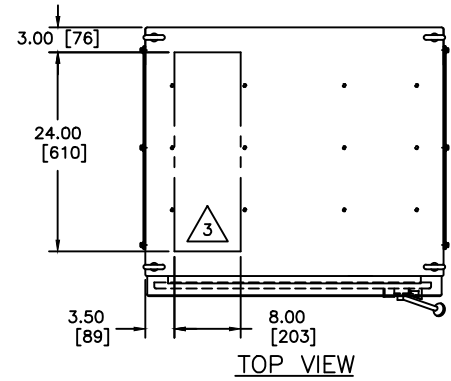
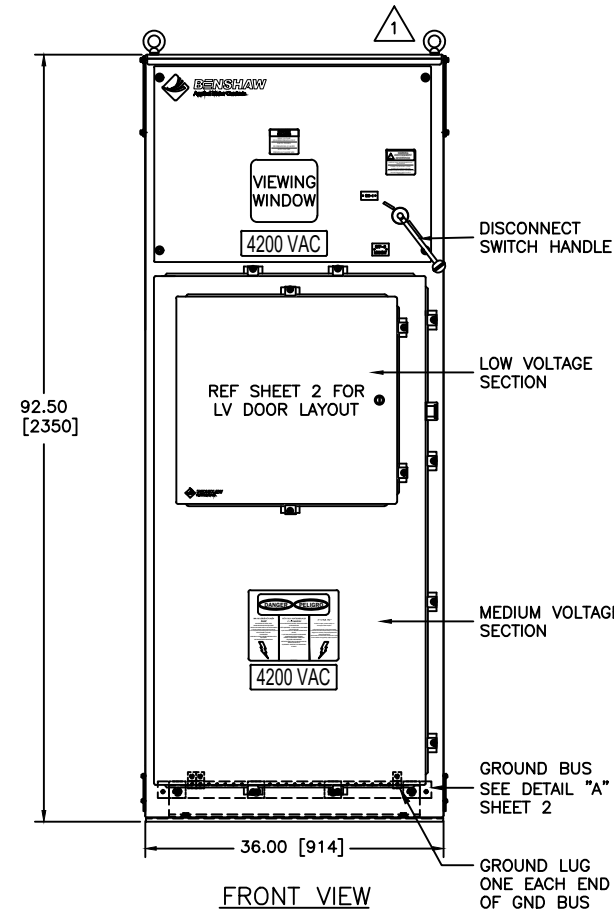


