

Table of Contents

Sr. No.	Title	Drawing Sheet No.
Main Power Distribution		
1	Main Power - I	-DD-01-01
2	Main Power - II	-DD-01-02
3	Service Sockets 10A	-DD-01-03
4	Service Sockets 220VAC	-DD-01-04
5	Main Power Control Circuit	-DD-01-05
6	Weighing Controller Circuit	-DD-01-06
7	Safety Relay Circuit	-DD-01-07
8	Control Circuit of Gripper	-DD-01-08
PLC Input/Output and DC Power Distribution		
9	DC Power Distribution	-DD-01-09
10	PLC Input SM01 DI32 * 24VDC I0.0-I0.7	-DD-01-10
11	PLC Input SM01 DI32 * 24VDC I1.0-I1.7	-DD-01-11
12	PLC Input SM01 DI32 * 24VDC I2.0-I2.7	-DD-01-12
13	PLC Input SM01 DI32 * 24VDC I3.0-I3.7	-DD-01-13
14	PLC Input SM02 DI32 * 24VDC I4.0-I4.7	-DD-01-14
15	PLC Input SM02 DI32 * 24VDC I5.0-I5.7	-DD-01-15
16	PLC Input SM02 DI32 * 24VDC I6.0-I6.7	-DD-01-16
17	PLC Input SM02 DI32 * 24VDC I7.0-I7.7	-DD-01-17
18	PLC Input SM03 DI32 * 24VDC I8.0-I8.7	-DD-01-18
19	PLC Input SM03 DI32 * 24VDC I9.0-I9.7	-DD-01-19
20	PLC Input SM03 DI32 * 24VDC I10.0-I10.7	-DD-01-20
21	PLC Input SM03 DI32 * 24VDC I11.0-I11.7	-DD-01-21
22	PLC Output SM04 DO16 * 24VDC Q12.0-Q12.7	-DD-01-22
23	PLC Output SM04 DO16 * 24VDC Q13.0-Q13.7	-DD-01-23
24	PLC Output SM05 DO16 * 24VDC Q14.0-Q14.7	-DD-01-24
25	PLC Output SM05 DO16 * 24VDC Q15.0-Q15.7	-DD-01-25
26	PLC Output SM06 DO16 * 24 VDC Q16.0 - Q16.7	-DD-01-26
27	PLC Output SM06 DO16 * 24 VDC Q17.0 - Q17.7	-DD-01-27
Brakes and DCMD Circuits		
28	Safety Brake & Interlock	-DD-01-28
29	Cooling Motors & Brakes Control System	-DD-01-29
30	Cooling Motors Power Circuit	-DD-01-30
31	Brakes Power Circuit	-DD-01-31
32	Hoist DC Motor Drive Wiring Diagram	-DD-01-32
33	Trolley DC Motor Drive Wiring Diagram	-DD-01-33
34	Bridge DC Motor Drive Wiring Diagram	-DD-01-34

Control System

NO.	DATE	REVISION	BY
0	25-2-2011	First Issue	
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Table of Contents

ENGINEER MNA, MMC	CHECKED BY SSA, NR
JOB NO 1.10	DRAWN BY MNA, MMC
SCALE 1:1	DATE 25-02-2011
DWG NO [REDACTED]	SHEET NO -DD-01-ii

0 1 2 3 4 5 6 7 8

9

A

Sr. No.	Title	Drawing Sheet No.
and Auxiliary Devices		
35	Connection Diagram	-DD-01-35
36	Control Schematic Camera Circuit	-DD-01-36
Panel & Field Interconnections		
37	Connector X1, X2, X3, X4, X5, X6, X7	-DD-01-37
38	Connector X8A, X8B, X12A, X12B	-DD-01-38
39	Connector X9A, X9B	-DD-01-39
40	Connector X10, X11, X14, X15	-DD-01-40
41	Connector X13A, X13B	-DD-01-41
Panel Layouts		
42	Connectors Installation Layout	-DD-01-42
43	Operator Cabinet Component Layout	-DD-01-43
44	Power Cabinet Component Layout	-DD-01-44
45	Operator Cabinet Display Area Component Layout	-DD-01-45
46	Operator Cabinet Keyboard Area Component Layout	-DD-01-46
47	Protective Earth and Instrument Grounding	-DD-01-47
Field Simulator		
48	Simulated Input Devices	-DD-01-48
49	Simulated Output Devices	-DD-01-49
50	Cut-Off Switch & Field Simulator Connectors Layout	-DD-01-50

A

B

B

C

C

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E

E

F

F

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NO.	DATE	REVISION	BY
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JOB NO	1.10	DRAWN BY	MNA, MMC
SCALE	1:1	DATE	25-02-2011
DWG NO			

-DD-01-iii

SHEET NO
iii OF vii

0 1 2 3 4 5 6 7 8

9

Component List

Sr. No	Tag Name	Description	Existing Device	Quantity
1	BB-AE, HH-AE, TT-AE	Absolute Value Encoder		3
2	OC-AR, PC-AR	Heater		2
3	OC-AV01	Audio/Visual Indicator		1
4	FF-CAMERAUW	Camera Under Water	Existing Device	1
5	OC-CG01	Control Grip		2
6	OC-CG02	Control Grip		
7	BB-CMB, HH-CMH, TT-CMT	Cooling Motor	Existing Device	3
8	OC-CP343	Industrial Ethernet		1
9	OC-CPU	CPU317-2DP		1
10	HH-CS01, HH-CS02	Cam Switch	Existing Device	2
11	OC-DKA01 to OC-DKA04 CC-DKA02, CC-DKA03, CC-DKA06 to CC-DKA17	Free Wheeling Diode		18
12	OC-DPG	Digital Pressure Gauge		1
13	BB-EMCSB, HH-EMCSH, TT-EMCST	3AC 380-480V 50-60Hz		3
14	PC-ER01	Excitation Reactor		1
15	PC-ER02, PC-ER04, PC-ER06	Excitation Reactor		3
16	PC-ER03	Excitation Reactor		1
17	PC-ER05	Excitation Reactor		1
18	OC-ES	EStop Button		1
19	OC-ETSW	Ethernet Switch 8 Port		1
20	PC-FU01	Fuse		1
21	PC-FU02, PC-FU05, PC-FU08	Fuse		3
22	PC-FU03	Fuse		1
23	PC-FU04, PC-FU07	Fuse		2
24	PC-FU06, PC-FU09	Fuse		2
25	OC-HG, PC-HG	Hygro State		2
26	OC-IL08, OC-IL13, OC-IL27, OC-IL28	Blue Indication Lamp		4
27	OC-IL03, OC-IL04, OC-IL05, OC-IL06, OC-IL07, OC-IL21	Green Indication Lamp		6
28	OC-IL01, OC-IL02, OC-IL09 to OC-IL12, OC-IL14, OC-IL22 to OC-IL26, OC-IL29 to OC-IL32	Red Indication Lamp		16
29	OC-IL15 to OC-IL 20	White Indication Lamp		6
30	OC-IND331	Weight Terminal		1
31	OC-IPC577	HMI Station II		1
32	OC-KA01 to OC-KA05 CC-KA06 to CC-KA08, CC-KA14 to CCKA17 PC-KA01 to PC-KA07	24VDC, 4NO, 4NC NO:6A, NC:3A		19
33	CC-KA02 to CC-KA05 CC-KA09 to CC-KA13	24VDC, 4NO, 4NC 24VDC:10A, 110VAC:10A		9
34	FF-KAD	Cut-Off Switch	Existing Device	1
35	CC-KK01	3 Pole, Aux (1NO, 1NC) AC-3:9A, AC-1:25A		1
36	PC-KK01 to PC-KK03	3 Pole, Aux (1NO, 1NC) AC-3:40A, AC-1:60A		3
37	PC-KK04 to PC-KK14	3 Pole, Aux (1NO, 1NC) AC-3:32A, AC-1:50A		11
38	OC-KS01, OC-KS04 to KS07	Key Switch		5
39	OC-KS31, OC-KS32	2 Position Key Switch		1
40	OC-LDC	Load Cell	Existing Device	1
41	OC-LDCS	Load Cell Simulator		1
42	BB-LS01 to BB-LS07	Limit Switch	Existing Device	7
43	HH-LS01 to HH-LS09	Limit Switch	Existing Device	9

