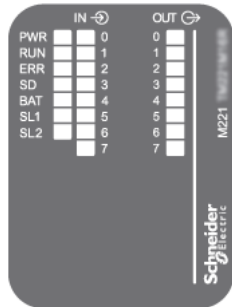


Visual Clues

LEDs

The LEDs provide a visual indication of the status of the M221 Logic Controller. They can show when the program is not running, and combinations can sometimes give an indication why. They also give an indication of the state of various parts of the M221.



PWR LED

The first LED shows the state of the power supply to the M221 controller. If the PWR LED is off then the 24V power supply to the M221 is not working. The first thing to check would be the wiring and the power supply itself.

If the PWR LED is not on there is no point looking for any other problems as this must be resolved first.

During normal operation this LED should be permanently ON.

RUN LED

The next LED to look at is the RUN LED. If this is permanently on then the program is running and any fault is likely to be in the program itself.

If the RUN LED is blinking slowly (and the ERR LED is off) then the M221 is in Stop mode. This can be for several reasons but the first thing to check is the RUN/STOP switch on the front of the M221. This switch must be up for the program to run. If the switch is up then the SoMachine Basic software must be used to put the M221 controller in Run. Alternatively, changing the RUN/STOP switch down to the STOP position and then back up to RUN will set the controller in run mode.

If the RUN LED is off, there is no application in the M221 Logic Controller.

During normal operation this LED should be permanently ON.

LEDs (cont.)

ERR LED

The ERR LED can indicate various faults in the M221 Logic Controller.

If it is permanently on, this indicates an exception in the M221 which has caused it to stop. The program cannot be run and no communication with the M221 is possible. To recover, the firmware must be reloaded into the M221.

If the ERR LED is flashing, this indicates that the M221 has a valid application but there is an internal error. If the Run LED is on, then the program in RAM is not the same as the stored program. This typically occurs when an on-line modification has been made and not saved to the M221. If the Run LED is off, then this indicates an internal error. Limited communication is allowed to resolve the error but the program cannot be run.

A single flash when power is applied to the M221 indicates that there is no application loaded into the controller. Full communication with the controller is possible in order to download an application.

During normal operation this LED should be permanently OFF.

SD LED

The SD LED indicates when the M221 Logic Controller is accessing the SD card. This will usually be during a firmware upgrade or data transfer.

During normal operation this LED should be permanently OFF.

BAT LED

The BAT LED indicates the state of the battery. A slow flash indicates that the battery is low. When the LED is permanently on, this indicates that the battery is flat.

During normal operation this LED should be permanently OFF.

SL LED

The SL LED indicates when the M221 Logic Controller is communicating via the Serial Port. If the M221 has more than one serial port, there will be two LEDs labelled SL1 and SL2 giving indication for ports 1 and 2.

During normal operation the state of this LED will depend on the application.

Exercise - LED status

Learning Outcomes

By the completion of this exercise you will:

- See some of the LED indications for the M221 Logic Controller
-

1 If SoMachine Basic is not running, start it and open the Conveyor Control Application.

2 Make an online modification and observe the effect on the LEDs.

- i. Connect to the M221 Logic Controller and ensure that the program in the controller is the same as the program in SoMachine Basic.
 - ii. Make a small change to a ladder rung. This can be any change such as changing a normally open contact to normally closed or changing the address of an object.
 - iii. Click off the rung and when the message appears asking if the change is to be permanent, click the No button.
 - iv. Observe the effect on the LEDs.
-

3 Remove the battery.

- i. Power off the M221 controller and remove the battery from the unit.
 - ii. Apply power to the M221 Controller and observe the effect on the LEDs.
 - iii. Remove the power for at least 30 seconds, insert the battery, apply power to the M221 and observe the effect on the LEDs.
-

