

Application Note: PowerFlex 753 Fault Codes
Version 001
01 May 2018

PowerFlex 753 Fault Codes

If a FAULT has occurred, and you are at the TELEMETRY USER INTERFACE:

1. Note the FAULT CODE in the TELEMETRY USER INTERFACE.
2. Turn all VFD's OFF via the TELEMETRY USER INTERFACE.
3. Address the condition that caused the FAULT.
See Table Below For List of Fault Codes and Descriptions.
The cause must be corrected before the fault can be cleared.
Corrective action may require a troubleshooting/repair visit to the VFD site.
4. After corrective action has been take, clear the fault by:
Modify Station Setpoints with a CHECKMARK in the setting:
"RESET_VFD_ONESHOT".
5. To resume normal operation, turn all VFD's back to AUTO via the TELEMETRY USER INTERFACE.

If a FAULT has occurred, and you are at the KEYPAD:

1. See Table Below For List of Fault Codes and Descriptions.
2. Turn all VFD's OFF via the TELEMETRY USER INTERFACE or via Control Panel.
3. Press RESET_BUTTON on the KEYPAD to acknowledge the FAULT.
The fault information will be removed so that you can resume using the keypad.
4. Address the condition that caused the FAULT.
The cause must be corrected before the fault can be cleared.
5. After corrective action has been take, clear the fault by:
Press STOP at the KEYPAD
..or..
Cycle VFD Power (VFD shutdown may take up to 1 minute to discharge capacitor energy).
6. To resume normal operation, turn all VFD's back to AUTO via the TELEMETRY USER INTERFACE or via the Control Panel.



Drive Fault and Alarm Descriptions


Table 10 contains a list of drive-specific faults and alarms and includes the following information:

- The fault or alarm type
- The action that is taken when the drive faults
- The parameter that is used to configure the fault or alarm (if applicable)
- A description and action (where applicable)

The faults and alarms that are listed in Table 10 only apply to non-Integrated Motion applications. See Table 39 on page 527 for a list of Integrated Motion faults.

Table 10 - Drive Fault and Alarm Types, Descriptions, and Actions

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
0	No Entry					
2	Auxiliary Input	Resettable Fault	Coast	157 [DI Aux Fault]	Y	An auxiliary input interlock is open. A condition within the application is not allowing the drive to energize the motor and the digital input that is assigned in P157 [DI Aux Fault] has forced this fault.
3	Power Loss	Configurable		449 [Power Loss Actn]	Y	The DC bus voltage remained below the [Pwr Loss <i>n</i> Level] of nominal for longer than the time programmed in [Pwr Loss <i>n</i> Time].
4	UnderVoltage	Configurable		460 [UnderVltg Action]	Y	If the bus voltage indicated in P11 [DC Bus Volts] falls below the value set in P461 [UnderVltg Level] an undervoltage condition exists.
5	OverVoltage	Resettable Fault	Coast		Y	The DC bus voltage exceeded the maximum value. See P11 [DC Bus Volts].
7	Motor Overload	Configurable		410 [Motor OL Actn]	Y	An internal electronic overload trip has occurred. See P7 [Output Current], P26 [Motor NP Amps, P413 [Mtr OL Factor], and/or P414 [Mtr OL Hertz].
8	Heatsink OvrTemp	Resettable Fault	Coast		Y	The heatsink temperature has exceeded 100 % of the drive temperature. Heatsink over temperature occurs between 115...120 °C. The exact value is stored in drive firmware. See P943 [Drive Temp Pct] and/or P944 [Drive Temp C].
9	Trnsistr OvrTemp	Resettable Fault	Coast		Y	The output transistors have exceeded the maximum operating temperature. See P941 [IGBT Temp Pct] and/or P942 [IGBT Temp C]. If using the drive on a chiller plate, P38 [PWM Frequency] must be set to 2 kHz.
10	DynBrake OvrTemp	Alarm 1				The dynamic brake resistor has exceeded its maximum operating temperature. Check settings of parameters P382 [DB Resistor Type] through P385 [DB ExtPulseWatts].
12	HW OverCurrent	Resettable Fault	Coast		Y	The drive output current has exceeded the hardware current limit. Insulation Resistance (IR) test the wiring to motor.
13	Ground Fault	Resettable Fault	Coast		Y	A current path to earth ground greater than 25 % of drive rating has occurred.
14	Ground Warning	Configurable		466 [Ground Warn Actn]		The ground current has exceeded the level set in P467 [Ground Warn Lvl].
15	Load Loss	Configurable		441 [Load Loss Action]		The output torque current is below the value programmed in P442 [Load Loss Level] for a time period greater than the time programmed in P443 [Load Loss Time].