Control System

NO.	DATE	REVISION	BY
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Component List

ENGINEER	checked by
MNA, MMC	SSA, NR
JOB NO	DRAWN BY
1.10	MNA, MMC
SCALE	DATE
1:1	25-02-2011
DWG NO	
	DD-01-iv
SHEET NO	

0 1 2 3 4 5 6 7 8

Sr. No	Tag Name	Description	Existing Device	Quantity
44	TT-LS01 to TT-LS07	Limit Switch	Existing Device	7
45	BB-MB	2.8kW/400W/9.1A/1340rpm/Seprate/180V/1.56A	Existing Device	1
46	HH-MH	3.7kW/400W/13.3A/855rpm/Seprate/180V/2.89A	Existing Device	1
47	TT-MT	2kW/400W/7A/1310rpm/Seprate/180V/1.39A	Existing Device	1
48	FF-MONORAIL1, FF-MONORAIL2	Monorail 1, Monorail 2	Existing Device	2
49	OC-PB01, OC-PB03	Green Push Button With LED		2
50	OC-PB02, OC-PB04	Red Push Button		2
51	OC-PB05, OC-PB06	Black Push Button		2
52	OC-PB07	Yellow Push Button		1
53	BB-PGB, HH-PGH, TT-PGT	Motor Speed Encoder	Existing Device	3
54	CC-PNOZ XV2P	Safety Relay		1
55	OC-PS01, OC-PS02	Pressure Switch	Existing Device	2
56	PC-Q00, PC-Q12	Circuit Breaker 3 Pole		2
57	CC-Q05, PC-Q30	Circuit Breaker 2 Pole		2
58	CC-Q02, CC-Q03	Circuit Breaker 2 Pole		2
59	CC-Q01, CC-Q04	Circuit Breaker 3 Pole		2
60	PC-Q10, PC-Q13, PC-Q14, PC-Q24, PC-Q26, PC-Q28	Circuit Breaker 2 Pole		6
61	PC-Q19 to PC-Q23	Circuit Breaker 3 Pole		5
62	PC-Q16 to PC-Q18	Circuit Breaker 4 Pole		3
63	PC-Q11, PC-Q25	Circuit Breaker 2 Pole		2
64	PC-Q27, PC-Q29	Circuit Breaker 2 Pole		2
65	PC-RCKK01 to PC-RCKK11	RC Network		11
66	OC-SC01 to OC-SC04	2 Pin Service Socket		4
67	OC-SC05, OC-SC06	3 Pin Service Socket		2
68	OC-SC07, OC-SC08	3 Pin Service Socket		2
69	OC-SM01 to OC-SM03	SM321 32-PT - Input		3
70	OC-SM04 to OC-SM06	SM322 16-PT - Output		3
71	OC-SS10	2 Position Selector Switch		1
72	OC-SS11, OC-SS21	4 Position Selector Switch		2
73	PC-T01, PC-T03	Transformer		2
74	PC-T02, PC-T04	Transformer		2
75	PC-TOB, PC-TOH, PC-TOT	Thermal Overload Switch		3
76	OC-TP177	HMI Station I		1
77	OC-U00, OC-U03, OC-U04	PS307 - 24VDC - 5A		3
78	OC-U01, OC-U02	PS307 - 24VDC - 10A		2
79	PC-UB(6RA70-B), PC-UH(6RA70-H), PC-UT(6RA70-T)	DC Motor Drive		3
80	OC-V01, OC-V02	AC 500V		2
81	OC-VA	Solenoid Valve	Existing Device	1
82	FF-XS01, FF-XS02	Proximity Switch	Existing Device	2
83	BB-YB	Bridge Brake	Existing Device	1
84	HH-YH01	Hoist Working Brake	Existing Device	1
85	HH-YH02	Hoist Redundant Brake	Existing Device	1
86	HH-YH03	Hoist Safety Brake	Existing Device	1
87	HH-YT	Trolley Brake	Existing Device	1

Control System

NO.	DATE	REVISION
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Component List

ENGINEER	MMC	CHECKED BY	SSA, NR
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1:1			
25-02-2011			

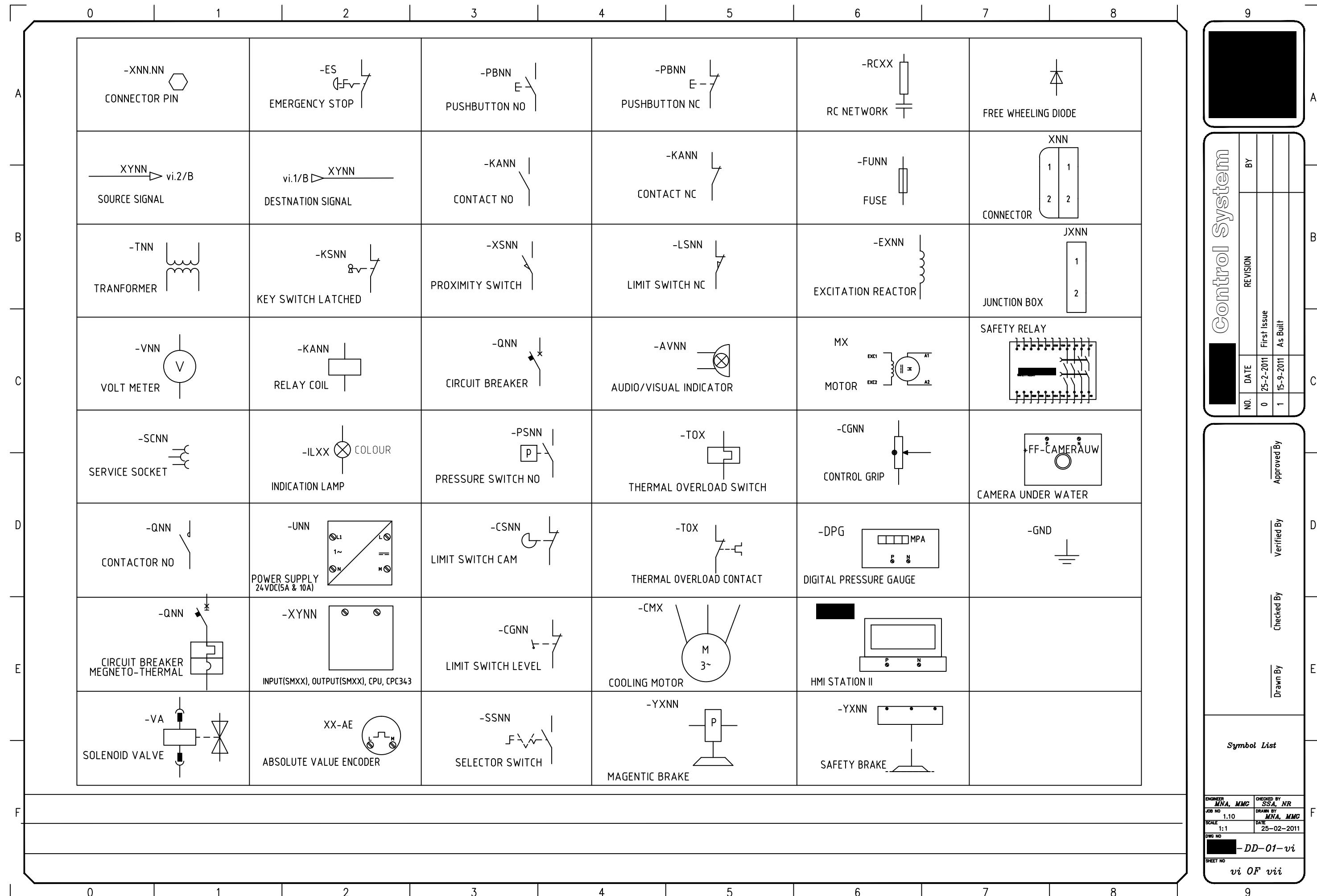
DD-01-v

SHEET NO

v OF vii

0 1 2 3 4 5 6 7 8

9



Control System

NO.	DATE	REVISION
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Symbol List

