Pump Genius

Pump Process Control Software

PUMP GENIUS™

Motors | Automation | Energy| Transmission & Distribution | Coatings

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WEG Pump Genius

The WEG Pump Genius pump process control software is designed to reduce system operation and maintenance costs while increasing pump process accuracy and protection. The Pump Genius software offers simplex or multiplex pump control while providing monitoring and protection for the pump system.

Pump Genius can be applied to any pump system that requires constant flow or pressure control.

- Reduce System Component Cost
- Improve System Reliability
- Reduce Maintenance Costs
- Eliminate Costly Control Panels
- Reduce System Energy Requirements
- Reduce Overall Installation Costs

PC Software - Free Download from www.weg.net/us

WEG Pump Genius

Performance Features

- 2-75 HP @ 230 Vac and 2-600 HP @ 480 Vac
- Overload capacity: nominal 110% for 60sec. (150% peak)
- Adjustable accel/decel: 0.0 to 900.0 Sec.
- Controlled speed range: 1:20
- Critical frequency rejection: 3 selectable, adjustable bands
- Torque-limiting: 30-180%
- Torque boost: full range, automatic
- Power loss ride-thru: 2 sec
- Fault Auto-Reset with programmable time interval
- Feedback signal loss detection
- Serial communications loss detection
- "Up / Down" floating point control capability (PI)
- Pump Sleep function
- Run-permissive input

Pump Control Features

- Simplex or Multiplex Control
- Operator Keypad with intuitive pump language
- Local/Remote Control
- Jockey Pump Control
- Process feedback in engineering units
- Direct/Reverse PID Control Selection
- Control Set point by VFD Keypad, Analog Input, a combination of Digital Inputs, Communication command or based on weekly schedule
- Sleep Boost Mode
- Sleep Mode and Wake-Up Mode
- Pipe Charging
- Deragging function
- No Flow Detection
- Forced Rotation

Drive and Motor Protective Features

- Current-limited stall prevention
- Heat sink over-temperature, speed fold-back
- Bi-directional start into rotating motor
- Optically-isolated controls
- Short circuit protection: Phase-phase and phase-neutral
- Ground fault protection
- Short circuit withstand rating: 100KA RMS with Fuses
- Electronic motor overload: UL
- Current limit
- Fault display: last 10 faults
- Over torque and under torque protection

Pump Protective Features

- Dry Pump
- Air in System
- Blocked Impeller
- Pump over Cycling
- No Flow Protection
- Loss of Prime
- Transducer Loss
- Over Torque
- Anti-Cavitation

Pump Genius Operation

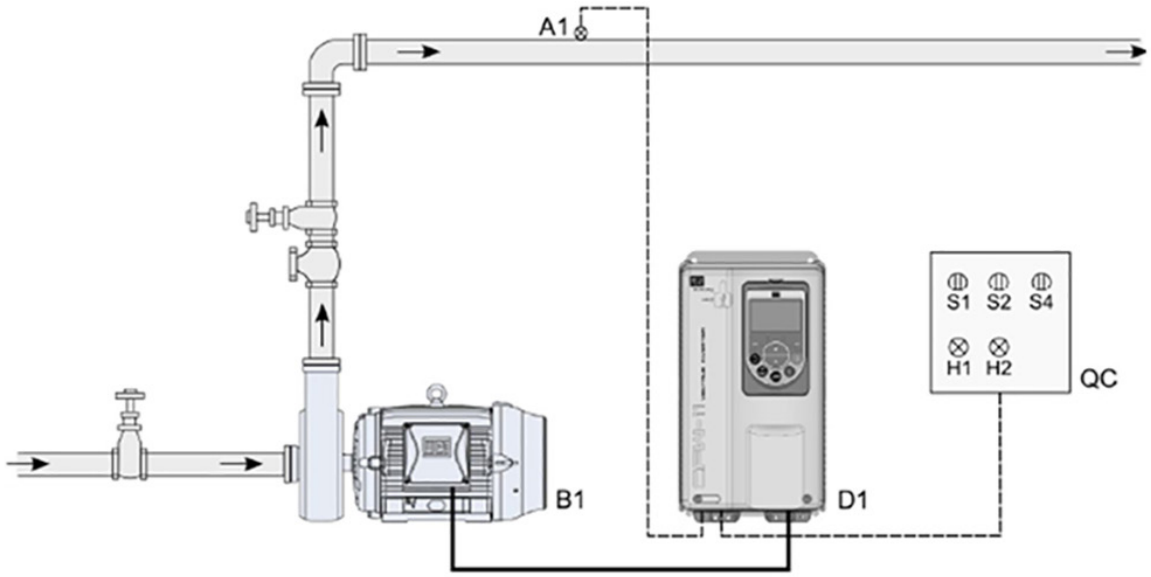
Pump Genius software works with the WEG CFW11 drive to control pump system processes. The software monitors system pressure or flow and adjusts pump speed to meet pumping requirements.

