

Weintek HMI to Ethernet/IP (Explicit Messaging) Server Device

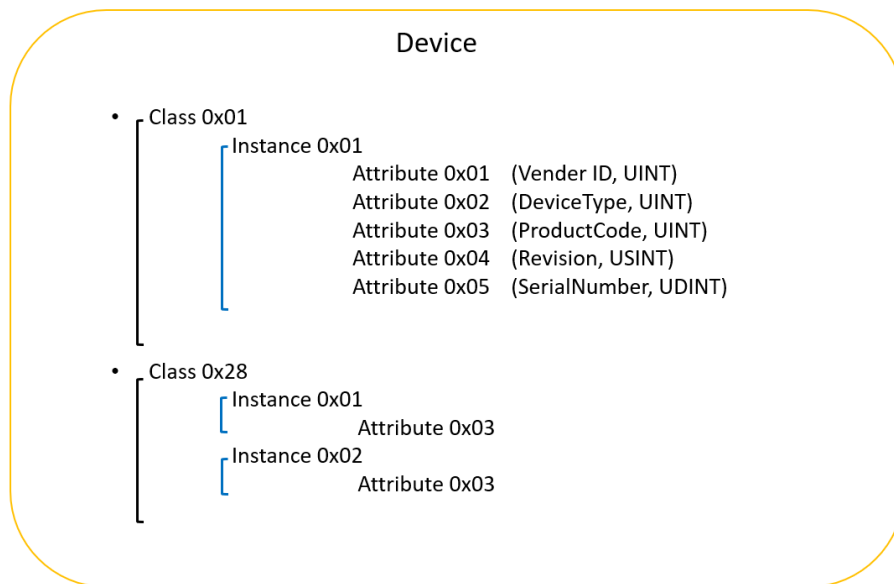


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Weintek HMI to Ethernet/IP (Explicit Messaging) Server Device

Introduction: This instruction manual discusses how to communicate with an Ethernet/IP server device. In this manual, a Weintek HMI acts as an Ethernet/IP client and queries an Ethernet/IP server using explicit messaging format, which contains addressing and service information. The addressing information, including Class ID, Instance ID, and Attribute ID, should be documented in the user manual made by the device manufacturer. Weintek HMIs support simple read (0x0E Get_Attribute) and write (0x10 Set_Attribute) **service codes** to access data from the devices. For example, the **Vender ID** of an Ethernet/IP server is categorized into Class ID 0x01, Instance ID 0x01, Attribute ID 0x01, accessed by the 0x0E service code.

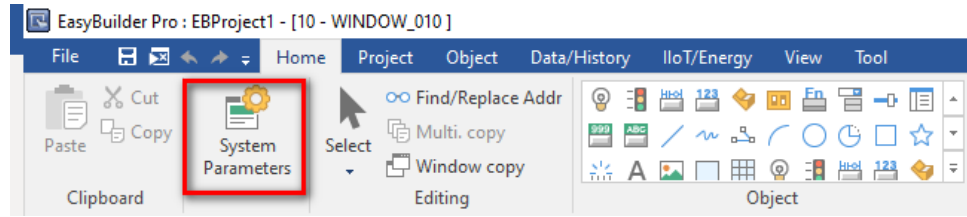


Equipment & software:

1. EasyBuilder Pro v6.03.02.294
2. Weintek HMI cMT3090
3. Ethernet/IP server device

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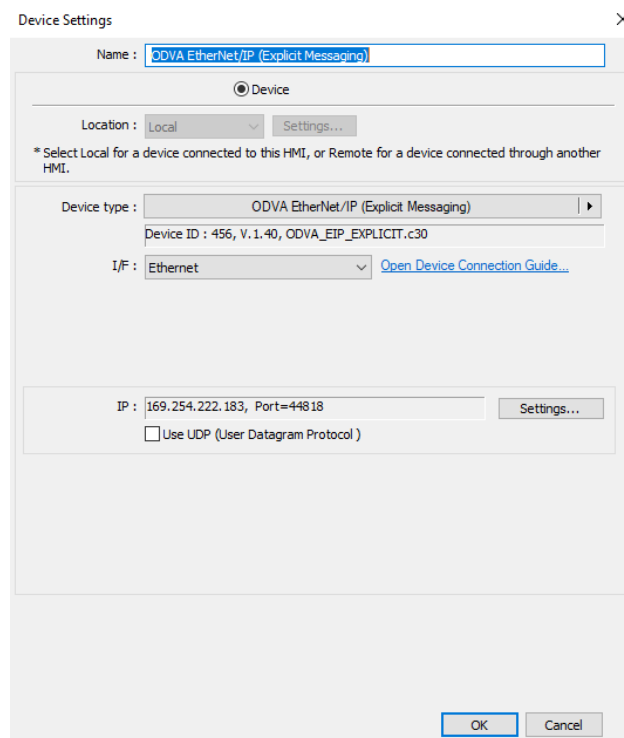
Detail of the HMI Programming: Open a new project and choose the HMI model cMT3090. To get the HMI talking to the Ethernet/IP server, go to the [HOME] tab on the top of the menu and then click on the [System Parameters] button.



