

High Performance Multifunctional Inverters

FRENIC-MEGA Series



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Performance

Fuji Electric's FRENIC-MEGA drive series are high performance, multifunctional inverters providing the industry's highest performance for three-phase motor applications. They offer expanded power ratings and flexible configurations that support 1/2 HP through 1000 HP. They are designed for 24/7 operation with embedded motor protection and critical maintenance functions.

Meeting the requirements for various applications, achieving lower maintenance, and improved protection to environmental conditions, as well as, the flexibility to meet the demands of both simple and complex industrial applications.

Improved control performance with available control methods: PG, sensorless, dynamic torque vector control; PG closed-loop control and V/f control. It also has good performance in current response, speed response and dual or triple selectable overload setting.

Versatile applications and functionality; expanded power ratings and is compliant with safety standards and RoHS Directives. It has a multi-function keypad with an optional USB port and a maintenance warning signal output.

Features

■ Control Inputs/Outputs

- Qty 9 Digital Inputs
- Qty 2 Safety Inputs (Dedicated)
- Qty 3 Analog Inputs
- Qty 6 Digital Outputs; Qty 2 Relays (1 Form C & 1 Form A) & Qty 4 Transistor, 56 Selectable Functions
- Qty 2 Analog Outputs; Selectable Type; 0 to 10VDC or 4 to 20mA Configurable to Provide Output Signal Proportional to 15 Different Functions
- Qty 2 RS-485 Connections
- RJ45 Keypad Port & Control Terminal Block Connections
- 24Vdc Output Terminal rated 100mA
- High Performance LED & LCD Keypad with NEMA/UL Type 4 Approved

■ Robust Design

- Nickel (Ni) & Tin (Sn) Plated Bus Bars
- Cooling Fan Board Coating and Anti-Rust Protection
- 10 Year Design Life of Cooling Fan and Capacitor with a Maintenance Alarm Signal

■ Flexibility

- Removable Control Terminal Block
- PC Programming and Troubleshooting Software
- Customizable Logic
- 3 Option Card Ports Built-In
- Heatsink to be mounted through the back of an enclosed design

■ Motor Control

Multiple Power Rating

- LD (Low Duty): 120% for 1 Min
- MD (Medium Duty): 150% for 1 Min
- HD (High Duty): 200% for 3s / 150% for 1 Min
- High Performance Closed Loop Vector Control with Option Card
- High Performance Sensor-less Vector Control
- Built-in Braking Transistor Up to 40HP(LD)/30HP(HD)
- Built-in Braking Resistor up to 15HP(LD)/10HP(HD)
- Single Phase Input for All Models

■ Safety and Standard

- Safety Input Compliant with EN ISO13849-1, EN954-1, Category 3
- UL 508C, CE
- UL Premium Rating
- NEMA/UL Type 1 by Option Kit
- RoHS Directive Compliance



Dimensions

Model Number and Weight				Dimensions (Inches)		
230V	Mass lbs.	460V	Mass lbs.	W	H	D
FRNF50G1S-2U	3.8	FRNF50G1S-4U	3.8	4.33	10.24	5.20
FRN001G1S-2U	4.4	FRN001G1S-4U	4.4			
FRN002G1S-2U	6.2	FRN002G1S-4U	5.7	5.91		5.71
FRN003G1S-2U	6.6	FRN003G1S-4U	6.0			
FRN005G1S-2U	6.6	FRN005G1S-4U	6.6	8.66		7.68
FRN007G1S-2U	14	FRN007G1S-4U	14			
FRN010G1S-2U	14	FRN010G1S-4U	14			
FRN015G1S-2U	14	FRN015G1S-4U	14			
FRN020G1S-2U	13	FRN020G1S-4U	13	9.84	15.75	
FRN025G1S-2U	21	FRN025G1S-4U	21			
FRN030G1S-2U	21	FRN030G1S-4U	21	12.60	21.65	10.04
FRN040G1S-2U	22	FRN040G1S-4U	22			
FRN050G1S-2U	55	FRN050G1S-4U	55	13.98	24.21	10.63
		FRN060G1S-4U	57		26.57	
FRN060G1S-2U	71	FRN075G1S-4U	68	20.87	29.13	
-	-	FRN100G1S-4U	73		26.77	39.37
FRN075G1S-2U	93	FRN125G1S-4U	93	34.65		55.12
FRN100G1S-2U	95					
FRN125G1S-2U	137	-	-	39.37	61.02	19.69
FRN150G1S-2U	232	-	-			
-	-	FRN150G1S-4U	137	20.87	29.13	12.40
-	-	FRN200G1S-4U	141			
-	-	FRN250G1S-4U	207	26.77	39.37	14.17
-	-	FRN300G1S-4U	216			
-	-	FRN350G1S-4U	284	34.65	55.12	17.32
-	-	FRN450G1S-4U	309			
-	-	FRN500G1S-4U	540	39.37	61.02	19.69
-	-	FRN600G1S-4U	540			
-	-	FRN700G1S-4U	728	34.65	55.12	17.32
-	-	FRN800G1S-4U	728			
-	-	FRN900G1S-4U	1169	39.37	61.02	19.69
-	-	FRN1000G1S-4U	1169			