ENGINEER	MNA, MMC	CHECKED BY	SSA, NR
JOB NO	1.10	DRAWN BY	MNA, MMC
SCALE	1:1	DATE	25-02-2011
DWG NO			

DD-01-vi

SHEET NO

vi OF vii

0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

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Abbreviations

AE	Absolute Value Encoder
AR	Heater
AV	Audio Visual Indication
B	Bridge
CC	Control Cabinet
CG	Control Grip
CM	Cooling Motor
CS	CAM Switch
D	Free Wheeling Diaode
DGP	Digital Pressure Guage
EMCS	EMC Filter
ER	Excitation Reactor
ES	Emergency Stop
ET	Ethernet
FU	Fuse
H	Hoist
HG	Hygro State
IL	Indication Lamp
KA	Relay
KK	Megnetic Contactor
KS	Key Operated Switch
LDC	Load Cell
LS	Limit Switch
M	Motor
OC	Operator Cabinet
PC	Power Cabinet
PB	Push Button
PG	Motor Speed Encoder
PS	Pressure Switch
Q	Circuit Breaker
RC	RC Network
SC	Power Socket
SS	Selector Switch
T	Trolley
T0	Transformer
TO	Thermal Overload
U0	Power Supply
U	DC Motor Drive
V	Voltmeter
VA	Valve
XS	Proximity Switch
Y	Brake

Notes

9

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Control System

Control System			
NO.	DATE	REVISION	BY
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1	15-9-2011	As Built	

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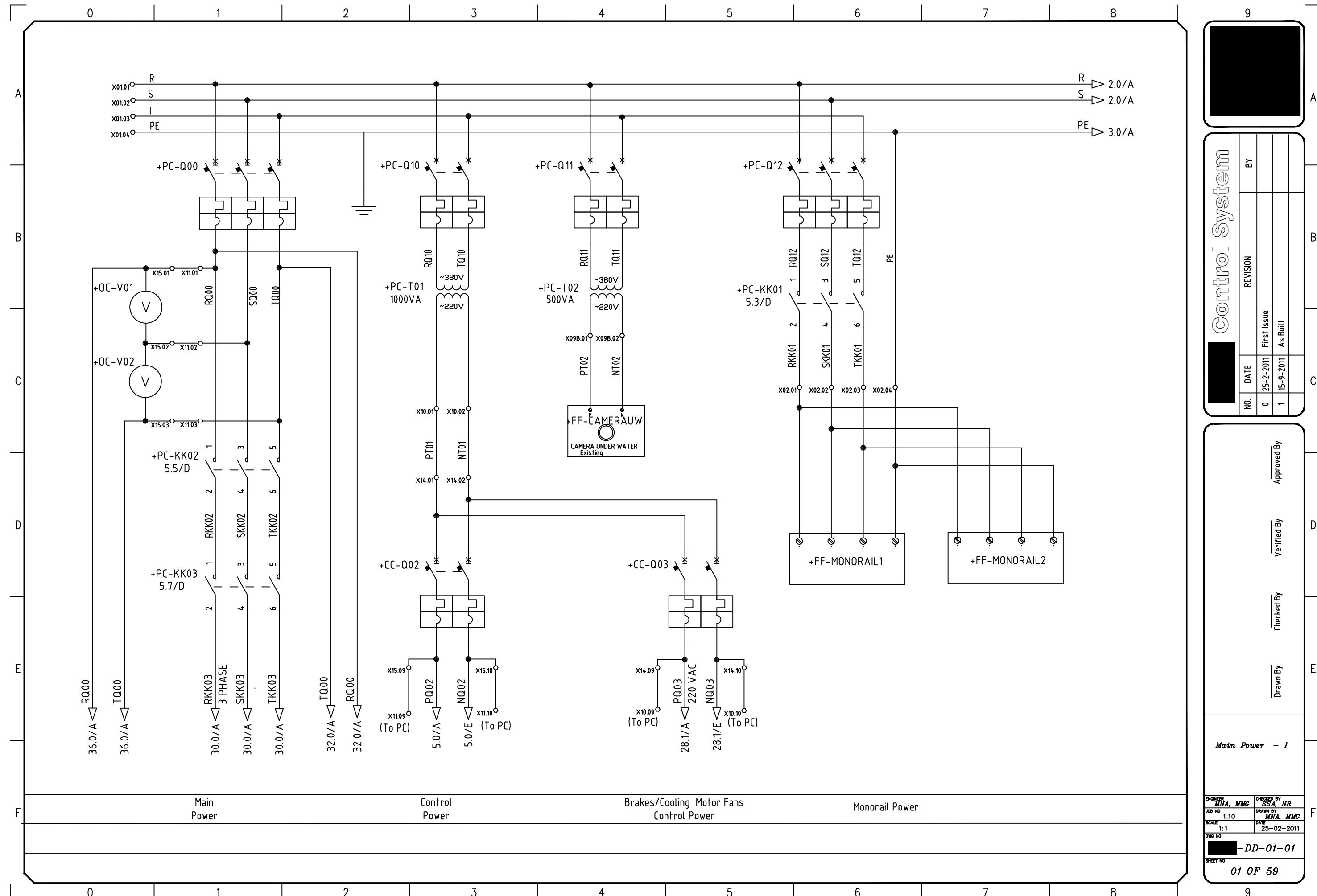
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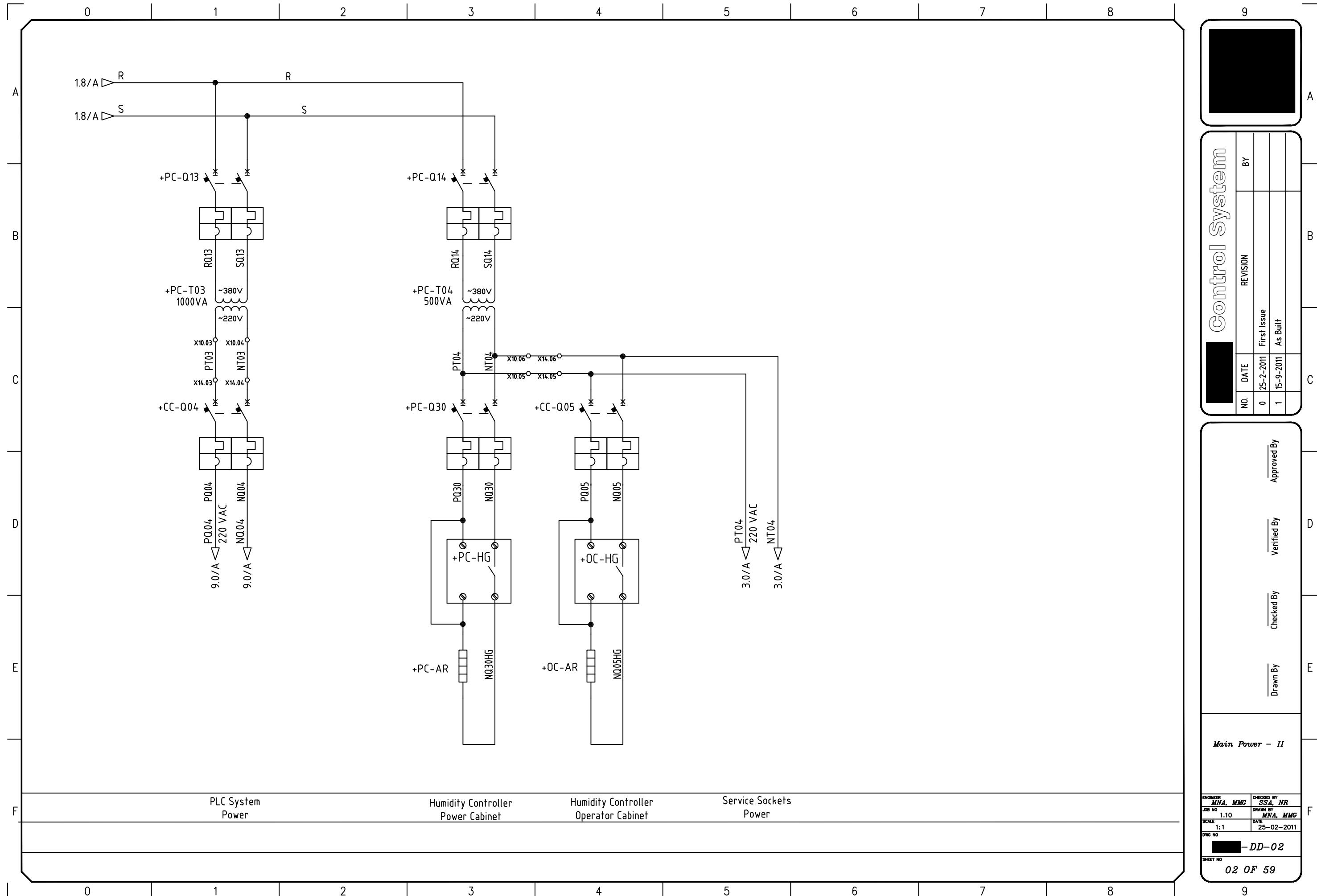
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JOB NO 1.10	DRAWN BY MNA, MMC
SCALE 1:1	DATE 25-02-2011
DRAWING NO [REDACTED] -DD-01-vii	
SHEET NO	

