

FRENIC-EcoPAK

Fuji Electric's FRENIC-EcoPAK series provides a compliant and competitive packaged drive solution.



Submittal Summary



Fuji Electric Corp. of America (FECO) 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

FECA-SU-105A

Information subject to change without notice.

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

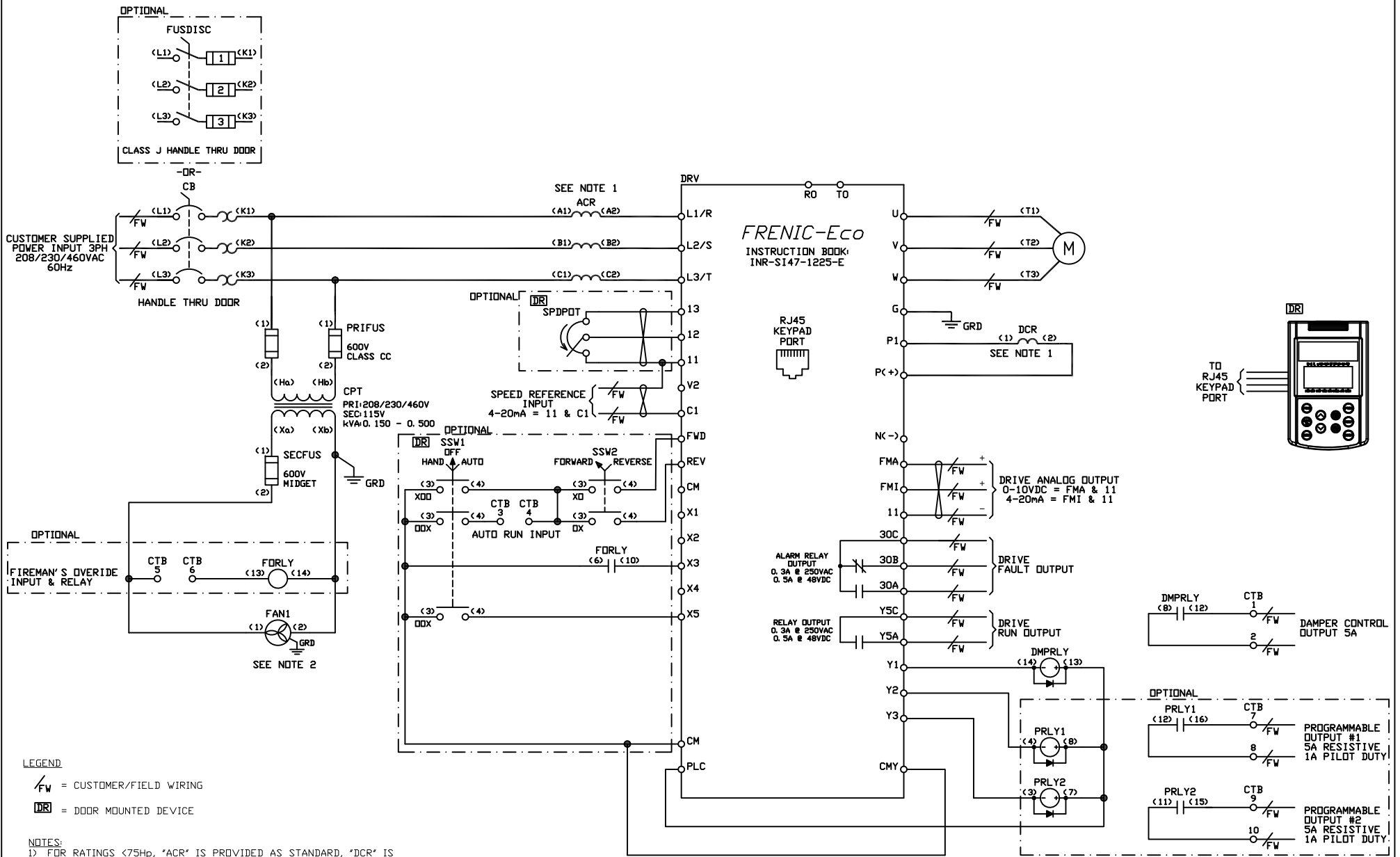
NEMA 12 Ventilated Non-Bypass

208/230V

HP	Current (A)	Electrical Drawing	Outline Drawing
2	7.5	ROA700270	ROA700266
3	10.6	ROA700270	ROA700266
5	16.7	ROA700270	ROA700266
7.5	24.2	ROA700270	ROA700267
10	30.8	ROA700270	ROA700267
15	46.2	ROA700270	ROA700267
20	59.4	ROA700270	ROA700268
25	74.8	ROA700270	ROA700268
30	88	ROA700270	ROA700269
40	114	ROA700270	ROA700260
50	143	ROA700270	ROA700260
60	169	ROA700270	ROA700261

