

Measurement Converter

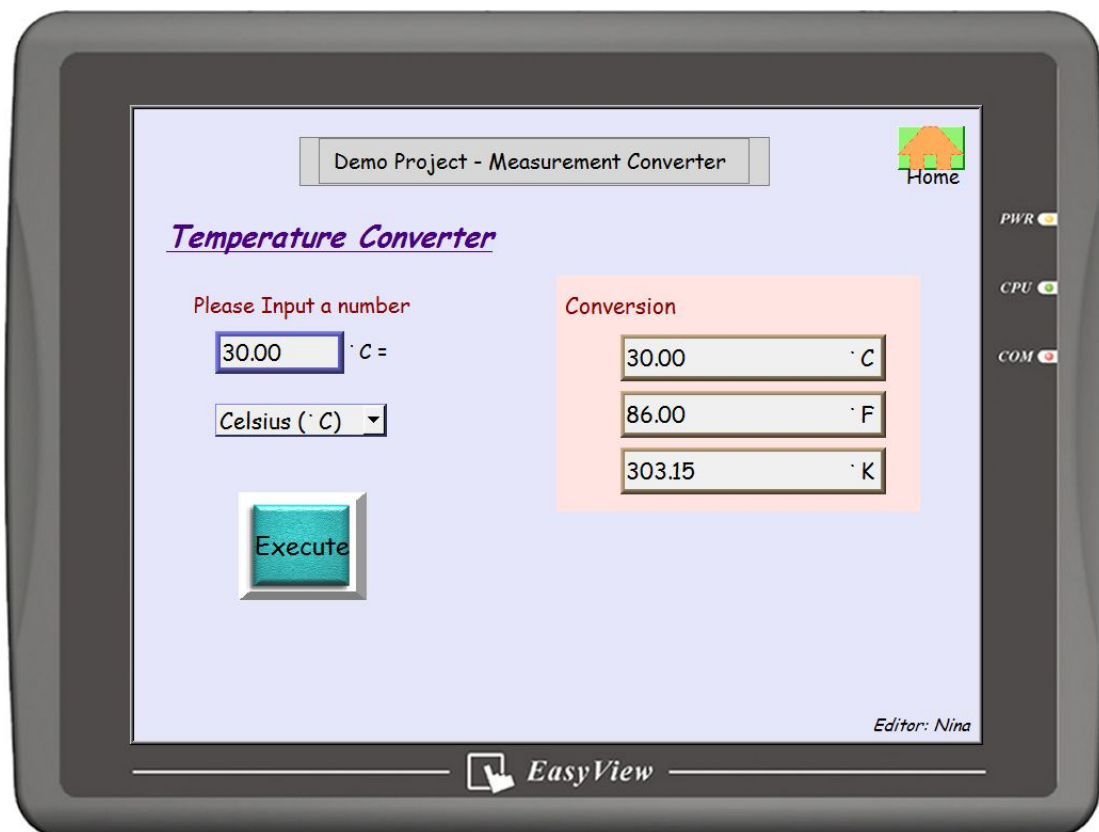
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1. Overview and Operation

