

Low Voltage

AC Drives Selection Guide



Quality is Our Drive

Fuji Electric

Global Power Electronics Manufacturer

Over  Years of Quality Product Manufacturing

Founded in 1970, Fuji Electric Corp. of America has long been a trusted partner, supplying variable frequency inverters and power electronics to customers in North, Central, and South Americas. Our outstanding reputation is based on reliable quality, excellent product performance and innovative technology.

In recent years, more and more new applications such as wind and solar power and electrically powered cars have evolved in the renewable energies sector. The precision control of Fuji Electric inverters allows AC drives to operate at an optimal speed throughout your application, reducing overall power and energy consumption to minimize operating costs. Fuji Electric meets these new challenges with economically viable custom solutions, combining the latest technology and know-how with high efficiency, reliability and long life. Our wide product range is supported by an excellent global logistic network and has a solution for every problem.

Applications for our drives and inverters include conveyor systems, water, HVAC, elevator applications, and others. The FRENIC-Series is equipped with functions and performance to meet all types of requirements, providing easy maintenance, energy and cost saving and environmental friendliness. In this brochure, you will find Fuji Electric Low Voltage Inverters and their supplements.



Fuji Electric Historical Events

1923 Fuji Electric Manufacturing Co., Ltd Established



1968 Started Suzuka Factory Operation (one of the current production sites)

1976 Started Manufacturing General Purpose Inverters



1998 Began Operation of China Factory in Wuxi, China

2013 Began Operation of Thailand Factory



2016 Established Power Electronics Technical Center



Series	Applications	Input Voltage	Applicable Motor Capacity [HP]	
			1/8	1000
FRENIC-Mini	<ul style="list-style-type: none"> Fans Pumps Conveyors Food Machinery Chemical Machinery 	1Ph 115V	1/8 to 1 HP	
		1Ph 230V	1/8 to 3 HP	
		3Ph 230V	1/8 to 20 HP	
		3Ph 460V	1/8 to 20 HP	
FRENIC-Ace	<ul style="list-style-type: none"> Fans Pumps Conveyors Elevators Press Machinery Textile Machinery Chemical Machinery 	1Ph 230V	1/8 to 3 HP*	
		3Ph 230V	1/4 to 40 HP*	
		3Ph 460V	1 to 40 HP*	
FRENIC-MEGA	<ul style="list-style-type: none"> Compressors Centrifugal Pumps Machine Tools Chillers Extruders 	3Ph 230V	1/2 to 150 HP*	
		3Ph 460V	1/2 to 1000 HP*	
FRENIC-Eco/ EcoPump	<ul style="list-style-type: none"> Fans Pumps Blowers Compressors 	3Ph 208V	1 to 125 HP	
		3Ph 460V	1 to 900 HP	
FRENIC-HVAC	<ul style="list-style-type: none"> Fans Pumps Blowers Compressors 	3Ph 230V	1 to 125 HP	
		3Ph 460V	1 to 1000 HP	
		3Ph 575V	1 to 300 HP	

* Capacity varies by duty level. Capacity shown is low duty

Available Keypads

FRENIC Series offers multiple keypad options for your application.



FRENIC-Loader Software

All FRENIC Series inverters come with complimentary programming/troubleshooting PC software.



Fuji Electric Inverter Solutions

FRENIC-Mini

General Purpose Micro Inverter



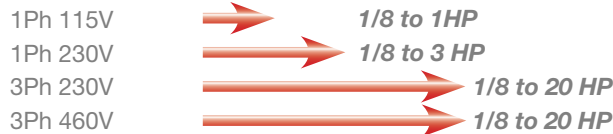
FRENIC-Mini (C2) Series of AC Drives combines ease of use with high performance, offering rich functionality in a compact size. The C2 Series strikes an optimal balance between price and performance.

- V/F and Dynamic Torque Vector Control
- Fastest CPU processor in its class
- PID Control Function
- PM Motor Control
- Built in RS-485/Modbus

Key Options:

- NEMA/UL Type 1 kit
- Din Rail Adapter (Up to 5HP)
- Remote/USB Keypad

Applicable Motor Capacity



FRENIC-ACE

High Performance Customizable Inverter



Ideal for OEMs, the FRENIC-ACE is a high performance, full featured AC Drive designed to suit a wide variety of applications.

