

Introduction

XTA DPA and MC2 Delta DSP firmware from January 2021 incorporate OSC control. This allows amplifiers to be controlled by 3<sup>rd</sup> party applications (eg TouchOSC & QLab) and devices such as mixing consoles.

OSC commands are available to control the following in XTA DPA and Delta DSP amplifiers:-

Memory Recall (all types)

Individual Mute

Absolute Gains

Absolute Delays

Pattern Mutes

Incremental Gains

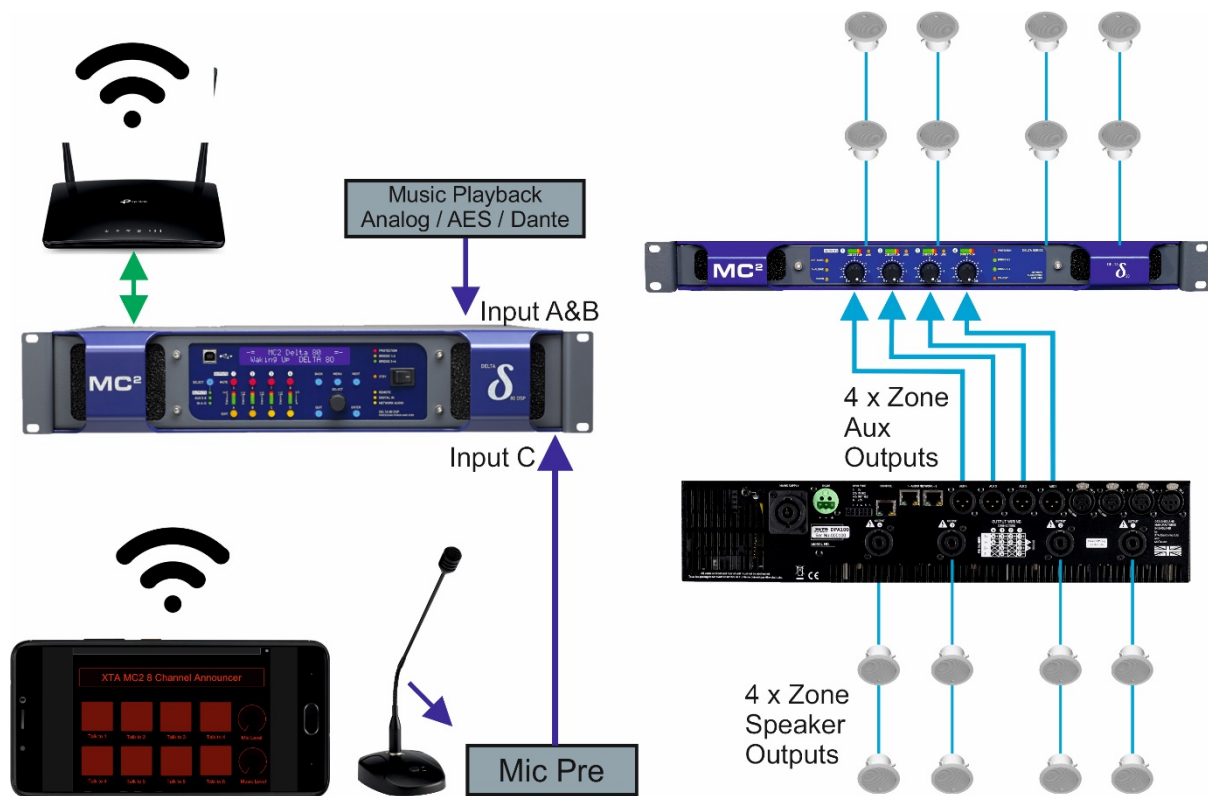
Incremental Delays

This application note covers the process for configuring a single amplifier as an 8 way paging solution – the routing of the microphone could be controlled by :-  
 a TouchOSC control panel running on android or iOS device  
 or an OSC paging microphone such as the Work SPS 8.

