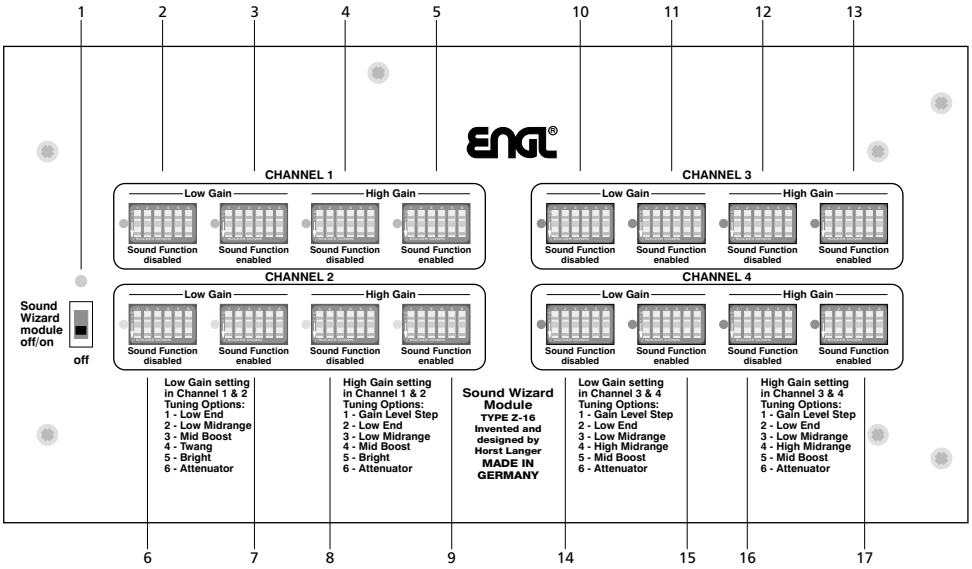
Sound Wizard module Z-16

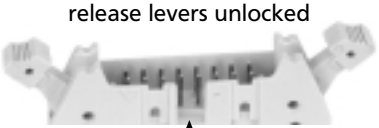
Operator´s Manual

Please, first read this manual carefully!



Sound Wizard module: control panel layout

box header:
release levers unlocked



polarity protection

box header:
release levers locked

Introduction: ENGL Sound Wizard module, type Z-16

The ENGL Sound Wizard module, also called Sound Wizard or SWM for short, is an add-on tone-tweaking tool that lets you voice the amp with surgical precision.

The optional Sound Wizard module is mounted on a special rear panel that you can install in back of the ENGL INVADER II when needed.

When the module is activated, 96 rocker switches on 16 DIP switches that sit on the SWM's control panel take control of certain sections of the amp's circuitry. The rockers' settings re-voice the guitar's signal in the amp, thereby shaping your sound.

Installing the Sound Wizard module is a fairly simple matter, and requires no special technical skills. All it takes is a screwdriver and a few minutes of your time.

So what does this unique Sound Wizard module do for me?

Every guitar player has some very specific ideas about what constitutes great tone. Most guitar amps offer various knobs, switches and buttons that serve to adjust the various channels' fundamental sound. Other control features address the various gain stages and operating modes that affect the amp's sound.

A Bright switch, for example, brings up a certain frequency range – the top end – when it is enabled. Of course, it's entirely up to whether you use it. If you like the way it adds sparkle to your signal, go for it. But if it's of no use to your style, then you can safely ignore it. Now that's what sets our SWM's little rocker switch apart from a built-in Bright switch. What good does it do you on the amp's front panel if you'll never have cause to use it?

ENGL developed this Sound Wizard technology to give discerning guitarists unprecedented freedom to fine-tune their tone as they see fit. Let's look at another example: Imagine how handy a Bottom Boost switch would be if you wanted to beef up a crunchy rhythm sound. It would let you tweak your tone with some added low-frequency punch.
With the Sound Wizard, all you have to do is select the appropriate setting on the module's Low End or Low Midrange rocker switch to achieve precisely the effect that a front-panel Bottom Boost switch would have on the amp.

