

GUARDIAN SERIES® VARIABLE FREQUENCY CONTROLLER

Variable speed pumping systems, powered by Guardian Series™ Variable Frequency Controllers, ramp up the system's horsepower as needed to provide optimal flow rates at fueling points. The result is faster and more consistent flow rates at peak business times compared to fixed speed systems.

By incorporating features such as precise flow control, fault diagnostics, and protective mechanisms, the Variable Frequency Controller enhances operational performance, reduces maintenance costs, and extends equipment lifespan.

HIGHLIGHTS

Pairs with FE PETRO® 2 Hp & 4 Hp variable speed pumps

Automatically adjusts pump speed for optimal flow rates

Maintains faster flow rates during peak business

Provides consistent customer fueling experience

Maintains stable performance with fluctuating demand

Minimizes pressure spikes preventing system wear

Helps maximize profits with higher flow rates

System fault diagnostics maximize uptime

Advanced control via EVO™ Series Turbine Pump Interface™



High Performance Fueling

Variable speed systems adjust pump speeds dynamically via the Variable Frequency Controller to achieve higher flow rates and maintain constant flow, ensuring consistent fuel delivery compared to fixed speed systems.

Advanced Uptime Features

The Variable Frequency Controller features an LCD display that clearly presents detailed system fault information and maintains a fault history log for rapid troubleshooting.

Advanced Pump Control

Turbine Pump Interface™ connects the Guardian Series™ Variable Frequency Controller with the EVO™ Series Fuel Management System, enabling pump automation and remote troubleshooting and control.

HIGHLIGHTS CONTINUED

Guardian Series™ Variable Frequency Controllers redefine the standard of variable speed pump control. Built on the trusted FE PETRO® brand smart controller platform, Guardian Series™ controllers deliver an improved user interface, streamlined design, and superior performance compared to legacy variable speed controllers.

Clear Digital Display

3½-digit LCD shows running and fault status for faster, easier troubleshooting.

Dedicated Control Buttons

Separate Reset and Silence / Calibrate buttons simplify operator interaction.

USB Service Port

For enhanced fault log download and controller firmware upload.

Boosted Performance

Supports 4 Hp pumps with increased performance enabling an additional nozzle versus legacy MagVFC™.

Bypass Mode

Added feature for startup / purging and system troubleshooting at fixed frequency.

User Interface Features

- 1 A 3½-digit LCD display provides readable running and fault status for improved troubleshooting.
- 2 Separate Reset and Silence/Calibrate push buttons provide easy interaction with the controller.
- 3 A yellow LED provides a visual confirmation of communication between the controller and the STP.
- 4 Readable output conditions are listed on the front panel for quick reference.

LCD Display Output Conditions

- IdLE Power On / Pump Off Status
- run Pump Running Status (kWatts)
- bP Bypass Mode Status (600 sec. countdown)
- OC Open Circuit Fault (hook with no load)
- UL Underload Fault (dry running)
- LI Low Incoming Fault (voltage)
- HI High Incoming Fault (voltage)
- Er Extended Run Fault (60 min. same load)
- OL Overload Fault (locked rotor)
- SC Short Circuit Fault (over-current)
- HO Halt Operation Fault (over-temp)
- HL Heat Limit Warning (kWatts)
- CL Current Limit Warning (kWatts)
- UbL Unbalanced Load Warning (phase)

Advanced Pump Safety

Over voltage protection and improved underload detection safeguard equipment.

Rapid Diagnostics

Displays more in-depth fault readouts, motor phase issues, and last five faults for enhanced troubleshooting.

Reduced Electrical Noise

Enhanced output filter reduces output noise to lowest levels.

Enhanced Surge Protection

Upgraded incoming power circuitry reliably handles more challenging power conditions.

Superior Cooling

Improved thermal design allows for reliable performance in extended operating conditions.