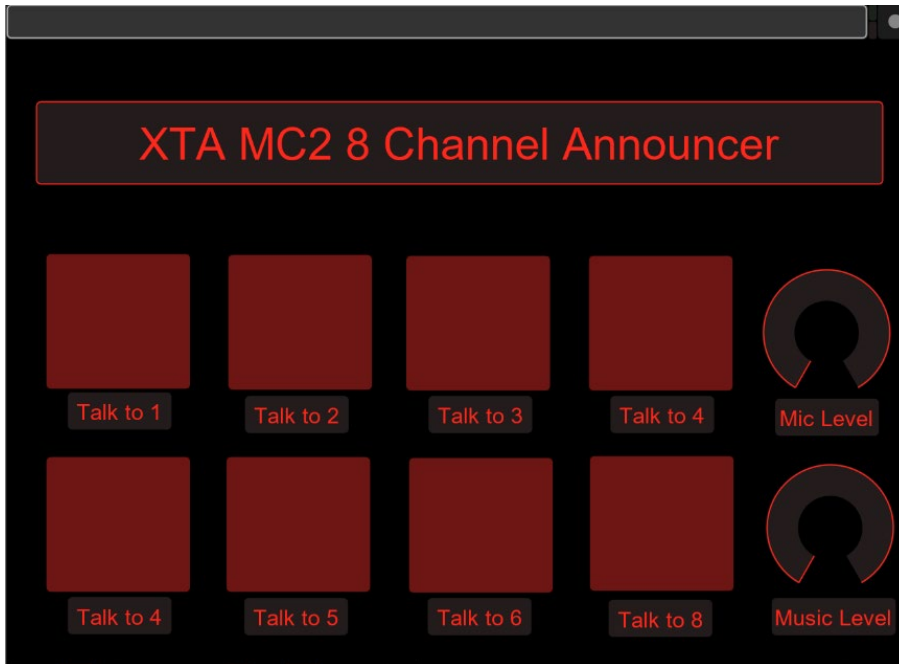
Overview

In this document we will cover  
 Designing the panel in TouchOSC  
 Deploying the panel on your tablet device  
 Guidance on storing the setting in Audicore to enable the following:-

A single XTA DPA or Delta amplifier is configured to route music from inputs A & B to the 4 speaker outputs & 4 aux outputs. This gives 8 zones in total.  
 Buttons on an OSC panel are used to switch a zone's output from music playback to an announcement microphone, when the button is released it returns to the music signal.  
 Input C is used for a line level signal from a microphone source.  
 The analogue inputs are designed for line level signals, direct connection of a microphone is not recommended, the output of radio microphone receiver is ok to connect directly to the analogue input but a standard microphone will need a mic preamp to boost the signal to line level.  
 An example system is featured below



DPA / Delta dsp are supported by numerous MC2/XTA amplifiers without dsp, from 170W to 6800W per channel with numerous 70V/100V line amplifiers options this means a paging solution can be delivered across ceiling loudspeakers and stadium arrays alike. A voice of God / firemans microphone typically needs a minimal signal to the speaker, the tools are here to provide this.



### Panel operation

The core 8 buttons on the control panel recall X-OVER memories which select which zone the mic input is routed too.

When the button is released it recalls a memory where music is routed to all outputs.

The panel is designed in the Hexler TouchOSC Editor app, new controls & labels are placed on the panel by right clicking the background and selecting a control type. We need to use `Button`, `Rotary H` and `Label` items.

Let us talk about the buttons, the button can be configured to transmit a value when pressed and a different value when it is released.

When a button is pressed it transmits the `To` value.

When the button is released it sends the `From` value.

