

FRENIC-EcoPAK

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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 Full Featured Bypass Systems

Project: _____

Architect: _____ Engineer: _____

Contractor: _____

Submitted By: _____ Date: _____

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

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
- Mechanically & electrically interlocked drive output and bypass contactors
- Class 20 overload relay for motor thermal protection in bypass mode
- Drive isolation contactor included in 3 Contactor Bypass configuration
- Control terminal strip for easy input and output control wiring
- Door mounted operator controls and indication for “Power On”, “Bypass Run” and “Motor Overload” (during bypass mode)
- Bypass Run Status Output
- UL/cUL Listed

FECA-SU-104A

Information subject to change without notice.

Fully Featured 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 4: N.O. dry contacts rated 5A @ 230V max, functionality: Drive Run, Drive Fault, Bypass Run, & Damper Control Qty 1: 0 to 10VDC or 4 to 20mA, user selectable |

Drawing Number Selection Matrix

NEMA 12 Ventilated Fully Featured Bypass

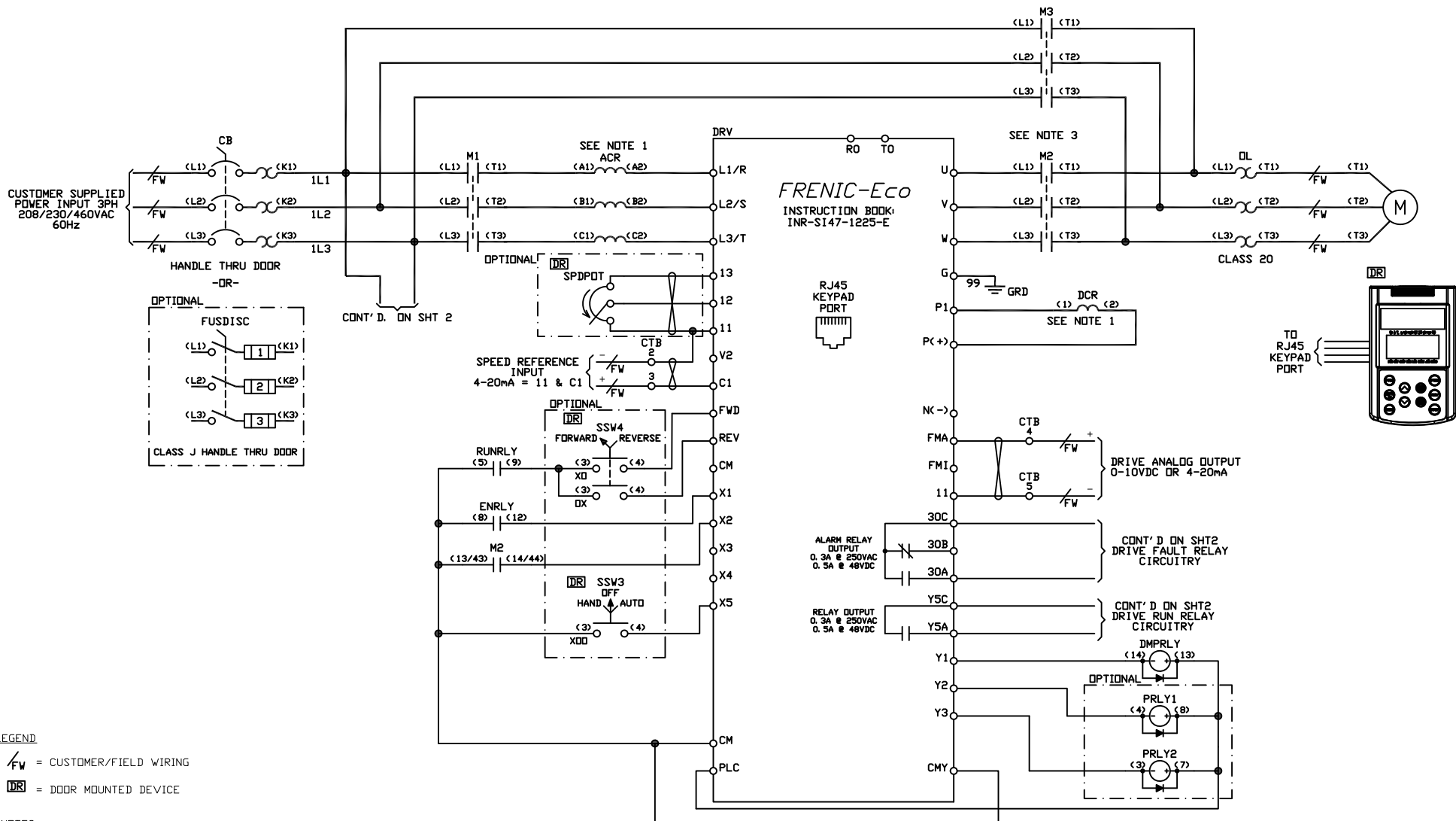
208/230V

| HP | Current (A) | Electrical Drawing | Outline Drawing |
