Submittal Summary

Fuji Electric
e-Front runners

Fuji Electric Corp. of America (FECOA)
Variable Frequency Drives – HVAC Systems

Submittal Summary Data Form – NEMA 12 Ventilated Non-Bypass Systems

Project: _____

Architect: _____ **Engineer: _____**

Contractor: _____

Submitted By: _____ **Date: _____**

Tag #	Model #	Unit Ratings (Voltage, HP, Rated Current)

Standard Features

- **NEMA 12 ventilated enclosure**
- **Metallic enclosures to reduce radio frequency interference (RFI)**
- **Integral main disconnect with branch circuit protection, including a padlockable through-the-door operator handle mechanically interlocked with the enclosure door**
- **3% AC line reactor provided as standard below 100HP to minimize harmonics and provide transient voltage protection for the drive, with the option of a 5% AC line reactor. At 100HP and above, a DC link reactor is provided, with the option for adding a 3% or 5% AC line reactor**
- **Control power transformer with primary & secondary fusing**
- **Door mounted drive keypad with backlit LCD and LED displays for drive set-up, troubleshooting, local operation control, maintenance indication, and operational indication**
- **0-10Vdc or 4-20mA customer supplied analog input for remote speed reference**
- **0-10Vdc or 4-20mA analog output for indication (programmable)**
- **Safety Interlock, Run, Enable, and Fireman Override Inputs**
- **Damper Control Output Contacts**
- **Drive Run and Fault Status Outputs**
- **Built-in communications, user selectable between Modbus RTU, Metasys® N2, or APOGEE® FLN (P1), with additional communication drive options including; LonWorks®, BACnet, DeviceNet, Profibus DP, and EtherNet**
- **UL/cUL Listed**
- **Enhanced Automatic Energy Savings, Reduces Power Consumption of Both the Motor *and* Drive**
- **LCD and LED Keypad, also Functions as a Copy Unit**
- **Quick-Start Programming Menu for Ease of Start-Up**
- **Power Monitoring from the Drive's Keypad**
- **Built-in PID Control with Sleep Function**

Non-Bypass General Specifications

Environmental

Enclosure	NEMA 12 Ventilated (UL Type 1)
Ambient Temperature	+14 to +104° F (-10 to +40° C)
Storage Temperature	+5 to +140° F (-15 to +60° C)
Humidity	5% to 95% with no condensation
Altitude	0 to 3,300 ft. (1,000 m) without derating, derate output current by 1% for each additional 330 ft (100m)

Codes and Standards

UL, cUL Listed per UL508A
Conforms to applicable NEMA ICS, NFPA, & IEC standards

Electrical

Input Voltage; Nominal - Phase	208VAC, 230VAC, 460VAC - 3 Phase
Input Voltage; Tolerance, Unbalance	+/-10%, ≤3%
Input Frequency	60Hz +/-5%
Displacement Power Factor	≥0.97
Output Voltage; Range - Phase	0 to maximum input voltage - 3 Phase
Output Frequency	0.1 to 120Hz
Motor Control Method	PWM drive output with V/F control, includes programmable "catch-a-spinning motor" function
PWM Switch Frequency	0.75 to 15kHz (2 to 25Hp for 208/230V and 2 to 30Hp for 460V) 0.75 to 10kHz (30 to 60Hp for 208/230V and 40 to 100Hp for 460V) 0.75 to 6kHz (125 to 200Hp for 460V)
Drive Overload Capacity	120% rated current for 1 min.
Motor Overload	Programmable (electronic)
Torque Boost	Programmable to provide additional starting torque if required
Speed Reference	0 to +10VDC, 4 to 20mA, or Keypad (programmable inverse operation for analog signals)
Speed Reference Resolution	Analog setting: 1/1000 of maximum frequency Keypad setting: 0.01Hz (99.99Hz or less)
Acceleration/Deceleration Time	0 to 3600 seconds, with four user selectable patterns
Jump Frequencies	Qty 3 programmable frequency set points with adjustable jump bandwidth of 0 to 30Hz
Output Signals	Qty 1: N.O. dry contacts rated 0.3A @ 230V max, functionality: Drive Run Qty 1: Form C dry contacts rated 0.3A @ 230V max, functionality: Drive Fault Qty 1: N.O. dry contacts rated 5A @ 230V max, functionality: Damper Control Qty 1: 0 to 10VDC or 4 to 20mA, user selectable programmable analog signal

