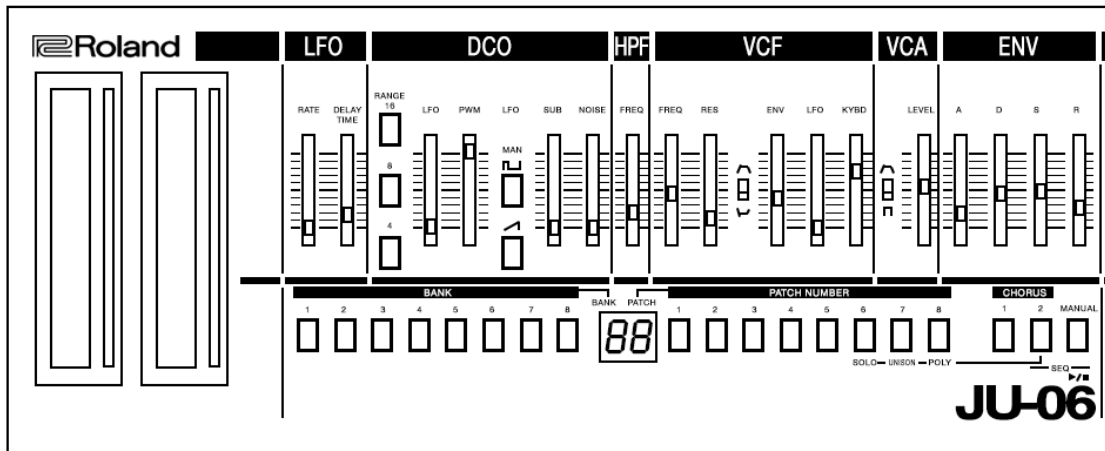


# PROGRAMMABLE POLYPHONIC SYNTHESIZER

A USER'S GUIDE TO THE ROLAND JU-06

# JU-06



# Acknowledgements:

This manual was assembled, illustrated, and written by Sunshine Jones. All of the contents is taken from either his personal experience, existing documentation, and techniques submitted and found in the public domain. The document is intended as a companion guide for the Roland JU-06 Synthesizer Module. It is in no way offered as a criticism, or intended to be an authoritative guide to replace the official documentation which accompanies the commercial purchase of Roland Boutique, or Roland AIRA musical instruments.

Rather, this manual is intended to support the musician, the user of these and other synthesizer modules and inspire them to create music, share sounds, and fully realize the synthesizers in front of them.

In the tradition of owner's manuals, rarely are they opened until problems arise. We tell you over and over again to RTFM, but do you listen? No, no you don't. Manuals should be both tools for reference and instruction, as well as inspirational guides to possibility. An owner's manual should be equally a pre purchase discovery, meant to inspire the curious with capability and possibility, and a post purchase celebration of depth, technique, guidance, and surprises. But this is by no means the last word. So many people have read and re read a manual only to still have no idea what the manual was attempting to suggest. This owner's manual is offered free of charge to anyone curious, or frustrated by the tiny little leaflet which covers the operations of the JU-06 in several languages, as a legible alternative to the official documentation.

This manual is not associated in any way, personally or professionally with anyone connected to the Roland Corporation. The task was undertaken in a moment of fury, and assembled, proof read, and then hastily produced exclusively for love, and pleasure.

It is our hope that as the result you will begin to explore and discover layers of sound and joy which were previously overlooked. We hope and trust that you will use these PATCH and BANK worksheets to document your discoveries, and our extensive encouragement to share, and import patches of your own into a thriving community of exploration and delight.

If you wish to correspond with the author of this manual you may do so by navigating your web browser to the following destination:

<http://sunshine-jones.com>

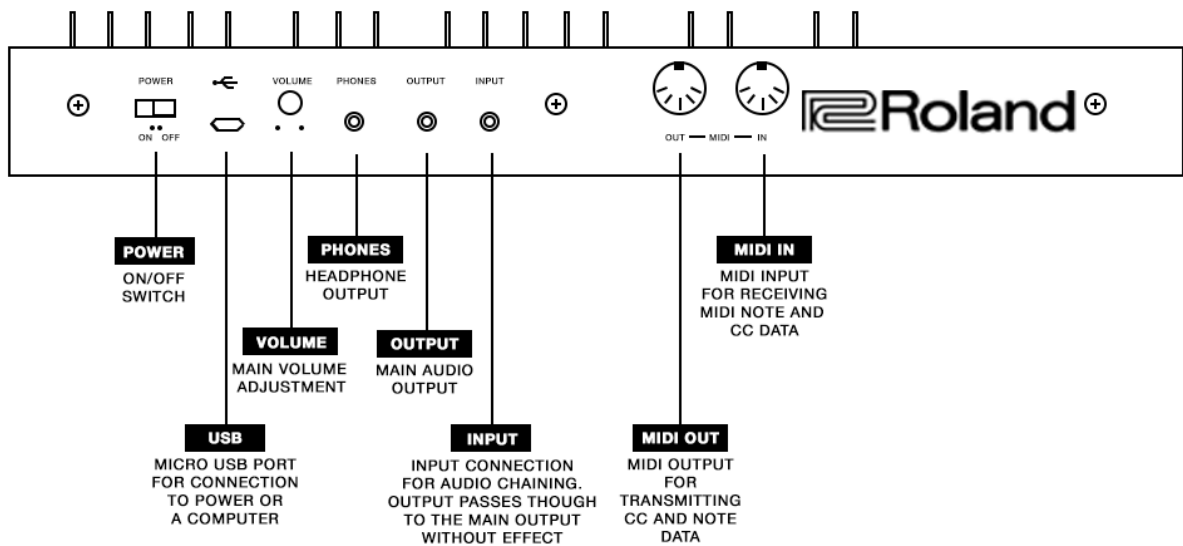
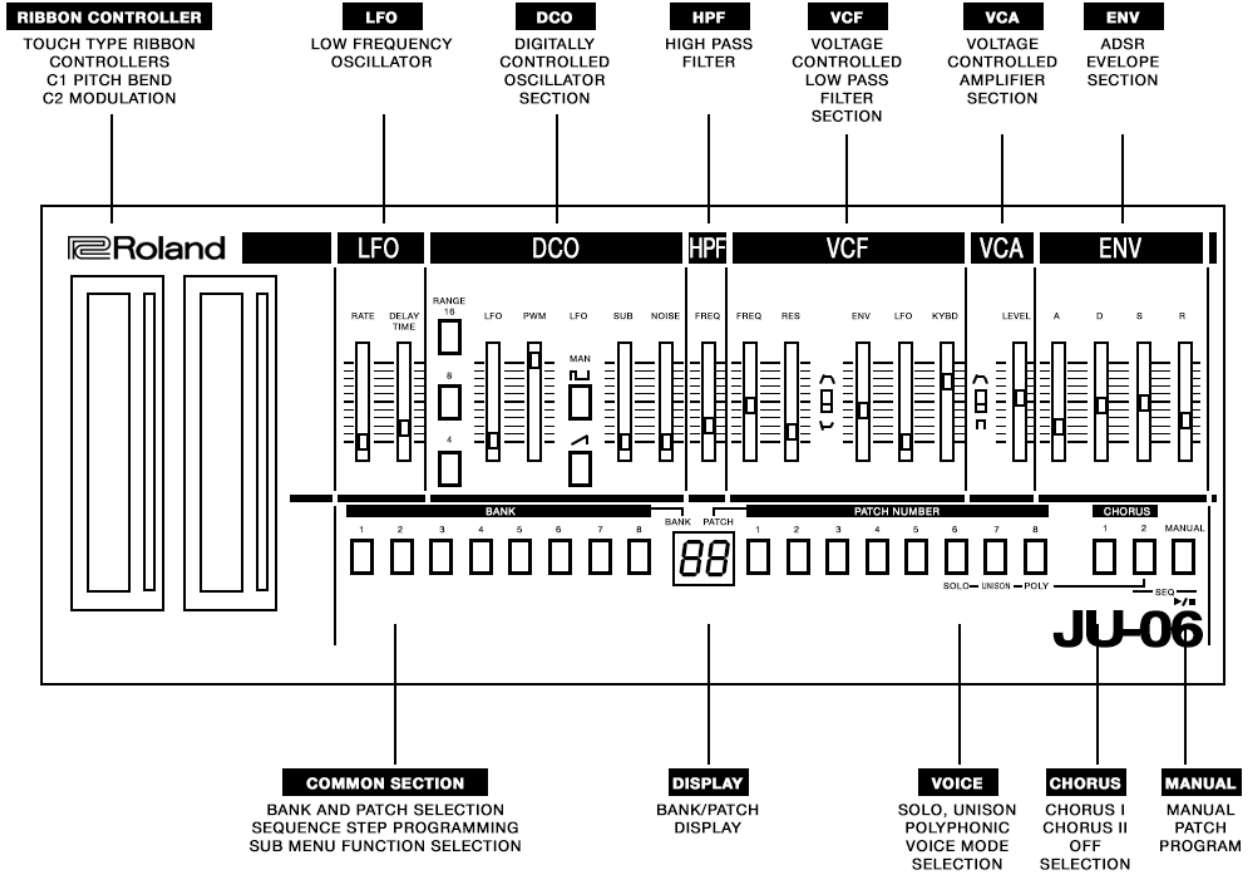
The original article and a bank of patches may be found within the non-fiction section of the site.

While no rights are reserved for the copyrighted materials, nor the registered trademarks discussed or absorbed into this manual, the assemblage itself and subsequent sound examples, illustrations, and concept are offered exclusively under the Creative Commons license of share and share alike. This is and shall always be free of charge to the reader, and user of the Roland JU-06 synthesizer module, and must never be offered for sale or barter. This is freeware, and free information for all.

**With Love**

Sunshine Jones  
July 2017  
San Francisco, California

Version 0.6C





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# Introduction

The limited-edition JU-06 is an authentic recreation of the iconic JUNO-106 synthesizer. Sometimes described as one of the last great synths of the analog era, the JUNO-106 became a favorite thanks to its warm sounds and instant sound-shaping ability. The new 4-voice JU-06 module continues this approach, with 23 parameters controllable via the front panel and that classic JUNO sound – complete with the much-loved JUNO chorus effect. There are some new additions too, including a faster LFO and continuously variable hi-pass filter (HPF). You can even slide the JU-06 into the optional K-25m keyboard unit for a self-contained, go-anywhere synth experience.

## **Big Sound. Small Package.**

The JUNO-106 is sometimes described as one of the last great synths of the analog era, and it became a firm favorite thanks to its distinctive, warm sounds and instant sound shaping ability. The new JU-06 module has all of the sonic character of the original, with accurate reproduction of the entire sound set including the classic JUNO strings and the much-loved JUNO chorus effect.

## **Additional Sound-Shaping Options**

Like the other members of the Roland Boutique range, we also added a few subtle improvements that weren't found on the original models. The JU-06 gains a faster LFO and a continuously variable hi-pass filter (HPF) resulting in a super-smooth sound.

## **Hands-On Control for Instant Programming**

The original JUNO-106 was a great way to learn about synthesis, as each stage of the sound creation process was clearly laid out on the front panel, with lots of sliders for instant sound-shaping and experimentation. And that's still the case with the JU-06, which features 23 knobs and sliders from the original – all inviting you to start tweaking and creating your own customized version of this legendary sound engine.

