

9. TROUBLESHOOTING

9.1 Processor and Fault Resets

- Toggle the Run/Reset pin on the P1 connector.
- Disable, then Enable the Digital System command.
- Press the Clear Fault State button on the Control Panel software located in the Diagnostics category.

Note: To use the Clear Fault state button the Controller must be in the Fault Reset state.

Processor Resets*

- Using the Control Panel software, navigate to the Actions drop down menu and select the Reset feature.
- Cycle the controller power.
- Press the reset button on the controller.

(*Processor resets also clear faults)

The following table indicates which inhibit alarms require fault resets. Warning alarms never require resets.

Alarm	Requires Fault Reset
AC Line Sync PLL	No
Current Trip	Yes
Line Loss	No
Heatsink Temp	Yes

9.2 Warning Alarms

During a warning alarm the STATUS LED will be flashing orange.

9.2.1 Voltage Limit

The controller will not be allowed to exceed the voltage limit setting. The voltage limit setting is recommended to be 105% of the Full Scale Voltage setting.

9.2.2 Current Limit

The controller will not be allowed to exceed the current limit setting. The current limit setting is recommended to be 105% of the Full Scale Current setting.



FIND IN CONTROL PANEL WARNING ALARMS

Active Warning alarms are displayed with a yellow icon in the "Status" section of the device dashboard



9.2.3 Power Limit

The controller will not be allowed to exceed the power limit setting. The power limit setting is recommended to be 105% of the Full Scale Power setting.

9.2.4 Heat Sink Temp

Indicates that the heat sink is within 5°C of the maximum temperature rating for the SCR. Check the fans for proper operation or for any possible obstructions in the air flow.

9.2.5 Shorted SCR

The controller is detecting a shorted SCR. This will detect any shorted SCR in any phase, with any load type. This feature is user-selectable. A user may disable the Shorted SCR alarm in the case of nuisance warnings.

9.2.6 Low Output

The controller is at 100% output and the Set Point Reference (or command signal) is higher than the Feedback. In other words the controller is being asked to provide a higher output than it can provide to the load from the power source.

9.2.7 Network Timeout

The controller did not receive any communications via EtherCAT, in a timeout period.

9.3 Inhibit Alarms

During an Inhibit Alarm the Alarm LED will be RED.
The Inhibit Alarms can be mapped to the relay using the Control Panel software.

9.3.1 AC Line Sync PLL

The controller is not registering any line voltage, the line voltage is not present or too low for the controller to operate, or the controller is not able to synchronize to AC line frequency.

9.3.2 Current Trip

The load current has exceeded the Current Trip setting. This feature will shut the controller down and display an alarm. To get the controller operating once again, a few different methods will remove the current trip alarm. Only one of the following must be done:

1. With hardware: Open, then Close the $\overline{\text{Run}}$ /Reset jumper on P1 (pins 3 & 4).
2. With software: Disable then enable Digital Run Enable [SP-129]

9.3.3 Line Loss

An AC line connection has been lost, or the controller has detected AC line voltage that is below it's minimum threshold.

9.3.4 Heatsink Temp

A heatsink has exceeded the temperature rating for the SCR. Check for obstructions preventing the fans from operating correctly.

9.3.5 Network Timeout

The controller did not receive any communications via EtherCAT.

9.3.6 Other Non-Typical Alarms

“SRAM ERROR, FLASH ERROR, WATCHDOG TIMEOUT, EEPROM”

These types of errors are uncommon but may occur under specific conditions. Turn off the control power and reapply it. If any of these warnings continue to appear, contact Control Concepts, Inc.

9.4 Heatsink Warning/Inhibit Alarm Temperatures

Controller Amp Rating	Warning (°C)	Inhibit (°C)
8, 16, 32	104	109
40, 50	94	99

9.5 Additional Controller Status

9.5.1 AC Line Status [MP 342]

Line Voltage [MP 342 bit 0] Absent / Present

Indicates if the AC line is present for Phase A

Phase Rotation [MP 342 bit 5] 1-2-3 / 3-2-1

Indicates the phase rotation. Phase Rotation [MP 342 bit 5] is only applicable for Three Phase controllers. Connect controller to Control Panel to troubleshoot if any color other than Green is displayed for the AC Line Status LED.

