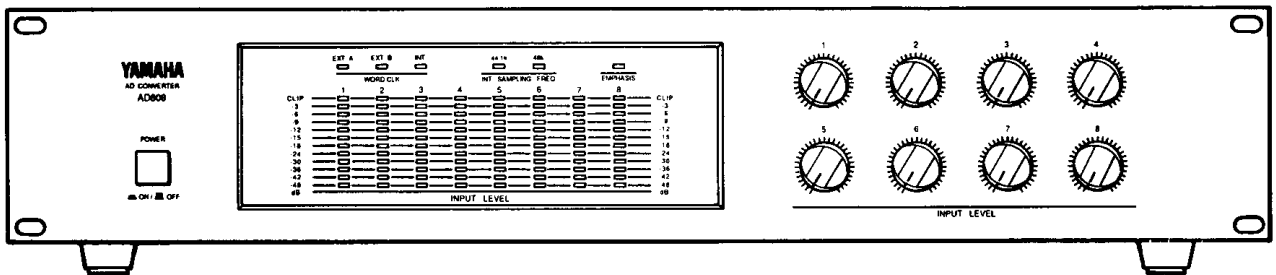


YAMAHA

AD CONVERTER CONVERTISSEUR A/N A/D-WANDLER

AD808

*Operation Manual
Manuel d'instructions
Bedienungsanleitung*



*Thank you for purchasing the Yamaha AD808 analog/digital converter.
The AD808 is an 8 channel A/D converter which can convert a maximum
of 8 channels of analog audio signals into Yamaha DSP-LSI format digital
signals.*

*This conversion makes for compatible digital input to the Yamaha digital
mixing processor, the DMP7D.*

*Be sure to read this instruction manual thoroughly before operating the
AD808, and it should give long, fault-free service.*

* When connecting the AD808 to equipment other than the DMP7D, please
consult your dealer or a nearby Yamaha service station. (See "Service" on
page 27.)

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PRECAUTIONS

1. AVOID EXCESSIVE HEAT, HUMIDITY, DUST AND VIBRATION

Keep the unit away from locations where it is likely to be exposed to high temperatures or humidity — such as near radiators, stoves, etc. Also avoid locations which are subject to excessive dust accumulation or vibration which could cause mechanical damage.

2. COOLING MEASURES

The unit is provided with vents top and bottom through which air can circulate for cooling of the internal circuitry. Make sure that the unit is placed in a well ventilated area, and that there are no obstructions to the vents, especially the ones at the bottom of the unit. Be particularly careful when mounting the unit in a rack.

3. AVOID PHYSICAL SHOCKS

Strong physical shocks to the unit can cause damage. Handle it with care.

4. DO NOT OPEN THE CASE OR ATTEMPT REPAIRS OR MODIFICATIONS YOURSELF

This product contains no user-serviceable parts. Refer all maintenance to qualified Yamaha service personnel. Opening the case and/or tampering with the internal circuitry will void the warranty.

5. MAKE SURE POWER IS OFF BEFORE MAKING OR REMOVING CONNECTIONS

Always turn the power OFF prior to connecting or disconnecting cables. This is important to prevent damage to the unit itself as well as other connected equipment.

6. HANDLE CABLES CAREFULLY

Always plug and unplug cables — including the AC cord — by gripping the connector, not the cord.

7. CLEAN WITH A SOFT DRY CLOTH

Never use solvents such as benzene or thinner to clean the unit. Wipe clean with a soft, dry cloth.

8. ALWAYS USE THE CORRECT POWER SUPPLY

Make sure that the power supply voltage specified on the rear panel matches your local AC mains supply.

U.S. & Canadian models: 120V AC (105-130V), 60 Hz
General model: 110-120/220-240V AC,
50/60 HZ

9. ELECTRICAL INTERFERENCE

Since the AD808 contains digital circuitry, it may cause interference and noise if placed too close to TV sets, radios or similar equipment. If such a problem does occur, move the AD808 further away from the affected equipment.

10. THE XLR TYPE CONNECTOR

The XLR type connector of this unit is wired in conformance with the DIN standard, and its connection format is as follows: No. 1: Ground, No. 2: Hot, No. 3: Cold.

FCC CERTIFICATION (USA)

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient the receiving antenna.
Relocate the equipment with respect to the receiver.
Move the equipment away from the receiver.
Plug the equipment into a different AC power outlet so that it and the receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems".

