

# **d&b OSC Protocol document for DS100**

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| 1.2.5   | Added commands for scenes  | 10/02/20       | martinr           |
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| 1.3.2   | Updated Sound object spread step size  | 19/11/20       | martinr           |
| 1.3.3   | Added commands for Sound object to Function group                                | 21/01/21       | martinr           |
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## 1 Disclaimer of Warranty and Limitation of Liability

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## 2 Description

In addition to the AES70/OCA protocol, the DS100 supports the possibility to control a set of the functionality using the OSC protocol ([OSC 1.0 specification](#)). This allows control of the DS100 from devices or software that can send OSC messages.

The DS100 uses the UDP transport layer. The DS100 uses Port 50010 to listen for (receive) incoming messages, Port 50011 is used to send replies.

OSC is advertised via DNS-SD as **\_osc.\_udp**

### 2.1 General OSC path definition

```
<OSC path> : = /dbaudio1           // d&b identifier
              /module             // part of the signal path
              /name               // name
              /number             // in the matrix this is the input [nothing if not needed]
              /number             // in the matrix this is the output [nothing if not needed]

              value(s)
```

Example of setting a value (write):

```
/dbaudio1/matrixnode/enable/22/33 ,i 1
```

This command sets the Enable function at the crosspoint of input 22 and output 33 in the matrix to ON.

Example of retrieving a value (read):

```
/dbaudio1/matrixnode/enable/21/31 [without any value]
```

This command retrieves the state of the Enable function at the crosspoint of input 21 and output 31 in the matrix.

The response of the DS100 will be as follows:

```
/dbaudio1/matrixnode/enable/21/31 ,i 1
```

This response indicates that the Enable function at the crosspoint of input 21 and output 31 in the matrix is currently ON.

### 3 OSC definitions

#### 3.1 General settings

| Identifier | Module    | Name        | Value/Type | Read/Write | Min | Max | Description/Comment               |
|------------|-----------|-------------|------------|------------|-----|-----|-----------------------------------|
| /dbaudio1  | /settings | /devicename | , s        | r/w        | 0   | 15  | Will be overwritten by R1 project |

#### 3.2 Error

| Identifier | Module | Name       | Value/Type | Read/Write | Min | Max | Description  |
|------------|--------|------------|------------|------------|-----|-----|--------------|
| /dbaudio1  | /error | /gnrlerr   | , i        | r          | 0   | 1   | Error flag   |
| /dbaudio1  | /error | /errortext | , s        | r          | 0   | 31  | Error string |

#### 3.3 Status

| Identifier | Module  | Name        | Value/Type | Read/Write | Min | Max | Description   |
|------------|---------|-------------|------------|------------|-----|-----|---------------|
| /dbaudio1  | /status | /statustext | , s        | r          | 0   | 31  | Status string |

#### 3.4 Matrix input

| Identifier | Module       | Name                | Input   | Value/Type | Read/Write | Min    | Max   | Description               |
|------------|--------------|---------------------|---------|------------|------------|--------|-------|---------------------------|
| /dbaudio1  | /matrixinput | /mute               | /(1-64) | , i        | r/w        | 0      | 1     | Mute off=0 / on =1        |
| /dbaudio1  | /matrixinput | /gain               | /(1-64) | , f        | r/w        | -120.0 | 24.0  |                           |
| /dbaudio1  | /matrixinput | /delay              | /(1-64) | , f        | r/w        | 0.0    | 500.0 |                           |
| /dbaudio1  | /matrixinput | /delayenable        | /(1-64) | , i        | r/w        | 0      | 1     | Off=0 / on =1             |
| /dbaudio1  | /matrixinput | /eqenable           | /(1-64) | , i        | r/w        | 0      | 1     | Off=0 / on =1             |
| /dbaudio1  | /matrixinput | /polarity           | /(1-64) | , i        | r/w        | 0      | 1     | Off=0 / on =1             |
| /dbaudio1  | /matrixinput | /channelname        | /(1-64) | , s        | r/w        | 0      | 31    | Will be overwritten by R1 |
| /dbaudio1  | /matrixinput | /levelmeterpremute  | /(1-64) | , f        | r          | -120.0 | 0.0   |                           |
| /dbaudio1  | /matrixinput | /levelmeterpostmute | /(1-64) | , f        | r          | -120.0 | 0.0   |                           |

#### 3.5 Matrix node

The matrix crosspoint is disabled when the respective node is used for positioning.

| Identifier | Module      | Name         | Input   | Output  | Value/Type | Read/Write | Min    | Max   | Description                  |
|------------|-------------|--------------|---------|---------|------------|------------|--------|-------|------------------------------|
| /dbaudio1  | /matrixnode | /enable      | /(1-64) | /(1-64) | , i        | r/w        | 0      | 1     | Enable the matrix crosspoint |
| /dbaudio1  | /matrixnode | /gain        | /(1-64) | /(1-64) | , f        | r/w        | -120.0 | 10.0  |                              |
| /dbaudio1  | /matrixnode | /delayenable | /(1-64) | /(1-64) | , i        | r/w        | 0      | 1     | Enable the delay             |
| /dbaudio1  | /matrixnode | /delay       | /(1-64) | /(1-64) | , f        | r/w        | 0.0    | 500.0 |                              |

