

FRENIC-EcoPAK

: Ykq : ypass

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 Basic 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)
- Common Run Input
- Enable/Safety Interlock Input
- 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
- 3 Contactor Bypass configuration includes drive isolation contactor as well as drive output and bypass contactors
- Mechanically & electrically interlocked drive output and bypass contactors
- Overload relay for motor thermal protection in bypass mode
- Door mounted operator controls and indication for “Power On”, “Bypass Run” and “Motor Overload” (during bypass mode)
- Bypass Run Status Output
- UL/cUL Listed

Basic 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	Class 20 Protection (electromechanical/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: 0 to 10VDC or 4 to 20mA, user selectable programmable analog signal

Drawing Number Selection Matrix

NEMA 12 Ventilated Basic Bypass

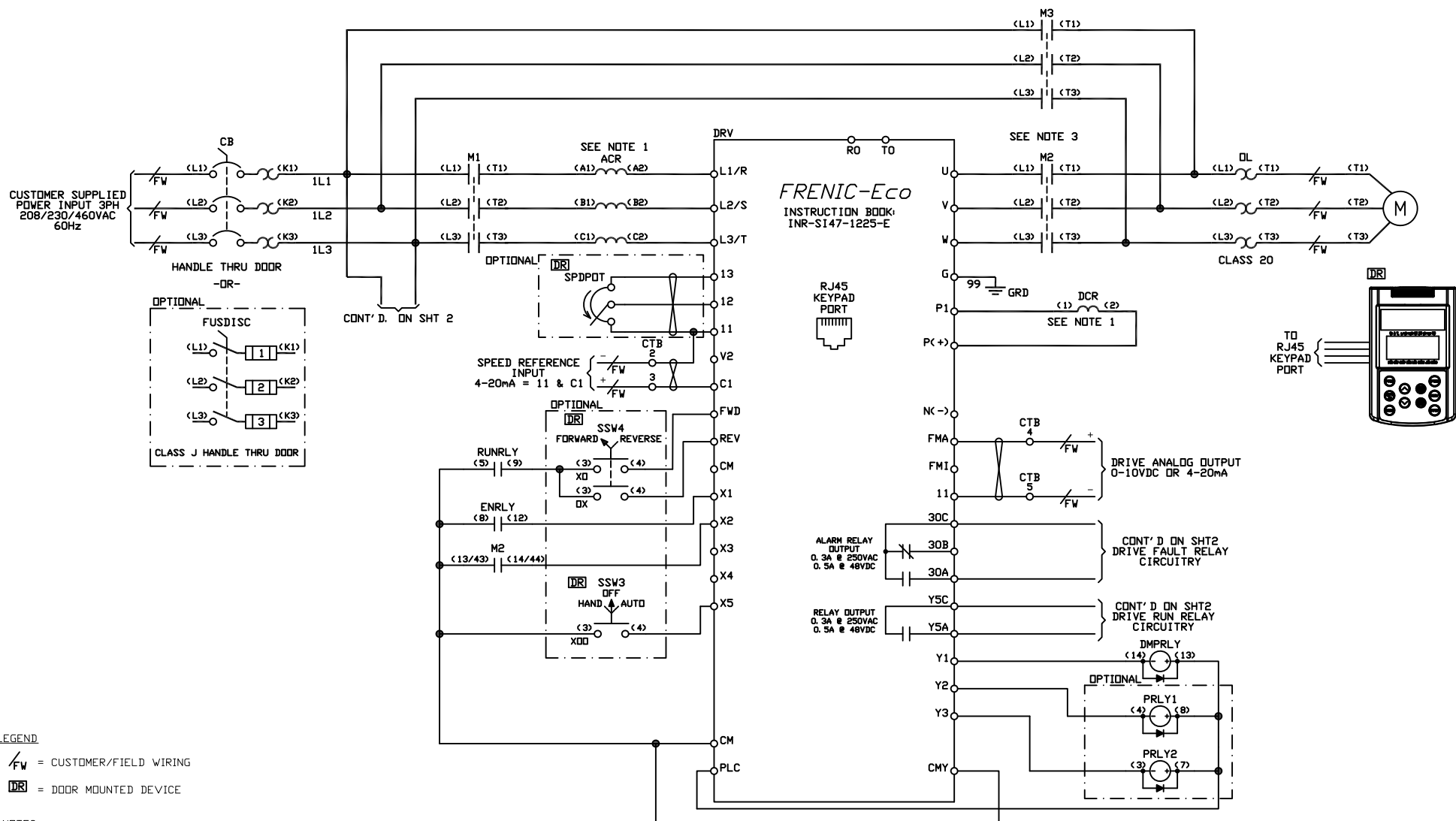
208/230V

HP	Current (A)	Electrical Drawing	Outline Drawing
2	7.5	ROA700271	ROA700262
3	10.6	ROA700271	ROA700262
5	16.7	ROA700271	ROA700262
7.5	24.2	ROA700271	ROA700263
10	30.8	ROA700271	ROA700263
15	46.2	ROA700271	ROA700263
20	59.4	ROA700271	ROA700264
25	74.8	ROA700271	ROA700264
30	88	ROA700271	ROA700265
40	114	ROA700271	ROA700254
50	143	ROA700271	ROA700254
60	169	ROA700271	ROA700255