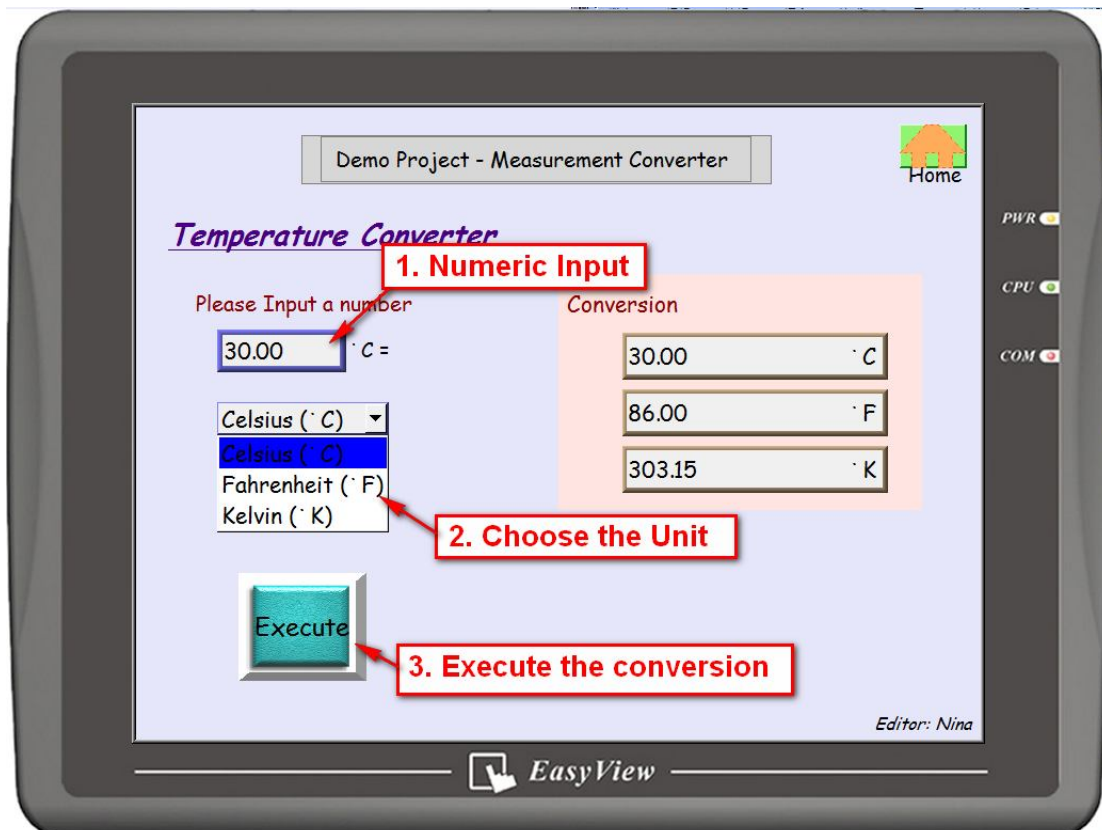
Overview

To deal with the wide variety of measurements and to save time for editing Macro of measurement converter, this demo project introduces you to Macro Library, which enhances the portability and convenience of sub function. Take measurements of Length, Temperature, Width as example, the user-defined measurement converter can be created.



Operation

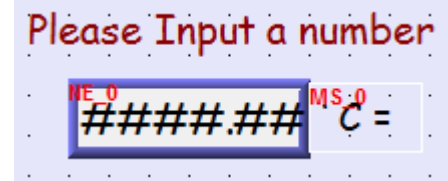
User may input a value via Numeric Input Object, then select the measurement of this value from the drop down menu, and click [Execute]. The system will convert the input value according to Macro settings.



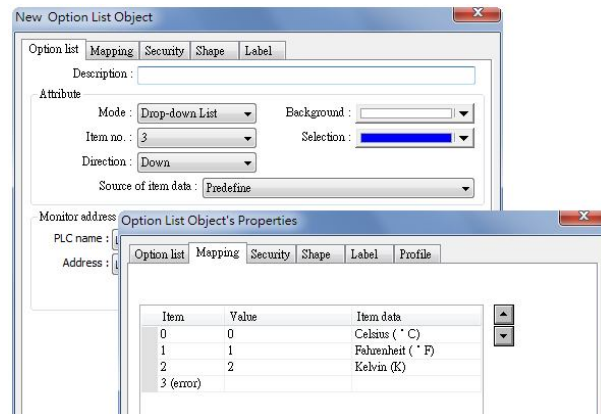
2. Setting up the Screen (example: temperature conversion)

[Objects]

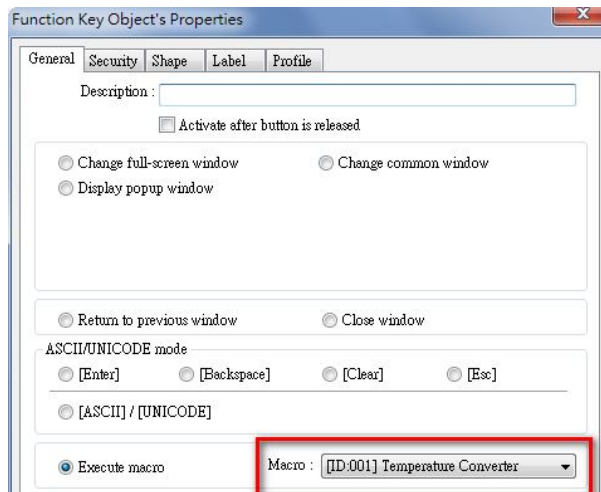
1. Create a Numeric Input Object, 32-bit Float, for reading decimal place value.



