

TUTORIAL

Commander: Getting Started

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Introduction

Commander is a versatile environment which enables developers to create a full projects on BBM display modules that can be controlled by simple serial commands. You can quickly create a project from a selection of predesigned pages or custom pages designed using the other three Mates Studio environments.

After adding pages to the project and uploading to the BBM module, each page can be tested fully by using a built-in host simulator. This [simulator](#) provides a simple user interface to navigate across pages and control the widgets to give a visualization of what the host controller can do with the project. All this can be achieved without entering a single piece of code for the BBM module and in many cases, with the vast library of predesigned pages, no need for any design work to quickly bring projects to life ready to accept simple serial commands from the chosen host microcontroller.

Project Development

Start a new Commander project for the target module. For this tutorial, TIMI-96 in it's default orientation will be used.



After selecting the product, you need to select the environment.

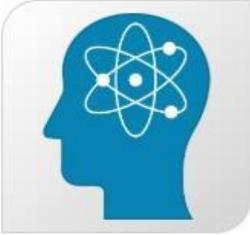
SELECT ENVIRONMENT
BACK



The Commander environment enables the user to create projects by selecting page layouts from a selection of predefined user interfaces from Breadboard Mates team and community.



The Architect environment enables the user to design projects with custom pages and widgets. This gives more designing capabilities than the Commander environment.



The Genius environment enables the user to design projects with custom pages and widgets and write code. This removes the need for an external host to control with the display.



The Builder environment enables the user to design projects with custom pages and widgets and build the process flow using graphical/block programming. This removes the need for an external host to control with the display.

Browse Recent Projects
Browse Computer

Click on the Commander Environment button to open with the Commander Environment blank project window.