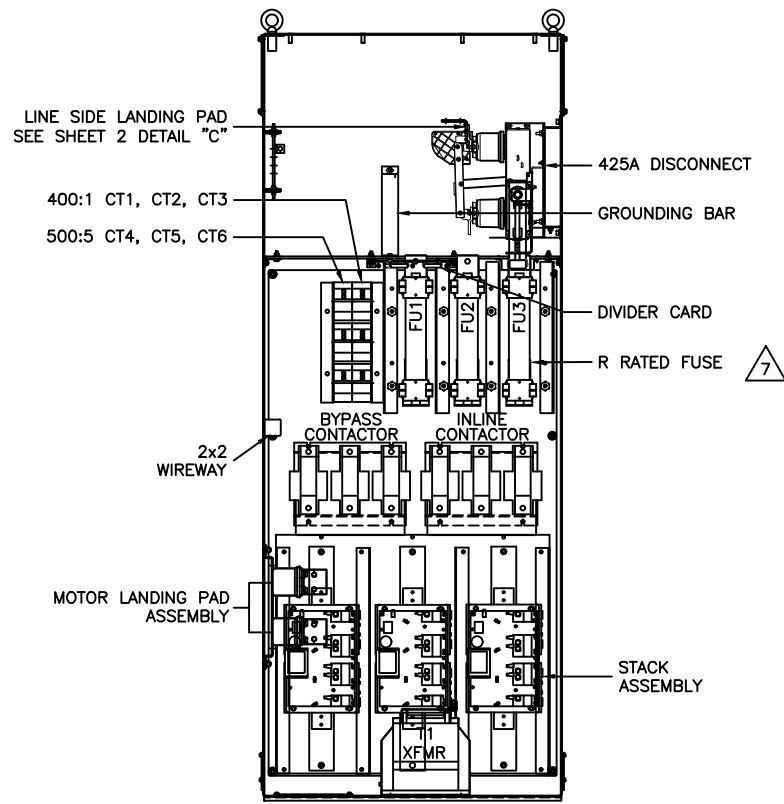
MVRN3000416012



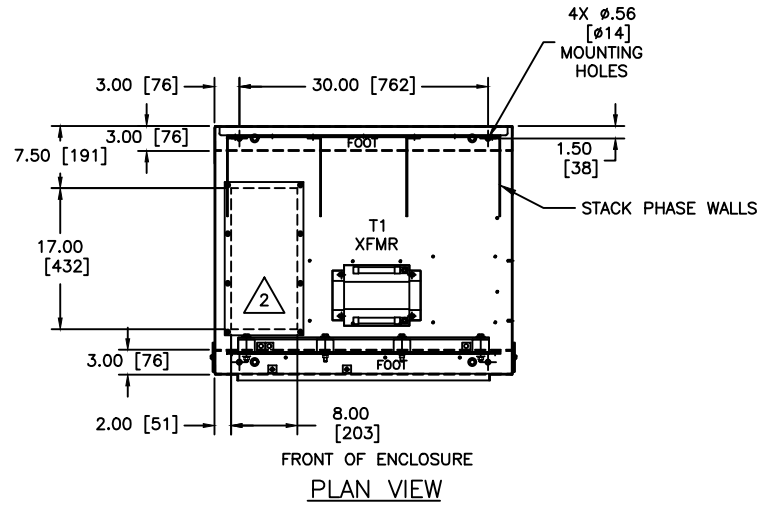
TOP VIEW



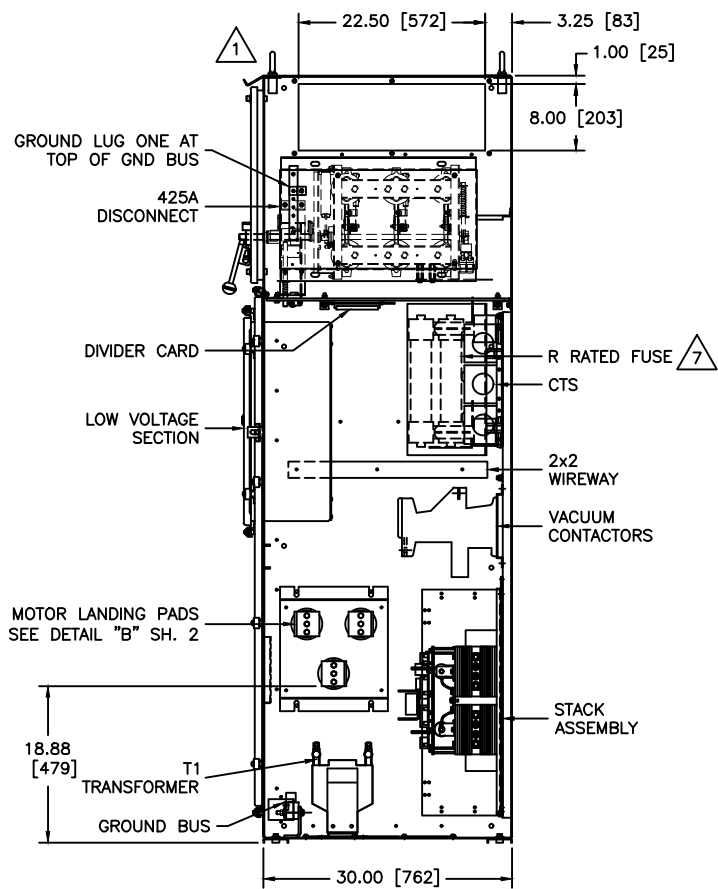
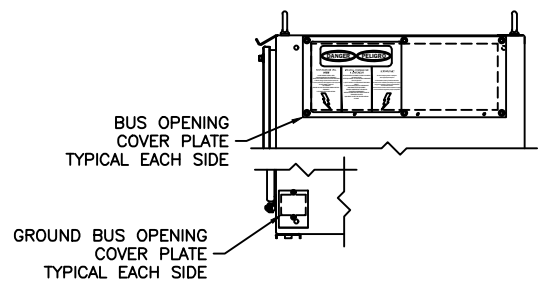
FRONT VIEW



FRONT INTERIOR VIEW



FRONT OF ENCLOSURE
PLAN VIEW



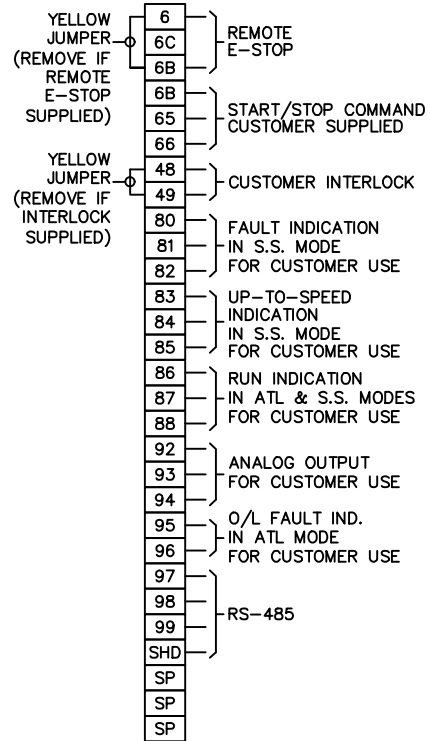
RIGHT SIDE INTERIOR VIEW

- NOTES:
- 1 REMOVABLE LIFTING EYEBOLTS
 - 2 CABLE ENTRY/EXIT AREA. CUTOUT W/ COVER PLATE SUPPLIED
 - 3 CABLE ENTRY/EXIT AREA. NO CUTOUT SUPPLIED. CUSTOMER TO CUT AS REQUIRED.
 - 4. ENCLOSURE COLOR: ANSI 61 GREY
 - 5. TIGHTEN BOLTS PER CHART BELOW
- | STEEL BOLT
TORQUE IN POUND-FOOT [NEWTON-METER] | | | | |
|---|-----------|---------|-----------|------------|
| 1/4-20 | 5/16-18 | 3/8-16 | 1/2-13 | 5/8-11 |
| 5 [6.8] | 12 [16.3] | 20 [27] | 50 [67.8] | 95 [128.8] |
- 6. APPROXIMATE WEIGHT IS 1600LBS [726KG]
 - 7 R-FUSES SHOWN FOR REFERENCE. REFERENCE SALES ORDER FOR FUSE SIZE.

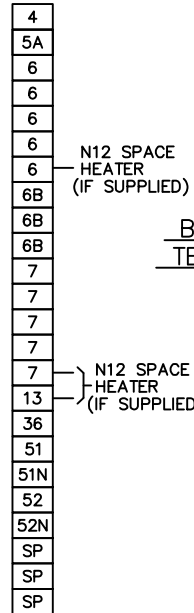
REVISION DO NOT SCALE DWG	THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS IN INCHES [mm] INTERPRET DRAWING PER ASME Y14.5M-1994 TOLERANCES: .XX ± .03 .XXX ± .015 ANGLES ± 1° MATERIAL: FINISH:	SIGNATURES	DATE	TITLE: UL LABELED MVRN3000-4160-12 SOLID STATE STARTER ENCLOSURE LAYOUT	BENSHAW 815 ALPHA DRIVE PITTSBURGH, PA. 15238 550 BRIGHT ST. E. LONDON, ONTARIO N6E 3E3			
	THIS DRAWING AND ALL INFORMATION CONTAINED HEREIN IS THE PROPERTY OF BENSHAW INC. AND MAY NOT BE REPRODUCED, OR DIVULGED TO UNAUTHORIZED PERSONS WITHOUT THE EXPRESS WRITTEN CONSENT OF BENSHAW INC. IT IS PROVIDED SOLELY FOR THE CONVENIENCE OF THE USER AND SHALL BE RETURNED UPON REQUEST.		DRWN. CTD 08/11/25	CHKD.			ENG. NMK 08/11/25	SCALE: 3/32 : 1	SHEET 1 OF 8
			SIZE DWG. NO. D MVRN3000416012				REV 0		

