

# Yamaha DX7 8X EXPansion User Guide

\* Welcome to \*  
\* DX7 8x Exp \*

## 1: Introduction

The DX7-8X-EXP is a "lite" DX7 SuperMAX+ type expansion. It provides the following new features:

### MEMORY EXPANSION

- 8x memory expansion: There are now 256 patches<sup>1</sup> (what Yamaha calls "voices") arranged in 4 banks of 32, and then two groups of those. Each patch within a group is directly selectable by standard MIDI Patch Change messages.

### GLOBAL PARAMETERS

- MIDI Transmit and Receive Channels: You can set the MIDI OUT channel from 1 to 16. (MIDI IN is already settable in the stock DX7 v1.8 firmware using button Function 8).
- Velocity Offset: You can add a fixed velocity amount to the notes you play. This resolves an issue with all DX7 factory firmware versions where the upper velocity range was difficult to achieve. Also, a Yamaha DX7 OS bug is fixed related to this.
- You can stop the DX7 from sending MIDI Active Sensing (byte \$FE).

### PATCH PARAMETERS

- Local On/Off: You can set whether the local keyboard sounds the internal FM sound engine (or not) for each patch.
- Keyboard Split: Each patch has a settable keyboard split point allowing you to set up two keyboard zones (lower and upper) per patch. Each zone has a different MIDI channel.
- Lower Split Zone Patch Select: When selecting a patch that utilizes keyboard split, a patch change message can be sent out automatically to set the remote patch on the lower zone synth.

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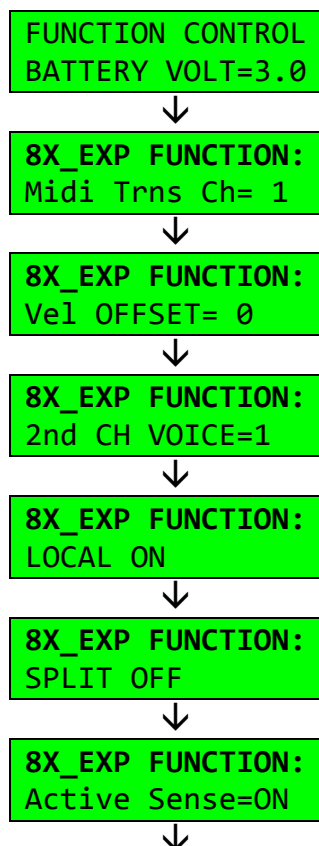
<sup>1</sup> In this document the term "patch" is used to denote a programmed sound. For some unknown reach back in the 80's, Yamaha called these "voices". The typical use for "voices" these days is to indicate the degree of polyphony (how many keys you can hold down at once and get sound for).

## 2: Operation

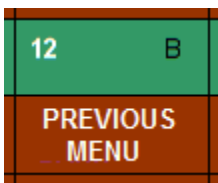
NOTE: All of the new operating parameters are accessed using switch 13 (Next Menu) and switch 12 (Previous Menu) in Function mode. When function mode is selected, the battery voltage will be shown. **This is normal.** Pressing button 13 or 12 edits the DX7\_8X\_EXP settings.



Successive button presses on Function 13 (Next Menu) select all the new parameters. **There are 5 screens worth of DX7\_8X\_EXP settings.** For example here are the default settings. Use the information below to check/set these values after installing the upgrade. The menu list wraps around.



Then returns back to **Midi Trns Ch=** in a loop...



You can also use Function 12 (Previous Menu) which navigates the loop in the opposite direction

## Memory Expansion

Recall that the DX7 has 32 internal patches accessed by pressing the INTERNAL button and then one of the patch numbers 1 through 32.

The DX-8X-EXP has four banks of these to make the 128 patches:

Bank 1	Patches 1 to 32	=	MIDI patch numbers 1 to 32.
Bank 2	Patches 1 to 32	=	MIDI patch numbers 33 to 64.
Bank 3	Patches 1 to 32	=	MIDI patch numbers 65 to 96.
Bank 4	Patches 1 to 32	=	MIDI patch numbers 97 to 128.

To select a bank, **start in normal mode** (playing an internal patch). Press the purple **OPERATOR SELECT** button and then one of the numbered buttons **1** through **4**.

**OPERATOR  
SELECT**

The **next** patch selected will be from that new bank.

EDIT/ COMPARE	OPERATOR ON-OFF / EG COPY					
	1	2	3	4	5	6
BUTTON	1 1	2 2	3 3	4 4	5 5	6 6
MEMORY SELECT	BANK 1	BANK 2	BANK 3	BANK 4	GROUP A	GROUP B

*Hey wait, that's only 4x! Where are the other 128 patches? Ah, good question.*

The DX7 8X EXP is organized as **two Groups of 128 patches** (4 banks) each. These are called **Group A** and **Group B** similar to how the Yamaha Data ROM cartridges are. Once you select a group, then any bank or patch changes stay in that group until the other group is selected. So, to select a **Group**, press **OPERATOR SELECT** then one of the numbered buttons **5** or **6**. Again you have to select a patch and then optionally a new bank to activate a new sound. So if you want to switch Banks **and** Groups, that's two operations you need to do.

