

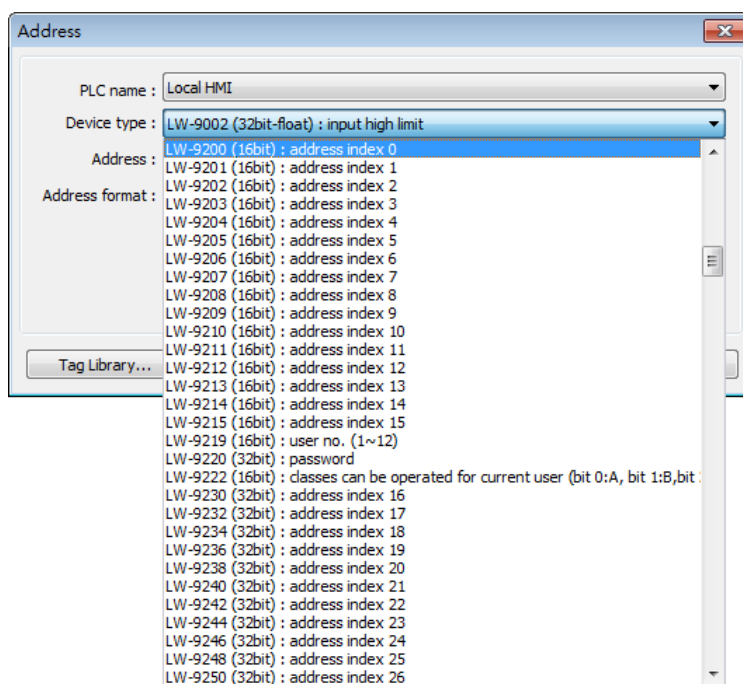
# 11. Index Register

This chapter explains how to use Index Register.

11.1. Overview.....	11-2
11.2. Examples of Index Register .....	11-3
11.3. Examples of Using Tag-Based PLC and Index Registers .....	11-5

## 11.1. Overview

EasyBuilder Pro provides Index Registers for changing addresses flexibly. With Index Registers, user can change the object's read/write address directly on HMI without changing its settings. There are 32 Index Registers, divided into 16-bit and 32-bit. cMT / cMT X models offer 32 Private Index Registers, also divided into 16-bit and 32-bit.



The corresponding address of 16-bit Index Register 0 to 15: LW-9200 (16bit) to LW-9215 (16bit)  
The maximum offset range is 65536 words.

The corresponding address of 32-bit Index Register 16 to 31: LW-9230 (32bit) to LW-9260 (32bit)

The maximum offset range is 4294967296 words.

The corresponding address of 16-bit Private Index Register 0 to 15: PLW-9200 (16bit) to PLW-9215 (16bit)

The maximum offset range is 65536 words.

The corresponding address of 32-bit Private Index Register 16 to 31: PLW-9230 (32bit) to PLW-9260 (32bit)

The maximum offset range is 4294967296 words.

When using [Index register], the address is designated by the following equation:

The constant set in [Address] + the value in the chosen Index Register.

The way to use Private Index Registers is the same as that of Index Registers. The difference is

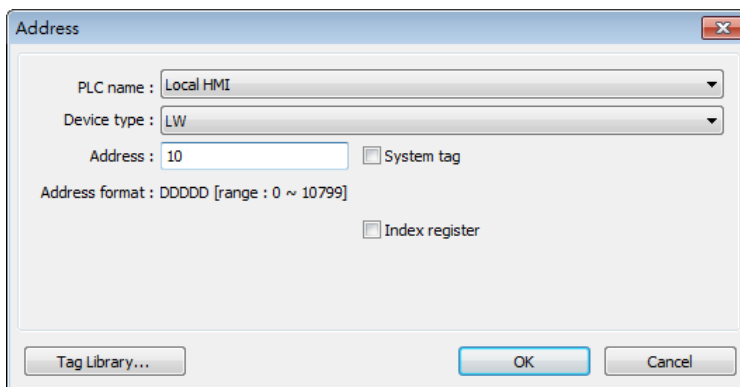
that Private Index Registers work for objects in cMT Viewer app, which runs independently on each client device; therefore, operations in this app will not make the HMI show the same screen.