460V

HP	Current (A)	Electrical Drawing	Outline Drawing
2	3.4	ROA700271	ROA700262
3	4.8	ROA700271	ROA700262
5	7.6	ROA700271	ROA700262
7.5	11	ROA700271	ROA700262
10	14	ROA700271	ROA700263
15	21	ROA700271	ROA700263
20	27	ROA700271	ROA700263
25	34	ROA700271	ROA700264
30	40	ROA700271	ROA700264
40	52	ROA700271	ROA700264
50	65	ROA700271	ROA700265
60	77	ROA700271	ROA700265
75	96	ROA700271	ROA700265
100	124	ROA700271	ROA700254
125	156	ROA700271	ROA700254
150	180	ROA700271	ROA700255
200	240	ROA700271	ROA700255

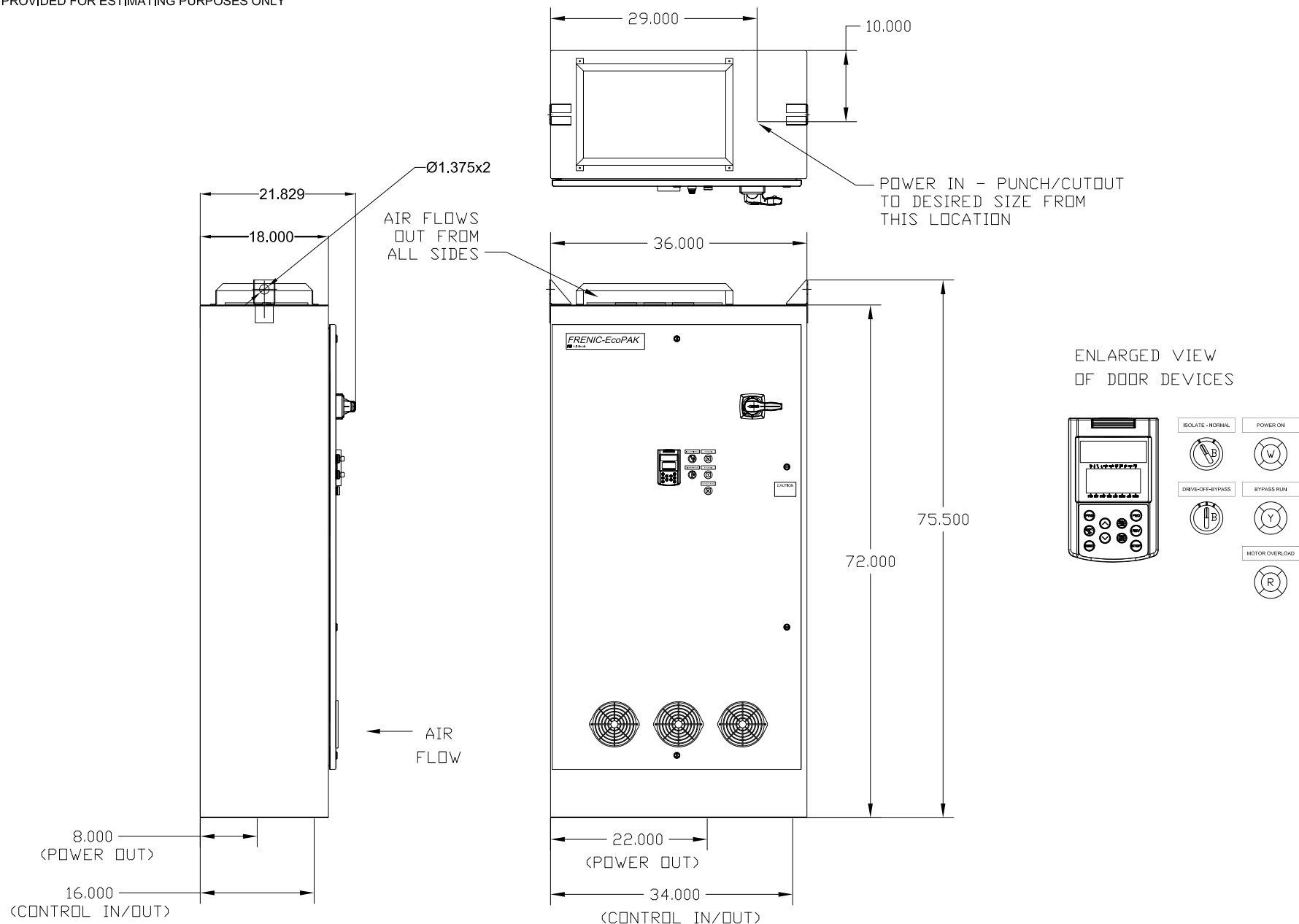
Note: The electrical drawing contains two sheets, be sure to include both sheets for submittal.