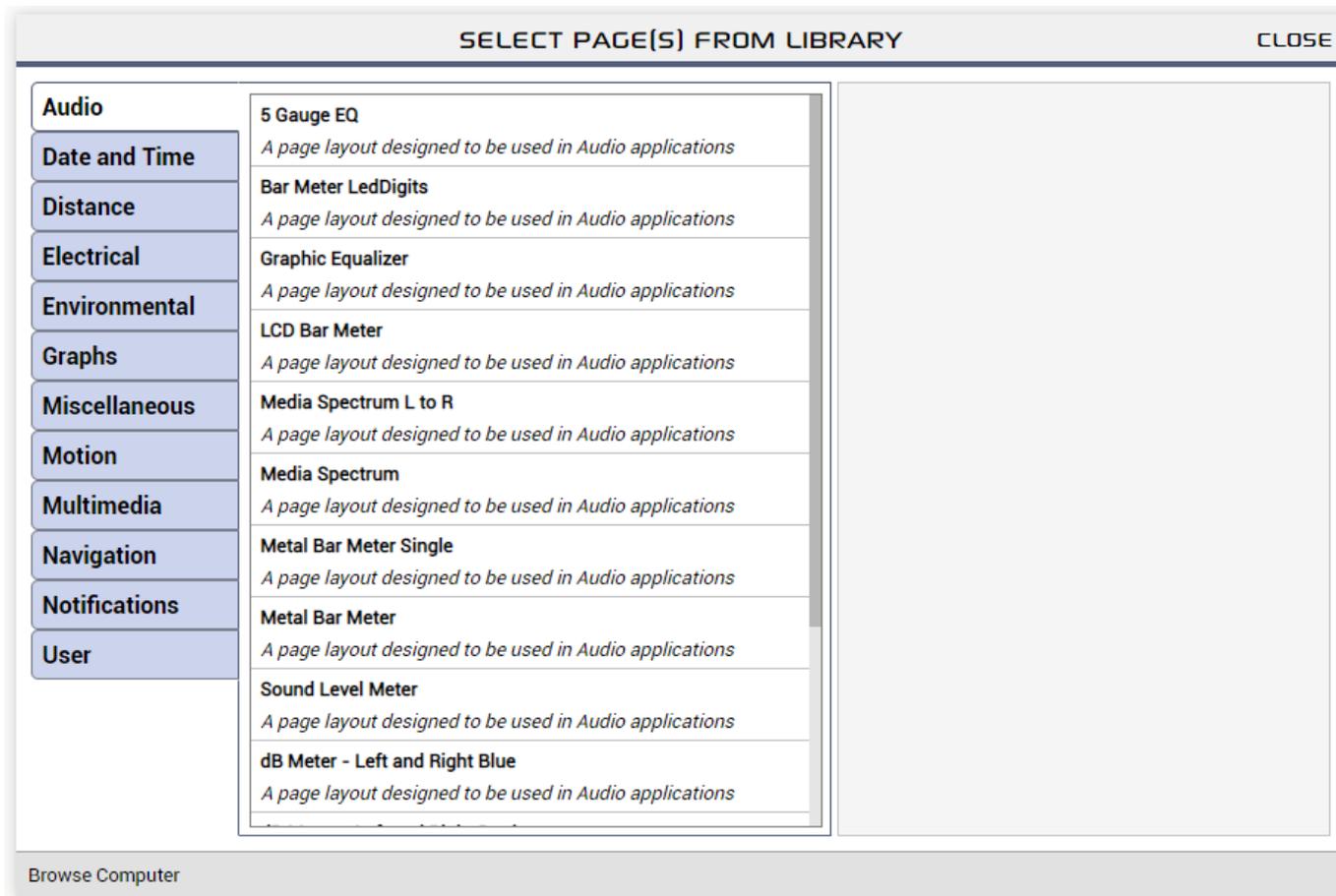


Adding Pages

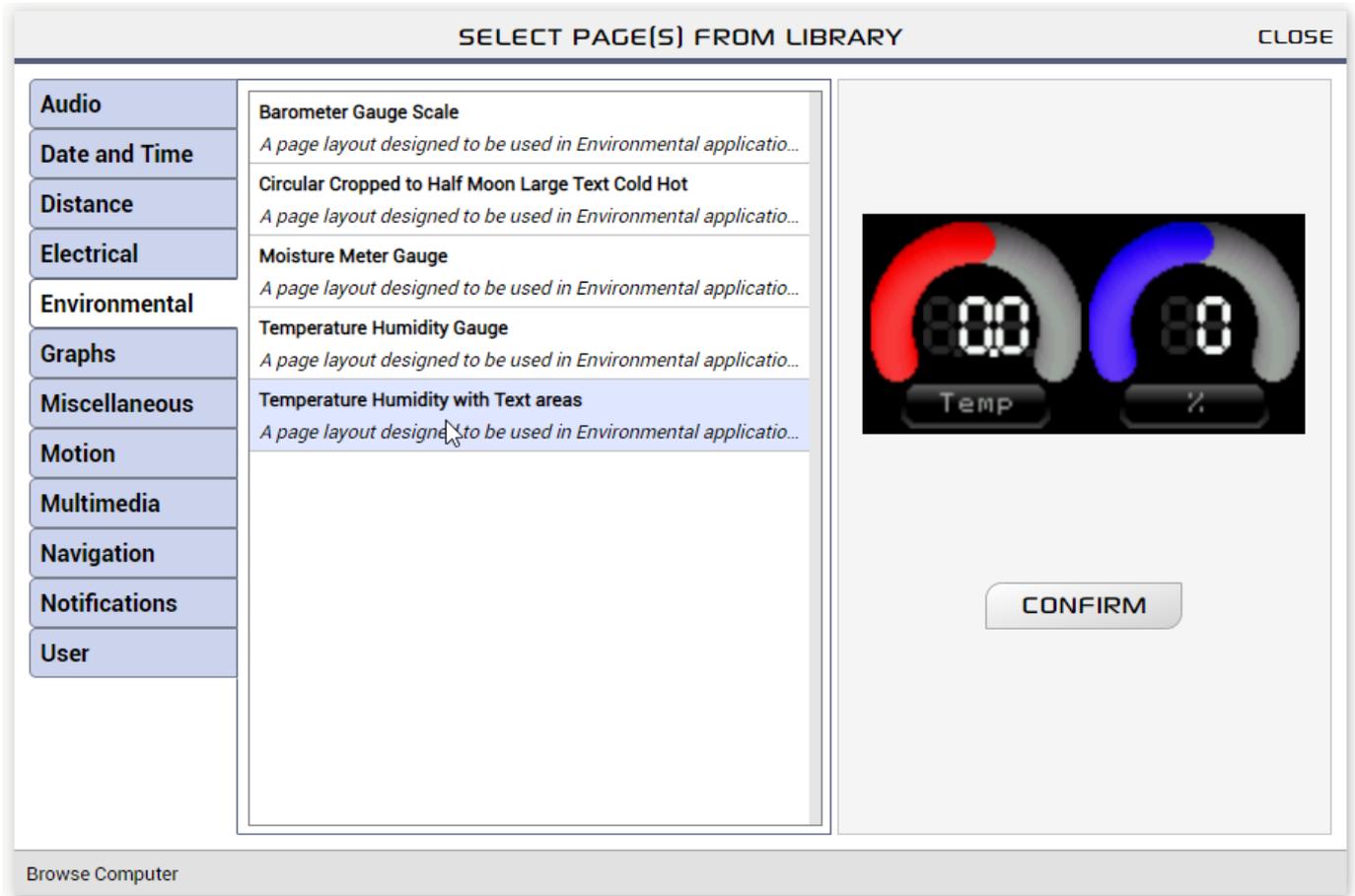
A project can consist of one or more pages and you can select each page individually. In this tutorial we will be creating a two-page project selecting ready-made pages from the many categories available.

As this is a new project, the panel on the left has a single rectangular button with a '+' symbol that matches the chosen orientation of the TIMI module.

