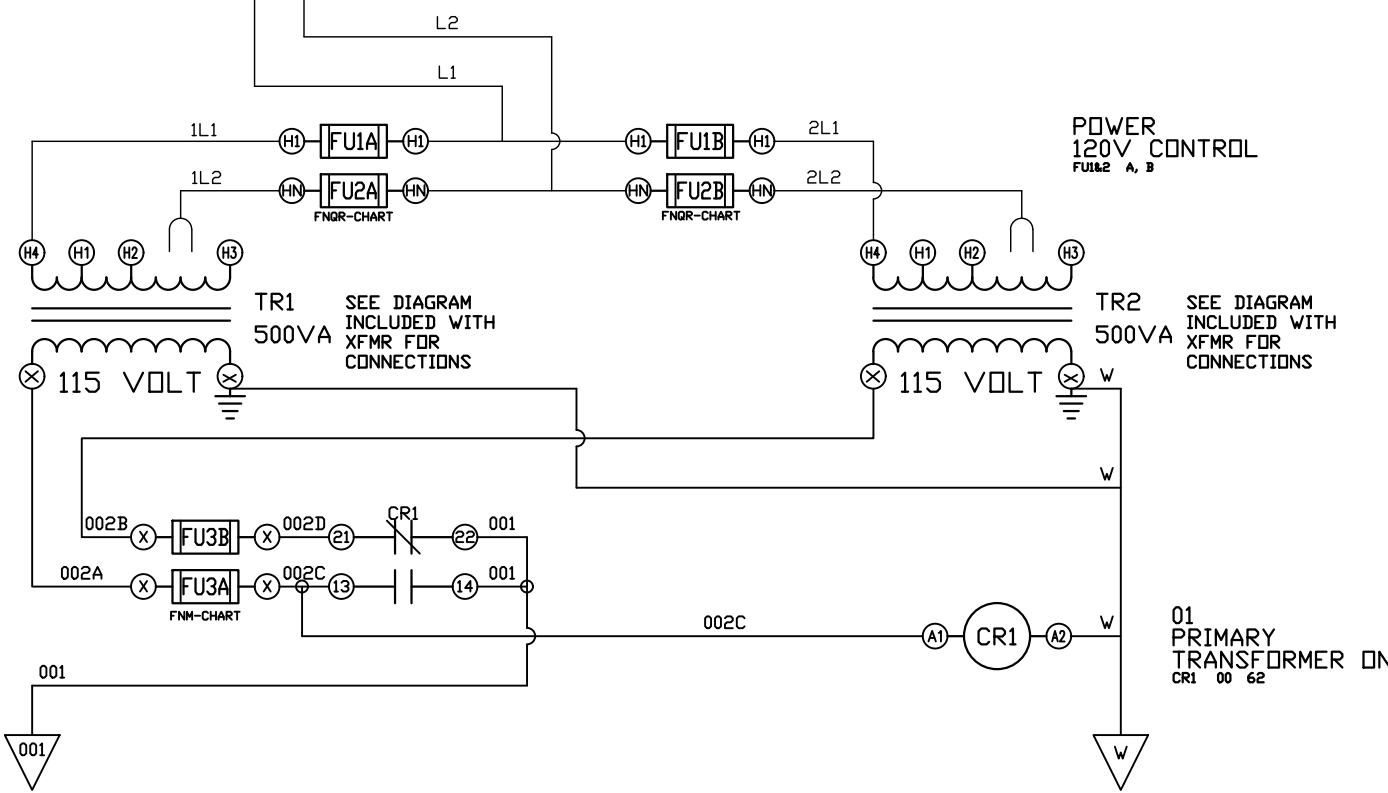


REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	10/09/12	22722	BFH	CHR
L-1	ADDED GROUND TERMINAL BLOCKS	04/11/24	PXEC0688	JRD	WMM
M-1	PLEX ISOLATION UPDATES	08/29/25	PXEC0639	JNW	WMM



OPTIONAL:

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parties for use or examination.

DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
BFH	CHR	CHR
04/05/12	09/07/12	09/07/12

PANEL TYPE

LAB VACUUM DUPLEX
HMI, NFPA

DWG. TYPE WIRING

DWG. NO.

PXMI-VL269

SHEET	SIZE
W-1	B

PXMI-VL269

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	10/09/12	22722	BFH	CHR
L-1	ADDED GROUND TERMINAL BLOCKS	04/11/24	PXEC0688	JRD	WMM
M-1	PLEX ISOLATION UPDATES	08/29/25	PXEC0639	JNW	WMM

OPTIONAL:

POWEREX™

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DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
BFH	CHR	CHR
04/05/12	09/07/12	09/07/12