FRENIC-EcoPAK, NEMA 12 Ventilated Basic 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		Low Z AC Line Reactor		High Z 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	9.5	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	12.6	20	65k	65k	30	20	200k	100k	See High Z AC Line Reactor				LR3 24-6/16	16A/1.38mH
5	16.7	18.7	30	65k	65k	30	30	200k	100k	See High Z AC Line Reactor				LR3 24-6/20	20A/1.1mH
7.5	24.2	27	40	65k	65k	60	45	200k	100k	See High Z AC Line Reactor				LR3 24-6/30	30A/.74mH
10	30.8	33	50	65k	65k	60	50	200k	100k	See High Z AC Line Reactor				LR3 24-6/35	35A/.63mH
15	46.2	49	80	65k	65k	100	80	200k	100k	See High Z AC Line Reactor				LR3 24-6/50	50A/.44mH
20	59.4	62	100	65k	65k	100	100	200k	100k	See High Z AC Line Reactor				LR3 24-6/63	63A/.350mH
25	74.8	78	125	65k	65k	200	125	100k	100k	See High Z AC Line Reactor				LR3 24-6/80	80A/.270mH
30	88	91	150	65k	65k	200	150	100k	100k	See High Z AC Line Reactor				LR3 24-6/90	90A/.245mH
40	114	117	200	65k	65k	200	200	100k	100k	See High Z AC Line Reactor				LR3 24-6/115	115A/.193mH
50	143	147	250	65k	65k	400	225	200k	100k	See High Z AC Line Reactor				LR3 24-6/160	160A/.138mH
60	169	173	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	4.7	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	6	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	9.5	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	12	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	30	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	35k	35k	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	29	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	68	100	65k	65k	100	100	100k	100k	See Low Z AC Line Reactor		LR3 48-3/70	70A/.315mH	LR3 48-5/70	70A/.525mH
60	77	79	125	65k	65k	200	125	100k	100k	See Low Z AC Line Reactor		LR3 48-3/80	80A/.27mH	LR3 48-5/80	80A/.46mH
75	96	97	200	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	125	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	158	250	65k	65k	400	250	200k	100k	DCR4-90C	214A / 0.2mH	LR3 48-3/160	160A/.138mH	LR3 48-5/160	160A/.23mH
150	180	182	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	242	400	65k	65k	400	400	200k	100k	DCR4-132C	313A / 0.148mH	LR3 48-3/250	250A/.088mH	LR3 48-5/250	250A/.147mH

DIMENSIONS PROVIDED FOR ESTIMATING PURPOSES ONLY



NOTE:

1) INSTRUCTION BOOKS: FECA-IN-105
FOR FULLY FEATURED BYPASS &
FECA-IN-107 FOR BASIC BYPASS.

DIMENSIONS ARE IN INCHES



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

DRN. BY: R. MONTES
DATE: 11/29/19
REV. REV. DATE REV. BY:
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DWG. NO.: R0A700254
SHT. 1 OF 1

