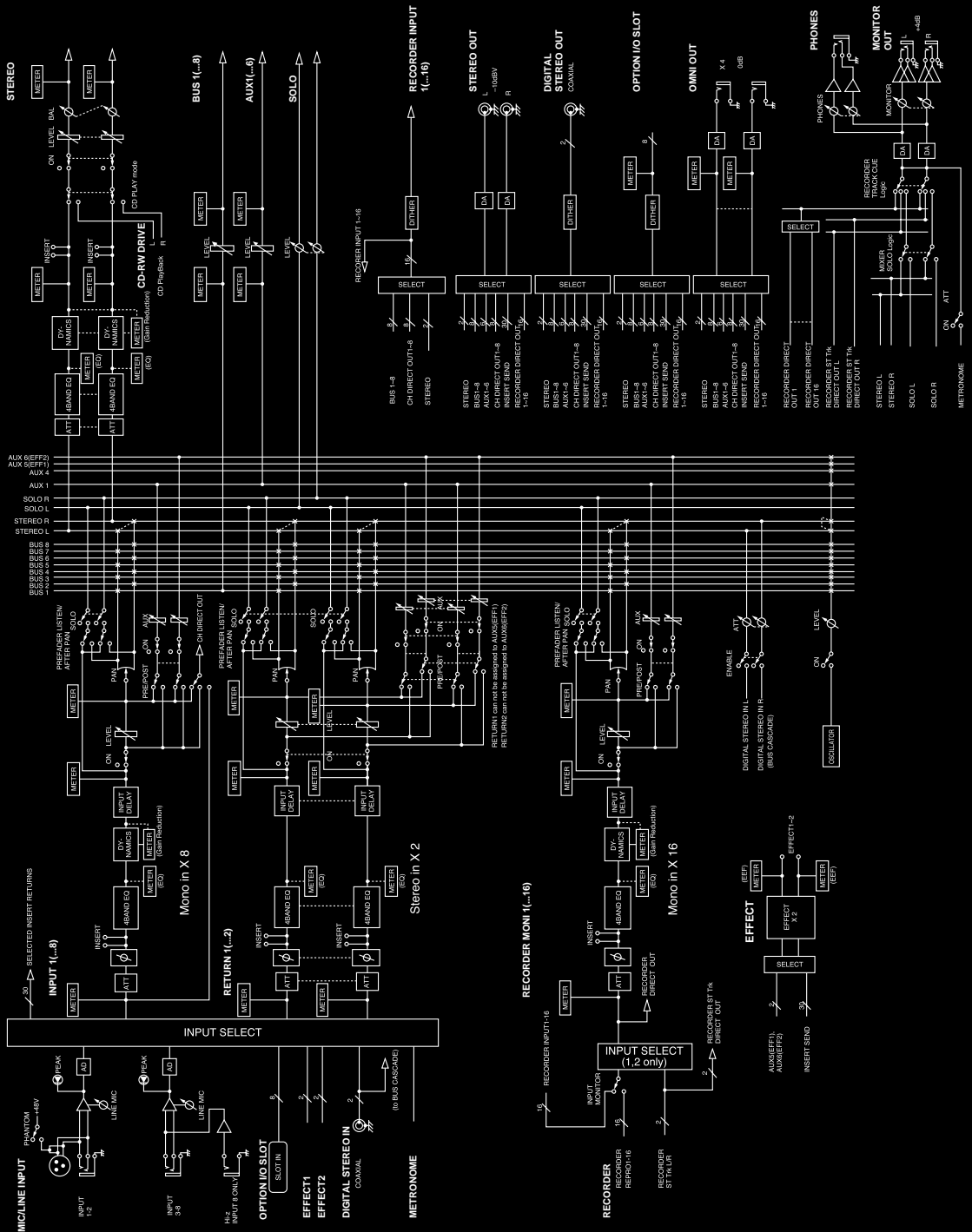
■ AD card



■ DA card



Block Diagram



AW2816 Specifications

General Specification

Total Harmonic Distortion	Less than 0.02% (@1kHz, LINE IN to STEREO OUT)
Frequency Response	20 Hz - 20kHz (0+1/3dB, MIC/LINE IN to STEREO OUT)
Dynamic Range	104dB (LINE IN to STEREO OUT)
Power Requirements	AC120V (UL, CSA), 230V (CE)
Power Consumption	35W (excl. options)
Dimensions, Weight	480 (W) x 429 (D) x 141 (H) mm, 9.5kg (excl. options)

HD Recorder

Internal Tracks	130 (16 tracks x 8 virtual tracks, Stereo track)
Simultaneous Play tracks	16 tracks
Simultaneous Record tracks	8 tracks
Recording Resolution	16bit/24bit Uncompress
Internal (HDD)	2.5inch IDE (One unit included in the products package)
Max. HDD capacity	64GB Max. capacity per 1song / 6.4GB (12,000 regional)
Max. No. of Songs	30,000 SONG
Locate Point (per song)	(RETURN TO ZERO/START/END/A/B/ LAST REC IN/ LAST REC OUT/ROLL BACK
Mark (per song)	99
Direct Locate (NUM LOCATE)	Numeric Keypad (Time, Measure)
Punch I/O	Auto punch I/O, Manual Punch I/O
Edit	SONG NAME, COMMENT, DELETE, COPY, OPTIMIZE, PROTECT, NAME, ERASE, COPY, EXCHANGE, SLP, APPEND, TRACK TIME COMP/EXPAND, PITCH CHANGE, IMPORT, EXPORT, ERASE, DELETE, COPY, MOVE, INSERT, APPEND, TIME COMP/EXPAND, PITCH CHANGE, EXPORT NAME, ERASE, DELETE, COPY, MOVE, DIVIDE, TRIM, REGION IN/OUTTIME COMP/EXPAND, PITCH CHANGE, IMPORT, EXPORT
Time Compression/Expansion	50% - 200%
Pitch Change	±1 octaves

