Chen Sen CS-IOM3731-0A Module User Manual

Introduction

CS-IOM3731-0A module is a multiplexer designed to expand the digital input/output capacity of the Johnson Controls FEC/FAC series of DDC controller significantly. This module contains one input and two output conversion units. The input conversion unit can convert one analog input (AI/UI) signal to eight digital input (BI) signals, and either of the two output conversion units can convert one analog output (AO/CO) signal to five digital output (BO) signals. So, this module can only occupy one AI/UI channel and one or two AO/CO channels of a FEC/FAC controller; therefore, CS-IOM3731-0A module can to extend up to eight BI channels and five or ten BO (RO) channels.

The quantitative conversion relation between analog input signal and digital input signal are as follows:

	Analog input	Digital input
Input conversion unit	Analog Input 1	Binary Input 1~8
The first group conversion unit	Analog Output 1	Binary Output 1~5
The second group conversion unit	Analog Output 2	Binary Output 6~10

Chen Sen Controls has written three exclusive macros named CS-IOM-AI1/-AO1/-AO2 for FEC/FAC series controllers, which correspond to the module's three conversion units separately. The macros encapsulate the digital signals extended by CS-IOM into macro's output signals, which can be conveniently called in customer's application program.

Taking the CS-IOM-AO1 macro for example, the following content is to introduce how to add, use and debug macro programs in the FEC/FAC series controller in detail. If your computer has installed CCT software, please follow the steps and try to operate.

Note:

1. In the CCT, CS-IOM-AI1 macro will occupy 5% of program memory.

2. In the CCT, CS-IOM-AO1/-AO2 macro will occupy 3-4% of program memory.

3. Make sure that the CS-IOM-AI module is connected to the Johnson Controls FEC/FAC UI/AO/CO point rather than the IOM or any other extension modules.

Load macro in CCT

1. Prepare one file named CS-IOM-AO1.caf.module file

   (The download address: www.cs-controls.com).

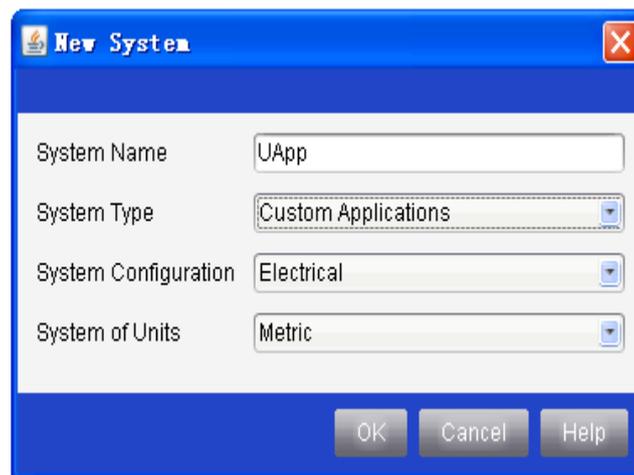2. Please save the CS-IOM-AO1.caf.module file to the following path:

⑴ C:\Users\All Users\Johnson Controls\MetasysIII\CCT\UI\Custom Control Modules
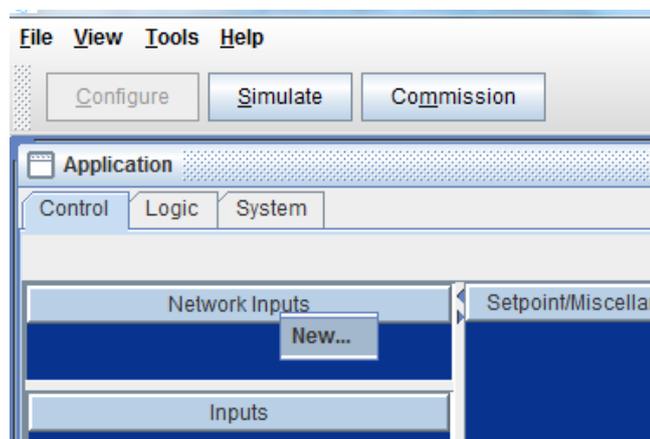
(CCT 5.0 or higher / windows 7)

