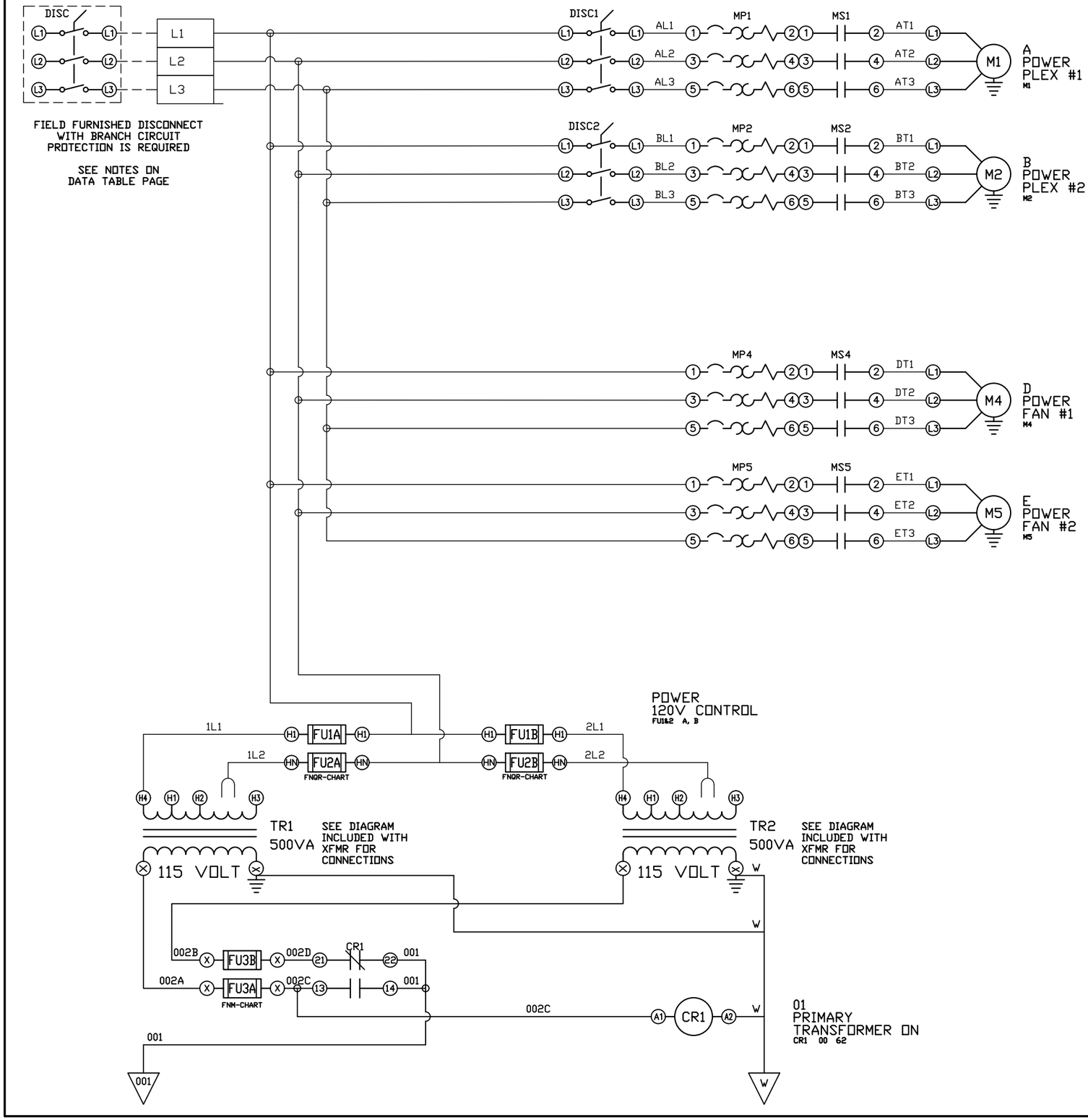
REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/05/24	PXEC0481	KMD	JRD
D-1	ADD CB TO EXTERNAL DEVICES & DISCONNECT TO INPUT POWER	07/16/24	PXEC0628	SEK	JRD
E-1	PLEX ISOLATION UPDATES	09/05/25	PXEC0639	JNW	WMM



OPTIONAL:

POWEREX

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DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
KMD	JRD	KMD
01/05/24	01/05/24	01/05/24

PANEL TYPE

VACUUM DUPLEX ENCL. SUB HMI, NFPA

DWG. TYPE WIRING

DWG. NO.

