Amp Farm
Plug-In Guide

Version 3

LINE 6

www.line6.com

digidesign

chapter 1

Amp Farm

Since its introduction in May 1998, Amp Farm (along with its hardware brother, POD) sparked a revolution in the world of guitar recording. Amp Farm quickly became the trusted guitar recording tool for many of the world's top Pro Tools users, and an essential part of hundreds of platinum albums, mega-budget movie soundtracks, premiere TV music productions—and Pro Tools guitar recording projects of all shapes and sizes.

Creative producers also quickly found the value of processing non-guitar sources through Amp Farm, punching up—or munching up—the sound of drums, keyboards, vocals, sound design sources and practically any audio that can benefit from some tube warmth, distortion grind, or speaker cabinet life.

For guitar recording, Amp Farm lets you jack any guitar right into your Pro Tools TDM system and instantly hear it running through your choice of spot-on recreations of world-class guitar amplifiers, cabinets and microphones. A few mouse clicks is all it takes to quickly experiment with different amp, cab, mic and tone knob settings, all without dragging around physical amps, cabs and microphones, or paying for cartage. And of course, you get to adjust the sound of that guitar amp-cab-mic rig right up until your final mix, right in your Pro Tools session, for incredible speed, flexibility and creativity—and the world standard pro guitar tone that is what great recordings are all about.

What's New in Amp Farm Version 3

Amp Farm version 3 introduces a dramatic new level of realism and life to Amp Farm-processed tracks thanks to the Line 6 exclusive Mic Modeling and new generation Cab Models that have been added. Using a Pro Tools-exclusive variation of technology from our acclaimed PODxt series hardware, these features dramatically upgrade the sonic power of Amp Farm.

You still get the same great Amp and Cab Models as previous versions of Amp Farm, and every old preset you have saved will still work and sound the way you are used to. But users of the older versions will notice that the selection list available from the Cab Model menu is about twice as large. Pick a Cab Model from the first half of this list, and the new Mic Model menu becomes available, letting you choose one of four mic setups to use on that cabinet.

The new version of Amp Farm also provides compatibility with Pro Tools TDM 6.7 software. Digidesign Pro Tools|HD, HD Accel and the VENUE Live Sound Environment are the supported hardware platforms for Amp Farm 3.

Amp Farm 2.x Preset Compatibility

Factory and custom presets created for Amp Farm 2.x will work within Amp Farm 3.x. However, if changes are made to these presets with Amp Farm 3, you will need to save them so that they can be recalled with the session. Additionally, note that presets created in Amp Farm 3.x are not compatible with Amp Farm 2.

Amp Farm Features

Amp Farm features include:

◆ Over a dozen Amp Models that faithfully recreate the tone and feel of a world class collection of guitar combos and heads, with simple amp-style control that every guitarist understands.

◆ Dozens of dramatically diverse Cab Models from a tiny 2-inch to massive vintage 4x12s, for easy mix and match with any Amp Model.

◆ Selectable Mic Models capture classic cabinet miking techniques to give you rich, dynamic live sound right in your Pro Tools session.

◆ Process live guitar inputs or tweak pre-recorded tracks right up to the final mix.

◆ Add tube warmth, dynamic distortion or speaker cabinet life to any audio track.

Line 6

Line 6 is the world leader in Modeling technology for guitarists. In addition to being the third largest guitar amp manufacturer, we make Variax digital modeling electric, acoustic and bass guitars; professional stomp boxes; world standard POD hardware for guitar and bass; and more! Learn about it all at the Line 6 Web site (*www.line6.com*).

Hardware Setup

⚠ *We assume here that you have already got your Pro Tools system all setup and cranking away. The only thing to add to your present setup is a direct connection from your guitar to your Pro Tools audio interface. Refer to your Digidesign documentation for details.*

Clean Direct

To get your guitar signal into Amp Farm, you want to boost your totally clean guitar signal to line level and then feed that signal to your Pro Tools interface. We are looking for unadulterated guitar input here—you do not want to use hardware intended to color the guitar's direct sound. If your Pro Tools interface includes a guitar-level input, that will of course be ideal. Steer clear of amp simulators. You can use a guitar preamp, as long as it is clean, with a flat frequency response—no tone shaping.

