

# PowerFlex 525 Adjustable Frequency AC Drive

## Parameter Groups

<b>Basic Display</b>	<b>b</b>	Drive Status	b006	Control Source	b012	Power Saved	b018	Accum kWh Sav	b024
Output Freq	b001	Fault 1 Code	b007	Contrl In Status	b013	Elapsed Run Time	b019	Accum Cost Sav	b025
Commanded Freq	b002	Fault 2 Code	b008	Dig In Status	b014	Average Power	b020	Accum CO2 Sav	b026
Output Current	b003	Fault 3 Code	b009	Output RPM	b015	Elapsed kWh	b021	Drive Temp	b027
Output Voltage	b004	Process Display	b010	Output Speed	b016	Elapsed MWh	b022	Control Temp	b028
DC Bus Voltage	b005	Process Fract	b011	Output Power	b017	Energy Saved	b023	Control SW Ver	b029
<b>Basic Program</b>	<b>P</b>	Motor NP FLA	P034	Torque Perf Mode	P039	Maximum Freq	P044	Speed Reference2	P049
Language	P030	Motor NP Poles	P035	Autotune	P040	Stop Mode	P045	Start Source 3	P050
Motor NP Volts	P031	Motor NP RPM	P036	Accel Time 1	P041	Start Source 1	P046	Speed Reference3	P051
Motor NP Hertz	P032	Motor NP Power	P037	Decel Time 1	P042	Speed Reference1	P047	Average kWh Cost	P052
Motor OL Current	P033	Voltage Class	P038	Minimum Freq	P043	Start Source 2	P048	Reset To Defaults	P053
<b>Terminal Blocks</b>	<b>t</b>	Opto Out1 LevelF	t071	Relay Out2 Sel	t081	Anlg In 0-10V Lo	t091	Sleep Level	t101
DigIn TermBlk 02	t062	Opto Out2 Sel	t072	Relay Out2 Level	t082	Anlg In 0-10V Hi	t092	Sleep Time	t102
DigIn TermBlk 03	t063	Opto Out2 Level	t073	Relay Out2 LevelF	t083	10V Bipolar Enbl	t093	Wake Level	t103
2-Wire Mode	t064	Opto Out2 LevelF	t074	Relay 2 On Time	t084	Anlg In V Loss	t094	Wake Time	t104
DigIn TermBlk 05	t065	Opto Out Logic	t075	Relay 2 Off Time	t085	Anlg In4-20mA Lo	t095	Safety Open En	t105
DigIn TermBlk 06	t066	Relay Out1 Sel	t076	EM Brk Off Delay	t086	Anlg In4-20mA Hi	t096	SafetyFlt RstCfg <sup>(1)</sup>	t106
DigIn TermBlk 07	t067	Relay Out1 Level	t077	EM Brk On Delay	t087	Anlg In mA Loss	t097		
DigIn TermBlk 08	t068	Relay Out1 LevelF	t078	Analog Out Sel	t088	Anlg Loss Delay	t098		
Opto Out1 Sel	t069	Relay 1 On Time	t079	Analog Out High	t089	Analog In Filter	t099		
Opto Out1 Level	t070	Relay 1 Off Time	t080	Anlg Out Setpt	t090	Sleep-Wake Sel	t100		
<b>Communications</b>	<b>C</b>	EN IP Addr Cfg 3	C131	EN Comm Flt Actn	C143	EN Data In 4	C156	Opt Data Out 3	C167
Comm Write Mode	C121	EN IP Addr Cfg 4	C132	EN Idle Flt Actn	C144	EN Data Out 1	C157	Opt Data Out 4	C168
Cmd Stat Select	C122	EN Subnet Cfg 1	C133	EN Flt Cfg Logic	C145	EN Data Out 2	C158	MultiDrv Sel	C169
RS485 Data Rate	C123	EN Subnet Cfg 2	C134	EN Flt Cfg Ref	C146	EN Data Out 3	C159	Drv 1 Addr	C171
RS485 Node Addr	C124	EN Subnet Cfg 3	C135	EN Flt Cfg DL 1	C147	EN Data Out 4	C160	Drv 2 Addr	C172
Comm Loss Action	C125	EN Subnet Cfg 4	C136	EN Flt Cfg DL 2	C148	Opt Data In 1	C161	Drv 3 Addr	C173
Comm Loss Time	C126	EN Gateway Cfg 1	C137	EN Flt Cfg DL 3	C149	Opt Data In 2	C162	Drv 4 Addr	C174
RS485 Format	C127	EN Gateway Cfg 2	C138	EN Flt Cfg DL 4	C150	Opt Data In 3	C163	DSI I/O Cfg	C175
EN Addr Sel	C128	EN Gateway Cfg 3	C139	EN Data In 1	C153	Opt Data In 4	C164		
EN IP Addr Cfg 1	C129	EN Gateway Cfg 4	C140	EN Data In 2	C154	Opt Data Out 1	C165		
EN IP Addr Cfg 2	C130	EN Rate Cfg	C141	EN Data In 3	C155	Opt Data Out 2	C166		
<b>Logic</b>	<b>L</b>	Stp Logic 6	L186	Stp Logic Time 5	L195	Step Units 2	L204	Step Units F 5	L211
Stp Logic 0	L180	Stp Logic 7	L187	Stp Logic Time 6	L196	Step Units F 2	L205	Step Units 6	L212
Stp Logic 1	L181	Stp Logic Time 0	L190	Stp Logic Time 7	L197	Step Units 3	L206	Step Units F 6	L213
Stp Logic 2	L182	Stp Logic Time 1	L191	Step Units 0	L200	Step Units F 3	L207	Step Units 7	L214
Stp Logic 3	L183	Stp Logic Time 2	L192	Step Units F 0	L201	Step Units 4	L208	Step Units F 7	L215
Stp Logic 4	L184	Stp Logic Time 3	L193	Step Units 1	L202	Step Units F 4	L209		
Stp Logic 5	L185	Stp Logic Time 4	L194	Step Units F 1	L203	Step Units 5	L210		
<b>Advanced Display</b>	<b>d</b>	Timer StatusF	d366	Encoder Speed	d378	PID2 Fdbk Displ	d385	RdyBit Mode Act	d392
Analog In 0-10V	d360	Drive Type	d367	Encoder Speed F	d379	PID2 Setpnt Disp	d386	Drive Status 2 <sup>(1)</sup>	d393
Analog In 4-20mA	d361	Testpoint Data	d368	DC Bus Ripple	d380	Position Status	d387	Dig Out Status <sup>(1)</sup>	d394
Elapsed Time-hr	d362	Motor OL Level	d369	Output Powr Fctr	d381	Units Traveled H	d388		
Elapsed Time-min	d363	Slip Hz Meter	d375	Torque Current	d382	Units Traveled L	d389		
Counter Status	d364	Speed Feedback	d376	PID1 Fdbk Displ	d383	Fiber Status	d390		
Timer Status	d365	Speed Feedback F	d377	PID1 Setpnt Disp	d384	Stp Logic Status	d391		

