



AUDIO INTERFACE CARD

RY16-ML-SILK

RY16-DA

RY16-AE

- Owner's Manual
- Bedienungsanleitung
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- Manual de instrucciones
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- 使用说明书
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FCC INFORMATION (U.S.A.)

1. IMPORTANT NOTICE: DO NOT MODIFY THIS UNIT!

This product, when installed as indicated in the instructions contained in this manual, meets FCC requirements. Modifications not expressly approved by Yamaha may void your authority, granted by the FCC, to use the product.

2. IMPORTANT:

When connecting this product to accessories and/or another product use only high quality shielded cables. Cable/s supplied with this product MUST be used. Follow all installation instructions. Failure to follow instructions could void your FCC authorization to use this product in the USA.

3. NOTE:

This product has been tested and found to comply with the requirements listed in FCC Regulations, Part 15 for Class "B" digital devices. Compliance with these requirements provides a reasonable level of assurance that your use of this product in a residential environment will not result in harmful interference with other electronic devices. This equipment generates/uses radio frequencies and, if not installed and used according to the instructions found in the users manual, may cause interference harmful to the operation of other electronic devices. Compliance with FCC regulations

does not guarantee that interference will not occur in all installations. If this product is found to be the source of interference, which can be determined by turning the unit "OFF" and "ON", please try to eliminate the problem by using one of the following measures:

Relocate either this product or the device that is being affected by the interference.

Utilize power outlets that are on different branch (circuit breaker or fuse) circuits or install AC line filter/s.

In the case of radio or TV interference, relocate/reorient the antenna. If the antenna lead-in is 300 ohm ribbon lead, change the lead-in to co-axial type cable.

If these corrective measures do not produce satisfactory results, please contact the local retailer authorized to distribute this type of product. If you can not locate the appropriate retailer, please contact Yamaha Corporation of America, Electronic Service Division, 6600 Orangethorpe Ave, Buena Park, CA90620

The above statements apply ONLY to those products distributed by Yamaha Corporation of America or its subsidiaries.

* This applies only to products distributed by YAMAHA CORPORATION OF AMERICA.

(class B)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAN ICES-3 (B)/NMB-3(B)

- This applies only to products distributed by Yamaha Canada Music Ltd.
- Ceci ne s'applique qu'aux produits distribués par Yamaha Canada Musique Ltée.

(can_b_01)

Information for Users on Collection and Disposal of Old Equipment



This symbol on the products, packaging, and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.

For proper treatment, recovery and recycling of old products, please take them to applicable collection points, in accordance with your national legislation and the Directives 2002/96/EC.

By disposing of these products correctly, you will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling.

For more information about collection and recycling of old products, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items.

[For business users in the European Union]

If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

[Information on Disposal in other Countries outside the European Union]

This symbol is only valid in the European Union. If you wish to discard these items, please contact your local authorities or dealer and ask for the correct method of disposal.

(weee_eu_en_01)

Verbraucherinformation zur Sammlung und Entsorgung alter Elektrogeräte



Befindet sich dieses Symbol auf den Produkten, der Verpackung und/oder beiliegenden Unterlagen, so sollten benutzte elektrische Geräte nicht mit dem normalen Haushaltsabfall entsorgt werden.

In Übereinstimmung mit Ihren nationalen Bestimmungen und den Richtlinien 2002/96/EG bringen Sie alte Geräte bitte zur fachgerechten Entsorgung, Wiederaufbereitung und Wiederverwendung zu den entsprechenden Sammelstellen.

Durch die fachgerechte Entsorgung der Elektrogeräte helfen Sie, wertvolle Ressourcen zu schützen, und verhindern mögliche negative Auswirkungen auf die menschliche Gesundheit und die Umwelt, die andernfalls durch unsachgerechte Müllentsorgung auftreten könnten.

Für weitere Informationen zum Sammeln und Wiederaufbereiten alter Elektrogeräte kontaktieren Sie bitte Ihre örtliche Stadt- oder Gemeindeverwaltung, Ihren Abfallentsorgungsdienst oder die Verkaufsstelle der Artikel.

[Information für geschäftliche Anwender in der Europäischen Union]

Wenn Sie Elektrogeräte ausrangieren möchten, kontaktieren Sie bitte Ihren Händler oder Zulieferer für weitere Informationen.

[Entsorgungsinformation für Länder außerhalb der Europäischen Union]

Dieses Symbol gilt nur innerhalb der Europäischen Union. Wenn Sie solche Artikel ausrangieren möchten, kontaktieren Sie bitte Ihre örtlichen Behörden oder Ihren Händler und fragen Sie nach der sachgerechten Entsorgungsmethode.

(weee_eu_de_01a)

Information concernant la Collecte et le Traitement des déchets d'équipements électriques et électroniques.



Le symbole sur les produits, l'emballage et/ou les documents joints signifie que les produits électriques ou électroniques usagés ne doivent pas être mélangés avec les déchets domestiques habituels. Pour un traitement, une récupération et un recyclage appropriés des déchets d'équipements électriques et électroniques, veuillez les déposer aux points de collecte prévus à cet effet, conformément à la réglementation nationale et aux Directives 2002/96/CE.

En vous débarrassant correctement des déchets d'équipements électriques et électroniques, vous contribuerez à la sauvegarde de précieuses ressources et à la prévention de potentiels effets négatifs sur la santé humaine qui pourraient advenir lors d'un traitement inapproprié des déchets.

Pour plus d'informations à propos de la collecte et du recyclage des déchets d'équipements électriques et électroniques, veuillez contacter votre municipalité, votre service de traitement des déchets ou le point de vente où vous avez acheté les produits.

[Pour les professionnels dans l'Union Européenne]

Si vous souhaitez vous débarrasser des déchets d'équipements électriques et électroniques veuillez contacter votre vendeur ou fournisseur pour plus d'informations.

[Information sur le traitement dans d'autres pays en dehors de l'Union Européenne]

Ce symbole est seulement valable dans l'Union Européenne. Si vous souhaitez vous débarrasser de déchets d'équipements électriques et électroniques, veuillez contacter les autorités locales ou votre fournisseur et demander la méthode de traitement appropriée.

(weee_eu_fr_01a)

Información para los usuarios acerca de la recogida y desecho de equipos antiguos



Este símbolo en los productos, embalajes y/o documentos adjuntos indica que los productos eléctricos y electrónicos usados no deben mezclarse con la basura doméstica normal. Lleve los productos antiguos a los puntos de recogida pertinentes, de acuerdo con la legislación nacional y la Directiva 2002/96/CE, para conseguir así un tratamiento, recuperación y reciclaje adecuados.

Si se deshace correctamente de estos productos, contribuirá a ahorrar valiosos recursos y a impedir los posibles efectos adversos que sobre la salud humana y el medio ambiente podría provocar la incorrecta manipulación de la basura.

Póngase en contacto con su ayuntamiento, con el departamento de eliminación de basuras o con el establecimiento donde adquirió los artículos y obtenga más información acerca de la recogida y reciclaje de productos antiguos.

[Para usuarios profesionales de la Unión Europea]

Si desea desechar equipos eléctricos y electrónicos, póngase en contacto con su distribuidor o proveedor para obtener más información.

[Información acerca del desecho en países fuera del ámbito de la Unión Europea]

Este símbolo solo es válido dentro de la Unión Europea. Si desea desechar estos artículos, póngase en contacto con las autoridades municipales o con su distribuidor, e infórmese acerca del método correcto de hacerlo.

