MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM

TRIP TABLE

Rev.	DESCRIPTION	DESIGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.27

TITLE :

MODIFICATION OF ARDAKAN 63/20kV SUBSTATION
PROTECTION, CONTROL & ALARM SYSTEM
TRIP TABLE
COVER

CLIENT:

شرکت برق منطقه‌ای یزد

CONSULTANT:

مونتکو ایران
Monenco Iran

CLIENT DWG NO: ----------

MONENCO'S DWG NO: MT-SUB-YREC-6314-BD-00-SJ-002

DESIGNED:	Reza Naseri	DATE: 2021.11.27	DESIGN STAGE : BASIC DESIGN
DRAWN:	Shirin Tabatabaie	DATE: 2021.11.27	SCALE : NTS
CHECKED:	Ali Akbar Kosari	DATE: 2021.11.27	FORMAT : A3
APPROVED:	Davod Hasanifar	DATE: 2021.11.27	SHEET NO. : 1 NEXT SHEET : 2
VERIFIED:	Davod Hasanifar	DATE: 2021.11.27	TOTAL SHEET : 4

MONENCO DOCUMENT No.	ORIG. NAME	CLIENT	SECTOR	DESIGN TYPE	PRJ.	PRJ. TYPE	DEP.	DOC. TYPE	SYS. FAC.	SEQ. No.	REV.
MT-SUB-YREC-6314-BD-00-SJ-002											A1

DESIGNATION OF	TITLE	REVISION			
1	COVERING SHEET	A0	A1		
2	INDEX	A0	A1		
3	=F01 (LINE633)	A0	A1		
4	T01	A0	A1		

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.27

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-00-SJ-002

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:

MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM

TRIP TABLE

INDEX

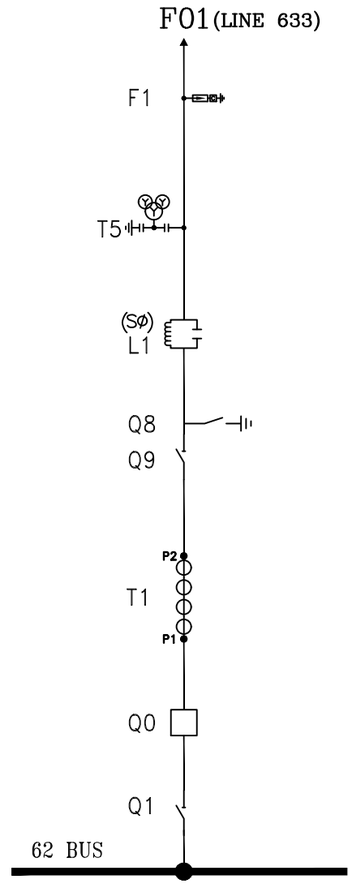
SH / CONT: 2

TOTAL SH.: 4

REV: A1

=F01(63kV LINE)

DESCRIPTION	PROTECTION TRIP	LOCATION	TRIP RELAY (MAIN) =F01-Q0	TRIP RELAY (BACK UP) =F01-Q0	=F1-Q0 A/R START	=F01-Q0 CLOSE LOCKOUT START	DISTANCE CAREER SEND (CH1)	DEF CAREER SEND(CH2)	=F01 LINE DTT SEND(CH3 & CH4)	MAIN TC1, =F01-Q0	BACKUP TC2, =F01-Q0
			PROTECTION PANELS							TRIP COILS	
			-F01+R	-F01+R	-F01+R	-F01+R	-F01+R	-F01+R	-F01+R	-F01+SV	-F01+SV
'MAIN DISTANCE PROTECTION	LINE DISTANCE PROTECTION TRIP (21) (A/R ON)	-F01+R	■		■		■				
	LINE DISTANCE PROTECTION TRIP (21) (A/R OFF)	-F01+R	■			■					
	AUTO RECLOSER TRIP	-F01+R	■			■					
	REMOTE COMMAND 1 RECEIVE	-F01+R		■		■					
	REMOTE COMMAND 2 RECEIVE	-F01+R		■		■					
BACK-UP DOC/EF PROTECTION	D.O.C.E.F (67,67N) TRIP	-F01+R		■		■					
	UNDER VOLTAGE PROTECTION TRIP (27)	-F01+R		■							
	OVER VOLTAGE PROTECTION TRIP (59)	-F01+R		■		■			■		
	AUTO RECLOSER TRIP (79)	-F01+R		■		■					
MAIN & BACKUP TRIP RELAYS	MAIN (-Q0) TRIP RELAY	-F01+R								■	
	BACKUP (-Q0) TRIP RELAY	-F01+R									■



VALID FOR: =F02 LINE FEEDER (LINE 634)

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.27

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-00-SJ-002

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE: MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM

TRIP TABLE =F01 (LINE633)

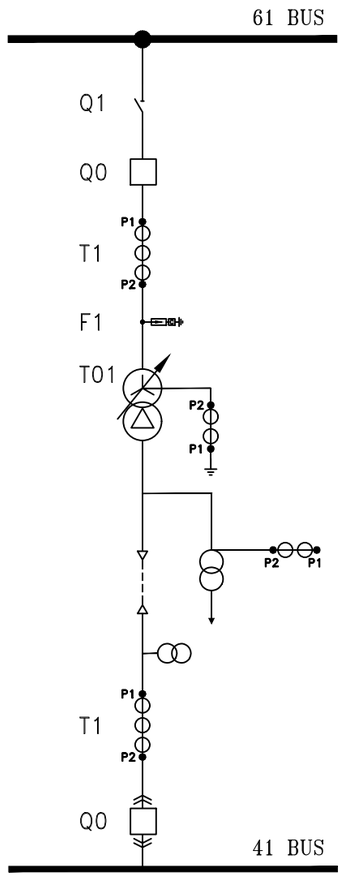
SH / CONT: 3

TOTAL SH.: 4

REV: A1

=FT01/J01 -63/20 TRANSFORMER

description	protection trip	LOCATION	PROTECTION PANELS: AUX. TRIP RELAY MAIN	AUX. TRIP RELAY BACKUP	TRIP RELAY (MAIN) =FT01-Q0	TRIP RELAY (BACKUP) =FT01-Q0	=F01-Q0 CLOSE LOCKOUT START	TRIP RELAY '=J01-Q0	=J01-Q0 CLOSE LOCKOUT START	TRIP COILS: MAIN TC =FT01-Q0	BACK UP TC =FT01-Q0	TC =J01-Q0
			-FT01+R	-FT01+R	-FT01+R	-FT01+R	-FT01+R	-J01+R	-J01+R	-FT01+SV	-FT01+SV	-J01+R
-T01 MAIN PROTECTION	TRANSFORMER DIFFERENTIAL PROTECTION (MAIN)	-FT01+R			■		■	■	■			
	L.V. SIDE RESTRICTED EARTH FAULT PROTECTION	-FT01+R			■		■	■	■			
	THERMAL OVER LOAD	-FT01+R			■		■	■	■			
	H.V. SIDE RESTRICTED EARTH FAULT PROTECTION	-FT01+R			■		■	■	■			
	AUX. TRANSFORMER/OIL TEMPERATURE	-FT01+R	■									
	AUX. TRANSFORMER/BUCHHOLZ PROTECTION	-FT01+R		■								
	POWER TRANSFORMER/TEMPERATURE FOR WINDING	-FT01+R	■									
	POWER TRANSFORMER/OIL TEMPERATURE	-FT01+R	■									
	PROTECTION RELAY FOR OLTC	-FT01+R		■								
	POWER TRANSFORMER/BUCHHOLZ PROTECTION	-FT01+R	■									
-T01 BACKUP PROTECTION	TRANSFORMER DIFFERENTIAL PROTECTION (BACKUP)	-FT01+R				■	■	■	■			
	HV. SIDE O/C PROTECTION	-FT01+R				■	■	■	■			
	HV. SIDE E/F PROTECTION	-FT01+R				■	■	■	■			
	LV. SIDE O/C PROTECTION	-FT01+R				■	■	■	■			
	LV. SIDE E/F PROTECTION	-FT01+R				■	■	■	■			
	SEF PROTECTION	-FT01+R				■	■	■	■			
	OVER VOLTAGE PROTECTION	-FT01+R				■	■	■	■			
	UNDER VOLTAGE PROTECTION	-FT01+R						■				
	OVER FLUX PROTECTION	-FT01+R				■	■	■	■			
	POWER TRANSFORMER/ PRESSURE RELIEF VALVE FOR TAP CHANGER	-FT01+R	■									
	POWER TRANSFORMER/PRESSURE RELIEF VALVE FOR MAIN TANK	-FT01+R	■									
AUX TRIP RELAY	AUX TRIP RELAY MAIN	-FT01+R			■		■	■	■			
	AUX TRIP RELAY BACKUP	-FT01+R				■	■	■	■			
TRIP RELAY	TRIP RELAY (MAIN) =FT01-Q0	-FT01+R								■		
	TRIP RELAY (BACKUP) =FT01-Q0	-FT01+R									■	
	TRIP RELAY (MAIN) =J01-Q0	-J01+R										■



VALID FOR =T02

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.27

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-00-SJ-002

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE: MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM

TRIP TABLE

T01

SH / CONT: 4

TOTAL SH.: 4

REV: A1

MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM

PANEL ARRANGEMENT

Rev.	DESCRIPTION	DESIGN	DRAWN	CHECK	APPR	VRF	DATE
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.07.05

TITLE :
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION
PROTECTION, CONTROL & ALARM SYSTEM
PANEL ARRANGEMENT
COVER

CLIENT:
شرکت برق منطقه‌ای یزد

CONSULTANT:
مونتکو ایران
Monenco Iran

CLIENT DWG NO: ----------

MONENCO'S DWG NO: MT-SUB-YREC-6314-BD-01-SI-001

DESIGNED: Reza Naseri	DATE: 2021.07.05	DESIGN STAGE : BASIC DESIGN	
DRAWN: Shirin Tabatabaie	DATE: 2021.07.05	SCALE : NTS	
CHECKED: Ali Akbar Kosari	DATE: 2021.07.05	FORMAT : A3	
APPROVED: Davod Hasanifar	DATE: 2021.07.05	SHEET NO. : 1	NEXT SHEET : 2
VERIFIED: Davod Hasanifar	DATE: 2021.07.05	TOTAL SHEET : 6	

MONENCO DOCUMENT No.	ORIG. NAME	CLIENT	SECTOR	DESIGN TYPE	PRJ.	PRJ. TYPE	DEP.	DOC. TYPE	SYS. FAC.	SEQ. No.	REV.
MT-SUB-YREC-6314-BD-01-SI-001											A0

SHEET	TITLE	REVISION				
1	COVER SHEET	A0				
2	INDEX	A0				
3	GENERAL PANEL ARRANGEMENT	A0				
4	CONTROL ROOM PANEL ARRANGEMENT (EXISTING)	A0				
5	MV SWITCHGEAR PANEL ARRANGEMENT	A0				
6	CONTROL ROOM PANEL ARRANGEMENT (EXTENSION)	A0				

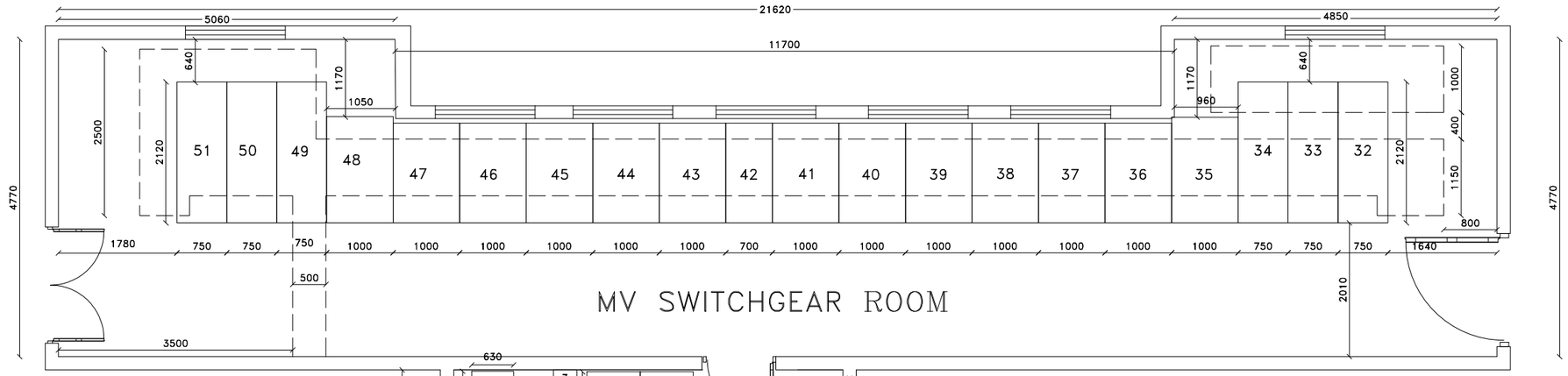
REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.07.05

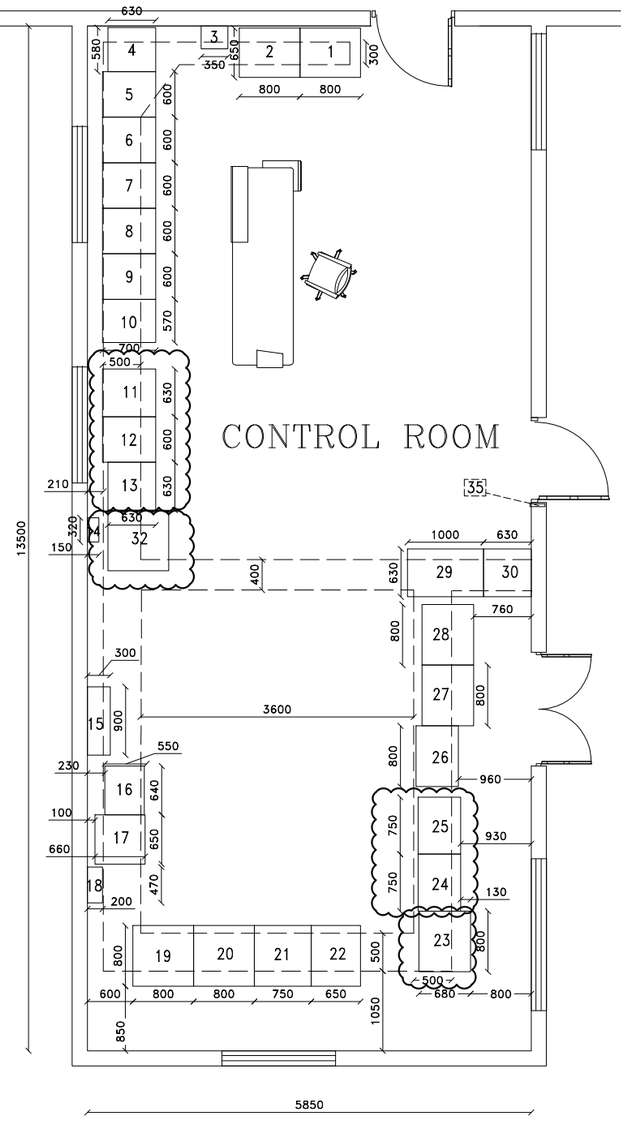
CONSULTANT:
مونتکو ایران
Monenco Iran
DWG NO.: MT-SUB-YREC-6314-BD-01-SI-001

CLIENT:
شرکت برق منطقه‌ای یزد
CLIENT DWG NO.: ----------

TITLE:
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM
PANEL ARRANGEMENT
INDEX

SH / CONT: 2
TOTAL SH.: 6
REV: A0





MV SWITCHGEAR ROOM:

NO.	LABELING	DESCRIPTION WITH DISPATCHING CODE
32	=J013	MV CAPACITOR FEEDER PANEL(451)
33	=J012	MV OUTGOING FEEDER PANEL(410)
34	=J011	MV OUTGOING FEEDER PANEL(408)
35	COORDINATOR	BUSBAR ADAPTOR PANEL
36	WLJ2	MV OUTGOING FEEDER PANEL(402)
37	WLJ3	MV OUTGOING FEEDER PANEL(403)
38	T1	MV INCOMING FEEDER PANEL (4412)
39	TRANS.=T1	INCOMING PROTECTION PANEL (T1)
40	WLJ4	MV OUTGOING FEEDER PANEL(404)
41	BUSBAR	PANEL FOR COUPLING (4812)
42	BUSBAR(WBJ)	BUS RISER PANEL
43	WLJ5	MV OUTGOING FEEDER PANEL(405)
44	T2	MV INCOMING FEEDER PANEL (4422)
45	TRANS.=T2	INCOMING PROTECTION PANEL (T2)
46	WLJ6	MV OUTGOING FEEDER PANEL(406)
47	---	MV CAPACITOR FEEDER PANEL(452)
48	COORDINATOR	BUSBAR ADAPTOR PANEL
49	J08	MV OUTGOING FEEDER PANEL(411)
50	J09	MV OUTGOING FEEDER PANEL(413)
51	J010	MV OUTGOING FEEDER PANEL(415)