**Additional parameters are listed on the previous page.**

<b>Advanced Program</b>	<b>A</b>	Accel Time 3	A444	PID 2 Invert Err	A479	PM HIFI NS Cur <sup>(1)</sup>	A519	Drv Ambient Sel	A554
Preset Freq 0	A410	Decel Time 3	A445	Process Disp Lo	A481	PM Bus Reg Kd <sup>(1)</sup>	A520	Reset Meters	A555
Preset Freq 1	A411	Accel Time 4	A446	Process Disp Hi	A482	Freq 1 Kp	A521	Text Scroll	A556
Preset Freq 2	A412	Decel Time 4	A447	Testpoint Sel	A483	Freq 1 Ki	A522	Out Phas Loss En	A557
Preset Freq 3	A413	Skip Frequency 1	A448	Current Limit 1	A484	Freq 2 Kp	A523	Positioning Mode	A558
Preset Freq 4	A414	Skip Freq Band 1	A449	Current Limit 2	A485	Freq 2 Ki	A524	Counts Per Unit	A559
Preset Freq 5	A415	Skip Frequency 2	A450	Shear Pin1 Level	A486	Freq 3 Kp	A525	Enh Control Word	A560
Preset Freq 6	A416	Skip Freq Band 2	A451	Shear Pin 1 Time	A487	Freq 3 Ki	A526	Home Save	A561
Preset Freq 7	A417	Skip Frequency 3	A452	Shear Pin2 Level	A488	PM FWKn 1 Kp <sup>(1)</sup>	A527	Find Home Freq	A562
Preset Freq 8	A418	Skip Freq Band 3	A453	Shear Pin 2 Time	A489	PM FWKn 2 Kp <sup>(1)</sup>	A528	Find Home Dir	A563
Preset Freq 9	A419	Skip Frequency 4	A454	Load Loss Level	A490	PM Control Cfg <sup>(1)</sup>	A529	Encoder Pos Tol	A564
Preset Freq 10	A420	Skip Freq Band 4	A455	Load Loss Time	A491	Boost Select	A530	Pos Reg Filter	A565
Preset Freq 11	A421	PID 1 Trim Hi	A456	Stall Fault Time	A492	Start Boost	A531	Pos Reg Gain	A566
Preset Freq 12	A422	PID 1 Trim Lo	A457	Motor OL Select	A493	Break Voltage	A532	Max Traverse	A567
Preset Freq 13	A423	PID 1 Trim Sel	A458	Motor OL Ret	A494	Break Frequency	A533	Traverse Inc	A568
Preset Freq 14	A424	PID 1 Ref Sel	A459	Drive OL Mode	A495	Maximum Voltage	A534	Traverse Dec	A569
Preset Freq 15	A425	PID 1 Fdback Sel	A460	IR Voltage Drop	A496	Motor Fdbk Type	A535	P Jump	A570
Keypad Freq	A426	PID 1 Prop Gain	A461	Flux Current Ref	A497	Encoder PPR	A536	Sync Time	A571
MOP Freq	A427	PID 1 Integ Time	A462	Motor Rr	A498	Pulse In Scale	A537	Speed Ratio	A572
MOP Reset Sel	A428	PID 1 Diff Rate	A463	Motor Lm	A499	Ki Speed Loop	A538	Mtr Options Cfg	A573
MOP Preload	A429	PID 1 Setpoint	A464	Motor Lx	A500	Kp Speed Loop	A539	RdyBit Mode Cfg	A574
MOP Time	A430	PID 1 Deadband	A465	PM IR Voltage <sup>(1)</sup>	A501	Var PWM Disable	A540	Flux Braking En <sup>(1)</sup>	A575
Jog Frequency	A431	PID 1 Preload	A466	PM IXd Voltage <sup>(1)</sup>	A502	Auto Rstrt Tries	A541	Phase Loss Level <sup>(1)</sup>	A576
Jog Accel/Decel	A432	PID 1 Invert Err	A467	PM IXq Voltage <sup>(1)</sup>	A503	Auto Rstrt Delay	A542	Current Loop BW <sup>(1)</sup>	A580
Purge Frequency	A433	PID 2 Trim Hi	A468	PM BEMF Voltage <sup>(1)</sup>	A504	Start At PowerUp	A543	PM Stable 1 Freq <sup>(1)</sup>	A581
DC Brake Time	A434	PID 2 Trim Lo	A469	Speed Reg Sel	A509	Reverse Disable	A544	PM Stable 2 Freq <sup>(1)</sup>	A582
DC Brake Level	A435	PID 2 Trim Sel	A470	Freq 1	A510	Flying Start En	A545	PM Stable 1 Kp <sup>(1)</sup>	A583
DC Brk Time@Strt	A436	PID 2 Ref Sel	A471	Freq 1 BW	A511	FlyStrt CurLimit	A546	PM Stable 2 Kp <sup>(1)</sup>	A584
DB Resistor Sel	A437	PID 2 Fdback Sel	A472	Freq 2	A512	Compensation	A547	PM Stable Brk Pt <sup>(1)</sup>	A585
DB Threshold	A438	PID 2 Prop Gain	A473	Freq 2 BW	A513	Power Loss Mode	A548	PM Stepload Kp <sup>(1)</sup>	A586
S Curve %	A439	PID 2 Integ Time	A474	Freq 3	A514	Half Bus Enable	A549	PM 1 Efficiency <sup>(1)</sup>	A587
PWM Frequency	A440	PID 2 Diff Rate	A475	Freq 3 BW	A515	Bus Reg Enable	A550	PM 2 Efficiency <sup>(1)</sup>	A588
Droop Hertz@ FLA	A441	PID 2 Setpoint	A476	PM Initial Sel <sup>(1)</sup>	A516	Fault Clear	A551	PM Algor Sel <sup>(1)</sup>	A589
Accel Time 2	A442	PID 2 Deadband	A477	PM DC Inject Cur <sup>(1)</sup>	A517	Program Lock	A552		
Decel Time 2	A443	PID 2 Preload	A478	PM Align Time <sup>(1)</sup>	A518	Program Lock Mod	A553		

