YAMAHA
FB-01
FM SOUND GENERATOR

FABULOUS VOICE GENERATION POWER FOR ANY MIDI MUSIC SYSTEM

THE FB-01—An amazingly compact "black box" containing the largest available selection of Yamaha's FM voices—the digital voices that transformed the contemporary music scene with the introduction of Yamaha's world-famous DX Digital Programmable Algorithm Synthesizers. Unequalled for their expressivity and warm, natural quality, these dynamic voices offer stunningly authentic acoustic instrument sounds, as well as a complete range of exciting, modern synthesizer tones.

THE FB-01—A tiny module providing a world of digital versatility—240 pre-programmed FM voices, plus a further 96 user-programmable voice memories. Each voice features independently programmable functions, such as pitch bend, detuning, octave transpose, and with a MIDI keyboard or any MIDI control device, one voice or up to eight simultaneous voices can be played, with full touch sensitivity.

THE FB-01—A portable, easy-to-use sound generator offering immediate and powerful expansion of any music system, whether it be a MIDI keyboard setup, a sequencer system, or a music computer system. For musicians of all levels, and any users of MIDI technology, the FB-01 places an orchestra of digital sound at your disposal—instantly, and effortlessly.

THE FB-01—a state-of-the-art product of Yamaha's continuing innovative advances in digital music technology, providing fabulous voice generation power for literally any MIDI music system.

A DIGITAL SOLOIST—OR AN ORCHESTRA

One of the great attractions of the FB-01 FM Sound Generator is its performing versatility. Controlled by a DX7 or any MIDI keyboard, a sequence recorder such as the QX21, or sequencing software such as Yamaha's MIDI Recorder and Music Composer II programs, it provides up to eight superb 4-operator digital voices simultaneously.

Four preset "configurations" enable the FB-01 to be used as a single-voice 8-note polyphonic sound source, a "split" sound source (two voices assigned to the upper and lower sections of a keyboard) and a "dual" sound source (two voices spread across the entire keyboard) while the impressive "Mono 8" mode allows monophonic performance of 8 voices simultaneously—a sound that has to be heard to be believed.

You can even create your own configurations. The FB-01 system comprises 8 "instruments," each of which can be assigned any of the FM voices. For example, you could select instrument 1 to play a string part in 4-note polyphony; instrument 2 could play a 3-note vibraphone part and instrument 3 could play a monophonic flute part, for a total of 8-note polyphony.

You can store your configurations in the 16 user memories, together with individual instrument functions (including octave transpose, detune, stereo placement) and voice functions, such as portamento time and pitch bend range.

For the seasoned professional, or the enthusiastic beginner, the FB-01 FM Sound Generator opens up the worlds of MIDI and digital voices like never before.

SUPER-SIMPLE OPERATION

THE FB-01 has been designed for maximum ease of use, without compromising the highly sophisticated technology that makes this FM Sound Generator a truly innovative device.

The bright LCD display clearly shows all function and voice data. Dozens of operations can be carried out via a simple key layout on the front panel. For example, the SYSTEM SETUP key offers eight separate functions, including fine tuning, and instant transfer of voice banks and configurations to another FB-01, or to a Music Computer. Without any detailed knowledge of MIDI or computers, the FB-01 can be operated rapidly and with fingertip ease by any musician.

The FB-01 is light (a mere 2 kg) and sturdy, and it can be installed in seconds, ready to perform faultlessly onstage or in the studio.

FB-01 SYSTEM EXAMPLES

The FB-01 FM Sound Generator is an extremely versatile device, suitable for any application that makes use of MIDI—Musical Instrument Digital Interface—the technology that permits digital instruments such as synthesizers, sequencers, and drum machines to "communicate," and makes possible much of today's new music. Like any high-performance MIDI compatible device, the FB-01, with its up-to-the-minute specifications, functions superbly in an enormous number of situations. Here are just a few examples of systems which can benefit from the addition of an FB-01.

1. LIVE PERFORMANCE

The potential and power of the FB-01 is readily apparent in a live setting, where until recently, the simultaneous use of several digital voices required several keyboards, and an expensive and complex setup.