Pump Genius - Simplex (Single Pump Control)

Pump Genius - Simplex Operation

The Pump Genius - Simplex software monitors the system pressure or flow from a feedback device and maintains it at the control set point.

- Motor faults are monitored and alarmed
- Drive faults are monitored and alarmed
- Feedback Signal Lost / Broken Wire detected and alarmed
- Provides control for a single (1) pump operation



Pump Genius - Simplex Configuration

Single Drive Pump System

Motor Voltage	ND / VT [1]		HD / CT [1]		Catalog Number	Braking Transistor	Frame Size	Dimensions (in.) HxWxD	Approx. Weight (lbs.)	List Price	Multiplier
	Motor HP [2]	Drive Amps [3]	Motor HP [2]	Drive Amps [3]							
230 Vac	Input Power Supply: Single or Three-Phase 200-240 Vac with Dynamic Braking Transistor										
	1 1/2	6.0	1 1/2	5.0	CFW110006B2ON1Z-PGS	Yes	A	12.1 x 5.8 x 9.0	13.9	$1,779	V1
	2	7.0	2	7.0	CFW110007B2ON1Z-PGS	Yes	A	12.1 x 5.8 x 9.0	13.9	$1,851	V1
	Input Power Supply: Single-Phase 200-240 Vac with Dynamic Braking Transistor										
	3	10	3	10	CFW110010S2ON1Z-PGS	Yes	A	12.1 x 5.8 x 9.0	13.9	$1,947	V1
	Input Power Supply: Three-Phase 200-240 Vac with Dynamic Braking Transistor										
	2	7.0	1 1/2	5.5	CFW110007T2ON1Z-PGS	Yes	A	12.1 x 5.8 x 9.0	13.9	$1,755	V1
	3	10	2	8.0	CFW110010T2ON1Z-PGS	Yes	A	12.1 x 5.8 x 9.0	13.9	$1,827	V1
	5	13	3	11	CFW110013T2ON1Z-PGS	Yes	A	12.1 x 5.8 x 9.0	13.9	$1,863	V1
	5	16	5	13	CFW110016T2ON1Z-PGS	Yes	A	12.1 x 5.8 x 9.0	13.9	$1,985	V1
	7 1/2	24	7 1/2	20	CFW110024T2ON1Z-PGS	Yes	B	13.9 x 7.5 x 9.0	23	$2,559	V1
	10	28	10	24	CFW110028T2ON1Z-PGS	Yes	B	13.9 x 7.5 x 9.0	23	$2,776	V1
	10	34	10	28	CFW110033T2ON1Z-PGS	Yes	B	13.9 x 7.5 x 9.0	23	$3,325	V1
	15	45	15	36	CFW110045T2ON1Z-PGS	Yes	C	17.7 x 8.7 x 11.5	46	$3,776	V1
	20	54	20	45	CFW110054T2ON1Z-PGS	Yes	C	17.7 x 8.7 x 11.5	46	$4,535	V1
	25	70	20	56	CFW110070T2ON1Z-PGS	Yes	C	17.7 x 8.7 x 11.5	46	$6,735	V1
	30	86	25	70	CFW110086T2ON1Z-PGS	Yes	D	19.9 x 11.9 x 12.0	72	$7,357	V1
	40	105	30	86	CFW110105T2ON1Z-PGS	Yes	D	19.9 x 11.9 x 12.0	72	$9,135	V1
	Input Power Supply: Three-Phase 200-240 Vac without Dynamic Braking Transistor										
	50	142	40	115	CFW110142T2ON1Z-PGS	No	E [4]	26.6 x 13.2 x 14.1	144	$11,784	V1