|-----------|--------------------|---------------------------|------------------------|
| 2 | 7.5 | ROA700272 | ROA700262 |
| 3 | 10.6 | ROA700272 | ROA700262 |
| 5 | 16.7 | ROA700272 | ROA700262 |
| 7.5 | 24.2 | ROA700272 | ROA700263 |
| 10 | 30.8 | ROA700272 | ROA700263 |
| 15 | 46.2 | ROA700272 | ROA700263 |
| 20 | 59.4 | ROA700272 | ROA700264 |
| 25 | 74.8 | ROA700272 | ROA700264 |
| 30 | 88 | ROA700272 | ROA700265 |
| 40 | 114 | ROA700272 | ROA700254 |
| 50 | 143 | ROA700272 | ROA700254 |
| 60 | 169 | ROA700272 | ROA700255 |

460V

| HP | Current (A) | Electrical Drawing | Outline Drawing |
|-----------|--------------------|---------------------------|------------------------|
| 2 | 3.4 | ROA700272 | ROA700262 |
| 3 | 4.8 | ROA700272 | ROA700262 |
| 5 | 7.6 | ROA700272 | ROA700262 |
| 7.5 | 11 | ROA700272 | ROA700262 |
| 10 | 14 | ROA700272 | ROA700263 |
| 15 | 21 | ROA700272 | ROA700263 |
| 20 | 27 | ROA700272 | ROA700263 |
| 25 | 34 | ROA700272 | ROA700264 |
| 30 | 40 | ROA700272 | ROA700264 |
| 40 | 52 | ROA700272 | ROA700264 |
| 50 | 65 | ROA700272 | ROA700265 |
| 60 | 77 | ROA700272 | ROA700265 |
| 75 | 96 | ROA700272 | ROA700265 |
| 100 | 124 | ROA700272 | ROA700254 |
| 125 | 156 | ROA700272 | ROA700254 |
| 150 | 180 | ROA700272 | ROA700255 |
| 200 | 240 | ROA700272 | ROA700255 |

