

Thank you for purchasing this Sherlock Audio product. ALL Sherlock Audio products are designed & hand built, one at a time by Gilles R. Grignon in his own shop, in Cornwall, Ontario, Canada. By utilizing clever innovative design, and, with over thirty years of experience in the audio & musical electronics in combination with premium grade components from Europe & North America, Sherlock Audio can offer unique and superior quality gear at reasonable prices.

SpeakerMate Model 8 was *not* designed to match up levels between mismatched impedance pairs (for example: a 4ohm cab + an 8ohm cab or a 16ohm cab + an 8ohm cab) but instead for *multiple* matched impedance pairs on either or both channels.

SpeakerMate was designed to offer a VAST number of connection “scenarios” so, please take the time to read these instructions thoroughly to fully understand what SpeakerMate can do for you and your *individual* amplifier & speaker setup. A lot of thought and features were designed into this unit to offer as many hookup options as currently possible. Without having to resort to the use of any external switches or “mystery” cables, SpeakerMate self-switches, internally for all configurations; so choose your required setup from the list below and POWER UP!

Make sure your amp is turned OFF, BEFORE making or changing any speaker cable or cabinet connections

Make ALL connections with regular speaker cables BEFORE applying power to your amp, speakers and SpeakerMate

Make sure that all speaker plugs are fully engaged into the jacks to properly activate the SpeakerMate circuitry .

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SpeakerMate Model 8 consists of two, *separate*, 4 output modules, housed in one enclosure allowing two, *independent*, speaker setups. For the sake of simplicity, we'll list the following setups possible for SpeakerMate channel ONE only, which can also be duplicated for channel two, if desired. (we'll refer to speaker cabinets as “cabs”)

You can leave SpeakerMate connected “inline” even when you don't need to run the extra cabs. If you use just one cab in your “normal” setup (when you're not using extra cabs) plug your speaker into the left-most “A” jack and connect a regular spkr cable into your amp's (#1 or LEFT) output

(If you “normally” run two cabs onto a dual-amp output (stereo type amp), plug your second cab into the left-most “A” jack on SpeakerMate channel two and connect a regular speaker cable to your amp's second amp (#2 or RIGHT) output)

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2-speaker setups; To connect to ONE SpeakerMate channel (you can duplicate each setup below for SpeakerMate channel two for use with a dual output “stereo” amp)

two, 4ohm cabs: plug each cab into each “C” jack. Your amp “sees” approx. 8.1ohms (EPI mode)  
two, 8ohm cabs, plug each cab into each “C” jack. Your amp “sees” approx. 15.2ohms (EPI mode)  
two, 8ohm cabs, plug each cab into each “A” jack. Your amp “sees” approx. 4.2ohms (EPI mode)  
two, 16ohm cabs, plug each cab into each “A” jack. Your amp “sees” approx. 7.75ohms (EPI mode)

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3-speaker “mismatched” setups; To connect to ONE SpeakerMate channel (you can duplicate each setup below for SpeakerMate channel two for use with a dual output “stereo” amp)

one, 4ohm cab + two, 8ohm cabs: plug each 8ohm into both “A” block jacks. plug the 4ohm into the remaining “C” block jack. Your amp “sees” approx. 7.7ohms (EPI mode)

one,8ohm cab + two,16ohm cabs:plug each 16ohm into both "A" block jacks,plug the 8ohm into the remaining "C" block jack.Your amp "sees" approx. 15.2ohms (EPI mode)

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4-speaker (matched mode) setups: To connect to ONE SpeakerMate channel(you can duplicate each setup below for SpeakerMate channel two for use with a dual output "stereo" amp)

four,4ohm cabs:plug each cab into each "A" "B" "C" jack.Your amp "sees" approx.4.3ohms (EPI)

four,8ohm cabs:plug each cab into each "A" "B" "C" jack.Your amp "sees" approx.8.3ohms (EPI)

four,16ohm cabs:plug each cab into each "A""B""C" jack.Your amp "sees" approx.15.3ohms (EPI)