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
17	Input Phase Loss	Configurable		462 [InPhase LossActn]		<p>The DC bus ripple has exceeded a preset level. Make these checks and adjustments in this order.</p> <ul style="list-style-type: none"> • Check input impedance balance. • Increase the setting of P463 [InPhase Loss Lvl] to make the drive less sensitive. • Tune the bus regulator or speed regulator to mitigate the effects of dynamic cyclic loads on DC bus ripple. • Disable the fault by setting P462 [InPhase LossActn] to 0 "Ignore" and use an external phase loss detector such as a Bulletin 809S relay.
18	Motor PTC Trip	Configurable		250 [PTC Cfg]		Motor PTC (Positive Temperature Coefficient) over temperature.
19	Task Overrun	Alarm 1				System resource utilization is at or above 90 % of capacity. Review the system resource allocation table on page 307 .
20	TorqPrv Spd Band	Resettable Fault	Coast			The difference between P2 [Commanded SpdRef] and P3 [Mtr Vel Fdbk] has exceeded the level programmed in P1105 [Speed Dev Band] for a time period greater than the time programmed in P1106 [SpdBand Intgrtr].
21	Output PhaseLoss	Configurable		444 [OutPhaseLossActn]		<p>The current in one or more phases has been lost or remains below the threshold set in P445 [OutPhaseLossLvl] for 1 second. Decreasing the threshold makes the drive less sensitive to tripping. A decreased threshold is necessary when the motor is smaller than the drive rating.</p> <p>If TorqProve™ is active, the current in one or more phases has been lost or remains below a threshold for five msec. The phases are checked at start to be sure that torque is delivered to the load. If the drive is faulting on start, increase P44 [Flux Up Time].</p> <p>If TorqProve is active, and the brake is slipping, this fault occurs. When TorqProve is used, before the signal to the brake is applied to release it, the flux up time is used to check the three phases. The angle is adjusted to be sure that current is flowing through all three phases. If the motor moves during this test, the brake is not holding and a phase loss can occur.</p> <p>If TorqProve is active, and no brake is present, this fault occurs. Check for an open output contactor.</p> <hr/> <div style="display: flex; align-items: center;">  <p>ATTENTION: If a PM motor is used and motor phase is lost, lower P445 [OutPhaseLossLvl] to 0 if TorqProve is not used or the drive output (motor) contacts are not used. Otherwise, lower P445 [OutPhaseLossLvl] until the drive is able to start and run without faulting.</p> </div> <hr/>
24	Decel Inhibit	Configurable		409 [Dec Inhibit Actn]		<p>The drive is not following a commanded deceleration because it is attempting to limit the bus voltage.</p> <p>For high inertia loads, set P621 [Slip RPM at FLA] to 0 (V/Hz and SVC modes only).</p>
25	OverSpeed Limit	Resettable Fault	Coast		Y	The motor operating speed exceeds the limit set by the maximum speed setting P524 [Overspeed Limit]. For forward motor rotation, this limit is P520 [Max Fwd Speed] + P524 [Overspeed Limit]. For reverse motor rotation, this limit is P521 [Max Rev Speed] - P524 [Overspeed Limit]. When flux vector control modes are selected in P35 [Motor Ctrl Mode], P131 [Active Vel Fdbk] determines the motor operating speed. For all other non-flux vector control modes, P1 [Output Frequency] determines the motor operating speed.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
26	Brake Slipped	Alarm 1				The encoder movement has exceeded the level in P1110 [Brk Slip Count] after the brake was set and the brake slip maneuver is controlling the drive. (Drive is active.) Cycle power to the drive to reset.
		Alarm 2				The encoder movement has exceeded the level in P1110 [Brk Slip Count] after the brake was set and the brake slip maneuver is finished. (Drive is stopped.) Cycle power to the drive to reset.
27	Torq Prove Cflct	Alarm 2				<p>When P1100 [Trq Prove Cfg] is enabled, these parameters must be properly configured:</p> <ul style="list-style-type: none"> • P35 [Motor Ctrl Mode] • P125 [Pri Vel Fdbk Sel] and P135 [Mtr Psn Fdbk Sel] must be set to a valid feedback device. The feedback device does not have to be the same device. However, Open Loop and Simulation Feedback are not considered valid feedback devices. <p>If parameters 125 and 135 are set to a feedback module, verify that the module parameters are set properly. On the module, the feedback loss action CANNOT be set to 0 "Ignore." Does not work in PM FV mode. Does not work with single ended or channel A only encoders.</p>
28	TP Encls Config	Alarm 2				Encoderless TorqProve has been enabled but the application concerns of encoderless operation have not read and understood. Read the "Attention" on page 356 relating to the use of TorqProve with no encoder.
29	Analog In Loss	Configurable		263 [Anlg In0 LssActn]		Analog input has a lost signal.
33	AuRsts Exhausted	Resettable Fault	Coast	348 [Auto Rstrt Tries]		The drive attempted to reset a fault and resume running for the programmed number of tries, unsuccessfully.
35	IPM OverCurrent	Resettable Fault	Coast			The current magnitude has exceeded the trip level set by P1640 [IPM Max Cur]. Set this value to 0 only when the drive is set to the V/Hz or SVC mode.
36	SW OverCurrent	Resettable Fault	Coast		Y	The drive output current has exceeded the 1 ms current rating. This rating is greater than the 3 second current rating and less than the hardware overcurrent fault level. It is typically 200...250% of the drive continuous rating.
38 39 40	Phase U to Grnd Phase V to Grnd Phase W to Grnd	Resettable Fault	Coast			<p>A phase to ground fault has been detected between the drive and motor in this phase.</p> <p>Rotate U/T1, V/T2, W/T3 connections.</p> <ul style="list-style-type: none"> • If the problem follows the wire, suspect a field wiring problem. • If no change, suspect a problem with the drive.
41 42 43	Phase UV Short Phase VW Short Phase WU Short	Resettable Fault	Coast			<p>Excessive current has been detected between these two output terminals.</p> <p>Rotate U/T1, V/T2, W/T3 connections.</p> <ul style="list-style-type: none"> • If the problem follows the wire, suspect a field wiring problem. • If no change, suspect a problem with the drive.
44 45 46	Phase UNegToGrnd Phase VNegToGrnd Phase WNegToGrnd	Resettable Fault	Coast			<p>A phase to ground fault has been detected between the drive and motor in this phase.</p> <p>Rotate U/T1, V/T2, W/T3 connections.</p> <ul style="list-style-type: none"> • If the problem follows the wire, suspect a field wiring problem. • If no change, suspect a problem with the drive.
48	System Defaulted	Resettable Fault	Coast			The drive was commanded to write default values.
49	Drive Powerup	–				A Power Up Marker in the Fault Queue indicating that the drive power cycled.
51	Clr Fault Queue	–				Indication that the fault queue has been cleared.
55	Ctrl Bd Overtemp	Resettable Fault	Coast			The temperature sensor on the main control board detected excessive heat. See product temperature requirement.
58	Module Defaulted	Resettable Fault	Coast			The module was commanded to write default values.
59	Invalid Code	Resettable Fault	Coast			Internal error.
61	Shear Pin 1	Configurable		435 [Shear Pin 1 Actn]	Y	The programmed value in P436 [Shear Pin1 Level] has been exceeded.
62	Shear Pin 2	Configurable		438 [Shear Pin 2 Actn]	Y	The programmed value in P439 [Shear Pin2 Level] has been exceeded.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
64	Drive OverLoad	Alarm 1			Y	P940 [Drive OL Count] has exceeded 50 % but is less than 100 %.
		Resettable Fault	Coast			P940 [Drive OL Count] has exceeded 100 %. Reduce the mechanical load on the drive. Inverter fiber-optic connection is not detected on Frame 8 drive. This fault can occur on power-up if the control detects that no inverter is detected via the fiber-optic communication on a Frame 8 drive.
67	Pump Off	Alarm 1				Pump Off condition has been detected.
71 72 73 74 75 76	Port 1 Adapter Port 2 Adapter Port 3 Adapter Port 4 Adapter Port 5 Adapter Port 6 Adapter	Resettable Fault	Coast			The DPI communications option has a fault. See device event queue.
77	IR Volts Range	Alarm 2				The value for P73 [IR Voltage Drop], which is calculated from the motor nameplate data, is not within the range of acceptable values, as determined by the Calculated Autotune procedure. Check the motor nameplate data against parameters P25 [Motor NP Volts] through P30 [Motor NP Power].
		Resettable Fault	Coast			The measured value for P73 [IR Voltage Drop] is not within the range of acceptable values, as determined by the Static or Rotate Autotune procedure.
78	FluxAmpsRef Rang	Alarm 2				The value for flux amps exceeds the value programmed in P26 [Motor NP Amps], as calculated by the Autotune procedure. Check motor nameplate data against parameters P25 [Motor NP Volts] through P30 [Motor NP Power].
		Resettable Fault	Coast			The value for flux amps exceeds the value programmed in P26 [Motor NP Amps], as measured by the Static or Rotate Autotune procedure.
79	Excessive Load	Resettable Fault	Coast			The motor did not come up to speed in the allotted time during Autotune.
80	AutoTune Aborted	Resettable Fault	Coast			The Autotune function was manually canceled or a fault occurred.
81 82 83 84 85 86	Port 1 DPI Loss Port 2 DPI Loss Port 3 DPI Loss Port 4 DPI Loss Port 5 DPI Loss Port 6 DPI Loss	Resettable Fault	Coast	324 [Logic Mask]		The DPI port stopped communicating. Check connections and drive grounding.
87	IXo VoltageRange	Alarm 2				The default for P70 [Autotune] is 1 "Calculate" and the voltage that is calculated for motor inductive impedance exceeds 25 % of the value of P25 [Motor NP Volts].
		Resettable Fault	Coast			P70 [Autotune] is set to 2 "Static Tune" or 3 "Rotate Tune" and the voltage that is measured for motor inductive impedance exceeds 25 % of the value of P25 [Motor NP Volts].
91	Pri VelFdbk Loss	Configurable		Note: See option module for configuration parameter number		A Feedback Loss has been detected for the source of P127 [Pri Vel Feedback]. The feedback loss could be due to a problem detected by the feedback option module selected by P125 [Pri Vel Fdbk Sel] or due to a loss in communication between the feedback option module and main control board. The source of primary velocity feedback must be configured not to fault if the feedback loss switchover feature is used.
93	Hw Enable Check	Resettable Fault	Coast			The hardware enable is disabled (a jumper is installed) but indicates not enabled.
94	Alt VelFdbk Loss	Configurable		Note: See option module for configuration parameter number		A Feedback Loss has been detected for the source of P128 [Alt Vel Fdbk Sel]. The feedback loss could be due to a problem detected by the feedback option module selected by P128 [Alt Vel Fdbk Sel], or due to a loss in communication between the feedback option module and main control board.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
95	Aux VelFdbk Loss	Configurable		Note: See option module for configuration parameter number		A Feedback Loss has been detected for the source of P132 [Aux Vel Fdbk Sel]. The feedback loss could be due to a problem detected by the feedback option module selected by P132 [Aux Vel Fdbk Sel], or due to a loss in communication between the feedback option module and main control board.
96	PositionFdbkLoss	Configurable		Note: See option module for configuration parameter number		A Feedback Loss has been detected for the source of P847 [Psn Fdbk]. The feedback loss could be due to a problem detected by the feedback option module selected by P135 [Mtr Psn Fdbk Sel], or due to a loss in communication between the feedback option module and main control board.
97	Auto Tach Switch	Resettable Fault	Coast	635 [Spd Options Ctrl] Bit 7 "Auto Tach SW"		Indication that either of the two following conditions exists. <ul style="list-style-type: none"> Tach switch has occurred and alternate feedback device has failed. Tach switch has not occurred, Auto Tach Switch Option is enabled and both primary and alternate devices have failed.
100	Parameter Chksum	Resettable Fault	Coast			The checksum read from the non-volatile storage does not match the checksum calculated. The data is set to the default value.
101	PwrDn NVS Blank	Resettable Fault	Coast			Internal data error. <ul style="list-style-type: none"> Reset parameter defaults. See publication 20HIM-UM001 for instructions. Reload parameters. If problem persists, replace main control board. Fault normally occurs after a flash update to correct F117 fault.
102	NVS Not Blank	Resettable Fault	Coast			Internal data error.
103	PwrDn NVS Incomp	Resettable Fault	Coast			Internal data error.
104	Pwr Brd Checksum	Non-Reset Fault				The checksum read from the non-volatile storage does not match the checksum calculated. The data is set to the default value.
106	Incompat MCB-PB	Non-Reset Fault	Coast			The main control board did not recognize the power structure. Flash with newer Application revision.
107	Replaced MCB-PB	Resettable Fault	Coast			The main control board was moved to another power structure. The data is set to the default values.
108	Anlg Cal Chksum	Non-Reset Fault	Coast			The checksum read from the analog calibration data does not match the checksum calculated. Replace main control board.
110	Ivld Pwr Bd Data	Non-Reset Fault	Coast			Power structure data invalid. <ul style="list-style-type: none"> Verify ribbon cable connection between the main control board and the power interface board. Replace power interface board.
111	PwrBd Invalid ID	Non-Reset Fault	Coast			Power structure ID invalid. <ul style="list-style-type: none"> Verify ribbon cable connection between the main control board and the power interface board. Replace power interface board.
112	PwrBd App MinVer	Resettable Fault	Coast			Power structure needs newer Application revision. Flash with newer Application revision.
113	Tracking DataErr	Resettable Fault	Coast			Internal data error.
115	PwrDn Table Full	Resettable Fault	Coast			Internal data error.
116	PwrDnEntry2Large	Resettable Fault	Coast			Internal data error.
117	PwrDn Data Chksm	Resettable Fault	Coast			Internal data error.
118	PwrBd PwrDn Chks	Resettable Fault	Coast			Internal data error.
124	App ID Changed	Resettable Fault	Coast			Application Firmware changed. Verify Application revision.
125	Using Backup App	Resettable Fault	Coast			Application did not flash correctly. Reflash.
134	Start On PowerUp	Alarm 1				When P345 [Start At PowerUp] is enabled, an alarm is set for the time programmed in P346 [PowerUp Delay].
137	Ext Prechg Err	Configurable		323 [Prchg Err Cfg]		The seal contact on the external precharge contactor has opened (as signalled by P190 [DI Prchg Seal]) while the drive was running (PWM was active).

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
138	Precharge Open	Resettable Fault	Coast	321 [Prchrg Control] 190 [DI Prchrg Seal] 189 [DI Precharge]		The internal precharge was commanded to open while the drive was running (PWM was active). The internal fault latch is automatically cleared when PWM is disabled.
141	Autn Enc Angle	Resettable Fault	Coast			P78 [EncdrLss AngComp] is out of range.
142	Autn Spd Rstrct	Resettable Fault	Coast			Frequency limit settings are preventing the drive from reaching a suitable speed during an Inertia Tune test.
143	Autotune CurReg	Resettable Fault	Coast			Calculated values for P96 [VCL Cur Reg Kp] and/or P97 [VCL Cur Reg Ki] are out of range.
144	Autotune Inertia	Resettable Fault	Coast			Results from the Inertia Tune test out of range for P76 [Total Inertia].
145	Autotune Travel	Resettable Fault	Coast			When P77 [Inertia Test Lmt] is set, the Inertia Tune test was prevented from reaching a suitable speed to run the test.
152	No Stop Source	Resettable Fault	Coast			Last stop source has been removed.
155	Bipolar Conflict	Alarm 2				P308 [Direction Mode] is set to 1 "Bipolar" or 2 "Rev Disable" and one or more digital inputs is enabled for direction control.
157	DigIn Cfg B	Alarm 2				Digital input conflict. Input functions that cannot exist simultaneously have been selected (for example run and start). Correct Digital Input configuration.

Digital Input combinations marked "•" cause an alarm.