CONTROL ROOM:

NO.	LABELING	DESCRIPTION WITH DISPATCHING CODE
1	NF+NF02	400 V AC DISTRIBUTION PANEL
2	NF+NF01	400 V AC MAIN PANEL
3	ILP	INDOOR LIGHTING PANEL
4	+KA.6	FEEDERS CONTROL PANEL(411, 413, 415)
5	+KA.5	LINE & FEEDER CONTROL PANEL(638, 452)
6	+KA.4	TRANS., LINE & FEEDERS CONTROL PANEL(T2, 634, 406, 405)
7	+KA.3	COUPLING & BUS SECTION CONTROL PANEL (6810, 4812)+T1 & T2 ALARM
8	+KA.2	TRANS., LINE & FEEDERS CONTROL PANEL(T1, 633, 403, 404)
9	+KA.1	LINE & FEEDER CONTROL PANEL(637, 402)
10	+KA.7	FEEDERS CONTROL PANEL(408, 410, 451)
11	+RA.3	ALARM EQUIPMENT + BACKUP PROTECTION (T1, T2) PANEL
12	+RA.2	TRANS. PROTECTION PANEL(T2)
13	+RA.1	TRANS. PROTECTION PANEL(T1)
14	AC DIST.	400 V AC DISTRIBUTION PANEL
15	110V DC DIST.	110 DC DISTRIBUTION PANEL
16	PLC	POWER LINE CARRIER(CH:602→ARDAKAN230, CH:601→JAHAN ABAD)
17	48V DC CHARGER	48 V DC CHARGER PANEL
18	48V DC DIST.	48 V DC DISTRIBUTION PANEL
19	R2+L2	63KV LINE CONTROL PANEL(638)
20	R1+L1	63KV LINE CONTROL PANEL(637)
21	F&E MAR.	FAULT & EVENT MARSHALING PANEL
22	F&E MONI.	FAULT & EVENT MONITORING PANEL
23	KC1	CAPACITOR CONTROL & UB PROTECTION PANEL(45111,45112,45113,45223,45222,45221)
24	RL3	63KV LINE CONTROL PANEL(633)
25	RL4	63KV LINE CONTROL PANEL(634)
26	RTU	REMOTE TERMINAL UNIT PANEL
27	MR.1	SCADA PANEL
28	HVI.1	SCADA PANEL
29	---	DISTPACHING COMMUNICATION SWITCH PANEL
30	110V DC CHARGER	110 V DC CHARGER PANEL
31	---	FIRE ALARM PANEL
32	+MA.1	METERING PANEL

* NOTE:

1.OPENING - - - - - -

2.ALL DIMENSION IS IN mm

SCOPE OF WORK

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.07.05

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-01-SI-001

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:

MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM

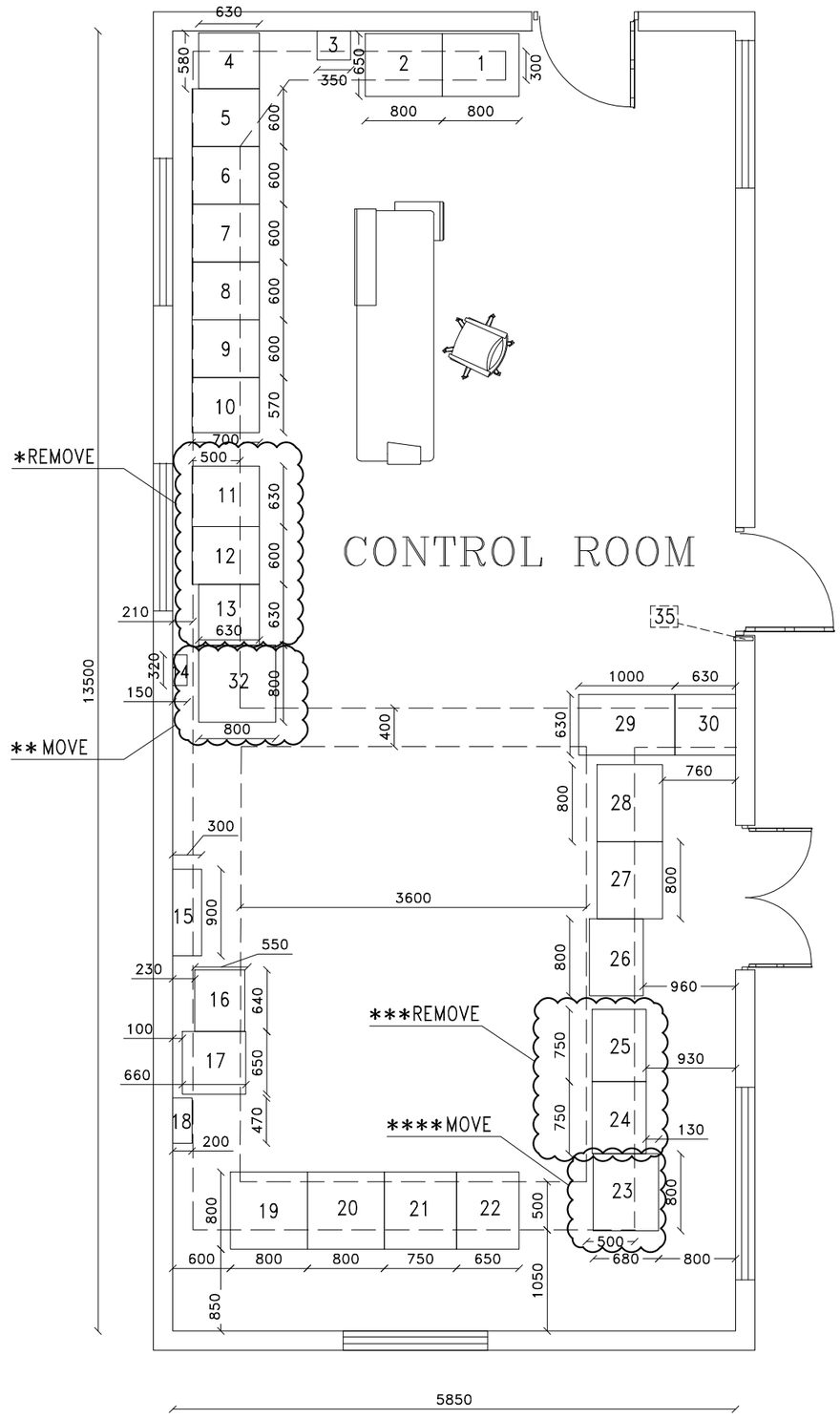
PANEL ARRANGEMENT

GENERAL PANEL ARRANGEMENT

SH / CONT: 3

TOTAL SH.: 6

REV: A0



CONTROL ROOM:

NO.	LABELING	DESCRIPTION WITH DISPATCHING CODE
1	NF+NF02	400 V AC DISTRIBUTION PANEL
2	NF+NF01	400 V AC MAIN PANEL
3	ILP	INDOOR LIGHTING PANEL
4	+KA.6	FEEDERS CONTROL PANEL(411, 413, 415)
5	+KA.5	LINE & FEEDER CONTROL PANEL(638, 452)
6	+KA.4	TRANS., LINE & FEEDERS CONTROL PANEL(T2, 634, 406, 405)
7	+KA.3	COUPLING & BUS SECTION CONTROL PANEL (6810, 4812)+T1 & T2 ALARM
8	+KA.2	TRANS., LINE & FEEDERS CONTROL PANEL(T1, 633, 403, 404)
9	+KA.1	LINE & FEEDER CONTROL PANEL(637, 402)
10	+KA.7	FEEDERS CONTROL PANEL(408, 410, 451)
11	+RA.3	ALARM EQUIPMENT + BACKUP PROTECTION (T1, T2) PANEL
12	+RA.2	TRANS. PROTECTION PANEL(T2)
13	+RA.1	TRANS. PROTECTION PANEL(T1)
14	AC DIST.	400 V AC DISTRIBUTION PANEL
15	110V DC DIST.	110 DC DISTRIBUTION PANEL
16	PLC	POWER LINE CARRIER(CH:602→ARDAKAN230, CH:601→JAHAN ABAD)
17	48V DC CHARGER	48 V DC CHARGER PANEL
18	48V DC DIST.	48 V DC DISTRIBUTION PANEL
19	R2+L2	63KV LINE CONTROL PANEL(638)
20	R1+L1	63KV LINE CONTROL PANEL(637)
21	F&E MAR.	FAULT & EVENT MARSHALING PANEL
22	F&E MONI.	FAULT & EVENT MONITORING PANEL
23	KC1	CAPACITOR CONTROL & UB PROTECTION PANEL(45111,45112,45113,45223,45222,45221)
24	RL3	63KV LINE CONTROL PANEL(633)
25	RL4	63KV LINE CONTROL PANEL(634)
26	RTU	REMOTE TERMINAL UNIT PANEL
27	MR.1	SCADA PANEL
28	HVI.1	SCADA PANEL
29	---	DISTPACHING COMMUNICATION SWITCH PANEL
30	110V DC CHARGER	110 V DC CHARGER PANEL
31	---	FIRE ALARM PANEL
32	+MA.1	METERING PANEL

* تابلو های ۱۱ و ۱۲ و ۱۳ مربوط به حفاظت ترانسفورمر و آلارم ها حذف میشوند.

** تابلوی ۳۲ مربوط به کنتورها به سمت چپ جابجا میشود.

*** تابلوهای ۲۴ و۲۵ مربوط به حفاظت خطوط ۶۳۳ و ۶۳۴ حذف میشوند.

**** تابلوی ۲۳ مربوط به VCR به سمت راست جابجا میشود.

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.07.05

CONSULTANT: مونتکو ایران Monenco Iran

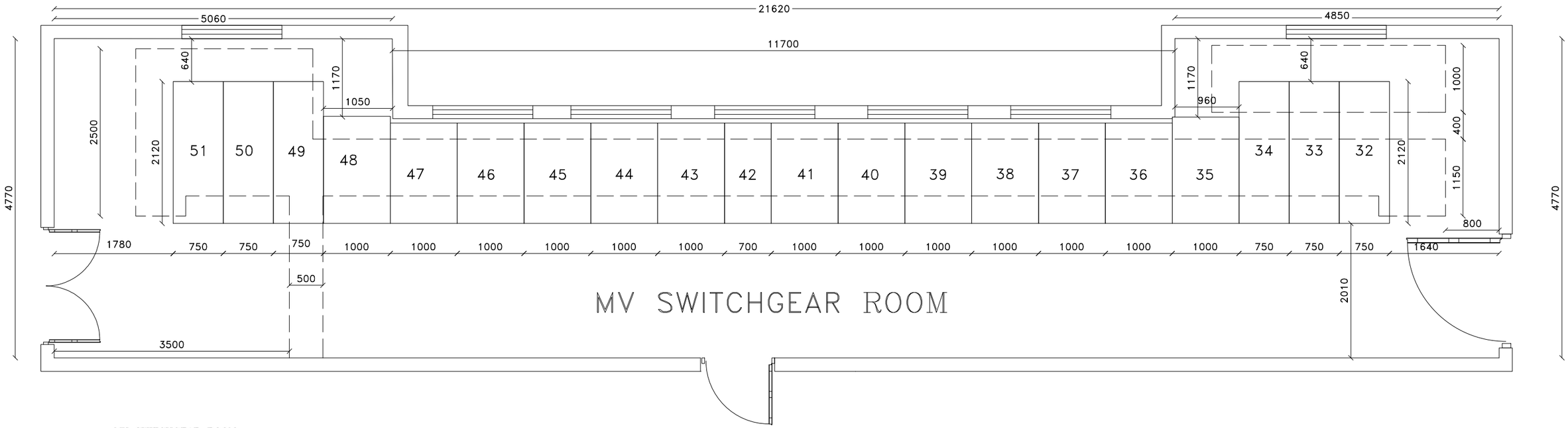
DWG NO.: MT-SUB-YREC-6314-BD-01-SI-001

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM
PANEL ARRANGEMENT
CONTROL ROOM PANEL ARRANGEMENT (EXISTING)

SH / CONT: 4
TOTAL SH.: 6
REV: A0



MV SWITCHGEAR ROOM:

NO.	LABELING	DESCRIPTION WITH DISPATCHING CODE
32	=J013	MV CAPACITOR FEEDER PANEL(451)
33	=J012	MV OUTGOING FEEDER PANEL(410)
34	=J011	MV OUTGOING FEEDER PANEL(408)
35	COORDINATOR	BUSBAR ADAPTOR PANEL
36	WLJ2	MV OUTGOING FEEDER PANEL(402)
37	WLJ3	MV OUTGOING FEEDER PANEL(403)
38	T1	MV INCOMING FEEDER PANEL (4412)
39	TRANS.=T1	INCOMING PROTECTION PANEL (T1)
40	WLJ4	MV OUTGOING FEEDER PANEL(404)
41	BUSBAR	PANEL FOR COUPLING (4812)
42	BUSBAR(WBJ)	BUS RISER PANEL
43	WLJ5	MV OUTGOING FEEDER PANEL(405)
44	T2	MV INCOMING FEEDER PANEL (4422)
45	TRANS.=T2	INCOMING PROTECTION PANEL (T2)
46	WLJ6	MV OUTGOING FEEDER PANEL(406)
47	---	MV CAPACITOR FEEDER PANEL(452)
48	COORDINATOR	BUSBAR ADAPTOR PANEL
49	J08	MV OUTGOING FEEDER PANEL(411)
50	J09	MV OUTGOING FEEDER PANEL(413)
51	J010	MV OUTGOING FEEDER PANEL(415)

* NOTE:

1.OPENING - — — — — -

2.ALL DIMENSION IS IN mm

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.07.05

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-01-SI-001

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:

MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM

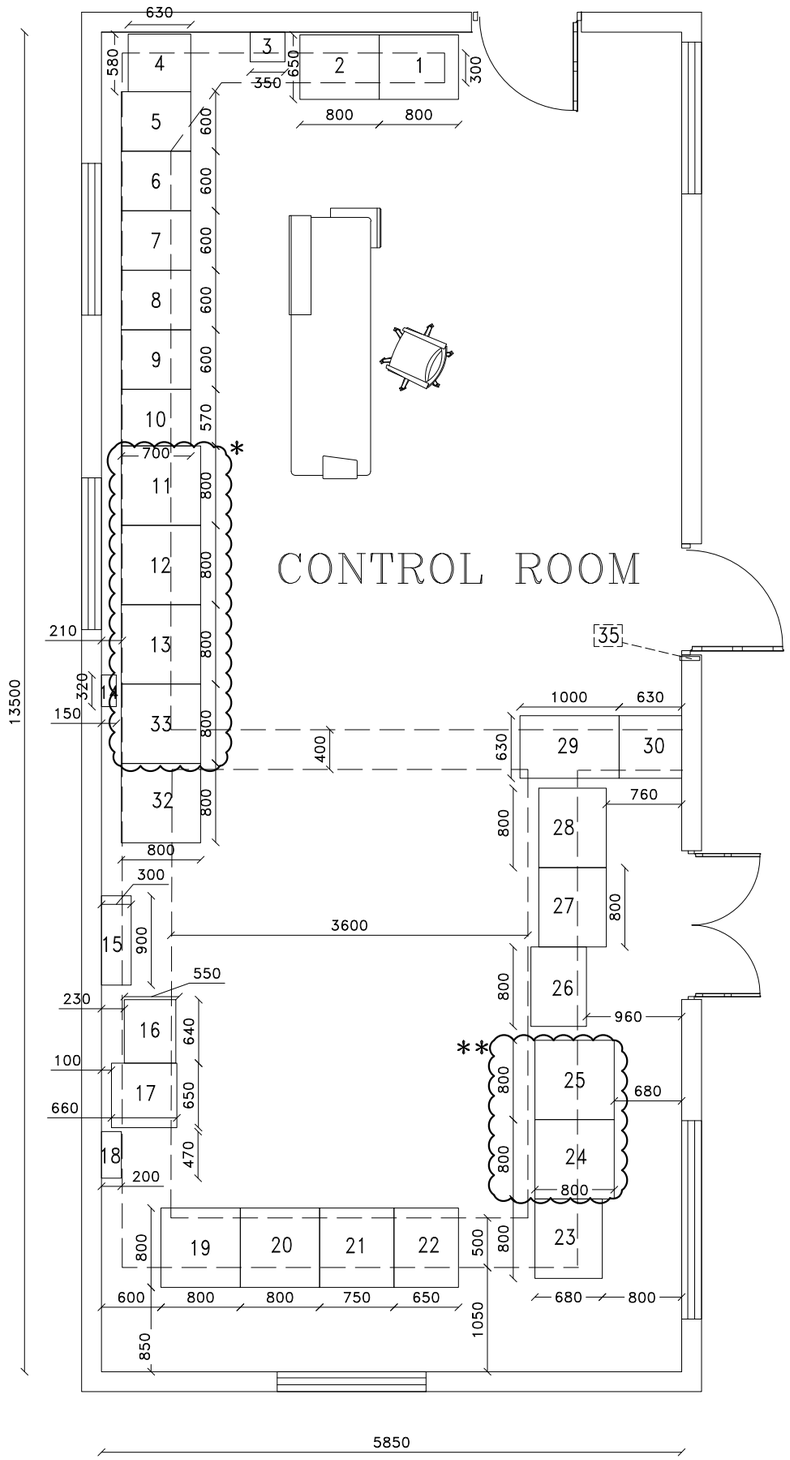
PANEL ARRANGEMENT

MV SWITCHGEAR PANEL ARRANGEMENT

SH / CONT: 5

TOTAL SH.: 6

REV: A0



CONTROL ROOM:

	NO.	LABELING	DESCRIPTION WITH DISPATCHING CODE
	1	NF+NF02	400 V AC DISTRIBUTION PANEL
	2	NF+NF01	400 V AC MAIN PANEL
	3	ILP	INDOOR LIGHTING PANEL
	4	+KA.6	FEEDERS CONTROL PANEL(411, 413, 415)
	5	+KA.5	LINE & FEEDER CONTROL PANEL(638, 452)
	6	+KA.4	TRANS., LINE & FEEDERS CONTROL PANEL(T2, 634, 406, 405)
	7	+KA.3	COUPLING & BUS SECTION CONTROL PANEL (6810, 4812)+T1 & T2 ALARM
	8	+KA.2	TRANS., LINE & FEEDERS CONTROL PANEL(T1, 633, 403, 404)
	9	+KA.1	LINE & FEEDER CONTROL PANEL(637, 402)
	10	+KA.7	FEEDERS CONTROL PANEL(408, 410, 451)
*	11	+AVR	AVR PANEL
*	12	+RA.2	TRANS. PROTECTION PANEL(T2)
*	13	+RA.1	TRANS. PROTECTION PANEL(T1)
	14	AC DIST.	400 V AC DISTRIBUTION PANEL
	15	110V DC DIST.	110 DC DISTRIBUTION PANEL
	16	PLC	POWER LINE CARRIER(CH:602→ARDAKAN230, CH:601→JAHAN ABAD)
	17	48V DC CHARGER	48 V DC CHARGER PANEL
	18	48V DC DIST.	48 V DC DISTRIBUTION PANEL
	19	R2+L2	63KV LINE CONTROL PANEL(638)
	20	R1+L1	63KV LINE CONTROL PANEL(637)
	21	F&E MAR.	FAULT & EVENT MARSHALING PANEL
	22	F&E MONI.	FAULT & EVENT MONITORING PANEL
	23	KC1	CAPACITOR CONTROL & UB PROTECTION PANEL(45111,45112,45113,45223,45222,45221)
**	24	RL3	63KV LINE PROTECTION PANEL(633)
**	25	RL4	63KV LINE PROTECTION PANEL(634)
	26	RTU	REMOTE TERMINAL UNIT PANEL
	27	MR.1	SCADA PANEL
	28	HVI.1	SCADA PANEL
	29	---	DISTPACHING COMMUNICATION SWITCH PANEL
	30	110V DC CHARGER	110 V DC CHARGER PANEL
	31	---	FIRE ALARM PANEL
	32	+MA.1	METERING PANEL
*	33	+LSH	LOAD SHEDDING PANEL

*تابلو های جدید حفاظت ترانسفورمرها و حذف بار و AVR .

**تابلو های جدید حفاظت خطوط ۶۳۳ و ۶۳۴ .

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.07.05

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-01-SI-001

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM
PANEL ARRANGEMENT
CONTROL ROOM PANEL ARRANGEMENT (EXTENSION)

SH / CONT: 6
TOTAL SH.: 6
REV: A0

MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM

GENERAL SINGLE LINE DIAGRAM

Rev.	DESCRIPTION	DESIGN	DRAWN	CHECK	APPR	VRF	DATE
A1	AC. TO CLIENT LETTER NO.58/27531 DATE:1400/7/27	RNR	STT	AKS	DHF	DHF	2022.01.01
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.07.05

TITLE :
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION
PROTECTION, CONTROL & ALARM SYSTEM
GENERAL SINGLE LINE DIAGRAM
COVER

CLIENT:
شرکت برق منطقه‌ای یزد

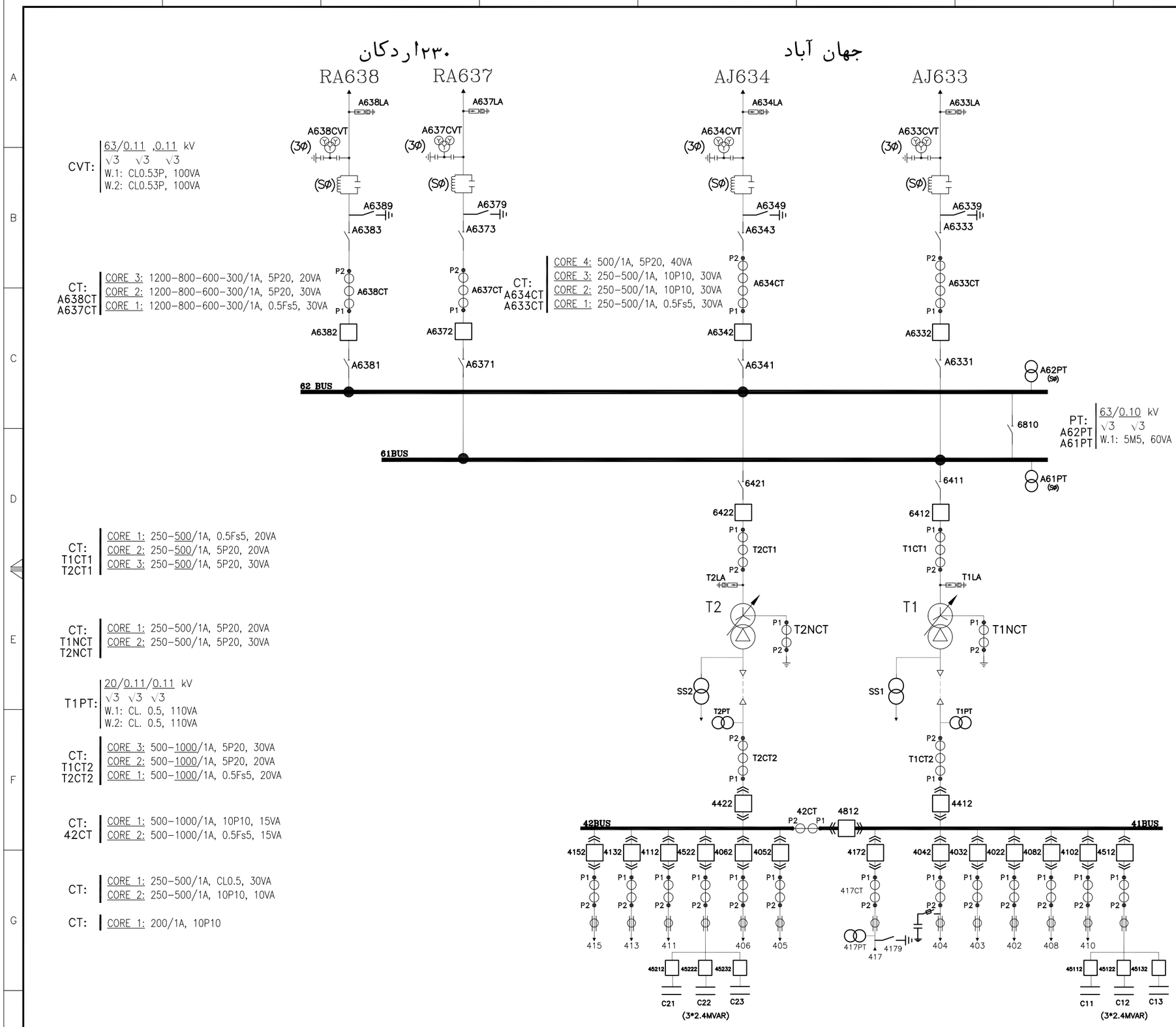
CONSULTANT:
مونتکو ایران
Monenco Iran

CLIENT DWG NO: ----------

MONENCO'S DWG NO: MT-SUB-YREC-6314-BD-02-SH-001

DESIGNED:	Reza Naseri	DATE: 2021.07.05	DESIGN STAGE : BASIC DESIGN
DRAWN:	Shirin Tabatabaie	DATE: 2021.07.05	SCALE : NTS
CHECKED:	Ali Akbar Kosari	DATE: 2021.07.05	FORMAT : A3
APPROVED:	Davod Hasanifar	DATE: 2021.07.05	SHEET NO. : 1 NEXT SHEET : 2
VERIFIED:	Davod Hasanifar	DATE: 2021.07.05	TOTAL SHEET : 2

MONENCO DOCUMENT No.	ORIG. NAME	CLIENT	SECTOR	DESIGN TYPE	PRJ.	PRJ. TYPE	DEP.	DOC. TYPE	SYS. FAC.	SEQ. No.	REV.
MT-SUB-YREC-6314-BD-02-SH-001											A1



CVT: 63/0.11 ,0.11 kV
√3 √3 √3
W.1: CL0.53P, 100VA
W.2: CL0.53P, 100VA

CT: A638CT A637CT
CORE 3: 1200-800-600-300/1A, 5P20, 20VA
CORE 2: 1200-800-600-300/1A, 5P20, 30VA
CORE 1: 1200-800-600-300/1A, 0.5Fs5, 30VA

CT: A634CT A633CT
CORE 4: 500/1A, 5P20, 40VA
CORE 3: 250-500/1A, 10P10, 30VA
CORE 2: 250-500/1A, 10P10, 30VA
CORE 1: 250-500/1A, 0.5Fs5, 30VA

PT: A62PT A61PT
63/0.10 kV
√3 √3
W.1: 5M5, 60VA

CT: T1CT1 T2CT1
CORE 1: 250-500/1A, 0.5Fs5, 20VA
CORE 2: 250-500/1A, 5P20, 20VA
CORE 3: 250-500/1A, 5P20, 30VA

CT: T1NCT T2NCT
CORE 1: 250-500/1A, 5P20, 20VA
CORE 2: 250-500/1A, 5P20, 30VA

T1PT: 20/0.11/0.11 kV
√3 √3 √3
W.1: CL. 0.5, 110VA
W.2: CL. 0.5, 110VA

CT: T1CT2 T2CT2
CORE 3: 500-1000/1A, 5P20, 30VA
CORE 2: 500-1000/1A, 5P20, 20VA
CORE 1: 500-1000/1A, 0.5Fs5, 20VA

CT: 42CT
CORE 1: 500-1000/1A, 10P10, 15VA
CORE 2: 500-1000/1A, 0.5Fs5, 15VA

CT:
CORE 1: 250-500/1A, CL0.5, 30VA
CORE 2: 250-500/1A, 10P10, 10VA

CT:
CORE 1: 200/1A, 10P10

MAIN TRANSFORMER

TYPE-IRAN TRANSFO

VOLTAGE RATIO	63KV/20KV
RATED POWER	22.5/30 MVA
COOLING SYSTEM	ONAN/ONAF
VECTOR GROUP	Ynd1
NUMBER OF TAPS	19
IMPEDANCE	T1:12.62%-T2:12.12%

AUX&EARTHING TRANSFORMER

TYPE-IRAN TRANSFO

VOLTAGE RATIO	20KV/0.38KV
COOLING SYSTEM	ONAN
RATED POWER	200KVA
VECTOR GROUP	ZNyn11
NUMBER OF TAPS	3
NOMINAL CURRENT	5.77H.V/288.7L.V
IMPEDANCE	SS1-7.03

CIRCUIT BREAKER(63KV)

RATED SERVICE VOLTAGE	72.5 KV
RATED FREQUENCY	50 HZ
RATED NORMAL CURRENT	2500A
LIGHTNING IMPULSE WITHSTAND VOLTAGE	325KV
POWER FREQUNCY WITHSTAND VOLTAGE	140KV
MEDIUM OF ARC EXTINCTION	SF6
SHORT TIME BREAKING CURRENT SYM	31.5KA
MANUFACTURER	PARS SWITCH
FIRST- POLE- TO- CLEAR FACTOR	1.5SEC

CIRCUIT BREAKER (20KV)

RATED SERVICE VOLTAGE	24KV
RATED FREQUENCY	50HZ
RATED NORMAL CURRENT	1600 A
LIGHTNING IMPULSE WITHSTAND VOLTAGE	125KV
POWER FREQUNCY WITHSTAND VOLTAGE	50KV
MEDIUM OF ARC EXTINCTION	SF6
SHORT TIME BREAKING CURRENT	25KA
SHORT TIME WITH STAND CURRENT	22KA
MANUFACTURER	PARS TABLEAU

CIRCUIT BREAKER (20KV)

RATED SERVICE VOLTAGE	24KV
RATED FREQUENCY	50HZ
RATED NORMAL CURRENT	1250 A
LIGHTNING IMPULSE WITHSTAND VOLTAGE	125KV
POWER FREQUNCY WITHSTAND VOLTAGE	55KV
MEDIUM OF ARC EXTINCTION	MIN OIL
SHORT TIME BREAKING CURRENT SYM	20KA
SHORT TIME BREAKING CURRENT A SYM	22KA
MANUFACTURER	ASEA

DISCONNECTING SWITCH

RATED SERVICE VOLTAGE	84 KV
RATED FREQUENCY	50 HZ
RATED NORMAL CURRENT	1250 A
SHORT TIME WITHSTAND CURRENT	30/3SEC KV/SEC

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A1	AC. TO CLIENT LETTER NO.58/27531 DATE:1400/7/27	RNR	STT	AKS	DHF	DHF	2022.01.01
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.07.05

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-02-SH-001

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM
GENERAL SINGLE LINE DIAGRAM

SH / CONT: 2
TOTAL SH.: 2
REV: A1

MODIFICATION OF ARDAKAN 63/20kV SUBSTATION
PROTECTION, CONTROL & ALARM SYSTEM
INTERLOCK LOGIC DIAGRAM

Rev.	DESCRIPTION	DESIGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.23

TITLE :
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION
PROTECTION, CONTROL & ALARM SYSTEM
INTERLOCK LOGIC DIAGRAM
COVER

CLIENT:
شرکت برق منطقه‌ای یزد

CONSULTANT:
مونلکو ایران
Monenco Iran

CLIENT DWG NO: ----------

MONENCO'S DWG NO: MT-SUB-YREC-6314-BD-02-SI-002

DESIGNED: Reza Naseri	DATE: 2021.11.23	DESIGN STAGE : BASIC DESIGN	
DRAWN: Shirin Tabatabaie	DATE: 2021.11.23	SCALE : NTS	
CHECKED: Ali Akbar Kosari	DATE: 2021.11.23	FORMAT : A3	
APPROVED: Davod Hasanifar	DATE: 2021.11.23	SHEET NO. : 1	NEXT SHEET : 2
VERIFIED: Davod Hasanifar	DATE: 2021.11.23	TOTAL SHEET : 18	

MONENCO DOCUMENT No.	ORIG. NAME	CLIENT	SECTOR	DESIGN TYPE	PRJ.	PRJ. TYPE	DEP.	DOC. TYPE	SYS. FAC.	SEQ. No.	REV.
MT-SUB-YREC-6314-BD-02-SI-002											A1

DESIGNATION OF	TITLE	REVISION			
1	COVERING SHEET	A0	A1		
2	INDEX	A0	A1		
3	LEGEND	A0	A1		
4	63kV OVER HEAD LINE 633 =F01 CB -Q0 CLOSE	A0	A1		
5	63kV OVER HEAD LINE 633 =F01 CB -Q0 MAIN TRIP	A0	A1		
6	63kV OVER HEAD LINE 633 =F01 CB -Q0 BACKUP TRIP	A0	A1		
7	63kV OVER HEAD LINE 633 =F01 DS -Q1 OPEN/CLOSE	A0	A1		
8	63kV OVER HEAD LINE 633 =F01 DS -Q9 OPEN/CLOSE	A0	A1		
9	63kV OVER HEAD LINE 633 =F01 ES -Q8 OPEN/CLOSE	A0	A1		
10	63kV BUS SECTION DS -Q11 OPEN/CLOSE	A0	A1		
11	63/20kV TR. T01 HV SIDE BAY CB -Q0 CLOSE	A0	A1		
12	63/20kV TR. T01 HV SIDE BAY CB -Q0 MAIN TRIP	A0	A1		
13	63/20kV TR. T01 HV SIDE BAY CB -Q0 BACKUP TRIP	A0	A1		
14	63/20kV TR. T01 HV SIDE BAY DS -Q1 OPEN/CLOSE	A0	A1		
15	20kV T01 INCOMING BAY CB -Q0 CLOSE	A0	A1		
16	20kV T01 INCOMING BAY CB -Q0 TRIP	A0	A1		
17	20kV BUS COUPLER CB -Q00 CLOSE	A0	A1		
18	20kV BUS COUPLER CB -Q00 TRIP	A0	A1		

