

MP-M Control Protocol



Reference Guide

TD-001602-01-A



1. Overview

The MP-M series music and paging mixers can be controlled by third-party control systems over Ethernet using the protocol documented herein. The protocol consists of simple text commands and responses.

1.1. Functions Available

The functions and parameters available for external control are:

- Password Authorization
- Automatic Value Change Updates
- Software Version Query
- Scene List
- Scene Recall
- Zone Volume
- Zone Source
- Zone Meter

2. Connection

The MP-M is controlled over Ethernet using the MP-M's IP address and port 17999. Command strings are sent as the payload of a TCP/IP packet.

It is recommended to configure any MP-M addressed by a 3rd party control system with a static IP address.

2.1. Connection Management

- A single simultaneous TCP/IP connection is supported.
 - If an additional TCP/IP connection is initiated, the previously used session will be automatically closed.
 - A broken socket will automatically terminate the session.
 - The MP-M will not automatically close an inactive or idle connection.
- It is permissible to keep a session open to send multiple commands as this is far more efficient than closing and re-opening a session for each command.
- There is no arbitration for multiple incoming points of control including MP-Install, MP-Manage, MFC wall panels, or via this protocol. Commands are processed first in, first out and the "last touch" wins.
- Responses will be sent to the IP address and source port number from which the packet was received.

3. Syntax and Conventions

3.1. Structure

The MP-M Control Protocol is a text-based, space-separated (ASCII string) protocol. The syntax is comprised of simple character strings with command type, command, parameter, and value separated by a space and ending with a line feed (LF, \n, 0x0A, or ASCII code decimal 10). Command strings are structured from most general to most explicit.

The general format for a command string is:

```
COMMAND_TYPE COMMAND_PARAMETER VALUE LF
```

- Command strings should be formatted exactly as defined in this protocol document.
- Any values or names containing white space must be enclosed in double quotes.
 - Multiple values or names should be separated by commas and all enclosed in double quotes.
- Commands, values, and names are case insensitive.
- Command strings sent to MP-M should not span multiple packets.
 - If a response exceeds the payload of a single packet, it will be divided across multiple packets. A line feed will terminate the data of the final packet only.

3.2. Command Types

There are two command types: Set and Get. Some of these commands are global or administrative and setup in function while the rest are purely for control targeting a specific parameter.

All commands are documented in the Command Reference section of this document.

3.3. Command Responses

- MP-M automatically acknowledges each command with a simple “ack”. The MP-M responds with a more verbose response corresponding to the command received, as applicable and documented.
- Commands which are invalid or not understood are responded to with a “nak”.

3.4. Security

Before the MP-M can accept any commands, the control system must supply the External Control Password as configured in MP-Install. The password command plus a valid password must be supplied with the initiation of each session.

3.5. Auto Notification

The MP-M can automatically push parameter value updates to the control system, if desired. This option is enabled by default and managed with the “auto” command documented in the Command Reference section further on.



NOTE: Changes in meter values do not automatically push and must be polled.

3.6. Parameter Notes

3.6.1. Volumes

Volumes are specified as a relative 0-100, which correlates to 0-100% of the range configured in MP-Install. By default, most volumes have an absolute range from OFF (-55.0 dB) to +14.0 dB. However, this range can be limited within the MP-Install software while the relative volume range remains 0-100%.

3.6.2. Sources

Sources are specified as an absolute value of 0 through 8. Values 1 through 8 directly correspond to the source selector radio buttons 1 through 8 as configured in the MP-Install software. Value 0 is the “silence” source which, when selected, effectively mutes the output while still allowing higher priority pages and sources to play out into the zone(s).

3.6.3. Scenes

Scenes are specified by name as programmed in the MP-Install software.

3.6.4. Stereo Channels

If any inputs or zones are stereo linked:

- Commands strings only need to be sent to the odd number (left side) of the pair. The even number (right side) of the pair will automatically mirror.
- Automatic updates will only be pushed from the odd number (left side) of the pair. It can be assumed that the even number (right side) of the pair is the same at any time.
- Likewise, it is only necessary to get or “poll” the value the odd number (left side) of the pair as it can be assumed that the even number (right side) of the pair is the same at any time.

4. Command Reference

All command strings start with the command type “cv” to set values or “cg” to get values.

4.1. Global Commands

4.1.1. Password

4.1.1.1. Description

Supplies external control password to initiate a valid control session.

4.1.1.2. Syntax

```
cv global pw "MYPASSWORD"\n
```

Where MYPASSWORD is the external control password as configured in MP-Install.

4.1.1.3. Response

If the command was successful, MP-M will respond with an “ack”. If the command failed for any reason, MP-M will respond with a “nak”.

4.1.2. ack

4.1.2.1. Description

When enabled, the MP-M will respond to each successful command with an “ack”. This can be useful when auto is disabled.

4.1.2.2. Syntax

```
cv global ack VALUE\n
```

Where VALUE = 0 to disable or 1 to enable.

4.1.2.3. Response

If the command was successful, MP-M will respond with an “ack”. If the command failed for any reason, MP-M will respond with a “nak”.

4.1.3. Auto

4.1.3.1. Description

When enabled, the MP-M will automatically push parameter value changes to the currently open external control session.

4.1.3.2. Syntax

```
cv global auto VALUE\n
```

Where VALUE = 0 to disable or 1 to enable.

4.1.3.3. Response

If the command was successful, MP-M will respond with an “ack”. If the command failed for any reason, MP-M will respond with a “nak”.

4.1.4. Version

4.1.4.1. Description

Retrieves the software version currently running on the MP-M.