### 3.6 Matrix output

| Identifier | Module        | Name                | Output  | Value/<br>Type | Read/<br>Write | Min    | Max   | Description               |
|------------|---------------|---------------------|---------|----------------|----------------|--------|-------|---------------------------|
| /dbaudio1  | /matrixoutput | /mute               | /(1-64) | , i            | r/w            | 0      | 1     | Mute off=0 / on =1        |
| /dbaudio1  | /matrixoutput | /gain               | /(1-64) | , f            | r/w            | -120.0 | 10.0  |                           |
| /dbaudio1  | /matrixoutput | /delay              | /(1-64) | , f            | r/w            | 0.0    | 500.0 |                           |
| /dbaudio1  | /matrixoutput | /delayenable        | /(1-64) | , i            | r/w            | 0      | 1     | Off=0 / on =1             |
| /dbaudio1  | /matrixoutput | /eqenable           | /(1-64) | , i            | r/w            | 0      | 1     | Off=0 / on =1             |
| /dbaudio1  | /matrixoutput | /polarity           | /(1-64) | , i            | r/w            | 0      | 1     | Off=0 / on =1             |
| /dbaudio1  | /matrixoutput | /channelname        | /(1-64) | , s            | r/w            | 0      | 31    | Will be overwritten by R1 |
| /dbaudio1  | /matrixoutput | /levelmeterpremute  | /(1-64) | , f            | r              | -120.0 | 0.0   |                           |
| /dbaudio1  | /matrixoutput | /levelmeterpostmute | /(1-64) | , f            | r              | -120.0 | 0.0   |                           |

### 3.7 En-Scene positioning (only available if option is enabled)

| Identifier | Module       | Name                | Input   | Value/<br>Type | Read/<br>Write | Min | Max | Description   |
|------------|--------------|---------------------|---------|----------------|----------------|-----|-----|---|
| /dbaudio1  | /positioning | /source_spread      | /(1-64) | , f            | r/w            | 0.0 | 1.0 | Sound object spread (step 0.01 ; default 0.5)                                   |
| /dbaudio1  | /positioning | /source_delaymode   | /(1-64) | , i            | r/w            | 0   | 2   | Sound object delay mode (off, tight, full)                                      |
| /dbaudio1  | /positioning | /source_position    | /(1-64) | , fff          | r/w            |     |     | Sound object position absolute to the project origin x, y, z (values in meters) |
| /dbaudio1  | /positioning | /source_position_xy | /(1-64) | , ff           | r/w            |     |     | Sound object position absolute to the project origin x, y (values in meters)    |
| /dbaudio1  | /positioning | /source_position_x  | /(1-64) | , f            | r/w            |     |     | Sound object position absolute to the project origin x (values in meters)       |
| /dbaudio1  | /positioning | /source_position_y  | /(1-64) | , f            | r/w            |     |     | Sound object position absolute to the project origin y (values in meters)       |

| Identifier | Module             | Name                | Map-ping | Input   | Value/<br>Type | Read/<br>Write | Min | Max | Description  |
|------------|--------------------|---------------------|----------|---------|----------------|----------------|-----|-----|--|
| /dbaudio1  | /coordinatemapping | /source_position    | /(1- 4)  | /(1-64) | , fff          | r/w            |     |     | Sound object position relative to the area x, y, z (values such as user defined scaling)         |
| /dbaudio1  | /coordinatemapping | /source_position_xy | /(1- 4)  | /(1-64) | , ff           | r/w            |     |     | Sound object position relative to the area x, y (values such as user defined scaling), no height |
| /dbaudio1  | /coordinatemapping | /source_position_x  | /(1- 4)  | /(1-64) | , f            | r/w            |     |     | Sound object position relative to the area x (values such as user defined scaling)               |
| /dbaudio1  | /coordinatemapping | /source_position_y  | /(1- 4)  | /(1-64) | , f            | r/w            |     |     | Sound object position relative to the area y (values such as user defined scaling)               |

### 3.8 En-Space room settings (only available if option is enabled)

| Identifier | Module          | Name                  | Value/Type | Read/Write | Min   | Max  | Description/Comment |
|------------|-----------------|-----------------------|------------|------------|-------|------|---------------------|
| /dbaudio1  | /matrixsettings | /reverbroomid         | , i        | r/w        | 0     | 9    | Room selector       |
| /dbaudio1  | /matrixsettings | /reverbpredelayfactor | , f        | r/w        | 0.2   | 2.0  | Predelay factor     |
| /dbaudio1  | /matrixsettings | /reverbrearlevel      | , f        | r/w        | -24.0 | 24.0 | Rear level          |