460V

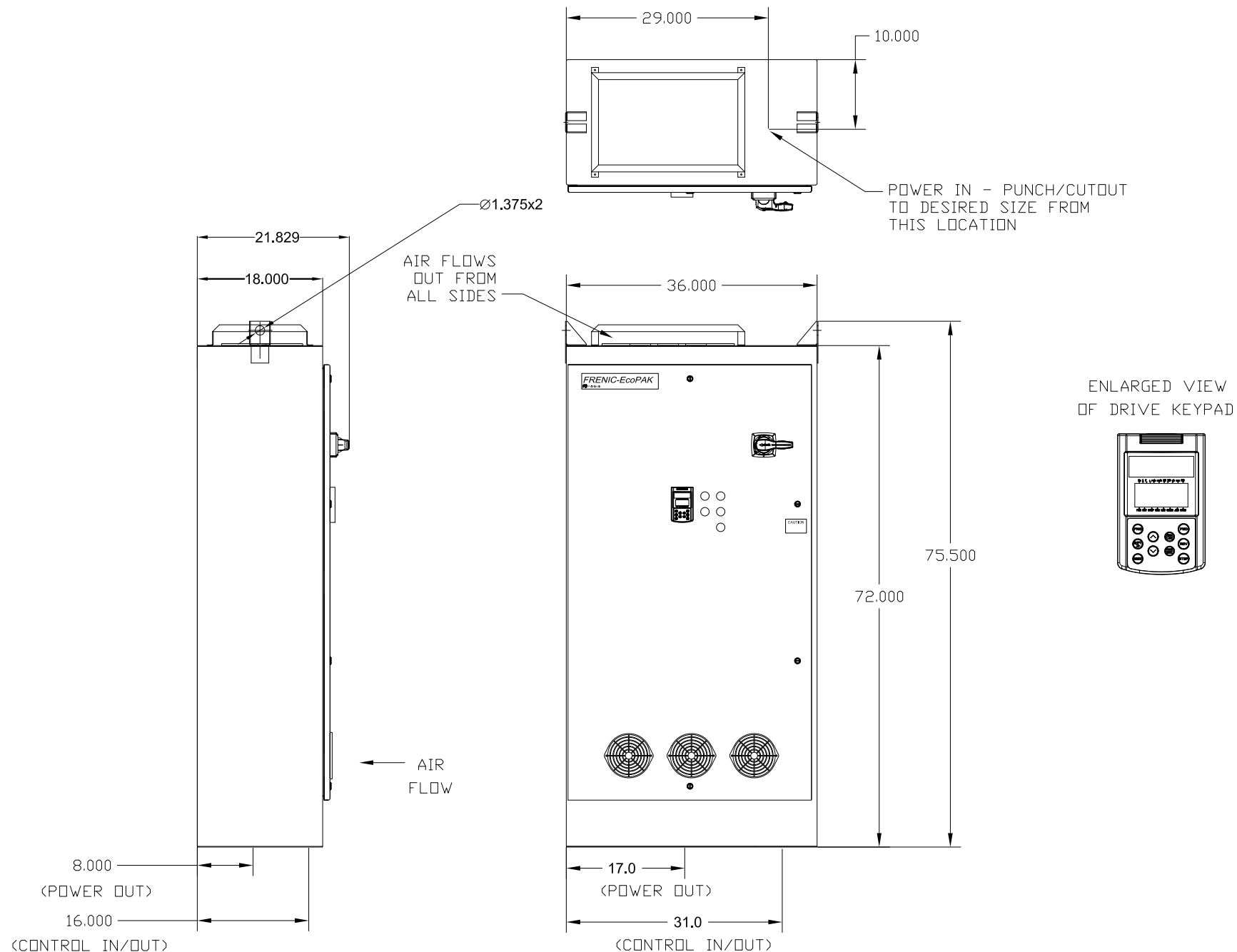
HP	Current (A)	Electrical Drawing	Outline Drawing
2	3.4	ROA700270	ROA700266
3	4.8	ROA700270	ROA700266
5	7.6	ROA700270	ROA700266
7.5	11	ROA700270	ROA700266
10	14	ROA700270	ROA700267
15	21	ROA700270	ROA700267
20	27	ROA700270	ROA700267
25	34	ROA700270	ROA700268
30	40	ROA700270	ROA700268
40	52	ROA700270	ROA700268
50	65	ROA700270	ROA700269
60	77	ROA700270	ROA700269
75	96	ROA700270	ROA700269
100	124	ROA700270	ROA700260
125	156	ROA700270	ROA700260
150	180	ROA700270	ROA700261
200	240	ROA700270	ROA700261



