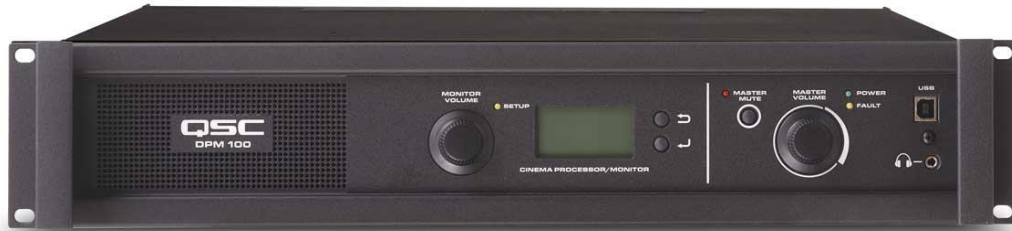


# DPM Control Interface Manual



Revision	Date	Change
A	4/10/19	Initial release

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## 1. Introduction

This document provides the commands available to control and monitor the DPM platform models via their automation inputs. For the DPM 100, DPM 100H, DPM 300 and DPM 300H this includes the RS-232 serial port, Ethernet port and GPI inputs. For the DCM 100 and DCM 300 this includes only the RS-232 and Ethernet ports. Additionally, several of the commands are only available for the DPM models. Settings manipulated via automation commands may be overridden or modified by commands issued from the front panel, DPM software programs or by commands sent over other automation ports or GPI inputs.

## 2. Serial Port (RS-232)

### 2.1. Communication Settings

The serial port settings required to communicate with the serial interface on the DPM 100 are as follows:

- Default baud rate is 115200 bits per second. Bit rates of 57600, 38400, 19200, 9600, 1200 or 300 can be selected on the Connection tab of DPM Manager.
- 8 Data Bits
- No Parity
- 1 Stop Bit
- Flow Control: none
- Straight through cable (not a null modem)

### 2.2. Command Protocol

A communication terminal program such as Hyper Terminal can be used for initial testing of the DPM 100 automation commands. After connecting the serial port cable (no null modem) and configuring a communication session you should see the following command prompt indicating that the DPM 100 unit is ready to accept serial automation commands, (you may need to use a <CR> to see the prompt):

```
{do not type '>'}
```

```
>
```

Turn on 'echo' locally to see the text you are typing.

When sending the serial commands programmatically, the command must be terminated by a newline character (/n or /r/n).

## 3. Ethernet Automation Control

### 3.1. Communication Settings

IP address configuration is set on the Connection tab of DPM Manager. Parameters include IP address, Subnet mask and Gateway. For optimal performance, send commands at least 400ms apart.

### 3.2. Command Protocol

Both the TCP and UDP connections use the serial command syntax shown below. To ‘set’ values, send the command string. To query information (TCP only), the query command must be followed by a GET command. For example, to query the currently active audio preset via TCP:

- Open connection
- Send “dpm100preset=”
- Close connection (DPM will close on its end)
- Open connection
- Send “GET”
- Receive reply (return value will be “AudioPreset = X”, where X is the currently active audio preset)
- Close connection

### 3.3. TCP Port

TCP connection occurs through port 4446. The DPM will close the connection on its end after each command, so the connection must be opened before each command is sent then closed after command is sent.

### 3.4. UDP Port

UDP connection is through port 4448. This connection can only be used with ‘set’ commands. You cannot ‘get’ device status via UDP.

## 4. SNMP Control and Monitoring

The DPM platform can be monitored and controlled via the SNMP V1 protocol. Access via SNMP is enabled and configured on the Communications tab in DPM Manager. The MIB file can be exported directly from DPM Manager on the Communications tab and can also be downloaded from the DPM product page at QSC.com. SNMP provides access to the following:

<u>Status (Read only or Read/Write mode enabled)</u>	<u>Control (Read/Write mode enabled)</u>
<ul style="list-style-type: none"> <li>• Serial Number</li> <li>• Firmware version</li> <li>• Model</li> <li>• Active preset number, source, and format</li> <li>• Master volume and mute settings</li> <li>• Bypass mode</li> <li>• Amp power state</li> <li>• Audio and Control preset tables</li> <li>• Amp fault status tables</li> </ul>	<ul style="list-style-type: none"> <li>• Active audio preset</li> <li>• Control preset trigger</li> <li>• Master volume and mute</li> <li>• Bypass mode</li> <li>• Amp power state</li> </ul>

Note: Preset, volume and mute control not applicable for DCM models.



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## 5. Automation Command Reference

The following table summarizes available commands that can be sent via the serial port or over an Ethernet connection. Additional information on each command provided below along with examples when used with a serial port.

NOTE: 'dpm100' can be replaced with 'dcp300'. More information about DCP command compatibility is available later in this document.