### Note

- Index Registers work for the **Word** registers. For **Bit** registers, adding 1 to the value in the Index Register, the offset is 16 bits.
- Index Registers do not work for PLB and PLW registers.

## 11.2. Examples of Index Register

The following explains the way to designate the register while Index Register is used. If **not** selecting [**Index register**] check box and set address to [LW-10]. The system will directly read / write LW-10.

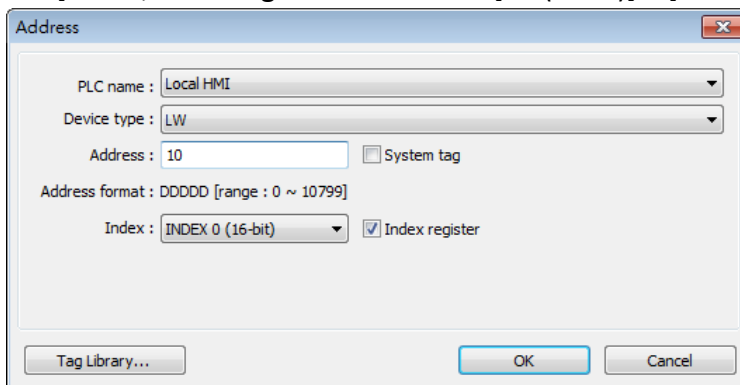


The screenshot shows the 'Address' dialog box with the following settings:

- PLC name: Local HMI
- Device type: LW
- Address: 10
- System tag:
- Index register:
- Address format: DDDDD [range : 0 ~ 10799]

If select [**Index register**] check box and set [Index] to [INDEX 0 (16-bit)], the system will read / write [LW(10 + value in Index Register 0)].

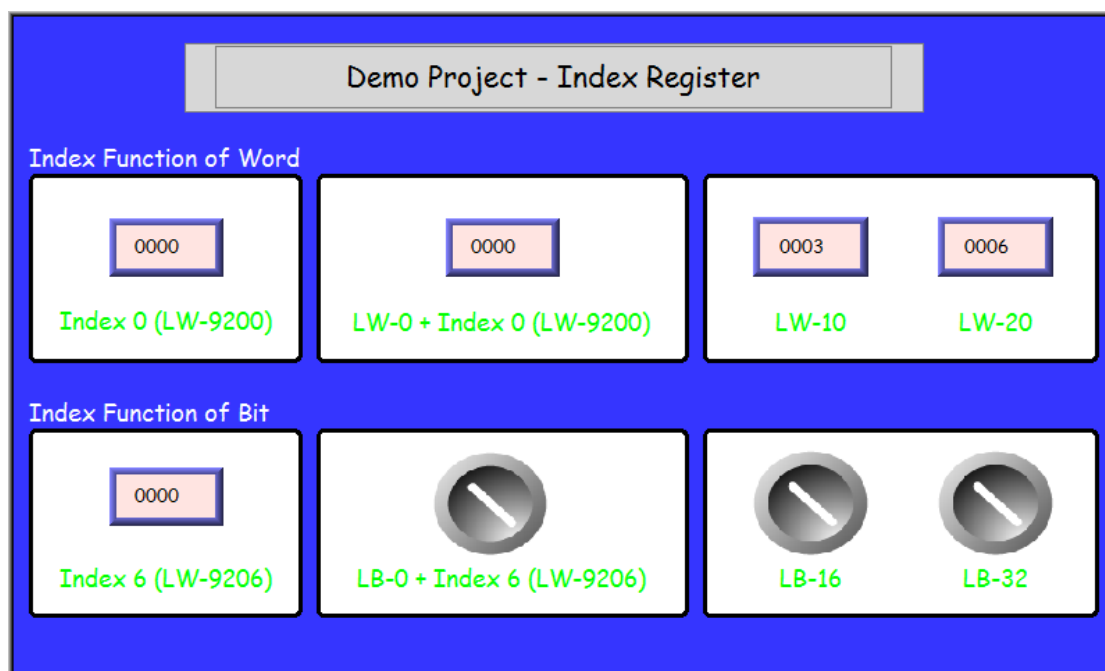
If the data in [LW-9200] is "5", the designated address is [LW(10+5)] = [LW-15].



