

WEINTEK LABS., INC.

# Dynamic Meter

**Make meter run smoothly using  
Macro Function & User-Defined Tag**

Demo Project

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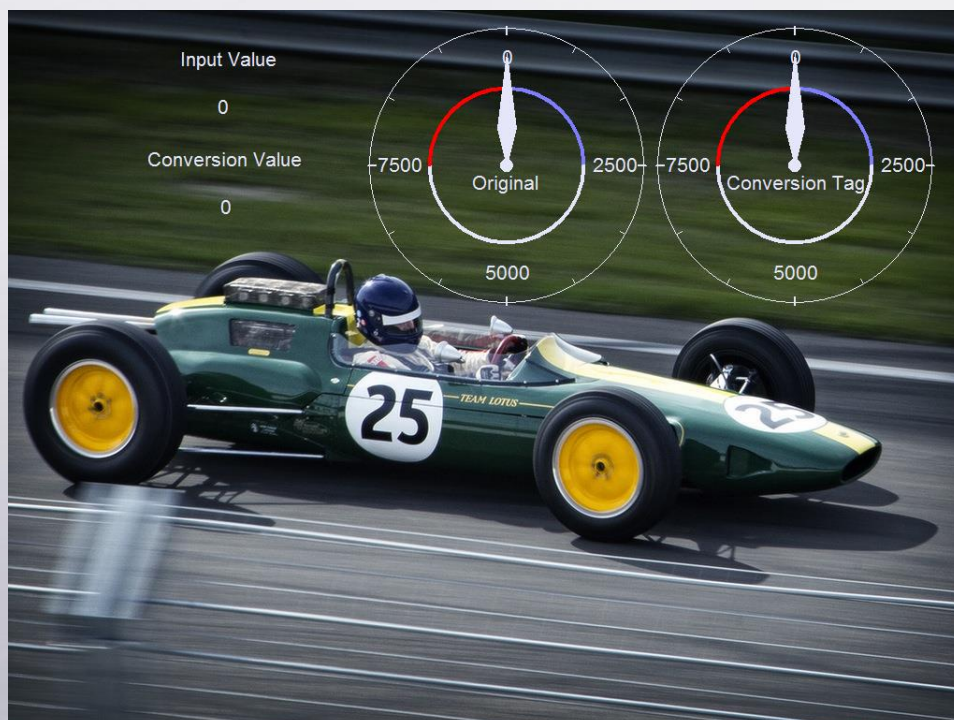
## 1. Overview and Operation

### Overview

This demo project introduces how to make Meters run smoothly on XE, iE, eMT Series HMI models by using User-defined Tags and Macro Function. The macro function will write consecutive values to make the pointer of the meter move smoothly.

