

RIVERA®

FS1-6M

External MIDI Interface



OWNERS MANUAL

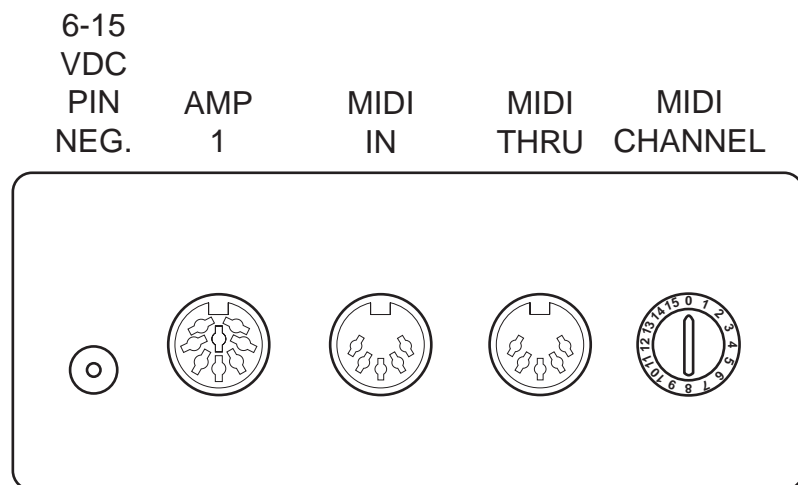
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INTRODUCTION

The FS1-6M External MIDI interface replaces the FS1, FS2, FS3, FS5 or FS6 footswitch and allows MIDI control of the amplifier. You cannot use the footswitch and the interface at the same time.

CONNECTORS ON THE PANEL



6-15 VDC PIN NEG.

The interface requires DC power to operate. This power can be obtained from a wall-wart style power supply, or from the 12VDC POWER OUT connector on the Rivera Head Master.

Depending on which model you ordered, you should have received a power supply or a cable.

If it ever becomes necessary to replace the power supply, here are a few guidelines:

Because it is internally regulated and does not draw much current, the interface is very tolerant of voltage. Any DC voltage from about 6 to 15V will work. The size and polarity of the connector was deliberately chosen to be compatible with commonly available stomp box power supplies of the wall-wart variety. Supplies made by Roland or Korg should work fine.

WARNING!

There is no agreement among power supply manufacturers on the polarity of connectors. You **MUST** select a power supply with the center contact **NEGATIVE** and the outer barrel **POSITIVE** or the unit will not work! Also, you must use a DC supply. An AC supply **WILL NOT** work! **DO NOT** assume that just because the connector fits, it will work. Read the label on the power supply, and if it is not labeled, use a voltmeter.

AMP 1

For FS1, FS2 and FS3 compatible amps use this connector only.

For FS5 and FS6 amps connect a cable from this connector to the connector marked **FS5 1** or **FS6 1** on the amp.

AMP 2

This connector is not used for FS1, FS2 and FS3 amps.

For FS5 and FS6 amps connect a cable from this connector to the connector marked **FS5 2** or **FS6 2** on the amp.

It is also possible to connect a second FS1, FS2 or FS3 amp to this connector. See the section below on Dual Amp Compatibility.

For both Amp Connectors, use a cable with 8 pin male DIN connectors on each end. You should have received a cable or pair of cables with your unit. Be careful with this cable. It IS NOT commonly available in most music or electronic stores.

If it ever becomes necessary to replace it, you can order one from Rivera or make it yourself. It does not require shielded cable, and the pins are wired straight through. (1-1, 2-2 etc.)

FS1-3 Dual Amp Compatibility

Since the interface was designed to replace the FS5 and FS6, it needed two 8 pin DIN connectors. When it is used to replace an FS1, FS2 or FS3, only one connector is required.