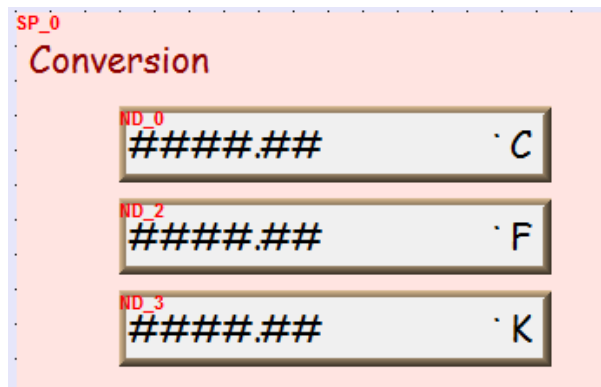
2. Add an Option List Object, set [Item no.] to "3", go to [Mapping] to set [Item data]: Celsius (°C), Fahrenheit (°F), and Kelvin (K).



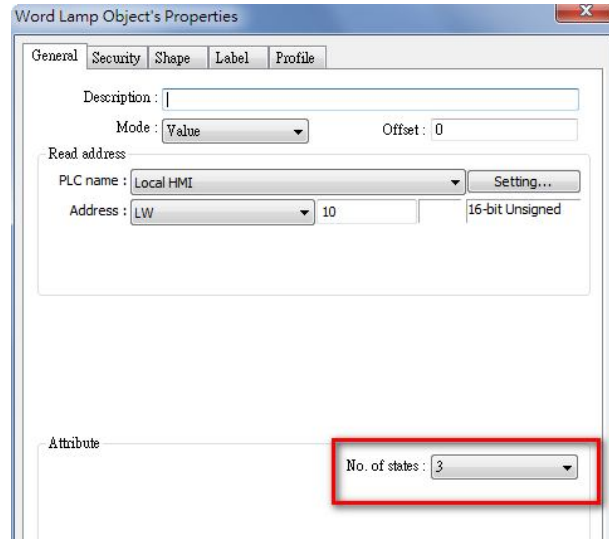
3. Create a Function Key Object for executing Macro, select a corresponding Macro such as: [ID:001] Temperature Converter.



4. Create three Numeric Display Objects since this demo project converts three types of temperature measurements.



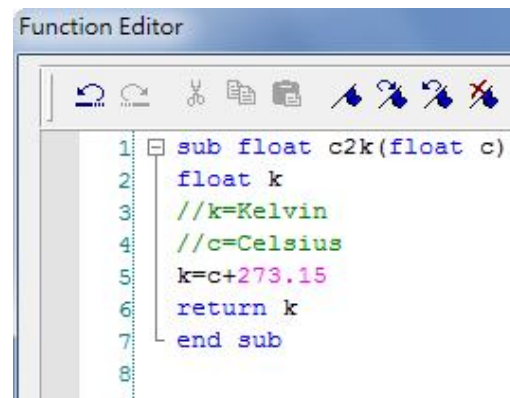
5. Create a Word Lamp Object, set [Read address] to the same address set in Option List. Under [Label] tab, modify the content of each state. When an item in Option List is selected, the text will change accordingly.