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

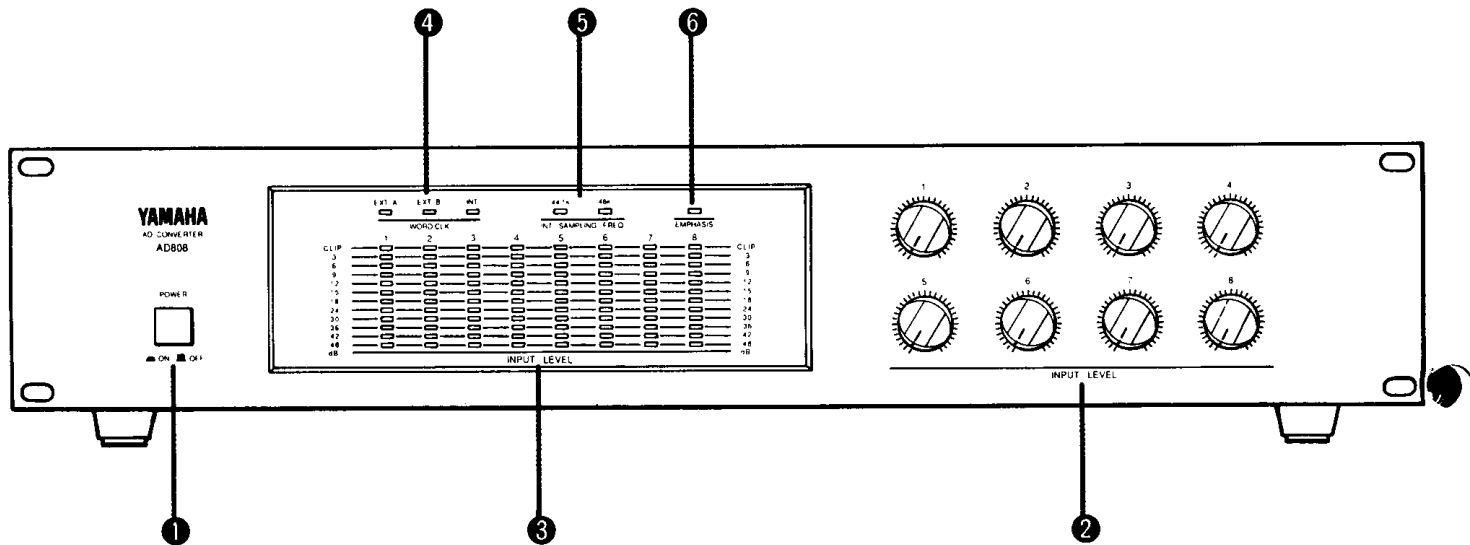
CANADA

THIS APPARATUS COMPLIES WITH THE "CLASS B" LIMITS FOR RADIO NOISE EMISSIONS SET OUT IN RADIO INTERFERENCE REGULATIONS.

CET APPAREIL EST CONFORME AUX NORMES "CLASSE B", POUR BRUITS RADIOELECTRIQUES. TEL QUE SPECIFIER DANS LE REGLEMENT SUR LE BROUILLAGE RADIOELECTRIQUE.

CONTROL PANEL AND CONNECTIONS

■ Front Panel



1 POWER SWITCH

2 INPUT LEVEL CONTROLS

These control the input level for each channel. The nominal knob position is at 3 o'clock.

3 INPUT LEVEL METER

This is a peak indicator which displays the levels adjusted with the input level controls (2). To ensure good dynamic range, set the levels as high as possible, but not so high that the CLIP LED lights at the peak reading. During clipping (when 0 dB is exceeded) there may be digital noise, or momentary loss of sound.

* Characteristics of the INPUT LEVEL METER (HOLD TIME and FALL TIME) are subject to change according to requirements (see Page 5, "INPUT LEVEL METER setting changes" for details).

4 WORD CLK Indicator

This indicator shows which clock is presently operating. Clocks can be selected with the WORD CLK switch (8) on the rear panel.