The second connector can be used to control a second amplifier if grounding issues are addressed. If you connect the audio path of two amplifiers together and also connect the footswitch control path, a ground loop will be created. This ground loop may produce a bad hum. There are many different techniques to eliminate this problem.

Solving ground loop problems can sometimes be tricky depending on the details of your setup. This manual does not provide instructions for fixing ground loops. If you have a question about a specific combination of amps, please contact the factory, we will try to help.

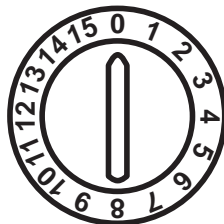
MIDI IN

Standard MIDI input. Use this to connect any standard MIDI controller.

MIDI THRU

Standard MIDI thru, passes data from the MIDI IN to additional MIDI gear.

The Midi Channel Selector Switch



The Interface uses a rotary switch to select the MIDI channel. It is a high quality switch, and is much easier to use than the DIP switches used by some manufacturers.

Unfortunately, it is numbered in a way that can create confusion.

As shown on the diagram, the switch is numbered from 0-15.
Most MIDI devices define the MIDI channels as 1-16

So, it is necessary to add 1 to the number on the switch to get the MIDI channel

SWITCH POSITION 5 = MIDI CHANNEL 6

So, why is the switch labeled wrong?

In the world of electronics and programming, it is not labeled wrong.

It selects one of 16 four digit binary numbers, 0-15 is 0000-1111 in binary.

It is labeled correctly for what it does.

Internally, MIDI gear uses channels 0-15.

Long ago, MIDI manufacturers decided that musicians would be uncomfortable with channel zero, so they decided to add a 1 to the actual value.

Counting From Zero

As you may or may not know, computer programmers start counting from zero instead of one.

Most people would count a list of items like this:

One, two, three, I have three items.

A programmer would do the same if he was counting the items, but if he was using numbers as names he would name the first item "item number zero," the second would be called "item number one" and the third "item number two." Programmers call this process enumerating the items.

Why do programmers do this?

Here is an example:

If you are standing in front of your house, how far do you have to walk to get to your neighbor? You have to walk ONE house unit away.

How far do you have to walk to get to your OWN house? Since you are already standing in front of your house, you have to walk ZERO house units away.

Zero is the starting point, you move from zero some number of units.

Programmers frequently deal with lists of things. The same logic applies to these lists. If you are looking at the first item in a list, how far do you have to move to look at the second? You have to move ONE unit.

How far do you have to move to look at the first item? Since you are already looking at it, you move ZERO.

Another way of looking at it is to ask the question, "How many single digit numbers are there?" There are 10. They are: 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9. You don't get to the number 10 until you add another digit. Programmers can't afford to be wasteful, they use ALL of the digits, especially zero.

This is also the root of the controversy over the year 2000. If you start counting at zero, 2000 is the millennium.

MIDI is a computer communication protocol, and internally, it starts from zero. MIDI Channels are actually numbered 0-15 and Program Changes are numbered 0-127.

But, since most people are not comfortable counting from zero, MOST MIDI instruments add an extra one and define MIDI Channels 1-16 and Program Changes 1-128. NOT ALL MIDI instruments do this!

We debated long and hard over which philosophy to adopt. In the end we chose to follow the de-facto standard and number from one. We believed that this decision would result in less confusion and fewer problems.

One problem we could not avoid was the numbering of the MIDI Channel Selector switch. The manufacturer of the switch numbered it from 0-15. These are in fact the actual numbers the switch uses. We had no control over the labeling.

The unfortunate result of this mismatch is that you have to set the MIDI Channel Selector Switch to 0 to select MIDI Channel 1.

MIDI Control

Overview

The MIDI interface takes the place of the pedal, and controls all functions that were originally controlled by the pedal. No more. No less. In other words, the interface does not provide any additional control beyond that which the pedal provides.

The interface responds to MIDI Program Change Commands only.

It can be controlled by the Rivera Head Master foot-operated MIDI controller or by any standard MIDI controller.