## **Develop Your Ideas with A 16-Step Sequencer**

The onboard 16-step sequencer is a sonic scratchpad that lets you try out new ideas without bringing lots of gear – it can even be used without a keyboard. And if there's no keyboard connected, the ribbon controller lets you preview the sound, making it an ideal way to program patches quickly and easily.

## **Optional K-25m Keyboard Unit**

The JU-06 works especially well with the K-25m, an optional 25-key velocity sensitive keyboard that takes your music making to the next level. Once docked in the keyboard, the module's front panel adjusts to three positions for convenient access to the knobs and sliders.

## **Chain Mode**

The original JUNO-106 was famous for big lush sounds created by its 6 oscillators/voices. The JU-06 features a chain mode that allows you to connect two JU-06 modules using the MIDI ports and create one, 8-voice synthesizer. Adding additional modules adds another 4 voices of polyphony with each module. This is especially great when controlling the JU-08 from a larger external keyboard. You can even edit the sound from the master module and control both units. Great for realtime filter sweeps and envelope adjustments.

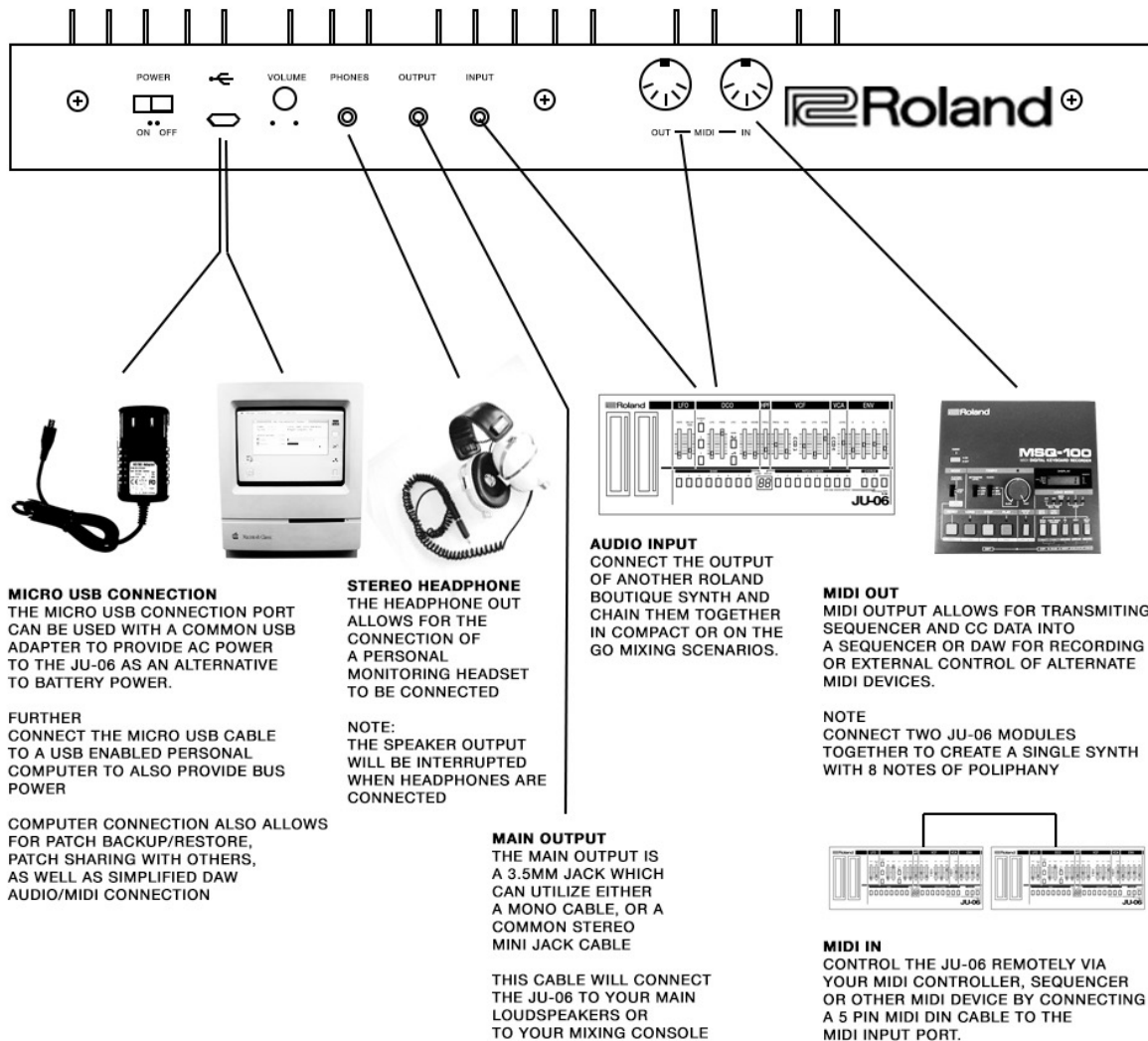
## **Battery or USB Bus Power**

Some of the best music is made away from the studio, so the Roland Boutique series runs on 4 x AA batteries, ready for when inspiration strikes. Alternatively, you can power the JU-06 via USB Bus power.

## **USB Audio Interface for Direct Recording into Your DAW**

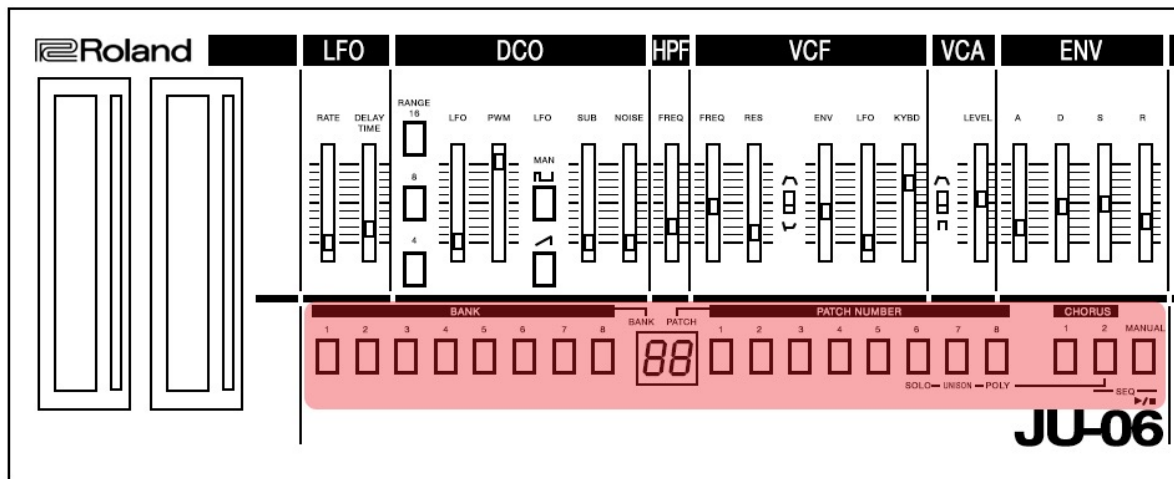
The built-in USB port also functions as a high-quality 24bit, 44.1 kHz audio interface, for a fast, simple and reliable way of recording directly to your DAW application. You can keep your favorite patches and sequencer patterns safe too, via the USB data backup function.

# Basic Connections



**NOTE** - the use of the Mac Classic™ for the purposes of illustrating a personal computer in this diagram does not suggest that a Mac Classic™ will work in this instance. The fact is, the Mac Classic™ doesn't even have a USB port on it, nor do we know of a currently produced or functional ADB to USB adaptation technique. The Mac Classic™ was used in this illustration because it looks cool, it fit into the graphic nicely, and also perhaps to subconsciously introduce the idea that perhaps a computer is less of an inspirational musical instrument in the end than we might have originally hoped it would be. The idea of computers and music was once a thrilling concept - what sequencer isn't a computer of sorts, right? And yet as the world funnels down into tiny screens, and distraction it seems that our focus might be better placed into a more diverse and authentically inspirational tools which give back in a deeper and broader way.

# I. General Functions



## Common Section

The Common Section of the JU-06 is where bank and patch information is stored and recalled for performance.

The first set of buttons 1-8 are the BANK selection buttons  
The second set of buttons 1-8 are the PATCH selection buttons

To select a patch first choose the bank, and then select the patch. Think of the bank as the 10's and the patches as the 1's. For example to recall patch 43, one must depress bank select button 4 and then patch select button 3.

To store a patch is equally as straightforward.  
To store a patch first double-check that you are not about to overwrite a patch you really love.  
But be careful not to lose the patch your working on in order to check.  
This causes a conundrum doesn't it?

Well, not always, but it certainly can. It's a good idea to consider using MANUAL mode - a mode where what you see on the panel is what you are hearing in the speakers. This way you are free to call up a patch and make sure it's one you aren't worried about overwriting before you lose precious sounds you might need.  
From MANUAL checking a patch is as simple as pressing BANK 4, and then PATCH 3 and play a note or two to see if patch 43 is something you could do without. If it is, simply press MANUAL again and you'll be transported as if by magic back to the patch you were working so hard on. Nothing is lost, and you can be absolutely sure of where you'd like to put it.

To write this patch to BANK 4 Patch 3 (43) press BANK 4, and then long press PATCH 3 and hold it until you see the button flash. Once it flashes you know your patch has been stored.

The common section is also the location of many interesting settings for effects, the sequencer, swing, portamento, midi channel, tuning, velocity, clock source, and more features. In various modes these same buttons perform all sorts of other functions.

See system settings (page 28) for more details about everything the common section buttons can do.



# USB Interface

In the past many synthesizers came equipped with various interfaces. Connection methods like CV and Gate, Din Sync, Synch Jones, DCB, Tape I/O allowed synthesizers to connect to clocks, tape machines, sequencers and drum tracks. Thanks to the universal serial bus with which most personal computers are equipped today we have a number of interesting ways to handle these once complicated and tedious operations.

The USB connection port can be used to:

- Power the Synthesizer
- Both power and pass midi as well as audio data to and from a computer based DAW
- Mount the Synthesizer to the desktop of a computer and backup and/or restore and share your patches.

## To connect the USB port to power:

Use an optional micro USB cable which is either the type with a wall plug on the end (like a wall wart adapter) or the type with another USB to power block on the end (like a phone charger.)

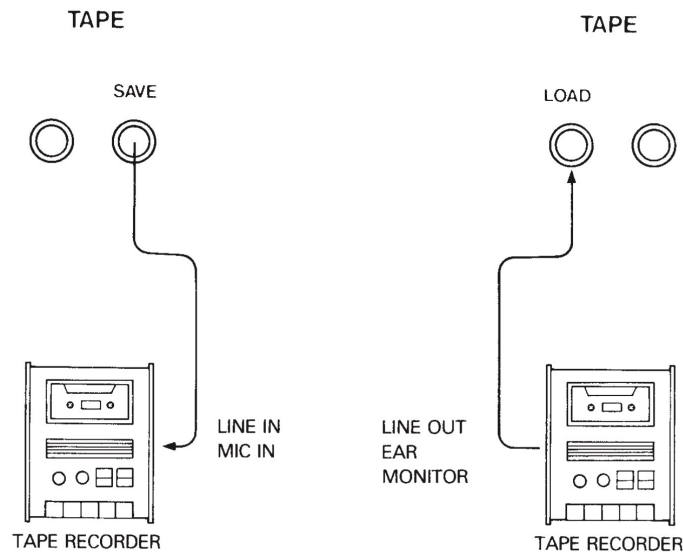
Both will work, but make sure that whichever you've chosen can provide sufficient power to run the JU-06.