Search for **[ODVA Ethernet/IP (Explicit Messaging)]** driver from the list of the device drivers.

I/F: Ethernet

Use UDP: Please **uncheck** this option



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Click on the [Settings..] button to enter the IP address of your **Ethernet/IP** server device and the port number.

IP Address Settings

IP address : 169 . 254 . 222 . 183

Port no. : 44818

Timeout (sec) : 1.0 Turn around delay (ms) : 0

The number of resending commands : 0

OK Cancel

Click on [Tag Editor...] to create tags (CIP objects).

System Parameter Settings

Cellular Data Network Time Sync./DST e-Mail Recipe Database

Device Model General System Remote Security Extended Memory

Device list: [What's my IP?](#)

Name	Location	Device Type	Interface	I/F Protocol	Station No.	
Local HMI	Local HMI	Local	cMT3090 (1024 x 768)	-	0	
Loc...	ODVA ...	Local	ODVA EtherNet/IP (...)	Ethernet ...	TCP/IP	N/A

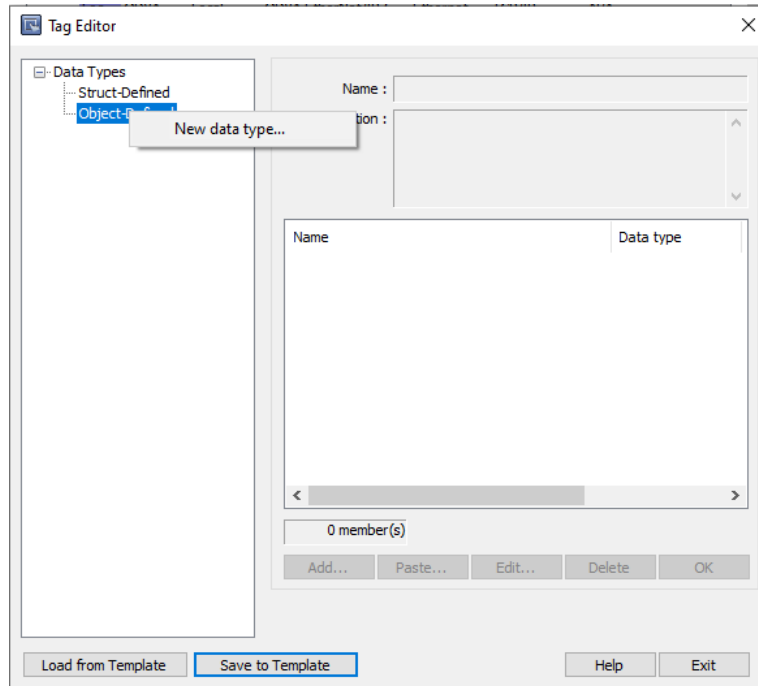
New HMI... New Device/Server... Delete Settings...

Tag Editor...