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.23

CONSULTANT: مونکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-02-SI-002

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:

MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM

INTERLOCK LOGIC DIAGRAM

INDEX

SH / CONT: 2 / 3

TOTAL SH.: 18

REV: A1

SYMBOLS:

- AND GATE TO BE IMPLEMENTED
- OR GATE TO BE IMPLEMENTED
- THE SOURCE OF THE SIGNAL IS FROM THE SAME LEVEL
- THE SOURCE OF THE SIGNAL IS FROM DIFFERENT LEVEL
- LOGICAL COMBINATION OF DIFFERENT SIGNALS, IMPLIMENTED IN ONE LEVEL

COMMUNICATION:

- CONNECTION IN A SAME FIELD LEVEL (HARD WIRE OR SOFTWARE)
- HARDWIRE CONNECTION BETWEEN TWO DIFFERENT FIELD LEVELS

EQUIPMENT LOCATION:

- ○ PROTECTION
- ◇ SWITCHYARD
- □ SCADA
- ● MIMIC BOARD

EXAMPEL:

CB CTRL PB
ON

DEVICE
CIRCUIT BREAKER
PUSH BUTTON

POSITION/ORDER
(OPERATING ORDER ON)

ABBREVIATION:

ADJ	ADJACENT	DIST	DISTANCE	SUB	SUBSTATION
AR	AUTO RECLOSE	DOC	DIRECTIONAL OVER CURRENT	SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
AUTO	AUTOMATIC	DS	DISCONNECTOR SWITCH	SW	SWITCH
BBP	BUSBAR PROTECTION	ES	EARTHING SWITCH	SWGR	SWITCHGEAR
CAB	CABINET	EXS	EXSITING	SYN	SYNCHRONIZING
CALL	SYNCHRONIZING CALLING	GCB	GENERATOR CIRCUIT BREAKER	SYS	SYSTEM
CB	CIRCUIT BREAKER	L	LINE	TC	TRIP COIL
CC	CLOSE COIL	L/R	LOCAL/REMOTE	TR.	TRANSFORMER
C/O	CLOSE/OPEN	MECH	MECHANISM		
COND	CONDITION	OHL	OVERHEAD LINE		
COM	COMMON	PB	PUSH BUTTON		
CTRL	CONTROL	PH	PHASE		
CVT	CAPACITOR VOLTAGE TRANSFORMER	PROT	PROTECTION RELAY		
DISC	DISCREPANCY	S	SELECTOR		
DISP	DISCREPANCY	U/V	UNDER VOLTAGE		

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.23

CONSULTANT: مونکو ایران Monenco Iran

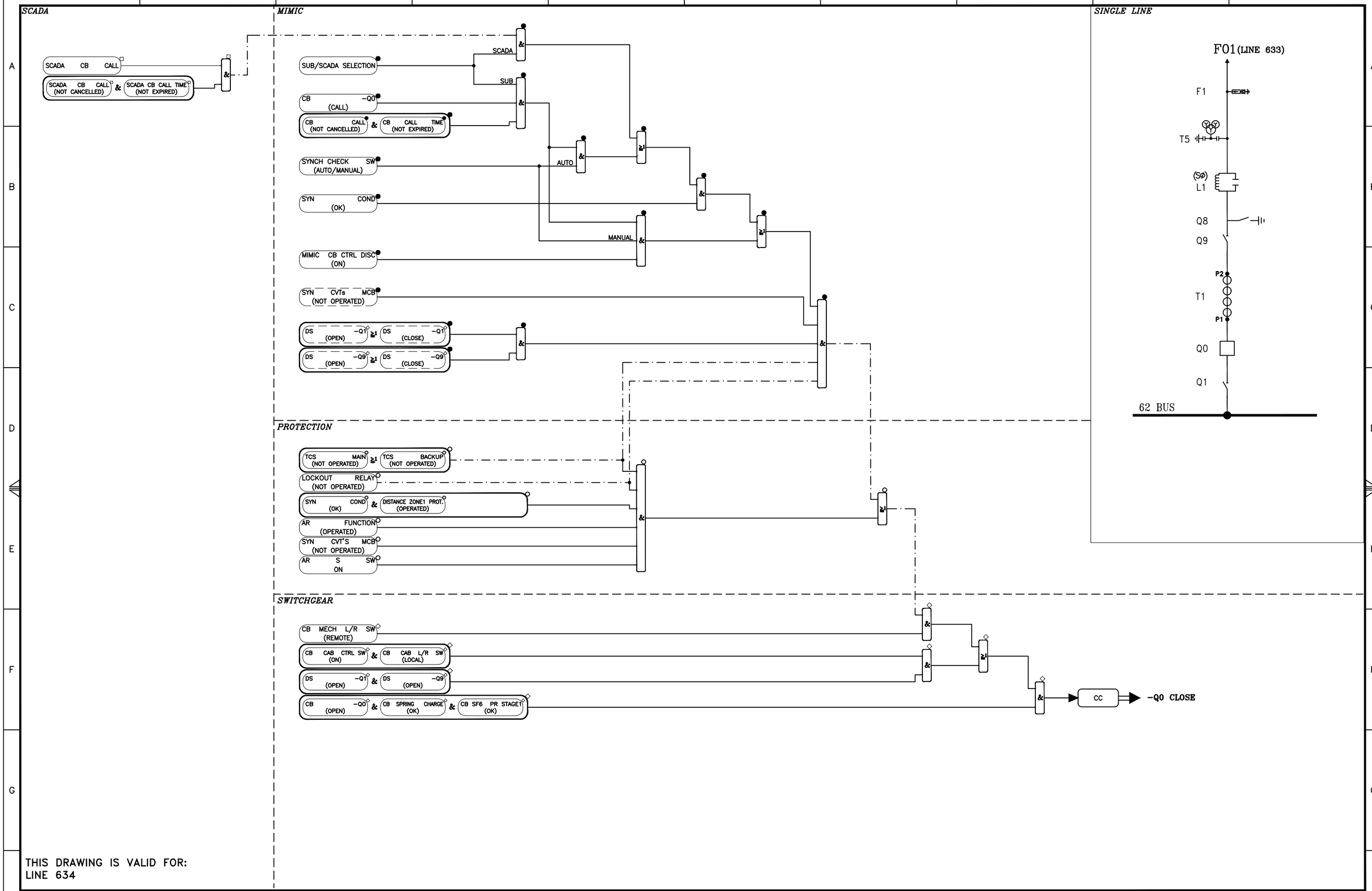
DWG NO.: MT-SUB-YREC-6314-BD-02-SI-002

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM
INTERLOCK LOGIC DIAGRAM
LEGEND

SH / CONT: 3 / 4
TOTAL SH.: 18
REV: A1



THIS DRAWING IS VALID FOR:
LINE 634

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.23

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-02-SI-002

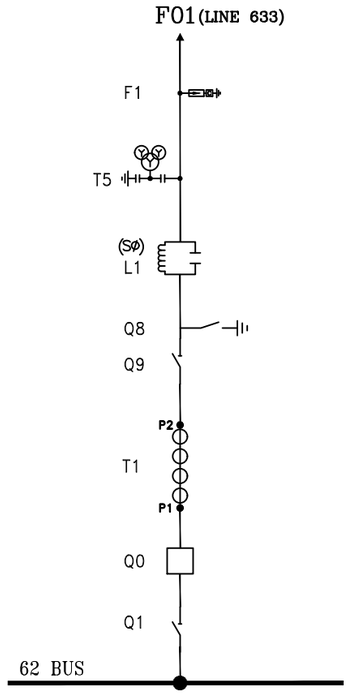
CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM
INTERLOCK LOGIC DIAGRAM
63kV OVER HEAD LINE 633 =F01 CB -Q0 CLOSE

SH / CONT: 4 / 5
TOTAL SH.: 18
REV: A1

SINGLE LINE



PROTECTION

LINE MAIN PROT. (TRIP)

SWITCHGEAR

CB MECH L/R SW (REMOTE)

CB MECH L/R SW (LOCAL) & CB MECH CTRL PB (OFF)

CB -Q0 (CLOSE) & CB SF6 PR STAGE2 (OK)

&

≥1

&

TC 1 → CB -Q0 TRIP

THIS DRAWING IS VALID FOR:
LINE 634

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.23

CONSULTANT: مونکو ایران Monenco Iran

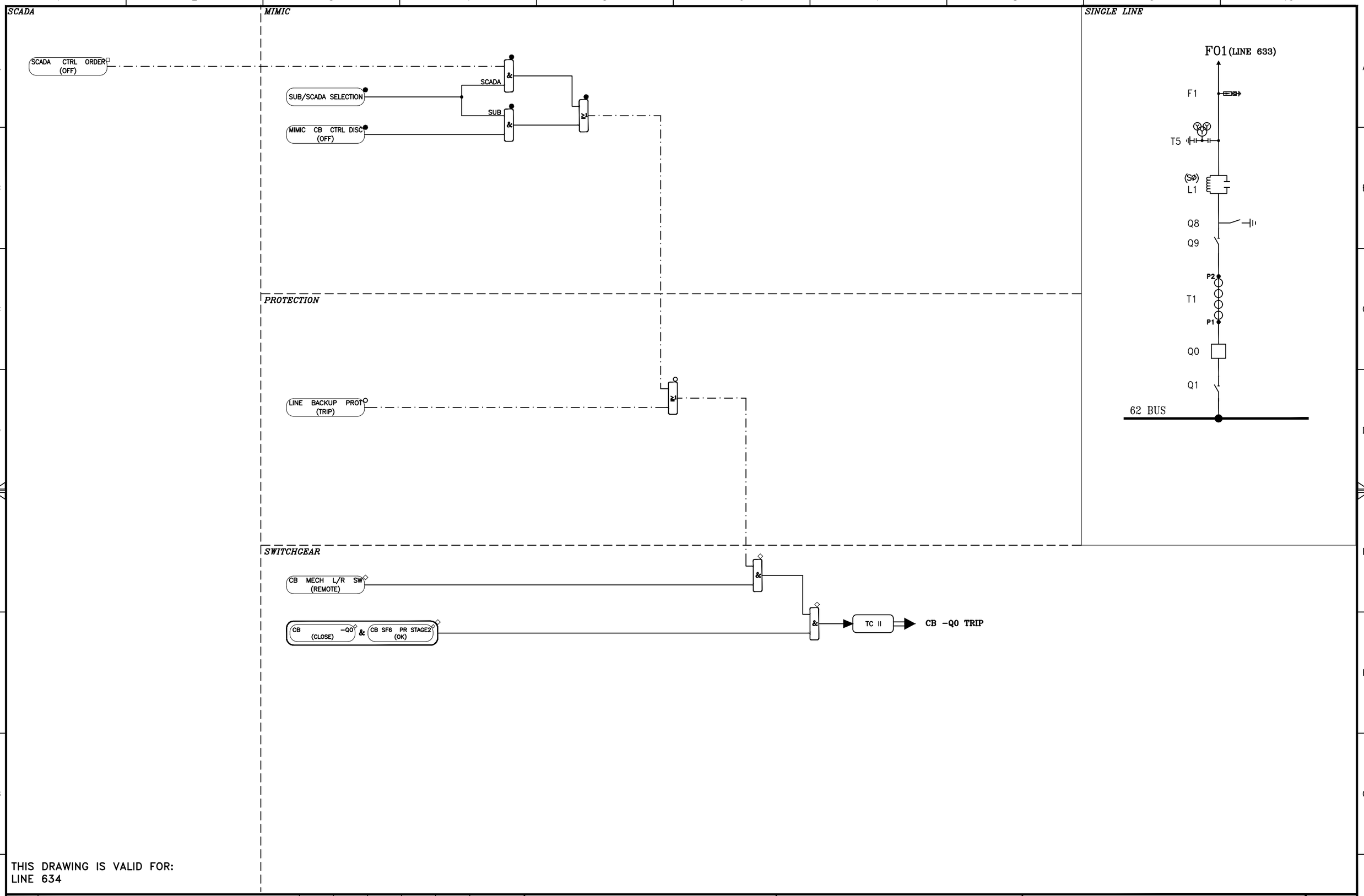
DWG NO.: MT-SUB-YREC-6314-BD-02-SI-002

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM
INTERLOCK LOGIC DIAGRAM
63kV OVER HEAD LINE 633 =F01 CB -Q0 MAIN TRIP

SH / CONT: 5 / 6
TOTAL SH.: 18
REV: A1



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LINE 634

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
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A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.23

CONSULTANT: مونلکو ایران Monenco Iran

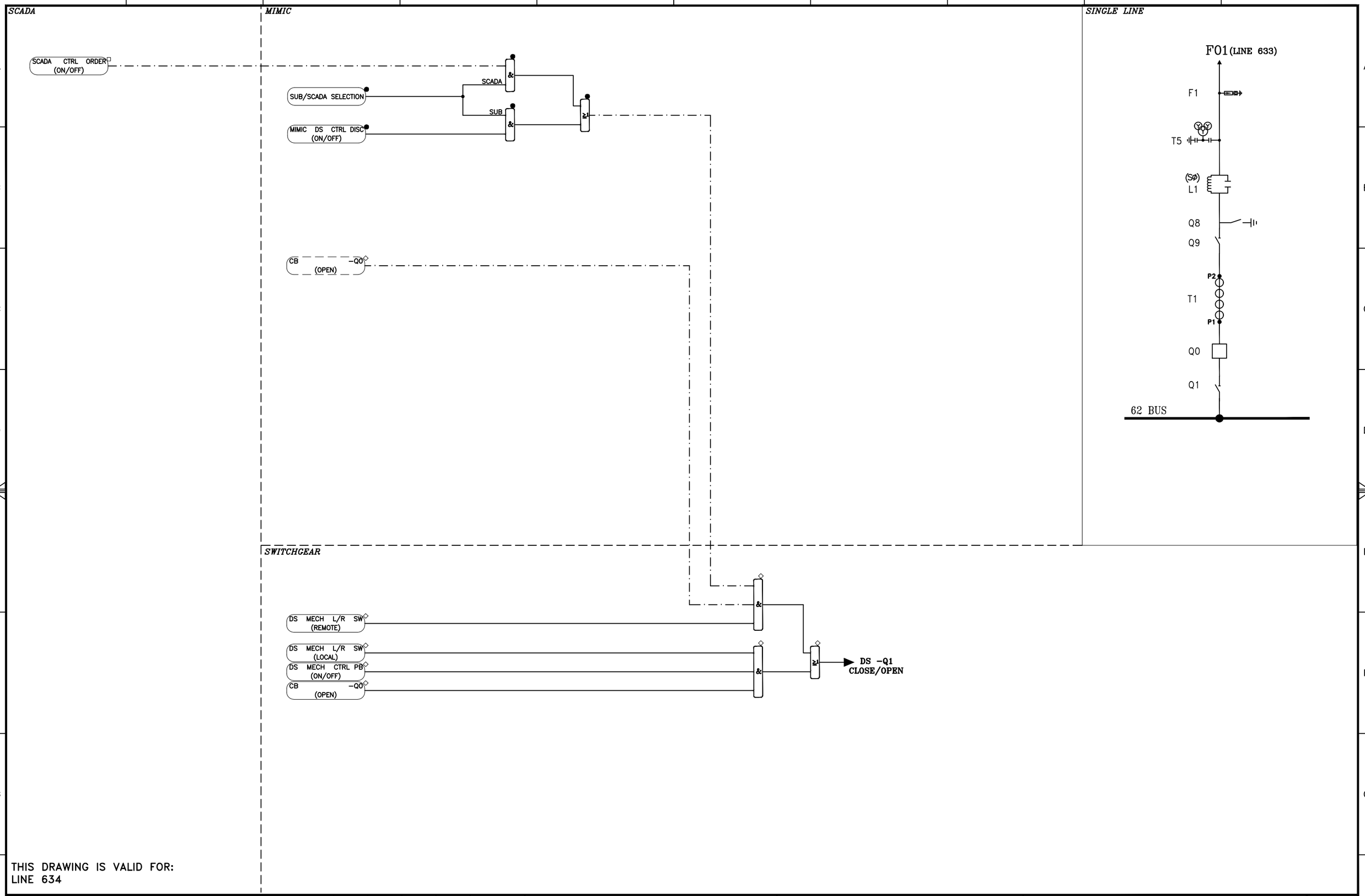
DWG NO.: MT-SUB-YREC-6314-BD-02-SI-002

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION
PROTECTION, CONTROL & ALARM SYSTEM
INTERLOCK LOGIC DIAGRAM
63kV OVER HEAD LINE 633 =F01 CB -Q0 BACKUP TRIP