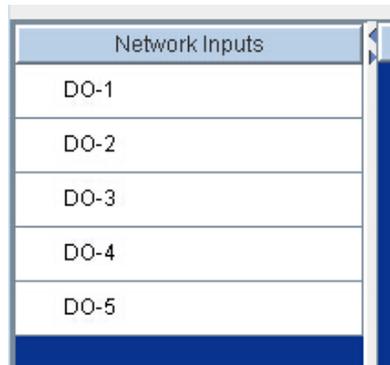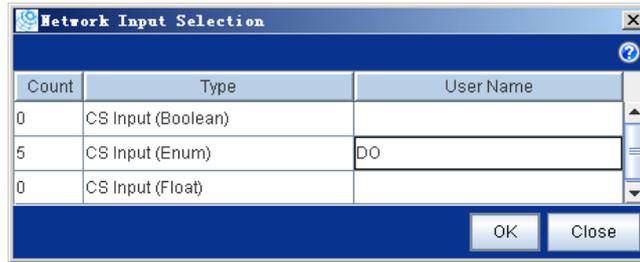⑵ C:\Documents and Settings\All Users\Application Data\Johnson controls\MetasysIII\CCT\UI\Custom Control Modules

(CCT 5.0 or higher / windows XP)

3. Open the CCT software and create a new system as shown in the right:
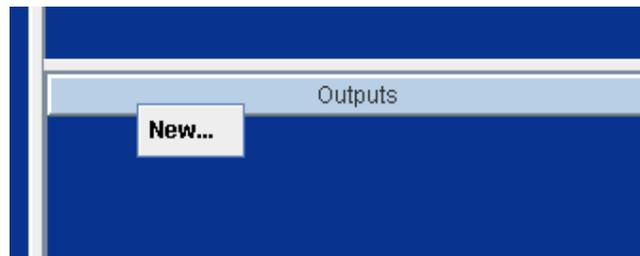

4. Right-click to build five new DO points in Network Inputs column as shown in the pictures. Pay attention to the point type (Enum).
