

Display Group Parameters

No.	Parameter	Min/Max	Display/Options
d001	[Output Freq]	0.0/[Maximum Freq]	0.1 Hz
d002	[Commanded Freq]	0.0/[Maximum Freq]	0.1 Hz
d003	[Output Current]	0.00/Drive Amps × 2	0.01 Amps
d004	[Output Voltage]	0/Drive Rated Volts	1 VAC
d005	[DC Bus Voltage]	Based on Drive Rating	1 VDC
d006	[Drive Status]	0/1 (1 = Condition True)	Bit 3 Decelerating Bit 2 Accelerating Bit 1 Forward Bit 0 Running
d007-d009	[Fault x Code]	F2/F122	F1
d010	[Process Display]	0.00/9999	0.01 – 1
d012	[Control Source]	0/9	Bit 1 = Speed Command (See P038; 9 = "Jog Freq") Bit 0 = Start Command (See P036; 9 = "Jog")
d013	[Contrl In Status]	0/1 (1 = Input Present)	Bit 3 Dynamic Brake Bit 2 Stop Input Bit 1 Dir/Run REV Bit 0 Start/Run FWD
d014	[Dig In Status]	0/1 (1 = Input Present)	Bit 3 Digital In4 Sel Bit 2 Digital In3 Sel Bit 1 Digital In2 Sel Bit 0 Digital In1 Sel
d015	[Comm Status]	0/1 (1 = Condition True)	Bit 3 Fault Occurred Bit 2 RS485 Option Bit 1 Transmitting Bit 0 Receiving
d016	[Control SW Ver]	1.00/99.99	0.01
d017	[Drive Type]	1001/9999	1
d018	[Elapsed Run Time]	0/9999 Hrs	1 = 10 Hrs
d019	[Testpoint Data]	0/FFFF	1 Hex
d020	[Analog In 0-10V]	0.0/100.0%	0.1%
d021	[Analog In 4-20mA]	0.0/100.0%	0.1%
d022	[Output Power]	0.00/Drive Power × 2	0.01 kW
d023	[Output Powr Fctr]	0.0/180.0 deg	0.1 deg
d024	[Drive Temp]	0/120 degC	1 degC
d025	[Counter Status]	0/9999	1
d026	[Timer Status]	0.0/9999	0.1 Secs
d028	[Stp Logic Status]	0/7	1

Smart Start-Up with Basic Program Group Parameters

The PowerFlex 40 is designed so that start up is simple and efficient. The Program Group contains the most commonly used parameters.

= Stop drive before changing this parameter.

No.	Parameter	Min/Max	Display/Options	Default
P031	[Motor NP Volts] <input type="radio"/> Set to the motor nameplate rated volts.	20/Drive Rated Volts	1 VAC	Based on Drive Rating
P032	[Motor NP Hertz] <input type="radio"/> Set to the motor nameplate rated frequency.	15/400 Hz	1 Hz	60 Hz
P033	[Motor OL Current] Set to the maximum allowable motor current.	0.0/(Drive Rated Amps×2)	0.1 Amps	Based on Drive Rating
P034	[Minimum Freq] Sets the lowest frequency the drive will output continuously.	0.0/400.0 Hz	0.1 Hz	0.0 Hz
P035	[Maximum Freq] <input type="radio"/> Sets the highest frequency the drive will output.	0/400 Hz	1 Hz	60 Hz
P036	[Start Source] <input type="radio"/> Sets the control scheme used to start the drive. (1) When active, the Reverse key is also active unless disabled by A095 [Reverse Disable].	0/5	0 = "Keypad" ⁽¹⁾ 1 = "3-Wire" 2 = "2-Wire" 3 = "2-W Lvl Sens" 4 = "2-W Hi Speed" 5 = "Comm Port"	0
P037	[Stop Mode] Active stop mode for all stop sources [e.g. keypad, run forward (I/O Terminal 02), run reverse (I/O Terminal 03), RS485 port] except as noted below. Important: I/O Terminal 01 is always a coast to stop input except when P036 [Start Source] is set for "3-Wire" control. When in three wire control, I/O Terminal 01 is controlled by P037 [Stop Mode].	0/7	0 = "Ramp, CF" ⁽¹⁾ 1 = "Coast, CF" ⁽¹⁾ 2 = "DC Brake, CF" ⁽¹⁾ 3 = "DCBrkAuto, CF" ⁽¹⁾ 4 = "Ramp" 5 = "Coast" 6 = "DC Brake" 7 = "DC BrakeAuto" (1) Stop input also clears active fault.	0

