

# Custom Gauge Image Generator & ICL Optimizer - User Manual

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## 1. Prerequisites

Before using this application, ensure you have the following installed on your system:

- Python 3.8 or later
- pip (Python package installer)

Required Python libraries:

- streamlit
- matplotlib
- numpy
- python-docx (optional, only if regenerating this manual via script)

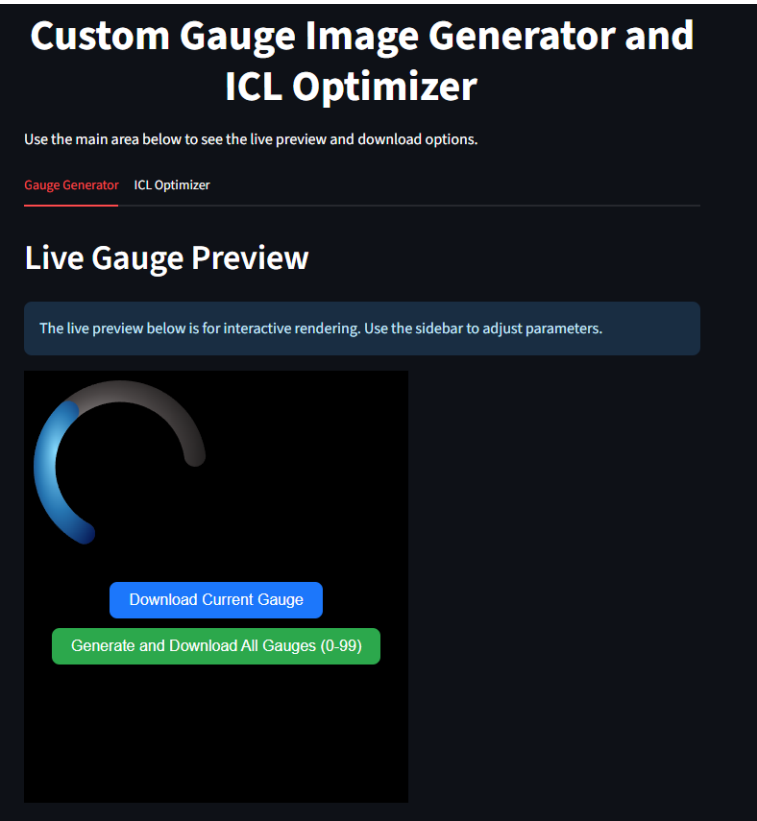
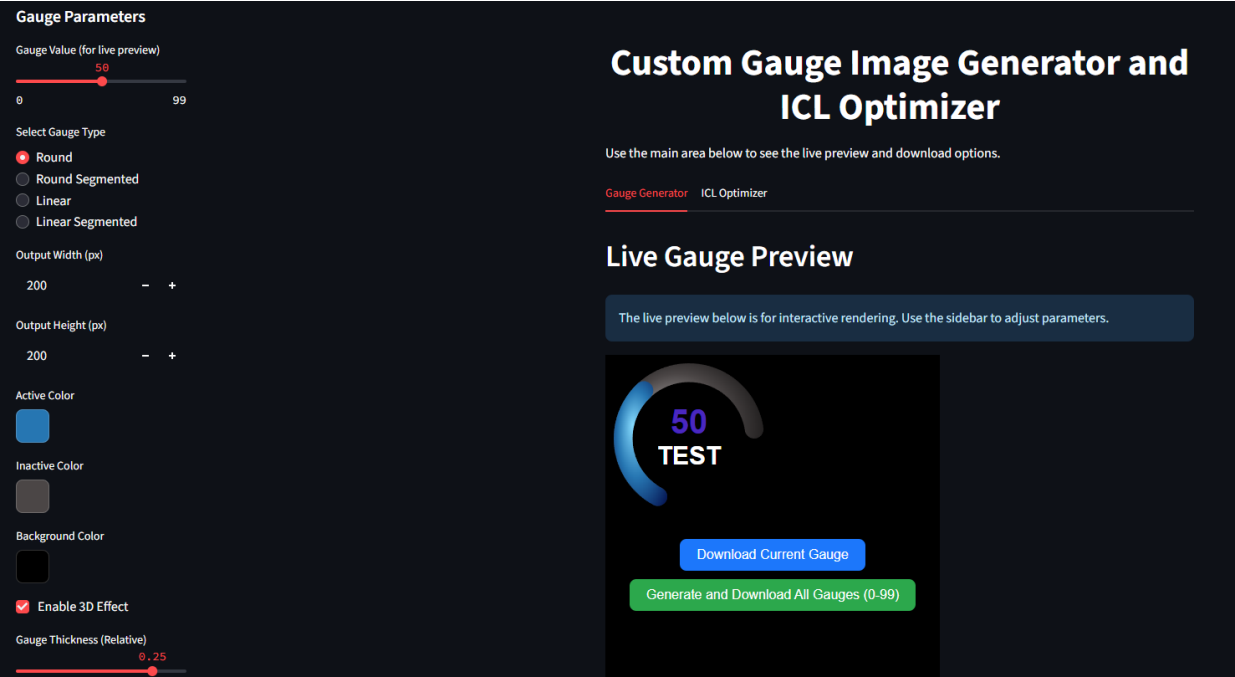
Install them all at once:

```
pip install streamlit matplotlib numpy python-docx
```