DIMENSIONS PROVIDED FOR ESTIMATING PURPOSES ONLY

AIR FLOWS
OUT FROM
ALL SIDES

25.22

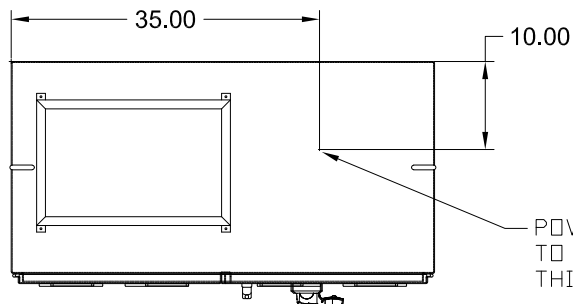
2.78
MAX

AIR
FLOW

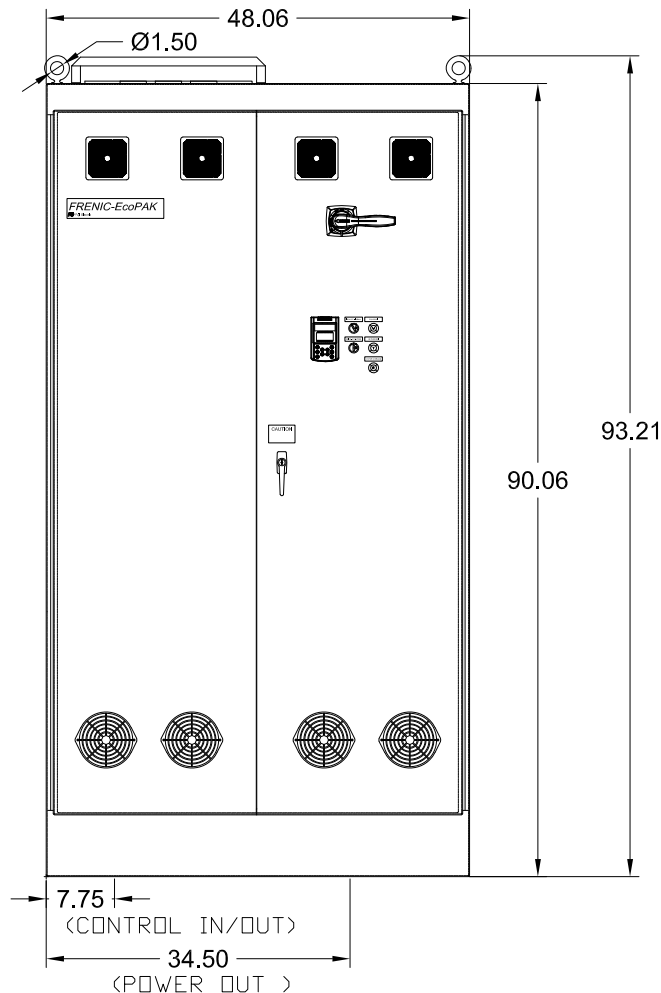
AIR
FLOW

6.00
(CONTROL IN/OUT)

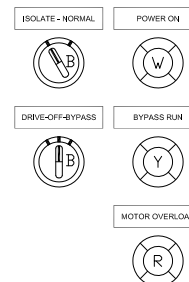
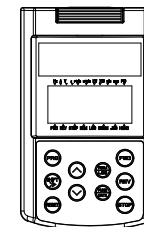
8.00
(POWER OUT)



POWER IN - PUNCH/CUTOUT
TO DESIRED SIZE FROM
THIS LOCATION



ENLARGED VIEW
OF DOOR DEVICES



NOTE:

1) INSTRUCTION BOOKS: FECA-IN-105
FOR FULLY FEATURED BYPASS &
FECA-IN-107 FOR BASIC BYPASS.

