1336 PLUS FAULT DESCRIPTIONS

Objectives

BULLETIN 1336 PLUS FAULT DESCRIPTIONS GUIDE provides information to guide the user in troubleshooting the 1336 PLUS. Included is a listing and description of the various drive faults (with possible solutions, when applicable).

Fault Descriptions

Fault Display

The LCD display is used to indicate a fault by showing a brief text statement relating to the fault (see figure below). The fault will be displayed until a drive reset is initiated. Refer to Table A for a listing and description of the various faults. Table B provides a listing of faults by number.

Clearing a Fault

When a fault occurs, the cause must be corrected before the fault can be cleared. After corrective action has been taken, simply cycling drive power will clear the fault. Issuing a valid Stop command will also clear a fault if the [Flt Clear Mode] parameter is set to "Disabled." In addition, a reset command can be issued anytime from a serial device (if connected).

Contact Description

During normal operating conditions (no faults present, drive running) the CR3 fault contacts at TB2-13 & 14 are closed, and the contacts at TB2-14 & 15 are open. When a fault occurs, the state of these contacts will change.

Name & Fault #	Description	Action
Auxiliary Fault **02**	The auxiliary input interlock is open.	If Control Interface option is installed, check connections at TB3. If option is not installed, check Main Control Board jumpers at J4 (J7 on 7.5-30 HP drives), pins 3 & 4 and 17 & 18.
BGND 10ms Over **51**	Microprocessor loop fault. Occurs if the 10ms background task has not been run in 15 ms.	Replace Main Control Board.
Diag C Lim Flt **36**	The drive output current has exceeded the hardware current limit and the [Cur Lim Trip En] parameter was enabled. Meant to diagnose applications where hardware current is being encountered.	Check programming of [Cur Lim Trip En] parameter. Check for excess load, improper DC boost setting, DC brake volts set too high or other causes of excess current.
EE Init Read **53**	This fault occurs on power up: - If the serial EEprom cannot be read successfully to restore the drive parameters or - If the checksums on the EEprom are not valid or - If the drive type stored in the EEprom is invalid. Note: This fault cannot be cleared. The condition must be corrected and power cycled. This signals a bad EEprom or a noise problem while writing to the EEprom.	In order to clear the fault the default parameters should be reset and the power to the drive should be cycled. If it is the drive type, the problem cannot be cleared without changing the driver board.
EE Init Value **54**	This fault signifies that one of the drive parameters stored in the EEprom was out of range on power up or the drive type was invalid. The parameter number can be found in parameter 207, Fault Data. Note: This fault cannot be cleared. The condition must be corrected and the power cycled. This signals a bad EEprom or a noise problem while writing to the EEprom.	If it is the drive type, then the problem cannot be cleared without changing the driver board. In order to clear the fault the default parameters should be reset and power to the driver should be cycled.
EE prom Fault **32**	This fault will display when there is a problem programming the serial EEprom on the Main	Check all wire and cable connections to the Main Control Board. Replace Main Control Board.
Fgnd 10ms Over **52**	Microprocessor loop fault. Occurs if a 10ms interrupt is pending before the current interrupt is complete.	Replace Main Control Board.

Name & Fault #	Description	Action
Ground Short Fault 13	A current path to earth ground has been detected at one or more of the drive output terminals. This is a hardware fault condition. The trip levels are solely determined by hardware components. (100 amps instantaneous)	Check the motor and external wiring to the drive output terminals for a grounded condition.
Ground Warning 57	Low level ground fault present. When the parameter is enabled the drive will fault with a small amount of ground current detected. Trip level is 2 amps for 30 - 50 msec.	Check the motor and external wiring to the drive output terminals for a grounded condition.
Hertz Err Fault 29	This fault indicates that there is not a valid operating frequency. It can be caused by any of the following: 1 .[Maximum Freq] is less than [Minimum Freq]. 2. Skip frequencies and skip bandwidth eliminate all operating frequencies. 3. 4-20mA input signal speed reference has been lost and [4-20mA Loss Sel] is set for "Stop-Fault."	1. Check [Minimum Freq] and [Maximum Freq] parameters. 2. Check [Skip Freq 1], [Skip Freq 2], [Skip Freq 3] and [Skip Freq Band] parameters. 3. Check for broken wires, loose connections or transducer loss at 4-20mA input, TB2.
Hertz Sel Fault 30	A frequency select parameter has been programmed with an out of range value.	Reprogram [Freq Select 1] and/or [Freq Select 2] with a correct value. If problem persists, replace Main Control Board or complete drive.
Loop Overrn Flt 23	An overrun of the 2.5ms control loop has occurred.	Check all connections to the Power Board. Replace the board or complete drive as required.
Max Retries Fault 33	Drive unsuccessfully attempted to reset a fault and resume running for the programmed number of [Reset/Run Tries].	Check fault buffer for fault code requiring reset. Correct the cause of the fault and manually clear by pressing the local Stop key or cycling the TB3 Stop input.
Motor Mode Flt 24	A fault has been detected originating from the Control Board. This fault will occur if the value in the motor Mode parameter gets written to an invalid value.	Check parameter programming. Check all connections to the Control Board. Replace the board or complete drive as required.
Motor Stall Fault 06	Current remained over 150% for more than 4 seconds.	If the motor is drawing excessive current (over 150%), the motor load is excessive and will not allow the drive to accelerate to set speed. A longer accel time or a reduced load may be required.