PANEL TYPE

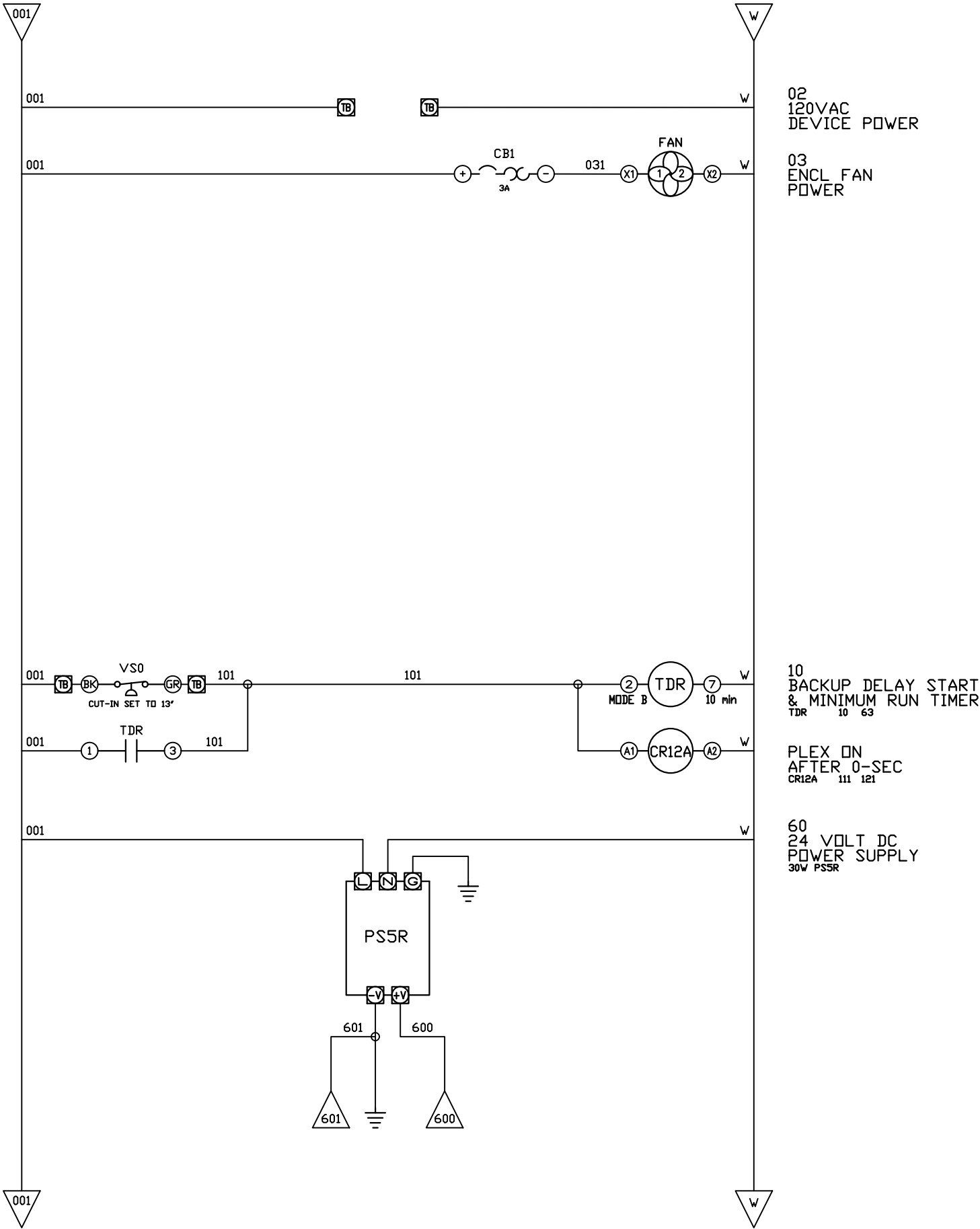
LAB VACUUM DUPLEX
HMI, NFPA

DWG. TYPE WIRING

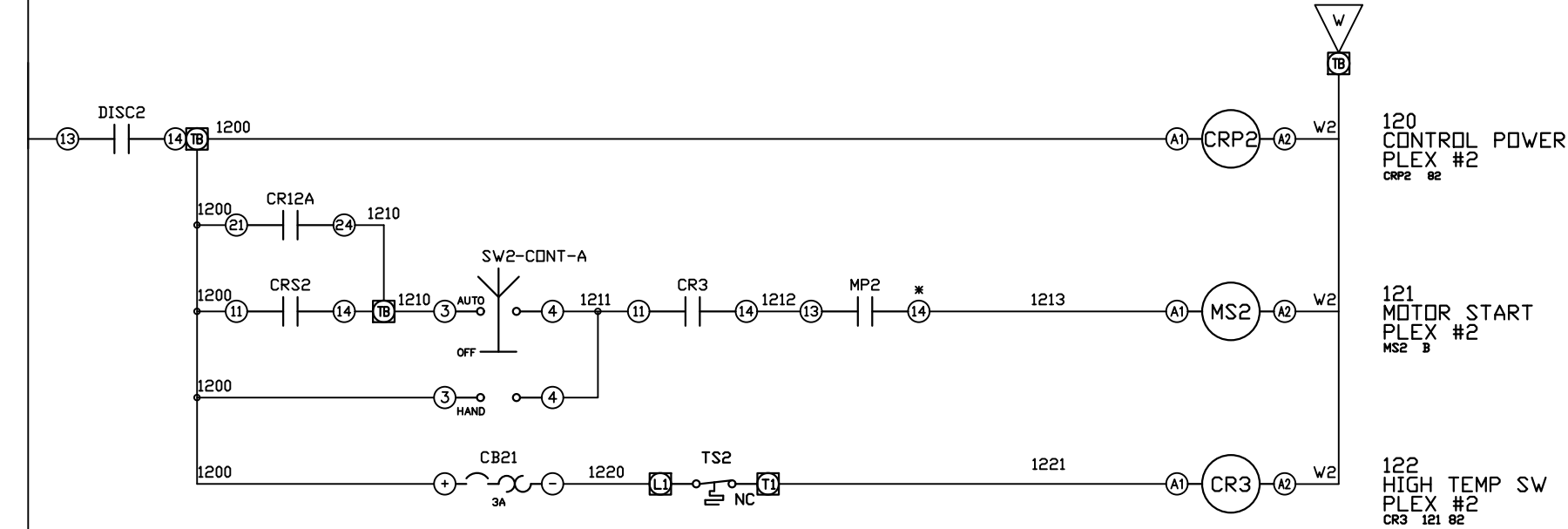
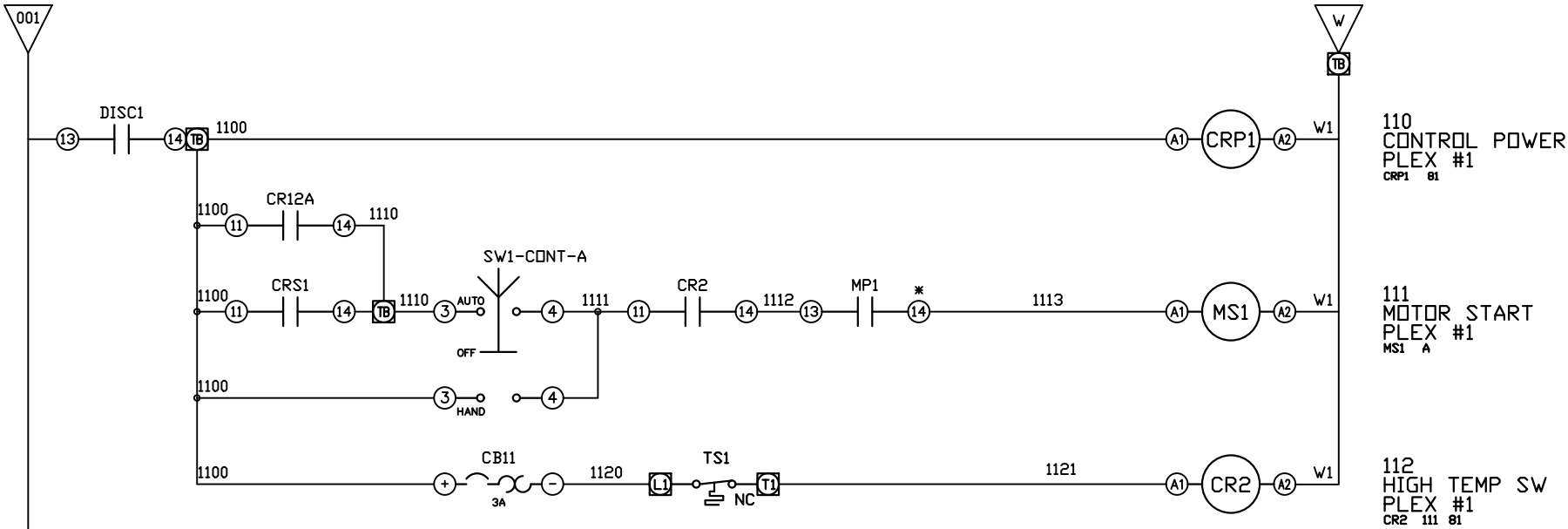
DWG. NO.

PXMI-VL269

SHEET	SIZE
W-2	B



REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	10/09/12	22722	BFH	CHR
L-1	ADDED GROUND TERMINAL BLOCKS	04/11/24	PXEC0688	JRD	WMM
M-1	PLEX ISOLATION UPDATES	08/29/25	PXEC0639	JNW	WMM



* FOR GV4 MOTOR PROTECTORS USE PINS #1 AND #4 ON AUX CONTACT IN '0F1' SLOT

OPTIONAL:

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DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
BFH	CHR	CHR
04/05/12	09/07/12	09/07/12

PANEL TYPE

LAB VACUUM DUPLEX
HMI, NFPA

DWG. TYPE WIRING

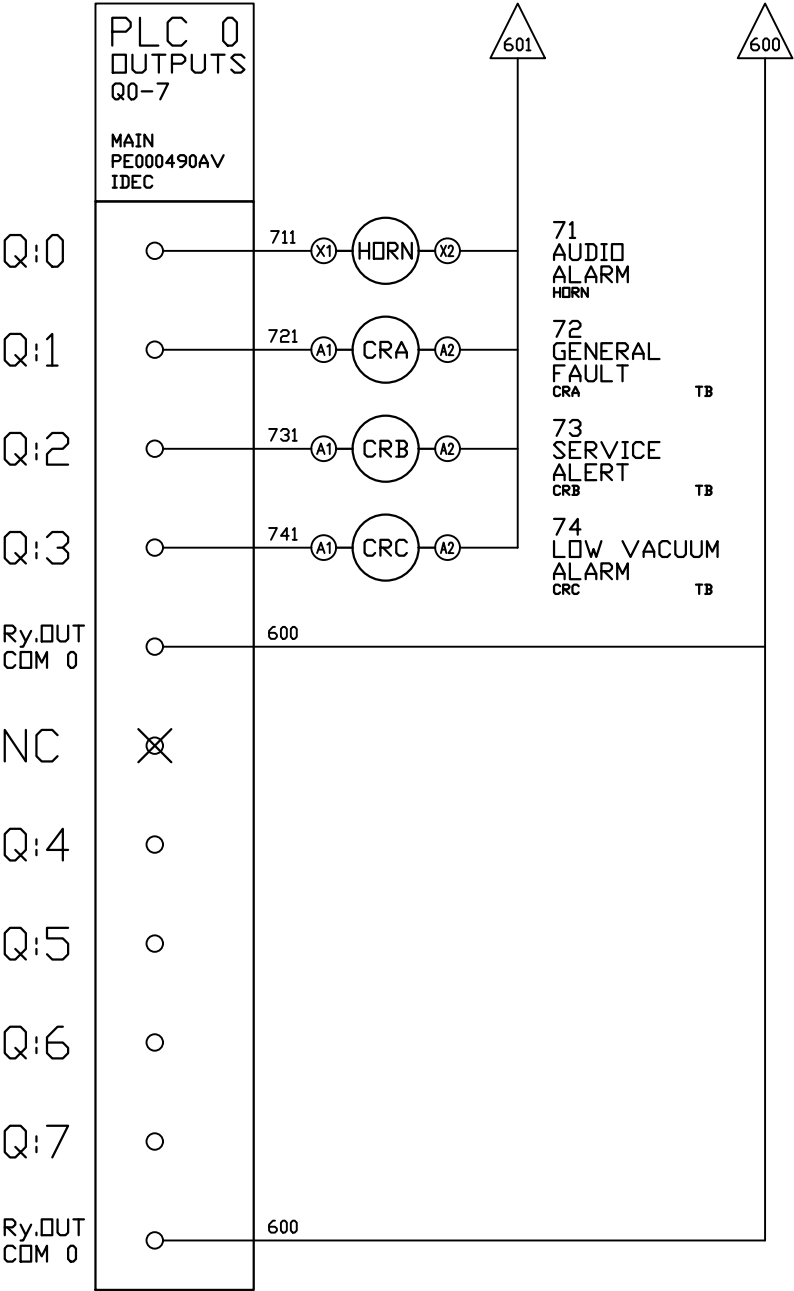
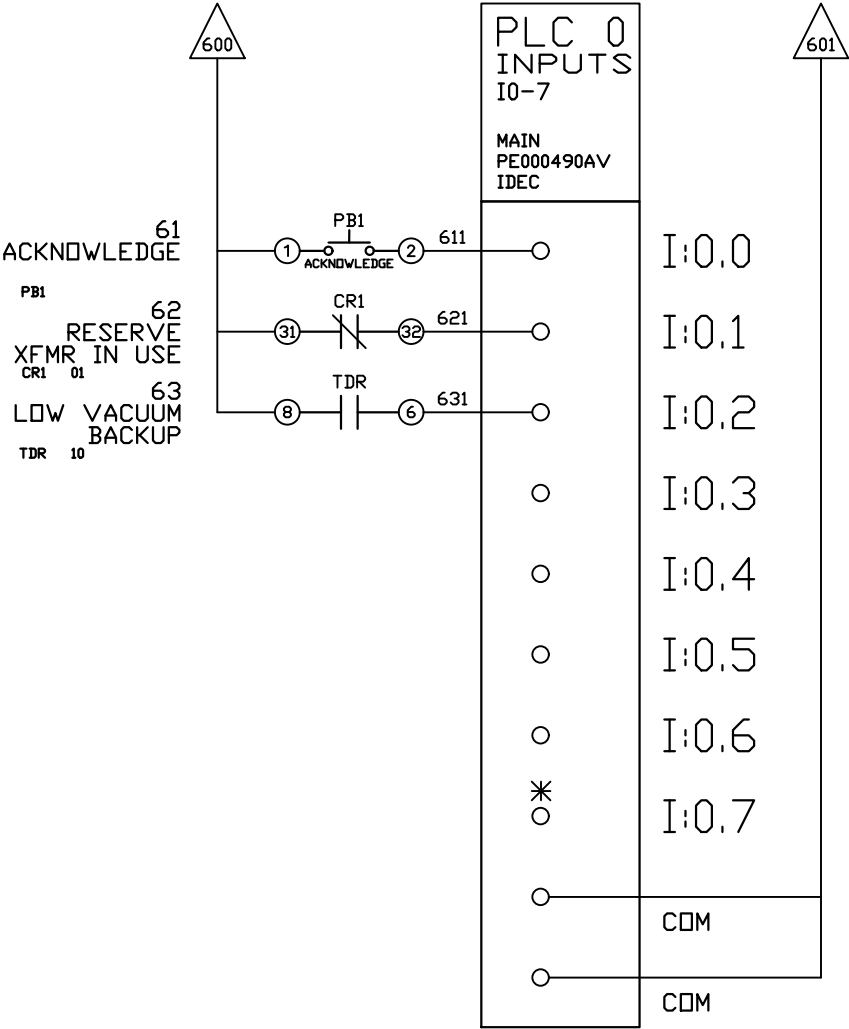
DWG. NO.