5 INT SAMPLING FREQ

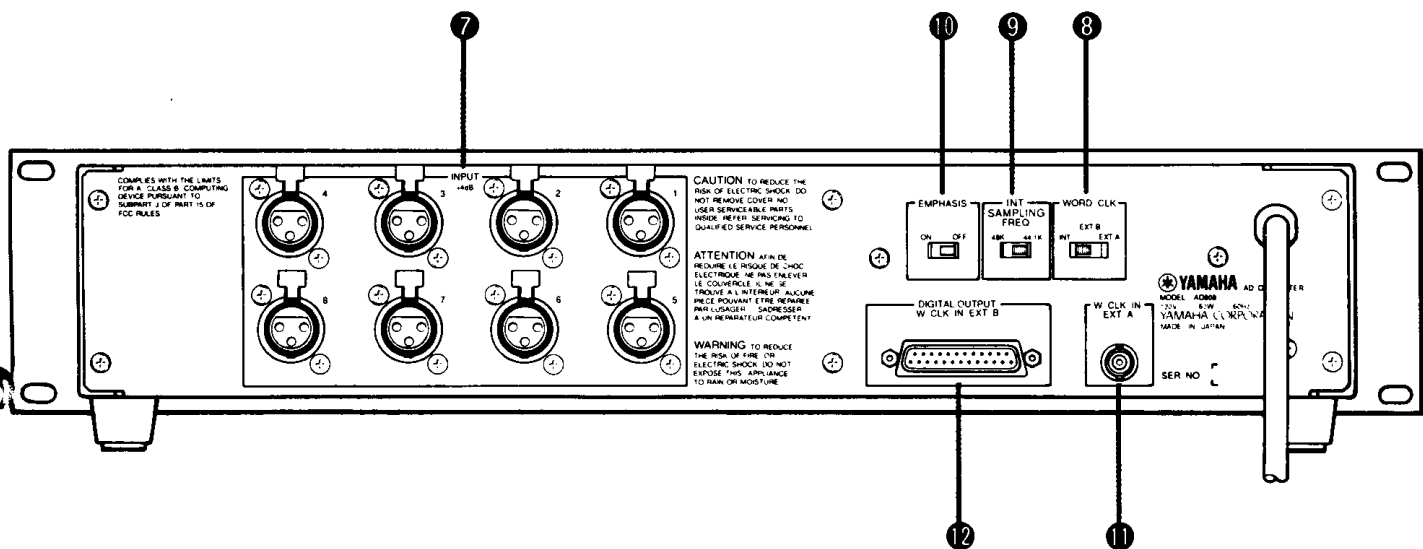
When the INT clock selection is made (this unit's internal clock), the sampling frequency of 44.1 kHz/48 kHz is displayed by this indicator. The sampling frequency can be selected with the INT SAMPLING FREQ switch (9) on the rear panel.

* If an EXT A or EXT B (external clock input) selection is made, the unit's sampling frequency is switched automatically, although in this case the sampling frequency is not displayed.

6 EMPHASIS switch

This is lit when pre-emphasis is ON. Pre-emphasis ON/OFF switching is made with the EMPHASIS switch (10) on the rear panel.

■ Rear Panel



U. S. & Canadian model

7 INPUT terminals

8 terminals are provided for input of 8 analog audio channels. These are balanced input terminals with a specified input level of +4dB and compatible impedance of 600 ohms.

8 WORD CLK switch

This designates which of the clocks is to be the master clock.

- * EXT AExternal clock input from W CLK IN terminal (BNC connector)
- * EXT BExternal clock connected to DIGITAL OUTPUT terminal (D-sub connector)
- * INTInternal clock

9 INT SAMPLING FREQ switch

Designate the sampling frequency with this switch when the WORD CLK switch 8 is set to INT. The sampling frequency must be equal for all connected components. If all components can be set to a sampling frequency of 48 kHz, then this frequency should be selected rather than 44.1 kHz, as it ensures better high frequency characteristics.

10 EMPHASIS switch

Switching EMPHASIS ON enables pre-emphasis on all channels.

If the switch is ON, then de-emphasis will be required by the D/A converter.

* When this unit is connected to the DMP7D, turn the EMPHASIS switch on the DMP7D to OFF. The DMP7D automatically detects whether emphasis is ON or OFF, and the emphasis ON/OFF information is added to the digital output (except for DIGITAL CASCADE OUT, EFFECTS SEND) signal of the DMP7D. De-emphasis is automatically applied to the analog output (MONITOR OUT, PHONES) signal.

Why emphasis ?

This is one method of raising the S/N ratio in the high frequency range. The high frequency level is raised before A/D conversion (pre-emphasis), and lowered for D/A conversion. The method is effective in suppressing high frequency noise generation by the system.

11 W CLK IN (EXT A) terminal

This is the WORD CLOCK dedicated input terminal. To use the word clock input from this terminal as the master clock, set the WORD CLK switch 8 on the rear panel to EXT A.

12 DIGITAL OUTPUT (W CLK IN EXT B) terminal

Outputs the digital converted signals from CH1 - CH8. Correctly speaking, this does not involve only PCM data, but also includes control related information (word clock, emphasis ON/OFF).

When designating the master clock as the word clock of the unit connected to this terminal, set the WORD CLK switch 8 to EXT B.

CHANGING INTERNAL SETTINGS

Changing the INPUT LEVEL meter settings

The INPUT LEVEL meter characteristics (PEAK HOLD TIME and FALL TIME) may be changed when necessary. The momentary LED hold time at maximum level is set to 2 seconds (setting before shipment from the plant) and the fall time is set to fast (see charts below).

Changing these settings involves use of the DIP switches inside the unit. Be sure to consult your dealer or the nearest Yamaha service center before attempting a change of setting.

PEAK HOLD TIME

Mode	Meaning
1. No hold	No hold
2. Hold for 1 second	Hold for 1 second
3. Hold for 2 seconds	Hold for 2 seconds
4. Hold	Maintain hold until higher level input

← setting before shipment

FALL TIME

Mode	44.1kHz	48kHz
1. Very fast	Approx.0.001 sec	Approx.0.001 sec
2. Fast	Approx.1.0 sec	Approx.0.9 sec
3. Slow	Approx.2.0 sec	Approx.1.8 sec
4. Very Slow	Approx.3.9 sec	Approx.3.6 sec

← setting before shipment

* This is the time from maximum momentary hold until the LED is completely OFF.