**Network**      **N**      This group contains parameters for the network option card that is installed.

**Modified**      **M**      This group contains parameters that have their values changed from the factory default.

**Additional parameters are listed on the next page.**

<b>Fault and Diagnostic</b>	<b>F</b>	Fault 7 Time-min	F627	Fault 1 BusVolts	F651	EN Rate Act	F685	Drv 1 Logic Cmd	F709
Fault 4 Code	F604	Fault 8 Time-min	F628	Fault 2 BusVolts	F652	DSI I/O Act	F686	Drv 1 Reference	F710
Fault 5 Code	F605	Fault 9 Time-min	F629	Fault 3 BusVolts	F653	HW Addr 1	F687	Drv 1 Logic Sts	F711
Fault 6 Code	F606	Fault10 Time-min	F630	Fault 4 BusVolts	F654	HW Addr 2	F688	Drv 1 Feedback	F712
Fault 7 Code	F607	Fault 1 Freq	F631	Fault 5 BusVolts	F655	HW Addr 3	F689	Drv 2 Logic Cmd	F713
Fault 8 Code	F608	Fault 2 Freq	F632	Fault 6 BusVolts	F656	HW Addr 4	F690	Drv 2 Reference	F714
Fault 9 Code	F609	Fault 3 Freq	F633	Fault 7 BusVolts	F657	HW Addr 5	F691	Drv 2 Logic Sts	F715
Fault10 Code	F610	Fault 4 Freq	F634	Fault 8 BusVolts	F658	HW Addr 6	F692	Drv 2 Feedback	F716
Fault 1 Time-hr	F611	Fault 5 Freq	F635	Fault 9 BusVolts	F659	EN IP Addr Act 1	F693	Drv 3 Logic Cmd	F717
Fault 2 Time-hr	F612	Fault 6 Freq	F636	Fault10 BusVolts	F660	EN IP Addr Act 2	F694	Drv 3 Reference	F718
Fault 3 Time-hr	F613	Fault 7 Freq	F637	Status @ Fault 1	F661	EN IP Addr Act 3	F695	Drv 3 Logic Sts	F719
Fault 4 Time-hr	F614	Fault 8 Freq	F638	Status @ Fault 2	F662	EN IP Addr Act 4	F696	Drv 3 Feedback	F720
Fault 5 Time-hr	F615	Fault 9 Freq	F639	Status @ Fault 3	F663	EN Subnet Act 1	F697	Drv 4 Logic Cmd	F721
Fault 6 Time-hr	F616	Fault10 Freq	F640	Status @ Fault 4	F664	EN Subnet Act 2	F698	Drv 4 Reference	F722
Fault 7 Time-hr	F617	Fault 1 Current	F641	Status @ Fault 5	F665	EN Subnet Act 3	F699	Drv 4 Logic Sts	F723
Fault 8 Time-hr	F618	Fault 2 Current	F642	Status @ Fault 6	F666	EN Subnet Act 4	F700	Drv 4 Feedback	F724
Fault 9 Time-hr	F619	Fault 3 Current	F643	Status @ Fault 7	F667	EN Gateway Act 1	F701	EN Rx Overruns	F725
Fault10 Time-hr	F620	Fault 4 Current	F644	Status @ Fault 8	F668	EN Gateway Act 2	F702	EN Rx Packets	F726
Fault 1 Time-min	F621	Fault 5 Current	F645	Status @ Fault 9	F669	EN Gateway Act 3	F703	EN Rx Errors	F727
Fault 2 Time-min	F622	Fault 6 Current	F646	Status @ Fault10	F670	EN Gateway Act 4	F704	EN Tx Packets	F728
Fault 3 Time-min	F623	Fault 7 Current	F647	Comm Sts - DSI	F681	Drv 0 Logic Cmd	F705	EN Tx Errors	F729
Fault 4 Time-min	F624	Fault 8 Current	F648	Comm Sts - Opt	F682	Drv 0 Reference	F706	EN Missed IO Pkt	F730
Fault 5 Time-min	F625	Fault 9 Current	F649	Com Sts-Emb Enet	F683	Drv 0 Logic Sts	F707	DSI Errors	F731
Fault 6 Time-min	F626	Fault10 Current	F650	EN Addr Src	F684	Drv 0 Feedback	F708		

(1) Parameter is available in FRN 5.xxx and later.