	60	180	50	142	CFW110180T2ON1Z-PGS	No	E [4]	26.6 x 13.2 x 14.1	144	$15,260	V1
	75	211	60	180	CFW110211T2ON1Z-PGS	No	E [4]	26.6 x 13.2 x 14.1	144	$21,695	V1
460 Vac	Input Power Supply: Three-Phase 380-480 Vac with Dynamic Braking Transistor										
	2	3.6	2	3.6	CFW110003T4ON1Z-PGS	Yes	A	12.1 x 5.8 x 9.0	13.9	$1,751	V1
	3	5.0	3	5.0	CFW110005T4ON1Z-PGS	Yes	A	12.1 x 5.8 x 9.0	13.9	$1,785	V1
	5	7.0	3	5.5	CFW110007T4ON1Z-PGS	Yes	A	12.1 x 5.8 x 9.0	13.9	$1,847	V1
	7 1/2	10	5	10	CFW110010T4ON1Z-PGS	Yes	A	12.1 x 5.8 x 9.0	13.9	$2,104	V1
	10	13.5	7 1/2	11	CFW110013T4ON1Z-PGS	Yes	A	12.1 x 5.8 x 9.0	13.9	$2,203	V1
	10	17	10	13.5	CFW110017T4ON1Z-PGS	Yes	B	13.9 x 7.5 x 9.0	23	$2,665	V1
	15	24	10	19	CFW110024T4ON1Z-PGS	Yes	B	13.9 x 7.5 x 9.0	23	$3,127	V1
	20	31	15	25	CFW110031T4ON1Z-PGS	Yes	B	13.9 x 7.5 x 9.0	23	$4,008	V1
	25	38	20	33	CFW110038T4ON1Z-PGS	Yes	C	17.7 x 8.7 x 11.5	46	$4,435	V1
	30	45	25	38	CFW110045T4ON1Z-PGS	Yes	C	17.7 x 8.7 x 11.5	46	$5,535	V1
	40	58.5	30	47	CFW110058T4ON1Z-PGS	Yes	C	17.7 x 8.7 x 11.5	46	$6,768	V1
	50/60	70.5	40	61	CFW110070T4ON1Z-PGS	Yes	D	19.9 x 11.9 x 12.0	72	$7,635	V1
	60/75	88	50	73	CFW110088T4ON1Z-PGS	Yes	D	19.9 x 11.9 x 12.0	72	$9,035	V1
	Input Power Supply: Three-Phase 380-480 Vac without Dynamic Braking Transistor										
	75	105	75	88	CFW110105T4ON1Z-PGS	No	E [4]	26.6 x 13.2 x 14.1	144	$10,785	V1
	100/125	142	75	115	CFW110142T4ON1Z-PGS	No	E [4]	26.6 x 13.2 x 14.1	144	$12,635	V1
	150	180	100/125	142	CFW110180T4ON1Z-PGS	No	E [4]	26.6 x 13.2 x 14.1	144	$17,635	V1
	175	211	150	180	CFW110211T4ON1Z-PGS	No	E [4]	26.6 x 13.2 x 14.1	144	$21,135	V1
	200	242	150	211	CFW110242T4SZ-PGS	No	F [4,5]	48.6 x 16.9 x 14.2	309	$23,135	V1
	250	312	200	242	CFW110312T4SZ-PGS	No	F [4,5]	48.6 x 16.9 x 14.2	309	$29,501	V1
	300	370	250	312	CFW110370T4SZ-PGS	No	F [4,5]	48.6 x 16.9 x 14.2	309	$31,449	V1
	400	477	300	370	CFW110477T4SZ-PGS	No	F [4,5]	48.6 x 16.9 x 14.2	309	$41,162	V1
	450	515	400	477	CFW110515T4SZ-PGS	No	G [4,5]	50 x 21.1 x 16.8	474	$44,105	V1
	500	601	450	515	CFW110601T4SZ-PGS	No	G [4,5]	50 x 21.1 x 16.8	474	$50,223	V1
	600	720	500	560	CFW110720T4SZ-PGS	No	G [4,5]	50 x 21.1 x 16.8	474	$59,465	V1