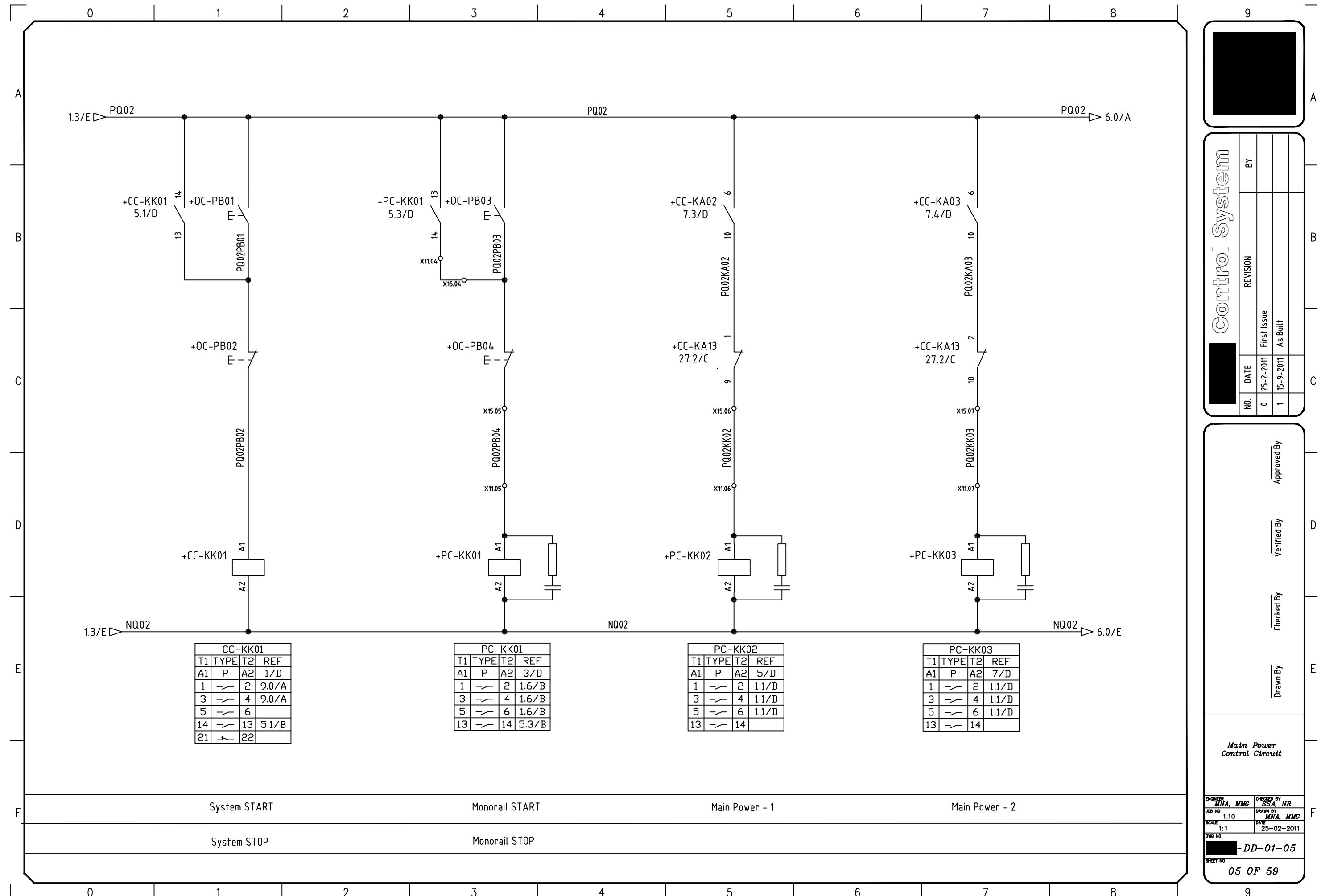
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vii OF vii

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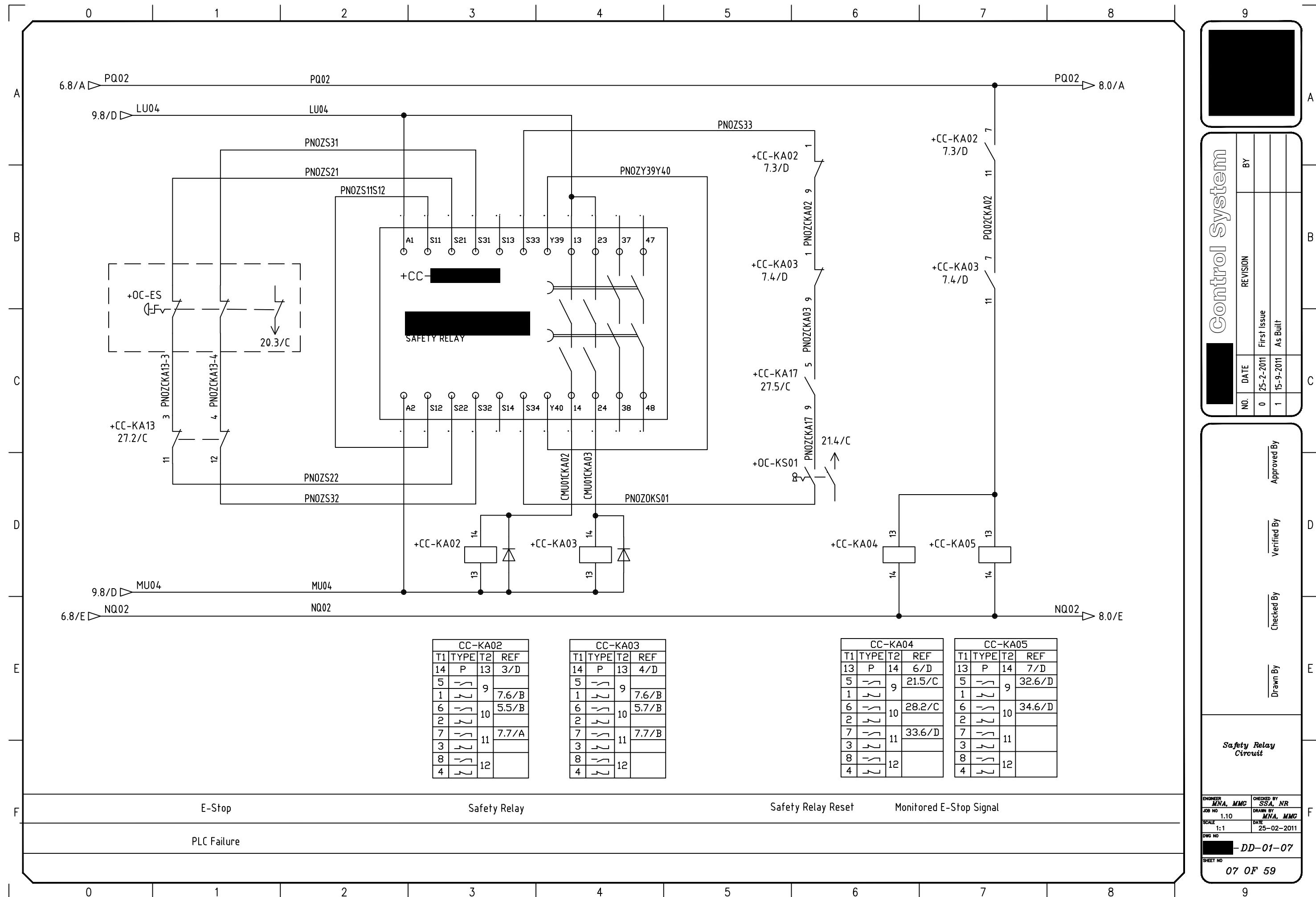