## AppView Parameter Groups

<b>Conveyor</b>	<b>G1</b>	Motor NP FLA	P034	Stop Mode	P045	Anlg In 0-10V Hi	t092	Jog Accel/Decel	A432
Language	P030	Motor NP Poles	P035	Start Source 1	P046	Anlg In4-20mA Lo	t095	S Curve %	A439
Output Freq	b001	Autotune	P040	Speed Reference1	P047	Anlg In4-20mA Hi	t096	Reverse Disable	A544
Commanded Freq	b002	Accel Time 1	P041	DigIn TermBlk 02	t062	Anlg In mA Loss	t097		
Motor NP Volts	P031	Decel Time 1	P042	DigIn TermBlk 03	t063	Slip Hz Meter	d375		
Motor NP Hertz	P032	Minimum Freq	P043	Relay Out1 Sel	t076	Preset Freq 0	A410		
Motor OL Current	P033	Maximum Freq	P044	Anlg In 0-10V Lo	t091	Jog Frequency	A431		
<b>Mixer</b>	<b>G2</b>	Motor NP Hertz	P032	Decel Time 1	P042	Relay Out1 Sel	t076	Preset Freq 0	A410
Language	P030	Motor OL Current	P033	Minimum Freq	P043	Anlg In 0-10V Lo	t091	Stall Fault Time	A492
Output Freq	b001	Motor NP FLA	P034	Maximum Freq	P044	Anlg In 0-10V Hi	t092		
Commanded Freq	b002	Motor NP Poles	P035	Stop Mode	P045	Anlg In4-20mA Lo	t095		
Output Current	b003	Autotune	P040	Start Source 1	P046	Anlg In4-20mA Hi	t096		
Motor NP Volts	P031	Accel Time 1	P041	Speed Reference1	P047	Anlg In mA Loss	t097		
<b>Compressor</b>	<b>G3</b>	Motor OL Current	P033	Minimum Freq	P043	Anlg In 0-10V Lo	t091	Auto Rstrt Tries	A541
Language	P030	Motor NP FLA	P034	Maximum Freq	P044	Anlg In 0-10V Hi	t092	Auto Rstrt Delay	A542
Output Freq	b001	Motor NP Poles	P035	Stop Mode	P045	Anlg In4-20mA Lo	t095	Start At PowerUp	A543
Commanded Freq	b002	Autotune	P040	Start Source 1	P046	Anlg In4-20mA Hi	t096	Reverse Disable	A544
Motor NP Volts	P031	Accel Time 1	P041	Speed Reference1	P047	Anlg In mA Loss	t097	Power Loss Mode	A548
Motor NP Hertz	P032	Decel Time 1	P042	Relay Out1 Sel	t076	Preset Freq 0	A410	Half Bus Enable	A549
<b>Centrifugal Pump</b>	<b>G4</b>	Motor NP Poles	P035	Speed Reference1	P047	PID 1 Trim Hi	A456	PID 1 Deadband	A465
Language	P030	Autotune	P040	Relay Out1 Sel	t076	PID 1 Trim Lo	A457	PID 1 Preload	A466
Output Freq	b001	Accel Time 1	P041	Anlg In 0-10V Lo	t091	PID 1 Ref Sel	A459	Auto Rstrt Tries	A541
Commanded Freq	b002	Decel Time 1	P042	Anlg In 0-10V Hi	t092	PID 1 Fdbck Sel	A460	Auto Rstrt Delay	A542
Motor NP Volts	P031	Minimum Freq	P043	Anlg In4-20mA Lo	t095	PID 1 Prop Gain	A461	Start At PowerUp	A543
Motor NP Hertz	P032	Maximum Freq	P044	Anlg In4-20mA Hi	t096	PID 1 Integ Time	A462	Reverse Disable	A544