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	8	15	65k	65k	30	15	200k	100k	See High Z AC Line Reactor	High Z Line Reactor Included as Standard on 208 VAC		LR3 24-6/10	10A/2.2mH	
3	10.6	11.1	20	65k	65k	30	20	200k	100k	See High Z AC Line Reactor			LR3 24-6/16	16A/1.38mH	
5	16.7	17.2	30	65k	65k	30	30	200k	100k	See High Z AC Line Reactor			LR3 24-6/20	20A/1.1mH	
7.5	24.2	24.7	40	65k	65k	60	45	200k	100k	See High Z AC Line Reactor			LR3 24-6/30	30A/.74mH	
10	30.8	31.3	50	65k	65k	60	50	200k	100k	See High Z AC Line Reactor			LR3 24-6/35	35A/.63mH	
15	46.2	46.7	70	65k	65k	100	80	200k	100k	See High Z AC Line Reactor			LR3 24-6/50	50A/.44mH	
20	59.4	59.9	90	65k	65k	100	100	200k	100k	See High Z AC Line Reactor			LR3 24-6/63	63A/.350mH	
25	74.8	75.3	125	65k	65k	200	125	200k	100k	See High Z AC Line Reactor			LR3 24-6/80	80A/.270mH	
30	88	88.8	150	65k	65k	200	150	100k	100k	See High Z AC Line Reactor			LR3 24-6/90	90A/.245mH	
40	114	115	200	65k	65k	200	200	100k	100k	See High Z AC Line Reactor			LR3 24-6/115	115A/.193mH	
50	143	145	250	65k	65k	400	225	100k	100k	See High Z AC Line Reactor			LR3 24-6/160	160A/.138mH	
60	169	171	300	65k	65k	400	300	200k	100k	See High Z AC Line Reactor			LR3 24-6/180	180A/.123mH	
460VAC, 60Hz, 3PH															
2	3.4	4	15	35k	35k	30	8	200k	100k	See Low Z AC Line Reactor	LR3 48-3/6	6A/3.700mH	LR3 48-5/6	6A/6.200mH	
3	4.8	5.5	15	35k	35k	30	10	200k	100k	See Low Z AC Line Reactor	LR3 48-3/8	8A/2.750mH	LR3 48-5/8	8A/4.600mH	
5	7.6	8.5	15	35k	35k	30	15	200k	100k	See Low Z AC Line Reactor	LR3 48-3/10	10A/2.200mH	LR3 48-5/10	10A/3.680mH	
7.5	11	11.5	20	35k	35k	30	20	200k	100k	See Low Z AC Line Reactor	LR3 48-3/16	16A/1.380mH	LR3 48-5/16	16A/2.300mH	
10	14	15	30	35k	35k	30	25	200k	100k	See Low Z AC Line Reactor	LR3 48-3/16	16A/1.380mH	LR3 48-5/16	16A/2.300mH	
15	21	22	40	65k	65k	60	40	200k	100k	See Low Z AC Line Reactor	LR3 48-3/25	25A/.880mH	LR3 48-5/25	25A/1.470mH	
20	27	28	50	65k	65k	60	50	200k	100k	See Low Z AC Line Reactor	LR3 48-3/30	30A/.740mH	LR3 48-5/30	30A/1.23mH	
25	34	35	60	65k	65k	60	60	200k	100k	See Low Z AC Line Reactor	LR3 48-3/35	35A/.630mH	LR3 48-5/35	35A/1.05mH	
30	40	41	70	65k	65k	100	70	200k	100k	See Low Z AC Line Reactor	LR3 48-3/45	45A/.490mH	LR3 48-5/45	45A/.817mH	
40	52	53	90	65k	65k	100	90	200k	100k	See Low Z AC Line Reactor	LR3 48-3/50	50A/.440mH	LR3 48-5/50	50A/.735mH	
50	65	67	100	65k	65k	100	100	200k	100k	See Low Z AC Line Reactor	LR3 48-3/70	70A/.315mH	LR3 48-5/70	70A/.525mH	
60	77	78	125	65k	65k	200	125	200k	100k	See Low Z AC Line Reactor	LR3 48-3/80	80A/.27mH	LR3 48-5/80	80A/.46mH	
75	96	100	150	65k	65k	200	175	100k	100k	See Low Z AC Line Reactor	LR3 48-3/100	100A/.22mH	LR3 48-5/100	100A/.368mH	
100	124	118	200	65k	65k	200	200	100k	100k	DCR4-75C	178A / 0.231mH	LR3 48-3/125	125A/.177mH	LR3 48-5/125	125A/.294mH
125	156	144	250	65k	65k	400	250	100k	100k	DCR4-90C	214A / 0.2mH	LR3 48-3/160	160A/.138mH	LR3 48-5/160	160A/.23mH
150	180	176	300	65k	65k	400	300	200k	100k	DCR4-110C	261A / 0.166mH	LR3 48-3/180	180A/.123mH	LR3 48-5/180	180A/.204mH
200	240	239	400	65k	65k	400	400	200k	100k	DCR4-132C	313A / 0.148mH	LR3 48-3/250	250A/.088mH	LR3 48-5/250	250A/.147mH