Mixer Section

A/D Conversion Rate	24bit - 64 x oversampling
D/A Conversion Rate	24bit - 128 x oversampling
Internal Processing	32bit (EQ=44bit)
Sampling Rate	Internal 44.1kHz (±6%) / 48kHz (±6%) External 44.1kHz (±6%) / 48kHz (±6%)
Simultaneous Mixing Inputs (28 Total)	Selected Inputs via Patch Bay 12 (8 MONO + 2 STEREO) HD Recorder Playback 16
Bus (18 Total)	GROUP x 8, AUX x 6, STEREO, SOLO
Mixing Layer	INPUT 1-8, RECORDER 1-8, RECORDER 9-16
Channel Functions	INPUT 1-8, RECORDER 1-16 EFFECT RETURN 1, 2 Attenuation, Phase, Delay, Dynamics, Bus assign, 4band full parametric EQ, Pan, Channel ON/OFF /Attenuation, Phase, Delay, Bus assign, 4band full parametric EQ, Pan, Channel ON/OFF
Bus Function	STEREO OUT Attenuation, Phase, Delay, Dynamics, Bus assign, 4band full parametric EQ, Balance, Channel ON/OFF Attenuation
Memory	Scene Memory 96 per Song Automix 16 per Song Patch Library 20 Channel Library 64 EQ Library 128 Dynamics Library 128 Effect Library 128
Automix Parameter	Fader, AUX, ON, PAN, EQ, Scene Memory, Libraries Recall, REMOTE Screen Fader 1-8 and ON keys
Faders	60mm motor drive x 9

CD-RW Section

Supported Drives	ATAPI-Internal type (Drive compatibility list will be shown in www.aw2816.com)
Function	Make/Playback, Audio CD, Import, Load/Save back up data from/to CD-ROM to/fromHDD, WAV file importing/Exporting

Others

File System	AW2816 Original Format
Display	320 x 240 dot backlit LCD (with contrast controller)
MIDI	MTC (Master/Slave), MIDI Clock, MMC, Program Change, Control Change, Parameter Change, Bulk Dump
Oscillator	Sine Wave (100kHz, 1kHz, 10kHz), White Noise to BUS 1-8, AUX 1-6, STEREO
SCSI	Save/Load backup data, WAV file importing/Exporting
TO HOST	Same with MIDI IN, OUT/THRU, MTC OUT

Analog Input

Terminal	Connector	Balance	Nominal Level
MIC/LINE INPUT 1,2(*)	XLR/TRS Phone	Balanced	+4dB(Line) -46dB(Mic)
MIC/LINE INPUT 3-8	TRS Phone	Balanced	+4dB(Line) -46dB(Mic)
CH8 Input Hi-Z	Phone	Unbalanced	+4dB(Line) -46dB(Mic) (*) +48V Phantom SW

Digital Input & Output

Terminal	Connector	Balance	Nominal Level
STEREO OUT (L, R)	RCA pin	Unbalanced	-10dBV
MONITOR OUT (L, R)	TRS Phone	Balanced	+4dB
OMINI OUT 1-4	Phone	Unbalanced	0dB
PHONES	TRS Phone	Unbalanced	100mW + 100mW (40 Ω load) *0dB=-0.775Vrms 0dBV=1Vrms

Digital I/O

Terminal	Connector/Format	Resolution
DIGITAL STEREO IN/OUT	RCA pin (COAXIAL)	24bit

OPTION I/O

Terminal	Connector/Format	Resolution
OPTION I/O SLOT	Mini-YGDAI (max. 8in/8out)	24bit

Others

Terminal	Connector/Format
MIDI IN, OUT/THRU, MTC OUT	DIN 5pin
TO HOST	Mini DIN 8pin
FOOT SW	PHONE
SCSI	SCSI-2/D-sub Half Pitch 50pin

Specifications and appearances are subject to change without notice.

Rear Panel



* Each Mini-YGDAI card in the photo is an optional product (sold separately).

Options

20GB 2.5 "Hard Disk Drive" **HDD25-20G**

Foot Switch **FC-5**

Mini-YGDAI Cards

MY8-AE AES/EBU Interface	MY8-AT ADAT Interface	MY8-TD Tascam Interface
MY8-AD 8 ch AD Interface (TRS x 8)	MY4-AD 4 ch AD Interface (XLR x 4)	MY4-DA 4 ch DA Interface (XLR x 4)

APOGEE



AP8AD 8channel AD Card
AP8DA 8channel DA Card
<http://www.apogeedigital.com>

*TASCAM is registered trademark of TEAC Corporation. ADAT is registered trademark of ALESIS Corporation.
*APOGEE is registered trademark of APOGEE Electronics. WAVES is registered trademark of WAVES.

WAVES



Y56K DSP Effect Card
<http://www.waves.com>



Web Site <http://www.aw2816.com> <http://www.yamaha.co.jp/product/proaudio/homeenglish/>

For detail please contact:



This document is printed on chlorine free (ECF) paper.

LPA453E Printed in Japan



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