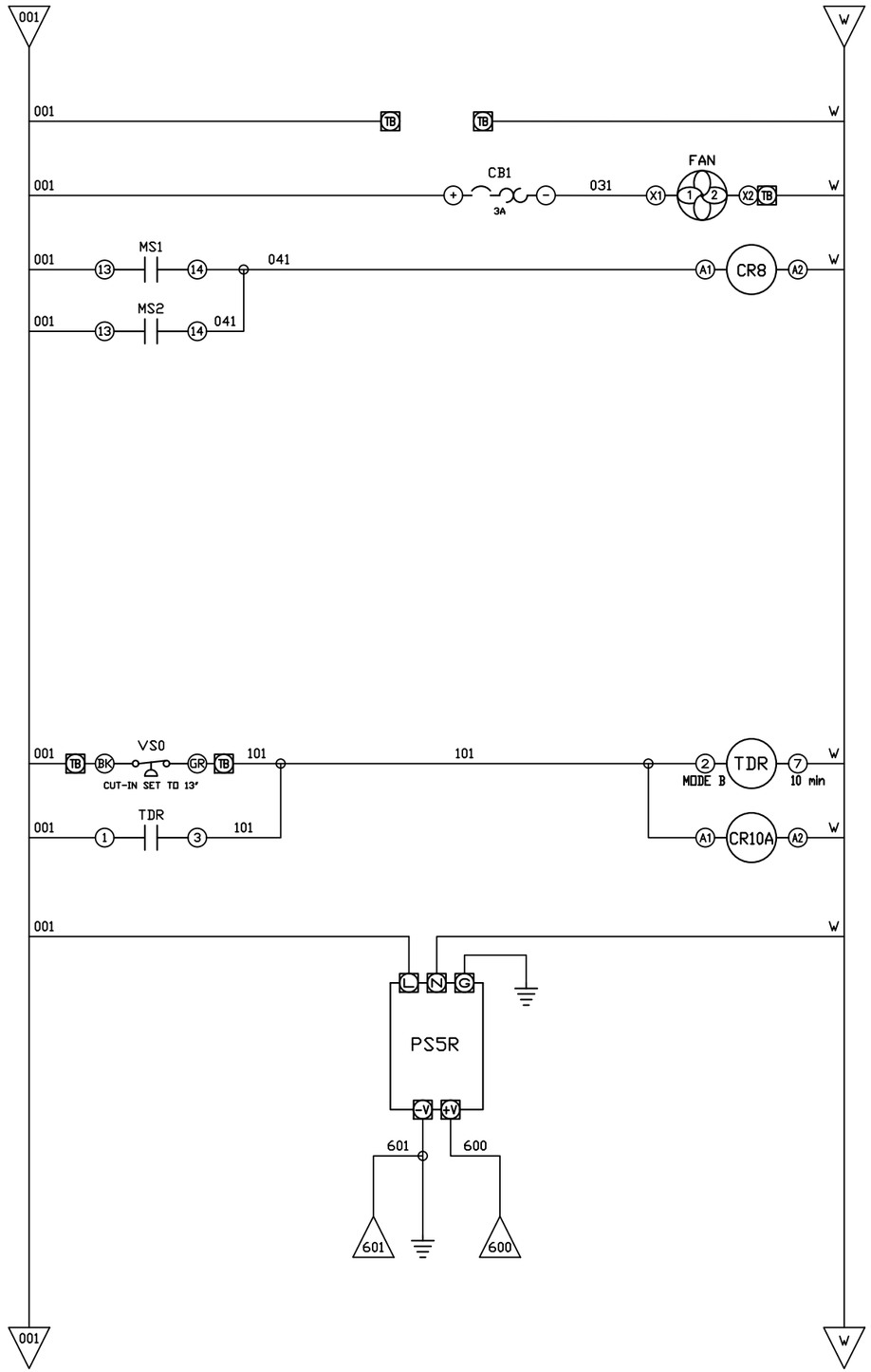
PBMI-VNES269

SHEET W-1

SIZE B

PBMI-VNES269

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/05/24	PXEC0481	KMD	JRD
D-1	ADD CB TO EXTERNAL DEVICES & DISCONNECT TO INPUT POWER	07/16/24	PXEC0628	SEK	JRD
E-1	PLEX ISOLATION UPDATES	09/05/25	PXEC0639	JNW	WMM



02
120VAC
DEVICE POWER

03
ENCL FAN
POWER

04
CTRL FAN
POWER
CR8 44 48

10
BACKUP DELAY START
& MINIMUM RUN TIMER
TDR 10 63

PLEX ON
AFTER 0-SEC
CR10A 111 121

60
24 VOLT DC
POWER SUPPLY
30W PS5R

OPTIONAL:

POWEREX

DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
KMD	JRD	KMD
01/05/24	01/05/24	01/05/24

PANEL TYPE
VACUUM DUPLEX ENCL. SUB
HMI, NFPA

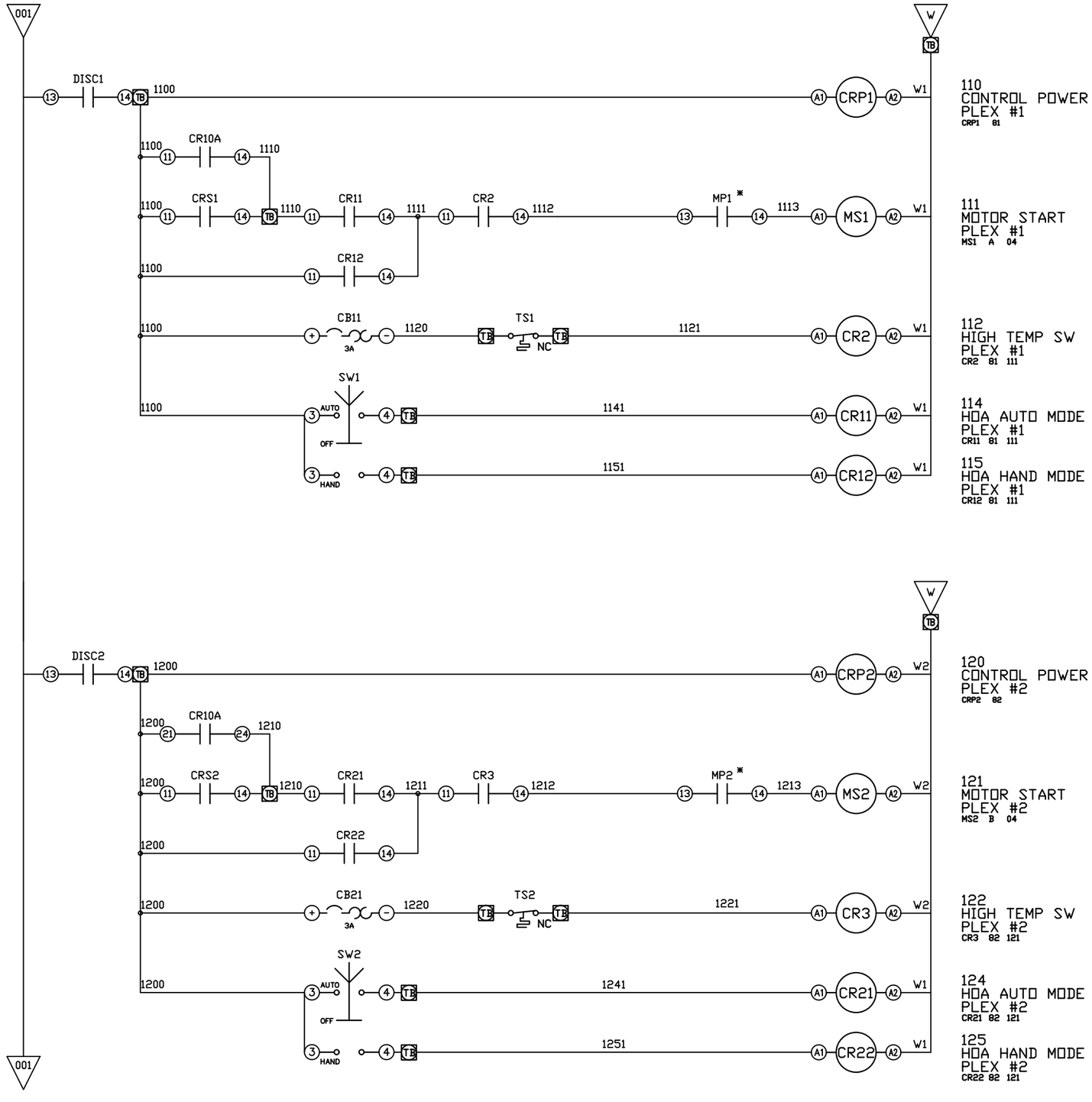
DWG. TYPE WIRING

DWG. NO.
PBMI-VNES269

SHEET W-2

SIZE B

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/05/24	PXEC0481	KMD	JRD
D-1	ADD CB TO EXTERNAL DEVICES & DISCONNECT TO INPUT POWER	07/16/24	PXEC0628	SEK	JRD
E-1	PLEX ISOLATION UPDATES	09/05/25	PXEC0639	JNW	WMM