Motor OL Current	P033	Stop Mode	P045	Anlg In mA Loss	t097	PID 1 Diff Rate	A463		
Motor NP FLA	P034	Start Source 1	P046	Preset Freq 0	A410	PID 1 Setpoint	A464		

**Additional groups are listed on the previous page.**

<b>Blower/Fan</b>	<b>G5</b>	Motor NP Poles	P035	Speed Reference1	P047	PID 1 Trim Hi	A456	PID 1 Deadband	A465
Language	P030	Autotune	P040	Relay Out1 Sel	t076	PID 1 Trim Lo	A457	PID 1 Preload	A466
Output Freq	b001	Accel Time 1	P041	Anlg In 0-10V Lo	t091	PID 1 Ref Sel	A459	Auto Rstrt Tries	A541
Commanded Freq	b002	Decel Time 1	P042	Anlg In 0-10V Hi	t092	PID 1 Fdbck Sel	A460	Auto Rstrt Delay	A542
Motor NP Volts	P031	Minimum Freq	P043	Anlg In4-20mA Lo	t095	PID 1 Prop Gain	A461	Start At PowerUp	A543
Motor NP Hertz	P032	Maximum Freq	P044	Anlg In4-20mA Hi	t096	PID 1 Integ Time	A462	Reverse Disable	A544
Motor OL Current	P033	Stop Mode	P045	Anlg In mA Loss	t097	PID 1 Diff Rate	A463	Flying Start En	A545
Motor NP FLA	P034	Start Source 1	P046	Preset Freq 0	A410	PID 1 Setpoint	A464		
<b>Extruder</b>	<b>G6</b>	Motor OL Current	P033	Maximum Freq	P044	Anlg In4-20mA Lo	t095	Pulse In Scale	A537
Language	P030	Motor NP FLA	P034	Stop Mode	P045	Anlg In4-20mA Hi	t096	Power Loss Mode	A548
Output Freq	b001	Motor NP Poles	P035	Start Source 1	P046	Anlg In mA Loss	t097	Half Bus Enable	A549
Commanded Freq	b002	Autotune	P040	Speed Reference1	P047	Slip Hz Meter	d375		
Output Current	b003	Accel Time 1	P041	Relay Out1 Sel	t076	Speed Feedback	d376		
Motor NP Volts	P031	Decel Time 1	P042	Anlg In 0-10V Lo	t091	Preset Freq 0	A410		
Motor NP Hertz	P032	Minimum Freq	P043	Anlg In 0-10V Hi	t092	Stall Fault Time	A492		
<b>Textile/Fiber</b>	<b>G8</b>	Autotune	P040	DigIn TermBlk 03	t063	Preset Freq 0	A410	Traverse Inc	A568
Language	P030	Accel Time 1	P041	Relay Out1 Sel	t076	Jog Frequency	A431	Traverse Dec	A569
Output Freq	b001	Decel Time 1	P042	Anlg In 0-10V Lo	t091	Jog Accel/Decel	A432	P Jump	A570
Commanded Freq	b002	Minimum Freq	P043	Anlg In 0-10V Hi	t092	S Curve %	A439	Sync Time	A571
Motor NP Volts	P031	Maximum Freq	P044	Anlg In4-20mA Lo	t095	Reverse Disable	A544	Speed Ratio	A572
Motor NP Hertz	P032	Stop Mode	P045	Anlg In4-20mA Hi	t096	Power Loss Mode	A548		
Motor OL Current	P033	Start Source 1	P046	Anlg In mA Loss	t097	Half Bus Enable	A549		
Motor NP FLA	P034	Speed Reference1	P047	Slip Hz Meter	d375	Bus Reg Enable	A550		
Motor NP Poles	P035	DigIn TermBlk 02	t062	Fiber Status	d390	Max Traverse	A567		