Control System

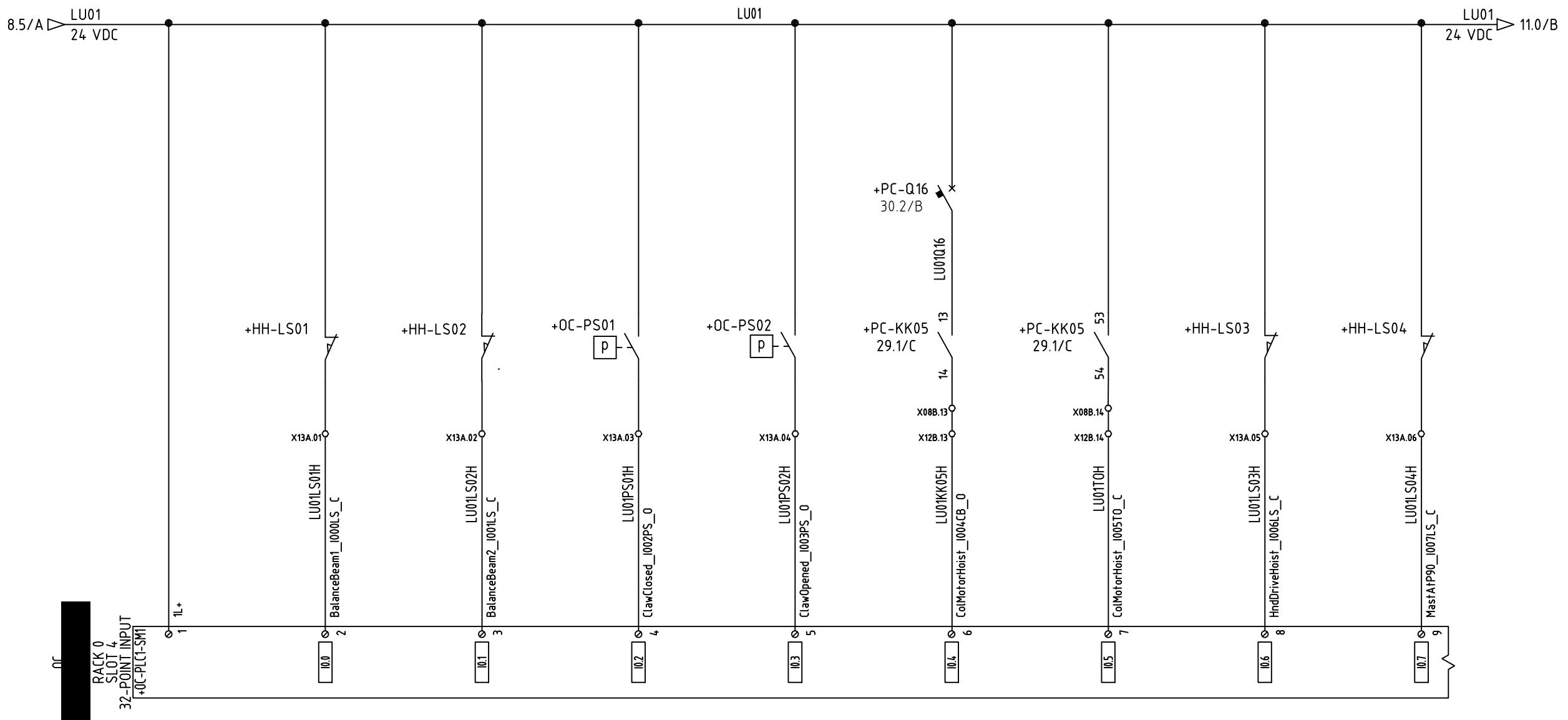
NO.	DATE	REVISION
0	25-2-2011	First Issue
1	15-9-2011	As Built

DD-01-05

Drawn By	Approved By
Verified By	Checked By
Main Power Control Circuit	
Engineer: MNA, MMC	Checked by: SSA, NR
Job No: 1.10	Drawn by: MNA, MMC
Scale: 1:1	Date: 25-02-2011
Dwg No:	
Sheet No: 05 OF 59	



SM01-1: Inputs 10.0 - 10.7



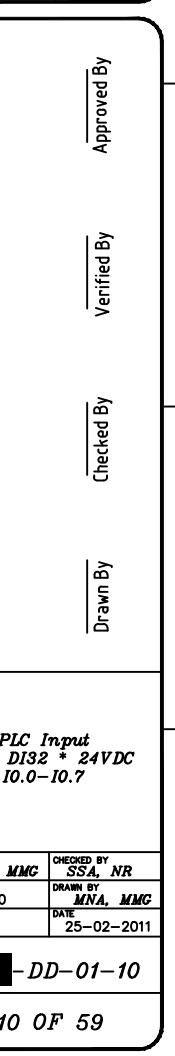
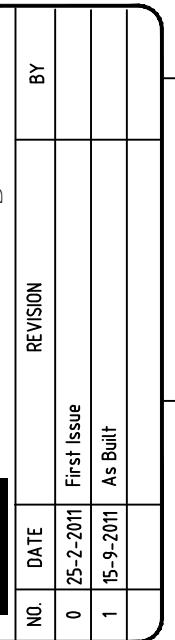
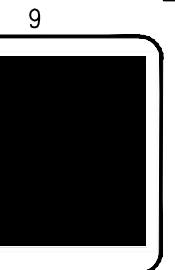
Balance Beam Limit Switch 1 Balance Beam Limit Switch 2 Claw Closed Pressure Switch Claw Opened Pressure Switch Hoist Cooling Motor ON Hoist Cooling Motor Thermal Overload Hoist Driven By Hand Mast at +90

Control System

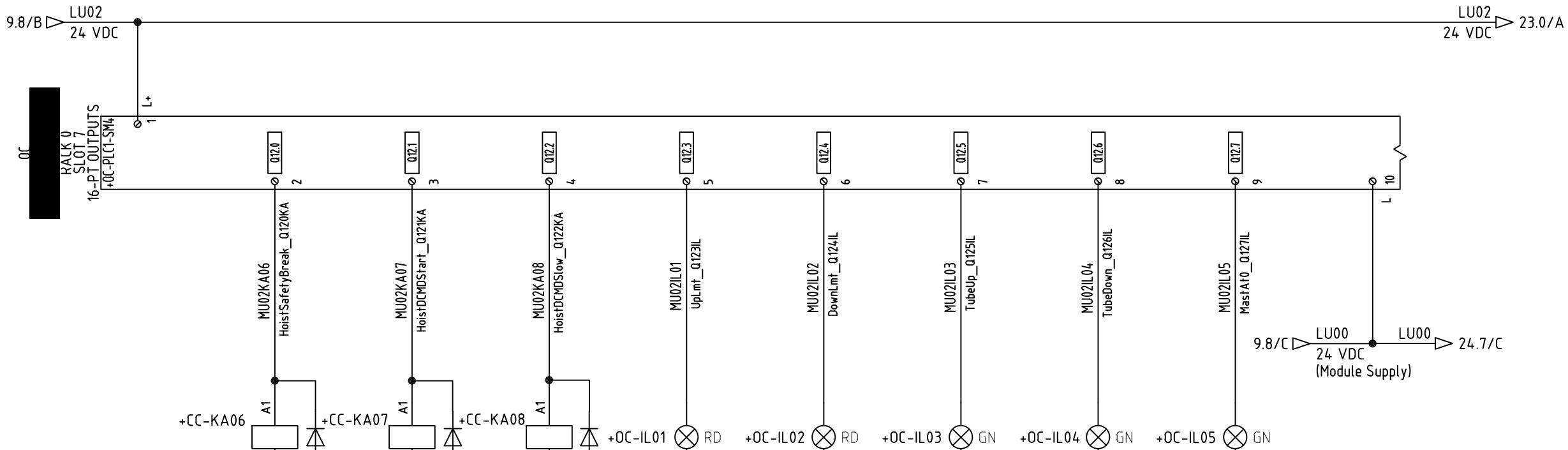
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Checked By	Verified By	Approved By