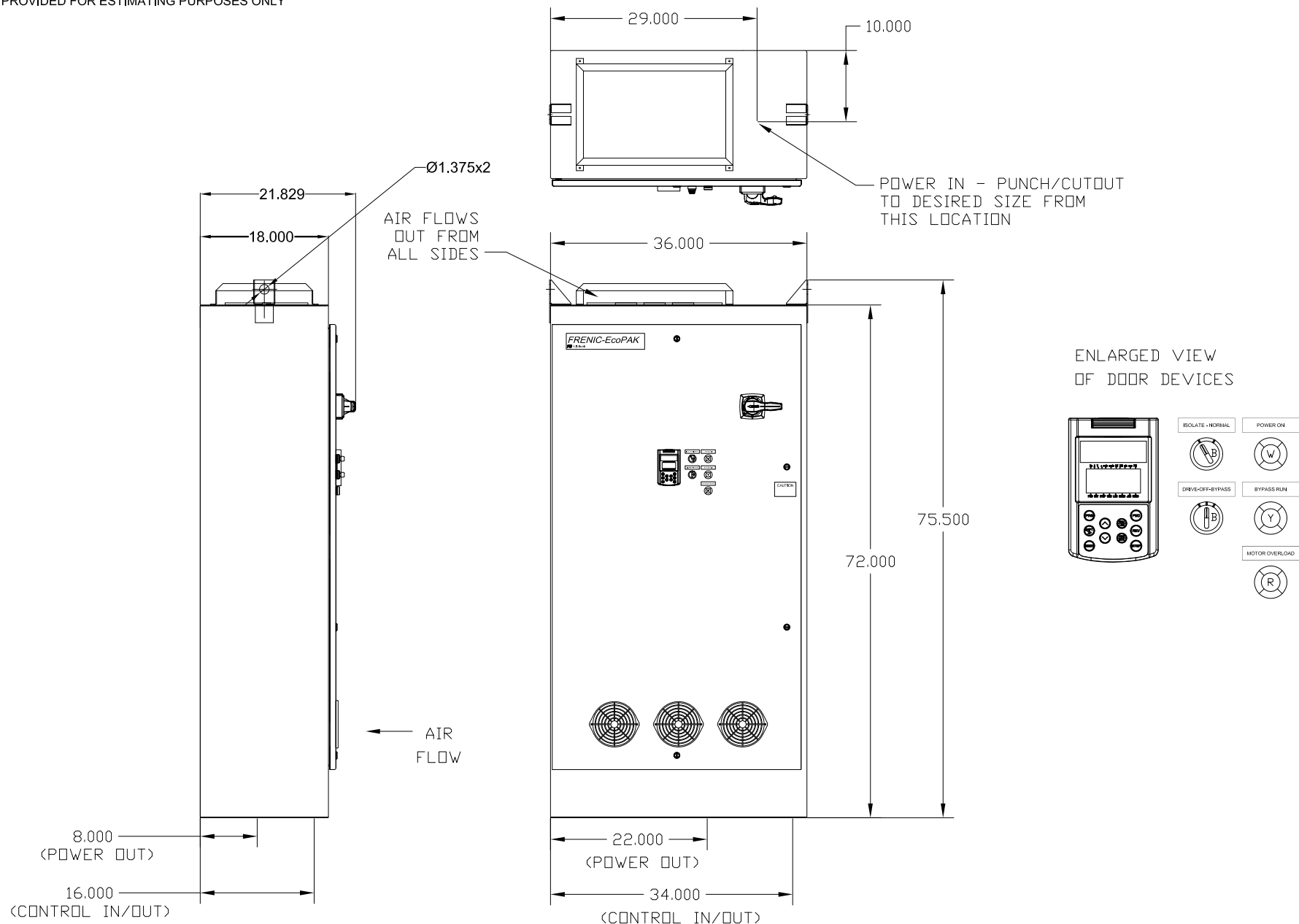
Note: The electrical drawing contains two sheets, be sure to include both sheets for submittal.



FRENIC-EcoPAK, NEMA 12 Ventilated Fully Featured 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 40-6/10 | 10A/2.2mH | |
| 3 | 10.6 | 12.6 | 20 | 65k | 65k | 30 | 20 | 200k | 100k | See High Z AC Line Reactor | | | LR3 40-6/16 | 16A/1.38mH | |
| 5 | 16.7 | 18.7 | 30 | 65k | 65k | 30 | 30 | 200k | 100k | See High Z AC Line Reactor | | | LR3 40-6/20 | 20A/1.1mH | |
| 7.5 | 24.2 | 27 | 40 | 65k | 65k | 60 | 45 | 200k | 100k | See High Z AC Line Reactor | | | LR3 40-6/30 | 30A/.74mH | |
| 10 | 30.8 | 33 | 50 | 65k | 65k | 60 | 50 | 200k | 100k | See High Z AC Line Reactor | | | LR3 40-6/35 | 35A/.63mH | |
| 15 | 46.2 | 49 | 70 | 65k | 65k | 100 | 80 | 200k | 100k | See High Z AC Line Reactor | | | LR3 40-6/50 | 50A/.44mH | |
| 20 | 59.4 | 62 | 90 | 65k | 65k | 100 | 100 | 200k | 100k | See High Z AC Line Reactor | | | LR3 40-6/63 | 63A/.350mH | |
| 25 | 74.8 | 78 | 125 | 65k | 65k | 200 | 125 | 100k | 100k | See High Z AC Line Reactor | | | LR3 40-6/80 | 80A/.270mH | |
| 30 | 88 | 91 | 150 | 65k | 65k | 200 | 150 | 100k | 100k | See High Z AC Line Reactor | | | LR3 40-6/90 | 90A/.245mH | |
| 40 | 114 | 117 | 250 | 65k | 65k | 200 | 200 | 100k | 100k | See High Z AC Line Reactor | | | LR3 40-6/115 | 115A/.193mH | |
| 50 | 143 | 147 | 300 | 65k | 65k | 400 | 225 | 200k | 100k | See High Z AC Line Reactor | | | LR3 40-6/160 | 160A/.138mH | |
| 60 | 169 | 173 | 300 | 65k | 65k | 400 | 300 | 200k | 100k | See High Z AC Line Reactor | | | LR3 40-6/180 | 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:
0