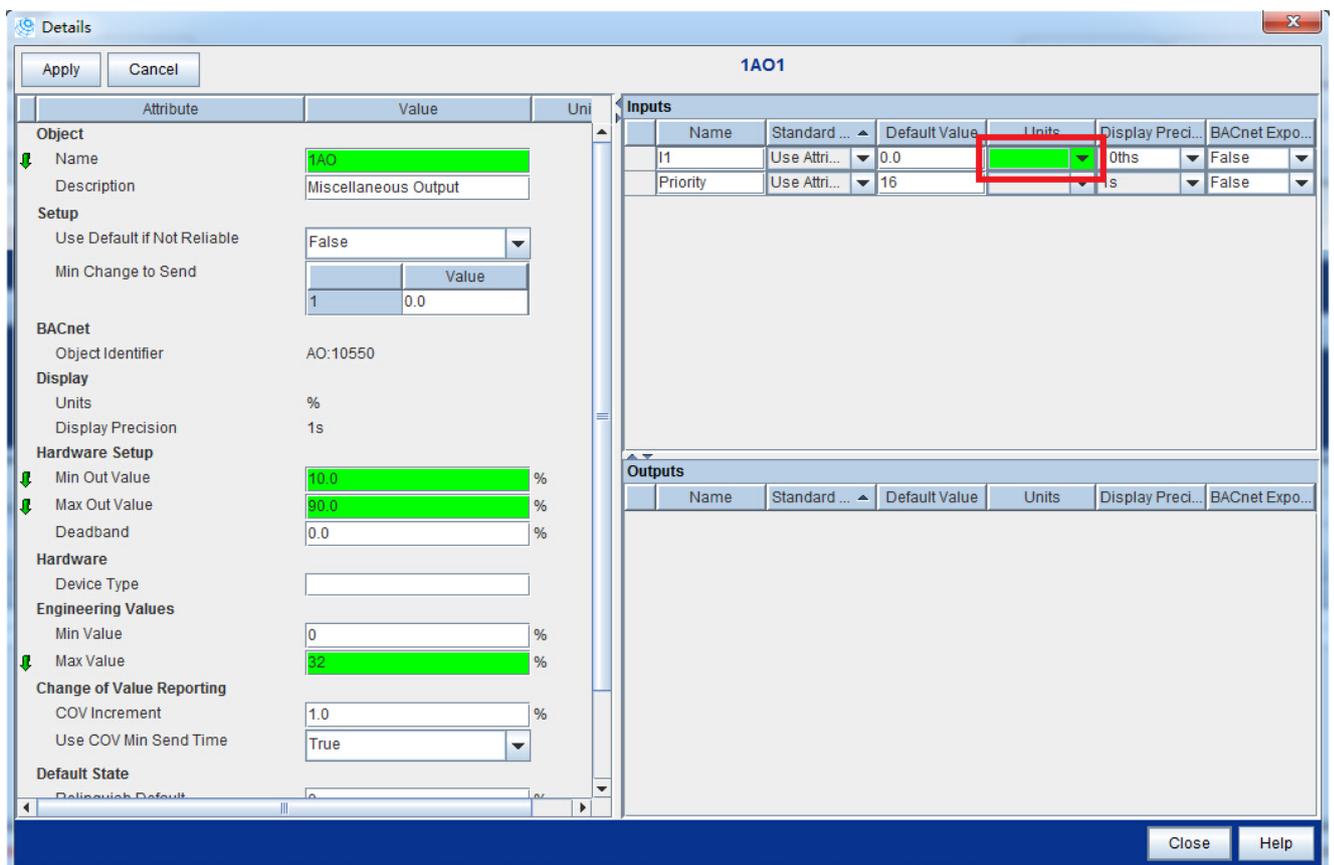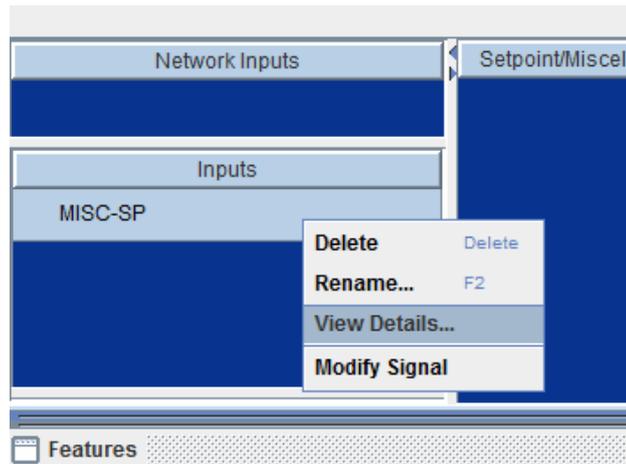
5. Add an AO point in the Outputs column and select the Miscellaneous / Analog / 0-10V DC output types.
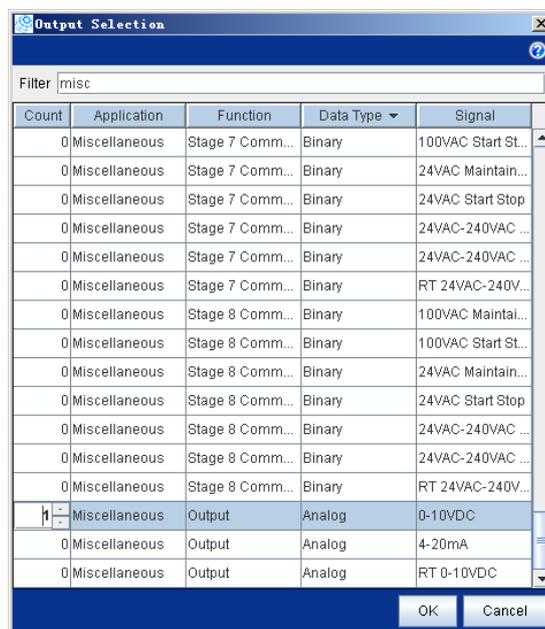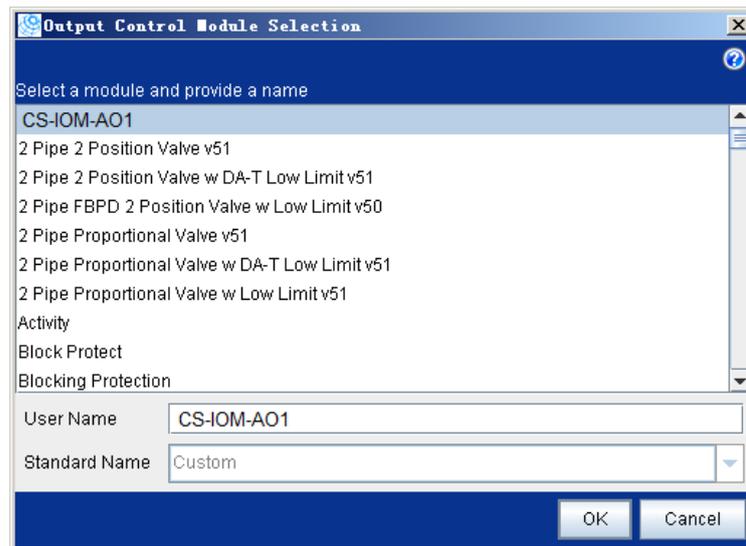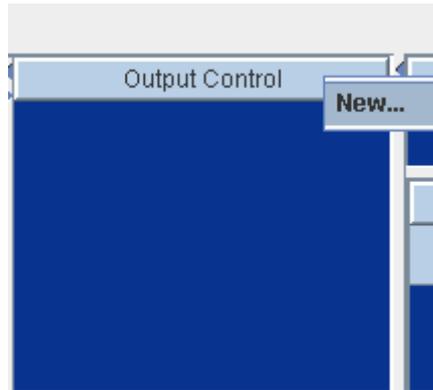
6. Right-click to select View Details to modify the parameters. Please pay attention to values marked as green.

