

WEINTEK LABS., INC.

Address Tag Library

Elementary Arithmetic Mode

Demo Project

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1. Overview & Operation

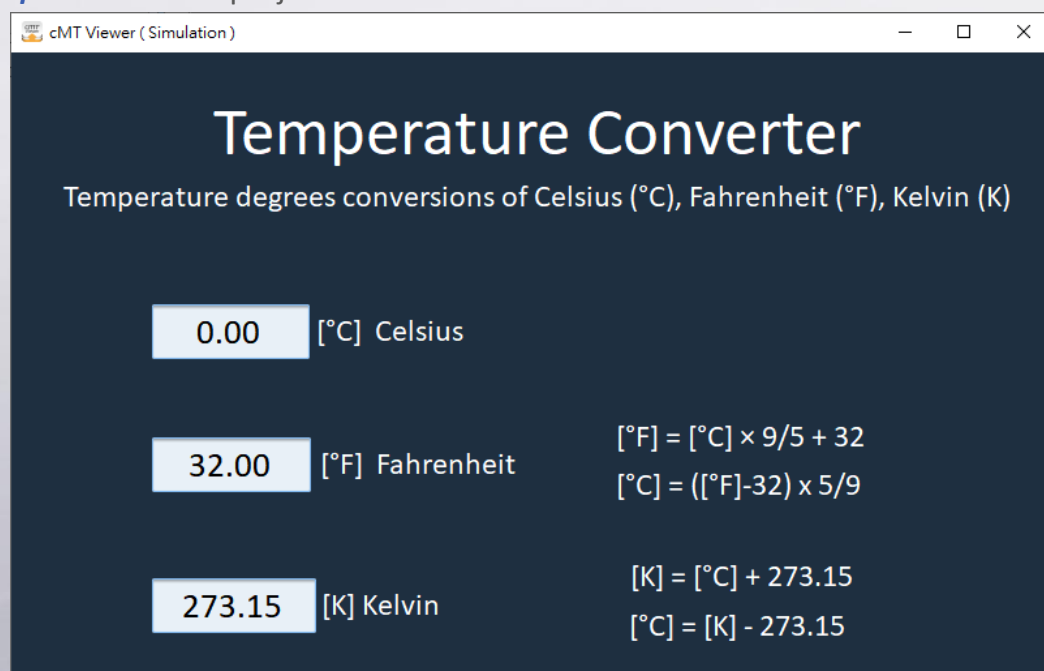
Overview

With Elementary Arithmetic mode in Address Tag Library that is available on cMT / cMT X Series HMI, read / write conversions can be done without having to use macro subroutines. All you need to do is entering the needed conversion formula. In the syntax, $\${v}$ represents device value, and the formula requires standard mathematical operator notations. This feature is suitable for simple conversions and it reduces project design time.

In this demo project, a temperature converter is created for showing how to use Elementary Arithmetic mode. Please note that this mode is only supported on cMT / cMT X Series models.

Operation

Step 1. Run the project.



Step 2. Enter the temperature in Celsius, Fahrenheit, or Kelvin.

cMT Viewer (Simulation)

Temperature Converter

Temperature degrees conversions of Celsius (°C), Fahrenheit (°F), Kelvin (K)

| | | |
|--------|-----------------|--|
| 60 | [°C] Celsius | |
| 32.00 | [°F] Fahrenheit | $[^{\circ}\text{F}] = [^{\circ}\text{C}] \times 9/5 + 32$ $[^{\circ}\text{C}] = ([^{\circ}\text{F}] - 32) \times 5/9$ |
| 273.15 | [K] Kelvin | $[\text{K}] = [^{\circ}\text{C}] + 273.15$ $[^{\circ}\text{C}] = [\text{K}] - 273.15$ |

Step 3. The temperature is converted into Celsius, Fahrenheit, and Kelvin.

cMT Viewer (Simulation)

