PRELUDE

Install & Communicate with XG5000 PLC: Guide for Beginners

The three videos below can be used as guides.

Install & Com w/ XG5000 PLC: Guide for Beginners

LSIS XGB PLC - Build a Ladder Logic Program

Download & Test XGB PLC Program

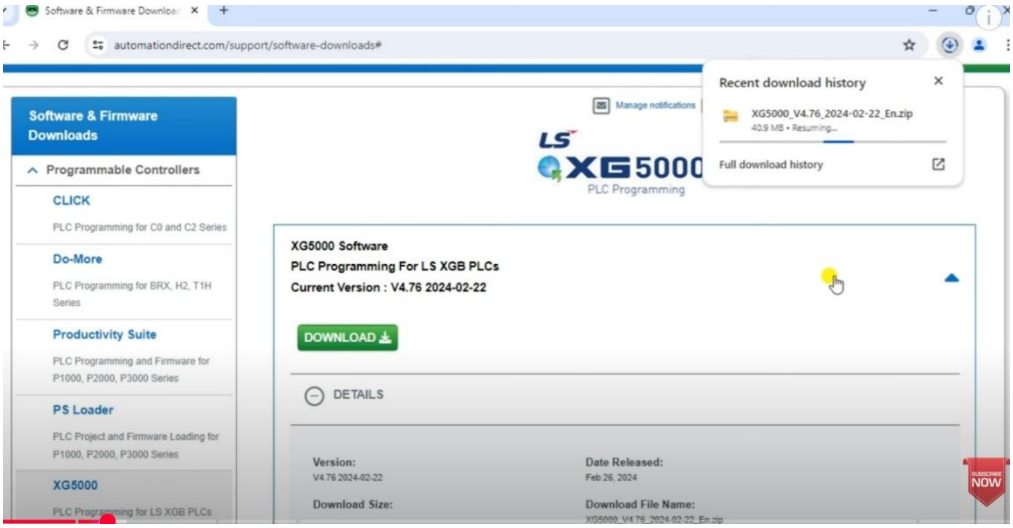
A **Programmable Logic Controller (PLC)** is a digital computer used for automating electromechanical processes. The **LS Electric XGB series** PLC is rugged and flexible, ideal for many industrial applications. This guide shows you how to install and launch **XG5000** programming software, connect via **USB and Ethernet**, and begin writing your first ladder logic program.

Step 1: Check System Requirements

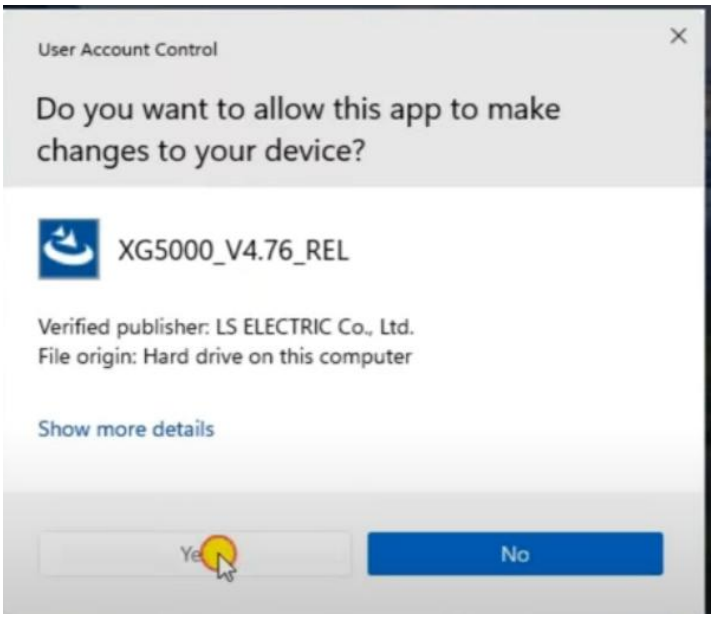
1. **OS Compatibility**
    - Ensure your Windows OS matches XG5000's supported versions (e.g., Windows 7, 8, 10, etc.).
2. **Hardware Resources**
    - Verify you have enough RAM, disk space, and administrative privileges.

Step 2: Download the XG5000 Software

1. **Locate the Software**
    - Download **XG5000 v4.76** (or latest) from LS Electric's official site or a trusted distributor (e.g., Automation Direct).
2. **Extract Files**
    - The file (~447 MB) is provided as a ZIP. **Right-click → "Extract…"** to unzip.

- 

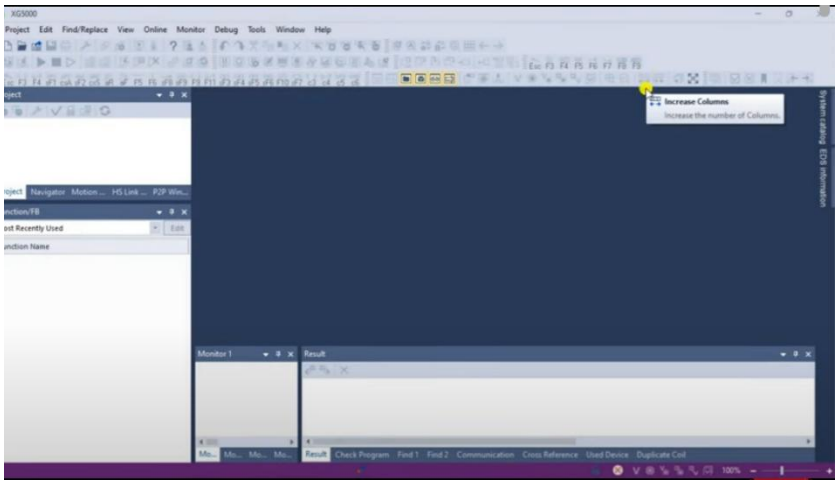
Step 3: Install XG5000



1. **Run as Administrator**
    - Right-click the setup file and select **"Run as administrator."**
2. **Follow Prompts**
    - Allow changes to your PC.
    - Choose the **installation directory** and confirm optional components (like drivers).
3. **Finish & Confirm**
    - After installation, an XG5000 shortcut appears on your Desktop.