If the JU-06 goes to sleep while you believe you're plugged into the wall, then your power supply is either faulty, or it isn't powerful enough to run the synth (and you're running off the batteries.)

Typically you will want to look at the tiny print on those phone chargers and ensure that it's at least 5 Volts and 1 Amp and preferably a switchable 100-240 transformer, because then (with the right plug connectors) it will work anywhere in the world.

# Data Backup & Restore

One of the coolest things about the boutique line of modules is their ability to mount onto the desktop of any USB enabled computer and you can drag and drop your patches in order to save them. This is much handier than the old fashioned midi librarian software, or the ancient and rarely reliable tape backup interface (although that actually is a thrill and you might want to try it sometime.)



### **To mount the JU-06 to your desktop follow this procedure:**

1. Holding down BANK 2 button, power up the JU-06
2. Connect your computer to the JU-06 USB port via USB cable
3. Open the JU-06 drive which has mounted to your desktop

### **To create a backup of your patches:**

1. Follow the above procedure for mounting the JU-06
2. Copy the backup files from the JU-06 drive into an appropriately named folder on your computer
3. Once you're done, eject the JU-06 drive, disconnect the USB cable and you're done.

### **To bring patches from your computer into the JU-06:**

1. Follow the above procedure for mounting the JU-06
2. Copy the backup files, or the new patches you'd like to check out into the "RESTORE" folder on the JU-06 drive
3. When copying is completed, eject the JU-06 drive.
4. **IMPORTANT** - Before power cycling the module press the MANUAL button
5. Once the lights stop blinking you may power cycle the JU-06 and disconnect the USB cable and you're done.

What's so big about that? Any system exclusive file utility can do the same thing, why is this important? Well, the simplicity and visual aspect of this process is so novel that really anyone with basic computer skills can do it. This makes the process of file/patch sharing very easy. It's surprising that there aren't many amazing JU-06 or other Roland Boutique patches out there for the sharing and contributing to isn't it? It's possible that this process is just so easy, and painless to do that people still believe they need to connect a cassette deck, and record the sysex audio to tapes and then ship them to friends in order to share their files. Or many people are afraid to give away their precious patches? I'm not sure, but I think it's pretty cool, and I plan to come up with a bank of patches or two and offer them up for anyone interested in them. I'd also be very keen to see how others have undertaken the JU-06 in their own situations. Can you tell I think that patch exchanges are awesome? I do. And while I rarely use patches from other sound designers, I love to explore what synthesizers are capable of, and sometimes the best way to do that is by seeing how Vince Clarke, or someone I've never heard of does it.

### **Restore the JU-06 to factory settings:**

This is the procedure for resetting your JU-06 back to it's factory state. Remember that if you do this, all your settings and all your sounds will be overwritten with the out of the box, factory fresh programming.

1. While holding down the BANK 1 button, turn on the power.
2. The MANUAL button will blink. If it doesn't try that again. If you change your mind and decide not to go through with the reset, just power off the JU-06 and then turn it back on.
3. To execute the rest press the MANUAL button
4. When all the buttons blink, restart the JU-06 and it'll be just the way it was the day you got it.

## **Auto Off**

You can set the JP-08 to automatically shut off - to save batter power - after 30 minutes. You can also switch this off so that the synthesizer doesn't turn off.

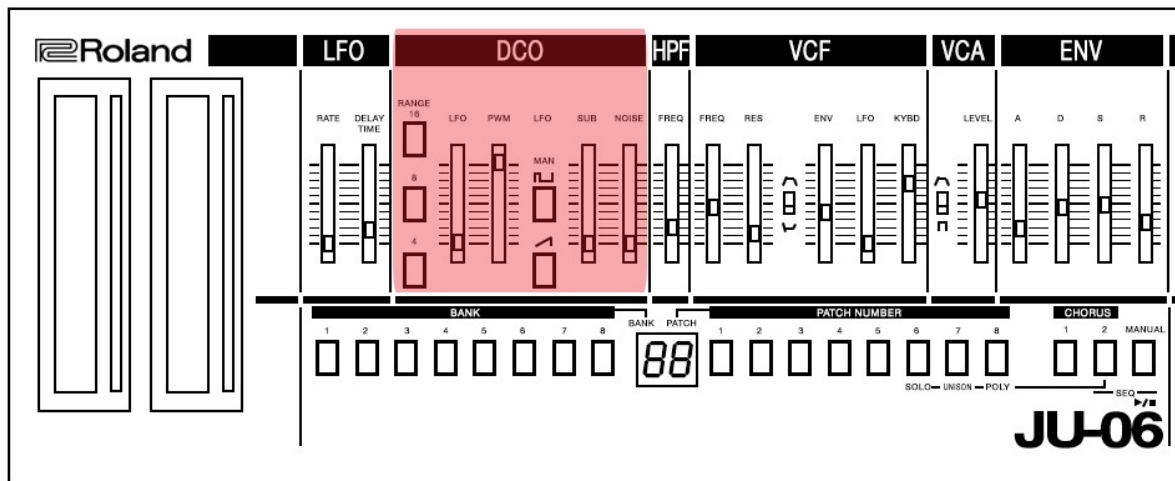
### **To adjust the auto off functions:**

While holding down the MANAUL button, press the number 9 button.

- 1 - OFF - the power will not turn off
2. - 30 - the power will automatically switch off after 30 minutes.

**NOTE** - While in USB operation mode with a computer, auto off will not occur regardless of the settings.

## II. Functions for Sound Creation



### DCO

DCO is the digitally controlled oscillator that controls the pitch and creates two types of waveforms which are the sound source of the synthesizer. Compared to VCO (Voltage Controlled Oscillator), DCO has superior stability. The operations and functions of the DCO are virtually the same as those of the VCO.

#### 1. WAVEFORMS

You can select the output waveform of the DCO. Each switch can be individually turned on or off and can be simultaneously used with another switch.

#### 2. PWM Mode Switch

When it is set to MAN, pulse width can be set to a certain ratio. When it is set to LFO, pulse width is controlled by the signal from the LFO.

#### 3. PWM

When PWM Mode switch is set to MAN, this knob controls the pulse width, and controls the intensity of the modulation when it is set to LFO

#### 4. SUB • Sub Oscillator Level Knob

It controls the volume of the Sub Oscillator.

#### 5 LFO • Modulation Knob

It adjusts the depth of the vibrato effect when the LFO is controlling the pitch of the DCO.

#### 6. NOISE

It controls the volume of the NOISE.

#### 7. Range Selector Button



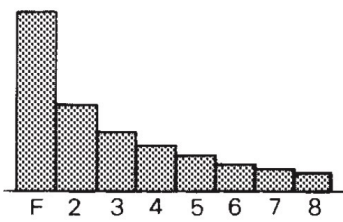
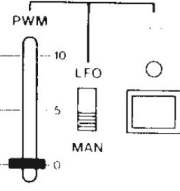

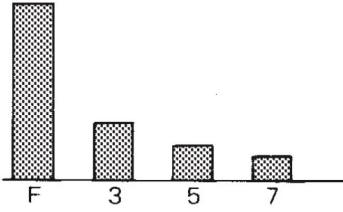
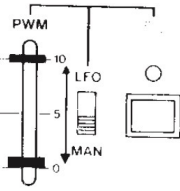

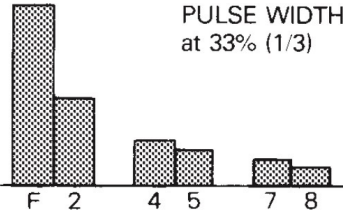
This selects the pitch of the DCO. When it is set to 8', "do" (C) 3rd from the lowest falls on the Middle C of a piano keyboard. By using 4' or 16' position, one octave is shifted up or down, changing total range of the keyboard.

When the top and bottom portions of the square wave are unequal, the result is what is called a pulse wave. The harmonic content of the pulse wave will depend greatly on the width of the pulses, it is possible to modulate, or change the pulse width by means of the LFO.

< Pulse Width >

When the top and bottom portions of the square wave are unequal, the result is what is called a pulse wave. The harmonic content of the pulse wave will depend greatly on the width of the pulses, it is possible to modulate, or change the pulse width by means of the LFO.

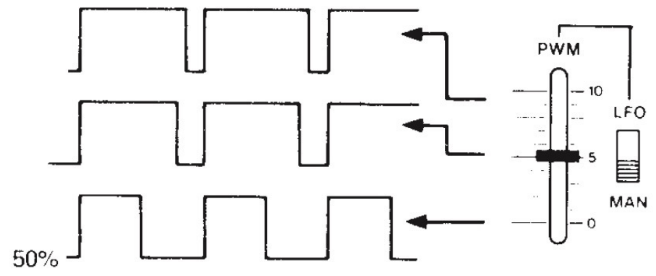
WAVEFORM

Setting	Waveform	Description	Harmonic Content
	 <p>Saw Tooth</p>	<p>The sawtooth wave contains a fundamental sine wave and its integral harmonic sine waves at a fixed ratio. The level of each harmonic is as shown on the right. When fundamental content is 1, the content of <math>n</math>th harmonic is <math>1/n</math>.</p>	
	 <p>Square</p>	<p>The square wave contains a fundamental sine wave and its odd numbered harmonics at a fixed ratio. The level of each harmonic is the same as sawtooth wave: the content of <math>n</math>th harmonic is <math>1/n</math>; except that there are no even numbered harmonics.</p>	
	 <p>Pulse</p>	<p>With pulse wave, the harmonic content greatly varies depending on the pulse width. It is characterized by a lack of the <math>n</math>th harmonic series when the pulse width is <math>1/n</math>. The example on the left lacks 3rd, 6th, and 9th harmonics because the pulse width is <math>1/3</math> (33%).</p>	<p>PULSE WIDTH at 33% (<math>1/3</math>)</p> 

## PWM

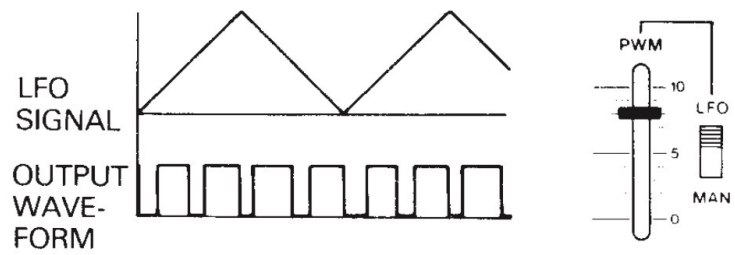
### MANUAL PWM

PWM Mode Switch (2) Set to MAN  
Pulse Width Modulation Knob (3)  
Determines the Pulse width.