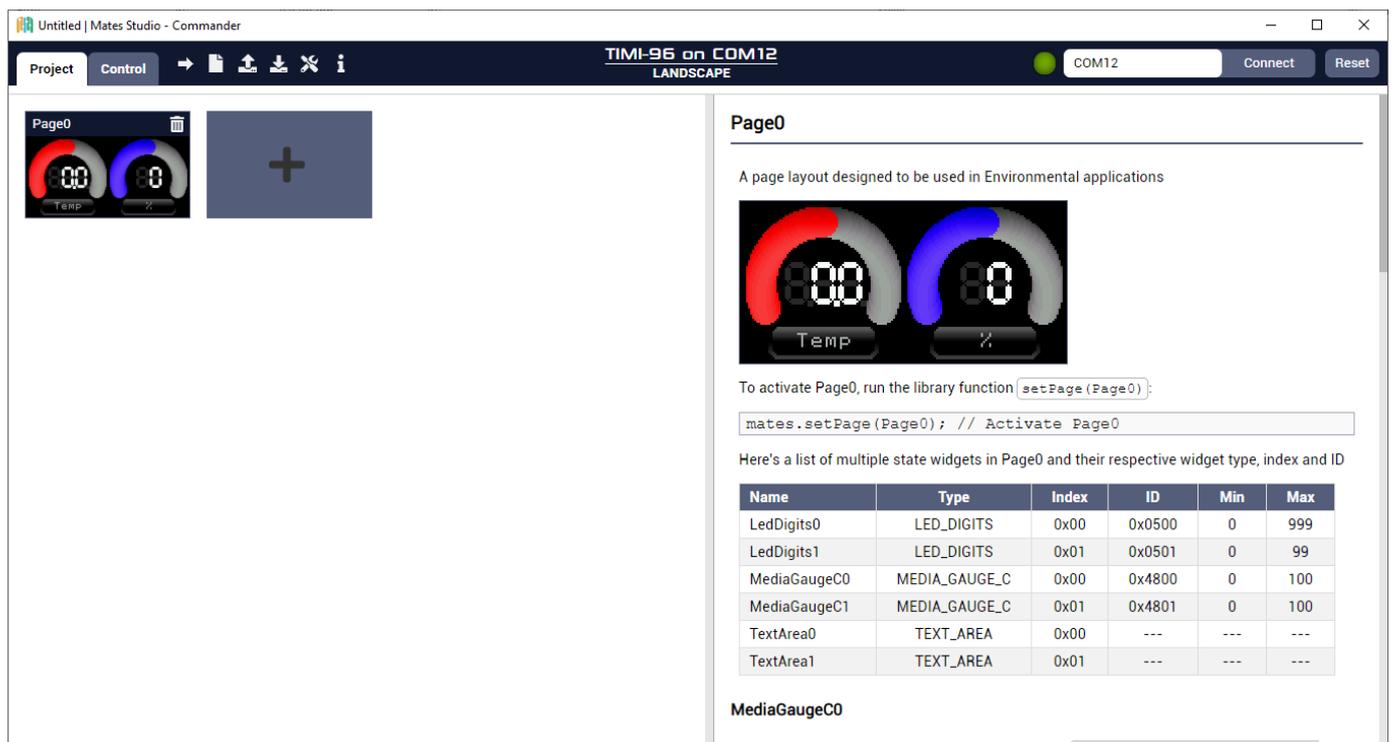
Move your mouse pointer over the button and click on BROWSE LIBRARY to open the SELECT PAGE(S) FROM LIBRARY window.



Click on the Environmental tab and select from the list, the Temperature Humidity with Text areas page. Click on CONFIRM.