MVRN3000416012

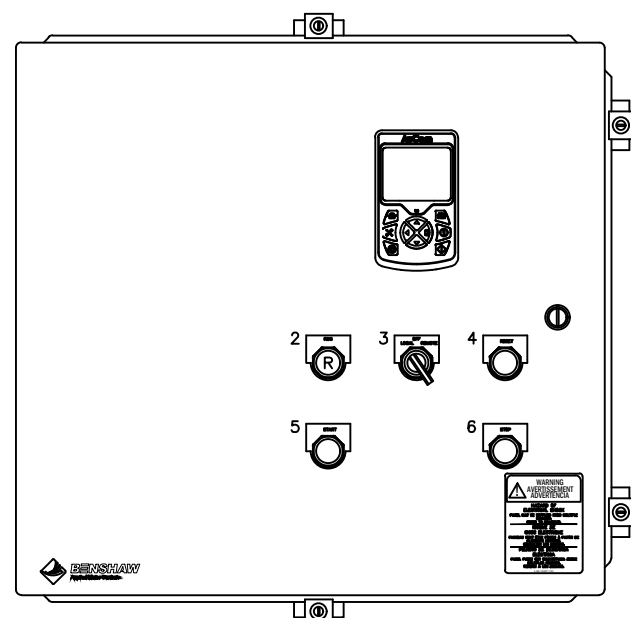
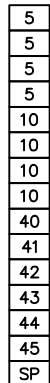
CUSTOMER
TERMINAL BLOCKS



BENSHAW
TERMINAL BLOCKS



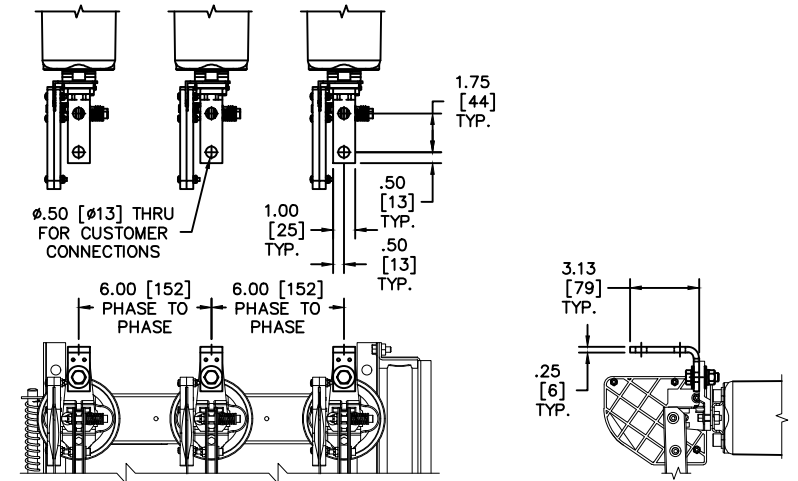
BENSHAW 24VDC
TERMINAL BLOCKS



LOW VOLTAGE COMPARTMENT DOOR

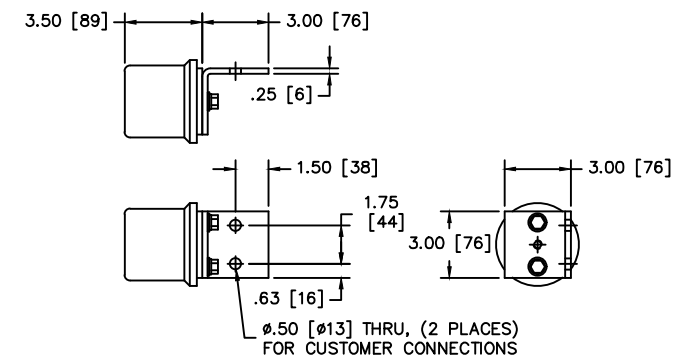
DEVICE LEGEND

1. KEYPAD DISPLAY
2. "RUN" (RED) PILOT LIGHT
3. "LOCAL-OFF-REMOTE" SELECTOR SWITCH
4. "RESET" (BLACK) PUSHBUTTON
5. "START" (GREEN) PUSHBUTTON
6. "STOP" (RED) RAISED PUSHBUTTON



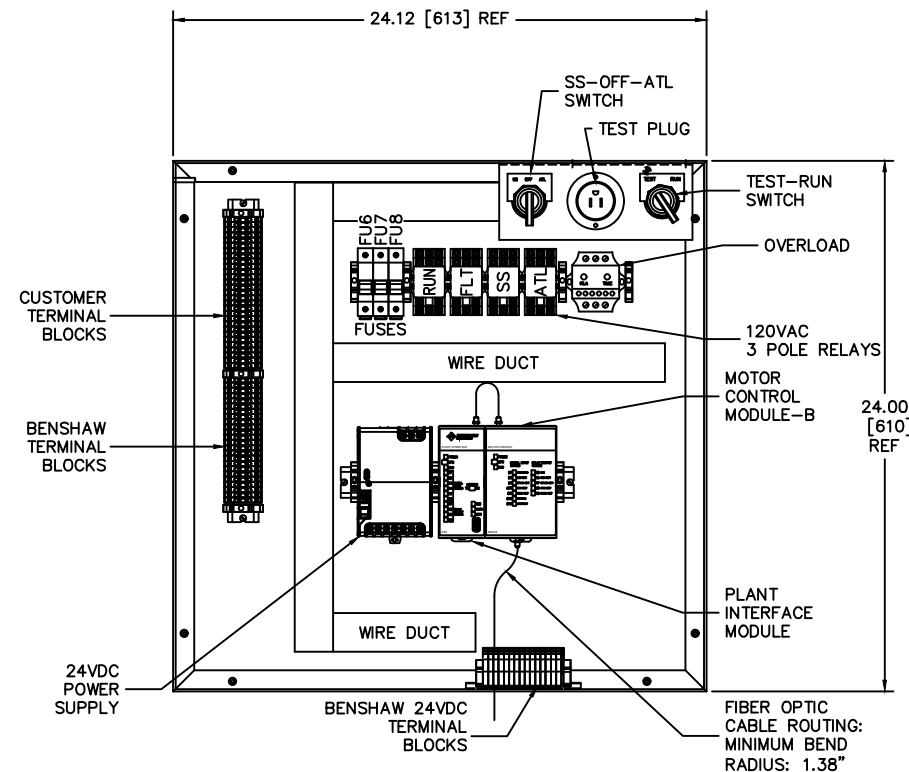
LINE SIDE LANDING PAD DETAIL "C"