= Stop drive before changing this parameter.

No.	Parameter	Min/Max	Display/Options	Default
P038	[Speed Reference] Sets the source of the speed reference to the drive. Important: When A051 or A052 [Digital Inx Sel] is set to option 2, 4, 5, 6, 13 or 14 and the digital input is active, A051, A052, A053 or A054 will override the speed reference commanded by this parameter. Refer to Chapter 1 of the PowerFlex 40 <i>User Manual</i> on CD for details.	0/6	0 = "Drive Pot" 1 = "InternalFreq" 2 = "0-10V Input" 3 = "4-20mA Input" 4 = "Preset Freq" 5 = "Comm Port" 6 = "Stp Logic"	0
P039	[Accel Time 1] Sets the rate of accel for all speed increases.	0.0/600.0 Secs	0.1 Secs	10.0 Secs
P040	[Decel Time 1] Sets the rate of decel for all speed decreases.	0.1/600.0 Secs	0.1 Secs	10.0 Secs
P041	[Reset To Defaults] <input checked="" type="checkbox"/> Resets all parameter values to factory defaults.	0/1	0 = "Ready/Idle" 1 = "Factory Rset"	0

Advanced Group Parameters

No.	Parameter	Min/Max	Display/Options	Default
A051	[Digital In1 Sel] <i>I/O Terminal 05</i>	0/25	0 = "Not Used" 1 = "Acc & Dec 2"	4
A052	[Digital In2 Sel] <i>I/O Terminal 06</i>		2 = "Jog" 3 = "Aux Fault"	4
A053	[Digital In3 Sel] <i>I/O Terminal 07</i>		4 = "Preset Freq" 5 = "Local"	5
A054	[Digital In4 Sel] <input checked="" type="checkbox"/> <i>I/O Terminal 08</i>		6 = "Comm Port" 7 = "Clear Fault" 8 = "RampStop,CF" 9 = "CoastStop,CF" 10 = "DCInjStop,CF" 11 = "Jog Forward" 12 = "Jog Reverse"	11
A055	[Relay Out Sel]	0/20	0 = "Ready/Fault" 1 = "At Frequency" 2 = "MotorRunning" 3 = "Reverse" 4 = "Motor Overld" 5 = "Ramp Reg" 6 = "Above Freq" 7 = "Above Cur" 8 = "Above DCVolt" 9 = "Retries Exst" 10 = "Above Anlg V"	0
A056	[Relay Out Level]	0.0/9999	0.1	0.0
A058	[Opto Out1 Sel]	0/20	0 = "Ready/Fault"	2
A061	[Opto Out2 Sel]		1 = "At Frequency" 2 = "MotorRunning" 3 = "Reverse" 4 = "Motor Overld" 5 = "Ramp Reg" 6 = "Above Freq" 7 = "Above Cur" 8 = "Above DCVolt" 9 = "Retries Exst" 10 = "Above Anlg V"	1
A059	[Opto Out1 Level]	0.0/9999	0.1	0.0
A062	[Opto Out2 Level]			
A055, A058 & A061 Setting		A056, A059 & A062 Min/Max		
6		0/400 Hz		
7		0/180%		
8		0/815 Volts		
10		0/100%		
16		0.1/9999 Secs		
17		1/9999 Counts		
18		1/180 degs		
20		0/1		