Step 4: Launch the Programming Software

1. **Open XG5000**
    - Double-click the Desktop shortcut or locate **XG5000** in the Start menu.
    - **This is how it should look.**



Step 5: Connect Your PLC to Your Computer (Establish Communication)

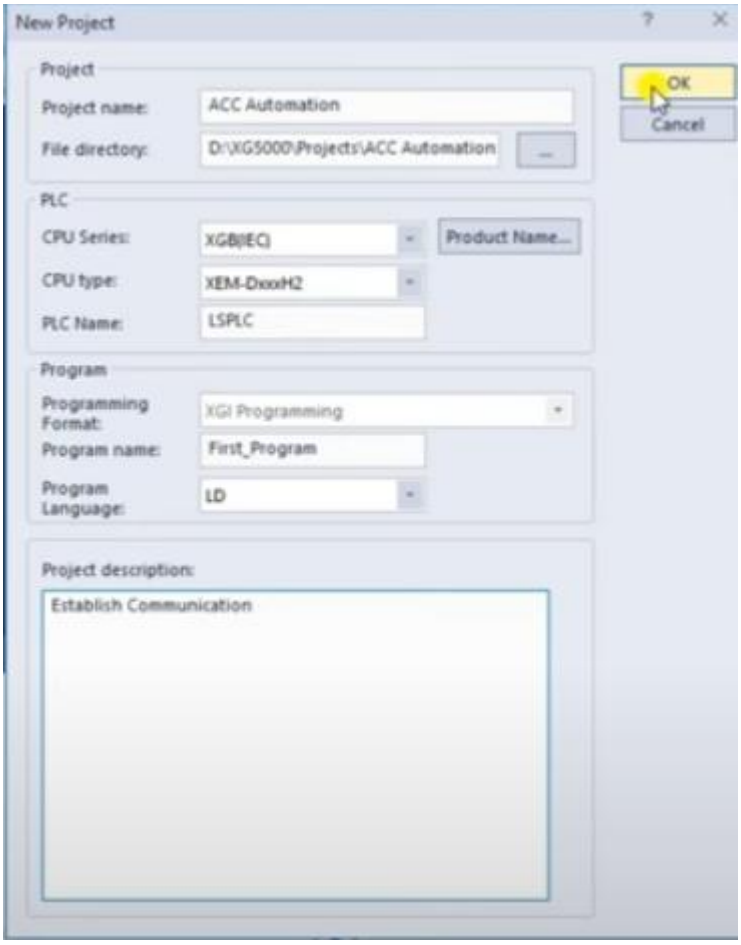
5A: USB Connection

1. **Mini USB Cable**
    - Use a mini USB-to-USB cable (purchased separately).
2. **Device Manager**
    - Press **Win + X** → **Device Manager**.
    - Confirm **LSIS XG Series driver** appears under **USB Controllers**.

5B: Create a New Project

1. **“New Project”**
    - Click **File → New Project** or the **New Project** icon.
    - Name it (e.g., “ACC_Automation”), select **XGB I** for CPU series (e.g., **XBM-Dxxx**), and keep **LD (Ladder)** as the default language.
2. **Program Name**

- Avoid spaces/special characters.



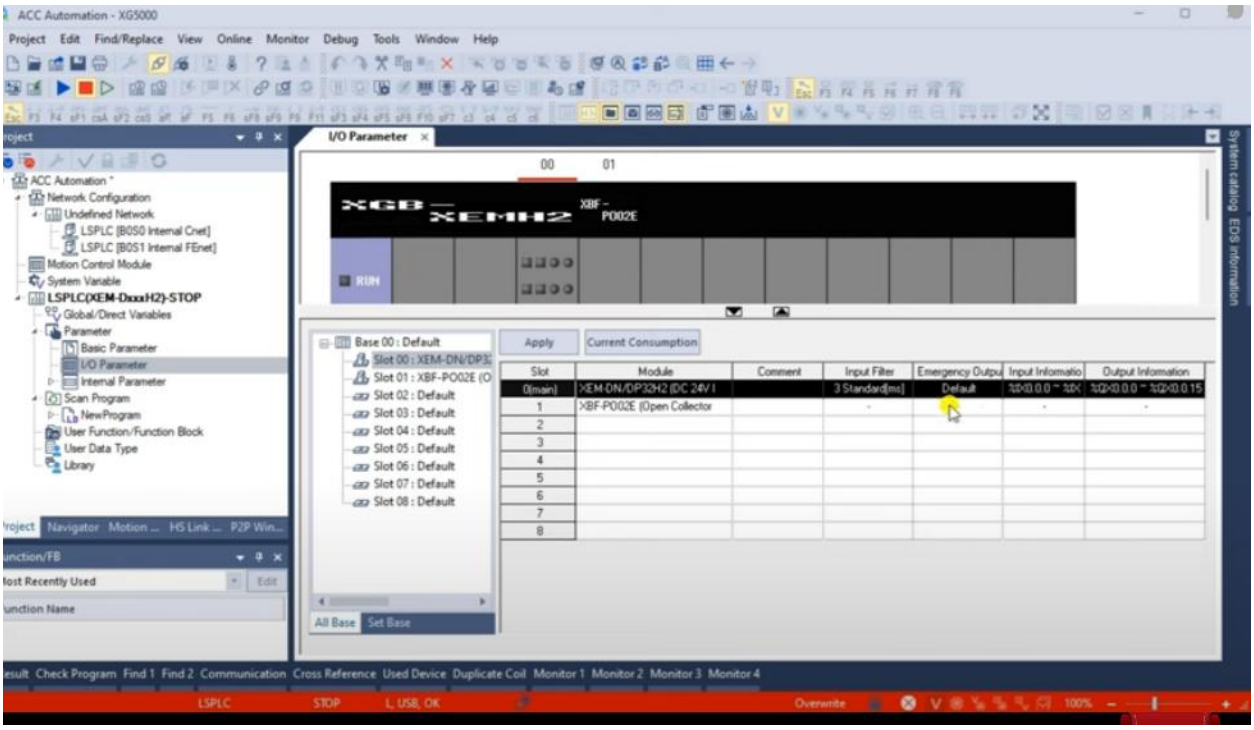
5C: Configure USB Communication

1. **Online → Connection Settings**
    - Choose **USB** as **Connection Type**.

2. **Connect**
    - If successful, the bottom status bar in XG5000 turns **red** (PLC Stop mode) or **green** (Run mode) to indicate status.
3. **Online Read / I/O Sync**
    - Perform an **Online → Read** to synchronize I/O parameters.

5D: Check I/O Parameters

- Review inputs in the **I/O Parameter** window.



5E: Switch PLC to Run/Stop

- Using the PLC's physical switch or software command, you can switch between **Run** (green status) or **Stop** (red status).

Build a Project with XGB E-Type PLC + XG5000 Programming Software

Introduction

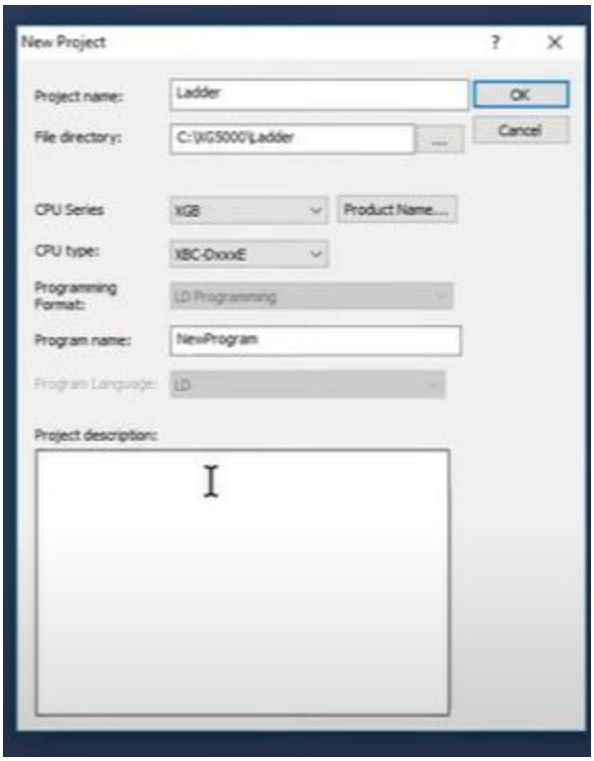
This guide demonstrates how to build a project in XG5000 for an **XGB E-Type PLC**. We'll create a new project, configure the CPU model, and write a simple ladder logic program with an internal bit (M0.0) driving an output coil (P4.0).