Function	Command	Description	Supported on DCMs
Preset Change	dpm100preset=3	Change active preset to 3	No
Preset Name Query	dpm100presetname=1	Returns name of preset 1	No
Mute	dpm100mute=1	Mute all output audio	No
Unmute	dpm100mute=0	Unmute output audio	No
Master Fader	dpm100fader=5.0	Changes fader to 5dB	No
	dpm100fader=+	Increment fader by .5dB	No
	dpm100fader=-	Decrement fader by .5dB	No
	dpm100fader=++N	Increment fader by N dB	No
	dpm100fader=--N	Decrement fader by N dB	No
Amps On	dpm100ampson	Powers on all amplifiers	Yes
Amps Off	dpm100ampsoff	Puts all amplifiers in standby	Yes
Firmware Version	dpm100version=	Returns current firmware version	Yes
Serial Number	dpm100serialnumber=	Returns device serial number	Yes
Device Name	dpm100devicename=	Returns device name	Yes
Command Help	dpm100help	Returns command usage information	Yes

### 5.1. Preset Control

#### **dpm100preset**

Selects the preset specified (1–32). If no preset number is entered following the '=' character, then the currently active audio preset is returned (see section 3 for information on how to query status over Ethernet). Presets 1-16 are audio presets. Presets 17-32 are control presets.

Examples:

To select preset 1:

```
>dpm100preset=1
```

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To query currently active audio preset (presets 1-16):

```
>dpm100preset=
```

Return value:

Audio Preset = 1

If an invalid, disabled or out-of-range preset number value entered:

```
>dpm100preset=50
```

Return value:

'dpm100preset=50' is an invalid command

### **dpm100presetname**

Queries the name of the preset specified (1–32).

Examples:

To query name of audio preset 1:

```
>dpm100presetname=1
```

Return value:

Preset Name = DIGITAL

## 5.2. Mute Control

### **dpm100mute**

Turns the Master Mute on or off (1= mute, 0= unmute). If no value is entered following the '=' character, then the current state of the Master Mute is returned.

Examples:

To turn master mute on:

```
>dpm100mute=1
```

To turn master mute off:

```
>dpm100mute=0
```

To query current state of master mute:

```
>dpm100mute=
```

Return value:

Mute = 1

If invalid or out of range value entered:

```
>dpm100mute=a
```

Return value:

'dpm100mute=a' is an invalid command

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Note: Current state of Master Mute will remain active

### 5.3. Fader Control

#### **dpm100fader**

Sets the Master Volume level to the value specified in dB (-90.0 to 10.0 in .1dB increments). If no value is entered following the '=' character, the current Master Volume level is returned. If a '+' character is entered following the '=' character, then the volume is incremented by .5 dB (not to exceed the maximum allowable volume of 10.0 dB). If a '-' character is entered following the '=' character, then the volume is decremented by .5 dB. If a user defined increment is required use '++value' or '--value' following the '='.

Examples:

To set Master Volume to 5 dB:

```
>dpm100fader=5.0
```

To increment volume by .5 dB (course adjustment):

```
>dpm100fader=+
```

To decrement volume by .5 dB (course adjustment):

```
>dpm100fader=-
```

To increment volume by .1 dB (fine adjustment):

```
>dpm100fader=++.1
```

To decrement volume by .1 dB (fine adjustment):

```
>dpm100fader=--.1
```

To increment volume by .3 dB:

```
>dpm100fader=++.3
```

To decrement volume by .3 dB:

```
>dpm100fader=--.3
```

To query current master volume:

```
>dpm100fader=
```

Return value:

Master Fader = 4.5

If invalid or out of range value entered:

```
>dpm100fader=20.0
```

Return value:

'dpm100fader=20.0' is an invalid command

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Note: Master Volume will remain at current level

## 5.4. Amp Control

### **dpm100ampson**

Use this command to turn on (take out of Standby) all amplifiers that are connected directly to the DPM via DataPort cables.

Example:

```
>dpm100ampson
```

### **dpm100ampsoff**

Use this command to turn off (put in Standby) all amplifiers that are connected directly to the DPM via DataPort cables.

Example:

```
>dpm100ampsoff
```

## 5.5. Status Queries

### **dpm100version**

Returns the version of the DPM 100 firmware (in the form: major.minor.build).

Example:

```
>dpm100version=
```

Return value:

```
Version = 1.0.7
```

### **dpm100serialnumber**

Returns the serial number of the DPM.

Example:

```
>dpm100serialnumber=
```

Return value:

```
SerialNo = 131601494
```

### **dpm100devicename**

Returns the device name of the DPM (visible on front panel and DPM Manager).

Example:

```
>dpm100devicename=
Return value:
DeviceName = Auditorium1
```

## 5.1.DCP Compatible Automation Commands

The DPM will respond to systems that have already been programmed using the DCP300 serial syntax commands. For these commands, the query responses have the same syntax as the command. The DPM will only reply to status queries. It will not confirm 'set' commands or send updates without a query. DCP XML style commands are not supported.