Under the Hardware Setup Min Out Value is under the 10% and Max Out Value is over 90%, Under engineering max values is 32, and units in the red box on the right side "%" to blank

7. Right-click and add Custom Control Module file in the Output Control Module column.

8. Select Connection column and make corresponding connection of DO1~5 one by one.

By following the steps above, the PC monitoring system can remotely monitor and control the digital input channels：DO1~DO5.

For the second set of output module, use the CS-IOM-AO2 macro to correspond port name AO1 into AO2 and DO1~5 into DO6~10.

9. In addition to the remote monitor function, the user need control extended digital output ports in the native (DDC controller), which requires further settings.

Similar applications need a simple wind machine start and stop control logic, as shown below.
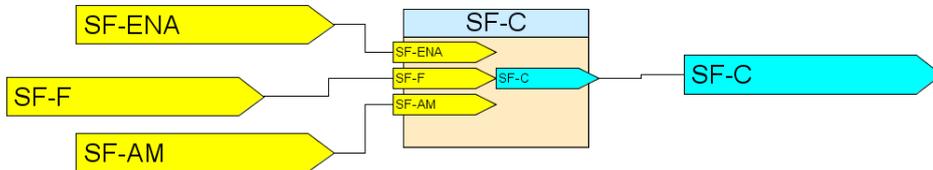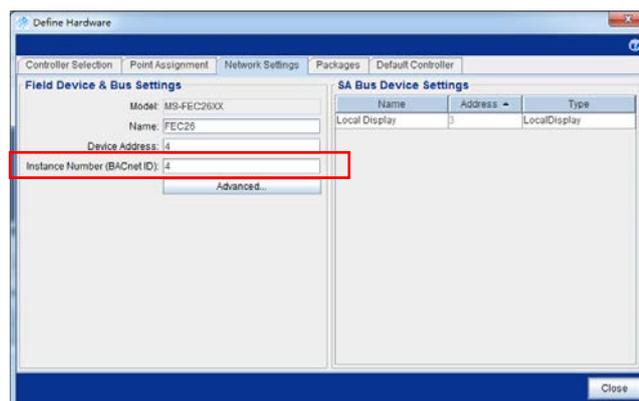

First, establish a digital output of Enum Output type in the Network Outputs, name it SF-C, and bind with the logic of the output. Then, right-click on SF-C and select View Details, open the settings window.
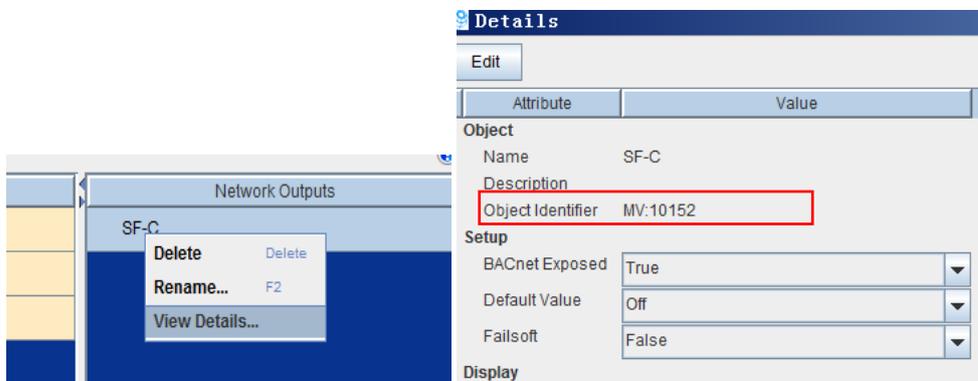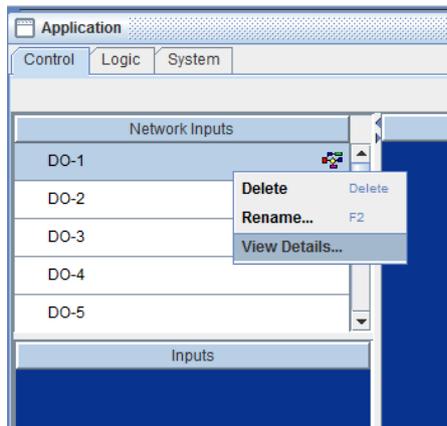