And there's more to enjoy:

The Sound voicing function on the INVADER II has two settings, Off and On (disabled and enabled). The red LED above the button on the amp lights up when this function is enabled. This gives you two voicing options for each of the eight fundamental sounds provided by four channels with two gain stages each. If that's not enough sonic firepower to voice sounds as you see fit, then you can also adjust several frequency ranges at the same time by setting more than one of these rocker switches, which operate selectively. For example, you could configure clean sound A for Channel 1 in Low Gain mode by simply setting rockers #2 and #4 (Low Midrange and Twang, respectively). Then you could configure clean sound B for Channel 2 in Low Gain mode

by setting rockers #1 and #5 (Low End and Bright, respectively). This kind of thing could go on for quite a while: Six rockers on one DIP switch gives you 64 different configurations, so with 16 DIP switches you have a whopping 512 voicing options.

And finally, the Sound Wizard module off / on slide switch resets the amp to its original state. If you wish to restore the factory settings and sounds of the INVADER II, simply set this switch to off.

Why would I want to install the Sound Wizard module in the INVADER II?
The INVADER II's fundamental sounds have already been tweaked to the lofty tonal standard you would expect from a high-end ENGL amp. The Sound Wizard was not designed to improve the amp's sound quality, but rather to fine-tune the excellent fundamental sound to suit your personal taste and sense of style. In other words, the Sound Wizard lets you voice the amp so it delivers precisely the set of tones you have always had in mind.

The Sound function has also been assigned some very handy voicing options aligned to the four channels' tonal properties and matched to the two gain stages as described in chapter 1, Sound in the INVADER II manual.

The Sound Wizard rescinds these assignments at your command. Now you can access certain internal EQ filters and exert even greater control over gain and signal levels.

Finally, the Sound Wizard extends the amp's musical horizon to give you that much more creative leeway to shape your tone and blast through those sonic barriers that hindered your sound-sculpting efforts in the past.

Control features and indicators on the Sound Wizard's control panel:

1 Sound Wizard Module off/on
This slide switch enables the Sound Wizard. The blue LED above the switch lights up to indicate the Sound Wizard is on, as does the blue LED SWM (37/amp) on the INVADER II's front panel. Switching the Sound Wizard on defeats all of the factory voicing options assigned to the Sound function on the amp. These voicing options are described in chapter 1 of the INVADER II manual. The configuration of the six rocker switches on the currently selected DIP switch now determines how the amp's Sound function works. When all rockers apart from rocker #1, Gain Level Step, on the currently selected DIP switch are set to OFF, there will not be any voicing option assigned to the INVADER II's Sound function. This configuration is the same as when the amp's Sound function is off and the Sound Wizard is not enabled or installed. This setting affords you access to the fundamental sound provided by the selected channel and gain stage. Bear in mind there is one exception: Rocker #1's Gain Level Step option, has to be ON. The Sound Wizard may be switched on and off while the amp is up and running.

A tip from the designer:
If you wish to access the amp's fundamental sound even when the Sound Wizard is on, the configuration described above will let you do so: Set all rockers apart from rocker #1, Gain Level Step, on the currently selected DIP switch to OFF. Please note that the amp's voicing will not change when the Sound function is switched off and on at the amp if all rockers on a matched pair of DIP switches (Sound function disabled / Sound Function enabled) addressing the same channel and gain stage (e.g. CHANNEL 1 & Low Gain) are OFF. In this case, the fundamental sound of Channel 1 in Low Gain mode would be heard with the Sound function switched both off and on. The same goes for identical configurations of two complementary DIP switches addressing the same channel and gain stage: You will not hear any difference in tone when the Sound function's operating status changes. Here's an example:
CHANNEL 1 & Low Gain & Sound function disabled:
#1 - OFF | #2 - ON | #3 - OFF | #4 - ON | #5 - OFF | #6 - ON
Here are the other DIP switch's settings:
CHANNEL 1 & Low Gain & Sound function enabled:
#1 - OFF | #2 - ON | #3 - OFF | #4 - ON | #5 - OFF | #6 - ON

In this configuration, rockers #1 through #6 have the same settings for Channel 1 in Low Gain mode. There would be no audible change in the amp's tone if you were to switch the Sound function off and on because the assigned voicings are the same for both operating statuses. In other words, identical configurations of complementary DIP switches have no practical use apart from the fact that some such configurations can be used to access the amp's fundamental sound even when the Sound Wizard is on.
Of course, the Sound Wizard module off / on switch (1) also restores the Sound function's factory defaults.

2 CHANNEL 1 & Low Gain & Sound Function disabled
The configuration of the six rockers on this DIP switch determines what the INVADER II Sound function does when Channel 1 is in Low Gain mode with Sound disabled; in other words, with Channel 1 selected and the High Gain and Sound functions off. The green LED to the left of the DIP switch indicates precisely this preamp configuration, provided that the Sound Wizard is enabled. Chapter I provides an overview of how voicing options are mapped to the rockers on this DIP switch.