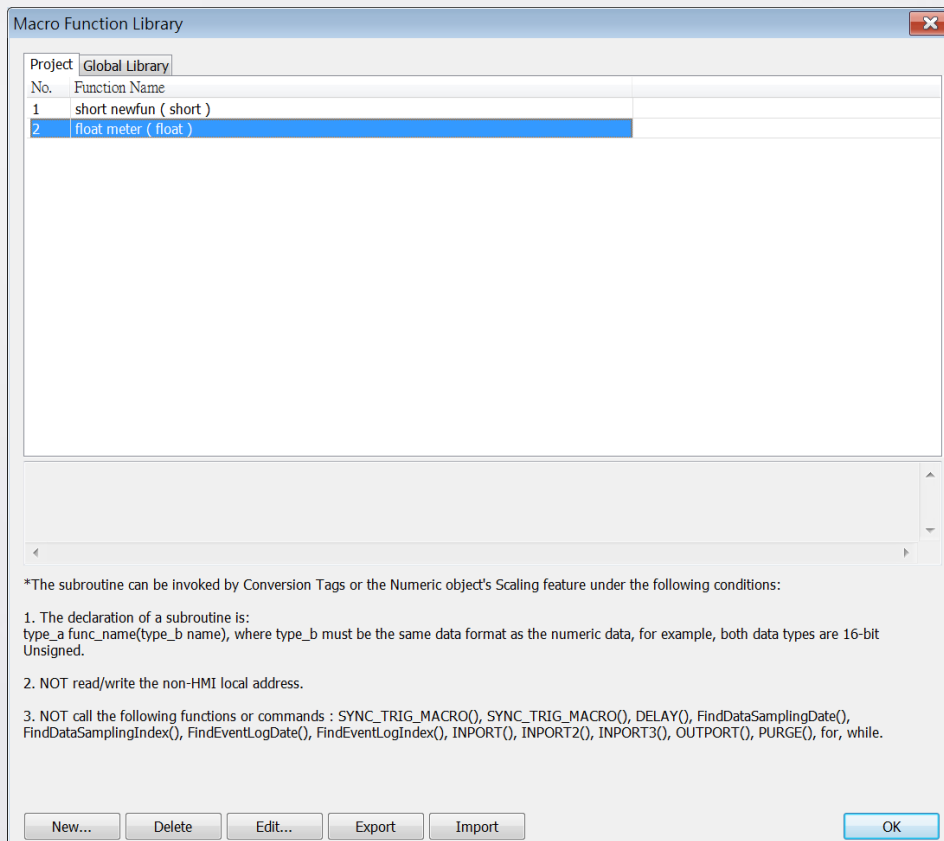
### Operation

1. Run off-line simulation.
2. Enter a value in “Input Value” field and observe the difference in the way the two meter pointers move. The Original meter directly points to the entered value while the Conversion Tag meter smoothly runs to the same point.



## 2. Setting up the Screen

**Step 1.** Open Macro Function Library and go to the Project tab to add a new macro function.



**Step 2.** In this macro function, “input” is the value entered in LW-0 register, and “output” is the returned value. “Original” is the value in LW-10 register, which stores the last returned value. “Speed” defines the speed that the value accumulates and therefore determines the speed that the pointer moves.

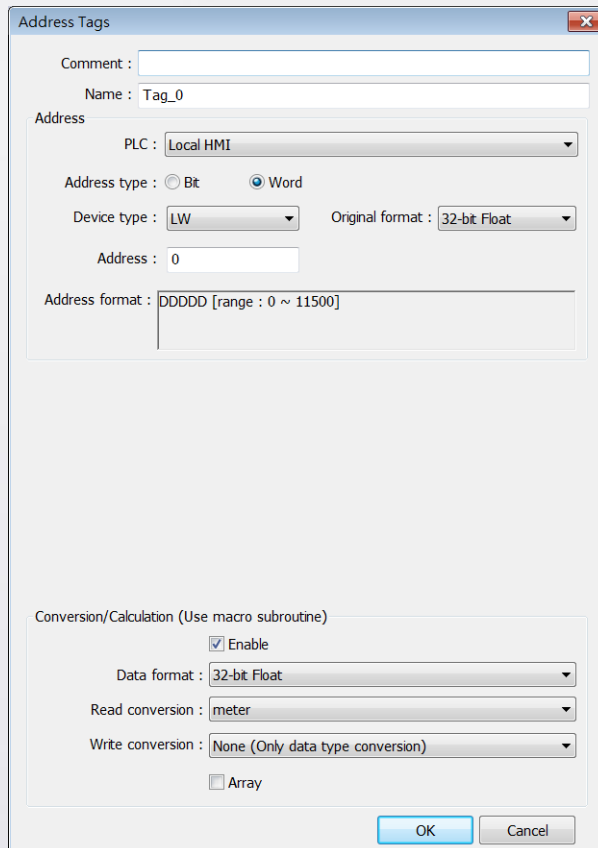
```

1  sub float meter(float input)
2  // input is the value of LW-0
3  float original, difference, result, source, speed, output
4  speed = 0.25
5  // control pointer's speed
6  Result = 0

```

```
7   GetData(original, "Local HMI", LW, 10, 1)
8   // get the last output's value
9   difference=input-original
10  // the difference between the input value and last output's value
11
12  if difference > 0 then
13      output = original + difference*speed
14      // when the input value is larger than the previous output value
15  else if difference < 0 then
16      output = original + difference*speed
17      // when the input value is smaller than the previous output value
18  else
19      output = original
20  end if
21
22  SetData(output, "Local HMI", LW, 10, 1)
23  // set the latest output value into LW-10
24
25  return output
26
27  end sub
```

**Step 3.** In Address Tag Library add a new tag. Use address LW-0 and select the correct [Original format] and [Data format]. In the [Read conversion] filed select the macro function built in Step2. The tag can constantly call out the macro so it's not necessary to add a loop to macro.



**Step 4.** Create two Meter objects. Use LW-0 for one of them and use the tag created in Step3 for the other.

**Step 5.** Create two Numeric objects. Use addresses LW-0 and Tag\_0 respectively. LW-0 can be used to enter values while Tag\_0 can be used to observe how value is changed by macro.

### 3. Addresses

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

Object	Address	Object ID	Description
Window 10			
Meter	Tag_0	MD_0	Demonstrates a smoothly moving meter.
Meter	LW-0	MD_1	Demonstrates a comparison by showing how meter point runs without using macro function and user-defined tag.
Numeric	LW-0	NE_0	Provides a field for entering values.
Numeric	Tag_0	ND_0	Shows how value is changed by macro.