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

OPTIONAL:

POWEREX

DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
KMD	JRD	KMD
01/05/24	01/05/24	01/05/24

PANEL TYPE

VACUUM DUPLEX ENCL. SUB HMI, NFPA

DWG. TYPE WIRING

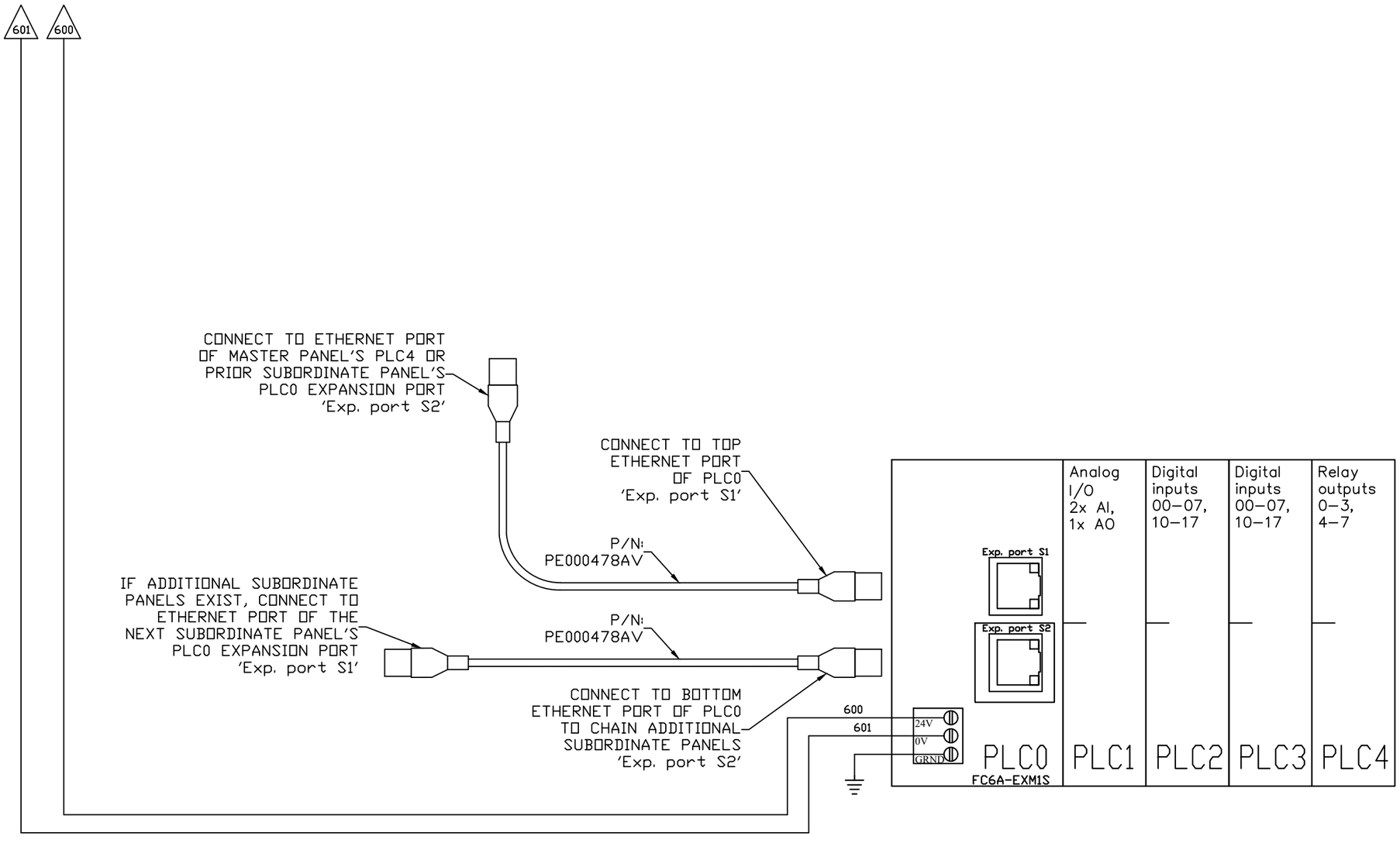
DWG. NO.

PBMI-VNES269

SHEET W-3

SIZE B

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/05/24	PXEC0481	KMD	JRD
D-1	ADD CB TO EXTERNAL DEVICES & DISCONNECT TO INPUT POWER	07/16/24	PXEC0628	SEK	JRD
E-1	PLEX ISOLATION UPDATES	09/05/25	PXEC0639	JNW	WMM



OPTIONAL:

POWEREX

DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
KMD	JRD	KMD
01/05/24	01/05/24	01/05/24

PANEL TYPE

VACUUM DUPLEX ENCL. SUB HMI, NFPA

DWG. TYPE WIRING

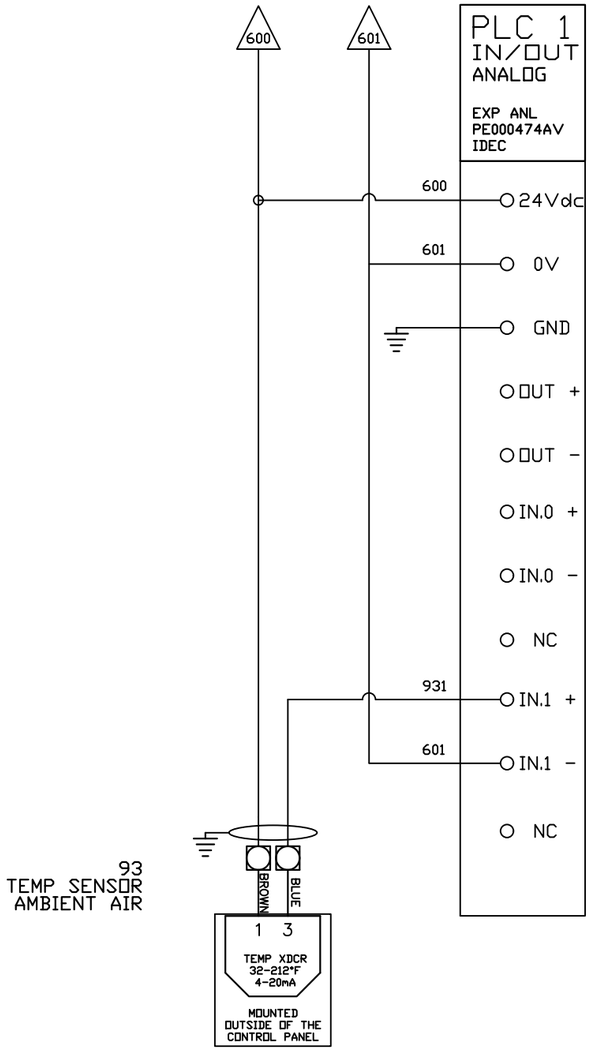
DWG. NO.

