



www.muon-software.com

SR202 User Manual



1. Introduction

The SR202 is a simple, fun software drum machine which allows you to create fantastic percussion parts for your music using your own samples.

SR202 gets its fantastic filters and effects from Muon Software Ltd's advanced 64-bit Analogue Modelling technology - you can read more at:

www.muon-software.com/home/home.html

Also, don't forget that e-mail support for this product is available.

Send a message to **SR202@muon-software.com** if you have any problems at all with the software.

2. Front Panel Control Basics



The SR202 has a wide variety of controls for manipulating your samples, with thousands of possible variations. The circular knob controls are used to adjust parameters that have a continuously adjustable range, whereas the buttons and switches are used to select a choice from a limited set of options or activate some feature.

For example, the Output Selector control may only be set to one of the available choices simply by clicking on the appropriate button. The Global Mode switch (as another example) flips to the side of the switch that is clicked. Click to the left for off, to the right for on.

The knobs are not operated in the common VST plug-in "circle" mode - we have implemented the more convenient "vertical" mode that many people tell us they prefer. In vertical mode the knob is clicked on with the mouse and the value only changes when the mouse is moved up and down. To make very fine adjustments, hold down the SHIFT key when moving the mouse.

At all times, a popup display will appear when you are adjusting a control, enabling you to see the control's exact value. Whilst you are learning your way around SR202, or if you wish to make fine adjustments, this is a very useful feature.

Finally, if you wish to set any control back to its default value quickly, then just press and hold down CTRL on your keyboard when you click.

3. The Pad Section



The 16 drum pads in the Pad Section are the heart of SR202. The software provides 16 different slots that you can load samples into. Each slot (pad) has its own associated synthesiser section which allows you to manipulate the sound further - more about that later.

Let's now look at a close up of a single pad and go through the controls:



In the top left of the pad is a small LED. This indicates whether or not the pad is the currently selected pad for editing in the Synthesiser sections. Next come two knob controls - the left one determines the output volume of this pad, and the right hand one is for panning the output of this pad in the Stereo Output. If this pad is routed to a mono output (i.e. outputs 1-4) the pan control has no effect. Note that your host software might not support SR202's multiple outputs.

Underneath this is a text label that will show the filename of any sample that is loaded into the pad, and below that is a large button that you can click on to preview the currently loaded sample. If you click to preview the sample you will notice that the pad becomes the currently selected pad, and the LED will light up. The Synthesiser editing controls will then affect this pad. When playing a pad via MIDI this does not happen.

Below the preview button are four very important items:

L - LOAD

Click this button to load a new sample into the pad. A standard file selector dialogue box will be displayed when you click here which you can use to load either an AIFF or WAV sample from any of the drives attached to your computer. You can use virtually any sample provided that it is 16-bit and mono. Attempting to load an incorrectly formatted sample or a corrupted file will cause an indicator to be displayed where the sample name normally appears. If you click on this button by accident you can simply cancel by selecting the appropriate option from the file selector when it appears.

C - CLEAR

Click this button to erase the current sample. Note that the Synthesiser editing controls will not reset to their previous positions if you click here - only the sample in that pad is erased.

M - MUTE

Click here to mute or un mute the current pad

S - SOLO

Click here if you just want to listen to the current pad only

4. The Sound Section



The signal path inside SR202 is very much like a synthesiser. The sample playback unit acts like the synthesiser's oscillator, which is then passed to a filter and then an amplifier. The Sound Section is the first of the so-called Synthesiser Editing controls that you can use to enliven the currently selected sample.

The sound section contains the following controls:

POLY

Click this switch to the "on" position (top) to make the current sample allocate a new voice each time it is played. This is useful if you have a long, decaying sample and you do not want the "tail" to be cut off each time you play that pad. Note that polyphonic pads with long samples will need a lot of voices and a lot of CPU. The default setting for this control is "off" (bottom).

MODE

The Mode Switch determines how SR202 will respond to MIDI *Note Off* messages received by the Pad. Note On and Note Off messages are sent by your MIDI keyboard when you press a key down, and then release it.

MIDI Note On messages are quite straightforward - a MIDI Note On message for note 36 (C1) directed at SR202 will cause the first pad to play. A note on for note 37 (C#1) will cause the second pad to play, and so on. However, each note on is normally followed by a note off when the key is released and that is where this switch comes in. Most percussion samplers ignore note off messages and play the sample that is loaded from start to finish each time a note on is received. This is the default setting of the Mode switch - ignore (bottom). In the top position SR202 will cut the current sound on the pad short when a note off is received. You can use this to make stuttering effects with loops or to play melodic samples more like a synth would.

