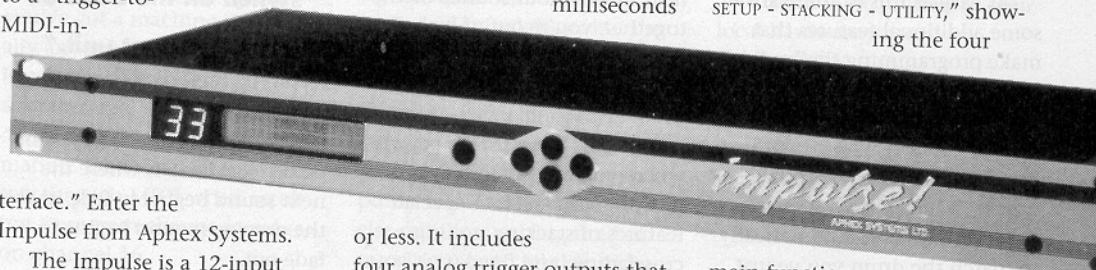ELECTRONICS

Aphex Impulse Version 1.3.2

FOR MANY DRUMMERS, the ultimate marriage of acoustic and electronic instruments comes under the guise of triggering. Attach triggers (also called bugs) to acoustic drums and you've got the best of both worlds: playing surfaces that feel like "real" drums (because they are), and access to all the sounds that MIDI has to offer. In order to transform your drumstick hits into MIDI information, you must first connect the triggers to a "trigger-to-MIDI-interface." Enter the Impulse from Aphex Systems.

The Impulse is a 12-input trigger-to-MIDI device which accepts input from acoustic drum triggers, electronic drum pads, and various external audio sources (i.e. an isolated drum track from a multi-track tape deck). Its claim to fame is a reported conversion speed of 1.3 milliseconds or less. It includes four analog trigger outputs that can be used to fire sounds from pre-MIDI devices, and even a MIDI-to-trigger conversion process.

Front and Back. The back panel of the Impulse actually is quite simple. It consists of 17 quarter-inch jacks: 12 inputs, four TRIGGER-OUTS, and a FOOTSWITCH input (the footswitch itself doesn't come with the unit). MIDI communication is handled by way of the standard MIDI-IN and MIDI-OUT jacks. The power switch also is located on the back panel, and electrical power is brought to the Impulse by way of a transformer with a special 5-pin connecting plug.

If you think the back panel of the Impulse is simple, wait until you see the front! It has a 2-digit LED for displaying the current patch in large red numbers, a 16-character by 2-line LCD for displaying programming information, and five buttons. Yes, that's correct, only five buttons (UP, DOWN, LEFT, RIGHT, and ENTER) on the entire front panel. How refreshing!

Programming Interface. Aphex certainly must believe in the "less is more" philosophy. A few buttons combined with well-planned software implementation go a long way toward the goal of user-friendly operation.

When the Impulse is first powered up, the LCD displays the software version number (1.3.2 on our test unit). To step inside the brains of the Impulse, you push the ENTER button. The display then reads "ASSIGN - SETUP - STACKING - UTILITY," showing the four main function page screens. To enter a particular page, you simply use the LEFT and RIGHT arrow buttons to place the flashing cursor under the page you want to access, and push ENTER again. Once you're in the page, moving left or right selects the particular feature of the page, and the UP and DOWN buttons select the value of that feature. The interface couldn't be any easier. Hats off to Aphex in this regard.

Programming MIDI. Since the main function of any trigger-to-MIDI interface is translating the electrical spike of the trigger into MIDI data, let's take an in-depth look at this side of the unit first.

ASSIGN Screen—This page lets you program a MIDI channel (1-16), and MIDI note number (12-99) for each of the four sounds available on each of the 12 inputs. Yes, each input can fire up to four independent sounds. In addition, this page is where you tell Impulse to use one of four special features: "FIXD," "ROLL," "XFADE," or "STAK."

Sound number one is always turned on (I can't think of any reason you would want to turn it off), but the other three sounds can be turned off or on easily. The MIDI note number also is displayed by pitch (note number 60 is C4, or Middle C)

Manufacturer: Paiste America Inc., 460 Atlas St., Brea, CA 92621, (714) 529-2222.
Product: Sound Formula cymbals
Features: Hammered, lathed cymbals made of Paiste Sound Alloy.
Sizes And Suggested Retail Prices:
20" Full ride	$225.00
20" Power ride	$225.00
18" Full crash	$195.00
16" Full crash	$165.00
16" Thin crash	$165.00
14" Medium Heavy hi-hats	$270.00
13" Medium Heavy hi-hats	$240.00
10" splash	$110.00

Pros: Bright, cutting, and consistent sound quality.
Cons: These may not be the most appropriate cymbals for drummers who like a dark, warm sound.
Manufacturer's Response: Erik Paiste responds, "Sound is an entirely personal matter. We recommend that you test Sound Formula cymbals at your favorite percussion center to evaluate their suitability to your personal sound needs. We encourage a comparison between Sound Formula cymbals and Avedis Zildjian and Sabian AA cymbals."