Step 1: Launch XG5000

1. **Open XG5000**
    - From your Windows Start menu, locate **"XG5000 Program Group"** and click **"XG5000."**
2. **Familiarize Yourself**
    - Check the main menu at the top and the **Project Tree** on the left (once a project is open).

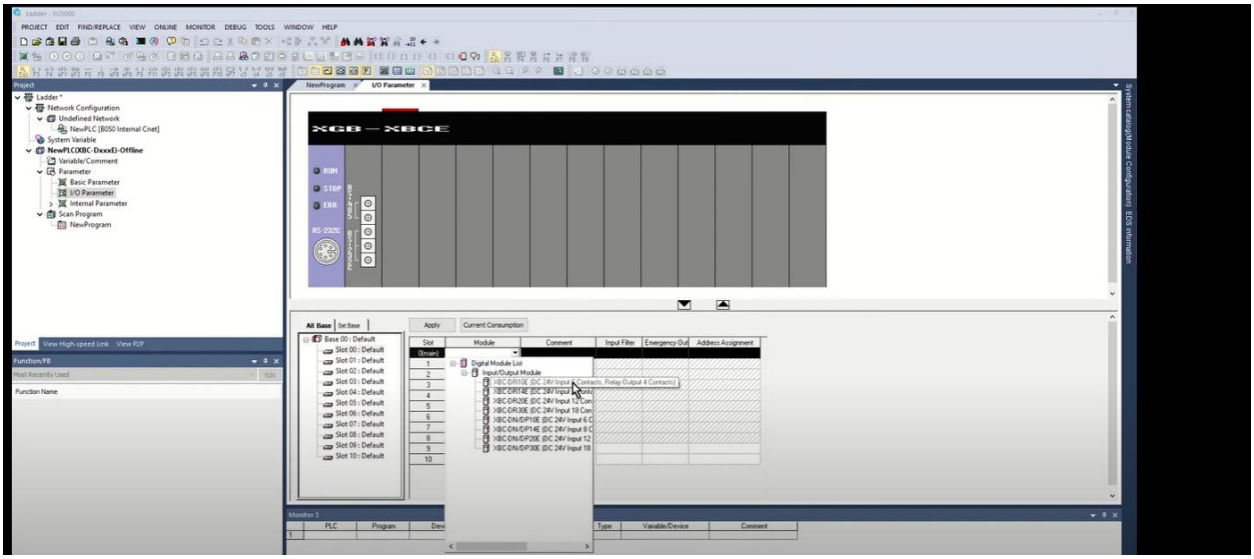
Step 2: Create a New Project

1. **Select "New Project"**
    - On the main menu, go **File → New Project**, or use the **New Project** icon.
2. **Project Details**
    - **Project Name**: e.g., ladder.
    - **Project Directory**: By default, it's inside the XG5000 directory.
    - **CPU Series**: Choose **XGB**.
    - **CPU Type**: Select the **E-Type** CPU (e.g., XBE-...).
    - **Programming Format**: **Ladder (LD)** (pre-selected).
    - **Program Name**: Use the default **"New Program"** or rename as desired.
    - Optional: Add a **Project Description** for reference.
3. **Click "OK"**
    - The **Project Tree** populates on the left, indicating a successful project creation.



Step 3: Configure the PLC Model

1. **Double-click "IO Parameter"**
    - Located in the **Project Tree**.
    - A **graphical depiction** of the PLC system appears.
2. **Slot 0 → Module Column**
    - Click the dropdown to reveal **Digital Module → Input/Output Module**.
    - Select the **specific E-Type CPU model** that matches your hardware.
3. **Click "Apply"**
    - The CPU model is added to your project.