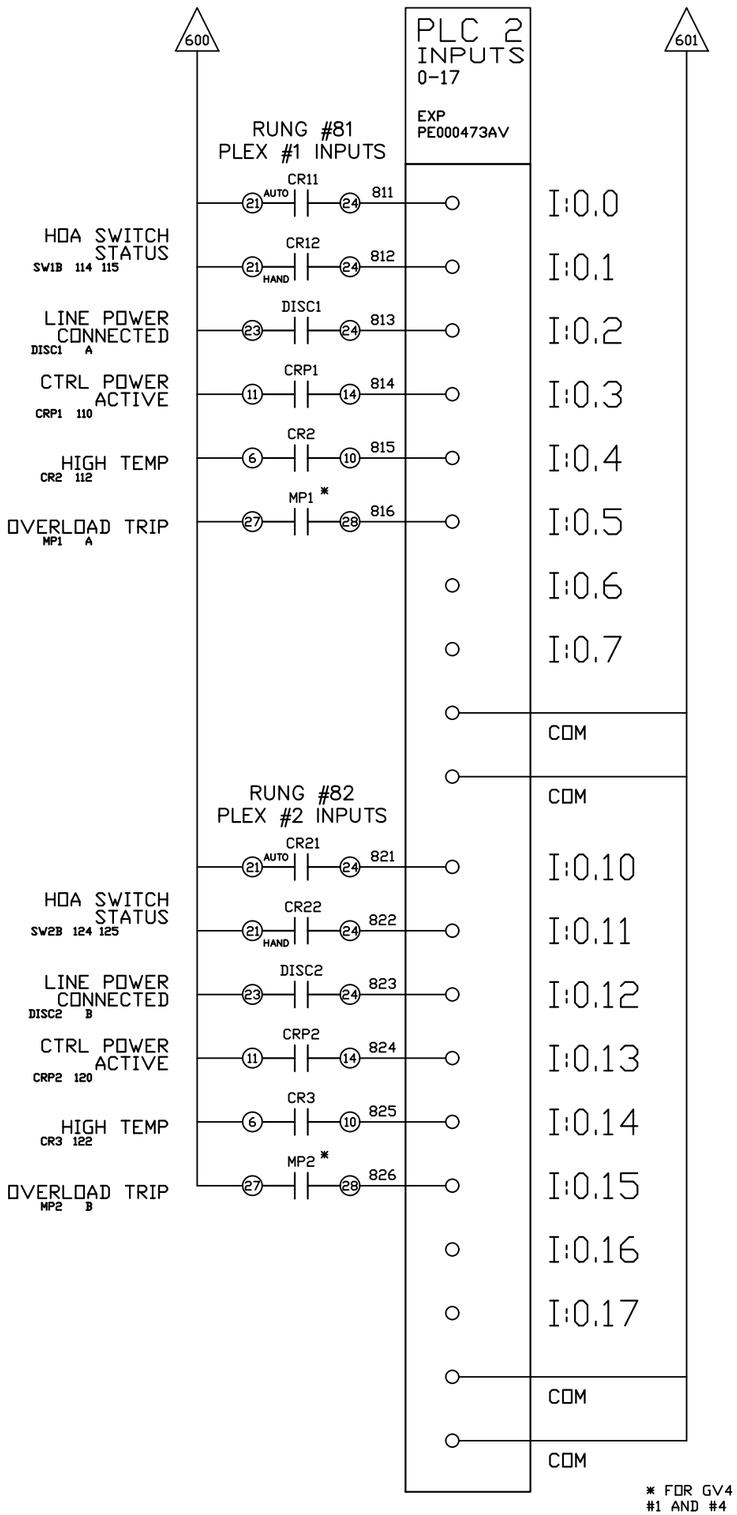
PBMI-VNES269

SHEET W-4

SIZE B

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/05/24	PXEC0481	KMD	JRD
D-1	ADD CB TO EXTERNAL DEVICES & DISCONNECT TO INPUT POWER	07/16/24	PXEC0628	SEK	JRD
E-1	PLEX ISOLATION UPDATES	09/05/25	PXEC0639	JNW	WMM





* FOR GV4 MOTOR PROTECTORS USE PINS #1 AND #4 ON AUX CONTACT IN 'SD9' SLOT

ASSEMBLY NOTE

USE SHIELDED CABLE BETWEEN TERMINAL BLOCKS AND PLC ANALOG INPUTS. CONNECT ONE END'S SHIELDING TO GROUND BLOCK. CABLE IS NOT TO BE ROUTED IN PROXIMITY (2") OR ROUTED IN WIRE TRAY OF ANY 3-PHASE POWER CONDUCTORS.

OPTIONAL:

POWEREX

DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
KMD	JRD	KMD
01/05/24	01/05/24	01/05/24

PANEL TYPE

VACUUM DUPLEX ENCL. SUB HMI, NFPA

DWG. TYPE WIRING

DWG. NO.