In the example below the command is

/recallmem/amp = recall XOVER memory to the amplifiers output

When the button is pressed it recalls memory 1 (talk to zone 1)

When the button is released it recalls memory 5 (music to all outputs)

Note both tick boxes for `send on press` and `send on release` are enable in the Touchosc Editor app, this means a press and release commands are sent

*In this application it is essential when these memories are stored in the unit they are x-over memories .*

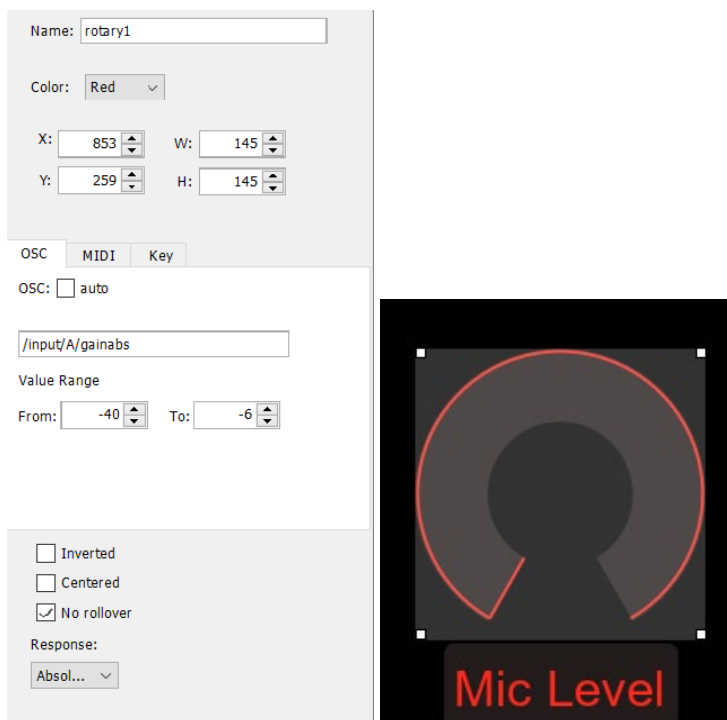
The screenshot shows the configuration interface for a button in the TouchOSC application. The button is named "Talk to Speaker Out 1" and has a red color. Its dimensions are set to X: 44, W: 165, Y: 241, and H: 155. The OSC command is "/recallmem/amp" and the value range is set from 5 to 1. The "Send on 'Press'" and "Send on 'Release'" checkboxes are checked, while "Local feedback off", "Y position velocity", and "Invert" are unchecked. To the right of the configuration panel is a visual representation of the button: a dark red square with the text "Talk to 1" in red on a black background.

A separate volume control is available for microphone level and music level, as this is virtual rotary level control the user can define the lower and upper volume limits of the music and mic levels.

In the instance below the command is

/input/A/gainabs = set input A gain to the position of the rotary.

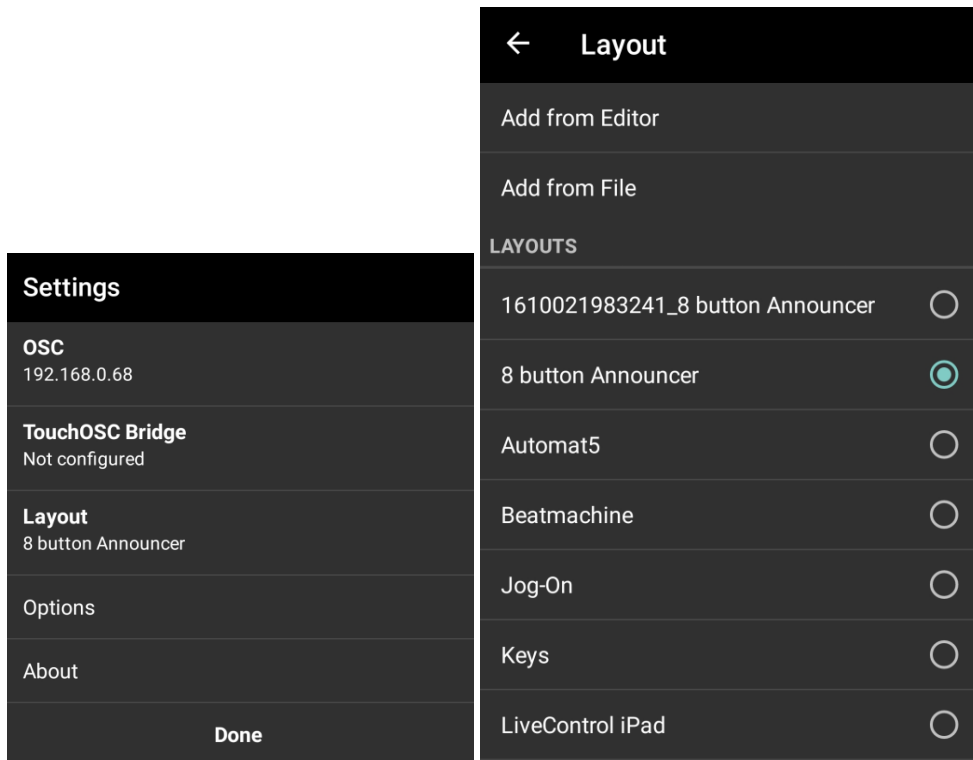
The minimum gain is defined by the `from` value and the max gain is defined by the `To` value. The Music rotary may need to be a stereo level control – if this is required you must gang the control when you configure the amplifier, further consider mono summing if outputs are not configured for stereo operation.