SH / CONT: 6 / 7
TOTAL SH.: 18
REV: A1



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LINE 634

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.23

CONSULTANT: مونتکو ایران Monenco Iran

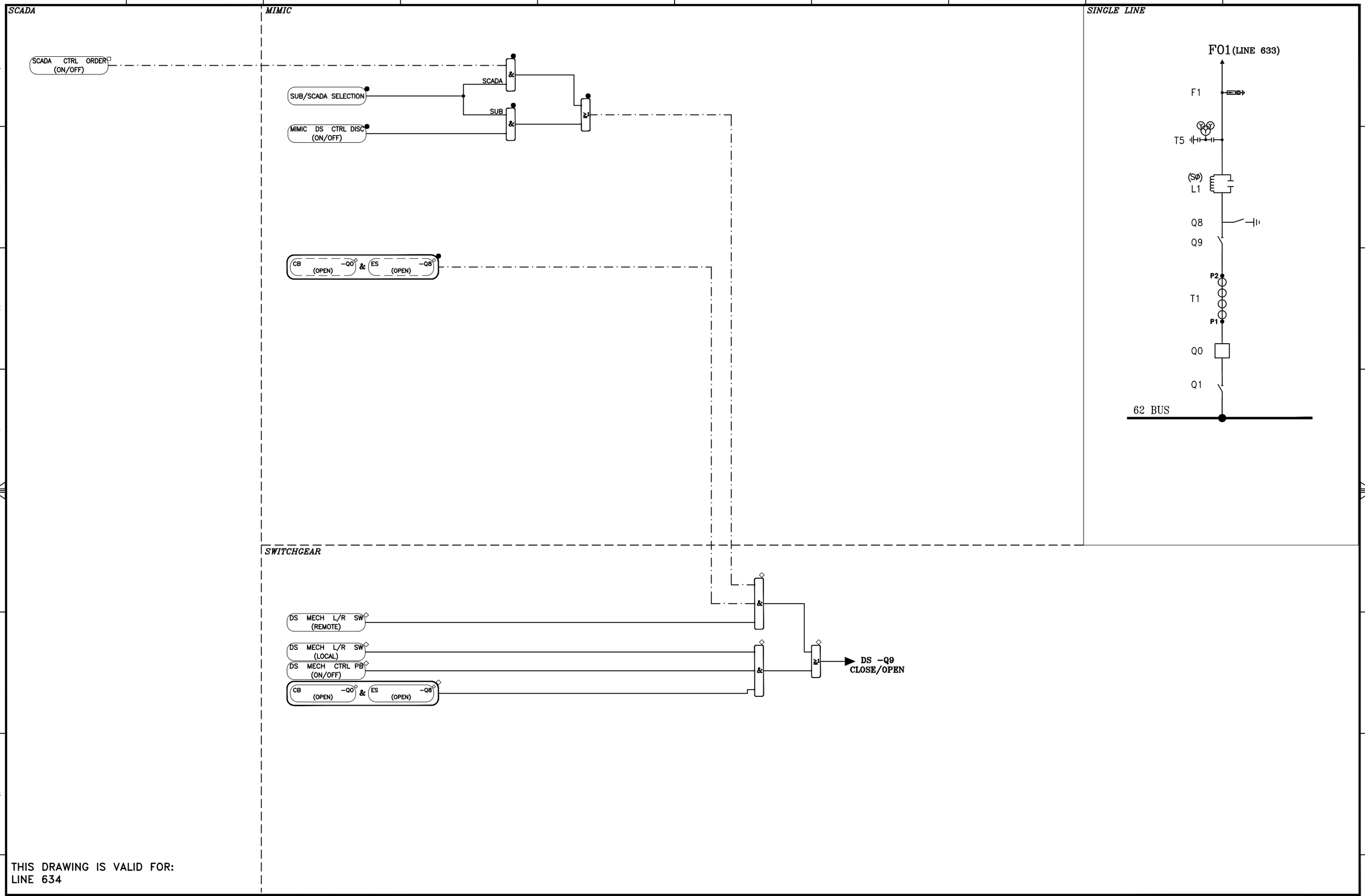
DWG NO.: MT-SUB-YREC-6314-BD-02-SI-002

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM
INTERLOCK LOGIC DIAGRAM
63kV OVER HEAD LINE 633 =F01 DS -Q1 OPEN/CLOSE

SH / CONT: 7 / 8
TOTAL SH.: 18
REV: A1



THIS DRAWING IS VALID FOR:
LINE 634

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.23

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-02-SI-002

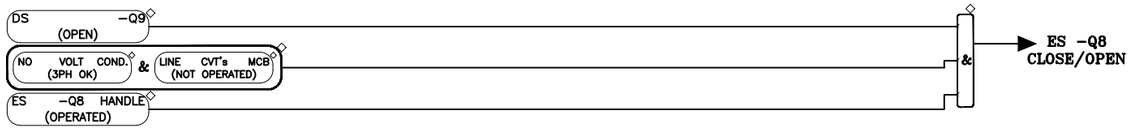
CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

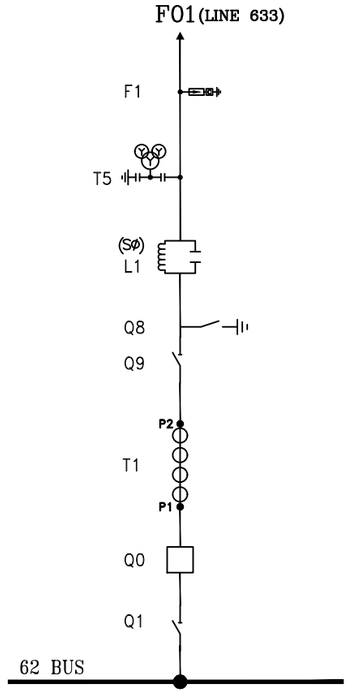
TITLE:
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM
INTERLOCK LOGIC DIAGRAM
63kV OVER HEAD LINE 633 =F01 DS -Q9 OPEN/CLOSE

SH / CONT: 8 / 9
TOTAL SH.: 18
REV: A1

SWITCHGEAR



SINGLE LINE



THIS DRAWING IS VALID FOR:
LINE 634

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.23

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-02-SI-002

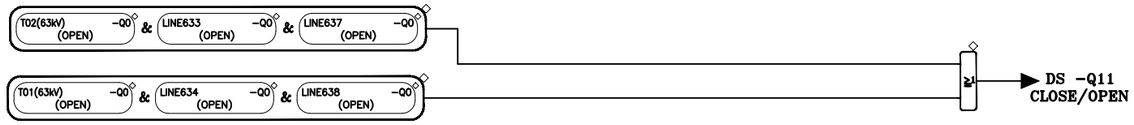
CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

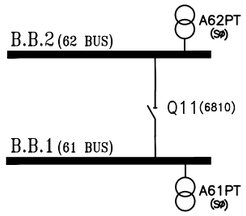
TITLE:
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM
INTERLOCK LOGIC DIAGRAM
63kV OVER HEAD LINE 633 =F01 ES -Q8 OPEN/CLOSE

SH / CONT: 9 / 10
TOTAL SH.: 18
REV: A1

SWITCHGEAR



SINGLE LINE



REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.23

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-02-SI-002

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:

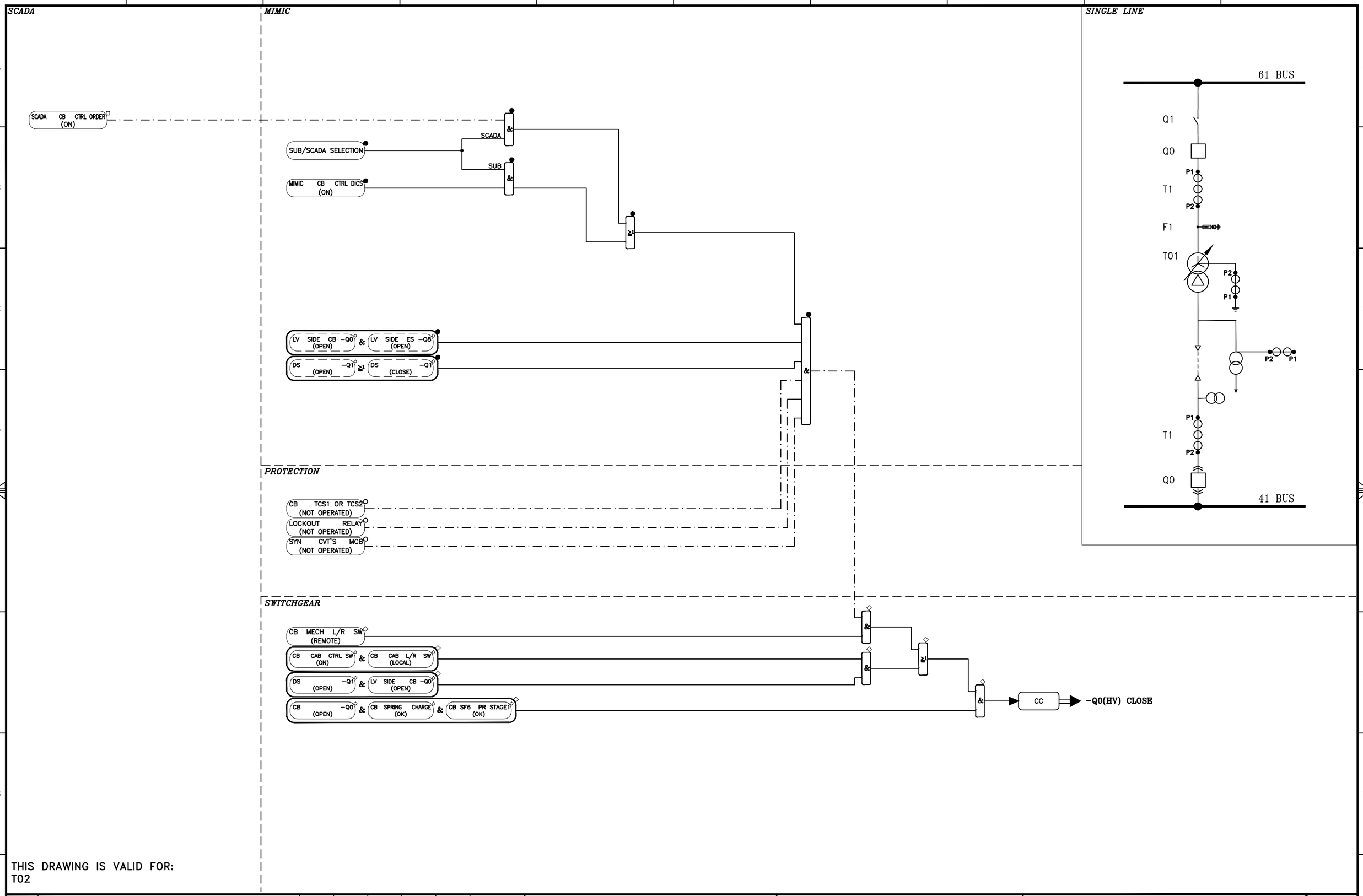
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM

INTERLOCK LOGIC DIAGRAM
63kV BUS SECTION DS -Q11 OPEN/CLOSE

SH / CONT: 10 / 11

TOTAL SH.: 18

REV: A1



THIS DRAWING IS VALID FOR:
T02

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.23

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-02-SI-002

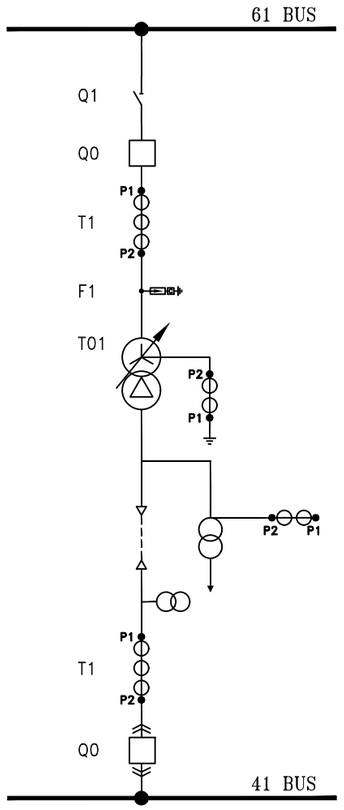
CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

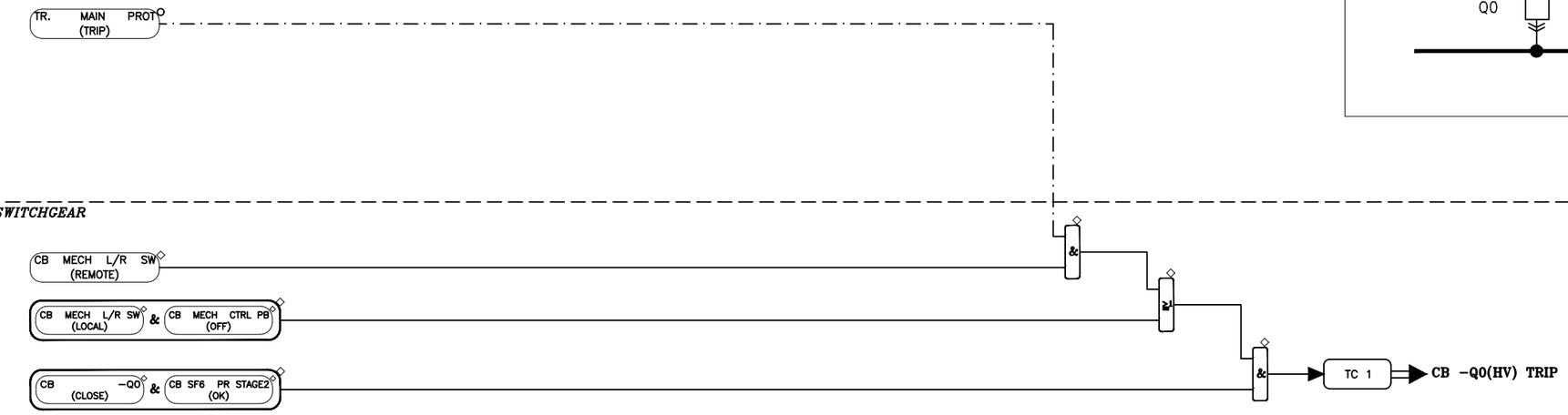
TITLE:
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM
INTERLOCK LOGIC DIAGRAM
63/20kV TR. T01 HV SIDE BAY CB -Q0 CLOSE

SH / CONT: 11 / 12
TOTAL SH.: 18
REV: A1

SINGLE LINE



PROTECTION



SWITCHGEAR

THIS DRAWING IS VALID FOR:
T02

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.23

CONSULTANT: مونتکو ایران Monenco Iran

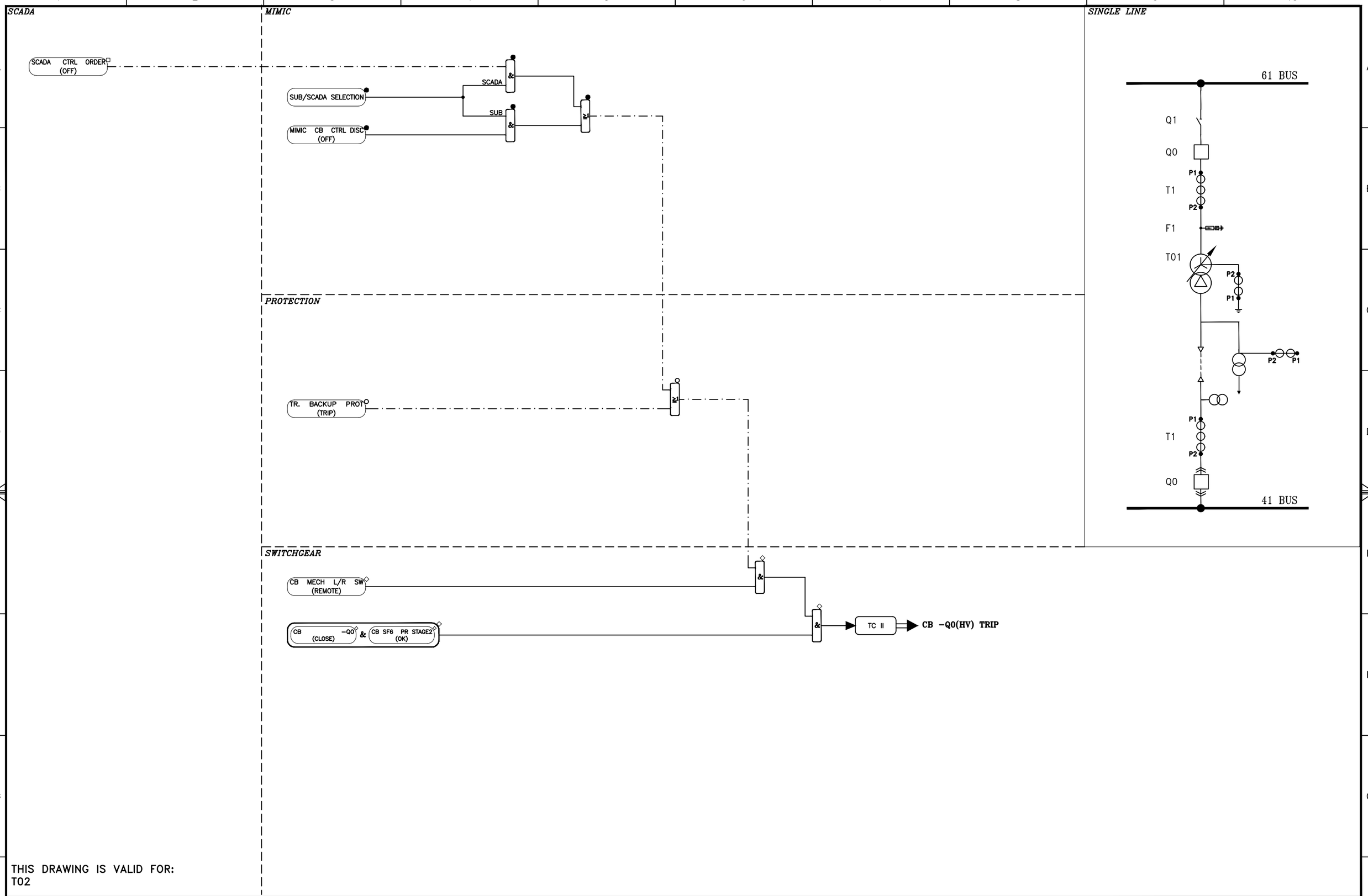
DWG NO.: MT-SUB-YREC-6314-BD-02-SI-002

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM
INTERLOCK LOGIC DIAGRAM
63/20kV TR. T01 HV SIDE BAY CB -Q0 MAIN TRIP