## CustomView Parameter Group

<b>Custom</b>	<b>GC</b>	This group can store up to 100 of your frequently used parameters for your application.
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## Fault Descriptions

No.	Fault	Type <sup>(1)</sup>	Description	Action
F000	No Fault	–	No fault present.	–
F002	Auxiliary Input	1	External trip (Auxiliary) input.	<ul style="list-style-type: none"> <li>Check remote wiring.</li> <li>Verify communications programming for intentional fault.</li> </ul>
F003	Power Loss	2	Single phase operation detected with excessive load.	<ul style="list-style-type: none"> <li>Monitor the incoming AC line for low voltage or line power interruption.</li> <li>Check input fuses.</li> <li>Reduce load.</li> </ul>
F004	UnderVoltage	1	DC bus voltage fell below the minimum value.	Monitor the incoming AC line for low voltage or line power interruption.
F005	OverVoltage	1	DC bus voltage exceeded maximum value.	Monitor the AC line for high line voltage or transient conditions. Bus overvoltage can also be caused by motor regeneration. Extend the decel time or install dynamic brake option.
F006	Motor Stalled	1	Drive is unable to accelerate or decelerate motor.	<ul style="list-style-type: none"> <li>Increase P041, A442, A444, A446 [Accel Time x] or reduce load so drive output current does not exceed the current set by parameter A484, A485 [Current Limit x] for too long.</li> <li>Check for overhauling load.</li> </ul>
F007	Motor Overload	1	Internal electronic overload trip.	<ul style="list-style-type: none"> <li>An excessive motor load exists. Reduce load so drive output current does not exceed the current set by parameter P033 [Motor OL Current].</li> <li>Verify A530 [Boost Select] setting.</li> </ul>

