

# **User's Manual**

**For The PrismFX Color Display For KidBright**

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**This was developed for The National Competition of English Medium Instruction Programmes Open House 2025. This was made as a guide for our KBIDE Color Display plugin. This manual will tell you the information about each block and what it does, so there's no confusion in understanding how our project works.**

## Data Types

Num:

- A constant number e.g. 1, 3.14 or 6
- Can be a variable like x or y
- Can be an expression e.g. sin x, x+1

String:

- A string constant e.g. "string"
- It may contain newlines (/n)

List:

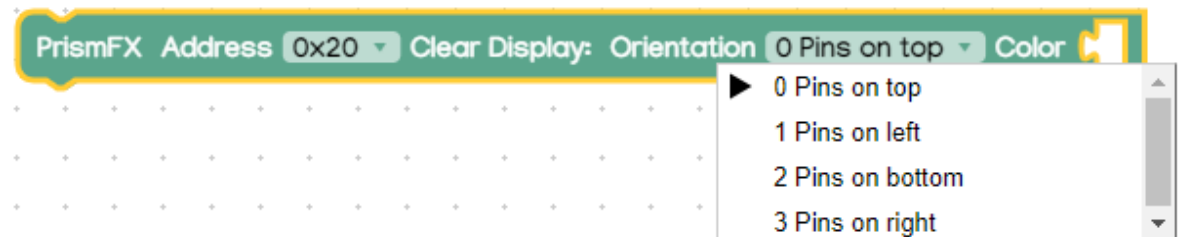
- Fixed set of choices.

Color:

- 24bit numbers in RGB 888 format.

## List of Block

### I. Clear Display



	Purpose	Type	Range	Default
Orientation	Change the orientation.	List	Top, Left, Bottom, Right	Top
Background	Change the	Color	24bit color	Black

Color	background color.			
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## II. Set Text Color



	Purpose	Type	Range	Default
Text Color	Change the text color.	Color	24bit color	White
Background Color	Change the background color.	Color	24bit color	Black

### Notes:

- If the colors are the same, it will do transparent printing, no changes to the background.

## III. Print



	Purpose	Type	Range	Default
Line	Set characters'	Num	Small texts =	Existing

	place at a location on the X axis.		1-30, Medium texts = 1-16	Cursor Value
Column	Set characters' place at a location on the Y axis.	Num	Small texts = 1-40, Medium texts = 1-24	Existing Cursor Value
String	Set a string of text to be printed.	String	Small = 0-255, Medium = 32-127. No string limit.	Nothing
Text Size	Change size of text.	List	Small size, Medium size.	Small

#### Notes:

- The cursors are updated by print blocks.
- Maintains the separate cursors for the small and medium fonts. If either the line or column field is left blank to set to zero, the cursor position will be used. If a newline (/n) is encountered in a string, it will advance the line position and set the column position to 1.
- If a print block has no messages, it acts as a set cursor function.

#### IV. Draw Pixel



	Purpose	Type	Range	Default
X Axis	Plot a pixel at the X axis.	Num	Line = 0-239	0
Y Axis	Plot a pixel at	Num	Line = 0-239	0

	the Y axis.			
Color	Change the color of the pixel.	Color	24bit color.	Black

## V. Draw Line



	Purpose	Type	Range	Default
X Axis 1&2	Mark where the line starts/ends on the X axis.	Num	Line = 0-239	0
Y Axis 1&2	Mark where the line starts/ends on the Y axis.	Num	Line = 0-239	0
Line Color	Change the color of the line.	Color	24bit color.	Black

## VI. Draw Rectangle



	Purpose	Type	Range	Default
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X Axis 1&2	Mark where the rectangle starts/ends on the X axis.	Num	Line = 0-239	0
Y Axis 1&2	Mark where the rectangle starts/ends on the Y axis.	Num	Line = 0-239	0
Color	Change the color of the rectangle	Color	24bit color.	Black
Fill-In	Fill in the shape or leave an outline.	Boolean	True = Fill-in False = Outline	True

Notes:

Keep this in mind when you're making a rectangle. The top left corner is X1, top right corner is X2, The bottom left corner is Y1 and the bottom right



corner is Y2.

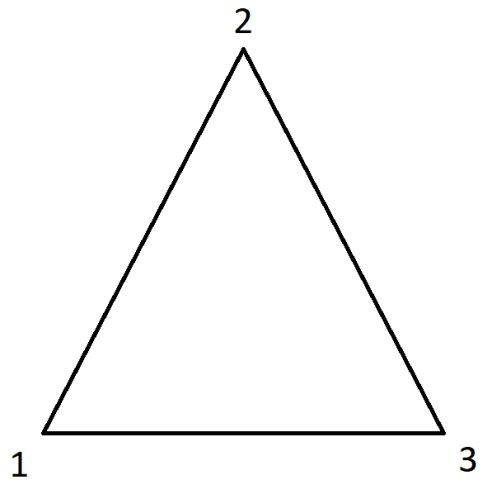
VII. Draw Triangle



	Purpose	Type	Range	Default
X Axis 1-3	Mark where the vertices of the triangle start/end on the X axis.	Num	Line = 0-239	0
Y Axis 1-3	Mark where the vertices of the triangle start/end on the Y axis.	Num	Line = 0-239	0
Color	Change the color of the triangle.	Color	24bit color.	Black
Fill-In	Fill in the shape or leave an outline.	Boolean	True = Fill-in False = Outline	True

Notes:

When making a triangle, the bottom left vertice is X&Y 1, the top is X&Y 2 and the bottom right is X&Y3.