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Informações para os utilizadores sobre a recolha e eliminação de equipamentos velhos



Este símbolo nos produtos, embalagem e/ou documentos que os acompanham significa que os produtos elétricos e eletrónicos velhos não devem ser misturados com o lixo doméstico geral. Para o tratamento, recuperação e reciclagem apropriados de produtos velhos, leve-os para os pontos de recolha aplicáveis, de acordo com a legislação nacional do seu país e com a Diretiva 2002/96/CE.

Através da eliminação correta destes produtos, ajudará a poupar recursos valiosos e a prevenir quaisquer potenciais efeitos negativos sobre a saúde humana e o meio ambiente, que poderiam ocorrer do manuseio inapropriado de resíduos.

Para mais informações sobre a recolha e reciclagem de produtos velhos, contacte a autoridade local responsável, o serviço de recolha de resíduos ou o local de venda onde comprou os produtos.

[Para utilizadores comerciais na União Europeia]

Se quiser eliminar equipamentos elétricos e eletrónicos, contacte o seu revendedor ou fornecedor para mais informações.

[Informações sobre a eliminação nos países fora da União Europeia]

Este símbolo é válido apenas na União Europeia. Se pretender eliminar estes itens, contacte a autoridade local responsável ou o seu revendedor e informe-se sobre o método de eliminação correto.

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Informazioni per gli utenti sulla raccolta e lo smaltimento di vecchia attrezzatura



La presenza di questo simbolo sui prodotti, sull'imballaggio, e/o sui documenti che li accompagnano avverte l'utente che i prodotti elettrici ed elettronici usati non devono essere associati ai rifiuti domestici generici. Per il trattamento, recupero e riciclaggio appropriati di vecchi prodotti, consegnarli ai punti di raccolta specifici in accordo con la propria legislazione nazionale e la direttiva 2002/96/CE.

Smaltendo correttamente questi prodotti, si contribuisce al risparmio di risorse preziose e a prevenire alcuni potenziali effetti negativi sulla salute umana e l'ambiente, che altrimenti potrebbero sorgere dal trattamento improprio dei rifiuti.

Per ulteriori informazioni sulla raccolta e il riciclaggio di vecchi prodotti, contattare la propria amministrazione comunale, il servizio di smaltimento dei rifiuti o il punto vendita dove i prodotti sono stati acquistati.

[Per le aziende dell'Unione europea]

Se si desidera disfarsi di prodotti elettrici ed elettronici, contattare il rivenditore o il fornitore per ulteriori informazioni.

[Informazioni sullo smaltimento negli altri Paesi al di fuori dell'Unione europea]

Il presente simbolo è valido solamente nell'Unione europea. Se si desidera disfarsi di questi articoli, contattare le autorità locali o il rivenditore per informarsi sulle corrette modalità di smaltimento.

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PRECAUTIONS

PLEASE READ CAREFULLY BEFORE PROCEEDING

Please keep this manual in a safe place for future reference.



WARNING

Always follow the basic precautions listed below to avoid the possibility of serious injury or even death from electrical shock, short-circuiting, damages, fire or other hazards. These precautions include, but are not limited to, the following:

- Do not attempt to disassemble or modify the card. Do not apply excessive force to card connectors or other card components. Mishandling of the card may lead to shock, fire hazard, or device failure.
- Be sure to disconnect the power cable of the host device before installing the card and connecting/disconnecting the cables (in order to eliminate shock hazard, undesired noise, and avoid device damage).
- Turn off all peripheral devices connected to the host device before installation, and unplug all related cables.
- Do not use burning items near the device. It may cause a fire.



CAUTION

Always follow the basic precautions listed below to avoid the possibility of physical injury to you or others, or damage to the device or other property. These precautions include, but are not limited to, the following:

- Be sure to properly ground the host device to prevent electrical shock and/or malfunction.
- Do not touch the metallic leads (pins) of the circuit board when handling the card. The pins are sharp and may cause hand cuts.
- Wear a pair of heavy gloves during installation to avoid scratching or cutting your hands on sharp edges.
- Do not place the device in a location where it may come into contact with corrosive gases or salt air. Doing so may result in malfunction.

Yamaha cannot be held responsible for damage caused by improper use or modifications to the device, or data that is lost or destroyed.

NOTICE

To avoid the possibility of malfunction/ damage to the product, damage to data, or damage to other property, follow the notices below.

- Avoid touching exposed connectors and metal parts to minimize the possibility of bad connections.
- Drain all static electricity from your clothing and body before handling the card. Static electricity can damage the card. Touch an exposed metal part of the host device or other grounded object beforehand.
- Do not drop the card or subject it to physical shock as this can result in breakage and/or malfunction.

Handling and maintenance

- Do not expose the device to excessive dust or vibration, or extreme cold or heat (such as in direct sunlight, near a heater, or in a car during the day), in order to prevent the possibility of panel disfiguration, unstable operation, or damage to the internal components.
- Do not place vinyl, plastic or rubber objects on the device, since this might discolor the panel.
- When cleaning the device, use a dry and soft cloth. Do not use paint thinners, solvents, cleaning fluids, or chemical-impregnated wiping cloths.
- Condensation can occur in the device due to rapid, drastic changes in ambient temperature—when the device is moved from one location to another, or air conditioning is turned on or off, for example. Using the device while condensation is present can cause damage. If there is reason to believe that condensation might have occurred, leave the device for several hours without turning on the power until the condensation has completely dried out.

Connectors

- XLR-type connectors are wired as follows (IEC60268 standard): pin 1: ground, pin 2: hot (+), and pin 3: cold (-).

Information

About this manual

- The illustrations as shown in this manual are for instructional purposes only.
- The company names and product names in this manual are the trademarks or registered trademarks of their respective companies.

The model number, serial number, power requirements, etc., may be found on or near the name plate, which is at the bottom of the unit. You should note this serial number in the space provided below and retain this manual as a permanent record of your purchase to aid identification in the event of theft.

Model No.

Serial No.

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Introduction

Thank you for choosing this Yamaha audio interface card.

To take full advantage of the superior functions and performance offered by the card, and to extend the useful life of the product, be sure to read this owner's manual carefully before operation. After you have read the manual, keep it in a safe place.

These I/O cards provide a variety of inputs and outputs for the RIVAGE PM10 system.

They include a 16-channel mic/line input card (RY16-ML-SILK), a 16-channel analog output card (RY16-DA), and a 16-channel digital I/O card (RY16-AE). Each card supports sampling rates from 44.1 to 96 kHz.

Installation

Refer to the owner's manual included with the unit on which the card will be installed for more information about installation.

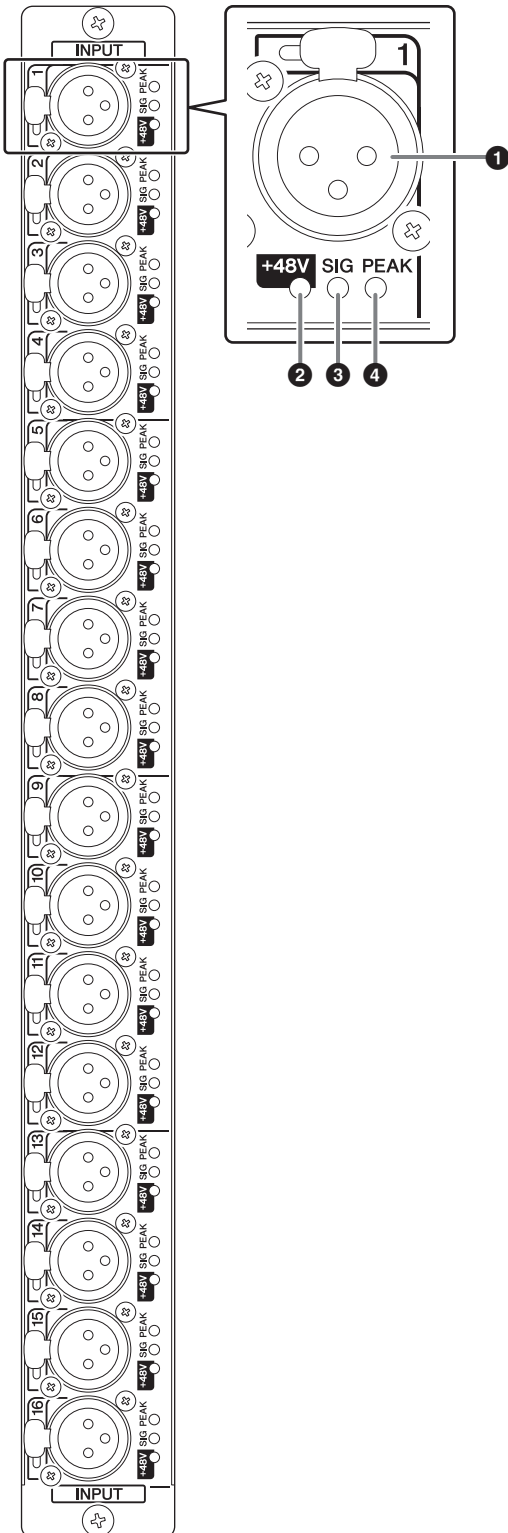
Accessories

Owner's Manual (this document)

RY16-ML-SILK

The RY16-ML-SILK is a 16-channel mic/line input card that supports a 96 kHz sampling rate. It features a new revolutionary analog mic preamp combined with Silk processing from Rupert Neve Designs, which allows you to freely control depth and perspective through modeling in the digital domain. Each input connector can supply phantom power (+48V DC).

Controls and Functions



1 INPUT connector

Balanced XLR-3-31 female input panel connector for analog audio signals.

2 +48V indicator

Lights up in red when phantom power is on.

3 SIG indicator

Lights up in green when the input level exceeds -40dBFS.

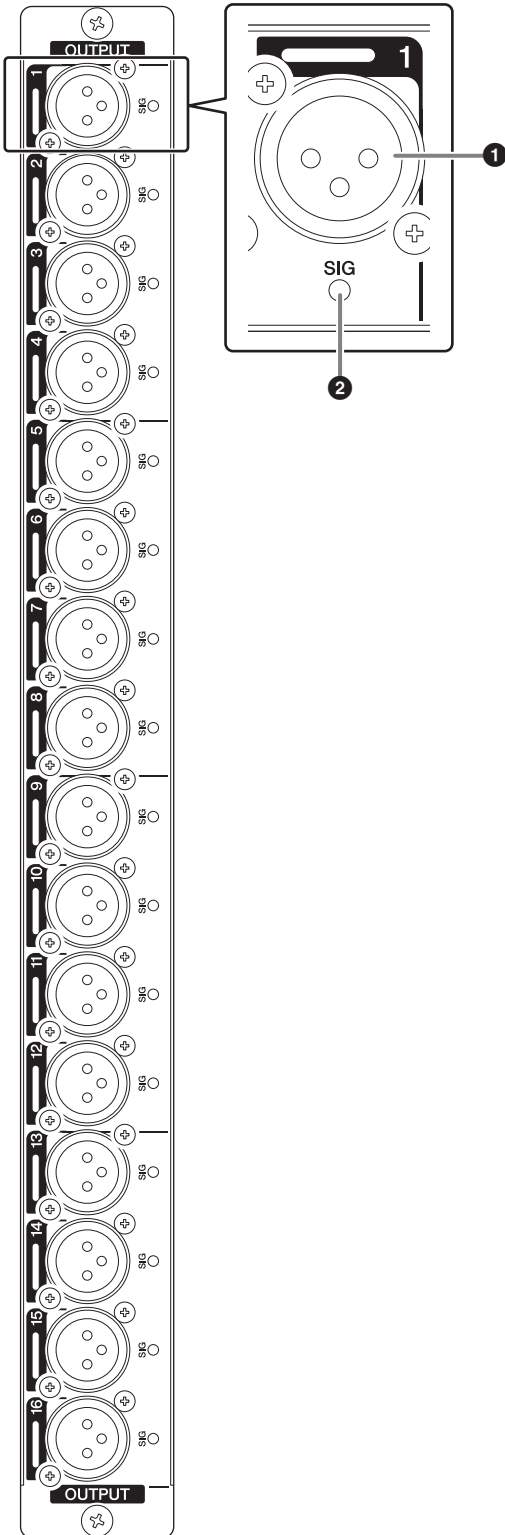
4 PEAK indicator

Lights up in red when the input level exceeds -3dBFS.

RY16-DA

The RY16-DA is a 16-channel analog output card that supports a 96 kHz sampling rate. You can use the switches on the board to set maximum output level to +15dBu, +18dBu, or +24dBu. The factory setting is +24dBu.

Controls and Functions

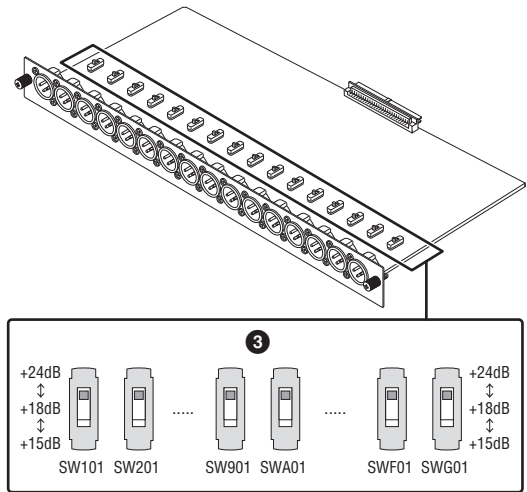


1 OUTPUT connector

Balanced XLR-3-32 male output panel connector for analog audio signals.

2 SIG indicator

Lights up in green when the output level exceeds -40dBFS.



3 Level setting switches

These determine the maximum output level for each channel.

Switch position	Maximum output level
+15dB	+15dBu
+18dB	+18dBu
+24dB	+24dBu*

0dBu = 0.775 Vrms

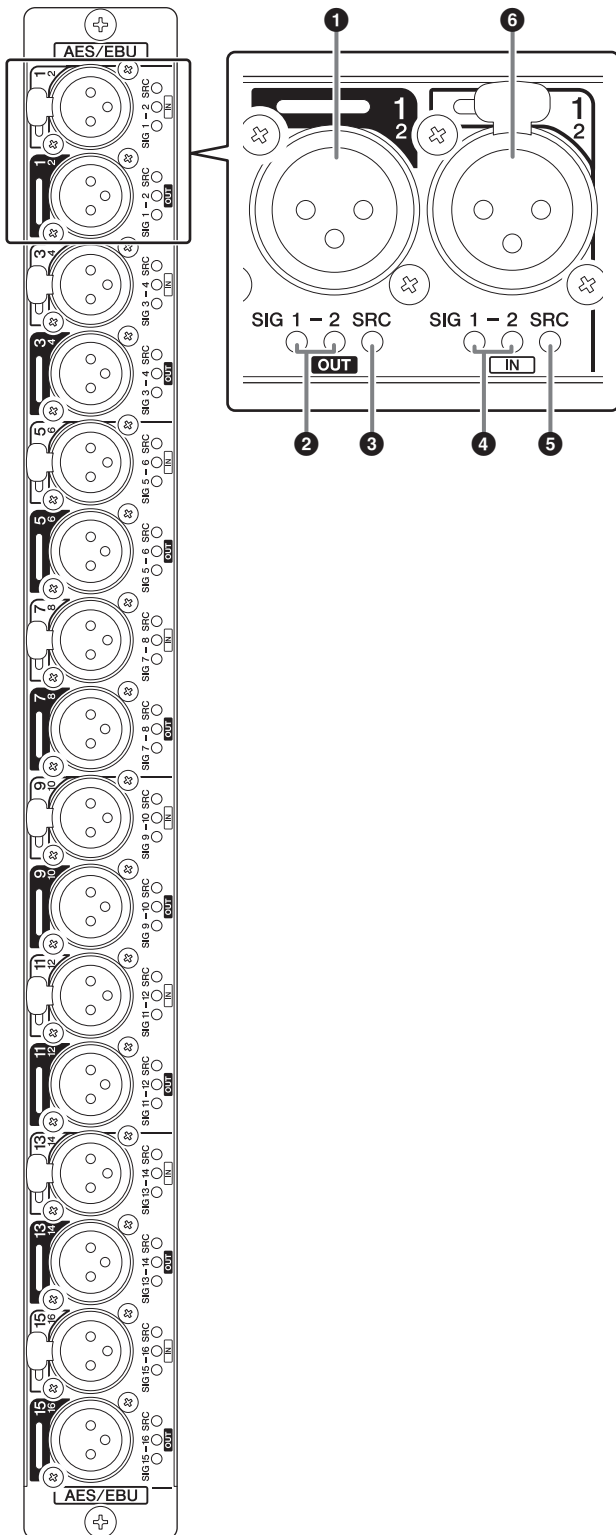
* Upon request, the circuitry can be modified to output +20dBu at the +24dB switch position. (Fee required for modification)
For more information, contact Yamaha service personnel at the number shown in this manual.

Switch No. on board	Channel	Switch No. on board	Channel
SW101	CH16	SW901	CH8
SW201	CH15	SWA01	CH7
SW301	CH14	SWB01	CH6
SW401	CH13	SWC01	CH5
SW501	CH12	SWD01	CH4
SW601	CH11	SWE01	CH3
SW701	CH10	SWF01	CH2
SW801	CH9	SWG01	CH1

RY16-AE

The RY16-AE is a 16-channel digital I/O card that supports the AES/EBU format. Sampling rate converters (SRC) are provided for each of the 16 input channels and 16 output channels.

Controls and Functions



1 AES/EBU OUT connector

Balanced XLR-3-32 male output panel connector for digital audio signals in AES/EBU format.

2 SIG OUT indicator

Lights up in green when the output level exceeds -40dBFS.

3 SRC OUT indicator

Lights up in yellow when SRC is enabled.

NOTE

You can select the system's internal clock or a clock on an INPUT connector as the SRC clock source. Refer to the RIVAGE PM10 Operation Manual for details.

4 SIG IN indicator

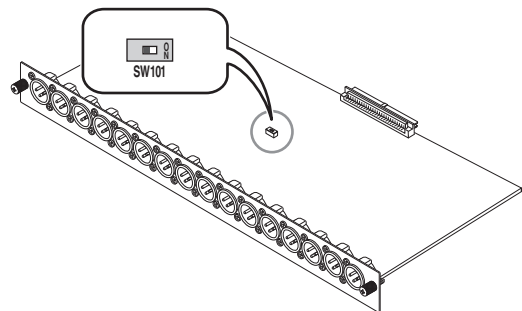
Lights up in green when the input level exceeds -40dBFS.

5 SRC IN indicator

Lights up in yellow when SRC is enabled.

6 AES/EBU IN connector

Balanced XLR-3-31 female input panel connector for digital audio signals in AES/EBU format.



NOTE

Leave this switch permanently set to the OFF position during use. Please do not change this setting. Otherwise, the card will not operate properly.

Specifications

RY16-ML-SILK

General Specifications

Measured with an RPi0622

DIGITAL OUT refers to the AES/EBU OUT of an RY16-AE inserted in another slot of the RPi0622.

Output impedance of signal generator: 150 ohms

Frequency Response

F_s=44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz @ 20 Hz – 20 kHz, reference to the nominal output level (-20dBFS) @ 1 kHz

Input	Output	Conditions	Min.	Typ	Max.	Units
CH1 – 16	DIGITAL OUT	GAIN: +66dB	-0.5	–	0.5	dB
		GAIN: -6dB	-0.5	–	0.5	dB

Total Harmonic Distortion

F_s=44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz

Input	Output	Conditions	Min.	Typ	Max.	Units
CH1 – 16	DIGITAL OUT	-1dBFS output @ 1 kHz, GAIN: +66dB	–	–	0.05	%
		-1dBFS output @ 1 kHz, GAIN: -6dB	–	–	0.05	%

Total Harmonic Distortion is measured with an IHF-A filter.

Hum & Noise

F_s=44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz

Input	Output	Conditions	Min.	Typ	Max.	Units
CH1 – 16	DIGITAL OUT	R _s =150 Ω, GAIN: +66dB	–	-86	–	dBFS
		R _s =150 Ω, GAIN: -6dB	–	-116	–	dBFS

Hum & Noise is measured with an IHF-A filter.

Crosstalk

@1 kHz F_s=44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz

From/To	To/From	Conditions	Min.	Typ	Max.	Units
CH N	CH (N-1) or (N+1)	Adjacent inputs, GAIN: -6dB	–	–	-90	dB

- Reference level is -1dBFS (N).
- Crosstalk is measured with an IHF-A filter.

Sampling Frequency

	Conditions	Min.	Typ	Max.	Units
Frequency Range	F _s =44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz	-1000	–	+1000	ppm

Temperature Range

	Conditions	Min.	Typ	Max.	Units
Temperature Range	Operating temperature range	0	–	40	°C
	Storage temperature range	-20	–	60	°C

Analog Input Characteristics

Input Terminals	Gain	Actual Load Impedance	For Use with Nominal	Input Level		Connector	Balanced / Unbalanced
				Nominal (-20dBFS)	Max (0dBFS)		
CH 1 – 16	+66dB	10 k Ω	50 – 600 Ω Mics & 600 Ω Lines	-62dBu (616 μ V)	-42dBu (6.16 mV)	XLR-3-31 type ^{*2}	Balanced
	-6dB			+10dBu (2.45 V)	+30dBu (24.5 V)		

*1 In these specifications, when dBu represents specific voltage values, 0dBu is referenced to 0.775 Vrms.

*2 1=GND, 2=HOT, 3=COLD

*3 CH1 – 16 AD converters are 24 bit linear.

*4 +48V DC (phantom power) is individually supplied to CH1 – 16 XLR connectors via each individual software controlled switch.

Dimensions (W x H x D) and Net Weight: 405 mm x 42 mm x 258 mm, 1.6 kg

Included Accessories: Owner's Manual

RY16-DA

General Specifications

Measured with an RPi0622

Frequency Response

Fs=44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz @ 20 Hz – 20 kHz, reference to the nominal output level (-20dBFS) @ 1 kHz

Input	Output	RL	Conditions	Min.	Typ	Max.	Units
DIGITAL IN	CH1 – 16	600 Ω	–	-0.8	–	0.5	dB

Total Harmonic Distortion

Fs=44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz

Input	Output	RL	Conditions	Min.	Typ	Max.	Units
DIGITAL IN	CH1 – 16	600 Ω	Full scale output @ 1 kHz	–	–	0.006	%
			+4dBu output @ 20 Hz – 20 kHz	–	–	0.02	%

Total Harmonic Distortion is measured with an 18dB/octave filter @ 80 kHz.

Hum & Noise

Fs=44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz

Input	Output	RL	Conditions	Min.	Typ	Max.	Units
DIGITAL IN	CH1 – 16	600 Ω	Digital data: OFF	–	-92	–	dBu

Hum & Noise is measured with an IHF-A filter.

Dynamic Range

Fs=44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz

Input	Output	RL	Conditions	Min.	Typ	Max.	Units
DIGITAL IN	CH1 – 16	600 Ω	–	–	116	–	dB

Dynamic range is measured with an IHF-A filter.

Crosstalk

@1 kHz $F_s=44.1$ kHz, 48 kHz, 88.2 kHz, 96 kHz

From/To	To/From	RL	Conditions	Min.	Typ	Max.	Units
CH N	CH (N-1) or (N+1)	600 Ω	Adjacent outputs	-	-	-100	dB

- Reference level is 23dBu.
- Crosstalk is measured with a 30dB/octave filter @ 22 kHz.

Sampling Frequency

	Conditions	Min.	Typ	Max.	Units
Frequency Range	$F_s=44.1$ kHz, 48 kHz, 88.2 kHz, 96 kHz	-1000	-	+1000	ppm

Temperature Range

	Conditions	Min.	Typ	Max.	Units
Temperature Range	Operating temperature range	0	-	40	$^{\circ}\text{C}$
	Storage temperature range	-20	-	60	$^{\circ}\text{C}$

Analog Output Characteristics

Output Terminals	Actual Source Impedance	For Use with Nominal	Max. Output Level Select SW ^{*4}	Output Level		Connector	Balanced / Unbalanced
				Nominal (-20dBFS)	Max (0dBFS)		
CH 1 – 16	75 Ω	600 Ω Lines	+24dBu (default)	+4dBu (1.23 V)	+24dBu (12.3 V)	XLR-3-32 type ^{*2}	Balanced
			+18dBu	-2dBu (0.616 V)	+18dBu (6.16 V)		
			+15dBu	-5dBu (0.436 V)	+15dBu (4.36 V)		

*1 0dBu is referenced to 0.775 Vrms.

*2 1=GND, 2=HOT, 3=COLD

*3 All DA converters are 24 bit linear, 128 times oversampling. ($F_s=44.1$ kHz, 48 kHz) / 64 times oversampling. ($F_s=88.2$ kHz, 96 kHz)

*4 +20dBu output level is also available by hardware modification. Please contact the Yamaha representative or authorized distributor in your region.

Dimensions (W x H x D) and Net Weight: 405 mm x 42 mm x 258 mm, 1.5 kg

Included Accessories: Owner's Manual

RY16-AE

General Specifications

Sampling Frequency

	Conditions	Min.	Typ	Max.	Units
Frequency Range	$F_s=44.1$ kHz, 48 kHz, 88.2 kHz, 96 kHz	-1000	-	+1000	ppm

Temperature Range

	Conditions	Min.	Typ	Max.	Units
Temperature Range	Operating temperature range	0	-	40	$^{\circ}\text{C}$
	Storage temperature range	-20	-	60	$^{\circ}\text{C}$

Digital Input/Output Characteristics

Terminal	Format	Data Length	Level	Connector	Balanced / Unbalanced
AES/EBU IN 1/2, 3/4, 5/6, 7/8, 9/10, 11/12, 13/14, 15/16 *1	AES/EBU	24 bit	RS422	XLR-3-31 type *2	Balanced
AES/EBU OUT 1/2, 3/4, 5/6, 7/8, 9/10, 11/12, 13/14, 15/16 *1	AES/EBU Professional use	24 bit	RS422	XLR-3-32 type *2	

*1 Equipped with a sampling rate converter.

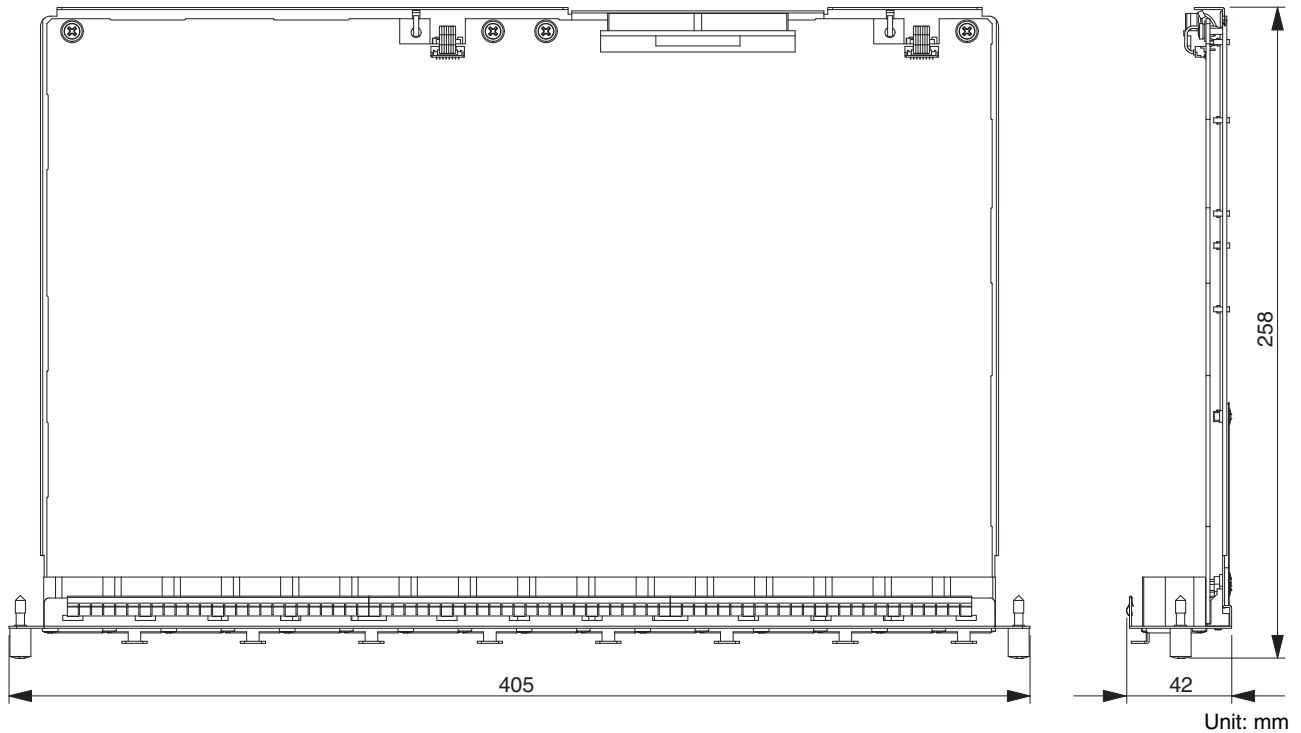
- Input Sample Rate Range (FSI): 44.1kHz-4%-200ppm – 96kHz+4.1667%+200ppm
- Output Sample Rate Range (FSO): 44.1kHz-4%-200ppm – 96kHz+4.1667%+200ppm

*2 1=GND, 2=HOT, 3=COLD

Dimensions (W x H x D) and Net Weight: 405 mm x 42 mm x 258 mm, 1.4 kg

Included Accessories: Owner's Manual

Dimensions



Approximate Munsell value of exterior color: N5

European Models

Purchaser/User Information specified in EN55103-1:2009 and EN55103-2:2009.

Conforms to Environments: E1, E2, E3 and E4

- * The contents of this manual apply to the latest specifications as of the printing date. Since Yamaha makes continuous improvements to the product, this manual may not apply to the specifications of your particular product. To obtain the latest manual, access the Yamaha website then download the manual file. Since specifications, equipment or separately sold accessories may not be the same in every locale, please check with your Yamaha dealer.
- * Der Inhalt dieser Bedienungsanleitung gilt für die neuesten Technischen Daten zum Zeitpunkt der Drucklegung. Da Yamaha fortwährend Produktverbesserungen vornimmt, gilt diese Anleitung unter Umständen nicht für Ihr spezifisches Produkt. Um die neueste Version der Anleitung zu erhalten, rufen Sie die Website von Yamaha auf und laden Sie dann die Datei mit der Bedienungsanleitung herunter. Da die Technischen Daten, das Gerät selbst oder gesondert erhältliches Zubehör nicht in jedem Land gleich sind, setzen Sie sich im Zweifel bitte mit Ihrem Yamaha-Händler in Verbindung.
- * Le contenu de ce mode d'emploi s'applique aux dernières spécifications connues à la date d'impression du manuel. Compte tenu des améliorations continues apportées par Yamaha à ce produit, le présent manuel peut ne pas s'appliquer aux spécifications du produit que vous utilisez actuellement. Pour obtenir la version la plus récente du manuel, accédez au site Web de Yamaha puis téléchargez le fichier du manuel concerné. Étant donné que les caractéristiques techniques, les équipements et les accessoires vendus séparément varient d'un pays à l'autre, adressez-vous pour cela à votre distributeur Yamaha.
- * El contenido de este manual es aplicable a las últimas especificaciones en la fecha de impresión. Dado que Yamaha realiza mejoras continuas en el producto, es posible que este manual no sea aplicable a las especificaciones de su producto en particular. Para obtener el último manual, acceda al sitio web de Yamaha y descargue el archivo del manual. Puesto que las especificaciones, los equipos o los accesorios que se vendan aparte podrían no ser iguales en todos los sitios, consulte al distribuidor de Yamaha.
- * O conteúdo deste manual se aplica às especificações mais recentes a partir da data da impressão. A Yamaha faz melhorias contínuas nos produtos, por isso este manual pode não se aplicar às especificações do seu produto em particular. Para obter o manual mais recente, acesse o site da Yamaha e faça o download do arquivo do manual. Como as especificações, os equipamentos ou os acessórios vendidos separadamente podem não ser iguais em todas as localidades; consulte o revendedor Yamaha.
- * Il contenuto del presente manuale si applica alle ultime specifiche a partire dalla data di stampa. Dato che i prodotti Yamaha sono soggetti a continui miglioramenti, questo manuale potrebbe non essere valido per le specifiche del prodotto in proprio possesso. Per ottenere la versione più recente del manuale, accedere al sito Web Yamaha e scaricare il file corrispondente. Dato che le specifiche, le apparecchiature o gli accessori venduti separatamente possono variare da paese a paese, verificarli con il proprio rappresentante Yamaha.
- * В содержании данного руководства приведены последние на момент публикации технические характеристики. Поскольку Yamaha постоянно совершенствует свою продукцию, приведенные в данном руководстве технические характеристики могут не совпадать с техническими характеристикам конкретного устройства. Для получения последней версии руководства посетите веб-сайт корпорации Yamaha и загрузите файл с руководством. Так как технические характеристики, оборудование и отдельно продаваемые принадлежности могут различаться в разных странах, обратитесь за информацией к представителю корпорации Yamaha в своем регионе.
- * 본 설명서의 내용은 인쇄일 현재 최신 사양을 기준으로 하고 있습니다. Yamaha는 지속적으로 제품의 성능을 개선하기 위해 노력하고 있으며, 본 설명서의 내용이 귀하가 현재 사용 중인 제품의 사양에는 해당하지 않을 수 있습니다. 최신 설명서를 가져오려면 Yamaha 웹사이트에 접속 후 해당 설명서 파일을 다운로드 받으십시오. 제품 사양, 장비 또는 별도로 판매되는 선택 품목은 지역에 따라 변경될 수 있으므로, 해당 지역의 Yamaha 구입처에 문의하시기 바랍니다.
- * 仕様および外觀は、改良のため予告なく変更することがあります。取扱説明書の最新版につきましては、ヤマハウェブサイトからダウンロードできません。

Важное примечание: Информация об условиях Гарантии для Клиентов в Российской Федерации [Русский]

Для получения подробной информации об условиях Гарантии на продукцию Yamaha в России, условиях гарантийного обслуживания, пожалуйста, посетите веб-сайт по адресу ниже (на сайте доступен файл с условиями для скачивания и печати) или обратитесь в офис представительства Yamaha в России.

<http://ru.yamaha.com/ru/support/>

Important Notice: Guarantee Information for customers in European Economic Area (EEA) and Switzerland

Important Notice: Guarantee Information for customers in EEA* and Switzerland For detailed guarantee information about this Yamaha product, and Pan-EEA* and Switzerland warranty service, please either visit the website address below (Printable file is available at our website) or contact the Yamaha representative office for your country. * EEA: European Economic Area	English
Wichtiger Hinweis: Garantie-Information für Kunden in der EWR* und der Schweiz Für nähere Garantie-Information über dieses Produkt von Yamaha, sowie über den Pan-EWR*- und Schweizer Garantieservice, besuchen Sie bitte entweder die folgend angegebene Internetadresse (eine druckfähige Version befindet sich auch auf unserer Webseite), oder wenden Sie sich an den für Ihr Land zuständigen Yamaha-Vertrieb. *EWR: Europäischer Wirtschaftsraum	Deutsch
Remarque importante: informations de garantie pour les clients de l'EEE et la Suisse Pour des informations plus détaillées sur la garantie de ce produit Yamaha et sur le service de garantie applicable dans l'ensemble de l'EEE ainsi qu'en Suisse, consultez notre site Web à l'adresse ci-dessous (le fichier imprimable est disponible sur notre site Web) ou contactez directement Yamaha dans votre pays de résidence. * EEE : Espace Economique Européen	Français
Belangrijke mededeling: Garantie-informatie voor klanten in de EER* en Zwitserland Voor gedetailleerde garantie-informatie over dit Yamaha-product en de garantieservice in heel de EER* en Zwitserland, gaat u naar de onderstaande website (u vindt een afdrukbaar bestand op onze website) of neemt u contact op met de vertegenwoordiging van Yamaha in uw land. * EER: Europese Economische Ruimte	Nederlands
Aviso importante: información sobre la garantía para los clientes del EEE* y Suiza Para una información detallada sobre este producto Yamaha y sobre el soporte de garantía en la zona EEE* y Suiza, visite la dirección web que se incluye más abajo (la versión del archivo para imprimir esta disponible en nuestro sitio web) o póngase en contacto con el representante de Yamaha en su país. * EEE: Espacio Económico Europeo	Español
Avviso importante: informazioni sulla garanzia per i clienti residenti nell'EEA* e in Svizzera Per informazioni dettagliate sulla garanzia relativa a questo prodotto Yamaha e l'assistenza in garanzia nei paesi EEA* e in Svizzera, potete consultare il sito Web all'indirizzo riportato di seguito (è disponibile il file in formato stampabile) oppure contattare l'ufficio di rappresentanza locale della Yamaha. * EEA: Area Economica Europea	Italiano
Aviso importante: informações sobre as garantias para clientes da AEE* e da Suíça Para obter uma informação pormenorizada sobre este produto da Yamaha e sobre o serviço de garantia na AEE* e na Suíça, visite o site a seguir (o arquivo para impressão está disponível no nosso site) ou entre em contato com o escritório de representação da Yamaha no seu país. * AEE: Área Económica Européia	Português
Σημαντική σημείωση: Πληροφορίες εγγύησης για τους πελάτες στον ΕΟΧ* και Ελλάδα Για λεπτομερείς πληροφορίες εγγύησης σχετικά με το παρόν προϊόν της Yamaha και την κάλυψη εγγύησης σε όλες τις χώρες του ΕΟΧ και την Ελλάδα, επισκεφτείτε την παρακάτω ιστοσελίδα (Εκτυπώσιμη μορφή είναι διαθέσιμη στην ιστοσελίδα μας) ή απευθυνθείτε στην αντιπροσωπεία της Yamaha στη χώρα σας. * ΕΟΧ: Ευρωπαϊκός Οικονομικός Χώρος	Ελληνικά
Viktigt: Garantiinformation för kunder i EES-området* och Schweiz För detaljerad information om denna Yamahaprodukt samt garantiservice i hela EES-området* och Schweiz kan du antingen besöka nedanstående webbadress (en utskriftsvänlig fil finns på webbplatsen) eller kontakta Yamahas officiella representant i ditt land. * EES: Europeiska Ekonomiska Samarbetsområdet	Svenska
Viktig merknad: Garantiinformasjon for kunder i EØS* og Sveits Detaljert garantiinformasjon om dette Yamaha-produktet og garantiservice for hele EØS-området* og Sveits kan fås enten ved å besøke nettstedene nedenfor (utskriftsversjon finnes på våre nettsider) eller kontakte Yamahas kontoret i landet der du bor. *EØS: Det europeiske økonomiske samarbeidsområdet	Norsk
Vigtig oplysning: Garantioplysninger til kunder i EØ* og Schweiz De kan finde detaljerede garantioplysninger om dette Yamaha-produkt og den fælles garantiserviceordning for EØ* (og Schweiz) ved at besøge det websted, der er angivet nedenfor (der findes en fil, som kan udskrives, på vores websted), eller ved at kontakte Yamahas nationale repræsentationskontor i det land, hvor De bor. * EØ: Det Europæiske Økonomiske Område	Dansk
Tärkeä ilmoitus: Takuutiedot Euroopan talousalueen (ETA)* ja Sveitsin asiakkaille Tämän Yamaha-tuotteen sekä ETA-alueen ja Sveitsin takuuta koskevat yksityiskohtaiset tiedot saatte alla olevasta nettiosoitteesta. (Tulostettava tiedosto saatavissa sivustollamme.) Voitte myös ottaa yhteyttä paikalliseen Yamaha-edustajaan. *ETA: Euroopan talousalue	Suomi
Ważne: Warunki gwarancyjne obowiązujące w EOG* i Szwajcarii Aby dowiedzieć się więcej na temat warunków gwarancyjnych tego produktu firmy Yamaha i serwisu gwarancyjnego w całym EOG* i Szwajcarii, należy odwiedzić wskazaną poniżej stronę internetową (Plik gotowy do wydruku znajduje się na naszej stronie internetowej) lub skontaktować się z przedstawicielstwem firmy Yamaha w swoim kraju. * EOG — Europejski Obszar Gospodarczy	Polski
Důležité oznámení: Záruční informace pro zákazníky v EHS* a ve Švýcarsku Podrobné záruční informace o tomto produktu Yamaha a záručním servisu v celém EHS* a ve Švýcarsku naleznete na níže uvedené webové adrese (soubor k tisku je dostupný na našich webových stránkách) nebo se můžete obrátit na zastoupení firmy Yamaha ve své zemi. * EHS: Evropský hospodářský prostor	Česky
Fontos figyelmeztetés: Garancia-információk az EGT* területén és Svájcban élő vásárlók számára A jelen Yamaha termékre vonatkozó részletes garancia-információk, valamint az EGT*-re és Svájcra kiterjedő garanciális szolgáltatás tekintetében keresse fel webhelyünket az alábbi címen (a webhelyen nyomtatható fájl is található), vagy pedig lépjen kapcsolatba az országában működő Yamaha képviselői irodával. * EGT: Európai Gazdasági Térség	Magyar
Oluline märkus: Garantiiteave Euroopa Majanduspiirkonna (EMP)* ja Šveitsi klientidele Täpsemate teabe saamiseks selle Yamaha toote garantii ning kogu Euroopa Majanduspiirkonna ja Šveitsi garantiiteeninduse kohta, külastage palun veebisaiti alljärgneval aadressil (meie saidil on saadaval printitav fail) või pöörduge Teie regiooni Yamaha esinduse poole. * EMP: Euroopa Majanduspiirkond	Eesti keel
Svarīgs paziņojums: garantijas informācija klientiem EEZ* un Šveicē Lai saņemtu detalizētu garantijas informāciju par šo Yamaha produktu, kā arī garantijas apkalpošanu EEZ* un Šveicē, lūdzu, apmeklējiet zemāk norādīto tīmekļa vietnes adresi (tīmekļa vietnē ir pieejams drukājams fails) vai sazinieties ar jūsu valsti apkalpojošo Yamaha pārstāvniecību. * EEZ: Eiropas Ekonomikas zona	Latviešu
Dėmesio: informacija dėl garantijos pirkėjams EEE* ir Šveicarijoje Jei reikia išsamios informacijos apie šį „Yamaha“ produktą ir jo techninę priežiūrą visoje EEE* ir Šveicarijoje, apsilankykite mūsų svetainėje toliau nurodytu adresu (svetainėje yra spausdintinas failas) arba kreipkitės į „Yamaha“ atstovybę savo šaliai. *EEE – Europos ekonominė erdvė	Lietuvių kalba
Dôležité upozornenie: Informácie o záruke pre zákazníkov v EHP* a Švajčiarsku Podrobné informácie o záruke týkajúce sa tohto produktu od spoločnosti Yamaha a garančnom servise v EHP* a Švajčiarsku nájdete na webovej stránke uvedenej nižšie (na našej webovej stránke je k dispozícii súbor na tlač) alebo sa obráťte na zástupcu spoločnosti Yamaha vo svojej krajine. * EHP: Európsky hospodársky priestor	Slovenčina
Pomembno obvestilo: Informacije o garanciji za kupce v EGP* in Švici Za podrobnejše informacije o tem Yamahinem izdelku ter garancijskem servisu v celotnem EGP in Švici, obiščite spletno mesto, ki je navedeno spodaj (natisljiva datoteka je na voljo na našem spletnem mestu), ali se obrnite na Yamahinega predstavnika v svoji državi. * EGP: Evropski gospodarski prostor	Slovenščina
Важно съобщение: Информация за гаранцията за клиенти в ЕИП* и Швейцария За подробна информация за гаранцията за този продукт на Yamaha и гаранционното обслужване в паневропейската зона на ЕИП* и Швейцария или посетете посочения по-долу уеб сайт (на нашия уеб сайт има файл за печат), или се свържете с представителния офис на Yamaha във вашата страна. * ЕИП: Европейско икономическо пространство	Български език
Notificare importantă: Informații despre garanție pentru clienții din SEE* și Elveția Pentru informații detaliate privind acest produs Yamaha și serviciul de garanție Pan-SEE* și Elveția, vizitați site-ul la adresa de mai jos (fișierul imprimabil este disponibil pe site-ul nostru) sau contactați biroul reprezentanței Yamaha din țara dumneavoastră. * SEE: Spațiul Economic European	Limba română

<http://europe.yamaha.com/warranty/>

For details of products, please contact your nearest Yamaha representative or the authorized distributor listed below.

Pour plus de détails sur les produits, veuillez-vous adresser à Yamaha ou au distributeur le plus proche de vous figurant dans la liste suivante.

Die Einzelheiten zu Produkten sind bei Ihrer unten aufgeführten Niederlassung und bei Yamaha Vertragshändlern in den jeweiligen Bestimmungsländern erhältlich.

Para detalles sobre productos, contacte su tienda Yamaha más cercana o el distribuidor autorizado que se lista debajo.

NORTH AMERICA

CANADA

Yamaha Canada Music Ltd.
135 Milner Avenue, Toronto, Ontario,
M1S 3R1, Canada
Tel: +1-416-298-1311

U.S.A.

Yamaha Corporation of America
6600 Orangethorpe Avenue, Buena Park, CA 90620,
U.S.A.
Tel: +1-714-522-9011

CENTRAL & SOUTH AMERICA

MEXICO

Yamaha de México, S.A. de C.V.
Av. Insurgentes Sur 1647 Piso 9, Col. San José
Insurgentes, Delegación Benito Juárez, México,
D.F., C.P. 03900
Tel: +52-55-5804-0600

BRAZIL

Yamaha Musical do Brasil Ltda.
Rua Fidêncio Ramos, 302 – Cj 52 e 54 – Torre B – Vila
Olimpia – CEP 04551-010 – São Paulo/SP, Brazil
Tel: +55-11-3704-1377

ARGENTINA

**Yamaha Music Latin America, S.A.,
Sucursal Argentina**
Olga Cossettini 1553, Piso 4 Norte,
Madero Este-C1107CEK,
Buenos Aires, Argentina
Tel: +54-11-4119-7000

VENEZUELA

Yamaha Musical de Venezuela, C.A.
AV. Manzanares, C.C. Manzanares Plaza,
Piso 4, Oficina 0401, Baruta, Caracas, Venezuela
Tel: +58-212-943-1877

PANAMA AND OTHER LATIN AMERICAN COUNTRIES/ CARIBBEAN COUNTRIES

Yamaha Music Latin America, S.A.
Edif. Torre Banco General, Piso 7, Urbanización
Marbella, Calle 47 y Aquilino de la Guardia,
Ciudad de Panamá, República de Panamá
Tel: +507-269-5311

EUROPE

THE UNITED KINGDOM/IRELAND

Yamaha Music Europe GmbH (UK)
Sherbourne Drive, Tilbrook, Milton Keynes,
MK7 8BL, U.K.
Tel: +44-1908-366700

GERMANY

Yamaha Music Europe GmbH
Siemensstrasse 22-34, 25462 Rellingen, Germany
Tel: +49-4101-303-0

SWITZERLAND/LIECHTENSTEIN

**Yamaha Music Europe GmbH, Rellingen,
Branch Switzerland in Zürich**
Seefeldstrasse 94, 8008 Zürich, Switzerland
Tel: +41-44-3878080

AUSTRIA/BULGARIA

Yamaha Music Europe GmbH Branch Austria
Schleiergasse 20, 1100 Wien, Austria
Tel: +43-1-60203900

CZECH REPUBLIC/HUNGARY/ ROMANIA/SLOVAKIA/SLOVENIA

**Yamaha Music Europe GmbH
Branch Austria**
Schleiergasse 20, 1100 Wien, Austria
Tel: +43-1-60203900

POLAND/LITHUANIA/LATVIA/ESTONIA

Yamaha Music Europe GmbH
Sp.z o.o. Oddział w Polsce
ul. Wrotkowa 14, 02-553 Warsaw, Poland
Tel: +48-22-880-08-88

MALTA

Olimpus Music Ltd.
Valletta Road, Mosta MST9010, Malta
Tel: +356-2133-2093

NETHERLANDS/BELGIUM/ LUXEMBOURG

Yamaha Music Europe Branch Benelux
Clarissenhof 5b, 4133 AB Vianen, The Netherlands
Tel: +31-347-358040

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Yamaha Music Europe
7 rue Ambroise Croizat, Zone d'activités de Pariest,
77183 Croissy-Beaubourg, France
Tel: +33-1-6461-4000

ITALY

Yamaha Music Europe GmbH, Branch Italy
Viale Italia 88, 20020, Lainate (Milano), Italy
Tel: +39-02-93577-1

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**Yamaha Music Europe GmbH Ibérica, Sucursal
en España**
Ctra. de la Coruna km. 17,200, 28231
Las Rozas de Madrid, Spain
Tel: +34-91-639-88-88

GREECE

Philippos Nakas S.A. The Music House
19th klm. Leof. Lavriou 190 02 Peania – Attiki,
Greece
Tel: +30-210-6686168

SWEDEN/FINLAND/ICELAND

**Yamaha Music Europe GmbH Germany filial
Scandinavia**
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Sweden
Tel: +46-31-89-34-00

DENMARK

**Yamaha Music Denmark,
Fillial of Yamaha Music Europe GmbH, Tyskland**
Generatorvej 8C, ST. TH., 2860 Søborg, Denmark
Tel: +45-44-92-49-00

NORWAY

**Yamaha Music Europe GmbH Germany -
Norwegian Branch**
Grini Næringspark 1, 1361 Østerås, Norway
Tel: +47-6716-7800

RUSSIA

Yamaha Music (Russia) LLC.
Room 37, entrance 7, bld. 7, Kievskaya street,
Moscow, 121059, Russia
Tel: +7-495-626-5005

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AFRICA

Yamaha Music Gulf FZE
JAFZA-16, Office 512, P.O.Box 17328,
Jebel Ali FZE, Dubai, UAE
Tel: +971-4-801-1500

MIDDLE EAST

TURKEY

Yamaha Music Europe GmbH
Merkezi Almanya Türkiye İstanbul Şubesi
Maslak Meydan Sodak No:5 Spring Giz Plaza
Bağimsız Böl. No:3, 34398 Şişli İstanbul
Tel: +90-212-999-8010

CYPRUS

Yamaha Music Europe GmbH
Siemensstrasse 22-34, 25462 Rellingen, Germany
Tel: +49-4101-303-0

OTHER COUNTRIES

Yamaha Music Gulf FZE
JAFZA-16, Office 512, P.O.Box 17328,
Jebel Ali FZE, Dubai, UAE
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ASIA

THE PEOPLE'S REPUBLIC OF CHINA

Yamaha Music & Electronics (China) Co.,Ltd.
2F, Yunhedasha, 1818 Xinzha-lu, Jingan-qu,
Shanghai, China
Tel: +86-400-051-7700

INDIA

Yamaha Music India Private Limited
Spazedge Building, Ground Floor, Tower A,
Sector-47, Gurgaon- Sohna Road, Gurgaon-122002,
Haryana, India
Tel: +91-124-485-3300

INDONESIA

PT. Yamaha Musik Indonesia (Distributor)
Yamaha Music Center Bldg. Jalan Jend. Gatot
Subroto Kav. 4, Jakarta 12930, Indonesia
Tel: +62-21-520-2577

KOREA

Yamaha Music Korea Ltd.
8F, Dongsung Bldg. 21, Teheran-ro 87-gil,
Gangnam-gu, Seoul, 135-880, Korea
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MALAYSIA

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Petaling Jaya, Selangor, Malaysia
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SINGAPORE

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2F., No.1, Yuandong Rd. Banqiao Dist.
New Taipei City 22063, Taiwan
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THAILAND

Siam Music Yamaha Co., Ltd.
3, 4, 15, 16th Fl., Siam Motors Building,
891/1 Rama 1 Road, Wangmai,
Pathumwan, Bangkok 10330, Thailand
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VIETNAM

Yamaha Music Vietnam Company Limited
15th Floor, Nam A Bank Tower, 201-203 Cach
Mang Thang Tam St., Ward 4, Dist.3,
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Yamaha Pro Audio global web site
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Manual Development Department
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Published 08/2015 发行 MWTO-A1
Printed in Japan

ZJ71160