

QASIC

DIGITAL SAMPLING RYTHM MODULE

RZ-i



Operation Manual

1. Welcome

Thank you for trying / purchasing Quadelectra ASIC (QASIC) RZ-i Drum Module.

RZ-i is a drum module inspired by the legendary RZ-1 Drum Machine, by Casio. Used and loved by many artists like Autechre, Hardfloor, Joey Beltram, Steve Poindexter, Cristian Vogel and more, the RZ-i is a “cute” little secret weapon for sorts of experimentalists and technoheads.

Choosing the RZ-1 as our reference, was not an accident. It was the perfect chance to actually test and finally integrate our new concept, called Audio to String Interchange Conversion or ASIC.

Lets rewind to the 80s for a moment: Back in the day, Casio RZ-1 was one of the first devices with sampling capabilities. Of course hardware-wise, there were many limitations in terms of memory, and consequently sampling durration and quality, but nevertheless the RZ-1 sound today is distinctive because of exactly these novelties.

Although Rack Extensions SDK does not support user samples, we were able to make QASIC RZ-i emulate the custom samples feature of the reference hardware. This means that, although you cannot directly sample with the device, you can import your own samples in the form of a patch using an external application, that does this work: Creates standard RE patches (*.repatch files) for the device containing your sample data.

This application is called QASIC RZ-i Sample Importer and its totally free. You can download it in our website.

For more Information about the Sampling Feature see Chapter 4 on this manual.

We hope you enjoy using your RZ-i, and make lots of cool music with it.

2. The Front Panel

The RZ-i front panel is very simple:



Fig 2-1: The QASIC RZ-i Front Panel

The QASIC RZ-i is divided into seven sections:

- **MIDI In Led:** This is found at the top left of the device. The MIDI Led flashes when ever a MIDI Key is pressed or released to provide a visual feedback.
- **Drum Level Faders:** The Drum level faders control the level of one or two drum sounds simultaneously. In particular there are level faders to control, the following sounds or groups of sounds:
 - **TOM1:** Controls the High Tom level of the drum set.
 - **TOM2:** Controls the level of the Mid Tom of the drum set.
 - **TOM3:** Controls the level of the Low Tom of the drum set.
 - **BD:** Controls the level of the Bassdrum.
 - **RIM / SD:** Controls the levels of both the Snaredrum and the Rimshot.
 - **OPEN HH / CLOSED HH:** Controls the level of the two hi-hats of the set.
 - **CLAPS / RIDE:** Controls the levels of the Handclap and the Ride Cymbal.
 - **COWBELL / CRASH:** Controls the levels of the Cowbell and the Crash Cymbal.
 - **SAMPLE 1, 2:** Controls the levels of the user samples 1 and 2.
 - **SAMPLE 3, 4:** Controls the levels of the user samples 3 and 4.
- **Accent / Velocity Sensitivity Level:** The fader has two purposes: When the device is in “Accent Mode”, it controls the amount of excess volume of the accented hit. However with the “Accent Mode” turned off it controls the velocity sensitivity of the notes played by the MIDI Keyboard.
- **Master Volume:** This fader controls the entire volume of the device. Note that this setting affects also the level on drum sounds routed in their individual outputs.

- **Accent Button & Led:** The “Accent” button is located at the lower left section of the device. This sets or unsets the device in “Accent Mode”.

While in “Accent Mode”, the MIDI velocity of the device is quantized in to two settings. MIDI key presses with velocity under 100 will produce non-accented hits, while hits with velocity ranging from 100 to 127 will produce accented hits.

The difference of amplitude between accented and non-accented hits is set using the “Accent / Velocity Sensitivity Level”.

With the “Accent Mode” turned off MIDI velocity works as expected, but you can adjust the hit sensitivity using -once again the “Accent / Velocity Sensitivity Level” fader.

- **Drum Pads:** The RZ-i has a drumset of 12 sounds total. These sounds have black colored buttons. Furthermore there are 4 grey buttons which trigger the user defined samples, which you can load to the device (See Chapter 4: Samples Feature).
- **Sampe Bank (Patch) Loader:** Finally at the bottom right of the device you can find the Sample Memory Loader. The Sample Memory Loader is nothing more than a standard patch browser which in the case of RZ-i is used to load sounds. No other information is saved within the patch except that. For more information see Chapter 4: Samples Feature in this manual.

3. The Rear Panel

The RZ-i rear panel looks like this:



Fig 3-1: The QASIC RZ-i Rear Panel

Again things here are pretty much straightforward. Starting at the top left of the panel, we see the following:

- **Instrument Outputs:** There are 10 monophonic audio outputs, for either individual sounds or sound groups. The assignments of the sounds on these outputs match with the ones on the level faders at the front panel. Once you connect a cable to an instrument output, the sounds to which that output is assigned, will be muted from the main mix.
- Note, that the faders at the front control the amplitude of the drum sounds even when they are sent through their dedicated outputs.
- **Main Audio Outputs:** At the right of the device, you can find the Main Audio Outputs, where all sounds that do not pass through their dedicated outputs, are mixed and sent. Right under the Main Output audio jacks, there is a CV input for modulating the entire amplitude of the device level.
 - **Level CV Modulation Inputs:** Instrument Outputs have their own modulation CV inputs for controlling their output amplitude too.
 - **Gate Outs:** RZ-i can be used to trigger other sequencers and / or drum machines. Gate outputs will do this job. By connecting a CV cable from the Gate Out of a sound in RZ-i to the Gate In of an another device, you can trigger that device's sound whenever you play the sound of the Gate Out on RZ-i.
 - **Gate Ins:** Consequently you can have other devices triggering the sounds of the RZ-i.

