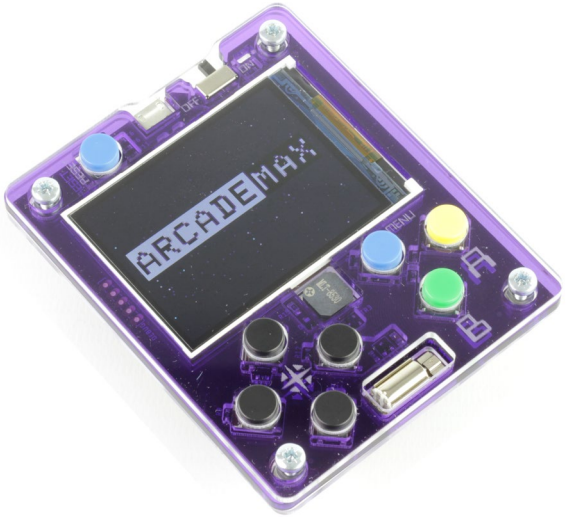
Kitronik ARCADE Max

Datasheet and Technology Specification.

Introduction: The ARCADE Max is an all-in-one handheld gaming platform, that can help you learn how to program! It lets you write fun and educational games using the Microsoft MakeCode Arcade game editor.

The MakeCode Arcade game editor can be found at: https://arcade.makecode.com/

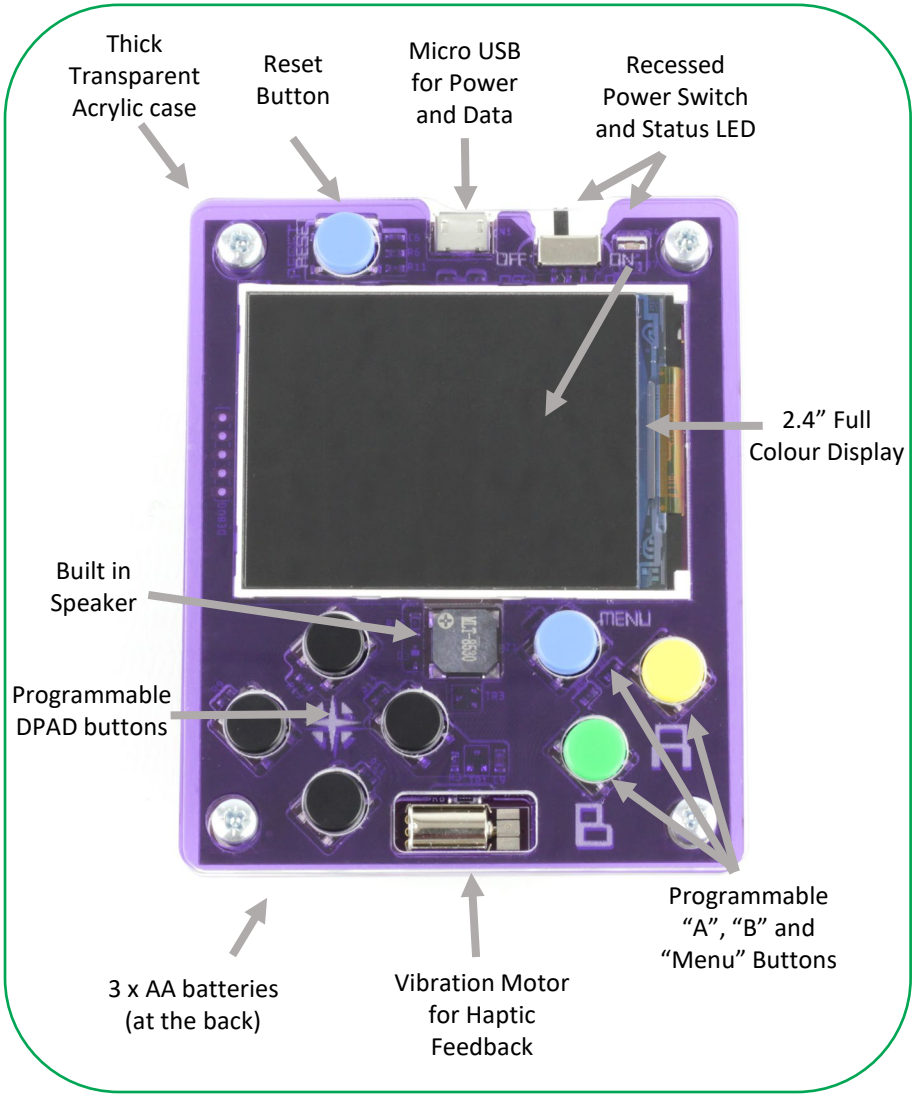
Only a PC, the ARCADE Max and a Micro USB cable is required to start programming – no other hardware is needed.



Features: The ARCADE Max features a large full colour 2.4" LCD screen, seven fully programmable buttons – a directional pad, A and B buttons, and a menu button.