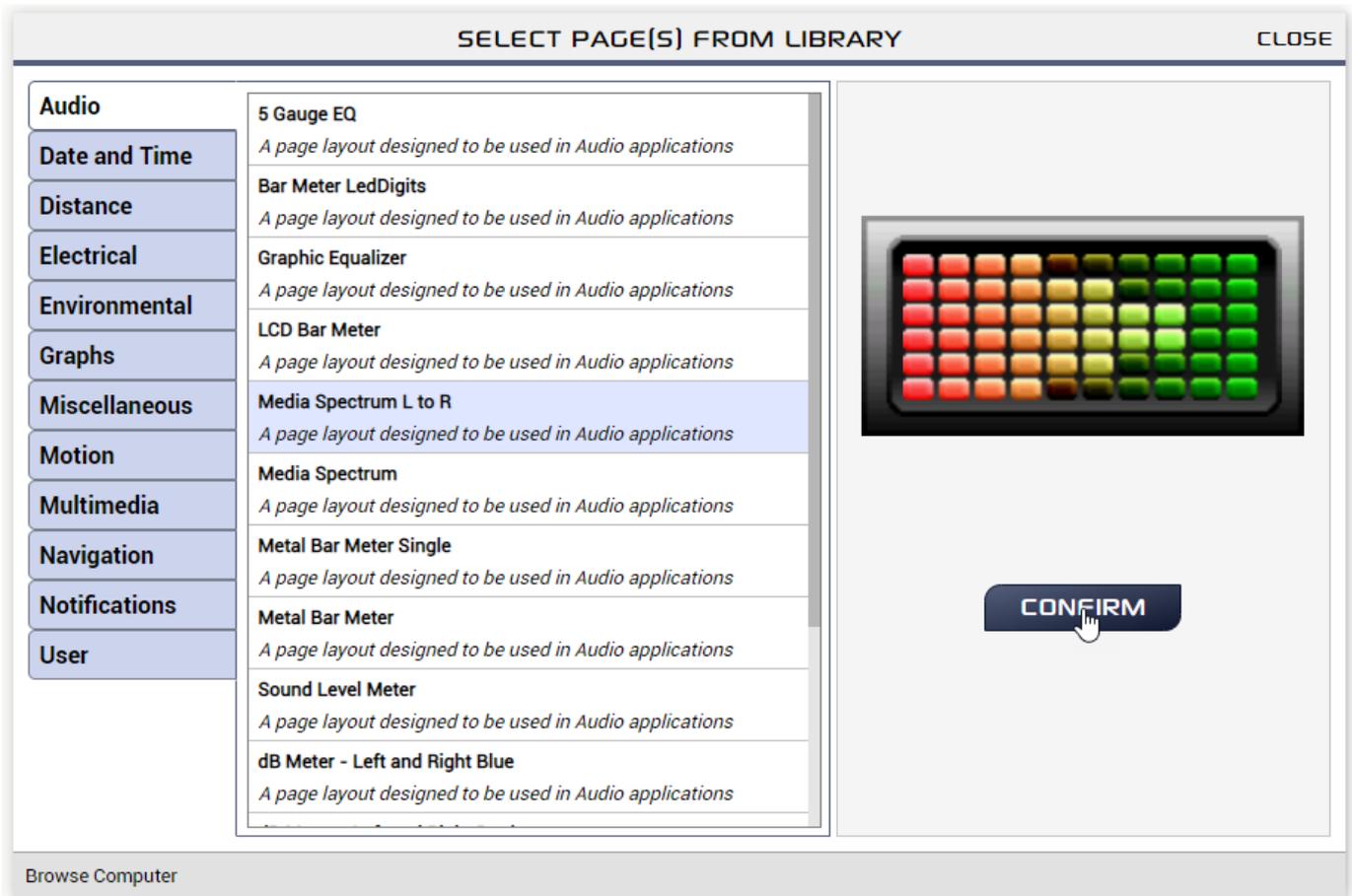


The selected page, *page 0*, has now been added to the project. The right-hand panel has now been populated with full details of the widgets used on the page along with suggested MCU library commands to control the pages via the MCU host. This information is extremely useful in the preparation of your own code if needed.

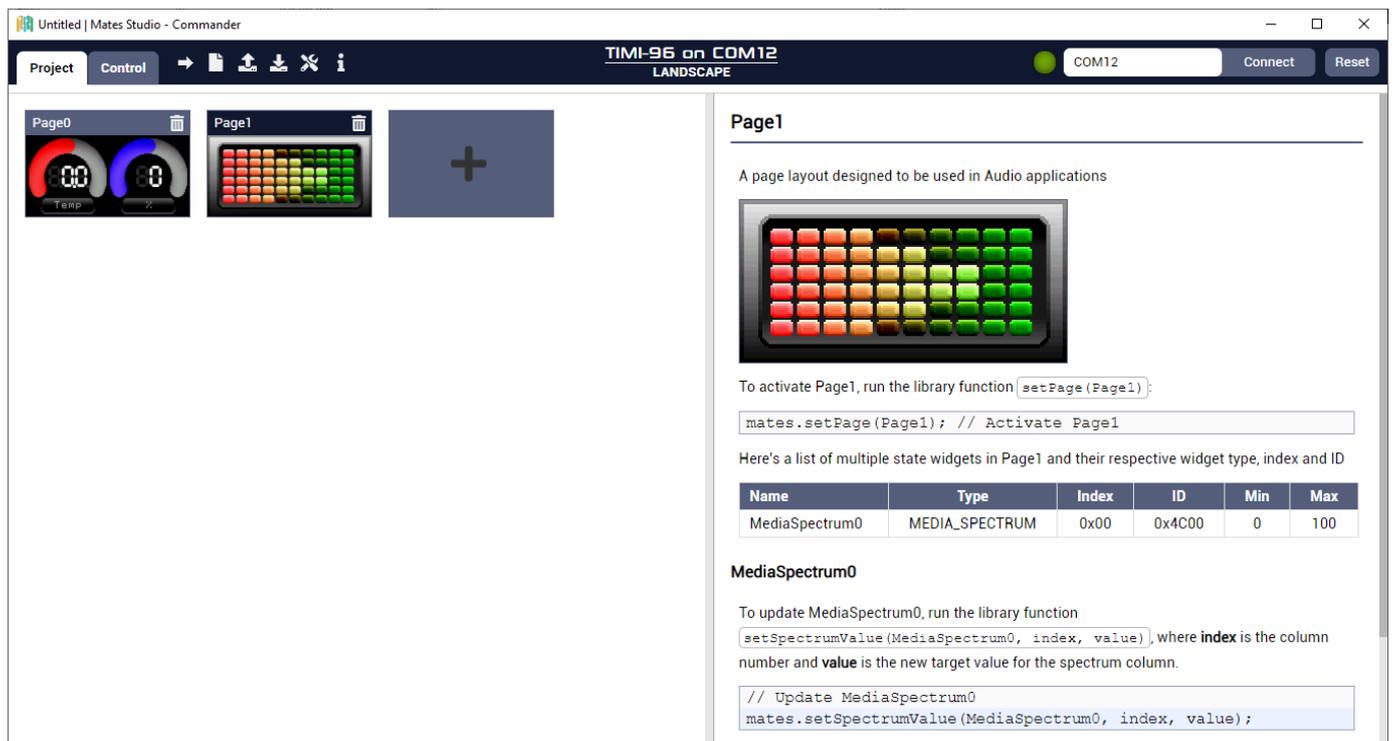


To add another page, click on the '+' (BROWSE LIBRARY) rectangular button.

Click on the Audio tab, then Media Spectrum L to R followed by CONFIRM.



The 2nd page, page 1, has now been added to the project. The full details of the widget used in page 1 are populating the right-hand panel. The project is now complete and ready for uploading to the display.



