

CUST. NAME: CARRIER CORPORATION

PROJECT NO.: CHILLER CONTROLLER STANDARDS

P.O. NUMBER:

DESCRIPTION: P94750~40KAAISM

460V, 3ø, 60Hz, 60~442RLA, 75~400kVA

TYPE 1 ENCLOSURE w/ISM MODULE

UL LISTED

☒ FINAL

☐ PRELIMINARY

☐ FOR APPROVAL

Note: Final Engineering
and Manufacturing will
proceed upon receipt of
final approval

- ☐ NOT APPROVED AS NOTED – RESUBMIT DRAWINGS
FOR APPROVAL. DO NOT PROCEED WITH FINAL
ENGINEERING OR MANUFACTURING.
- ☐ APPROVED AS NOTED – PROCEED WITH FINAL
ENGINEERING AND MANUFACTURING.
- ☐ APPROVED AS SUBMITTED – PROCEED WITH FINAL
ENGINEERING AND MANUFACTURING.

APPROVAL BY:

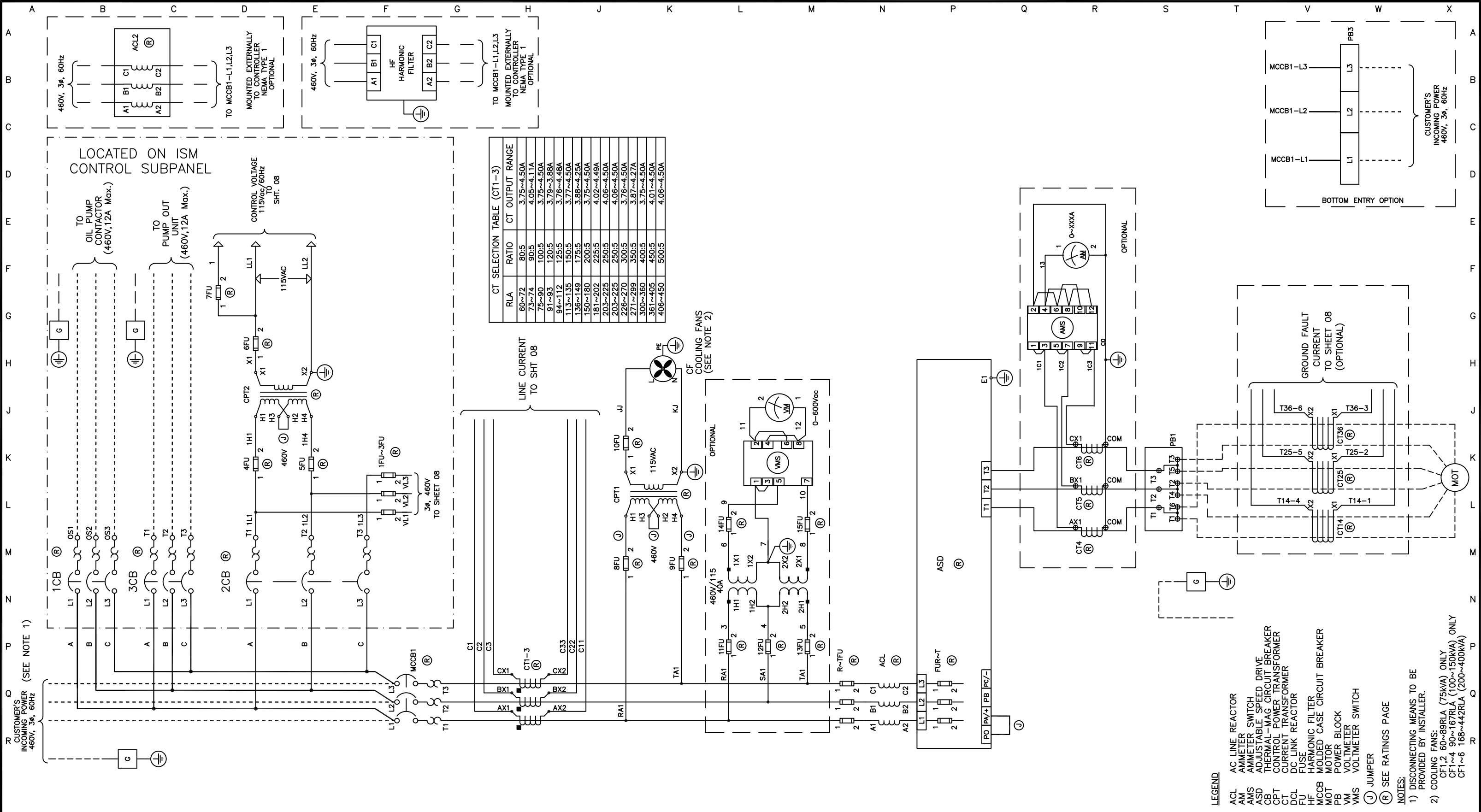
Initial

Date

NO	DRAWING NO	REV	DRAWING DESCRIPTION
00	I808R400	0	DRAWING LIST
01	----	---	-----
02	I808R402	0	THREE–LINE DIAGRAM
03	----	---	-----
04	----	---	-----
05	----	---	-----
06	----	---	-----
07	----	---	-----
08	I808R408	0	ISM MODULE INTERFACE
09	----	---	-----
10	----	---	-----
11	----	---	-----
12	----	---	-----
