

Troubleshooting and Diagnostics



5 Troubleshooting and Diagnostics

5.1 Status/Warning Messages

Status / Warning	Cause	Remedy
br DC-injection brake active	DC-injection brake activated <ul style="list-style-type: none"> • activation of digital input (P121...P124 = 18) • automatically (P110 = 2, 4...6) • automatically (P111 = 1, 3) 	Deactivate DC-injection brake <ul style="list-style-type: none"> • deactivate digital input • automatically after P175 time has expired
bF Drive ID warning	The Drive ID (P502) stored on the EPM does not match the drive model.	<ul style="list-style-type: none"> • Verify motor data (P302...P306) and perform Auto Calibration. • Set drive mode (P300) to 0 or 1 • Reset the drive (P199 to 3 or 4) and reprogram.
CAL Motor Auto-calibration active	Refer to P300, P399	Motor Auto-calibration is being performed
cE An EPM that contains valid data from a previous software version has been installed	An attempt was made to change parameter settings	Parameter settings can only be changed after the EPM data is converted to the current version (P199 = 5)
CL Current Limit (P171) reached	Motor overload	<ul style="list-style-type: none"> • Increase P171 • Verify drive/motor are proper size for application
dEC Decel Override	The drive has stopped decelerating to avoid tripping into HF fault, due to excessive motor regen (2 sec max).	If drive trips into HF fault: <ul style="list-style-type: none"> • Increase P105, P126 • Install Dynamic Braking option
Err Error	Invalid data was entered, or an invalid command was attempted	
FCL Fast Current Limit	Overload	Verify drive/motor are proper size for application
FSt Flying Restart Attempt after Fault	P110 = 5,6	
GE OEM Settings Operation warning	An attempt was made to change parameter settings while the drive is operating in OEM Settings mode.	In OEM Settings mode (P199 = 1), making changes to parameters is not permitted.
GF OEM Defaults data warning	An attempt was made to use (or reset to) the OEM default settings (P199 = 1 or 2) using an EPM without valid OEM data.	Install an EPM containing valid OEM Defaults data
LC Fault Lockout	The drive attempted 5 restarts after a fault but all attempts were unsuccessful (P110 = 3...6)	<ul style="list-style-type: none"> • Drive requires manual reset • Check Fault History (P500) and correct fault condition
PdEC PID Deceleration Status	PID setpoint has finished its ramp but the drive is still decelerating to a stop.	
PId PID Mode Active	Drive has been put into PID Mode.	Refer to P200
SLP Sleep Mode is active	Refer to P240...P242	
SP Start Pending	The drive has tripped into a fault and will automatically restart (P110 = 3...6)	To disable Auto-Restart, set P110 = 0..2
SPd PID Mode disabled.	Drive has been taken out of PID Mode. Refer to P200.	
StoP Output frequency = 0 Hz (outputs U, V, W inhibited)	Stop has been commanded from the keypad, terminal strip, or network	Apply Start command (Start Control source depends on P100)

(1) The drive can only be restarted if the error message has been reset.



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5.2 Drive Configuration Messages

When the Mode button is pressed and held, the drive's display will provide a 4-digit code that indicates how the drive is configured. If the drive is in a Stop state when this is done, the display will also indicate which control source commanded the drive to Stop (the two displays will alternate every second).

Configuration Display			
Format = x.y.zz	x = Control Source: L = Local Keypad t = Terminal Strip r = Remote Keypad n = Network	y = Mode: S = Speed mode P = PID mode t = Torque mode C = Sequencer mode	zz = Reference: CP = Keypad ▲ ▼ EU = 0-10 VDC (TB-5) E I = 4-20 mA (TB-25) JG = Jog nE = Network DP = MOP P L...P7 = Preset 1...7 D L...I6 = Sequencer Segment
Example: L.S.CP = Local Keypad Start control, Speed mode, Keypad speed reference t.P.EU = Terminal Strip Start control, PID mode, 0-10 VDC setpoint reference t.C.I2 = Terminal Strip Start control, Sequencer Operation (Speed mode), Segment #12 n.t.P2 = Network Start control, Vector Torque mode, Preset Torque #2 reference n.S.D3 = Network Start control, Speed mode, Speed reference from Sequencer segment #03			
Stop Source Display			
Format = x.StP	L.StP = Stop command came from Local Keypad t.StP = Stop command came from Terminal Strip r.StP = Stop command came from Remote Keypad n.StP = Stop command came from Network		

5.3 Fault Messages

The messages below show how they will appear on the display when the drive trips. When looking at the Fault History (P500), the F_ will not appear in the fault message.