How about just plugging the guitar's output into a mixer channel? Guitar pickups like to feed into a high impedance load—at least 300 kΩ impedance; 1 MΩ is ideal for the best results. Most mixer inputs are relatively low impedance, and therefore don't deliver ideal guitar tone; you will tend to get a darker, "squashed" sound if you plug the guitar in directly. To avoid this, we recommend buffering your guitar's signal before the mixer with a quality DI box or tonally "transparent" instrument preamp. Look for a unit that delivers clean, uncolored sound.

With that said, you can sometimes get acceptable results plugging direct into a line level mixer channel if you have a guitar with hot, active pickups (since the active electronic's output can have relatively low impedance). Do not try

to plug into a microphone level mixer input, because the extremely low impedance of mic inputs will load the active circuitry down too much.

Do Not Over-do It!

Please do yourself a favor when setting your input levels, and don't turn up the guitar too much. You want to get your loudest strumming and pick-up selection to just about reach maximum on your interface's input meters, but not hit the top. This will insure maximum signal-to-noise ratio, while avoiding nasty digital clipping. Of course, if you like digital clipping, who are we to stop you?

Stomp Boxes

Got some old stomp boxes you want to run your guitar through before Amp Farm? No problem. Just observe the level setting precautions above. Make sure the stomp box is not overdriving your mixer channel or guitar direct box, and make sure that the stomped and then boosted signal does not overdrive your Pro Tools interface's input. When setting your levels, be sure to try your loudest strumming, hottest pick-up combination, and your maximum volume boost from the stomp box at the same time to make sure the resulting din makes it into the Pro Tools interface under the digital zero mark.

Radiation Alert

You will likely find, especially if you are using a guitar with single coil pickups, that it is quite easy to pick up some serious noise from your computer's monitor. CRT displays are, after all, just special purpose ray guns that shoot light at you all day long. Your guitar pickups receive and amplify the electro-magnetic fields that your display radiates, and you hear this in your audio signal as buzz and hum. Moving farther from the CRT, and turning your guitar so that it does not face the computer's display directly, will minimize this problem. But if you find yourself in a tight studio setup, needing to lay down some quick tracks, and being pestered by CRT-induced buzz, you may find it helpful to do as we have sometimes done: set up your track to record and start your pre-roll; reach up and flick your computer monitor's power switch off; record your guitar part; stop your recording, flick the monitor back on, and check out the buzz-free playback.

Controls

📄 *Refer to the Digidesign Plug-Ins Guide to learn how to use standard plug-in features like saving and recalling presets, automating parameters, and inserting Amp Farm instances on your tracks and channels. Assuming you know about all that, we'll go over the other, unique controls that you will find in Amp Farm.*

Input Knob & Clip Indicator The Input knob lets you adjust the signal level that is fed into Amp Farm. Most of the time, you want to leave this control alone, because using it will lead to poorer signal-to-noise ratio performance. It's here to allow you to compensate for less-than-ideal situations, but keep in mind that most of the time if you're using it, it's just that—less than ideal. Turn it down below the center "detent" to reduce your input level to Amp Farm, turn it up past the center point to boost your input level into Amp Farm.

So, when do you want to use it? When you have got your controls maxed out on an Amp Model (say your Treble and Mid controls are both up all the way on the Amp Model based on the Fender Twin and you have got a hot guitar signal coming in), you may clip Amp Farm internally (and thus light up the Clip indicator—located above and to the right of the Input level control). This is just like clipping the internal circuitry on a hardware amplifier. To avoid this clipping, back off on the Input level until you see that the Input Clip indicator no longer lights.

The other time you would use the Input level knob (and this is the less-than-ideal situation we mentioned earlier) is when you have a guitar track that's been recorded or is being recorded at lower than optimum volume. If you've given your guitar all the analog domain boosting you have available (as described "Hardware Setup" on page 2) and you are still not getting enough level into Amp Farm, then you can use this control to get more gain in the digital domain. Keep in mind, though, that you are essentially reducing the bit depth of the guitar input by doing this, and you will therefore get more noise and less definition of tone.

Figure 1. Amp Farm plug-In window (Tweed Blues shown)

Master Volume & Clip Indicator The Master Volume know sets the output level of Amp Farm. The Master Volume Clip indicator is the little red light that appears above and to the right of the Master Volume knob to let you know when you have gone overboard with the amount of volume. Just turn down the Master Volume knob until the Clip indicator no longer comes on to insure tasty tone output.

