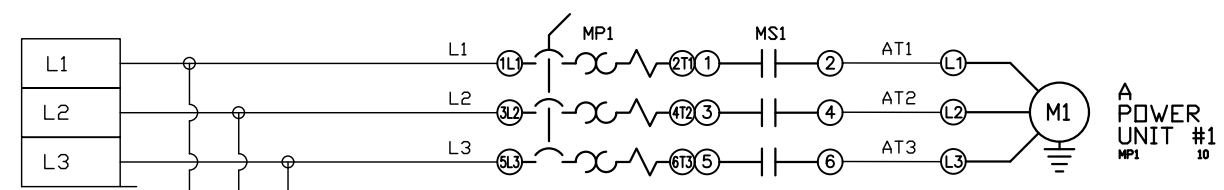


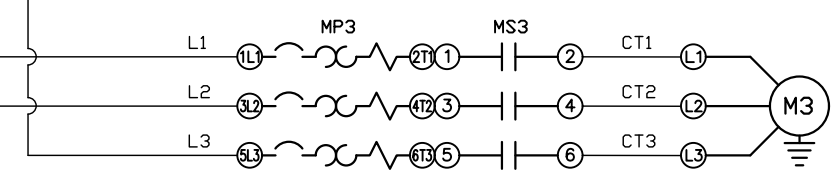
REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/25/17	PXEC0099	AKH	KMD
D-1	ADDED LUBRICATED VANE LAYOUT AND DATASHEET	10/15/18	PXEC0229	JLM	AJL



A
POWER
UNIT #1
MP1 10

FIELD FURNISHED
DISCONNECT WITH
BRANCH CIRCUIT
PROTECTION IS
REQUIRED

SEE NOTES ON
DATA TABLE PAGE



C
POWER
FAN #1
MP3 14

OPTIONAL:



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DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
AKH	KMD	AKH
01/25/17	01/25/17	01/25/17

PANEL TYPE
SIMPLEX LAB VAC ENCLOSURE
NFPA, SUB

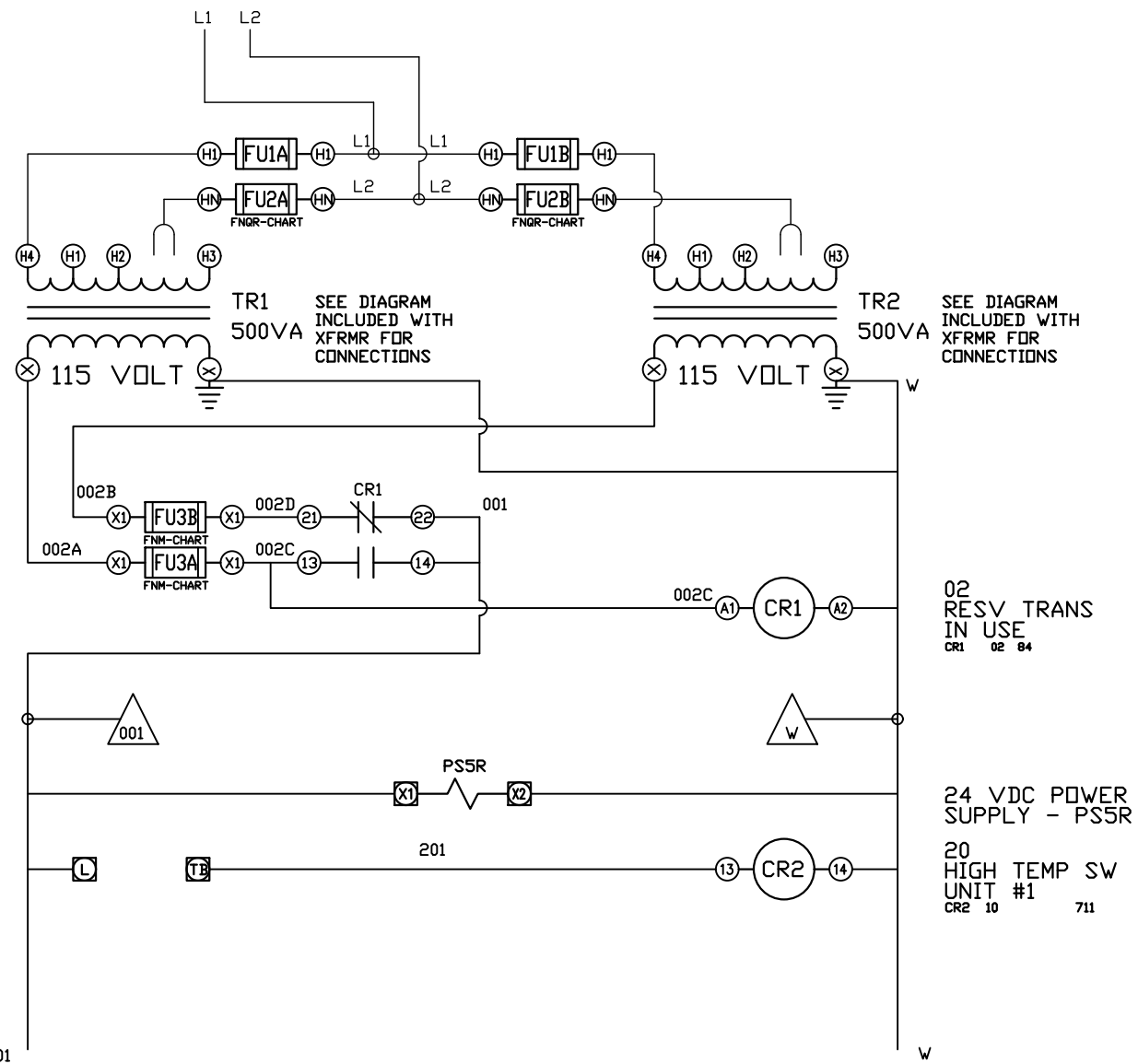
DWG. TYPE WIRING

DWG. NO.
PXMI-VELS169

SHEET	SIZE
W-1	B

L1 L2

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/25/17	PXEC0099	AKH	KMD
D-1	ADDED LUBRICATED VANE LAYOUT AND DATASHEET	10/15/18	PXEC0229	JLM	AJL



OPTIONAL:

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DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
AKH	KMD	AKH
01/25/17	01/25/17	01/25/17