Simply by connecting the FB-01 to a DX7 synthesizer, KX5 remote keyboard, or any MIDI keyboard, the capabilities of a highly sophisticated MIDI system are at your disposal—stereo output, split keyboard, dual voices, and up to eight simultaneous voices, as well as the vast configuration possibilities offered by the FB-01. The FB-01's voices can be automatically selected from the DX7, and the FB-01 responds perfectly to all modulation controllers (modulation wheel, foot controller, keyboard after-touch, and breath controller). You can even use two FB-01's to get the same 16-note polyphony as the DX7—set one FB-01 to receive even-numbered notes only, set the other FB-01 to receive odd notes only, and a truly impressive MIDI performance setup is the result.

DX7

MIDI OUT

KX5

MIDI OUT

MIDI IN
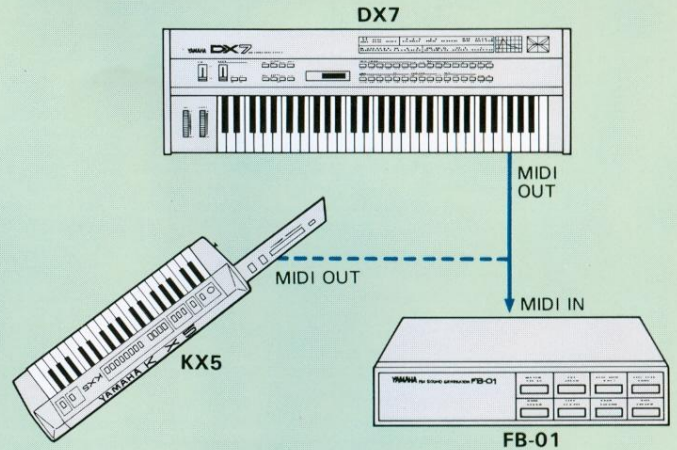
FB-01

2. MUSIC COMPOSER SYSTEM

With the Yamaha Music Computer, and the YRM-501 Music Composer II program cartridge, the FB-01 can add superior voice capability to what is a highly sophisticated, yet easy to operate system for composing musicians.
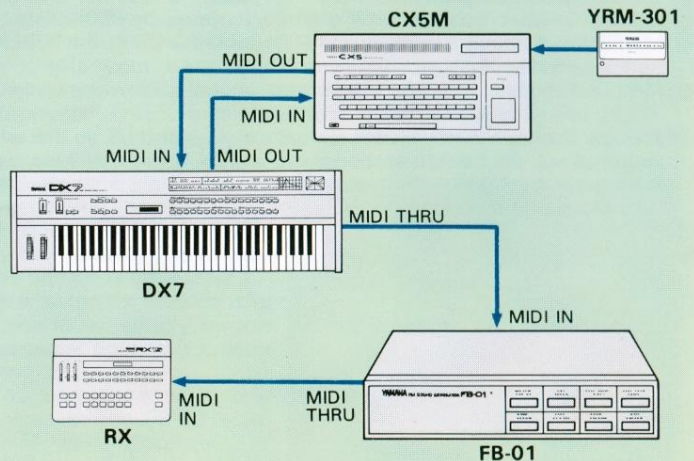
The Music Composer II system enables you to score music into the computer, from the computer keyboard, one of the YK-series Music Keyboards, or any MIDI keyboard, on up to eight parts. The eight-instrument capability of the FB-01 makes it the perfect sound source for this system. Each voice can be set to a different MIDI channel, to receive the eight channels of MIDI data transmitted from the Music Computer, and any of the 96 RAM voices may be selected automatically. Naturally, any of the full complement of 336 FB-01 voices, with fully adjustable functions, may be used with the Music Composer II program, and if less than eight parts are composed, more than one voice could be used for each part. The FB-01 can, of course, be used with any "music computer" featuring a MIDI interface.