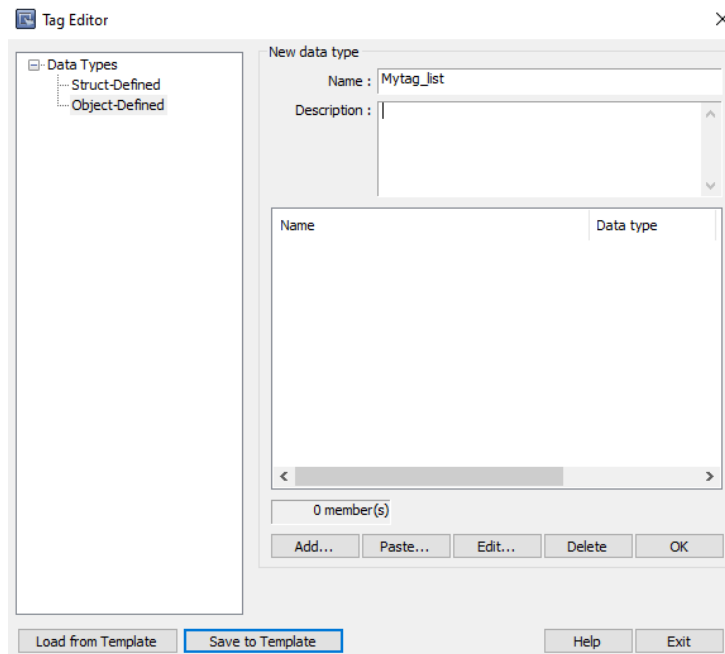
* Settings made in this tab will be saved directly (no cancel)
* HMI cannot use CAN bus if CODESYS feature is activated!
* Add a [Weintek Built-in CODESYS] device to communication with Built-in CODESYS.

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You will need to add the CIP objects available in your device to the [Object-Defined] section. To do this, right-click on the [Object-Defined] and then select [New data type..].

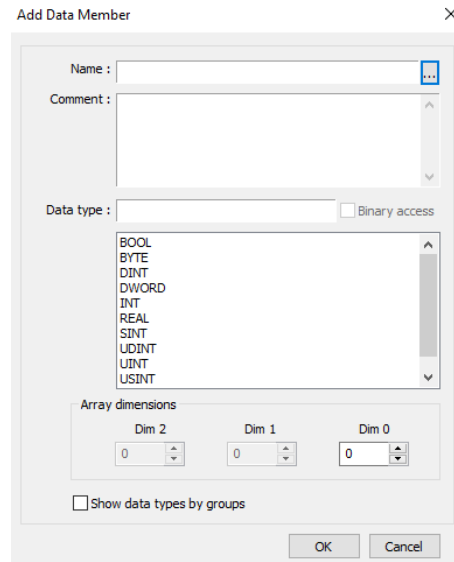


Fill out the [Name] and click the [Add] button to create a new object.

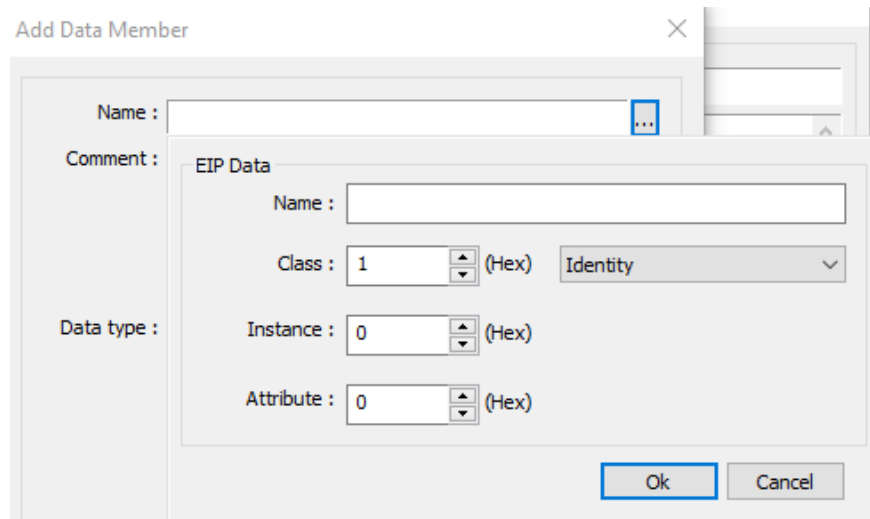


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Click the [...] button.

