

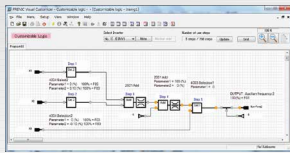
High Performance Customizable Inverters

## FRENIC-Ace



### ◆ Customizable Logic

Up to 200 Steps



### ◆ Safety Function

Safe Torque Off (STO) Input  
(Compliant to EN/ISO13849-1, SIL3, PI=e, cat. 3)

### ◆ PM Motor Control

Sine wave with 180° control by Sensorless Vector control to elevate the control of today's high efficiency, compact Permanent Magnet Motors

## Control Inputs/Outputs

- (7) Digital Inputs:  
X1 – X5, FWD, & REV Programmable, 60 Selectable Functions
- (2) Analog Inputs:  
(1) – 0 to +10Vdc  
(1) – 4 to 20mA
- (3) Digital Outputs:  
(1) Form C Relay  
(2) Transistor Outputs, 78 Selectable Functions
- (2) Analog Output: Selectable Type:  
0 to 10Vdc or 4 to 20mA, 19 Selectable Output Signal Functions
- (2) RS-485 Connections:  
RJ45 Port, Terminal
- Operator's Keypad with LED Display:  
Indicating System Operation and Associated Value Conversion, Status of I/O, Operations and Alarms
- Keypad Indications:  
Operations, Number of times unit placed in operation, Duration and kWh output
- 24Vdc Output Terminal:  
100mA Maximum Supply

## Motor Control

- V/F Control (IM)
- Dynamic Torque Vector Control (IM)
- V/F Control with Slip Compensation (IM)
- V/F Control with Encoder Option (IM)
- Vector Control with Encoder Option (IM)
- Sensorless Vector Control (PMSM)

## Safety and Standard

- EN/ISO13849-1, SIL3, PI=e, cat. 3/PL:e
- UL 508C, CE, KC
- NEMA 1/UL Type 1 Optional Kit
- UL Single Phase Input
- UL Plenums Rating
- RoHS Directive Compliance

## Options

- Remote Keypad with USB port
- Remote Multi-Function Keypad
- Communication Option Adapter
- Heatsink Out Adapter <sup>\*1</sup>
- Din Rail Adapter <sup>\*2</sup>
- NEMA1/ UL Type 1 Kit
- Communication, I/O Option Adapter
- Option Cards
  - DeviceNet
  - Profibus DP
  - Ethernet/Profinet
  - CANOpen
  - CC-Link
  - Digital I/O
  - Analog I/O
  - RS-485 Dual RJ45
  - Encoder 5V
  - Encoder 12/15V



USB Keypad



Multi Function Keypad

<sup>\*1</sup> Applicable models; 7.5 - 30HP: HHD, 10 - 40HP: HND  
<sup>\*2</sup> Applicable models; 5HP and less: HHD, 7.5HP and less: HND

The FRENIC-Ace is a high performance, full-featured Drive designed to suit a wide variety of applications utilizing Fuji Electric's latest IGBT technology.

Designed using components with a lifespan of 10 years or more, FRENIC-ACE comes standard with Fuji Electric's industry-leading 3 year warranty while providing compact, powerful multi-rated specification solutions for virtually all AC drive applications.

### Key Features

- Multiple Power Ratings
- Variety of Vector Control Modes
- Customizable Logic
- PM Motor Control
- Built-In STO input
- Dual channel RS485 Port
- Optional Multi-Function & USB Keypad
- PC software at no cost