The screenshot shows the 'Address' dialog box with the following settings:

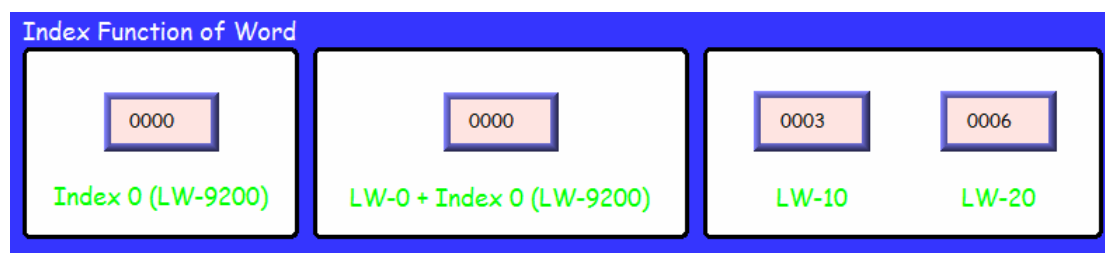
- PLC name: Local HMI
- Device type: LW
- Address: 10
- System tag:
- Index: INDEX 0 (16-bit)
- Index register:
- Address format: DDDDD [range : 0 ~ 10799]

Here's a demo project shown as an example:

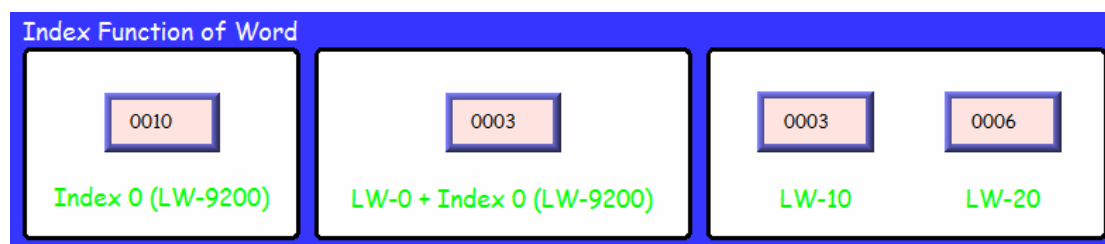


### Example 1

The following shows an example of using a Word register and select [Index register]. If the value in [LW-0] is 0, in [LW-10] is 3, and in [LW-20] is 6, the result is:



If the value in Index 0 (LW-9200) is 0, then  $[LW0 + \text{Index } 0] = \text{read } [LW-0]$ .



If the value in Index 0 (LW-9200) is 10, then  $[LW0 + \text{Index } 0] = \text{read } [LW-10] = 3$ .

### Example 2

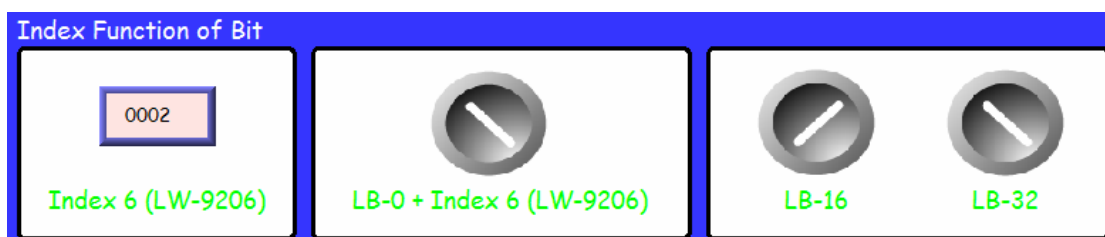
The following shows an example of using a Bit register and select [Index register].

