

# Operating Instructions of Ethernet/IP Displacement Sensor

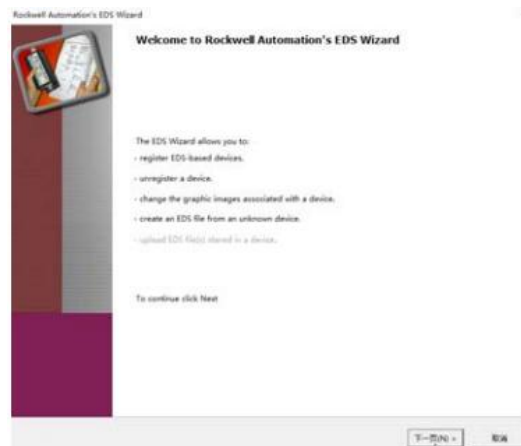
Taking AB Studio 5000 as an example, this instructions introduce the operation of Ethernet/IP displacement sensor.

# 一. Installation and Use of EDS Files

1. Open the Studio 5000 interface.
2. Click the Tools menu and select EDS Hardware Installation Tool.



3. Open the "EDS Wizard" window and click "Next" in "Options".



4. Select "Register an EDS File (s)" in the window and click "Next".



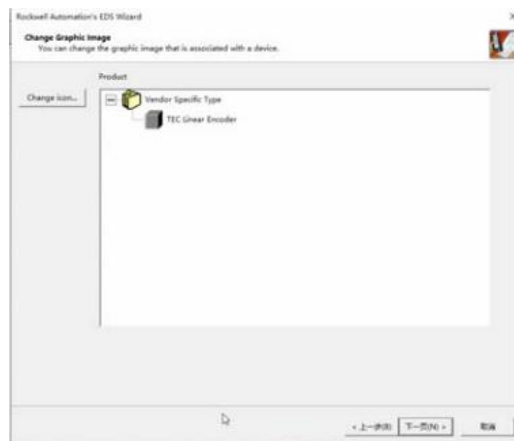
5. Select an EDS file and click "Next".



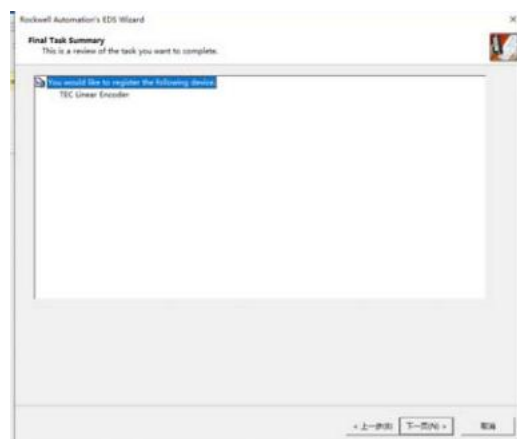
6. If the installation completes successfully, it appears in the 'EDS File installation Test Results' window, and click "Next".



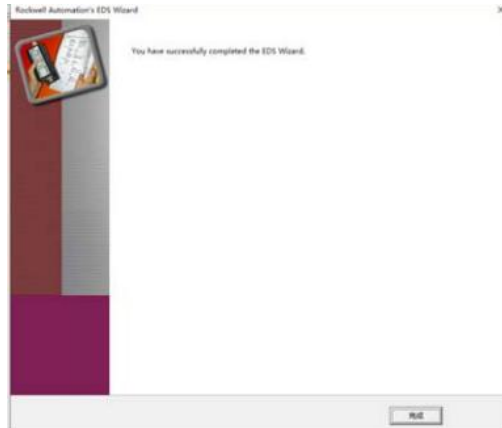
7. In the "Change graphic Image" window, change the icon as needed and leave it as the default. Click "Next".



8. Open the "Final Task Summary" window and click "Next".



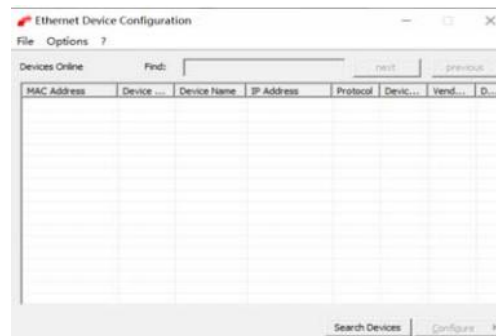
9. Click "Finish" to complete the installation.



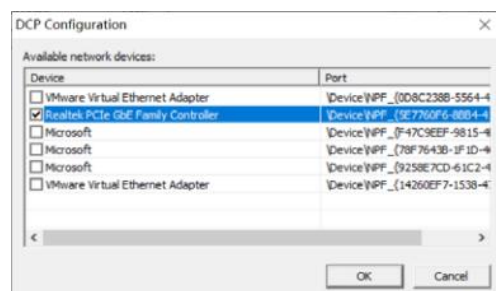
## 二. IP Address Setting:

For the convenience of customers, the sensor uses static IP address by default. If customers need to change to DHCP, they can use the software "BOOTP/DHCP Server" to modify it.