Combinations And Separate Functions

Two types of commands are provided - Combinations and Separate Functions.

Combinations

When the interface receives a Combination Command, ALL MIDI controllable values are changed.

For example on an FS6M Program Change 28 selects:

SlaveMaster	OFF
Chorus	ON
Ninja Boost	ON
FX	OFF
Reverb	ON
Channel	1

Separate Functions

Program Change commands for separate functions have also been defined.

Separate functions change ONE value only, leaving all others unchanged.

These commands act as toggles. This means that if a function is turned off, the command turns it on. If the function is turned on, the command turns it off. Or to put it differently, repeatedly sending the command causes the function to turn off, on, off...etc.

FS1-6 Compatibility

The FS1, FS2, FS3, FS5-1, FS5-2, FS6-1 and FS6-2 pedals are electrically identical.

This is the reason that the interface can connect to all of them. The only difference between the various units is the names of the functions. As a convenience to the user, we have provided a complete set of charts for each pedal type.

Contact Me

My name is Mike Peterson

My email address is mikep@rivera.com

I designed the FS1-6M and wrote the manual.

If you have any questions, comments, praise or criticism, please let me know.

FS1M MIDI PROGRAM CHANGES

SINGLE AMP COMBINATIONS

FX	REVERB	CHANNEL	
OFF	OFF	2	1
OFF	OFF	1	2
OFF	ON	2	3
OFF	ON	1	4
ON	OFF	2	5
ON	OFF	1	6
ON	ON	2	7
ON	ON	1	8

SEPARATE FUNCTIONS

TOGGLE CHANNEL	65
TOGGLE REVERB	66
TOGGLE FX	67

FS2-3M MIDI PROGRAM CHANGES

SINGLE AMP COMBINATIONS

The FS2 and FS3 are almost identical
 The FS3 has a CHORUS button
 The FS2 does not
 FS2 amps ignore all CHORUS
 commands from the interface

Example:
 Program Change 1 and 3
 have the same effect
 on an FS2 amp

SLAVE MASTER	CHORUS	NINJA BOOST	
OFF	OFF	OFF	1
OFF	OFF	ON	2
OFF	ON	OFF	3
OFF	ON	ON	4
ON	OFF	OFF	5
ON	OFF	ON	6
ON	ON	OFF	7
ON	ON	ON	8

SEPARATE FUNCTIONS

TOGGLE NINJA BOOST	65
TOGGLE CHORUS	66
TOGGLE SLAVEMASTER	67

FS5-6M MIDI PROGRAM CHANGES COMBINATIONS

SLAVE MASTER	CHORUS	NINJA BOOST	FX	REVERB	CHANNEL	
OFF	OFF	OFF	OFF	OFF	2	1
OFF	OFF	OFF	OFF	OFF	1	2
OFF	OFF	OFF	OFF	ON	2	3
OFF	OFF	OFF	OFF	ON	1	4
OFF	OFF	OFF	ON	OFF	2	5
OFF	OFF	OFF	ON	OFF	1	6
OFF	OFF	OFF	ON	ON	2	7
OFF	OFF	OFF	ON	ON	1	8
OFF	OFF	ON	OFF	OFF	2	9
OFF	OFF	ON	OFF	OFF	1	10
OFF	OFF	ON	OFF	ON	2	11
OFF	OFF	ON	OFF	ON	1	12
OFF	OFF	ON	ON	OFF	2	13
OFF	OFF	ON	ON	OFF	1	14
OFF	OFF	ON	ON	ON	2	15
OFF	OFF	ON	ON	ON	1	16
OFF	ON	OFF	OFF	OFF	2	17
OFF	ON	OFF	OFF	OFF	1	18
OFF	ON	OFF	OFF	ON	2	19
OFF	ON	OFF	OFF	ON	1	20
OFF	ON	OFF	ON	OFF	2	21
OFF	ON	OFF	ON	OFF	1	22
OFF	ON	OFF	ON	ON	2	23
OFF	ON	OFF	ON	ON	1	24
OFF	ON	ON	OFF	OFF	2	25
OFF	ON	ON	OFF	OFF	1	26
OFF	ON	ON	OFF	ON	2	26
OFF	ON	ON	OFF	ON	1	28
OFF	ON	ON	ON	OFF	2	29
OFF	ON	ON	ON	OFF	1	30
OFF	ON	ON	ON	ON	2	31
OFF	ON	ON	ON	ON	1	32