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DIMENSIONS ARE IN INCHES

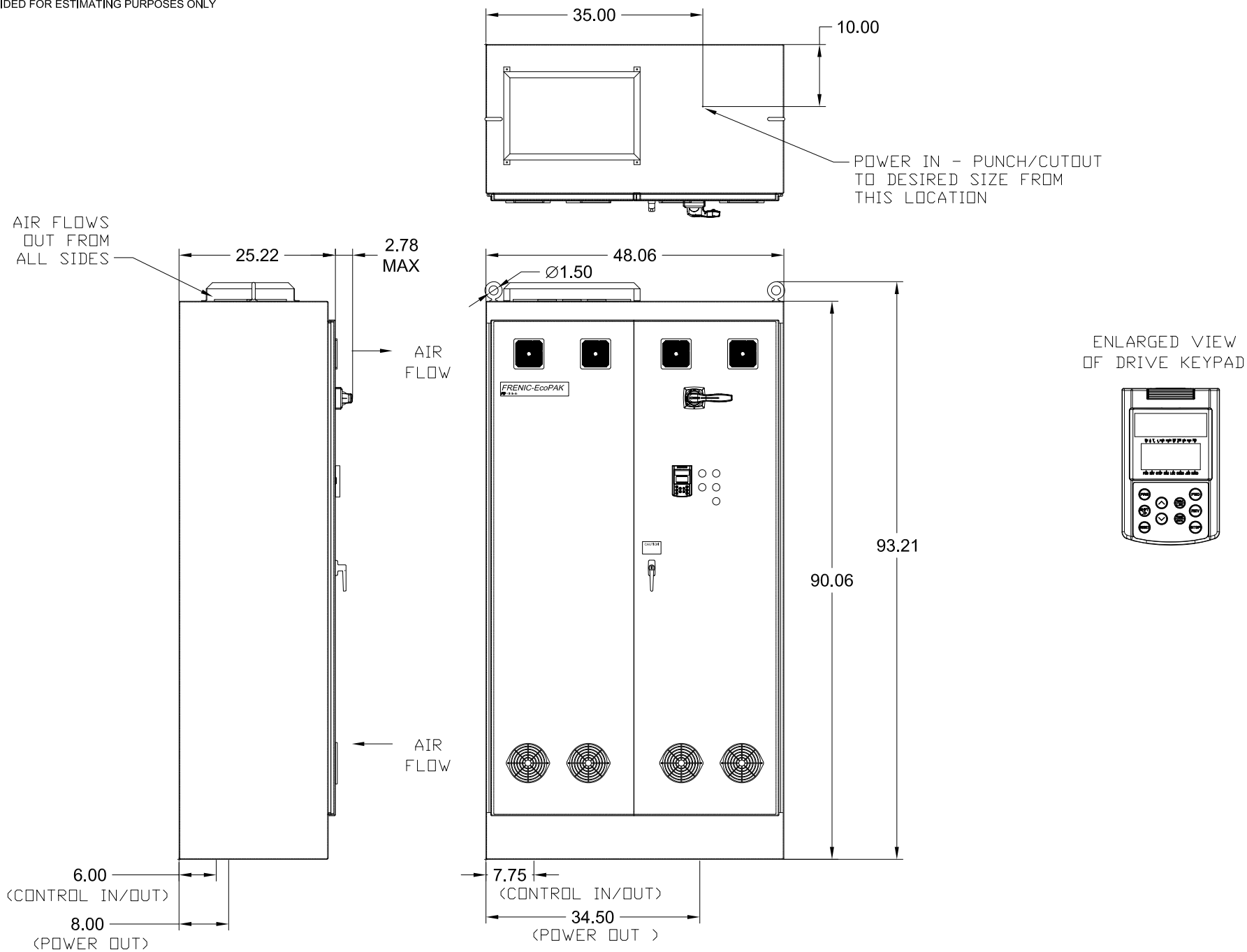


DESCRIPTION: FRENIC-EcoPAK - NON-BYPASS
40-50Hp @ 208/230V | 100-125Hp @ 460V
NEMA 1/12 VENT.
INSTRUCTION BOOK: FECA-IN-106

DRN. BY: R. MONTES
DATE: 11/29/19
REV. REV. DATE: REV. BY:

DWG. NO.: R0A700260
SHT. 1 OF 1

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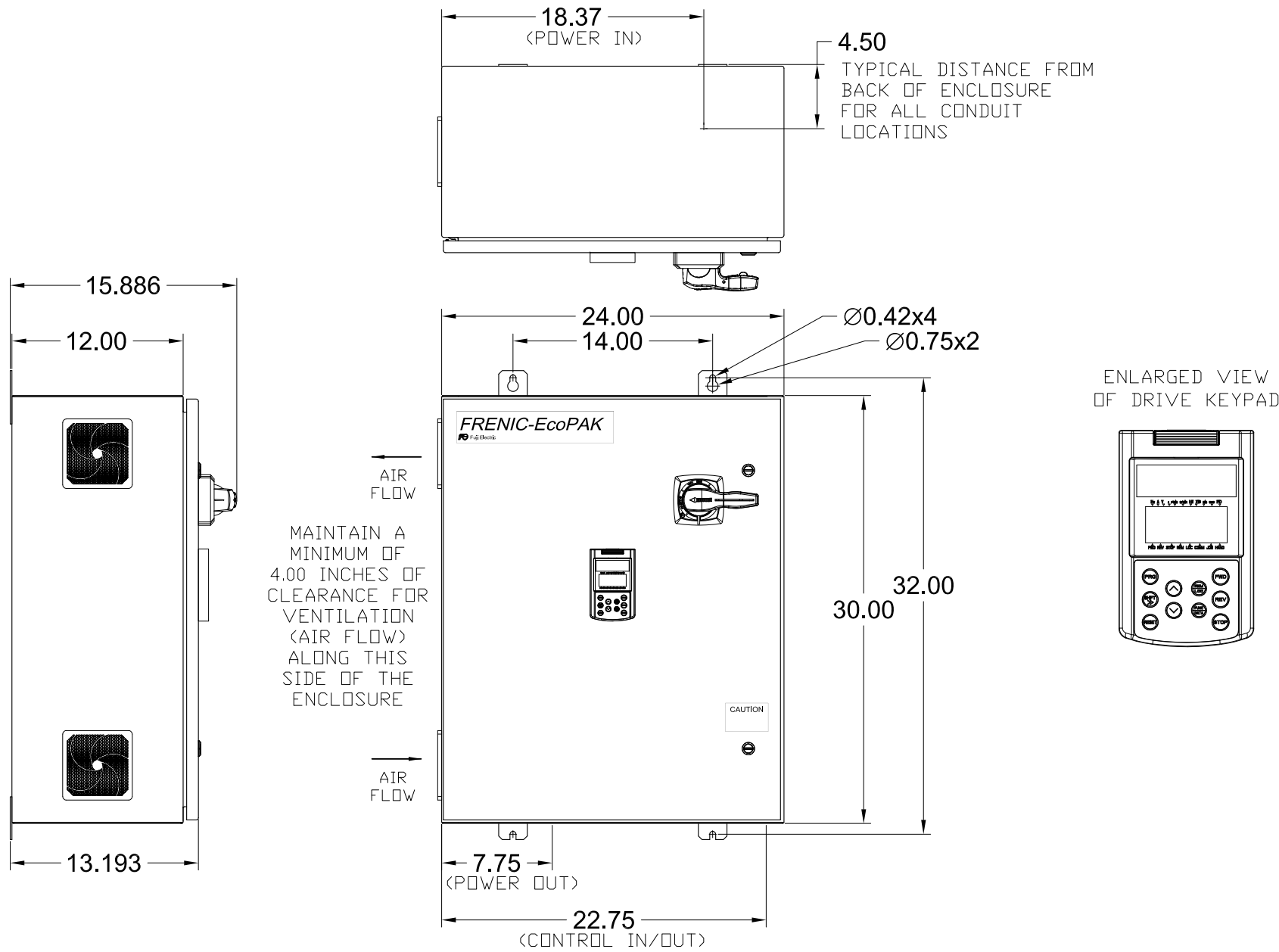


DESCRIPTION: FRENIC-EcoPAK - NON-BYPASS
 60Hp @ 208/230V | 150-200Hp @ 460V
 NEMA 1/12 VENT.
 INSTRUCTION BOOK: FECA-IN-106

DRN. BY: R. MONTES		DATE: 11/29/19
REV. BY:	REV. DATE:	REV. BY:
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DWG. NO. :	ROA700261
SHT. 1 OF 1	