No.	Parameter	Min/Max	Display/Options	Default	
A064	[Opto Out Logic]	0/3	1	0	
	A064 Option	Opto Out1 Logic	Opto Out2 Logic		
	0	NO (Normally Open)	NO (Normally Open)		
	1	NC (Normally Closed)	NO (Normally Open)		
	2	NO (Normally Open)	NC (Normally Closed)		
	3	NC (Normally Closed)	NC (Normally Closed)		
A065	[Analog Out Sel]	0/14	1	0	
	Option	Output Range	Minimum Output Value	Maximum Output Value [Analog Out High]	DIP Switch Position
	0 *OutFreq 0-10*	0-10V	0V = 0 Hz	P035 [Maximum Freq]	0-10V
	1 *OutCurr 0-10*	0-10V	0V = 0 Amps	200% Drive Rated FLA	0-10V
	2 *OutVolt 0-10*	0-10V	0V = 0 Volts	120% Drive Rated Output Volts	0-10V
	3 *OutPowr 0-10*	0-10V	0V = 0 kW	200% Drive Rated Power	0-10V
	4 *TstData 0-10*	0-10V	0V = 0000	65535 (Hex FFFF)	0-10V
	5 *OutFreq 0-20*	0-20mA	0 mA = 0 Hz	P035 [Maximum Freq]	0-20mA
	6 *OutCurr 0-20*	0-20mA	0 mA = 0 Amps	200% Drive Rated FLA	0-20mA
	7 *OutVolt 0-20*	0-20mA	0 mA = 0 Volts	120% Drive Rated Output Volts	0-20mA
	8 *OutPowr 0-20*	0-20mA	0 mA = 0 kW	200% Drive Rated Power	0-20mA
	9 *TstData 0-20*	0-20mA	0 mA = 0000	65535 (Hex FFFF)	0-20mA
	10 *OutFreq 4-20*	4-20mA	4 mA = 0 Hz	P035 [Maximum Freq]	0-20mA
	11 *OutCurr 4-20*	4-20mA	4 mA = 0 Amps	200% Drive Rated FLA	0-20mA
	12 *OutVolt 4-20*	4-20mA	4 mA = 0 Volts	120% Drive Rated Output Volts	0-20mA
	13 *OutPowr 4-20*	4-20mA	4 mA = 0 kW	200% Drive Rated Power	0-20mA
	14 *TstData 4-20*	4-20mA	4 mA = 0000	65535 (Hex FFFF)	0-20mA
A066	[Analog Out High]	0/800%	1%	100%	
A067	[Accel Time 2]	0.0/600.0 Secs	0.1 Secs	20.0 Secs	
A068	[Decel Time 2]	0.1/600.0 Secs	0.1 Secs	20.0 Secs	
A069	[Internal Freq]	0.0/400.0 Hz	0.1 Hz	60.0 Hz	
A070	[Preset Freq 0] ⁽¹⁾	0.0/400.0 Hz	0.1 Hz	0.0 Hz	
A071	[Preset Freq 1]			5.0 Hz	
A072	[Preset Freq 2]			10.0 Hz	
A073	[Preset Freq 3]			20.0 Hz	
A074	[Preset Freq 4]			30.0 Hz	
A075	[Preset Freq 5]			40.0 Hz	
A076	[Preset Freq 6]			50.0 Hz	
A077	[Preset Freq 7]			60.0 Hz	
	⁽¹⁾ To activate [Preset Freq 0] set P038 [Speed Reference] to option 4.				
	Input State of Digital In 1 (I/O Terminal 05)	Input State of Digital In 2 (I/O Terminal 06)	Input State of Digital In 3 (I/O Terminal 07)	Frequency Source	Accel / Decel Parameter Used ⁽²⁾
	0	0	0	[Preset Freq 0]	[Accel Time 1] / [Decel Time 1]
	1	0	0	[Preset Freq 1]	[Accel Time 1] / [Decel Time 1]
	0	1	0	[Preset Freq 2]	[Accel Time 2] / [Decel Time 2]
	1	1	0	[Preset Freq 3]	[Accel Time 2] / [Decel Time 2]
	0	0	1	[Preset Freq 4]	[Accel Time 1] / [Decel Time 1]
	1	0	1	[Preset Freq 5]	[Accel Time 1] / [Decel Time 1]
	0	1	1	[Preset Freq 6]	[Accel Time 2] / [Decel Time 2]
	1	1	1	[Preset Freq 7]	[Accel Time 2] / [Decel Time 2]
	⁽²⁾ When a Digital Input is set to "Accel 2 & Decel 2", and the input is active, that input overrides the settings in this table.				
A078	[Jog Frequency]	0.0/[Maximum Freq]	0.1 Hz	10.0 Hz	
A079	[Jog Accel/Decel]	0.1/600.0 Secs	0.1 Secs	10.0 Secs	
A080	[DC Brake Time]	0.0/99.9 Secs	0.1 Secs	0.0 Secs	
	A setting of 99.9 Secs = Continuous				
A081	[DC Brake Level]	0.0/(Drive Amps × 1.8)	0.1 Amps	Amps × 0.05	
A082	[DB Resistor Sel]	0/99	0 = "Disabled" 1 = "Normal RA Res"	2 = "NoProtection" 3-99 = % of Duty Cycle	
A083	[S Curve %]	0/100%	1%	0% (Disabled)	
A084	[Boost Select]	0/14	Settings in % of base voltage. 0 = "Custom V/Hz" Variable Torque Constant Torque 1 = "30.0, VT" 5 = "0.0, no IR" 2 = "35.0, VT" 6 = "0.0" 10 = "10.0, CT" 3 = "40.0, VT" 7 = "2.5, CT" 11 = "12.5, CT" 4 = "45.0, VT" 8 = "5.0, CT" 12 = "15.0, CT" 9 = "7.5, CT" 13 = "17.5, CT" 14 = "20.0, CT"	8 7 (5, 7.5 & 10 HP Drives)	
A085	[Start Boost]	0.0/25.0%	0.1%	2.5%	
	Only active when A084 [Boost Select] and A125 [Torque Perf Mode] are set to "0".				