# FRENIC-Ace



## Specifications & Dimensions

<b>Capacity (HP)</b>	1/8 - 3HP, 1ph 230V (HHD) 1/8 - 30HP, 3ph 230V (HHD) 1/4 - 40HP, 3ph 230V (HND) 1/2 - 30HP, 3ph 460V (HHD) 1 - 40HP, 3ph 460V (HND)	<b>Output Frequency</b>	Max 500Hz
<b>Overload Capability</b>	HHD: 150% - 1min, 200% - 0.5sec HND: 120%, 1min	<b>Speed Control Range</b>	1:1500 IM Vector Control w/encoder 1:100 IM V/F w/encoder 1:10 PM Sensorless Vector Control
<b>Input Power</b>	230V Single/Three phase: 200 to 240V, 50/60Hz 460V Three phase: 380 to 480V, 50/60Hz Voltage: +10% to -15% (unbalance 2% or less) Frequency: +5% to -5%	<b>Braking Transistor</b>	Built-in
<b>Control</b>	V/f Control V/f Control with Slip Compensation Dynamic Torque Vector Control V/f Control with Encoder (Optional) Vector Control with Encoder (Optional) PM Motor Sensorless Vector Control	<b>Braking Resistor</b>	Option
<b>Output Voltage</b>	Three Phase 200-240V, 380V-480V (with AVR)	<b>EMC Filter</b>	Option - Lead Time
<b>Output Stability</b>	Analog setting: +/-0.2% of maximum frequency Digital setting: +/- 0.01% of maximum frequency (by keypad setting)	<b>Ambient Temperature</b>	Standard (Open Type) -10 to +50 °C ( 14 to 122 °F) NEMA 1/UL Type 1 -10 to +40 °C (14 to 104°F)
		<b>Storage Temperature</b>	-25 to +65°C (-13 to 149 °F)
		<b>Relative Humidity</b>	5 to 95% RH (without condensation)
		<b>Installation Location</b>	Indoors
		<b>Altitude</b>	≤ 3,300ft (1,000m), 3,300ft (1,000m) to 9,900ft (3,000m with Derating)
		<b>Enclosure</b>	NEMA 1/UL Type1 by Option Kit
		<b>Safety</b>	EN / ISO 13849-1:2008, Cat. 3/PL:e
		<b>Standard</b>	UL / cUL 508C C22.2 No.14, CE, RoHS, GOST-R, KC

Nominal HP Rating		Rated Current (Amps)		Model Number	Dimensions W x H x D (inches)	Weight (lbs)
HND (VT/LD)	HHD (CT/HD)	HND (VT/LD)	HHD (CT/HD)			

### 230VAC - 1-Phase Input

-	1/8	-	0.8	FRN0001E2S-7GB	2.68 x 5.00 x 3.35	1.1
-	1/4	-	1.6	FRN0002E2S-7GB		
-	1/2	-	3.0	FRN0003E2S-7GB	2.68 x 5.00 x 4.21	1.3
-	1	-	5.0	FRN0005E2S-7GB	2.68 x 5.00 x 5.98	2.0
-	2	-	8.0	FRN0008E2S-7GB	4.33 x 5.51 x 6.02	3.5
-	3	-	11.0	FRN0011E2S-7GB	5.51 X 5.51 X 5.63	4.0

### 230VAC - 3-Phase Input

1/4	1/8	1.3	0.8	FRN0001E2S-2GB	2.68 x 5.00 x 3.35	1.1
1/2	1/4	2	1.6	FRN0002E2S-2GB		
1	1/2	3.5	3.0	FRN0004E2S-2GB	2.68 x 5.00 x 3.94	1.3
2	1	6.0	5.0	FRN0006E2S-2GB	2.68 x 5.00 x 5.20	1.8
3	2	9.6	8.0	FRN0010E2S-2GB	4.33 x 5.51 x 5.63	3.3
5	3	12	11.0	FRN0012E2S-2GB		
7.5	5	19.6	17.5	FRN0020E2S-2GB	5.51 x 5.51 x 5.63	4
10	7.5	30	25	FRN0030E2S-2GB	7.09 x 9.05 x 6.22	11
15	10	40	33	FRN0040E2S-2GB		
20	15	56	47	FRN0056E2S-2GB	8.66 x 10.63 x 7.48	18
25	20	69	60	FRN0069E2S-2GB		
30	25	88	76	FRN0088E2S-2GB	9.84 x 15.75 x 7.68	21
40	30	115	90	FRN0115E2S-2GB		

### 460VAC - 3-Phase Input

1	1/2	1.8	1.5	FRN0002E2S-4GB	4.33 x 5.51 x 4.69	2.6
2	1	3.4	2.5	FRN0004E2S-4GB		
3	2	5.0	4.2	FRN0006E2S-4GB	4.33 x 5.51 x 5.63	3.3
5	3	6.3 <sup>1</sup>	5.5	FRN0007E2S-4GB		
7.5	5	11 <sup>1</sup>	9	FRN0012E2S-4GB	5.51 x 5.51 x 5.63	4.2
10	7.5	17.5	13	FRN0022E2S-4GB	7.09 x 9.05 x 6.22	11
15	10	23	18	FRN0029E2S-4GB		
20	15	31	24	FRN0037E2S-4GB	8.66 x 10.63 x 7.48	18
25	20	38	30	FRN0044E2S-4GB		
30	25	45	39	FRN0059E2S-4GB	9.84 x 15.75 x 7.68	21
40	30	60	45	FRN0072E2S-4GB		

<sup>1</sup> Allowable temperature 40°C (104°F) or less