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)

35.00

10.00

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

48.06

Ø1.50

93.21

90.06

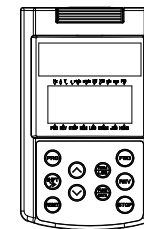
7.75

(CONTROL IN/OUT)

34.50

(POWER OUT)

ENLARGED VIEW
OF DOOR DEVICES



ISOLATE - NORMAL



POWER ON



DRIVE-OFF-BYPASS



BYPASS RUN



MOTOR OVERLOAD



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:
R. MONTES
REV. 0

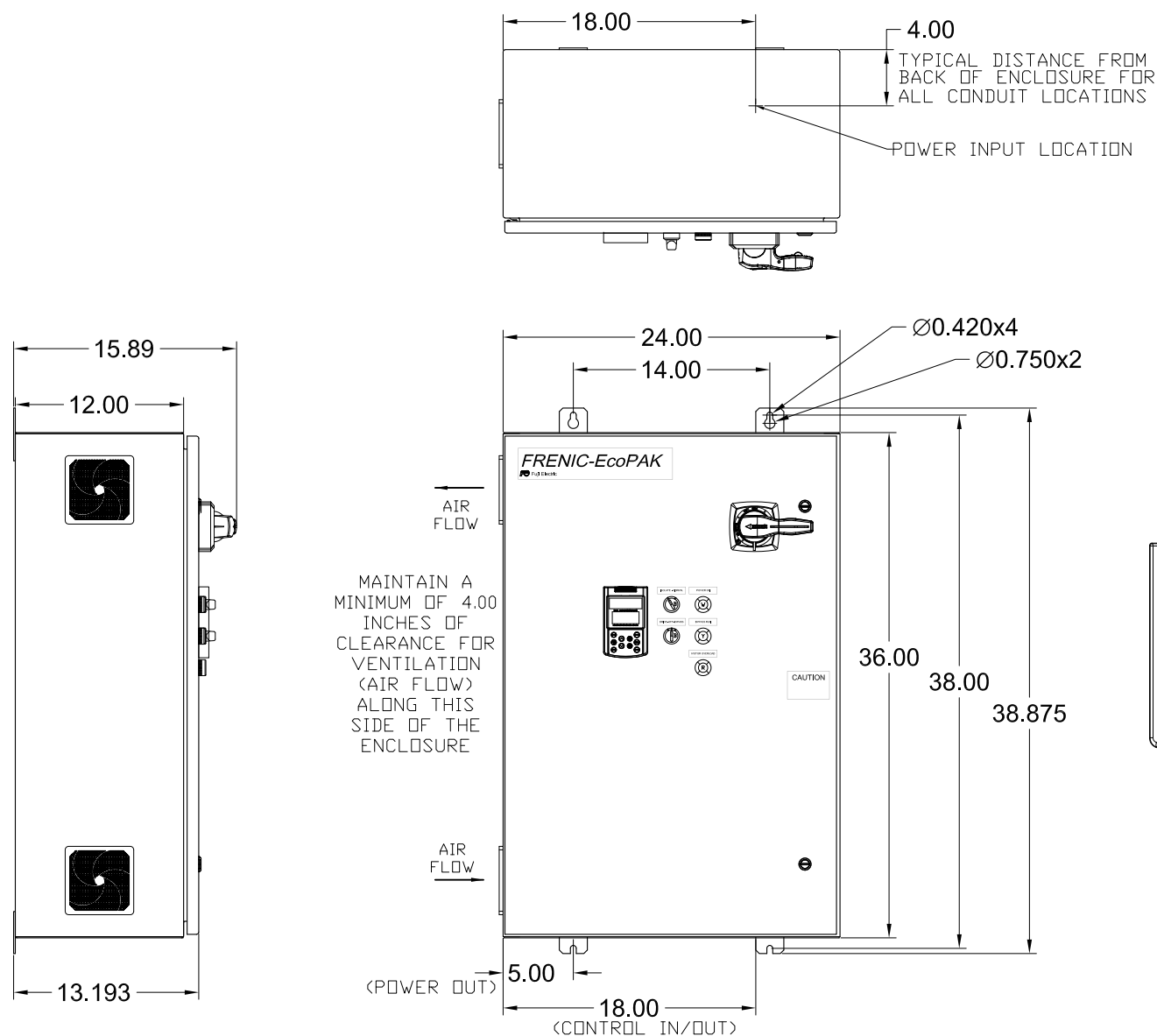
DATE:
11/29/19
REV. BY:

DWG. NO. :

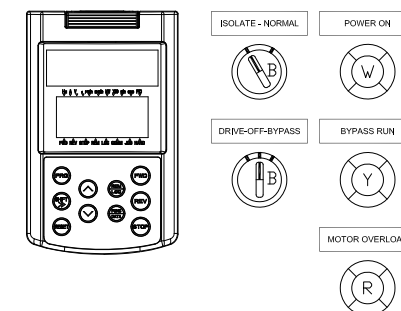
R0A700255

SHT. 1 OF 1

DIMENSIONS PROVIDED FOR ESTIMATING PURPOSES ONLY



ENLARGED VIEW OF DOOR DEVICES



NOTES:

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

DIMENSIONS ARE IN INCHES

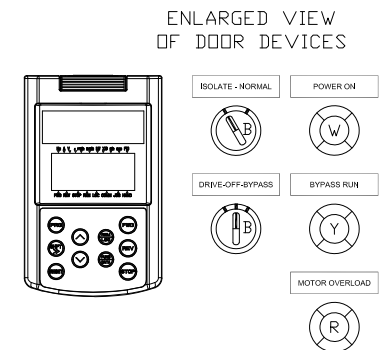
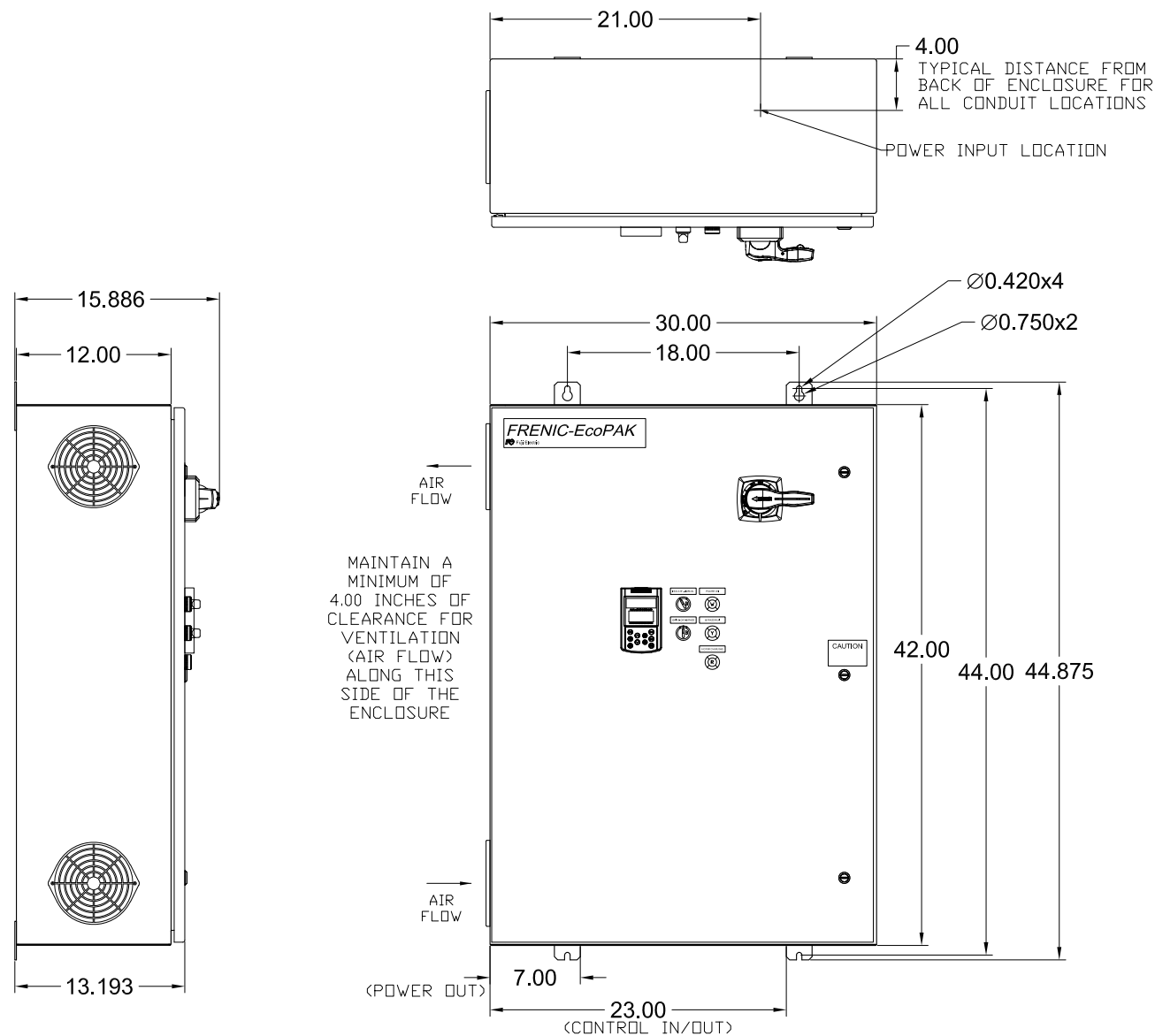