SH / CONT: 12 / 13
TOTAL SH.: 18
REV: A1



THIS DRAWING IS VALID FOR:
T02

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.23

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-02-SI-002

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

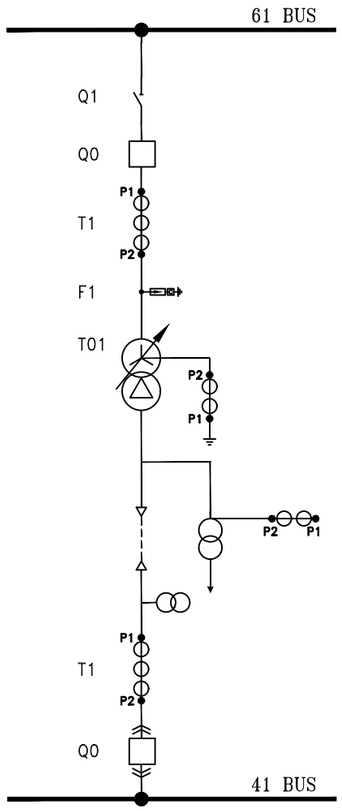
TITLE:
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM
INTERLOCK LOGIC DIAGRAM
63/20kV TR. T01 HV SIDE BAY CB -Q0 BACKUP TRIP

SH / CONT: 13 / 14
TOTAL SH.: 18
REV: A1

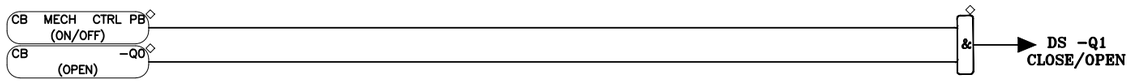
SCADA

MIMIC

SINGLE LINE



SWITCHGEAR



THIS DRAWING IS VALID FOR:
T02

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.23

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-02-SI-002

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:

MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM

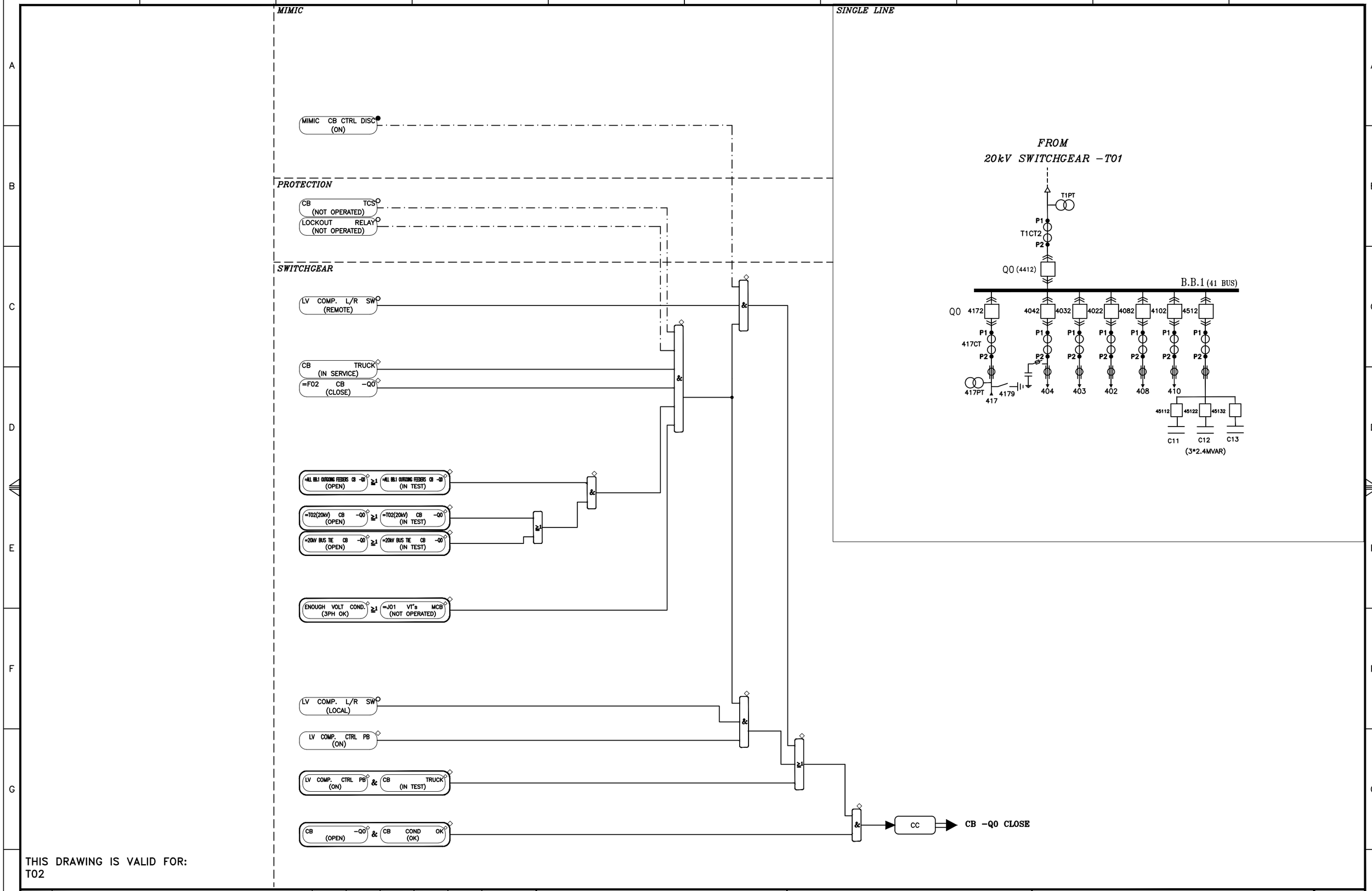
INTERLOCK LOGIC DIAGRAM

63/20kV TR. T01 HV SIDE BAY DS -Q1 OPEN/CLOSE

SH / CONT: 14 / 15

TOTAL SH.: 18

REV: A1



THIS DRAWING IS VALID FOR:
T02

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.23

CONSULTANT: مونتکو ایران Monenco Iran

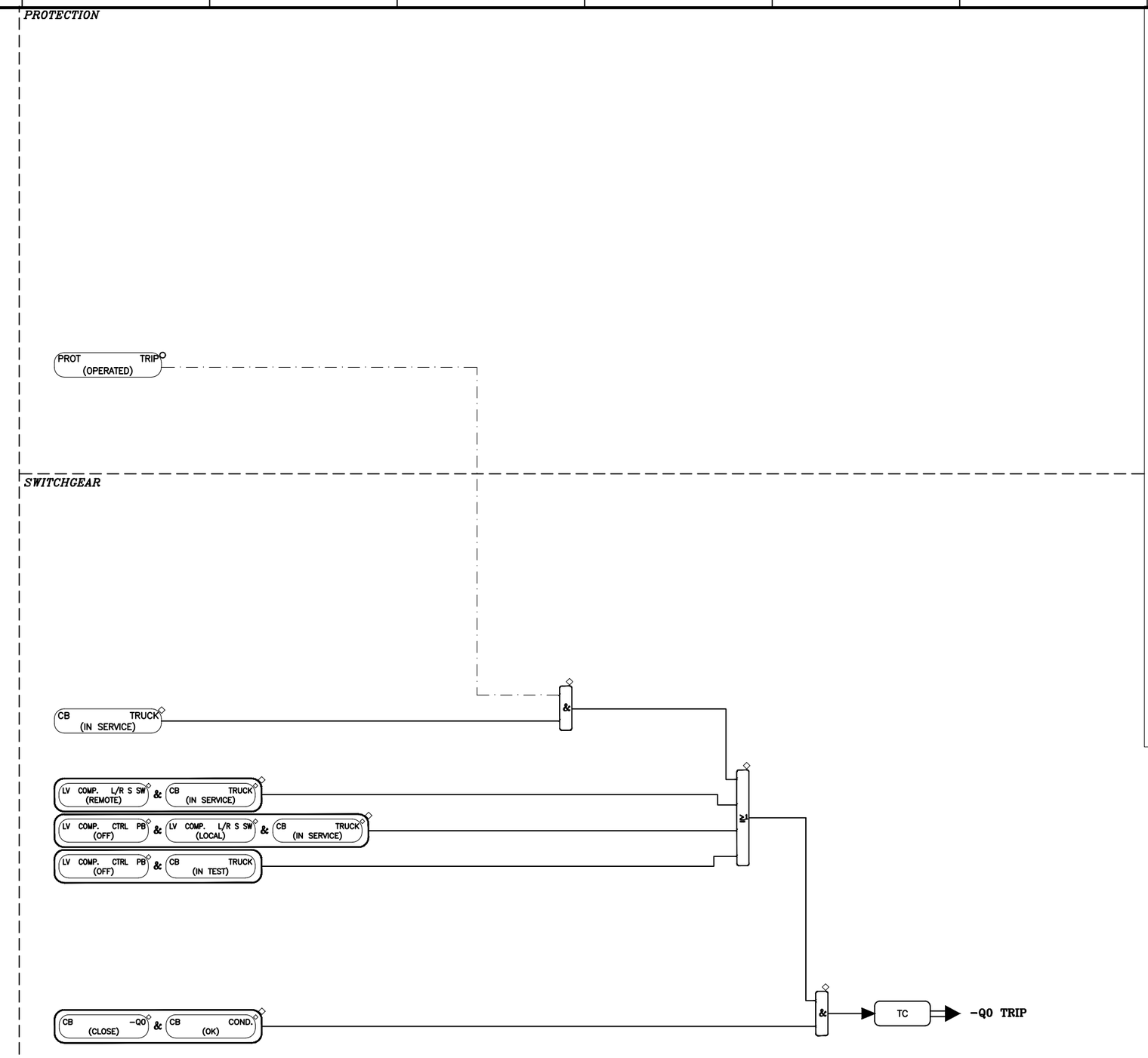
DWG NO.: MT-SUB-YREC-6314-BD-02-SI-002

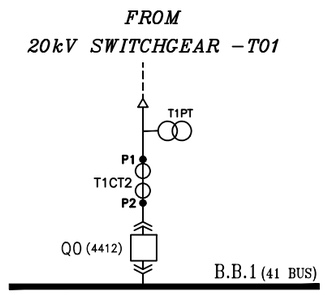
CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM
INTERLOCK LOGIC DIAGRAM
20kV T01 INCOMING BAY CB -Q0 CLOSE

SH / CONT: 15 / 16
TOTAL SH.: 18
REV: A1





THIS DRAWING IS VALID FOR:
T02

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.23

CONSULTANT: مونتکو ایران Monenco Iran

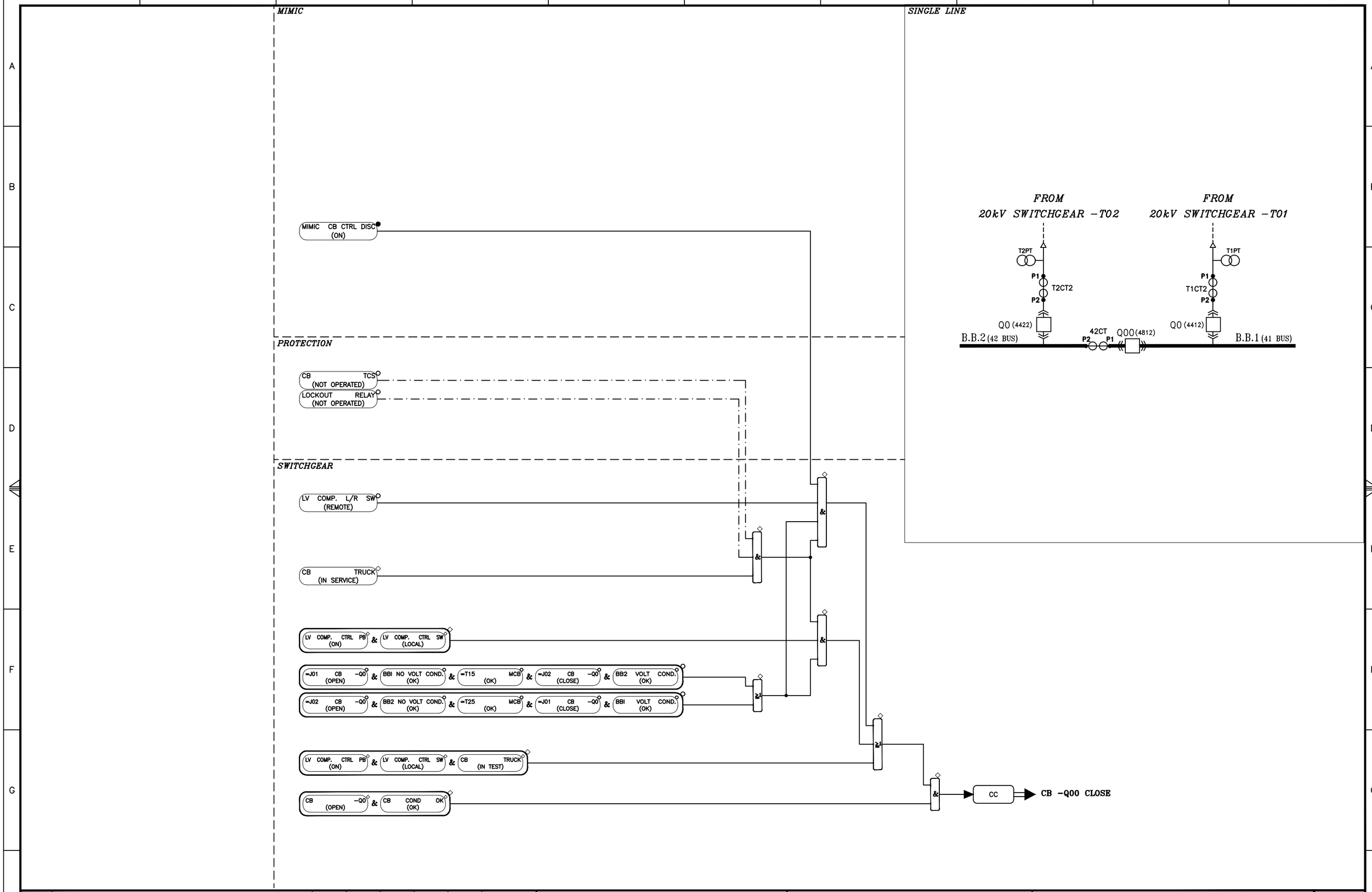
DWG NO.: MT-SUB-YREC-6314-BD-02-SI-002

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM
INTERLOCK LOGIC DIAGRAM
20kV T01 INCOMING BAY CB -Q0 TRIP

SH / CONT: 16 / 17
TOTAL SH.: 18
REV: A1



REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.23

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-02-SI-002

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:

MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM

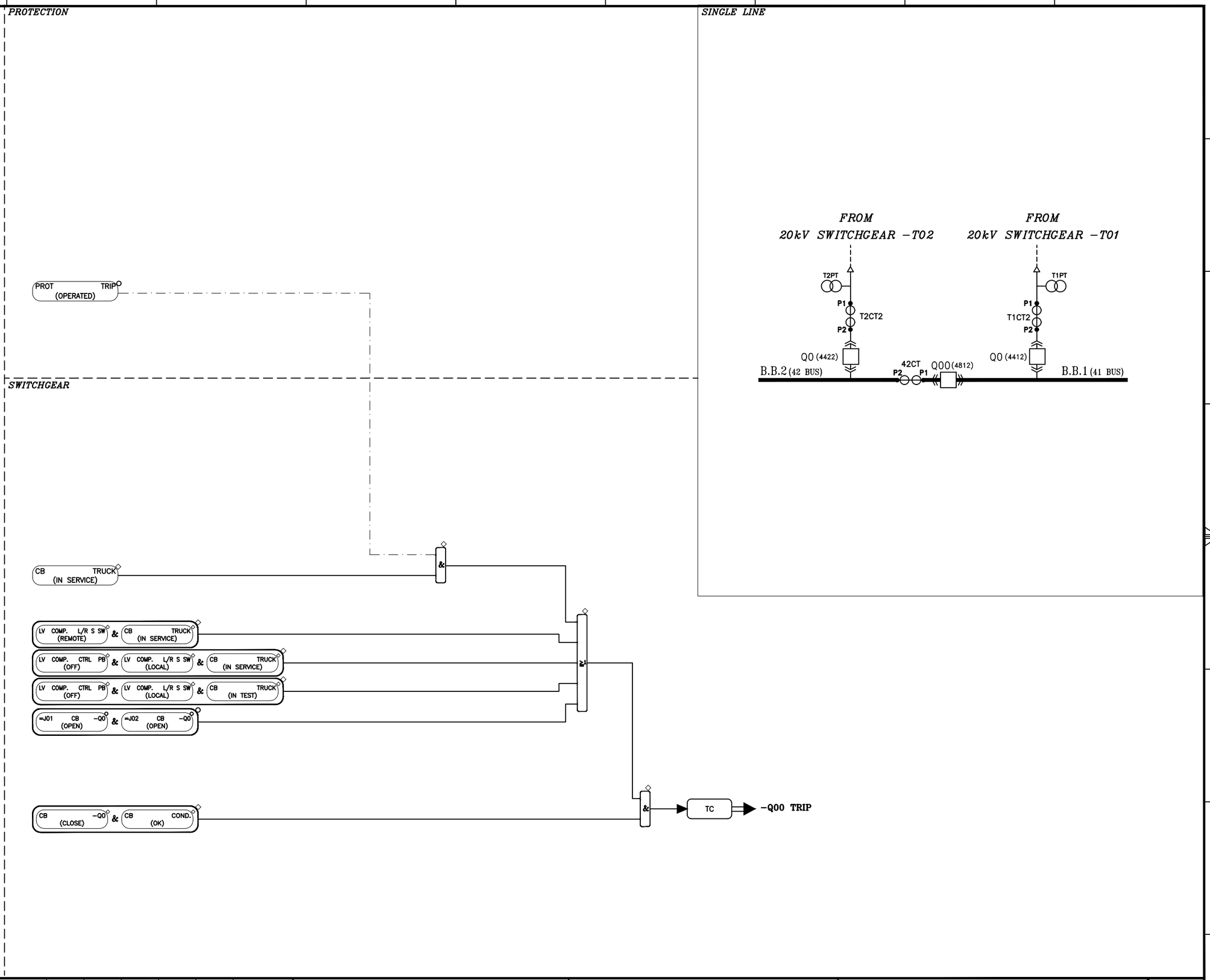
INTERLOCK LOGIC DIAGRAM

20kV BUS COUPLER CB -Q00 CLOSE

SH / CONT: 17 / 18

TOTAL SH.: 18

REV: A1



REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A1	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.23

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-02-SI-002

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:

MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM

INTERLOCK LOGIC DIAGRAM

20kV BUS COUPLER CB -Q00 TRIP

SH / CONT: 18 / -

TOTAL SH.: 18

REV: A1

MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM

63kV PROTECTION AND METERING SINGLE LINE DIAGRAM

Rev.	DESCRIPTION	DESIGN	DRAWN	CHECK	APPR	VRF	DATE
A3	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A2	THIRD ISSUE	RNR	STT	AKS	DHF	DHF	2023.08.13
A1	SECOND ISSUE	RNR	STT	AKS	DHF	DHF	2023.01.08
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.27

TITLE :

MODIFICATION OF ARDAKAN 63/20kV SUBSTATION
PROTECTION, CONTROL & ALARM SYSTEM
63kV PROTECTION AND METERING SINGLE LINE DIAGRAM
COVER

CLIENT:

شرکت برق منطقه‌ای یزد

CONSULTANT:

مونانکو ایران
Monenco Iran

CLIENT DWG NO: ----------

MONENCO'S DWG NO: MT-SUB-YREC-6314-BD-02-SJ-001

DESIGNED:	Reza Naseri	DATE: 2021.11.27	DESIGN STAGE : BASIC DESIGN
DRAWN:	Shirin Tabatabaie	DATE: 2021.11.27	SCALE : NTS
CHECKED:	Ali Akbar Kosari	DATE: 2021.11.27	FORMAT : A3
APPROVED:	Davod Hasanifar	DATE: 2021.11.27	SHEET NO. : 1 NEXT SHEET : 2
VERIFIED:	Davod Hasanifar	DATE: 2021.11.27	TOTAL SHEET : 5

MONENCO DOCUMENT No.	MT-SUB-YREC-6314-BD-02-SJ-001										A3
	ORIG. NAME	CLIENT	SECTOR	DESIGN TYPE	PRJ.	PRJ. TYPE	DEP.	DOC. TYPE	SYS. FAC.	SEQ. No.	REV.

DESIGNATION OF	TITLE	REVISION			
1	COVERING SHEET	A0	A1	A2	A3
2	INDEX	A0	A1	A2	A3
3	LEGEND	A0	A1	A2	A3
4	F01 (LINE633)	A0	A1	A2	A3
5	T01	A0	A1	A2	A3

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A3	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A2	THIRD ISSUE	RNR	STT	AKS	DHF	DHF	2023.08.13
A1	SECOND ISSUE	RNR	STT	AKS	DHF	DHF	2023.01.08
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.27

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-02-SJ-001

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:

MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM

63kV PROTECTION AND METERING SINGLE LINE DIAGRAM

INDEX

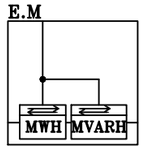
SH / CONT: 2

TOTAL SH.: 5

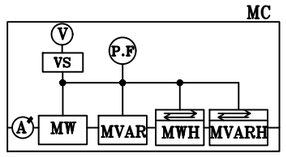
REV: A3

SOTF	SWITCH ON TO FAULT
51NS	SENSITIVE EARTH FAULT RELAY
FR	FAULT RECORDER
ER	EVENT RECORDER
50/51	INSTANTANEOUS AND INVERSE TIME OVER CURRENT RELAY
50N/51N	INSTANTANEOUS AND INVERSE EARTH FAULT RELAY
86	CLOSE LOCKOUT RELAY
94	TRIP RELAY
TCS	TRIP CIRCUIT SUPERVISION RELAY
CR	CLOSE RELAY
27	UNDER(ZERO) VOLTAGE RELAY
59	OVER VOLTAGE RELAY
21	DISTANCE PROTECTION
51LSH	CURRENT LOAD SHEDDING RELAY
AVR	AUTOMATIC VOLTAGE REGULATOR RELAY
67	DIRECTIONAL OVER CURRENT
67N	DIRECTIONAL EARTH FAULT
CBF	CIRCUIT BREAKER FAILURE
REF	RESTRICTED EARTH FAULT PROTECTION

46BC	BROKEN CONDUCTOR
FL	FAULT LOCATOR



ENERGY METER



MEASURING CENTER

94X	AUX HIGH SPEED RELAY
94Y	MECHANICAL RELAY
$+S$	MARSHALLING PANEL
$+R$	PROTECTION PANEL
$+W$	CONTROL PANEL
$+AVR$	AVR PANEL

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A3	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A2	THIRD ISSUE	RNR	STT	AKS	DHF	DHF	2023.08.13
A1	SECOND ISSUE	RNR	STT	AKS	DHF	DHF	2023.01.08
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.27

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-02-SJ-001

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:

MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM

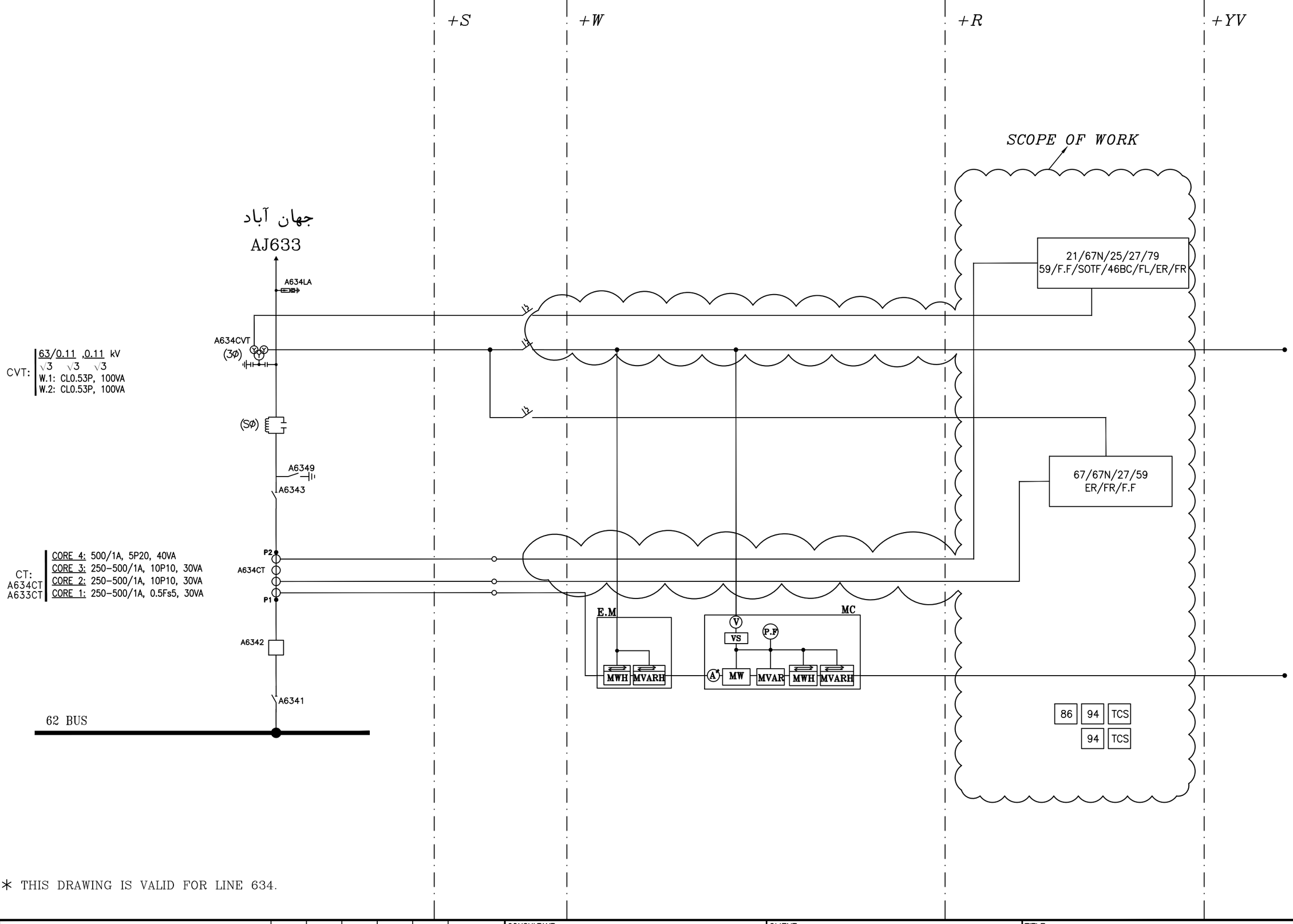
63kV PROTECTION AND METERING SINGLE LINE DIAGRAM

LEGEND

SH / CONT: 3

TOTAL SH.: 5

REV: A3



* THIS DRAWING IS VALID FOR LINE 634.

REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A3	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A2	THIRD ISSUE	RNR	STT	AKS	DHF	DHF	2023.08.13
A1	SECOND ISSUE	RNR	STT	AKS	DHF	DHF	2023.01.08
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.27

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-02-SJ-001

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:

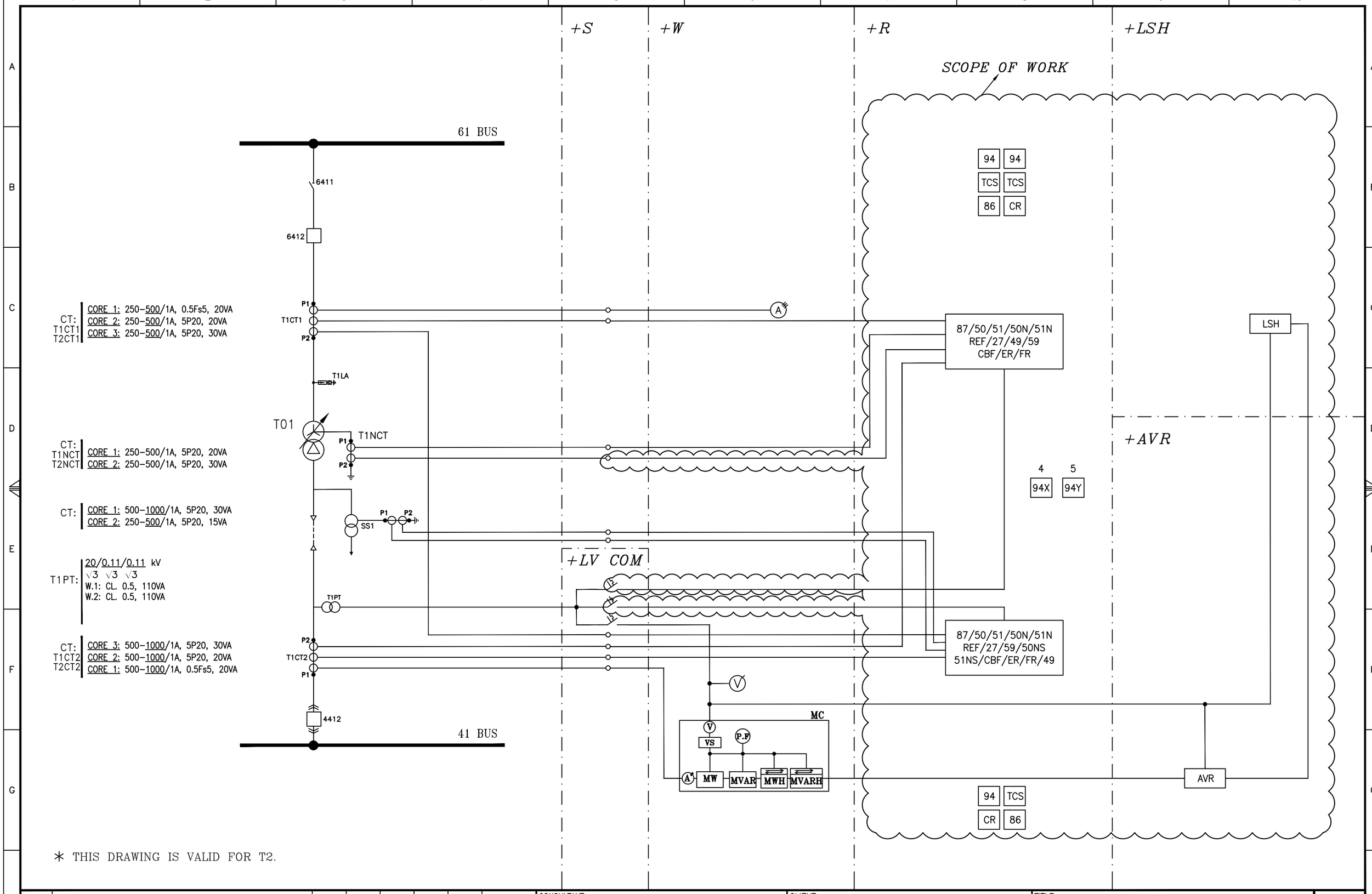
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM

63kV PROTECTION AND METERING SINGLE LINE DIAGRAM F01 (LINE633)

SH / CONT: 4

TOTAL SH.: 5

REV: A3



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REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A3	REVISED ACCORDING TO CLIENT LETTER NO. 51/1961 DATED 1402/08/14	NIL	STT	AKS	DHF	DHF	2023.11.11
A2	THIRD ISSUE	RNR	STT	AKS	DHF	DHF	2023.08.13
A1	SECOND ISSUE	RNR	STT	AKS	DHF	DHF	2023.01.08
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.27

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-02-SJ-001

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE:

MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM

63kV PROTECTION AND METERING SINGLE LINE DIAGRAM

T01

SH / CONT: 5

TOTAL SH.: 5

REV: A3

MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM

AVR LOGIC DIAGRAM

Rev.	DESCRIPTION	DESIGN	DRAWN	CHECK	APPR	VRF	DATE
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.27

TITLE :

MODIFICATION OF ARDAKAN 63/20kV SUBSTATION
PROTECTION, CONTROL & ALARM SYSTEM
AVR LOGIC DIAGRAM
COVER

CLIENT:

شرکت برق منطقه‌ای یزد

CONSULTANT:

مونتکو ایران
Monenco Iran

CLIENT DWG NO: ----------

MONENCO'S DWG NO: MT-SUB-YREC-6314-BD-02-SJ-003

DESIGNED: Reza Naseri	DATE: 2021.11.27	DESIGN STAGE : BASIC DESIGN	
DRAWN: Shirin Tabatabaie	DATE: 2021.11.27	SCALE : NTS	
CHECKED: Ali Akbar Kosari	DATE: 2021.11.27	FORMAT : A3	
APPROVED: Davod Hasanifar	DATE: 2021.11.27	SHEET NO. : 1	NEXT SHEET : 2
VERIFIED: Davod Hasanifar	DATE: 2021.11.27	TOTAL SHEET : 3	

MONENCO DOCUMENT No.	MT	SUB	YREC	6314	BD	02	SJ	003	A0
	ORIG. NAME	CLIENT	SECTOR	DESIGN TYPE	PRJ.	PRJ. TYPE	DEP.	DOC. TYPE	SYS. FAC.	SEQ. No.	REV.