PXMI-VL269

SHEET	SIZE
W-3	B

PXMI-VL269

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	10/09/12	22722	BFH	CHR
L-1	ADDED GROUND TERMINAL BLOCKS	04/11/24	PXEC0688	JRD	WMM
M-1	PLEX ISOLATION UPDATES	08/29/25	PXEC0639	JNW	WMM



OPTIONAL:

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parties for use or examination.

DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
BFH	CHR	CHR
04/05/12	09/07/12	09/07/12

PANEL TYPE

LAB VACUUM DUPLEX
HMI, NFPA

DWG. TYPE WIRING

DWG. NO.

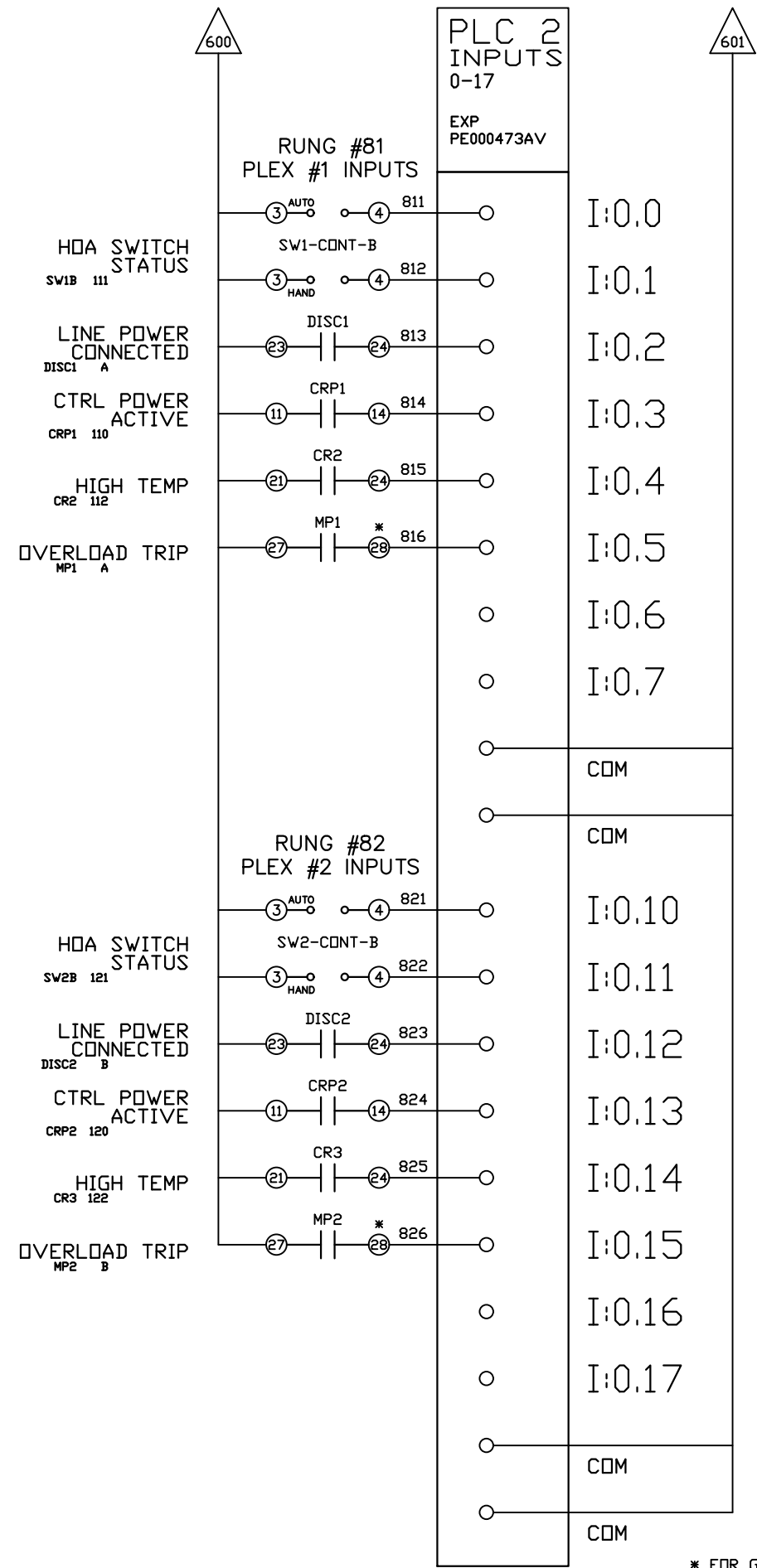
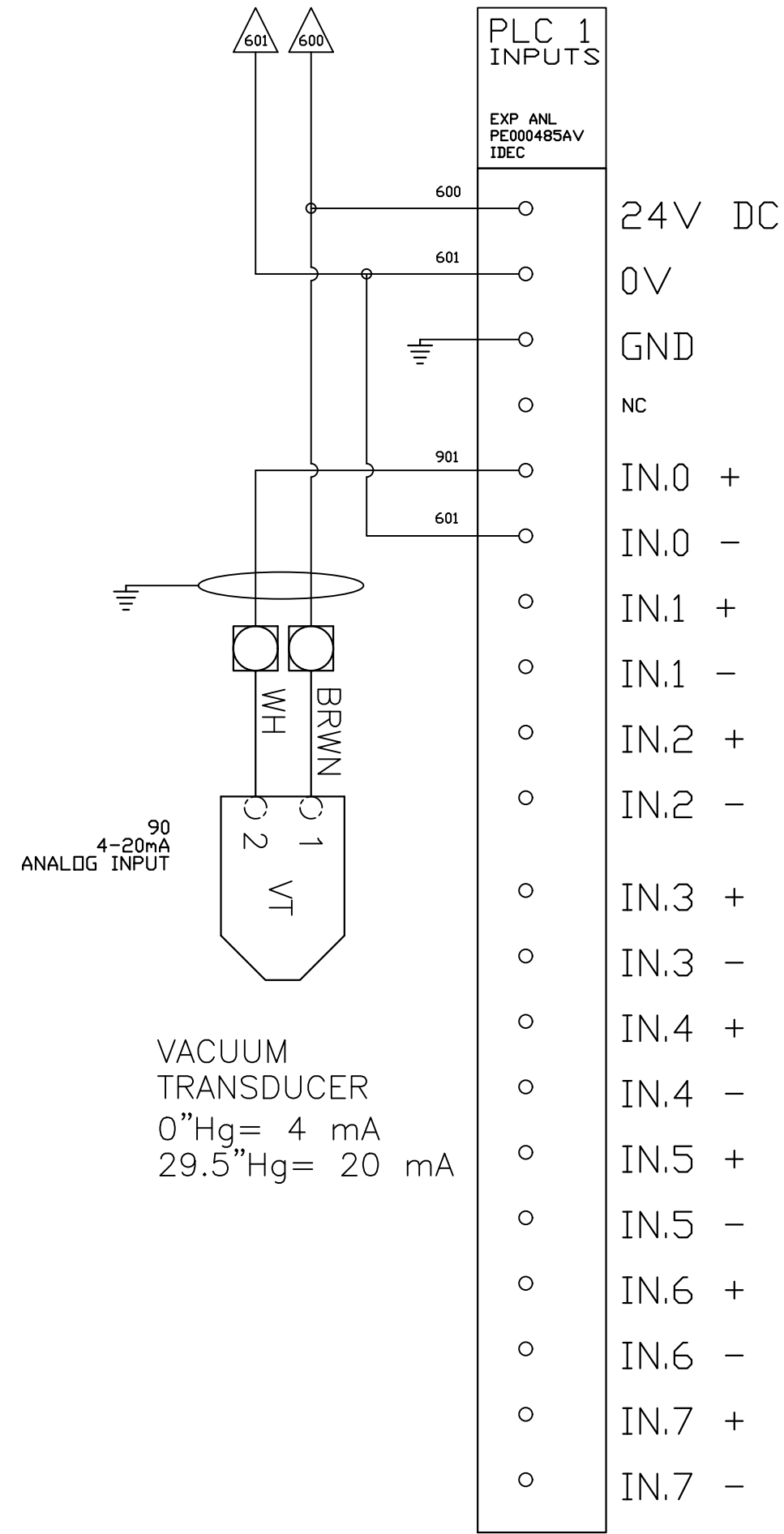
PXMI-VL269