It also features an onboard speaker and vibration motor. All within a tough, drop resistant acrylic case.

The Arcade Max can be powered either by 3x AA Alkaline batteries, or via a USB cable.



MakeCode Arcade Editor

If you are familiar with the MakeCode editor for the BBC micro:bit, this will feel very similar. For first time coders, the editor gives a simple drag and drop interface to create code. The Arcade editor can be found at: https://arcade.makecode.com/ which has additional step-by-step tutorials created to follow to create fun playable games.

The home page of the editor (above link) has example games and tutorials listed. Under the "My Projects" section, there is also "New Project" button which is used for creating new code. Once clicked on, it will ask you to enter a name for your project. These projects will also be listed in the "My Projects" section when returning to the home page.

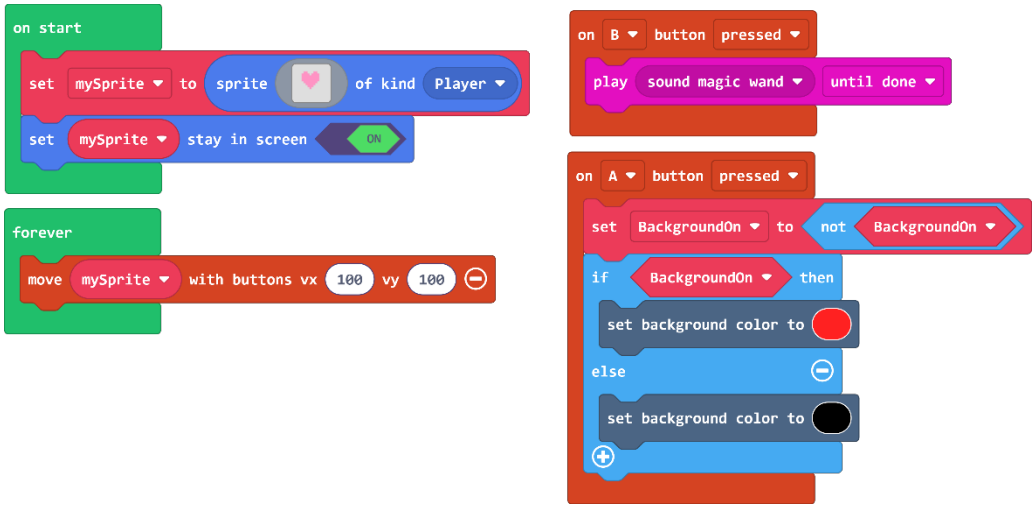
This example code will help get you started with some basic interactions with the Arcade board and the software.

The "onStart" bracket sets up the Sprite (character on screen). The "set mySprite" block allows you to select what type of character to be shown. In this example a duck is being used. The next block makes sure that the Sprite stays on screen and does not go off and can not be seen.

The "forever" bracket has a single block to allow the Sprite to move around the screen.

"On Button A pressed" bracket sets a variable called 'BackgroundOn' to be either logic True or False. The if statement after checks for this True or False state and sets the background colour to red when the variable is set to True, and black when set to False.

Pressing Button B plays a sound on the onboard buzzer.

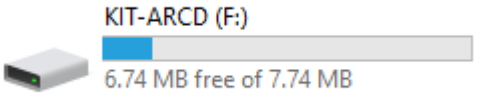


Programming the ARCADE Max

First time Power On:
When the ARCADE Max is powered on for the first time, it will instantly start with a splash screen and hardware test program. This will let you know that the hardware is functioning as it should.

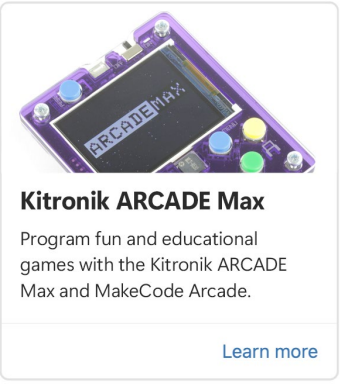
Copying games to the ARCADE Max:

1. Make sure you have fresh batteries installed into your ARCADE Max before you slide the power switch on, if you have not copied a game over – the ARCADE will show the splash screen and test program.



2. Plug the ARCADE Max into your computer with a micro-USB cable, and press the reset button. The ARCADE will show a USB “bootloader” on the screen, and it will show up as a USB drive as “KIT-ARCD” within your computers file explorer.

3. Once you have written your MakeCode Arcade game, you need to first select the hardware you are using:
   Press the ellipses by the download button, and navigate to the “select hardware” screen. Then select either the “D5” or “Kitronik ARCADE Max” option.



