4REA4 MIDI TCP/IP Protocol

Firmware V1.0 (Rev #5)

This protocol is for use with 4REA4 systems loaded with firmware version V1.10 and later.

TCP/IP control is available via any **Network** port on the 4REA4. Messages are sent using the MIDI format, as described in this document.

All MIDI message numbers shown in this specification are hexadecimal. Refer to the end of this specification for a table of values for each of the parameters listed here.

Clients should be configured to use TCP port 51325.

(i) The 4REA4 uses a range of MIDI channel numbers within the TCP/IP messages. Make sure that the TCP/IP message MIDI channel number and the MIDI channel number range set on the 4REA4 using its **Utility / Control / MIDI** screen are in the same range.

MIDI Controllable Functions and Parameters:

• Fader levels	NRPN	*Input, Area out, Aux, Group, FX send & return, CG*
• Mutes	Note On	*Input, Area out, Aux, Group, FX send & return, CG, Mute Groups*
• Send levels	SysEx	*Aux, FX and Matrix sends*
• Mix assign	SysEx	
• Input socket Gain	NRPN	
• Input socket - Pad, 48V	SysEx	
• Name	SysEx	
• Snapshot Recall	Program Change	
• MIDI transport	MIDI Machine Control (MMC)	
• Channel Colour	SysEx	*Get only*

MIDI channel number

N

MIDI channel 1 to 12 =   0 to B

In order to extend the range of audio channels that can be controlled by MIDI messages the 4REA4 MIDI protocol uses a range of MIDI channels to select between audio channel types. The base MIDI channel **N** is the lowest channel of the range selected in **Utility / Control / MIDI**. The audio channel type is selected by offsetting the MIDI channel used in the message and the audio channel number is selected using the note number, as detailed in 'Channel Selection' below.

Input socket control and snapshot recall use a range of MIDI channels **N, N+1 etc**

Channel Selection

CH   (refer to table)

Channels are selected using the channel number and note number as follows:

Inputs 1 to 128:	**N = N**,	**CH =**	00 to 7F
Mono Groups 1 to 48:	**N = N + 1**, **CH =**		00 to 3D
Stereo Groups 1 to 24:	**N = N + 1**, **CH =**		40 to 57
Mono Aux 1 to 48:	**N = N + 2**, **CH =**		00 to 2F
Stereo Aux 1 to 24:	**N = N + 2**, **CH =**		40 to 57
Mono Matrix 1 to 48:	**N = N + 3**, **CH =**		00 to 2F
Stereo Matrix 1 to 24:	**N = N + 3**, **CH =**		40 to 57
Mono FX Send 1 to 16:	**N = N + 4**, **CH =**		00 to 0F
Stereo FX Send 1 to 16:	**N = N + 4**, **CH =**		10 to 1F
FX Return 1 to 16:	**N = N + 4**, **CH =**		20 to 2F
Area Outs 1 to 4:	**N = N + 4**, **CH =**		30 to 33
CG 1 to 24:	**N = N + 4**, **CH =**		36 to 4D
Mute Group 1 to 8:	**N = N + 4**, **CH =**		4E to 55

Input Socket Selection

IS   (refer to table)

Input sockets are selected using the channel number and note number as follows:

SD Card Inputs 1 to 24:	**N = N**,	**IS =**	00 to 17
A3232 Inputs 1 to 128:	**N = N + 1**, **IS =**		00 to 7F
AStar Inputs 1 to 128:	**N = N + 2**, **IS =**		00 to 7F

SysEx Header

SysEx Header

This applies to all SysEx messages described later in this specification

F0, 00, 00, 1A, 50, 10, **MV**, **mV**

Where   **MV** = 01 (Major version)

mV = 00 (Minor version)

Mute ON

NOTE ON with velocity > 40 followed by NOTE OFF

    Set/Reply…   9**N**, **CH**, 7F,   9**N**, **CH**, 00

        Get…   **SysEx Header**, 0**N**, 07, 09, **CH**, F7

Mute OFF

NOTE ON with velocity < 40 followed by NOTE OFF

    Set/Reply…   9**N**, **CH**, 3F,   9**N**, **CH**, 00

        Get…   **SysEx Header**, 0**N**, 07, 09, **CH**, F7

Received Mute messages

Velocity 00 and NOTE OFF messages are ignored

Velocity 01 to 3F = Mute OFF

Velocity 40 to 7F = Mute ON

Fader Level

NRPN with parameter ID 17

Fader value **LV** –inf to +10dB = 00 to 7F   (refer to table)

Message:

Select channel	Parameter	Set fader value
B**N**, 63, **CH**,	B**N**, 62, 17,	B**N**, 06, **LV**

Get:

    SysEx Header, 0**N**, 07, 0B, 17, **CH**, F7

AUX / FX / Matrix Send Level

SysEx message

Where **SndN** and **SndCH** are the MIDI channel and note number for the channel to be sent to.

Send value **LV** –inf to +10dB = 00 to 7F

Message:

    Sysex Header, 0**N**, 05, **CH**, **SndN**, **SndCH**, **LV**, F7

Get:

    Sysex Header, 0**N**, 07, 0F, 05, **CH**, **SndN**, **SndCH**, F7

Mix Assignment

SysEx message

Where **ToN** and **ToCH** are the MIDI channel and note number for the channel to be mixed to.

Mix Assign on **ON** sets whether the channel is assigned or not.