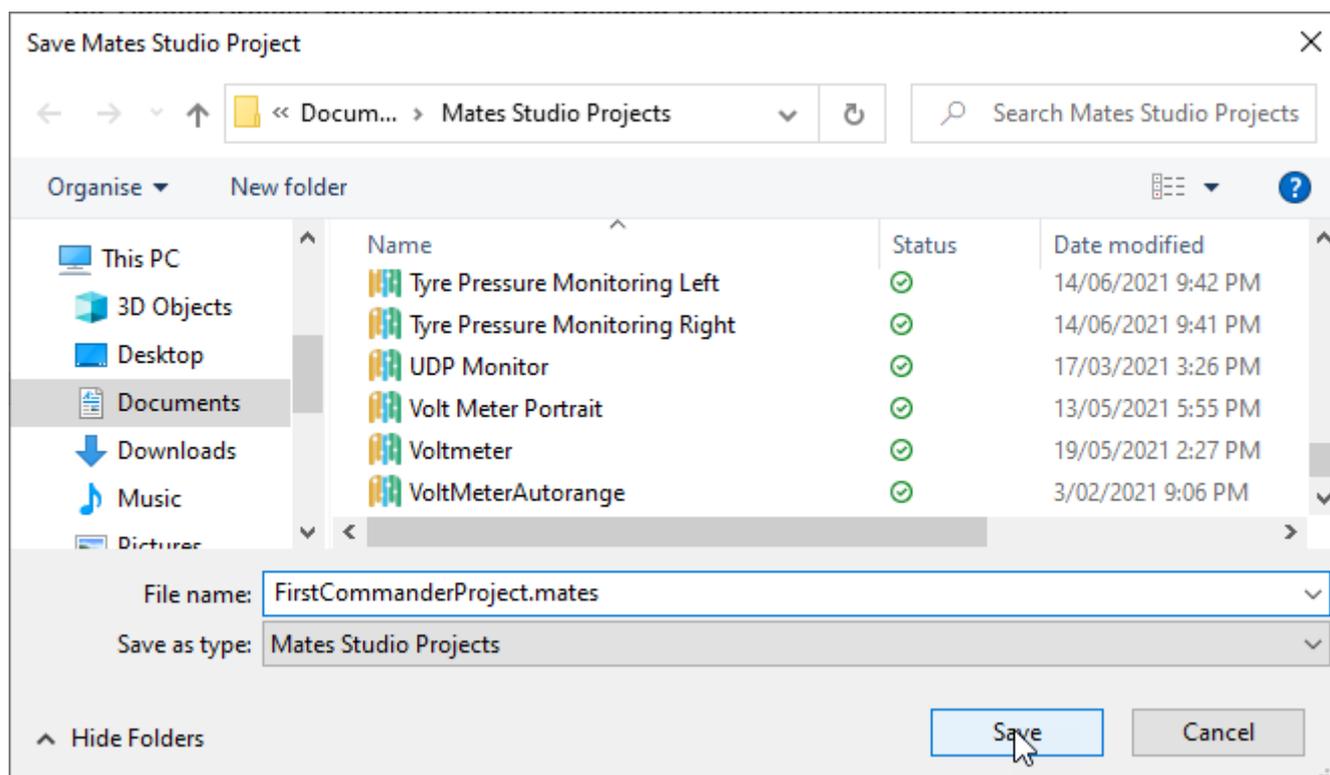
Deploying the Project

In order to control the individual widgets and change page using the Commander environment, the project needs to be uploaded to the BBM TIMI-96 Module.