Amp Model Menu This menu is where you select the Amp Model you would like Amp Farm to use.

Cab Model Menu This menu works just like the Amp Model Menu, selecting a cabinet simulation to pair up with the Amp Model. The first half of the list here gives you our new generation Cab Models that allow you to use the Mic Model menu, and generally will give you the most realistic, dynamic live tones. The second half of the list gives you the same Cab Models as previous versions of Amp Farm, which have an appeal all their own, and allow compatibility with all old Amp Farm presets.

Drive Knob Each one of the Amp Models has a Drive knob. This takes the place of the familiar Volume knob, and controls how hard you're driving the chosen amp model. Think of it like the input volume control on a non-master volume amp; the higher the setting, the more "dirt."

Other Amp Model Knobs & Switches The other knobs and switches that appear on-screen for a particular Amp Model are set up to emulate the controls found on the amp that the model was based on. In the cases of amplifiers that featured a regular and high gain channel, we have provided a toggle switch that selects between these two. For other Amp Models, a toggle switch may turn on or off a tremolo circuit. For the Amp Models based on Marshall amplifiers, an Extra Gain toggle is provided to give you the effect of patching your regular and high gain channels together for extra gain on input. In general, the knobs and switches are set up to emulate, as nearly as possible, the effect of the similarly-labeled knobs, switches, and jacks on the original amps we modeled. For the complete story, check out "The Amp Models" on page 7.

Track Setup

Amp Farm, like any TDM plug-in, can be applied to any audio track, Auxiliary Input, or Master Fader. The standard thing is to run it on an audio track. Assign your guitar as the input to the audio track. Apply Amp Farm as one of the track's inserts. At this point, you should see Amp Farm in the plug-in window, and you should hear Amp Farm processing your guitar input. Pick an Amp Model by clicking on the words in the Amp Model pop-up menu. Do the same thing in the Cab Model pop-up to make your cabinet simulator choice. If you have picked a Cab Model from the first half of the list, you can also select a Mic model. Set your knobs and switches to taste. Hit record. Play a bit. Hit stop. Play back what you've recorded. Move the knobs around. Neat, isn't it?

Mix It Up

We encourage you to treat Amp Farm as just one more powerful tool to be used in combination with the others in your arsenal. For instance, running some EQ before Amp Farm is basically the same as using an EQ stomp box in front of a regular (hardware) guitar amplifier, to sculpt your tone. Also, be sure to try the sound of a double- or triple-dip of Amp Farm—running several instances in series or parallel to get the kind of multi-amp tone than many artists and producers have made one of their standard techniques for great studio guitar sound. This can be a great way to get the clear pitch definition and rich body of a nice clean tone, and still have the saturation of a heavily overdriven amp setup at the same time. And remember that if you were recording a non-software amp you would probably add some EQ and other effects at the board to sculpt the miked sound before you'd commit it to tape or to your mix. Since they are emulations of amps, the same goes for your Amp Farm

tones. Also, be sure to give the "Big" Cabs a go. While the other Amp Farm cabinets are emulations of specific cabinet and microphone configurations, the Big Cabinet Models were designed without worrying about emulating any particular cabinet or miking technique precisely. We just used the cabinet emulation algorithms to give you a couple of big, beefy cabinet tones. The frequency response of these settings is particularly smooth, in contrast to the cabinets modeled for the real-world emulations. Real speakers each have their own wonderful quirks of frequency response that express themselves as particular EQ peaks and valleys, and add up to the special character of those speakers. Try applying some narrow EQ bumps and notches after the Big Cabs to sculpt them into your own personal speaker tone.

The Amp Models

1959 Tweed B-Man
(Based on 1959 Fender Bassman)

The classic Fender Bassman 4x10 combo was the amp that started it all—instant rock and roll tone. Originally a bass guitar amp, the Bassman became a Blues staple for 6-string guitarists. It has the fat bottom end you'd expect from a bass amp but also has the Fender twang on the top. Incidentally, when Jim Marshall built his first amps with Ken Bran they were heavily influenced by the early Bassman. The Bassman, like many of the amps modeled for Amp Farm, didn't have a master volume. So to get the kind of tone that the Bassman can deliver at higher gain settings, you had to crank it up loud enough to do some serious damage to anyone who might be standing close by. With Amp Farm, you can get that kind of tone at a bedroom or studio level—or through your headphones even! Try a drive setting of about 4 or 5 with Amp Farm's Tweed B-Man Amp Model— it's guaranteed to dredge up the best R&B licks you know.