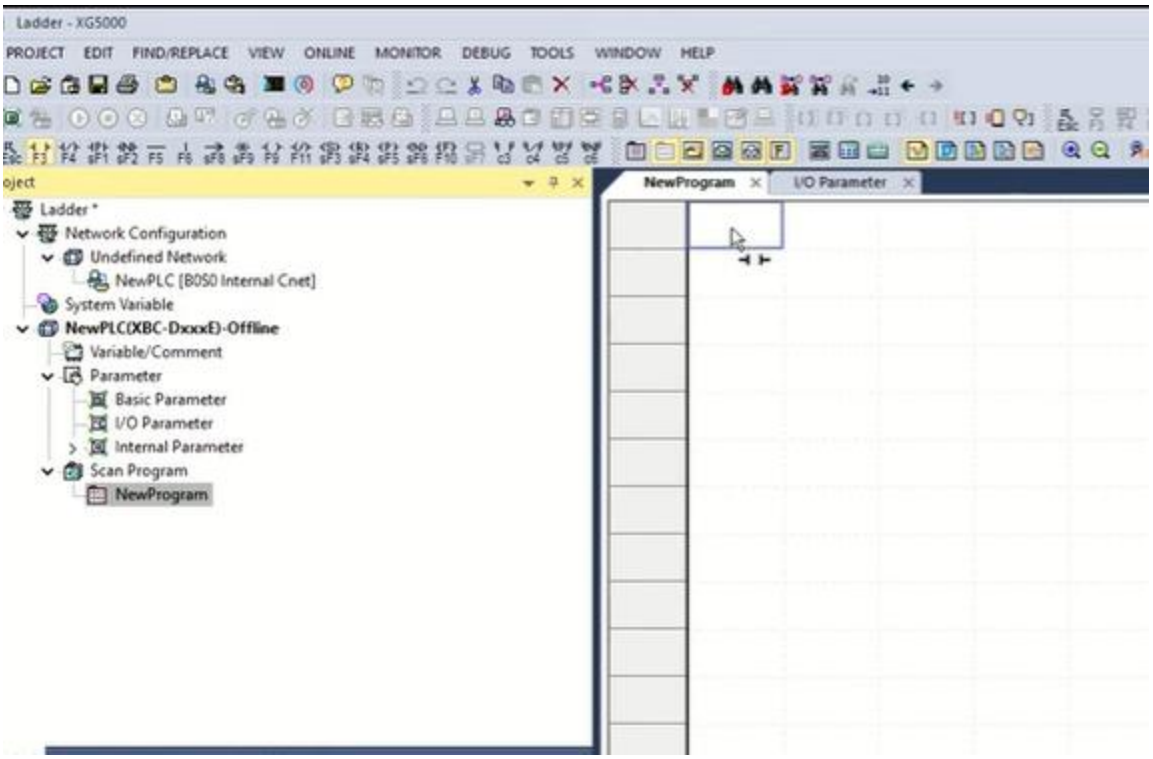


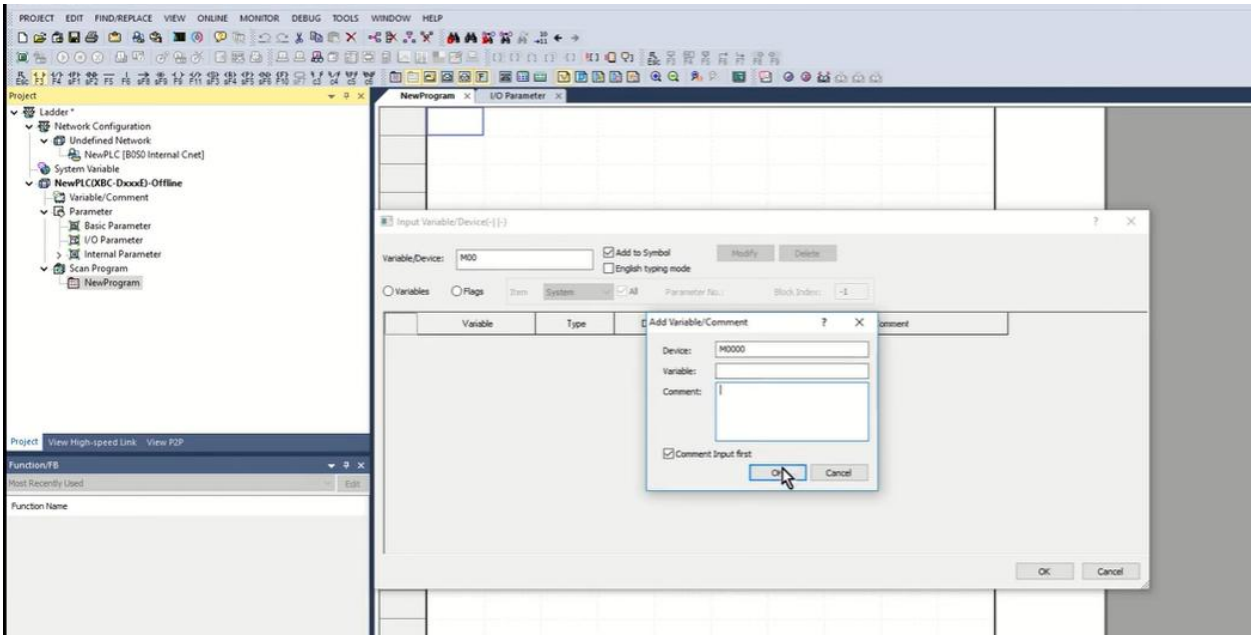
Step 4: Open the Ladder Program

1. **Under “Scan Program,” Double-click “New Program”**
    - The Ladder Editor window opens.
2. **Toolbars & Editor**
    - Familiarize yourself with the toolbar icons (contacts, coils, functions, etc.).

Step 5: Insert Ladder Elements

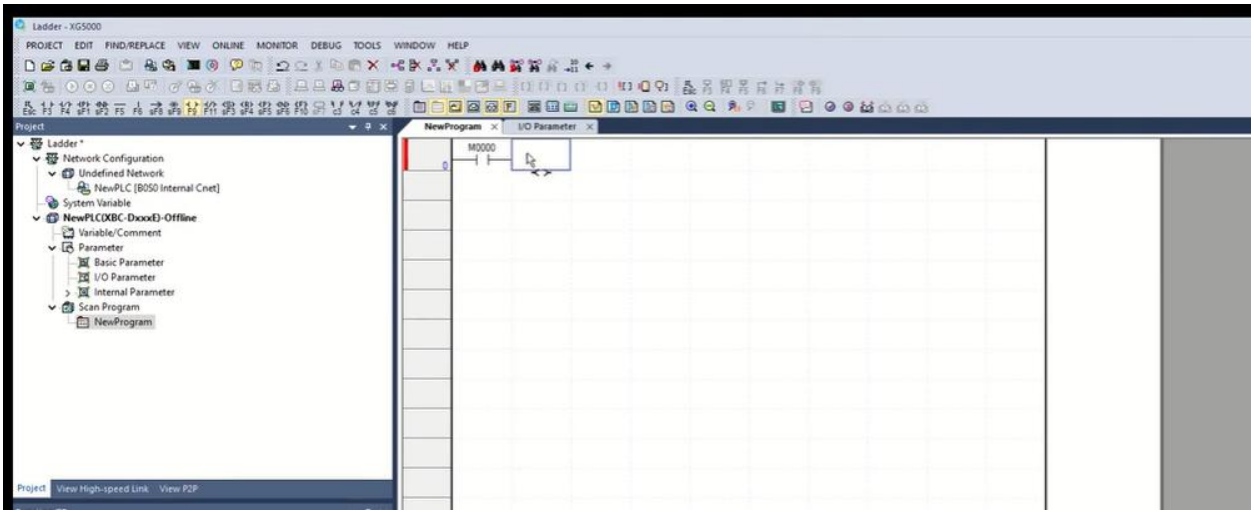
1. **Normally Open Contact (M0.0)**
    - Select the **Normally Open** icon from the toolbar.
    - Click on the left side of the first rung in the ladder editor.
    - The “Input Variable/Device” window appears; assign **M0.0** (internal bit).
    - Click **OK** to confirm.

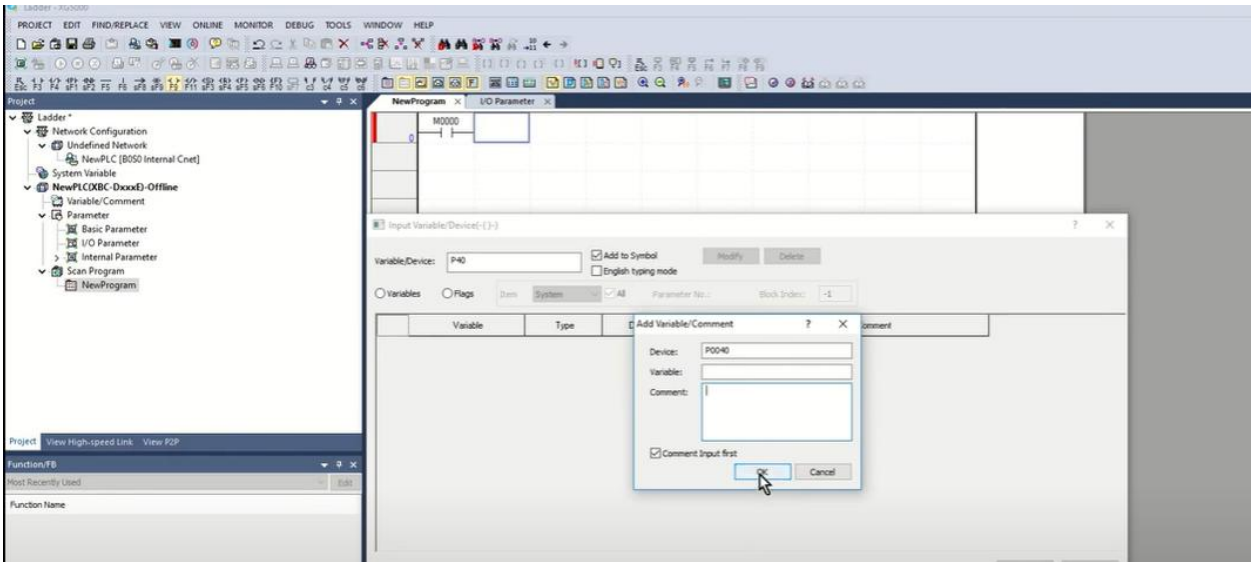




2. **Output Coil (P4.0)**
    - Select the **Output Coil** icon from the toolbar.
    - Place it to the right of M0.0 on the rung.
    - Assign **P4.0** (the first discrete output on this PLC).