4. “Sampling” Feature

While the Rack Extensions SDK does not support sampling or sample loading directly, your RZ-i can playback your own custom samples at the rate and bit depth of the original RZ-1 drum machine: 20KHz / 8bit mono. Behind this feature is the Quadelectra Audio to String Interchange Conversion technology from the acronym of which (QASIC) this device takes half of its name, being the first to employ it.

Quadelectra ASIC packs one or more sounds to a plain Rack Extension patch file, which can be saved or loaded from the device itself, much like any other patch. However since as we've said before there is no direct way to record, add or remove samples in Rack Extensions, a third party application must be used to collect and pack all the needed samples.

Quadelectra provides you this application, called QASIC RZ-i Sample Importer, free of charge, and you can download it from our website. In this manual we won't examine the importer application - it has its own manual too, but we'll examine how the sampling memory is used.

Following its hardware counterpart, the RZ-i supports four banks, each 4096 bytes. At 8bit mono and 20KHz sampling frequency each bank translates roughly to 205ms of audio. They are called -as you'd expect- SAMPLE1, SAMPLE2, SAMPLE3 and SAMPLE4.

Another original feature that the original device had and its passed to QASIC RZ-i is the ability to change the bank configuraton, and merge banks in order to increase the available sample length, in the cost of the number of available samples. The bank configuration cannot be done directly from the device, but rather from the Sample Importer application.

There are 5 different bank configurations:

- All Split: All banks split. You get 4 samples, 4096 bytes / 205ms each.
- 1-2 Joined: Banks 1 & 2 are merged: You get 3 samples. Samples 1 & 2 are merged thus you get one sample with 8192 bytes / 410ms each, and samples 3 & 4 are split with properties same as in “All Split”.
- 3-4 Joined: The same as “1-2 Joined” but in this configuration Samples 3 & 4 are merged.
- Pairs Joined: Both sample pairs are merged: Samples 1 with 2, and 3 with 4. This gives you 2 samples, 8192 bytes / 410ms each.
- All Joined: All banks are joined. This gives you 1 sample with a total of 16384 bytes / 820ms.

Note that joined samples play the same sound from start. So for example one big sample from an “All Joined” configuration will cause SAMPLE1, 2, 3 & 4 to play the same 820ms long sample.

APPENDIX I: MIDI & Remote Implementation Chart

The following is the MIDI Control Implementation Chart and Remote Names

CC	Internal Name	Short Name	Tiny Name
4	Accent Level	AccLevel	Accn
5	Velocity Sens	VeloSens	VSns
7	Main Volume	MainVol	Vol
67	Accent On	AccentOn	AcOn
128	TOM1 Level	TOM1Lvl	TM1L
129	TOM2 Level	TOM2Lvl	TM2L
130	TOM3 Level	TOM3Lvl	TM3L
131	BD Level	BDLvl	BDL
132	RIM / SD Level	SDLvl	RSDL
133	OPEN HH / CLOSED HH Level	HHLvl	HHL
134	CLAPS / RIDE Level	CPRDLvl	CRL
135	COWBELL / CRASH Level	CBCRLvl	CCL
136	SAMPLE 1-2 Level	Smp12Lvl	S12L
137	SAMPLE 3-4 Level	Smp34Lvl	S34L

APPENDIX 2: MIDI Drum Mapping

The following is the RZ-i drum map and name reverse look up.

NOTE(MIDI) SOUND

C1(36) BD	C#1(37) RIM
D1(38) SD	D#1(39) CLAP
F1(41) TOM3	F#1(42) CLOSED HH
G1(43) TOM3	G#1(44) CLOSED HH
A1(45) TOM2	A#1(46) OPEN HH
B1(47) TOM2	
C2(48) TOM1	C#2(49) CRASH
D2(50) TOM1	D#2(51) RIDE
E2(52) SAMPLE1	
F2(53) SAMPLE1	
G2(55) SAMPLE2	G#2(56) COWBELL
A2(57) SAMPLE2	
B2(59) SAMPLE3	
C3(60) SAMPLE3	
D3(61) SAMPLE4	
E3(63) SAMPLE4	

Reverse Lookup

Name	MIDI
BD	36
CLAP	39
CLOSED HH	42, 44
COWBELL	56
CRASH	49
OPEN HH	46
RIDE	51
RIM	37
SAMPLE1	52, 53
SAMPLE2	55, 57
SAMPLE3	59, 60
SAMPLE4	61, 63
SD	38
TOM1	48, 50
TOM2	45, 47
TOM3	41, 43

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