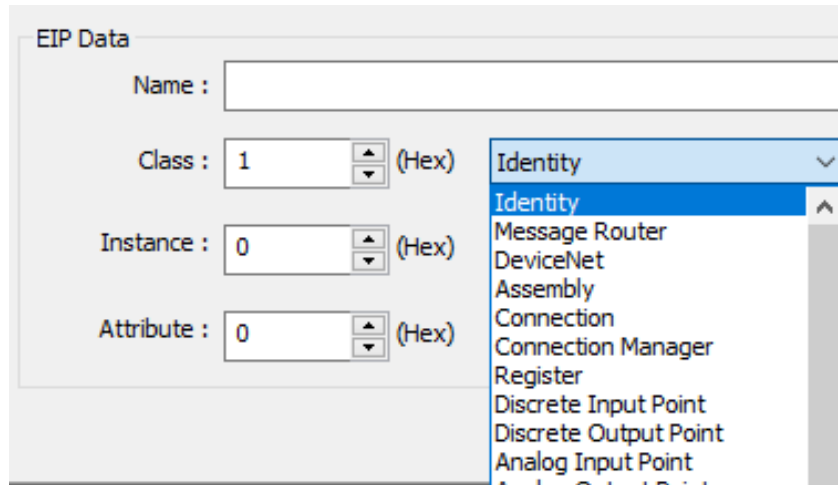


This dialog will prompt you to enter the three IDs of a parameter. Please refer to the user manual of the device to find out the Class ID, Instance ID, and Attribute ID for the parameter.

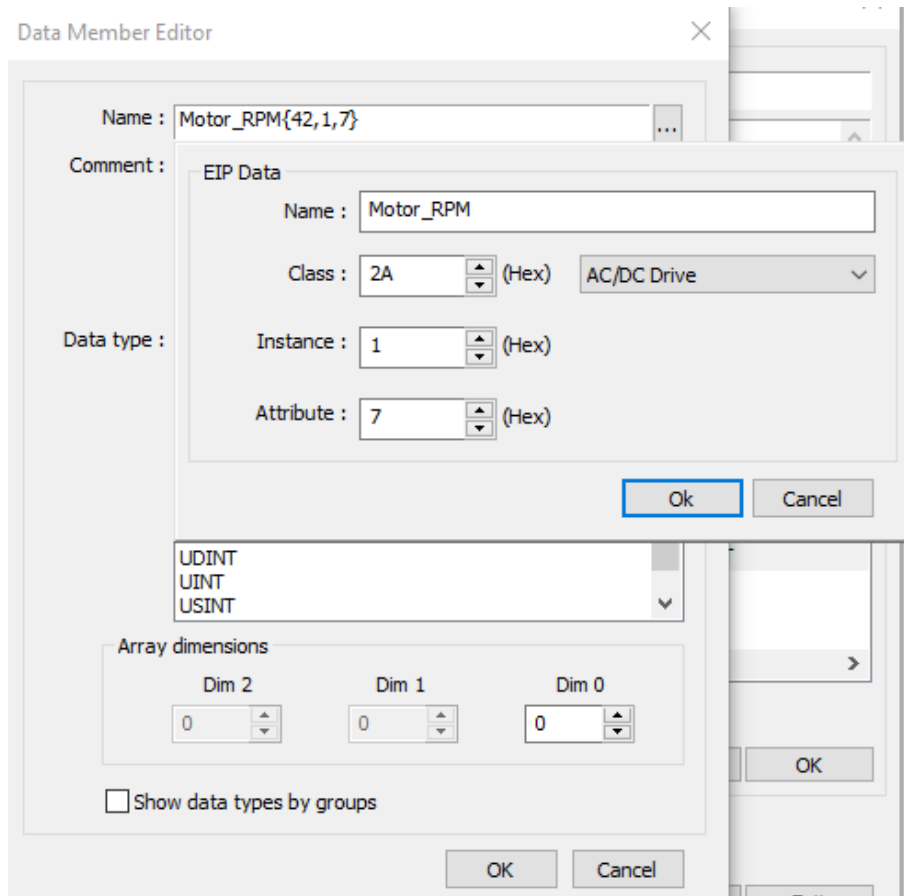


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Via the drop-down list, select a Class ID by the Class name.



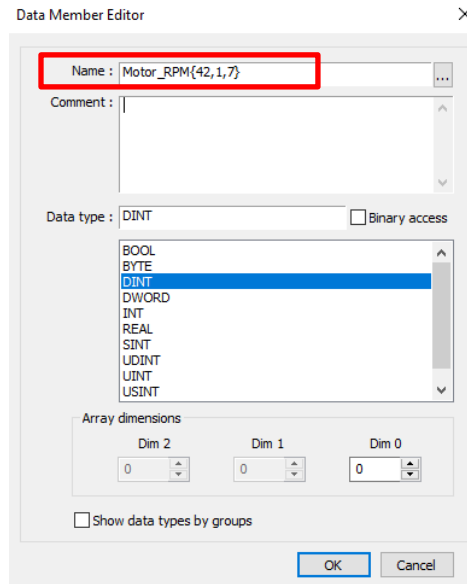
For example, to access a **Motor RPM** parameter, enter the following ID numbers in heximal format to the dialog and enter the name for this object. Click the [Ok] button.