PLC Input
SM01 DI32 * 24VDC
10.0-10.7

ENGINEER: MNA, MMC CHECKED BY: SSA, NR
JOB NO: 1.10 DRAWN BY: MNA, MMC
SCALE: 1:1 DATE: 25-02-2011
DWG NO: DD-01-10
SHEET NO: 10 OF 59



SM04-1: Outputs Q12.0 - Q12.7



9.8/B ▷ MU02 (Load Supply Return) MU02 ▷ 23.0/E

CC-KA06				CC-KA07				CC-KA08			
T1	TYPE	T2	REF	T1	TYPE	T2	REF	T1	TYPE	T2	REF
A1	P	A2	1/C	A1	P	A2	2/C	A1	P	A2	3/C
5	—	9	28.2/B	5	—	9	32.3/B	5	—	9	32.1/D
1	—			1	—			1	—		
6	—	10		6	—	10		6	—	10	
2	—			2	—			2	—		
7	—	11		7	—	11		7	—	11	
3	—			3	—			3	—		
8	—	12		8	—	12		8	—	12	
4	—			4	—			4	—		

Hoist Safety
Brake Open Hoist DCMD
Start Hoist DCMD
Slow Up
Limit Down
Limit Tube
Up Tube
Down Mast
at 0°

Control System

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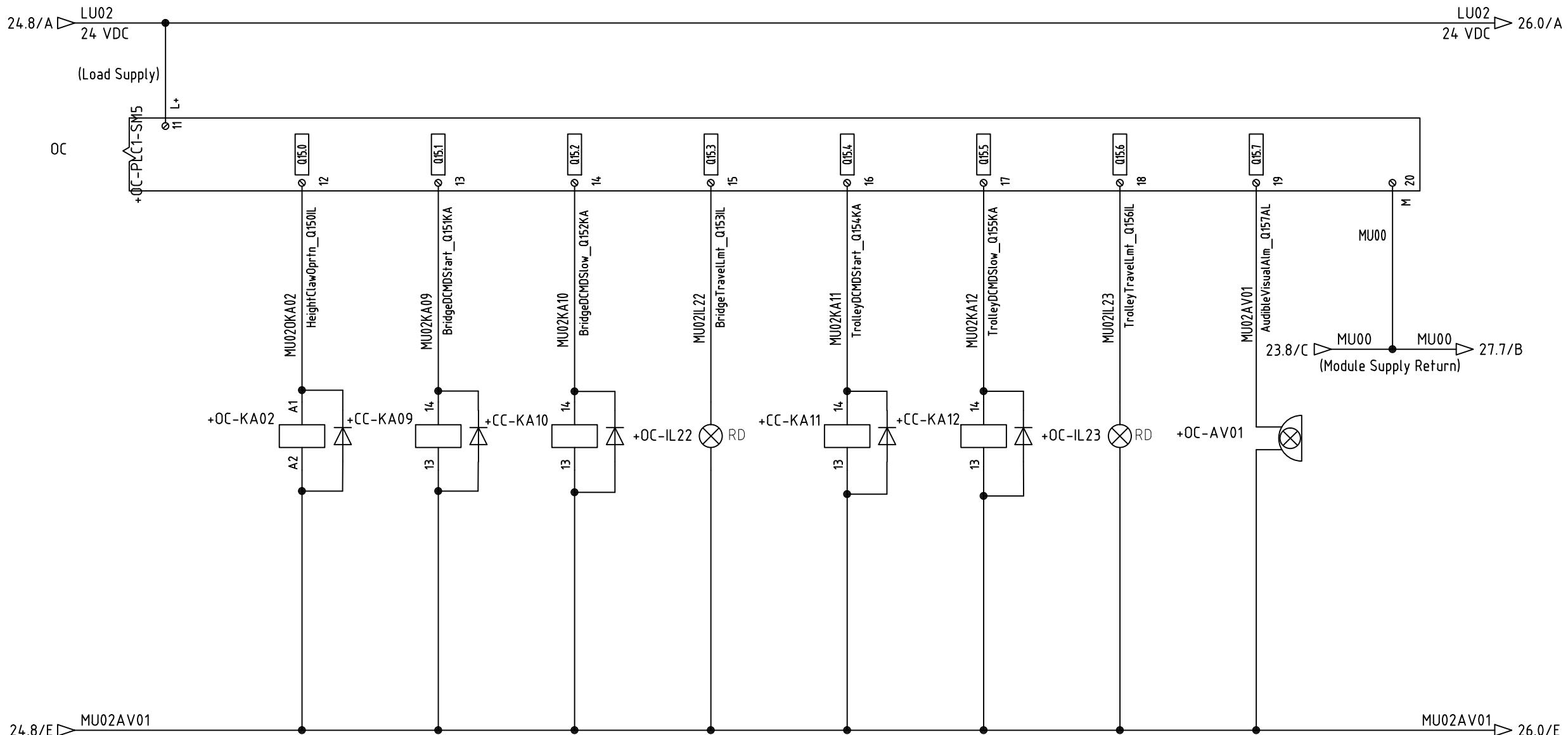
Checked By

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PLC Output
SM04 D016 * 24VDC
Q12.0 - Q12.7

ENGINEER	checked by
MNA, MMC	SSA, NR
JOB NO	DRAWN BY
1.10	MNA, MMC
SCALE	DATE
1:1	25-02-2011
DWG NO	
	DD-01-22
SHEET NO	22 OF 59

SM05-2: Outputs Q15.0 - Q15.7



OC-KA02			
T1	TYPE	T2	REF
A1	P	A2	1/C
5	—	9	8.5/B
1	—	—	
6	—	10	
2	—	—	
7	—	11	
3	—	—	
8	—	12	
4	—	—	

CC-KA09			
T1	TYPE	T2	REF
14	P	13	2/C
5	—	9	34.3/B
1	—	—	
6	—	10	
2	—	—	
7	—	11	
3	—	—	
8	—	12	
4	—	—	

CC-KA10			
T1	TYPE	T2	REF
14	P	13	3/C
5	—	9	34.1/D
1	—	—	
6	—	10	
2	—	—	
7	—	11	
3	—	—	
8	—	12	
4	—	—	

CC-KA11			
T1	TYPE	T2	REF
14	P	13	4/C
5	—	9	33.3/B
1	—	—	
6	—	10	
2	—	—	
7	—	11	
3	—	—	
8	—	12	
4	—	—	

CC-KA12			
T1	TYPE	T2	REF
14	P	13	5/C
5	—	9	33.1/E
1	—	—	
6	—	10	
2	—	—	
7	—	11	
3	—	—	
8	—	12	
4	—	—	

Height for Claw Operation Bridge DCMD Start Bridge DCMD Slow Bridge Travel Limit Trolley DCMD Start Trolley DCMD Slow Trolley Travel Limit Alarm