The following commands are available:

Function	Command	Description
Preset Change	dcp300preset=3	Change active preset to 3
Mute	dcp300mute=1	Mute all output audio
Unmute	dcp300mute=0	Unmute output audio
Master Fader	dcp300fader=5.0	Changes fader to 5dB
	dcp300fader=+	Increment fader by .5dB
	dcp300fader=-	Decrement fader by .5dB
	dcp300fader=++N	Increment fader by N dB
	dcp300fader=--N	Decrement fader by N dB
Amps On	dcp300ampson	Powers on all amplifiers
Amps Off	dcp300ampsoff	Puts all amplifiers in standby
Firmware Version	dcp300version=	Returns current firmware version

Examples:

To query currently active audio preset (presets 1-16):

```
>dcp300preset=
Return value:
dcp300preset=1
```

To query current state of master mute:

```
>dcp300mute=
Return value:
dcp300mute=1
```



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To query current master volume:

```
>dcp300fader=
```

Return value:

```
dcp300fader=3.6
```

To query firmware version:

```
>dcp300version=
```

Return value:

```
dcp300version=1.00.0007
```

If an invalid, disabled or out-of-range value entered:

```
>dcp300preset=50
```

Return value:

```
'dcp300preset=50' is an invalid command
```

## 6. Automation Inputs (Contact closure)

These controls are accessed via the Automation Inputs RJ-45 on the rear panel. This connector provides 6 inputs for connection to contact closures. Their functionality is configured in DPM Manager on the Connection tab. Pinout information is available in the DPM User's Manual.

### 6.1. Audio / Control preset recall

For single preset control, set the control mode to 'Recall Preset' and set the appropriate Trigger level (either 'low' or 'high' corresponding to 'shorted' contact or 'opened' contact) then select which preset to recall (audio or control). Use this with a momentary switch. Note that this preset selection is activated by a transition to the trigger level and can be overridden by preset changes by other controls such as the front panel or Ethernet or serial port automation controls.

For priority preset control, set the control mode to 'Priority Preset' and set the appropriate Trigger level (either 'low' or 'high' corresponding to 'shorted' contact or 'opened' contact) then select which audio preset to recall. Note that this preset selection **cannot** be overridden by preset changes by other controls such as the front panel or Ethernet or serial port automation controls until the trigger level is no longer active. When the input returns to the inactive level, the preset will return to the last preset selection made, even if that selection occurred while the priority preset was active. A message on the front panel will be displayed while priority preset is active.

For multi-preset control, set the control mode to 'Toggle preset'. This will allow you to select two control presets, one for each state of the automation input. For example, if you have configured one control preset to turn amps on and another control preset to put amps in Standby, these two presets can be assigned to one automation input connected to a switch; putting the switch in one state turns amps on while putting the switch in the other state turns amps off. Other functions that can be controlled via control presets include master mute, relays, and PA Mic enable. Note that the two relays can be controlled individually or simultaneously with other

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control preset changes. Like the single preset control, this preset change is triggered by a change on the input and can be overridden by preset changes made elsewhere.

## 6.2. Master Mute and Fire Alarm Mute

The master mute will cause all output audio to be muted and the mute LED on the front panel will turn red. To select 'Master Mute' set the control mode to 'Master Mute Control' then select the trigger level that will activate the mute ('low' or 'high' corresponding to 'shorted' contact or 'opened' contact). The opposite level will turn off the master mute. Note that this control is activated by a transition to or from the trigger level and can be overridden by master mute changes by other controls such as the front panel or Ethernet or serial port automation controls.

The fire alarm mute will mute all output audio and also blink the 'Fault' led and display 'FIRE ALARM MUTE ON' on the front panel screen. This mode *must be cleared* (automation input at inactive level) to enable normal operation of the DPM. To select 'Fire Alarm Mute' set the control mode to 'Fire Alarm Mute' then select the trigger level that will activate the mute ('low' or 'high' corresponding to 'shorted' contact or 'opened' contact). This mute will stay active as long as the input is at the trigger level. Once the input is in the inactive state, the mute will return to the most recent state set by other means (front panel, automation, etc.).

## 6.3. Mic Control (PA Mic mode)

The mic control will cause the mic input to be routed to the center channel input regardless of the current preset selection (PA Mic mode).

To enable PA Mic mode, select 'Mic Control' then select the trigger level that will activate the mode ('low' or 'high' corresponding to 'shorted' contact or 'opened' contact). The opposite level will turn off PA Mic mode. Note that this control is activated by a transition to or from the trigger level and can be overridden by PA Mic mode changes by other controls such as the front panel or control preset changes via Ethernet or serial port automation controls.

## 6.4. Master Volume control

These control modes provide the ability to control the master volume via two contact closures. Set the Control Mode to 'Level + .5 dB' on one GPI and 'Level - .5 dB' on another then select the trigger level that will activate the change ('low' or 'high' corresponding to 'shorted' contact or 'opened' contact). When the transition to the trigger level is detected, the master volume will be incremented by the amount indicated (+.5 dB or -.5 dB). Note that this control is activated by a transition to or from the trigger level and can be overridden by master volume changes by other controls such as the front panel or via Ethernet or serial port automation controls.