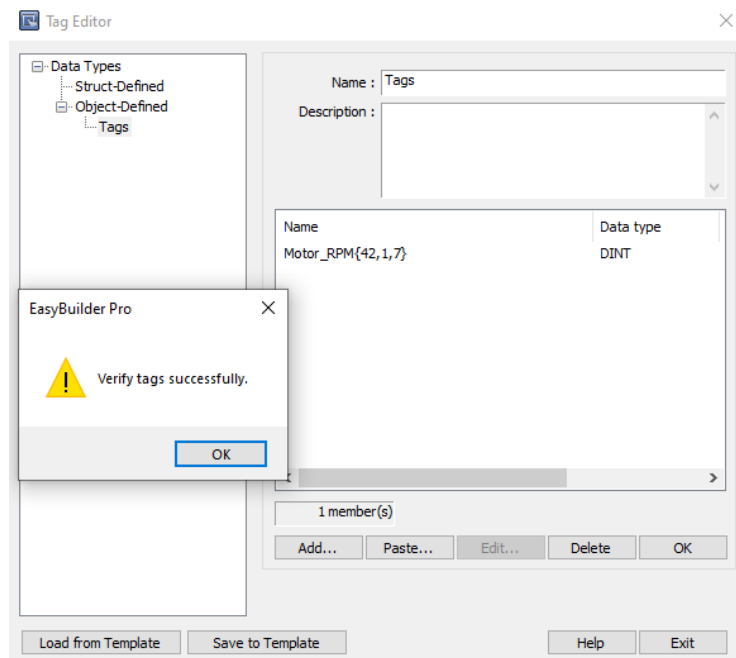
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According to the user manual of the device, the data type of this parameter is 32-bit signed data, so the **DINT** should be selected for this object. Click the [Ok] button. The image below is the finished setting for the Motor RPM parameter.

Note: the {Class ID, Instance ID, Attribute ID} are shown in decimal format.

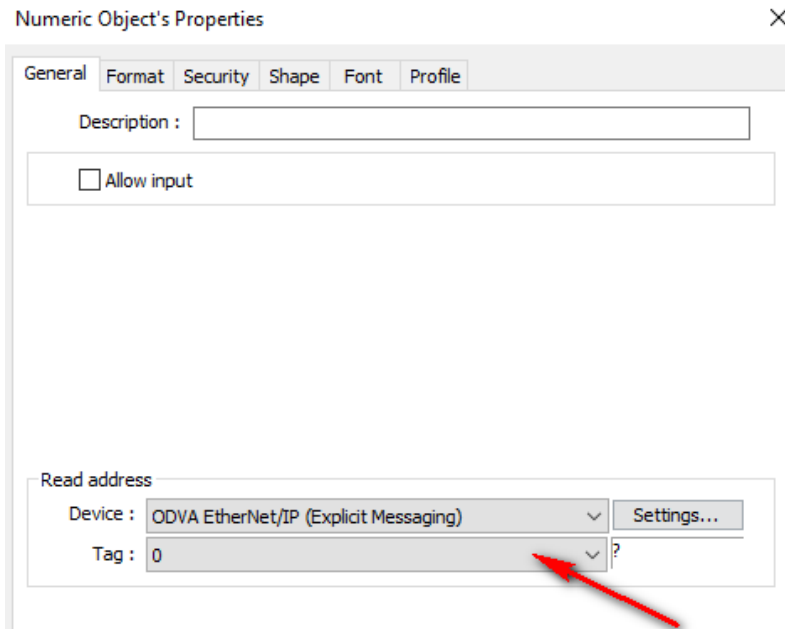


You can create more CIP objects using the [Add] button. Once finished, click on the [OK] button to verify your objects. If you get “Verify tags successfully” message, click the [Exit] button.



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The objects added to the [Object-Defined] section will be available to select in this project. To monitor the Motor RPM, create a Numeric object. Click on the [Tag] box.