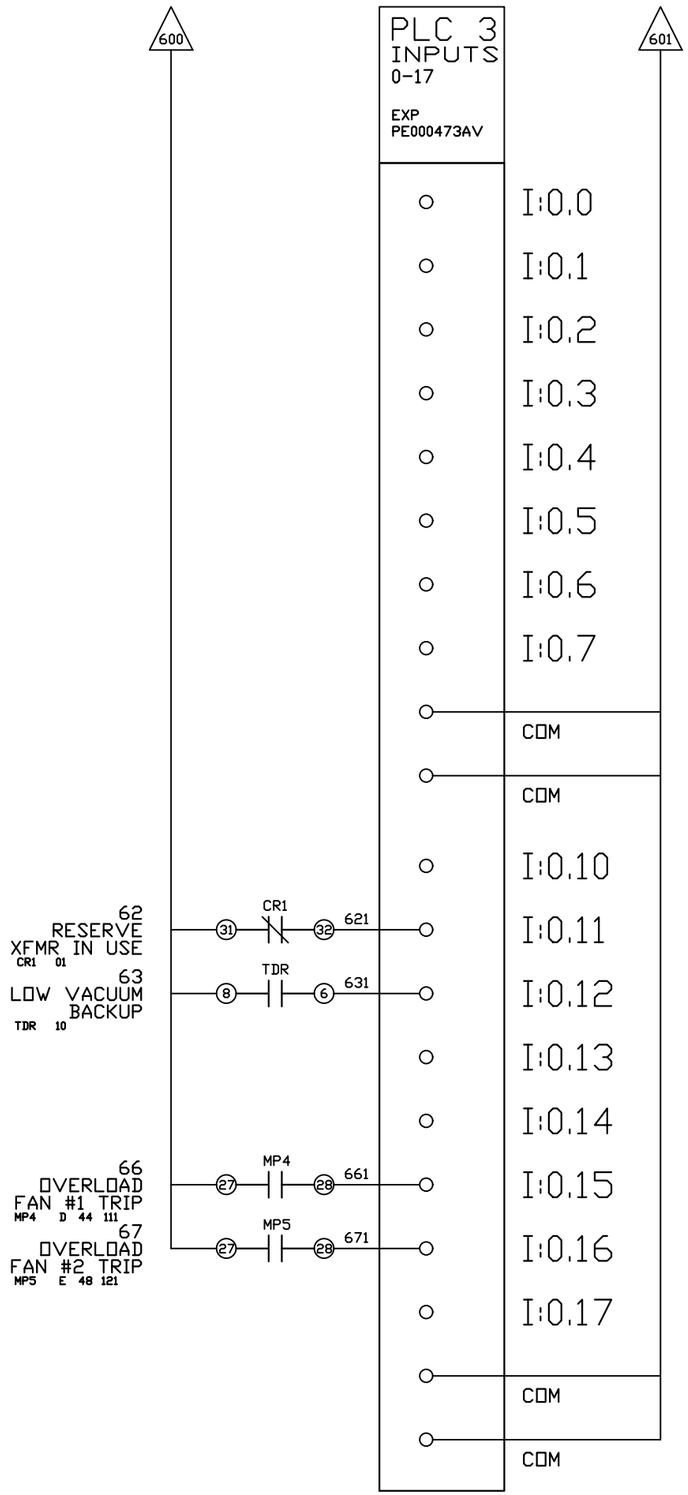
PBMI-VNES269

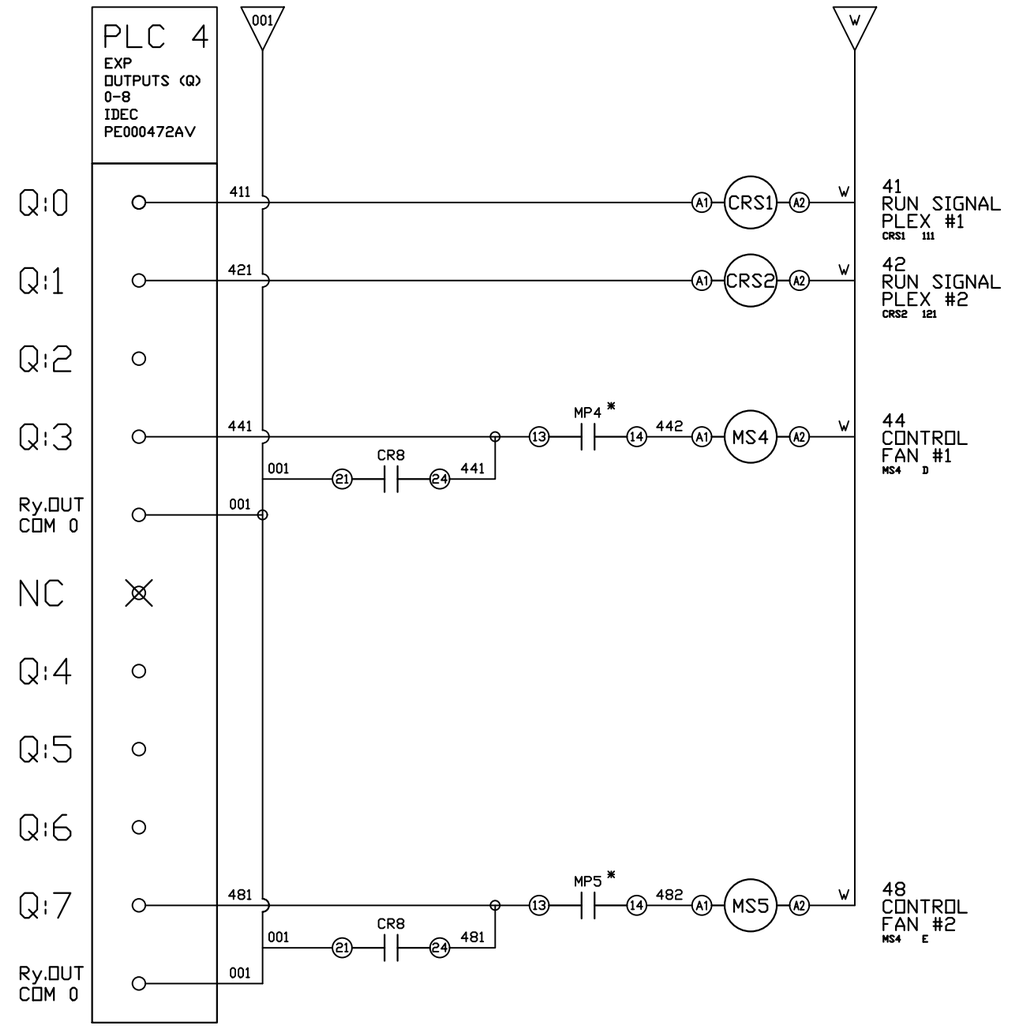
SHEET W-5

SIZE B

PBMI-VNES269

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/05/24	PXEC0481	KMD	JRD
D-1	ADD CB TO EXTERNAL DEVICES & DISCONNECT TO INPUT POWER	07/16/24	PXEC0628	SEK	JRD
E-1	PLEX ISOLATION UPDATES	09/05/25	PXEC0639	JNW	WMM





* FOR GV4 MOTOR PROTECTORS USE PINS #1 AND #4 ON AUX CONTACT IN 'SD9' SLOT

OPTIONAL:

POWEREX

DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
KMD	JRD	KMD
01/05/24	01/05/24	01/05/24

PANEL TYPE

VACUUM DUPLEX ENCL. SUB HMI, NFPA

DWG. TYPE WIRING

DWG. NO.