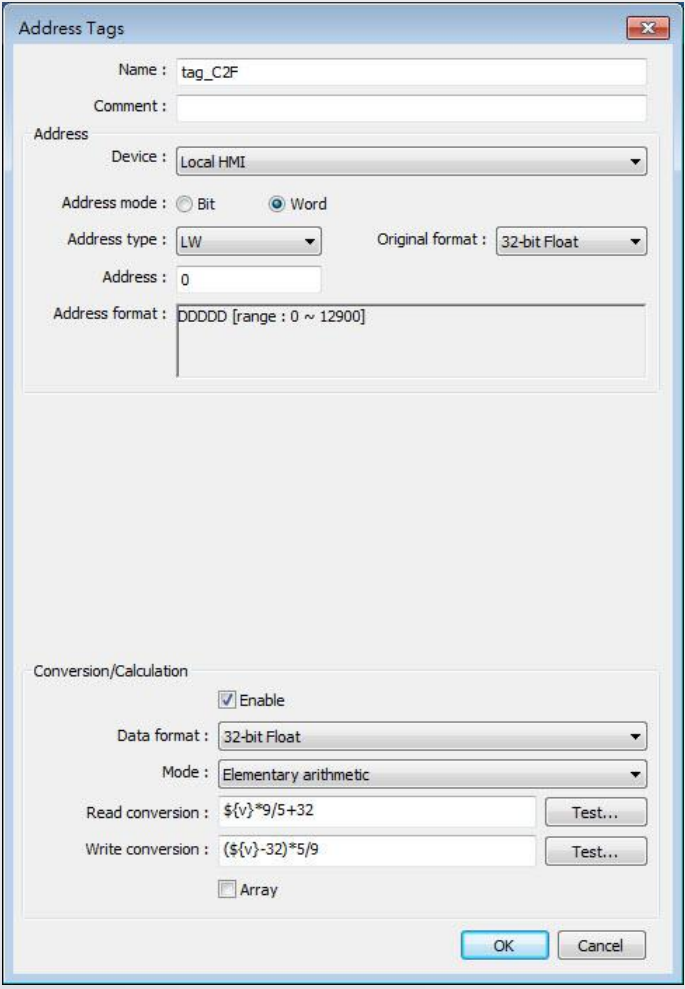
Temperature Converter

Temperature degrees conversions of Celsius (°C), Fahrenheit (°F), Kelvin (K)

| | | |
|--------|-----------------|--|
| 60.00 | [°C] Celsius | |
| 140.00 | [°F] Fahrenheit | $[^{\circ}\text{F}] = [^{\circ}\text{C}] \times 9/5 + 32$ $[^{\circ}\text{C}] = ([^{\circ}\text{F}] - 32) \times 5/9$ |
| 333.15 | [K] Kelvin | $[\text{K}] = [^{\circ}\text{C}] + 273.15$ $[^{\circ}\text{C}] = [\text{K}] - 273.15$ |

2. Setting up the Screen

Step 1. Create tags in Address tag Library, select a format, and enter the conversion formulas.



Address Tags

Name : tag_C2F

Comment :

Address

Device : Local HMI

Address mode : ☐ Bit ☒ Word

Address type : LW

Original format : 32-bit Float

Address : 0

Address format : DDDDD [range : 0 ~ 12900]

Conversion/Calculation

☒ Enable

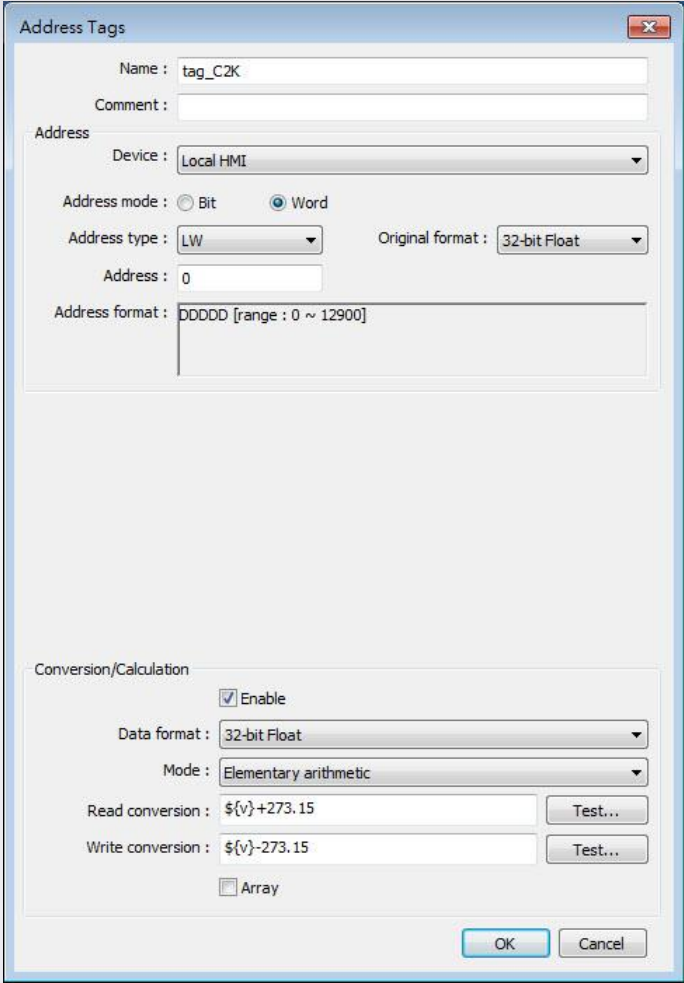
Data format : 32-bit Float

Mode : Elementary arithmetic

Read conversion : $\{v\} * 9 / 5 + 32$

Write conversion : $(\{v\} - 32) * 5 / 9$

☐ Array



Address Tags

Name : tag_C2K

Comment :