3 CHANNEL 1 & Low Gain & Sound Function enabled
The configuration of the six rockers on this DIP switch determines what the INVADER II Sound function does when Channel 1 is in Low Gain mode with Sound enabled; in other words, with Channel 1 selected and the High Gain function off and Sound function on. The green LED to the left of the DIP switch indicates precisely this preamp configuration, provided that the Sound Wizard is enabled. Chapter I provides an overview of how voicing options are mapped to the rockers on this DIP switch.

4 CHANNEL 1 & High Gain & Sound Function disabled
The configuration of the six rockers on this DIP switch determines what the INVADER II Sound function does when Channel 1 is in High Gain mode with Sound disabled; in other words, with Channel 1 selected and the High Gain function on and Sound function off. The green LED to the left of the DIP switch indicates precisely this preamp configuration, provided that the Sound Wizard is enabled. Chapter II provides an overview of how voicing options are mapped to the rockers on this DIP switch.

5 CHANNEL 1 & High Gain & Sound Function enabled
The configuration of the six rockers on this DIP switch determines what the INVADER II Sound function does when Channel 1 is in High Gain mode with Sound enabled; in other words, with Channel 1 selected and the High Gain and Sound functions on. The green LED to the left of the DIP switch indicates precisely this preamp configuration, provided that the Sound Wizard is enabled. Chapter II provides an overview of how voicing options are mapped to the rockers on this DIP switch.

6 CHANNEL 2 & Low Gain & Sound Function disabled
The configuration of the six rockers on this DIP switch determines what the INVADER II Sound function does when Channel 2 is in Low Gain mode with Sound disabled; in other words, with Channel 2 selected and the High Gain and Sound functions off. The yellow LED to the left of the DIP switch indicates precisely this preamp configuration, provided that the Sound Wizard is enabled. Chapter I provides an overview of how voicing options are mapped to the rockers on this DIP switch.

7 CHANNEL 2 & Low Gain & Sound Function enabled
The configuration of the six rockers on this DIP switch determines what the INVADER II Sound function does when Channel 2 is in Low Gain mode with Sound enabled; in other words, with Channel 2 selected and the High Gain function off and Sound function on. The yellow LED to the left of the DIP switch indicates precisely this preamp configuration, provided that the Sound Wizard is enabled. Chapter I provides an overview of how voicing options are mapped to the rockers on this DIP switch.

8 CHANNEL 2 & High Gain & Sound Function disabled
The configuration of the six rockers on this DIP switch determines what the INVADER II Sound function does when Channel 2 is in High Gain mode with Sound disabled; in other words, with Channel 2 selected and the High Gain function on and Sound function off. The yellow LED to the left of the DIP switch indicates precisely this preamp configuration, provided that the Sound Wizard is enabled. Chapter II provides an overview of how voicing options are mapped to the rockers on this DIP switch.

9 CHANNEL 2 & High Gain & Sound Function enabled
The configuration of the six rockers on this DIP switch determines what the INVADER II Sound function does when Channel 2 is in High Gain mode with Sound enabled; in other words, with Channel 2 selected and the High Gain and Sound functions on. The yellow LED to the left of the DIP switch indicates precisely this preamp configuration, provided that the Sound Wizard is enabled. Chapter II provides an overview of how voicing options are mapped to the rockers on this DIP switch.

I: Voicing-option-to-rocker switch assignments

These apply to the following preamp modes:
Channel 1 & Low Gain & Sound disabled; assigned DIP switch (2) on the SWM
Channel 1 & Low Gain & Sound enabled; assigned DIP switch (3) on the SWM
Channel 2 & Low Gain & Sound disabled; assigned DIP switch (6) on the SWM
Channel 2 & Low Gain & Sound enabled; assigned DIP switch (7) on the SWM

Rocker #1 - Low End:
Set this rocker to ON to boost bass frequencies.

Rocker #2 - Low Midrange:
Set this rocker to ON to boost lower midrange frequencies.

Rocker #3 - Mid Boost:
Set this rocker to ON to boost a broad band of midrange frequencies. The effect is much like that of the Mid knob. This voicing extends the control range for these middle frequencies.

Rocker #4 - Twang:
Set this rocker to ON to boost certain treble frequencies and accentuate the inherently twangy tone of certain guitars and pickups.

Rocker #5 - Bright:
Set this rocker to ON to boost top-end frequencies.