PBMI-VNES269

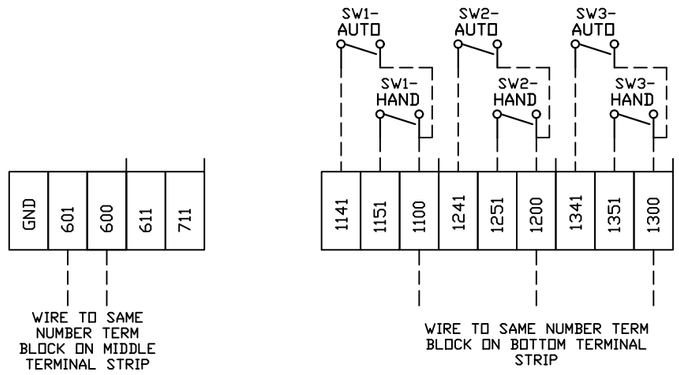
SHEET W-6

SIZE B

PBMI-VNES269

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/05/24	PXEC0481	KMD	JRD
D-1	ADD CB TO EXTERNAL DEVICES & DISCONNECT TO INPUT POWER	07/16/24	PXEC0628	SEK	JRD
E-1	PLEX ISOLATION UPDATES	09/05/25	PXEC0639	JNW	WMM

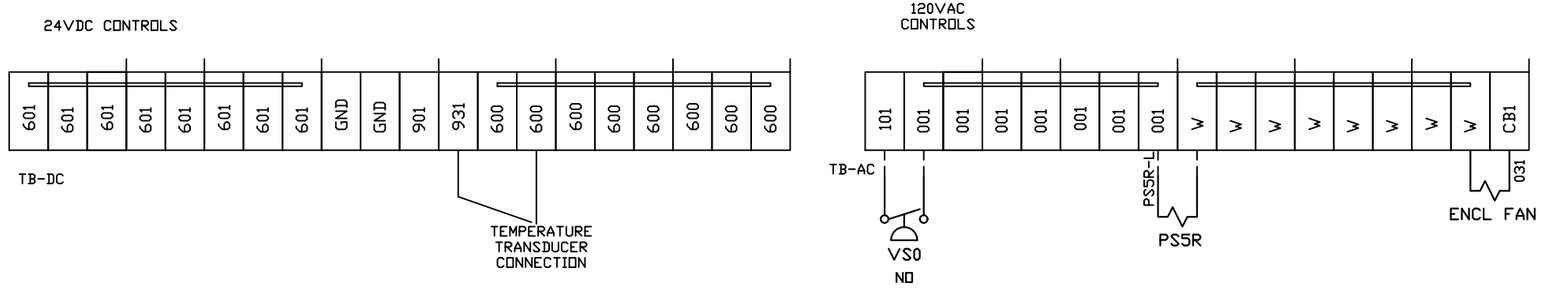
UPPER TERMINAL BLOCKS



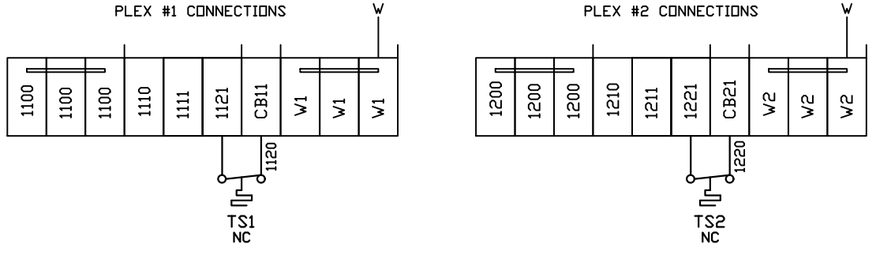
FIELD WIRING NOTES:

- 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

MIDDLE TERMINAL BLOCKS



LOWER TERMINAL BLOCKS



OPTIONAL:

POWEREX™

DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
KMD	JRD	KMD
01/05/24	01/05/24	01/05/24

PANEL TYPE

VACUUM DUPLEX ENCL. SUB HMI, NFPA

DWG. TYPE WIRING

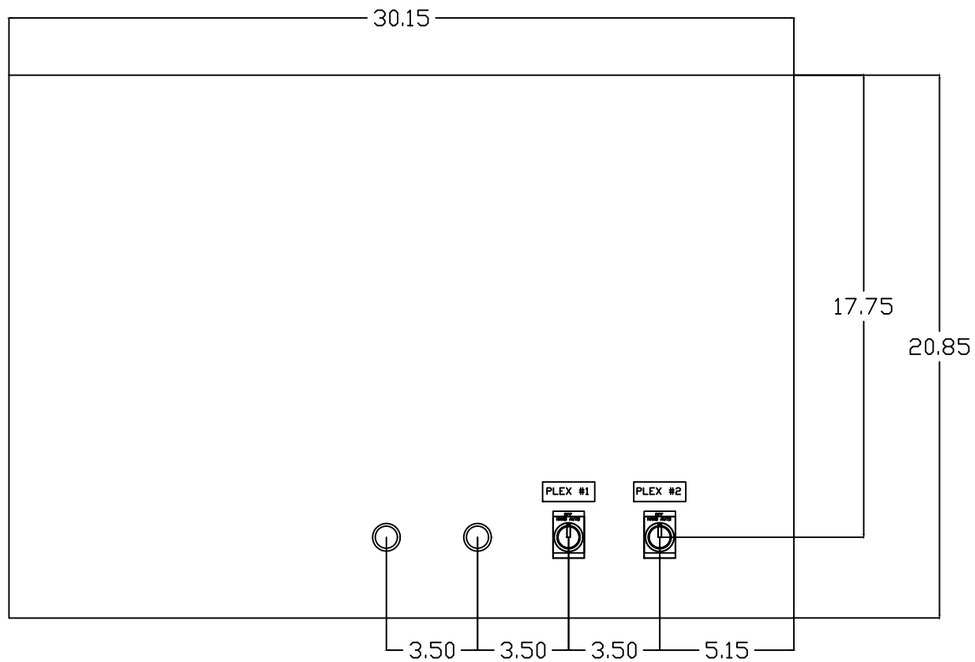
DWG. NO.