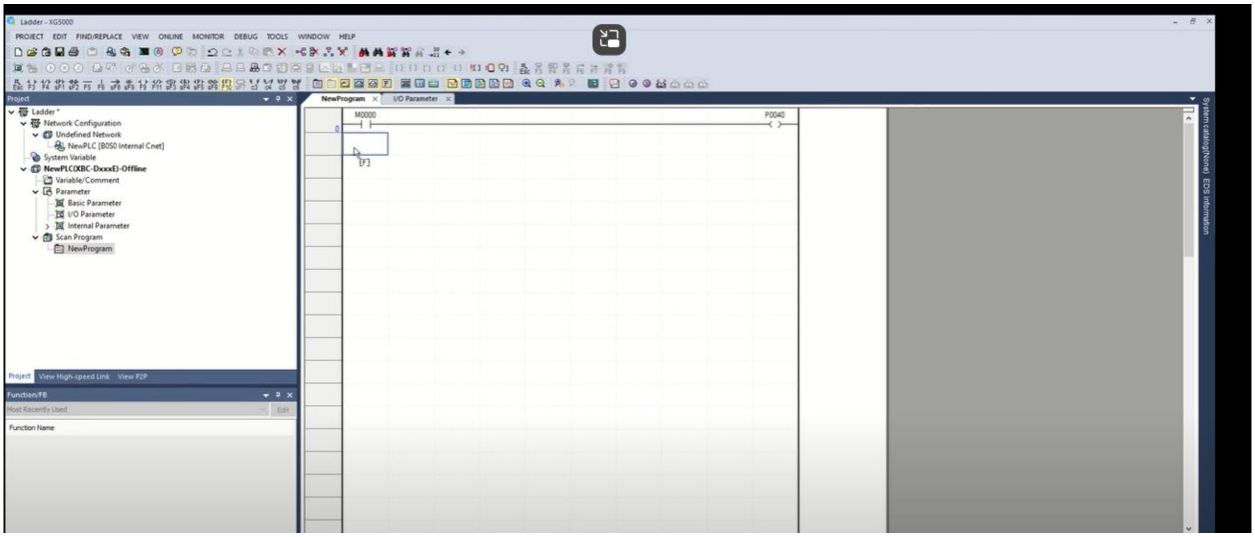
- Click **OK**.

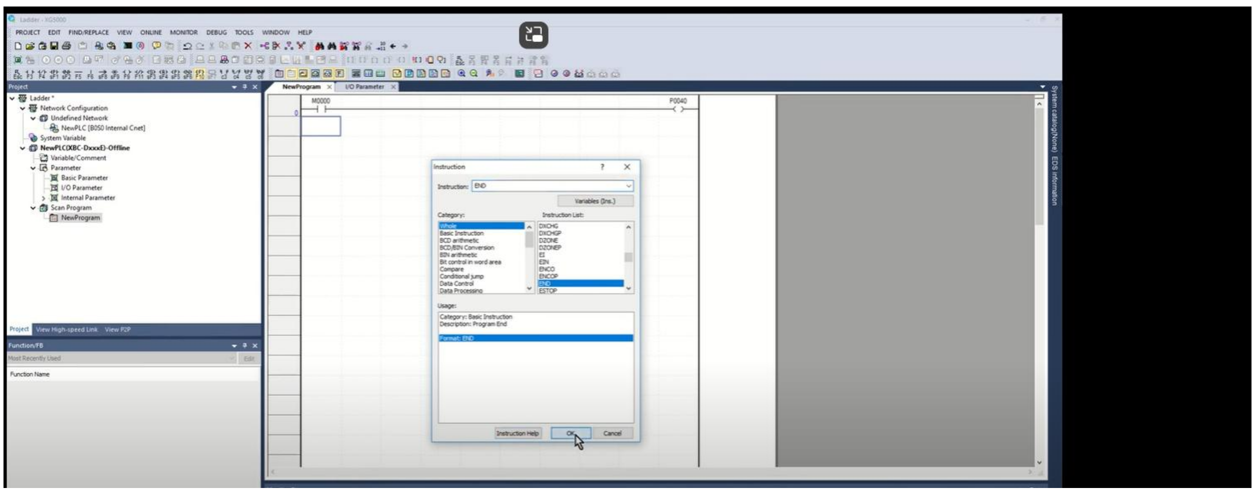


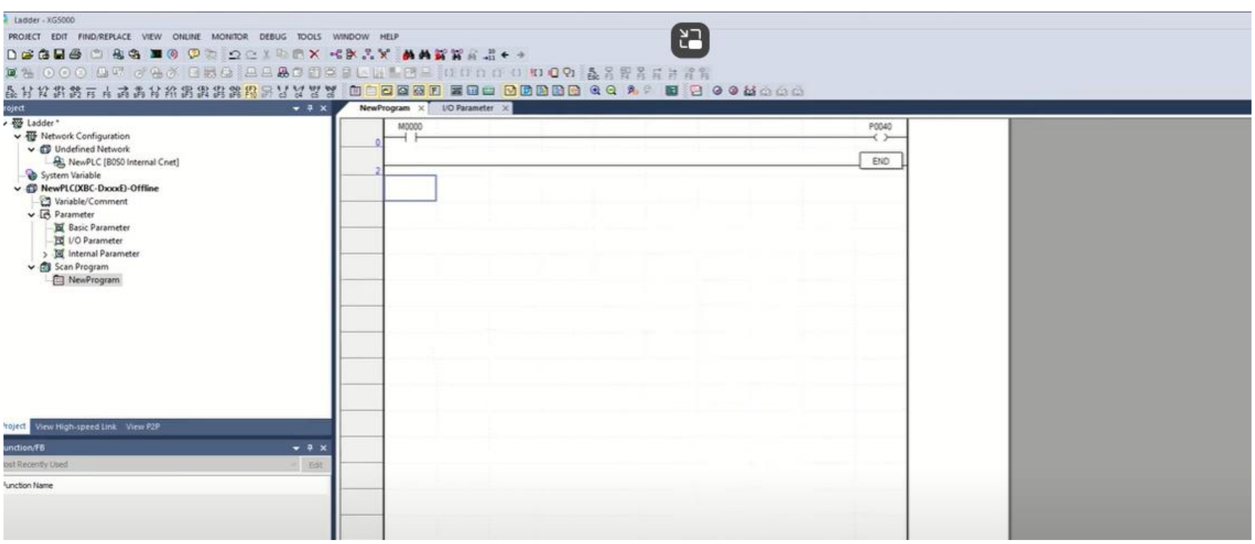


Step 6: Add the “END” Instruction

1. **Bracket (F) Icon**
    - On the toolbar, select the bracket instruction icon (often labeled F).
    - Place it after the coil on the rung.
2. **Instruction Window**
    - Type **“IEND”** (or “END” depending on your PLC type) and click **OK**.
    - This signals the end of the program.


