

# PRO MS2

## BALANCED MIC SPLITTER



## USER GUIDE

Radial Engineering Ltd.  
1845 Kingsway Ave., Port Coquitlam, BC V3C 0H3, Canada  
tel: 604-942-1001 • fax: 604-942-1010  
info@radialeng.com

## FEATURES

**1. -30dB PAD:** Allows balanced +4dB line-level sources to connect to the ProMS2 input.

**2. Mic input:** Used to connect a low impedance, balanced, microphone or direct box.

**3. Direct-1 thru:** A parallel direct output used to bridge the mic or D.I. to the primary mixing console.

**4. Bookend design:** 14 gauge steel outer shell creates protective zone around connectors and switches.

**5. Full-bottom no-slip pad:** This provides electrical isolation and plenty of 'stay-put' friction to keep the ProMS2 in one place.

**6. Direct-2 output:** Equipped with ground lift. Used to bridge the signal to an additional audio device.

**7. Lift (Direct-2):** Disconnects pin-1 (ground) on the direct-2 XLR output to help reduce hum and buzz caused by ground loops.

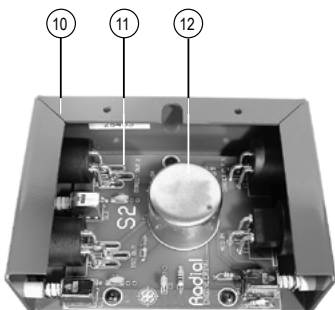
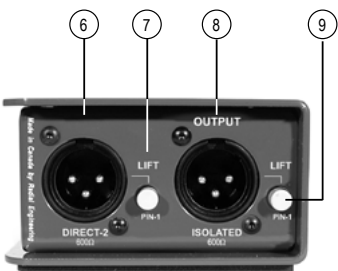
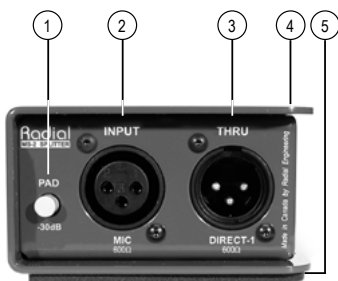
**8. Isolated output:** Transformer-isolated to eliminate ground loop hum and buzz. Used to bridge the balanced mic signal to a second audio system.

**9. Lift (Isolated output):** Disconnects pin-1 (ground) on the isolated XLR output to help further reduce hum and buzz caused by ground loops.

**10. Steel I-beam:** Enclosure eliminates stress that could torque the PCB board.

**11. Military-grade PCB:** Double-sided PCB with plated through-holes is bolted to welded steel standoffs.

**12. Eclipse:** High performance mic bridging transformer offers outstanding audio performance. Features mu-metal shield for protection against stray electromagnetic fields.

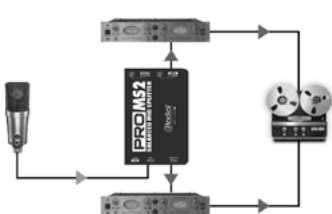


Thank you and congratulations on your purchase of the Radial ProMS2 mic splitter. This simple yet extremely handy device will likely find its way into all types of applications such as splitting mic signals and distributing signals throughout your audio system.

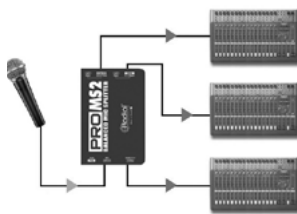
We have purposely written this manual to be short, as most users will likely be familiar with the ProMS2's microphone splitting applications. We do suggest that you take a moment to read through this document to familiarize yourself with the features that are built in. For more detailed information, please visit the FAQ section on the Radial website. This is also where we post questions and answers that come from users after the product is released. If you do not find an answer, we invite you to send us an email at [info@radialeng.com](mailto:info@radialeng.com) and we will do our best to answer your query in short order.

