

## ***Synth Controller manual addendum for Edition 'Super Quart7' supporting Roland MKS-7 Super Quartet***

This edition is dedicated to the Roland MKS-7 aka. 'Super Quartet'. Many thanks to Boris P. for his help on developing this edition with ideas and testing.

You can tweak it's 3 instruments BASS, CHORD and MELODY separately through the 3 color layers of the Synth Controller. The Drums-Section can not be altered in any way.

By default the instruments are using the following midi channels:

- MELODY     1
- BASS        2
- CHORD      3

Although you can change these midi channels in the MKS-7 itself, the Synth Controller entirely uses the default setting shown above. The channels can not be changed in the Synth Controller, there is no channel learn mode as described in the Synth Controller's manual. In addition, this edition also does not offer the Bypass-Mode.

### *Color coding, CC numbers and available parameters*

Press one of the 3 lighted buttons to move from one layer to another. Red changes the sound of BASS, green changes the CHORD sound and blue logically alters MELODY.

Next to the parameter names you'll spot colored numbers in red, green and blue. They stand for Midi Control change numbers causing the Synth Controller to translate into the SysEx-commands your Super Quartet wants to hear for parameter changes. This means you can remote your Super Quartet in your DAW or sequencer.

The numbers have a secondary function: if a colored number is missing on the faceplate, there is nothing which can be changed. For example the BASS of the Super Quartet does not offer an LFO. The knobs have no function in the BASS layer, therefore you wont see red numbers here.

### *Alternative parameters*

Some parameters are printed ABOVE the pot. If you keep pressing an already lighted button you can reach these alternative parameters, in short 'ALT'-parameters. E.g. to change LFO DELAY you keep the lighted button pressed and turn the LFO RATE knob. By the way, BASS does not offer 'ALT'-paras at all.

## *Multibit-parameters in general*

Things might get a bit complicated now, unfortunately. It's about the parameters in orange and magenta. You don't need to understand everything for using the Synth Controller together with the MKS-7. But this chapter tries to explain the cause for probably odd behaviour you might experience when changing these – as we call them - 'Multibit parameters'.

The MKS-7 was built in times when ICs (these black electronic parts with lots of legs) were very expensive. Efficiency was crucial, especially concerning memory (=bytes). Most of the MKS-7 parameters can have values between 0 and 126 like e.g. LFO AMOUNT or ATTACK – each of these parameters uses ONE of these expensive memory cells.

Now there are also 'simple' parameters which just can be switched ON and OFF like NOISE, HP, ENV INVERT, PWM Modulation by LFO or MANUAL. To spend an entire memory cell for such a simple switch would simply be wasted resources. You could as well combine 7 of such parameters in just one memory cell using the individual bits of the data byte, the cell is holding!

That is exactly what the clever Roland engineers did – combine several parameters in one memory cell using single bits. But this logically leads to a problem: if we try to change this memory cell (containing multiple ON/OFF paras) with a continuous value generated by the turn of a knob, these ON/OFF values would be flipped in a quite chaotic manner. We therefore had to find a practical way to make them controllable individually - at least somehow.

You ask yourself why you should have to know all that?

Due to this organisation, there is another problem arising: even if we want to change just ONE bit (=para) we have to send the whole memory cell (byte, containing ALL bits) to the MKS-7ers. The controller of course has no idea about the current state of the other (orange & magenta) paras in the MKS-7. So it might happen NOISE just goes ON or the HIGHPASS gets OFF (unintendedly) if you change ENV to 'INV'.

To prevent such surprises while changing one of these grouped Multibit parameters it might make sense setting them one after the other to the desired state after powering up or changing the preset on the MKS-7. Controller and MKS-7 are then synchronized and you won't experience any unpleasant surprises when swapping just one of them.

Other possible solution: use the INIT PATCH function described below.

### *Orange Multibit parameters for CHORUS, SHAPE & RANGE*

These 3 orange parameter have to share one memory cell of the MKS-7:

CHORUS is an 'ALT'-Parameter. Hold the lighted button and turn the knob for DYNAMICS: In the right half of the turnspan CHORUS will be ON, left half for OFF.

RANGE sets the base frequency in 3 positions: 16', 8' or 4'. Also an alternative parameter.

SHAPE sets the waveform and has 4 positions: both off (might make sense when using Noise), just SAW, just SQUARE or BOTH activated.

The BASS layer only flips between SAW and SQUARE. It's not possible here to switch both off or both on. BASS also lacks the Chorus btw.

You can also remote the orange Multibit-Parameters from your sequencer using CC# 22 (CHORD) resp. 40 (MELODY). As explained above, all 3 parameters will be changed in a chaotic matter when travelling through the valuespan of the Control Change message. But the result is predictable, sending a value of say 32 will always lead to the same result.

### *Magenta Multibit-Parameters 'WM, NOISE, HP, ENV INV & VCA GATE/ENV*

Now on to the second Multibit Parameter. Not less than 5 parameter share one memory cell here:

- PWM modulated by LFO / manually (ALT of DCO PWM)
- Noise On / Off (ALT of SUB LEVEL)
- Highpass On / Off (ALT of CUTOFF)
- Envelope Normal / Inverted ( ALT of VCF ENV AMOUNT)
- VCA modulated by Gate or Envelope ( ALT of VCA LEVEL)

Just simple On/Off parameters changing their value in the left or right half of the turnspan.

Noise is only available in MELODY layer, CHORD has no Noise.

You can remote these magenta switches using CC# 22 (CHORD) resp. 40 (MELODY). The probable issues are the same as with the orange parameters described above.

## *Init-Patch*

Holding the green and blue button down together for a second causes the Synth Controller to send an INIT patch to both MELODY and CHORD on Tone Nr. 0. The values for the parameters come from the current position of the pots.

LFO DELAY (being an ALT-parameter) is set to 0.

The orange and magenta Multibit-parameters are initialized to the following values:

- SHAPE        Saw
- RANGE        8'
- CHORUS       Off
- PWM          Manual
- NOISE        Off
- HP            Off
- Env           Normal
- VCA          Envelope