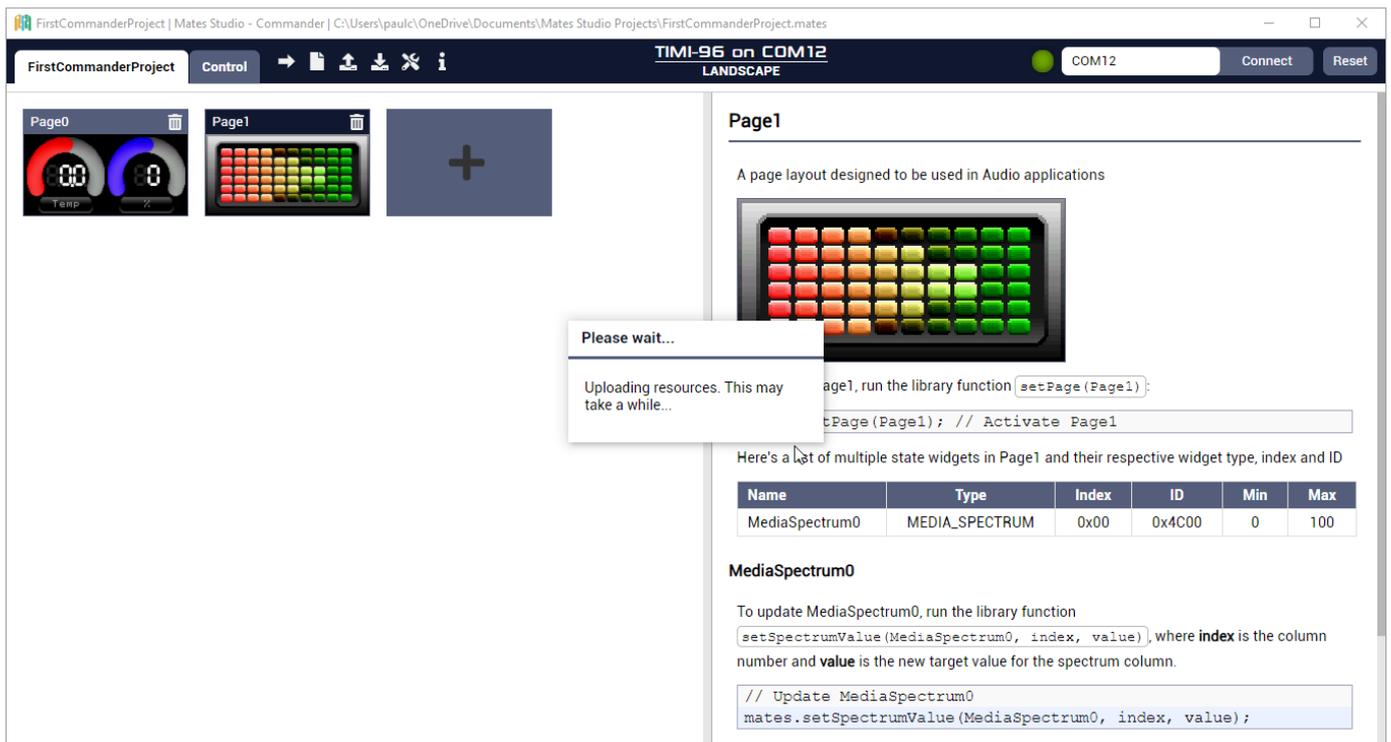
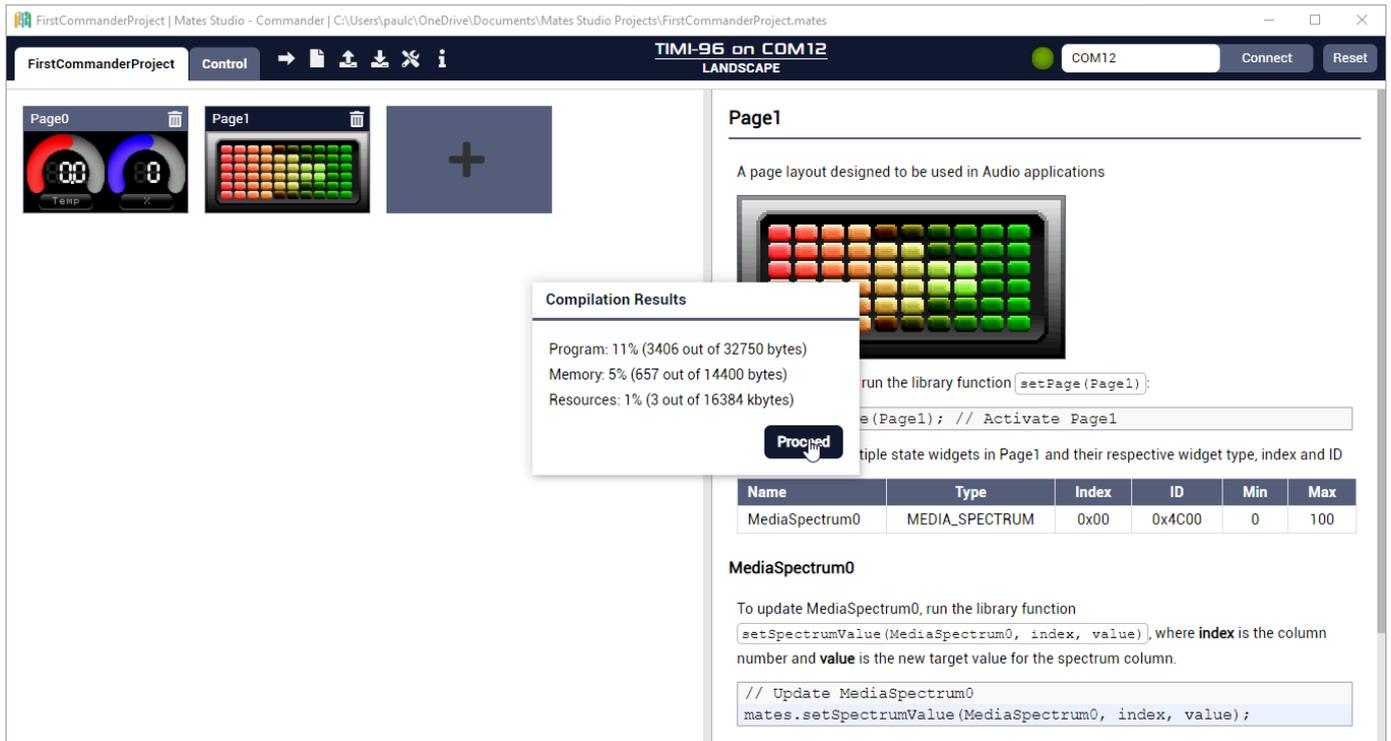
Start the process by ensuring the correct com port is selected, then click on the *Upload Project* button.



You will be prompted to save the project. Enter a project name and then click on Save to continue the Upload.



Click on *Proceed*



When the Upload procedure has finished the display will be showing page 0 with all widgets at their default state.