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be inappropriate.

10" Splash. Quick to speak and quick to decay, this splash really cuts. Its bright sound makes for a cymbal that really suits its name. This is what a splash should be: Not just a small, thin cymbal, but a bright, punchy effect which brings short accents to the forefront with character.

The Verdict.

Even though I personally prefer a darker cymbal sound, I liked the Sound Formula cymbals. They do have a very defined sound, characterized by an abundance of high overtones. But if you like that bright sound, these are definitely worth checking out.

I can't let this review pass without some comparison to their big brothers, the Signature Series. Both lines have the high-end overtones to which I've been referring. But the Signature Series cymbals do have a richer tonal quality than the Sound Formula line. The Signature's sound seems to come from a more even balance of the mid and lower tones. But in fairness, they are the more expensive alternative. And that doesn't diminish the quality of the Sound Formula line—they're simply different.

—Wally Schnalle

so it's easy to keep track of where you are. As you scroll from sound one through sound four, the MIDI channel and note number display updates to the current status of that particular sound.

As easy as this is, there are some additional features that make programming the Impulse child's play. First of all, you can select which input you want to program simply by hitting the drum or pad assigned to that input. The Impulse will change the input number automatically to match the drum you've just hit. Second, if you connect a MIDI cable from your sound source to the Impulse and send the Impulse a MIDI message,

MIDI loop. To overcome this problem, you can audition the current sound from the Impulse by pushing the enter button. When using this feature, you hear only the sound displayed on the screen. If you want to hear how all four sounds blend together, you're out of luck. To do this, you must exit from the ASSIGN page and then hit your drum or pad.

Stacking Screen. This page is where you tell the Impulse how to work with the four special features of stacking, rolling, crossfading, and fixed (STAK ROLL XFADE FIXD). When stacking notes, you may not always want all four sounds to fire at the same time. It's possible to tell

the unit will read the incoming MIDI channel and MIDI note number automatically from the sound source, and automatically assign it to the input. If you're using a drum machine or keyboard instrument as your sound source, nothing could be easier: Hit the drum you want to program, then hit the key or pad that you want that input to fire. Bingo, it's done.

The Impulse doesn't let you fire sounds from your drums or pads while you are programming in the ASSIGN screen, however. This is understandable: Since the Impulse is listening to the sound source to determine the MIDI note and channel information, triggering that sound from a pad could create a

the Impulse that you want the additional sounds to be added to the mix as playing velocity increases. As a default, the first sound always fires. The next three sounds are programmed as a percentage of full velocity. Let's say that sound two is programmed at 25%, sound three at 40%, and sound four at 85%. As you play very softly, only the first sound is heard. When you reach 25% of full velocity, sound two kicks in. At 40%, three sounds are being fired, and at 85% of full velocity, all four sounds are heard.

If you tell the Impulse to use the crossfade (XFADE) feature, it will fade one sound in while fading out another. Again, the sounds are programmed as a

percentage of full velocity. This percentage level is where the next sound begins to fade in as the previous sound begins to fade out.

The effect called FIXD simply sets a fixed percentage of full velocity for all four sounds. In other words, if a pad is working in the fixed mode, all four sounds will fire at the same time with a fixed velocity. You just tell the Impulse how loud you want each sound to be. Dynamics are lost in this mode, but since the Impulse doesn't have to read the level of the incoming signal, it will output MIDI data in less than one millisecond. This is the feature to use if you're triggering electronic drum sounds from tape, where timing is most critical.

The rolling effect (ROLL) has no percentage parameters. Instead, it alternates between the four selected sounds. This is a great feature if you want to fire four tom sounds from a single pad, as four successive strokes will fire the four sounds in turn. Of course, if you only have two or three sounds turned on, the Impulse will roll only among the selected sounds.

Trigger Setup. Triggering MIDI devices from drums never has been an easy proposition. Drumheads create a nightmare of fundamental and overtone vibrations that send many trigger-to-MIDI converters running under the covers. The Impulse seems to take a different ap-

proach in solving this problem by reading not just the trigger's spike, but the actual waveform of the trigger. In addition to adjusting the parameters manually, it can do this automatically as well.

Setup Screen. Before actually entering this page, it's a good idea to connect all your drums and pads to the Impulse. The reason for doing this is that the Impulse needs to be able to measure the entire setup for effective crosstalk suppression. Once everything is connected, you tell the Impulse about each input. You can select among an electronic drum pad, a small acoustic drum, or a large acoustic drum.

The next step is to enter the AUTO mode of the setup screen. In order to have Impulse automatically set all the parameters, you simply have to hit each drum five times, as hard as you expect to hit it while playing. After the fifth strike, move on to the second input and repeat the procedure. Impulse will set its own internal gain controls and crosstalk levels automatically.