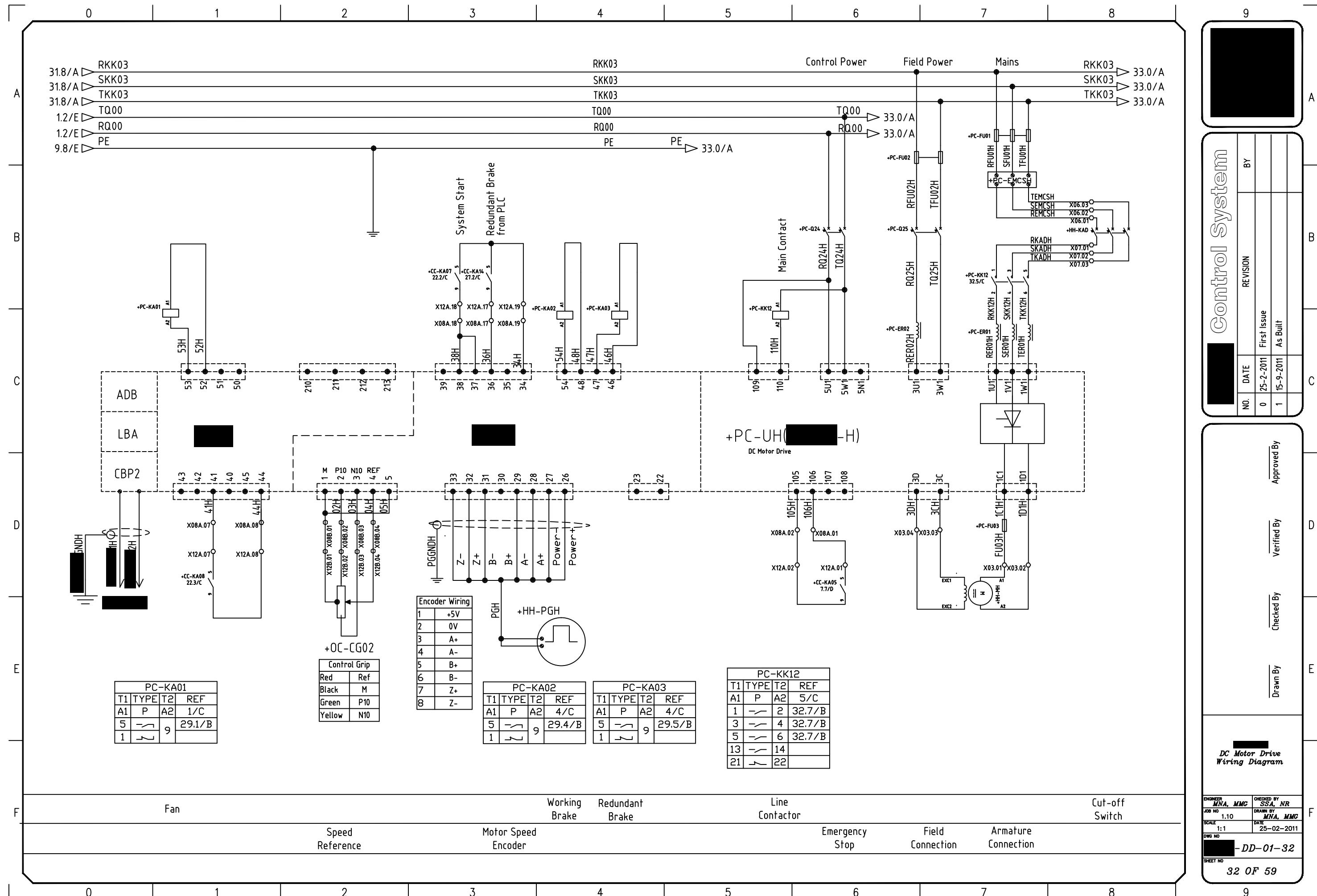
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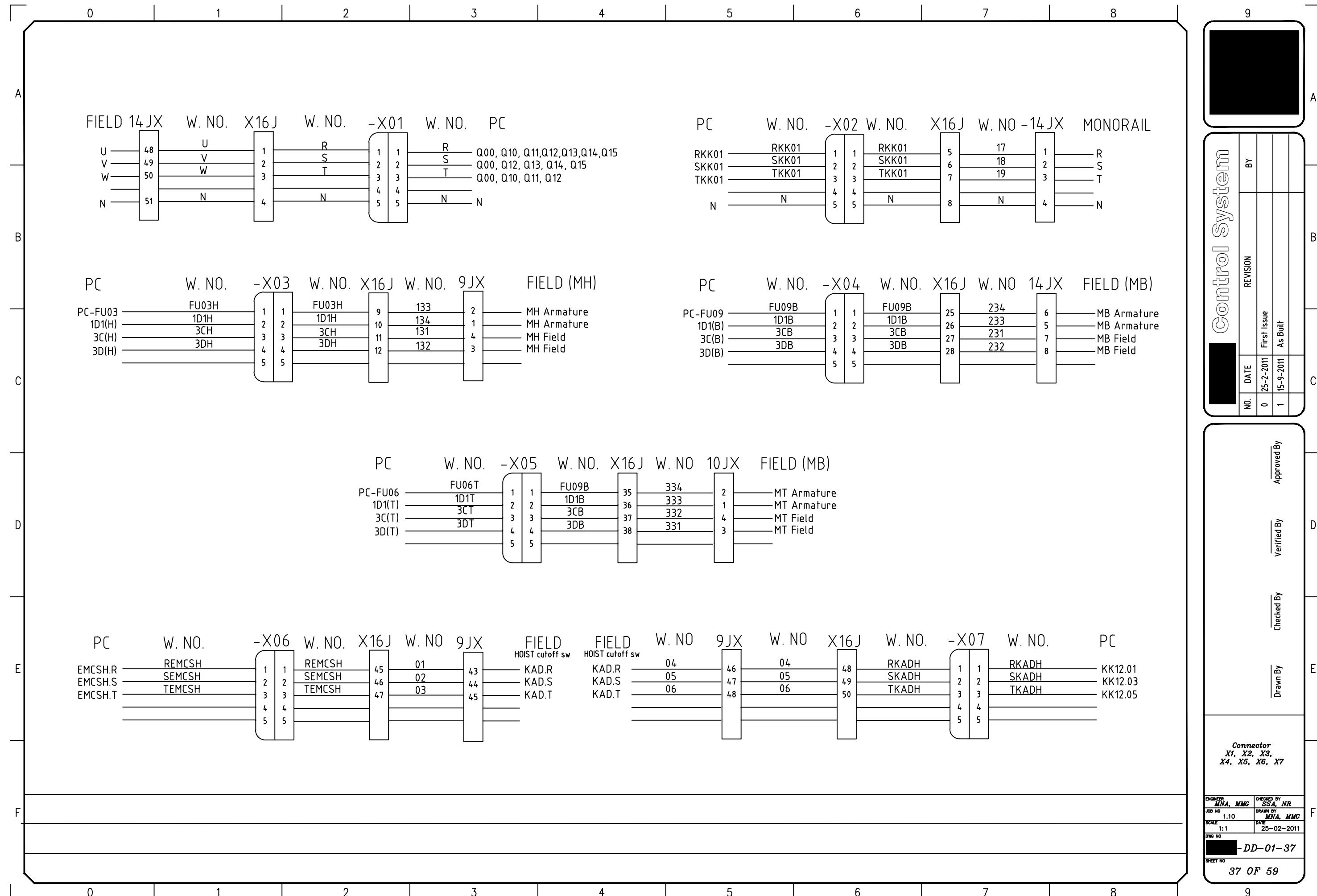
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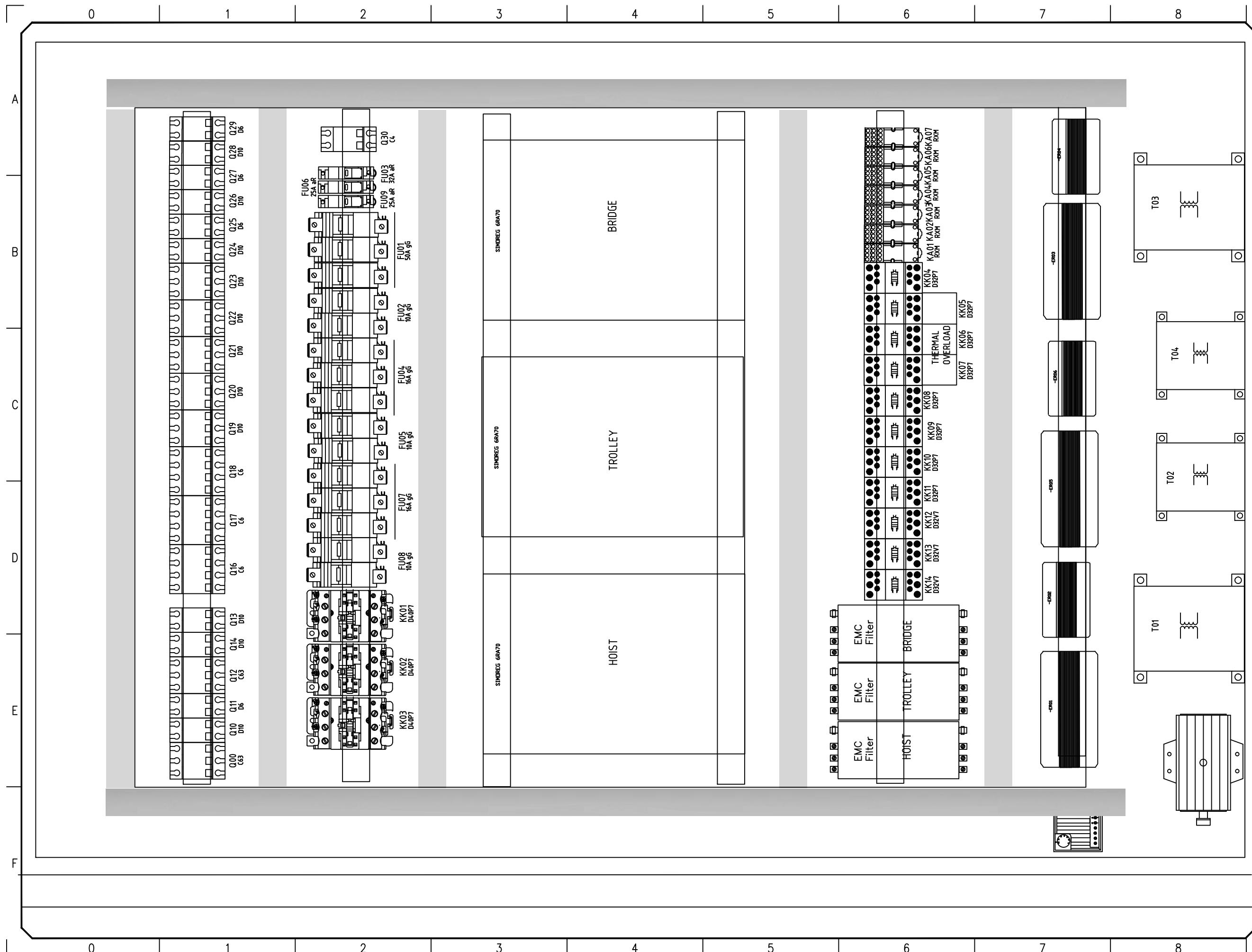
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Verified By _____
Checked By _____
Drawn By _____