## Introduction

The ProMS2 is a balanced microphone splitter that distributes the mic signal and sends it to three outputs. Splitting microphone signals is most common in sound reinforcement when the on-stage microphones must feed two mixing consoles such as a house PA and a monitor console. Other applications include splitting a mic signal in the studio to feed more than one preamp or splitting the signal to feed a live broadcast or recording truck.



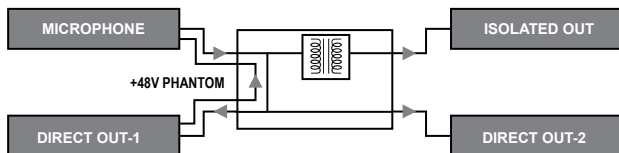
Studio: splitting a mic to feed two preamps.



Live: to house, monitor and recording mixers.

## Signal Flow

Following the block diagram below, the ProMS2 first routes the input to a -30dB attenuator PAD that allows the ProMS2 to be used with line-level sources. Next, the signal is divided three ways between the DIRECT-1 thru-put, DIRECT-2 output with ground lift and transformer ISOLATED output (also with ground lift).



The DIRECT-1 output is a parallel thru-put that allows 48V phantom power from the mixing console to feed back to a condenser mic or active direct box. The DIRECT-2 output is identical to the DIRECT-1 thru-put, except that it is equipped with a separate ground LIFT switch to help reduce ground loop noise. The DIRECT-2 output can be used to send a balanced, mic-level signal to an alternate device such as a recording system.

The ISOLATED output is used to feed a second mixing console and employs a high performance Eclipse mic bridging transformer to eliminate the hum and buzz caused by ground loops. Ground loops are commonly encountered when connecting two audio systems together and can be heard as hum or buzz in the audio system. The ISOLATED output breaks the ground loop between equipment and allows a second system to operate without noise.

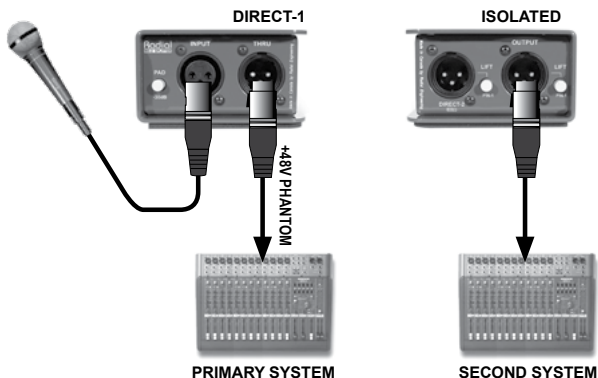
### Connecting the ProMS2

Before connecting the ProMS2 make sure the sound system is turned off and all levels are set to zero. This will avoid any connection transients that could cause damage to speakers. Confirm that the PAD and LIFT buttons are set to their outward position. The ProMS2 is completely passive and does not require a power supply to work.

Using balanced XLR cables, connect the output of a microphone or direct box to the ProMS2 INPUT. Next, connect the DIRECT-1 output to your primary mixing console. If you are using a condenser microphone or active direct box, turn on the phantom power. It's important to note that the mixing console supplying +48V phantom power must be connected to the DIRECT-1 thru-put XLR jack. The other outputs, DIRECT-2 and ISOLATED, should not be used to pass phantom power back to the mic or direct box.

Turn on your audio system and test the signal at a low volume to ensure the ProMS2 is properly connected and the microphone is working. After the primary mixing console is working, connect the ISOLATED output to your second mixing console such as a monitor or recording system. Test the second system to ensure all is working well.

The ISOLATED output is equipped with a ground LIFT switch that decouples the signal ground. If you hear hum or buzz after connecting the ISOLATED output depress the LIFT switch to eliminate the noise.