13	----	---	-----
14	I808R414	0	LOGIC INTERFACE CIRCUIT
15	----	---	-----

NO	DRAWING NO	REV	DRAWING DESCRIPTION
16	I808R416	0	RATINGS SHEET
17	----	---	-----
18	I808R418	0	DRAWING LEGEND
19	----	---	-----
20	----	---	-----
21	----	---	-----
22	----	---	-----
23	----	---	-----
24	----	---	-----
25	----	---	-----
26	----	---	-----
27	----	---	-----
28	----	---	-----
29	----	---	-----
30	I808R430	0	ENCLOSURE OUTLINE – 60~167RLA (75~150kVA)
31	I808R431	0	ENCLOSURE OUTLINE – 168~442RLA (200~400kVA)

4						TOSHIBA TOSHIBA INTERNATIONAL CORPORATION MADE IN HOUSTON, TEXAS U.S.A. THIS MATERIAL IS THE EXCLUSIVE PROPERTY OF TOSHIBA INTERNATIONAL CORPORATION AND SHALL NOT BE REPRODUCED, USED, OR DISCLOSED TO OTHERS UNLESS PRIOR WRITTEN AUTHORIZATION IS OBTAINED.	TITLE: DRAWING LIST – 60~442RLA 75~400kVA, P9 460VAC		REVISION:	SCALE:
3					0					
2							DRAWING NUMBER: I808R400			
1										
0	04/09/14	FIRST ISSUE	EYANG	SE	RKR	CUSTOMER:	PROJECT NUMBER:			
REV	DATE	DESCRIPTION	BY	CHK	APPR					