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4-speaker (*mismatch* mode) setups: To connect to ONE SpeakerMate channel(you can duplicate each setup below for SpeakerMate channel two for use with a dual output "stereo" amp)

two,4ohm cabs + two,8ohm cabs:plug each 4ohm cab into each "C" block jack,plug an 8ohm cab into the left-most "A" jack,plug the other 8ohm cab into the right-most "B" jack.Your amp "sees" approx. 5ohms (EPI mode)

two,4ohm cabs + two,16ohm cabs:plug each 4ohm cab into each "C" block jack,plug a 16ohm cab into the left-most "A" jack,plug the other 16ohm cab into the right-most "B" jack.Your amp "sees" approx. 6.7ohms (EPI mode)

two,8ohm cabs + two,16ohm cabs:plug each 8ohm cab into each "C" block jack, plug a 16ohm cab into the left-most "A" jack,plug the other 16ohm cab into the right-most "B" jack.Your amp "sees" approx. 10ohms (EPI mode)

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SpeakerMate Model Eight also offers the option of now operating mismatched *channel* setups(which you can choose from the setups listed above)with a dual channel (stereo) amp or a mixer-amp that has a separate amp for mains and a separate amp for monitors.

(you can refer to the hookups listed before, to determine which jacks to use)

For example:

(A)Channel One: two 4ohm cabs	and on	(B) Channel Two:two,16ohm cabs
(A)Channel One: two,4ohm cabs	and on	(B) Channel Two :four,8ohm cabs
(A)Channel One: two,8ohm cabs	and on	(B) Channel Two :four,4ohm cabs
(A)Channel One: four,8ohm cabs	and on	(B)Channel Two :two,16ohm cabs
(A)Channel One: four,16ohm cabs	and on	(B) Channel Two:two,8ohm cabs

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With a MONO (single amp output) mixer-amp,or MONO power-amp that has two parallel jacks for connecting a *pair* of speakers,you can *also* use SpeakerMate Model Eight to operate with mismatched *channels* like those listed above.This assumes your mono amp's lowest allowable impedance is 4ohms(most are-check your owner's manual to make certain).

(you can refer to the hookups listed before, to determine which jacks to use)

For example:

(A)Channel One: two 4ohm cabs	and on	(B) Channel Two:two,16ohm cabs
(A)Channel One: two,4ohm cabs	and on	(B) Channel Two :four,8ohm cabs
(A)Channel One: four,8ohm cabs	and on	(B)Channel Two :two,16ohm cabs
(A)Channel One: four,16ohm cabs	and on	(B) Channel Two:two,8ohm cabs

\*\*\*With *these* setups you would run one speaker cable from SpeakerMate channel one(labelled from amp output) to the amp's output jack AND a second speaker cable from SpeakerMate channel two(labeled from amp output) to the amp's second output jack.You should now have TWO separate speaker cables from your mono mixer-amp "feeding" the SpeakerMate.

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Additional notes: All readings were done with actual loads(not calculations).Your actual readings may differ slightly, due to varying speakers construction tolerances that can change during performance.It's assumed that the operator of this equipment is going to use this as designed and intended,with suitably powered amplifiers that can deliver the needed power(i.e. NOT trying to power six,412" cabinets with a PV 15watt Rage or similarly absurd application!).You won't damage the SpeakerMate but you can start digging a hole for the amp.....

Although the SpeakerMate *primary* design function is to allow as wide a range of multiple speaker combinations as possible with many amps,it DOES perform a number of multiple impedance *matching* functions as well,(in EPI mode).However,it's worth noting that in certain instances where EPI mode doesn't apply, a very audible mismatch in output volume can occur.This happens when *that* spkr configuration is out of the SpeakerMate's impedance matching range.This difference in volume levels usually occurs between a set of speakers and one "odd-duck" cabinet(usually the odd-duck being louder than the rest of the system)However,there are a number of workaroud remedies possible for this:

- 1.In a guitar/bass spkr setup,the "loudest" is placed in the center of the array(in a 3spkr setup)
- 2.In a guitar/bass spkr setup,the "loudest" is placed on the "bottom" of the stack
- 3.In a guitar/bass spkr setup,the "loudest" is placed at the far end of the stage,so the bassist can hear the guitarist at the opposite end of the stage(or vice versa)without having to send each others signal into the monitors
- 4.In a monitor setup,the "loudest" is placed nearest the drummer(instead of at the front of the stage with the "regular" monitors)
- 5.In a P.A. setup,the "lower" volume spkr(s) can be installed in the remote locations
- 6.In a P.A. setup,the "loudest" spkr(s) can be installed in the higher/long throw locations
- 7.In a studio setup,the "loudest" is the one that "goes" into the isolation booth for close miking,away from the "regular" cabs in the main room