CHOKE

Choke Groups are a common feature of percussion samples, but they often need a quite a lot of explanation so here goes:

In a real drum kit, the hihat is an excellent example of two sounds that can cut each other off. The hihat has two cymbals on the top and bottom of a pedal-operated spring. When the drummer pushes down on the hihat pedal the two cymbals close together tightly. If the drummer hits the top hihat cymbal whilst the pedal is down we get the familiar closed hihat sound, which is a very short “ttst”. However if the drummer hits the top cymbal with the pedal up there is nothing to stop the cymbal from ringing on, and so the sound of the open hihat is a much longer “tssssssssssssh”. If you sample a closed hihat and an open one you will get two sounds, one short and one long which you would load into two pads in SR202. In your drum track you will have a mixture of open and closed hihat hits - but if you want it to sound natural, the open hihat sample should be cut off (“choked”) each time the closed hihat sample is played. This is the purpose of choke groups in SR202 - assign both pads to the same choke group with these buttons and any time any pad in the choke group is played any other sound that is also in the choke group will automatically be muted out. See any of the sample kits supplied with SR202 for examples of how choke groups can be used.

Note that this control affects the currently selected pad (as indicated by the LED) only.

OUTPUT

Much like a hardware drum sampler, SR202 is capable of routing certain pads to certain “physical outputs”. The output selector is used to route the sound of the currently selected pad (as indicated by the LED) to either the stereo output or one of the four mono outputs. If your host software supports multiple outputs (at the time of writing this would be Cubase and Orion) you will see the outputs as separate channels in the mixer that you can use to apply different EQ’s and FX to the sounds of SR202.

BIT

This control reduces the bit depths of the currently selected pad. All samples, when loaded, are converted before being streamed into the SR202’s 64-bit audio engine, but this control allows you to create special “low fi” effects if you want a less than pristine sound quality. Try setting the bit depth to seven or eight bits for that real crunchy old-skool sampler sound!

TRANSPOSE + DETUNE

Regardless of the sample rate the current sample was recorded at, SR202 always plays back the sample at the right pitch. This isn’t always desirable, and the creative samplist may wish to retune the sample on the currently selected pad - the Transpose control has a range of +/- 24 semitones just for this purpose, and if a bit of fine tuning is required then the detune control offers +/- 100 cents.

5. The Pitch Section



The pitch can also be more dynamically changed using the controls in this section.

The Attack (**Atk**), and Decay (**Dcy**) knobs are to do with the mysterious process known as “modulation”. Simply put, modulation means to vary a parameter over time.

These two knobs control what is called an Envelope Generator, which has the task of creating a varying signal that the sample output pitch follows.

An envelope generator outputs a (non-audible) signal that rises from zero when a key is first pressed up to its peak at the speed determined by the Attack control. Then, the output falls back to nothing again at the speed determined by the Decay slider. In synth terminology, this is an A/D envelope generator.

The output signal of the envelope generator is used to drive (modulate) the sample’s pitch. The exact amount the pitch changes in response to the opening and closing of the envelope is determined by the Envelope Modulation Depth control (labelled **Dpth**). You should note that this control can be set to a negative amount - this will invert the effect of the envelope generator causing the pitch to fall when the envelope signal is rising and vice-versa.

You can also make the Envelope Generator respond to MIDI with the **Vel** control. If you have a velocity sensitive keyboard turn this control up, and the velocity you hit the key with will cause the envelope to open more. Harder velocities will make the envelope generator open more, and softer playing will make it open less. The **Vel** knob sets the amount of modulation applied to the envelope generator.

6. The Filter Section



SR202 has a powerful VCF (Virtual Computerised Filter), capable of sculpting the sound of your samples beyond all recognition. This is where you can really start to get creative!

The output of the pads is fed directly into the filter, which can be set to either a Low Pass or High Pass design using the switch on the left.

When the filter is set to Low Pass, harmonics higher than the cutoff frequency (set by the **Cut** Control) are made quieter, and frequencies below the cutoff pass through unharmed. The opposite occurs when the filter is in High Pass mode - the frequencies above the cutoff are allowed through whilst those below it are made quieter.

In either mode the Resonance (**Res**) control is used to add a boost to the frequencies immediately around the cut off point. Setting this control to 100% will cause the filter to turn into an oscillator, which can be used to great effect (though watch out for the levels - SR202 can easily distort the input of your sequencer's mixer at high resonance).

We discussed Envelope Generators in the Pitch Section on the previous page. The Filter Section also has its own A/D envelope which can be used to modulate the filter cutoff frequency in exactly the same way.

7. The Amplifier Section



SR202's amplifier determines how much of the sound generated by the sample pads, make it to the outside world. In the pitch and filter section we explained how the A/D envelope controls work and the basic concept of how an A/D Envelope Generator is used to make parameters change over time.

The Amplifier A/D Envelope Generator varies the output volume of the sample pad over time. Just as on the Filter EG there is also a **Vel** control for the Amp EG. If you have a velocity sensitive keyboard, increase this control until you get a good range of touch between soft, quiet hits and louder ones. This can help when trying to inject "feel" into programmed drum tracks.

SR202 is different to the usual software synthesiser or drum sampler in that the amplifier section can be overdriven just like a real amplifier. The **Dst** distortion control pushes up the "pre-amp" level and forces the sound to start clipping before it leaves SR202 and passes into your sequencer. The clipping is very carefully modelled so that it delivers a warm, analogue style of distortion which is very similar to an overdriven tape deck or valve amplifier. Use the distortion control to add warmth, compression and crunch to your percussion sounds!