SPECIFICATIONS

Power Requirements

2 Hp Submersible Pumps		Single-phase incoming power
2 Hp & 4 Hp Submersible Pumps		Three-phase incoming power
Incoming Power Supply		200-250 VAC
Max. Line Draw		20 Amps
Output		Three-phase, variable frequency signal*
	2 Hp Max. Motor Draw	9 Amps
	4 Hp Max. Motor Draw	15 Amps
	Single Phase Input Max. Current	9.5 Amps
	Three Phase Input, VS2 Max. Current	11.5 Amps
	Three Phase Input, VS4 Max. Current	16 Amps

**For use with FE PETRO® variable speed pumps only.*

Environmental

Dimensions (H x W x D)		15.61" x 5.3" x 10.1"
Minimum Mounting Clearance Envelope		24.6" H x 14.3" W
Weight		20.2 lbs.
Location		Non-hazardous environment, indoors where explosive or flammable vapors are not present
Altitude		Up to 2,000 m
Temperature		40° F to 122° C (4° C to 50° C)
Humidity		0 - 95%, non-condensing
Overvoltage		UL 61800-5-1 CATEGORY III
Pollution		UL 61800-5-1 DEGREE 2
Enclosure Type Rating		UL Type 1
Approvals / Certifications		UL / ULc listed, ISO 9001:2015 certified manufacturer