Ladder - XG5000
PROJECT EDIT FIND/REPLACE VIEW ONLINE MONITOR DEBUG TOOLS WINDOW HELP
NewProgram
I/O Parameter
M0000
P0040
Ladder *
Network Configuration
Undefined Network
NewPLC [B050 Internal Cnet]
System Variable
NewPLC(XBC-DxxxE)-Offline
Variable/Comment
Parameter
Basic Parameter
I/O Parameter
Internal Parameter
Scan Program
NewProgram
Project
View High-speed Link
View P2P
Function/FB
Most Recently Used
Function Name


Instruction
Instruction: END
Variables (Ins.)
Category:
Instruction List:
Basic Instruction
BCD arithmetic
DXCHG
END
Usage:
Category: Basic Instruction
Description: Program End
Format: END
Instruction Help
OK
Cancel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Variable/Comment
Parameter
Basic Parameter
I/O Parameter
Internal Parameter
Scan Program
NewProgram
View High-speed Link
View P2P
Most Recently Used
Edit

Step 7: Save the Project

1. **Go to "Project" → "Save"** (or click the Save icon).
2. **Check Project Tree**
    - Confirm everything is updated with your rung changes.

Conclusion

You have successfully **created a new XG5000 project** for an **XGB E-Type PLC**, configured the CPU model, and built a **simple ladder logic program** (M0.0 driving P4.0, terminated by an IEND instruction).

Download & Test Ladder Logic on an XGB E-Type PLC

Introduction
In this guide, we demonstrate how to download and test a ladder logic program in an **XGB E-Type PLC** using the **LS XG5000** software. You will learn how to connect the PLC, download your program, go online for monitoring, and verify basic I/O functionality.

Step 1: Verify PLC Power

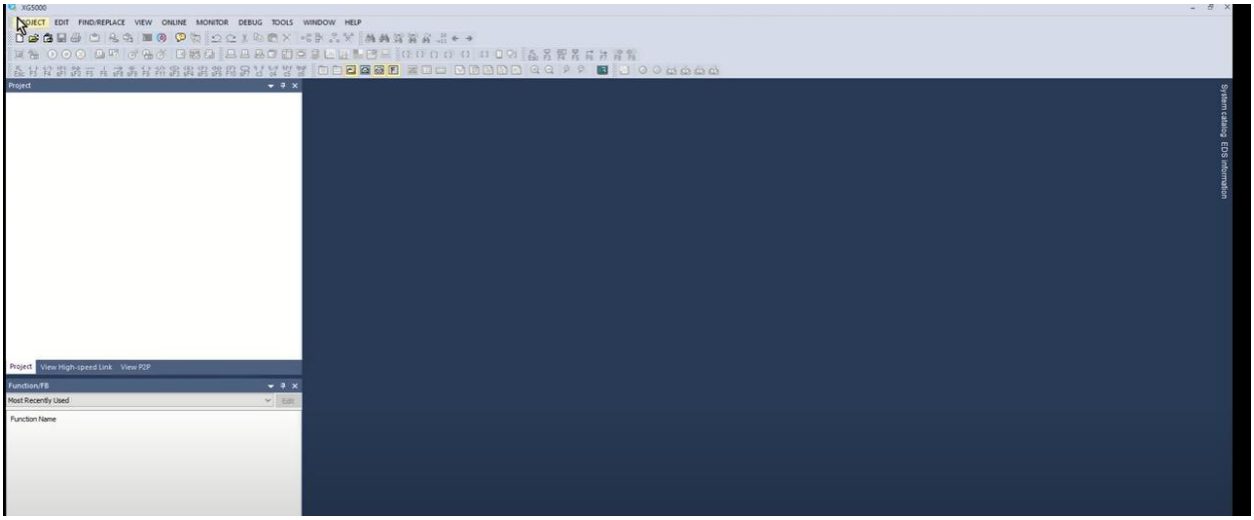
1. **Check Power Supply**
    - Confirm the **PLC is powered correctly** in accordance with the user manual.
    - Make sure the **RUN** LED on the PLC (if applicable) is off or showing the correct status for a PLC in Stop mode.

Step 2: Connect the Programming Cable

1. **Choose the Correct Cable**
    - For the E-type PLC, use the **PMC-310S** programming cable.
    - If your PC lacks a serial port, a **USB-to-serial adapter** is required.
2. **Attach Cable**
    - Plug one end into the **PLC's programming port** and the other into your **PC**.

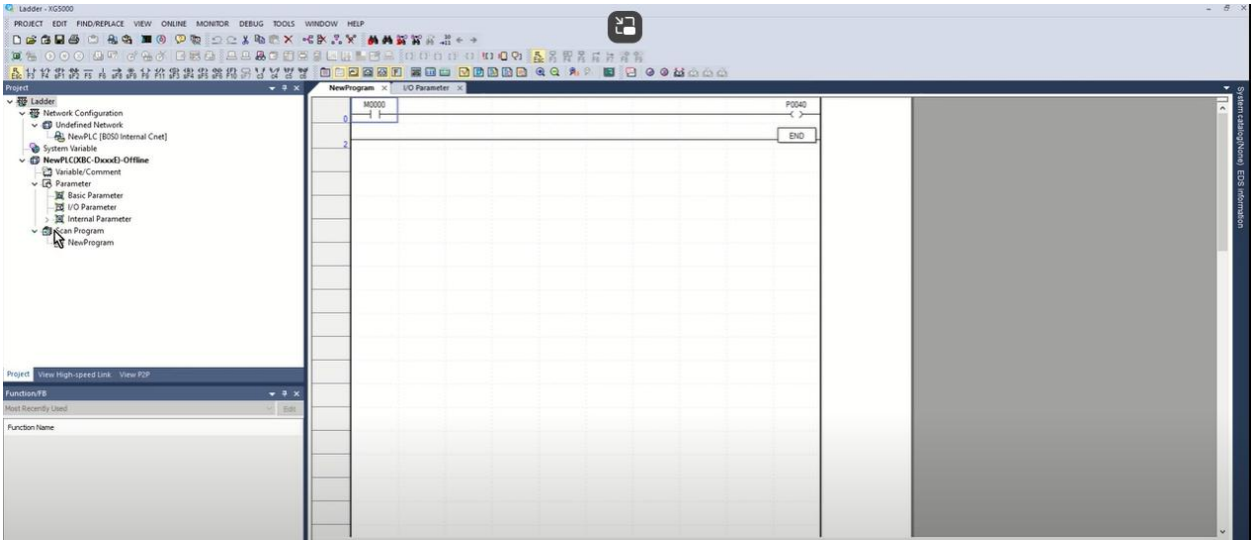
Step 3: Start the XG5000 Software

1. **Open XG5000**
    - Go to your Start menu → **"XG5000 Program Group"** or double-click an XG5000 shortcut on your Desktop.