Control Timing [MP 342 bit 6] Blank / OK

The timing for SCR firing. This must be OK in order for the SCR to turn ON.

ADC Timing [MP 342 bit 7] Blank / OK

The timing for feedback data collection.

9.5.2 Main EEPROM Status [MP 336]

Read / Write [MP 336 bit 0] OK/Fail

During power up, checks to see if the EEPROM is functional.

Initialized [MP 336 bit 1] Init/Init Required

The EEPROM is blank and needs initialization.

User SP V Table [MP 336 bit 2] OK/Fail

Status of the user setup parameter table.

MFG SP V Table [MP 336 bit 3] OK/Fail

Status of the manufacturing setup parameter table.

Cal V Table [MP 336 bit 4] OK/Fail

Status of the calibration setup parameter table.

Cal Table [MP 336 bit 5] OK/Fail

Status of the calibration data table.

MFG Table [MP 336 bit 6] OK/Fail

Status of manufacturing data table.

Error Record Table [MP 336 bit 7] OK/Fail

Status of the error/fault record table.

Repair Record Table [MP 336 bit 8] OK/Fail

Status of the repair record table.

User SP Backup [MP 336 bit 11] OK/Fail

Status of the backup user setup parameter table.

EE Write Protected [MP 336 bit 12] OK/Fail

The status of the EEPROM write protection.

EE SP Def [MP 336 bit 13] OK/Update Required

The status of the setup parameter definition table.

9.5.3 Misc Status [MP 335]

Waiting for Enter Key [MP 335 bit 3]

The controller has halted during initialization. Press the “Enter” button on the Diagnostic 1 tab.

Note: Only bit that has user significance is Bit 3. All other Bits are used for manufacturing use only.

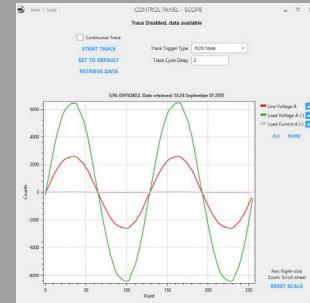
9.6 Scope

The scope feature in the MicroFUSION power controller records the controller's line voltage, load voltage, and load current waveforms. The scope feature in Control Panel allows the user to change the settings and view the signals in a graph of the last 2 AC line cycles. Refer to the Control Panel User's Manual for more information on the controller scope features.



FIND IN CONTROL PANEL SCOPE

Category: Side Bar > Scope



9.7 Trap and Fault History

The controller saves event information for when an alarm, processor error, or other event occurs. Use Control Panel, in the "Diagnostics" category, to view this information. Refer to the Control Panel User's Manual for more information.



FIND IN CONTROL PANEL TRAP & FAULT HISTORY

Category: Diagnostics > Trap & Fault History

9.8 USB Communication Issues

A failure to connect to the MicroFUSION controller with the Control Panel software can occur when using microUSB cables of unknown manufacture.

Common issues of no communication with the Control Panel software, identified by the Control Panel reporting ‘No Control Concepts’ devices are available” have often been traced to the quality of the USB cable used.

Many micro USB cables that are being manufactured and sold through common vendors and retail outlets often do not meet minimum specifications for conductivity and data communications.*

USB hubs, adapters, extension cables, isolators, or repeaters are not recommended and may cause communication issues when connected to a PC communicating with a MicroFUSION device.

While the MicroFUSION controller has been tested and validated to work with cable lengths of 15 feet (3 meters), cable routing and external electrical interference may also cause communication failures.

If a no communication error or no device available message occurs during connection or operation of a MicroFUSION device, it is recommended to try a different brand of USB cable. Recheck connections and ensure the USB port on the PC running the Control Panel software is functioning normally. Disconnect other USB devices connected to the PC and recheck device communication before contacting technical support.

Control Concepts, Inc sells USB cables validated to work with our digital controllers.

Contact our sales and support line at 1-800-756-2799, or visit our website at www.ccipower.com for ordering information.

* USB cables sold for use with cellphones, tablets, and other devices may not support data transfer.

A USB communication session could not be established.

Ensure the MicroFUSION controller has 24Vdc applied and is on with the indicator lights on the device showing normal operation.
See Chapter 4, Indicator LED’s.

A delay of 30 seconds or more can occur when first connecting a controller to a PC before it will respond to Control Panel connections.