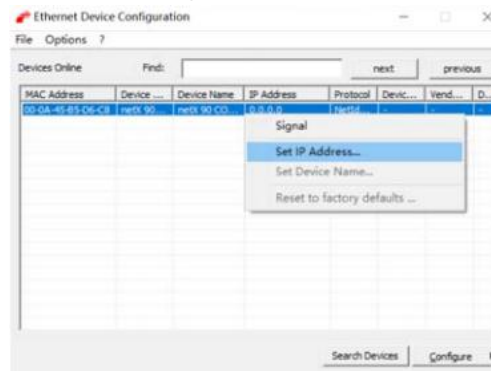
The following describes setting IP addresses using the software "Ethernet Device Configuration". The software interface is as follows:



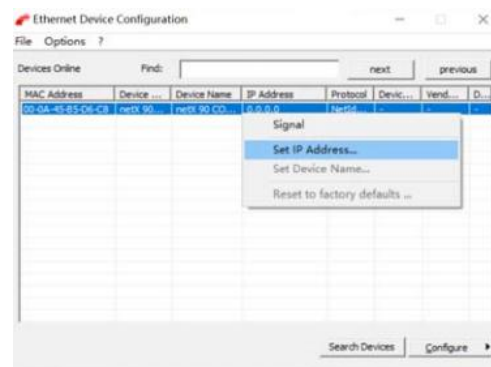
1. Open the menu "Options", select "DCP configuration..", select the network card to which the sensor is connected, and click "OK".



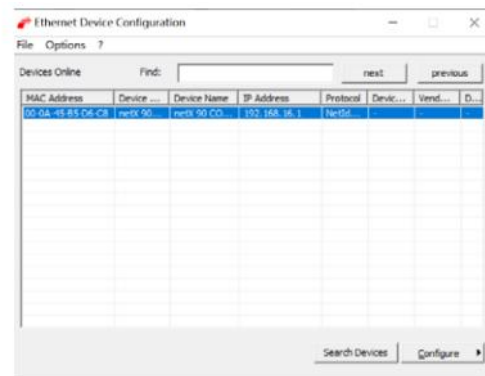
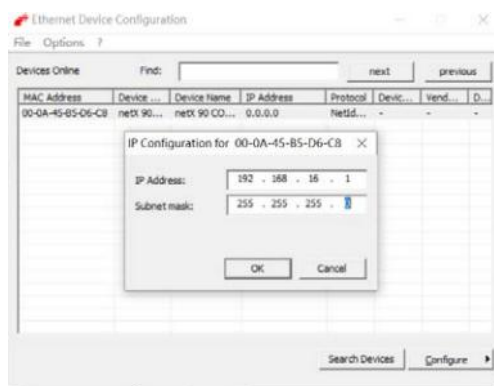
2. Click "Search Devices" to start scanning EtherNet/IP devices, as shown in the figure.



3. Right-click the sensor and select "Set IP Address ...".

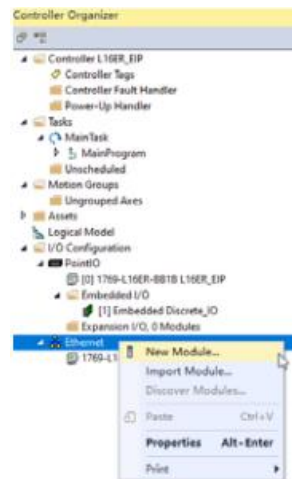


4. Set IP address and subnet mask. Click "OK" and wait for the setup to complete.

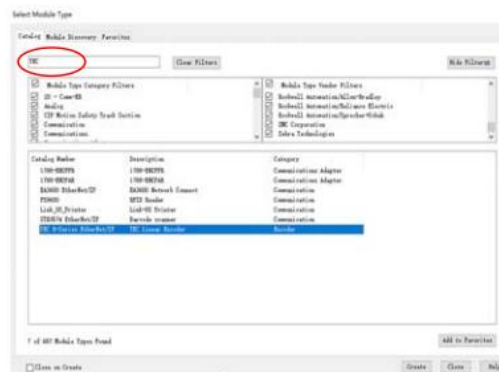


## 三. Add Sensors to the I/O Module

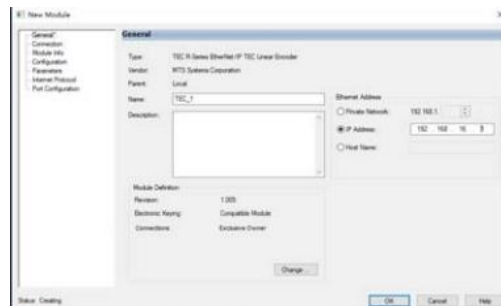
1. After the EDS file is installed, return to the main interface of the software. In the Controller Manager sidebar, expand to open the I/O configuration tree and right-click Network. Select "New Module ...".