YK-01/20

YRM-501

CX5M

MIDI OUT

MIDI IN

FB-01
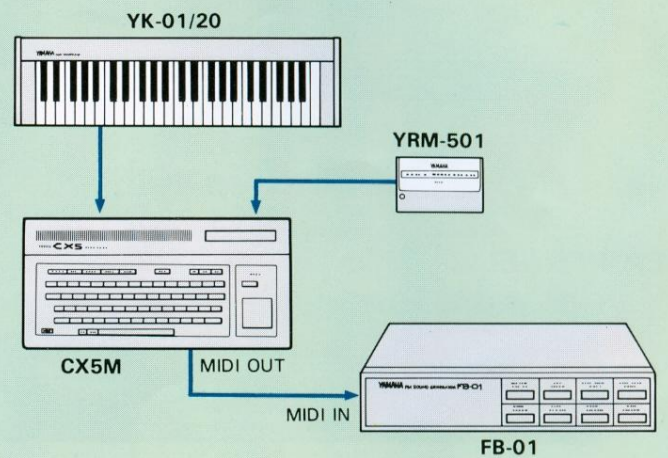
3. MIDI RECORDER SYSTEM

The Yamaha Music Computer, used with the YRM-301 MIDI Recorder system, becomes a high-performance 4-track sequence recording system, which can record music in real time (as it is played) or in step time (one note at a time).

The FB-01 provides a cost-effective means of fully utilizing the extraordinary capabilities of the MIDI Recorder, which can not only drive four independent MIDI instruments, but synchronize a drum machine such as the Yamaha RX Digital Rhythm Programmer. In this system, the music is entered from the DX7 synthesizer, one track at a time. Tracks can then be mixed together, erased, edited, and chained together. For playback, the FB-01 can be set to provide one or more instruments for each track, up to a total of eight, and each instrument will respond fully to any voice changes, pitch bend signals, or modulation changes, providing the ideal sound source for this tremendously powerful system.

CX5M

YRM-301

MIDI OUT

MIDI IN

MIDI IN

MIDI OUT

MIDI THRU

DX7

MIDI IN

RX

MIDI IN

MIDI THRU

FB-01

4. SEQUENCE RECORDER SYSTEM

Sophisticated, affordable MIDI sequencing is provided by the Yamaha QX21 Digital Sequence Recorder, with a maximum capacity of 8000 notes—for even the most advanced compositions.

This unique device allows multiple tracking of real-time or step-time performances, and each track can be assigned to a separate MIDI channel. Each instrument on the FB-01 can be set to receive data on a separate MIDI channel. Thus, for playback, recorded channel can drive at least one instrument of the FB-01, producing eight independent monophonic instruments, one 8-note polyphonic instrument, or any combination in between. For example, four tracks could be recorded (from, say, a DX21) on the QX21: a four-part brass part, a two-part string part, a monophonic bass part, and a monophonic lead guitar part. The FB-01 would supply all the required voices, with full expressivity and functions such as detuning and octave transpositions to add real depth and richness to the overall sound. In addition, the QX21 is capable of driving a MIDI drum machine such as the RX21 Digital Rhythm Programmer, adding a lifelike drum part to the expansive sound of the FB-01.
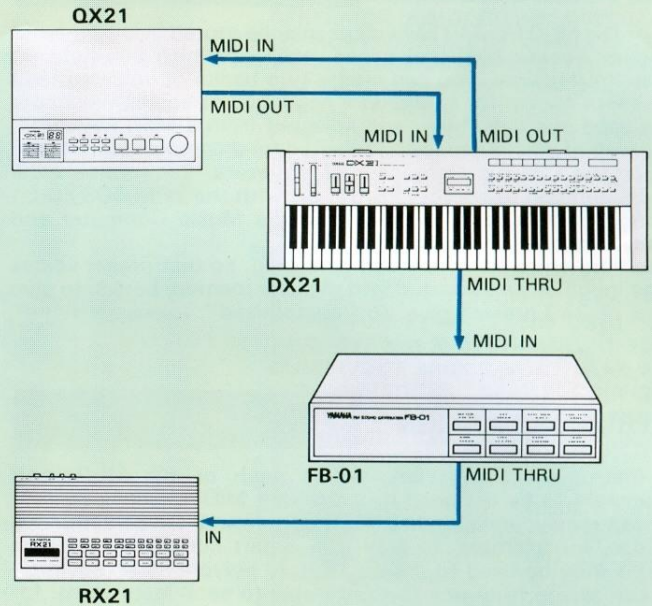
5. MIDI STUDIO SYSTEM

The Yamaha MIDI Studio System makes the "tape sync" technology of top-class professional studios available to any music enthusiast. Tape sync allows you to record a synchronization signal onto tape, which can then be used to synchronize MIDI sequence recorders and drum machines, such as the QX21 and RX21. In addition, other tracks on a multitrack tape recorder (such as the MT1X Multitrack Cassette Recorder, which also functions as a fine 4-channel mixer) can be used for acoustic instruments, or even vocals. In this way, the tape sync method brings together the two fields of digital music and acoustic music, via MIDI technology.