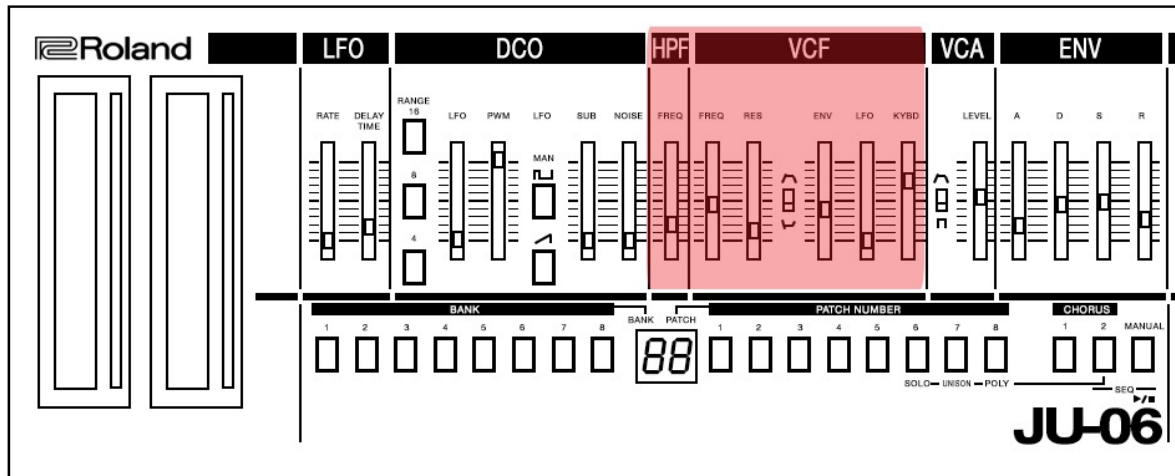


### PWM by LFO

PWM Mode Switch (2) Set to LFO  
Pulse Width Modulation Knob (3)  
Adjusts the intensity of the modulation.



# Voltage Controlled Filter



## HPF

This filter lets the high frequency harmonics pass and cuts off the low frequency harmonics. As this filter is not voltage controlled, Cutoff Point is changed by only moving the knob.

### 1. HPF Cutoff Frequency

This knob sets the Cutoff point of the HPF. With this set to 1, the DCO output passes the filter unprocessed, and as it is raised, Cutoff point is heightened, higher harmonics being passed. In the meantime, at its lowest position "0", lower frequencies are boosted. (This is specially useful for boosting bass sound of organ, etc.)

## VCF

This filter changes the tone color by cutting off or emphasizing harmonics. This filter lets the low frequency harmonics pass and cuts off the high frequency, and is controlled by a voltage.

### 2. FREQ • Cutoff Frequency Knob

This knob is to change the Cutoff Point of the VCF. As you lower the knob, higher frequency will be cut off, and the sound will fade out when the waveform becomes nearest to Sine Wave.

### 3. RES • Resonance

This control emphasizes the Cutoff Point set by Cutoff Frequency knob ©. As you raise the knob, certain harmonics are emphasized and the created sound will become more unusual, more electronic in nature. If you alter the Cutoff Frequency Knob while the Resonance Knob is set to a high level, you can create a type of sound that is attainable only from a synthesizer. If you raise the Resonance knob up to the maximum, the VCF will start its self oscillation.

### 4. ENV • ENVELOPE MODULATION

When the Cutoff Point of the VCF is being modulated by the output of the Envelope Generator, this knob is used to adjust the intensity of the modulation. You can change the Cutoff Point of the VCF in each note with the ADSR pattern previously set. So the tone color within one note can be changed quite drastically.

### 5. POLARITY SWITCH

This is the selector switch for the polarity of the Envelope. When it is set at reverse polarity, the ADSR pattern will be reversed and the tone color alteration will be the other way round.

### 6. LFO • LFO Modulation Knob

When the Cutoff Point of the VCF is being modulated by the output CV of the LFO, this knob adjusts the depth of the growl or wah effect.

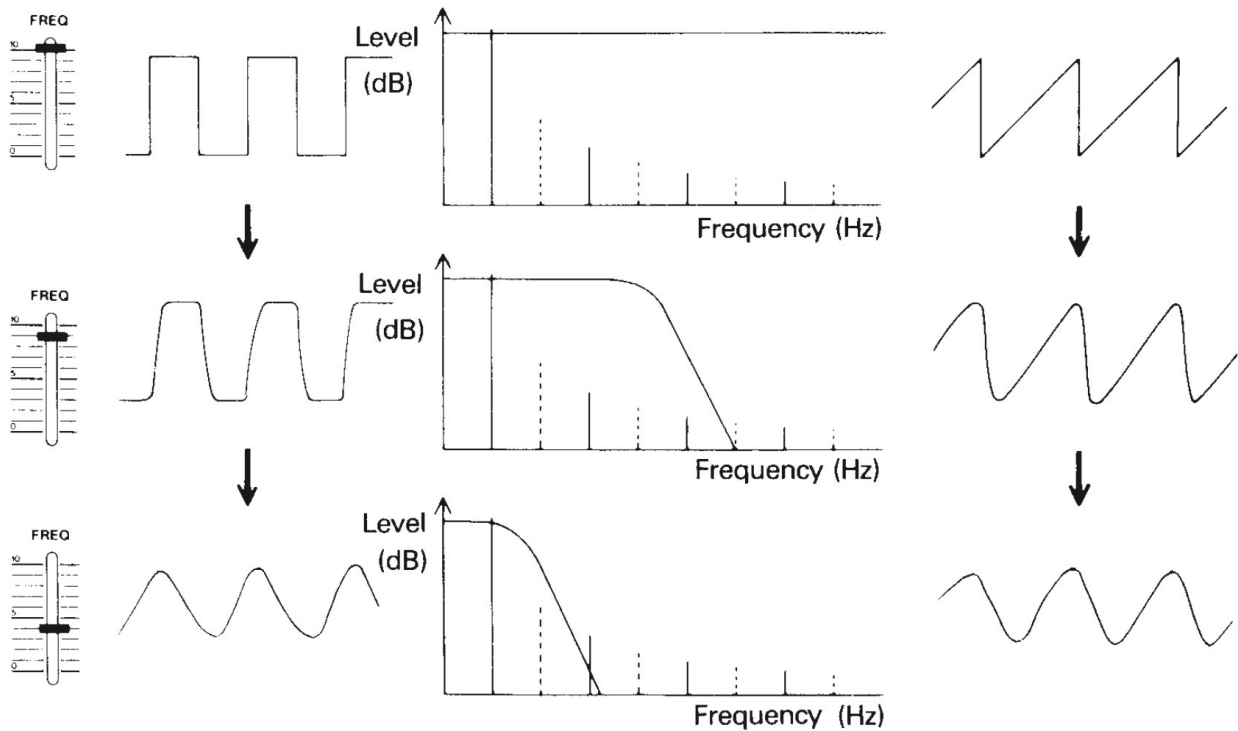
### 7. KYBD • Key Follow Knob

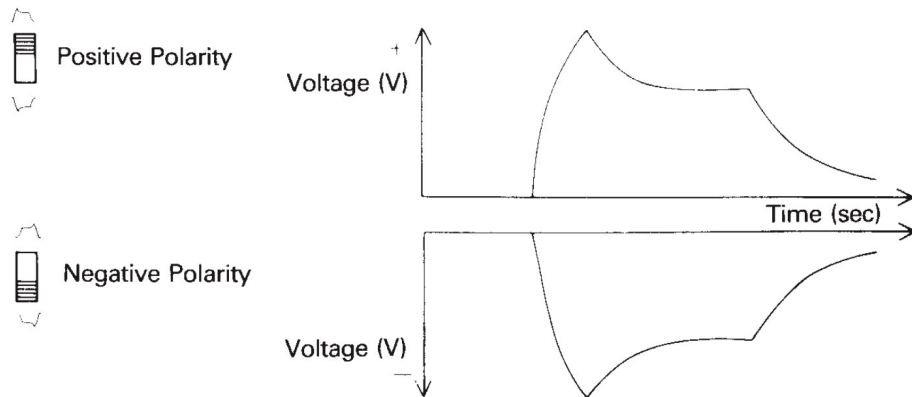
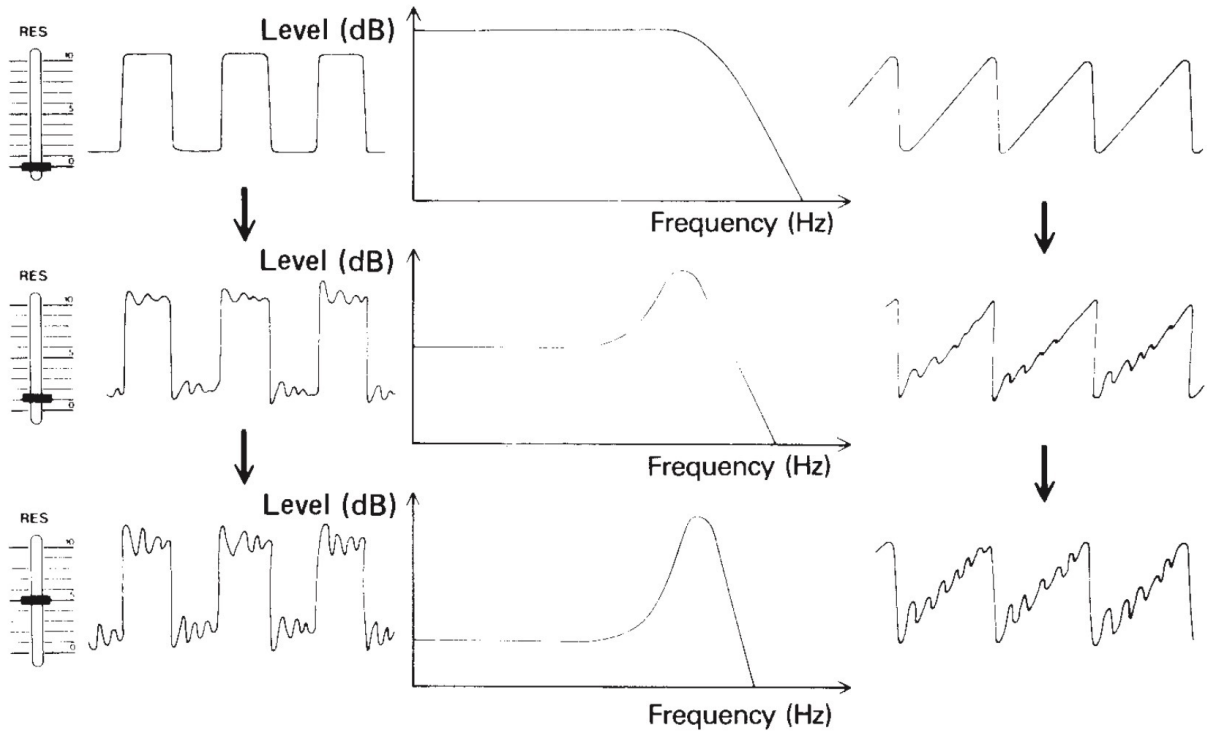
When the Cutoff Point is being controlled by the KYBD-CV {Keyboard control voltage}, this knob adjusts the level of the KYBD-CV. It prevents any inconsistency in the harmonic content caused by pitch alteration. Consequently this knob is usually set to the maximum on such a long keyboard, but can be set to your taste.

### NOTE

The self-oscillation of the VCF does not guarantee an accurate pitch. Therefore, you cannot expect a correct scale when playing the keyboard.

If using the VCF self-oscillation as a sound source, its pitch may turn out unstable, since the Cutoff frequency does not change continuously. In such a case, change the position of the FREQ Knob (2) until you get a stable pitch. (If you write it into memory once and recall it, the pitch will be stable.)