SHEET	SIZE
W-5	B

PXMI-VL269

*FACTORY TEST JUMPER LOCATION

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	10/09/12	22722	BFH	CHR
L-1	ADDED GROUND TERMINAL BLOCKS	04/11/24	PXEC0688	JRD	WMM
M-1	PLEX ISOLATION UPDATES	08/29/25	PXEC0639	JNW	WMM



* FOR GV4 MOTOR PROTECTORS USE PINS #1 AND #4 ON AUX CONTACT IN 'DF1' SLOT

OPTIONAL:

POWEREX™

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DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
BFH	CHR	CHR
04/05/12	09/07/12	09/07/12

PANEL TYPE

LAB VACUUM DUPLEX HMI, NFPA

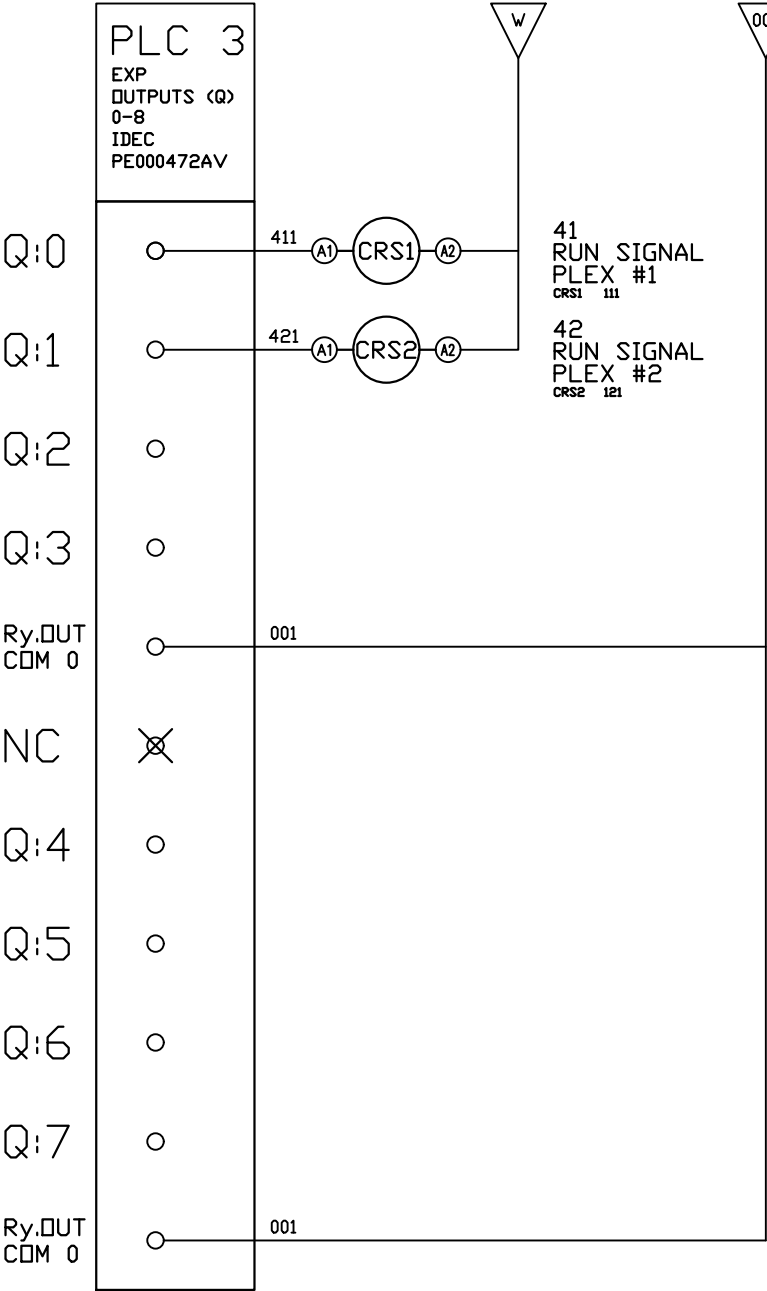
DWG. TYPE WIRING

DWG. NO. PXMI-VL269

SHEET	SIZE
W-6	B

PXMI-VL269

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	10/09/12	22722	BFH	CHR
L-1	ADDED GROUND TERMINAL BLOCKS	04/11/24	PXEC0688	JRD	WMM
M-1	PLEX ISOLATION UPDATES	08/29/25	PXEC0639	JNW	WMM



OPTIONAL:

POWEREX™

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parties for use or examination.

DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
BFH	CHR	CHR
04/05/12	09/07/12	09/07/12

PANEL TYPE

LAB VACUUM DUPLEX
HMI, NFPA

DWG. TYPE WIRING

DWG. NO.

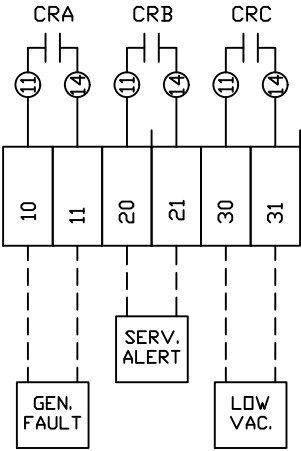
PXMI-VL269

SHEET	SIZE
W-7	B

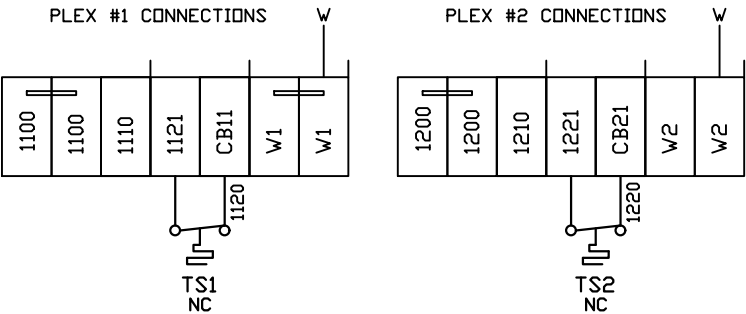
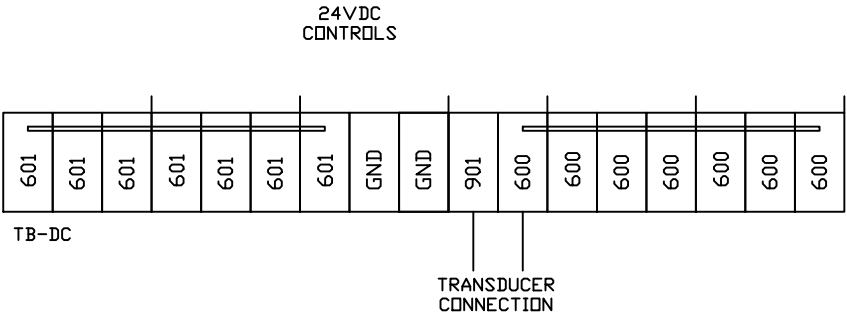
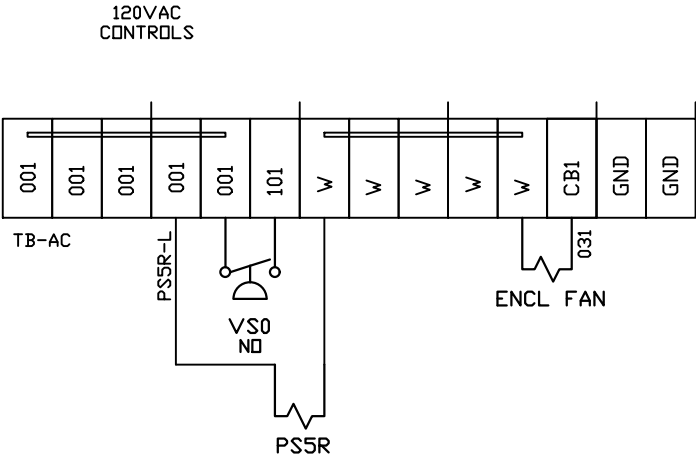
* FOR GV4 MOTOR PROTECTORS USE PINS
#1 AND #4 ON AUX CONTACT IN 'DF1' SLOT

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	10/09/12	22722	BFH	CHR
L-1	ADDED GROUND TERMINAL BLOCKS	04/11/24	PXEC0688	JRD	WMM
M-1	PLEX ISOLATION UPDATES	08/29/25	PXEC0639	JNW	WMM

TERMINAL BLOCKS



DRY CONTACTS FOR CUSTOMER
REMOTE ALARM CONNECTION



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:

POWEREX™

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DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
BFH	CHR	CHR
04/05/12	09/07/12	09/07/12

PANEL TYPE

LAB VACUUM DUPLEX
HMI, NFPA

DWG. TYPE WIRING

DWG. NO.