## 2. Introduction & App Overview

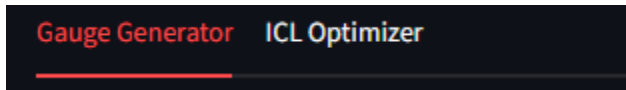
This tool was built to accelerate GUI development for DWIN HMI displays (<https://www.dwin-global.com>). It provides live D3.js previews, single or batch gauge exports, and ICL flash-block optimization.

Main Interface:



### 3. Gauge Generator Tab

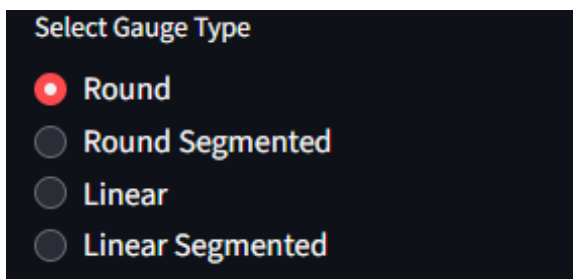
Select the 'Gauge Generator' tab to configure and export gauges.



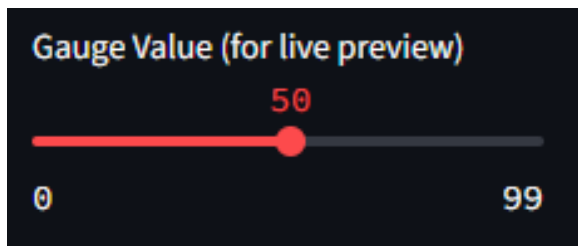
#### 3.1 Live Preview Controls

Use the sidebar controls to adjust your gauge; the preview updates instantly.

Select Gauge Type:

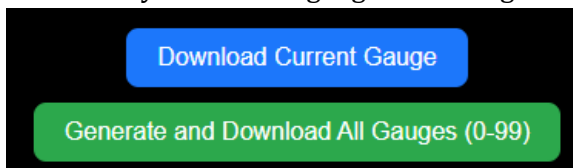


Gauge Value Slider:



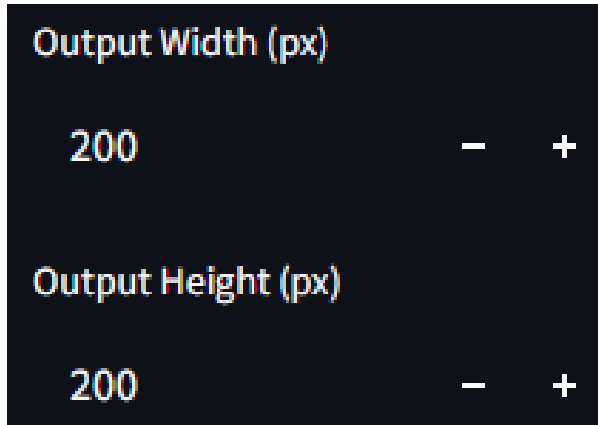
#### 3.2 Export Buttons

Download your current gauge or batch-generate all (0-99) PNGs:



### 3.3 Size Inputs

Set the dimensions for your exported gauge:



Output Width (px)

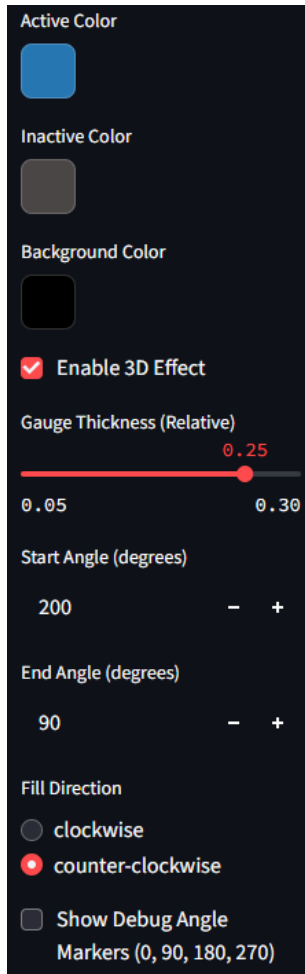
200      -      +

Output Height (px)

200      -      +

### 3.4 Color Pickers & 3D Effect

Choose active, inactive, and background colors, and toggle 3D effect:



Active Color

Inactive Color

Background Color

☒ Enable 3D Effect

Gauge Thickness (Relative)