Drawing Number Selection Matrix

NEMA 12 Ventilated Non-Bypass

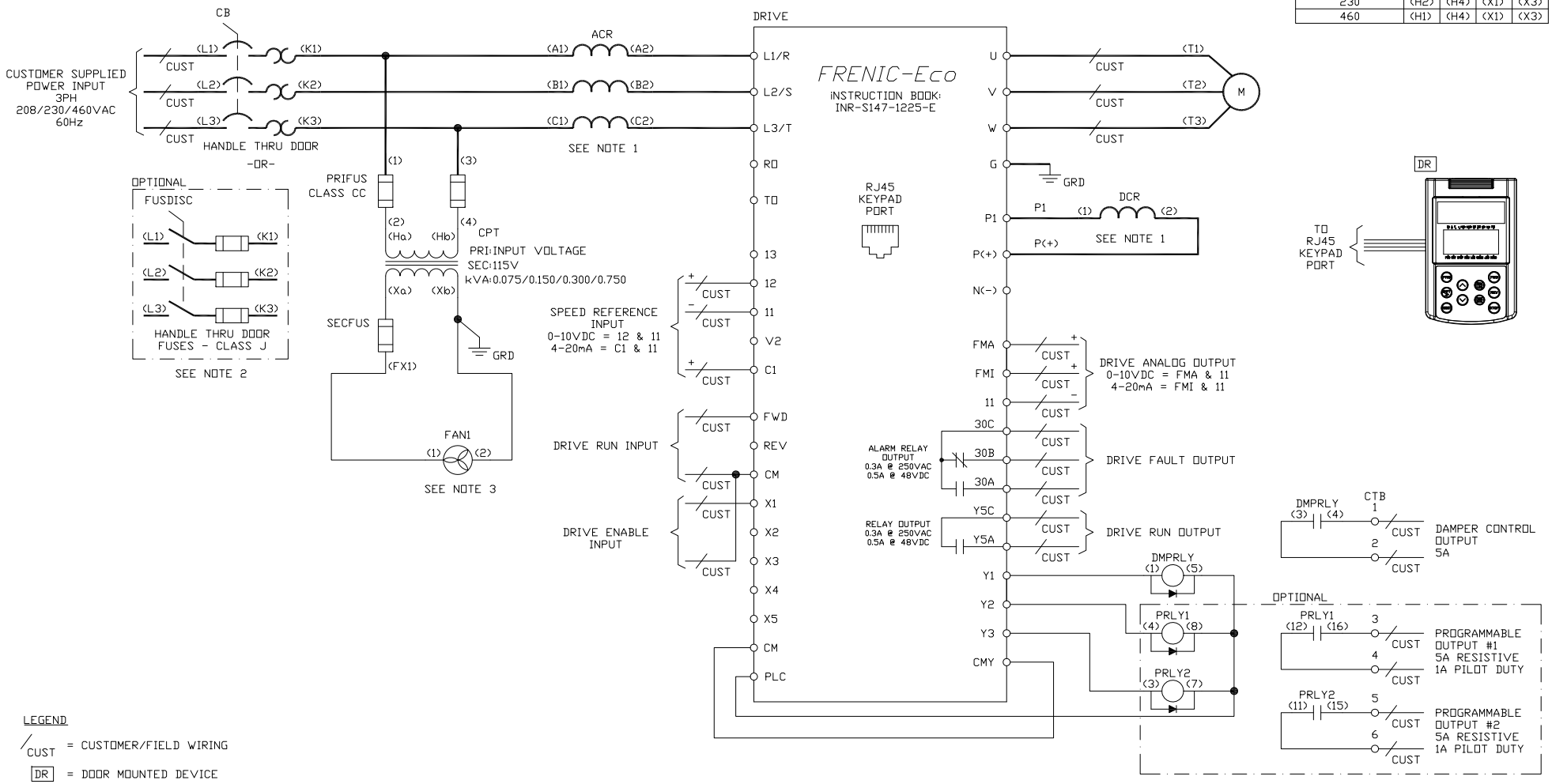
208/230V

HP	Current (A)	Electrical Drawing	Outline Drawing
2	7.5	ROA700018	ROA700041
3	10.6	ROA700018	ROA700041
5	16.7	ROA700018	ROA700041
7.5	25	ROA700018	ROA700042
10	31	ROA700018	ROA700042
15	47	ROA700018	ROA700042
20	60	ROA700018	ROA700043
25	75	ROA700018	ROA700043
30	88	ROA700018	ROA700043
40	114	ROA700018	ROA700044
50	143	ROA700018	ROA700046
60	169	ROA700018	ROA700022

460V

HP	Current (A)	Electrical Drawing	Outline Drawing
2	3.7	ROA700018	ROA700041
3	5.5	ROA700018	ROA700041
5	9	ROA700018	ROA700041
7.5	11	ROA700018	ROA700041
10	16.5	ROA700018	ROA700042
15	23	ROA700018	ROA700042
20	28	ROA700018	ROA700042
25	34	ROA700018	ROA700043
30	40	ROA700018	ROA700043
40	54	ROA700018	ROA700043
50	65	ROA700018	ROA700044
60	80	ROA700018	ROA700044
75	105	ROA700018	ROA700044
100	130	ROA700018	ROA700046
125	156	ROA700018	ROA700046
150	192	ROA700018	ROA700022
200	240	ROA700018	ROA700022

CONTROL POWER TRANSFORMER (CPT) CONNECTIONS				
NOMINAL	TERMINALS			
INPUT VOLTAGE	(Ha)	(Hb)	(Xa)	(Xb)
208	(H3)	(H4)	(X1)	(X3)
230	(H2)	(H4)	(X1)	(X3)
460	(H1)	(H4)	(X1)	(X3)



LEGEND

CUST = CUSTOMER/FIELD WIRING

DR = DOOR MOUNTED DEVICE

NOTES:
1) FOR RATINGS ≤75Hp, "ACR" IS PROVIDED AS STANDARD, "DCR" IS NOT PROVIDED, AND A JUMPER IS INSTALLED BETWEEN DRIVE TERMINALS P1 & P(+). FOR RATINGS ≥100Hp, "DCR" IS ALWAYS PROVIDED, AND "ACR" IS PROVIDED AS AN OPTION IN ADDITION TO "DCR".
2) FUSIBLE DISCONNECT "FUSDISC" IS PROVIDED AS STANDARD FOR RATINGS 2-7.5Hp @ 208/230VAC & 2-15Hp @ 460VAC
3) QTY OF FANS PROVIDED AS REQUIRED, MULTIPLE FANS WIRED IN PARALLEL

