# Chapter 21 Ethernet Communication and Multi-HMI Connection

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There are two ways of Ethernet communication:

1. Use RJ45 straight through cable + hub.

2. Use RJ45 crossover cable and without hub, but this is limited to the condition of point to point connection (HMI to HMI or PC to HMI).

Through Ethernet network, the system provides the following methods for data transmission:

1. HMI to HMI communication.
2. PC to HMI communication.
3. Operating the PLC connected to another HMI.
21.1 HMI to HMI Communication

To exchange data between one HMI and another HMI, add a new remote HMI device in [System Parameter Settings].

Assume there are HMI A and HMI B, and we want to use a Set Bit object on HMI A to control [LB-0] on HMI B:

1. Set the IP address of the two HMIs, i.e.: HMI A: 192.168.1.1, HMI B: 192.168.1.2.

2. In HMI A project:
   [System Parameter Settings]
   » [Device list]
   Add a remote HMI B (IP: 192.168.1.2).

3. In HMI A project:
   Create a Set Bit Object, select “HMI B” in [PLC name] to control the address of the remote HMI.

Note

One HMI can handle requests from a maximum of 64 HMIs simultaneously.
21.2 PC to HMI Communication

With On-line Simulation, PC can collect data from HMI through Ethernet network and save the data files to PC.
To connect PC with two HMIs (HMI A and HMI B), the settings of the project on PC is shown below:

1. Set the IP address of the two HMIs, i.e.: HMI A: 192.168.1.1, HMI B: 192.168.1.2.

2. In PC project:
   [System Parameter Settings] » [Device list].

3. In PC project:
   Create a Set Bit Object,
   select “HMI A” in [PLC name] to control the address of the remote HMI A. Same for the HMI B.

![Image]

Note:
- A PC can control at most 64 HMIs simultaneously.
- As shown above, HMI can also control PC. PC can be seen as another HMI, that is, adding a remote HMI in the project files of HMI A / HMI B, and the IP of the remote HMI is set to the IP of PC.
21.3 Operate the PLC Connected with Other HMI

Through Ethernet network, PC or HMI can operate the PLC that is connected to another HMI; as shown above, a PLC is connected to COM 1 of HMI B. When using PC or HMI A to read PLC data, the settings of PC or HMI A project is shown below:

1. Set the IP address of HMI B, i.e.: 192.168.1.2.

2. In PC or HMI A project: [System Parameter Settings] » [Device list], Add a remote PLC, and set [Name] to “PLC on HMI B”. Set correct parameters. Since this PLC is connected to remote HMI B, set the IP address to HMI B (IP: 192.168.1.2).

3. In PC or HMI A project: Create a Set Bit Object, select “PLC on HMI B” in [PLC name] to control the PLC connected with the remote HMI B.