* As can be seen from the chart, the fall time varies with the sampling frequency.

Changing the BIT SHIFT setting

The is set so that output of PCM data is effected with fast timing of 1/2 bit when the WORD CLK setting is EXT A or EXT B. This is in consideration of the 1/2 bit lag in data transfer which occurs when the D-SUB 25 pin cable (accessory) is used for connection to the DMP7D (see Page 25, "Data output timing chart").

A change of setting (e.g. in case you are using a different cable) involves use of internal DIP switches. Be sure to consult your dealer or the nearest Yamaha service center before attempting a change of setting.

SPECIFICATIONS

General Specifications

Frequency response ^{*1}	20Hz - 20kHz, + 1, -3 dB
Total harmonic distortion ^{*1 *2}	0.01% or less @ + 17dB, 1 kHz
Dynamic range ^{*1 *2 *3}	90 dB
Hum & noise ^{*1 *2 *3}	-72 dB
Quantization	16 bit linear (with dither)
Sampling frequency	44.1 kHz/48 kHz selectable (INT CLK)
De-emphasis	Auto ON/OFF switching

Control

Switches	POWER ON/OFF, WORD CLK (EXT A ↔ EXT B ↔ INT CLK selectable), INT SAMPLING FREQ (44.1kHz ↔ 48kHz selectable), EMPHASIS (pre emphasis ON/OFF selectable)
Volume	INPUT LEVEL (31 positions)
Level meter	INPUT LEVEL (12-element peak LED meter)
Indicators	WORD CLK (EXT A/EXT B/INT), INT SAMPLING FREQ (44.1/48 kHz), EMPHASIS (ON/OFF)

BIT SHIFT (EXT A or EXT B clock input)

Set for 1/2 bit advance timing (setting by internal DIP switches)

INPUT LEVEL meter display

Set for a PEAK HOLD TIME of 2 sec., FALL TIME = FAST (setting by internal DIP switches)

Power

U.S. & Canadian Models	120V AC, 60 Hz
General Model	110-120/220-240V AC, 50/60 Hz

Power consumption

U.S. & Canadian Models	60W
General Model	60W

Dimensions (W x H x D)

480 x 99.8 x 355 mm
(18-7/8" x 3-7/8" x 14")

Weight

8.0 Kg (17.6 lbs)

^{*1} When using with the DMP7D and DA202

^{*2} Emphasis ON

^{*3} Hum & Noise are measured with a -6 dB/octave filter at 12.7 kHz.
• 0dB = 0.775 V rms

• Specifications and external appearance are subject to change without notice.

■ Input/Output specifications

● Analog input specs

Input terminal	Input impedance	Source impedance	Sensitivity *1 (MAX GAIN)	Input level (@ 1 KHz)		Connector
				Specified level	Maximum non-clip level	
INPUT (Ch1-8)	10kΩ	600Ω line	-2dB (616mV)	+4dB (1.23V)	+18dB (6.16V)	XLR-3-31 type (balanced)

*1 Sensitivity is the input level required to obtain a specified output level of +4dB = 1.23 V.
 • 0dB = 0.775 V rms

● Digital input specs

Input terminal	Format	Input level	Connector
WORD CLK IN (EXT A)	Sony	TTL	BNC

● Digital output specs

Output terminal	Format	Output level	Connector
DIGITAL OUTPUT (W CLK IN EXT B) (Ch1-8 Data, Word Clock In/Out, Emphasis ON/OFF)	Yamaha DSP-LSI	RS-422 (TTL level with emphasis ON/OFF)	D-SUB 25P (female)

● Digital pin assignment chart

Signal name	Pin assignment	
	Hot	Cold
Ch1 data	1	14
Ch2 data	2	15
Ch1 data	3	16
Ch1 data	4	17
Ch1 data	5	18
Ch1 data	6	19
Ch1 data	7	20
Ch1 data	8	21
WORD CLK output	9	22
WORD CLK input	10	23
EMPHASIS ON/OFF	12	
GRND	13, 25	

IMPORTANT NOTICE FOR THE UNITED KINGDOM


Connecting the Plug and Cord

WARNING : THIS APPARATUS MUST BE EARTHED

IMPORTANT. The wires in this mains lead are coloured in accordance with the following code:

GREEN-AND-YELLOW	:	EARTH
BLUE	:	NEUTRAL
BROWN	:	LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured **GREEN-AND-YELLOW** must be connected to the terminal in the plug which is marked by the letter **E** or by the safety earth symbol  or coloured **GREEN** or **GREEN-AND-YELLOW**.