In the system illustrated, the tape sync signal is first recorded from the RX21 onto track 1 of the MT1X, via the YMC-10 MIDI converter. Up to 9 channels of music (8 channels for the FB-01, and 1 for the DX100) can then be recorded into the QX21 from the compact DX100 keyboard, each with a different MIDI channel number. The tape sync signal is used to start the QX21 and keep it, and the RX21, in synchronization throughout each "take." Three tracks of tape on the MT1X still remain. The sequenced material can be recorded onto these tracks prior to final mixdown, or kept separate. As long as the sequenced material and RX rhythm tracks are synchronized to—but not recorded on—the tape, they can be altered as required at any time — to really polish and perfect your work. Thus, with a relatively modest system, you can create and build up really rich, impressive orchestrations, while still retaining a considerable amount of editing flexibility.
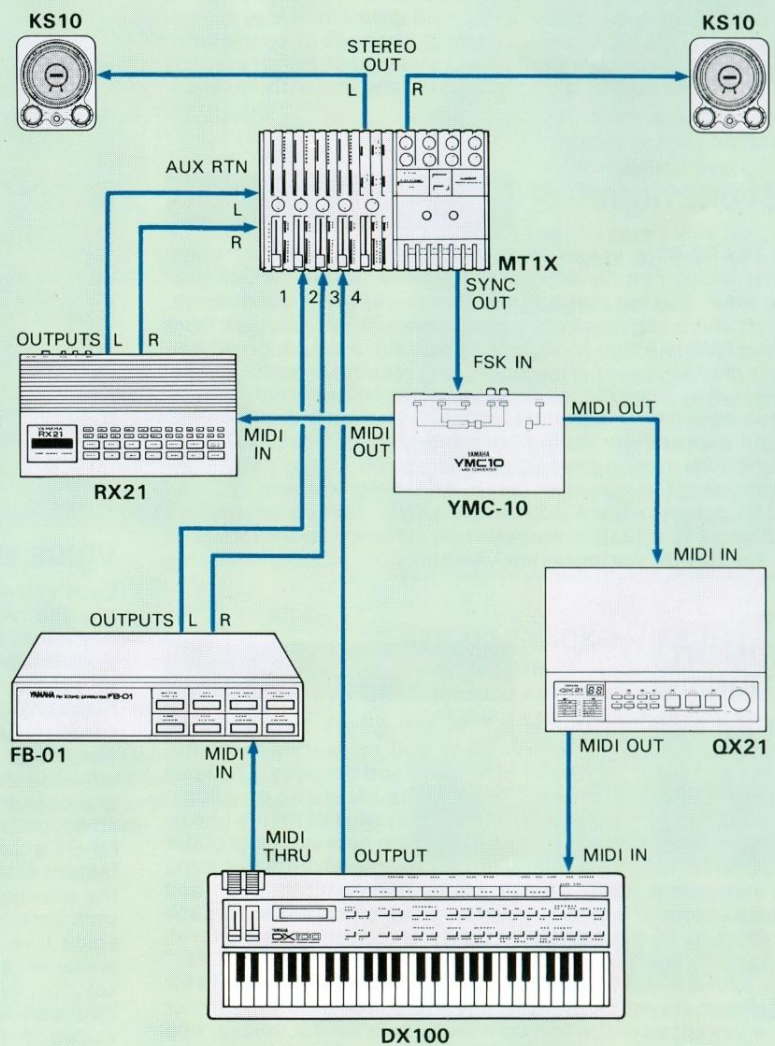
USER PROGRAMMABLE RAM VOICE BANKS

`#1 Voice/stor 96`

Any of the FB-01's 240 FM voices may be stored in 2 user RAM (Random Access Memory) banks, each of which can hold 48 voices. In this way, you can create two banks of voices to suit your exact needs: for example, a sequence of voices which are to be used in a live show, and selected from a MIDI keyboard; or a group of voices especially selected for a composition created on Yamaha's Music Composer II software. Each voice bank may be dumped to another FB-01, or, with the YRM-506 FB-01 Voicing Program, dumped to a Yamaha Music Computer and edited, or stored on floppy disk.