Rocker #6 - Attenuator:
Set this rocker to ON to cut the level by around 3 dB. The volume will dip slightly when the rocker switch is engaged.

II: Voicing-option-to-rocker switch assignments

These apply to the following preamp modes:
Channel 1 & High Gain & Sound disabled; assigned DIP switch (4) on the SWM
Channel 1 & High Gain & Sound enabled; assigned DIP switch (5) on the SWM
Channel 2 & High Gain & Sound disabled; assigned DIP switch (8) on the SWM
Channel 2 & High Gain & Sound enabled; assigned DIP switch (9) on the SWM

Rocker #1 - Gain Level Step:
Set this rocker to OFF to cut the gain slightly. This takes the level down a notch from the amp's High Gain setting, thereby adding a Medium Gain level and upping the gain stage count in Channels 1 and 2 to three (Low / Medium / High).

Rocker #2 - Low End:
Set this rocker to ON to boost bass frequencies.

Rocker #3 - Low Midrange:
Set this rocker to ON to boost lower midrange frequencies.

Rocker #4 - Mid Boost:
Set this rocker to ON to boost a broad band of midrange frequencies. The effect is much like that of the Mid knob. This voicing extends the control range for these middle frequencies.

Rocker #5 - Bright:
Set this rocker to ON to boost top-end frequencies.

Rocker #6 - Attenuator:
Set this rocker to ON to cut the level by around 3 dB. The volume will dip slightly when the rocker switch is engaged.

A tip from the designer:
All this looks rather complicated on paper. In practice, though, you'll find that these voicing sessions will come easy to you. The LEDs arrayed to the left of the DIP switches and configured in identical colors as the LED channel indicators on the front panel are a big visual aid, making it easy to see what you're voicing. Let's run through an example by fine-tuning Channel 1:
Let's say you want to configure a fat clean tone with lots of low-end thunk for Channel 1 in Low Gain mode and, as an alternative, a percussive, spanking clean sound with plenty of top end.
First select Channel 1 by pressing the Channel Selector button (7/amp) on the front panel of the amp. If necessary, press the High Gain button (19/amp) to switch to Low Gain mode. Finally, if the Sound function is enabled, press the Sound button (1/amp) to disable it. If the Sound Wizard is disabled, activate it by engaging the slide switch (1). The green LED next to the DIP switch (2) should illuminate, indicating that Channel 1 is in Low Gain mode and the Sound function is off.
Go to DIP switch (2) and switch rocker #1, Low End, on by pressing down on the switch to raise the end labeled 'OFF'. If you want an even thicker low end, you can also set rocker #2, Low Midrange, to ON. Rocker switch settings affect the voicing in real time, so you can immediately hear how each setting shapes your sound. Rockers #3, #4 and #5 on this DIP switch should remain OFF. Combining two voicing options such Low End and Low Midrange that boost frequencies can also boost the volume level, so you may want to attenuate configuration like this. This is easily done by setting rocker #6, Attenuator, to ON, which dials down the volume a touch.
On to our next step: Press the Sound button (1/amp) to activate the Sound function. The red LED above the button lights up and the green LED next to the DIP switch (3) also illuminates to indicate Channel 1 is in Low Gain mode and the Sound function is enabled. Go to DIP switch (3) and set switch #5, Bright, to ON. If you really want to bring up the higher frequencies, you can also set rocker #4, Twang, to ON. Rockers #1, #2 and #3 on this DIP switch should remain OFF. Use rocker #6, Attenuator, if you wish to adjust the relative volume level.
Rocker switch #1 gives you a special option for Channel 1 and Channel 2 in High Gain mode called Gain Level Step. Without the Sound Wizard, the amp's High Gain button selects the two settings Low Gain and High Gain. The Sound Wizard's Gain Level Step option lets you access an additional gain stage between the two stages that is hotter than Low Gain but a bit tamer than High Gain, hence its name Medium Gain. This added gain stage, Medium Gain, is controlled by the Sound function (1/amp) and depends on the High Gain setting (19/amp). Let me explain this using an example configuration where rocker #1 on DIP switch (5) for Channel 1 or rocker #1 on DIP switch (9) for Channel 2 is set to ON:
Mode: Channel 1 (or Channel 2) & Low Gain & Sound disabled, Low Gain. The gain stage is fixed and cannot be changed.
Mode: Channel 1 (or Channel 2) & High Gain & Sound disabled, Medium Gain. Set rocker #1 on DIP switch 4 (or 8) to OFF.
Mode: Channel 1 (or Channel 2) & High Gain & Sound enabled, High Gain. Set rocker #1 on DIP switch 5 (or 9) to ON.
As described above, Medium Gain is activated via the High Gain setting on the amp with rocker #1, Gain Level Step, on the SWM set to OFF.