FS5-6M MIDI PROGRAM CHANGES COMBINATIONS

SLAVE MASTER	CHORUS	NINJA BOOST	FX	REVERB	CHANNEL	
ON	OFF	OFF	OFF	OFF	2	33
ON	OFF	OFF	OFF	OFF	1	34
ON	OFF	OFF	OFF	ON	2	35
ON	OFF	OFF	OFF	ON	1	36
ON	OFF	OFF	ON	OFF	2	37
ON	OFF	OFF	ON	OFF	1	38
ON	OFF	OFF	ON	ON	2	39
ON	OFF	OFF	ON	ON	1	40
ON	OFF	ON	OFF	OFF	2	41
ON	OFF	ON	OFF	OFF	1	42
ON	OFF	ON	OFF	ON	2	43
ON	OFF	ON	OFF	ON	1	44
ON	OFF	ON	ON	OFF	2	45
ON	OFF	ON	ON	OFF	1	46
ON	OFF	ON	ON	ON	2	47
ON	OFF	ON	ON	ON	1	48
ON	ON	OFF	OFF	OFF	2	49
ON	ON	OFF	OFF	OFF	1	50
ON	ON	OFF	OFF	ON	2	51
ON	ON	OFF	OFF	ON	1	52
ON	ON	OFF	ON	OFF	2	53
ON	ON	OFF	ON	OFF	1	54
ON	ON	OFF	ON	ON	2	55
ON	ON	OFF	ON	ON	1	56
ON	ON	ON	OFF	OFF	2	57
ON	ON	ON	OFF	OFF	1	58
ON	ON	ON	OFF	ON	2	59
ON	ON	ON	OFF	ON	1	60
ON	ON	ON	ON	OFF	2	61
ON	ON	ON	ON	OFF	1	62
ON	ON	ON	ON	ON	2	63
ON	ON	ON	ON	ON	1	64

The FS5 and FS6 are almost identical
 The FS6 has a CHORUS button
 The FS5 does not
 FS5 amps ignore all CHORUS
 commands from the interface

Example:
 Program Change 33 has the same effect as
 Program Change 49 on an FS5 amp