MATERIAL: .25" THICK TIN PLATED COPPER

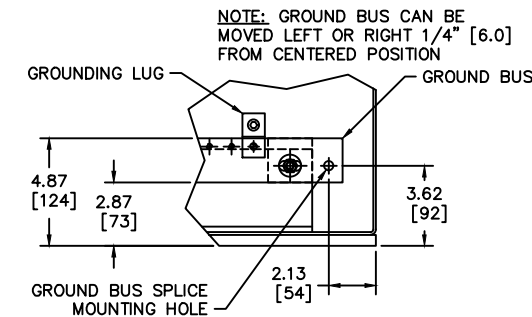


LANDING PAD DETAIL "B"

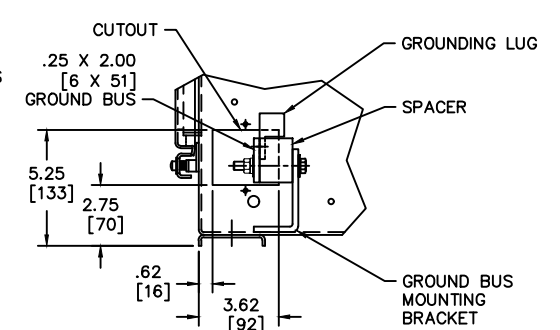
MATERIAL: .25" THICK TIN PLATED COPPER



LOW VOLTAGE COMPARTMENT
INTERIOR VIEW



FRONT VIEW



SIDE VIEW

GROUND BUS DETAIL "A"

MATERIAL: .25 [6] THK. X 2.00 [51] WIDE BARE COPPER

REVISION DO NOT SCALE DWG	THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED		SIGNATURES	DATE	TITLE: UL LABELED MVRNXE-3000-4160-12 SOLID STATE STARTER LOW VOLTAGE COMPARTMENT AND ENCLOSURE DETAILS	 BENSHAW 815 ALPHA DRIVE PITTSBURGH, PA. 15238 500 BRIGHT ST. E. LONDON, ONTARIO N6H 3K3
	THIS DRAWING AND ALL INFORMATION CONTAINED HEREIN, IS THE PROPERTY OF BENSHAW INC., AND MAY NOT BE REPRODUCED, OR DIVULGED TO UNAUTHORIZED PERSONS WITHOUT THE EXPRESS WRITTEN CONSENT OF BENSHAW INC. IT IS PROVIDED SOLELY FOR THE CONVENIENCE OF THE USER AND SHALL BE RETURNED UPON REQUEST.		ALL DIMENSIONS IN INCHES (mm) INTERPRET DRAWING PER ASME Y14.5M-1994		DRWN. CTD 08/11/25	08/11/25		
			TOLERANCES: .XX ± .03 .XXX ± .015 ANGLES ± 1°		CHKD.			
			MATERIAL:		ENG. NMK 08/11/25			
			FINISH:					
			SIZE DWG. NO.		D MVRNXE3000416012			REV 0

MVRNXE3000416012

SHOP NOTES:

- S1 ALL INSTRUMENT AND CONTROL GROUND WIRES ARE #12AWG GREEN WIRE, EXCEPT WHERE NOTED, RUN SEPARATELY TO GROUND LUG POINT. DO NOT DAISY CHAIN GROUND WIRES. RUN ALL GROUND WIRES A MINIMUM OF FOUR (4) INCHES FROM POWER CABLE AND HEATSINKS.
- S2 ALL SECONDARY POWER WIRING MUST BE ROUTED SEPARATE FROM GROUND WIRES AND CONTROL WIRING.
- S3 ALL CURRENT TRANSFORMER SIGNAL WIRING TO BE COVERED WITH HIGH VOLTAGE SLEEVING. ALL CURRENT TRANSFORMERS TO BE SEPARATELY GROUNDED TO GROUND BUS.
- S4 ALL WIRING IN THE MEDIUM VOLTAGE AREA WITHIN FOUR (4) INCHES OF THE HEATSINK ASSEMBLY OR POWER CABLE MUST HAVE 5KV SLEEVING.
- S5 SEPARATE LOW VOLTAGE SUPPLY & CONTROL WIRING AS MUCH AS POSSIBLE FROM MV WIRING. MINIMUM SPACE IS 3". WIRES TO CROSS AT 90° ANGLES.
- S6 14AWG GREEN WIRE, EXCEPT WHERE OTHERWISE NOTED, RUN SEPARATELY TO GROUND LUG POINT. DO NOT DAISY CHAIN GROUND WIRES. RUN ALL GROUND WIRES A MINIMUM OF FOUR (4) INCHES FROM POWER CABLE AND HEATSINKS.
- S7 SCR GATE WIRES TO BE COVERED WITH HIGH VOLTAGE SLEEVING.
- S8 ALL CONTROL WIRING TO BE 14AWG EXCEPT WHERE NOTED.
- S9 ASSURE ALL WIRING REQUIRING CUSTOMER FIELD CONNECTION IS CLEARLY LABELED AND IDENTIFIED WITH WIRE NUMBERS AND A TAG DETAILING DESTINATION AND PURPOSE OF CIRCUIT.

CUSTOMER NOTES:

- C1 ITEM LOCATED IN STARTER MEDIUM VOLTAGE SECTION.
- C2 ITEM LOCATED IN STARTER LOW VOLTAGE SECTION.
- C3 R4 RELAY SHOWN IN DE-ENERGIZED STATE. R4 N.O. CONTACT WILL OPEN AND R1 N.C. CONTACT WILL CLOSE ON SYSTEM FAULT. R4 RELAY INDICATES FAULT ON POWER-UP UNTIL STARTER SELF-CHECK IS COMPLETE.
- C4 LED STATUS WITH POWER APPLIED.  "ON"  "OFF"
- C5 CAUTION: RESETTNG THE OVERLOAD TRIP OR THE PIM GENERAL FAULT RELAYS WHILE IN THE REMOTE MODE WILL CAUSE THE MOTOR TO AUTOMATICALLY RESTART IF THE CUSTOMER RUN COMMAND IS CLOSED.
- C6 OUTPUT RELAY CONTACTS SHOWN WITH CONTROL POWER APPLIED, NO TRIPS, NO ALARMS AND FACTORY CONFIGURATION IN EFFECT. TRIP - FAIL SAFE
- C7 REFERENCE SALES ORDER FOR R-FUSE SIZE.
- C8 THE ACTUAL HP AND FLA RATINGS VARY PER MOTOR. SIZE R-FUSES PER MOTOR FLA. THE MAXIMUM SIZE R-FUSE FOR THIS MODEL MVRXE IS 24R.