Notes:

1) CT = Constant Torque, 150% overload / 60 sec.; VT = Variable Torque (Quadratic Load), 110% overload / 60 sec.
2) "HP" rating based on "average FLA values". Use as a guide only.
3) Motor FLA may vary with speed and manufacturer. ALWAYS compare motor FLA to Nominal AMPS of drive.
4) Maximum 45°C ambient temperature without derating
5) IP20 enclosure protection level
For other technical data please refer to WEG product manual.

Pump Genius - Multiplex (Multiple Pump System Control)

Pump Genius - Multiplex Operation

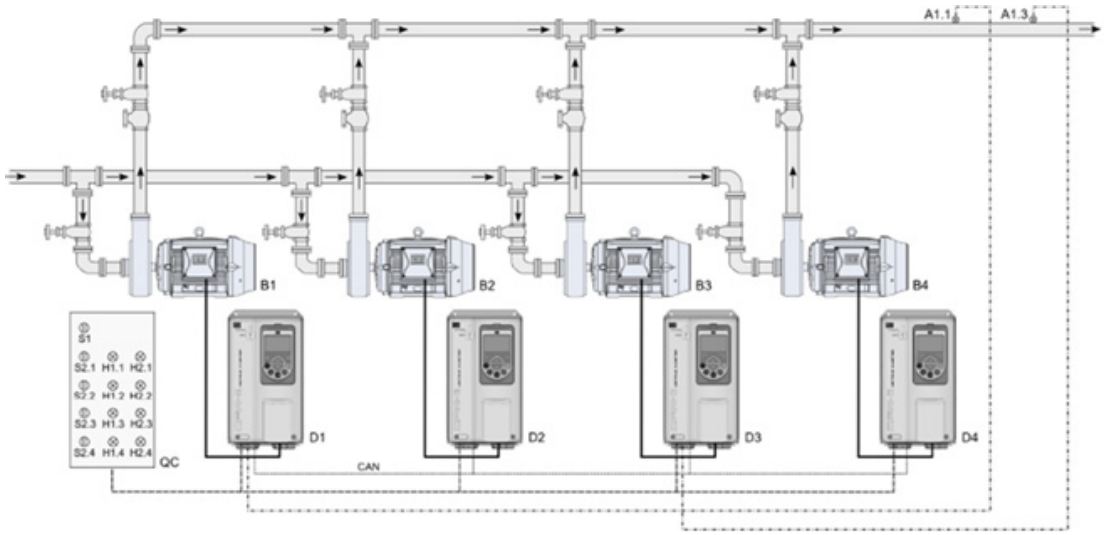
The Pump Genius - Multiplex software monitors the system pressure or flow from a feedback device and maintains it at the control set point. The pumps are cycled on and off based on the accumulated run times to ensure even wear, increasing equipment reliability while extending the life span of the system. How it works:

- A minimum of one (1) VFD in the system is programmed as “Master/Slave”. This “Master/Slave” VFD has the capability to control the entire multiplex pump system (up to five (5) VFDs). Each “Master/Salve” VFD needs an analog feedback from the process (pressure or flow) connected to its respective analog input.

- Any VFDs in the system that are not programmed for “Master/Slave” operation will be set up in “Slave” mode and will follow commands from the lead “Master/Salve” VFD. A VFD set up as “Slave” is not capable of controlling the Pump Genius system.

- To establish a redundant pump configuration, at least two (2) VFDs need to be programmed as “Master/Salve”. The lead “Master/Salve” VFD will control the entire system and the following operating sequence will be followed:
  - The Pump and Motor with the least run time will be the first to start.
  - The Pump and Motor with the highest run time will be the first to stop.
  - A fault condition in the lead VFD such as ‘Communication Loss’, ‘Feedback Signal Lost / Broken Wire’, or a ‘Drive Fault’ will cause the pump system to transfer control to another “Master/Slave” VFD and the pump system will restart.