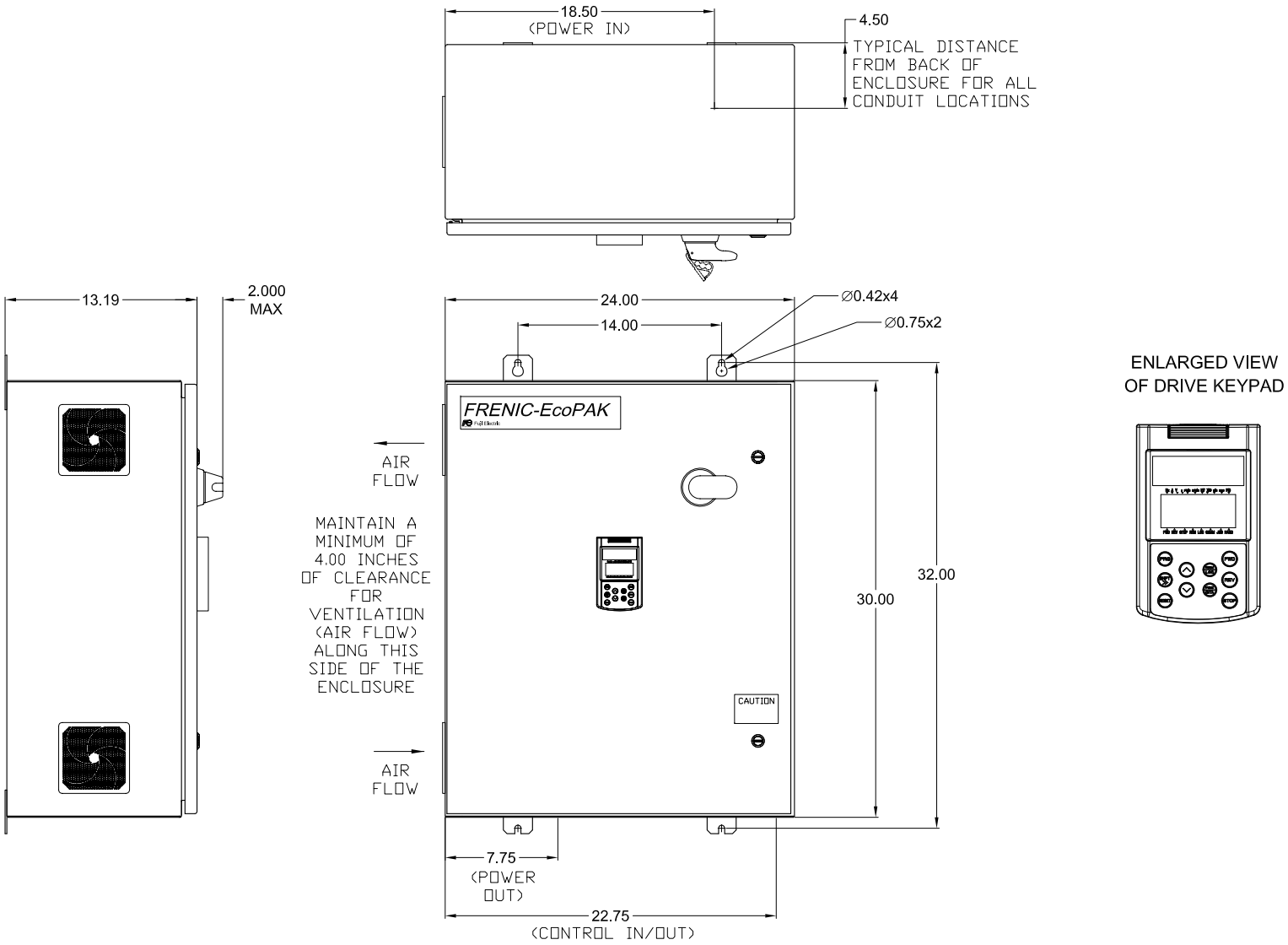
Fuji Electric

DESCRIPTION: FRENIC-EcoPAK, NON-BYPASS 2 - 60Hp @ 208/230VAC 2 - 200Hp @ 460VAC INSTRUCTION BOOK: FECA-IN-106	DRN. BY: T. WEBB	DATE: 08/05/08	DWG. NO.: RDA700018
	REV.: 2	REV. DATE: 05/02/12	REV. BY: B. GAYLE
			SHT. 1 OF 1

