

Network Variables / LED Control

Project for R200-24.2 and MK110-8D.4R

Project overview

This is a universal interactive project showing how to establish interaction between the PR200-24.2 programmable logic controller and the MK110-8D.4R expansion module via the Modbus communication protocol over the RS485 interface. The project also helps to understand how to use network variables.

The system includes four LEDs and four pushbuttons, giving users the ability to dynamically control the state and behavior of the LEDs.

The project can be used in industrial automation, home automation and also for training purposes, wherever real-time control and monitoring are required.

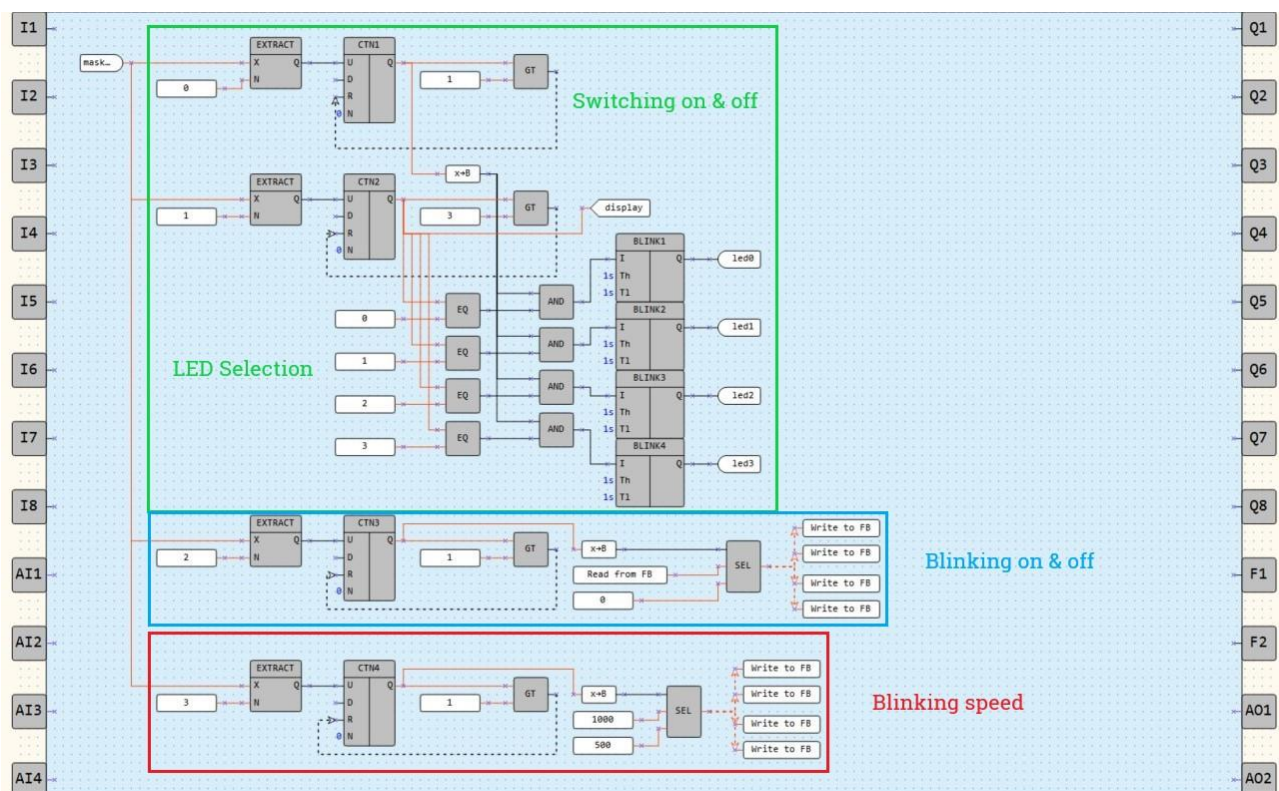


Fig. 1. Program workspace

Hardware:

- Both PR200 and MK110 are connected to a 24V power supply, that provides standardized power source for seamless integration.
- The connection between PR200 and MK110 is established over RS485 interface, ensuring reliable and efficient data exchange.
- The 4 buttons are connected to MK110 input contacts *DI1...DI4*, providing real-time input to the system.
- The 4 LEDs are connected to MK110 output contacts *DO1...DO4* so that PR200 can control their states based on user input.

Features:

1. Button 1: On/Off Control
 - The user can switch the selected LED on and off.
2. Button 2: LED Selection
 - The user can select which LED they want to control. Each time the button is pressed, the selection moves to the next LED. By cycling through the available LEDs, the user can select the desired one to configure.
3. Button 3: Constant or Blink Light
 - The user can choose between constant or blinking light for the selected LED.
4. Button 4: Blink Frequency Selection
 - If the selected LED is set to the blink mode, the 4th button changes its blink frequency.
 - Pressing the button, the user can toggle the blink frequency between 0.5 s and 1 s.
5. Display
 - The PR200 display indicates which LED is currently selected for configuration.

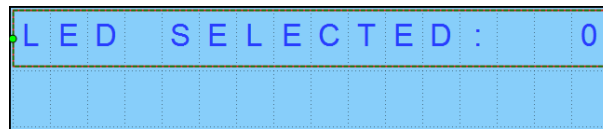


Fig. 2. Display

Table 1. Project variables

Name	Type	Description
<i>display</i>	Standard / INT	Display output / LED selected
<i>maskin</i>	Network / INT	Input bitmask
<i>led1</i>	Network / BOOL	Output / LED1 control
<i>led2</i>	Network / BOOL	Output / LED2 control
<i>led3</i>	Network / BOOL	Output / LED3 control
<i>led4</i>	Network / BOOL	Output / LED4 control