DESCRIPTION: FRENIC-EcoPAK - BYPASS
2-5Hp @ 208/230V | 2-7.5Hp @ 460V
NEMA 12 VENT.
INSTRUCTION BOOK: SEE NOTE 1

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

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

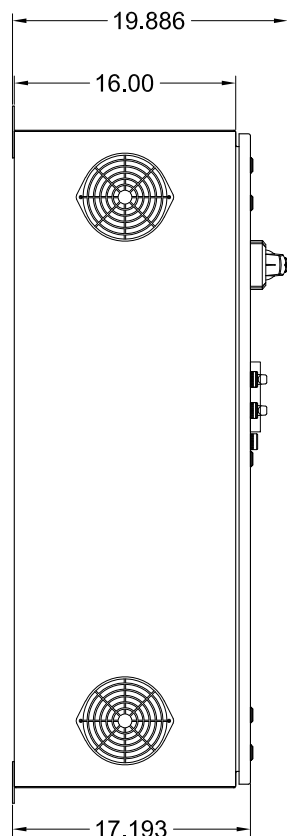
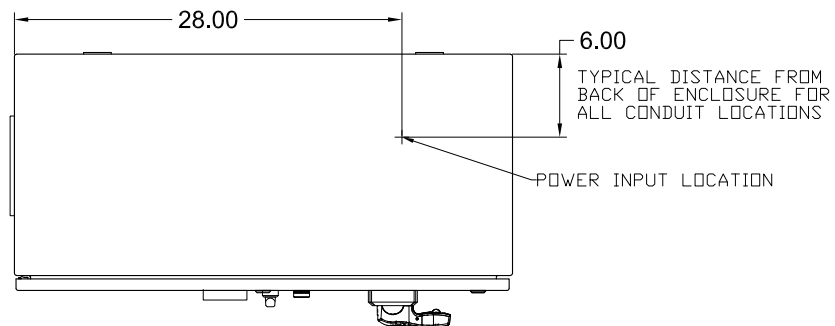