FRENIC-EcoPAK , NEMA 12 Ventilated Non-Bypass - Electrical Data

Hp Rating	Rated Output Current	Rated Input Current	Circuit Breaker (CB) Amp Rating	Circuit Breaker (CB) AIC Rating	Complete Assembly AIC Rating w/ CB	Fusible Disconnect Amp Rating	Input Fuses Amp Rating	Fusible Disc. w/ Fuses AIC Rating	Complete Assembly AIC Rating w/ Fusible Disc.	DC Reactor		3% AC Line Reactor		5% AC Line Reactor	
										Part Number	Ratings Amps / Inductance	Part Number	Ratings Amps / Inductance	Part Number	Ratings Amps / Inductance
208/230VAC, 60Hz, 3PH															
2	7.5	7.5	See Fusible Disconnect			30	10	200k	100k	See 3% AC Line Reactor		KDRA27L	10A / 1350uH	KDRA26H	10A / 2310uH
3	10.6	10.5	See Fusible Disconnect			30	15	200k	100k	See 3% AC Line Reactor		KDRA28L	12A / 971uH	KDRA28H	11A / 1570uH
5	16.7	16.5	See Fusible Disconnect			30	25	200k	100k	See 3% AC Line Reactor		KDRB22L	19A / 626uH	KDRB25H	17A / 1030uH
7.5	25	23	See Fusible Disconnect			30	30	200k	100k	See 3% AC Line Reactor		KDRB23L	25A / 434uH	KDRB26H	26A / 699uH
10	31	30	40	22k	22k	60	45	200k	100k	See 3% AC Line Reactor		KDRD25L	34A / 342uH	KDRD21H	31A / 554uH
15	47	45	70	22k	22k	60	60	200k	100k	See 3% AC Line Reactor		KDRD24L	48A / 220uH	KDRD22H	47A / 375uH
20	60	60	90	22k	22k	100	80	200k	100k	See 3% AC Line Reactor		KDRD26L	62A / 172uH	KDRC22H	62A / 278uH
25	75	76	100	22k	22k	100	100	200k	100k	See 3% AC Line Reactor		KDRC22L	80A / 138uH	KDRF28H	75A / 226uH
30	88	90	125	35k	35k	200	125	100k	100k	See 3% AC Line Reactor		KDRF24L	100A / 116uH	KDRF25H	92A / 189uH
40	114	115	200	35k	35k	200	175	100k	100k	See 3% AC Line Reactor		KDRF25L	118A / 88.6uH	KDRF26H	114A / 152uH
50	143	143	200	35k	35k	200	200	100k	100k	See 3% AC Line Reactor		KDRF26L	152A / 69.9uH	KDRH24H	143A / 120uH
60	169	171	250	35k	35k	400	250	200k	100k	See 3% AC Line Reactor		KDRH22L	180A / 62.4uH	KDRH23H	169A / 103uH
460VAC, 60Hz, 3PH															
2	3.7	4	See Fusible Disconnect			30	6	200k	100k	See 3% AC Line Reactor		KDRA1L	6.4A / 5790uH	KDRA1H	4A / 10300uH
3	5.5	5.5	See Fusible Disconnect			30	8	200k	100k	See 3% AC Line Reactor		KDRA2L	6A / 4270uH	KDRA2H	6A / 7290uH
5	9	8.5	See Fusible Disconnect			30	12	200k	100k	See 3% AC Line Reactor		KDRA3L	9.6A / 2770uH	KDRA3H	8A / 3980uH
7.5	11	10.5	See Fusible Disconnect			30	15	200k	100k	See 3% AC Line Reactor		KDRA4L	14A / 1680uH	KDRA4H	12A / 3000uH
10	16.5	15	See Fusible Disconnect			30	25	200k	100k	See 3% AC Line Reactor		KDRA5L	14A / 1290uH	KDRA5H	14A / 2232uH
15	23	22	See Fusible Disconnect			30	30	200k	100k	See 3% AC Line Reactor		KDRB2L	30A / 912uH	KDRB2H	27A / 1690uH
20	28	27	40	22k	22k	60	40	200k	100k	See 3% AC Line Reactor		KDRB1L	30A / 694uH	KDRC3H	27A / 1210uH
25	34	33	50	22k	22k	60	50	200k	100k	See 3% AC Line Reactor		KDRD1L	50A / 569uH	KDRC1H	35A / 980uH
30	40	38	60	22k	22k	60	60	200k	100k	See 3% AC Line Reactor		KDRD2L	45A / 469uH	KDRE2H	45A / 850uH
40	54	51	70	22k	22k	100	70	200k	100k	See 3% AC Line Reactor		KDRC1L	55A / 387uH	KDRF4H	60A / 581uH
50	65	62	90	22k	22k	100	90	200k	100k	See 3% AC Line Reactor		KDRF2L	65A / 295uH	KDRF1H	85A / 465uH
60	80	78	100	22k	22k	100	100	200k	100k	See 3% AC Line Reactor		KDRF4L	77A / 227uH	KDRF2H	77A / 408uH
75	105	100	150	35k	35k	200	150	100k	100k	See 3% AC Line Reactor		KDRF3L	110A / 196uH	KDRH2H	100A / 315uH
100	130	118	200	35k	35k	200	175	100k	100k	DCR4-75C	178A / 0.231mH	KDRH3L	150A / 152uH	KDRI2H	125A / 252uH
125	156	144	200	35k	35k	200	200	100k	100k	DCR4-90C	214A / 0.2mH	KDRH2L	165A / 117uH	KDRG3H	160A / 209uH
150	192	176	250	35k	35k	400	250	200k	100k	DCR4-110C	261A / 0.166mH	KDRH1L	185A / 103uH	KDRG1H	185A / 181uH
200	240	239	350	35k	35k	400	350	200k	100k	DCR4-132C	313A / 0.148mH	KDRG3L	240A / 83.9uH	KDRJ1H	240A / 126uH

DIMENSIONS PROVIDED FOR ESTIMATING PURPOSES ONLY



ENLARGED VIEW OF DRIVE KEYPAD

DIMENSIONS ARE IN INCHES

Fuji Electric	DESCRIPTION: FRENIC-EcoPAK - NON-BYPASS - NEMA 12 2-5Hp @ 208/230V 2-7.5Hp @ 460V INSTRUCTION BOOK: FECA-IN-106	DRN. BY: R. MONTES REV. 0 / REV. DATE: / REV. BY:	DATE: 12/06/10	DWG. NO.: RDA700041 SHT. 1 OF 1

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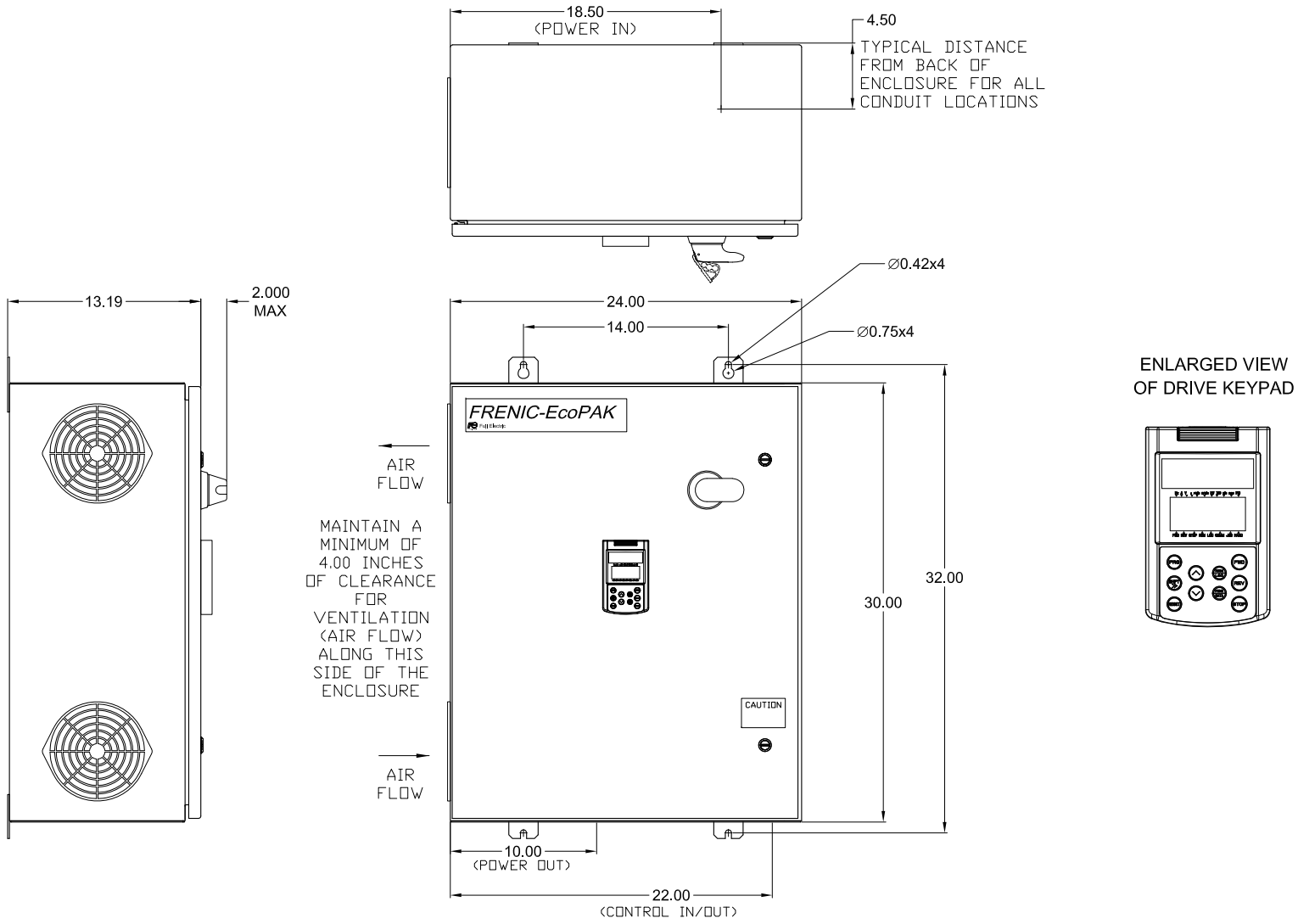

