Fuji Electric

Low Voltage AC Drives for HVAC Applications

FRENIC-HVAC

Fuji Electric's low voltage FRENIC-HVAC series AC drives are designed with a slimline footprint for space saving installations, provide ease of start-up and contain functionality for optimal control of fan and pump applications. These inverters have key features such as: built-in DC reactor, built-in EMC filter, a real time clock, (4) PID controls, torque vector control, removable keypad, fire mode, customizable logic functiond and filter clogging prevention functions. Reduce cost and power consumption by utilizing the high-performance FRENIC-HVAC AC drive.

Control Inputs/Outputs

- (9) Digital Inputs:
  X1 – X7, FWD, & REV Programmable, 67 Selectable Functions
- (2) Safety Inputs (Dedicated): EN1, EN2
- (3) Analog Inputs
  Qty 2 – 0 to +10Vdc & Qty 1 – 4 to 20mA
- (6) Digital Outputs:
  (2) Relays (1 Form C & 1 Form A)
  (4) Transistor, 77 Selectable Functions
- (2) Analog Outputs: Selectable Type
  0 to 10VDC or 4 to 20mA 43 Selectable Functions
- (2) RS-485 Connections
  RJ45 Keypad Port & Control Terminal Block Connections
- 24VDC Power Supply Rated 200mA
- Keypad with large LCD Display Indicating HVAC System Operation and Associated Unit Conversion Displayed

Features & Benefits

- 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 EMC Filter and DCR
- Filter Clogging Prevention
- Built-In USB Port

Safety and Standard

- Safety Input
- UL 508C, CE
- UL Premium Rating
- NEMA/UL Open, Type 1 and Type 12
- RoHS Directive Compliance
- SEMI F47-0706

Options

Fieldbus:
- EtherNet/IP
- PROFINET IO
- Modbus TCP
- BACnet/IP
- CC-Link
- LONWORKS
- DeviceNet
- Profibus DP
- CANopen

I/O Expansion:
- Keypad with USB Port
- Relay Output
- Analog Inputs and Outputs
- Temperature Sensor Input

Others:
- Battery for Clock
- NEMA/UL Type1 Kit

Fuji Electric's FRENIC-HVAC Drive has been designed with features and functions specifically targeted to HVAC Motor Control Applications. The result is a low voltage drive controller that provides the optimal environmental control to maintain comfortable conditions in commercial spaces and industrial facilities while generating efficiency beyond typical motor starters.

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

Fuji Electric

www.americas.fujielectric.com

FRENIC-HVAC

Specifications & Dimensions

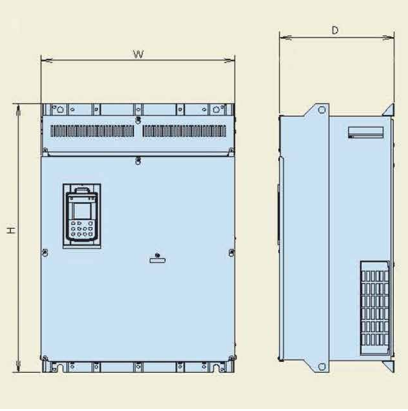
Capacity (HP)	208V Series: 1 - 125 HP 460V Series: 1 - 1000 HP 575V Series: 1 - 300 HP
Overload Capability	110% for 1 Minute
Input Power	208V Series: Single/Three Phase 200 to 240V, 50/60Hz 460V Series: Single/Three phase 380 to 480V, 50/60Hz 575V Series: Single/Three phase 575 to 600V, 50/60Hz Voltage: +10% to -15% (unbalance 2% or less) Frequency: +5% to -5%
Control	V/F Control, Torque Vector Control
Output Voltage	208V Series: Three Phase 200 to 240V (with AVR Function) 460V Series: Three Phase 380 to 480V (with AVR Function) 575V Series: Three Phase 575 to 600V (with AVR Function)
Output Stability	Analog Setting: ±0.2% of Maximum Frequency Digital setting: ±0.01% of Maximum Frequency (by Keypad)
Output Frequency	120Hz Maximum
Efficiency	≥ 97% (At Rated Load)
DC Reactor	≤ 60HP 208V, 125HP 460V, 150HP 575V Built-In ≥ 75HP 208V, 150HP 460V, 200HP 575V Comes with Drive External; shipped along with drive