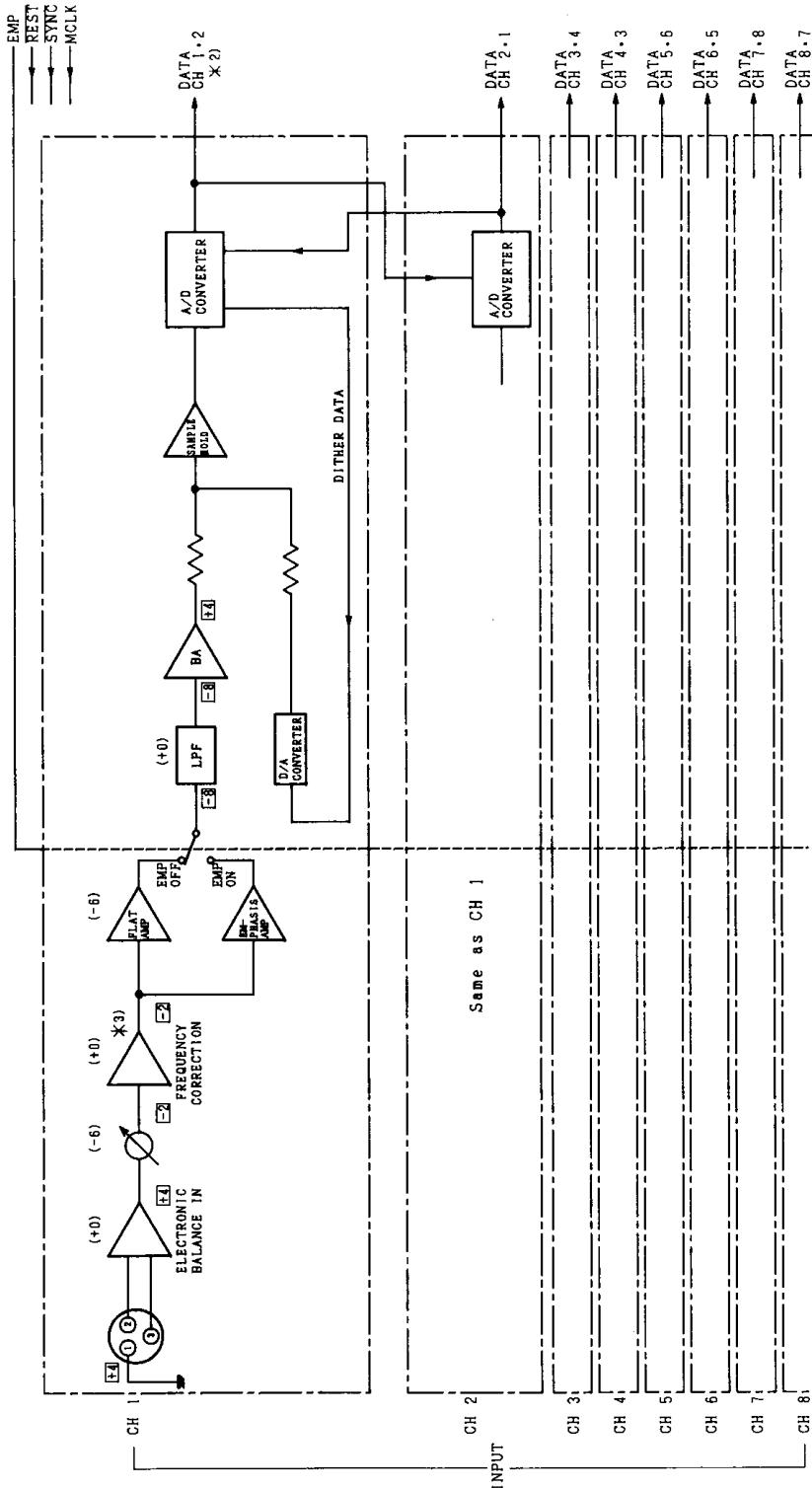
The wire which is coloured **BLUE** must be connected to the terminal which is marked with the letter **N** or coloured **BLACK**.

The wire which is coloured **BROWN** must be connected to the terminal which is marked with the letter **L** or coloured **RED**.