#### A brief discussion on speaker/cabinet *efficiency*

Even in scenarios with two cabinets having the SAME impedance,it frequently occurs that *one* cabinet still sounds louder than the other.How can this be,if they're BOTH the same impedance?.They SHOULD both have the same volume level, we assume.This is where speaker *efficiency* comes into play.In a nutshell,efficiency is a given speaker's ability to take input power(electrical watts) and process/transfer that, into actual (acoustic)watts. This efficiency is (normally referred to with a test measurement),in db(decibels)with a 1 watt input at 1meter(some manufacturer's test at 3feet).Without getting knee-deep in "speaker-math",we'll explain the scenario above as to why one cab sounds louder than the other.For our "imperfect" ears,it takes TEN times the amount of input power for us to notice an increase of TWICE the volume level.

Spkr#1 efficiency : (same impedance as #2)  
100db 1watt input at 1metre(actually 39inches)  
103db 10watts input  
106db 100watts input

Spkr#2 efficiency:  
97db 1watt input at 1 metre  
100db 10watts input  
103db 100watts input

Assuming two quality guitar speakers,we're pretty much at the maximum input power they'll take(before " nasty things" happen to them).So,no matter how much input power you want to apply to spkr#2, it will never be any louder than spkr#1.

This is only "part" of the story.Read on.Now let's assume a *mismatched impedance* between two speakers (let's say an 8ohm and a 16ohm unit).Based *only* on impedance, we'd assume the 8ohm speaker *should* be "louder" than the 16ohm unit(due to it's lower impedance).We'd actually be *wrong*.How can that happen?.Let's take a look.(BTW-we've simplified "the numbers & math" here to make it easier to get the point across,so engineers-put your calculators back in their holsters,please.)

Spkr#1, 8ohms, efficiency  
97db 1watt input at 1metre  
100db 10watts input  
103db 100watts input

Spkr#2, 16ohms,efficiency  
100db 1watt input at 1metre  
103db 10watts input  
106db 100watts input

Now,for the sake of explanation lets power each speaker with it's own identical 100watt poweramp and the same input signal going to both amps. At 10watts into 8ohms,spkr#1 is showing up with 100db.Since spkr#2 is getting  $\frac{1}{2}$  as much power (5watts)applied to it,because of it's 16ohm impedance,you'd think you'd be getting  $\frac{1}{2}$  as much actual volume(db) level from it right? Not exactly.Even with 5watts(half of the other speaker's 10watt input),the "assumed" "lower" volume,16ohm speaker is still capable of delivering an "easy" 100(or slightly more)db! Why? Simply because *this* 16ohm speaker is MORE efficient than the lower impedance 8ohm unit.You can now see that impedance isn't the only thing to consider in a multi-speaker setup.

How does this all apply in the real world? Before dismissing any given setup with *mismatched* impedances(say, 4 + an 8 or an 8 + a 16)connect them and actually *listen*.In many instances,you might be surprised to find there really isn't much of a difference in volume levels,contrary to what "the math" says.

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#### WARRANTEE INFORMATION

All Sherlock Audio SpeakerMate products are warranted for TWO YEARS parts & labour against manufacturing defects when used for their intended purpose.

THERE ARE NO CONSUMER LEVEL/USER SERVICEABLE PARTS IN THIS UNIT.

SpeakerMate features an integral hi-power RF shielding seal & circuit links,internally surrounding the enclosure and using the enclosure lid as a cross link.In order to maintain the operational integrity of the circuitry,safety requirements and protect the internal components against environmental elements,the lid & enclosure have been chemically welded at the factory.

Any user attempt to disassemble/repair/modify unit will break this continuous seal and render the unit unreliable and/or inoperable and VOID ANY WARRANTEE or continued unit performance to the user.

Do not place this unit near strong magnetic fields as this will possibly damage the operational integrity of the SpeakerMate.

NO other warranties expressed or implied

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