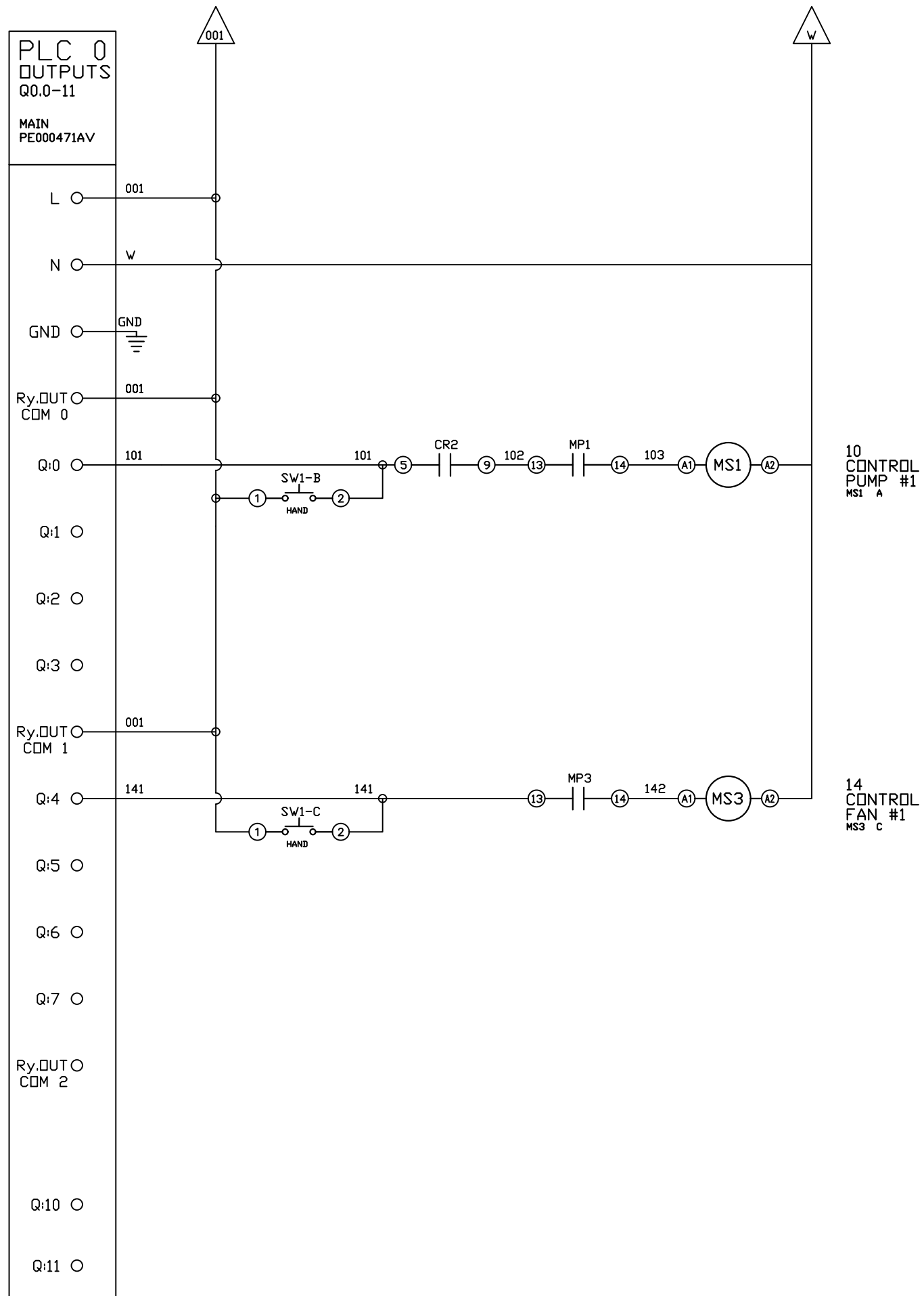
PANEL TYPE
SIMPLEX LAB VAC ENCLOSURE
NFPA, SUB

DWG. TYPE WIRING

DWG. NO.
PXMI-VELS169

SHEET	SIZE
W-2	B

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/25/17	PXEC0099	AKH	KMD
D-1	ADDED LUBRICATED VANE LAYOUT AND DATASHEET	10/15/18	PXEC0229	JLM	AJL



OPTIONAL:



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DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
AKH	KMD	AKH
01/25/17	01/25/17	01/25/17

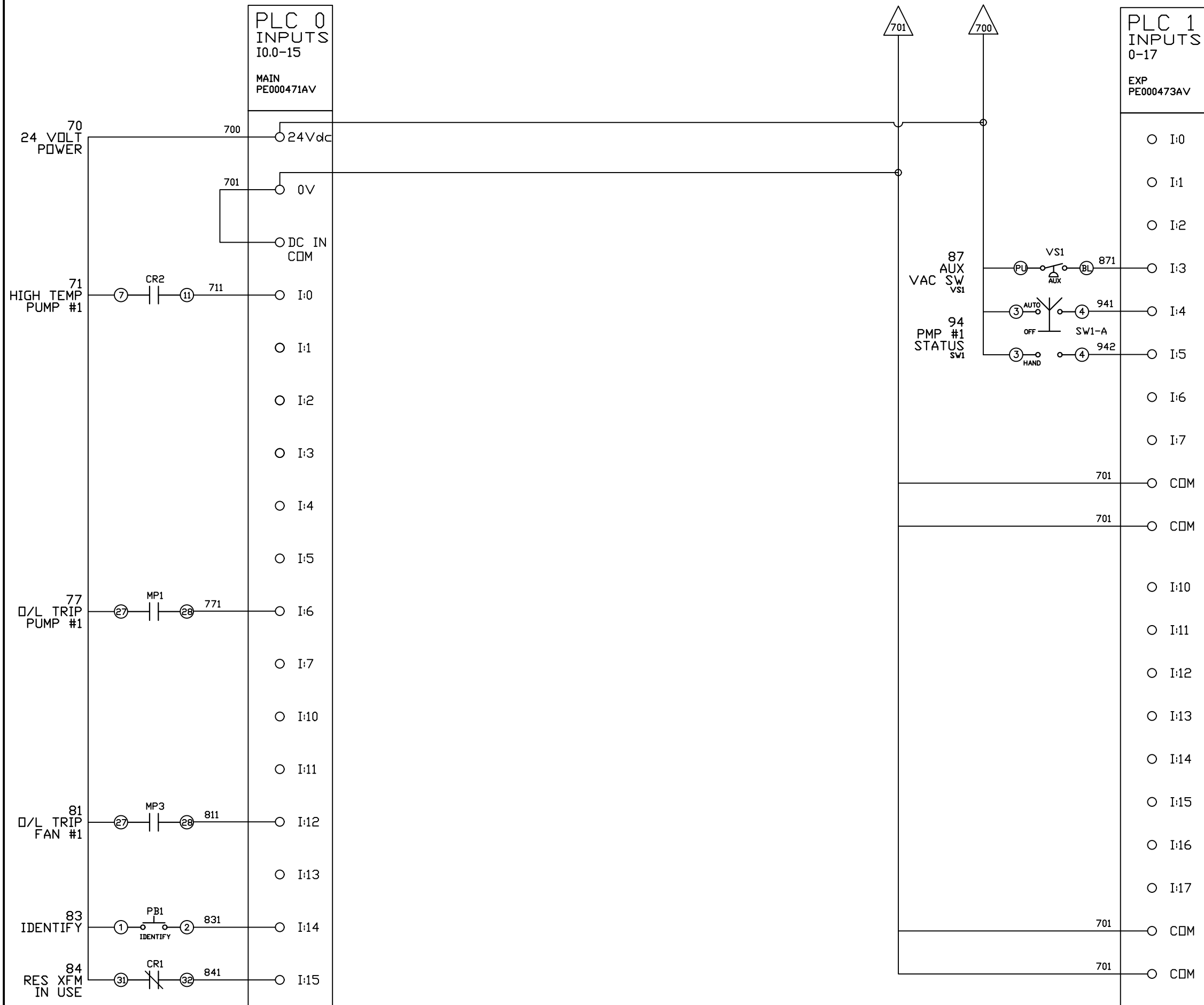
PANEL TYPE
SIMPLEX LAB VAC ENCLOSURE
NFWA, SUB