No.	Parameter	Min/Max	Display/Options	Default
A086	[Break Voltage] Only active when A084 [Boost Select] and A125 [Torque Perf Mode] are set to "0".	0.0/100.0%	0.1%	25.0%
A087	[Break Frequency] Only active when A084 [Boost Select] and A125 [Torque Perf Mode] are set to "0".	0.0/400.0 Hz	0.1 Hz	15.0 Hz
A088	[Maximum Voltage]	20/Rated Volts	1 VAC	Rated Volts
A089	[Current Limit 1]	0.1/(Drive Amps × 1.8)	0.1 Amps	Amps × 1.5
A090	[Motor OL Select]	0/2	0 = "No Derate" 1 = "Min Derate" 2 = "Max Derate"	0
A091	[PWM Frequency]	2.0/16.0 kHz	0.1 kHz	4.0 kHz
A092	[Auto Rstrt Tries]	0/9	1	0
A093	[Auto Rstrt Delay]	0.0/300.0 Secs	0.1 Secs	1.0 Secs
A094	[Start At PowerUp]	0/1	0 = "Disabled" 1 = "Enabled"	0
A095	[Reverse Disable]	0/1	0 = "Rev Enabled" 1 = "Rev Disabled"	0
A096	[Flying Start En]	0/1	0 = "Disabled" 1 = "Enabled"	0
A097	[Compensation]	0/3	0 = "Disabled" 1 = "Electrical" 2 = "Mechanical" 3 = "Both"	1
A098	[SW Current Trip]	0.0/(Drive Amps × 2)	0.1 Amps	0.0 (Disabled)
A099	[Process Factor]	0.1/999.9	0.1	30.0
A100	[Fault Clear]	0/2	0 = "Ready/Idle" 1 = "Reset Fault" 2 = "Clear Buffer"	0
A101	[Program Lock]	0/9999	0 = "Unlocked" 1 = "Locked"	0
A102	[Testpoint Sel]	400/FFFF	1 Hex	400
A103	[Comm Data Rate] Power to drive must be cycled before any changes will affect drive operation.	0/5	0 = "1200" 1 = "2400" 2 = "4800" 3 = "9600" 4 = "19.2K" 5 = "38.4K"	3
A104	[Comm Node Addr] Power to drive must be cycled before any changes will affect drive operation.	1/247	1	100
A105	[Comm Loss Action]	0/3	0 = "Fault" 1 = "Coast Stop" 2 = "Stop" 3 = "Continu Last"	0
A106	[Comm Loss Time]	0.1/60.0 Secs	0.1	5.0
A107	[Comm Format] Power to drive must be cycled before any changes will affect drive operation.	0/2	0 = "RTU 8-N-1" 1 = "RTU 8-E-1" 2 = "RTU 8-O-1"	0
A108	[Language]	1/10	1 = "English" 2 = "Français" 3 = "Español" 4 = "Italiano" 5 = "Deutsch" 6 = "Reserved" 7 = "Português" 8 = "Reserved" 9 = "Reserved" 10 = "Nederlands"	1
A110	[Anlg In 0-10V Lo]	0.0/100.0%	0.1%	0.0%
A111	[Anlg In 0-10V Hi]	0.0/100.0%	0.1%	100.0%
A112	[Anlg In4-20mA Lo]	0.0/100.0%	0.1%	0.0%
A113	[Anlg In4-20mA Hi]	0.0/100.0%	0.1%	100.0%
A114	[Slip Hertz @ FLA]	0.0/10.0 Hz	0.1 Hz	2.0 Hz
A118	[Current Limit 2]	0.1/(Drive Amps × 1.8)	0.1 Amps	Amps × 1.5
A119	[Skip Frequency]	0/400 Hz	1 Hz	0 Hz
A120	[Skip Freq Band]	0.0/30.0 Hz	0.1 Hz	0.0 Hz
A121	[Stall Fault Time]	0/5	0 = "60 Seconds" 1 = "120 Seconds" 2 = "240 Seconds" 3 = "360 Seconds" 4 = "480 Seconds" 5 = "Flt Disabled"	0
A122	[Analog In Loss]	0/6	0 = "Disabled" 1 = "Fault (F29)" 2 = "Stop" 3 = "Zero Ref" 4 = "Min Freq Ref" 5 = "Max Freq Ref" 6 = "Int Freq Ref"	0
A123	[10V Bipolar Enbl]	0/1	0 = "Uni-Polar In" 1 = "Bi-Polar In"	0
A124	[Var PWM Disable]	0/1	0 = "Enabled" 1 = "Disabled"	0
A125	[Torque Perf Mode]	0/1	0 = "V/Hz" 1 = "Sensrls Vect"	1
A126	[Motor NP FLA]	Drive Amps × 0.1/2	0.1 Amps	Rated Amps