Object Identifier MV: 10152 identifies the object record of SF-C.

10. In the Define Network Settings window, the controller address is found in the Network Settings bar.

11. Bind User logic output SF-C with extended digital outputs DO-1 (arbitrary DO-1~10). Right-click DO-1, select View Details:

Edit peer to peer related settings in the settings window, then modify the MV and device parameters.
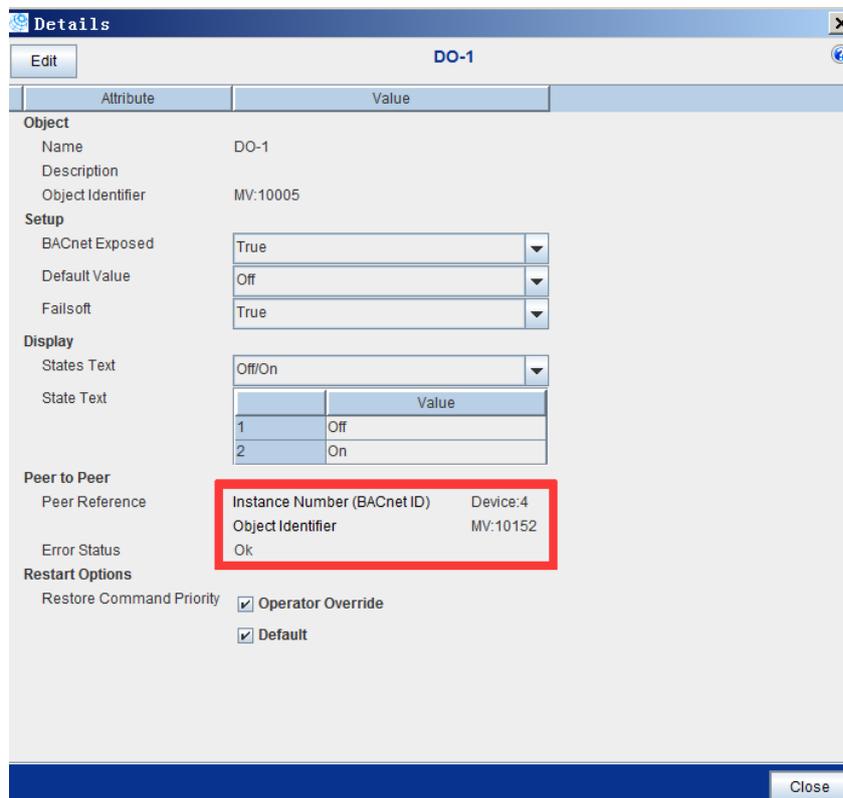

Complete the user logic output SF-C connected with the extended digital DO-1 configuration. Controller logic programs and remote PC system can monitor and control the extended digital output points.

CS CONTROLS

NAE monitors extended digital signal channels

This section describes the NAE system monitoring and forcibly extending digital methods.