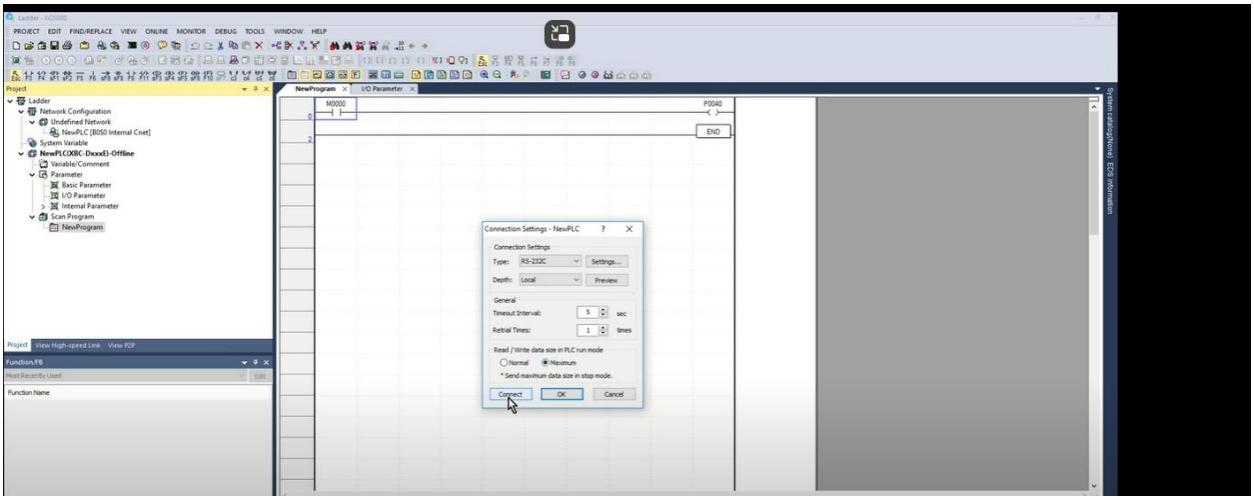
Step 4: Open existing Project

1. **Go to Project → Open**
    - Select the previously created project (previously it's called **"ladder"**).
2. **Locate Ladder Logic**
    - Under **"Scan Program"** in the **Project Tree**, double-click the ladder logic file (e.g., **"New Program"**).



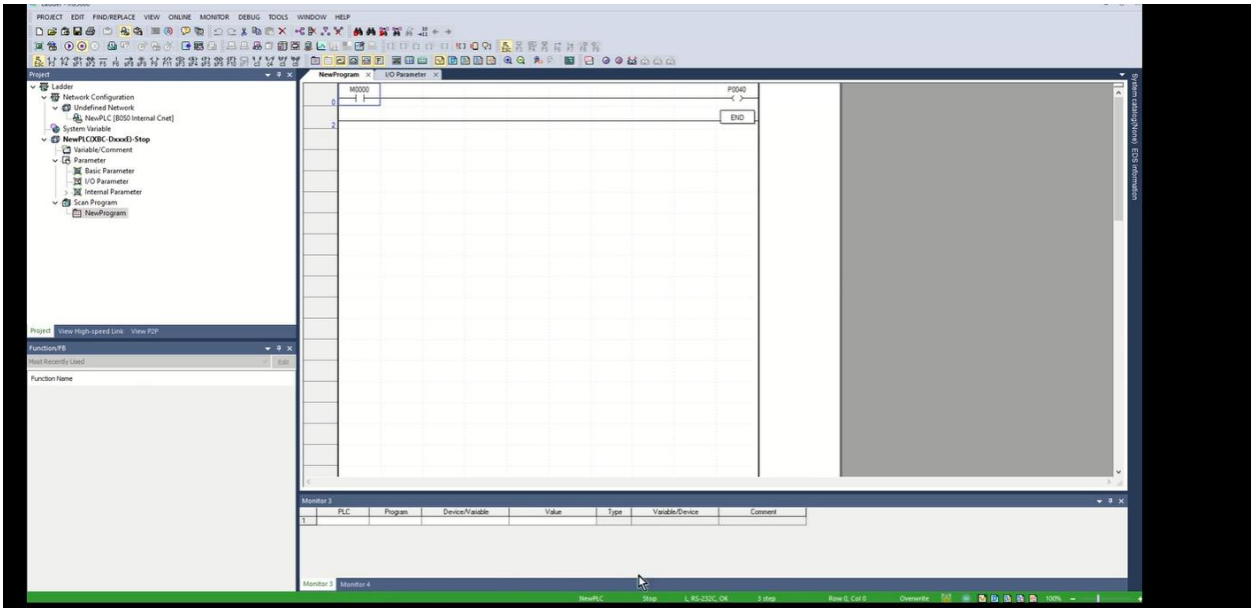
Step 5: Connect to the PLC (RS-232C / Serial)

1. **Open Connection Settings**
    - From the top menu, go **Online** → **Connection Settings**.
2. **Set Type to RS-232C**
    - If the dropdown is not already **RS-232C**, select it. Use auto scan if necessary to scan the proper com port.
    - Keep other settings at their defaults unless otherwise specified.
3. **Click "Connect"**
    - The **status bar** at the bottom will turn from **blue** (offline) to **green** (online) if connected.



Step 6: Download the Program to the PLC

1. **Go to “Online” → “Write”**
    - A dialog appears confirming what to download (Program, Parameters, etc.).
2. **Leave Checkboxes as Default**
    - Typically, **Program, Parameter, Symbol** are selected.
3. **Click “OK”**
    - Observe the status bar or a progress dialog indicating download in progress.

