

### External control of AHM processor over TCP/IP:

TCP/IP control is available via the **Network** socket on the rear of the unit. Messages are sent using the MIDI format, as described in this document.

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

Clients should be configured to use either:

Without encryption - Rendezvous port TCP **51325**.

With TLS/SSL encryption - Rendezvous port TCP **51327**.

### The following functions can be controlled:

- Input Levels **NRPN**
- Input Mutes **Note On**
- Zone Levels **NRPN**
- Zone Mutes **Note On**
- Control Group Levels **NRPN**
- Control Group Mutes **Note On**
- Preset Recalls **Program Change**
- Input to Zone Send Levels **SysEx**
- Input to Zone Send Mutes **SysEx**
- Zone to Zone Send Levels **SysEx**
- Zone to Zone Send Mutes **SysEx**
- Audio file playback **SysEx**
- Source Selector **SysEx**

### Authentication

When the TLS/SSL socket is opened, the first data sent to the AHM processor should be the following message:

**UserProfile, UserPassword**

Where UserProfile = **00** to **1F**

If the username and password match, then the unit will respond with the six characters "AuthOK", otherwise the connection will be dropped.

### Channel selection

Channels are selected using the MIDI channel number **N** and note number **CH** as follows:

Inputs 1 to 64: **N = 0**, **CH = 00** to **3F**

Zones 1 to 64: **N = 1**, **CH = 00** to **3F**

Control Groups 1 to 32: **N = 2**, **CH = 00** to **1F**

### SysEx Header

#### SysEx Header

This applies to all **SysEx** messages described later in this specification.

**F0, 00, 00, 1A, 50, 12, MV, mV**

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

**mV = 00** (Minor version)

## Channel Mute on

**NOTE ON** with velocity > 40 followed by NOTE OFF

9N, CH, 7F, 9N, CH, 00

## Channel Mute off

**NOTE ON** with velocity < 40 followed by NOTE OFF

9N, CH, 3F, 9N, CH, 00

## Received Channel Mute messages

Velocity 00 and NOTE OFF messages are ignored.

Velocity 01 to 3F = Mute off

Velocity 40 to 7F = Mute on

## Get Channel Mute

**SysEx** message

**SysEx Header**, 0N, 01, 09, CH, F7

The unit will then transmit the appropriate Channel Mute on or off message.

## Channel Level

**NRPN** with parameter ID 17

Channel level value LV –Inf to +10dB = 00 to 7F (refer to table)

Select channel	Parameter	Set level
BN, 63, CH,	BN, 62, 17,	BN, 06, LV

## Get Channel Level

**SysEx** message

**SysEx Header**, 0N, 01, 0B, CH, F7

The unit will then transmit the appropriate Channel Level message.

## Level Increment / Decrement

**NRPN** with parameter ID 20

Select channel	Parameter
BN, 63, CH,	BN, 62, 20

Increment:

BN, 06, 7F

Decrement:

BN, 06, 3F

## Input to Zone, and Zone to Zone 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**, 0N, 02, CH, SndN, SndCH, LV, F7

Get:

**SysEx Header**, 0N, 01, 0F, 02, CH, SndN, SndCH, F7

## Input to Zone, and Zone to Zone Send Mutes

**SysEx** message

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

Mute On Message:

**SysEx Header**, 0N, 03, CH, SndN, SndCH, 7F, F7

Mute Off Message:

**SysEx Header**, 0N, 03, CH, SndN, SndCH, 3F, F7

Get:

**SysEx Header**, 0N, 01, 0F, 03, CH, SndN, SndCH, F7

## Input to Zone, and Zone to Zone Send Level Increment Decrement

**SysEx** message

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

Increment Message:

**SysEx Header**, 0N, 04, CH, SndN, SndCH, 7F, F7

Decrement Message:

**SysEx Header**, 0N, 04, CH, SndN, SndCH, 3F, F7

## Preset Recall

**Bank** and **Program Change** message to recall one of the 500 Presets (4 banks).

The unit also transmits this message when a Preset is recalled.

### For Preset 1 to 128

Preset **SS** 1 to 128 = 00 to 7F

Select bank      Recall Preset

B0, 00, 00,      C0, **SS**

### For Preset 129 to 256

Preset **SS** 129 to 256 = 00 to 7F

Select bank      Recall Preset

B0, 00, 01,      C0, **SS**

### For Preset 257 to 384

Preset **SS** 257 to 384 = 00 to 7F

Select bank      Recall Preset

B0, 00, 02,      C0, **SS**

### For Preset 385 to 500

Preset **SS** 385 to 500 = 00 to 73

Select bank      Recall Preset

B0, 00, 03,      C0, **SS**

## Audio Playback

**SysEx** message

Where **PlaybackChannel** = 00 for Mono 1, 01 for Mono 2, and is ignored for stereo playback.

**TrackID** = 00 to 7F

Message:

**SysEx Header**, 00, 06, **PlaybackChannel**, **TrackID**, F7

## Source Selector

**SysEx** message

Where **CH** is the Zone channel number.

**SourceNumber** = 00 to 13

Message:

**SysEx Header**, 00, 08, **CH**, **SourceNumber**, F7

The unit also transmits the following message when a source is selected:

**SysEx Header**, 00, 08, **CH**, **SourceNumber**, **SourceColour**, **SourceName**, F7