Here's another tip you might find useful: Sometimes it helps to compare the amp's fundamental sound with a voicing of your own like the one we just configured in the example above. To do this, simply set all the rockers on one of the two complementary DIP switches – that is, the paired Sound function disabled / Sound function enabled – to OFF. Be sure to leave the one exception, the Gain Level Step rocker, ON. This gives you the fundamental sound. Then you can use the Sound function (1/amp) for A/B comparisons of the amp's fundamental sound and your voicing.

10 CHANNEL 3 & Low Gain & Sound Function disabled
The configuration of the six rockers on this DIP switch determines what the INVADER II Sound function does when Channel 3 is in Low Gain mode with Sound disabled; in other words, with Channel 3 selected and the High Gain and Sound functions off. The red LED to the left of the DIP switch indicates precisely this preamp configuration, provided that the Sound Wizard is enabled. Chapter III provides an overview of how voicing options are mapped to the rockers on this DIP switch.

11 CHANNEL 3 & Low Gain & Sound Function enabled
The configuration of the six rockers on this DIP switch determines what the INVADER II Sound function does when Channel 3 is in Low Gain mode with Sound enabled; in other words, with Channel 3 selected and the High Gain function off and Sound function on. The red LED to the left of the DIP switch indicates precisely this preamp configuration, provided that the Sound Wizard is enabled. Chapter III provides an overview of how voicing options are mapped to the rockers on this DIP switch.

12 CHANNEL 3 & High Gain & Sound Function disabled
The configuration of the six rockers on this DIP switch determines what the INVADER II Sound function does when Channel 3 is in High Gain mode with Sound disabled; in other words, with Channel 3 selected and the High Gain function on and Sound function off. The red LED to the left of the DIP switch indicates precisely this preamp configuration, provided that the Sound Wizard is enabled. Chapter III provides an overview of how voicing options are mapped to the rockers on this DIP switch.

13 CHANNEL 3 & High Gain & Sound Function enabled
The configuration of the six rockers on this DIP switch determines what the INVADER II Sound function does when Channel 3 is in High Gain mode with Sound enabled; in other words, with Channel 3 selected and the High Gain and Sound functions on. The red LED to the left of the DIP switch indicates precisely this preamp configuration, provided that the Sound Wizard is enabled. Chapter III provides an overview of how voicing options are mapped to the rockers on this DIP switch.

14 CHANNEL 4 & Low Gain & Sound Function disabled
The configuration of the six rockers on this DIP switch determines what the INVADER II Sound function does when Channel 4 is in Low Gain mode with Sound disabled; in other words, with Channel 4 selected and the High Gain and Sound functions off. The red LED to the left of the DIP switch indicates precisely this preamp configuration, provided that the Sound Wizard is enabled. Chapter III provides an overview of how voicing options are mapped to the rockers on this DIP switch.

15 CHANNEL 4 & Low Gain & Sound Function enabled
The configuration of the six rockers on this DIP switch determines what the INVADER II Sound function does when Channel 4 is in Low Gain mode with Sound enabled; in other words, with Channel 4 selected and the High Gain function off and Sound function on. The red LED to the left of the DIP switch indicates precisely this preamp configuration, provided that the Sound Wizard is enabled. Chapter III provides an overview of how voicing options are mapped to the rockers on this DIP switch.

16 CHANNEL 4 & High Gain & Sound Function disabled
The configuration of the six rockers on this DIP switch determines what the INVADER II Sound function does when Channel 4 is in High Gain mode with Sound disabled; in other words, with Channel 4 selected and the High Gain function on and Sound function off. The red LED to the left of the DIP switch indicates precisely this preamp configuration, provided that the Sound Wizard is enabled. Chapter III provides an overview of how voicing options are mapped to the rockers on this DIP switch.

17 CHANNEL 4 & High Gain & Sound Function enabled
The configuration of the six rockers on this DIP switch determines what the INVADER II Sound function does when Channel 4 is in High Gain mode with Sound enabled; in other words, with Channel 4 selected and the High Gain and Sound functions on. The red LED to the left of the DIP switch indicates precisely this preamp configuration, provided that the Sound Wizard is enabled. Chapter III provides an overview of how voicing options are mapped to the rockers on this DIP switch.