PARAMETER SETTINGS

SEE MANUAL FOR ADDITIONAL SETTINGS

INDEX	GROUP	NAME	AS BUILT
1.5	CONFIGURATION	NOMINAL LINE VOLTAGE	4160
1.8	CONFIGURATION	MOTOR CONNECTION	INLINE - 3 WIRE
8.1	STARTER SETTINGS	PRIMARY COMMAND SOURCE	DIGITAL INPUT
8.2	STARTER SETTINGS	SECONDARY COMMAND SOURCE	DIGITAL INPUT
7.2.2.1	PROGRAMMABLE INPUTS	DIGITAL INPUT #1 FUNCTION	START/STOP (2 WIRE)
7.2.3.1	PROGRAMMABLE INPUTS	DIGITAL INPUT #2 FUNCTION	DISABLED
7.2.4.1	PROGRAMMABLE INPUTS	DIGITAL INPUT #3 FUNCTION	RESET N.O.
7.2.5.1	PROGRAMMABLE INPUTS	DIGITAL INPUT #4 FUNCTION	DISABLED
7.2.6.1	PROGRAMMABLE INPUTS	DIGITAL INPUT #5 FUNCTION	DISABLED
7.2.7.1	PROGRAMMABLE INPUTS	DIGITAL INPUT #6 FUNCTION	DISABLED
7.2.2.2	PROGRAMMABLE INPUTS	DIGITAL INPUT #1 ACTIVE	ALWAYS ACTIVE
7.2.3.2	PROGRAMMABLE INPUTS	DIGITAL INPUT #2 ACTIVE	DISABLED
7.2.4.2	PROGRAMMABLE INPUTS	DIGITAL INPUT #3 ACTIVE	ALWAYS ACTIVE
7.2.5.2	PROGRAMMABLE INPUTS	DIGITAL INPUT #4 ACTIVE	DISABLED
7.2.6.2	PROGRAMMABLE INPUTS	DIGITAL INPUT #5 ACTIVE	DISABLED
7.2.7.2	PROGRAMMABLE INPUTS	DIGITAL INPUT #6 ACTIVE	DISABLED
7.3.1.1	PROGRAMMABLE OUTPUTS	RELAY OUTPUT #1 FUNCTION	OFF
7.3.2.1	PROGRAMMABLE OUTPUTS	RELAY OUTPUT #2 FUNCTION	OFF
7.3.3.1	PROGRAMMABLE OUTPUTS	RELAY OUTPUT #3 FUNCTION	UTS
7.3.4.1	PROGRAMMABLE OUTPUTS	RELAY OUTPUT #4 FUNCTION	TRIP FAILSAFE
7.4.1	ANALOG OUTPUT	ANALOG OUTPUT FUNCTION	CURRENT (%FLA)
7.4.2	ANALOG OUTPUT	ANALOG OUTPUT SCALE	4-20mA
11.28.18	ADVANCED	MAIN CONTACTOR	INSIDE BYPASS, WITH FEEDBACK
11.16	ADVANCED	PFCC FEEDBACK ENABLE	DISABLED
11.28.19	PROTECTIONS	GROUND FAULT TRIP MODE	DISABLED
11.28.20	PROTECTIONS	ZSCT PRIMARY	NO ZERO SEQ. CT
11.25	PROTECTIONS	AUX TRIP ENABLE	DISABLED

INDEX	GROUP	NAME	AS BUILT
11.28.9	FACTORY	STACK RATING	360A
11.28.10	FACTORY	SCR ITSM	12000A
11.28.11	FACTORY	STACK SENSOR TYPE	SWITCH
11.28.13	FACTORY	CONTROLLER MODE	SOFT START-3 PHASE
11.28.14	FACTORY	CT PRIMARY	400:1
11.28.15	FACTORY	VOLTAGE SENSOR TYPE	VOLTAGE DIVIDER