### 3.9 En-Space input (only available if option is enabled)

| Identifier | Module       | Name            | Input   | Value/Type | Read/Write | Min    | Max  | Description           |
|------------|--------------|-----------------|---------|------------|------------|--------|------|-----------------------|
| /dbaudio1  | /matrixinput | /reverbsendgain | /(1-64) | , f        | r/w        | -120.0 | 24.0 | Gain sent to En-Space |

### 3.10 En-Space input matrix (only available if option is enabled)

Zone 1 is on the left (seen from the audience)

Zone 2 is in the center (seen from the audience)

Zone 3 is on the right (seen from the audience)

Zone 4 is the audience

| Identifier | Module       | Name  | Input   | Zone   | Value/Type | Read/Write | Min    | Max  | Description |
|------------|--------------|-------|---------|--------|------------|------------|--------|------|-------------|
| /dbaudio1  | /reverbinput | /gain | /(1-64) | /(1-4) | , f        | r/w        | -120.0 | 24.0 |             |

### 3.11 En-Space input processing (only available if option is enabled)

Zone 1 is on the left (seen from the audience)

Zone 2 is in the center (seen from the audience)

Zone 3 is on the right (seen from the audience)

Zone 4 is the audience

| Identifier | Module                 | Name        | Zone   | Value/Type | Read/Write | Min    | Max  | Description |
|------------|------------------------|-------------|--------|------------|------------|--------|------|-------------|
| /dbaudio1  | /reverbinputprocessing | /mute       | /(1-4) | , i        | r/w        | 0      | 1    |             |
| /dbaudio1  | /reverbinputprocessing | /gain       | /(1-4) | , f        | r/w        | -120.0 | 24.0 |             |
| /dbaudio1  | /reverbinputprocessing | /levelmeter | /(1-4) | , f        | r          | -120.0 | 0.0  |             |
| /dbaudio1  | /reverbinputprocessing | /eqenable   | /(1-4) | , i        | r/w        | 0      | 1    |             |

### 3.12 Device clear

| Identifier | Module  | Name   | Value/Type | Read/Write | Description   |
|------------|---------|--------|------------|------------|---|
| /dbaudio1  | /device | /clear | -          | w          | Resets the device to factory defaults, except the remote settings |



### 3.13 Scenes

OSC commands are used to recall scenes. Scenes have to be created using R1.

| Identifier | Module | Name          | Value/<br>Type | Read/<br>Write | Min  | Max     | Description                                     |
|------------|--------|---------------|----------------|----------------|------|---------|---|
| /dbaudio1  | /scene | /previous     | -              | w              |      |         |   |
| /dbaudio1  | /scene | /next         | -              | w              |      |         |   |
| /dbaudio1  | /scene | /recall       | , i            | w              | 0    | 999     | Format "major".                                 |
| /dbaudio1  | /scene | /recall       | , i i          | w              | 0, 0 | 999, 99 | Format "major", "minor".<br>Smallest index 0, 1 |
| /dbaudio1  | /scene | /sceneindex   | , s            | r              | 0    | 7       | Format "major.minor"                            |
| /dbaudio1  | /scene | /scenename    | , s            | r              | 0    | 31      |   |
| /dbaudio1  | /scene | /scenecomment | , s            | r              | 0    | 127     |   |

### 3.14 En-Scene Sound object routing

| Identifier | Module              | Name  | Function group | Sound object | Value/<br>Type | Read/<br>Write | Min    | Max  | Description                                    |
|------------|---------------------|-------|----------------|--------------|----------------|----------------|--------|------|--|
| /dbaudio1  | /soundobjectrouting | /mute | /[1-16]        | /[1-64]      | , i            | r/w            | 0      | 1    | Mutes the Sound object for this function group |
| /dbaudio1  | /soundobjectrouting | /gain | /[1-16]        | /[1-64]      | , f            | r/w            | -120.0 | 10.0 |  |

### 3.15 En-Scene Function group

Not all function groups support Spread factor and delay. For more information see TI 501.

| Identifier | Module         | Name          | Function group | Value/<br>Type | Read/<br>Write | Min | Max   | Description                       |
|------------|----------------|---------------|----------------|----------------|----------------|-----|-------|-----------------------------------|
| /dbaudio1  | /functiongroup | /name         | /[1-16]        | , i            | r              | 0   | 15    | Name of the function group        |
| /dbaudio1  | /functiongroup | /spreadfactor | /[1-16]        | , f            | r/w            | 0.5 | 2.0   | Spread factor of a function group |
| /dbaudio1  | /functiongroup | /delay        | /[1-16]        | , f            | r/w            | 0.0 | 500.0 | Delay of a function group         |

### 3.16 En-Scene Speaker position

| Identifier | Module       | Name              | Position | Value/<br>Type | Read/<br>Write | Min | Max | Description   |
|------------|--------------|-------------------|----------|----------------|----------------|-----|-----|---|
| /dbaudio1  | /positioning | /speaker_position | /[1-64]  | , f f f f f f  | r              |     |     | Speaker/s position absolute to the project origin x, y, z(values in meters), hor, vert, rot (values in degrees) |