- Variety of Vector Control Modes
- Customizable Logic up to 200 steps
- PM Motor Control
- Dual Channel RS-485 Port
- Built-in Safe Torque Off (STO) Input
- Multiple Power Ratings
- Password Protection

Key Options:

- NEMA/UL Type 1 Kit
- USB/Multi Function Keypad
- I/O Expansion Adapter
- Fieldbus Communication Card
- External Cooling Adapter

Applicable Motor Capacity*



FRENIC-MEGA

High Performance Multifunctional Inverter



The FRENIC-MEGA Drive is versatile and compact, utilizing Fuji Electric's own IGBT technology and offering customers a multi-rated specification solution for virtually all AC Drive applications.

- Sensorless Vector Control Mode
- Advanced PID Functions
- Built-In Safe Torque Off (STO) Input
- Removable Control Terminals
- 3 Available Option Ports
- Multi Function Keypad as Standard

Key Options:

- NEMA/UL Type 1 kit
- USB Keypad
- I/O Expansion Adapter
- Fieldbus Communication Card
- External Cooling Adapter

Applicable Motor Capacity*



* Capacity varies by duty level. Capacity shown is low duty

Fuji Electric Inverter Solutions

FRENIC-Eco

Variable Torque Inverter for Fans/Pumps



Fuji Electric's FRENIC-Eco Series is environmentally friendly, helping to significantly reduce energy consumption, and offers compatibility with multiple networks. The highly reliable Eco Series is optimized for HVAC applications, such as chillers, pumps and fans.

- Enhanced energy savings
- Built-In Modbus RTU/Metasys N2/ Apogee FLN (P1)
- Auto-Restart Function
- PID Control with Sleep Mode
- Dew Condensation Prevention
- Low Torque Detection
- Multi-Function Keypad as Standard

Key Options:

- NEMA/UL Type 1 kit
- USB Keypad
- I/O Expansion Adapter
- External Cooling Adapter

Applicable Motor Capacity

3Ph 208V

1 to 125 HP

3Ph 460V

1 to 900 HP

FRENIC-Ecopump

Packaged Drive Solution for Fans/Pumps



Specifically designed to meet the unique needs of pumping applications, the FRENIC-EcoPUMP comes standard with the following features:

- All features of FRENIC Eco Drive
- Pipe Fill Mode
- Broken Pipe Detection
- Submersible Pump Start Control
- Transducer Feedback Detection
- Pump Friendly Keypad Display
- Simple Installation & Maintenance
- Multi-Function Keypad as Standard

Key Options:

- NEMA/UL Type 1 kit
- USB Keypad
- I/O Expansion Adapter
- External Cooling Adapter

Applicable Motor Capacity

3Ph 208V

1 to 125 HP

3Ph 460V

1 to 900 HP

FRENIC-HVAC

Pre-Engineered Solution for Pump Applications



The FRENIC-HVAC Series features slim-type inverters designed for energy savings and optimal control of fan and pump applications. Customers can reduce cost and power consumption with the high-performance FRENIC-HVAC.

- Built-In Modbus RTU/BACNet MS/TP/ Metasys N2
- Available UL Type 1 and Type 12 Models
- Real Time Clock
- 4 PID Controller
- Fire Mode
- Built-In CE Filter and DCR
- Filter Clogging Prevention
- Built-In USB Port

Key Options:

- Real Time Clock Backup Battery
- USB Keypad
- I/O Expansion Adapter

Applicable Motor Capacity

3Ph 230V

1 to 125 HP

3Ph 460V

1 to 1000 HP

3Ph 575V

1 to 300 HP

Packaged Drive Solutions

Variety of Custom Engineered Panel Solutions Available

FRENIC-HPAQ

Packaged Drive Solution for Fans/Pumps



The Frenic-HPAQ series package drives are built upon Fuji Electric's powerful FRENIC-HVAC series drives with enhanced additional pump specific functionality, which makes it an ideal for space saving pre-engineered package drive solutions for fan & pump applications

