
Allen & Heath MIDI Control Protocol

Version 1.60, 25/04/2005

1. Introduction

This protocol is for use with iDR units loaded with Version 3.50 software (i.e. V3.50) and later.

The Remote Controllers will be able to control the following functions:

- Channel Levels
- Channel Mutes
- Routing Matrix Cross-point Levels
- Routing Matrix Cross-point Mutes
- Preset Recalls
- Bank Selects
- Switches
- Indicators
- Group Levels

2. MIDI Channel Number

The MIDI channel number represented below as 'n' can be set in the range 0x00 to 0x0F (referencing MIDI channels 1 to 16).

3. Control Protocol

3.1. Preset Change (Program Change)

To recall presets...

0xCn, <Preset Number>

For Bank 1 <Preset Number> is in the range 0x00 to 0x7F (i.e. 0 to 127 decimal, referencing presets 1 to 128)

For Bank 2 <Preset Number> is in the range 0x00 to 0x78 (i.e. 0 to 120 decimal, referencing presets 129 to 250)

When a Preset is recalled via another method (e.g. Soft-Key, Remote Key) the following is transmitted from the MIDI...

0xBn, 0x00, <Bank Number>

0xCn, <Preset Number>

Where <Bank Number> is in the range 0x00 to 0x01 (i.e. 0 to 1 decimal, referencing banks 1 and 2)

And where <Preset Number> is in the range 0x00 to 0x7F (i.e. 0 to 127 decimal, referencing presets 1 to 128) for Bank 1

And where <Preset Number> is in the range 0x00 to 0x79 (i.e. 0 to 121 decimal, referencing presets 129 to 250) for Bank 2.

3.2. Bank Selects (Extended Program Change)

To change bank...

0xBn, 0x00, <Bank Number>

Where <Bank Number> is in the range 0x00 to 0x01 (i.e. 0 to 1 decimal, referencing banks 1 and 2)

3.3. Input Channel Levels (NRPN)

To control the input channel level...

0xBn, 0x63, <Input Channel Number>, 0x62, 0x17, 0x06, <Level>

Where <Input Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing inputs 1 to 16).

And where <Level> is in the range 0x00 to 0x7F (0 to 127 decimal – 0 is channel off, and 127 is 5dB maximum).

When an input channel level is changed via another method (e.g. Soft-Key, Remote Key, Preset Recall) the following is transmitted from the Midi...

0xBn, 0x63, <Input Channel Number>, 0x62, 0x17, 0x06, <Level>

Where <Input Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing inputs 1 to 16).

And where <Level> is in the range 0x00 to 0x7F (0 to 127 decimal – 0 is channel off, and 127 is 5dB maximum).

3.4. Output Channel Levels (NRPN)

To control the output channel level...

0xBn, 0x63, <Output Channel Number>, 0x62, 0x1B, 0x06, <Level>

Where <Output Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing outputs 1 to 16).

And where <Level> is in the range 0x00 to 0x7F (0 to 127 decimal – 0 is channel off, and 127 is 5dB maximum).

When an output channel level is changed via another method (e.g. Soft-Key, Remote Key, Preset Recall) the following is transmitted from the MIDI...

0xBn, 0x63, <Output Channel Number>, 0x62, 0x1B, 0x06, <Level>

Where <Output Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing outputs 1 to 16).

And where <Level> is in the range 0x00 to 0x7F (0 to 127 decimal – 0 is channel off, and 127 is 5dB maximum).

3.5. Matrix Cross-point Levels (NRPN)

To control the matrix cross-point levels...

0xBn, 0x63, <Output Channel Number>, 0x62, <Input Channel Number>, 0x06, <Level>

Where <Input Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing inputs 1 to 16).
And where <Output Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing outputs 1 to 16).

And where <Level> is in the range 0x00 to 0x7F (0 to 127 decimal – 0 is channel off, and 127 is 0dB maximum).

When cross-point level is changed via another method (e.g. Soft-Key, Remote Key, Preset Recall) the following is transmitted from the MIDI...

0xBn, 0x63, <Output Channel Number>, 0x62, <Input Channel Number>, 0x06, <Level>

Where <Input Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing inputs 1 to 16).
And where <Output Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing outputs 1 to 16).

And where <Level> is in the range 0x00 to 0x7F (0 to 127 decimal – 0 is channel off, and 127 is 0dB maximum).

3.6. Input Channel Mutes (Note On)

To turn an input mute on...

0x9n, <Input Channel Number>, 0x7F

Where <Input Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing inputs 1 to 16).

To turn an input mute off...

0x9n, <Input Channel Number>, 0x01

Where <Input Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing inputs 1 to 16).

When an input channel mute state is changed via another method (e.g. Soft-Key, Remote Key, Preset Recall) the following is transmitted from the MIDI...

If the mute is turning on...

0x9n, <Input Channel Number>, 0x7F

Where <Input Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing inputs 1 to 16).

If the mute is turning off...

0x9n, <Input Channel Number>, 0x01

Where <Input Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing inputs 1 to 16).

3.7. Output Channel Mutes (Note On)

To turn an output mute on...

0x9n, <0x20 + Output Channel Number>, 0x7F

Where <Output Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing outputs 1 to 16).

To turn an output mute off...

0x9n, <0x20 + Output Channel Number>, 0x01

Where <Output Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing outputs 1 to 16).