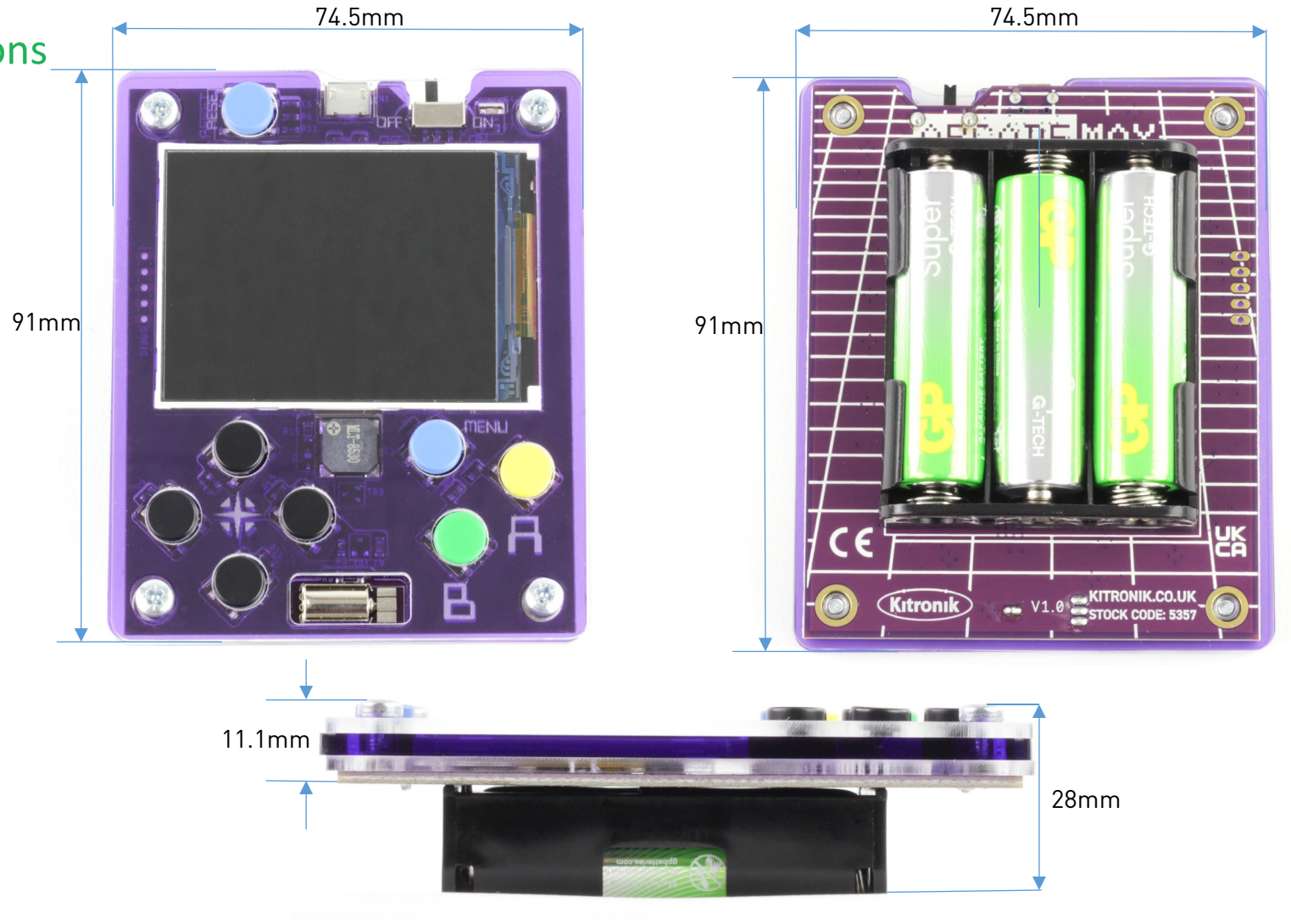
4. At this point you can then press the “download” button, which will download a .uf2 file to your computer. Simply copy that file from your download folder to the “KIT-ARCD” drive.

5. Disconnect the ARCADE Max from your computer.

6. Have fun!

NOTE – Do not copy UF2 files from sources other than Kitronik or MakeCode Arcade (such as MicroPython), as that may leave your ARCADE Max in an unrecoverable state.

Dimensions



(Dimensions +/- 0.8mm)

Electrical Information:

Processor	Atmel SAMD51J19A
Battery Operating voltage (VCC)	3 x AA batteries – Alkaline or NiMH/NiCad (3.6-4.5V)
LCD screen resolution	320 x 240
LCD screen size	2.4 inch (diagonal)
Typical Current Draw	170mA (Approx. - depending on use)
Typical Battery life (based on 3xAA Alkaline batteries)	>8 hours (Approx. - depending on use)
Interactable Buttons	Seven Buttons that can be interacted with from MakeCode Arcade (Left, Right, Up, Down, Menu, A and B) Note – Reset cannot be reassigned
Audio Output	Onboard Electromagnetic Speaker
Haptic Feedback	Onboard Vibration Motor

*for best performance use Alkaline batteries, otherwise, the display may appear dimmer than usual.
If the screen dims when the speaker or vibration motor is active, replace the batteries with fresh Alkaline batteries.