PXMI-VL269

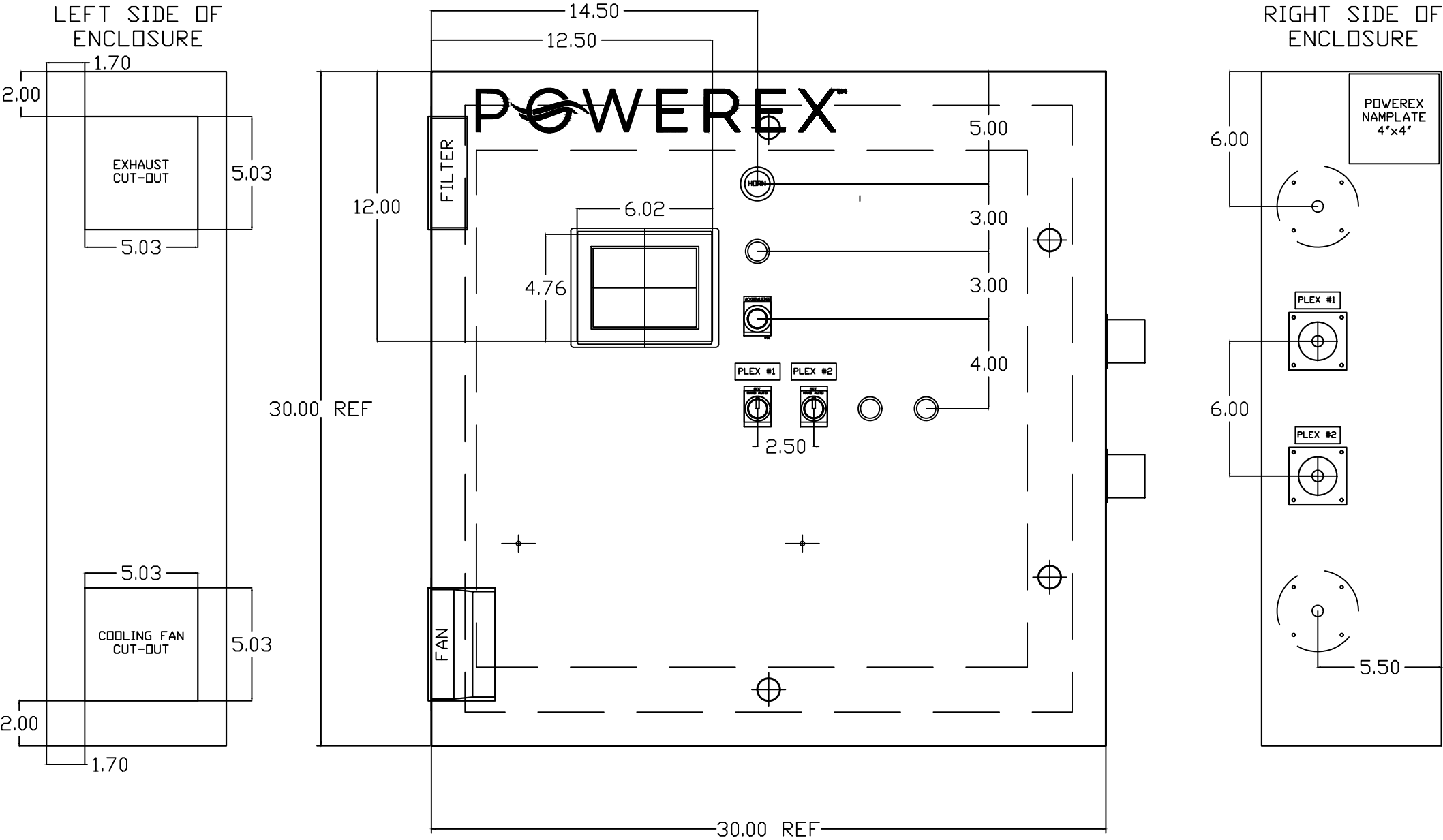
SHEET

W-8

SIZE

B

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	10/09/12	22722	BFH	CHR
L-1	ADDED GROUND TERMINAL BLOCKS	04/11/24	PXEC0688	JRD	WMM
M-1	PLEX ISOLATION UPDATES	08/29/25	PXEC0639	JNW	WMM



OPTIONAL:

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DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
BFH	CHR	CHR
04/05/12	09/07/12	09/07/12

PANEL TYPE

LAB VACUUM DUPLEX
HMI, NFPA

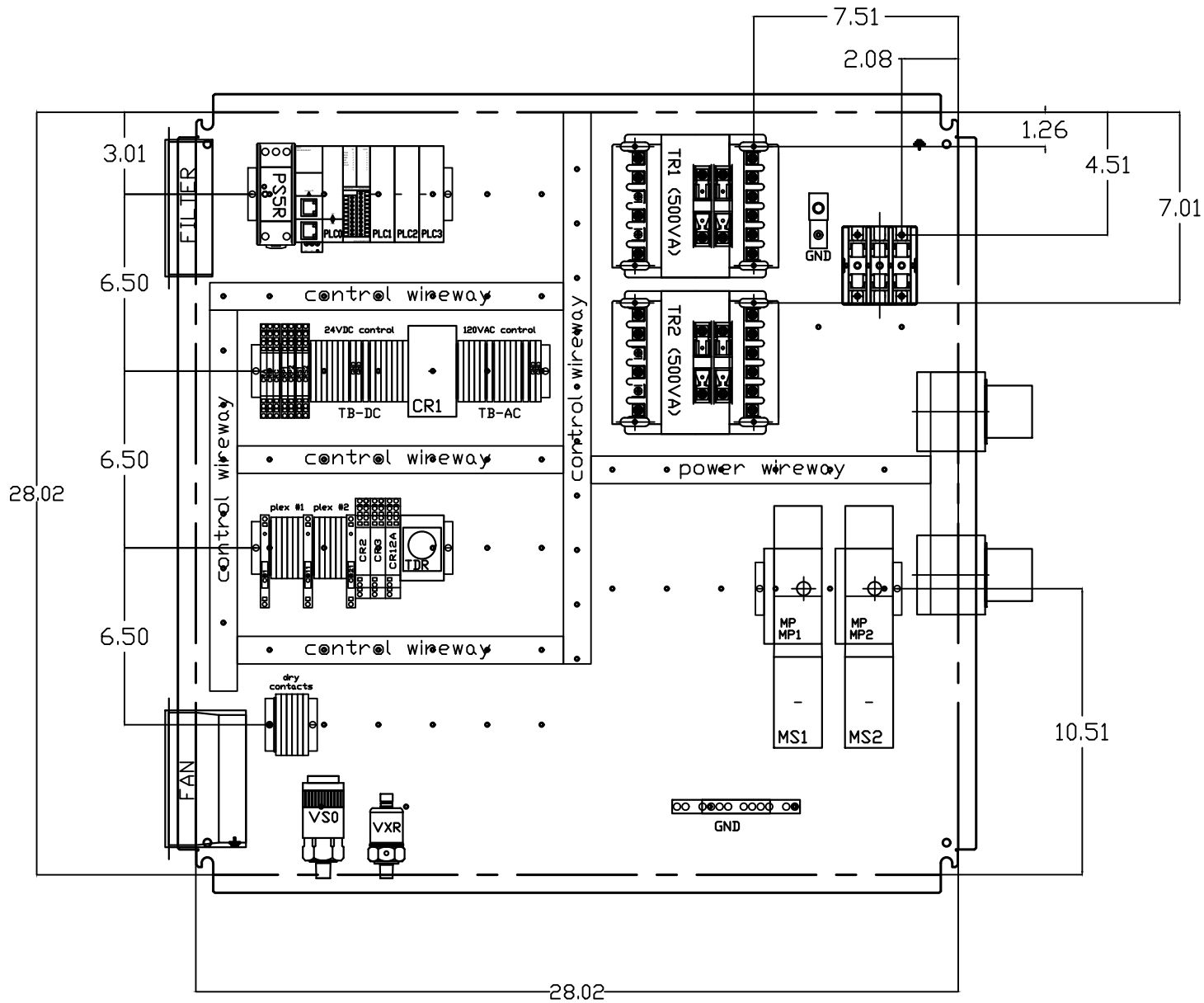
DWG. TYPE LAYOUT

DWG. NO. PXMI-VL269

SHEET	SIZE
LA-1	B

PXMI-VL269

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	10/09/12	22722	BFH	CHR
L-1	ADDED GROUND TERMINAL BLOCKS	04/11/24	PXEC0688	JRD	WMM
M-1	PLEX ISOLATION UPDATES	08/29/25	PXEC0639	JNW	WMM



