

WEINTEK LABS., INC.

Dynamic Drawing

Demo Project

Contents

- 1. Overview and Operation 1
- 2. Setting up the Screen 4
- 3. Addresses 6

1. Overview and Operation

Overview

Dynamic Drawing object enables drawing a shape in a specified region on HMI screen at run time. The shape can be a line, a rectangle, a circle, or a dot. By setting the Attributes Addresses, the style and the color of the shape can be customized.

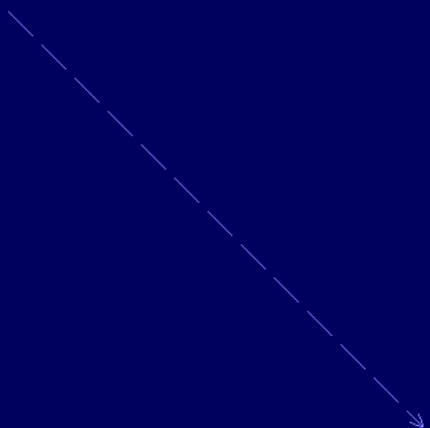
Operation

Enter values in the corresponding addresses at run time to draw a shape.

Demo Project - Dynamic Drawing

- > Dynamically changing pattern on HMI!
- > Drawing line/rectangle/circle/dot in specified region!

Clear Pattern



0000
0001
0001
0005
0000
0000
0000
0300
0300

Attributes + 0: shape
(0: none, 1: line, 2: rectangle, 3: circle, 4: dot)

Attributes + 1: arrow/shape style

Attributes + 2: line/fill style

Attributes + 3: inner color

Attributes + 4: interior pattern color
(rectangle,circle)

Attributes + 5: X1

Attributes + 6: Y1

Attributes + 7: X2(circle radius)

Attributes + 8: Y2

Fast Sel

The following table lists the effects of entering different values in different Attributes Addresses.

Attributes Address	Attributes Address+0	Attributes Address+1		Attributes Address+2	Attributes Address+3	Attributes Address+4
Default	0	Ones	Tens		Customizable	Customizable
Line	1	0: Non-arrow	0: Small	0: Solid line	Line color	
		1: Single-ended arrow (Hollow)	1: Large	1: Dashed line		
		2: Double-ended arrow (Hollow)		2: Dotted line		
		3: Single-ended arrow (Solid)		3: Dash Dot line		
		4: Double-ended arrow (Solid)		4: Dash Dot Dot line		
				5 and up: Solid line with thicknesses greater than 2		
Rectangle	2	0: Hollow		Drawn in Line mode	Rectangle color	Interior pattern color
		1: Solid		Drawn in Pattern mode		
Circle	3	0: Hollow		Drawn in Line mode	Circle color	Interior pattern color
		1: Solid		Drawn in Pattern mode		
Dot	4				Dot color	

Attributes Address	Attributes Address+0	Attributes Address+5	Attributes Address+6	Attributes Address+7	Attributes Address+8
Default	0				
Line	1	Start point X	Start point Y	End point X	End point Y
Rectangle	2	Left-top point X	Left-top point Y	Right-bottom point X	Right-bottom point Y
Circle	3	Center point X	Center point Y	Radius	
Dot	4	Dot X	Dot Y		

The values in [Attributes Address+2] represent different Line or Pattern styles, as shown in the following table.

Line mode	Pattern mode
0 —————	0 [Solid] 1 [Dashed] 2 [Dotted] 3 [Dash Dot]
1 - - - - -	4 [Dash Dot Dot] 5 [Solid Thick] 6 [Pattern 1] 7 [Pattern 2]
2 (dotted)	8 [Pattern 3] 9 [Pattern 4] 10 [Pattern 5] 11 [Pattern 6]
3 - - - - -	12 [Pattern 7] 13 [Pattern 8] 14 [Pattern 9] 15 [Pattern 10]
4 (dotted)	16 [Pattern 11] 17 [Pattern 12] 18 [Pattern 13] 19 [Pattern 14]
5 —————	20 [Pattern 15] 21 [Pattern 16] 22 [Pattern 17] 23 [Pattern 18]
6 —————	24 [Pattern 19] 25 [Pattern 20] 26 [Pattern 21]
⋮	
19 ————— (thick solid)	

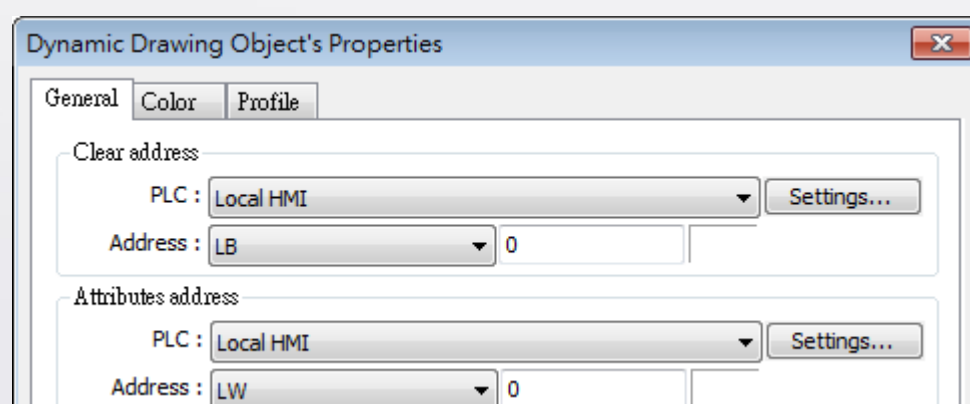
Notes:

1. Before using Attributes Address, please define [Attributes Address + 1] ~ [Attributes Address + 8]. The system will reset the Attributes Address, after it is used.
2. If the drawing is not cleared, the new drawing will overlap the previous one, and the maximum acceptable number of drawings in a Dynamic Drawing object is 1000.
3. The maximum number of line styles is 19, which means the maximum thickness of a solid line is 16. The style numbers that exceed 19 will be displayed as 19.
4. Find the color number in Color tab.