4.1.4.2. Syntax

```
cg global version\n
```

4.1.4.3. Response

If the command was successful, MP-M will respond with:

```
cv global version VALUE
```

Where VALUE is the version number in a Major.Minor.Build dotted number format.

4.1.5. Scenelist

4.1.5.1. Description

Retrieves the list of scenes by name stored in the MP-M.

4.1.5.2. Syntax

```
cg global scenelist\n
```

4.1.5.3. Response

If the command was successful, MP-M will respond with:

```
cv global scenelist "Big Game Mode,Happy Hour,Dinner Shift,Sunday Brunch,Closing Time,SceneNameNN"
```

If the command was successful. If the command failed for any reason, MP-M will respond with a "nak".



NOTE: Names listed are for illustration only. Actual names returned are MP-M configuration dependent.

4.1.6. Scene

4.1.6.1. Description

Recalls the specified scene.

4.1.6.2. Syntax

```
cv global scene VALUE\n
```

Where VALUE is the name of the scene to be recalled. Remember that values and names with spaces must be enclosed in double quotes and multiple values or names should be separated by commas, all enclosed in double quotes.

Note: A list of scenes by name configured within MP-Install can be retrieved using the scenelist command.

4.1.6.3. Example

```
cv global scene "Big Game Mode"\n
```

4.1.6.4. Response

MP-M will respond with the name of the scene recalled plus all of the new values for the volumes and sources contained within that scene (provided auto is enabled) on subsequent lines:

```
cv global scene "Big Game Mode"
```

```
cv zone1 volume 70
```

```
cv zone1 source 4
```

```
cv zone2 volume 85
```

```
cv zone2 source 1
```

```
cv zoneN volume X
```

```
cv zoneN source X
```

```
...
```

If auto = 1, "ack" if auto = 0, or "nak" if the command was unsuccessful.

4.2. Set Commands

4.2.1. Volume

4.2.1.1. Description

Sets a volume to a specified level.

4.2.1.2. Parameters Addressable

```
zone1    zone5
```

```
zone2    zone6
```

```
zone3    zone7
```

```
zone4    zone8
```

4.2.1.3. Syntax

```
cv PARAMETER volume VALUE\n
```

Where PARAMETER is the specific volume to be adjusted from Parameters Addressable and VALUE is a percentage from 0 to 100.

4.2.1.4. Example

```
cv zone1 volume 75\n
```

4.2.1.5. Response

If the command was successful, MP-M will respond with:

```
cv zone1 volume 75
```

If auto = 1, "ack" if auto = 0, or "nak" if the command was unsuccessful.

4.2.2. source

4.2.2.1. Description

Sets the specified zone to the specified input source.

4.2.2.2. Parameters Addressable

zone1 zone5

zone2 zone6

zone3 zone7

zone4 zone8

4.2.2.3. Syntax

```
cv PARAMETER source VALUE\n
```

Where PARAMETER is the specific source to be adjusted from Parameters Addressable and VALUE is the source number from 0 to 8.

Note: 0 = Silence and 1-8 correlate directly to the sources configured for each zone within MP-Install.

4.2.2.4. Example

```
cv zone1 source 1\n
```

4.2.2.5. Response

If the command was successful, MP-M will respond with:

```
cv zone1 source 1
```

If auto = 1, "ack" if auto = 0, or "nak" if the command was unsuccessful.

4.3. Get Commands

4.3.1. Volume

4.3.1.1. Description

Gets the level of the requested volume.

4.3.1.2. Parameters Addressable

zone1 zone5

zone2 zone6

zone3 zone7

zone4 zone8

4.3.1.3. Syntax

```
cg PARAMETER volume\n
```

Where PARAMETER is the specific volume to query from Parameters Addressable.

4.3.1.4. Example

```
cg zone1 volume\n
```

4.3.1.5. Response

If the command was successful, MP-M will respond with:

```
cv zone1 volume VALUE
```

Where VALUE is a percentage from 0 to 100, if the command was successful. If the command failed for any reason, MP-M will respond with a “nak”.

4.3.2. Source

4.3.2.1. Description

Gets the current input source for the specified zone.

4.3.2.2. Parameters Addressable

```
zone1    zone5
```

```
zone2    zone6
```

```
zone3    zone7
```

```
zone4    zone8
```

4.3.2.3. Syntax

```
cg PARAMETER source\n
```

Where PARAMETER is the specific source to query from Parameters Addressable.

4.3.2.4. Example

```
cg zone1 source\n
```

4.3.2.5. Response

If the command was successful, MP-M will respond with:

```
cv zone1 source VALUE
```

Where VALUE is the source number from 0 to 8, if the command was successful. If the command failed for any reason, MP-M will respond with a “nak”.

Note: 0 = Silence and 1-8 correlate directly to the sources configured for each zone within MP-Install.

4.3.3. Meter

4.3.3.1. Description

Gets the level of the requested meter.

4.3.3.2. Parameters Addressable

```
zone1    zone5
```

```
zone2    zone6
```

```
zone3    zone7
```

```
zone4    zone8
```


4.3.3.3. Syntax

```
cg PARAMETER meter\n
```

Where PARAMETER is the specific volume to query from Parameters Addressable.

4.3.3.4. Example

```
cg zone1 meter\n
```

4.3.3.5. Response

If the command was successful, MP-M will respond with:

```
cv zone1 meter VALUE
```

Where VALUE is a percentage from 0 to 100, if the command was successful. If the command failed for any reason, MP-M will respond with a “nak”.



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