

## About the design

Connecting bananified synth equipment to a Eurorack system is one area where simple adapter cables have not managed to make a dedicated conversion panel redundant, partly because of the hassle of dedicated adapter cables, but mainly because of the need to ensure a ground connection exists between both systems.

So why add to the format conversion options already available? Well, early in 2016 it struck me that I had been rigging up ad-hoc banana-jack adapters to connect my system to test equipment for calibrating synth modules, but my “ghetto dongles” were unreliable and didn’t support lab-quality connections such as dual banana cables and banana-to-coax adapters.

At that point I had also recently discovered that there was a whole world of affordable old 600 ohm laboratory sound-generation equipment from the 1950s and beyond that output signals on banana jacks, sounded great and was very “playable”, enabling one to play mad sonic archaeologist and return to the aesthetics of a tape studio (or Simeon’s Silver Apples) before Moog and Buchla (and Subotnick’s Silver Apples!) changed everything.

Hmmm, what if you could have a single module that could connect your Eurorack to all of these things?

With the use of high-quality US-made Pomona dual binding posts and a nifty system for switching industrial-grade and precision resistors behind the panel to meet all these applications, we believe this module has accomplished all that. Read on to see how it works.

## Specifications and Warranty

40mm flange depth, 60mm internal case depth recommended as a minimum.  
No power drawn from host system.

### All channels

#### 600ohm setting

Input load: 600ohm (1%)  
Sine input for 10Vpp out: 20mW  
Sine input for 20Vpp out: 80mW (max safe level)

### Channels 1&2

#### 600ohm/-20dB setting

Input load (banana): 600ohm (1%)  
Output impedance (3.5mm): 54ohm (1%)  
Sine input for 10Vpp out: 2W  
Sine input for 16Vpp out: 5.5W (max safe level)

### Channels 3 & 4

#### 100kohm setting

Input load: 100kohm (0.1%)

**This module is warranted against manufacturing defects for 12 months from the date of purchase. Damage or malfunction due to: mistreatment; mechanical shock; disassembly; unauthorised modification, or repair; or exceeding safe operating limits is not covered by warranty. You MUST contact us for return authorisation before sending modules for repair.**

MM3203A Opt 10 Manual v1.02

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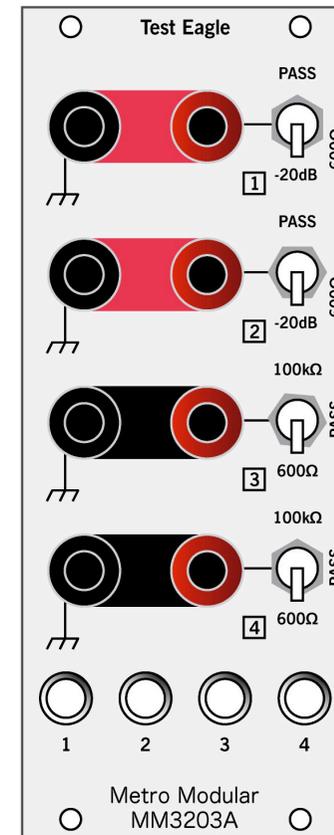
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## MM3203A Test Eagle Instruction and Operating Manual (Option 10)



**Metro Modular**  
*"the sound your eyes can follow"*

## Welcome and Installation

Thank you for your purchase of the Metro Modular MM3203A (Option 10).

The MM3203A is a versatile module which can handle pretty much any application where you would want to connect a Euro synth to equipment using banana jacks, whether it be bananafied synths, test equipment or laboratory sound generators, or even connections to breadboards using bare wires!

This module has been tested at the factory and should reach you in perfect condition. If it appears to have suffered damage in transit then please contact the seller immediately.

Although the module is unpowered, it needs a grounding connection and can be installed into any standard Eurorack system as follows.

1. Carefully remove the module and attached ribbon power cable from the shielded foil bag.

2. Plug the module into a standard Eurorack busboard (not Cwejman!) with power disconnected. Ensure that the red stripe on the power cable is aligned to the STRIPE or -12V marker on the busboard connector. If the busboard uses polarised headers (ie flying busboards or Elby) then the power ribbon cable should only connect in the right direction.

3. Turn on the busboard's power supply while watching any status lights on the power supply and other modules. If ANY status lights fail to turn on, disconnect power IMMEDIATELY and recheck the connection of the MM3203A's power cable to the busboard.

4. Once operation has been verified, screw it in!

As an alternative to steps 2 and 3 above, the module may be grounded by attaching the supplied Quickconnect 18AWG cable to the spade lug on the module and then to a ground terminal in the power system. This will provide much better grounding than a standard Euro power cable!

## What it can do

The use of dual binding posts is the module's first distinguishing feature. Each signal post (red) has a corresponding ground post (black) at a 3/4" spacing, which is a standard for lab equipment. (sorry, RelKli...)

This allows the use of convenient dual-jack banana cords (ie Pomona 2BA) for connection to multimeters and signal generators, and standard banana-to-coax adapters (Pomona 1269 or many clones) for connection to oscilloscopes or 50-ohm generators. In these cases, orient the tab on the dual-jack connector to the ground post (or the left).

When connecting to other synths, the four ground posts can be used to star-ground multiple "boats" back to the Euro system.

The module can switch in precision 100kohm bypass loads on up to two channels when interfacing to voltmeters. This ensures that CV sources such as quantizers and keyboards can be tested feeding a standard load, and thus calibrated accurately.

600 ohm signal generators often require a 600 ohm load so they operate correctly and don't overload synth inputs, and this module can switch in 600 ohm loads on all channels to do this.

Some 600 ohm valve/vacuum tube generators are capable of serious power output that can translate into voltages that could damage a synth. Therefore, two channels have a setting that use industrial grade power resistors and can reduce binding post input voltages to a safe level at the 3.5mm jacks.

Some generators (especially predating the 1950s) may require oddball loads like 900 ohms or 1kohm. In these cases, the correct load resistor can be screwed into the base of the binding post, and the generator can be connected via banana jacks or binding post wire.

(Historical note - in the valve era signal strength was specified as power transfer into a given load so a lot of older equipment will be specified in watts rather than voltage)

## Front Panel

**The panel is divided into red-base binding post channels (1 and 2) and black-base binding post channels (3 and 4), which have different functions.**

**BLACK binding posts** all connect to ground.

**RED binding posts** are numbered and each one routes a signal to (or from) their correspondingly-numbered 3.5mm jack at the base of the panel via a function switch.

**All function switches** have a PASS setting (short for PASSTHROUGH). This will not switch in any attenuation or load, and is designed for sending signals between a Euro system and bananafied synths. (Buchla systems will require additional signal translation). Also, use this setting where you have an externally terminated signal, or have attached a load resistor across the binding post pair.

**Post 1 & 2 function switches** have two settings to apply a 600 ohm load. The centre setting applies a heavy-duty 5.5 watt resistor pair as a bypass, and the lower setting taps a 1:9 division in the resistor pair to provide a -20dB ( $V_{out}=V_{in}/10$ ) L pad.

**Post 3 & 4 function switches** have a lower setting to apply a 600 ohm load, or an upper setting to apply a low-drift precision 100k ohm load. (AKA a "bridged" load)