The Text below the button is by placed adding a `label` in the TouchOSC right click menu, vertical and a horizontal label types are available. This can be placed on the button if required.

A useful feature with the XTA / MC2 OSC command structure is the Refresh command. If you want to update a panel with current gain / mute /delay status – Add a **Refresh** button to your panel.

When you are happy with your panel design or have simply downloaded our example. You need to transfer it to your tablet / mobile device, email is the easiest method. Open the email on your phone /tablet and save the \*.touchosc file you just sent yourself. In the osc app select `layout` & select `Add from file` and browse to the \*.touchosc file you saved above. These two screen shots are what you will see :-



When using the Hexler `TouchOSC` application to run your control application, the following setting should be enabled on the mobile device:-

**Enable `CoreMIDI`** – if it appears on your device – typically on iOS.

In the **options menu** enable **`Bundle Messages`**.

In the **OSC menu** configure the following

**Host (IP Address)** – IP Address of the unit you wish to control

To view the units IP address press `Enter` and `Next` together.

**Port(incoming)** - (eg 9000)the transmit port of your MC2/XTA unit

**Port (outgoing)-** (eg 8000) the listen port of your MC2/XTA unit

### Amplifier configuration

Assuming you have the mics / music playback all connected, the first memory to configure is the music to all outputs configuration, this is the normal/ default setting, store this in Memory 5.

Before storing the memory above configure all your output names / limiters / crossover and Dynamic eq setting.

This needs to be done before you store all the different memories

This should be stored as an x-over memory.

As all these memories are x-over memories any changes you make to input gains / eq are not affected when an x-over memory is recalled.

What this means is your Input eq, gain, dynamic eq, and compression for the mic/ music inputs are not affected when recalling different x-over memories.

X-OVER / Output memories include all the output setting and output routing.

You now need to create 4 x-over memories where the mic input is only routed to specific outputs.