ENLARGED VIEW OF DRIVE KEYPAD

DIMENSIONS ARE IN INCHES

Fuji Electric	DESCRIPTION: FRENIC-EcoPAK - NON-BYPASS - NEMA 12 7.5-15Hp @ 208/230V 10-20Hp @ 460V INSTRUCTION BOOK: FECA-IN-106	DRN. BY: R. MONTES REV. 0 / REV. DATE: / REV. BY:	DATE: 12/06/10	DWG. NO.: ROA700042 SHT. 1 OF 1

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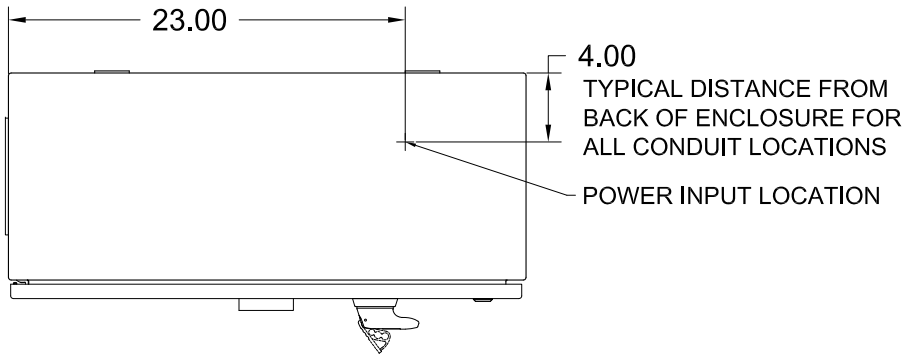
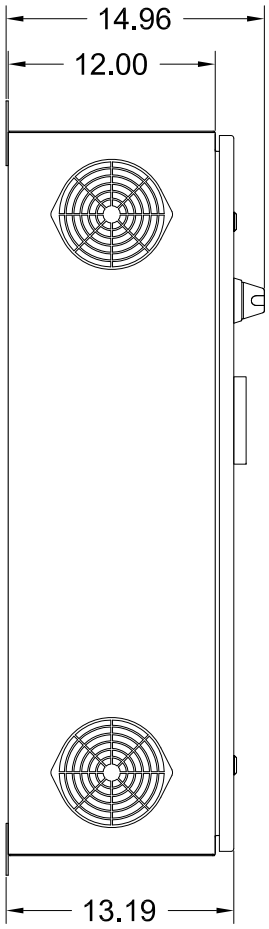
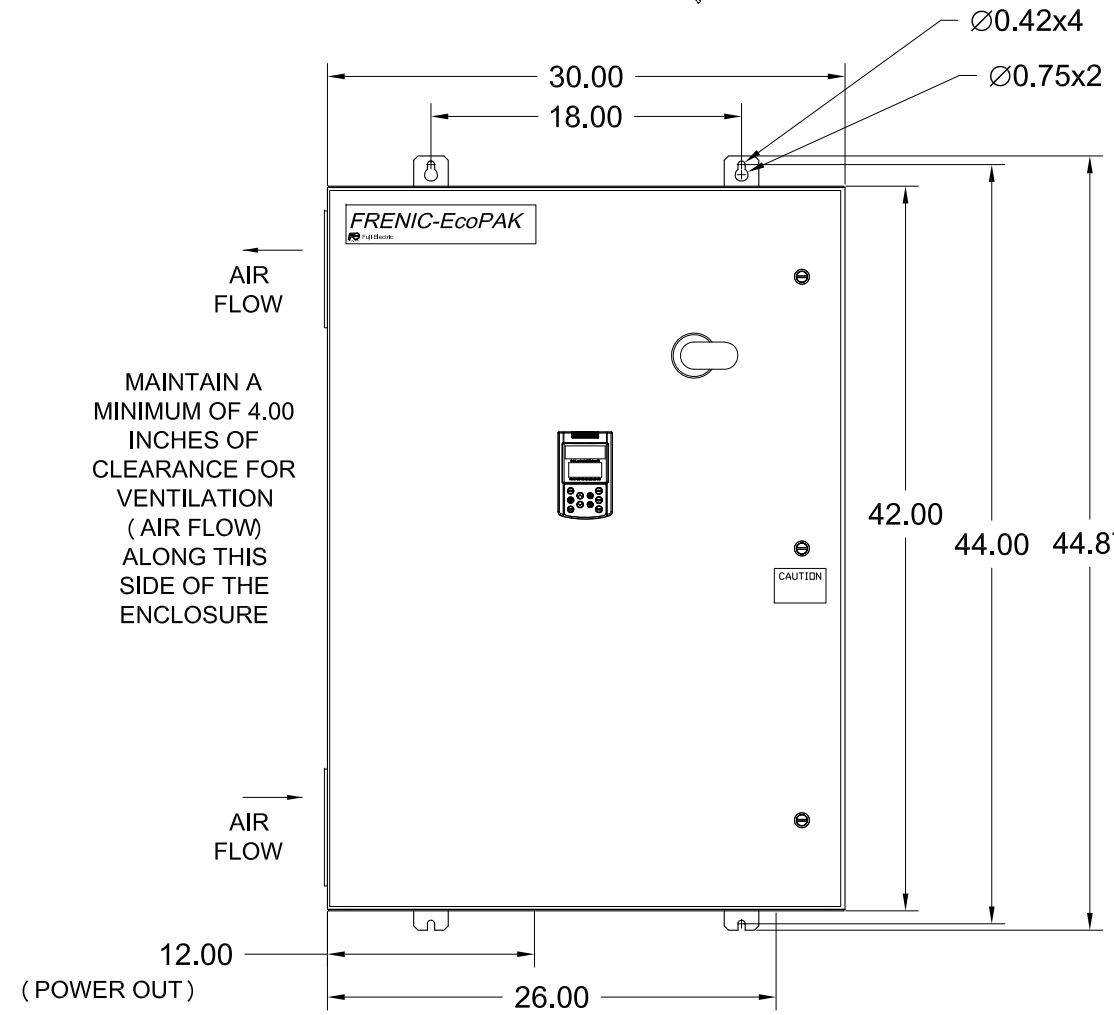
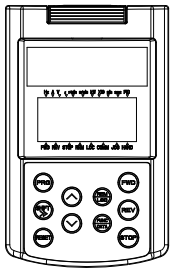