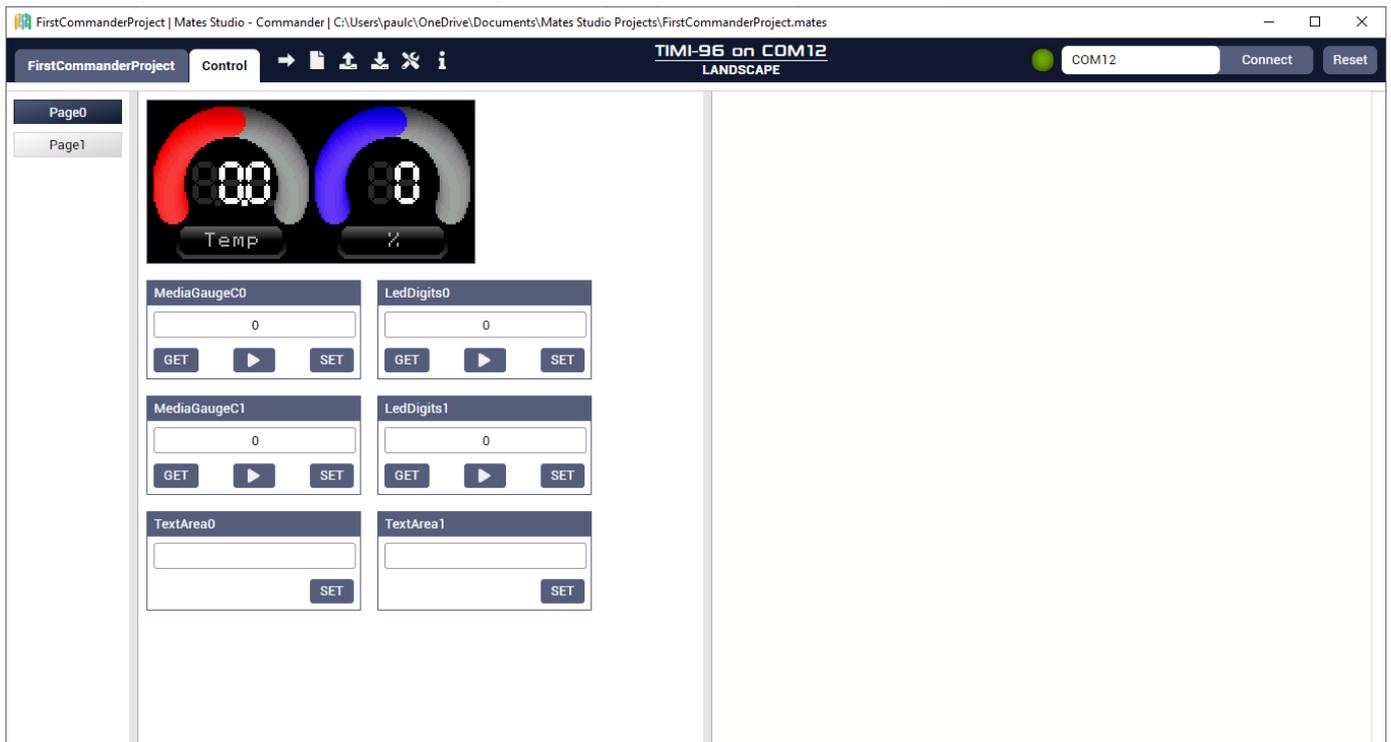
Testing the Project

Now that the project is running on the display, you can change the Commander environments mode to Control mode by clicking on the *Control* tab.



The Commander screen will then change to the control layout.

The control layout shows the page selection panel on the left, the current page and respective widget value controls in the middle, and followed by the Serial communications panel on the right which will be empty as the display is not presently connected.



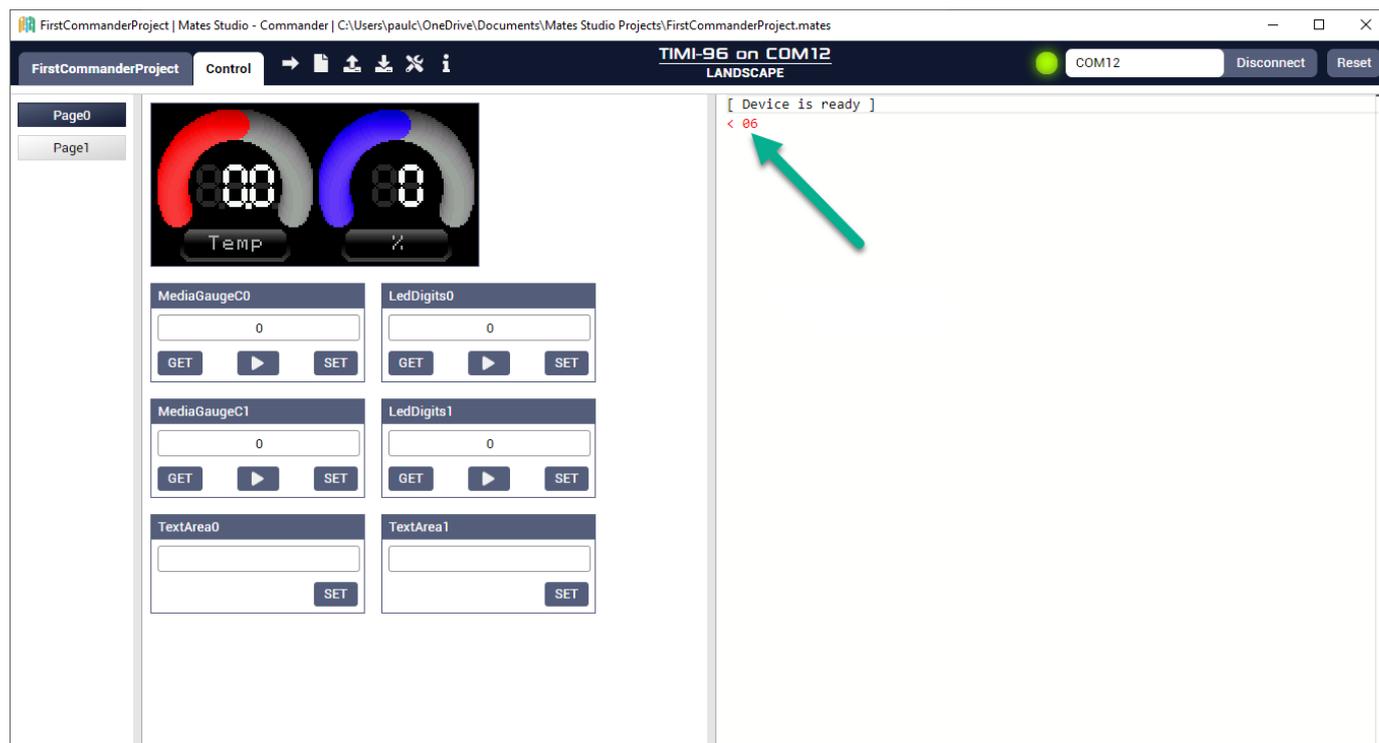
Click on Connect.