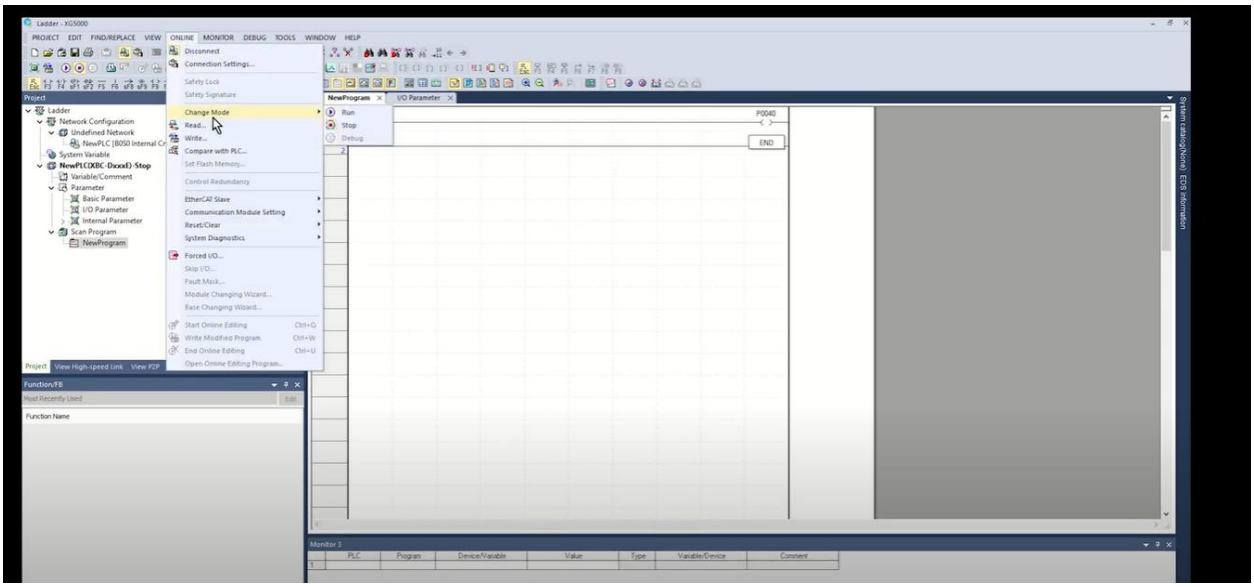


Step 7: Verify Download Completion

1. **Writing Complete**
    - A **“Writing Complete”** pop-up window should appear. Click **OK**.
2. **PLC Reset Dialog**
    - The next window may say **“PLC is not in a running state. Reset PLC?”**
    - Click **OK** to allow the reset.

Step 8: Reconnect & Check PLC Mode

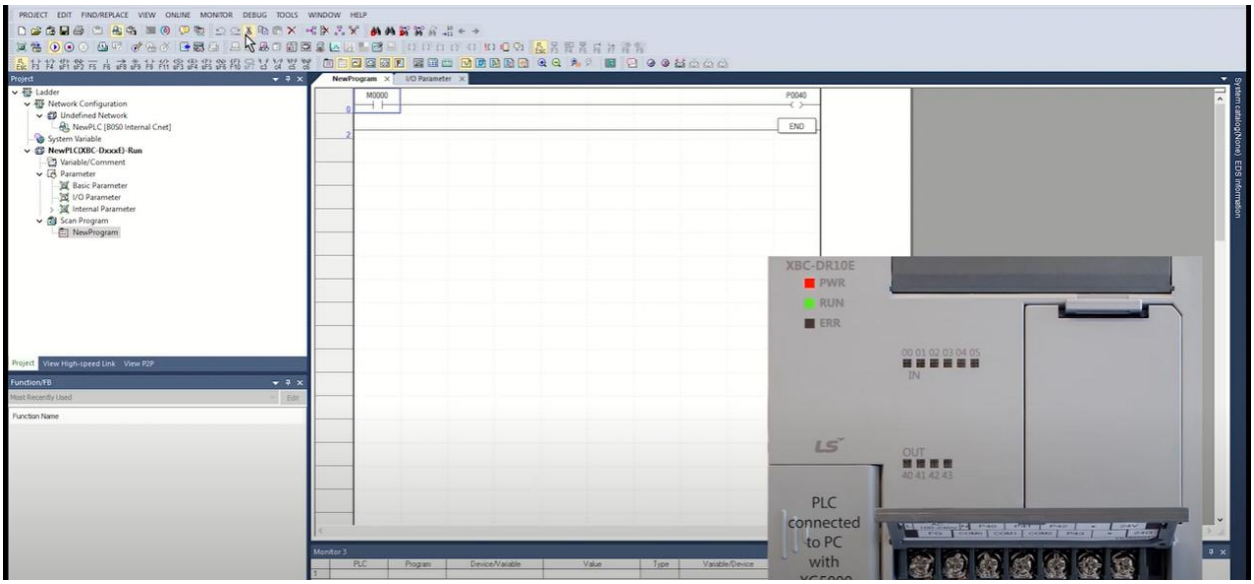
1. **Reconnect**
    - From **Online** menu, click **“Connect”** again if disconnected.
2. **Status Bar**
    - Displays either **Stop** or **Run**. If it reads **Stop**, the PLC is not executing logic.



Step 9: Switch the PLC to Run Mode

1. **Go to “Online” → “Change Mode”**
    - Select **“Run”**.
2. **Confirm**
    - A pop-up asks, **“Are you sure?”** Click **Yes**.
3. **Check RUN LED**
    - The PLC’s front panel **RUN LED** should illuminate green.

- The XG5000 status bar should also display **“Run.”**

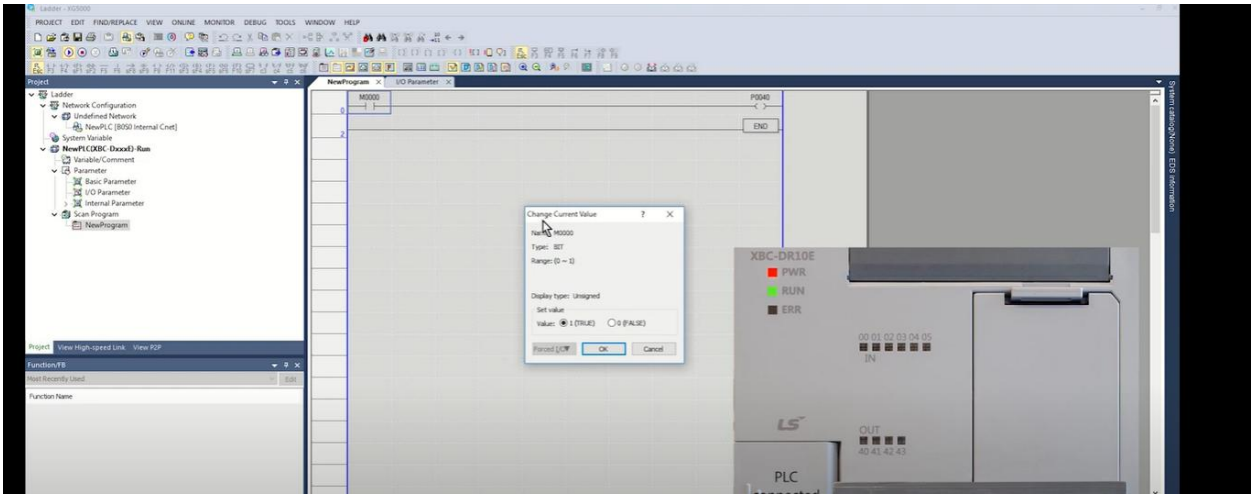


Step 10: Start Monitoring

1. **Online Monitoring**
    - From **Monitor** menu, select **“Start Monitoring.”**
    - Ladder elements are highlighted to indicate live monitoring.
2. **Observe Contacts & Coils**
    - Watch the real-time status (ON/OFF, True/False) in the ladder logic window.

Step 11: Toggle Bits for Testing

1. **Double-Click a Contact (e.g., M0.0)**
    - A **“Change Current Value”** window appears.
2. **Set to True**
    - This forces **M0.0** ON; observe the coil **P40** turning ON as well.
    - The PLC’s actual output **P40** should energize (if physically wired to an output).
3. **Toggle OFF**
    - Repeat the same process, selecting **False** to turn the bit OFF.



Conclusion

You have successfully **downloaded** a program to the **XGB E-Type PLC**, switched it to **Run** mode, and **tested** basic functionality using **XG5000**'s monitoring feature. For more details or advanced topics, consult LS Electric's official documentation and resources.