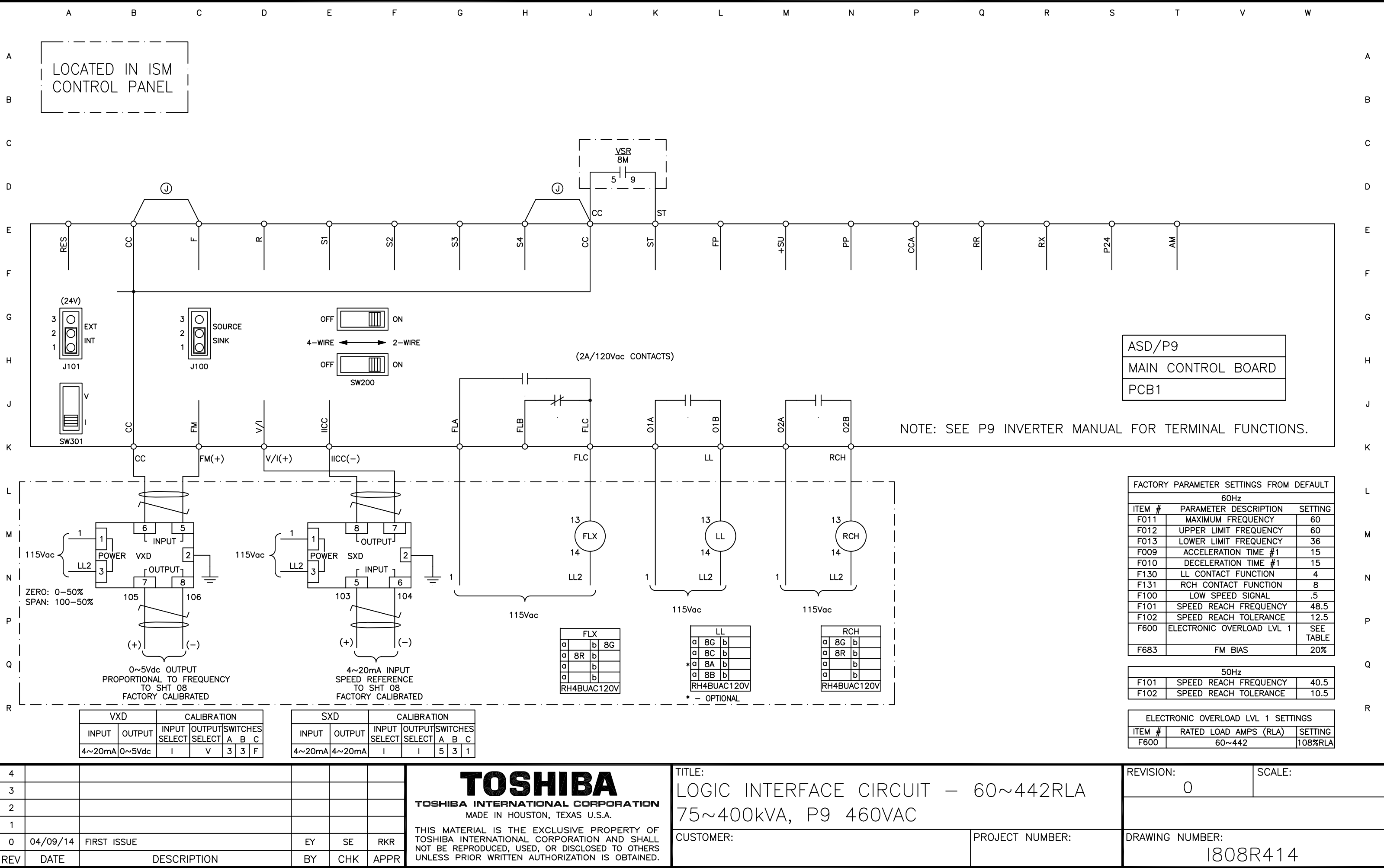


4					
3					
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1					
0	04/09/14	FIRST ISSUE	EY	SE	RKR
REV	DATE	DESCRIPTION	BY	CHK	APPR

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TITLE: THREE-LINE DIAGRAM – 60~442RLA 75~400kVA, P9 460VAC		REVISION: 0	SCALE:
CUSTOMER:	PROJECT NUMBER:	DRAWING NUMBER: 1808R402	



VOLTAGE	RLA	ASD	MCCB1 (A)	FUR,S,T	1,2,3FU	4,5FU	6FU	7FU	CPT2	1,3CB	2CB	CT1－3	ACL
460V	89	VT130P9U4750	200	200A/690V	5A/600V	15A/600V	30A/250V	10A/250V	460:115V 3kVA	15A, 600V	15A, 600V	SEE TABLE	480V,110A,1.5%Z
	115	VT130P9U410K	225	200A/690V	5A/600V	15A/600V	30A/250V	10A/250V	460:115V 3kVA	15A, 600V	15A, 600V	SEE TABLE	480V,130A,1.5%Z
	144	VT130P9U412K	250	315A/690V	5A/600V	15A/600V	30A/250V	10A/250V	460:115V 3kVA	15A, 600V	15A, 600V	SEE TABLE	480V,160A,1.5%Z
	167	VT130P9U415K	250	350A/690V	5A/600V	15A/600V	30A/250V	10A/250V	460:115V 3kVA	15A, 600V	15A, 600V	SEE TABLE	480V,200A,1.5%Z
	222	VT130P9U420K	400	400A/690V	5A/600V	15A/600V	30A/250V	10A/250V	460:115V 3kVA	15A, 600V	15A, 600V	SEE TABLE	480V,250A,1.5%Z
	280	VT130P9U425K	400	500A/690V	5A/600V	15A/600V	30A/250V	10A/250V	460:115V 3kVA	15A, 600V	15A, 600V	SEE TABLE	480V,360A,1.5%Z
	334	VT130P9U430K	600	550A/690V	5A/600V	15A/600V	30A/250V	10A/250V	460:115V 3kVA	15A, 600V	15A, 600V	SEE TABLE	480V,420A,1.5%Z
	383	VT130P9U435K	600	550A/690V	5A/600V	15A/600V	30A/250V	10A/250V	460:115V 3kVA	15A, 600V	15A, 600V	SEE TABLE	480V,480A,1.5%Z
	442	VT130P9U440K	600	700A/690V	5A/600V	15A/600V	30A/250V	10A/250V	460:115V 3kVA	15A, 600V	15A, 600V	SEE TABLE	480V,480A,1.5%Z