PBMI-VNES269

SHEET W-7

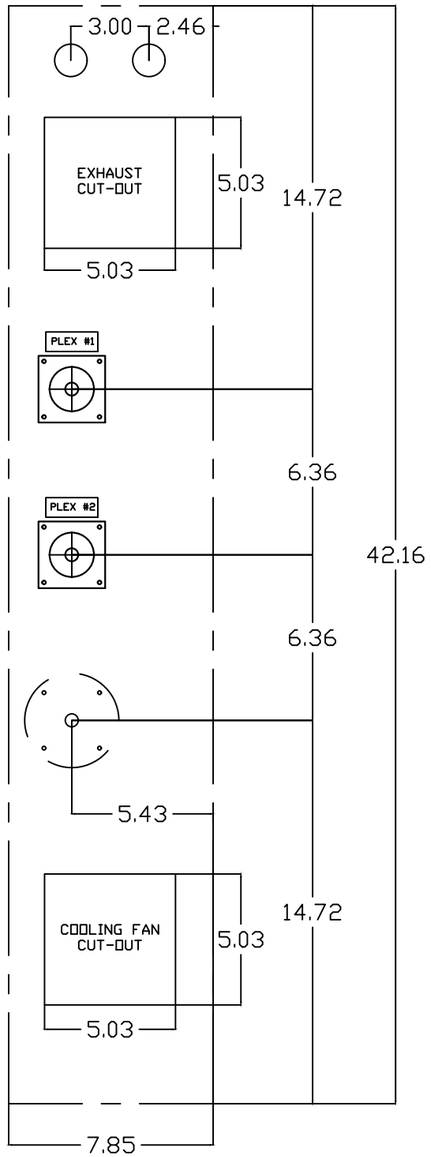
SIZE B

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/05/24	PXEC0481	KMD	JRD
D-1	ADD CB TO EXTERNAL DEVICES & DISCONNECT TO INPUT POWER	07/16/24	PXEC0628	SEK	JRD
E-1	PLEX ISOLATION UPDATES	09/05/25	PXEC0639	JNW	WMM



INSTRUMENT PANEL ON FRONT OF ENCLOSURE

RIGHT SIDE OF ENCLOSURE



OPTIONAL:

POWEREX

DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
KMD	JRD	KMD
01/05/24	01/05/24	01/05/24

PANEL TYPE

VACUUM DUPLEX ENCL. SUB HMI, NFPA

DWG. TYPE LAYOUT

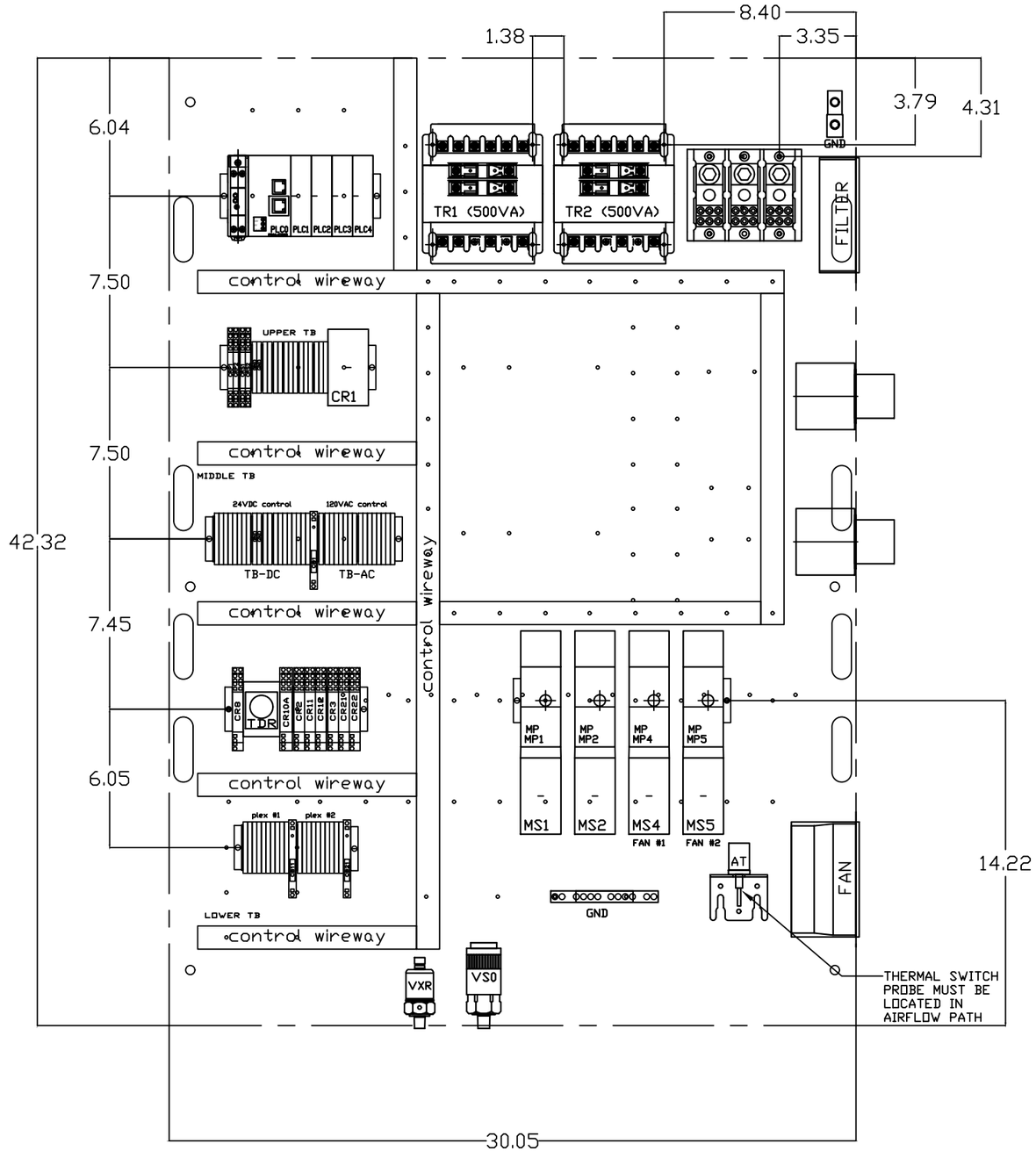
DWG. NO.

PBMI-VNES269

SHEET	SIZE
L-1	B

PBMI-VNES269

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/05/24	PXEC0481	KMD	JRD
D-1	ADD CB TO EXTERNAL DEVICES & DISCONNECT TO INPUT POWER	07/16/24	PXEC0628	SEK	JRD
E-1	PLEX ISOLATION UPDATES	09/05/25	PXEC0639	JNW	WMM



OPTIONAL:

POWEREX

DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
KMD	JRD	KMD
01/05/24	01/05/24	01/05/24

PANEL TYPE

VACUUM DUPLEX ENCL. SUB HMI, NFPA

DWG. TYPE LAYOUT

DWG. NO.