No.	Parameter	Min/Max	Display/Options	Default
A127	[Autotune]	0/2	0 = "Ready/Idle" 1 = "Static Tune" 2 = "Rotate Tune"	0
A128	[IR Voltage Drop]	0.0/230.0 VAC	0.1 VAC	Rated Volts
A129	[Flux Current Ref]	0.00/[Motor NP Volts]	0.01 Amps	Rated Amps
A130	[PID Trim Hi]	0.0/400.0	0.1	60.0
A131	[PID Trim Lo]	0.0/400.0	0.1	0.1
A132	[PID Ref Sel]	0/8	0 = "PID Disabled" 1 = "PID Setpoint" 2 = "0-10V Input" 3 = "4-20mA Input" 4 = "Comm Port" 5 = "Setpnt, Trim" 6 = "0-10V, Trim" 7 = "4-20mA, Trim" 8 = "Comm, Trim"	0
A133	[PID Feedback Sel]	0/2	0 = "0-10V Input" 1 = "4-20mA Input" 2 = "Comm Port"	0
A134	[PID Prop Gain]	0.00/99.99	0.01	0.01
A135	[PID Integ Time]	0.0/999.9 Secs	0.1	0.1
A136	[PID Diff Rate]	0.00/99.99 (1/Secs)	0.01	0.01
A137	[PID Setpoint]	0.0/100.0%	0.1%	0.0%
A138	[PID Deadband]	0.0/10.0%	0.1%	0.0%
A139	[PID Preload]	0.0/400.0 Hz	0.1 Hz	0.0 Hz
A140- A147	[Stp Logic 0-7]	0001/BAFF	4 Digits For a list of digit options, refer to the PowerFlex 40 User Manual on the CD supplied with the drive.	00F1
A150- A157	[Stp Logic Time 0-7]	0.0/999.9 Secs	0.1 Secs	30.0 Secs