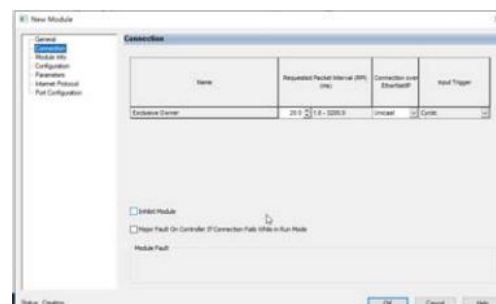
2. In the "Select Module Type" window, enter "TEC" in the selection box, select "TEC R-Series EtherNet/IP", and click "Create"



3. In the "New Double" window, enter a Name in the 'Name' field, select the IP address radio button, and enter the address assigned to the sensor by static IP.



4. In the left tab "Connection", set RPI and other parameters as needed in this interface



5. The left tab "Configuration" allows you to set sensor parameters:



**Data Format:** Set the Data Format and keep the default 3;

**Position Measurement Increment (Resolution):** Position Resolution unit: um, 0-100 can be set, 0 and 1 represent 1um, 100 represents 100um, and it is recommended to set 1um, 2um, 5um, 10um, 20um, 50um and 100um;

**Direction Counting Toggle (Forward or Reverse):** Measuring direction, 0-forward, 1-reverse;

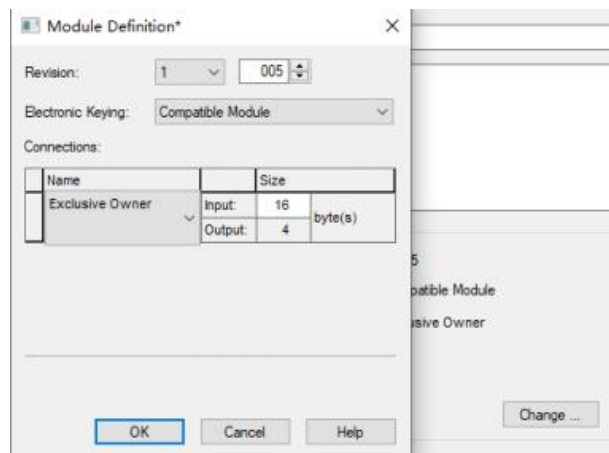
**Number of magnets:** Set the Number of magnets;

**Velocity Filter (vWindow):** Speed window, used to calculate the number of cycles of speed. The more cycles, the more stable the speed, but the slower the response of the sensor to the speed change.

**Number of averages:** The order of filtering. The larger the value, the more stable the output position is, but the slower the sensor responds to speed changes.

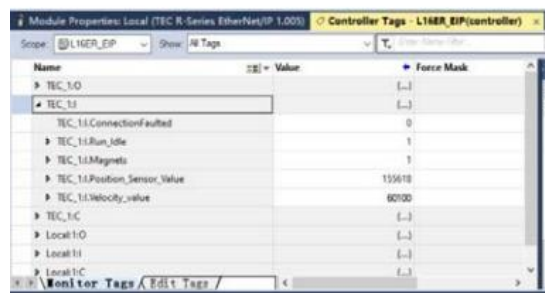
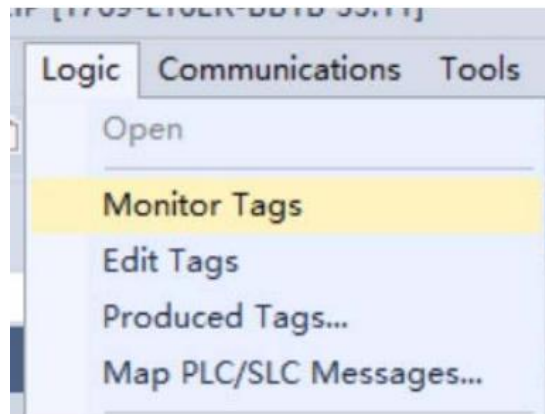
6. Click "Change ..." to set up the module.

For example, Input data can be set according to the number of magnets, and one magnet can be set to 16.



## 四. Sensor Data Viewing

Sensor configuration is completed, downloaded and run. You can view the sensor data. Click on the "Logic" dish and select "Monitor Tags".



**Run\_Idle:** Run Idle ID;

**Magnets:** Number of Magnets;

**Position\_Sensor\_Value:** The magnet position value. In this example, the magnet 1 value is 155618, the resolution is 1um, and the corresponding position is  $155618 \times 1\mu\text{m} = 155618\mu\text{m} = 155.618\text{ mm}$ ;

**Velocity\_value:** The magnet speed value, in this case the speed data for magnet 1 is 60100. The velocity resolution is always 1um. The corresponding speed is  $60100 \times 1\mu\text{m/s} = 60100\mu\text{m} = 60.1\text{mm/s}$ .

ConnectionFaulted can be used to indicate the connection status of the sensor to the controller.