III: Voicing-option-to-rocker switch assignments

These apply to the following preamp modes:
Channel 3 & Low Gain & Sound disabled; assigned DIP switch (10) on the SWM
Channel 3 & Low Gain & Sound enabled; assigned DIP switch (11) on the SWM
Channel 3 & High Gain & Sound disabled; assigned DIP switch (12) on the SWM
Channel 3 & High Gain & Sound enabled; assigned DIP switch (13) on the SWM
Channel 4 & Low Gain & Sound disabled; assigned DIP switch (14) on the SWM
Channel 4 & Low Gain & Sound enabled; assigned DIP switch (15) on the SWM
Channel 4 & High Gain & Sound disabled; assigned DIP switch (16) on the SWM
Channel 4 & High Gain & Sound enabled; assigned DIP switch (17) on the SWM

Rocker #1 - Gain Level Step:
Set this rocker to OFF if you want to significantly reduce the gain when the preamp High Gain function (19/amp) is not activated. This option adds another gain stage to Channel 3 and Channel 4, bringing the total to three.
When the preamp High Gain function (19/amp) is enabled, this rocker lets you switch between the two gain stages that are accessed directly on the amp via the preamp High Gain function when the Sound Wizard is not enabled or installed. In other words, it does exactly what the front panel High Gain button does.

Rocker #2 - Low End:
Set this rocker to ON to boost bass frequencies

Rocker #3 - Low Midrange:
Set this rocker to ON to boost lower midrange frequencies.

Rocker #4 - High Midrange:
Set this rocker to ON to slightly boost higher midrange frequencies.
Rocker #5 - Mid Boost:
Set this rocker to ON to boost a broad band of midrange frequencies. The effect is much like that of the Mid knob. This voicing extends the control range for these middle frequencies.
Rocker #6 - Attenuator:
Set this rocker to ON to cut the level by around 3 dB. The volume will dip slightly when the rocker switch is engaged.

A tip from the designer:
There are a few more things you should know about the Gain Level Step option: It is beneficial in that it adds a third Sound Wizard-actuated gain stage to the two gain stages hardwired into the amp. You can access this extra gain stage for Channels 3 and 4 when High Gain on the amp has been switched OFF so that the LED above the button is extinguished. This extra stage's gain level is just marginally higher than that of Channel 2 in High Gain mode, but it is voiced differently. You can configure up to four different sounds for Channels 3 and 4 using this extra stage with the lower gain level. To do this, set rocker #1, Gain Level Step, on DIP switches 10 and 11 for Channel 3 and on DIP switches 14 and 15 for Channel 4 to OFF. If rocker #1 on one of these four DIP switches is in the ON position, the preamp will switch to the gain level that can be accessed directly on the amp via the preamp High Gain button – that is, when High Gain is switched off – when the Sound Wizard is not enabled or installed. The following rule applies to the other four DIP switches (12 and 13 for Channel 3 and 16 and 17 for Channel 4 when Channels 3 and 4 are in High Gain mode): When rocker #1, Gain Level Step, is OFF, it activates the same gain level as the High Gain off setting on the amp does. When rocker #1, Gain Level Step, is ON, it sets the same gain level as activated by the High Gain ON setting on the amp does, which gives you the fundamental sound of Channels 3 and 4 in High Gain mode.

Installing and Operating the ENGL Sound Wizard module

HEADS UP: Please be sure to read these instructions before installing the Sound Wizard module in the amp.

Take note of the following information and heed these instructions when installing the Sound Wizard module in the ENGL INVADER II amp:

1. The Sound Wizard module is securely mounted in a specially designed rear panel for the INVADER II amp. The type Z-16 Sound Wizard module comes preinstalled in this special rear panel.

2. The first thing to do before installing the module is to disconnect the INVADER II amp from mains power, for example, by unplugging the mains cord from the Mains socket (40/amp).

3. If the amp was in operation, allow it to cool down for at least 15 to 20 minutes before removing the rear panel because otherwise the power tubes will still be hot enough to burn your skin.

4. Place the amp on a stable surface such as a workbench before installing the module. You don't want to run the risk of damaging the device or hurting yourself if it falls off an unstable platform.

5. Use a suitable Phillips head screwdriver to remove the seven screws securing the rear panel. Be careful when removing the last screw. You don't want the back cover to fall out, so you may want to hold it in place with your free hand.