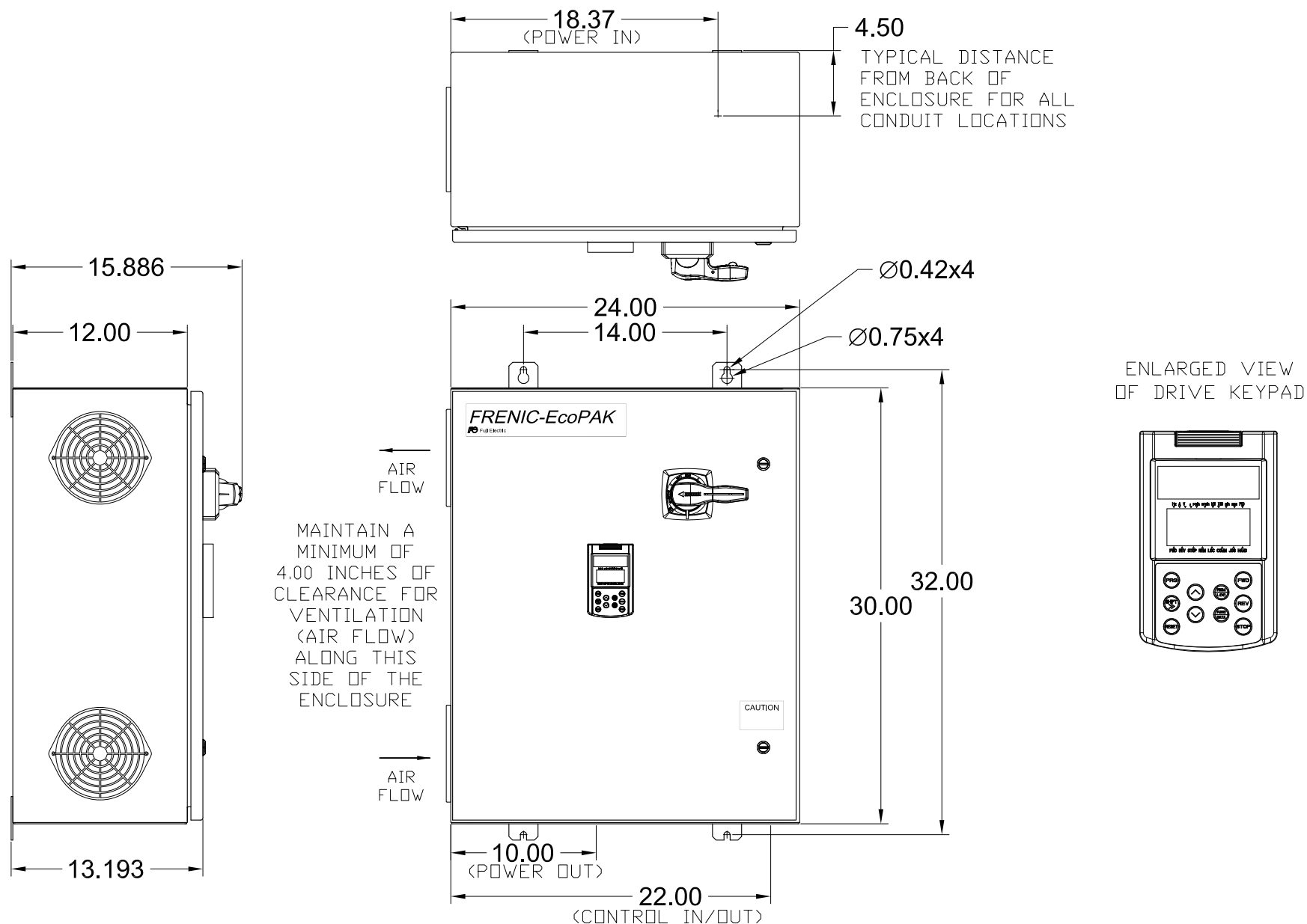
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DIMENSIONS ARE IN INCHES

	DESCRIPTION: FRENIC-EcoPAK - NON-BYPASS 2-5Hp @ 208/230V 2-7.5Hp @ 460V NEMA 12 VENT. INSTRUCTION BOOK: FECA-IN-106	DRN. BY: R. MONTES	DATE: 11/29/19	DWG. NO.: ROA700266 SHT. 1 OF 1
		REV. 0	REV. DATE: REV. BY:	