If the state of [LB-16] is ON, and the state of [LB-32] is OFF.

Since 1 Word equals to 16 Bit, adding 1 in Index Register, the offset is 16 bits.



If Index 6 (LW-9206) is set to 1, then switch [LB-0 + Index6] reads LB-16 which is in ON state.



If Index 6 (LW-9206) is set to 2, then switch [LB-0 + Index6] reads LB-32 which is in OFF state.

### Note

- When using Index Registers for Bit register, the offset is 16 bits. For example, if the Bit register is LB-0, and set the value in Index Register to 1, then LB-16 will be activated. If set the value in Index Register to 2, then LB-32 will be activated.

 Click the icon to download the demo project. Please confirm your internet connection.

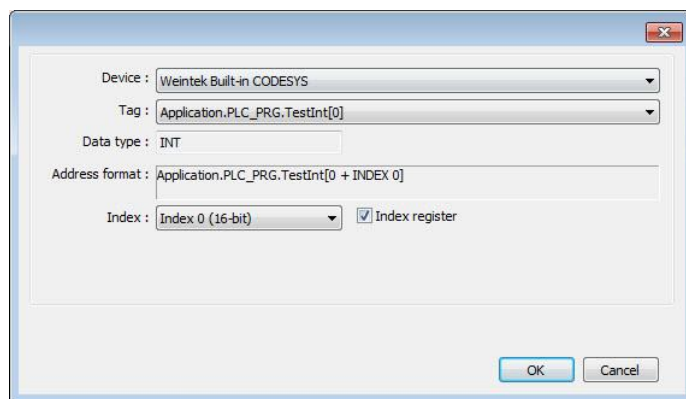
## 11.3. Examples of Using Tag-Based PLC and Index Registers

Index Registers only support one-dimensional array variables.

### Example 1: INT

If [**Index register**] is enabled and [Index] is set to [Index 0 (16-bit)], the system will read / write “Application.PLC\_PRG.TestInt[0 + value in Index Register 0]”.

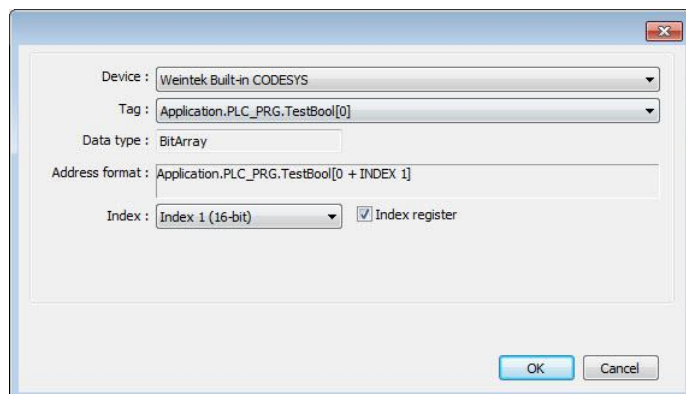
If the data in [LW-9200] is “5”, the actual address is “Application.PLC\_PRG.TestInt[5]”.



### Example 2: Bit

If **[Index register]** is enabled and **[Index]** is set to **[Index 1 (16-bit)]**, the system will read / write “Application.PLC\_PRG.TestBool[0 + value in Index Register 1]”.

If the data in [LW-9201] is “7”, the designated address is “Application.PLC\_PRG.TestBool[7]”.



Note that, unlike its non-tag counterpart, the 16-bit offset is not necessary for Bit array tags.