6. Carefully remove the rear panel. If it sticks, gently lift it with a flat-bladed screwdriver.
Use scissors, a small wire cutter or other suitable tool to carefully cut the cable tie holding the ribbon cable. Proceed with extreme caution so as not to damage the ribbon cable!

7. Place the rear panel holding the Sound Wizard module close enough to the amp so you can plug the IDC connector at the end of the ribbon cable inside the amp into the box header on the Sound Wizard module. Line up the Sound Wizard module so that it is located on the right above the Power Amp Output jacks when viewed from the back of the amp (see page 15). The output transformer is sited on top of the chassis at this position.

8. The IDC connector on the ribbon cable is bump-polarized on one side to prevent it from being plugged the wrong way round into the box header on the Sound Wizard module. A center notch on one side of the box header accepts the bump on the IDC connector that prevents a reversed polarity connection. Please make sure you align the bump and notch properly. Do not use force to connect the two!
The two release levers on the sides of the box header both have to be at 45° angles to plug the IDC connector in.

Heads up: The two release levers may not point up 90° vertically in the locked position or touch the sheet metal cover in a 90° horizontal position. You will not be able to plug the IDC connector into the box header if the levers are in these two positions.
The IDC connector has to engage so that the two release levers on the sides of the box header flip upwards to the 90° vertical position and lock the IDC connector in place.
That sounds complicated, but it's not as the two diagrams on page 2 will help make clear to you.

9. Carefully lay out the ribbon cable inside the amp and place the rear panel in the proper position for mounting. When you go to insert the rear panel, make absolutely sure that the ribbon cable is not trapped, kinked or clamped in any way.

10. Attach the rear panel to the enclosure's inner frame using the seven Phillips head screws. There are holes in place in the rear panel holding the Sound Wizard module for the screws, and the hole pattern is identical to that of the original rear panel without the SWM.

11. Tighten but do not over-tighten the Phillips head screws. The wood frame could be damaged if you fasten the screws too tightly, so this task requires a little finesse on your part.

12. The Sound Wizard module is ready for use once the rear panel with the SWM has been inserted and secured with screws. Connect the amp to the mains and power it up. Move the slide switch (1) on the SWM to the ON position. The Sound Wizard module is powered by the amp. The blue LED above the switch and the LED SWM (37/amp) on the amp should light up to indicate the Sound Wizard is on.

HEADS UP! This is important, so please read and heed:
Do not under any circumstances remove the amp chassis from the wood enclosure to install the Sound Wizard module.
Make absolutely certain that the amp is disconnected from the mains power supply and the power tubes have had plenty of time to cool down before removing the rear panel.
Reconnect the amp to the mains and switch it on only after the rear panel holding the Sound Wizard module has been fully installed.

Note: Technical specifications are subject to change without notice.

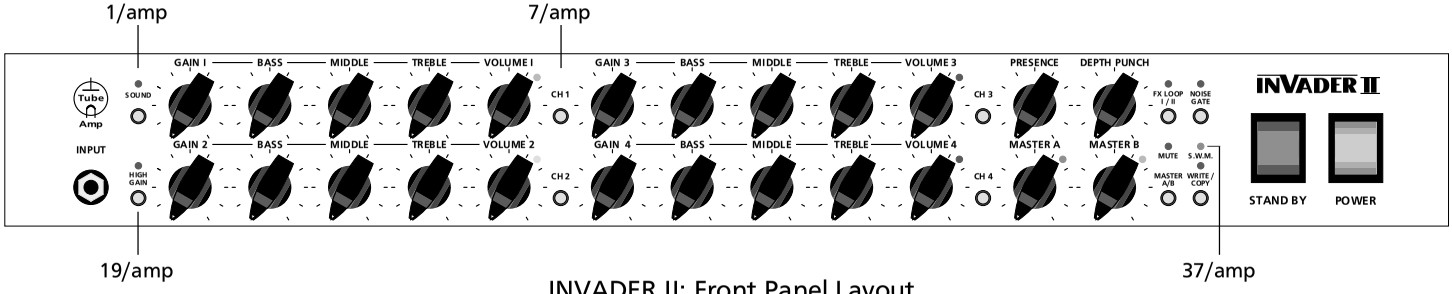
Text source: Operator's Manual, ENGL INVADER II amplifier;
chapter: 1 Sound, "A tip from the designer";

Nonetheless, I do want to devote a few more words to an optional feature that extends the tonal capabilities of the Sound function on the INVADER II amp. It caters to demanding players who want to sculpt their sound with the surgical precision of a scalpel rather than beat it into shape with a mallet. Closet hot-rodders and amp modders will find plenty to love in this tool.

