

8.3 DOWNLOADING

8.3.1 Device Installation and Connection

Installing Devices

First, select appropriate CPU modules and expansion modules according to the actual project. Next, determine the installation mode according to field condition and determine PLC working mode. At last, plan and make a reasonable connection scheme to connect the sensor or actuator to PLC terminal.

Connecting Cables

According to CPU model number and type connect power line, as shown in figure 8-3-1. Don't connect the power supply when the power line is connected. First check whether the cable is connected correctly and then connect the system power supply and ensure that the RUN indicator light on CPU board is on to ensure the PLC can run reliably. Note that when the power line is connected, put on the terminal cover to avoid unnecessary personal injury and device damage.

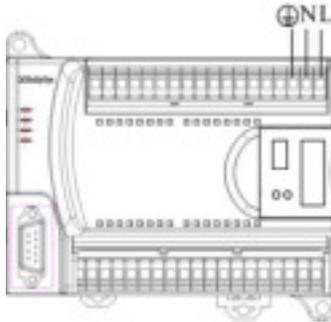


Figure 8-3-1 Connect Power Supply Line

8.3.2 Establishing PC Communication

Establish the communication channel through the programming cable connecting CPU module to RS232 serial port of local PC, as shown in figure 8-3-2. Because the CPU RS232 serial port is not isolated, connect the programming cable before PLC power-on.

Regard that LM3108 CPU module and LM3109 CPU module have 2 serial ports, and download the program to PLC by the left serial port PORT1.

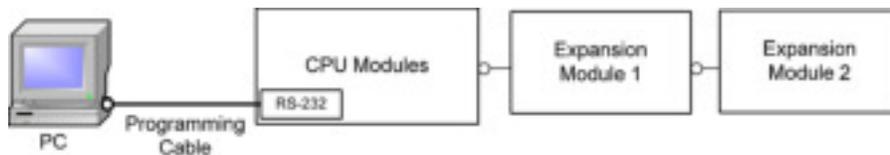


Figure 8-3-2 Connect Programming Cable

8.3.3 Establishing Communication Connection

Download the target file to CPU module, select and configure the channel to establish the communication connection between local PC and target module. The steps are as follows. Click "Online"/"Communication Parameters", and a dialog box of "Communication Parameters" will appear, as shown in figure 8-3-3.

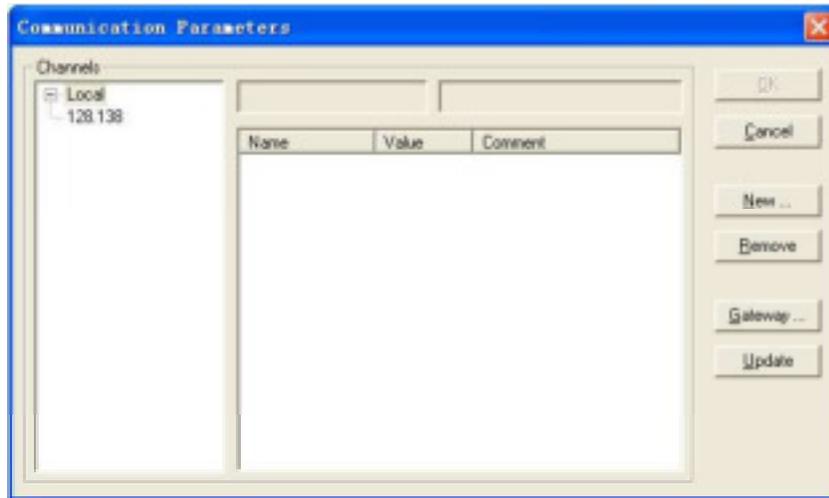


Figure 8-3-3 Dialog Box of Communication Parameters

Click “Gateway” to select “Local” in the field “Connection”, and click “OK”, as shown in figure 8-3-4.

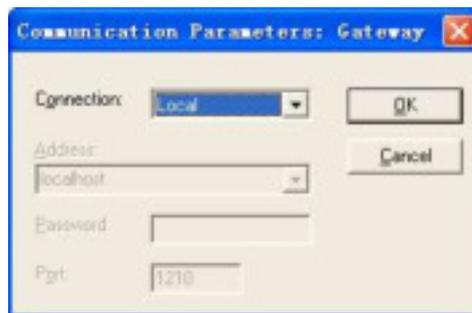


Figure 8-3-4 Communication Parameters: Gateway

Return to “Communication Parameters” dialog by clicking “OK”. Press the New button in the “Communication Parameters” dialog. The dialog Communication Parameters: New Channel comes up, as shown in figure 8-3-5. The default name is “Local_”, and the default communication protocol is RS232 and return to “Communication Parameters” dialog by clicking “OK”.

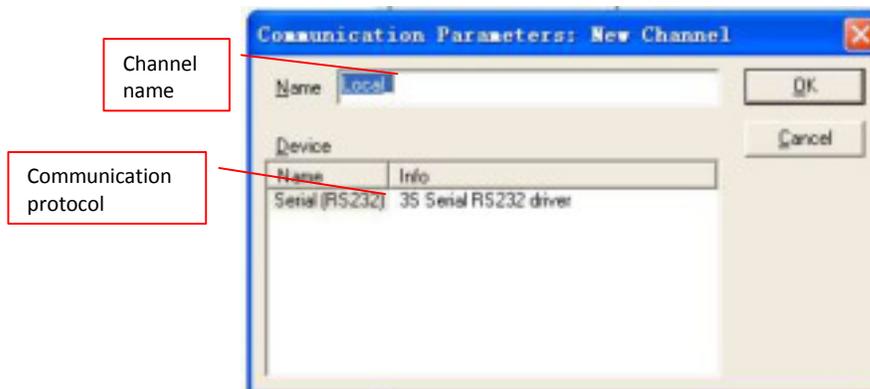


Figure 8-3-5 New Channel

Double click the “Value” in “Baudrate” to change the communication rate to “38400” and click “OK”, as shown in figure 8-3-6. Then the communication connection is set up between the local PC and CPU modules.