ENLARGED VIEW
OF DRIVE KEYPAD



DIMENSIONS ARE IN INCHES

Fuji Electric

DESCRIPTION: FRENIC-EcoPAK - NON-BYPASS - NEMA 12 20-30Hp @ 208/230V 25-40Hp @ 460V INSTRUCTION BOOK: FECA-IN-106	DRN. BY: R. MONTES	DATE: 12/10/10	DWG. NO.: RDA700043
	REV. 0 / REV. DATE: / REV. BY:		SHT. 1 OF 1

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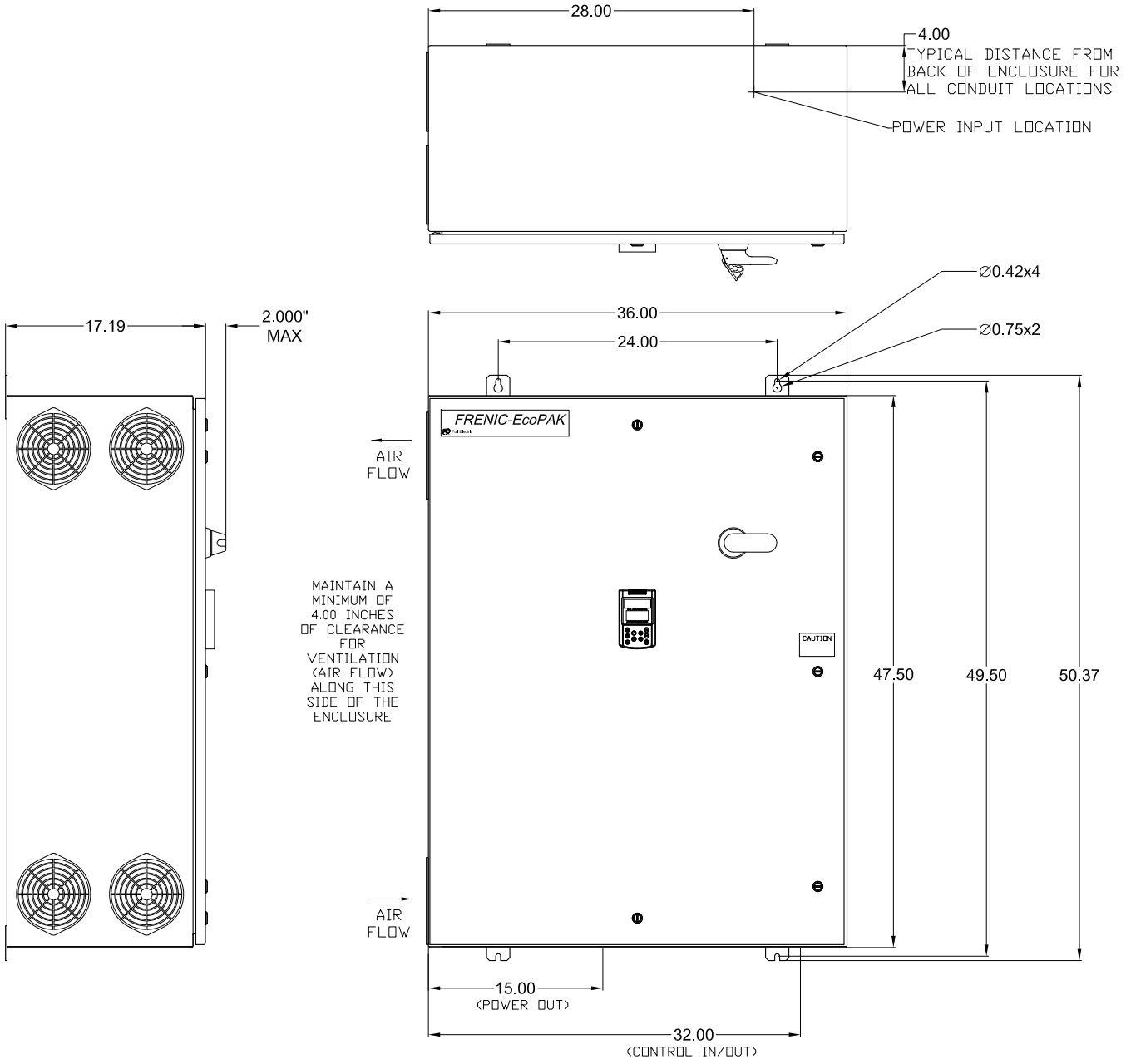
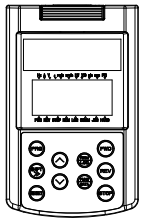


