FlexiSoft for TRi PLCs

## 1.  Introduction

The PLC I/O, registers, and data are all mapped to the HMI via tags, which need to be manually configured or imported in each FlexiSoft project.

Lots of information about adding tags and building projects can be found in the FlexiSoft User Manual that comes with the software installation. This document will show the following:

1. How to add a register tag specifically for the TRi PLC. This is a data value that could be a DM[] variable in the PLC or an A$ string variable.
2. How to add a coil/bit tag specifically for the TRi PLC. This is a bit or coil that could be a physical input/output or a bit of a DM[] variable in the PLC.
3. A reference table with the available I/O points, registers, and memory data associated with TRi PLCs.

## 2. Adding Tags for the TRi PLC

The FlexiSoft software should be open at this point with an existing or new project open. Next you will need to right click on the "tag" folder in the project information area and select add tag as shown in Figure 1 below:
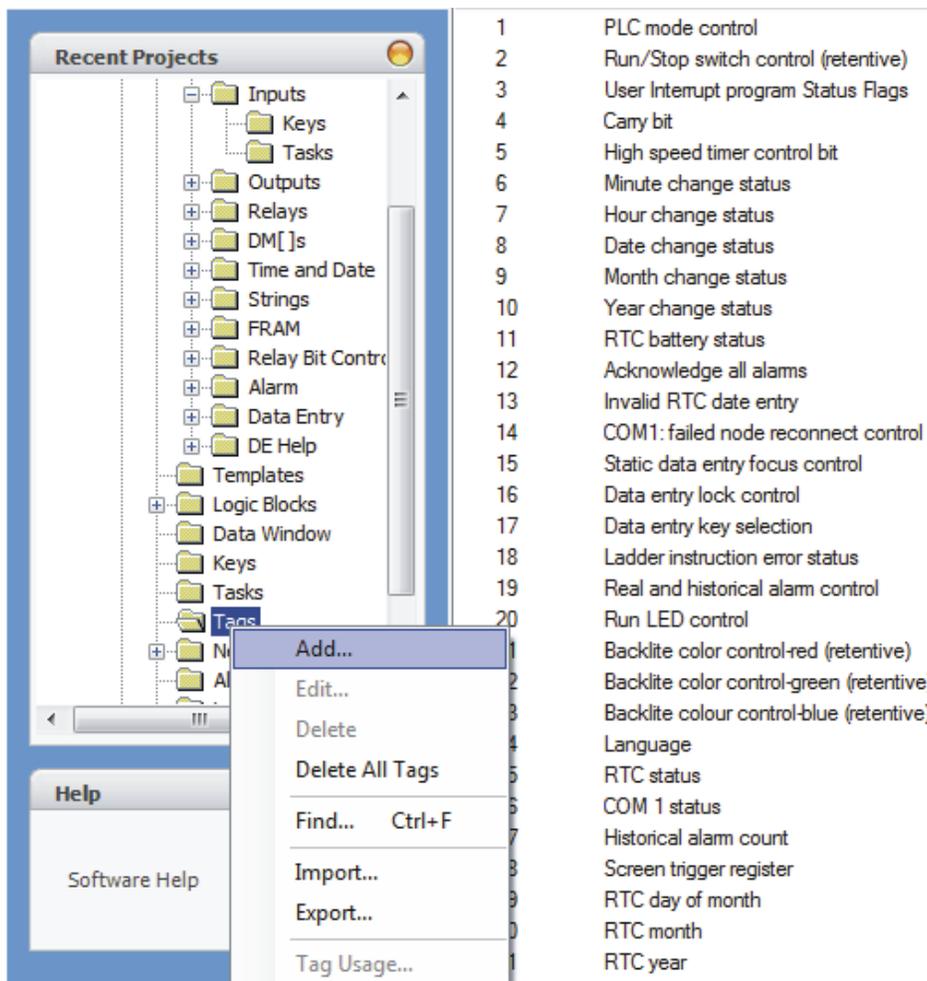


**Figure 1: Add Tag**

Then the tag configuration window will open and you will want to select TRi PLCs to be the Node Name from the drop down menu as shown in Figure 2 below:

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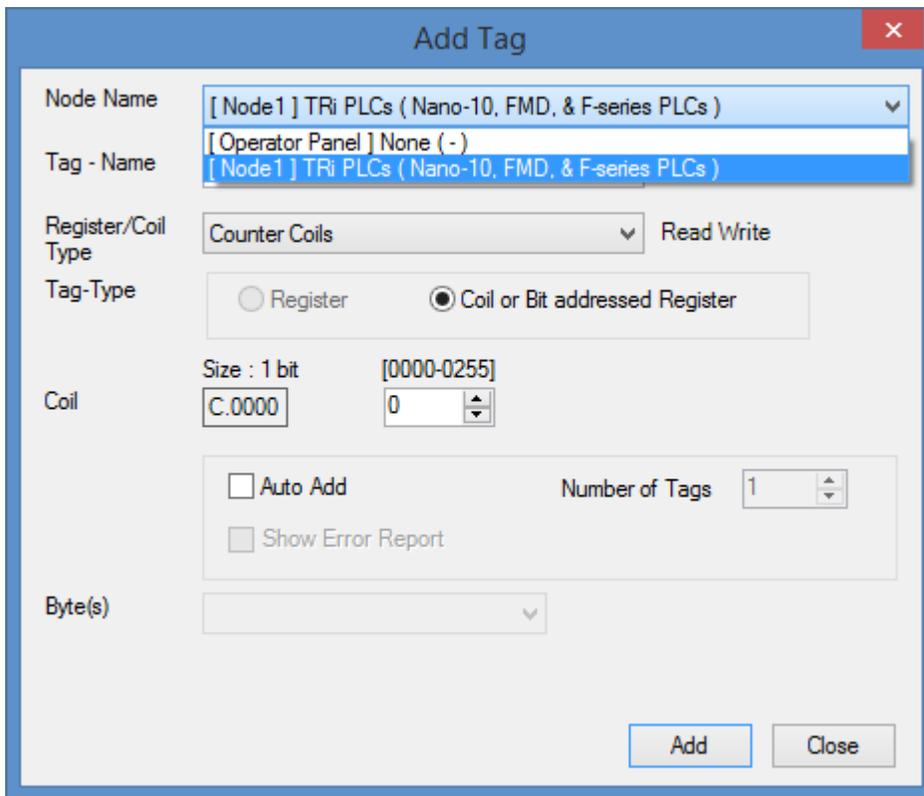
**Figure 2: Tag Configuration Window- Select Node Name**

Now you have the option to choose a "Register" or "Coil/Bit addressed Register" as follows.

## 3. How to Add a Bit/Coil Tag

This allows you to map a single bit to a PLC input or output, internal relay register, DM[] variable, etc.

1. Select the "Register/Coil Type" from the drop down menu. As shown in Figure 3, the input register is chosen for this example.

2. Make sure that "Coil or Bit addressed Register" is selected.

3. Change the tag name to anything. Input1 was used in Figure 3.

4. Select the register and bit from the Coil field as shown in Figure 3.

5. The middle box with the heading [00000-00031] is the register number. Choose 0 for the first input register, which is default.