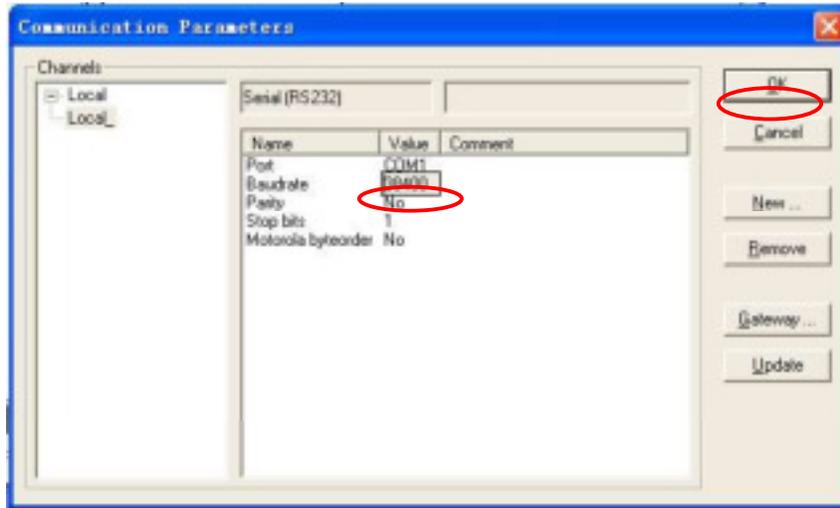


Figure 8-3-6 Setting of Baudrate

8.3.4 Program Downloading

Program Downloading

Use the command “Online”/ “Login” to download programs to PLC. All the target files are downloaded to the module when downloading the target file generated after compilation. At the same time the module is reset and all variables are returned to initial status. With the command “Online”/ “Login” the connection can be established between local PC and CPU module and a message will appear, as shown in figure 8-3-7.

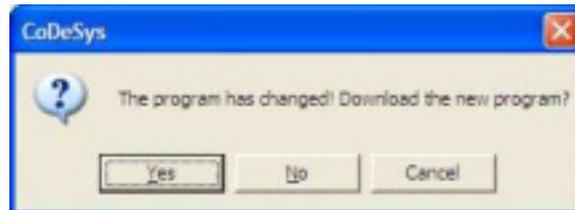


Figure 8-3-7 Download Information

When the downloaded PLC program is not the same as the PLC internal program, the dialog above will appear.

Click the “Yes” button to change the program and download the new program to CPU module and click “No” button to enter the original program and a connection is established only.

Click the “Yes” button to download the new program to CPU module then a dialog box of creating a boot project appears, as shown in figure 8-3-8. A boot project is a program downloaded to Flash. A boot project will be created in FLASH in order to protect the program from being lost during power cycles.

Click the “Yes” button in figure 8-3-8 to run the downloaded program when rebooting. Now the download is finished.

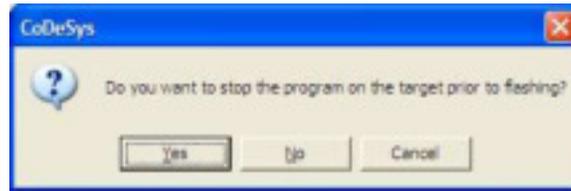


Figure 8-3-8 Create Boot Project Message

Entering monitoring status but do not download the program

If you do not want to download the program and want to enter the monitoring status only, click the “No” button in figure 8-3-7. And then the changed project will not be downloaded to CPU module and you can monitor the original program. Regard to that if you want to download the program when in monitoring status, download it with the command “Online”/ “Download”.

The Difference between Login, Download, Create boot project

To know the terms better you need to know how the program is loaded onto the controller. Before the compiled project in PowerPro is loaded onto the controller, first establish a connection between PowerPro and PLC. The “Login” command combines the programming system PowerPro with the PLC. After the connection is set up PowerPro will judge whether the program has been changed automatically. Change into the online mode if the program is not changed. If the program has been changed a dialog opens with the question “The program has been changed. Load changes?”, No results in a log-in without the changes made since the last download being loaded onto the controller and change into online mode; Then if you want to download the program use the command “Download” to do so. That is to say, the command “Download” is available after log-in. By answering “Yes” you confirm that, on log-in, the modified portions of the project are to be loaded onto the CPU. All the data will be cleared when CPU power-off, so save the program to FLASH after it has been downloaded to CPU to ensure the program still exists after PLC power-on again, the process is called “create a boot project”. When the download to CPU is finished, a dialog box of “Stop target program before creating a boot project” will appear, click “Yes” or “No” to create a boot project. Click “Cancel” button not to create a boot project and in this situation the new program will be not be saved and the original program is saved after power-off and power-on again. Now with the command “Online”/ “Create boot project” you can save the new program in FLASH.

8.4 DEBUGGING

All the debugging commands provided by system are under the “Online” menu and are available in debugging mode, as shown in figure 8-4-1. In debugging mode the different default colors stand for different status and operations, such as TRUE (blue) , FALSE (black), breakpoint (light blue) , flow control (green) and the colors can be set in “Project”/“Options”/“Color”. It’s useful to know the meanings of the colors for debugging and monitoring programs.