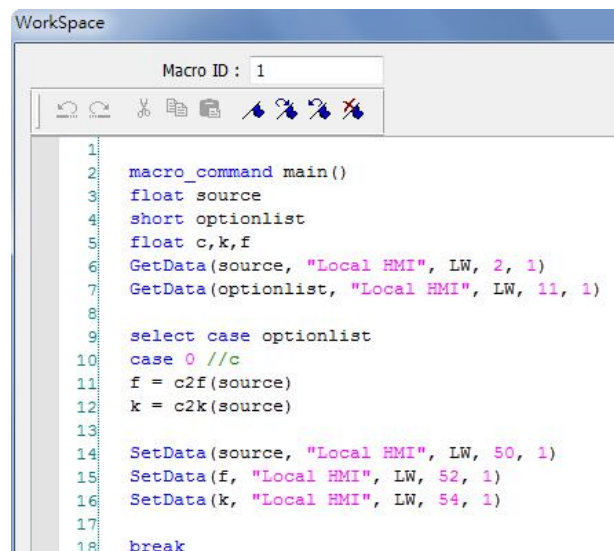
[Macro]

1. Write the formula for temperature measurement conversion to Macro Library.

	Convert from Celsius to :
Fahrenheit	$[^{\circ}\text{F}] = [^{\circ}\text{C}] \times 9/5 + 32$
Kelvin	$[K] = [^{\circ}\text{C}] + 273.15$



2. Do the corresponding operations in the Option List using Macro selective statement.



3. Address

The object addresses used in this demo project are listed below, the addresses and object ID can be modified based on actual usage.

Object	Address	Object ID	Description
Window 10			
Numeric Input	LW0	NE_0	Input value to convert
Option List	LW10	OL_0	Select unit of input value
Word Lamp	LW10	WL_0	Display unit to convert
Numeric Display	LW20~LW30	ND_0~ND_6	Display result of conversion
Function Key		FK_0	Execute Macro [ID:000]
Function Key		FK_2	Return to Window 30
Window 11			
Numeric Input	LW2	NE_0	Input value to convert
Option List	LW11	OL_0	Select unit of input value
Word Lamp	LW11	WL_0	Display unit to convert
Numeric Display	LW50~LW54	ND_0~ND_3	Display result of conversion
Function Key		FK_0	Execute Macro [ID:001]
Function Key		FK_1	Return to Window 30
Window 12			
Numeric Input	LW4	NE_0	Input value to convert
Option List	LW12	OL_0	Select unit of input value
Word Lamp	LW12	WL_0	Display unit to convert
Numeric Display	LW60~LW66	ND_0~ND_3	Display result of conversion
Function Key		FK_0	Execute Macro [ID:002]
Function Key		FK_1	Return to Window 30
Window 30			
Function Key		FK_0	Switch to base window 10
Function Key		FK_1	Switch to base window 11
Function Key		FK_2	Switch to base window 12

4. Function Reference

Function Name	Description
Length Conversion from Foot	Convert Length Measurement (Foot) to: Inch, Kilometer, Meter, Mile, Yard
Length Conversion from Inch	Convert Length Measurement (Inch) to: Foot, Kilometer, Meter, Mile, Yard
Length Conversion from Kilometer	Convert Length Measurement (Kilometer) to: Foot, Inch, Meter, Mile, Yard
Length Conversion from Meter	Convert Length Measurement (Meter) to: Foot, Inch, Kilometer, Mile, Yard
Length Conversion from Mile	Convert Length Measurement (Mile) to: Foot, Inch, Kilometer, Meter, Yard
Length Conversion from Yard	Convert Length Measurement (Yard) to: Foot, Inch, Kilometer, Meter, Mile
Mass Conversion from Gram	Convert Mass Measurement (Gram) to: Kilogram, Long Ton, Metric Ton, Pound
Mass Conversion from Kilogram	Convert Mass Measurement (Kilogram) to: Gram, Long Ton, Metric Ton, Pound
Mass Conversion from Long Ton	Convert Mass Measurement (Long Ton) to: Gram, Kilogram, Metric Ton, Pound
Mass Conversion from Metric Ton	Convert Mass Measurement (Metric Ton) to: Gram, Kilogram, Long Ton, Pound
Mass Conversion from Pound	Convert Mass Measurement (Pound) to: Gram, Kilogram, Long Ton, Metric Ton
Temperature Conversion from Celsius	Convert Temperature Measurement (Celsius) to: Fahrenheit, Kelvin
Temperature Conversion from Fahrenheit	Convert Temperature Measurement (Fahrenheit) to: Celsius, Kelvin
Temperature Conversion from Kelvin	Convert Temperature Measurement (Kelvin) to: Celsius, Fahrenheit