6. The right box with the heading Bit-Number[0-15] is the bit number. Choose 0 for the first input, which is default.**

7. Click Add and then Close. The tag should now be populated in the list.

**NOTE: Only bits 0-7 are usable. Bits 8-15 are not used and will not be mapped to anything in the PLC.
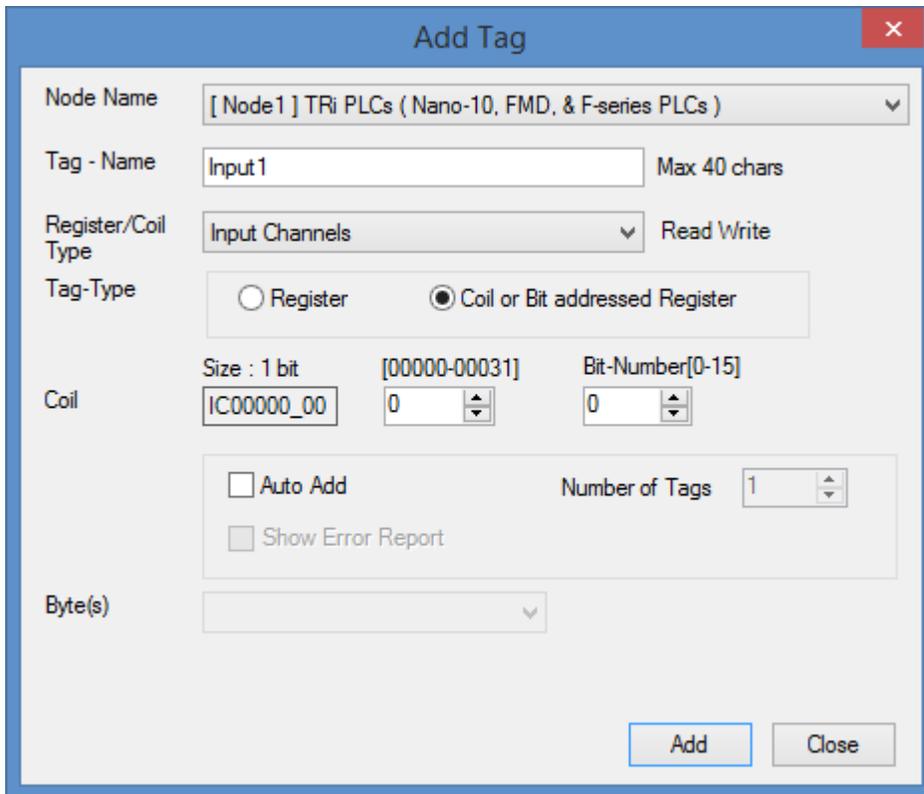


**Figure 3: Tag Configuration Window- Create Input 1 Bit**

## 4. How to Add a Register Tag

This allows you to map an integer or string to a PLC register, integer variable (such as a DM[]), or string variable (such as A$-Z$).

1. Select from the "Register/Coil Type" the drop down menu. As shown in Figure 4, Data Memory is chosen for this example.

2. Make sure that "Register" is selected.

3. Change the tag name to anything. DM[1] was used in Figure 4.

4. The right box with the heading [00001-04000] is the DM[] number. Choose 1 for the first DM[] index, which is default.

5. Click Add and then Close. The tag should now be populated in the list.

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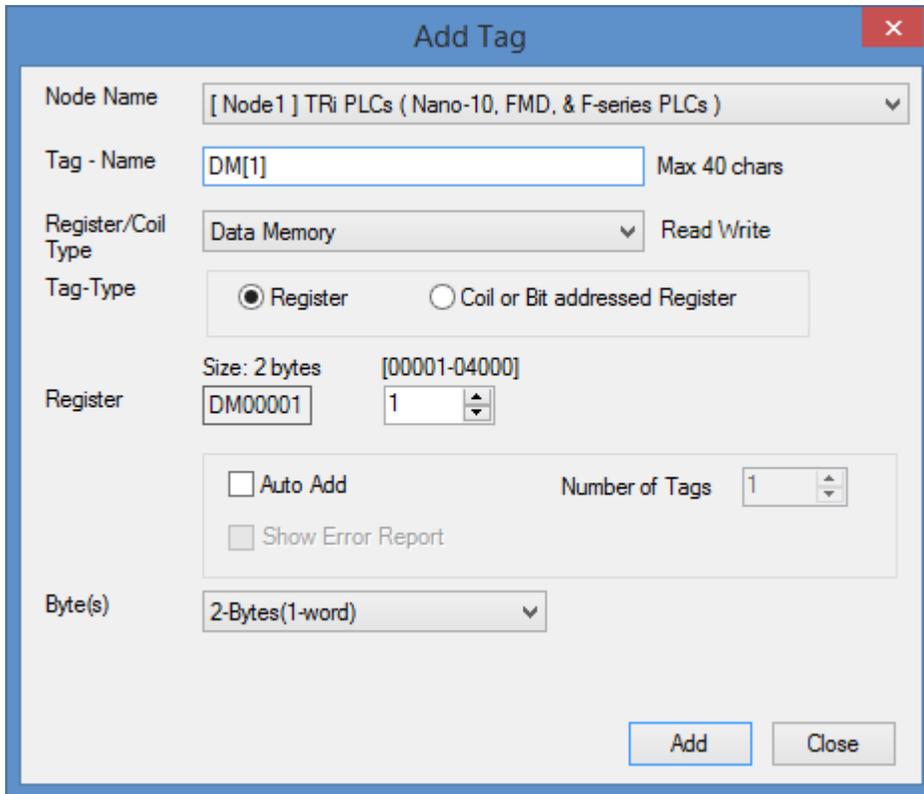
**Figure 4: Tag Configuration Window- Create DM[1] Variable**