DWG. TYPE WIRING

DWG. NO.
PXMI-VELS169

SHEET W-3 SIZE B

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/25/17	PXEC0099	AKH	KMD
D-1	ADDED LUBRICATED VANE LAYOUT AND DATASHEET	10/15/18	PXEC0229	JLM	AJL



OPTIONAL:

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DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
AKH	KMD	AKH
01/25/15	01/25/17	01/25/17

PANEL TYPE
SIMPLEX LAB VAC ENCLOSURE
NFPA, SUB

DWG. TYPE WIRING

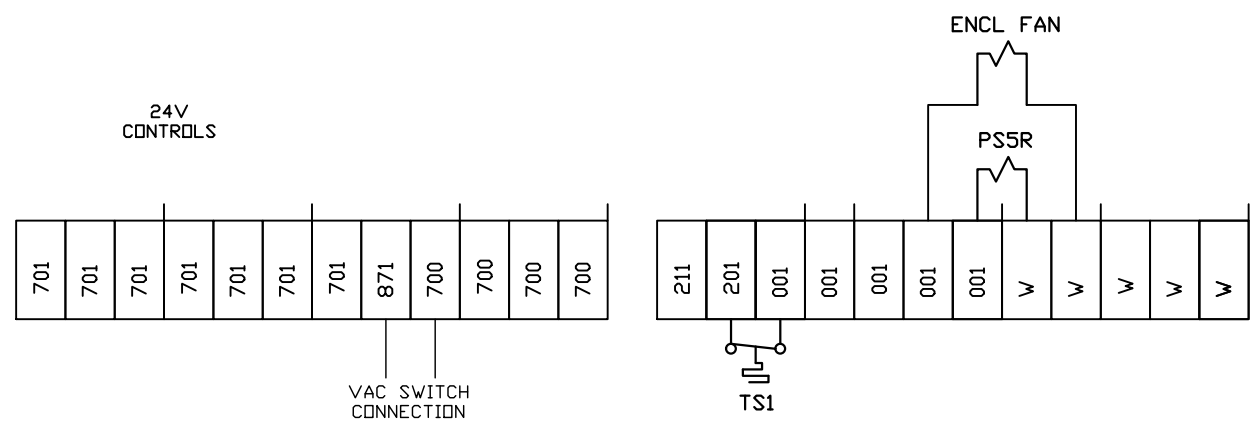
DWG. NO.
PXMI-VELS169

SHEET
W-4

SIZE
B

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/25/17	PXEC0099	AKH	KMD
D-1	ADDED LUBRICATED VANE LAYOUT AND DATASHEET	10/15/18	PXEC0229	JLM	AJL

TERMINAL BLOCKS



FIELD WIRING NOTES:

- PANEL GROUND MUST BE CONNECTED TO EARTH GROUND
- TRANSFORMER IS SIZED FOR LOADS SHOWN ON DRAWING ONLY.
- FIELD WIRING INDICATED BY -----, WIRE TO BE COPPER RATED AT 75° C.
- ALL ALARM DRY CONTACTS ARE CLOSED FOR NORMAL OPERATION AND OPEN IN ALARM.
- DRY CONTACT RATING: 30V DC/2A (resistive load, inductive load L/R = 7 ms)
- USE CAT-5 CABLE W/RJ45 CONNECTOR FOR ETHERNET CONNECTION TO COMMUNICATION NETWORK OR BAS SYSTEM

OPTIONAL:

CONFIDENTIAL DISCLOSURE:
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DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
AKH	KMD	AKH
01/25/17	01/25/17	01/25/17

PANEL TYPE
SIMPLEX LAB VAC ENCLOSURE
NFPA, SUB

DWG. TYPE WIRING

DWG. NO.
PXMI-VELS169

SHEET	SIZE
W-5	B

TABLE 1

PANEL DATA 3 ϕ - 50/60 Hz 500VA CONTROL CIRCUIT						(B) BRANCH CIRCUIT PROTECTION - PROVIDED BY INSTALLER		
PANEL PART NUMBER	MOTOR SIZE EACH	POWER (V/PH)	PUMP MOTOR LOAD EACH (FLA)	FAN MOTOR LOAD EACH (FLA)	PANEL LOAD TOTAL (FLA)	NON-TIME	TIME-DELAY	INVERSE-TIME
						DELAY FUSE	FUSE	CIRCUIT BREAKER
PBMIVELS16952CR 5	208V/3 ϕ	13.0	1.2	16.2	45A	30A	40A	
PBMIVELS16972CR 7.5	208V/3 ϕ	19.0	1.2	22.2	70A	40A	60A	
PBMIVELS169A2CR 10	208V/3 ϕ	25.0	1.2	28.2	90A	50A	70A	
PBMIVELS169F2CR 15	208V/3 ϕ	37.5	1.2	40.7	120A	70A	100A	
PBMIVELS16953CR 5	230V/3 ϕ	12.0	1.4	15.4	40A	25A	35A	
PBMIVELS16973CR 7.5	230V/3 ϕ	18.0	1.4	21.4	60A	35A	50A	
PBMIVELS169A3CR 10	230V/3 ϕ	23.0	1.4	26.4	80A	45A	70A	
PBMIVELS169F3CR 15	230V/3 ϕ	35.0	1.4	38.4	125A	70A	100A	
PBMIVELS16954CR 5	460V/3 ϕ	6.0	0.7	8.7	25A	15A	20A	
PBMIVELS16974CR 7.5	460V/3 ϕ	9.0	0.7	11.7	30A	20A	30A	
PBMIVELS169A4CR 10	460V/3 ϕ	11.5	0.7	14.2	40A	25A	35A	
PBMIVELS169F4CR 15	460V/3 ϕ	17.5	0.7	20.2	60A	35A	50A	