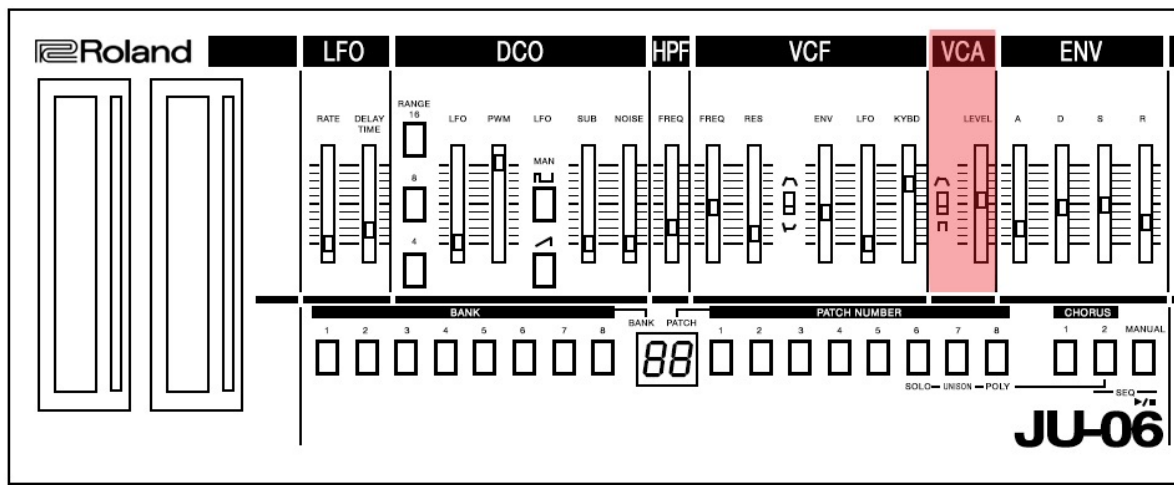


**NOTE**

When modulating the VCF using the Envelope, set the knob (2) to a fairly low level in case of positive polarity, and set it to a fairly high level in case of negative. Otherwise there will be little effect.



# VCA



This is to control the volume (amplitude) of the sound, and is normally controlled by the output voltage from the Envelope Generator.

## 1. Control Signal Selector switch

This switch enables you to select whether to control the VCA by the signal from the Envelope Generator or by the Gate signal.

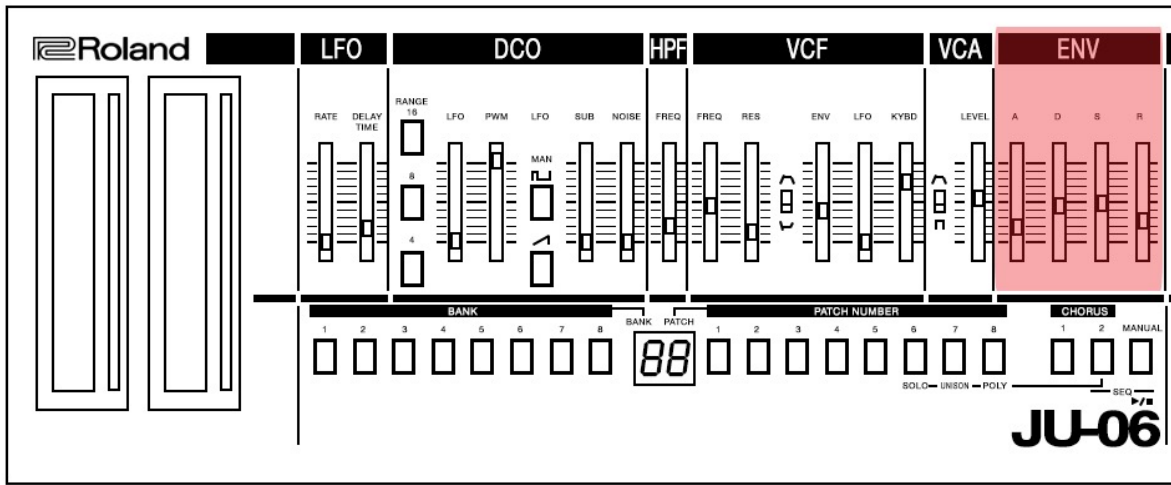
## 2. VCA Level Knob

This adjusts the volume level in the writing mode.

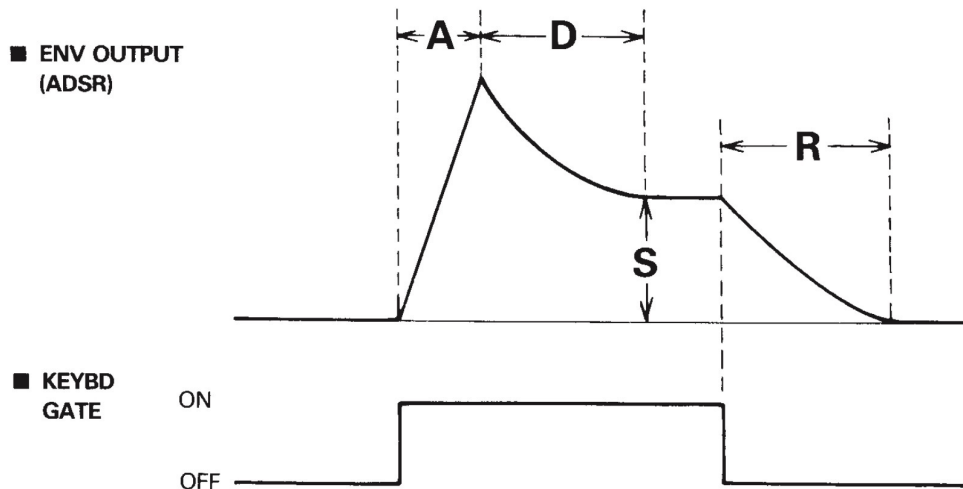
\* This knob can be used to match the amplitudes (the volume sounds to your ears) of all the patch programs. This makes the live performance much more comfortable as there will be no volume difference realized between two different patches. While writing a patch into memory, adjust its level with this knob.

\* When this knob is set too high, a sound distortion might occur, but this is not because of the trouble of the JU-06.

# ENV

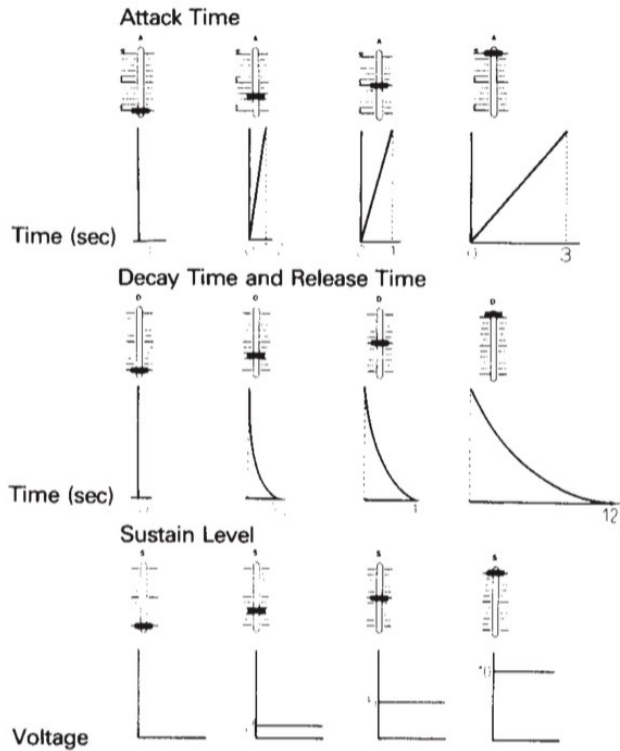


This generates the Control Voltage applied to the VCF and the VCA, thereby controlling the volume and the tone color of each note. This output voltage is generated whenever you press a key.



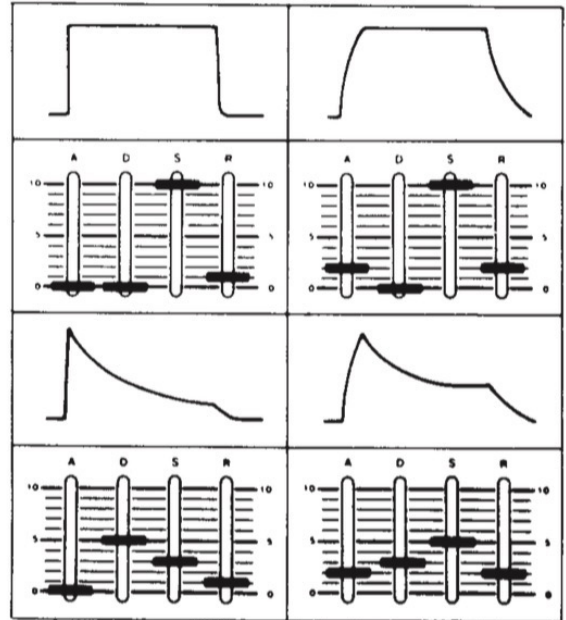
1. **A** (Attack Time)  
This sets the time required for the voltage to reach its maximum from the moment the key is pressed down.
2. **D** (Decay Time)  
This determines the time required for the voltage to drop from the maximum to the sustain level. When the sustain level is high, the Envelope curve does not change by adjusting the Decay Time.
3. **S** (Sustain Level)  
This knob determines the Sustain Level to which the voltage falls at the end of the Decay Time.
4. **R** (Release Time)  
This sets the time needed for the voltage to reach zero.

- The variation of each knob.



\* In the figure shown above, the positions of the knob are not meant to be exactly correct, so the knob position does not necessarily correspond with the time and the voltage.

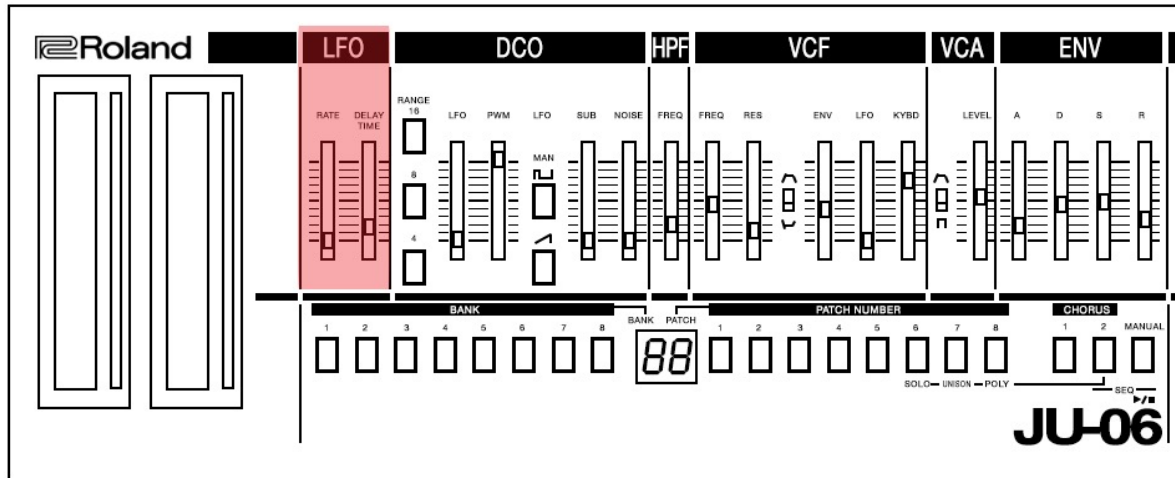
- Setting of ADSR and Envelope Curve.