OPTIONAL:

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DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
BFH	CHR	CHR
04/05/12	09/07/12	09/07/12

PANEL TYPE

LAB VACUUM DUPLEX
HMI, NFPA

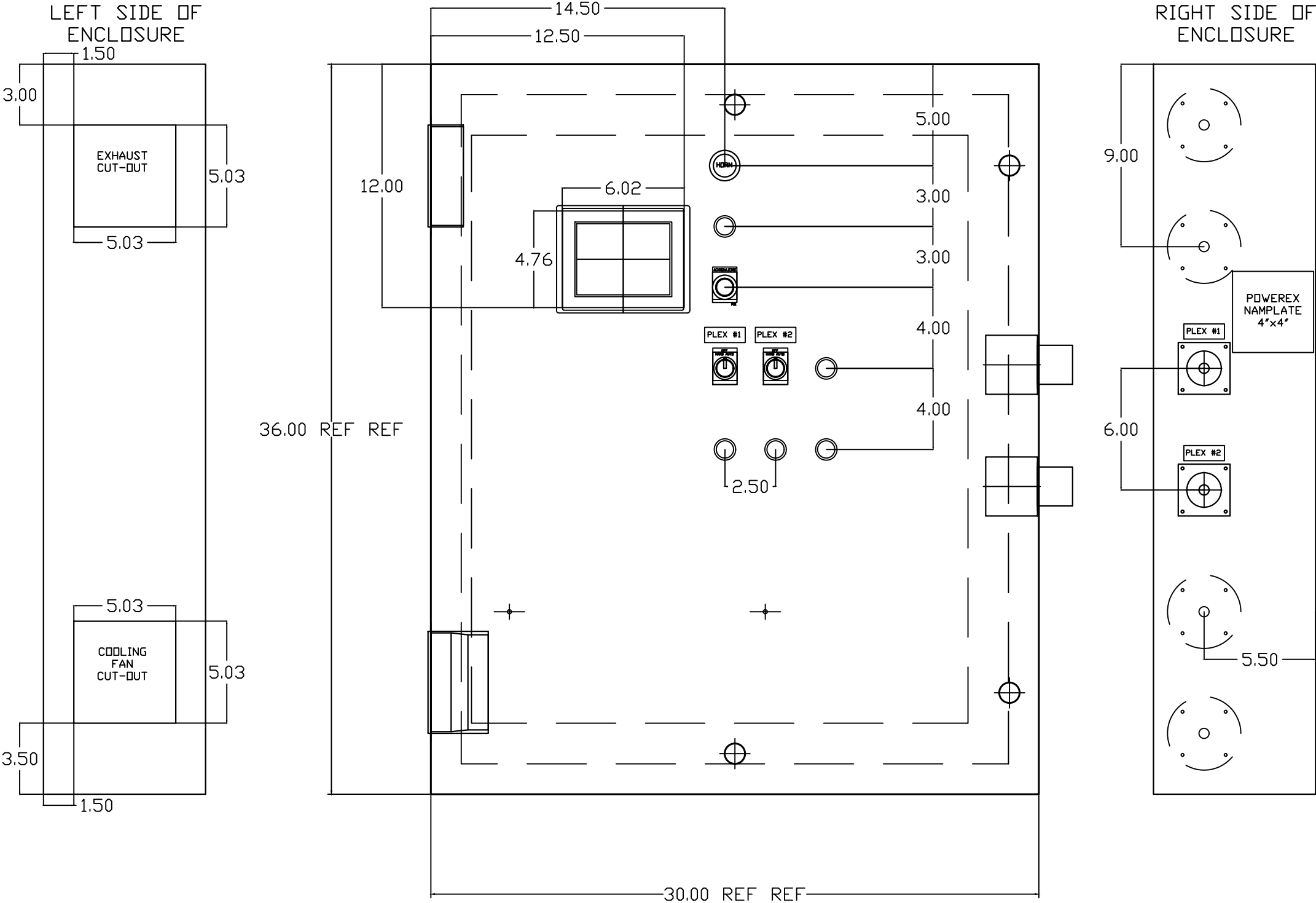
DWG. TYPE LAYOUT

DWG. NO. PXMI-VL269

SHEET	SIZE
LA-2	B

PXMI-VL269

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	10/09/12	22722	BFH	CHR
L-1	ADDED GROUND TERMINAL BLOCKS	04/11/24	PXEC0688	JRD	WMM
M-1	PLEX ISOLATION UPDATES	08/29/25	PXEC0639	JNW	WMM



OPTIONAL:

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DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
BFH	CHR	CHR
04/05/12	09/07/12	09/07/12

PANEL TYPE

LAB VACUUM DUPLEX HMI, NFPA

DWG. TYPE

LAYOUT

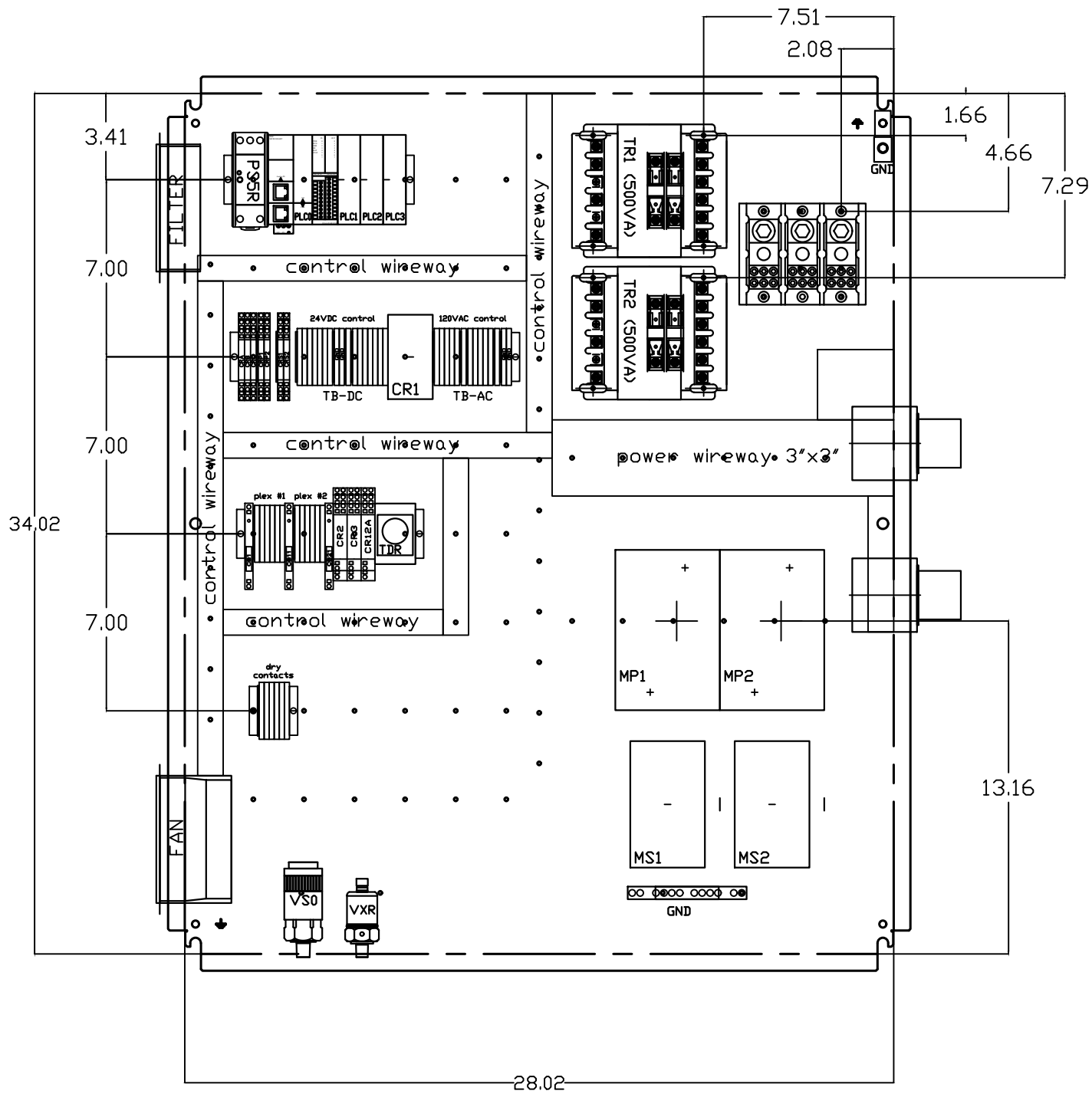
DWG. NO.

PXMI-VL269

SHEET	SIZE
LB-1	B

PXMI-VL269

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	10/09/12	22722	BFH	CHR
L-1	ADDED GROUND TERMINAL BLOCKS	04/11/24	PXEC0688	JRD	WMM
M-1	PLEX ISOLATION UPDATES	08/29/25	PXEC0639	JNW	WMM



OPTIONAL:

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parties for use or examination.

DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
BFH	CHR	CHR
04/05/12	09/07/12	09/07/12

PANEL TYPE

LAB VACUUM DUPLEX
HMI, NFPA

DWG. TYPE LAYOUT

DWG. NO.