ON = 01 to 3F = Mix assign OFF

ON = 40 to 7F = Mix assign ON

Message:

    Sysex Header, 0**N**, 06, **CH**, **ToN**, **ToCH**, **ON**, F7

Get:

    Sysex Header, 0**N**, 07, 0F, 06, **CH**, **ToN**, **ToCH**, F7

Input Socket Gain

NRPN with parameter ID 18

Input socket numbers **IS** as above

GAIN value **GV** min to max = 00 to 7F   (refer to table)

Message:

Select socket	Parameter	Set Gain
B**N**, 63, **IS**,	B**N**, 62, 18,	B**N**, 06, **GV**

Get:

    SysEx Header, 0**N**, 07, 0B, 18, **IS**, F7

Input Socket Pad

SysEx message

This turns Pad on or off for the preamp at a socket

Preamp socket numbers **IS** as above

To get Pad status from 4REA4

    Send… **SysEx Header**, 0**N**, 07, 0F, 03, **IS**, F7

    Reply… **SysEx Header**, 0**N**, 03, **IS**, **Pad**, F7   where **Pad** OFF= 00, ON = 7F

To set Pad

    SysEx Header, 0**N**, 03, **IS**, **Pad**, F7   where **Pad** OFF= 00 to 3F, ON = 40 to 7F

Input Socket 48V

SysEx message

This turns 48V (Phantom Power) on or off for the preamp at a socket

Preamp socket numbers **IS** as above

To get 48V status from 4REA4

     Send…   **SysEx Header**, 0**N**, 07, 0F, 04, **IS**, F7

     Reply…   **SysEx Header**, 0**N**, 04, **IS**, **48V**, F7   where **48V** OFF = 00,   ON = 7F

To set 48V

     SysEx Header, 0**N**, 04, **IS**, **48V**, F7   where **48V** OFF = 00 to 3F, ON = 40 to 7F

Channel Name

SysEx message

This gets or sets the Name with up to 8 characters

To get name from 4REA4

     Send…   **SysEx Header**, 0**N**, 07, 0F, 01, **CH**, F7

     Reply…   **SysEx Header**, 0**N**, 01, **CH**, **Name**, F7   where **Name** = Hex ASCII String

To set Name

     SysEx Header, 0**N**, 01, **CH**, **Name**, F7   where **Name** = Hex ASCII String

Channel Colour

SysEx message

This gets the colour as one of 7 colours or no color

To get colour from 4REA4

     Send…   **SysEx Header**, 0**N**, 07, 0F, 02, **CH**, F7

Reply… **SysEx Header**, 0**N**, 02, **CH**, **Col**, F7   where **Col** = 00 to 07 (refer to table)

Snapshot Recall

Bank and **Program Change** message

To recall one of the 800 Snapshots (4 banks of 200)

Also transmits this message when a Snapshot is recalled from the 4REA4 Controller screen

For Snapshot 1 to 128

Scene **SS** 1 to 128 = 00 to 7F   (refer to table)

Select bank	Recall Snapshot
B**N**, 00, 00,	C**N**, **SS**

For Snapshot 129 to 256

Scene **SS** 129 to 256 = 00 to 7F   (refer to table)

Select bank	Recall Snapshot
B**N**, 00, 01,	C**N**, **SS**

For Snapshot 257 to 384

Scene **SS** 257 to 384 = 00 to 7F   (refer to table)

Select bank	Recall Snapshot
B**N**, 00, 02,	C**N**, **SS**

For Snapshot 385 to 512

Scene **SS** 385 to 512 = 00 to 7F   (refer to table)

Select bank	Recall Snapshot
B**N**, 00, 03,	C**N**, **SS**

For Snapshot 513 to 640

Scene **SS** 513 to 640 = 00 to 7F   (refer to table)

Select bank	Recall Snapshot
B**N**, 00, 04,	C**N**, **SS**

For Snapshot 641 to 768

Scene **SS** 641 to 768 = 00 to 7F   (refer to table)

Select bank	Recall Snapshot
B**N**, 00, 05,	C**N**, **SS**

For Snapshot 769 to 800

Scene **SS** 769 to 800 = 00 to 1F   (refer to table)

Select bank	Recall Snapshot
B**N**, 00, 06,	C**N**, **SS**

MIDI Strips

Custom MIDI messages

Fader strips within the Banks can be assigned as MIDI Strips. There are 32 MIDI Strips available.

Each fader strip control can be assigned to transmit a custom MIDI message. This is used for controlling audio within a Digital Audio Workstation (DAW), a slave device, or parameters on external equipment such as effects devices. MIDI Strips can be named. They are stored within Snapshots and can be made Safe from Snapshot recall.

• Fader	B1, 00, <VAR> to B1, 1F, <VAR>
• Rotary Gain	B2, 00, <VAR> to B2, 1F, <VAR>
• Rotary Pan	B2, 20, <VAR> to B2, 3F, <VAR>
• Rotary Custom 1	B2, 40, <VAR> to B2, 5F, <VAR>
• Rotary Custom 2	B2, 60, <VAR> to B2, 7F, <VAR>
• Rotary Custom 3	B2, 40, <VAR> to B2, 5F, <VAR>
• Rotary Custom 4	B2, 60, <VAR> to B2, 7F, <VAR>
• Mute key =	91, 00, <VAR> to 91, 1F, <VAR>
• Mix key =	91, 20, <VAR> to 91, 3F, <VAR>
• SOLO key =	91, 40, <VAR> to 91, 5F, <VAR>

Where <VAR> is the value determined by the position of the control.

ⓘ The **Sel** key is not included as this is required to select this Processing screen for configuring the MIDI Strip.

ⓘ By default, **Rotary Custom 3** uses the same values as **Rotary Custom 1** and **Rotary Custom 4** uses the same values as **Rotary Custom 2**