OK, so once the DX7 is setup in a group, A or B, the story continues...

When you select a patch, its patch number (1 through 128) will be transmitted on the DX7's MIDI OUT. The actual patch number will be according to the active bank as shown in the table above.

Another way to select patches is through MIDI IN. The patch numbers again correspond to the patch numbers 1 to 128 in the table above. That is, on receipt of a MIDI Program Change message on the correct MIDI channel, the correct bank and patch will be activated. The Group does **not** change. That must be done from the front panel.

Each of the 8 banks must be saved or loaded individually using a cartridge or over MIDI.

There are a couple of things that can cause a bank or group change to be aborted (for example if you pressed OPERATOR SELECT, but have not yet pressed a number 1 through 6):

- If any switch other than 1 to 6 is pushed.
- When a program change comes in from MIDI.

## MIDI Transmit Channel

To select MIDI transmit channel, push switch 13 in Function mode. Using the Data slider or the Yes/No buttons, select the MIDI OUT channel you want, channel 1 to channel 16. This is a global parameter.

```
8X_EXP FUNCTION:  
Midi Trns Ch= 1
```

Note: The MIDI IN channel is established via the standard DX7 Function button 8.

## Velocity Offset

Pushing switch 13 again will bring up Velocity Offset. This will add a set amount to the velocity which is produced when you play a key. This is added to both the velocity sent through MIDI and to the internal patches played on the DX7. Patches that do not have any velocity sensitivity programmed in will not change sound when this is adjusted.

Experiment to find the setting which is best for you. Most people will find a value from 8 to 16 suitable. This is a global parameter.

```
8X_EXP FUNCTION:  
Vel OFFSET=12
```

Note: The range of values allowable is 0 to 63. If you raise the value higher than needed the velocity clips at 127 (it does not roll over). If you raise it too high all you are doing is reducing the dynamic range of the keyboard velocity.

You can verify using a MIDI device or software that can display the Note On data. A Yamaha bug is also fixed that caused the original DX7 to send improper velocity table values.

## Local On/Off

This allows you to use the DX7 as a MIDI controller. If local is off, the DX7 will not play what you play on the keyboard, but all keyboard information will be transmitted through MIDI. The DX7 will play anything which comes in the MIDI IN, provided it is on the MIDI channel the DX7 is set to.

This setting is programmable for each patch. Remember to store this information into the patch by doing a voice store after changing it. (Just as you have to do when changing any voice/patch parameter).

## Keyboard Split

Allows you to set a split point on the keyboard. Above the split point all (upper) key information is sent on the MIDI transmit channel. Below the split point all (lower) key information is sent on the next higher MIDI channel.

To setup a split, when the display shows "Split off" (or when it shows "Split on"), push the Yes (+1) switch.

```
8X_EXP FUNCTION:  
SPLIT ON
```

Now the display will show "Split on" but will not show a split point. The next key depressed will be the bottom key of the upper portion of the keyboard. the display will now show which key was played. All key information below this point will be sent on the "second MIDI channel".



8X\_EXP FUNCTION:  
SPLIT ON C 3

This setting is programmable for each voice (patch). Remember to store this if you change it.

### Second Channel Voice (Patch) Select

This transmits a MIDI Patch Change command on the second MIDI channel automatically (the one assigned to the lower keys in a split. This automates changing the patch on the slave synth that is controlled by the lower half of the keyboard when split is active.

This feature is only active on patches that utilize keyboard split. This setting is programmable for each voice (patch). Remember to store this if you change it.

### Active Sensing Control

When powered on, the DX7 sends a series of MIDI Note-Off and Controller Reset messages, then begins transmitting Active Sensing bytes (\$FE) several times per second. Active sensing is intended to help in live situations where a MIDI cable might accidentally be unplugged. It has fallen out of favor to some extent and it can confuse sequencer software (or the operator of it). This setting allows you to choose whether or not the DX7 transmits Active Sensing bytes.

This is a global parameter.

#### A CONFUSING EXAMPLE FROM THE ORIGINAL AUTHOR

*To play a lead on the DX7 and play bass on a remote unit. Set second channel voice to the voice you want to play on the remote unit. Set DX7 receive channel to MIDI transmit channel. Set split on and set split point. Set local off. Store this voice to itself to store second channel, local off, and split information. Now each time you select this voice these settings will be recalled. Set your remote unit receive channel to the next higher channel than the MIDI transmit channel on the DX7. Patch MIDI cables from the DX7 MIDI out to the remote unit MIDI in and from the remote unit MIDI through to the DX7 MIDI in. Now the remote unit should play below the split point and the DX7 should play above the split point.*

*CAUTION! When setting the DX7 to the second MIDI channel make sure the second channel voice number is the same as the voice you are selecting or the DX7 will change to the second channel voice number. Experiment with the various settings to familiarize yourself with the results.*

Enjoy your updated DX7!

See the MTG web site for more great vintage synth and drum machine goodies.