8. The Selector Section



All of the controls discussed so far affect the currently selected pad, which is indicated by a bright LED in the top left corner of that pad's bit of the pad section. We've also mentioned that clicking on the preview button in each pad or loading/clearing/muting/soloing a pad will cause it to become selected.

The Selector Section also indicates which is the current selected pad in the text box in the middle. You can use the Alpha Dial also to change the selected pad also.

The **Global** switch is a great tool that allows you to use the Synthesiser Controls to affect ALL of the pads at the same time. When the Global switch is set to "On" (right), the parameters of the current pad are copied to all the other pads. Be careful if you have special settings in any particular pads, they will be lost! output, choke group, level and pan controls are not affected by this however.

Once in Global Mode, any tweaks of the synthesiser controls will affect all of the pads at the same time rather than just the currently selected pad. You can use this to enliven your drum tracks considerably by making filter sweeps, changing amplifier envelopes and in lots of other ways.

The Kit Load (**L**) and Kit Save (**S**) buttons can be used to save and recall the entire state of the SR202 into or from a file. You can then swap these 202 files (as they are called) with other musicians - and since 202 files contain all the original samples they are truly portable! 202 files generated on the PC version of SR202 can also be used in the Mac version and vice versa. Expect to see a lot of 202 files on the net in the future!

Some host sequencer programs provide their own load/save bank and program routines and so you could be forgiven if the usefulness of 202 files was a mystery to you. Different host programs actually have different capabilities. Some programs, for example, cannot save SR202 samples when you save your song. Other host programs cannot load the common "FXB" file format.

The Kit Load and Kit Save buttons, and the 202 file format mean that SR202 can be used fully in a wide range of host software.

9. The Master Section



This section contains just two controls - the maximum voices selector and the master output volume.

The voices selector determines how many samples SR202 can play back at once. Unless you set Poly Mode on for any of the pads, each pad is monophonic. This means you will only require one voice for each active pad, and no note-stealing will occur. If any of your pads are polyphonic then SR202 will need to be able to allocate a new voice each time the pad is played and the previous sound has not yet finished. The more voices that you use, the more CPU will be consumed by SR202.

When SR202 runs out of voices, it uses a simple search algorithm to calculate which currently playing voice can be “stolen” and reused. In synth terminology, SR202 uses Most Recent Note Priority. SR202 prioritises further by stealing voices first if they are playing the same sample and then from the higher numbered pads first. If you have low CPU power and have consequently reduced SR202’s maximum number of voices you should put the sounds you wish to prioritise into lower numbered pads to ensure they are stolen least often if at all.

10. MIDI Control

So far we have shown that SR202 responds to note on, note off and velocity data just like a real drum machine. Additionally, SR202 responds to MIDI continuous controller messages to enable you to change parameter values from a remote MIDI controller or from inside your sequencer software.

MIDI CC messages are numbered from 1-127. SR202 can only respond to CC's 75-100, and each is reserved for a particular function. The MIDI Channel that the message is transmitted on determines the sample pad that gets changed - messages sent on channel 5 for example only affect pad number 5 in SR202!

These parameters, and their value ranges, are listed below.

Please note that SR202's on-screen controls cannot SEND CC messages, they can only receive them.

Parameter	CC	Range
Output	75	(range 0-127 divided into 5 sections)
Choke Group	76	(range 0-127 divided into 5 sections)
Note Off Mode	77	(0=off, 127=on)
Poly Mode	78	(0=off, 127=on)
BitCrush	79	0-127
Transpose	80	64=centre (0 semitones)
Detune	81	64=centre (0 cents)
Pitch Envelope Attack	82	0-127
Pitch Envelope Decay	83	0-127
Pitch Envelope Velocity	84	0-127
Pitch Modulation Depth	85	0-127, 64=centre (no modulation)
VCF Type	86	(0=Lowpass, 127=Highpass)
VCF Cutoff	87	0-127
VCF Resonance	88	0-127
VCF Envelope Attack	89	0-127
VCF Envelope Decay	90	0-127
VCF Envelope Velocity	91	0-127
VCF Modulation Depth	92	0-127, 64=centre (no modulation)
Amp Envelope Attack	93	0-127
Amp Envelope Decay	94	0-127
Amp Envelope Velocity	95	0-127
Overdrive	96	0-127
Pad Level	97	0-127
Pad Pan	98	64=centre
Pad Mute	99	(0=off, 127=on)
Pad Solo	100	(0=off, 127=on)

11. Getting Help

It's no doubt that SR202 is a powerful drum machine, and it is designed to make creating new rhythms easy and quick. For some though all that power can be daunting -just mail us at SR202@muon-software.com and we'll do our best to answer your questions quickly and courteously.

Best of luck!!

(c) Muon Software Ltd (www.muon-software.com)

(c) Computer Music/Future Publishing Plc 2001

Thanks to all the beta testers, who saved the day again :-)