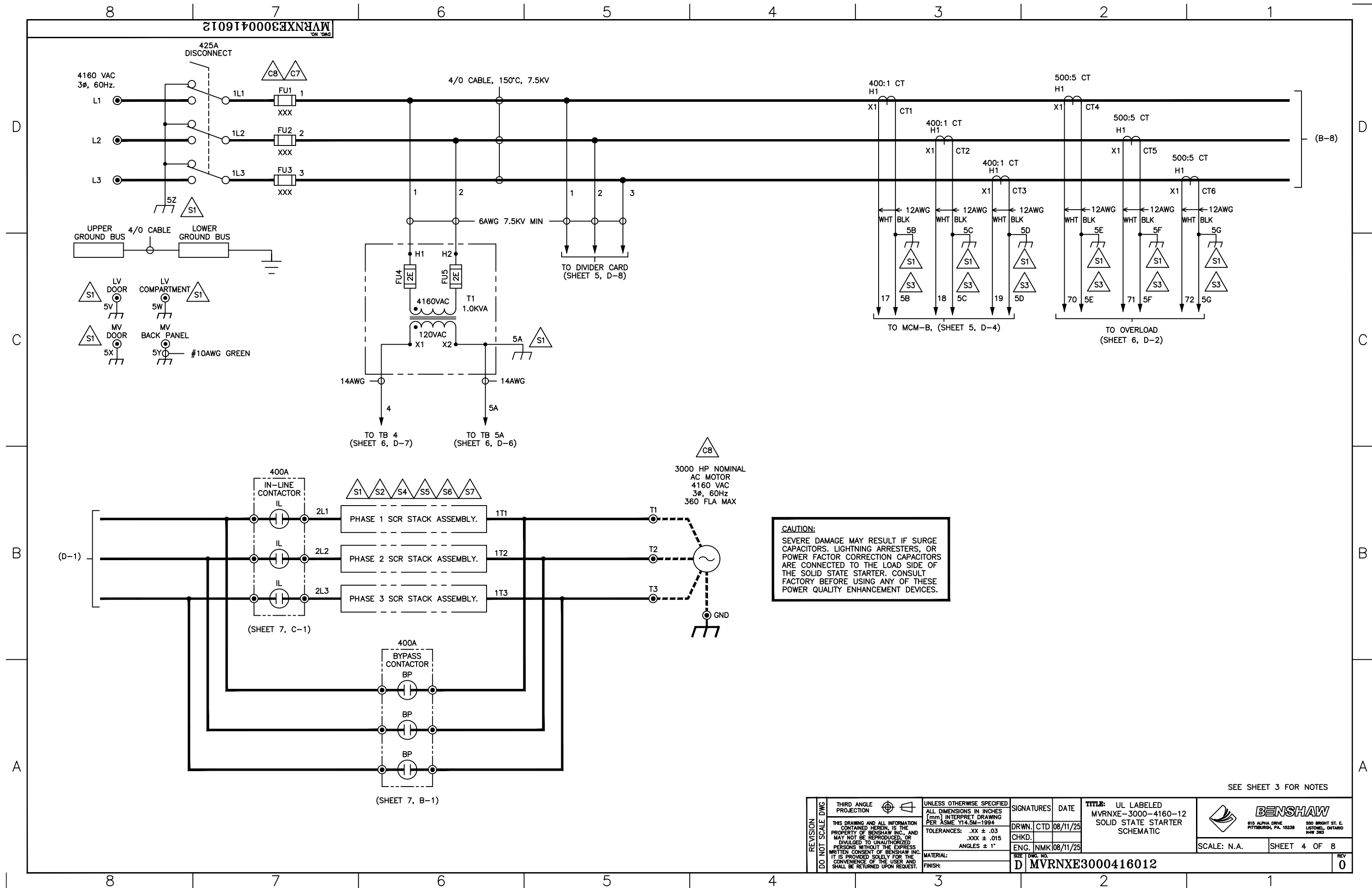
	SOFTWARE VERSION	MANUAL
PIM MODULE	XXXXX	XXXXXX
MCM MODULE	XXXXX	

xx VERSION AT TIME OF SHIPMENT

STANDARD LEGEND

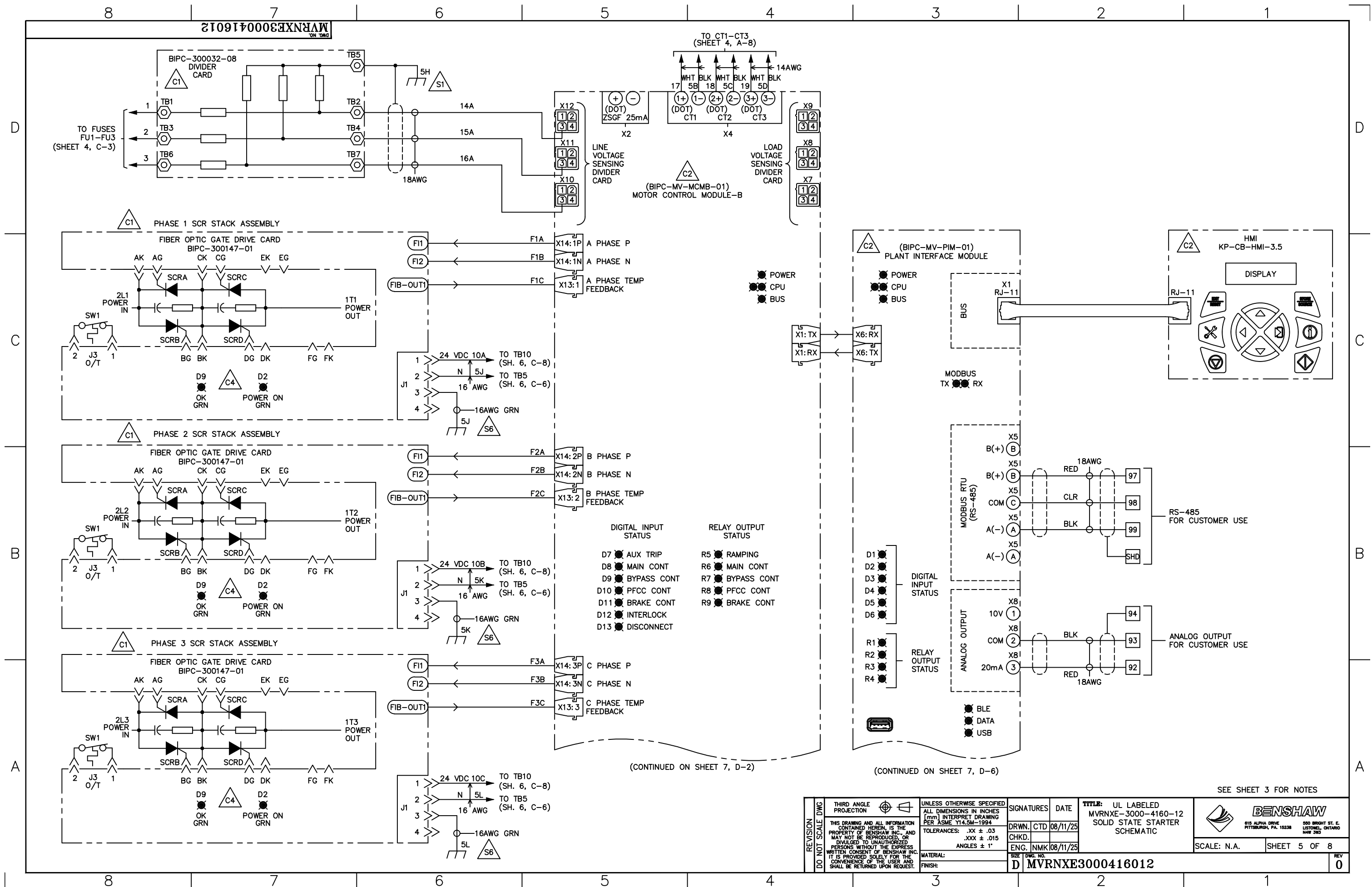
-  WIRE NODE SYMBOL
-  BENSHAW SUPPLIED TERMINAL BLOCK
-  POWER CONNECTION
-  TWISTED PAIR
-  TWISTED, SHIELDED PAIR
-  SHIELDED
-  FIBER OPTIC CABLE
ARROW INDICATES DIRECTION OF SIGNAL
- (C-3) UNDERLINED CONTACT REFERENCES ARE NORMALLY CLOSED
- (C-3) NORMALLY OPENED CONTACT REFERENCES ARE NOT UNDERLINED
-  SHORTING TERMINAL BLOCK