VOLTAGE	RLA	8,9FU	10FU	CPT1	VSR, LL RCH, FLX	HPR	8PL1,2,3	R~TFU
460V	89	1.8A/600V	2.0A/250V	480:120V 200VA	120VAC, 10A ↓	24VAC, 10A ↓	120:6V ↓	225A/600V
	115	3.0A/600V	4.0A/250V	480:120V 350VA				250A/600V
	144	3.0A/600V	4.0A/250V	480:120V 350VA				300A/600V
	167	3.0A/600V	4.0A/250V	480:120V 350VA				300A/600V
	222	4.5A/600V	5.0A/250V	480:120V 500VA				400A/600V
	280	4.5A/600V	5.0A/250V	480:120V 500VA				450A/600V
	334	4.5A/600V	5.0A/250V	480:120V 500VA				600A/600V
	383	4.5A/600V	5.0A/250V	480:120V 500VA				600A/600V
	442	4.5A/600V	5.0A/250V	480:120V 500VA				600A/600V

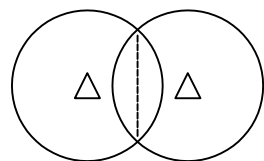
CT SELECTION TABLE (CT1－3)			
RLA	RATIO	CT OUTPUT RANGE	CT
60~72	80:5	3.75~4.50A	3P3
73~74	100:5	3.65~3.7A	3P81
75~90	100:5	3.75~4.50A	3P81
91~93	120:5	3.79~3.88A	3P3
94~112	125:5	3.76~4.48A	3P81
113~135	150:5	3.76~4.50A	3P81
136~149	175:5	3.88~4.25A	3P81
150~180	200:5	3.75~4.50A	3P81
181~202	225:5	4.02~4.49A	3P81
203~225	250:5	4.06~4.50A	3P81
226~270	300:5	3.76~4.50A	3P81
271~299	350:5	3.87~4.27A	3P81
300~360	400:5	3.75~4.50A	3P82
361~405	450:5	4.01~4.50A	3P82
406~450	500:5	4.06~4.50A	3P82

RLA/kVA RANGE	
RLA	kVA
60~89	75
90~115	100
116~144	125
145~167	150
168~222	200
223~280	250
281~334	300
335~383	350
384~442	400

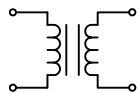
OPTIONAL

VOLTAGE	RLA	CT4~6	11~13FU	14,15FU
460V	89	3P82－XXX	0.2A/600V	0.5A/250V
	115	3P82－XXX	0.2A/600V	0.5A/250V
	144	3P82－XXX	0.2A/600V	0.5A/250V
	167	3P82－XXX	0.2A/600V	0.5A/250V
	222	3P82－XXX	0.2A/600V	0.5A/250V
	280	3P82－XXX	0.2A/600V	0.5A/250V
	334	3P82－XXX	0.2A/600V	0.5A/250V
	383	3P82－XXX	0.2A/600V	0.5A/250V
	442	3P82－XXX	0.2A/600V	0.5A/250V

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3					0						
2											
1											
0	04/09/14	FIRST ISSUE	EY	SE	RKR		CUSTOMER:	PROJECT NUMBER:	DRAWING NUMBER:		
REV	DATE	DESCRIPTION	BY	CHK	APPR				1808R416		



POWER TRANSFORMER



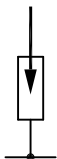
CONTROL POWER OR
POTENTIAL TRANSFORMER



CURRENT TRANSFORMER

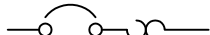


REACTOR



LIGHTNING ARRESTOR

E



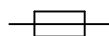
CIRCUIT BREAKER



FUSED VACUUM
DRAWOUT CONTACTOR



AIR CONTACTOR



FUSE



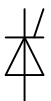
CAPACITOR



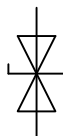
RESISTOR



DIODE



THYRISTOR



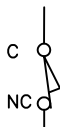
SURGE ABSORBER



INSULATED GATE
BIPOLAR TRANSISTOR (IGBT)



DOOR SWITCH
(SHOWN WITH DOOR OPEN)



LIMIT SWITCH

DENOTES ACTUAL
CONTACT USED



DEVICE NAME

N.O. CONTACT

DENOTES RELAY CAN BE FOUND
ON PAGE 12, COLUMN F



N.C. CONTACT



OFF-TIME DELAY CONTACT N.C.



OFF-TIME DELAY CONTACT N.O.



ON-TIME DELAY CONTACT N.C.



ON-TIME DELAY CONTACT N.O.



THERMAL SWITCH N.C.