DESCRIPTION: FRENIC-EcoPAK - BYPASS
7.5-15Hp @ 208/230V | 10-20Hp @ 460V
NEMA 12 VENT.
INSTRUCTION BOOK: SEE NOTE 1

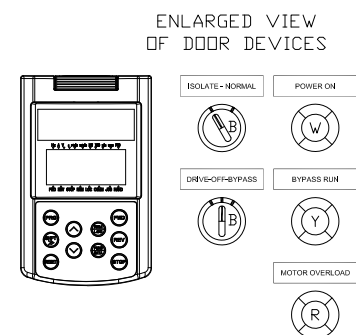
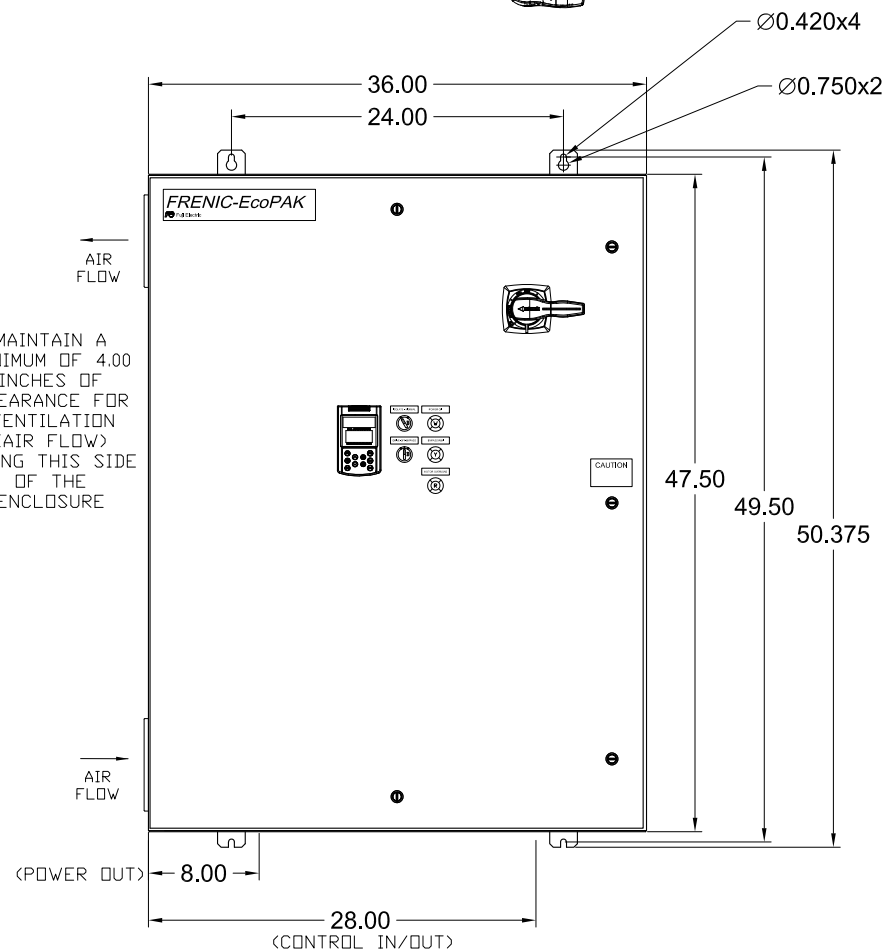
DRN. BY: R. MONTES
DATE: 11/29/19
REV. REV. DATE REV. BY:
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DWG. NO.: R0A700263
SHT. 1 OF 1