SEPARATE FUNCTIONS

TOGGLE CHANNEL	65
TOGGLE REVERB	66
TOGGLE FX	67
TOGGLE NINJA BOOST	68
TOGGLE CHORUS	69
TOGGLE SLAVEMASTER	70

FS1M MIDI PROGRAM CHANGES

DUAL AMP COMBINATIONS

FX	AMP 2		FX	AMP 1		
	REVERB	CHANNEL		REVERB	CHANNEL	
OFF	OFF	2	OFF	OFF	2	1
OFF	OFF	2	OFF	OFF	1	2
OFF	OFF	2	OFF	ON	2	3
OFF	OFF	2	OFF	ON	1	4
OFF	OFF	2	ON	OFF	2	5
OFF	OFF	2	ON	OFF	1	6
OFF	OFF	2	ON	ON	2	7
OFF	OFF	2	ON	ON	1	8
OFF	OFF	1	OFF	OFF	2	9
OFF	OFF	1	OFF	OFF	1	10
OFF	OFF	1	OFF	ON	2	11
OFF	OFF	1	OFF	ON	1	12
OFF	OFF	1	ON	OFF	2	13
OFF	OFF	1	ON	OFF	1	14
OFF	OFF	1	ON	ON	2	15
OFF	OFF	1	ON	ON	1	16
OFF	ON	2	OFF	OFF	2	17
OFF	ON	2	OFF	OFF	1	17
OFF	ON	2	OFF	ON	2	19
OFF	ON	2	OFF	ON	1	20
OFF	ON	2	ON	OFF	2	21
OFF	ON	2	ON	OFF	1	22
OFF	ON	2	ON	ON	2	23
OFF	ON	2	ON	ON	1	24
OFF	ON	1	OFF	OFF	2	25
OFF	ON	1	OFF	OFF	1	26
OFF	ON	1	OFF	ON	2	27
OFF	ON	1	OFF	ON	1	28
OFF	ON	1	ON	OFF	2	29
OFF	ON	1	ON	OFF	1	30
OFF	ON	1	ON	ON	2	31
OFF	ON	1	ON	ON	1	32

FS1M MIDI PROGRAM CHANGES

DUAL AMP COMBINATIONS

FX	AMP 2		FX	AMP 1		
	REVERB	CHANNEL		REVERB	CHANNEL	
ON	OFF	2	OFF	OFF	2	33
ON	OFF	2	OFF	OFF	1	34
ON	OFF	2	OFF	ON	2	35
ON	OFF	2	OFF	ON	1	36
ON	OFF	2	ON	OFF	2	37
ON	OFF	2	ON	OFF	1	38
ON	OFF	2	ON	ON	2	39
ON	OFF	2	ON	ON	1	40
ON	OFF	1	OFF	OFF	2	41
ON	OFF	1	OFF	OFF	1	42
ON	OFF	1	OFF	ON	2	43
ON	OFF	1	OFF	ON	1	44
ON	OFF	1	ON	OFF	2	45
ON	OFF	1	ON	OFF	1	46
ON	OFF	1	ON	ON	2	47
ON	OFF	1	ON	ON	1	48
ON	ON	2	OFF	OFF	2	49
ON	ON	2	OFF	OFF	1	50
ON	ON	2	OFF	ON	2	51
ON	ON	2	OFF	ON	1	52
ON	ON	2	ON	OFF	2	53
ON	ON	2	ON	OFF	1	54
ON	ON	2	ON	ON	2	55
ON	ON	2	ON	ON	1	56
ON	ON	1	OFF	OFF	2	57
ON	ON	1	OFF	OFF	1	58
ON	ON	1	OFF	ON	2	59
ON	ON	1	OFF	ON	1	60
ON	ON	1	ON	OFF	2	61
ON	ON	1	ON	OFF	1	62
ON	ON	1	ON	ON	2	63
ON	ON	1	ON	ON	1	64