Address

Device : Local HMI

Address mode : ☐ Bit ☒ Word

Address type : LW Original format : 32-bit Float

Address : 0

Address format : DDDDD [range : 0 ~ 12900]

Conversion/Calculation

☒ Enable

Data format : 32-bit Float

Mode : Elementary arithmetic

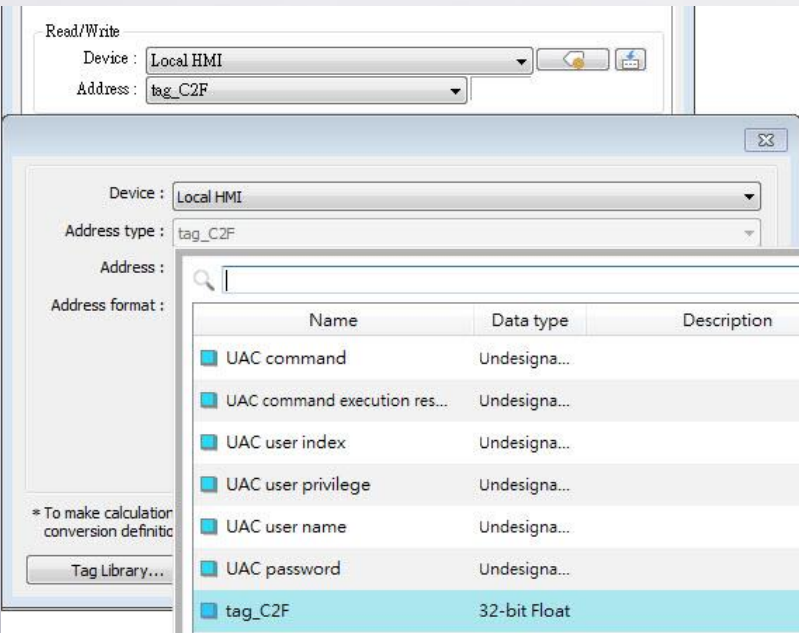
Read conversion : \${v}+273.15 Test...

Write conversion : \${v}-273.15 Test...

☐ Array

OK Cancel

Step 2. Create Numeric objects and select the corresponding tags.



Read/Write

Device : Local HMI

Address : tag_C2F

Device : Local HMI

Address type : tag_C2F

Address :

Address format :

* To make calculation conversion definitio

Tag Library...

| Name | Data type | Description |
|--|--------------|-------------|
| <input checked="" type="checkbox"/> UAC command | Undesigna... | |
| <input checked="" type="checkbox"/> UAC command execution res... | Undesigna... | |
| <input checked="" type="checkbox"/> UAC user index | Undesigna... | |
| <input checked="" type="checkbox"/> UAC user privilege | Undesigna... | |
| <input checked="" type="checkbox"/> UAC user name | Undesigna... | |
| <input checked="" type="checkbox"/> UAC password | Undesigna... | |
| <input checked="" type="checkbox"/> tag_C2F | 32-bit Float | |

Read/Write

Device : Local HMI

Address : tag_C2K

Device : Local HMI

Address type : tag_C2K

Address :

Address format :

* To make calculation conversion definitic

Tag Library...

| Name | Data type | Description |
|--|--------------|-------------|
| <input checked="" type="checkbox"/> UAC command | Undesigna... | |
| <input checked="" type="checkbox"/> UAC command execution res... | Undesigna... | |
| <input checked="" type="checkbox"/> UAC user index | Undesigna... | |
| <input checked="" type="checkbox"/> UAC user privilege | Undesigna... | |
| <input checked="" type="checkbox"/> UAC user name | Undesigna... | |
| <input checked="" type="checkbox"/> UAC password | Undesigna... | |
| <input checked="" type="checkbox"/> tag_C2F | 32-bit Float | |
| <input checked="" type="checkbox"/> tag_C2K | 32-bit Float | |

3. Addresses

The addresses of key objects used in this demonstration are listed below, please adjust as necessary.

| Object | Address | Object ID | Description |
|-----------|---------|-----------|-------------|
| Window 10 | | | |
| Numeric | LW-0 | NE_0 | Celsius |
| Numeric | Tag_C2F | NE_1 | Fahrenheit |
| Numeric | Tag_C2K | NE_2 | Kelvin |