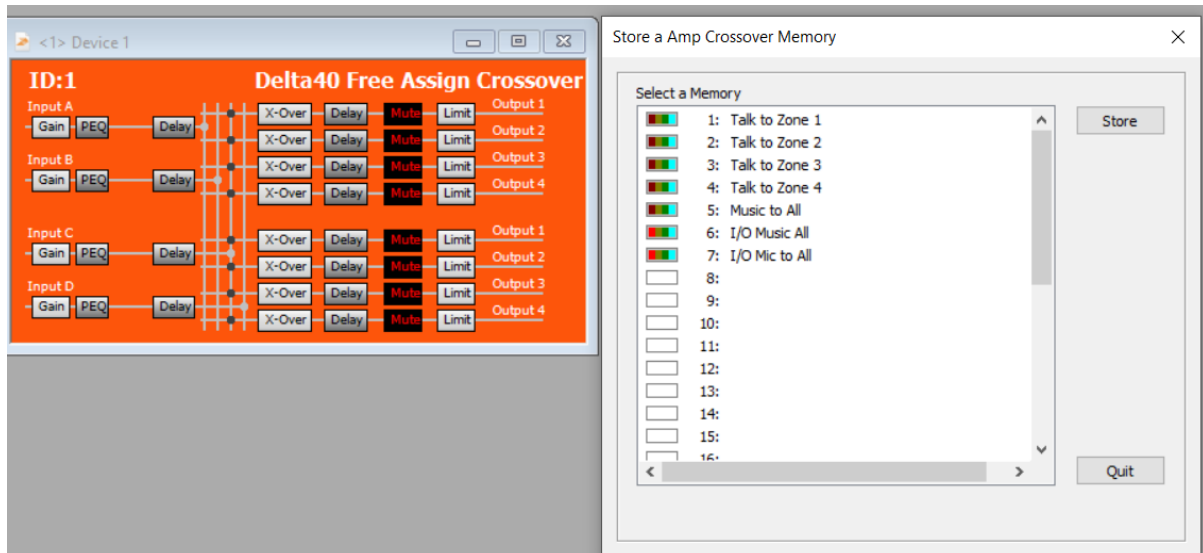
Adjust the routing in Audiocore via `right-click` - `modify device` menu.

Amplifiers Configuration ... continued

Store XOVER memories in Audiocore via `right-click` - `store memory` menu.

- MEMORY 1 = Mic to amp output 1
- MEMORY 2 = Mic to amp output 2
- MEMORY 3 = Mic to amp output 3
- MEMORY 4 = Mic to amp output 4

This how Audiocore would look when these memories have been stored



Remember:-

On our 8 button panel the top 4 buttons are /recallmem/amp.

On our 8 button panel the bottom 4 buttons are /recallmem/aux.

MC2 / XTA amplifiers have flexible memories, the XOVER memories above can be recalled to either the amp outputs or the aux outputs. This means you have less memories to create.

As good practice I would store an `everything` memory which includes all setting should you want to go back to your original `music to all` setting in the future.

In this instance it is stored in Memory 6.

The Audiocore pictures features a talk to all everything memory in 7, you could configure a button using the /recallmem/all command to flip between 6 & 7 if your project required it.

All this can be done online or offline – if you were offline remember when going online to `send setting to units`.

Enable Amplifier OSC Interface

To use OSC commands on your XTA DPA or Delta DSP use the amplifier front panel to enable the OSC option in the `Interface` menu.

When this interface is enabled you will be prompted to configure the following:-

**Rx Port** = 8000 (the listen / receive port)  
**Tx Port** = 9000 (the talk / transmit port)  
**IP address** = this is the IP address of the iOS/Android/ control device.  
Eg your phone or tablet or computers IP address

Important note – when implementing OSC control it is worth considering using either fixed IP addressing on your network or long lease times on your DHCP server.

If you opt for DHCP addressing you may need to adjust the IP address setting in your app and amplifier frequently.

As the amplifier listens to port 8000 (unless you change it in the menu above) you should configure the outgoing port on your control app or console to 8000.

Recapping the setting for the Touchosc application on your mobile device.

In the **OSC menu** configure the following

**Host (IP Address)** – IP Address of the unit you wish to control  
To view the units IP address press `Enter` and `Next` together.

**Port (outgoing)-** 8000 the listen port of your MC2/XTA unit  
**Port(incoming) -** 9000 the transmit port of you MC2/XTA unit

**Enable `CoreMIDI`** – if it appears on your device – typically on iOS.

In the **options menu** enable **`Bundle Messages`**

Providing your tablet & amplifier are connected to your wireless network, pressing the done button in the TouchOSC app will run the panel and give you OSC control of your amplifier.

Further information,  
XTA / MC2 OSC protocol document link below

TouchOSC website  
<https://hexler.net/products/touchosc>

Work OSC paging microphone  
<https://www.workpro.es/products/sps-8>

Revisions

25/1/2021 Pre release  
10/2/2021 V1.1 Refresh command notes added & unit osc ip address notes added