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ALL SCREENS ARE FROM GX DEVELOPER V8.12
Fault Diagnostics

Rule for Fault Finding
DON’T ASSUME ALWAYS CHECK
ASSUME = ASS + U +ME

2 forms of check

1. VISUAL CHECKS
   (Hardware, LEDs etc)
   P.S. You may also like to smell it

2. FUNCTIONAL CHECKS
   (is there a program etc)

2 categories of fault associated with PLCs

1. Communications
2. PLC

2 types of fault

1. Hardware
2. Software

IDENTIFYING WHICH OF THE ABOVE COMBINATIONS IS THE KEY TO FAULT FINDING THE PLC.
Ask yourself the following questions

Q. Do I have a Communications problem?

Comms problems:

1. Cannot establish communications link between PC and PLC.
2. Data in PLC is not being communicated to remote I/O or other PLC.

P.S. You can generally always establish communications with the PLC even if it is indicating a FAULT.

Except if the COM port on the PLC or PC is faulty.

If communications with the PLC is OK.

Q. Do I have a PLC problem?

Q. What is the job of the PLC?

Scan inputs, run program, power outputs to control machine.

1. PLC is not in RUN mode
2. PLC is in RUN but machine does not run.
TYPICAL FAULTS

1. PLC is in wrong Mode
2. PLC has no program
3. Inputs ON but NO outputs
4. No LEDs ON
5. NO mains POWER
6. NO I/O power, or lose of power Common connection total or just to certain cards.

PLC Checks

Visual :- are all LEDs showing correct state. (Refer to template of LEDs).

Functional:- is there a program.

Q. Are all power LEDs ON?
   IF NOT check Power

Q. Are any Fault LEDs ON?
   IF SO go online and check PLC Diagnostics

Q. Is PLC in RUN mode?
   IF NOT Check Keyswitch
   Check there is a program
DON’T ASSUME PLC HAS LOST PROGRAM BECAUSE MACHINE WON’T START. PLCs DON’T LOSE THEIR PROGRAMS WITHOUT GOOD REASON

Mitsubishi FX PLCs will go into RUN mode even though there is not a program in the PLC.

Good indicator if there is no program is IF there are INPUT LEDs ON but no OUTPUT LEDs then chances are there is no program

Q. Does the machine Start?

If there are inputs but no outputs could be no program, if there is a program then it is likely that the software is stopping the machine from starting because of some missing safety interlock or switch in wrong position etc.

Tip

Create a Entry Data Monitor table with all the inputs that are ON when the machine is ready to start, then it is simply a case of calling up the table and looking for the address that is not set to 1 or true at start up.
Linking the PC to the FX PLC using SC09

1. Connect SC09 cable.

Software (Transfer Setup)

When GX Developer is started the transfer setup is disabled, a project has to be opened for it to be enabled.

Open the project you will be using or create a new one (see page ****)

With a project open as above select OnLine/Transfer Setup

The following Dialogue Box appears
The SC09 connects the RS232 port on the PC to the programming port on the PLC.

The above diagram show both sides of the connection the PC side Interface (I/F) and the PLC side I/F. For the FX there is nothing to setup on the PLC side, however you may need to correct settings on the RS232 side. Double click the yellow serial icon to display the port settings below.

Clicking on the Setup button allows us to change the serial port settings below.

In most cases this is not required as the defaults work for most FX projects.
To check the connection click connection test button.

Connection OK message will be displayed otherwise following message will appear.

Recheck cable connections and software setting.
Uploading a Project

Downloading a Project

Program Documentation

Device Comments.

Cross Reference Information

Find an Addresses

Find Step No.

Find Coil

Monitoring a Program

Entry Data Monitor

Entry Ladder Monitor

Working with Multiple Windows

Compare Programs (Verify)

Editing Ladder Code (OffLine)

PLC Diagnostic

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