- Available in Multiple Configurations for Flexibility
- Embedded Fan & Pump Functions with Real Time Clock
- Space Saving Design with Variety of Network Communications
- UL Type 1 & Type 12 Enclosures

Applicable Motor Capacity

3Ph 208/230V	→	1 to 60 HP
3Ph 460V	→	1 to 200 HP
3Ph 575V	→	1 to 200 HP

FRENIC-EcoPAK

Packaged Drive Solution for Fans/Pumps



Fuji Electric's FRENIC-EcoPAK series provides a competitive packaged drive solution, with multiple configurations and a wide range of HP capacity

- 3 contactor Basic Bypass (Pump & Cooling Tower application)
- 3 contactor Bypass (Fan application)
- Non-bypass
- UL/NEMA Type 1, Type 12 Ventilated & 3R Models available
- Multiple communication protocols available

Applicable Motor Capacity

3Ph 208/230V	→	2 to 60 HP
3Ph 460V	→	2 to 200HP

FRENIC-EcoPump Panel

Pre-Engineered Solution for Pump Drives



The FRENIC-EcoPUMP UL Type 3R packaged AC Drives are your Pre-Engineered Solution for Pump Drives. Designed specifically for outdoor pumping applications, these Drives are equipped with the powerful features of our Eco-PUMP Drive. Customers will benefit from the ease-of-installation and minimal maintenance required

- UL Type 3R Listed
- White powder coat reflective paint enclosure
- Thermostat controlled cooling fan
- Easy access to washable ventilation filters

Applicable Motor Capacity

3Ph 230V	→	5 to 125 HP
3Ph 460V	→	5 to 600HP

Global Products

Fuji Electric has been a global manufacturing leader since 1923, and we are proud to offer a broad product portfolio of Drives and HMI solutions to our customers around the world. These products range from highly engineered, custom system Drives produced in our overseas facilities, to standard products that are designed right here in the U.S.A. to meet the evolving needs of our local customers.

No matter how extensive or complex your project may be, Fuji Electric can help. Our U.S.-based Engineering team will work with you to identify a solution to fit your unique needs, with the additional support of Fuji Electric's global engineering and development experts.

Trust the Power of Fuji Electric.