NOTE- ADJUST OVERCURRENT PROTECTION DEVICE NOT TO EXCEED
115% OF MOTOR NAMEPLATE FLA VALUE

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/25/17	PXEC0099	AKH	KMD
D-1	ADDED LUBRICATED VANE LAYOUT AND DATASHEET	10/15/18	PXEC0229	JLM	AJL

NOTES:

- RECOMMENDED TIGHTENING TORQUES FOR WIRE TERMINALS:
208-575 VOLT POWER 35 POUND INCHES
120 VOLT POWER AND CONTROL VOLTAGE 15 POUND INCHES
- PANEL GROUND MUST BE CONNECTED TO EARTH GROUND
- INSTALLER TO PROVIDE MAIN DISCONNECTING DEVICE WITH SHORT CIRCUIT PROTECTION FOR THIS ELECTRICAL ASSEMBLY. SEE TABLE 1-B/R ON DATA TABLE PAGE FOR REQUIREMENTS.
- ALL WIRES MUST BE LABELED ON BOTH ENDS
- TRANSFORMER IS SIZED FOR LOADS SHOWN ON DRAWING ONLY. DO NOT CONNECT ANY OTHER DEVICES
- Δ -INDICATES A DRAWING WIRE CONNECTION TO ANOTHER PAGE. FIELD WIRING NOTES ON PAGE W-6

SEQUENCE OF OPERATIONS

During normal operation the PBMI controller will signal the Lead pump to run when vacuum drops to lead cut-in set-point and run for a 10-minute minimum period before stopping when the vacuum reaches the lead cut-out set-point. Lead alternation to the next pump, will occur every 24 Hours. If demand cannot be satisfied by the lead pump, the lag pump(s) will start and stop based upon the lag cut-in and cut-out set-points. The HOA switch's place the pump in the following modes: Hand-turns pump on to run continuous. Off-disables pump from running. Auto-places pump in the "ready mode" and will start and stop based on sequence described above.

Expandable systems include all control devices, operators, and programming for the maximum number of pumps (or plex) required. To expand the system: navigate to the "service screen" and enter the number of pumps.


Additional information and descriptions can be accessed through the HMI "service info" screen by pressing Sequence of Operations button.

CONTROL TRANSFORMERS - 500VA					
FUSE		208	230	460	575
TYPE		VOLT	VOLT	380 VOLT	VOLT
FU1,2A FU1,2B	FNQR	6A	5A	5A	4A
FU3A,B	FNM	7A	7A	7A	7A

SEE XFRMR FOR CONNECTIONS

WIRE TYPE TABLE			
VOLTAGE	WIRE NUMBERS	GAUGE	COLOR
120VAC	001-599	16-18AWG	RED/BLK
0VAC	W	16-18AWG	WHT/BLK
24VDC	600-999	16-18AWG	PURPLE
0VDC	701	16-18AWG	PURPLE
GND	-	VARIES	GREEN
CUSTOMER SUPPLY	01-99	16-18AWG	YELLOW

OPTIONAL:



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DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
AKH	KMD	AKH
01/25/17	01/25/17	01/25/17

PANEL TYPE
RIETSCHLE CLAW VAC
3PH SIMPLEX PANEL DATA

DWG. TYPE DATA

DWG. NO. PXMI-VELS169

SHEET D-1 SIZE B

TABLE 1

PANEL DATA 3 ϕ - 50/60 Hz 500VA CONTROL CIRCUIT								
PANEL PART NUMBER	MOTOR SIZE EACH	POWER (V/PH)	PUMP MOTOR LOAD EACH (FLA)	FAN MOTOR LOAD EACH (FLA)	PANEL LOAD TOTAL (FLA)	(B) BRANCH CIRCUIT PROTECTION - PROVIDED BY INSTALLER		
						NON-TIME DELAY FUSE	TIME-DELAY FUSE	INVERSE-TIME CIRCUIT BREAKER
PBMIVELS16942AJ 4	208V/3 ϕ	15.2	1.2	18.4	60A	35A	45A	
PBMIVELS16952AJ 5	208V/3 ϕ	15.2	1.2	18.4	60A	35A	45A	
PBMIVELS16972AJ 7.5	208V/3 ϕ	22.2	1.2	25.4	80A	45A	70A	
PBMIVELS169A2AJ 10	208V/3 ϕ	29.5	1.2	32.7	100A	60A	80A	
PBMIVELS16943AJ 4	230V/3 ϕ	13.0	1.4	16.4	50A	30A	40A	
PBMIVELS16953AJ 5	230V/3 ϕ	13.0	1.4	16.4	50A	30A	40A	
PBMIVELS16973AJ 7.5	230V/3 ϕ	20.0	1.4	23.4	70A	40A	60A	
PBMIVELS169A3AJ 10	230V/3 ϕ	26.0	1.4	29.4	90A	50A	80A	
PBMIVELS16944AJ 4	460V/3 ϕ	6.5	0.7	9.2	25A	15A	20A	
PBMIVELS16954AJ 5	460V/3 ϕ	6.5	0.7	9.2	25A	15A	20A	
PBMIVELS16974AJ 7.5	460V/3 ϕ	10.0	0.7	12.7	35A	25A	30A	
PBMIVELS169A4AJ 10	460V/3 ϕ	13.0	0.7	15.7	45A	30A	40A	

NOTE- ADJUST OVERCURRENT PROTECTION DEVICE NOT TO EXCEED 115% OF MOTOR NAMEPLATE FLA VALUE

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/25/17	PXEC0099	AKH	KMD
D-1	ADDED LUBRICATED VANE LAYOUT AND DATASHEET	10/15/18	PXEC0229	JLM	AJL

CONTROL TRANSFORMERS - 500VA					
FUSE TYPE		208 VOLT	230 VOLT	460/380 VOLT	575 VOLT
FU1,2A FU1,2B	FNQR	6A	5A	5A	4A
FU3A,B	FNM	7A	7A	7A	7A

SEE XFMR FOR CONNECTIONS

WIRE TYPE TABLE			
VOLTAGE	WIRE NUMBERS	GAUGE	COLOR
120VAC	001-599	16-18AWG	RED/BLK
0VAC	W	16-18AWG	WHT/BLK
24VDC	600-999	16-18AWG	PURPLE
0VDC	701	16-18AWG	PURPLE
GND	-	VARIES	GREEN
CUSTOMER SUPPLY	01-99	16-18AWG	YELLOW

OPTIONAL:



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DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
AKH	KMD	AKH
01/25/17	01/25/17	01/25/17