PLC Output
SM05 DO16 * 24VDC
Q15.0 - Q15.7

ENGINEER	MMC	CHECKED BY
MNA, MMC		SSA, NR
JOB NO		DRAWN BY
1.10		MNA, MMC
SCALE		DATE
1:1		25-02-2011
DWG NO		
		DD-01-25







Control System

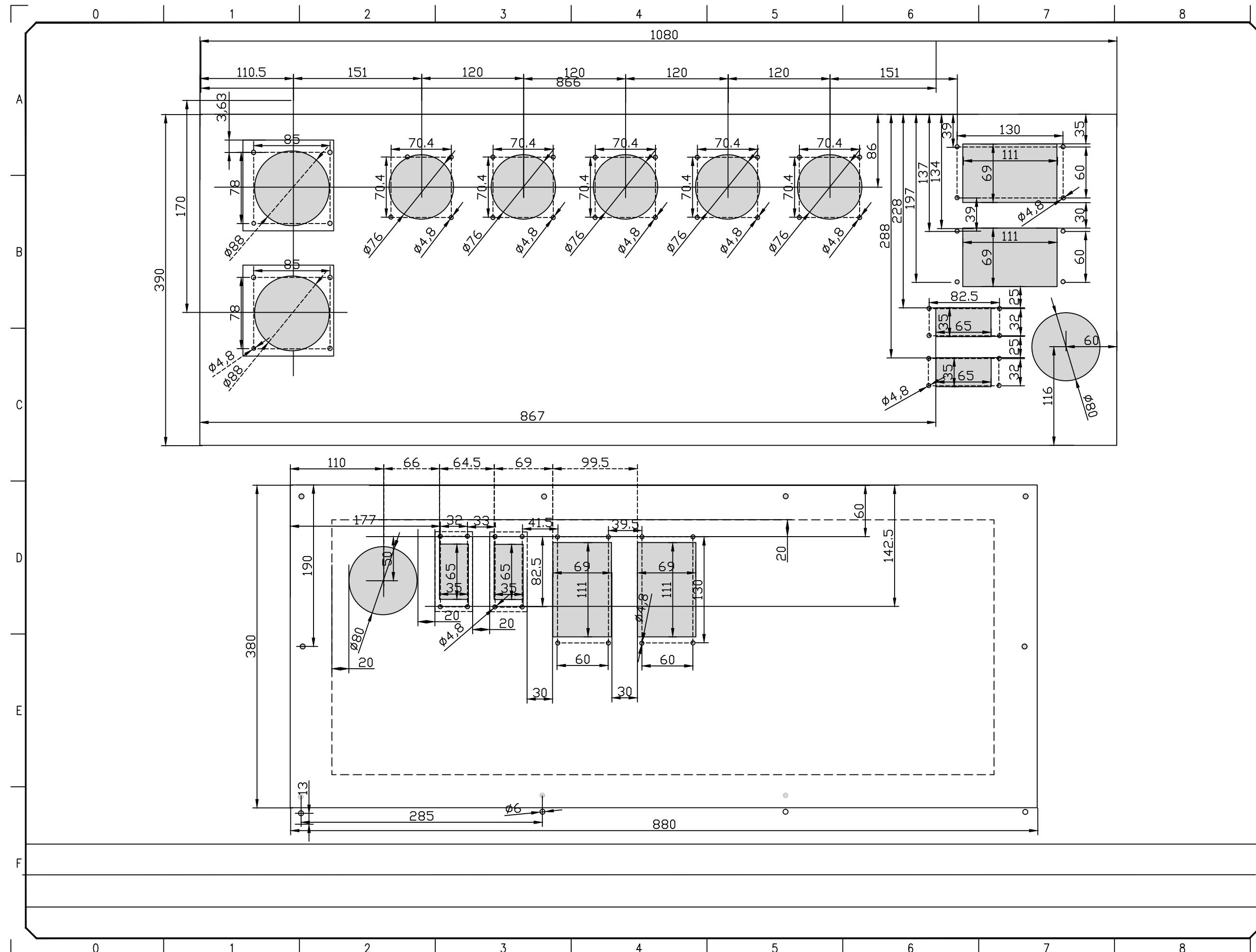
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No.	Date	Revision	By
0	25-2-2011	First Issue	
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Power Cabinet Component Layout

ENGINEER MNA, MMC	CHECKED BY SSA, NR
JOB NO 1.10	DRAWN BY MNA, MMC
SCALE 1:5	DATE 25-02-2011
DWG NO [REDACTED]	PP-21-11

- DD-01-44

44 OF 59



Control System

	NO.	DATE	
	0	25-2-2011	Fir
	1	15-9-2011	As

Cutout Drawing For Connectors of PC and OC

ENGINEER MNA, MMC	CHECKED BY SSA, NR
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SCALE 1:1	DATE 25-02-2011
DWG NO 	-DD-01-59
SHEET NO	

59 OF 59

59 OF 59