DIMENSIONS ARE IN INCHES

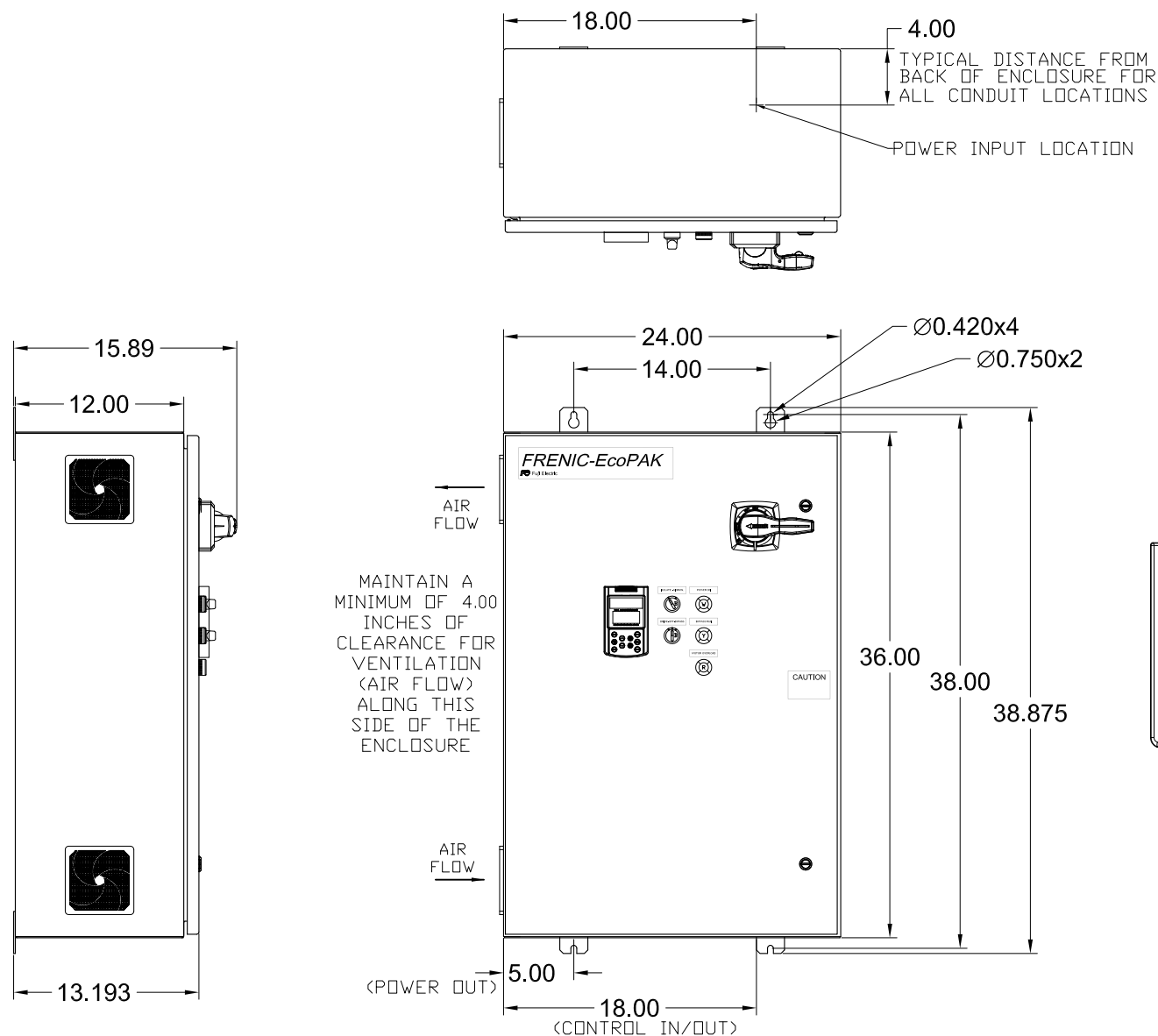


DESCRIPTION: FRENIC-EcoPAK - BYPASS
60Hp @ 208/230V | 150-200Hp @ 460V
NEMA 1/12 VENT.
INSTRUCTION BOOK: SEE NOTE 1

DRN. BY:	DATE:
R. MONTES	11/29/19
REV. 0	REV. BY:

DWG. NO. :
RD0700255
SHT. 1 OF 1

DIMENSIONS PROVIDED FOR ESTIMATING PURPOSES ONLY



NOTES:

1) INSTRUCTION BOOKS: FECA-IN-105
FOR FULLY FEATURED BYPASS &
FECA-IN-107 FOR BASIC BYPASS.