1964 Blackface 'Lux
(Based on 1964 "Blackface" Deluxe)

The Holy Grail for many blues, country, and "roots" players has been a blackface Fender Deluxe Reverb (of course, now that Amp Farm's here, that may all change). After listening to quite a few candidates for modeling, we stumbled upon an extremely cool '64 Deluxe. Most players love a Deluxe when it's turned up to about 7 for a nice gritty sound that cleans up when you back off your guitar's volume knob just a little. Notice how the tone control response changes as this Amp Model's Drive is changed; clean settings are crisp and present, while more driven settings will mellow the high end. This is typical of what you get from a Deluxe, and is nicely captured here. Tweaked up right, this tone will cut through and sing.

1967 Double
(Based on 1967 Fender "Blackface" Twin)

The classic blackface Fender Twin (in this case, a 1967 Twin) was a real workhorse. Everybody used it from jazz and country players to serious rockers (I remember seeing a band where both guitar players were using 6 Twins stacked in a pyramid. We were in the second balcony and it was REALLY loud even all the way back there). The Twin has a lot of tonal flexibility and is at home in a great many different situations. It never gets extremely overdriven and dirty, mostly just louder; a lot louder. With Amp Farm you can get a full range of Twin-inspired sounds at any volume you choose. This is the amp for the classic surf sound: turn up the tremolo, turn up your monitors, and look out for bikinis.

1960 Class A-30
(Based on 1960 Vox AC30)

Vox amps owe much of their unique tone quality to a Class A power amp and were standard issue for English bands in the 60s. Brian May of Queen, Mike Campbell of Tom Petty's Heartbreakers, and The Edge of U2 have also used classic AC 30s to make their music. Vox amplifiers were actually one of the first brand of amplifiers designed specifically for electric guitar; the other companies essentially got their designs straight from the RCA Radio book. We were lucky enough to find what we are told was one of Bryan Adams' favorite AC 30s for recording. Lenny Kravits happened to be using it the week before we began testing. It was one of the gems in a great collection of vintage amplifiers offered for rental in Los Angeles, where Line 6 is located. We later bought this amp, and continued

to hone our emulation of it to bring you the Amp Model it inspired in Amp Farm. This is definitely a good place to start to get yourself some of those classic British invasion sounds.

1966 Class A-30 with Top Boost
(Based on 1966 Vox AC30 with Top Boost)

Music was changing in the 60s and guitarists were asking for more brilliance & twang. So the Jennings Company, makers of Vox amps, decided to add Treble and Bass controls (and an extra 12AX7 gain stage, incidentally). This additional circuit became known as Top Boost.

1965 Plexi 45
(Based on 1965 Marshall JTM 45)

This Amp Model is based on a JTM-45 head with block logo (predates the "scrolled" Marshall logo), complete with a gold Plexiglas (Plexi) front panel, although the sound normally associated with Plexi amps comes from the late 60s, 50-watt version that was the inspiration for the next in Amp Farm's line-up of Amp Models. The JTM-45 marked the beginning of Marshall's transition from a mellower Fender-like tone to the distinctive bright "crunchy" sound of the later Marshalls.

1968 Plexi Lead 100
(based on 1968 Marshall Plexi)

The infamous Marshall Plexi—coveted by tone connoisseurs the world over. By this time (ca. 1968) Marshall had completely changed the circuitry away from the Fender 6L6 power tube heritage and moved to an EL34 tube; another major tone difference was due to the necessary output and power supply transformer changes. (See, we told you we spent some time looking into all this stuff.) All this mucking about added up to create a tone forever linked with Rock Guitar. Amps of this era didn't have any sort of master volume control, so to get this sound you'd

have to crank your "Mark III Super Amp" to max—just the thing to help you really make friends with the neighbors. Hendrix used Marshalls of this era; 20 years later Van Halen's first two records owed their "brown sound" to a Marshall Plexi. In order to get a crunch sound out of a Plexi you would likely crank up the input volume and the tone controls (to 10!). You'll find that the Amp Farm Amp Model, in keeping with our basic "make-it-sound-a-whole-lot-like-the-original" concept, is set up to do pretty darned near the same thing. Max out the Mid and Treble knobs and turn Bass to about 9 or 10 o'clock on the Amp Farm panel when using this Plexi-inspired Amp Model and you can treat those nice neighbors to a tasty slice of fat rock tone.