	DI Stop Mode B	DI Speed Sel 2	DI Speed Sel 1	DI Speed Sel 0	DI Manual Ctrl	DI Decel 2	DI Accel 2	DI Fwd Reverse	DI Jog 2 Reverse	DI Jog 2 Forward	DI Jog 2	DI Jog 1 Reverse	DI Jog 1 Forward	DI Jog 1	DI Run Reverse	DI Run Forward	DI Run	DI Start	DI HOA Start	DI Clear Fault	DI Aux Fault	DI Cur Lmt Stop	DI Coast Stop	DI Stop
DI Stop	•																							•
DI Coast Stop																								•
DI Cur Lmt Stop																								•
DI Aux Fault																			•	•				
DI Clear Fault																			•	•				
DI HOA Start									•	•		•	•		•	•	•	•	•	•				
DI Start									•	•		•	•		•	•	•	•	•	•				
DI Run									•	•		•	•		•	•	•	•	•	•				
DI Run Forward								•			•				•	•	•	•	•	•				
DI Run Reverse								•			•				•	•	•	•	•	•				
DI Jog 1									•	•		•	•		•	•								
DI Jog 1 Forward								•			•				•	•		•	•	•				
DI Jog 1 Reverse								•			•				•	•		•	•	•				
DI Jog 2									•	•		•	•		•	•								
DI Jog 2 Forward								•			•				•	•		•	•	•				
DI Jog 2 Reverse								•			•				•	•		•	•	•				
DI Fwd Reverse								•	•		•	•			•	•								
DI Accel 2							•																	
DI Decel 2						•																		
DI Manual Ctrl					•																			
DI Speed Sel 0				•																				
DI Speed Sel 1			•																					
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158	DigIn Cfg C	Alarm 2				<p>Digital input conflict. Input functions that cannot be assigned to the same digital input have been selected (for example run and stop). Correct Digital Input configuration.</p> <p>Digital Input combinations marked "●" cause an alarm.</p> <table border="1"> <thead> <tr> <th></th> <th>DI Stop Mode B</th> <th>DI Speed Sel 2</th> <th>DI Speed Sel 1</th> <th>DI Speed Sel 0</th> <th>DI Manual Ctrl</th> <th>DI Decel 2</th> <th>DI Accel 2</th> <th>DI Fwd Reverse</th> <th>DI Jog 2 Reverse</th> <th>DI Jog 2 Forward</th> <th>DI Jog 2</th> <th>DI Jog 1 Reverse</th> <th>DI Jog 1 Forward</th> <th>DI Jog 1</th> <th>DI Run Reverse</th> <th>DI Run Forward</th> <th>DI Run</th> <th>DI Start</th> <th>DI HOA Start</th> <th>DI Clear Fault</th> <th>DI Aux Fault</th> <th>DI Cur Lmt Stop</th> <th>DI Coast Stop</th> <th>DI Stop</th> </tr> </thead> <tbody> <tr> <td>DI Stop</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> <td>●</td> </tr> 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161	Sleep Config	Alarm 2				There is a Sleep/Wake configuration error. With Sleep Wake Mode = Direct, possible causes include: Drive is stopped and Wake Level < Sleep Level. Stop=CF, Run, Run Fwd, or Run Rev is not configured in Digital Input functions.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
162	Waking	Alarm 1				The Wake timer is counting toward a value that starts the drive.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
168	HeatSinkUnderTmp	Resettable Fault				Heatsink temperature sensor is reporting a value below -18.7 °C (-1.66 °F) or the sensor feedback circuit is open. See P943 [Drive Temp Pct] and/or P944 [Drive Temp C].																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
169	PWM Freq Reduced	Alarm 1				The PWM Frequency has been reduced from the value set in P38 [PWM Frequency] due to excessive IGBT junction temperatures. See also P420 [Drive OL Mode].																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
170	CurLimit Reduced	Alarm 1				The current limit value has been reduced from the value set in [Current Limit n] due to excessive IGBT junction temperatures or P940 [Drive OL Count] = 95 %. See also P420 [Drive OL Mode].																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
171	Adj Vltg Ref	Alarm 1				Invalid adjustable-voltage reference selection conflict.
175	Travel Lim Cflct	Non-Reset Fault	Current Limit Stop			<p>Travel limits are in conflict. Both the forward and reverse travel limits indicate that they are simultaneously active.</p> <p>If digital limits (hardware signals) are in use, ensure that the following forward and reverse digital input pairs are not both off simultaneously: fwd/rev decel travel limit digital inputs and fwd/rev end stop travel limit digital inputs. The travel limit digital inputs are meant to be connected to normally closed switch contacts, so the digital input status reads an off (0 = False) bit status when the machine is on limit and the switch contact opens. A possible cause for this condition is loss of common power to both the forward and reverse travel limit switches.</p> <p>If software travel limits are in use, check the state of the fwd/rev travel limit bits in P1101 [Trq Prove Setup]. These bits read an on (1 = Enabled) bit status when the machine is on limit. Bit 2 "Decel Fwd" and Bit 4 "Decel Rev" should not be on simultaneously. Similarly, Bit 3 "End Stop Fwd" and Bit 5 "End Stop Rev" should not be on simultaneously.</p>
177	Profiling Active	Alarm 1				The Profile/Indexer is active.
178	Homing Active	Alarm 1				The Homing function is active.
179	Home Not Set	Alarm 1				The Home position was not set before profile operation.
181	Fwd End Limit	Resettable Fault	Current Limit Stop			<p>The selected digital input for one of the end limit switches, P196 [DI Fwd End Limit] or P198 [DI Rev End Limit], has detected a falling edge and P313 [Actv SpTqPs Mode] is not set to 1 "Speed Reg."</p> <p>If digital limits (hardware signals) are in use, ensure that the digital inputs are connected to normally closed contacts. When the end limit is reached the contacts open.</p>
182	Rev End Limit	Resettable Fault	Current Limit Stop			<p>The selected digital input for one of the end limit switches, P196 [DI Fwd End Limit] or P198 [DI Rev End Limit], has detected a falling edge and P313 [Actv SpTqPs Mode] is not set to 1 "Speed Reg."</p> <p>If digital limits (hardware signals) are in use, ensure that the digital inputs are connected to normally closed contacts. When the end limit is reached the contacts open.</p>
185	Freq Conflict	Alarm 2				Indicates that the values of P520 [Max Fwd Speed] and P521 [Max Rev Speed] are in conflict with the value of P63 [Break Frequency].
186	VHz Neg Slope	Alarm 2				<p>Indicates that the V/Hz curve segment resulted in a negative V/Hz slope.</p> <p>See P60 [Start Acc Boost] through P63 [Break Frequency].</p>
187	VHz Boost Limit	Alarm 2				<p>Indication that one of the two following conditions exists.</p> <ul style="list-style-type: none"> • P60 [Start/Acc Boost] and P61 [Run Boost] are greater than P25 [Motor NP Volts] x 0.25 when P65 [VHz Curve] = 0 "Custom V/Hz." • P61 [Run Boost] is greater than P25 [Motor NP Volts] x 0.25 when P65 [VHz Curve] = 1 "Fan/Pump."
190	PM FV Pri Fdbk	Alarm 2				Indicates a control mode and primary-feedback device configuration error. P35 [Motor Ctrl Mode] is set to the permanent magnet flux vector "PM FV" control mode, P125 [Pri Vel Fdbk Sel] is set to P137 [Open Loop Fdbk] (port 0).
191	PM FV Alt Fdbk	Alarm 2				Indicates a control mode and alternate-feedback device configuration error. P35 [Motor Ctrl Mode] is set to the permanent magnet flux vector "PM FV" control mode, P635 [Spd Options Ctrl] is set to bit 7 "Auto Tach SW," P128 [Alt Vel Fdbk Sel] is set to P137 [Open Loop Fdbk] (port 0).
192	Fwd Spd Lim Cfg	Alarm 2				<p>The forward speed reference is out of range.</p> <p>Verify the settings of P38 [PWM Frequency] and P520 [Max Fwd Speed]. Lower carrier frequencies reduce the output frequency range. Verify that P522 [Min Fwd Speed] is less than or equal to P520 [Max Fwd Speed].</p>

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
193	Rev Spd Lim Cfg	Alarm 2				The reverse speed reference is out of range. Verify the settings of P38 [PWM Frequency] and P521 [Max Rev Speed]. Lower carrier frequencies reduce the output frequency range. Verify that P523 [Min Rev Speed] is greater than or equal to P521 [Max Rev Speed].
194	PM Offset Conflict	Alarm 2				Both P80 [PM Cfg] bit 0 "AutoOfstTest" and bit 2 "StaticTestEn" are set. Select only one.
195	IPMSpdEstErr	Resettable Fault	Coast			Speed Estimator failed to track High-Speed angle.
196	PM FS Cflct	Alarm 2				Attempted to set P356 [FlyingStart Mode] to 2 "Sweep" with a permanent magnet motor selected in P35 [Motor Ctrl Mode].
197	PM Offset Failed	Resettable Fault	Coast			Indicates that the PM Offset test failed due to interruption of the test before completion or the motor movement failed to reach the proper amount of rotation during the test. The test is rescheduled when this fault occurs. If failure occurred because of movement limitations, increase the [PM OfstTst Cur]. If this solution fails to correct the problem, the load on the motor maybe too large.
201	SpdReg DL Err	Alarm 2				Attempted to establish a Datalink to P644 [Spd Err Flt BW], P645 [Speed Reg KP], or P647 [Speed Reg Ki] and P636 [Speed Reg BW] is set to a value other than zero.
202	AltSpdReg DL Err	Alarm 2				Attempted to establish a Datalink to P649 [Alt Speed Reg Kp], P650 [Alt Speed Reg Ki], or P651 [AltSpdErr FltrBW] and P648 [Alt Speed Reg BW] is set to a value other than zero.
203	Port 13 Adapter	Resettable Fault	Coast			The embedded EtherNet/IP adapter has a fault. See EtherNet event queue.
204	Port 14 Adapter	Resettable Fault	Coast			The DeviceLogix adapter has a fault.
205	DPI TransportErr	Alarm 1				A DPI Communication Error has occurred.
210	HW Enbl Jmpr Out	Resettable Fault	Coast			A Safety Option module is present and ENABLE Jumper is removed. Install the jumper. This fault occurs only on frames 1...7.
211	Safety Brd Fault	Resettable Fault	Coast			A Safety option module has indicated a fault. Verify that ENABLE Jumper is installed. Reset or power cycle drive. Safe Speed Monitor (20-750-S1): <ul style="list-style-type: none"> See P67 [Fault Status] on page 298 for more information on the fault statuses. See publication 750-RM001 for more information. Safe Torque Off (20-750-S): <ul style="list-style-type: none"> If DC power drops below 17V DC "Not Enable" is indicated. If voltage drops below 11V DC the module faults. See publication 750-UM002 for more information. ATEX (20-750-ATEX): <ul style="list-style-type: none"> Possible hardware damage. The motor to the thermal sensor is shorted. Excessive EMC noise due to improper grounding/shielding. See publication 750-UM003 for more information.
212	Safety Jmpr Out	Resettable Fault	Coast			SAFETY Jumper is not installed and a Safety option module is not present. Install the jumper.
213	Safety Jumper In	Resettable Fault	Coast			SAFETY Jumper is installed and a Safety option module is present. Remove the jumper.
214	SafetyPortCnflct	Alarm 2				Allowable number of safety options exceeded. Only one safety option module can be installed at a time.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
224	Port 4 Comm Loss	Resettable Fault	Coast			The device at the port has stopped communicating with the main control board. Verify that the device is present and functional. Verify network connections. Verify options that are installed in ports 4 . . . 8 are seated in the port and secured with mounting screws.
225	Port 5 Comm Loss					
226	Port 6 Comm Loss					
227	Port 7 Comm Loss					
228	Port 8 Comm Loss					
229	Port 9 Comm Loss					
230	Port10 Comm Loss					
231	Port11 Comm Loss					
232	Port12 Comm Loss					
233	Port13 Comm Loss					
234	Port14 Comm Loss					
244	Port 4 Cfg	Alarm 2				The main control board does not have the correct option in the port. Option may not be compatible with product or MCB firmware must be updated to support it. Option may have to be moved or removed, accept option configuration change.
245	Port 5 Cfg					
246	Port 6 Cfg					
247	Port 7 Cfg					
248	Port 8 Cfg					
249	Port 9 Cfg					
250	Port 10 Cfg					
251	Port 11 Cfg					
252	Port 12 Cfg					
253	Port 13 Cfg					
254	Port 14 Cfg					
264	Port 4 Checksum	Resettable Fault	Coast			An option module storage checksum failed. Option data has been set to default values.
265	Port 5 Checksum					
266	Port 6 Checksum					
267	Port 7 Checksum					
268	Port 8 Checksum					
269	Port 9 Checksum					
270	Port10 Checksum					
271	Port11 Checksum					
272	Port12 Checksum					
273	Port13 Checksum					
274	Port14 Checksum					
281	Enet Checksum	Resettable Fault	Coast			EtherNet/IP storage checksum failed. Data set to default values.
282	DLX Checksum	Resettable Fault	Coast			DeviceLogix storage checksum failed. Data set to default values.
290	Prev Maint Reset	Alarm 1				Predictive maintenance function has reset an elapsed life parameter.
291	HSFan Life	Configurable		493 [HSFan EventActn]		Predictive maintenance function has reached the event level. Perform maintenance.
292	InFan Life	Configurable		500 [InFan EventActn]		
293	MtrBrng Life	Configurable		506 [MtrBrngEventActn]		
294	MtrBrng Lube	Configurable		510 [MtrLubeEventActn]		
295	MachBrng Life	Configurable		515 [MtrBrngEventActn]		
296	MachBrng Lube	Configurable		519 [MchLubeEventActn]		
307	Port7InvalidCard	Non-Reset Fault	Coast			Option not valid in that port. Remove option module.
308	Port8InvalidCard	Non-Reset Fault	Coast			
310	Regeneration OK	Resettable Fault	Coast			The drive has detected that the 'Regeneration OK' input has transition to an 'inactive' state.
315	Excess Psn Err	Configurable		Configured with Logix controller.		The absolute maximum Position Error value has been exceeded.
318	OutCurShare PhU	Alarm 1				There is output current sharing imbalance between parallel inverters in the phase indicated that is greater than 15 % of the inverter rated current.
319	OutCurShare PhV					
320	OutCurShare PhW					