- VFDs ordered using the “Pump Genius - Multiplex” (CFW11xxxxxxxZ-PGM) part number are provided with an RS-485 communication module and the ‘Multiplex’ version of Pump Genius software installed in the VFD.



Pump Genius - Multiplex Configuration

Multi Drive Pump System *(includes RS-485 communication card installed)*

Motor Voltage	ND / VT [1]		HD / CT [1]		Catalog Number	Braking Transistor	Frame Size	Dimensions (in.) HxWxD	Approx. Weight (lbs.)	List Price	Multiplier
	Motor HP [2]	Drive Amps [3]	Motor HP [2]	Drive Amps [3]							
230 Vac	Input Power Supply: Single or Three-Phase 200-240 Vac with Dynamic Braking Transistor										
	1 1/2	6.0	1 1/2	5.0	CFW110006B2ON1Z-PGM	Yes	A	12.1 x 5.8 x 9.0	13.9	$2,019	V1
	2	7.0	2	7.0	CFW110007B2ON1Z-PGM	Yes	A	12.1 x 5.8 x 9.0	13.9	$2,091	V1
	Input Power Supply: Single-Phase 200-240 Vac with Dynamic Braking Transistor										
	3	10	3	10	CFW110010S2ON1Z-PGM	Yes	A	12.1 x 5.8 x 9.0	13.9	$2,187	V1
	Input Power Supply: Three-Phase 200-240 Vac with Dynamic Braking Transistor										
	2	7.0	1 1/2	5.5	CFW110007T2ON1Z-PGM	Yes	A	12.1 x 5.8 x 9.0	13.9	$1,995	V1
	3	10	2	8.0	CFW110010T2ON1Z-PGM	Yes	A	12.1 x 5.8 x 9.0	13.9	$2,067	V1
	5	13	3	11	CFW110013T2ON1Z-PGM	Yes	A	12.1 x 5.8 x 9.0	13.9	$2,103	V1
	5	16	5	13	CFW110016T2ON1Z-PGM	Yes	A	12.1 x 5.8 x 9.0	13.9	$2,225	V1
	7 1/2	24	7 1/2	20	CFW110024T2ON1Z-PGM	Yes	B	13.9 x 7.5 x 9.0	23	$2,799	V1
	10	28	10	24	CFW110028T2ON1Z-PGM	Yes	B	13.9 x 7.5 x 9.0	23	$3,016	V1
	10	34	10	28	CFW110033T2ON1Z-PGM	Yes	B	13.9 x 7.5 x 9.0	23	$3,565	V1
	15	45	15	36	CFW110045T2ON1Z-PGM	Yes	C	17.7 x 8.7 x 11.5	46	$4,016	V1
	20	54	20	45	CFW110054T2ON1Z-PGM	Yes	C	17.7 x 8.7 x 11.5	46	$4,775	V1
	25	70	20	56	CFW110070T2ON1Z-PGM	Yes	C	17.7 x 8.7 x 11.5	46	$6,975	V1
	30	86	25	70	CFW110086T2ON1Z-PGM	Yes	D	19.9 x 11.9 x 12.0	72	$7,597	V1
	40	105	30	86	CFW110105T2ON1Z-PGM	Yes	D	19.9 x 11.9 x 12.0	72	$9,375	V1
	Input Power Supply: Three-Phase 200-240 Vac without Dynamic Braking Transistor										
	50	142	40	115	CFW110142T2ON1Z-PGM	No	E [4]	26.6 x 13.2 x 14.1	144	$12,024	V1
	60	180	50	142	CFW110180T2ON1Z-PGM	No	E [4]	26.6 x 13.2 x 14.1	144	$15,500	V1
	75	211	60	180	CFW110211T2ON1Z-PGM	No	E [4]	26.6 x 13.2 x 14.1	144	$21,935	V1
460 Vac	Input Power Supply: Three-Phase 380-480 Vac with Dynamic Braking Transistor										
	2	3.6	2	3.6	CFW110003T4ON1Z-PGM	Yes	A	12.1 x 5.8 x 9.0	13.9	$1,991	V1