PXMI-VL269

SHEET	SIZE
LB-2	B

PXMI-VL269

TABLE 1	P/N	MOTOR FULL LOAD AMPS	TOTAL FULL LOAD AMPS	NON-TIME DELAY FUSE	TIME DELAY FUSE	INVERSE-TIME CIRCUIT BREAKER
208V (3Ø)	02AB	3.4	8.8	20	15	15
	12AB	5	12	25	20	20
	22AB	6	14	30	20	25
	32AB	9	20	40	30	35
	42AB	15	32	70	45	60
	52AB	14.8	31.6	70	45	60
	72AB	26.2	54.4	110	80	100
	A2AB	33.4	68.8	150	100	125
	F2AB *	40.4	82.8	175	125	150
	G2AB *	62	126	250	175	225
	H2AB *	68	138	300	200	250
230V (3Ø)	03AB	3.4	8.8	20	15	15
	13AB	4.4	10.8	20	15	20
	23AB	5.4	12.8	25	20	25
	33AB	7.8	17.6	35	25	30
	43AB	13.2	28.4	60	40	50
	53AB	12.9	27.8	60	40	50
	73AB	20.9	43.8	90	60	80
	A3AB	26.2	54.4	110	80	100
	F3AB *	38.8	79.6	175	110	150
	G3AB *	52	106	225	150	200
	H3AB *	62	126	250	175	225
460V (3Ø)	04AB	2	6	10	10	10
	14AB	2.2	6.4	15	10	15
	24AB	2.7	7.4	15	10	15
	34AB	3.9	9.8	20	15	20
	44AB	6.6	15.2	30	20	30
	54AB	6.5	15	30	20	30
	74AB	10.5	23	45	35	40
	A4AB	13.1	28.2	60	40	50
	F4AB	19.4	40.8	80	60	80
	G4AB	26	54	110	80	100
	H4AB *	31	64	150	90	125
380V (3Ø)	08AB	N/A				
	18AB	2.5	7	15	10	15
	28AB	3.1	8.2	15	15	15
	38AB	4.6	11.2	25	15	20
	48AB	7.3	16.6	35	25	30
	58AB	7.7	17.4	35	25	30
	78AB	11.9	25.8	50	35	45
	A8AB	13.3	28.6	60	40	50
	F8AB	22.3	46.6	100	70	90
	G8AB *	28	58	125	80	110
	H8AB *	37	76	150	110	150

NOTE: P/N MAY INCLUDE SUFFIX AV

NOTES:

1. RECOMMENDED TIGHTENING TORQUES FOR WIRE TERMINALS:
208-575 VOLT POWER 35 POUND INCHES
120 VOLT POWER AND CONTROL VOLTAGE 15 POUND INCHES
2. PANEL GROUND MUST BE CONNECTED TO EARTH GROUND
3. INSTALLER TO PROVIDE MAIN DISCONNECTING DEVICE FOR THIS ELECTRICAL ASSEMBLY. SHORT CIRCUIT PROTECTION IS RECOMMENDED, SEE TABLE 1. IF PROVIDING PANEL SHORT CIRCUIT PROTECTION USING CLASS J TIME DELAY FUSES, PANEL SCCR IS 65KA. OTHERWISE, PANEL SCCR IS 5KA.
4. ALL WIRES MUST BE LABELED ON BOTH ENDS
5. TRANSFORMER IS SIZED FOR LOADS SHOWN ON DRAWING ONLY. DO NOT CONNECT ANY OTHER DEVICES
6. △ -INDICATES A DRAWING WIRE CONNECTION TO ANOTHER PAGE.
7. SERVICE DISCONNECT USAGE - turn HOA switch to OFF position. Turn disconnect OF SAME UNIT to OFF position. Associated PLEX will be isolated for maintenance purposes. After completing maintenance, turn disconnect to ON position and return HOA switch to AUTO. This will return PLEX to normal operation.

CONTROL TRANSFORMERS - 500VA						WIRE TYPE TABLE			
REPLACEMENT	208	230	460	575					
FUSE TYPE	VOLT	VOLT	VOLT	VOLT		VOLTAGE	WIRE NUMBERS	GAUGE	COLOR
FU1,2A	FNQR	6A	5A	5A	4A	120VAC	001-599,1100+	16-18AWG	RED/BLK
FU1,2B						0VAC	W	16-18AWG	WHT/BLK
FU3A,B	FNM	7A	7A	7A	7A	24VDC	600-1099	16-18AWG	PURPLE
						0VDC	601	16-18AWG	PURPLE
						GND	-	VARIES	GREEN
						CUSTOMER SUPPLY	01-99	16-18AWG	YELLOW
SEE XFMR FOR CONNECTIONS									

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 30-minutes. 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.

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	09/01/11	22545	BFH	CHR
C-1	FORMAT UPDATE	03/01/13	PXEC0038	BFH	CHR

OPTIONAL:

208V/230V/380V/460V

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DRAWN BY

BFH

CHECKED BY

CHR

ENGINEERING APPROVAL

CHR

09/01/11

09/20/11

09/20/11

PANEL TYPE

BUSCH LUBRICATED VANE
3PH DUPLEX PANEL DATA

DWG. TYPE

MISC

DWG. NO.

DATA TABLE

SHEET

D-1

DUPLEX PANEL DATA

SIZE

B

TABLE 1	P/N	MOTOR FULL LOAD AMPS	TOTAL FULL LOAD AMPS	NON-TIME DELAY FUSE	TIME DELAY FUSE	INVERSE-TIME CIRCUIT BREAKER
208V (3Ø)	22CB	6.6	15.2	30	25	30
	32CB	9.4	20.8	45	30	40
	42CB	10.4	22.8	45	35	40
	52CB	12.4	26.8	60	40	50
	62CB	16.4	34.8	70	50	60
	72CB	21.4	44.8	90	70	80
	A2CB	27.2	56.4	125	80	100
	F2CB *	40.5	83.0	175	125	150
230V (3Ø)	23CB	5.6	13.2	25	20	25
	33CB	8.4	18.8	40	30	35
	43CB	9.2	20.4	40	30	35
	53CB	11.4	24.8	50	35	45
	63CB	15.2	32.4	70	45	60
	73CB	17.2	36.4	80	50	70
	A3CB	23.6	49.2	100	70	90
	F3CB *	35.0	72.0	150	100	125
460V (3Ø)	24CB	2.8	7.6	15	10	15
	34CB	4.2	10.4	20	15	20
	44CB	4.6	11.2	20	15	20
	54CB	5.7	13.4	25	20	25
	64CB	7.6	17.2	35	25	30
	74CB	8.6	19.2	40	30	35
	A4CB	11.3	24.6	50	35	45
	F4CB	17.5	37.0	80	50	70
380V (3Ø) 50HZ	28CB	2.6	7.2	15	10	15
	38CB	3.8	9.6	20	15	15
	48CB	5.0	12.0	25	20	20
	58CB	5.1	12.2	25	20	20
	68CB	8.6	19.2	40	30	35
	78CB	9.3	20.6	40	30	35
	A8CB	10.5	23.0	45	35	40
	F8CB	14.5	31.0	60	45	60

NOTE: P/N MAY INCLUDE SUFFIX AV

NOTES:

1. RECOMMENDED TIGHTENING TORQUES FOR WIRE TERMINALS:
208-575 VOLT POWER 35 POUND INCHES
120 VOLT POWER AND CONTROL VOLTAGE 15 POUND INCHES
2. PANEL GROUND MUST BE CONNECTED TO EARTH GROUND
3. INSTALLER TO PROVIDE MAIN DISCONNECTING DEVICE FOR THIS ELECTRICAL ASSEMBLY. SHORT CIRCUIT PROTECTION IS RECOMMENDED, SEE TABLE 1. IF PROVIDING PANEL SHORT CIRCUIT PROTECTION USING CLASS J TIME DELAY FUSES, PANEL SCCR IS 65KA. OTHERWISE, PANEL SCCR IS 5KA.
4. ALL WIRES MUST BE LABELED ON BOTH ENDS
5. TRANSFORMER IS SIZED FOR LOADS SHOWN ON DRAWING ONLY. DO NOT CONNECT ANY OTHER DEVICES
6. △ -INDICATES A DRAWING WIRE CONNECTION TO ANOTHER PAGE.
7. SERVICE DISCONNECT USAGE - turn HOA switch to OFF position. Turn disconnect OF SAME UNIT to OFF position. Associated PLEX will be isolated for maintenance purposes. After completing maintenance, turn disconnect to ON position and return HOA switch to AUTO. This will return PLEX to normal operation.

CONTROL TRANSFORMERS - 500VA						WIRE TYPE TABLE			
REPLACEMENT		208	230	460	575				
FUSE TYPE		VOLT	VOLT	380 VOLT	VOLT	VOLTAGE	WIRE NUMBERS	GAUGE	COLOR
FU1,2A	FNQR	6A	5A	5A	4A	120VAC	001-599,1100+ W	16-18AWG	RED/BLK
FU3A,B	FNM	7A	7A	7A	7A	0VAC	600-1099	16-18AWG	WHT/BLK
SEE XFMR FOR CONNECTIONS						24VDC	601	16-18AWG	PURPLE
						0VDC	-	16-18AWG	PURPLE
						GND	01-99	VARIES	GREEN
						CUSTOMER SUPPLY		16-18AWG	YELLOW

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 30-minutes. 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.