DIMENSIONS ARE IN INCHES

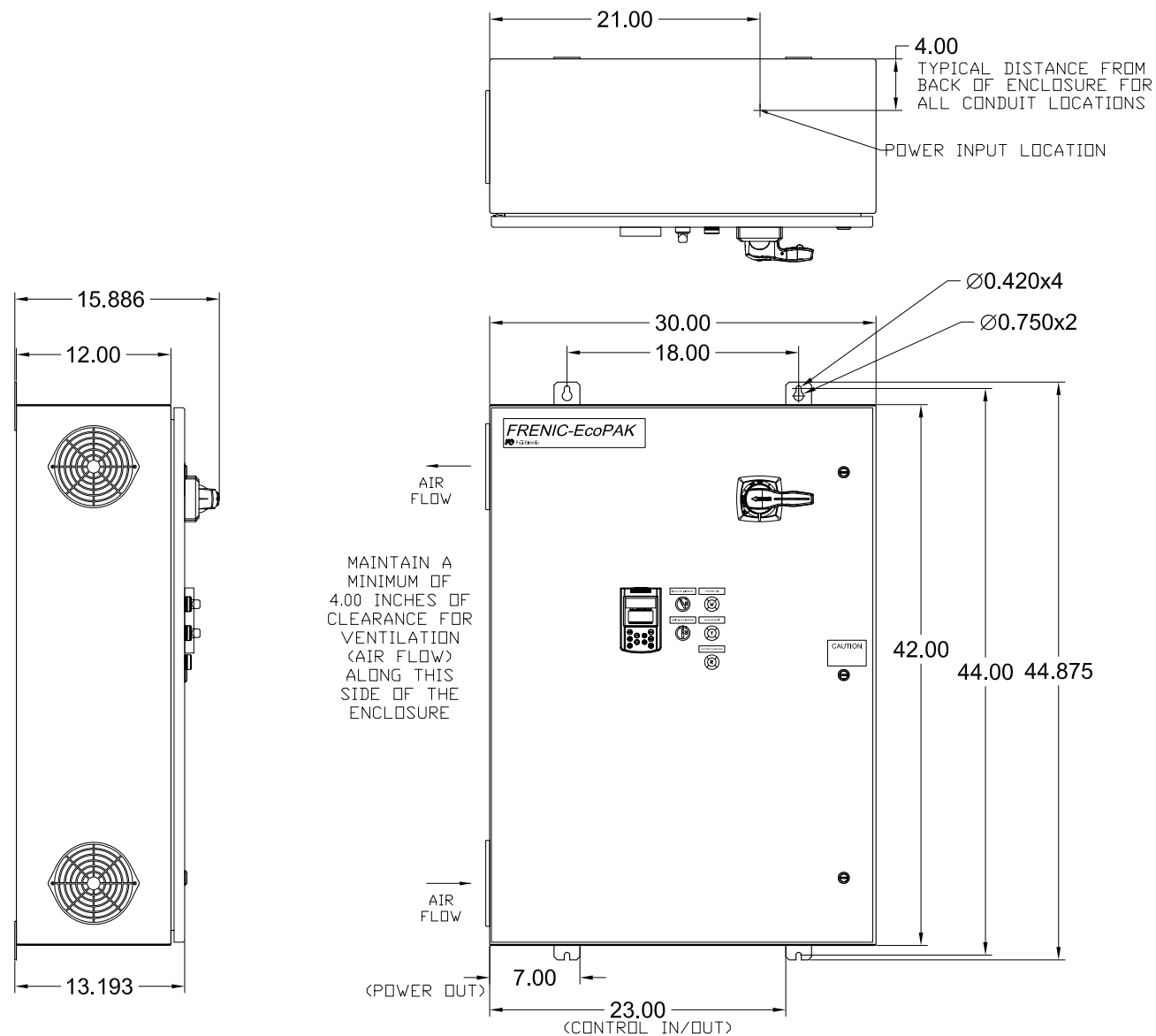


DESCRIPTION: FRENIC-EcoPAK - BYPASS
2-5Hp @ 208/230V | 2-7.5Hp @ 460V
NEMA 12 VENT.
INSTRUCTION BOOK: SEE NOTE 1

DRN. BY: R. MONTES
DATE: 11/29/19
REV. REV. DATE REV. BY:
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DWG. NO.: R0A700262
SHT. 1 OF 1

DIMENSIONS PROVIDED FOR ESTIMATING PURPOSES ONLY



NOTES:

1) INSTRUCTION BOOKS: FECA-IN-105
FOR FULLY FEATURED BYPASS &
FECA-IN-107 FOR BASIC BYPASS.

DIMENSIONS ARE IN INCHES

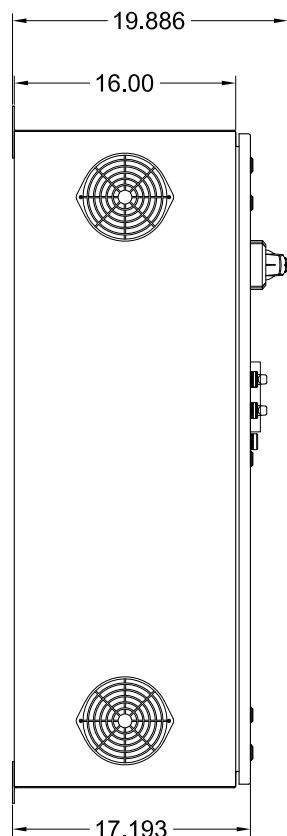
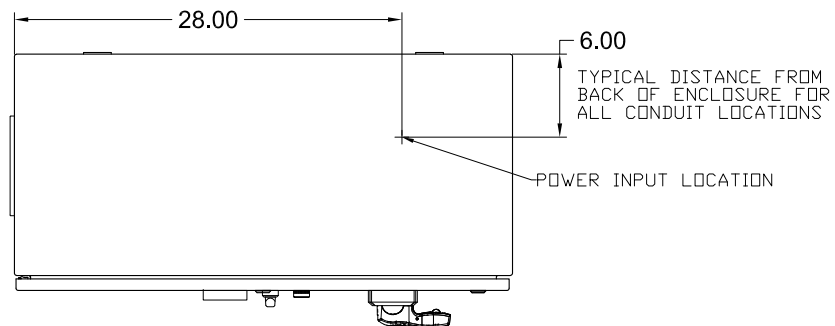