Options

Fieldbus:

- EtherNet
- CC-Link
- DeviceNet
- Profibus DP
- Can Open

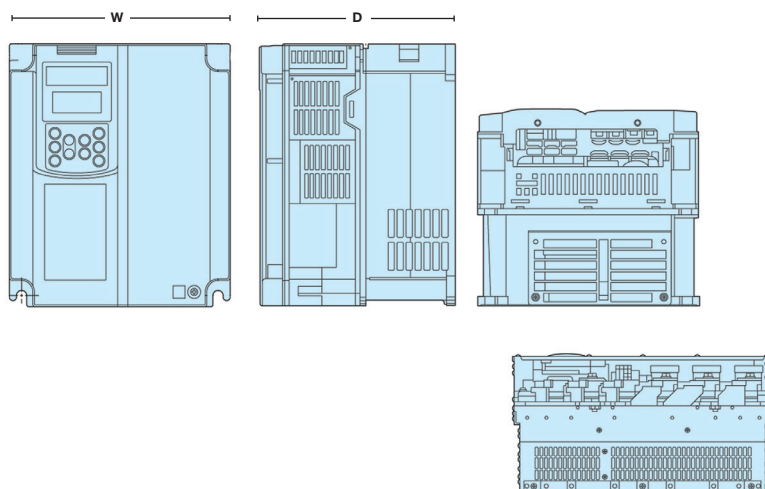
I/O Expansion:

- Keypad with USB Port
- Relay Output
- Digital Inputs and Outputs
- Analog Inputs and Outputs
- PG (Encoder) (5,12,15V)
- PG Synchronization

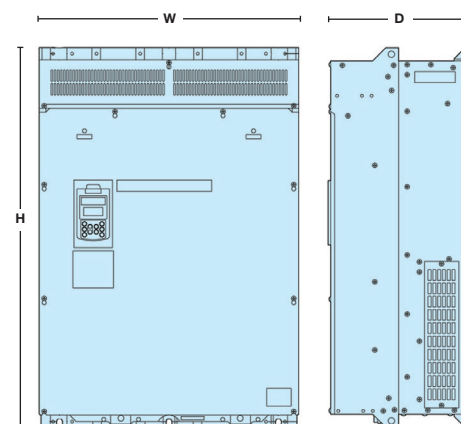
Others:

- DC/AC Reactor
- CE Filter
- Braking Unit
- Braking Resistor
- NEMA/UL Type1 Kit

40Hp (LD) & BELOW



50Hp (LD) & ABOVE



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Specifications

Capacity (HP)	230V: 0.5 - 150HP (LD) 0.5 - 125HP (HD) 460V: 0.5 - 1000HP (LD) 150 - 700HP (MD) 0.5 - 900HP (HD)
Overload Capability	LD (Low Duty): 120% 1min MD (Middle Duty): 150% 1min HD (High Duty): 150% 1min, 200% 3s
Input Power	230V Series: Single/Three Phase 200 to 240V, 50/60Hz 460V Series: Single/Three phase 380 to 480V, 50/60Hz Voltage: +10% to -15% (unbalance 2% or less) Frequency: +5% to -5%
Control	V/F Control Dynamic Torque Vector Control Sensorless Vector Control Closed Loop Vector Control
Output Voltage	230V Series: Three Phase 200 to 240V (with AVR Function) 460V Series: Three Phase 380 to 480V (with AVR Function)
Output Frequency	V/F, Dynamic Torque Vector Control: 500Hz Maximum (HD), 120Hz (MD, LD) Sensorless Vector Control: 120Hz Maximum Closed Loop Vector Control: 200Hz Maximum
Output Stability	Analog Setting: $\pm 0.2\%$ of Maximum Frequency Digital setting: $\pm 0.01\%$ of Maximum Frequency (by Keypad)
Starting Torque (Open loop)	$\leq 30\text{HP(HD)}$: 200% at 0.3Hz $\geq 40\text{HP(HD)}$: 180% at 0.3Hz
Braking Transistor	$\leq 30\text{HP(HD)}$, 40HP (LD): Built-in
Braking Resistor	$\leq 10\text{HP(HD)}$, 15HP (LD): Built-in
DC Reactor	$\geq 75\text{HP(LD)}$, 100HP(HD): Comes with Drive (External)
Ambient Temperature	-10 to 50°C (14 to 122°F) for Operation, -25 to 65°C (-13 to 149°F) for Storage
Relative Humidity	5 to 95% RH (without condensation)
Installation Location	IEC60664-1 Pollution Degree 2 (Free from Corrosive Gases, Flammable Gases, Oil Mist, Dust and Direct Sunlight) Indoor Use Only
Altitude	$\leq 3,300\text{ft (1,000m)}$, 3,300ft (1,000m) to 9,900ft (3,000m) with Derating
Enclosure	UL Open Type, NEMA/UL Type 1 by Option Kit
Safety	EN ISO13849-1, EN954-1, Category 3
Standard	UL, cUL: UL508C, C22.2 No. 14, EN61800-5:2007 CE: EN61800-5-1 RoHS: 2002/96/EC

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