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
322	N-1 Operation	Alarm 1		20 (Port 10) [Recfg Acknowledg] 21 (Port 10) [Effctv I Rating]		Drive is operating with fewer inverters than the original parallel configuration.
324	DC Bus Mismatch	Non-Reset Fault	Coast			There is a bus voltage imbalance between parallel inverters that is greater than 50V DC.
327 328 329	HS Temp Imbal U HS Temp Imbal V HS Temp Imbal W	Alarm 1				There is a heatsink temperature imbalance between parallel inverters in the phase indicated that is greater than 11.5 °C (52.7 °F).
331 332 333	I1 Comm Loss I2 Comm Loss I3 Comm Loss	Resettable Fault	Coast			A communications fault has occurred between the main control board and the power layer interface board on inverter <i>n</i> .
341 342 343	C1 Comm Loss C2 Comm Loss C3 Comm Loss	Resettable Fault	Coast			A communications fault has occurred between the main control board and the converter gate board on converter <i>n</i> .
351 352 353	In Cur Share L1 In Cur Share L2 In Cur Share L3	Alarm 1				There is an input current sharing imbalance between parallel converters in the AC line indicated that is greater than 15 % of the converter rated current.
357 358 359	In Vlt Imbal L12 In Vlt Imbal L23 In Vlt Imbal L31	Alarm 1				There is an input line voltage imbalance between parallel converters in the AC lines indicated that is greater than 5 % of the converter rated voltage.
360	N-1 See Manual	Resettable Fault	Coast			The number of active inverters has been reduced from the original parallel configuration. See N-1 and Re-Rate Functions on page 337 .
361	Rerate See Manual	Resettable Fault	Coast			The drive rating has changed from the original parallel configuration. See N-1 and Re-Rate Functions on page 337 .
362	Cnv/Inv Mismatch	Alarm 2				There is a voltage class mismatch between the installed parallel inverters and converters.
363	CBP/Inv Mismatch	Alarm 2				There is a voltage class mismatch between the installed parallel inverters and common DC bus precharge units.
364	CBP Num Mismatch	Alarm 2				The number of active inverters and active common DC bus precharge units does not match.
365	Zero Cnv/Prechrg	Alarm 2				No converter or common DC bus precharge unit exists.
366	Cnv Num Mismatch	Alarm 2				The number of active inverters and active converters does not match.
371 372	P1 Comm Loss P2 Comm Loss	Resettable Fault	Coast			A communications fault has occurred between the main control board and the DC precharge control board on the common DC bus precharge unit <i>n</i> .
380	PWM FPGA Overrun	Alarm 1				The time limit on the PWM write to the FPGA was exceeded.
900	900	Automatic Drive Reset	Coast			Critical input exception. Contact technical support.
901	Machine Check	Automatic Drive Reset	Coast			Internal error. Replace the main control board.
902	Data Storage Error	Automatic Drive Reset	Coast			Cache memory corrupt. Replace the main control board.
903	Instruction Storage Error	Automatic Drive Reset	Coast			Cache memory corrupt. Replace the main control board.
905	Alignment Error	Automatic Drive Reset	Coast			Pointer is pointing to a non-boundary member. Obtain test points and check grounding.
906	Program Error	Automatic Drive Reset	Coast			Bad memory read. Check grounding or replace the main control board.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
907	Floating Point Unit Not On	Automatic Drive Reset	Coast			Firmware issue. Obtain test points.
909	Aux Processor Not On	Automatic Drive Reset	Coast			Auxiliary processor interrupt. Contact technical support.
912	Watchdog	Automatic Drive Reset	Coast			The timer counted down, reached 0, and fault occurred. Replace the main control board.
913	Data TLB Error	Automatic Drive Reset	Coast			Processor attempted to access non-boundary memory. Check grounding or replace the main control board.
914	Instruction TLB Error	Automatic Drive Reset	Coast			Processor attempted to access non-boundary memory. Check grounding or replace the main control board.
916	FPGA Failed to Load	Automatic Drive Reset	Coast			MCB failed to load on powerup. Replace the main control board.
917	FPGA CRC Failure	Resettable Fault (753) Disabled (755 LP) Automatic Drive Reset (755 HP)	Coast	964 [CRC Flt Cfg] 753 only		Change fault configuration (753). Replace the main control board.
918	Control Task Overrun	Automatic Drive Reset	Coast			Carrier frequency changes when passing through 7 Hz. In P40 [Mtr Option Cfg], set the PWM to 2 kHz or turn on the "PWM FreqLock" Bit 9. Or flash the drive to 8.001.
919	System Task Overrun	Automatic Drive Reset	Coast			The control task not finished and being told to run again. If fault does not clear, replace the main control board.
920	5 mSec Task Overrun	Automatic Drive Reset	Coast			The control task not finished and being told to run again. If fault does not clear, replace the main control board.
921	Control Task Stall	Automatic Drive Reset	Coast			Control task stalled. Check grounding or replace the main control board.
922	System Task Stall	Automatic Drive Reset	Coast			System task stalled. Check grounding or replace the main control board.
923	5 mSec Task Stall	Automatic Drive Reset	Coast			5 msec task stalled. Check grounding or replace the main control board.
924	Background Task Stall	Automatic Drive Reset	Coast			Background task stalled. Check grounding or replace the main control board.
925	Stack Overflow	Automatic Drive Reset	Coast			Firmware overflow. Obtain test points.
926	Ethernet Error	Automatic Drive Reset	Coast			Ethernet error. Contact technical support.
927	CIP Motion Error	Automatic Drive Reset	Coast			Integrated motion error. Contact technical support.
14037	Net IO Timeout	Configurable		52 [DLX Prog Cond]		DeviceLogix has been disabled.

IMPORTANT A module installed in a port generate fault and alarm event numbers 3000 . . . 13999. See [Fault and Alarm Display Codes on page 308](#) for an explanation. For event numbers that fall from 13000 to 13999, refer to the PowerFlex 755 Drive Embedded EtherNet/IP Adapter User Manual, publication [750COM-UM001](#) for descriptions.

Table 11 - Drive Fault and Alarm Cross Reference By Name

Fault/Alarm Text	Number	Fault/Alarm Text	Number
Adj Vltg Ref	171	Fwd Spd Lim Cfg	192
Alt VelFdbk Loss	94	Ground Fault	13
AltSpdReg DL Err	202	Ground Warning	14
Analog In Loss	29	Heatsink OvrTemp	8
Anlg Cal Chksum	108	HeatSinkUnderTmp	168
App ID Changed	124	Home Not Set	179
AuRsts Exhausted	33	Homing Active	178
Autn Enc Angle	141	HS Temp Imbal U	327
Autn Spd Rstrct	142	HS Temp Imbal V	328
Auto Tach Switch	97	HS Temp Imbal W	329
AutoTune Aborted	80	HSFan Life	291
Autotune CurReg	143	Hw Enable Check	93
Autotune Inertia	144	HW Enbl Jmpr Out	210
Autotune Travel	145	HW OverCurrent	12
Aux VelFdbk Loss	95	I1 Comm Loss	331
Auxiliary Input	2	I2 Comm Loss	332
Bipolar Conflict	155	In Cur Share L1	351
Brake Slipped	26	In Cur Share L2	352
C1 Comm Loss	341	In Cur Share L3	353
C2 Comm Loss	342	In Vlt Imbal L12	357
CBP Num Mismatch	364	In Vlt Imbal L23	358
CBP/Inv Mismatch	363	In Vlt Imbal L31	359
Clr Fault Queue	51	Incompat MCB-PB	106
Cnv Num Mismatch	366	InFan Life	292
Cnv/Inv Mismatch	362	Input Phase Loss	17
Comm Loss Net	280	Invalid Code	59
Ctrl Bd Overtmp	55	IPM OverCurrent	35
Curlimit Reduced	170	IPMSpdEstErr	195
DC Bus Mismatch	324	IR Volts Range	77
Decel Inhibit	24	Ivld Pwr Bd Data	110
DigIn Cfg B	157	IXo VoltageRange	87
DigIn Cfg C	158	Load Loss	15
DLX Checksum	282	MachBrng Life	295
DPI TransportErr	205	MachBrng Lube	296
Drive OverLoad	64	Module Defaulted	58
Drive Powerup	49	Motor Overload	7
DynBrake OvrTemp	10	Motor PTC Trip	18
Enet Checksum	281	MtrBrng Life	293
Excess Psn Err	315	MtrBrng Lube	294
Excessive Load	79	N-1 Operation	322
Ext Prechrg Err	137	N-1 See Manual	360
FluxAmpsRef Rang	78	Net IO Timeout	14037
Freq Conflict	185	No Stop Source	152
Fwd End Limit	181	NVS Not Blank	102