DESCRIPTION: FRENIC-EcoPAK - BYPASS 7.5-15Hp @ 208/230V 10-20Hp @ 460V NEMA 12 VENT. INSTRUCTION BOOK: SEE NOTE 1
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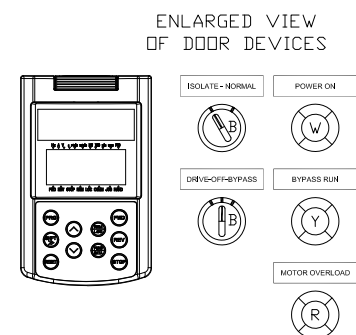
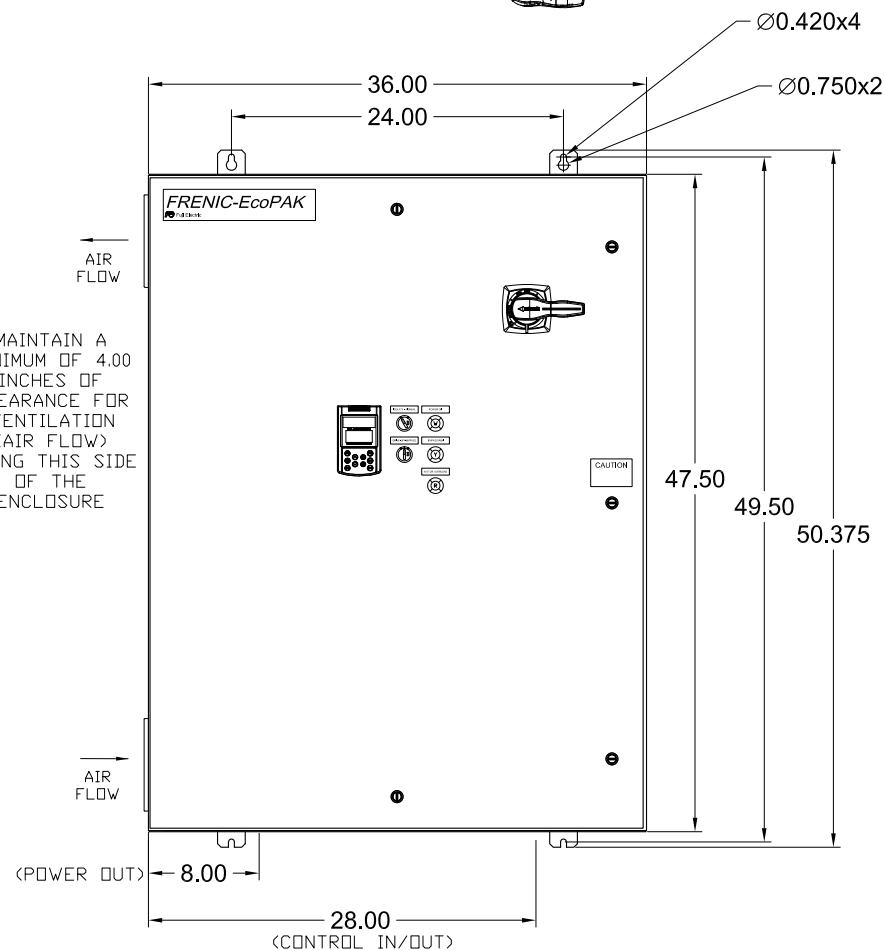
DRN. BY: R. MONTES		DATE: 11/29/19
REV. 0	REV. DATE:	REV. BY:

DWG. NO. :
R0A700263
SHT. 1 OF 1

DIMENSIONS PROVIDED FOR ESTIMATING PURPOSES ONLY



MAINTAIN A
MINIMUM OF 4.00
INCHES OF
CLEARANCE FOR
VENTILATION
(AIR FLOW)
ALONG THIS SIDE
OF THE
ENCLOSURE



NOTE:

1) INSTRUCTION BOOKS: FECA-IN-105
FOR FULLY FEATURED BYPASS &
FECA-IN-107 FOR BASIC BYPASS.