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

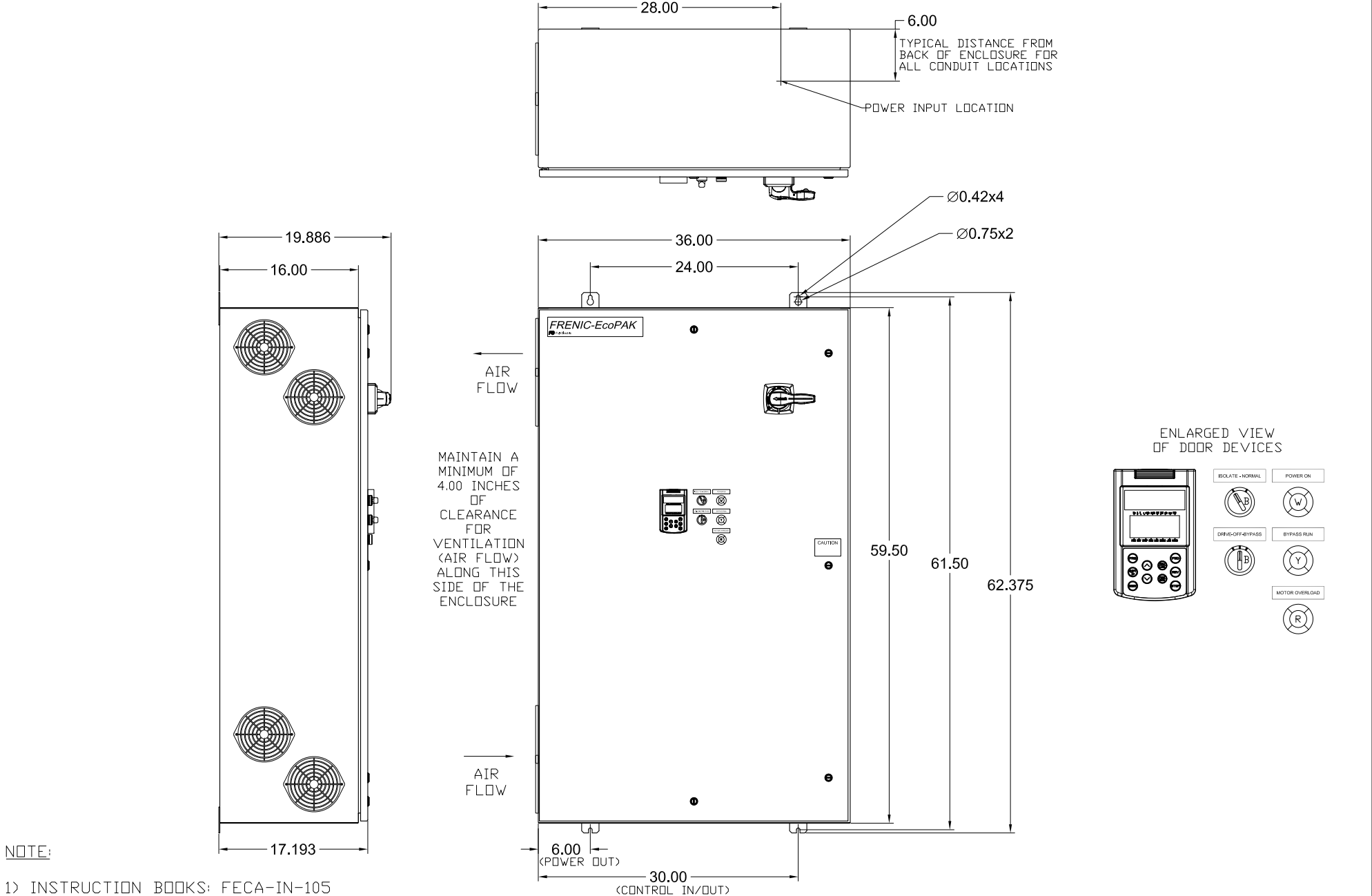


| |
|--|
| DESCRIPTION: FRENIC-EcoPAK - BYPASS 20-25Hp @ 208/230V 25-40Hp @ 460V NEMA 12 VENT. INSTRUCTION BOOK:SEE NOTE 1 |
|--|

| | | |
|-----------------------|------------|-------------------|
| 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



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
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, Fully Featured 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 15.89 | 142 | 229 |
| 3 | 38.87 x 24.00 x 15.89 | 142 | 276 |
| 5 | 38.87 x 24.00 x 15.89 | 147 | 361 |
| 7.5 | 44.87 x 30.00 x 15.89 | 156 | 548 |
| 10 | 44.87 x 30.00 x 15.89 | 161 | 660 |
| 15 | 44.87 x 30.00 x 15.89 | 170 | 877 |
| 20 | 50.37 x 36.00 x 19.89 | 278 | 1145 |
| 25 | 50.37 x 36.00 x 19.89 | 306 | 1275 |
| 30 | 62.37 x 36.00 x 19.89 | 366 | 1469 |
| 40 | 75.50 x 36.00 x 21.83 | 644 | 1934 |
| 50 | 75.50 x 36.00 x 21.83 | 694 | 2055 |
| 60 | 93.21 x 48.06 x 28.00 | 1156 | 2505 |
| 460VAC, 60Hz, 3PH, NEMA 12 Ventilated | | | |
| 2 | 38.87 x 24.00 x 15.89 | 142 | 200 |
| 3 | 38.87 x 24.00 x 15.89 | 142 | 258 |
| 5 | 38.87 x 24.00 x 15.89 | 143 | 397 |
| 7.5 | 38.87 x 24.00 x 15.89 | 146 | 427 |
| 10 | 44.87 x 30.00 x 15.89 | 193 | 632 |
| 15 | 44.87 x 30.00 x 15.89 | 196 | 760 |
| 20 | 44.87 x 30.00 x 15.89 | 206 | 918 |
| 25 | 50.37 x 36.00 x 19.89 | 275 | 1074 |
| 30 | 50.37 x 36.00 x 19.89 | 281 | 1236 |
| 40 | 50.37 x 36.00 x 19.89 | 294 | 1297 |
| 50 | 62.37 x 36.00 x 19.89 | 375 | 1805 |
| 60 | 62.37 x 36.00 x 19.89 | 380 | 2090 |
| 75 | 62.37 x 36.00 x 19.89 | 439 | 2143 |
| 100 | 75.50 x 36.00 x 21.83 | 693 | 2670 |
| 125 | 75.50 x 36.00 x 21.83 | 735 | 2909 |
| 150 | 93.21 x 48.06 x 28.00 | 1194 | 3481 |
| 200 | 93.21 x 48.06 x 28.00 | 1255 | 4217 |