Smart Start-Up with Basic Program Group Parameters

The PowerFlex 4 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] Set to the motor nameplate rated volts.	20/Drive Rated Volts	1 VAC	Based on Drive Rating
P032	[Motor NP Hertz] Set to the motor nameplate rated frequency.	10/240 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.	0.0/240.0 Hz	0.1 Hz	0.0 Hz
P035	[Maximum Freq] Sets the highest frequency the drive will output.	0/240 Hz	1 Hz	60 Hz
P036	[Start Source] 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-Wire Level Sensitive" 4 = "2-Wire High Speed" 5 = "RS485 (DSI) Port"	0
P037	[Stop Mode] Active stop mode for all stop sources except as noted below. **Important:** P037 [Stop Mode] does not control I/O Terminal 01 except when P036 [Start Source] is set for "3-Wire" control. In all other instances, I/O Terminal 01 is a "Coast to Stop" input. (1) Stop input also clears active fault.	0/7	0 = "Ramp, Clear Fault"(1) 1 = "Coast, Clear Fault"(1) 2 = "DC Brake, Clear Fault"(1) 3 = "DC Brake w/Shutoff, Clear Fault"(1) 4 = "Ramp" 5 = "Coast" 6 = "DC Brake" 7 = "DC Brake w/Shutoff"	0
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 or 6, and the digital input is active, A051 or A052 will override the speed reference commanded by this parameter. Refer to Chapter 1 of the PowerFlex 4 *User Manual* on CD for details.	0/5	0 = "Drive Potentiometer" 1 = "Internal Freq" 2 = "0-10V Input/Remote Potentiometer" 3 = "4-20mA Input" 4 = "Preset Freq 0-3" 5 = "RS485 (DSI) Port"	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] Resets all parameter values to factory defaults.	0/1	0 = "Idle State" 1 = "Reset Defaults"	0

Advanced Group Parameters

No.	Parameter	Min/Max	Display/Options	Default
A051 A052	[Digital In1 Sel] *I/O Terminal 05* [Digital In2 Sel] *I/O Terminal 06*	0/7	0 = "Not Used" 1 = "Accel 2 & Decel 2" 2 = "Jog" 3 = "Auxiliary Fault" 4 = "Preset Frequencies" 5 = "Local" 6 = "RS485 (DSI) Port" 7 = "Clear Fault"	4
A055	[Relay Out Sel]	0/9	0 = "Ready" (Not Faulted) 1 = "At Frequency" 2 = "Motor Running" 3 = "Reverse" 4 = "Motor Overload" 5 = "Ramp Regulated" 6 = "Above Frequency" 7 = "Above Current" 8 = "Above DC Bus Volts" 9 = "Retries Exhausted"	0
A056	[Relay Out Level]	0.0/9999	0.1 – 1	0.0
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]	0.0/240.0 Hz	0.1 Hz	60.0 Hz

No.	Parameter	Min/Max	Display/Options	Default
A070 A071 A072 A073	[Preset Freq 0] (1) [Preset Freq 1] [Preset Freq 2] [Preset Freq 3]	0.0/240.0 Hz	0.1 Hz	0.0 Hz 5.0 Hz 10.0 Hz 20.0 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)	Frequency Source	Accel / Decel Parameter Used (2)
0	0	[Preset Freq 0]	[Accel Time 1] / [Decel Time 1]
1	0	[Preset Freq 1]	[Accel Time 1] / [Decel Time 1]
0	1	[Preset Freq 2]	[Accel Time 2] / [Decel Time 2]
1	1	[Preset Freq 3]	[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.

No.	Parameter	Min/Max	Display/Options	Default
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]	0.0/90.0 Secs	0.1 Secs	0.0 Secs
A081	[DC Brake Level]	0.0/(Drive Amps × 1.8)	0.1 Amps	Amps × 0.05
A082 ◎	[DB Resistor Sel]	0/100	0 = Disabled 1 = 5% Duty Cycle 2 = 100% Duty Cycle 3-99 = % of Duty Cycle	0
A083	[S Curve %]	0/100%	1%	0% (Disabled)
A084	[Start Boost]	1/14	Settings in % of base voltage. Variable Torque: 1 = "30.0", 2 = "35.0", 3 = "40.0", 4 = "45.0" Constant Torque: 5 = "0.0 no IR Comp", 6 = "0.0", 7 = "2.5", 8 = "5.0", 9 = "7.5", 10 = "10.0", 11 = "12.5", 12 = "15.0", 13 = "17.5", 14 = "20.0"	8
A088	[Maximum Voltage]	20/Rated Volts	1 VAC	Rated Volts
A089	[Current Limit]	0.1/(Drive Amps × 1.8)	0.1 Amps	Amps × 1.5
A090	[Motor OL Select]	0/2	0 = "No Derate" 1 = "Minimum Derate" 2 = "Maximum 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]	0.0/120.0 Secs	0.1 Secs	1.0 Secs
A094 ◎	[Start At PowerUp]	0/1	0 = "Disabled" 1 = "Enabled"	0
A095 ◎	[Reverse Disable]	0/1	0 = "Reverse Enabled" 1 = "Reverse 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"	0
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" 1 = "Clear Faults" 2 = "Clear Fault Queue"	0
A101	[Program Lock]	0/1	0 = "Unlocked" 1 = "Locked"	0
A102	[Testpoint Sel]	0/FFFF	1 Hex	400
A103	[Comm Data Rate]	0/5	0 = "1200" 1 = "2400" 2 = "4800" 3 = "9600" 4 = "19.2K" 5 = "38.4K"	3
A104	[Comm Node Addr]	1/247	1	100
A105	[Comm Loss Action]	0/3	0 = "Fault" 1 = "Coast to Stop" 2 = "Stop" 3 = "Continue Last Speed"	0
A106	[Comm Loss Time]	0.1/60.0	0.1	5.0
A107	[Comm Format]	0/2	0 = "RTU 8-N-1" 1 = "RTU 8-E-1" 2 = "RTU 8-O-1"	0

◎ = Stop drive before changing this parameter.

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]	0/6	Bit 1 = Speed Command (See P038; 6 = "Jog Freq")		Bit 0 = Start Command (See P036; 6 = "Jog")	
d013	[Contrl In Status]	0/1 (1 = Input Present)	Bit 3 Reserved	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 Reserved	Bit 2 Reserved	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			

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.
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. Replace drive if fault cannot be cleared.
F39	Phase V to Gnd	
F40	Phase W to Gnd	
F41	Phase UV Short	Check the motor and drive output terminal wiring for a shorted condition. Replace drive if fault cannot be cleared.
F42	Phase VW Short	
F43	Phase UW 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.
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.