PANEL TYPE
RIETSCHLE LUBE VANE VAC
3PH SIMPLEX PANEL DATA

DWG. TYPE DATA
DWG. NO. PXMI-VELS169

SHEET D-1
SIZE B

NOTES:

- RECOMMENDED TIGHTENING TORQUES FOR WIRE TERMINALS:
208-575 VOLT POWER 35 POUND INCHES
120 VOLT POWER AND CONTROL VOLTAGE 15 POUND INCHES
- PANEL GROUND MUST BE CONNECTED TO EARTH GROUND
- INSTALLER TO PROVIDE MAIN DISCONNECTING DEVICE WITH SHORT CIRCUIT PROTECTION FOR THIS ELECTRICAL ASSEMBLY. SEE TABLE 1-B/R ON DATA TABLE PAGE FOR REQUIREMENTS.
- ALL WIRES MUST BE LABELED ON BOTH ENDS
- TRANSFORMER IS SIZED FOR LOADS SHOWN ON DRAWING ONLY. DO NOT CONNECT ANY OTHER DEVICES
- Δ -INDICATES A DRAWING WIRE CONNECTION TO ANOTHER PAGE. FIELD WIRING NOTES ON PAGE W-6

SEQUENCE OF OPERATIONS

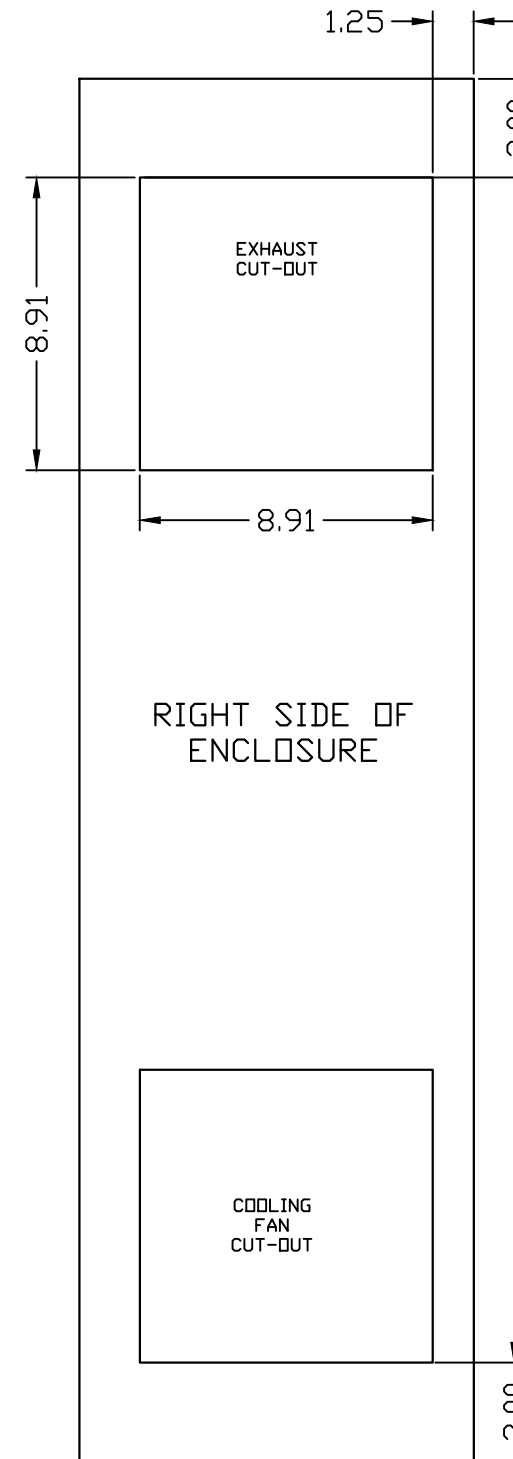
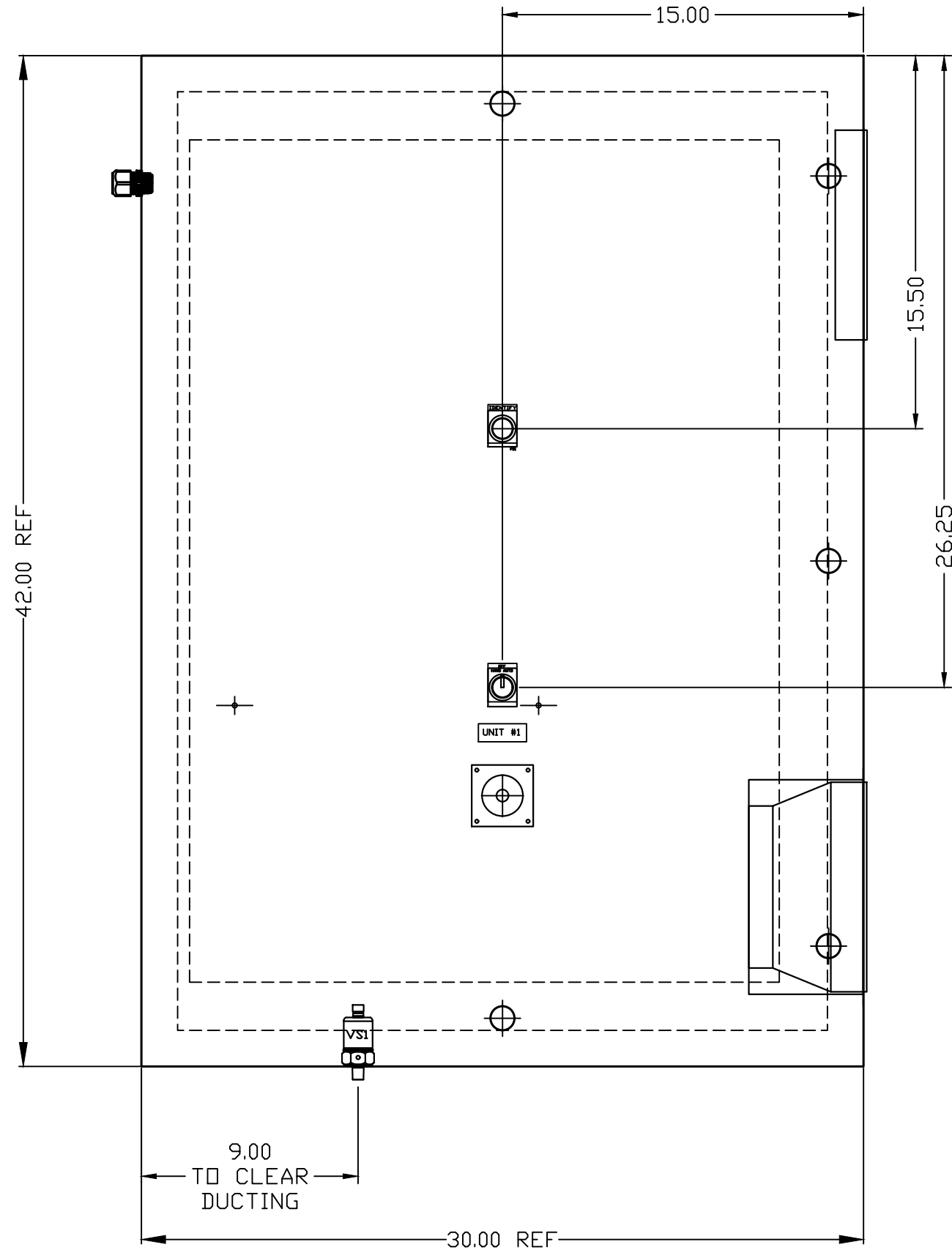
During normal operation the PBMI controller will signal the Lead pump to run when vacuum drops to lead cut-in set-point and run for a 10-minute minimum period before stopping when the vacuum reaches the lead cut-out set-point. Lead alternation to the next pump, will occur every 24 Hours. If demand cannot be satisfied by the lead pump, the lag pump(s) will start and stop based upon the lag cut-in and cut-out set-points. The HOA switch's place the pump in the following modes: Hand-turns pump on to run continuous. Off-disables pump from running. Auto-places pump in the "ready mode" and will start and stop based on sequence described above.