RELAY COIL

NAME	
a	b 11B
a	b
a	b
a	b
MODEL #	

DENOTES b - CONTACT, USED ON
PAGE 11, COLUMN B

--- DENOTES CONTACTS UNAVAILABLE

a - DENOTES NORMALLY OPEN
b - DENOTES NORMALLY CLOSED

DEVICE LEGEND



POTENTIOMETER



SELECTOR SWITCH



N.C. PUSH BUTTON



N.O. PUSH BUTTON

⊕ TB-10

CONTROL TERMINAL BLOCK



PLUG/CONNECTOR ASSEMBLY



GROUND



TWISTED WIRE



SHIELDED WIRE



METER



ILLUMINATED PUSH BUTTON
OR INDICATING LIGHT
(LETTER = COLOR)



COOLING FAN

LEGEND

ACL AC LINE REACTOR
A/C AIR CONDITIONER
AM AMMETER
AS AMMETER SWITCH
ASD ADJUSTABLE SPEED DRIVE
CL CURRENT LIMITER
CPT CONTROL POWER TRANSFORMER
CT CURRENT TRANSFORMER
DBR DYNAMIC BRAKING RESISTOR
M AIR CONTACTOR
MCCB MOLDED CASE CIRCUIT BREAKER
MCP MOTOR CIRCUIT PROTECTOR
MOT MOTOR
OL THERMAL OVERLOAD
RLA RUNNING LOAD AMPS
VM VOLTMETER
VS VOLTMETER SWITCH
XFMR TRANSFORMER
ZCT GROUND FAULT CT

SYMBOL LEGEND

ⓐ JUMPER
ⓑ SEE RATINGS SHEET
ⓓ MECHANICAL INTERLOCK

P9 DRIVE MODEL NUMBER CODE

DRIVE SERIES P9 4 10K AA ISM
RATED VOLTAGE
A-208V
2-230V
3-380V
D-400V
4-460V
5-575V
DRIVE RATING
750-75kVA (96A)
10K-100kVA (124A)
12K-125kVA (156A)
15K-150kVA (180A)
20K-200kVA (240A)
25K-250kVA (302A)
30K-300kVA (361A)
35K-350kVA (414A)
40K-400kVA (477A)
TYPE 1 ENCLOSURE
ISM MODULE TYPE

4					
3					
2					
1					
0	04/09/14	FIRST ISSUE	EY	SE	RKR
REV	DATE	DESCRIPTION	BY	CHK	APPR

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TITLE:
DRAWING LEGEND - 60~442RLA
75~400kVA, P9 460VAC

CUSTOMER:

PROJECT NUMBER:

REVISION:

0

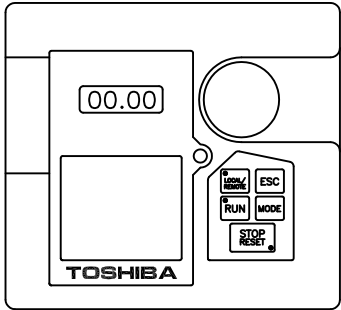
SCALE:

DRAWING NUMBER:

1808R418

DEVICE LEGEND:

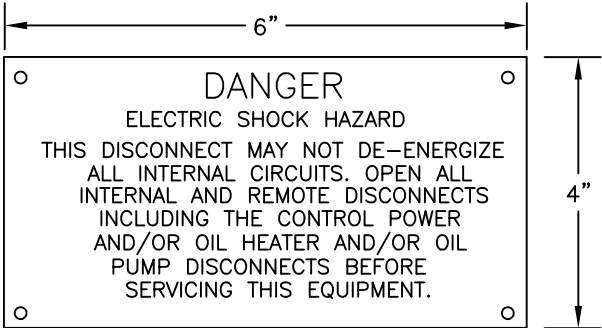
- 1. FILTERED OUTLET VENT (75kVA)
FILTERED OUTLET FAN (100~150kVA)
- 2. FILTERED INLET FAN
- 3. CIRCUIT BREAKER OPERATOR
- 4. P9 OPERATOR KEYPAD
- 5. GREEN PILOT LIGHT – "POWER ON"
- 6. RED PILOT LIGHT – "RUN"
- 7. AMBER PILOT LIGHT "FAULT"
- 8. EMERGENCY STOP PUSHBUTTON
- 9. START COUNTER
- 10. ELAPSED TIME METER (OPTIONAL)
- 11. AMMETER – 0~XXxA (OPTIONAL)
- 12. 3Ø AMMETER SWITCH (OPTIONAL)
- 13. VOLTMETER – 0~600V (OPTIONAL)
- 14. 3Ø VOLTMETER SWITCH (OPTIONAL)