Fault/Alarm Text	Number
OutCurShare PhU	318
OutCurShare PhV	319
OutCurShare PhW	320
Output PhaseLoss	21
OverSpeed Limit	25
OverVoltage	5
P1 Comm Loss	371
P2 Comm Loss	372
Parameter Chksum	100
Phase U to Grnd	38
Phase UNegToGrnd	44
Phase UV Short	41
Phase V to Grnd	39
Phase VNegToGrnd	45
Phase VW Short	42
Phase W to Grnd	40
Phase WNegToGrnd	46
Phase WU Short	43
PM FS Cfict	196
PM FV Alt Fdbk	191
PM FV Pri Fdbk	190
PM Offset Conflict	194
PM Offset Failed	197
Port 1 Adapter	71
Port 1 DPI Loss	81
Port 10 Cfg	250
Port 11 Cfg	251
Port 12 Cfg	252
Port 13 Adapter	203
Port 13 Cfg	253
Port 14 Adapter	204
Port 14 Cfg	254
Port 2 Adapter	72
Port 2 DPI Loss	82
Port 3 Adapter	73
Port 3 DPI Loss	83
Port 4 Adapter	74
Port 4 Cfg	244
Port 4 Checksum	264
Port 4 Comm Loss	224
Port 4 DPI Loss	84
Port 5 Adapter	75
Port 5 Cfg	245

Fault/Alarm Text	Number
Port 5 Checksum	265
Port 5 Comm Loss	225
Port 5 DPI Loss	85
Port 6 Adapter	76
Port 6 Cfg	246
Port 6 Checksum	266
Port 6 Comm Loss	226
Port 6 DPI Loss	86
Port 7 Cfg	247
Port 7 Checksum	267
Port 7 Comm Loss	227
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Inverter (Port 10) Faults and Alarms (Frame 8 and Larger)


Table 12 contains a list of Inverter-specific faults and alarms, the type of fault or alarm, the action that is taken when the drive faults, the parameter that is used to configure the fault or alarm (if applicable), and a description and action (where applicable). These faults and alarms only apply to Frame 8 drives and larger.

Table 12 - Inverter Fault and Alarm Types, Descriptions, and Actions

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
10101 10201 10301	I1 Comm Loss I2 Comm Loss I3 Comm Loss	Non-Reset Fault	Coast			<p>Indicates that the communication connection from the fiber optic interface board to the power layer interface board has been lost. Once the root cause of the communication fault has been resolved, power must be cycled or a drive reset must be initiated to clear this fault.</p> <ul style="list-style-type: none"> Verify the status of the Fiber Loss pin segment of the power-layer interface board LED. <hr/> <div style="display: flex; align-items: center;">  <p>ATTENTION: Hazard of permanent eye damage exists when using optical transmission equipment. This product emits intense light and invisible radiation. Do not look into fiber-optic ports or fiber-optic cable connectors. Remove power from the drive before disconnecting fiber optic cables.</p> </div> <hr/> <ul style="list-style-type: none"> Verify that the fiber optic cables are properly connected to the transceivers. Verify that the transceivers are properly seated in the ports. Verify that the fiber optic cable is not cracked or broken. Verify that power is applied to the fiber optic interface board and power layer interface board.
10102 10202 10302	I1 Thermal Const I2 Thermal Const I3 Thermal Const	Non-Reset Fault	Coast			<p>The thermal model data sent to the power layer interface board is incorrect.</p> <ul style="list-style-type: none"> Verify that the inverter is the correct rating for the drive. Compare the firmware revisions of the power layer interface and control board for compatibility. If necessary, reflash the application firmware in control board.
10103 10203 10303	I1 HSFan Slow I2 HSFan Slow I3 HSFan Slow	Alarm 1				<p>The inverter heatsink fan is running below normal operating speed.</p> <ul style="list-style-type: none"> Verify the actual fan speed in [In HSFan Speed] (Port 10). Check for debris in the fan. If necessary, clean the fan and housing. Check for noise at the fan, indicating motor bearing failure. Verify that the fan power and feedback connections are not loose or disconnected. Replace the fan, if necessary.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)					
10104 10204 10304	I1 Overcurr UPos I2 Overcurr UPos I3 Overcurr UPos	Resettable Fault	Coast		Y	An instantaneous overcurrent (IOC) has occurred in the U, V, or W phase, positive or negative leg. <ul style="list-style-type: none"> Reduce the mechanical load. Check the motor and connections. With motor disconnected, run the drive in open loop, in V/Hz mode and check for sufficient output phase-to-phase voltages. If an IOC occurs immediately after restarting the drive, check the appropriate current sensor. Check the power and signal connections to the gate driver board for the phase that is identified, or replace it. The IGBT could also have failed open (and the opposite leg is receiving excess current). 					
10105 10205 10305	I1 Overcurr UNeg I2 Overcurr UNeg I3 Overcurr UNeg										
10106 10206 10306	I1 Overcurr VPos I2 Overcurr VPos I3 Overcurr VPos										
10107 10207 10307	I1 Overcurr VNeg I2 Overcurr VNeg I3 Overcurr VNeg										
10108 10208 10308	I1 Overcurr WPos I2 Overcurr WPos I3 Overcurr WPos										
10109 10209 10309	I1 Overcurr WNeg I2 Overcurr WNeg I3 Overcurr WNeg										
10110 10210 10310	I1 Bus Overvolt I2 Bus Overvolt I3 Bus Overvolt						Resettable Fault	Coast		Y	The DC bus has exceeded the maximum value. <ul style="list-style-type: none"> Verify the correct voltage on the AC input line. Reduce the mechanical load and/or rate of deceleration. Compare the DC bus voltage displayed in [In DC Bus Volt] (port 10), in [Cn DC Bus Volt] (port 11), and with a meter using the DC+ and DC- test points at the top of the inverter. If the measurements do not match, the components that are used for DC bus voltage feedback sensing can be damaged or incorrect. Replace the power supply, power control, and power-layer interface circuit boards.
10111 10211 10311	I1 Ground Fault I2 Ground Fault I3 Ground Fault						Resettable Fault	Coast		Y	A current path to earth ground greater than 25 % of drive rating has occurred. <ul style="list-style-type: none"> Perform a Megger or surge test on a disconnected motor. Replace the motor, if necessary. Check the output phase current displayed in [In U Phase Curr], [In V Phase Curr], and [In W Phase Curr] (port 10) for an imbalance. [In Gnd Current] (port 10) is the calculated (not measured) ground current based on the phase currents. If the ground fault happens immediately when the drive is started, view the values of the output phase current parameters (noted in the second bullet) when running the drive with a light load or perform a trending analysis. Reseat the rating plug and current transducer wiring harness.
10112 10212 10312	I1 IGBT OvrTemp I2 IGBT OvrTemp I3 IGBT OvrTemp						Resettable Fault	Coast		Y	An IGBT over temperature has been detected. This power layer interface board calculated this value based on the NTC temperature plus a rise based on recent currents through the inverter. <ul style="list-style-type: none"> Check the NTC temperature that is displayed in [In Heatsink Temp] (port 10) and verify that it is not near the limit. If this value is near the limit, check for cooling problems caused by a blocked or slow heatsink fan. Check the output phase current displayed in [In U Phase Curr], [In V Phase Curr], and [In W Phase Curr] (port 10) for an imbalance. Check for high-current operation at low speeds, since nearly all current goes through one IGBT in this case. Replace the power layer interface board.
10113 10213 10313	I1 HS OvrTemp I2 HS OvrTemp I3 HS OvrTemp	Resettable Fault	Coast		Y	A heatsink over temperature has occurred in inverter 1. <ul style="list-style-type: none"> Verify that the NTC is not disconnected or shorted. Check for cooling problems - the heatsink cooling fan is running slow, the enclosure filter or heatsink fins are dirty, or the ambient temperature is too high. Check the NTC resistance with a meter. If the resistance is correct, replace the power layer interface board. 					