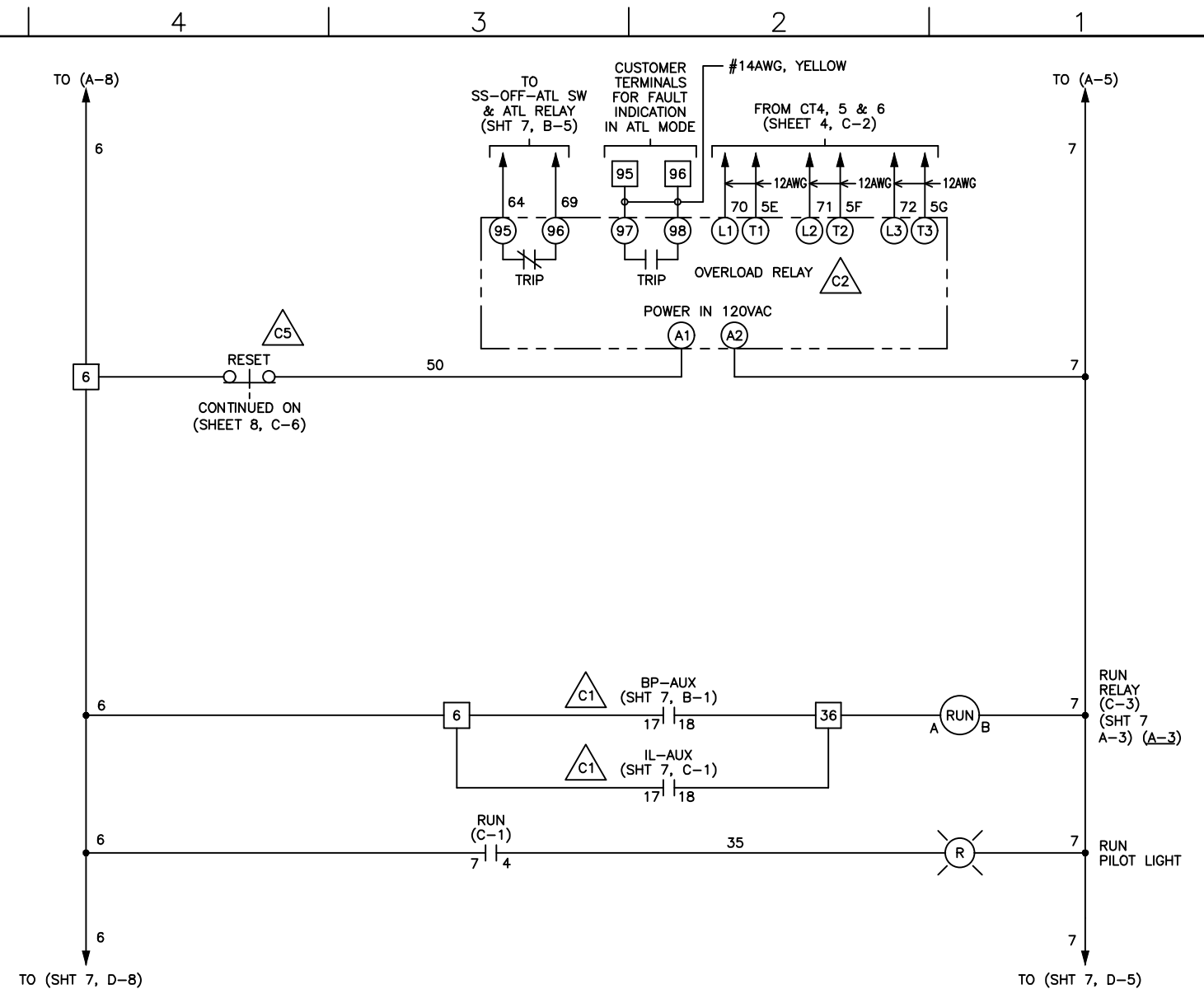
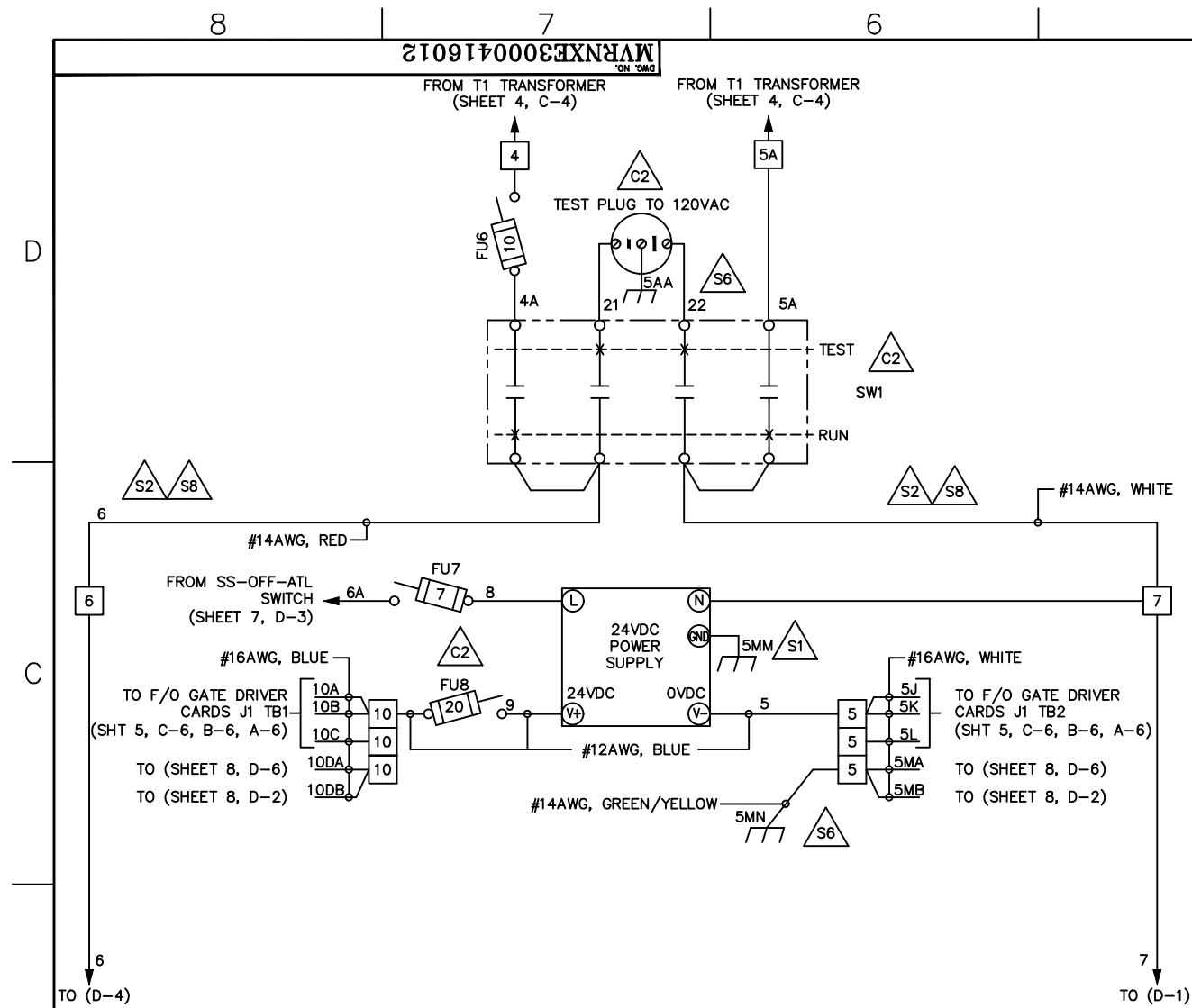
REVISION	THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS IN INCHES [mm] INTERPRET DRAWING PER ASME Y14.5M-1994 TOLERANCES: .XX ± .03 .XXX ± .015 ANGLES ± 1° MATERIAL: FINISH:	SIGNATURES	DATE	TITLE: UL LABELED MVRNXE-3000-4160-12 SOLID STATE STARTER SCHEMATIC NOTES	 BENSHAW 815 ALPHA DRIVE PITTSBURGH, PA. 15238 500 BRIGHT ST. E. LITTON, ONTARIO M1W 2K2		
	DO NOT SCALE DWG		DRWN. CTD 08/11/25				SCALE: N.A.	SHEET 3 OF 8
			CHKD.					
			ENG. NMK 08/11/25					
	THIS DRAWING AND ALL INFORMATION CONTAINED HEREIN IS THE PROPERTY OF BENSHAW INC. AND MAY NOT BE REPRODUCED, OR DIVULGED TO UNAUTHORIZED PERSONS WITHOUT THE EXPRESS WRITTEN CONSENT OF BENSHAW INC. IT IS PROVIDED SOLELY FOR THE CONVENIENCE OF THE USER AND SHALL BE RETURNED UPON REQUEST.		SIZE DWG. NO. D MVRNXE3000416012			REV 0		