After using the automatic feature, you may still want to tweak the response of a specific pad. This can be accomplished by moving into the manual mode. Here you can adjust the input gain among 16 different levels, the self rejection level (a velocity level that a drum must reach in order to be retriggered within 200 milliseconds), the rejection level (a function to eliminate any ambient or external acoustic sources which can trigger a pad accidently), and "other" (a level that a drum must reach for the Impulse to trigger if it is excited within 15 milliseconds of another drum).

Let's take a look at a few problems, and see how adjusting these parameters might solve them. Playing in a club with a loud monitor system

that's causing some of your pads or drums to false-trigger? Increase the rejection level. If you're trying to trigger a large open tom and find that the sustain of the head is causing the Impulse to send another MIDI message, you can increase the self rejection level. If playing one tom causes another tom to trigger from sympathetic vibrations, you can adjust the "other" level. With all this control, you'd be hard pressed to find a problem that Impulse couldn't solve, or, at the very least, improve dramatically.

Utility Screen. This screen performs several additional functions bundled under the names of PATCH, DYNAMICS, and MIDI. In patch mode you can assign the current settings to one of 20 different patches. There is one chain available with 32 different steps.

In dynamics mode, you can view MIDI velocities in real-time (a nice feature for taking some of the guesswork out of the stacking and crossfade percentages). But the really cool feature is the ability to map any playing velocity to any MIDI velocity. The true function of this feature is the ability to custom-design a velocity curve to your own playing style. You have the ability to offset all velocities by a certain amount (either plus or minus) or to change each and every velocity individually.

When you call up the MIDI mode, you can ask the Impulse to merge the MIDI data it generates with data from the MIDI-IN port. This is a handy feature if you want to merge the Impulse with a drumKAT or Octapad before sending the signal to a drum machine or sampler. You also can program note off messages to achieve durations between one-tenth of a second and five seconds. Inputs 9 through 12 will send note off messages. For inputs 1 through

8, you also can choose not to send note off messages.

Good Things. The Impulse is one of the best designed units of its type. Combine an elegant user interface with a well written manual (several good tutorials and suggestions for use) and you've got a machine that virtually anyone can operate. The Impulse is able to send all its data through MIDI as a bulk dump of system exclusive information. It also can change presets through MIDI when receiving a program change message on channel 16.

I tested the Impulse with Roland and Dauz pads as well as with Fishman model ADT-100 transducers. I found that the Impulse gave me wide dynamic contrasts, accurate triggering at all dynamic levels, and a sense of confidence that everything was working properly. In addition, the triggering response is fast! Even though I'm not equipped with the proper test equipment to measure milliseconds, I detected no delay between the feel of my stick hitting the surface and the sound from my drum machine hitting my ears.

Suggestions. As far as bells and whistles go, the Impulse is missing the DYNAMIC NOTE SHIFT feature as found on Yamaha's PMC1, and the PITCH BEND capability of Roland's PM-16. It would be nice if the Impulse would let you audition all four sounds while in the ASSIGN page. It also would be cool if the ROLL feature could be made to select from four sounds in a random order instead of a set pattern. I don't know of any interface that currently does

this, but I like the idea.

Here are two minor gripes that can be directed at several manufacturers: I would like any company to defend the decision of putting a power switch on the back of a rack-mount unit. Again, Aphex isn't the only company at fault here, but I'm getting tired of crawling behind my rack to turn a piece of gear on or off. Please put power switches on the front!

Another pet peeve of mine is power transformers. Is anyone else out there getting tired of carrying around all this additional hardware? Please put the power transformer in the unit! If you're at the gig and realize that you've left the Impulse's transformer at home, you can forget it. With a specialized five-pin plug, you're not going to be able to find one of these at your local hardware store.

The Verdict.

The Impulse is the fastest, easiest, and most accurate trigger-to-MIDI interface I've yet seen. What else can be said?

—*Norman Weinberg*

ACOUSTIC DRUMS
Ludwig LB-553 Piccolo Snare

L UDWIG HAS SERVED UP their latest recipe for "high-end pop": the LB-553 piccolo snare. This drum is built to the original 3" x 13" size pioneered by Ludwig at Buddy Rich's request in the early 1940s. The piccolo style has endured for five decades, and in the past few years we've witnessed a refreshing growth in its popularity.

Construction. This 3" x 13" drum is available with either a bronze or 6-ply maple shell. Our test model was a bronze version. The shell is rolled over about 3/4" on both the batter and snare sides to form a uniform bearing edge. Only a very slight sloping snare bed is cut into the bronze shell, and the shell is polished to a mirror finish. The snare strainer, butt plate, and eight high-tension lugs are mounted directly to the exterior shell. There are no gaskets or pads on any of the fittings, and no integral mufflers are employed.

The newly designed spring-less lugs are cast in zinc, polished, and hard-plated. They're smooth and precise, and lend a modern look to a classic →