0.05      0.25      0.30

Start Angle (degrees)

200      -      +

End Angle (degrees)

90      -      +

Fill Direction

☐ clockwise

☒ counter-clockwise

☐ Show Debug Angle Markers (0, 90, 180, 270)

### 3.5 Specific Gauge Settings

Configure thickness, angles, fill direction, tip style, and segmentation:

**Gauge Tip Style**

- ☒ Rounded
- ☐ Straight
- ☐ Show Gauge Value on Chart
- ☐ Show Gauge Name on Chart

### 3.6 Labels & Gauge Name

Toggle value and name overlays and choose colors:

**Gauge Tip Style**

- ☒ Rounded
- ☐ Straight
- ☐ Show Gauge Value on Chart
- ☐ Show Gauge Name on Chart

### 3.7 Live Preview Output

The live preview reflects exactly what will be exported:




## 4. ICL Optimizer Tab


### 4.1 Upload ICL Files


Drag & drop or browse to upload your .icl modules, then set the block range:


Upload ICL files

 Drag and drop files here  
Limit 200MB per file • ICL

Browse files

 53.icl 0.7MB

 48.icl 0.5MB

 45.icl 342.3KB

Showing page 1 of 3

Start Block (inclusive)  
32

End Block (inclusive)  
63

### 4.2 Original Address Allocation Check

Review the original planning: file sizes, blocks used, start/end blocks, and status.

Original Address Allocation Check					
File	Size KB	Blocks	Original Start	Original End	Status
32.icl	17.3	1	32	32	Valid
33.icl	478.4	2	33	34	Valid
33.icl	478.4	2	33	34	Valid
35.icl	1074.4	5	35	39	Valid
35.icl	1074.4	5	35	39	Valid
35.icl	1074.4	5	35	39	Valid
35.icl	1074.4	5	35	39	Valid
35.icl	1074.4	5	35	39	Valid
40.icl	1039.9	5	40	44	Valid
40.icl	1039.9	5	40	44	Valid
No overlaps or out-of-range issues detected in original planning.					

No overlaps or out-of-range issues detected if all statuses are Valid.

### 4.3 Optimized (Non-Overlapping) Packing Proposal

The optimizer reassigns start/end blocks to eliminate any conflicts. New filenames are prefixed.

## Optimized (Non-Overlapping) Packing Proposal

File	Size KB	Blocks	Proposed Start	Proposed End	New Filename
32.icl	17.3	1	32	32	32.icl
33.icl	478.4	2	33	34	33.icl
35.icl	1074.4	5	35	39	35.icl
40.icl	1039.9	5	40	44	40.icl
45.icl	342.3	2	45	46	45.icl
48.icl	539.5	3	47	49	47.icl
53.icl	766.9	3	50	52	50.icl

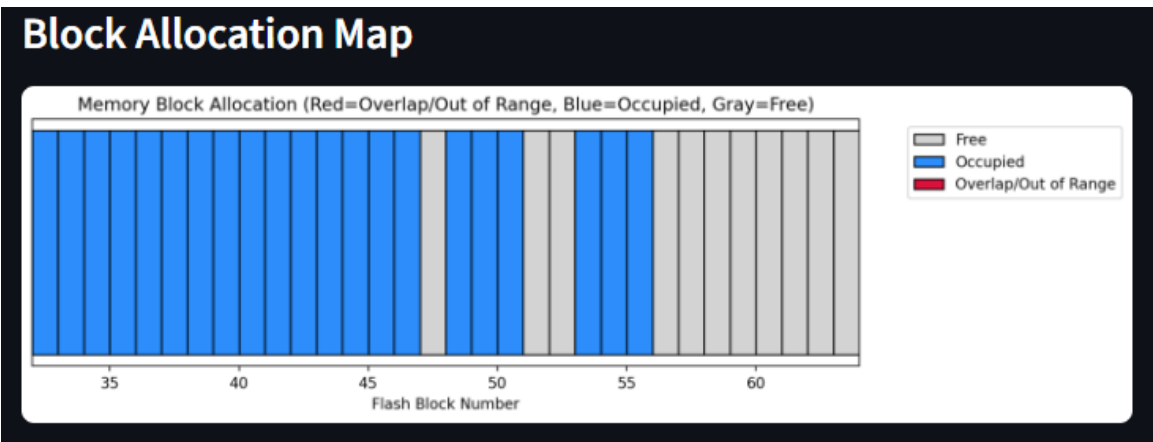
### Download All Files with Optimized Names (optional)

Download Renamed ZIP

Use 'Download Renamed ZIP' to grab all optimized .icl files.

### 4.4 Block Allocation Map

Visualize memory usage: gray=free, blue=occupied, red=overlap/out-of-range.





## 5. Tips & Troubleshooting

- Keep 'Show Value/Name' off for linear gauges.
- For high-res exports (>600px), previews may slow.
- Ensure .icl filenames match intended start blocks.