In addition, voice functions can be stored, so that preset voices can be modified and inserted into the user memory banks, to give a total of 240 presets plus 96 "customized" voices.

INSTRUMENT ASSIGN

`#1 Notes        4`

The instrument assign key allows each of the FB-01's 8 instruments to be assigned to a different MIDI channel, so that they can receive independent MIDI data from a QX21 sequence recorder, for example, to play true 8-part compositions. Two FB-01's may be used to create 16-note polyphony if required. You can assign from one to eight notes to each instrument, for a variety of polyphonic configurations. The upper and lower note limit of each instrument can be set, allowing virtually limitless keyboard splitting — even to the extent of assigning each instrument to one single note. For example, eight notes on a DX7 keyboard could be used to provide a percussion section, using 8 of the FB-01's exciting percussion voices. Or you could split a keyboard into four overlapping parts, with different voices assigned to each part, for rapid and impressive changes of sound combinations during a live performance. All instrument assign settings may be stored as part of a configuration, and instantly recalled.

VOICE FUNCTIONS

`#1 Bender     12`

Each of the FB-01's voices is programmed with a set of voice functions, which can be altered at any time. These include portamento time, playing mode (poly/mono) and pitch bend range. Also, each voice can be set to receive modulation changes from any of four PMD's (Pitch Modulation Devices): modulation wheel, foot controller, keyboard after-touch, and breath controller. In this way, even when using the maximum of eight voices simultaneously, each voice can have a distinct, separate character, for optimum clarity and expressivity during complex musical passages.

Voice functions may be modified and stored in the user RAM banks, providing the means of creating 96 new voices in addition to the 240 presets. The "Combine On/Off" feature enables all modified voice functions to be returned instantly to their original setting, for further performance versatility.

INSTRUMENT FUNCTIONS

`#1 Stereo     LR`

Each of the eight "instruments" in the FB-01 has a set of programmable functions, which allow you to exactly tailor the voices you are using, for further playability and richness. The level of each instrument can be set, for accurate balancing of voices. Octave transposition of each instrument, by plus or minus one or two octaves, effectively enables you to create new voices (a guitar can be transformed into a mandolin, for example). Fine detuning of each instrument (up to plus or minus one semitone) can add a rich, deep chorus effect to any pair or group of instruments. Each instrument can be located left, right, or center in the stereo image, for an impressive, wide sound. The "LFO ON/OFF" function allows vibrato or tremolo (Low Frequency Oscillator modulation) to be removed from any voice, for a purer, simpler tone, or a vibrant sound when combining two similar voices, one of which has its LFO turned off. All instrument functions can be stored as part of a configuration setting, and recalled instantly at the touch of a button.

PRE-PROGRAMMED ROM VOICE CHART

The FB-01 features 240 preset FM voices, arranged in five ROM (Read Only Memory) banks of 48 voices. A complete range of super-realistic 4-operator voices is available, including sixteen different piano voices, as well as many other contemporary and traditional keyboard sounds. Orchestral voices such as brass, string and woodwind are provided, plus synth, bass, percussion and plucked string sounds, as well as exciting sound effects. The FB-01 performs brilliantly in any musical situation, in any musical style.

Each of the superbly playable presets features a specially programmed selection of voice functions, adding real individuality to each voice, and all functions can be modified at any time.