\*\* When all of the **ADSR** sliders are set to zero, the waveform will be an extremely short Pulse wave, and only a short "click" is heard. **Please be careful.**

# LFO

(Low Frequency Oscillator)



This oscillator generates only low frequency signal. It controls the DCO and the VCF to produce vibrato and growl effects.

## 1. RATE

This sets the rate of the LFO.

## 2. DELAY TIME

This sets the time needed for the LFO to start to function.

# SOLO/UNISON/POLY

The JU-06 has three methods of voicing:

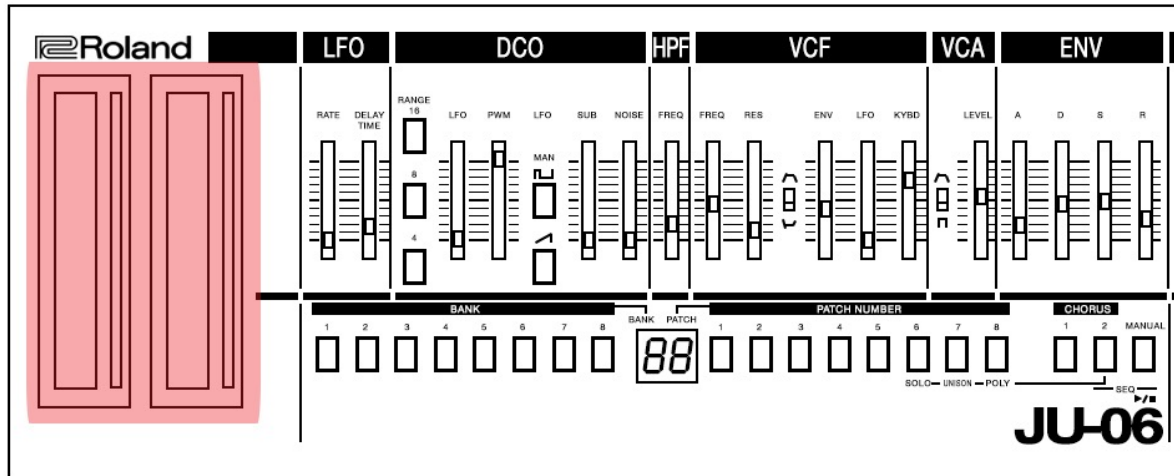
- SOLO - Monophonic mode, where only once voice will sound at a time.
- UNISON - All voice available will play back at the same time.
- POLY - Four voices will be played polyphonically

### To set the voice mode:

1. Press and hold CHORUS 2 + 14,15 or 16

- [14] SOLO
- [15] UNISON
- [16] POLY

## III. Functions for Performance Ribbon Controller



These are touch-type “light strip” ribbon controllers.

C1 (left) is pitch bend, and C2 (right) is modulation like a traditional keyboard’s pico bender and modulation wheel. These controllers transmit midi data through the midi out and can be used to capture performances when recording a midi sequence.

When using without midi, usb or a K-25M keyboard, C1 can be used to preview notes, and also to enter sequencer note information.

### To adjust the notational scale of the ribbon controller input:

Press and hold the MANUAL button and press Patch 2 (10)

Select from 1-16 on the common keys to choose which scale you would like to use for note input

1. Chromatic (default)
2. Major
3. Natural Minor
4. Harmonic Minor
5. Ascending Melodic Minor
6. Bluenote
7. Bluenote (with grace note)
8. Dorian
9. Mixolydian
10. Diminished
11. Wholetone
12. Altered
13. Hungarian Minor
14. Insenpo
15. Ryukyu
16. Persian

**NOTE** - In the Roland documentation often keys 1-16 are described. This refers to Bank 1-8 and Patch 1-8 combined. So for example Seeking out key 12 would mean simply pressing Patch 4 (8 + 4 = 12)

# Bender Range

The C1 ribbon controller operates as a pitch bend, and the range can be set and stored with each patch. There is not a global pitch bend range setting, so each patch can have its own range set and recalled with each patch.

## To adjust the bender range:

Hold MANUAL and press Bank 5 (13)

Select from 1-16

1 - 12 (0 - 1 Octave / 1 note per incremental step)

13 - 2 Octaves

16 - OFF

The default setting is 2

**NOTE** - In the Roland documentation often keys 1-16 are described. This refers to Bank 1-8 and Patch 1-8 combined. So for example Seeking out key 12 would mean simply pressing Patch 4 ( $8 + 4 = 12$ )

# Portamento

The ribbon controller can also be used to set the portamento (or glide) amount between played notes.

Portamento is a common feature of synthesizers, sliding from the last note played to the next. You can then change portamento timing using the right hand ribbon controller. The bottom of the ribbon controller gives you a faster slide between notes. As you go further up the ribbon controller, the synth will transition at a slower pace.

## To adjust the portamento:

Hold MANUAL and touch the C1 ribbon controller. The options are ON or OFF

Touch the C2 ribbon controller to adjust the portamento amount.

# Velocity Sensitivity

The JU-06 input via the common keys as well as the ribbon controller are not velocity sensitive, however, if you are using the K-25M keyboard or a MIDI controller which is velocity sensitive you can take advantage of it.

## Adjust velocity sensitivity as follows:

Holding the MANUAL key, press BANK 5 (5)

Select from 1-3

1. Velocity sensitivity on
2. All key presses set to a velocity value of 64 (half velocity)
3. All key presses set to a velocity value of 127 (full velocity)

## Adjust Velocity curve as follows:

Holding the MANUAL key, press BANK 6 (6)

Select from 1-3

1. Light
2. Medium
3. Heavy

# Octave Switch

The keys available for programming sequences, and the one octave ribbon control input method is only 12 notes at a time. Further, with a K-25M keyboard attached the keys are still limited to two octaves. Sometimes in performance, or composition is it desirable to shift the octave of the keyboard up or down to access other notes which may not be readily available with the current keyboard. The available range is -4 to +5.

**To shift the octave of the keyboard and ribbon control input strip in one octave steps:**

1. Hold MANUAL and press Bank 1 (1)
2. Bank 4 - PATCH 5 (13)

The default setting of +/- 0 is the 8 key

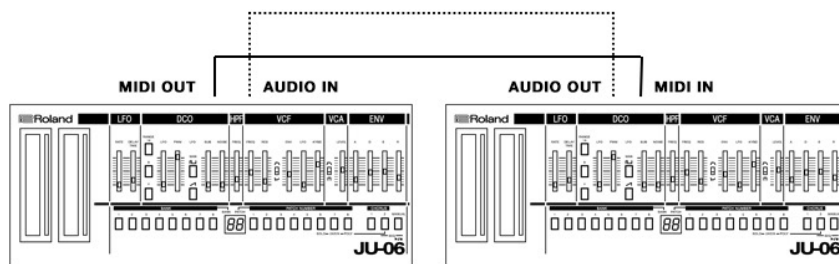
# Chain Mode

Although the JU-06 is four-note polyphonic, you can increase the polyphony by using a MIDI cable to connect two of more JU-06 modules together and turning chain mode on.

When using two JU-06 units together it is recommended to match their respective patch settings by using the backup and restore procedure. This way all the patches in both modules will be the same.

This allows for 8 note polyphonic performance from two JU-06 modules. When in this mode, and the same module is being used, all control of both modules will be handled by the first module in the chain. Thus, calling up patch 47 will automatically call up the same patch on the second module, and the results will be an 8 note polyphonic version of patch 47.

While increased polyphony works between the JU-06 and other Roland Boutique modules (ex: JX-03 or JP-08) the results will be slightly different. Control of the two synths will remain relative. Only the additional notes called for will be accessed by the second unit. While this is different from having all the same patch with 8 possible notes to play, it can also produce very interesting layers and at times unpredictable results. It's also possible to connect other synthesizers to the MIDI OUT port and achieve interesting results using all sorts of sound sources for the notes beyond the first 4 played.



**To set the JU-06 into chain mode:**

1. Connect the MIDI OUT of the master module to the MIDI IN port of the secondary unit
2. Hold the MANUAL key and press Preset 1 (9)
3. Select 1-2

1. ON
2. OFF

NOTE: If chain mode is on, the 5th note will be passed through to the MIDI OUT

## Layering and Split

In addition to chain mode for extended polyphony, it is also possible to connect two Boutique modules together in precisely the same way and leave chain mode off. This allows for independent operation, patch selection, but simultaneous play of each synthesizer at the same time.

If your midi controller allows for setting up note ranges you can set the modules to different midi channels and allocate key spans across your controller and separate the sounds.

While this is not exclusively a JP-08 or even a Roland Boutique technique, it is an often overlooked result of using MIDI enabled synthesizers creatively to produce pads and drones, or leads and performance combinations which go far beyond what a mono timbral synthesizer can do.

## Dual Voice Mode

There is an undocumented ability for the JU-06 to operate in DUAL VOICE mode. This mode can only be accessed by way of MIDI CC commands, but it allows for two independent voices to be played, and edited on the front panel simultaneously.

**To Set the JU-06 to operate in DUAL MODE:**

MIDI CC 80 - Sending any value greater than 63 (64-128) will activate DUAL MODE

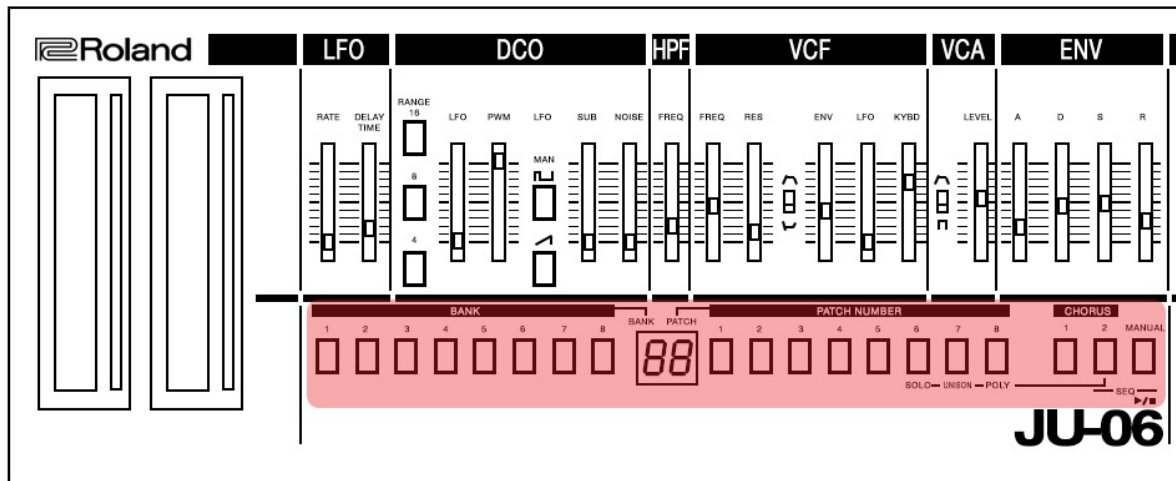
MIDI CC 81 - Sending any value less than 64 (0-63) will allow front panel access to the secondary voice.