BLOCK DIAGRAM

SCHEMA DE PRINCIPE

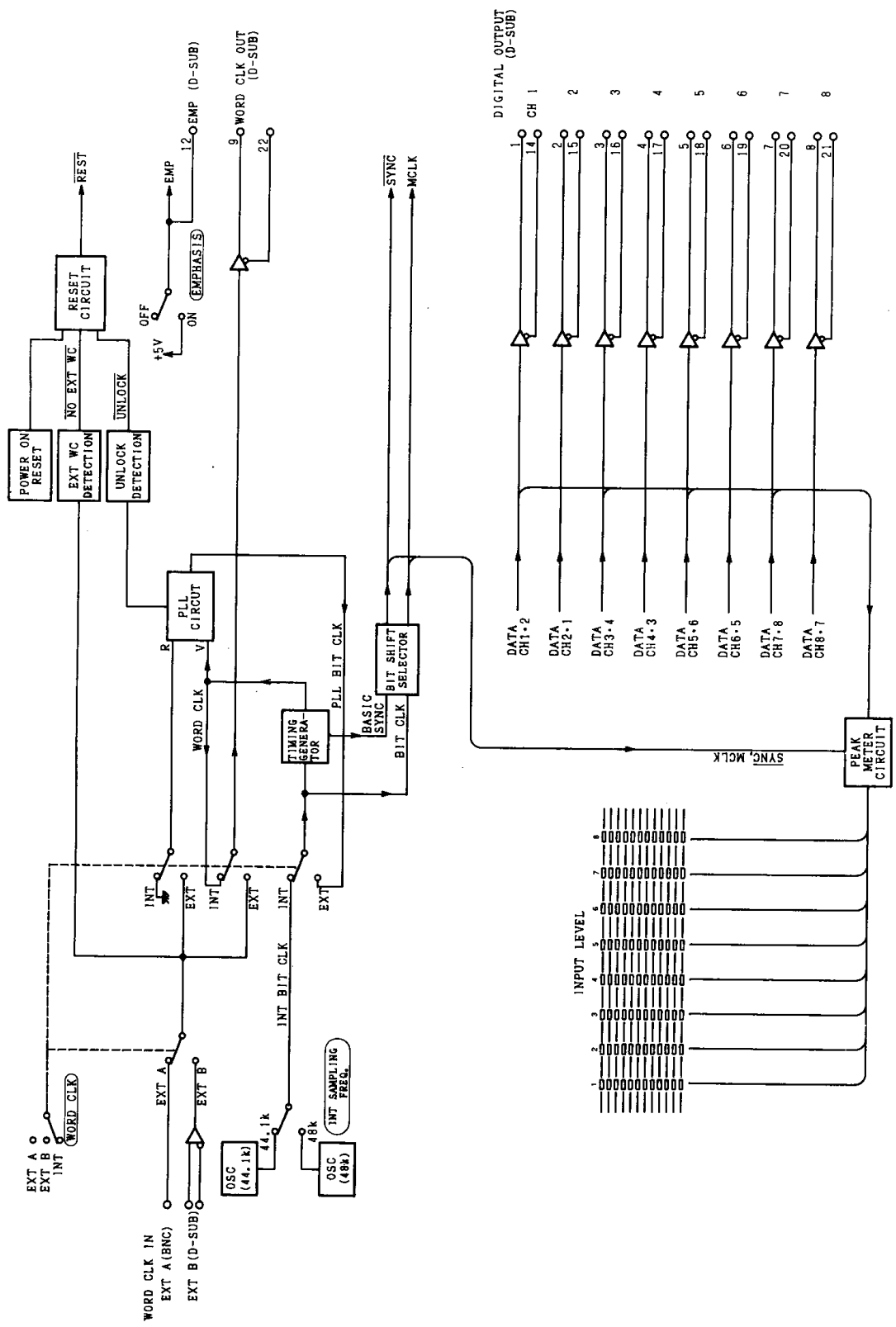
BLOCKSCHALTBIKD



*1 The figures in a square show the approximate standard level, and those in parentheses the gain of each block. (1kHz, Emphasis OFF)
 *2 DATA CH 1, 2 indicates that the first half of the data of 1 word is at CH1 and the latter half is at CH2. (See page 25.)
 *3 Frequency correction amplifier corrects a drop of the high frequency level at the input of the A/D converter.

*1 Les chiffres encadrés indiquent approximativement le niveau standard; ceux entre parenthèses indiquent le gain de chaque bloc (1kHz, Emphasis OFF).
 *2 DATA CH1, 2 indique que la première moitié de mot de donnée appartient au canal 1 et la seconde au canal 2.
 *3 Un amplificateur correcteur compense l'atténuation des fréquences élevées à l'entrée du convertisseur A/D.