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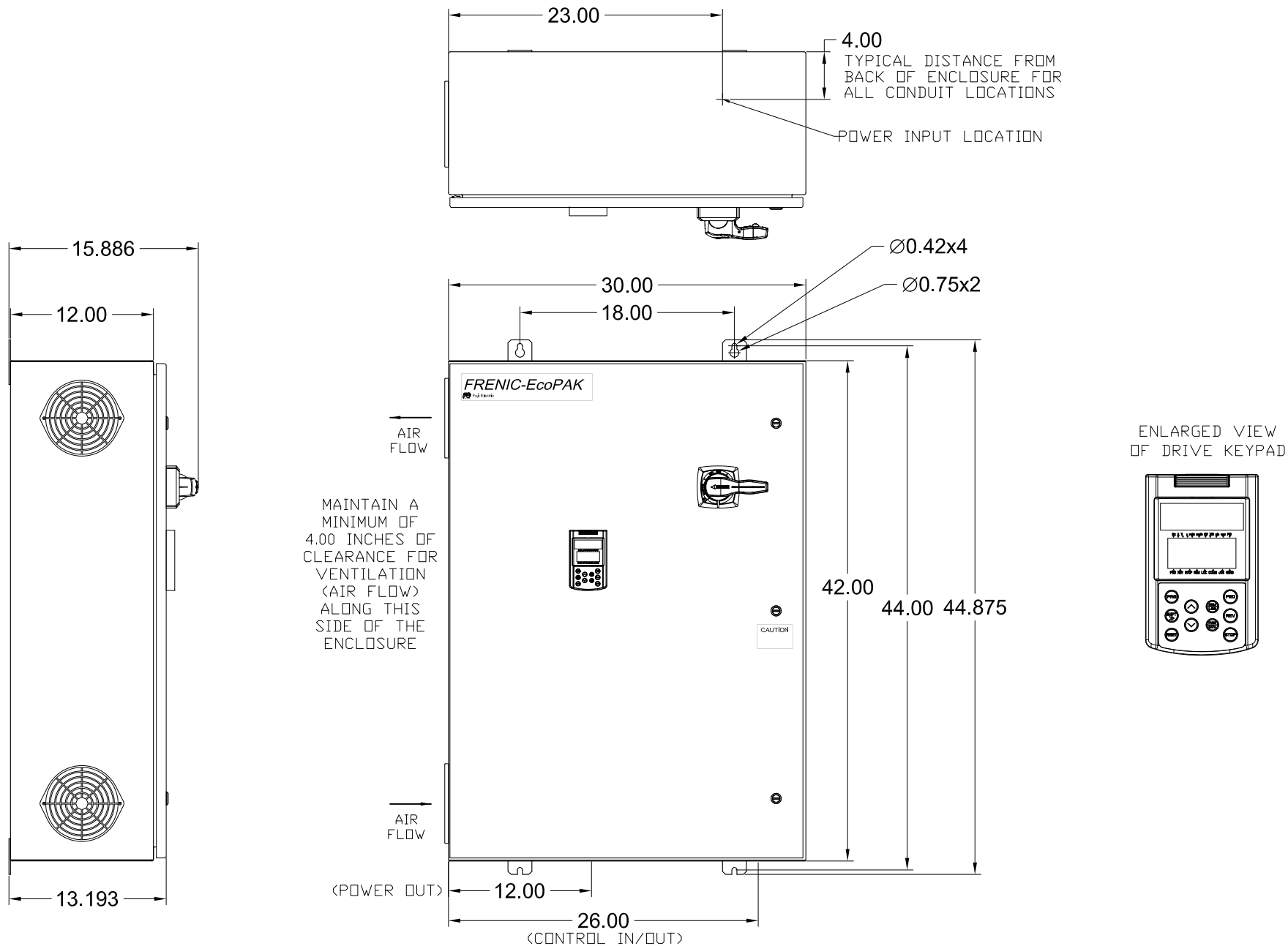


DESCRIPTION: FRENIC-EcoPAK - NON-BYPASS
 7.5-15Hp @ 208/230V | 10-20Hp @ 460V
 NEMA 12 VENT.
 INSTRUCTION BOOK: FECA-IN-106

DRN. BY: R. MONTES
 DATE: 11/29/19
 REV. REV. DATE REV. BY:
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DWG. NO.: R0A700267
 SHT. 1 OF 1