The secondary voice may be edited just as any other voice would.

**NOTE:** When in DUAL MODE the voices are split at the output, and Voice 1 will come out the left output of the mains as well as the headphone outs.



# Step Sequencer



The Step Sequencer allows you to input notes in patterns of up to 16 steps and play them back as selectable loops. You can change the length of each pattern, and address the way steps are taken. 16 patterns can be stored and recalled.

## To access the sequencer:

Press Chorus 2 and MANUAL keys simultaneously.  
The Play / Stop button will blink

## To exit the sequencer:

Press Chorus 2 and MANUAL keys simultaneously again.  
The steps in each sequence use both the BANK 1-8 and the PATCH 1-8 keys. These are expressed as steps 1-16.

## Inputting Steps:

1. Hold down a step button (1-16) where you'd like to add or change a note.
2. While holding down the step button, either play a note on your controller keyboard, or touch the C1 ribbon controller and move your finger up and down until you have located the note you'd like to play.
3. Release the step button
4. Repeat this until you have added the notes to the steps you would like to add.
5. Press the PLAY / STOP button to listen to your pattern
6. If you have made a mistake, or don't like what you did simply hold the step and make your corrections
7. To delete a note simply turn the step off by pressing it.
8. If you love your pattern and want to keep it, don't forget to write the pattern to memory [Hold CHORUS 2, select the destination 1-16 and hold the destination button down until it flashes.]

## Sequencer Mode Functions:

**PLAY / STOP** - [MANUAL + PLAY/STOP]

This starts and stops the sequencer

**TEMPO** - [CHORUS 2 + C1 RIBBON CONTROLLER]

If you aren't receiving sync externally, this button combination will allow you to set the internal tempo of the sequencer.

**ON/OFF STEP** - [1-16]

To turn notes on and off, simply press the corresponding buttons.

**ENTER NOTE** - [1-16 + C1 NOTE INPUT OR KEYBOARD]

To enter note information for each step.

**TIE NOTES** - [STEP BUTTON + NEXT STEP BUTTON ex: 1 + 3 for a 3 step tie]

In order to enter note data which plays for longer than one step, tie notes together for more expressive patterns. To un-tie notes, simply press the buttons again and the tie is gone. Associated steps illuminated from the tie must also be pressed again in order to clear them from the pattern.

**GATE TIME** - [1-16 + C2 RIBBON CONTROLLER]

This button combination allows you to set the individual gate time of each individual step.

**ALL GATE TIMES** - [CHORUS 2 + C2 RIBBON CONTROLLER]

This button combination allows you to set the gate time for the entire pattern and each of its steps.

**PATTERN SELECT** - [CHORUS 2 + 1-16]

This is the process of selecting which pattern you wish to play.

**PATTERN WRITE** - [CHORUS 2 + 1-16 LONG PRESS]

This is the button combination for saving your pattern to one of 16 destinations for recall and later playback.

**PATTERN LENGTH** - [MANUAL + 1 - SELECT 1-16]

This button combination allows you to set the length of a pattern. This can be done while the sequencer is playing for real time "last step" type of performance, or for simply setting various lengths for polymetric patterns.

**SHUFFLE/SWING** - [MANUAL + 2 - SELECT 4-12 - Default is 8]

This combination allows the user to establish a swing or shuffle feel to the pattern's playback. The default setting [8] approximates the traditional 50% swing feel (or none.)

**SCALE** - [MANUAL + 3 - SELECT 1-4 - Default is 2]

**SCALE GUIDE** - [1] - 32nd Note [2] - 16th Note [3] - 16th Note Triplet [4] - 8th Note Triplet  
Default is [2]

Scale is the rhythmic meter with which the sequencer plays. 32nd note is quite fast, and will cut the number of beats in half. 16th note is equal to one step per beat in a bar. Triplets are for more complex playback signatures. The default scale is [2].

**STEP ORDER TYPE** - [MANUAL + 15 - SELECT 1-7]

**STEP ORDER GUIDE** [1] Normal [2] Even/Odd Reverse [3] Odd Only [4] Even Only [5] Odd Only/Even Only  
[6] Even Only/Odd Only [7] Random

Step order is the way in which the sequence itself will play back.

[1] Normal is a typical forward loop, starting over again when the sequence comes to an end.

[2] Plays in reverse.

[3] Only plays the odd steps (1,3,5,9,11, 13 and 15.)

- [4] Plays only the even steps (2,4,6,8,10,12, 14 and 16.)
- [5] First plays only the odd steps, followed by only playing the even steps.
- [6] First plays only the even steps, followed by only playing the odd steps.
- [7] Plays the steps in a random order

**OFF STEP MODE** - [MANUAL + 16 - SELECT [1] REST - [2] SKIP

Off step mode tells the sequencer how to handle steps which you have turned off.

[REST] Treats the step as if it is actually there, but the step is intended to be silence.

[SKIP] Operates as if the step which is muted does not exist at all and the next active step will play at the next clock pulse.

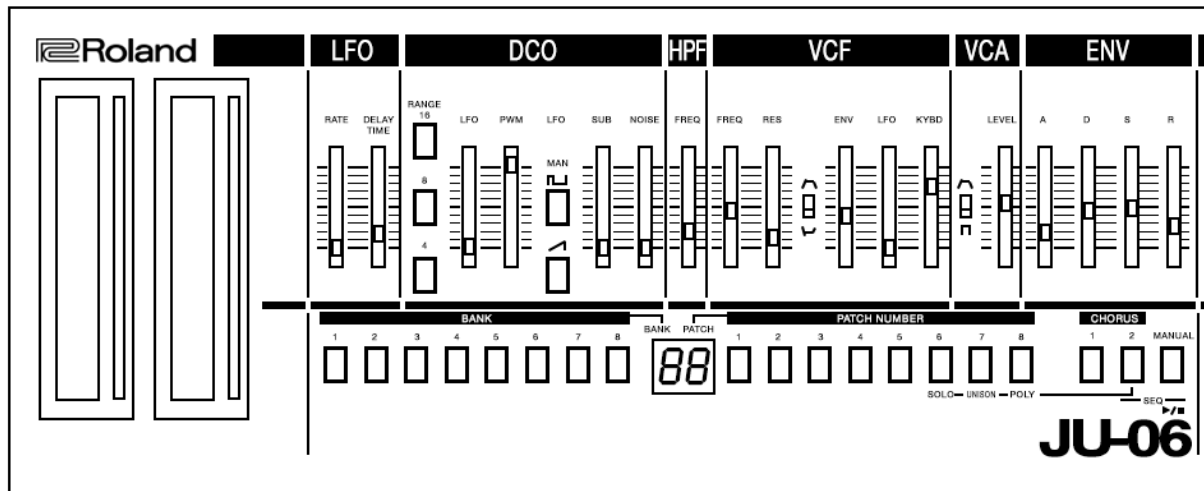
**NOTE** - While operating the sequencer it is possible to exit sequencer mode and adjust your patch. The patch number can be changed, and the various knobs and sliders may be adjusted. To return to the sequencer simply press CHORUS 2 and MANUAL at the same time.

Remember that saving your sequence will not assign a particular patch to your sequence. The sequencer is operated, and the sequences are saved completely independently of the synthesizer section.

Further, When programming sequences there is not way to ask the sequencer to not play when a midi clock is received at the JU-06's MIDI IN port. Thus if you program a sequence and save it into pattern [1] then this pattern will begin to play every time you send a midi clock to the module (from a DAW, or a hardware sequencer.)

This may not be exactly what you'd like to have happen. So It is recommended that you reserve Pattern [1] in your sequencer to a blank pattern. This way upon power up and initial reception of MIDI clock from any source, the sequencer will not helplessly begin playing back some sequence which may not be needed. This is particularly helpful for live performances where everyone is watching, and each mistake or unwanted sounds may interfere with other musicians, or your over all serenity and confidence. It is well worth sacrificing that first sequence location in order to know for sure your Boutique synth isn't going to suddenly begin playing a pattern when you would like it to be quiet.

## IV. Effects



### Chorus

The chorus effect of the JU-06 is intended as an accurate replica of the classic chorus effect found on the Roland Juno-106, Juno-60 and Juno-6.

#### To activate the chorus effect:

1. Press Chorus 1, Chorus 2, or Both.

#### To deactivate the chorus effect:

1. Press Chorus 1, Chorus 2 again

### Delay

The delay effect for the JU-06 is adjustable, and the settings are saved with each patch. There are no global delay settings for the module. Each patch must be set to your preferences and these settings are then saved with your patches respectively.

To adjust the delay settings in a patch:

#### DELAY VOLUME

1. Press and hold MANUAL + PATCH 6 (14)
2. Select from 1-16 (OFF = 1)

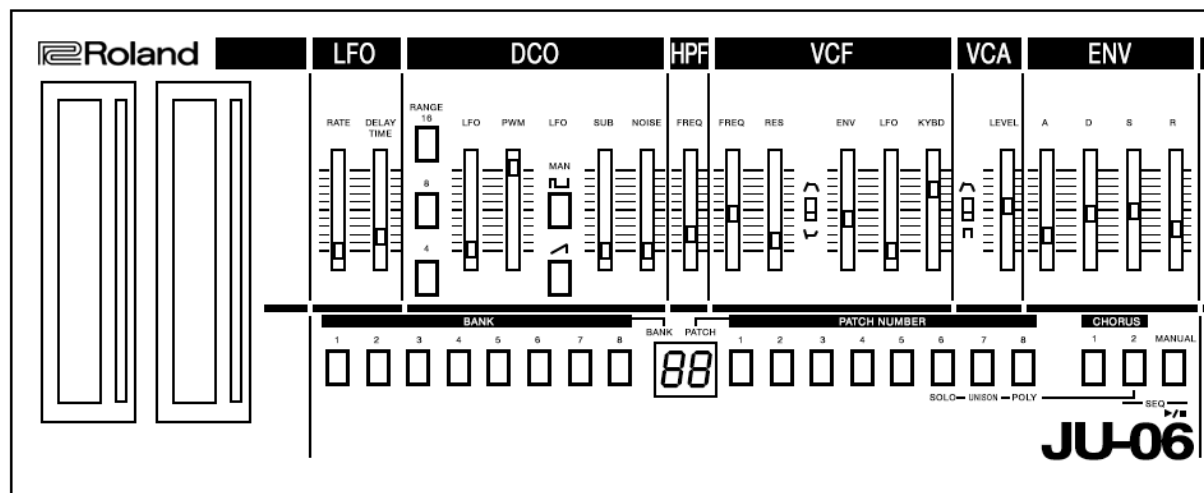
#### DELAY TIME

1. Press and hold MANUAL + PATCH 7 (15)
2. Select from 1-16

#### DELAY FEEDBACK

1. Press and hold MANUAL + PATCH 8 (16)
2. Select from 1-16

## V. System Settings



## Settings Overview

### Numeric Buttons [1] - [16]

in settings mode, the 16 buttons of the common section are called the [1] - [16] buttons.

### SOLO/UNISON/POLY/OCTAVE SHIFT/PORTAMENTO

While holding down the **CHORUS 2** button, specify the value by using the numeric buttons or the C1/C2 ribbon controller to make adjustments.