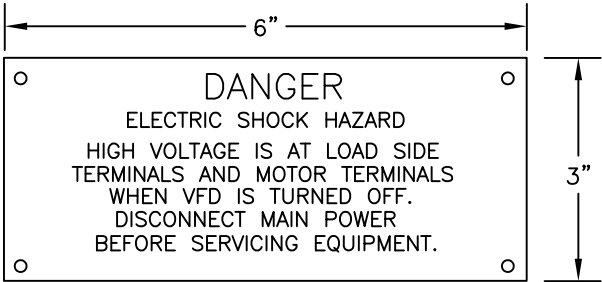
P9 KEYPAD DETAIL

NOTES:

- 1. ENCLOSURE TO BE PAINTED TOSHIBA GRAY.
- 2. NAMEPLATES 1 & 2 TO BE RED WITH WHITE LETTERS.
FIRST LINE TO BE 3/8". ALL OTHER LINES TO BE 3/16".
- 3. ESTIMATED WEIGHT: 1600lbs. (727kg).
- 4. INPUT LUGS – 3-#3AWG~500kcmil/Ø
- 5. OUTPUT LUGS – 4-#6AWG~350kcmil/Ø
- 6. GROUND LUGS – 1-#2~#1/0AWG (QTY.-2)
- 7. RECOMMENDED CONDUCTORS:
(75° C TYPES RHW, THHW, THW, THWN, XHHW)



NAMEPLATE 1



NAMEPLATE 2

NAMEPLATE 1', 2' = FRENCH EQUIVALENT

LIFTING EYE
(TYP.-4)

5" CLEARANCE
REQUIRED BOTH
SIDES FOR AIR
CIRCULATION

5.00

FRONT VIEW

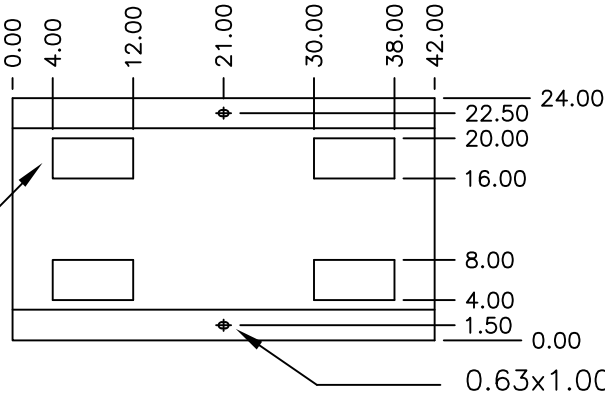
LATCHES

90.00 93.96

RIGHT SIDE VIEW

1.50 X 3.00
CHANNEL BASE

CONDUIT ENTRY 8 X 4
W/REMOVABLE COVER PLATES
TYPICAL TOP (QTY.-4)
& BOTTOM (QTY.-4)



PLAN VIEW

ASD SPEC			CIRCUIT BREAKER RATING	
kVA	RLA RANGE	CB AMPS	AIC@480V	
75	60~89	200A	100KAIC@480V	
100	90~115	225A	100KAIC@480V	
125	116~144	250A	100KAIC@480V	
150	145~167	250A	100KAIC@480V	

4					
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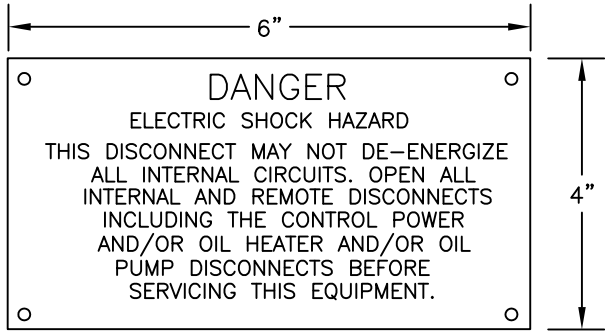
TITLE: ENCLOSURE – P9 60~167RLA 75~150kVA, TYPE 1 w/ISM MODULE		REVISION: 0	SCALE: 1.0=20.0
CUSTOMER:	PROJECT NUMBER:	DRAWING NUMBER: 1808R430	

DEVICE LEGEND:

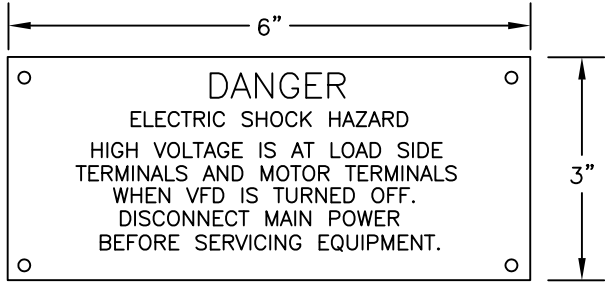
- 1. FILTERED OUTLET FAN
- 2. FILTERED INLET FAN
- 3. CIRCUIT BREAKER OPERATOR
- 4. P9 OPERATOR KEYPAD
- 5. GREEN PILOT LIGHT – "POWER ON"
- 6. RED PILOT LIGHT – "RUN"
- 7. AMBER PILOT LIGHT "FAULT"
- 8. EMERGENCY STOP PUSHBUTTON
- 9. START COUNTER
- 10. ELAPSED TIME METER (OPTIONAL)
- 11. AMMETER – 0~XXA (OPTIONAL)
- 12. 3Ø AMMETER SWITCH (OPTIONAL)
- 13. VOLTMETER – 0~600V (OPTIONAL)
- 14. 3Ø VOLTMETER SWITCH (OPTIONAL)

NOTES:

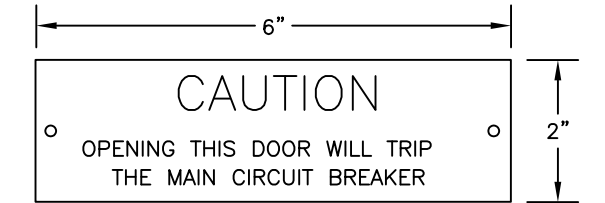
- 1. ENCLOSURE TO BE PAINTED TOSHIBA GRAY.
- 2. NAMEPLATES 1 & 2 TO BE RED WITH WHITE LETTERS.
FIRST LINE TO BE 3/8". ALL OTHER LINES TO BE 3/16".
- 3. NAMEPLATE 3 TO BE YELLOW WITH BLACK LETTERS.
FIRST LINE TO BE 1/2". ALL OTHER LINES TO BE 1/4".
- 4. ESTIMATED WEIGHT: 1600lbs. (727kg).
- 5. INPUT LUGS – 3-#3AWG~500kcmil/ø
- 6. OUTPUT LUGS – 4-#6AWG~350kcmil/ø
- 7. GROUND LUGS – 1-#2~#1/0AWG (QTY.-2)
- 8. RECOMMENDED CONDUCTORS:
(75° C TYPES RHW, THHW, THW, THWN, XHHW)