*The DIRECT-1 output connects to the mixer that will supply phantom power to condenser mics and active D.I.'s. The ISOLATED output connects to your second audio system and prevents ground loop noise between systems*

### Using the Direct-2 output

To make the ProMS2 as flexible as possible, the DIRECT-2 output allows you to split the signal to a third destination. It also features a ground LIFT switch that can be effective at reducing noise caused by ground loops. If you hear hum or buzz after connecting the DIRECT-2 output try depressing the LIFT switch.

### Using with line level source

The ProMS2 can also be used to split a balanced +4dB line-level source by engaging the -30dB PAD at the input. This attenuates the signal from line-level devices to match microphone signals and make them compatible with the preamp input of mixing consoles. An application for the PAD would include sub-mixing where the output of one console is fed into the input of another.

### J-RAK 8

The optional J-RAK 8 is a 19" rack chassis that lets you mount up to eight Radial devices in a neat 2RU rackmount package. The D.I.'s and splitters can be mounted with either the input side or output side facing the front. Ideal for creating high-density groups of direct boxes and mic splitters for the studio or live touring.



### J-RAK 4

The optional J-RAK 4 is a 19" rackmount chassis that lets you package four Radial devices in one rack space (1RU). Like the J-RAK 8, the DI's and splitters can be mounted with either the input side or output side facing the front.



### J-CLAMP

The optional J-CLAMP lets you mount a single Radial device to virtually any surface. It's perfect for hiding away a mic splitter or direct box in a rack or podium or under a table.



## ProMS2 SPECIFICATIONS

Audio circuit type:	Passive mic splitter, transformer based
Number of channels:	Three-way splitter (one in/three out)
Transformer:	Eclipse ET-MS10
Frequency response:	20Hz ~ 20KHz
Dynamic range:	140dB
Maximum input:	+26dBu
Harmonic distortion:	0.001% @ 1kHz
Phase deviation:	1° @ 100Hz; 4° @ 20Hz
Input Impedance	Source dependent
Output Impedance	Source dependent
CMRR:	114dB @ 60Hz
XLR output:	AES standard pin-1 Ground, pin-2 (+), pin-3 (-)
Ground lift:	Lifts pin-1 on the XLR output

### RADIAL ENGINEERING 3 YEAR TRANSFERABLE LIMITED WARRANTY

RADIAL ENGINEERING LTD. ("Radial") warrants this product to be free from defects in material and workmanship and will remedy any such defects free of charge according to the terms of this warranty. Radial will repair or replace (at its option) any defective component(s) of this product (excluding finish and wear and tear on components under normal use) for a period of three (3) years from the original date of purchase. In the event that a particular product is no longer available, Radial reserves the right to replace the product with a similar product of equal or greater value. In the unlikely event that a defect is uncovered, please call 604-942-1001 or email [service@radialeng.com](mailto:service@radialeng.com) to obtain an RA number (Return Authorization number) before the 3 year warranty period expires. The product must be returned prepaid in the original shipping container (or equivalent) to Radial or to an authorized Radial repair center and you must assume the risk of loss or damage. A copy of the original invoice showing date of purchase and the dealer name must accompany any request for work to be performed under this limited and transferable warranty. This warranty shall not apply if the product has been damaged due to abuse, misuse, misapplication, accident or as a result of service or modification by any other than an authorized Radial repair center.

THERE ARE NO EXPRESSED WARRANTIES OTHER THAN THOSE ON THE FACE HEREOF AND DESCRIBED ABOVE. NO WARRANTIES WHETHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL EXTEND BEYOND THE RESPECTIVE WARRANTY PERIOD DESCRIBED ABOVE OF THREE YEARS. RADIAL SHALL NOT BE RESPONSIBLE OR LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSS ARISING FROM THE USE OF THIS PRODUCT. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS, WHICH MAY VARY DEPENDING ON WHERE YOU LIVE AND WHERE THE PRODUCT WAS PURCHASED.