ENLARGED VIEW OF DRIVE KEYPAD



DIMENSIONS ARE IN INCHES

Fuji Electric	DESCRIPTION: FRENIC-EcoPAK - NON-BYPASS 40Hp @ 208/230V NEMA 1 & NEMA 12 Vent. 50-75Hp @ 460V NEMA 12 Ventilated INSTRUCTION BOOK: FECA-IN-106	DRN. BY: R. MONTES REV. 0 / REV. DATE: / REV. BY:	DATE: 12/06/10	DWG. NO.: ROA700044 SHT. 1 OF 1

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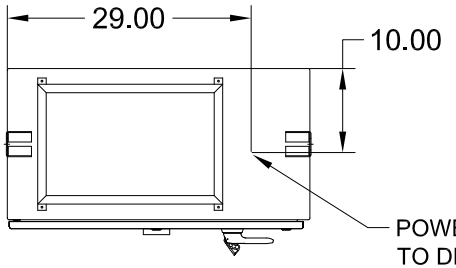
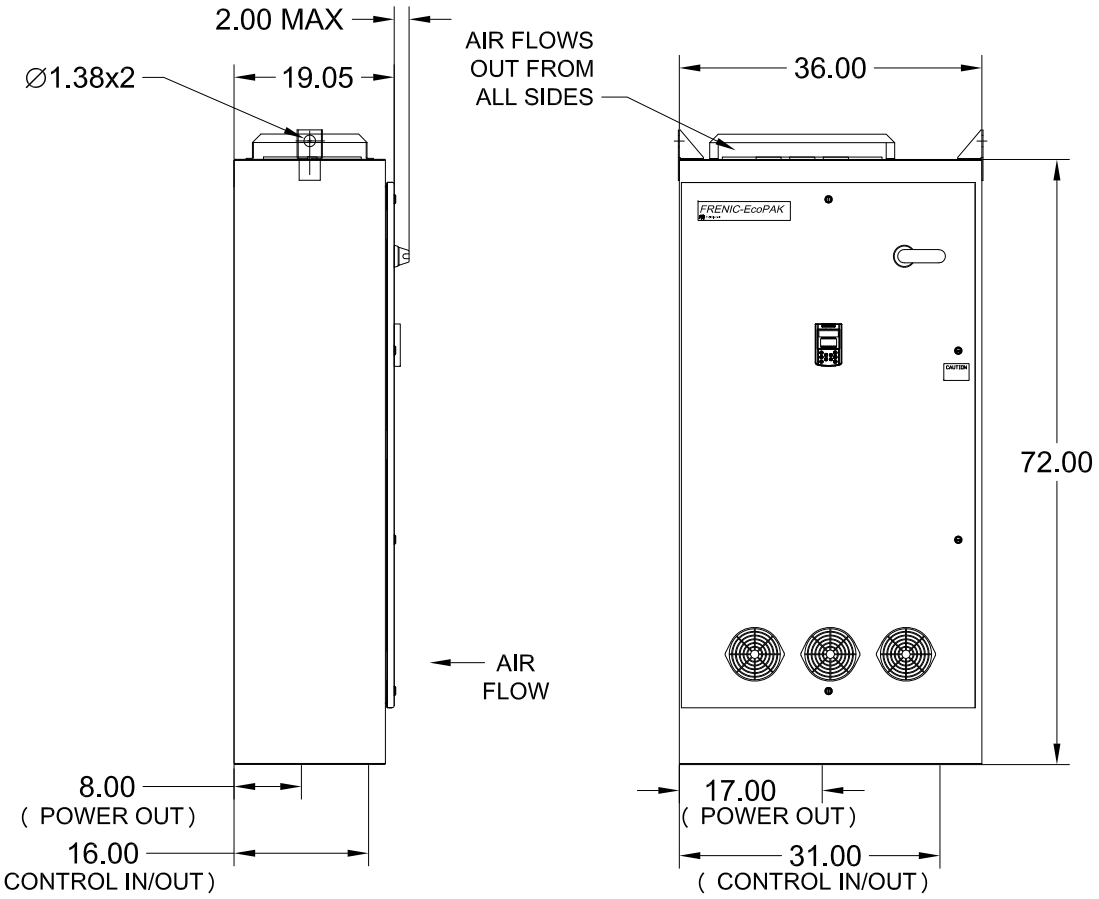
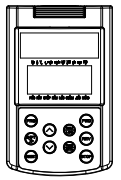




ENLARGED VIEW
OF DOOR DEVICES



DIMENSIONS ARE IN INCHES

Fuji Electric	DESCRIPTION: FRENIC-EcoPAK - NON-BYPASS 50Hp @ 208/230V I 100-125Hp @ 460V NEMA 1 & NEMA 12 VENTILATED INSTRUCTION BOOK: FECA-IN-106	DRN. BY: R. MONTES REV. 0 / REV. DATE: / REV. BY:	DATE: 12/09/10	DWG. NO.: RDA700046 SHT. 1 OF 1