Fault Codes

To clear a fault, press the Stop key, cycle power or set A100 [Fault Clear] to 1 or 2.

No.	Fault	Description
F2	Auxiliary Input ⁽¹⁾	Check remote wiring.
F3	Power Loss	Monitor the incoming AC line for low voltage or line power interruption.
F4	UnderVoltage ⁽¹⁾	Monitor the incoming AC line for low voltage or line power interruption.
F5	OverVoltage ⁽¹⁾	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.
F6	Motor Stalled ⁽¹⁾	Increase [Accel Time x] or reduce load so drive output current does not exceed the current set by parameter A089 [Current Limit].
F7	Motor Overload ⁽¹⁾	An excessive motor load exists. Reduce load so drive output current does not exceed the current set by parameter P033 [Motor OL Current].
F8	Heatsink OvrTmp ⁽¹⁾	Check for blocked or dirty heat sink fins. Verify that ambient temperature has not exceeded 40°C (104°F) for IP 30/NEMA 1/UL Type 1 installations or 50°C (122°F) for Open type installations. Check fan.
F12	HW OverCurrent ⁽¹⁾	Check programming. Check for excess load, improper DC boost setting, DC brake volts set too high or other causes of excess current.
F13	Ground Fault	Check the motor and external wiring to the drive output terminals for a grounded condition.
F29	Analog In Loss	An analog input is configured to fault on signal loss. A signal loss has occurred.
F33	Auto Rstrt Tries	Correct the cause of the fault and manually clear.
F38	Phase U to Gnd	Check the wiring between the drive and motor. Check motor for grounded phase.
F39	Phase V to Gnd	Replace drive if fault cannot be cleared.
F40	Phase W to Gnd	
F41	Phase UV Short	Check the motor and drive output terminal wiring for a shorted condition.
F42	Phase UW Short	Replace drive if fault cannot be cleared.
F43	Phase VW Short	
F48	Params Defaulted	The drive was commanded to write default values to EEPROM. Clear the fault or cycle power to the drive. Program the drive parameters as needed.
F63	SW OverCurrent ⁽¹⁾	Check load requirements and A098 [SW Current Trip] setting.
F64	Drive Overload	Reduce load or extend Accel Time.
F70	Power Unit	Cycle power. Replace drive if fault cannot be cleared.
F80	Autotune Failure	The autotune function was either cancelled by the user or failed.
F81	Comm Loss	If adapter was not intentionally disconnected, check wiring to the port. Replace wiring, port expander, adapters or complete drive as required. Check connection. An adapter was intentionally disconnected. Turn off using A105 [Comm Loss Action].
F100	Parameter Checksum	Restore factory defaults.
F122	I/O Board Fail	Cycle power. Replace drive if fault cannot be cleared.

⁽¹⁾ Auto-Reset/Run type fault. Configure with parameters A092 and A093.