CAUTION:
SEVERE DAMAGE MAY RESULT IF SURGE CAPACITORS, LIGHTNING ARRESTERS, OR POWER FACTOR CORRECTION CAPACITORS ARE CONNECTED TO THE LOAD SIDE OF THE SOLID STATE STARTER. CONSULT FACTORY BEFORE USING ANY OF THESE POWER QUALITY ENHANCEMENT DEVICES.

REVISION		THIRD ANGLE PROJECTION		UNLESS OTHERWISE SPECIFIED		SIGNATURES		DATE		TITLE: UL LABELED MVRNXE-3000-4160-12 SOLID STATE STARTER SCHEMATIC		BENSHAW	
DO NOT SCALE DWG		THIS DRAWING AND ALL INFORMATION CONTAINED HEREIN, IS THE PROPERTY OF BENSHAW INC., AND MAY NOT BE REPRODUCED, OR DIVULGED TO UNAUTHORIZED PERSONS WITHOUT THE EXPRESS WRITTEN CONSENT OF BENSHAW INC. IT IS PROVIDED SOLELY FOR THE CONVENIENCE OF THE USER AND SHALL BE RETURNED UPON REQUEST.		ALL DIMENSIONS IN INCHES (mm) INTERPRET DRAWING PER ASME Y14.5M-1994		DRWN. CTD 08/11/25		08/11/25		815 ALPHA DRIVE PITTSBURGH, PA. 15238		550 BRIGHT ST. E. LISTON, ONTARIO N4W 3G3	
				TOLERANCES: .XX ± .03 .XXX ± .015 ANGLES ± 1°		CHKD.		ENG. NMK 08/11/25		SCALE: N.A.		SHEET 4 OF 8	
				MATERIAL:		SIZE DWG. NO.		D MVRNXE3000416012				REV 0	
				FINISH:									





REVISION DO NOT SCALE DWG		THIRD ANGLE PROJECTION				UNLESS OTHERWISE SPECIFIED		SIGNATURES		DATE		TITLE: UL LABELED MVRNXC-3000-4160-12 SOLID STATE STARTER SCHEMATIC		 BENSHAW 815 ALPHA DRIVE PITTSBURGH, PA. 15238 500 BRIGHT ST. E. LISTON, ONTARIO N4W 3E3			
		THIS DRAWING AND ALL INFORMATION CONTAINED HEREIN, IS THE PROPERTY OF BENSHAW INC. AND MAY NOT BE REPRODUCED, OR DIVULGED TO UNAUTHORIZED PERSONS WITHOUT THE EXPRESS WRITTEN CONSENT OF BENSHAW INC. IT IS PROVIDED SOLELY FOR THE CONVENIENCE OF THE USER AND SHALL BE RETURNED UPON REQUEST.		TOLERANCES: .XX ± .03 .XXX ± .015 ANGLES ± 1°		DRWN. CTD 08/11/25		08/11/25		SCALE: N/A		SHEET 6 OF 8					
				CHKD.													
				ENG. NMK 08/11/25													
		MATERIAL: FINISH:		SIZE DWG. NO. D MVRNXC3000416012						REV 0							