Name & Fault #	Description	Action
Neg Slope Fault **35**	Drive software detected a portion of the volts/hertz curve with a negative slope.	Check drive programming. 1. [Maximum Voltage] parameter must be greater than [Base Voltage]. 2. [Base Voltage] parameter must be greater than [Start Boost]. 3. If the [DC Boost Select] parameter is set to "Custom," [Base Voltage] must be greater than [Break Voltage] and [Break Voltage] must be greater than [Start Boost].
Open Pot Fault **09**	An external pot is connected and the ground lead of the pot is disconnected creating a potential drive overspeed hazard. The analog voltage level of the pot exceeds 3.9V DC.	Check the external potentiometer circuit at TB2, terminals 1, 2 and 3 for an open circuit.
Operator Error Fault **11**	PWM frequency is set too high. Frequency calculations receive an invalid number. A SCANbus ™ device requests a Read or Write of a data type not supported.	
Overcurrent Flt **12**	Overcurrent is detected in overcurrent hardware trip circuit.	Check for a short circuit at the drive output or excessive load conditions at the motor.
Overload Fault **07**	Internal electronic overload trip.	An excessive motor load exists. It must be reduced such that drive output current does not exceed the % of current set by the [Overload Current] parameter.
Overtemp Fault **08**	Heat sink temperature exceeds a predefined value of 90° C (195° F).	Check for blocked or dirty heat sink fins. Check that the ambient temperature has not exceeded 40° C (104° F).
Overvolt Fault **05**	DC bus voltage exceeded maximum value.	Monitor the AC line for high line voltage or transient conditions. Bus overvoltage can also be caused by motor regeneration. Extend the decel time or install dynamic brake option.

Name & Fault #	Description	Action
Phase U Fault **38**	A phase to ground fault has been detected between the drive and motor in this phase.	Check the wiring between the drive and motor. Check motor for grounded phase. The fault is checked during the power stage diagnostics (Which is after the start button is pushed , but before the accel is started) During the power stage diagnostics the drive goes out and switches on/off the IGBT's in a certain pattern and measures for excessive current.
Phase V Fault **39**	A phase to ground fault has been detected between the drive and motor in this phase. the start button is pushed , but before	Check the wiring between the drive and motor. Check motor for grounded phase. The fault is checked during the power stage diagnostics (Which is after the accel is started) During the power stage diagnostics the drive goes out and switches on/off the IGBT's in a certain pattern and measures for excessive current.
Phase W Fault **40**	A phase to ground fault has been detected between the drive and motor in this phase.	Check the wiring between the drive and motor. Check motor for grounded phase. The fault is checked during the power stage diagnostics (Which is after the start button is pushed , but before the accel is started) During the power stage diagnostics the drive goes out and switches on/off the IGBT's in a certain pattern and measures for excessive current.
P Jump Err Flt **37**	An attempt has been made to enable both P Jump and Slip Compensation.	Verify that both P Jump and Slip Compensation are not both enabled.
Pole Calc Fault **50**	A fault will occur if: 1. motor rmp > 120 *motor_hertz/motor_poles or 2. motor rpm < 180 *motor _hertz/motor _poles or 3. motor poles < 2 or 4. motor poles > 32	Check parameter programming. Motor poles is calculated using Parameter 178, motor hertz, and Parameter 177, motor rpm.
Power Loss Fault **03**	DC bus voltage remained below 85% of nominal for longer than 0.500ms. [Line Loss Fault] parameter is enabled.	Monitor the incoming AC line for low voltage or line power interruption.
Power Mode Fault **26**	The internal power mode variable received an incorrect value.	Check parameter programming. Check all connections to the Control Board. Replace the board or complete drive as required.