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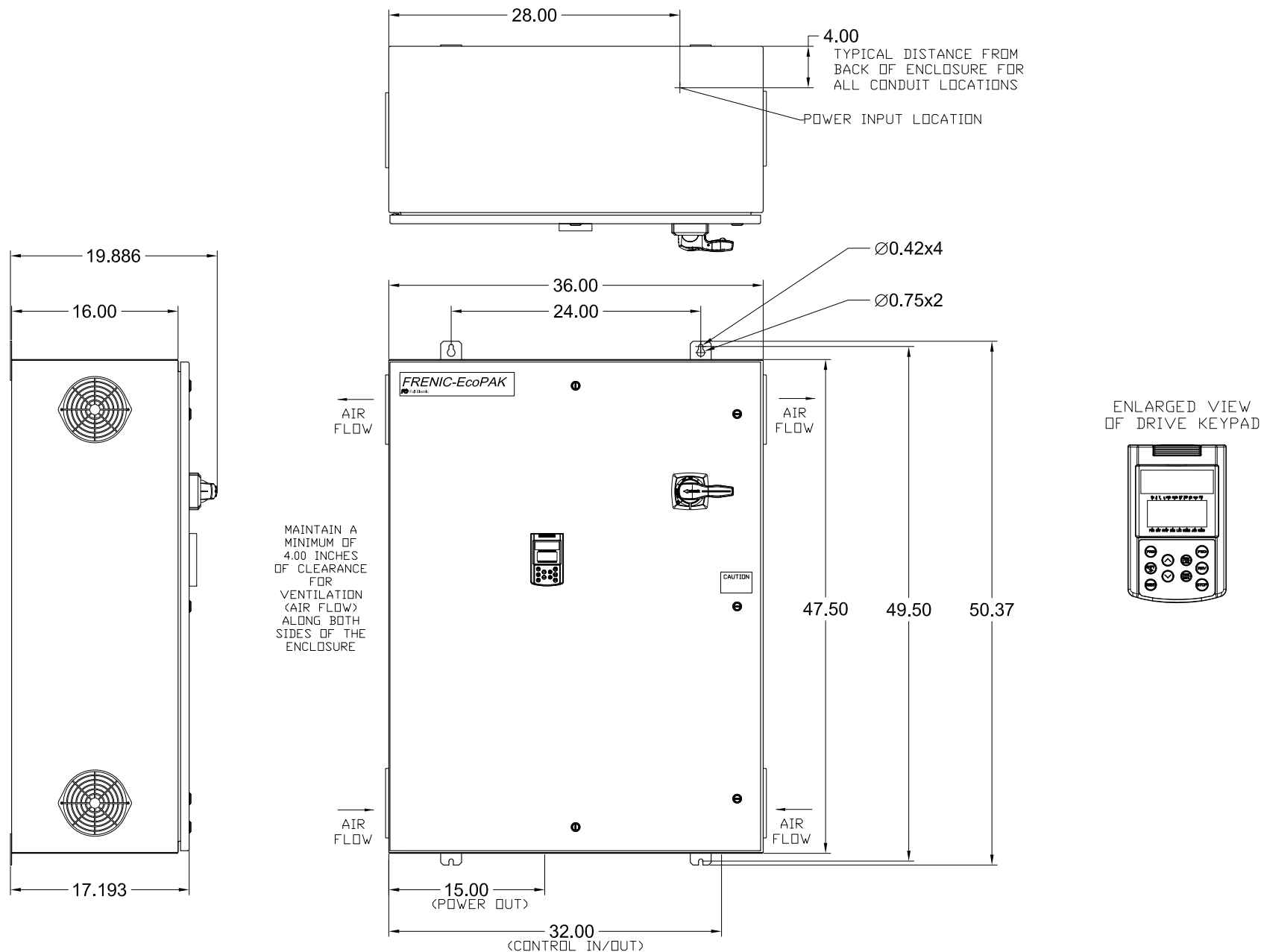


DESCRIPTION: FRENIC-EcoPAK - NON-BYPASS
20-25Hp @ 208/230V | 25-40Hp @ 460V
NEMA 12 VENT.
INSTRUCTION BOOK: FECA-IN-106

DRN. BY: R. MONTES
DATE: 11/29/19
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DWG. NO.: R0A700268
SHT. 1 OF 1

DIMENSIONS PROVIDED FOR ESTIMATING PURPOSES ONLY



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DESCRIPTION: FRENIC-EcoPAK - NON-BYPASS
30Hp @ 208/230V | 50-75Hp @ 460V
NEMA 12 VENT.
INSTRUCTION BOOK: FECA-IN-106

DRN. BY: R. MONTES
DATE: 11/29/19
REV. REV. DATE REV. BY:
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DWG. NO.: R0A700269
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 15.89	116	207
3	32.88 x 24.00 x 15.89	116	252
5	32.88 x 24.00 x 15.89	120	339
7.5	32.88 x 24.00 x 15.89	126	510
10	32.88 x 24.00 x 15.89	132	633
15	32.88 x 24.00 x 15.89	135	807
20	44.87 x 30.00 x 15.89	161	1100
25	44.87 x 30.00 x 15.89	178	1211
30	50.37 x 36.00 x 19.89	202	1439
40	50.37 x 36.00 x 19.89	394	1878
50	75.50 x 36.00 x 21.83	638	1860
60	93.21 x 48.06 x 28.00	1156	2399
460VAC, 60Hz, 3PH, NEMA 12 Ventilated			
2	32.88 x 24.00 x 15.89	116	178
3	32.88 x 24.00 x 15.89	116	236
5	32.88 x 24.00 x 15.89	116	375
7.5	32.88 x 24.00 x 15.89	119	403
10	32.88 x 24.00 x 15.89	126	609
15	32.88 x 24.00 x 15.89	126	727
20	32.88 x 24.00 x 15.89	138	887
25	44.87 x 30.00 x 15.89	201	1028
30	44.87 x 30.00 x 15.89	202	1160
40	44.87 x 30.00 x 15.89	217	1264
50	50.37 x 36.00 x 19.89	312	1763
60	50.37 x 36.00 x 19.89	314	2035
75	50.37 x 36.00 x 19.89	368	2109
100	75.50 x 36.00 x 21.83	652	2512
125	75.50 x 36.00 x 21.83	678	2601
150	93.21 x 48.06 x 28.00	1194	3238
200	93.21 x 48.06 x 28.00	1255	3916