2. Setting up the Screen

Step 1. Create a Dynamic Drawing object, Set Clear Address to LB-0 for clearing the drawing, and set Attributes Address to LW-0 for changing the style of the drawing.

Create a Toggle Switch object, set address to LB-0, and select Toggle as switch style. Toggling the switch on will clear the drawing.

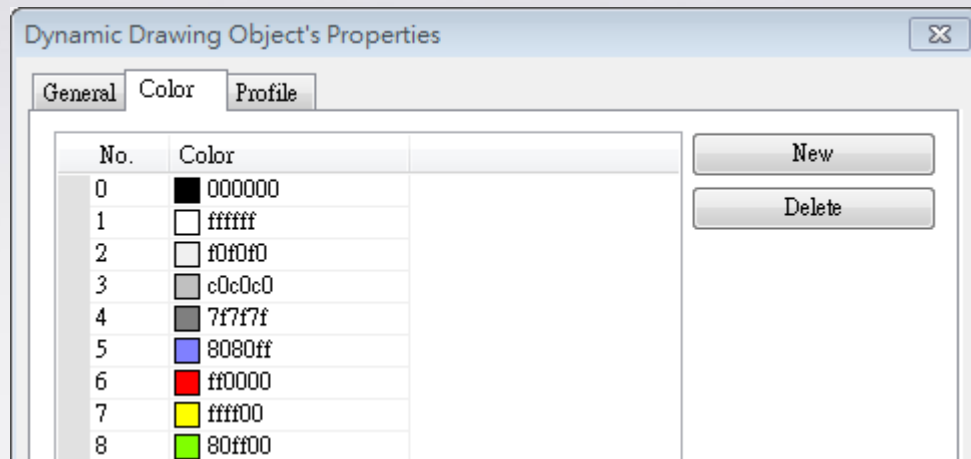


Step 2. Create several Numeric objects, and set addresses to LW-0~LW-8 respectively. The following table lists the corresponding addresses that determine the shape, style, color, pattern and position of the drawing.

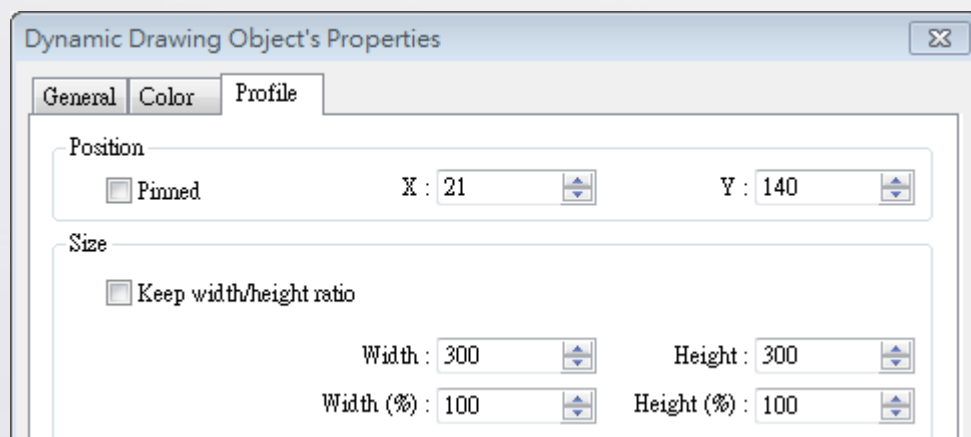
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LW-0 + 0 : shape
            ( 0: none, 1: line, 2: rectangle, 3: circle, 4: dot )
LW-0 + 1 : arrow/shape style (more)
LW-0 + 2 : line/fill style (more)
LW-0 + 3 : inner color
LW-0 + 4 : interior pattern color (rectangle, circle)
LW-0 + 5 : x1
LW-0 + 6 : y1
LW-0 + 7 : x2 (circle radius)
LW-0 + 8 : y2
```

* (x1, y1) : start point (line, rectangle), center (circle)
(x2, y2) : end point (line, rectangle)

Step 3. Define the colors for the drawing.



Step 4. Set the position to place the drawing on the screen. X and Y represent the coordinates of the start point from which to draw the shape. The width and height of the shape can also be specified.



3. Addresses

The addresses of key objects used in this demonstration are listed below.

Object	Address	Object ID	Description
Window 10			
Dynamic Drawing	LB-0,LW-0	DO_0	The region that shows the drawing.
Toggle Switch	LB-0	TS_0	Clears the drawing.
Numeric	LW-0	NE_0	Determines drawing style.
Numeric	LW-1	NE_1	Determines the arrow / shape style (hollow / solid).
Numeric	LW-2	NE_2	Determines the line / fill style.
Numeric	LW-3	NE_3	Determines the inner color.
Numeric	LW-4	NE_4	Determines the interior pattern color.
Numeric	LW-5	NE_5	Determines the X coordinator of the start point / the center of the circle.
Numeric	LW-6	NE_6	Determines the Y coordinator of the start point / the center of the circle.
Numeric	LW-7	NE_7	Determines the X coordinator of the end point. In a circle, drawing this point forms a radius.
Numeric	LW-8	NE_8	Determines the Y coordinator of the end point.