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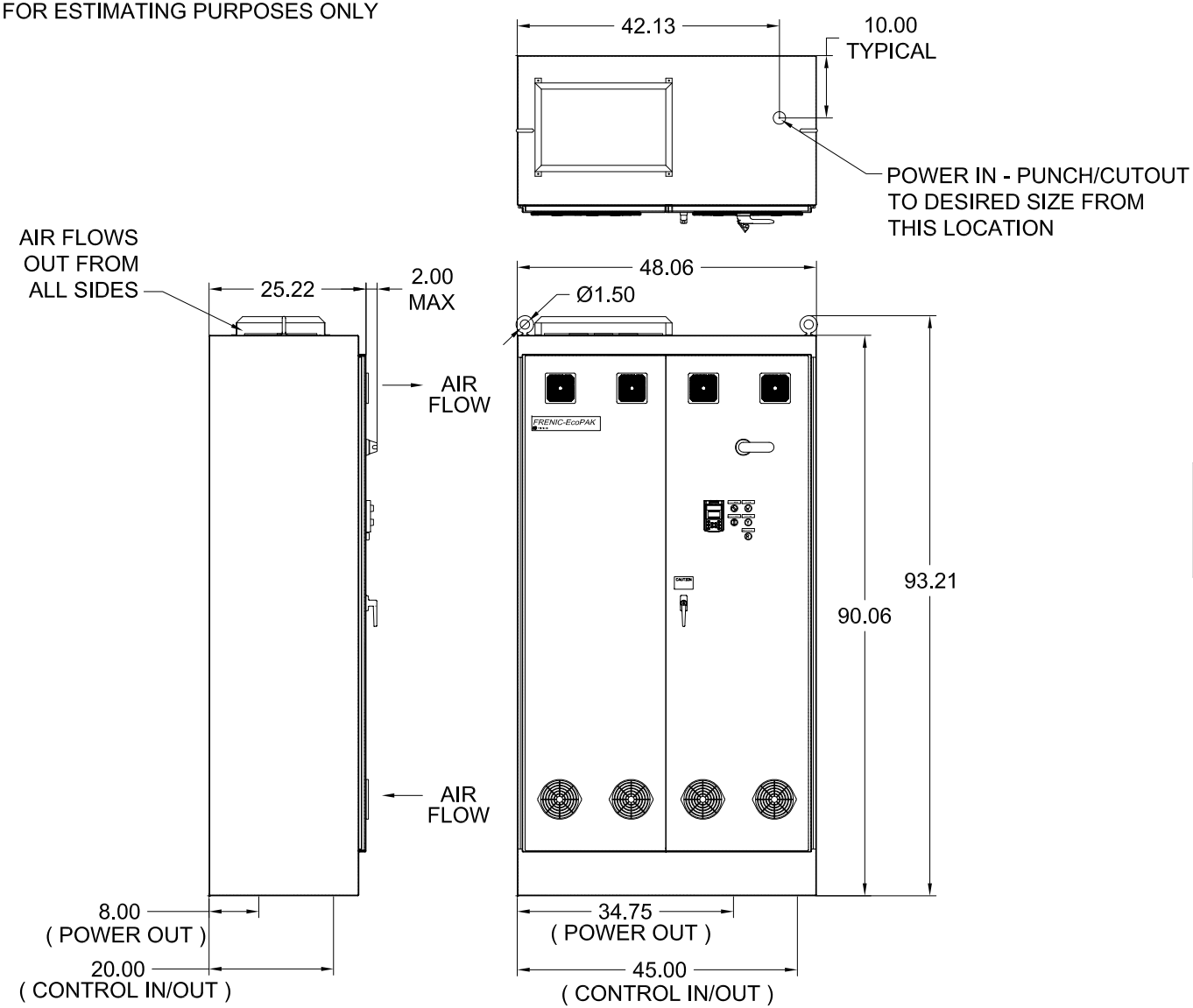
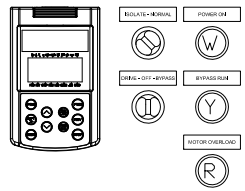


ENLARGED VIEW
OF DOOR DEVICES



NOTES:

1) NON-BYPASS UNITS ONLY INCLUDE THE DOOR MOUNTED KEYPAD, ALL OTHER PILOT LIGHTS AND SELECTOR SWITCHES ARE NOT PROVIDED

2) INSTRUCTION BOOKS: FECA-IN-105 FOR BYPASS, FECA-IN-107 FOR BASIC BYPASS, & FECA-IN-106 FOR NON-BYPASS

DIMENSIONS ARE IN INCHES

Fuji Electric

DESCRIPTION: FRENIC-EcoPAK BYPASS & NON-BYPASS 60Hp @ 208/230V I 150-200Hp @ 460V NEMA 1 & NEMA 12 VENTILATED INSTRUCTION BOOK: SEE NOTE 2	DRN. BY: B. GAYLE	DATE: 06/04/09	DWG. NO.: RDA700022
	REV. 1	REV. DATE: 12/16/10	REV. BY: T. WEBB
			SHT. 1 OF 1

FRENIC-EcoPAK, Non-Bypass - Mechanical Data

Hp Rating	Overall Dimensions - Height x Width x Depth [inches]	Estimated Max. Weight [lbs]	Estimated Max. Watts Loss
208/230VAC, 60Hz, 3PH, NEMA 12 Ventilated			
2	32.88 x 24.00 x 15.19	116	207
3	32.88 x 24.00 x 15.19	116	252
5	32.88 x 24.00 x 15.19	120	339
7.5	32.88 x 24.00 x 15.19	126	510
10	32.88 x 24.00 x 15.19	132	633
15	32.88 x 24.00 x 15.19	135	807
20	44.87 x 30.00 x 15.19	161	1100
25	44.87 x 30.00 x 15.19	178	1211
30	44.87 x 30.00 x 15.19	202	1439
40	50.37 x 36.00 x 19.19	394	1878
50	75.50 x 36.00 x 21.05	638	1860
60	93.21 x 48.02 x 29.21	1156	2399
460VAC, 60Hz, 3PH, NEMA 12 Ventilated			
2	32.88 x 24.00 x 15.19	116	178
3	32.88 x 24.00 x 15.19	116	236
5	32.88 x 24.00 x 15.19	116	375
7.5	32.88 x 24.00 x 15.19	119	403
10	32.88 x 24.00 x 15.19	126	609
15	32.88 x 24.00 x 15.19	126	727
20	32.88 x 24.00 x 15.19	138	887
25	44.87 x 30.00 x 15.19	201	1028
30	44.87 x 30.00 x 15.19	202	1160
40	44.87 x 30.00 x 15.19	217	1264
50	50.37 x 36.00 x 19.19	312	1763
60	50.37 x 36.00 x 19.19	314	2035
75	50.37 x 36.00 x 19.19	368	2109
100	75.50 x 36.00 x 21.05	652	2512
125	75.50 x 36.00 x 21.05	678	2601
150	93.21 x 48.06 x 27.22	1194	3238
200	93.21 x 48.06 x 27.22	1255	3916