SEPARATE FUNCTIONS

	TOGGLE CHANNEL	65
AMP 1	TOGGLE REVERB	66
	TOGGLE FX	67
	TOGGLE CHANNEL	68
AMP 2	TOGGLE REVERB	69
	TOGGLE FX	70

FS2-3M MIDI PROGRAM CHANGES

DUAL AMP COMBINATIONS

AMP 2			AMP 1			
SLAVE MASTER	CHORUS	NINJA BOOST	SLAVE MASTER	CHORUS	NINJA BOOST	
OFF	OFF	OFF	OFF	OFF	OFF	1
OFF	OFF	OFF	OFF	OFF	ON	2
OFF	OFF	OFF	OFF	ON	OFF	3
OFF	OFF	OFF	OFF	ON	ON	4
OFF	OFF	OFF	ON	OFF	OFF	5
OFF	OFF	OFF	ON	OFF	ON	6
OFF	OFF	OFF	ON	ON	OFF	7
OFF	OFF	OFF	ON	ON	ON	8
OFF	OFF	ON	OFF	OFF	OFF	9
OFF	OFF	ON	OFF	OFF	ON	10
OFF	OFF	ON	OFF	ON	OFF	11
OFF	OFF	ON	OFF	ON	ON	12
OFF	OFF	ON	ON	OFF	OFF	13
OFF	OFF	ON	ON	OFF	ON	14
OFF	OFF	ON	ON	ON	OFF	15
OFF	OFF	ON	ON	ON	ON	16
OFF	ON	OFF	OFF	OFF	OFF	17
OFF	ON	OFF	OFF	OFF	ON	18
OFF	ON	OFF	OFF	ON	OFF	19
OFF	ON	OFF	OFF	ON	ON	20
OFF	ON	OFF	ON	OFF	OFF	21
OFF	ON	OFF	ON	OFF	ON	22
OFF	ON	OFF	ON	ON	OFF	23
OFF	ON	OFF	ON	ON	ON	24
OFF	ON	ON	OFF	OFF	OFF	25
OFF	ON	ON	OFF	OFF	ON	26
OFF	ON	ON	OFF	ON	OFF	26
OFF	ON	ON	OFF	ON	ON	28
OFF	ON	ON	ON	OFF	OFF	29
OFF	ON	ON	ON	OFF	ON	30
OFF	ON	ON	ON	ON	OFF	31
OFF	ON	ON	ON	ON	ON	32

FS2-3M MIDI PROGRAM CHANGES DUAL AMP COMBINATIONS

AMP 2			AMP 1			
SLAVE MASTER	CHORUS	NINJA BOOST	SLAVE MASTER	CHORUS	NINJA BOOST	
ON	OFF	OFF	OFF	OFF	OFF	33
ON	OFF	OFF	OFF	OFF	ON	34
ON	OFF	OFF	OFF	ON	OFF	35
ON	OFF	OFF	OFF	ON	ON	36
ON	OFF	OFF	ON	OFF	OFF	37
ON	OFF	OFF	ON	OFF	ON	38
ON	OFF	OFF	ON	ON	OFF	39
ON	OFF	OFF	ON	ON	ON	40
ON	OFF	ON	OFF	OFF	OFF	41
ON	OFF	ON	OFF	OFF	ON	42
ON	OFF	ON	OFF	ON	OFF	43
ON	OFF	ON	OFF	ON	ON	44
ON	OFF	ON	ON	OFF	OFF	45
ON	OFF	ON	ON	OFF	ON	46
ON	OFF	ON	ON	ON	OFF	47
ON	OFF	ON	ON	ON	ON	48
ON	ON	OFF	OFF	OFF	OFF	49
ON	ON	OFF	OFF	OFF	ON	50
ON	ON	OFF	OFF	ON	OFF	51
ON	ON	OFF	OFF	ON	ON	52
ON	ON	OFF	ON	OFF	OFF	53
ON	ON	OFF	ON	OFF	ON	54
ON	ON	OFF	ON	ON	OFF	55
ON	ON	OFF	ON	ON	ON	56
ON	ON	ON	OFF	OFF	OFF	57
ON	ON	ON	OFF	OFF	ON	58
ON	ON	ON	OFF	ON	OFF	59
ON	ON	ON	OFF	ON	ON	60
ON	ON	ON	ON	OFF	OFF	61
ON	ON	ON	ON	OFF	ON	62
ON	ON	ON	ON	ON	OFF	63
ON	ON	ON	ON	ON	ON	64

The FS2 and FS3 are almost identical
The FS3 has a CHORUS button
The FS2 does not
FS2 amps ignore all CHORUS
commands from the interface

Example:
Program Change 33 35, 49 and 51
have the same effect
on an FS2 amp

AMP 1

AMP 2

SEPARATE FUNCTIONS

TOGGLE NINJA BOOST	65
TOGGLE CHORUS	66
TOGGLE SLAVEMASTER	67
TOGGLE NINJA BOOST	68
TOGGLE CHORUS	69
TOGGLE SLAVEMASTER	70