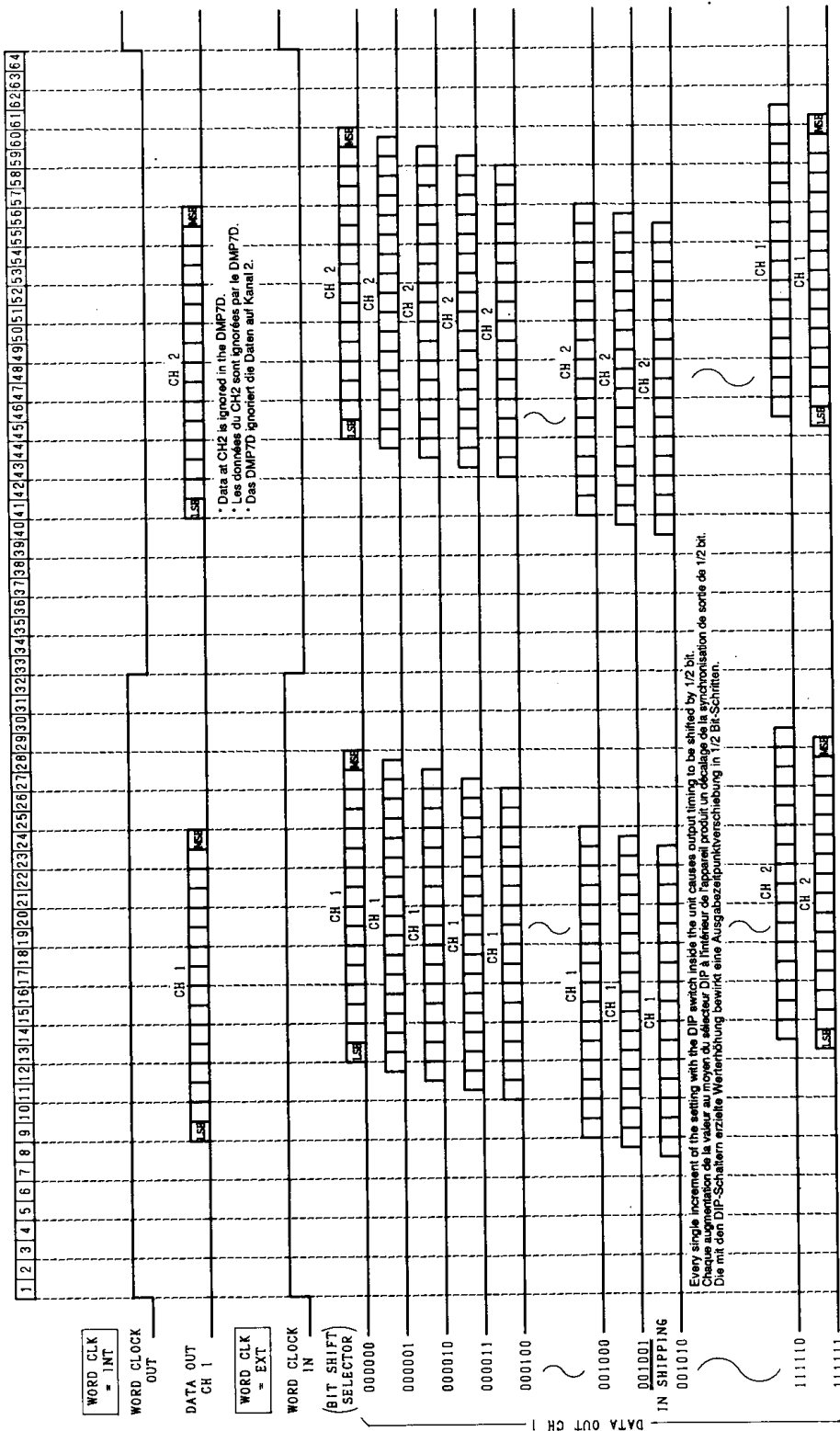
*1 Die eingetragenen Zahlen stellen den ungefähren Standardpegel dar. Die Zahlen in Klammern geben die Verstärkung der Blöcke an (1kHz, Emphasis OFF).
 *2 "2 DATA CH 1, 2" bedeutet, daß die erste Hälfte eines Datenworts für Kanal 1 und die zweite Hälfte für Kanal 2 gilt. (Siehe S. 25)
 *3 Der Frequenzkorrekturverstärker korrigiert den Höhenverlust am Eingang des A/D-Wandlers.



DATA OUTPUT TIMING CHART

TABLEAU DE SYNCHRONISATION DES SORTIES DE DONNEES

ZEITSTEUERTABELLE FÜR DATENAUSGABE



*1 When the WORD CLK switch is set to EXT A or EXT B, timing of the output data can be shifted according to the setting of the BIT SHIFT SELECTOR (DIP switch) as shown in the chart. When delivered from the factory, the timing of the output is already set to be earlier by 1/2 bit. This is because the 1/2 bit delay of the output timing, occurring when the included cable D-SUB is used for the DMP7D, is taken into consideration.