1. Take the fan control system ahead as an example; add FEC devices and specific points in NAE system. When you add a point, do not add Network Output SF-C because we monitor the fan status by DO-1 points. The following figure shows.
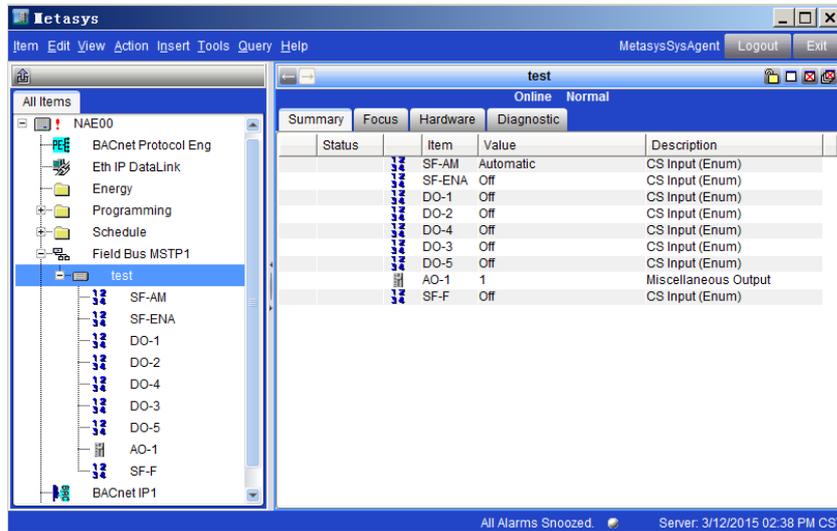
2. When forcing fan status remotely is needed, you can right-click DO-1 on NAE, click Command, order a mandatory Operator Override, and select Value to force the fan status.

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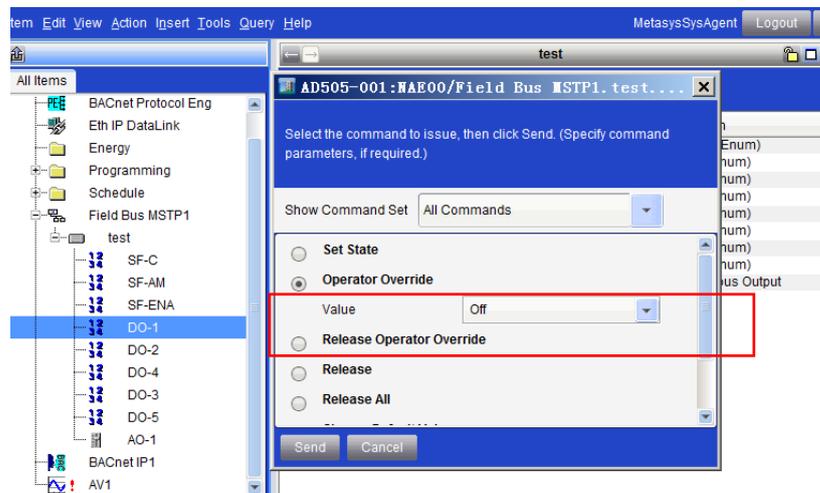
3. After forcing out to release the current mandatory values, use the release forced order Release Operate Override.
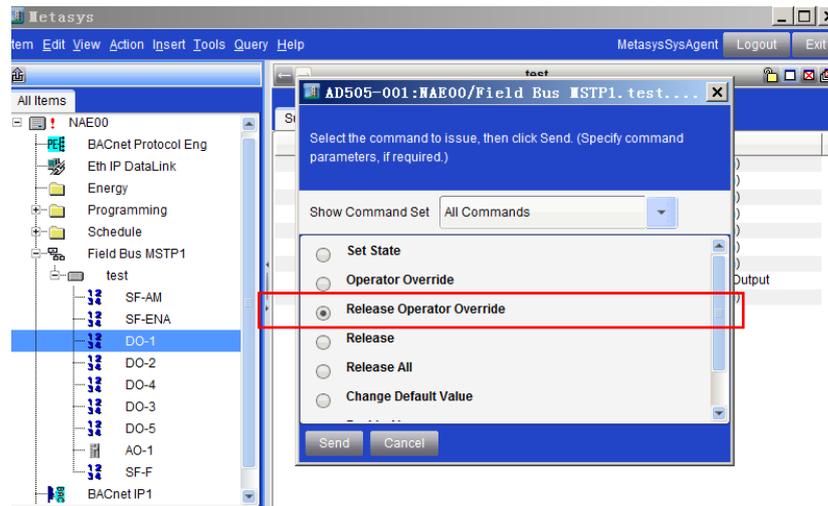
Note: When you release the force, don't choose the command of Release All, it is likely to cause confusion with the semaphore. If you click carelessly and wrongly, you need to find the input of the control logic. In this case, SF-AM or SF-ENA, change it to "Off", then to "On", you can return to normal.