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Additional information and descriptions can be accessed through the HMI "service info" screen by pressing Sequence of Operations button.

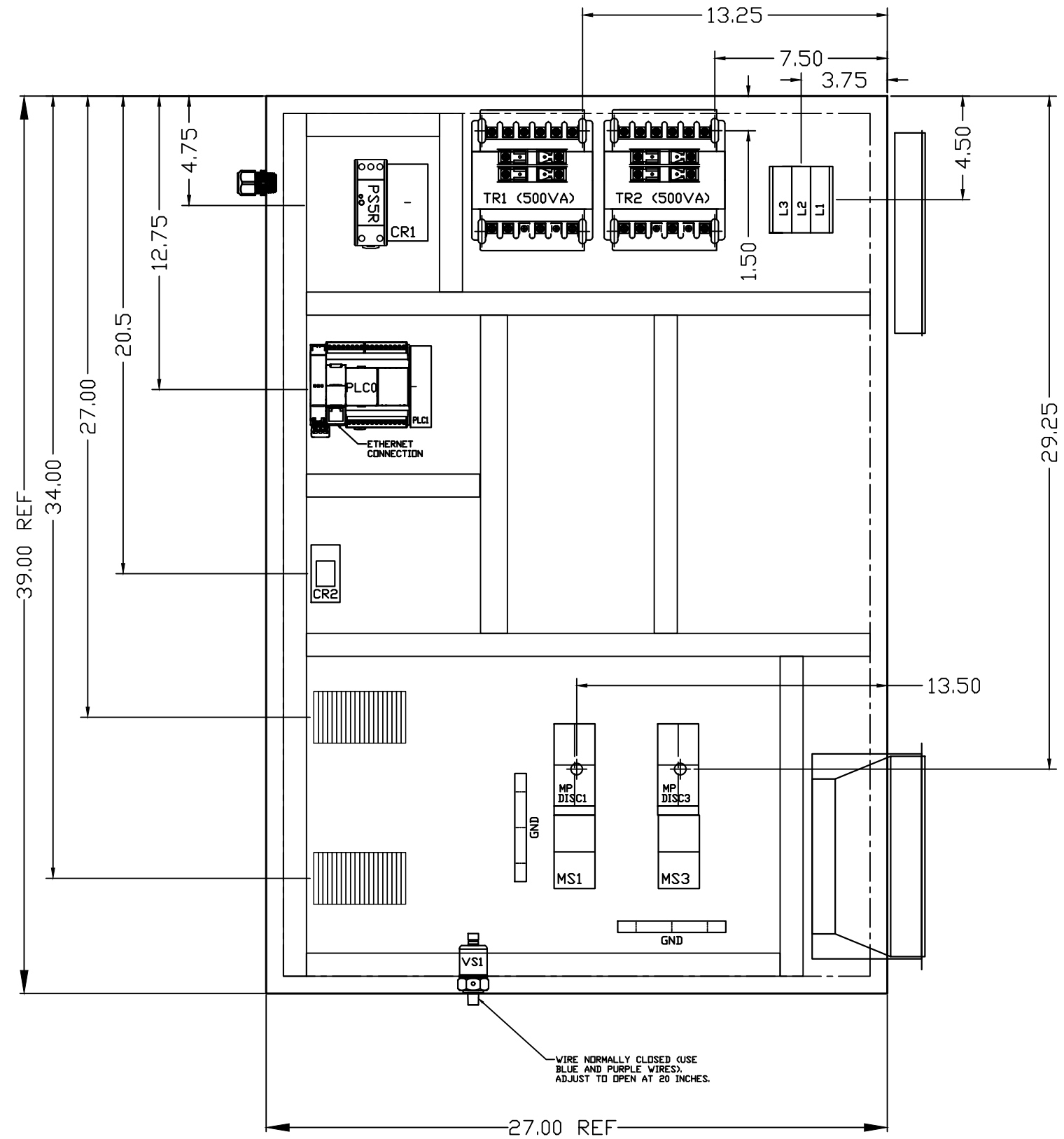
REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/25/17	PXEC0099	AKH	KMD
D-1	ADDED LUBRICATED VANE LAYOUT AND DATASHEET	10/15/18	PXEC0229	JLM	AJL

ETHERNET PASSTHROUGH CONNECTION. CONNECT TO ETHERNET RJ45 PORT ON PLC. DO NOT CONNECT TO SERIAL PORT.