When an output channel mute state is changed via another method (e.g. Soft-Key, Remote Key, Preset Recall) the following is transmitted from the MIDI...

If the mute is turning on...

0x9n, <0x20 + Output Channel Number>, 0x7F

Where <Output Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing outputs 1 to 16).

If the mute is turning off...

0x9n, <0x20 + Output Channel Number>, 0x01

Where <Output Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing outputs 1 to 16).

3.8. Matrix Cross-point Mutes (NRPN)

To turn a matrix cross-point mute on...

0xBn, 0x63, <Output Channel Number>, 0x62, <0x40 + Input Channel Number>, 0x06, 0x7F

Where <Output Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing outputs 1 to 16) and <Input Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing inputs 1 to 16).

To turn a matrix cross-point mute off...

0xBn, 0x63, <Output Channel Number>, 0x62, <0x40 + Input Channel Number>, 0x06, 0x01

Where <Output Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing outputs 1 to 16) and <Input Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing inputs 1 to 16).

When an output channel mute state is changed via another method (e.g. Soft-Key, Remote Key, Preset Recall) the following is transmitted from the MIDI...

If the matrix cross-point mute is turning on...

0xBn, 0x63, <Output Channel Number>, 0x62, <0x40 + Input Channel Number>, 0x06, 0x7F

Where <Output Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing outputs 1 to 16) and <Input Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing inputs 1 to 16).

If the matrix cross-point mute is turning off...

0xBn, 0x63, <Output Channel Number>, 0x62, <0x40 + Input Channel Number>, 0x06, 0x01

Where <Output Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing outputs 1 to 16) and <Input Channel Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing inputs 1 to 16).

3.9. Input Group Levels (NRPN)

To control the input group level...

0xBn, 0x63, <Input Group Number>, 0x62, 0x18, 0x06, <Level>

Where <Input Group Number> is in the range 0x00 to 0x07 (i.e. 0 to 7 decimal, referencing outputs 1 to 8). And where <Level> is in the range 0x00 to 0x7F (0 to 127 decimal – 0 is channel off, and 127 is 0dB maximum).

When an input group level is changed via another method (e.g. Soft-Key, Remote Key, Preset Recall) the following is transmitted from the MIDI...

0xBn, 0x63, <Input Group Number>, 0x62, 0x18, 0x06, <Level>

Where <Input Group Number> is in the range 0x00 to 0x07 (i.e. 0 to 7 decimal, referencing inputs 1 to 8). And where <Level> is in the range 0x00 to 0x7F (0 to 127 decimal – 0 is channel off, and 127 is 0dB maximum).

3.10. Output Group Levels(NRPN)

To control the output group level...

0xBn, 0x63, <Output Group Number>, 0x62, 0x19, 0x06, <Level>

Where <Output Group Number> is in the range 0x00 to 0x07 (i.e. 0 to 7 decimal, referencing outputs 1 to 8). And where <Level> is in the range 0x00 to 0x7F (0 to 127 decimal – 0 is channel off, and 127 is 0dB maximum).

When an output group level is changed via another method (e.g. Soft-Key, Remote Key, Preset Recall) the following is transmitted from the MIDI...

0xBn, 0x63, <Output Group Number>, 0x62, 0x19, 0x06, <Level>

Where <Output Group Number> is in the range 0x00 to 0x07 (i.e. 0 to 7 decimal, referencing outputs 1 to 8). And where <Level> is in the range 0x00 to 0x7F (0 to 127 decimal – 0 is channel off, and 127 is 0dB maximum).

3.11. Matrix Cross-point Group Levels (NRPN)

To control the cross-point group level...

0xBn, 0x63, <Cross-point Group Number>, 0x62, 0x1C, 0x06, <Level>

Where <Cross-point Group Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing cross-point groups 1 to 16) and where <Level> is in the range 0x00 to 0x7F (0 to 127 decimal – 0 is channel off, and 127 is 0dB maximum).

When a cross-point group level is changed via another method (e.g. Soft-Key, Remote Key, Preset Recall) the following is transmitted from the MIDI...

0xBn, 0x63, <Cross-point Group Number>, 0x62, 0x1C, 0x06, <Level>

Where <Cross-point Group Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing cross-point groups 1 to 16) and where <Level> is in the range 0x00 to 0x7F (0 to 127 decimal – 0 is channel off, and 127 is 0dB maximum).

3.12. Switches (Note On)

To turn a switch on...

0x9n, <0x40 + Switch Number>, 0x7F

Where <Switch Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing switches 1 to 16).

To turn a switch off...

0x9n, <0x40 + Switch Number>, 0x01

Where <Switch Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing switches 1 to 16).

3.13. Indicators (Note On)

When an Indicator state is changed via another method (e.g. Soft-Key, Remote Key, Preset Recall) the following is transmitted from the MIDI...

If the Indicator is turning on...

0x9n, <0x40 + Indicator Number>, 0x7F

Where <Indicator Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing Indicators 1 to 16).

If the Indicator is turning off...

0x9n, <0x40 + Indicator Number>, 0x01

Where <Indicator Number> is in the range 0x00 to 0x0F (i.e. 0 to 15 decimal, referencing Indicators 1 to 16).

4. Custom MIDI Strings

Custom MIDI strings can be added to Presets and triggered using a Preset recall. Custom MIDI string control can also be added to soft controls (e.g. soft keys, PL rotaries & PL faders).

For further information refer to the iDR System Manager help.