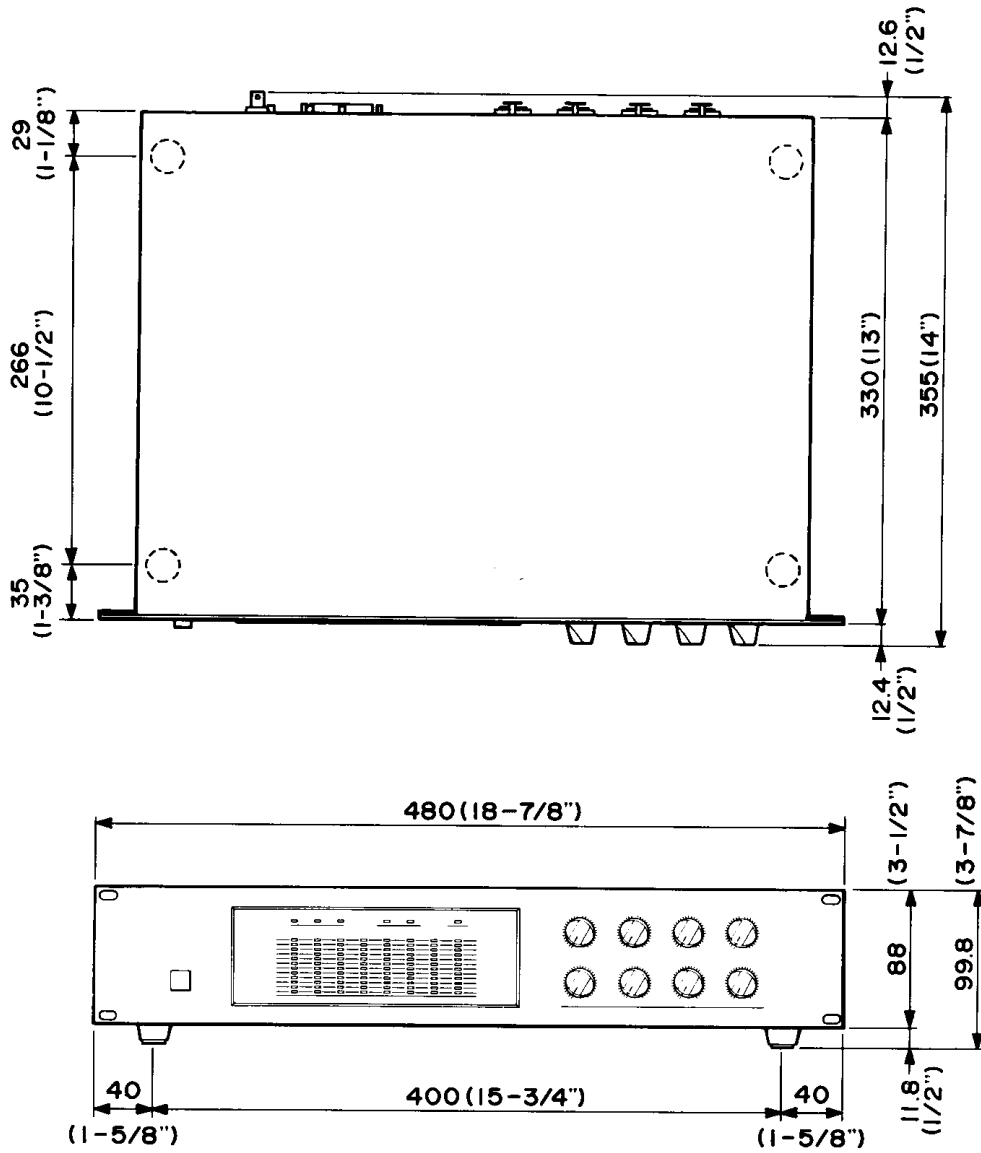
*1 Quand le commutateur WORD CLK est placé sur SET A ou SET B, la synchronisation de sortie peut être décalée d'une valeur qui dépend du réglage du sélecteur BIT SHIFT SELECTOR (DIP) comme indiqué dans la table. A la sortie d'usine, la synchronisation de sortie est avancée de 1/2 bit. Cela pour tenir compte du retard de transmission produit par le câble D-SUB (fournis) quand il est utilisé avec le DMP7D.

*1 Wird der WORD CLK-Schalter auf EXTA bzw. EXT B gestellt, kann das Timing der gesendeten Daten, je nach Einstellung des BIT SHIFT SELECTOR (DIP-Schalter), geändert werden. Siehe die Tabelle. Bei Verlassen des Werks ist das Timing so eingestellt, daß die Ausgabe um 1/2 Bit vorgezogen wird. Hierdurch wird die bei der Verwendung des beiliegenden D-SUB Kabels (für das DMP7D) auftretende Verzögerung (1/2 Bit) kompensiert.

DIMENSIONS

DIMENSIONS

ABMESSUNGEN



Unit: mm (Inch)
Unité: mm
Einheit: mm

YAMAHA

SERVICE

This product is supported by Yamaha's worldwide network of factory trained and qualified dealer service personnel. In the event of a problem, contact your nearest Yamaha dealer.

SERVICE APRES-VENTE

Le AD808 est couvert par le réseau mondial de service après-vente Yamaha. En cas de problème, contactez le concessionnaire Yamaha le plus proche.

KUNDENDIENST

Dem AD808 steht das weltweite Yamaha Kundendienstnetz mit qualifizierten Technikern zur Verfügung. Im Falle einer Störung sofort den Fachhandel in Ihrer Nähe benachrichtigen.