PBMI-VNES269

SHEET	SIZE
L-2	B

PBMI-VNES269

TABLE 1 – OIL–LUBRICATED

PANEL DATA 3ø – 50/60 Hz 500VA CONTROL CIRCUIT									
LOAD SPECIFICATIONS						(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)	NONTIME DELAY FUSE	TIME–DELAY FUSE	INVERSE–TIME CIRCUIT BREAKER
PBMIVNES26942LV	5	208V/3ø	15.0	0.6	33.7	70A	45A	60A
PBMIVNES26952LV	5	208V/3ø	14.8	0.6	33.3	70A	45A	60A
PBMIVNES26972LV	7.5	208V/3ø	26.2	0.6	56.1	110A	80A	100A
PBMIVNES26943LV	5	230V/3ø	13.2	0.54	30.0	60A	40A	50A
PBMIVNES26953LV	5	230V/3ø	12.9	0.54	29.4	60A	40A	50A
PBMIVNES26973LV	7.5	230V/3ø	20.9	0.54	45.4	90A	70A	80A
PBMIVNES26944LV	5	460V/3ø	6.6	0.33	15.9	30A	25A	30A
PBMIVNES26954LV	5	460V/3ø	6.45	0.33	15.6	30A	25A	30A
PBMIVNES26974LV	7.5	460V/3ø	10.5	0.33	23.7	45A	35A	40A

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

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					
REPLACEMENT 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 XFRMR FOR CONNECTIONS					

WIRE TYPE TABLE

VOLTAGE	WIRE NUMBERS	GAUGE	COLOR
120VAC	001–599,1100+	16–18AWG	RED/BLK
0VAC	W	16–18AWG	WHT/BLK
24VDC	600–1099	16–18AWG	PURPLE
0VDC	601	16–18AWG	PURPLE
GND	–	VARIES	GREEN
CUSTOMER SUPPLY	01–99	16–18AWG	YELLOW

REV	REVISION	DATE	ECN	NAME	CHKD
B-1	RELEASE TO PRODUCTION	01/05/24	PXEC0481	KMD	JRD
D-1	ADD CB TO EXTERNAL DEVICES & DISCONNECT TO INPUT POWER	07/16/24	PXEC0628	SEK	JRD
E-1	PLEX ISOLATION UPDATES	09/05/25	PXEC0639	JNW	WMM

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.

OPTIONAL:

POWEREX™

DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
KMD	JRD	KMD
01/05/24	01/05/24	01/05/24

PANEL TYPE: VACUUM DUPLEX ENCL. SUB HMI, NFPA

DWG. TYPE: DATA

DWG. NO.: PBMI–VNES269

SHEET: D–1

SIZE: B

PBMI–VNES269

TABLE 1 – CLAW

PANEL DATA 3ø – 50/60 Hz 500VA CONTROL CIRCUIT								
LOAD SPECIFICATIONS						(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)	NONTIME DELAY FUSE	TIME-DELAY FUSE	INVERSE-TIME CIRCUIT BREAKER
PBMIVNES26922CV	2	208V/3ø	5.6	0.6	14.9	30A	20A	25A
PBMIVNES26932CV	3	208V/3ø	8.6	0.6	20.9	40A	30A	35A
PBMIVNES26942CV	4	208V/3ø	10.4	0.6	24.5	50A	35A	45A
PBMIVNES26952CV	5	208V/3ø	13.0	0.6	29.7	60A	40A	50A
PBMIVNES26962CV	6.4	208V/3ø	16.4	0.6	36.5	70A	50A	70A
PBMIVNES26972CV	7.5	208V/3ø	21.4	0.6	46.5	90A	70A	80A
PBMIVNES269A2CV	10	208V/3ø	27.2	0.6	58.1	125A	80A	100A
PBMIVNES269F2CV	15	208V/3ø	40.5	0.6	84.7	175A	125A	150A
PBMIVNES26923CV	2	230V/3ø	5.6	0.54	14.8	30A	20A	25A
PBMIVNES26933CV	3	230V/3ø	8.4	0.54	20.4	40A	30A	35A
PBMIVNES26943CV	4	230V/3ø	9.2	0.54	22.0	45A	30A	40A
PBMIVNES26953CV	5	230V/3ø	11.4	0.54	26.4	50A	35A	45A
PBMIVNES26963CV	6.4	230V/3ø	15.2	0.54	34.0	70A	50A	60A
PBMIVNES26973CV	7.5	230V/3ø	17.2	0.54	38.0	80A	60A	70A
PBMIVNES269A3CV	10	230V/3ø	23.6	0.54	50.8	100A	70A	90A
PBMIVNES269F3CV	15	230V/3ø	35.0	0.54	73.6	150A	100A	150A
PBMIVNES26924CV	2	460V/3ø	2.8	0.33	8.8	15A	15A	15A
PBMIVNES26934CV	3	460V/3ø	4.2	0.33	11.6	25A	15A	20A
PBMIVNES26944CV	4	460V/3ø	4.6	0.33	11.9	25A	20A	20A
PBMIVNES26954CV	5	460V/3ø	5.7	0.33	14.1	30A	20A	25A
PBMIVNES26964CV	6.4	460V/3ø	7.6	0.33	17.9	35A	25A	30A
PBMIVNES26974CV	7.5	460V/3ø	8.6	0.33	19.9	40A	30A	35A
PBMIVNES269A4CV	10	460V/3ø	11.8	0.33	26.3	50A	40A	45A
PBMIVNES269F4CV	15	460V/3ø	17.5	0.33	37.7	80A	60A	70A

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

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					
REPLACEMENT 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 XFRMR FOR CONNECTIONS					

WIRE TYPE TABLE

VOLTAGE	WIRE NUMBERS	GAUGE	COLOR
120VAC	001-599,1100+	16-18AWG	RED/BLK
0VAC	W	16-18AWG	WHT/BLK
24VDC	600-1099	16-18AWG	PURPLE
0VDC	601	16-18AWG	PURPLE
GND	-	VARIES	GREEN
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	01/05/24	PXEC0481	KMD	JRD
D-1	ADD CB TO EXTERNAL DEVICES & DISCONNECT TO INPUT POWER	07/16/24	PXEC0628	SEK	JRD
E-1	PLEX ISOLATION UPDATES	09/05/25	PXEC0639	JNW	WMM

OPTIONAL:

POWEREX

DRAWN BY	CHECKED BY	ENGINEERING APPROVAL
KMD	JRD	KMD
01/05/24	01/05/24	01/05/24

PANEL TYPE
VACUUM DUPLEX ENCL. SUB HMI, NFPA

DWG. TYPE DATA

DWG. NO.
PBMI-VNES269

SHEET D-1

SIZE B

PBMI-VNES269