Seeking to give creative guitarists practically unlimited freedom to shape their tone, I started tinkering with the idea of a sound-tuning tool for everyone. Eventually, we came up with the Sound Wizard module. This optional add-on enables any guitarist to fine-tune all the fundamental sounds of the INVADER II amp without having to take a soldering iron to its circuitry. Best of all, these modifications can be done without any knowledge of electronics. Restoring the INVADER II to its original voicing is as simple as flipping a single switch. The unique Sound Wizard module is truly extraordinary because it does what so many guitarists have been wanting to do for such a long time - it lets them fine-tune the sound of their amps to suit their taste.

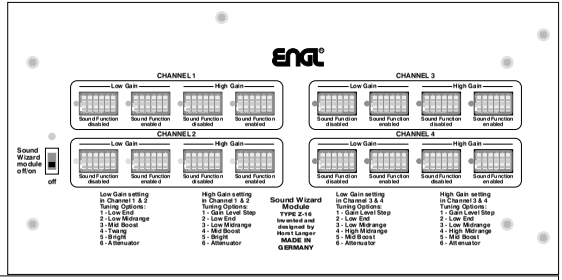
The Sound Wizard module sits in the amp's rear panel, so all you have to do is replace the panel. There's no need to remove the amplifier chassis.
A single connector plugs the Sound Wizard module into the amp's circuitry. The ENGL Sound Wizard module provides 96 rockers on 16 DIP switches for fine-tuning your sound. 16 LEDs next to the DIP switches tell you which configuration of rockers is currently active for a given amp mode (Channel, Gain & Sound settings). A slide switch enables and disables the Sound Wizard module. The module's status is indicated by a separate LED on the module as well as by the SWM LED on the amp's front panel. You can encode a total of 64 different settings on the Sound Wizard module for each amp mode. The variations on Channel, Gain & Sound settings give you a total of 16 modes.

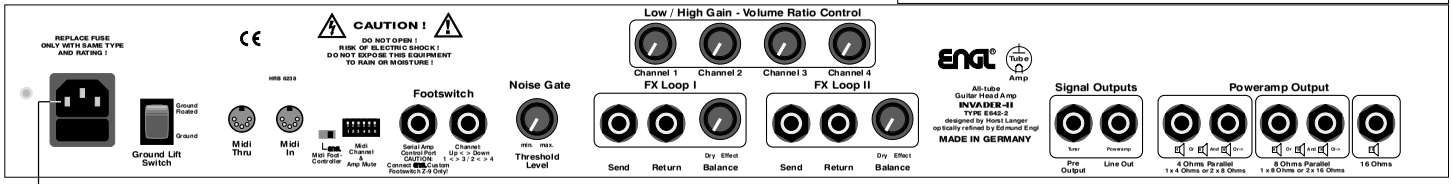
All this means you have a whole bunch of configurations for fine-tuning your amp. In addition to offering specific voicings such as Bright, Twang and Mid Boost, the Sound Wizard also lets you modify the gain stages in certain modes and activate a special parameter called Attenuator for each amp setting to balance out different volume levels.



INVADER II: Front Panel Layout

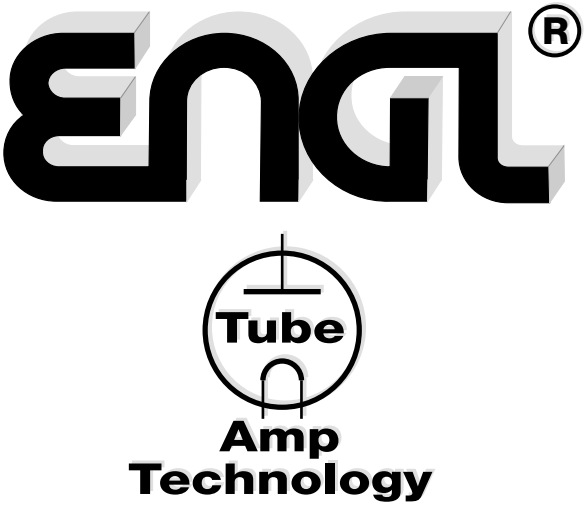
Sound Wizard module placement at the back of the INVADER II amplifier





40/amp

INVADER II: Rear Panel Layout



ENGL Gerätebau GmbH
Germany
Internet: www.engl-amps.com

Text, design, graphics and layout by
Horst Langer, ENGL Amp Designer