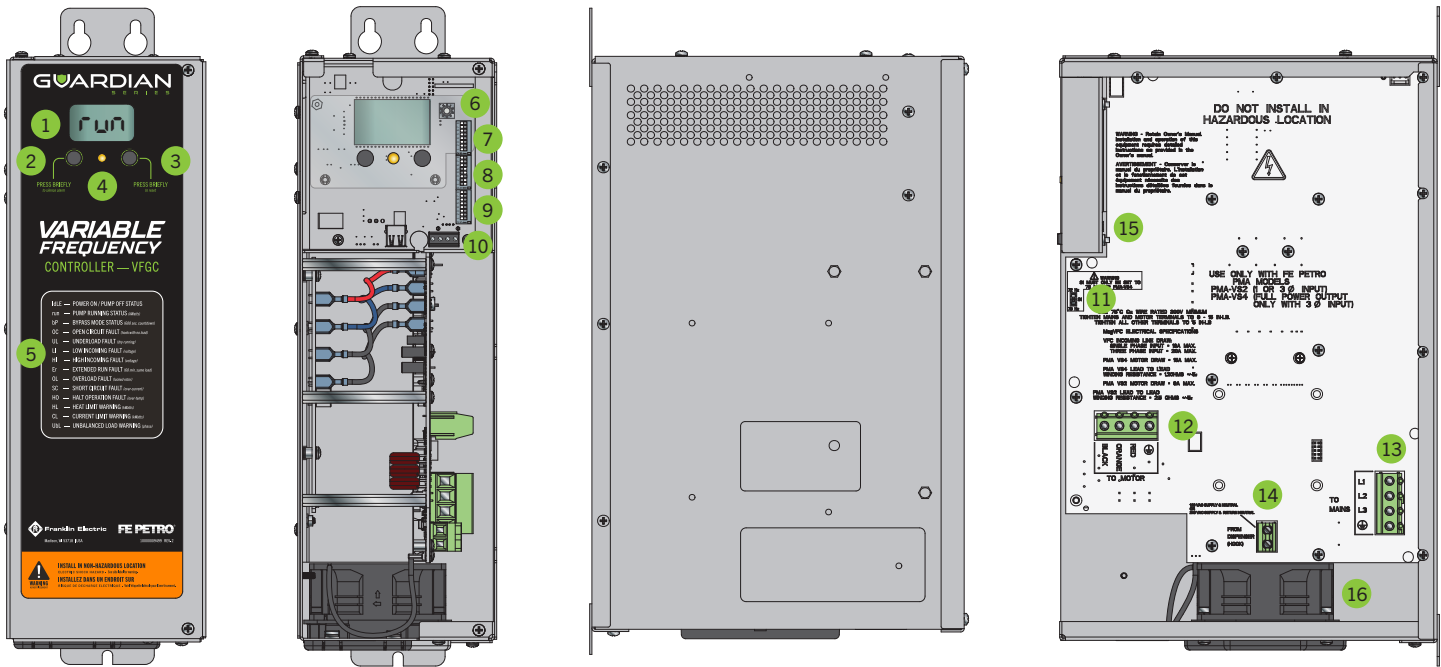
Ratings

Input Rating	Single-phase Input	200 - 250 VAC, 50/60 Hz, 19 A, 1-phase
	Three-phase Input	200 - 250 VAC, 50/60 Hz, 18 A, 3-phase
Output Rating	Single-phase Input	190 VAC, 70 Hz, 9.5 FLA, 3-phase
	Three-phase Input	190 VAC, 70 Hz, 16 FLA, 3-phase
Switch Hook		120 - 240 VAC, 50 / 60 Hz, 16 mA
Supply / Motor Wiring		10 - 12 AWG (2.5 - 6.0 mm ²), 90° C, 300 V minimum
Supply Hook Wiring		10 - 18 AWG (0.75 - 6.0 mm ²), 90°C, 300 V minimum

Communication

User Interface Display		7 segment, 3½-digit LED screen
Activity Indicator Light		Yellow RS485 LED light
Communication Terminal		RS485
Service Port		USB for temporary use by service personnel only

SPECIFICATIONS CONTINUED



Components

- 1

User interface display
- 2

Alarm silence button
- 3

Controller reset button
- 4

RS485 activity indicator LED
- 5

Fault codes
- 6

Rotary select switch
- 7

SW3 option select switch
- 8

SW2 option select switch
- 9

SW1 option select switch
- 10

RS485 comm. terminals
- 11

Frequency limit switch
- 12

Motor output terminal
- 13

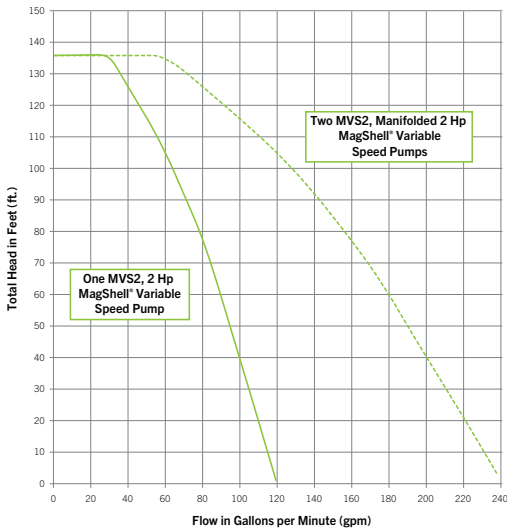
Incoming power terminal
- 14

Incoming dispenser hook
- 15

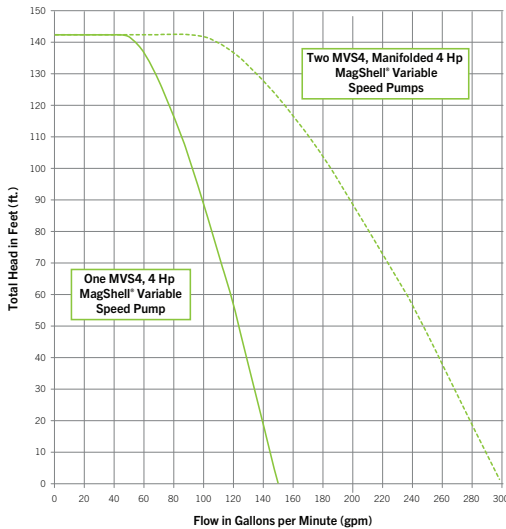
USB service port
- 16

Cooling fan

2 Hp Variable Speed Pump Performance Chart



4 Hp Variable Speed Pump Performance Chart



ORDERING INFORMATION

Guardian Series™ Variable Frequency Controller

Model	Description
5874202220	Guardian Series™ Variable Frequency Controller, 60 Hz, 220 V