## VIII. Draw Circle

PrismFX Address  Draw Circle: X1 (0-239)  Y1 (0-239)  r  Color  Fill

	Purpose	Type	Range	Default
X Axis 1	Mark where the circle starts	Num	Line = 0-239	0
Y Axis 1	Mark where the circle ends	Num	Line = 0-239	0
Radius	Mark the radius of the circle on each sides	Num	Line = 0-239	0
Color	Change the color of the triangle.	Color	24bit color.	Black
Fill-In	Fill in the shape or leave an outline.	Boolean	True = Fill-in False = Outline	True



## IX. Color Picker

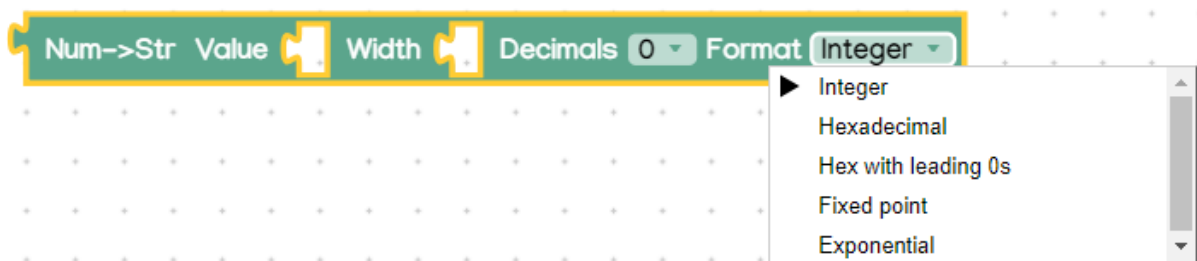


	Purpose	Type	Range	Default
Color	Give out 70 colors to choose.	Color	Pick from palette.	Red

Notes:

- In blockly blocks, the color block is 24bit.

## X. Turning numbers into a “string” type



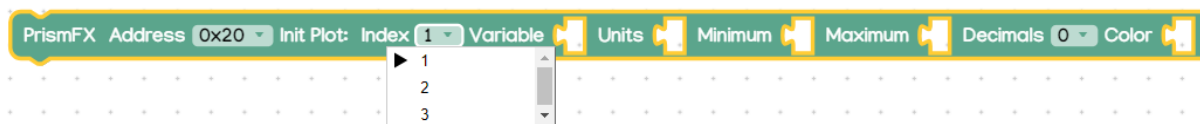
	Purpose	Type	Range	Default
Value	Print out the numbers you desire.	Num	-	0
Width	Changes the width of the text.	Num	-	6

Decimals	Set how many numbers after the decimal point.	List	0-4	0
Format	Change the number into the format.	List	Integer, Hexadecimal, Hex with leading zeros, Fixed point, Exponential.	Integer

Notes:

- Returns a string value suitable for the Print Block string input.

## XI. Init Plot



	Purpose	Type	Range	Default
Index	Set up an index for each 3 of the variable datas.	List	1-3	1
Variable	Show the variables input in.	String	-	-
Unit of Measure	Show the unit of measure input in.	String	-	-

Minimum	Set the minimum range of the plot.	Num	-	Autorange
Maximum	Set the maximum range of the plot.	Num	-	Autorange
Decimals	Show how many numbers behind the decimal point.	List	0-4	0
Colors	Changes the color of each index.	Color	24bit color	1 - Red 2- Green 3 - Blue

Notes:

- With autorange, the top part of the graph is the max value and the bottom of the graph is the min value. This causes the graph to be rewritten frequently which will cause it to be slow.

## XII. Plot New Data



	Purpose	Type	Range	Default
Var 1 Data	Set up the first variable for Index 1.	Num	IEEE 8 byte double	0
Var 2 Data	Set up the second variable	Num	IEEE 8 byte double	0

	for Index 2.			
Var 3 Data	Set up the third variable for Index 3.	Num	IEEE 8 byte double	0

### XIII. Draw Image



	Purpose	Type	Range	Default
X Axis	Marks where the image is placed on the X axis. (Left edge)	Num	-	0
Y Axis	Marks where the image is placed on the Y axis. (Top edge)	Num	-	0
image ID	Change the image to one of the two images on the list.	List	1-2. image1 and image2.	image1

Notes:

- To insert a new image to your drop down image list, is to convert a 240 x 240 image to a bit map, by following these steps.
  - 1.) Create a Bitmap (.bmp) file. It must be 240 <= pixels in both height and width.
  - 2.) Open <https://bi3qwq.github.io/ConvertImageToColor565/> in any browser.
  - 3.) Click the “Browse button and select the .bmp file to convert”
  - 4.) Click in the conversion results textbox, then hit the ctrl-a to copy all the text and create a new text file then paste the data in.
  - 5.) Edit the top few lines of the new text file as in the table below.

Original Text – delete everything in RED

```
// https://github.com/bi3qwq/ConvertImageToColor565
// Width x Height: 240x240 pixels
// Size: 115,200 Bytes

#include <pgmspace.h>

const int img1_width=240;
const int img1_height=240;

const unsigned short img1[] PROGMEM = {
```

Change To – Add everything in GREEN

```
#pragma once
// https://github.com/bi3qwq/ConvertImageToColor565
// Width x Height: 240x240 pixels
// Size: 115,200 Bytes
// name of image

const int img1_width=240;
const int img1_height=240;

const unsigned short img1[] = {
```

5 A Change img1 to img2 (3 places) if you plan to use this file as image2.

6.) Save the file, and remember to save your file as “image1.h”. You can also save as “image2.h” if you made a changes

- If the entire image won’t entirely fit on the screen, nothing is printed.

## XIV. Color



	Purpose	Type	Range	Default
Red	Gives out how much the color red represents.	Num	0-255	0
Green	Gives out how much the color green represents.	Num	0-255	0
Blue	Gives out how much the color blue represents.	Num	0-255	0