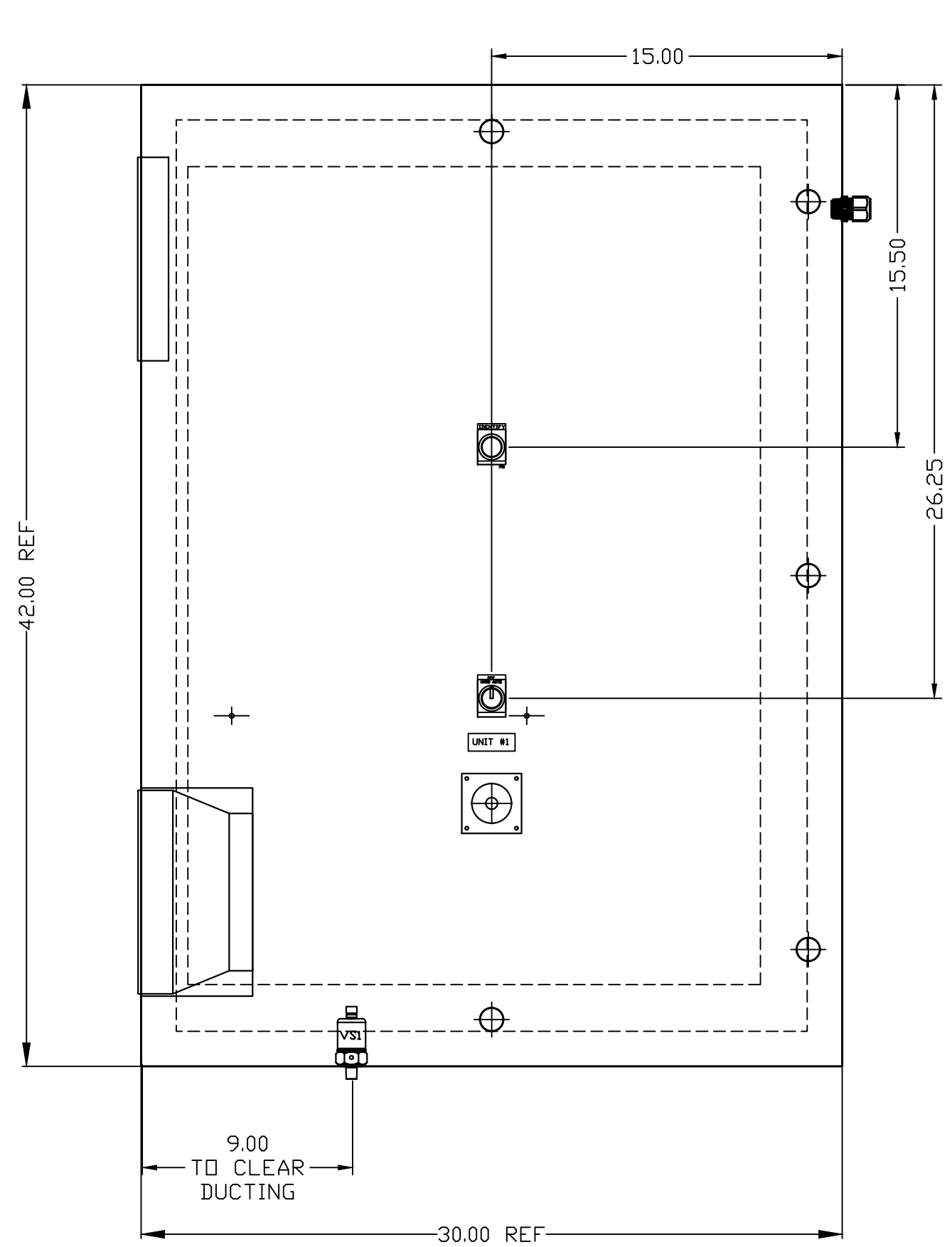
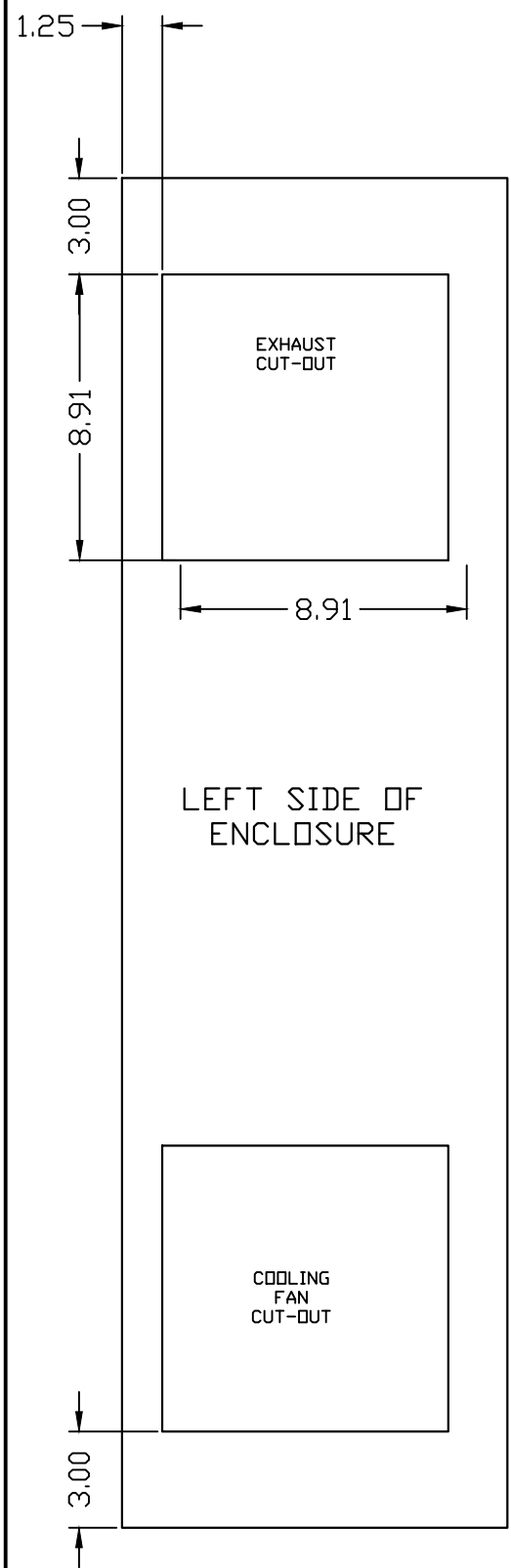
OPTIONAL:		
POWEREX PURE AIR TECHNOLOGY		
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DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
AKH	KMD	AKH
01/25/17	01/25/17	01/25/17
PANEL TYPE		
SIMPLEX LAB VAC ENCLOSURE NFPA, SUB		
DWG. TYPE LAYOUT		
DWG. NO.		
PXMI-VELS169		
SHEET		SIZE
L-1		B

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/25/17	PXEC0099	AKH	KMD
D-1	ADDED LUBRICATED VANE LAYOUT AND DATASHEET	10/15/18	PXEC0229	JLM	AJL