Numeric Object's Properties

General Format Security Shape Font Profile

Description :

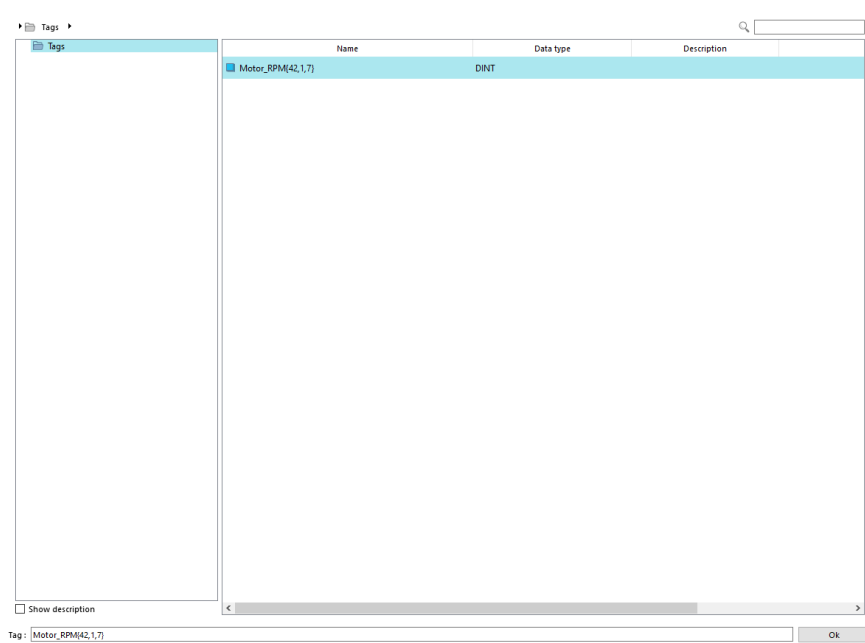
Allow input

Read address

Device : ODVA EtherNet/IP (Explicit Messaging) Settings...

Tag : 0

Select the Motor RPM parameter.



Tags

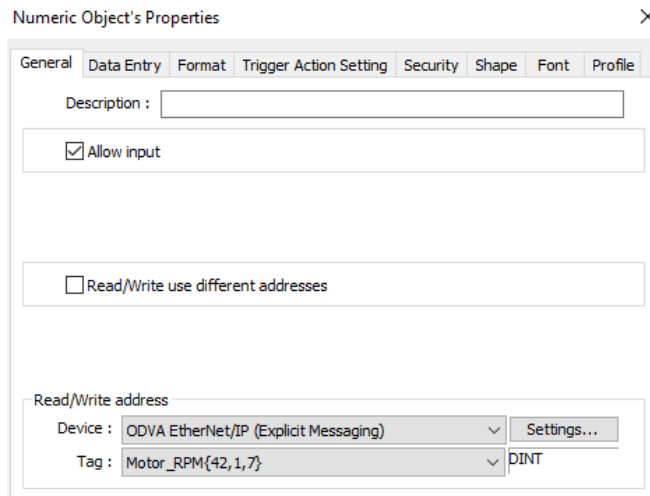
Name	Data type	Description
Motor_RPM(42,1,7)	DINT	

Show description

Tag: Motor_RPM(42,1,7) OK

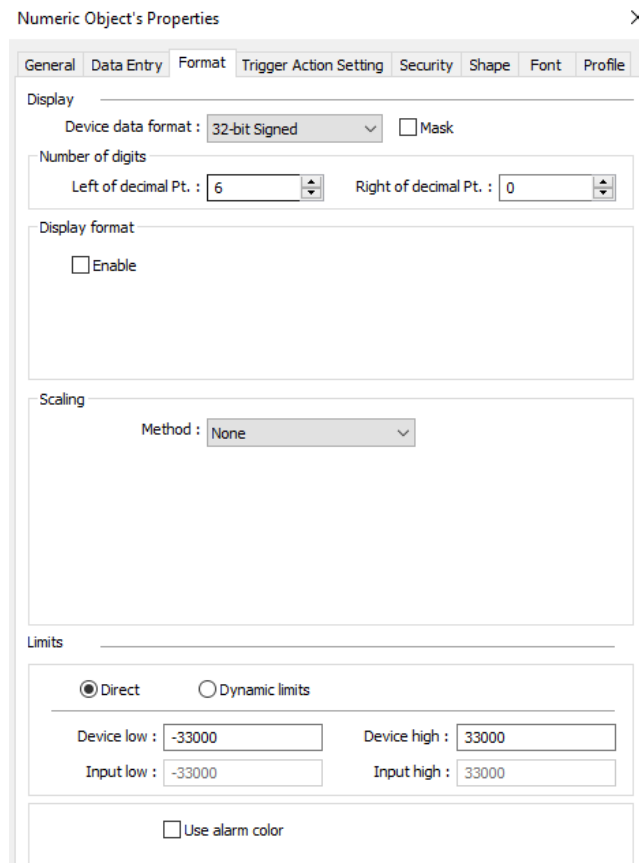
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Once the tag is selected, go to the [Format] tab.