SOLO	[14]	Plays Monophonically
UNISON	[15]	Plays all sounds in unison
POLY	[16]	Plays polyphonically
Octave Shift	[4] - [13]	Shifts the keyboard range in steps of one octave. Default Setting is [8]
Portamento	C1- ON/OFF	Creates a smooth change in pitch between one key and the next key played
Portamento Time	C2 - 0 - 100	Adjusts the time required for the pitch change.

### SYSTEM SETTINGS

While holding down the **MANUAL** button, press one of the numeric buttons to select the parameter

MASTER TUNE	[1]	1-16	Sets the master tune of the module - 440 Hz is [8]
MIDI CHANNEL	[2]	1-16	Sets the MIDI channel for the module - 1-16
MIDI CLOCK	[3]	1-2	[1] AUTO [2] INTERNAL
TRANSPOSE	[4]	2-13	Transposes the keyboard range in semitones. 0 = [8]
KEY VELOCITY	[5]	1-3	[1] TOUCH [2] 64 [3] 127
VELOCITY CURVE	[6]	1-3	[1] Light [2] Medium [3] Heavy
AUTO OFF	[7]	1-2	[1] OFF [2] ON - Power will switch off after 30 minutes * Auto off does not occur when USB is connected.
LED DEMO	[8]	1-4	[1] OFF [2] 1 Minute [3] 3 Minutes [4] 10 Minutes
CHAIN MODE	[9]	1-2	[1] OFF [2] ON
NOTE SCALE	[10]	1-16	See Pg 21 for scale information

## PATCH SETTINGS

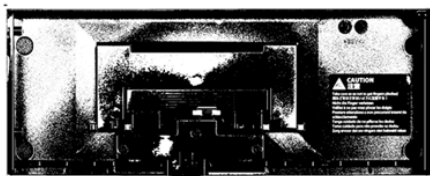
While holding down the **MANUAL** button, press one of the numeric buttons to select the parameter

BEND RANGE	[13]	1-12,13,16	Specifies the pitch bend range in semitones - Default is [2] OFF is [16]
DELAY LEVEL	[14]	1-16	Adjusts the volume of delay (OFF = 1)
DELAY TIME	[15]	1-16	Adjusts the delay time
DELAY FEEDBACK	[16]	1-16	Adjusts the delay feedback

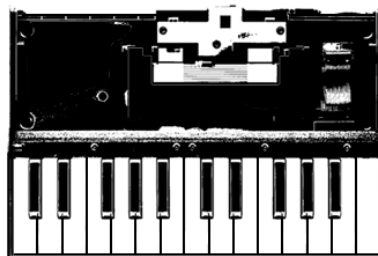
## Main Specifications

MAXIMUM POLYPHONY	4 Voices
POWER SUPPLY	Rechargeable Ni-MH Battery (AA, HR6) x 4 Alkaline battery (AA, LR6) x 4, USB Power
CURRENT DRAW	500 mA (USB Bus Power)
DIMENSIONS	300 (W) x 128 (D) x 45 (H) mm   11 13/16 (W) x 5 1/16 (D) x 1 3/4 (H) inches
WEIGHT	940 g   2 lbs 2 oz
ACCESSORIES	Owners Manual, leaflet "using the unit safely", Alkaline battery (AA) x 4

## Options



**ROLAND DK-01**  
BOUTIQUE MODULE DOCK



**ROLAND K-25M**  
BOUTIQUE MODULE KEYBOARD



**MICRO USB POWER SUPPLY**  
WALL ADAPTER UNIT FOR STAND  
ALONE OPERATION

# VI. MIDI

## **A word about MIDI**

MIDI is an acronym that stands for Musical Instrument Digital Interface. It is a technical standard that describes a communications protocol, digital interface and electrical connectors and allows a wide variety of electronic musical instruments, computers and other related music and audio devices to connect and communicate with one another.

A single MIDI link can carry up to sixteen channels of information, each of which can be routed to a separate device. MIDI carries event messages that specify notation, pitch and velocity (loudness or softness), control signals for parameters such as volume, vibrato, audio panning from left to right, cues in theatre, and clock signals that set and synchronize tempo between multiple devices. These messages are sent via a MIDI cable to other devices where they control sound generation and other features. A simple example of a MIDI setup is the use of a MIDI controller such as an electronic musical keyboard to trigger sounds created by a sound module, which is in turn plugged into a keyboard amplifier and speaker. This MIDI data can also be recorded into a hardware or software device called a sequencer, which can be used to edit the data and to play it back at a later time.

Advantages of MIDI include file compactness (an entire song can be coded in a few hundred lines of code, i.e. in a few kilobytes), ease of modification and manipulation and a wide choice of electronic instruments and synthesizer or digitally-sampled sounds. Prior to the development of MIDI, electronic musical instruments from different manufacturers were generally not compatible with each other, and they could not communicate with each other. With MIDI, any MIDI-compatible keyboard (or other controller device) can be connected to any other MIDI-compatible music sequencer, sound module, drum machine, synthesizer, or computer, even if they are made by different manufacturers.

MIDI technology was standardized in 1983 by a panel of music industry representatives, and is maintained by the MIDI Manufacturers Association (MMA). All official MIDI standards are jointly developed and published by the MMA in Los Angeles, California, US, and for Japan, the MIDI Committee of the Association of Musical Electronics Industry (AMEI) in Tokyo. In 2016, the MMA established The MIDI Association (TMA) to support a global community of people who work, play, or create with MIDI, establishing the [www.MIDI.org](http://www.MIDI.org) website as the central repository of information about anything related to MIDI technology, from early MIDI technology to future developments.

## **Roland Boutique MIDI**

Starting with firmware 1.10 the boutique line of modules from Roland are capable of sending CC data. This means that all the slider and knob movements performed on the front panel of the JU-06 are cable of transmitting via MID for recording into a DAW or MIDI sequencer.

To enable transmission of MIDI CC data:

1. Hold the CHORUS 2 button and press PATCH 1 (9)
2. 2. Select 1-4
  - 1 - OFF
  - 2 - Output only to USB
  - 3 - Output only to MIDI
  - 4 - Output to USB and MIDI

# MIDI Implementation Chart

JU-06 Firmware Version 1.01

Function...	Transmitted	Recognized	Remarks
<b>Basic Channel</b>	1-16	1-16	
<b>Mode</b>	Mode 3	Mode 1, 2, 3, 4 (M=1)	
<b>Note Number</b>	0-127	0-127	
<b>Velocity</b> : Note On : Note Off	o x	o x	
<b>After Touch</b>	x	x	
<b>Pitch Bend</b>	o	o	
	1 o	o	MODULATION
	3 o	o	LFO RATE
	5 o	o	PORTAMENTO TIME
	9 o	o	LFO DELAY TIME
	11 x	o	EXPRESSION PEDAL
	12 o	o	DCO RANGE
	13 o	o	DCO LFO DEPTH
	14 o	o	DCO PWM LEVEL
	15 o	o	DCO PWM SOURCE
	16 o	o	DCO PWM SW
	17 o	o	DCO SAW SW
	18 o	o	DCO SUB LEVEL
	19 o	o	DCO NOISE LEVEL
	20 o	o	HPF CUTOFF
	21 o	o	VCF ENV POLARITY
	22 o	o	VCF ENV DEPTH
<b>Control Change</b>	23 o	o	VCF LFO DEPTH
	24 o	o	VCF KEY FOLLOW
	25 o	o	VCA ENV SW
	26 o	o	VCA LEVEL
	27 o	o	ENV SUSTAIN
	64 x	o	HOLD
	65 o	o	PORTAMENTO
	71 o	o	VCF RESONANCE
	72 o	o	ENV RELEASE
	73 o	o	ENV ATTACK
	74 o	o	VCF CUTOFF
	75 o	o	ENV DECAY
	82 o	o	DELAY TIME
	83 o	o	DELAY FEEDBACK
	86 o	o	ASSIGN MODE
	87 o	o	BEND RANGE
	91 o	o	DELAY LEVEL
	93 o	o	CHORUS SW
<b>Program Change</b>	0-63	0-63	
<b>System Exclusive</b>	x	x	
<b>System Common</b> : Song Position : Song Select : Tune Request	x x x	x x x	
<b>System Real Time</b> : Clock : Start : Continue : Stop	o o x o	o o o o	
<b>Aux Messages</b> : All Sound Off : Reset All Controllers : Local On/Off : All Notes Off : Omni Mode Off : Omni Mode On : Mono Mode On : Mono Mode Off : Active Sensing : System Reset	x x x x x x x x x x	o o x o o o o o o x	*1     *1 *1 *1 *1
<b>Notes</b>	*1 Same process as All Note Off.		

Mode 1: OMNI ON, POLY    Mode 2: OMNI ON, MONO  
Mode 3: OMNI OFF, POLY    Mode 4: OMNI OFF, MONO

O : Yes  
X : No



# MIDI CC List

The following is list of MIDI Control Change Data which can and can not be transmitted for reception remotely  
*The From Software Version 1.20 Supplementary Manual*

FUNCTION	MIDI CC#
MODULATION	[1]
LFO RATE	[3]
LFO DELAY TIME	[9]
DCO RANGE	[12]
DCO LFO MOD	[13]
DCO PWM LEVEL	[14]
DCO PWM SOURCE	[15]
DCO PWM SW	[16]
DCO SAW SW	[17]
DCO SUB LEVEL	[18]
DCO NOISE LEVEL	[19]
HPF CUTOFF	[20]
VCF ENV POLARITY	[21]
VCF LFO DEPTH	[22]
VCF ENV DEPTH	[23]
VCF KEY FOLLOW	[24]
VCA ENV SW	[25]
VCA LEVEL	[26]
ENV SUSTAIN	[27]
HOLD	[64]
PORTAMENTO	[65]
VCF RESONANCE	[71]
ENV RELEASE	[72]
ENV ATTACK	[73]
VCF CUTOFF	[74]
ENV DECAY	[75]
DELAY TIME	[82]
DELAY FEEDBACK	[83]
ASSIGN MODE	[86]
BEND RANGE	[87]
DELAY LEVEL	[91]
CHORUS SW	[93]

# Sound Synthesis Memo

This diagram illustrates the control panel of a Roland synthesizer, featuring the following sections and controls:

- Bank Selectors:** Two vertical columns of buttons on the left side.
- LFO Section:** Includes RATE and DELAY TIME sliders.
- DCO Section:** Includes RANGE 10, LFO, PWM, LFO, SUB, and NOISE sliders.
- HPF Section:** Includes a MAN (Manual) button.
- VCF Section:** Includes FREQ, FREQ, RES, ENV, LFO, and KYBD sliders.
- VCA Section:** Includes a LEVEL slider.
- ENV Section:** Includes A, D, S, and R sliders.
- Bank and Patch Selectors:** A row of 8 BANK buttons and 8 PATCH buttons.
- Display:** A digital display showing the number 88.
- SOLO, UNISON, POLY:** A row of three buttons.
- CHORUS Section:** Includes 1, 2, and MANUAL buttons.
- Model Name:** JU-06.

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# Bank Patch Memo

Group( )

Patch Bank	1	2	3	4	5	6	7	8
1	11	12	13	14	15	16	17	18
2	21	22	23	24	25	26	27	28
3	31	32	33	34	35	36	37	38
4	41	42	43	44	45	46	47	48
5	51	52	53	54	55	56	57	58
6	61	62	63	64	65	66	67	68
7	71	72	73	74	75	76	77	78
8	81	82	83	84	85	86	87	88