Fault	Cause	Remedy ⁽¹⁾
F_RF	High Temperature fault Drive is too hot inside	<ul style="list-style-type: none"> Reduce drive load Improve cooling
F_RL	Assertion Level fault <ul style="list-style-type: none"> Assertion Level switch is changed during operation P120 is changed during operation P100 or P121...P124 are set to a value other than 0 and P120 does not match the Assertion Level Switch. 	<ul style="list-style-type: none"> Make sure the Assertion Level switch and P120 are both set for the type of input devices being used, prior to setting P100 or P121...P124. Refer to 3.2.3 and P120.
F_bF	Personality fault Drive Hardware	<ul style="list-style-type: none"> Cycle Power
F_cF	Control fault An EPM has been installed that is either blank or corrupted	<ul style="list-style-type: none"> Power down and install EPM with valid data Reset the drive back to defaults (P199 = 3, 4) and then re-program If problem persists, contact factory technical support
F_cF	Incompatible EPM fault An EPM has been installed that contains data from an incompatible parameter version	<ul style="list-style-type: none"> If problem persists, contact factory technical support
F_cFt	Forced Translation fault An EPM from an old drive put in new drive causes drive to trip F_cFT fault.	Press [M] (mode button) twice to reset

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Fault	Cause	Remedy ⁽¹⁾
F_dbF	Dynamic Braking fault Dynamic braking resistors are overheating	<ul style="list-style-type: none"> Increase active decel time (P105, P126, P127). Check mains voltage and P107
F_EF	External fault <ul style="list-style-type: none"> P121...P124 = 21 and that digital input has been opened. P121...P124 = 22 and that digital input has been closed. 	<ul style="list-style-type: none"> Correct the external fault condition Make sure digital input is set properly for NC or NO circuit
F_F I	EPM fault EPM missing or defective	Power down and replace EPM
F_F2 ... F_F I2	Internal faults	Contact factory technical support
F_Frr	Control Configuration Fault The drive is setup for REMOTE KEYPAD control (P100=2 or 5) but is not setup to communicate with a remote keypad The drive is setup for NETWORK ONLY control (P100=3) but is not setup for network communications	Set P400 = 1, or P600 = 1 Set P400 or P600 to a valid network communications protocol selection
F_FoL	TB25 (4-20 mA signal) Threshold fault 4-20 mA signal (at TB-25) drops below the value set in P164.	<ul style="list-style-type: none"> Check signal/signal wire Refer to parameters P163 and P164.
F_GF	OEM Defaults data fault Drive is powered up with P199 = 1 and OEM settings in the EPM are not valid.	Install an EPM containing valid OEM Defaults data or change P199 to 0.
F_HF	High DC Bus Voltage fault Mains voltage is too high Decel time is too short, or too much regen from motor	Check mains voltage and P107 Increase active decel time (P105, P126, P127) or install Dynamic Braking option
F_IL	Digital Input Configuration fault (P121...P124) Only one digital input configured for the same function Only one digital input configured for MOP function (Up, Down) PID mode is entered with setpoint reference and feedback source set to the same analog signal One of the digital inputs (P121...P124) is set to 10 and another is set to 11...14. One of the digital inputs (P121...P124) is set to 11 or 12 and another is set to 13 or 14. PID enabled in Vector Torque mode (P200 = 1 or 2 and P300 = 5)	Each setting can only be used once (except settings 0 and 3) One input must be set to MOP Up, another must be set to MOP Down Change PID setpoint reference (P121...P124) or feedback source (P201). Reconfigure digital inputs PID cannot be used in Vector Torque mode
F_If	Remote keypad fault Remote keypad disconnected	Check remote keypad connections
F_LF	Low DC Bus Voltage fault Mains voltage too low	Check mains voltage
F_n Id	No Motor ID fault An attempt was made to start the drive in Vector or Enhanced V/Hz mode prior to performing the Motor Auto-calibration	Refer to parameters P300...P399 for Drive Mode setup and calibration.
F_nF	Module communication fault Communication failure between drive and Network Module.	Check module connections
F_nF I ... F_nF9	Network Faults Refer to the module documentation for Causes and Remedies.	



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	Fault	Cause	Remedy ⁽¹⁾
F_DF	Output fault: Transistor fault	Output short circuit	Check motor/motor cable
		Acceleration time too short	Increase P104, P125
		Severe motor overload, due to: <ul style="list-style-type: none"> • Mechanical problem • Drive/motor too small for application 	<ul style="list-style-type: none"> • Check machine / system • Verify drive/motor are proper size for application
		Boost values too high	Decrease P168, P169
		Excessive capacitive charging current of the motor cable	<ul style="list-style-type: none"> • Use shorter motor cables with lower charging current • Use low capacitance motor cables • Install reactor between motor and drive.
	Failed output transistor	Contact factory technical support	
F_DF I	Output fault: Ground fault	Grounded motor phase	Check motor and motor cable
		Excessive capacitive charging current of the motor cable	Use shorter motor cables with lower charging current
F_PF	Motor Overload fault	Excessive motor load for too long	<ul style="list-style-type: none"> • Verify proper setting of P108 • Verify drive and motor are proper size for application
F_rF	Flying Restart fault	Controller was unable to synchronize with the motor during restart attempt; (P110 = 5 or 6)	Check motor / load
F_SF	Single-Phase fault	A mains phase has been lost	Check mains voltage
F_UF	Start fault	Start command was present when power was applied (P110 = 0 or 2).	<ul style="list-style-type: none"> • Must wait at least 2 seconds after power-up to apply Start command • Consider alternate starting method (P110).
F_FRU	TB5 (0-10V signal) Threshold fault	0-10V signal (at TB5) drops below the value set in P158.	<ul style="list-style-type: none"> • Check signal/signal wire • Refer to parameters P157 and P158

(1) The drive can only be restarted if the error message has been reset.