Specifications

	Model Series	FRENIC-Mini	FRENIC-Ace	FRENIC-MEGA	FRENIC-Eco	FRENIC-HVAC
Ratings	Product Series Code	C2	E2	G1	F1	AR1
	HP & Voltage	1/8 - 1HP, 1ph 115V 1/8 - 3HP, 1ph 230V 1/2 - 20HP, 3ph 230V 1/8 - 20HP, 3ph 460V	1/8 - 3HP, 1ph 230V* 1/4 - 40HP, 3ph 230V* 1 - 40HP, 3ph 460V*	1/2 - 150HP, 3ph 230V* 1/2 - 1000HP, 3ph 460V*	1 - 125HP, 3ph 208V 1 - 900HP, 3ph 460V	1 - 125HP, 3ph 208V 1 - 1000HP, 3ph 460V 1 - 300HP, 3ph 575V
	Overload Capability	HD: 150% - 1 min 200% - 0.5 sec	HHD: 150% - 1 min 200% - 0.5 sec HND: 120% - 1 min	LD: 120% - 1 min HD: 150% - 1 min 200% - 3 sec	120% - 1 min	110% - 1 min
Control Mode	V/f Control	Standard	Standard	Standard	Standard	Standard
	V/f Control with Encoder	-	Option	Option	-	-
	Dynamic Torque Vector Control	Standard	Standard	Standard	-	Standard
	Dynamic Torque Vector Control with Encoder	-	-	Option	-	-
	Vector Control with Encoder	-	Option	Option	-	-
	PM Motor Control	Standard	Standard	Option	-	-
Specifications	Analog Input	2	2	3	3	3
	Analog Output	1	2	2	2	2
	Digital Input	5	7	9	7	9
	Digital Output	2	3	6	5	6
	Max. Output Frequency	400Hz	500Hz	400Hz	120Hz	120Hz
	Customizable Logic	-	Available	Available	-	Available
	Safety function	-	STO	STO	-	-
	EMC Filter	Option - Lead Time	Option - Lead Time	Option - Lead Time	Option - Lead Time	Standard
	Remote Keypad	TP-E1	-	-	-	-
	Remote Keypad with USB port	TP-E1U	TU-E1U	TU-E1U	-	-
	Multi Function Keypad	-	TP-A1-E2C	TP-G1-J1	TP-G1-J1	TP-A1 (Standard Equipped)
Multi Function Keypad with Gasket	-	-	TP-G1W-J1 (Standard Equipped)	TP-G1W-J1 (Standard Equipped)	N/A	
Communications	Modbus RTU	Standard	Standard	Standard	Standard	Standard
	DeviceNet	-	OPC-DEV	OPC-G1-DEV	OPC-F1-DEV	OPC-DEV
	Profibus DP	-	OPC-PDP3	OPC-G1-PDP2	OPC-F1-PDP	OPC-PDP2
	Profinet RT	-	OPC-PRT	OPC-PRT2	-	OPC-PRT2
	Ethernet I/P	-	OPC-ETH2	OPC-ETH	-	OPC-ETH
	Modbus TCP	-	-	-	-	-
	BACNet MS/TP	-	-	-	OPC-F1-BAC	Standard
	LonWorks®	-	-	-	OPC-F1-LNW	OPC-LNW
	Metasys® N2	-	-	-	Standard	Standard
	APOGEE® FLN (P1)	-	-	-	Standard	-
	CANOpen	-	OPC-COP	OPC-G1-COP	-	OPC-COP
CC-Link	-	OPC-CCL	OPC-G1-CCL	-	OPC-CCL	
T-Link	-	-	OPC-G1-TL	-	-	
Environment	Altitude	No derating up to 3000 ft (1000m) or less				
	EMC Filter	Option - Lead Time	Option - Lead Time	Option - Lead Time	Option - Lead Time	Standard
	Heat through mounting with option	Available	Available	Available	Available	-
	DC Reactor	as option	as option	~ 75HP: as option 100HP ~: supplied with drive	~ 75HP: as option 100HP ~: supplied w/ drive	~ 60HP, 208V, 125HP 460V/575V Built-in 75HP~ 208V, 150HP 460V/575V Supplied with Drive
	UL Open Type	Standard (IP20)	Standard (IP20)	Standard (IP20/IP00)	Standard (IP20/IP00)	Standard (IP00:S Model)
	NEMA/UL Type1	with option kit	with option kit	with option kit	with option kit	Standard (M Model)
	NEMA/UL Type12	-	-	-	-	Standard (L Model)
UL / cUL, CE, RoHs	Yes	Yes	Yes	Yes	Yes	

* Capacity varies by duty level. Capacity shown is low duty

Global Locations

Resources available on our website 24/7
www.americas.fujielectric.com



Americas

	Location	Address	Tel:
Fuji Electric Corp. of America	Headquarter	50 Northfield Ave., Edison, NJ 08837 USA	(732) 560-9410
	Engineering Center	105 14th St. NW, Roanoke, VA 24017 USA	(540) 491-9625
	Fremont Branch	47520 Westinghouse Dr., Fremont, CA 94539 USA	(510) 440-1060
	Chicago Branch	1827 Walden Office Sq. #430, Schaumburg, IL 60173 USA	(847) 397-8030

International

Fuji Electric Co., Ltd.	Headquarter	Gate City Ohsaki, East Tower, 11-2, Osaki 1-chome, Shinagawa-ku, Tokyo 141-0032, JAPAN
	Factory	5520 Minami Tamagaki-cho, Suzuka-shi, Mie 513-8633, JAPAN
Wuxi Fuji Electric FA Co., Ltd	Factory	Lot. No.28, Xi Mei Rd., New District 214028, Wuxi, Jiangsu, CHINA
Fuji Electric Manufacturing (Thailand) Co., Ltd	Factory	118/2 Moo 18 Klong Nueng, Klong Luang, Pathumthani 12120 THAILAND
Fuji Electric Europe GmbH	Corporate Office/ Engineering Center	Goethering 58, 63067 Offenbach am Main, GERMANY



Fuji Electric Corp. of America
 47520 Westinghouse Drive, Fremont, CA 94539
 Phone: 510-440-1060
www.americas.fujielectric.com

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