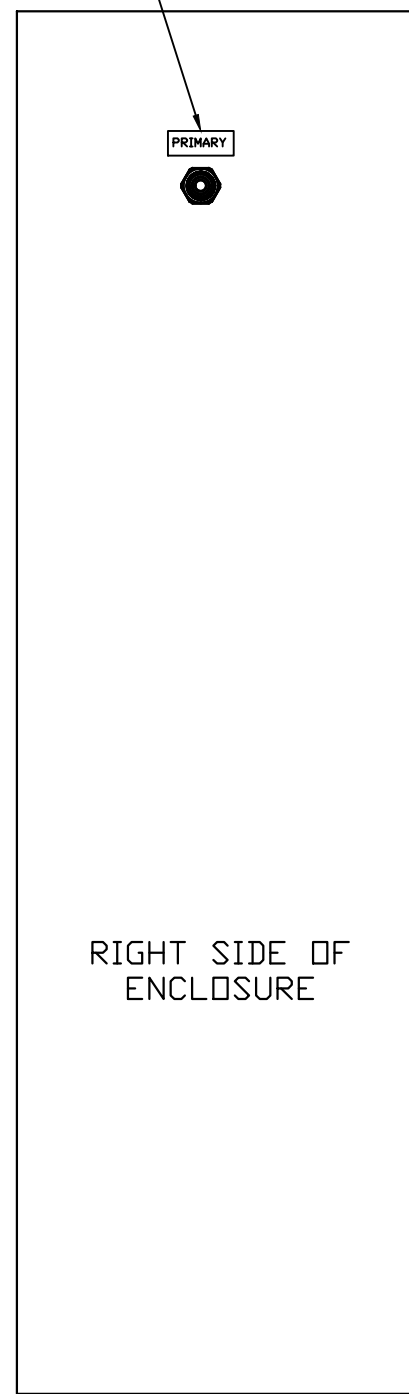


OPTIONAL:		
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DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
AKH	KMD	AKH
01/25/17	01/25/17	01/25/17
PANEL TYPE		
SIMPLEX LAB VAC ENCLOSURE NFWA, SUB		
DWG. TYPE LAYOUT		
DWG. NO.		
PXMI-VELS169		
SHEET		SIZE
L-2		B

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/25/17	PXEC0099	AKH	KMD
D-1	ADDED LUBRICATED VANE LAYOUT AND DATASHEET	10/15/18	PXEC0229	JLM	AJL

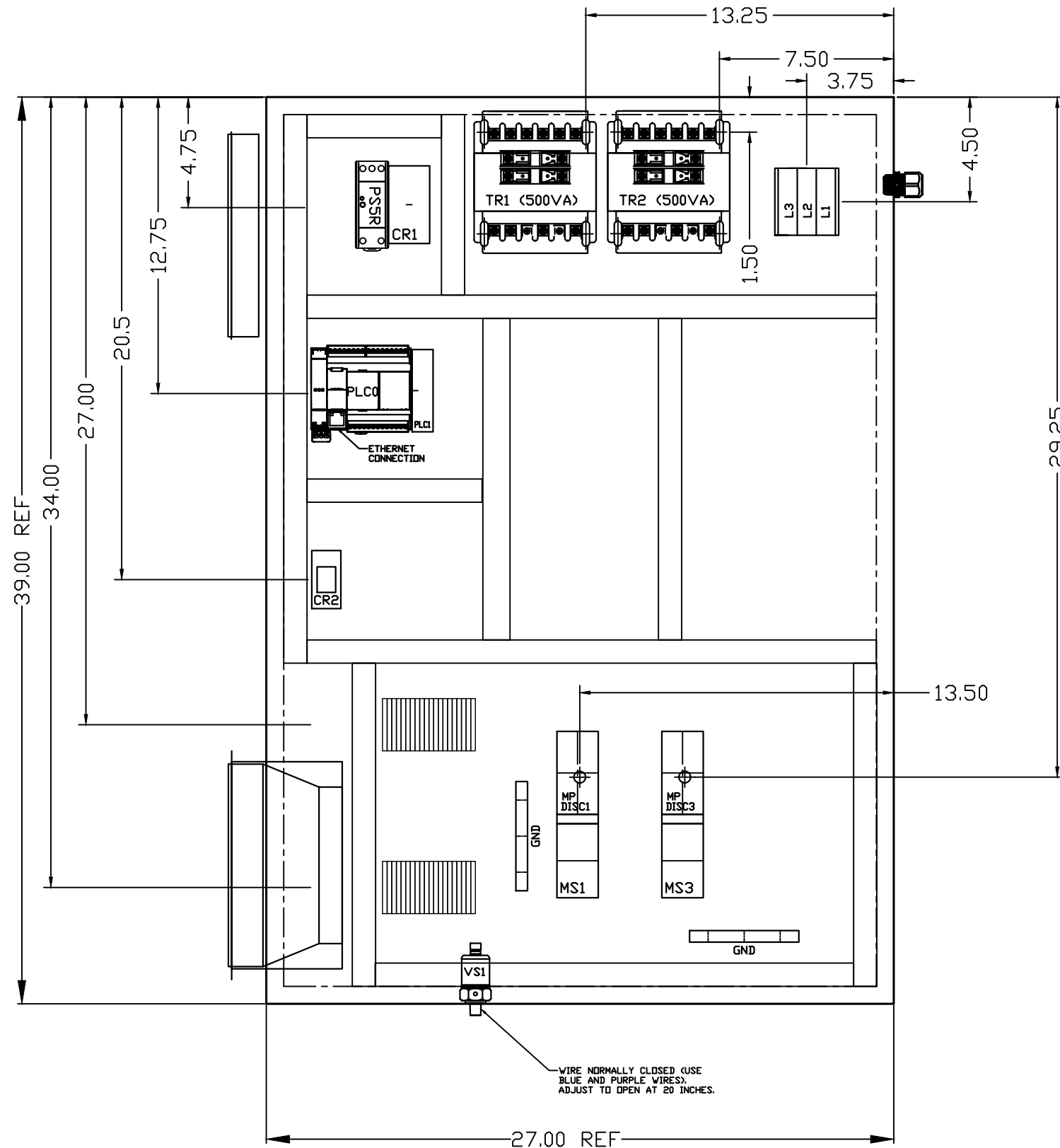


ETHERNET PASSTHROUGH CONNECTION. CONNECT TO ETHERNET RJ45 PORT ON PLC. DO NOT CONNECT TO SERIAL PORT.



OPTIONAL:		
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AKH	KMD	AKH
01/25/17	01/25/17	01/25/17
PANEL TYPE		
SIMPLEX LAB VAC ENCLOSURE		
NFPA, SUB		
DWG. TYPE LAYOUT		
DWG. NO.		
PXMI-VELS169		
SHEET		SIZE
L-1		B

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/25/17	PXEC0099	AKH	KMD
D-1	ADDED LUBRICATED VANE LAYOUT AND DATASHEET	10/15/18	PXEC0229	JLM	AJL



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AKH	KMD	AKH
01/25/17	01/25/17	01/25/17
PANEL TYPE		
SIMPLEX LAB VAC ENCLOSURE NFPA, SUB		
DWG. TYPE LAYOUT		
DWG. NO.		
PXMI-VELS169		
SHEET		SIZE
L-2		B