ROM 1 (BANK3)	ROM 2 (BANK4)	ROM 3 (BANK5)	ROM 4 (BANK6)	ROM 5 (BANK7)
1: Brass	1: Up Piano	1: Horn 2	1: Fnk Syn 2	1: JOrgan 1
2: Horn	2: SPiano	2: Horn 3	2: Fnk Syn 3	2: JOrgan 2
3: Trumpet	3: Piano 2	3: Horns	3: Syn Organ	3: COrgan 1
4: Lo strig	4: Piano 3	4: Flugelh	4: Syn Feed	4: COrgan 2
5: Piano	5: Piano 4	5: Trombon	5: Syn Harm	5: EOrgan 3
6: Piano	6: Piano 5	6: Trumpet 2	6: Syn Clar	6: EOrgan 4
7: New EP	7: Ph Grand	7: Brass 2	7: Syn Lead	7: EOrgan 5
8: EGrand	8: Grand	8: Brass 3	8: So Heavy	8: EOrgan 6
9: Jazz Gt	9: Dp Grand	9: Hrad Br 1	9: Huff Tak	9: EOrgan 7
10: EBass	10: LPiano 1	10: Hard Br 2	10: Hollow	10: EOrgan 8
11: Wod Bass	11: LPiano 2	11: Hard Br 3	11: Schmooh	11: Sml Pipe
12: EOrgan 1	12: EGrand 2	12: Hard Br 4	12: Mono Syn	12: Mid Pipe
13: EOrgan 2	13: Honkey 1	13: Huff Brs	13: Cheeky	13: Big Pipe
14: POrgan 1	14: Honkey 2	14: Perc Br 1	14: Syn Bell	14: Brite SP
15: POrgan 2	15: Pf Bell	15: Perc Br 2	15: Syn Pluk	15: Organ
16: Flute	16: Pf Vibe	16: String 1	16: EBass 3	16: Guitar
17: Piccolo	17: New EP 2	17: String 2	17: Rub Bass	17: Folk Gt
18: Oboe	18: New EP 3	18: String 3	18: Sol Bass	18: Pluck Gt
19: Clarine	19: New EP 4	19: String 4	19: Pluk Bas	19: Brite Gt
20: Glocken	20: New EP 5	20: Solo Vio	20: Uprt Bas	20: Fuzz Gt
21: Vibes	21: EPiano 1	21: Rich St 1	21: Fretles	21: Zither 2
22: Xylophn	22: EPiano 2	22: Rich St 2	22: Flap Bas	22: Lute
23: Koto	23: EPiano 3	23: Rich St 3	23: Mono Bas	23: Banjo
24: Zither	24: EPiano 4	24: Rich St 4	24: Syn Bas 1	24: Sft Harp
25: Clav	25: EPiano 5	25: Cello 1	25: Syn Bas 2	25: Harp 2
26: Harpsic	26: High Tin	26: Cello 2	26: Syn Bas 3	26: Harp 3
27: Bells	27: Hart Tin	27: Lo Strg 3	27: Syn Bas 4	27: Sft Koto
28: Harp	28: Perc Pf	28: Lo Strg 4	28: Syn Bas 5	28: Hit Koto
29: SmadSyn	29: Wood Pf	29: Lo Strg 5	29: Syn Bas 6	29: Sitar 1
30: Harmoni	30: EP String	30: Orchest	30: Syn Bas 7	30: Sitar 2
31: Steel Dr	31: EP Brass	31: 5th Str	31: Marimb 2	31: Huff Syn
32: Timpani	32: Clav 2	32: Pizzic 1	32: Marimb 3	32: Fantasy
33: Lo Strg 2	33: Clav 3	33: Pizzic 2	33: Xyloph 2	33: Synvoice
34: Horn Lo	34: Clav 4	34: Flute 2	34: Vibe 2	34: M. Voice
35: Whistle	35: Fuzz Clv	35: Flute 3	35: Vibe 3	35: VSAR
36: Zing Plp	36: Mute Clv	36: Flute 4	36: Glockn 2	36: Racing
37: Metal	37: Mute Cl 2	37: Pan Flt	37: Tube Bel	37: Water
38: Heavy	38: Syn Clv 1	38: Slow Flt	38: Tube Be 2	38: Wild War
39: Funk Syn	39: Syn Clv 2	39: 5th Flt	39: Bells 2	: 39: Ghostie
40: Voices	40: Syn Clv 3	40: Oboe 2	40: Temple G	40: Wave
41: Marimba	41: Syn Clv 4	41: Bassoon	41: Steel Dr	41: Space 1
42: EBass 2	42: Harpsi 1	42: Reed	42: Elect Dr	42: Sp Chime
43: Snare Dr	43: Harpsi 3	43: Harmon 2	43: Hand Dr	43: Sp Talk
44: RD Cymb	44: Harpsi 4	44: Harmon 3	44: Syn Timp	44: Winds
45: Tom Tom	45: Harpsi 5	45: Harmon 4	45: Clock	45: Smash
46: Mars to	46: Circust	46: Mono Sax	46: Heifer	46: Alarm
47: Storm	47: Celeste	47: Sax 1	47: Snare Dr	47: Helicop
48: Windbel	48: Squeeze	48: Sax 2	48: Snare Dr	48: Sin Wave

Banks 1 and 2 can be used for storage of 48 original voices each.