# 5.   Reference Data and Additional Information

The following table shows a map between the FlexiPanel HMI and TRi PLC data.

| Flexipanel HMI | | | | | TRi PLC | | |
|---|---|---|---|---|---|---|---|
| Data No | Data Type Name | Abbrevition | Register Range | Bit Range | Data Type Name | Register Range | Bit Range |
| 1 | Input Channels | IC | 00000-00031 | 0-7 | INPUT[] | 1-16 | 0-15 |
| 2 | Output channels | OC | 00000-00031 | 0-7 | OUTPUT[] | 1-16 | 0-15 |
| 3 | Timer Contacts | TC | 00000-00007 | 0-7 | TIMERBIT[] | 1-4 | 0-15 |
| 4 | counter Contacts | CC | 00000-00007 | 0-7 | CTRBIT[] | 1-4 | 0-15 |
| 5 | Internal Relay Channels | IC | 00000-00063 | 0-7 | RELAY[] | 1-32 | 0-15 |
| 6 | Timer Present Value | TP | 00000-00063 | 0-15 | TimerPV[] | 1-64 | 0-15 |
| 7 | Timer Set Value | TS | 00000-00063 | 0-15 | TimerSV[] | 1-64 | 0-15 |
| 8 | Counter Present Value | CP | 00000-00063 | 0-15 | CounterPV[] | 1-64 | 0-15 |
| 9 | Counter Set Value | CS | 00000-00063 | 0-15 | CounterSV[] | 1-64 | 0-15 |
| 10 | Internal Registers | IR | 00000-00519 | N/A | Internal Registers | See note 1 below* | N/A |
| 11 | Data Memory | DM | 00001-04000 | 0-15 | DM[] | 1-4000 | 0-15 |
| 12 | Varible Integer | VI | A-Z | 0-15 | A-Z | A-Z | 0-15 |
| 13 | Variable String | V$ | A-Z | 0-15 | A$-Z$ | A-Z | 0-15 |
| 14 | High Speed Counter | VH | 00001-00002 | 0-15 | HSCPV[] | 1-2 | 0-15 |
| 15 | Variable EEPROM Int | XI | 00001-65535 | 0-15 | EEPROM Integer** | 1-65535 | 0-15 |
| 16 | Variable EEPROM String | X$ | 00001-65535 | 0-15 | EEPROM String** | 1-65535 | 0-15 |

Notes:
1. * The Internal Registers are used to access PLC data via Omron registers. See Table 14.1 from section 14.6.1 of the Nano-10, FMD, or F-Series User Manual for the PLC data that registers 0-519 correspond to.
2. ** The EEPROM integer and string variable addresses in the FlexiPanel Register Range column correspond to the *Addr* parameter of the LOAD_EEP and SAVE_EEP TBASIC commands. See the command descriptions for more information on how the PLC EEPROM data is addressed.

Data No 1 to 5, which is highlighted yellow in the above table, is mapped slightly different in that every two registers in the FlexiPanel HMI make up one register in the PLC. For example, Input Register 0 and 1 in the FlexiPanel HMI would combine

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to make the INPUT[1] register in the TRi PLC. This means that Input Register 0 would account for bits 0 to 7 of INPUT[1] (physical inputs 1-8) and Input Register 1 would account for bits 8 to 15 of INPUT[1] (physical inputs 9-16). Then Input Registers 2 and 3 would combine to make up the INPUT[2] register and so on. The data is mapped this way because the HMI is only able to access 8 bits from the PLC for these registers.

# 6.  Additional Reference Sources

The following documents can be downloaded from the FlexiPanel HMI product page on the TRi website at the following link: http://www.triplc.com/fp4030mr.htm

- FP4030MR Hardware Manual
- FP4030MR User's Manual