**Additional faults are listed on the next page.**

F008	Heatsink OvrTmp	1	Heatsink/Power Module temperature exceeds a predefined value.	<ul style="list-style-type: none"> <li>Check for blocked or dirty heat sink fins. Verify that ambient temperature has not exceeded the rated ambient temperature.</li> <li>Check fan.</li> </ul>
F009	CC OvrTmp	1	Control module temperature exceeds a predefined value.	<ul style="list-style-type: none"> <li>Check product ambient temperature.</li> <li>Check for airflow obstruction.</li> <li>Check for dirt or debris.</li> <li>Check fan.</li> </ul>
F012	HW OverCurrent	2	The drive output current has exceeded the hardware current limit.	Check programming. Check for excess load, improper A530 [Boost Select] setting, DC brake volts set too high or other causes of excess current.
F013	Ground Fault	1 <sup>(2)</sup>	A current path to earth ground has been detected at one or more of the drive output terminals.	Check the motor and external wiring to the drive output terminals for a grounded condition.
F015	Load Loss	2	The output torque current is below the value programmed in A490 [Load Loss Level] for a time period greater than the time programmed in A491 [Load Loss Time].	<ul style="list-style-type: none"> <li>Verify connections between motor and load.</li> <li>Verify level and time requirements</li> </ul>
F021	Output Ph Loss	1	Output Phase Loss (if enabled). Configure with A557 [Output Phas Loss En].	<ul style="list-style-type: none"> <li>Verify motor wiring.</li> <li>Verify motor.</li> </ul>
F029	Analog In Loss	1	An analog input is configured to fault on signal loss. A signal loss has occurred. Configure with t094 [Anlg In V Loss] or t097 [Anlg In mA Loss].	<ul style="list-style-type: none"> <li>Check for broken/loose connections at inputs.</li> <li>Check parameters.</li> </ul>
F033	Auto Rstrt Tries	2	Drive unsuccessfully attempted to reset a fault and resume running for the programmed number of A541 [Auto Rstrt Tries].	Correct the cause of the fault and manually clear.
F038	Phase U to Gnd	2	A phase to ground fault has been detected between the drive and motor in this phase.	<ul style="list-style-type: none"> <li>Check the wiring between the drive and motor.</li> <li>Check motor for grounded phase.</li> <li>Replace drive if fault cannot be cleared.</li> </ul>
F039	Phase V to Gnd			
F040	Phase W to Gnd			
F041	Phase UV Short	2	Excessive current has been detected between these two output terminals.	Check the motor and drive output terminal wiring for a shorted condition. Replace drive if fault cannot be cleared.
F042	Phase UW Short			
F043	Phase VW Short			
F048	Params Defaulted	1	The drive was commanded to write default values to EEPROM.	<ul style="list-style-type: none"> <li>Clear the fault or cycle power to the drive.</li> <li>Program the drive parameters as needed.</li> </ul>
F059	Safety Open	1	Both of the safety inputs (Safety 1, Safety 2) are not enabled. Configure with t105 [Safety Open En].	Check safety input signals. If not using safety, verify and tighten jumper for I/O terminals S1, S2 and S+.
F063	SW OverCurrent	1	Programmed A486, A488 [Shear Pinx Level] has been exceeded for a time period greater than the time programmed in A487, A489 [Shear Pin x Time].	<ul style="list-style-type: none"> <li>Verify connections between motor and load.</li> <li>Verify level and time requirements.</li> </ul>
F064	Drive Overload	2	Drive overload rating has been exceeded.	Reduce load or extend Accel Time.
F070	Power Unit	2	Failure has been detected in the drive power section.	<ul style="list-style-type: none"> <li>Check maximum ambient temperature has not been exceeded.</li> <li>Cycle power.</li> <li>Replace drive if fault cannot be cleared.</li> </ul>
F071	DSI Net Loss	2	Control over the Modbus or DSI communications link has been interrupted.	<ul style="list-style-type: none"> <li>Cycle power.</li> <li>Check communications cabling.</li> <li>Check Modbus or DSI setting.</li> <li>Check Modbus or DSI status.</li> </ul>
F072	Opt Net Loss	2	Control over the network option card's remote network has been interrupted.	<ul style="list-style-type: none"> <li>Cycle power.</li> <li>Check communications cabling.</li> <li>Check network adapter setting.</li> <li>Check external network status.</li> </ul>
F073	EN Net Loss	2	Control through the embedded EtherNet/IP adapter has been interrupted.	<ul style="list-style-type: none"> <li>Cycle power.</li> <li>Check communications cabling.</li> <li>Check EtherNet/IP setting.</li> <li>Check external network status.</li> </ul>
F080	Autotune Failure	2	The autotune function was either cancelled by the user or failed.	Restart procedure.