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	09/01/11	22545	BFH	CHR
C-1	FORMAT UPDATE	03/01/13	PXEC0038	BFH	CHR
D-1	UPDATED 52CB FLA DATA	01/22/14	PXEC0067	DMS	KMD
D-2	UPDATED 32CB FLA DATA	04/11/14	PXEC0067	DMS	KMD
E-1	UPDATED DATA - NEW NEMA MOTORS	06/14/16	PXEC0149	KMD	DMS

OPTIONAL:
200V/230V/380V/460V



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DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
BFH	CHR	CHR
09/01/11	09/20/11	09/20/11

PANEL TYPE
BUSCH CLAW VACUUM 3PH DUPLEX PANEL DATA

DWG. TYPE
MISC

DWG. NO.
DATA TABLE

SHEET	SIZE
D-1	B
DUPLEX PANEL DATA	

TABLE 1	P/N	MOTOR FULL LOAD AMPS	TOTAL FULL LOAD AMPS	NON-TIME DELAY FUSE	TIME DELAY FUSE	INVERSE-TIME CIRCUIT BREAKER
208V (3Ø)	12AJ	3.7	9.4	20	15	20
	22AJ	6.5	15	30	20	30
	32AJ	8.6	19.2	40	30	35
	52AJ	14.2	30.4	60	45	60
	72AJ	20.9	43.8	90	60	80
	62AJ	21	44	90	60	80
	A2AJ *	30	62	125	90	110
	C2AJ *	37.1	76.2	175	110	150
230V (3Ø)	13AJ	3.6	9.2	20	15	20
	23AJ	6.1	14.2	30	20	25
	33AJ	8	18	35	25	35
	53AJ	12.8	27.6	60	40	50
	73AJ	18.9	39.8	80	60	70
	63AJ	20	42	90	60	80
	A3AJ *	29.4	60.8	125	90	110
	C3AJ *	32.8	67.6	150	100	125
460V (3Ø)	14AJ	1.8	5.6	10	10	10
	24AJ	2.9	7.8	15	10	15
	34AJ	5.1	12.2	25	20	25
	54AJ	6.4	14.8	30	20	25
	74AJ	9.5	21	40	30	40
	64AJ	11.6	25.2	50	35	45
	A4AJ	15.3	32.6	70	45	60
	C4AJ	16.4	34.8	70	50	60
380V (3Ø)	18AJ		2	10	10	10
	28AJ	4	10	20	15	20
	38AJ	4.7	11.4	25	15	20
	58AJ	6.9	15.8	30	25	30
	78AJ	13	28	60	40	50
	68AJ	10.5	23	45	35	40
	A8AJ	15.9	33.8	70	50	60
	C8AJ					

NOTE: P/N MAY INCLUDE SUFFIX AV

NOTES:

1. RECOMMENDED TIGHTENING TORQUES FOR WIRE TERMINALS:
208-575 VOLT POWER 35 POUND INCHES
120 VOLT POWER AND CONTROL VOLTAGE 15 POUND INCHES
2. PANEL GROUND MUST BE CONNECTED TO EARTH GROUND
3. INSTALLER TO PROVIDE MAIN DISCONNECTING DEVICE FOR THIS ELECTRICAL ASSEMBLY. SHORT CIRCUIT PROTECTION IS RECOMMENDED, SEE TABLE 1. IF PROVIDING PANEL SHORT CIRCUIT PROTECTION USING CLASS J TIME DELAY FUSES, PANEL SCCR IS 65KA. OTHERWISE, PANEL SCCR IS 5KA.
4. ALL WIRES MUST BE LABELED ON BOTH ENDS
5. TRANSFORMER IS SIZED FOR LOADS SHOWN ON DRAWING ONLY. DO NOT CONNECT ANY OTHER DEVICES
6. △ -INDICATES A DRAWING WIRE CONNECTION TO ANOTHER PAGE.
7. SERVICE DISCONNECT USAGE - turn HOA switch to OFF position. Turn disconnect OF SAME UNIT to OFF position. Associated PLEX will be isolated for maintenance purposes. After completing maintenance, turn disconnect to ON position and return HOA switch to AUTO. This will return PLEX to normal operation.

CONTROL TRANSFORMERS - 500VA						WIRE TYPE TABLE			
REPLACEMENT		208	230	460 380	575				
FUSE TYPE		VOLT	VOLT	VOLT	VOLT	VOLTAGE	WIRE NUMBERS	GAUGE	COLOR
FU1,2A	FNQR	6A	5A	5A	4A	120VAC	001-599,1100+	16-18AWG	RED/BLK
FU1,2B						0VAC	W	16-18AWG	WHT/BLK
FU3A,B	FNM	7A	7A	7A	7A	24VDC	600-1099	16-18AWG	PURPLE
						0VDC	601	16-18AWG	PURPLE
						GND	-	VARIES	GREEN
SEE XFMR FOR CONNECTIONS						CUSTOMER SUPPLY	01-99	16-18AWG	YELLOW

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 30-minutes. 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.

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	09/01/11	22545	BFH	CHR
C-1	FORMAT UPDATE	03/01/13	PXEC0038	BFH	CHR

OPTIONAL:

208V/230V/380V/460V



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DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
BFH	CHR	CHR
09/01/11	09/20/11	09/20/11

PANEL TYPE
BECKER DILLESS
3PH DUPLEX PANEL DATA

DWG. TYPE MISC

DWG. NO.
DATA TABLE

SHEET D-1	SIZE B
DUPLEX PANEL DATA	

TABLE 1	P/N	MOTOR FULL LOAD AMPS	TOTAL FULL LOAD AMPS	NON-TIME DELAY FUSE	TIME DELAY FUSE	INVERSE-TIME CIRCUIT BREAKER
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	32AJ	8	18	35	25	35
	52AJ	13	28	60	40	50
	72AJ	19	40	80	60	70
	A2AJ	25	52	110	80	90
	F2AJ *	37.5	77	175	110	150
230V (3Ø)	23AJ	5.2	12.4	25	20	25
	33AJ	7.4	16.8	35	25	30
	53AJ	12	26	50	35	45
	73AJ	18	38	80	60	70
	A3AJ	23	48	100	70	90
	F3AJ *	35	72	150	100	125
460V (3Ø)	24AJ	2.6	7.2	15	10	15
	34AJ	3.7	9.4	20	15	20
	54AJ	6	14	30	20	25
	74AJ	9	20	40	30	35
	A4AJ	11.5	25	50	35	45
	F4AJ	17	36	70	50	70

NOTES:

1. RECOMMENDED TIGHTENING TORQUES FOR WIRE TERMINALS:
208-575 VOLT POWER 35 POUND INCHES
120 VOLT POWER AND CONTROL VOLTAGE 15 POUND INCHES
2. PANEL GROUND MUST BE CONNECTED TO EARTH GROUND
3. INSTALLER TO PROVIDE MAIN DISCONNECTING DEVICE FOR THIS ELECTRICAL ASSEMBLY. SHORT CIRCUIT PROTECTION IS RECOMMENDED, SEE TABLE 1. IF PROVIDING PANEL SHORT CIRCUIT PROTECTION USING CLASS J TIME DELAY FUSES, PANEL SCCR IS 65KA. OTHERWISE, PANEL SCCR IS 5KA.
4. ALL WIRES MUST BE LABELED ON BOTH ENDS
5. TRANSFORMER IS SIZED FOR LOADS SHOWN ON DRAWING ONLY. DO NOT CONNECT ANY OTHER DEVICES
6. △ -INDICATES A DRAWING WIRE CONNECTION TO ANOTHER PAGE.
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NOTE: P/N MAY INCLUDE SUFFIX AV

CONTROL TRANSFORMERS - 500VA						WIRE TYPE TABLE			
REPLACEMENT	208	230	460 380	575					
FUSE TYPE		VOLT	VOLT	VOLT	VOLT	VOLTAGE	WIRE NUMBERS	GAUGE	COLOR
FU1,2A FU1,2B	FNQR	6A	5A	5A	4A	120VAC 0VAC 24VDC	001-599,1100+ W 600-1099	16-18AWG 16-18AWG 16-18AWG	RED/BLK WHT/BLK PURPLE
FU3A,B	FNM	7A	7A	7A	7A	0VDC GND	601 -	16-18AWG VARIES	PURPLE GREEN
SEE XFRMR FOR CONNECTIONS						CUSTOMER SUPPLY	01-99	16-18AWG	YELLOW

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 30-minutes. 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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B-1	RELEASE TO PRODUCTION	09/01/11	22545	BFH	CHR
C-1	FORMAT UPDATE	03/04/13	PXEC0038	BFH	CHR

OPTIONAL:

208V/230V/460V

POWEREX™

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DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
BFH	CHR	CHR
09/01/11	09/20/11	09/20/11

PANEL TYPE

RIETSCHLE CLAW VACUUM
3PH DUPLEX PANEL DATA

DWG. TYPE
MISC

DWG. NO.

DATA TABLE

SHEET D-1	SIZE B
DUPLEX PANEL DATA	