	3	5.0	3	5.0	CFW110005T4ON1Z-PGM	Yes	A	12.1 x 5.8 x 9.0	13.9	$2,025	V1
	5	7.0	3	5.5	CFW110007T4ON1Z-PGM	Yes	A	12.1 x 5.8 x 9.0	13.9	$2,087	V1
	7 1/2	10	5	10	CFW110010T4ON1Z-PGM	Yes	A	12.1 x 5.8 x 9.0	13.9	$2,344	V1
	10	13.5	7 1/2	11	CFW110013T4ON1Z-PGM	Yes	A	12.1 x 5.8 x 9.0	13.9	$2,443	V1
	10	17	10	13.5	CFW110017T4ON1Z-PGM	Yes	B	13.9 x 7.5 x 9.0	23	$2,905	V1
	15	24	10	19	CFW110024T4ON1Z-PGM	Yes	B	13.9 x 7.5 x 9.0	23	$3,367	V1
	20	31	15	25	CFW110031T4ON1Z-PGM	Yes	B	13.9 x 7.5 x 9.0	23	$4,248	V1
	25	38	20	33	CFW110038T4ON1Z-PGM	Yes	C	17.7 x 8.7 x 11.5	46	$4,675	V1
	30	45	25	38	CFW110045T4ON1Z-PGM	Yes	C	17.7 x 8.7 x 11.5	46	$5,775	V1
	40	58.5	30	47	CFW110058T4ON1Z-PGM	Yes	C	17.7 x 8.7 x 11.5	46	$7,008	V1
	50/60	70.5	40	61	CFW110070T4ON1Z-PGM	Yes	D	19.9 x 11.9 x 12.0	72	$7,875	V1
	60/75	88	50	73	CFW110088T4ON1Z-PGM	Yes	D	19.9 x 11.9 x 12.0	72	$9,275	V1
	Input Power Supply: Three-Phase 380-480 Vac without Dynamic Braking Transistor										
	75	105	75	88	CFW110105T4ON1Z-PGM	No	E [4]	26.6 x 13.2 x 14.1	144	$11,025	V1
	100/125	142	75	115	CFW110142T4ON1Z-PGM	No	E [4]	26.6 x 13.2 x 14.1	144	$12,875	V1
	150	180	100/125	142	CFW110180T4ON1Z-PGM	No	E [4]	26.6 x 13.2 x 14.1	144	$17,875	V1
	175	211	150	180	CFW110211T4ON1Z-PGM	No	E [4]	26.6 x 13.2 x 14.1	144	$21,375	V1
	200	242	150	211	CFW110242T4SZ-PGM	No	F [4,5]	48.6 x 16.9 x 14.2	309	$23,375	V1
	250	312	200	242	CFW110312T4SZ-PGM	No	F [4,5]	48.6 x 16.9 x 14.2	309	$29,741	V1
	300	370	250	312	CFW110370T4SZ-PGM	No	F [4,5]	48.6 x 16.9 x 14.2	309	$31,689	V1
	400	477	300	370	CFW110477T4SZ-PGM	No	F [4,5]	48.6 x 16.9 x 14.2	309	$41,402	V1
	450	515	400	477	CFW110515T4SZ-PGM	No	G [4,5]	50 x 21.1 x 16.8	474	$44,345	V1
	500	601	450	515	CFW110601T4SZ-PGM	No	G [4,5]	50 x 21.1 x 16.8	474	$50,463	V1
	600	720	500	560	CFW110720T4SZ-PGM	No	G [4,5]	50 x 21.1 x 16.8	474	$59,705	V1

Notes:
1) CT = Constant Torque, 150% overload / 60 sec.; VT = Variable Torque (Quadratic Load), 110% overload / 60 sec.
2) "HP" rating based on "average FLA values". Use as a guide only.
3) Motor FLA may vary with speed and manufacturer. ALWAYS compare motor FLA to Nominal AMPS of drive.
4) Maximum 45°C ambient temperature without derating
5) IP20 enclosure. Optional kit to change protection level.

Data subject to change without notice.
For other technical data please refer to WEG product manual.

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