VOICE EDITING

Each voice on the FB-01 is an 8-algorithm, 4-operator voice, as are the voices on the Yamaha DX21 Digital Programmable Algorithm Synthesizer. With the Yamaha Music Computer, and the YRM-506 FB-01 Voicing Program, you can edit FB-01 voices to create your own totally new voices. All parameters and functions are displayed numerically and in graph form on the computer screen, making editing easy—and enjoyable.

The Voice Editing software also allows touch sensitivity to be adjusted for each voice. Designed to have the same kind of expressive capabilities as an acoustic instrument, the FB-01's touch sensitivity feature enables you to vary the envelope generator attack rate, as well as the voice level, simply by the pressure applied to each key.
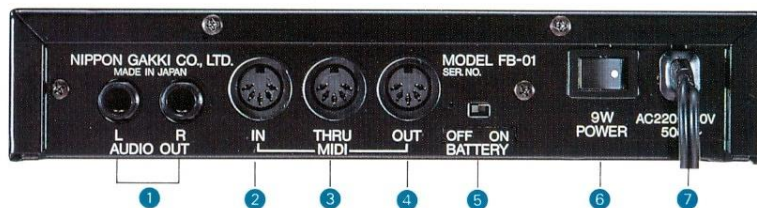
You can store your new voices in the FB-01's 96 RAM voice memories, or on floppy disk.

BLOCK DIAGRAM
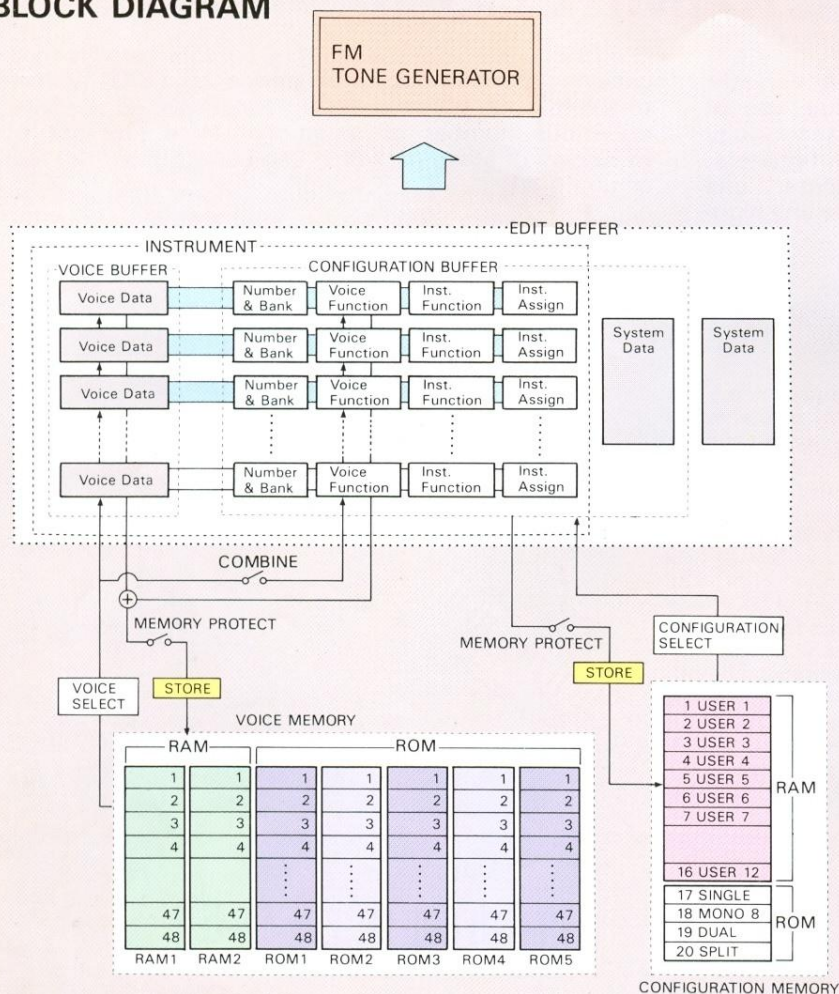
REAR PANEL

1. Stereo audio outputs (unbalanced phone jacks).
2. MIDI IN terminal. Receives MIDI control data from any MIDI control device.
3. MIDI THRU terminal. Passes on any MIDI data received at the MIDI IN terminal — for example, to a second FB-01.
4. MIDI OUT terminal. Used for dumping configurations or voice banks — for example, to another FB-01, or to a Music Computer for voice editing.
5. Memory Backup Switch. Should normally be switched on, so that even when the FB-01 power is turned off, the configuration memory and RAM voice bank contents will be protected by a backup battery (battery life 5 years). This switch is OFF when you initially purchase your FB-01, so you know the backup battery has not been drained due to long-term storage.
6. Power switch.
7. AC power cable.