DIMENSIONS ARE IN INCHES

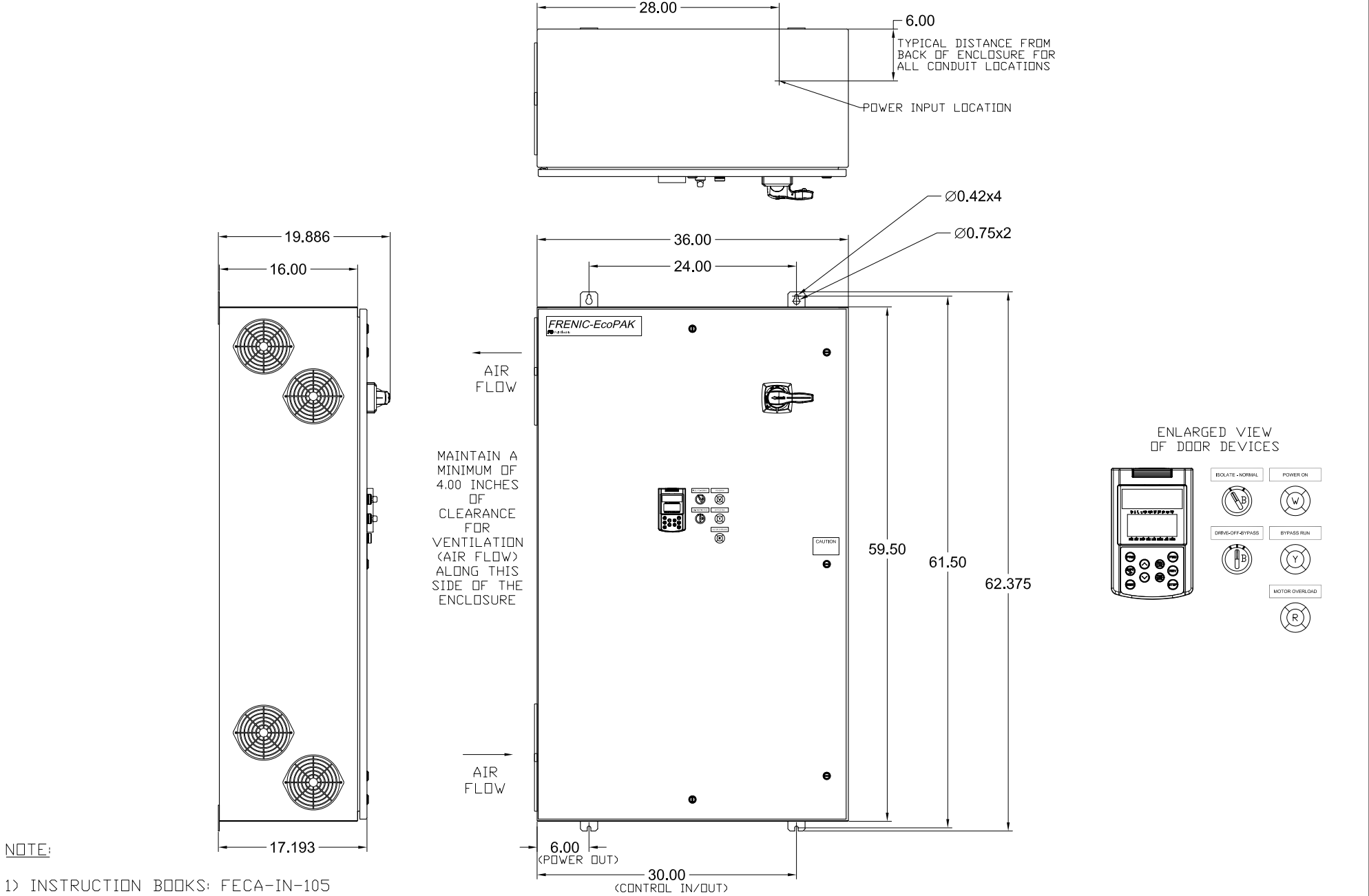


DESCRIPTION: FRENIC-EcoPAK - BYPASS 20-25Hp @ 208/230V 25-40Hp @ 460V NEMA 12 VENT. INSTRUCTION BOOK:SEE NOTE 1
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DRN. BY: R. MONTES		DATE: 11/29/19
REV. 0	REV. DATE:	REV. BY:

DWG. NO. :
R0A700264
SHT. 1 OF 1

DIMENSIONS PROVIDED FOR ESTIMATING PURPOSES ONLY



DIMENSIONS ARE IN INCHES



DESCRIPTION: FRENIC-EcoPAK - BYPASS
30Hp @ 208/230V | 50-75Hp @ 460V
NEMA 12 VENT.
INSTRUCTION BOOK: SEE NOTE 1

DRN. BY: R. MONTES
DATE: 11/29/19
REV. REV. DATE REV. BY:
0

DWG. NO.: R0A700265
SHT. 1 OF 1

FRENIC-EcoPAK, Basic 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	38.87 x 24.00 x 15.19	142	229
3	38.87 x 24.00 x 15.19	142	276
5	38.87 x 24.00 x 15.19	147	361
7.5	44.87 x 30.00 x 15.19	156	548
10	44.87 x 30.00 x 15.19	161	660
15	44.87 x 30.00 x 15.19	170	877
20	50.37 x 36.00 x 19.19	278	1145
25	50.37 x 36.00 x 19.19	306	1275
30	62.37 x 36.00 x 19.19	366	1469
40	75.50 x 36.00 x 21.05	644	1934
50	75.50 x 36.00 x 21.05	694	2055
60	93.21 x 48.06 x 27.22	1156	2505
460VAC, 60Hz, 3PH, NEMA 12 Ventilated			
2	38.87 x 24.00 x 15.19	142	200
3	38.87 x 24.00 x 15.19	142	258
5	38.87 x 24.00 x 15.19	143	397
7.5	38.87 x 24.00 x 15.19	146	427
10	44.87 x 30.00 x 15.19	193	632
15	44.87 x 30.00 x 15.19	196	760
20	44.87 x 30.00 x 15.19	206	918
25	50.37 x 36.00 x 19.19	275	1074
30	50.37 x 36.00 x 19.19	281	1236
40	50.37 x 36.00 x 19.19	294	1297
50	62.37 x 36.00 x 19.19	375	1805
60	62.37 x 36.00 x 19.19	380	2090
75	62.37 x 36.00 x 19.19	439	2143
100	75.50 x 36.00 x 21.05	693	2670
125	75.50 x 36.00 x 21.05	735	2909
150	93.21 x 48.06 x 27.22	1194	3481
200	93.21 x 48.06 x 27.22	1255	4217