The Led to the left will illuminate and the Commander environment will start communicating with the display.



Immediately, you will notice that the display carried out a reset procedure and *page 0* returns shortly after. The serial communications panel will start displaying serial communications. If device connected successfully, you will receive a *Device is ready* message followed by the value *06*.

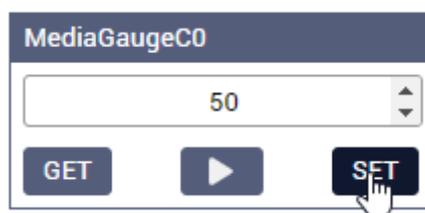


Note

The value of *06* is an important acknowledgement from the display which indicates that the display is ready to receive commands.

Now that the display is ready to accept your serial commands, you can enter the values directly into the widget value controls. The display will show all the changes you make.

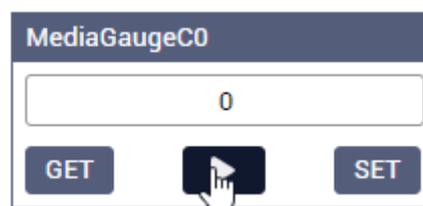
Enter a value of 50 in MediaGauge0 and click on *SET*.



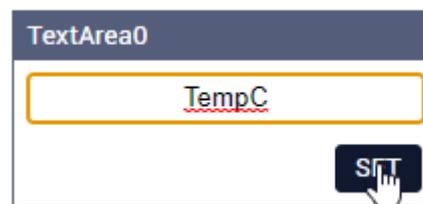
You will notice the gauge will change to a midway position based on the minimum and maximum values, as shown in the table below.

Name	Type	Index	ID	Min	Max
LedDigits0	LED_DIGITS	0x00	0x0500	0	999
LedDigits1	LED_DIGITS	0x01	0x0501	0	99
MediaGaugeC0	MEDIA_GAUGE_C	0x00	0x4800	0	100
MediaGaugeC1	MEDIA_GAUGE_C	0x01	0x4801	0	100
TextArea0	TEXT_AREA	0x00	---	---	---
TextArea1	TEXT_AREA	0x01	---	---	---

If you click the *Play* button on the widget value controls, it will cycle through all values from minimum to maximum showing the gauge sweeping through its range.



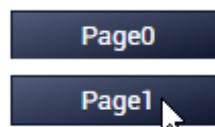
You can change the text in the text areas by typing in the new text and clicking *SET*.



You will notice that the communication panel has recorded all serial messages back and forth.

```
[ Device is ready ]
< 06
[ SetWidgetValue: Set MediaGaugeC0 (0x4800) value to 1 ]
> 24 00 02 48 00 00 01
[ ACK ]
< 06
[ SetWidgetValue: Set MediaGaugeC0 (0x4800) value to 2 ]
> 24 00 02 48 00 00 02
[ ACK ]
< 06
[ SetWidgetValue: Set MediaGaugeC0 (0x4800) value to 3 ]
> 24 00 02 48 00 00 03
[ ACK ]
< 06
[ SetWidgetValue: Set MediaGaugeC0 (0x4800) value to 4 ]
> 24 00 02 48 00 00 04
[ ACK ]
< 06
[ SetWidgetValue: Set MediaGaugeC0 (0x4800) value to 5 ]
> 24 00 02 48 00 00 05
[ ACK ]
< 06
[ SetWidgetValue: Set MediaGaugeC0 (0x4800) value to 6 ]
> 24 00 02 48 00 00 06
[ ACK ]
< 06
[ SetWidgetValue: Set MediaGaugeC0 (0x4800) value to 7 ]
> 24 00 02 48 00 00 07
[ ACK ]
< 06
```

To change page from *Page 0* to *Page 1*, click on the *Page 1* button in the left-hand panel.



The page will display *Page 1* with its widget input controls.



All spectrums, regardless of the amount of bars will only have a single widget input control but contain a 2nd value to set the required bar with a value.

In this page, bar 3 will be the 4th from the top. Setting the 1st value to 3 and the 2nd value 100 will set the bar to full scale on the display.



Click on the Play button to create a random effect on the spectrum.