1986 Brit J-800
(Based on 1986 Marshall JCM 800)

Turn to this Amp Model to conjure up tones of the coveted JCM 800, one of Marshall's most universally-acclaimed modern amps. This updated version of the Plexi continued Marshall's heritage with added gain and edge for a new generation of rock guitarists. One of the biggest differences here is that the tone controls are located after the preamp tubes. We worked with a 1990 JCM 800 with Master Volume to develop this model. This is the metal sound Marshall made famous. Although not many people play Marshalls clean, it's a great tone, so you should also be sure to check out this model with a low drive setting, too. Of course, you can always pump up the drive and rage.... By the way, you'll notice that all of the Marshall-inspired Amp Models include an Extra Gain switch. This control allows you to hook up a "virtual patch cord" to link the normal and bright channels of these amplifiers. This classic trick is used to get more gain on input with these Marshall amplifiers, and we recreate it here. Just flip this switch to the Extra Gain position, and the patch cord pops up on the right. Fun, huh?

1995 Treadplate Dual
(Based on 1995 Mesa Boogie Dual Rectifier Head)

The Boogie Rectifier head that this Amp Model was based on is similar to the Rectifier combo, taking a modern, high gain approach for that "big hair" sound. In contrast to the earlier Boogies, the Dual Rectifier's tone controls have more influence at high gain settings, so you can scoop the mids and increase the bottom end.

1994 Treadplate Trem-O
(Based on 1994 Mesa Boogie Trem-O-Verb)

You can use this Amp Model to get that tight, high gain sound used by bands like Dream Theater or Metallica. Mesa Boogie made their mark in the late 70s and early 80s by adding master volumes and more gain stages to amps with Fender-style circuitry. You can hear the Fender heritage but with more "punch" in the mids. The Boogie Dual Rectifier's tone controls are post-distortion, and as with the tone sections of most of the amps we based our models on, the individual controls interact with each other and with the drive. With high drive settings, you can scoop the mids and crank the bottom end for some great Seattle grunge sounds.

1989 Solo 100 Head
(Based on 1989 Soldano SLO Head)

This sound is modeled after a Soldano SLO (Super Lead Overdrive) head. With snake skin tolex covering and everything! Unlike the X88R preamp studied for the next Amp Model, the SLO includes a presence control, plus other little details that give it a bit of a different sound. With the Drive control cranked way up, you'll get sustain for days.... Go out'n'ave a bite— when you come back it'll still be sustaining!

1987 Solo 88 Pre
(Based on 1987 Soldano X-88R Preamp)

The Soldano sound is intensely overdriven, and also has EQ after the preamp distortion. This oversaturated tone is well-suited to thrash metal and grunge bands, but has also been used more subtly by artists like Eric Clapton. This is a good Amp Model to use if you want to get a current Van Halen or Joe Satriani sound. Talk about high gain preamp tube distortion! The X88R we studied to create this Amp Model would have been the rage for Los Angeles studio use in the late '80s.

1996 Match Chief
(Based on 1996 Matchless Chieftain)

The '96 Matchless Chieftain, which was studied for this Amp Model, is a very expensive hand-made amp with a Class A design. Originally designed to sound like a top-boost Vox AC 30, the Matchless does not exactly have a Vox sound, but something unique (largely due to the complicated EQ scheme). The sound is sort of "future retro." Its soft clipping is typical of Class A amplifiers; almost a "hi-fi" sound in a great rock n' roll amplifier.

Amp Farm DSP Requirements

The Amp Farm plug-in has the following DSP requirements:

44.1 or 48 kHz	88.2 or 96 kHz	174.6 or 192 kHz	
5	2	2	When running on one of the seven 220 MHz chips of an HD Accel card
2	1	0	When running on any of the chips of an HD Core or HD Power card, or one of the two lower power, "original HD" chips of the HD Accel cards