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
10114 10214 10314	I1 Main PS Low I2 Main PS Low I3 Main PS Low	Resettable Fault	Coast			<p>The main power supply is producing a low voltage. The inverter power board provides +/- 24V for the stirring fans, LEMs, and floating supply for the gate driver boards. This fault can occur during a power-down sequence.</p> <ul style="list-style-type: none"> • If this fault occurs when the drive is started, check the stirring fans for a short. • Disconnect the individual loads that are powered by this board and look for a short or excessive current. • Replace the inverter power supply board.
10115 10215 10315	I1 IPwrIF PS Low I2 IPwrIF PS Low I3 IPwrIF PS Low	Resettable Fault	Coast			<p>The local power supply is producing a low voltage. The inverter power supply board generates +/- 12V from the system power supply and provides power to the power control and power layer interface (PLI) boards.</p> <ul style="list-style-type: none"> • Check for a short on the power layer interface or backplane board and replace as necessary. • If no short is present on the power layer interface or backplane board, replace the inverter power board.
10116 10216 10316	I1 Sys PS Low I2 Sys PS Low I3 Sys PS Low	Alarm 1				<p>A system power supply under voltage has occurred.</p> <ul style="list-style-type: none"> • Using a meter, check for 24V on the inverter power supply board. Replace the board if necessary.
10117 10217 10317	I1 SysPS Overcur I2 SysPS Overcur I3 SysPS Overcur	Resettable Fault	Coast			<p>A system power supply over current has occurred. This fault can occur during a power-down sequence.</p> <ul style="list-style-type: none"> • Check the wiring harness from the inverter power supply board to the converter gate firing board and control pod for shorts/reversals. • Check for a short on incoming power to the converter gate firing board or fiber interface board. • Disconnect P6 on the inverter power board to remove the load from this power supply. If the breaker remains tripped, replace the inverter power supply board.
10118 10218 10318	I1 HSfan PS Low I2 HSfan PS Low I3 HSfan PS Low	Alarm 1				<p>A heatsink fan power-supply undervoltage has occurred.</p> <ul style="list-style-type: none"> • Check for 230V supply on the inverter power supply board at connector P6. If there is voltage, replace the inverter power supply board. • If there is no voltage, check the control power transformer, its primary and secondary fuses, and wiring harness.
10119 10219 10319	I1 CT Harness I2 CT Harness I3 CT Harness	Non-Reset Fault	Coast			<p>The drive has detected a connection loss to a current transducer.</p> <ul style="list-style-type: none"> • Verify that the current transducer wiring harness is connected to J22, J23, and J24 on the power interface board.
10120 10220 10320	I1 PLI OvrTemp I2 PLI OvrTemp I3 PLI OvrTemp	Resettable Fault	Coast		Y	<p>The power-layer interface circuit board is over temperature.</p> <ul style="list-style-type: none"> • Verify that the ambient temperature is not too high. • Verify that the stirring fans are operational. • Check the temperature sensor test point on the power layer interface board to verify that the output is within range. If necessary, replace the power layer interface board.
10121 10221 10321	I1 PSBrd OvrTemp I2 PSBrd OvrTemp I3 PSBrd OvrTemp	Resettable Fault	Coast		Y	<p>The power supply board is over temperature.</p> <ul style="list-style-type: none"> • Verify that the ambient temperature is not too high. • Verify that the stirring fans are operational. • Check the temperature sensor test point on the power layer interface board to verify that the output is within range. The temperature sensor is on the inverter power supply board but the A/D processing is on the power layer interface board. If necessary, replace the inverter power supply board. If this problem persists after replacing the inverter power supply board, replace the power layer interface board.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
10122 10222 10322	I1 InFan1 Slow I2 InFan1 Slow I3 InFan1 Slow	Alarm 1 / Resettable Fault				Stirring fan 1 is under speed. <ul style="list-style-type: none"> • Visually verify that fan 1 is turning. • Check the measured fan speed displayed in [In InFan n Speed] (port 10). • Check the wiring harness to the stirring fans to verify that the power and tachometer signals are connected. • If necessary, replace both stirring fans. When the fans are replaced, the elapsed hours, displayed in [In PredMainReset] (port 10) must be reset.
10123 10223 10323	I1 InFan2 Slow I2 InFan2 Slow I3 InFan2 Slow					
10124 10224 10324	I1 NTC Open I2 NTC Open I3 NTC Open	Non-Reset Fault	Coast			An NTC open condition has occurred. <ul style="list-style-type: none"> • Check the ribbon cable that runs between the backplane board and gate driver board for loose connections or damage. The capacitor bank must be removed to check this cable. • If the drive is located in cold conditions, raise the ambient temperature. • Check the power-layer interface board testpoints for the individual phase NTC temperatures to determine which is open. • Reseat the power layer interface board. If this problem persists, replace the power layer interface board.
10125 10225 10325	I1 Incompat UBrd I2 Incompat UBrd I3 Incompat UBrd	Non-Reset Fault	Coast			The power layer interface and power control board do not detect the correct gate driver board on the U, V, or W phase. This fault can occur during a power-down sequence. <ul style="list-style-type: none"> • Check the ribbon cable that runs between the backplane board and gate driver board for loose connections or damage and verify that the correct gate driver board is installed. The capacitor bank must be removed to check this cable and the board. • Reflash the control board. • Check the rating plug.
10126 10226 10326	I1 Incompat VBrd I2 Incompat VBrd I3 Incompat VBrd					
10127 10227 10327	I1 Incompat WBrd I2 Incompat WBrd I3 Incompat WBrd					
10128 10228 10328	I1 Incompat Brdn I2 Incompat Brdn I3 Incompat Brdn	Non-Reset Fault	Coast			The drive detected an incompatible burden resistor. <ul style="list-style-type: none"> • Verify that the correct rating plug is installed. Reseat the rating plug.
10129 10229 10329	I1 DC Bus Imbal I2 DC Bus Imbal I3 DC Bus Imbal	Resettable Fault	Coast			Either the lower or upper leg of the capacitor bank is getting too much voltage (based on the bus voltage, measured voltage across the lower leg, and a calculation to find the voltage across the upper leg) or the voltage sensing components are damaged. <ul style="list-style-type: none"> • Check the value of the bus bleeder resistor and bus balancing resistor and replace as necessary. • Inspect the capacitor bank for leakage or damage and replace as necessary. Replacing the capacitor bank assembly also replaces the bus balancing resistor. <hr/> <div style="display: flex; align-items: center;">  <div> <p>ATTENTION: The DC bus voltage can only be measured when the drive is energized. Servicing energized equipment can be hazardous. Severe injury or death can result from electrical shock, burn, or unintended actuation of controlled equipment. Follow Safety related practices of NFPA 70E, ELECTRICAL SAFETY FOR EMPLOYEE WORKPLACES. DO NOT work alone on energized equipment!</p> </div> </div> <hr/> <ul style="list-style-type: none"> • Measure the voltage on each half of the bus to confirm the calculations. If the bus measurements aren't correct, replace the power interface board and/or inverter power supply board.
10130 10230 10330	I1 Curr Offset I2 Curr Offset I3 Curr Offset	Alarm 1				The calculated current offset for any phase is larger than expected. <ul style="list-style-type: none"> • Check the current sensor offset reading inverter testpoint and power supply. If necessary, replace the current sensor. • If this problem persists, replace the inverter power supply board and/or the power layer interface board.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
10131 10231 10331	I1 Fault Q Full I2 Fault Q Full I3 Fault Q Full	Resettable Fault	Coast			The fault queue is full. There are at least three other faults in the queue. Troubleshooting and clearing the existing faults makes room for additional faults in the queue (if any). This fault can occur during a power-down sequence.
10132 10232 10332	I1 Incompat PS I2 Incompat PS I3 Incompat PS	Resettable Fault	Coast			The drive has detected an incompatible power supply for the drive AC input rating. <ul style="list-style-type: none"> • Check the power supply and replace it if incorrect. • If the power supply is correct, reflash the control board. • If this problem persists, replace the inverter power supply board or power layer interface board.
10134 10234 10334	I1 UBrd Fault I2 UBrd Fault I3 UBrd Fault	Resettable Fault	Coast			The power supply on the U, V, or W phase gate driver board has failed. <ul style="list-style-type: none"> • If this fault occurred on this phase only, replace the appropriate gate driver board. • If this fault occurred on all three phases, check the 24V power supply on the inverter power supply board that feeds the gate driver boards and replace the inverter power supply board if necessary.
10135 10235 10335	I1 VBrd Fault I2 VBrd Fault I3 VBrd Fault					
10136 10236 10336	I1 WBrd Fault I2 WBrd Fault I3 WBrd Fault					
10137 10237 10337	I1 Flash Failed I2 Flash Failed I3 Flash Failed	Resettable Fault	Coast			This fault will be asserted if an attempt to flash the FPGA configuration device fails.
10138 10238 10338	I1 Powering Down I2 Powering Down I3 Powering Down	Resettable Fault	Coast			This fault will be asserted at 80% of the rated DC bus voltage.

Converter (Port 11) Faults and Alarms (Frame 8 and Larger)


Table 13 contains a list of Converter-specific faults and alarms, the type of fault or alarm, the action that is taken when the drive faults, the parameter that is used to configure the fault or alarm (if applicable), and a description and action (where applicable). These faults and alarms only apply to Frame 8 drives and larger.