The screenshot shows the 'Numeric Object's Properties' dialog box with the 'General' tab selected. The 'Description' field is empty. The 'Allow input' checkbox is checked. The 'Read/Write use different addresses' checkbox is unchecked. The 'Read/Write address' section shows 'Device' set to 'ODVA EtherNet/IP (Explicit Messaging)' and 'Tag' set to 'Motor_RPM{42,1,7}'. A 'Settings...' button is visible next to the device dropdown.

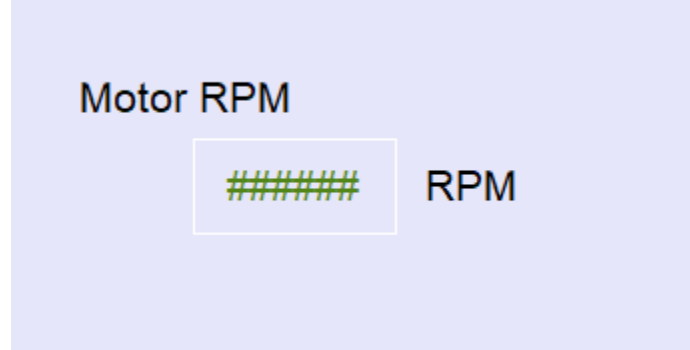
Under the [Format] tab, enter the number of digits used in this parameter as well as the device's low limit and high limit. Click the [OK] button to finish setting up this object.



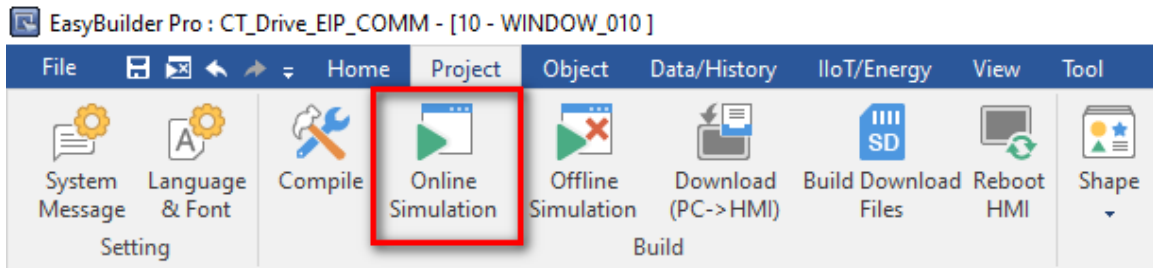
The screenshot shows the 'Numeric Object's Properties' dialog box with the 'Format' tab selected. The 'Display' section has 'Device data format' set to '32-bit Signed' and 'Mask' unchecked. 'Number of digits' is set to 6, with 'Left of decimal Pt.' at 6 and 'Right of decimal Pt.' at 0. The 'Display format' section has 'Enable' unchecked. The 'Scaling' section has 'Method' set to 'None'. The 'Limits' section has 'Direct' selected, with 'Device low' at -33000, 'Device high' at 33000, 'Input low' at -33000, and 'Input high' at 33000. The 'Use alarm color' checkbox is unchecked.

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Place the Numeric object onto the editing area.



You can run [Online Simulation] to use the emulator on the laptop. The emulator will pull out data from the Ethernet/IP server.



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ODVA CIP

https://www.odva.org/Portals/0/Library/Publications_Numbered/PUB00123R1_Common-Industrial_Protocol_and_Family_of_CIP_Networks.pdf



Founded in 1996, WEINTEK LABS is a global-leading HMI manufacturer and is dedicated to the development, design, and manufacturing of practical HMI solutions. WEINTEK LAB's mission is to provide quality, customizable HMI-solutions that meet the needs of all industrial automation requirements while maintaining customer satisfaction by providing "on-demand" customer service. WEINTEK LABS brought their innovative technology to the United States in 2016, WEINTEK USA, INC., to provide quality and expedient solutions to the North American industrial market.

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