For details please contact:

SPECIFICATIONS

SOUND GENERATION SYSTEM: FM SOUND GENERATOR (8-ALGORITHM, 4-OPERATOR).
POLYPHONY: VARIABLE BETWEEN 8 NOTES TO 1 VOICE (LAST NOTE PRIORITY) AND EIGHT VOICES TO 1 NOTE (MONOPHONIC).
INTERNAL MEMORY: 240 PRESET VOICES + FUNCTIONS IN ROM (5 BANKS x 48 VOICES), 96 USER VOICES + FUNCTIONS IN RAM (2 BANKS x 48 VOICES), 4 PRESET CONFIGURATIONS IN ROM, 16 USER CONFIGURATIONS IN RAM.
FRONT PANEL KEYS:
- SYSTEM SETUP: COMBINE ON/OFF, MEMORY PROTECT ON/OFF, CONFIGURATION STORE, TUNING +/− 1 SEMITONE (−64 TO +63), SYSTEM MIDI CHANNEL (1 TO 16), DUMP (VOICE BANK 1, VOICE BANK 2, ALL CONFIGURATIONS, SINGLE CONFIGURATION), MIDI KEY NUMBER RECEIVE (ALL, EVEN, ODD), CONFIGURATION SELECT.
- INSTRUMENT SELECT (1 TO 8).
- DATA ENTRY: (−1/NO, +1/YES).
- INSTRUMENT ASSIGN: MIDI CHANNEL NUMBER (1 TO 16), NOTES PER INSTRUMENT (1 TO 8), LOWER NOTE LIMIT (C-2 TO G8), UPPER NOTE LIMIT (C-2 TO G8).
- INSTRUMENT FUNCTION: OUTPUT LEVEL (0 TO 127), OCTAVE TRANSPOSE (+/− 1 OR 2 OCTAVES), DETUNE +/− 1 SEMITONE (−64 TO +63), STEREO ASSIGN (LEFT, CENTER, RIGHT), LFO ON/OFF.
- VOICE FUNCTION : PITCH BEND RANGE (0 TO 12 SEMITONES), PORTAMENTO TIME (0 TO 127), MODE (POLY/MONO), PITCH MODULATION DEVICE (AFTER-TOUCH, MODULATION WHEEL, BREATH CONTROLLER, FOOT CONTROLLER, OFF).
- VOICE SELECT: VOICE NUMBER SELECT (1 TO 48), VOICE STORE NUMBER SELECT (1 TO 96), VOICE BANK NUMBER SELECT (1 To 7).
DISPLAY: LCD, 16 CHARACTERS (BACKLIT TYPE).
TERMINALS: AUDIO OUT L, R (UNBALANCED PHONE JACK), MIDI IN, OUT, THRU (5-PIN DIN JACK)
POWER CONSUMPTION: 9W.
POWER REQUIREMENTS:
U.S./Canadian models: AC120V, 50/60 Hz.
General model: AC220−240V, 50/60 Hz.
DIMENSIONS (W x H x D): 218 x 48 x 274 mm (8-7/12″ x 1-11/12″ x 10-5/6″).
WEIGHT: 2.1 kg (4.6 lbs).
STANDARD ACCESSORIES:
MIDI cable, phone jack cable x 2.
OPTION: YRM-506 Voicing program
RFB-01 Rack for FB-01.

Specifications subject to change without notice.

RFB-01 (RACK for FB-01)

With the RFB-01 Rack Mount Adaptor, two FB-01's can easily and rapidly be mounted side-by-side in a standard rack mount. The compact FB-01 can thus be efficiently incorporated into an effects rack, for studio or stage use.

SINCE 1887

YAMAHA

NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN