

M-16DX 16-Channel Digital Mixer



Inputs and Outputs on the M-16DX

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M16DXWS02

About the Workshop Booklets

The EDIROL M-16DX 16-Channel Digital Mixer delivers the power of digital mixing to musicians at an incredibly affordable price. This crystal-clear 24-bit digital mixer supports sample rates up to 96 kHz, and it's extremely flexible, with a wide range of analog and digital inputs and outputs, and effects. The M-16DX's USB connectivity makes it an ideal partner for a computer-based digital audio workstation, and features such as its pro EQ and the innovative Room Acoustic Control make it an excellent live mixer as well.

Each M-16DX Workshop Series booklet focuses on one M-16DX topic, and is intended as a companion to the *M-16DX Owner's Manual*.

The M-16DX Workshop booklets require M-16DX O.S. Version 2.00 or higher. You can download the latest O.S. for free from www.RolandUS.com/EDIROL.

About This Booklet

One of the great things about the M-16DX is its wealth of inputs and outputs available on both the dedicated I/O module, and on back of the mixer. All of these connections add up to tremendous flexibility. In this booklet, we'll discuss the M-16DX's inputs and outputs and what they allow you to do.

Understanding the Symbols in This Booklet

Throughout this booklet, you'll come across information that deserves special attention—that's the reason it's labeled with one of the following symbols.



A note is something that adds information about the topic at hand.



A tip offers suggestions for using the feature being discussed.



Warnings contain important information that can help you avoid possible damage to your equipment, your data, or yourself.

How We'll Proceed

There are three areas in which you'll find inputs and/or outputs on the M-16DX: the I/O module front, its back, and the back of the mixer. We'll take each area separately, and break each one down into areas in which related inputs and/or outputs are grouped.



Most of the M-16DX's inputs and outputs are balanced. You can also, if you wish, use them with unbalanced cables.

Front of the I/O Module



The front of the I/O module has three important sections:

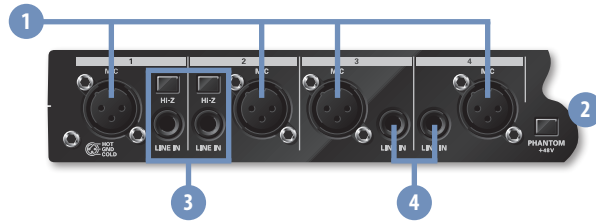
- **POWER button**—with which you turn the M-16DX system on and off.



To learn about the correct power-up sequence for the M-16DX, see the *Getting Started with the M-16DX* Workshop booklet.

- **Analog input connections**—on the left for mics, guitars, and other electric or electronic instruments. (More line-level jacks for additional instruments are available on the back of the I/O module.)
- **Digital connections**—on the right.

Mic/Guitar/Instrument Inputs



This area of the I/O module contains analog input jacks for Input Channels 1-4. (To learn about the M-16DX's channels, see the *Getting Started with the M-16DX Workshop* booklet.)

- 1 Connect a low-impedance mic cable to any of the four XLR jacks.
- 2 If your mics are condenser mics, you can supply phantom power from the M-16DX by pressing in the PHANTOM +48V button. We'll talk about configuring the phantom power in a bit.
- 3 Plug an electric guitar or bass into either of these two 1/4" jacks and press in the jack's HI-Z button to convert it to a high-impedance input. With the HI-Z button out, either jack is a line-level input to which you can connect a mono electronic instrument—such as a synth or beat box—or other line-level instrument or device.
- 4 These jacks are 1/4" line-level inputs for connecting a mono instrument or device.



Though you could plug the left and right sides of a stereo instrument into a pair of the 1/4" jacks above, normally, we recommend using a rear-panel pair of inputs instead so you can control both sides together as a single stereo signal.



You can use a channel's XLR or 1/4"-inch jack, but not at the same time.

Configuring the M-16DX's Phantom Power

By default, phantom power is supplied to all four XLR input jacks. If you have a mix of condenser and non-condenser mics, however, you can direct phantom power only to XLR Input Jacks 3 and 4, into which you can plug your condensers. To do this:

- 1 Hold down the CURSOR BWD and FWD buttons at the same time to display the UTILITY menu.

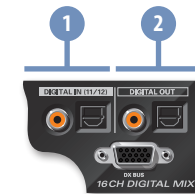


- 2 Press FWD until the Phantom parameter is highlighted.



- 3 Press - or + to select 3-4.
- 4 Press DISPLAY to exit the UTILITY menu.

Digital Connections



In this area of the I/O module front, we find—in addition to the DX BUS jack we explained in *Getting Started with the M-16DX Workshop* booklet—the M-16DX system's digital inputs and outputs.

- 1 You can connect the S/P DIF-format coaxial or optical digital output from an external digital audio device to the corresponding DIGITAL IN (11/12) jack. This is routed to Input Channel 11/12 when Channel 11/12's DIGITAL button on the M-16DX mixer is pressed.



You can use the DIGITAL IN (11/12) coaxial or optical input jack, but not at the same time.



The device sending audio into the M-16DX must be set to the same sampling rate as the M-16DX. To learn how to set the M-16DX's sampling rate, see the *Getting Started with the M-16DX* Workshop booklet.

- 2 Connect the M-16DX's DIGITAL OUT coaxial or optical jacks to speakers with digital inputs—such as EDIROL MA-15D/BK and Roland DS-90A, DS-5, DS-7, and DS-8 speakers—or mastering devices. Both jacks carry the main mix, and can be used at the same time.

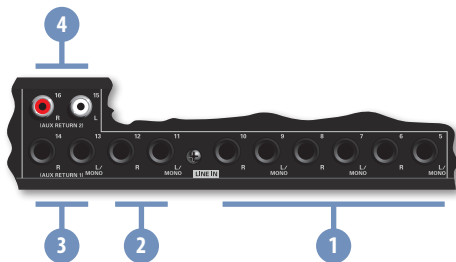


Back of the I/O Module



In addition to its power jack and cord hook—see *Getting Started with the M-16DX*—the back of the I/O module has a variety of inputs and outputs.

Inputs Area



Most of the M-16DX's remaining inputs are in this area of the I/O module:

- 1 Balanced TRS LINE IN Jacks 5-10 are perfect for connecting stereo instruments such as synths and beat boxes. Each L/R, odd/even pair of inputs gets handled by the corresponding stereo M-16DX mixer channel, 5/6 through 9/10. If you prefer, you can connect a mono device to an odd-numbered channel, in which case the corresponding mixer channel operates in mono to handle the signal.

- 2 TRS LINE IN Jacks 11 and 12 behave the same way as Jacks 5-10, except that they share Channel 11/12 with the DIGITAL IN signal. When the mixer's DIGITAL button is lit, Channel 11/12 carries digital audio from the DIGITAL IN (11/12) coaxial or optical jack. When it's unlit, Channel 11/12 carries the signal from these rear-panel LINE IN jacks. As with Jacks 5-10, you can also use Jack 11 only for a mono signal, turning Channel 11/12 into a mono channel.



- 3 When the mixer's USB button is unlit, the balanced TRS LINE IN Jacks 13 and 4 (AUX RETURN 1) can be connected to the outputs of an external effect device to which you've sent audio via the M-16DX's Aux 1 bus. Again, you can use only Jack 13 for a mono signal.



- 4 The RCA-type LINE IN 15 and 16 (AUX RETURN 2) jacks can be connected to the outputs of an external effect device to which you've sent audio via the M-16DX's Aux 2 bus.

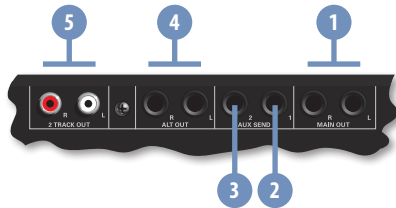
Channel 15/16 is an especially flexible channel in that it allows the use of three different types of connectors, including the RCA-type connectors we've already mentioned. If the device you'd like to connect to stereo Channel 15/16 has 1/4" connectors, you can plug them into the 1/4" LINE IN 15 and 16 jacks on the back of the mixer. If you'd like to connect a portable MP3 player, recorder such as an EDIROL R-09, or any other device with a stereo mini-type output, you can use the LINE IN (STEREO) 15/16 mini jack on the back of the mixer. Use one set of inputs at a time.



Of course, you can plug stereo devices other than effect-box outputs into Inputs 13/14 or 15/16 if you like. They're simply good candidates for effect returns and other signals that require only level adjustments since Channels 13/14 and 15/16 are simple channels with no EQ, Aux send controls, or panning capabilities.



Outputs Area



This is the M-16DX's main output section.

- 1 The balanced TRS L and R MAIN OUT jacks carry the M-16DX main mix bus signal. If you're using the M-16DX for mixing live sound, you'll want to connect these outputs to the house PA or sound system.
- 2 The balanced TRS AUX SEND 1 jack carries signals sent to Aux 1 from the M-16DX channel strips. You can send this signal to an external effect processor, or connect it to a speaker or headphone amp to create a separate mix for performers, as described in the *Live Mixing with the M-16DX* Workshop booklet. For a detailed discussion of effects in the M-16DX, see the Workshop booklet *The M-16DX Effects*.
- 3 While Aux 2 typically carries signals internally from the channel strips to the M-16DX's built-in effects, you can also use the bus in the same ways you can use Aux 1—to send signals to an external effect processor or to provide a performer his or her own mix.
- 4 Muted signals are sent to the Alt bus and then to the balanced TRS L and R ALT OUT jacks, which you can use for a variety of purposes. Connect a sampler to them and grab a quick sample of something you're mixing by muting it out of the main mix to send it to the sampler. You can also use these jacks to send a submix to another room on the Alt bus, while you listen to the entire mix by pressing the MAIN MIX ALT button to bring the submix back into the main mix.



You can also use the Alt bus to group signals in a submix for single-knob control, as described in the *Creating Submixes Using the Alt/Mute Bus* Workshop booklet.

- 5 You can send the main mix bus's signal to an MD recorder or other recording device by connecting the device to the L and R 2 TRACK OUT jacks.

Back of the Mixer



In addition to the DX BUS connector that attaches the mixer to the I/O module, the back of the mixer holds the following outputs:

- 1 The PHONES jack accommodates a standard 1/4" stereo headphone cord. The PHONES jack always carries the same signal as the CONTROL ROOM OUT jacks.
- 2 Connect the balanced TRS L and R CONTROL ROOM OUT jacks to your speakers if you're working alone, or to your control-room speakers if you're recording someone in another room.
- 3 These inputs are designed to receive balanced TRS returns from an stereo external effect device processing signals sent from Aux 2.
- 4 Here's the final Channel 15/16 input option, perfect for stereo devices such as personal music players and handheld recorders such as the EDIROL R-09.



As we noted earlier, Channel 15/16's simplified channel strip—with only a LEVEL knob—makes it ideal for any stereo signal that requires no EQ or Aux send.



At the far right of the mixer back, you'll find two pairs of switches that allow you to set the sensitivity of the M-16DX's SENS knobs—as described in the *Basic Signal-Flow Tutorial* Workshop booklet—and to select whether you'll use the internal sensor or an external mic for RAC, as explained in the *Tuning Your Room with RAC* Workshop booklet.

The End

We hope you've found this workshop helpful. You'll find other M-16DX Workshop booklets available for downloading at www.RolandUS.com/EDIROL.