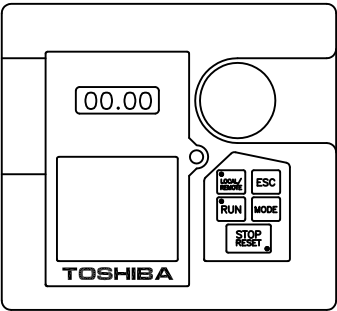
NAMEPLATE 1



NAMEPLATE 2



NAMEPLATE 3

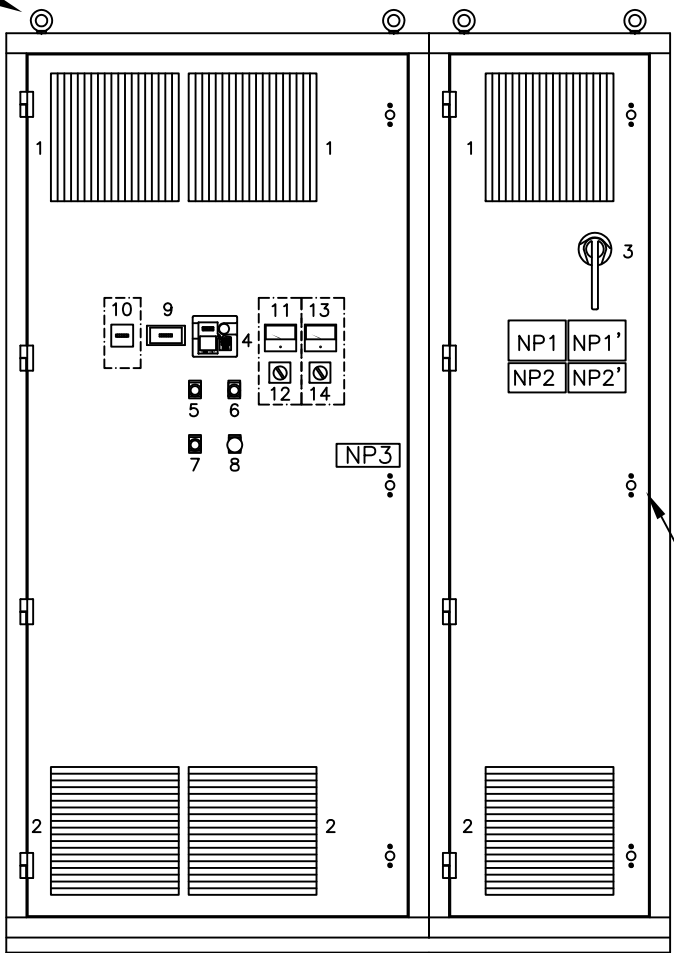


P9 KEYPAD DETAIL

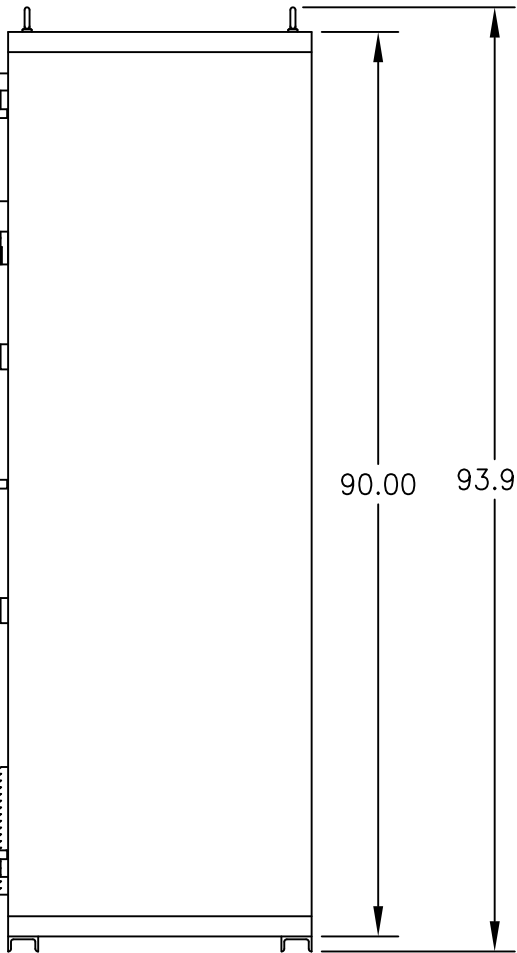
NAMEPLATE 1', 2' = FRENCH EQUIVALENT

LIFTING EYE
(TYP.-8)

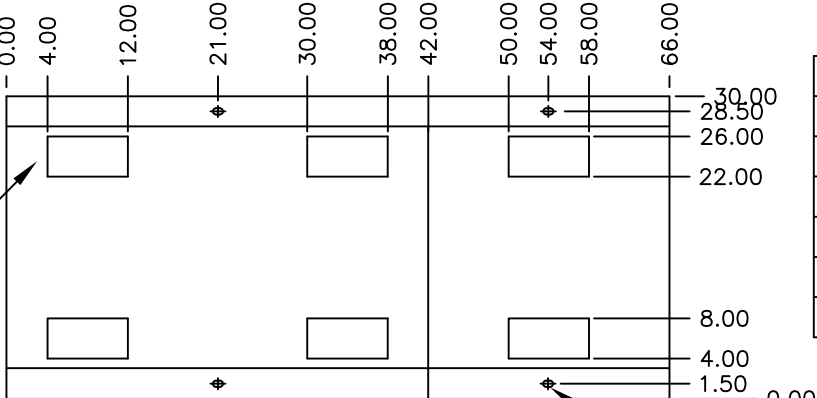
5" CLEARANCE
REQUIRED BOTH
SIDES FOR AIR
CIRCULATION



FRONT VIEW



RIGHT SIDE VIEW



PLAN VIEW

ASD SPEC		CIRCUIT BREAKER RATING	
kVA	RLA RANGE	CB AMPS	AIC@480V
200	168~222	400A	100KAIC@480V
250	223~280	400A	100KAIC@480V
300	281~334	600A	100KAIC@480V
350	335~383	600A	100KAIC@480V
400	384~442	600A	100KAIC@480V

0.63x1.00 SLOT (4PL)

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1					
0	04/09/14	FIRST ISSUE	EY	SE	RKR
REV	DATE	DESCRIPTION	BY	CHK	APPR

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TITLE: ENCLOSURE – P9 168~442RLA 200~400kVA, TYPE 1 w/ISM MODULE	
CUSTOMER:	PROJECT NUMBER:

REVISION: 0	SCALE: 1.0=20.0
DRAWING NUMBER: 1808R431	