Table 13 - Converter Fault and Alarm Types, Descriptions, and Actions

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)				
11101 11201 11301	C1 Precharge C2 Precharge C3 Precharge	Alarm 1 Non-Reset Fault	Coast			<p>1. The AC line voltage is in the range of 50...300V (for 400V class drives) or 50...400V (for 600V class drives). Precharge begins when the AC line voltage reaches 300V or 400V.</p> <p>2. The drive has been in precharge for more than 12 seconds. If the “Cn Precharge” alarm persists for more than 30 seconds the drive will fault. Following powerup or a fault reset, the converter does not issue any voltage-related alarms until the AC input voltage exceeds 50V to prevent an alarm when a customer-supplied auxiliary power supply is used.</p> <p>3. The DC bus open circuit test can be cycling. If this test cycles for more than 10 seconds, event 144/244 “Cn DC Bus Open” occurs.</p> <p>Alarm:</p> <ul style="list-style-type: none"> Check the line voltage displayed in [Cn L12 Line Volt], [Cn L23 Line Volt], and [CV L31 Line Volt] (port 11). Check the phase current displayed in [Cn L1 Phase Curr], [Cn L2 Phase Curr], and [Cn L3 Phase Curr] (port 11) and the bus voltage in [Cn DC Bus Volt] (port 11). Line current, line voltage, and bus voltage sensing are all performed on the converter gate firing board. If this alarm persists, replace the converter gate firing board. <p>Fault:</p> <ul style="list-style-type: none"> Verify that the current transducers have not all failed. If necessary, replace all three current transducers. Verify that the DC link inductor has not failed. If necessary, replace the DC link choke. Verify that the converter line and DC bus wiring is connected. Verify that the capacitor bank is properly installed and connected. 				
11102 11202 11302	C1 Phase Loss L1 C2 Phase Loss L1 C3 Phase Loss L1	Alarm 1				<p>The AC line-to-line voltages are imbalanced, indicating an open AC input phase.</p> <ul style="list-style-type: none"> Check for an upstream AC line loss. Verify that the AC input line wiring is properly connected. Check the wiring harness to the converter gate firing board for loose connections and/or damage. If necessary, replace the converter gate-firing board wiring harness. 				
11103 11203 11303	C1 Phase Loss L2 C2 Phase Loss L2 C3 Phase Loss L2									
11104 11204 11304	C1 Phase Loss L3 C2 Phase Loss L3 C3 Phase Loss L3									
11111 11211 11311	C1 SCR OvrTemp C2 SCR OvrTemp C3 SCR OvrTemp						Resettable Fault	Coast		<p>An alarm occurs if the calculated SCR temperature exceeds 125 °C (257 °F) and a fault occurs when the calculated SCR temperature exceeds 135 °C (275 °F).</p> <ul style="list-style-type: none"> Check for cooling problems - the heatsink cooling fan is running slow, the enclosure filter or heatsink fins are dirty, or the ambient temperature is too high.
11112 11212 11312	C1 HS OvrTemp C2 HS OvrTemp C3 HS OvrTemp						Resettable Fault	Coast		<p>An alarm when the heatsink temperature exceeds 95 °C (203 °F) and a fault when the heatsink temperature exceeds 100 °C (212 °F).</p> <ul style="list-style-type: none"> Check the NTC for a short or verify that it is connected. Measure the resistance of the NTC. The reading should be approximately 11.5 Ω, at room temperature. Check for cooling problems - the heatsink cooling fan is running slow, the enclosure filter or heatsink fins are dirty, or the ambient temperature is too high.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
11113 11213 11313	C1 TVSS Blown C2 TVSS Blown C3 TVSS Blown	Alarm 1				<p>The MOV block is reporting that the transient voltage suppression system (TVSS) has blown.</p> <ul style="list-style-type: none"> • Check the MOV wiring harness for loose connections and/or damage and replace if necessary. • Replace the MOV block. • If the MOV block is not blown and the wiring harness is properly connected and not damaged, replace the converter gate firing board.
11114 11214 11314	C1 Blower Speed C2 Blower Speed C3 Blower Speed	Alarm 1				<p>The converter cooling fan is running below normal operating speed.</p> <ul style="list-style-type: none"> • Check for debris in the fan. If necessary, clean the fan and housing. • Check for noise at the fan, indicating motor bearing failure. • Verify that the fan power and feedback connections are not loose or disconnected. • Replace the fan, if necessary.
11115 11215 11315	C1 Line Dip C2 Line Dip C3 Line Dip	Alarm 1 Resettable Fault	Coast		Y	<p>The bus voltage has fallen below the value specified in P451 [Pwr Loss A Level] or P454 [Pwr Loss B Level] (port 0) minus 20 volts. Until the converter has established communications with the main control board, this value defaults to 180V below the converter bus memory. The converter stops firing the SCRs until the nominal value of the DC bus voltage for the present AC line voltage is within 60 volts of P12 [DC Bus Memory] (port 0). If the line dip condition persists for more than 60 seconds the alarm becomes a fault.</p> <ul style="list-style-type: none"> • Verify the power wiring connections. • Compare the actual DC bus voltage to the value displayed in [Cr DC Bus Volt]. If the values are different, replace the converter gate firing board.
11116 11216 11316	C1 Minimum Line C2 Minimum Line C3 Minimum Line	Alarm 1				<p>The AC line voltage is less than 280V (for a 400V class drive) / 400V (for a 600V class drive).</p> <ul style="list-style-type: none"> • The AC line voltage must exceed 320V / 440V to recover from this alarm.
11117 11217 11317	C1 Line Freq C2 Line Freq C3 Line Freq	Alarm 1 Resettable Fault	Coast			<p>The measured line frequency is out of the range (below 40 Hz, or above 65 Hz). This alarm becomes a fault if the condition persists for more than 30 seconds.</p> <ul style="list-style-type: none"> • Check the incoming power line frequency. • Check the wiring harness to the converter gate firing board for loose connections and/or damage and replace if necessary. • If the wiring harness is properly connected and not damaged, replace the converter gate firing board.
11118 11218 11318	C1 Single Phase C2 Single Phase C3 Single Phase	Alarm 1 Resettable Fault	Coast			<p>The converter was intentionally powered up in single-phase mode with only AC phase L1-L2 present. Intentional single-phase mode is only detected at the initial application of AC line voltage. Application of 3-phase voltage after the converter has entered single-phase mode results in the single phase alarm becoming a fault.</p> <ul style="list-style-type: none"> • Verify that only one phase is applied to a drive in single-phase mode.
11134 11234 11334	C1 Overcurrent C2 Overcurrent C3 Overcurrent	Resettable Fault	Coast			<p>The peak AC input current has exceeded 3000 A for five line cycles.</p> <ul style="list-style-type: none"> • Verify that the current transducers are connected. • Check the wiring harness to the converter gate firing board for loose connections or damage and replace if necessary. • If the current transducers are properly connect and the wiring harness for the gate firing board is OK, replace the converter gate firing board. • Check for an open SCR or DC bus short.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
11135 11235 11335	C1 Ground Fault C2 Ground Fault C3 Ground Fault	Resettable Fault	Coast		Y	<p>The converter input ground current (peak) has exceeded the threshold set P16 [Gnd Cur Flt Lvl] (port 11) for 5 line cycles. A possible internal short in the drive between a phase, ground, or the DC bus can have occurred.</p> <ul style="list-style-type: none"> Verify that the current transducer wiring harness is connected to the converter gate firing board and that they are functioning properly. If necessary, replace all three current transducers (CTs). If the current transducer wiring harness is connected and the CTs are functioning properly, replace the converter gate firing board. To determine if there is an imbalance between the phases, view the input phase current values in [Cr L1 Phase Curr], [Cr L2 Phase Curr], and [Cr L3 Phase Curr] (port 11). [Cr Gnd Current] (port 11) is the calculated (not measured) ground current based on the phase currents. If necessary, use trending when the ground fault occurs upon drive power-up.
11136 11236 11336	C1 HS NTC Open C2 HS NTC Open C3 HS NTC Open	Non-Reset Fault	Coast			<p>The converter heatsink NTC is open. The heatsink NTC is mounted on the converter heatsink and is wired to the converter gate firing board. An open NTC is assumed when the heatsink temperature is below -40 °C (-40 °F).</p> <ul style="list-style-type: none"> Check for loose connections or damage to the NTC wiring harness. Measure the resistance of the NTC and verify that it is within range. If the NTC wiring harness and resistance measurement is OK, replace the converter gate firing board.
11137 11237 11337	C1 HS NTC Short C2 HS NTC Short C3 HS NTC Short	Non-Reset Fault	Coast			<p>The converter heatsink NTC is shorted. The heatsink NTC is mounted on the converter heatsink and is wired to the converter gate firing board. A shorted NTC is assumed when the heatsink temperature is above 200 °C (392 °F).</p> <ul style="list-style-type: none"> Check for loose connections or damage to the NTC wiring harness. Measure the resistance of the NTC and verify that it is within range. If the NTC wiring harness and resistance measurement is OK, replace the converter gate firing board.
11138 11238 11338	C1 Brd OvrTemp C2 Brd OvrTemp C3 Brd OvrTemp	Resettable Fault	Coast		Y	<p>The gate firing board is over temperature. This fault occurs when the gate firing board temperature exceeds 70 °C (158 °F).</p> <ul style="list-style-type: none"> Check the cabinet fan wiring harness for loose connections or damage and that the fan is running. If necessary, replace the fan wiring harness and/or fan. Lower the ambient temperature. Replace the converter gate firing board.
11139 11239 11339	C1 Brd NTC Open C2 Brd NTC Open C3 Brd NTC Open	Non-Reset Fault	Coast			<p>The converter gate firing board NTC is open. An open NTC is assumed when the temperature is below -40 °C (-40 °F).</p> <ul style="list-style-type: none"> Replace the converter gate firing board.
11140 11240 11340	C1 Brd NTC Short C2 Brd NTC Short C3 Brd NTC Short	Non-Reset Fault	Coast			<p>The converter gate firing board NTC is shorted. A shorted NTC is assumed when the temperature is above 200 °C (392 °F).</p> <ul style="list-style-type: none"> Replace the converter gate firing board.
11141 11241 11341	C1 Power Supply C2 Power Supply C3 Power Supply	Resettable Fault	Coast			<p>A power supply input voltage (24V input and/or +/-12V internal supply) is operating outside of the acceptable range.</p> <ul style="list-style-type: none"> Check input power to the converter gate firing board. The following thresholds are used: <ul style="list-style-type: none"> 24V is below 20.1V 12V is below 10.0V 12V is above 15.0V -12V is above -10.0V If the power supply voltage is within the acceptable range, replace the converter gate firing board.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
11142 11242 11342	C1 Comm Loss C2 Comm Loss C3 Comm Loss	Resettable Fault	Coast			<p>The converter gate firing board lost communications (through the power layer interface board) to the main control board. Once the root cause of the communication fault has been resolved, power must be cycled or a drive reset must be initiated to clear this fault.</p> <hr/> <div style="display: flex; align-items: center;">  <p>ATTENTION: Hazard of permanent eye damage exists when using optical transmission equipment. This product emits intense light and invisible radiation. Do not look into fiber-optic ports or fiber-optic cable connectors. Remove power from the drive before disconnecting fiber optic cables.</p> </div> <hr/> <ul style="list-style-type: none"> • Verify that the fiber optic cables are properly connected to the transceivers. • Verify that the transceivers are properly seated in the ports. • Verify that the fiber optic cable is not cracked or broken. • Verify that power is applied to the fiber optic interface board, gate firing board, and power layer interface board. If necessary, replace the fiber optic interface, gate firing board, and/or power layer interface board.
11143 11243 11343	C1 Firmware Flt C2 Firmware Flt C3 Firmware Flt	Non-Reset Fault	Coast			<p>A firmware fault has occurred.</p> <ul style="list-style-type: none"> • Reset the drive. If this fault persists, replace the converter gate firing board.
11144 11244 11344	C1 DC Bus Open C2 DC Bus Open C3 DC Bus Open	Non-Reset Fault	Coast			<p>The DC bus voltage did not rise above 12V (for 400V class drives) or 20V (for 600V class drives) as the SCRs began to ramp on. In this case, the converter tries to turn on the SCRs for approximately 10 seconds before issuing this fault. Event 101/201 “Cr Precharge” is issued following the first retry.</p> <ul style="list-style-type: none"> • Verify that the current transducers have not all failed. If necessary, replace all three current transducers. • Verify that the DC link inductor has not failed. If necessary, replace the DC link choke. • Verify that the converter line and DC bus wiring is connected. • Verify that the capacitor bank is properly installed and connected.
11145 11245 11345	C1 DC Bus Short C2 DC Bus Short C3 DC Bus Short	Non-Reset Fault	Coast			<p>The peak current has exceeded 150 % of the converter rating during the precharge sequence. Peak charging current is normally limited to 50 % of the converter rating.</p> <ul style="list-style-type: none"> • Check for a DC bus short, internally and externally. • Verify that the wiring harness to P10 on the converter gate firing board is connected and not damaged. Replace the harness as necessary. • Verify that the capacitor bank is properly installed and connected. • Check for an IGBT short and replace as necessary.
11146 11246 11346	C1 CT Harness C2 CT Harness C3 CT Harness	Non-Reset Fault	Coast			<p>A current transducer (CT) wiring harness connection loss has been detected.</p> <ul style="list-style-type: none"> • Verify that the CT wiring harness is not damaged and is connected to P6 on the converter gate firing board. Replace the wiring harness if necessary. • If this problem persists, replace the converter gate firing board.
11147 11247 11347	C1 LFuse Harness C2 LFuse Harness C3 LFuse Harness	Non-Reset Fault	Coast			<p>A line-fuse wiring harness connection loss has been detected.</p> <ul style="list-style-type: none"> • Verify that the line fuse wiring harness is not damaged and is connected to P7 on the converter gate firing board. Replace the wiring harness if necessary. • If this problem persists, replace the converter gate firing board.


Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)					
11148 11248 11348	C1 Line Fuse L1 C2 Line Fuse L1 C3 Line Fuse L1	Non-Reset Fault	Coast			The line fuse for Line <i>n</i> has blown. <ul style="list-style-type: none"> • Check the fuse and replace if necessary. • Verify that the line fuse wiring harness for line 1 is not damaged and is connected to P7 on the converter gate firing board. Replace the wiring harness if necessary. • If this problem persists, replace the converter gate firing board. 					
11149 11249 11349	C1 Line Fuse L2 C2 Line Fuse L2 C3 Line Fuse L2										
11150 11250 11350	C1 Line Fuse L3 C2 Line Fuse L3 C3 Line Fuse L3										
11157 11257 11357	C1 BFuse Harness C2 BFuse Harness C3 BFuse Harness						Non-Reset Fault	Coast			A bus-fuse wiring harness connection loss has been detected. <ul style="list-style-type: none"> • Check the bus fuse harness and replace if necessary. • If this problem persists, replace the converter gate firing board.
11158 11258 11358	C1 BFuse Pos C2 BFuse Pos C3 BFuse Pos						Non-Reset Fault	Coast			The DC+ bus fuse is blown. <ul style="list-style-type: none"> • Check the DC+ bus fuse and wiring harness and replace if necessary. • If this problem persists, replace the converter gate firing board.
11159 11259 11359	C1 BFuse Neg C2 BFuse Neg C3 BFuse Neg						Non-Reset Fault	Coast			The DC- bus fuse is blown. <ul style="list-style-type: none"> • Check the DC- bus fuse and wiring harness and replace if necessary. • If this problem persists, replace the converter gate firing board.
11160 11260 11360	C1 Command Stop C2 Command Stop C3 Command Stop	Resettable Fault	Coast		Y	The main control board has commanded the converter gate firing board to stop due to an asymmetrical bus condition. <ul style="list-style-type: none"> • Check the DC bus connections and wiring. 					
11161 11261 11361	C1 AC Line High C2 AC Line High C3 AC Line High	Resettable Fault	Coast			The AC line voltage has exceeded 565V (for 400V class drives) or 815V (for 600V class drives), which corresponds to the nominal bus voltage of 799V DC (for 400V class drives) or 1150V DC (for 600V class drives). This fault is intended to protect the capacitor bank from an overvoltage condition especially if a 400V class drive is inadvertently placed in a 600V system. <ul style="list-style-type: none"> • Verify the incoming line voltage. 					
11162 11262 11362	C1 Line Loss C2 Line Loss C3 Line Loss	Resettable Fault	Coast		Y	An AC line loss has occurred. <ul style="list-style-type: none"> • Monitor the incoming AC line for low voltage or line power interruption. 					
11163 11263 11363	C1 Fault Q Full C2 Fault Q Full C3 Fault Q Full	Resettable Fault	Coast			The fault queue is full. There are at least three other faults in the queue. <ul style="list-style-type: none"> • Troubleshooting and clearing the existing faults make room for additional faults in the queue (if any). 					

Precharge (Port 11) Faults and Alarms (Frame 8 and Larger)

Table 14 contains a list of Precharge-specific faults and alarms, the type of fault or alarm, the action that is taken when the drive faults, the parameter that is used to configure the fault or alarm (if applicable), and a description and action (where applicable). These faults and alarms only apply to Frame 8 drives and larger.

Table 14 - Converter Fault and Alarm Types, Descriptions, and Actions

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
11101 11201 11301	P1 Precharge P2 Precharge P3 Precharge	Alarm 1				The DC bus delta voltage (Vbus_in - Vbus_out) is greater than 25V when the molded case switch (MCS) is open. This alarm is suppressed when the Precharge Fault is present.
		Resettable Fault	Coast			The DC bus voltage did not meet the conditions that are required to close the molded case switch (MCS) within the timeout period. 1. DC bus input is not overvoltage 2. DC bus input is not undervoltage 3. DC bus delta voltage (Vbus_in - Vbus_out) is less than 25V
11115 11215 11315	P1 Bus Dip P2 Bus Dip P3 Bus Dip	Alarm 1				Only occurs when the drive is offline or in stand-alone mode. The bus voltage has dipped more than 180V below the drive bus memory. The alarm is released when the bus voltage rises back to within 60V of the drive bus memory.
11119 11219 11319	P1 240 V AC Loss P2 240 V AC Loss P3 240 V AC Loss	Alarm 1				240V AC not present while the drive is in the inactive state. This alarm is suppressed when the 240V AC Loss Fault is present.
		Resettable Fault	Coast			240V AC was lost while in the active state. Active state whenever the drive is not stopped, for example, the molded case switch (MCS) is opening or closing or is closed.
11120 11220 11320	P1 240V AC Discon P2 240V AC Discon P3 240V AC Discon	Alarm 1				The 240V AC disconnect is open when the precharge controller is in the ready state (MCS is not closed).
11121 11221 11321	P1 Bus Undervolt P2 Bus Undervolt P3 Bus Undervolt	Alarm 1				The input bus voltage is below 400V DC while the molded case switch (MCS) is open. Hysteresis level 420V DC. This alarm is suppressed when the Bus Undervoltage Fault is present.
		Resettable Fault	Coast			The bus input voltage fell below 400V while the molded case switch (MCS) was closed. Hysteresis level at 420V. The system SMPS cuts out near 340V DC.
11122 11222 11322	P1 Bus Overvolt P2 Bus Overvolt P3 Bus Overvolt	Alarm 1				The input bus voltage exceeds 820V DC. Hysteresis level 800V DC.
11123 11223 11323	P1 Door Open P2 Door Open P3 Door Open	Alarm 1				Door closure contact is open.
11130 11230 11330	P1 MCS ShuntTrip P2 MCS ShuntTrip P3 MCS ShuntTrip	Resettable Fault	Coast			The molded case switch (MCS) auxiliary contact did not open within 1 second following the shunt trip coil activation.
11131 11231 11331	P1 MCS CloseFail P2 MCS CloseFail P3 MCS CloseFail	Resettable Fault	Coast			The molded case switch (MCS) auxiliary contact did not close within 2 seconds following the close coil activation.
11132 11232 11332	P1 MCSAuxContact P2 MCSAuxContact P3 MCSAuxContact	Resettable Fault	Coast			The molded case switch (MCS) auxiliary contact was open when the MCS was closed or closed when the MCS was open. If the MCS Failed to Close Fault is present, then this fault is not reported.
11133 11233 11333	P1 MCS Closed P2 MCS Closed P3 MCS Closed	Resettable Fault	Coast			The voltage across the molded case switch (MCS) when it was closed exceeded 10V.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
11138 11238 11338	P1 Brd Overtemp P2 Brd Overtemp P3 Brd Overtemp	Resettable Fault	Coast		Y	<p>The gate firing board is over temperature. This fault occurs when the gate firing board temperature exceeds 70 °C (158 °F).</p> <ul style="list-style-type: none"> Check the cabinet fan wiring harness for loose connections or damage and that the fan is running. If necessary, replace the fan wiring harness and/or fan. Lower the ambient temperature. Replace the converter gate firing board.
11139 11239 11339	P1 Brd NTC Open P2 Brd NTC Open P3 Brd NTC Open	Non-Reset Fault	Coast			<p>The converter gate firing board NTC is open. An open NTC is assumed when the temperature is below -40 °C (-40 °F).</p> <ul style="list-style-type: none"> Replace the converter gate firing board.
11140 11240 11340	P1 Brd NTC Short P2 Brd NTC Short P3 Brd NTC Short	Non-Reset Fault	Coast			<p>The converter gate firing board NTC is shorted. A shorted NTC is assumed when the temperature is above 200 °C (392 °F).</p> <ul style="list-style-type: none"> Replace the converter gate firing board.
11141 11241 11341	P1 Power Supply P2 Power Supply P3 Power Supply	Resettable Fault	Coast			<p>A power supply input voltage (24V input and/or +/-12V internal supply) is operating outside of the acceptable range.</p> <ul style="list-style-type: none"> Check input power to the converter gate firing board. The following thresholds are used: <ul style="list-style-type: none"> 24V is below 20.1V 12V is below 10.0V 12V is above 15.0V -12V is above -10.0V If the power supply voltage is within the acceptable range, replace the converter gate firing board.
11142 11242 11342	P1 Comm Loss P2 Comm Loss P3 Comm Loss	Resettable Fault	Coast			<p>The converter gate firing board lost communications (through the power layer interface board) to the main control board. Once the root cause of the communication fault has been resolved, power must be cycled or a drive reset must be initiated to clear this fault.</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;">  <p>ATTENTION: Hazard of permanent eye damage exists when using optical transmission equipment. This product emits intense light and invisible radiation. Do not look into fiber-optic ports or fiber-optic cable connectors. Remove power from the drive before disconnecting fiber-optic cables.</p> </div> <ul style="list-style-type: none"> Verify that the fiber optic cables are properly connected to the transceivers. Verify that the transceivers are properly seated in the ports. Verify that the fiber optic cable is not cracked or broken. Verify that power is applied to the fiber optic interface board, gate firing board, and power layer interface board. If necessary, replace the fiber optic interface, gate firing board, and/or power layer interface board.
11143 11243 11343	P1 Firmware Flt P2 Firmware Flt P3 Firmware Flt	Non-Reset Fault	Coast			<p>A firmware fault has occurred.</p> <ul style="list-style-type: none"> Reset the drive. If this fault persists, replace the converter gate firing board.
11145 11245 11345	P1 DC Bus Short P2 DC Bus Short P3 DC Bus Short	Non-Reset Fault	Coast			<p>The peak current has exceeded 150 % of the converter rating during the precharge sequence. Peak charging current is normally limited to 50 % of the converter rating.</p> <ul style="list-style-type: none"> Check for a DC bus short, internally and externally. Verify that the wiring harness to P10 on the converter gate firing board is connected and not damaged. Replace the harness as necessary. Verify that the capacitor bank is properly installed and connected. Check for an IGBT short and replace as necessary.
11157 11257 11357	P1 BFuse Harness P2 BFuse Harness P3 BFuse Harness	Non-Reset Fault	Coast			<p>A bus-fuse wiring harness connection loss has been detected.</p> <ul style="list-style-type: none"> Check the bus fuse harness and replace if necessary. If this problem persists, replace the converter gate firing board.

Event No.	Fault/Alarm Text	Type	Fault Action	Configuration Parameter	Auto Reset	Description/Action(s)
11158 11258 11358	P1 BFuse Pos P2 BFuse Pos P3 BFuse Pos	Non-Reset Fault	Coast			The DC+ bus fuse is blown. <ul style="list-style-type: none"> Check the DC+ bus fuse and wiring harness and replace if necessary. If this problem persists, replace the converter gate firing board.
11159 11259 11359	P1 BFuse Neg P2 BFuse Neg P3 BFuse Neg	Non-Reset Fault	Coast			The DC- bus fuse is blown. <ul style="list-style-type: none"> Check the DC- bus fuse and wiring harness and replace if necessary. If this problem persists, replace the converter gate firing board.
11160 11260 11360	P1 Command Stop P2 Command Stop P3 Command Stop	Resettable Fault	Coast		Y	The main control board has commanded the converter gate firing board to stop due to an asymmetrical bus condition. <ul style="list-style-type: none"> Check the DC bus connections and wiring.
11163 11263 11363	P1 Fault Q Full P2 Fault Q Full P3 Fault Q Full	Resettable Fault	Coast			The fault queue is full. There are at least three other faults in the queue. <ul style="list-style-type: none"> Troubleshooting and clearing the existing faults make room for additional faults in the queue (if any).