Name & Fault #	Description	Action
Power Test Flt 46	The internal power mode variable received an incorrect value.	Check parameter programming. Check all connections to the Power Board. Replace the board or complete drive as required.
Precharge Fault 19	Occurs if precharge device is open 20ms after the end of a line loss condition or if the bus charging alarm remains on for 20 seconds.	Check the precharge circuit for. possible IGBT failure or damage. Replace drive.
Precharge Open 56	Precharge device malfunction.	Check the precharge circuit. Replace drive.
Reprogram Fault 48	An attempt was made to program a parameter while the drive was running.	Reprogram parameter after drive is stopped and fault is reset.
ROM or RAM Flt 68	Internal power-up ROM or RAM tests have failed.	Check Language Module. Replace Control Board or complete drive as required.
Run Boost Fault 34	An attempt has been made to set the [Run Boost] parameter to a value greater than the [Start Boost] parameter.	Verify that parameter has been programmed correctly.
Serial Fault 10	An active SCANbus™ adapter is disconnected while it possesses control of a local bus function.	Check for break in communications line.
Temp Sense Open 55	Heat sink thermistor is open or malfunctioning.	Check thermistor and connections.
Undervolt Fault 04	DC Bus voltage fell below the minimum value (388V DC at 460V AC input). [Line Loss Fault] parameter is enabled.	Monitor the incoming AC line for low voltage or line power interruption.
UV Short Fault 41	Excessive current has been detected between these two drive output terminals. This fault is checked during the power stage diagnostics (Which is after the start button is pushed, but before the accel is started). During the power stage diagnostics the drive goes out and switches on/off the IGTB's in a certain pattern and measures for excessive current.	Check the motor and external wiring to the drive output terminals for a shorted condition.

Name & Fault #	Description	Action
UW Short Fault 42	Excessive current has been detected between these two drive output terminals. This fault is checked during the power stage diagnostics (Which is after the start button is pushed, but before the accel is started). During the power stage diagnostics the drive goes out and switches on/off the IGTB's in a certain pattern and measures for excessive current.	Check the motor and external wiring to the drive output terminals for a shorted condition.
VW Short Fault 43	Excessive current has been detected between these two drive output terminals. This fault is checked during the power stage diagnostics (Which is after the start button is pushed, but before the accel is started). During the power stage diagnostics the drive goes out and switches on/off the IGTB's in a certain pattern and measures for excessive current.	Check the motor and external wiring to the drive output terminals for a shorted condition.
Xsistr Desat Flt 47	One or more of the output transistors has gone into desaturation.	

Fault #	Display Name	Fault Description
02	Auxiliary Fault	Auxiliary Input
03	Power Loss Fault	Power Loss
04	Undervolt Fault	Undervoltage
05	Overvolt Fault	Overvoltage
06	Motor Stall Fault	Motor Stall
07	Overload Fault	Overload
08	Overtemp Fault	Overtemperature
09	Open Pot Fault	Open Potentiometer
10	Serial Fault	Serial Communications
11	Op Error Fault	Operation Error
12	Overcurrent Flt	Overcurrent
13	Ground Fault	Ground Fault
19	Precharge Fault	Precharge
23	Loop Overrn Flt	Loop Overrun
24	Motor Mode Flt	Motor Mode Fault
26	Power Mode Fault	Power Mode
29	Hertz Err Fault	Hertz Error
30	Hertz Sel Fault	Hertz Set
32	EEprom Fault	EEprom
33	Max Retries Fault	Maximum Retries
34	Run Boost Fault	Run Boost
35	Neg Slope Fault	Negative Slope
36	Diag C Lim Flt	Diagnostic Current Limit
37	P Jump Err Flt	P Jump Error
38	Phase U Fault	Phase U Open
39	Phase V Fault	Phase V Open
40	Phase W Fault	Phase W Open
41	UV Short Fault	UV Short
42	UW Short Fault	UW Short
43	VW Short Fault	VW Short
46	Power Test Flt	Power Fault
47	Xsistr Desat Flt	Transistor Desaturation
48	Reprogram Fault	Reprogram Fault
50	Pole Calc Fault	Motor Poles Fault
51	BGND 10ms Over	Microprocessor Loop Fault
52	FGND 10ms Over	Microprocessor Loop Fault
53	EE Init Read	EEprom Fault
54	EE Init Value	EEprom Fault
55	Temp Sense Open	Thermistor Open Fault
56	Precharge Open	Precharge Circuit Fault
57	Ground Warning	Ground Fault Warning
68	ROM or RAM Flt	ROM or RAM Internal Memory Fault