Displacement Power Factor	>0.98 (At Rated Load)
True Power Factor	≥ 0.90 (At Rated Load)
EMC Filter	Built-In
Ambient Temperature	NEMA/UL Open/Type 1: -10 to 50°C (14 to 122°F), NEMA/UL Type 12: -10 to 40°C (14 to 104°F)
Storage Temperature	-25 to +70°C (-13 to 158 °F)
Relative Humidity	5 to 95% RH (without condensation)
Installation Location	IEC60664-1 Pollution Degree 2. (Free from Corresive Gases, Flammable Gases, Oil Mist, Dust and Direct Sunlight) Indoor Use Only
Altitude	≤ 3,300ft (1,000m) , 3,300ft (1,000m) to 9,900ft (3,000m) with Derating
Enclosure	NEMA/UL Type1 & 12: ≤ 60HP 208V, 125HP 460V/575V UL Open Type, NEMA/UL Type1 by option kit: ≥ 75HP 208V, 150HP 460V/575V
Safety	EN ISO13849-1, EN954-1, Category 3
Standard	UL, cUL: UL508C, C22.2 No. 14, EN61800-5:2007 CE: IEC/EN61800-5-1: 2007 (LV Directive); IEC/EN61800-3-12 (EMC Directive), SEMI F47-0706 RoHS: 2002/96/EC

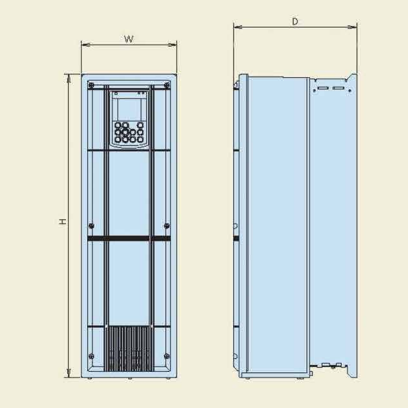
	HP	Type	HP	Type	HP	Type	Outside Dimensions (inch) W	H	D
3-Phase 208V	1	FRN001AR1□-2U	1	FRN001AR1□-4U	1	FRN001AR1□-5U	5.91	18.30	10.30
	2	FRN002AR1□-2U	2	FRN002AR1□-4U	2	FRN002AR1□-5U			
	3	FRN003AR1□-2U	3	FRN003AR1□-4U	3	FRN003AR1□-5U			
	5	FRN005AR1□-2U	5	FRN005AR1□-4U	5	FRN005AR1□-5U			
			7.5	FRN007AR1□-4U	7.5	FRN007AR1□-5U			
			10	FRN010AR1□-4U	10	FRN010AR1□-5U			
	7.5	FRN007AR1□-2U	15	FRN015AR1□-4U	15	FRN015AR1□-5U	7.99	23.03	
	10	FRN010AR1□-2U	20	FRN020AR1□-4U	20	FRN020AR1□-5U			
	15	FRN015AR1□-2U	25	FRN025AR1□-4U	25	FRN025AR1□-5U			
			30	FRN030AR1□-4U	30	FRN030AR1□-5U			
	20	FRN020AR1□-2U	40	FRN040AR1□-4U	40	FRN040AR1□-5U		25.39	
	25	FRN025AR1□-2U	50	FRN050AR1□-4U	50	FRN050AR1□-5U			
	30	FRN030AR1□-2U	60	FRN060AR1□-4U	60	FRN060AR1□-5U	10.43	28.98	11.18
	40	FRN040AR1□-2U	75	FRN075AR1□-4U	75	FRN075AR1□-5U			
	50	FRN050AR1□-2U	100	FRN100AR1□-4U	100	FRN100AR1□-5U	11.81	34.84	14.48
	60	FRN060AR1□-2U	125	FRN125AR1□-4U	125	FRN125AR1□-5U			
					150	FRN150AR1□-5U			
	75	FRN075AR1S-2U					13.98	29.13	10.63
	100	FRN100AR1S-2U							
	125	FRN125AR1S-2U					20.87	29.53	11.22
			150	FRN150AR1S-4U				29.13	12.40
			200	FRN200AR1S-4U			20.87		
			250	FRN250AR1S-4U	200	FRN200AR1S-5U		39.37	14.17
			300	FRN300AR1S-4U	250	FRN250AR1S-5U			
					300	FRN300AR1S-5U			
			350	FRN350AR1S-4U			26.77	39.37	14.17
			450	FRN450AR1S-4U					
			500	FRN500AR1S-4U				55.12	17.32
			600	FRN600AR1S-4U					
			800	FRN800AR1S-4U			34.65	55.12	17.32
			900	FRN900AR1S-4U			39.37	61.02	19.69
			1000	FRN1000AR1S-4U					

□(enclosure) : M : UL TYPE1, L : UL TYPE12

75HP and above 208V, 150HP and above 460V, 200HP AND ABOVE 575V



60HP and below 208V, 125HP and below 460V, 150HP and BELOW 575V



FEA-ACDR-DS-106

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

Fuji Electric

www.americas.fujielectric.com