**Additional faults are listed on the next page.**

F081	DSI Comm Loss	2	Communications between the drive and the Modbus or DSI master device have been interrupted.	<ul style="list-style-type: none"> <li>• Cycle power.</li> <li>• Check communications cabling.</li> <li>• Check Modbus or DSI setting.</li> <li>• Check Modbus or DSI status.</li> <li>• Modify using C125 [Comm Loss Action].</li> <li>• Connecting I/O terminals C1 and C2 to ground may improve noise immunity.</li> <li>• Replace wiring, Modbus master device, or control module.</li> </ul>
F082	Opt Comm Loss	2	Communications between the drive and the network option card have been interrupted.	<ul style="list-style-type: none"> <li>• Cycle power.</li> <li>• Reinstall option card in drive.</li> <li>• Modify using C125 [Comm Loss Action].</li> <li>• Replace wiring, port expander, option card, or control module.</li> </ul>
F083	EN Comm Loss	2	Internal communications between the drive and the embedded EtherNet/IP adapter have been interrupted.	<ul style="list-style-type: none"> <li>• Cycle power.</li> <li>• Check EtherNet/IP setting.</li> <li>• Check drive's Ethernet settings and diagnostic parameters.</li> <li>• Modify using C125 [Comm Loss Action].</li> <li>• Replace wiring, Ethernet switch, or control module.</li> </ul>
F091	Encoder Loss	2	Requires differential encoder. One of the 2 encoder channel signals is missing.	<ul style="list-style-type: none"> <li>• Check Wiring.</li> <li>• If P047, P049, P051 [Speed Reference] = 16 "Positioning" and A535 [Motor Fdbk Type] = 5 "Quad Check", swap the Encoder channel inputs or swap any two motor leads.</li> <li>• Replace encoder.</li> </ul>
F094	Function Loss	2	"Freeze-Fire" (Function Loss) input is inactive, input to the programmed terminal is open.	Close input to the terminal and cycle power.
F100	Parameter Chksum	2	Drive parameter non-volatile storage is corrupted.	Set P053 [Reset To Defaults] to 2 "Factory Rset".
F101	External Storage	2	External non-volatile storage has failed.	Set P053 [Reset To Defaults] to 2 "Factory Rset".
F105	C Connect Err	2	Control module was disconnected while drive was powered.	Clear fault and verify all parameter settings. Do not remove or install the control module while power is applied.
F106	Incompat C-P	2	The PowerFlex 525 control module does not support power modules with 0.25 HP power rating.	<ul style="list-style-type: none"> <li>• Change to a different power module.</li> <li>• Change to a PowerFlex 523 control module.</li> </ul>
F107	Replaced C-P	2	The control module could not recognize the power module. Hardware failure.	<ul style="list-style-type: none"> <li>• Change to a different power module.</li> <li>• Replace control module if changing power module does not work.</li> </ul>
F109	Mismatch C-P	2	The control module was mounted to a different drive type power module.	Set P053 [Reset To Defaults] to 3 "Power Reset".
F110	Keypad Membrane	2	Keypad membrane failure / disconnected.	<ul style="list-style-type: none"> <li>• Cycle power.</li> <li>• Replace control module if fault cannot be cleared.</li> </ul>
F111	Safety Hardware	2	Safety input enable hardware malfunction. One of the safety inputs is not enabled.	<ul style="list-style-type: none"> <li>• Check safety input signals. If not using safety, verify and tighten jumper for I/O terminals S1, S2 and S+.</li> <li>• Replace control module if fault cannot be cleared.</li> </ul>
F114	uC Failure	2	Microprocessor failure.	<ul style="list-style-type: none"> <li>• Cycle power.</li> <li>• Replace control module if fault cannot be cleared.</li> </ul>
F122	I/O Board Fail	2	Failure has been detected in the drive control and I/O section.	<ul style="list-style-type: none"> <li>• Cycle power.</li> <li>• Replace drive or control module if fault cannot be cleared.</li> </ul>
F125	Flash Update Req	2	The firmware in the drive is corrupt, mismatched, or incompatible with the hardware.	Perform a firmware flash update operation to attempt to load a valid set of firmware.
F126	NonRecoverablErr	2	A non-recoverable firmware or hardware error was detected. The drive was automatically stopped and reset.	<ul style="list-style-type: none"> <li>• Clear fault or cycle power to the drive.</li> <li>• Replace drive or control module if fault cannot be cleared.</li> </ul>
F127	DSIFlashUpdatReq	2	A critical problem with the firmware was detected and the drive is running using backup firmware that only supports DSI communications.	Perform a firmware flash update operation using DSI communications to attempt to load a valid set of firmware.

(1) Type 1 = Auto-Reset/Run faults. Type 2 = Non-Resetable faults.

(2) This fault may be cleared by the auto-restart routine and will be attempted only once. It ignores the value set in parameter A541 [Auto Rstrt Tries].

All the recommended documentation listed in this section is available online at <http://www.rockwellautomation.com/literature>.

The following publications provide general drive information:

Title	Publication
Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives	<a href="#">DRIVES-IN001</a>
Preventive Maintenance of Industrial Control and Drive System Equipment	<a href="#">DRIVES-TD001</a>
Safety Guidelines for the Application, Installation and Maintenance of Solid State Control	<a href="#">SGI-1.1</a>
A Global Reference Guide for Reading Schematic Diagrams	<a href="#">100-2.10</a>
Guarding Against Electrostatic Damage	<a href="#">8000-4.5.2</a>

The following publications provide specific PowerFlex 520-Series information on drive installation, features, specifications, and service:

Title	Publication
PowerFlex 520-Series Drive Adjustable Frequency AC Drive User Manual	<a href="#">520-UM001</a>
PowerFlex 520-Series Drive AC Drive Specifications	<a href="#">520-TD001</a>
PowerFlex Dynamic Braking Resistor Calculator	<a href="#">PFLEX-AT001</a>
PowerFlex AC Drives in Common Bus Configurations	<a href="#">DRIVES-AT002</a>

The following publications provide specific Network Communications information:

Title	Publication
PowerFlex 525 Embedded EtherNet/IP Adapter	<a href="#">520COM-UM001</a>
PowerFlex 25-COMM-D DeviceNet Adapter	<a href="#">520COM-UM002</a>
PowerFlex 25-COMM-E2P Dual-Port EtherNet/IP Adapter	<a href="#">520COM-UM003</a>
PowerFlex 25-COMM-P PROFIBUS DPV1 Adapter	<a href="#">520COM-UM004</a>

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