DESIGNATION OF	TITLE	REVISION			
1	COVERING SHEET	A0			
2	INDEX	A0			
3	AVR LOGIC DIAGRAM	A0			

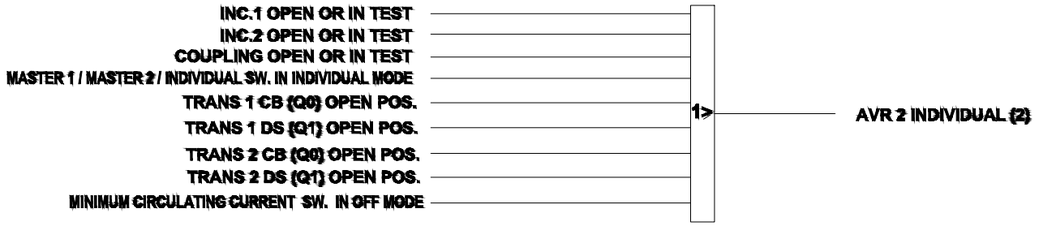
REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.27

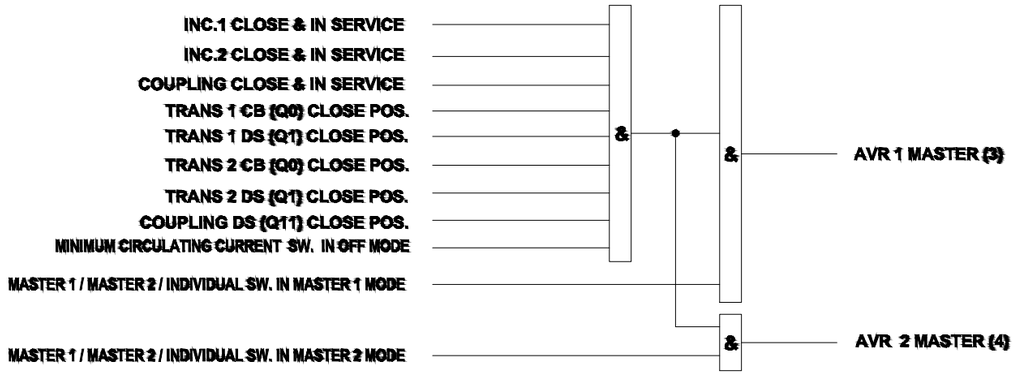
CONSULTANT:
مونتکو ایران
Monenco Iran
DWG NO.: MT-SUB-YREC-6314-BD-02-SJ-003

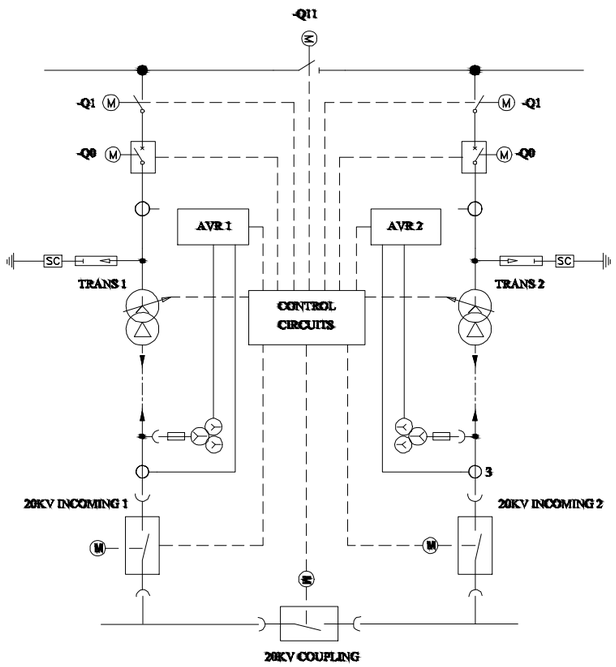
CLIENT:
شرکت برق منطقه‌ای یزد
CLIENT DWG NO.: ----------

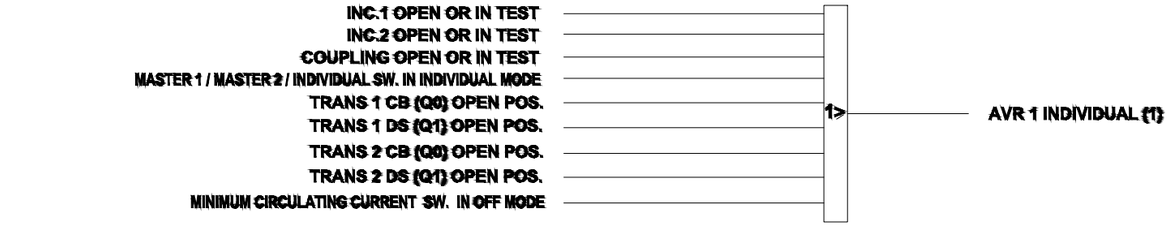
TITLE:
MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM
AVR LOGIC DIAGRAM
INDEX

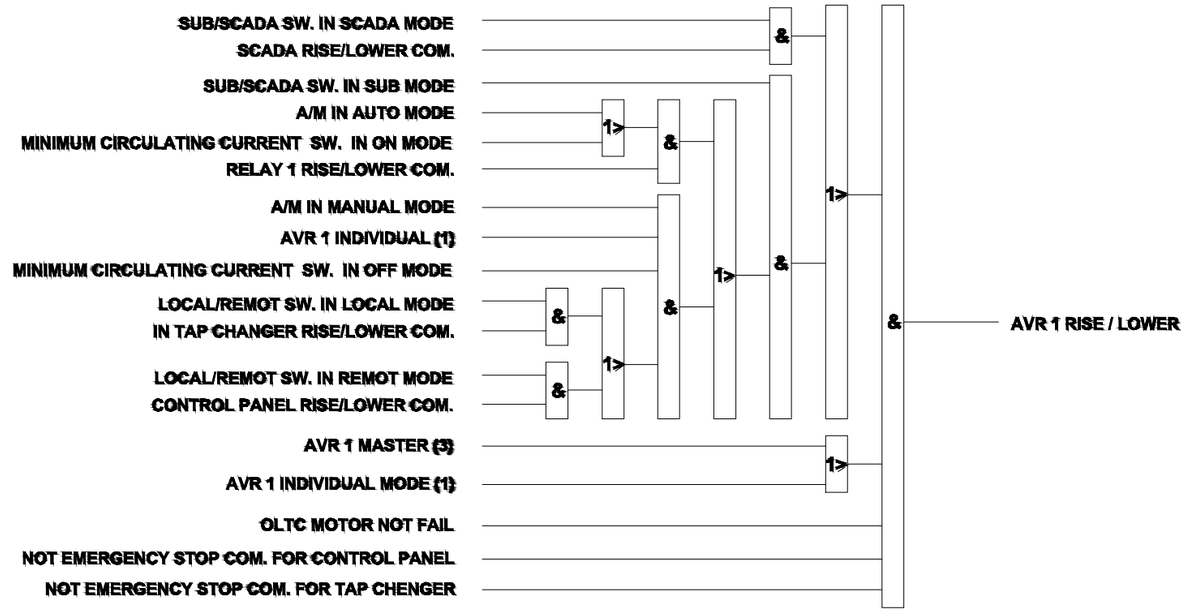
SH / CONT: 2
TOTAL SH.: 3
REV: A0

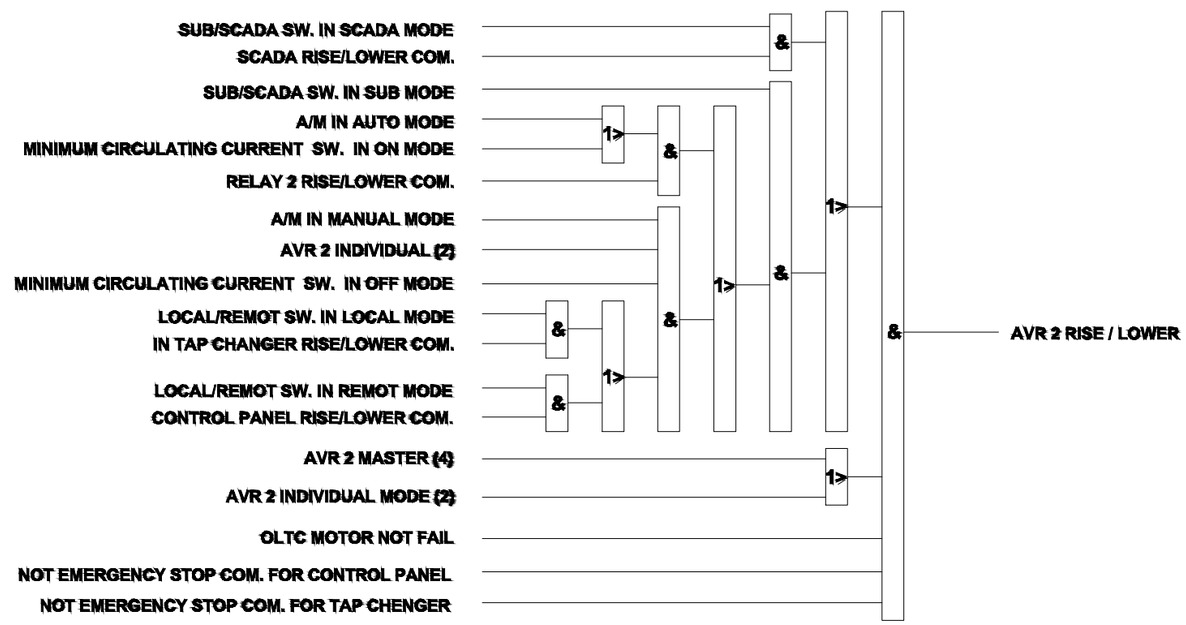












REV	DESCRIPTION	DESGN	DRAWN	CHECK	APPR	VRF	DATE
A0	FIRST ISSUE	RNR	STT	AKS	DHF	DHF	2021.11.27

CONSULTANT: مونتکو ایران Monenco Iran

DWG NO.: MT-SUB-YREC-6314-BD-02-SJ-003

CLIENT: شرکت برق منطقه‌ای یزد

CLIENT DWG NO.: ----------

TITLE: MODIFICATION OF ARDAKAN 63/20kV SUBSTATION PROTECTION, CONTROL & ALARM SYSTEM

AVR LOGIC DIAGRAM

SH / CONT: 3

TOTAL SH.: 3

REV: A0

CONSULTANT:	CLIENT:
مونتکو ایران Monenco Iran	شرکت سهامی برق منطقه‌ای یزد

PROJECT:
Consultancy and Engineering Services for Modification of Ardakan 63/20kV Power Substation Protection, Control & Alarm System

63 KV SIGNAL LIST

DOCUMENT REVISIONS

REV.	DESCRIPTION		DESG.	DATE	VRF.	DATE	CHK.	DATE
A3								
A2	Acc. to MOM (1400.11.03)		RNR	1400.11.09	AKS	1400.11.09	DHF	1400.11.09
A1	ACC. To client letter No. 58/26295-1400.04.01		RNR	1400.04.09	AKS	1400.04.09	DHF	1400.04.09
A0	FIRST ISSUE		RNR	1400.01.28	AKS	1400.01.28	DHF	1400.01.28

MONENCO'S DOC NO:	Rev: A2	PAGE 1 OF 14
MT-SUB-YREC-6314-BD-06-SM-001		

63 KV LINE ALARM WINDOW

DISTANCE ZONE1 PROT. TRIP	DISTANCE ZONE2,3,4 PROT. TRIP	DISTANCE ZONE 3PH. TRIP	OV PROT. TRIP	TCS1/TCS2 FAULTY
UV PROT. TRIP	DOC PROT. TRIP	DEF PROT. TRIP	CBF STAGE1 PROT. TRIP	SOTF PROT. TRIP
CB SF6 PRESSURE LOW	CB SF6 BLOCK	CB SPRING CHARGE FAIL	CONTROL DC SUPPLY FAIL	CB LOCKOUT OPERATED
MAIN PROT. SUPPLY FAIL	BACKUP PROT. SUPPLY FAIL	LINE A/R OPERATED	LINE A/R BLOCK	
CB/DS/ES MOTOR SUPPLY FAIL	CVT MCB/FUSE FAIL	CB/DS in local pos.		

63KV TRANSFORMER ALARM WINDOW NO.1

DIFF. TRIP	HV REF TRIP	LV REF TRIP	HV CBF ST.1 TRIP	
HV CBF ST.2 TRIP	HV OC TRIP	HV EF TRIP	FOLLOWER RELAY FAULTY	
CB SF6 LOW	CB SF6 BLOCK	CB SPRING CHARGE FAIL	HV TCS1/TCS2 FAULTY	
CB DC MOTOR SUPPLY FAIL	OLTC PROT. TRIP		HV LOVKOUT OPERATED	
MAIN/BACKUP PROT DC RELAY FAULTY	CONTROL SUPPLY FAIL			

63KV TRANSFORMER ALARM WINDOW NO.2

MAIN.TR BUCCHOLZ ALARM	MAIN.TR WIND TEMP ALARM	MAIN.TR OIL TEMP ALARM	MAIN.TR OIL LEVEL ALARM	
MAIN.TR COOLING SYSTEM FAIL	MAIN.TR AIR DETECTOR ALARM	AUX.TR BUCHHOLZ ALARM	AUX.TR OIL TEMP ALARM	
MAIN.TR BUCHHOLZ TRIP	MAIN.TR PRESSURE RELIEF TRIP	MAIN.TR WIND TEMP TRIP	MAIN.TR OIL TEMP TRIP	
AUX.TR BUCHHOLZ TRIP	AUX.TR PRESSURE RELIEF TRIP	AUX.TR OIL TEMP TRIP	MAIN.TR NON-RETURN VALVE TRIP	
MAIN.TR AC SUPPLY FAIL		OLTC OIL LEVEL ALARM		

20KV INCOMING ALARM WINDOW

LV OC TRIP	LV EF TRIP	LV SEF STAGE1 PROT. TRIP	LV SEF STAGE2 PROT. TRIP	
LV OV TRIP	LV UV TRIP	LV LOCKOUT OPERATED	CURRENT LOAD SHEDDING OFF	
FREQUENCY LOAD SHEDDING OPERATED	FREQUENCY LOAD SHEDDING PROT. BLOCK	FREQUENCY LOAD SHEDDING DC SUPPLY FAIL	CONTROL DC SUPPLY FAIL	PROT DC SUPPLY/RELAY FAULTY
CB SPRING CHARGE FAIL	TCS1/TCS2 FAULTY	PT MCB FUSE FAIL	LOCKOUT OPERATED	BACK DOOR OPEN OPERTEAD
CONTROL DC SUPPLY FAIL	PROT DC SUPPLY/RELAY FAULTY	CB DC MOTOR SUPPLY FAIL	HEAT/LIGHT AC SUPPLY FAIL	

VCR ALARM WINDOW

CB SPRING CHARGE FAIL	AC SUPPLY FAILURE	OC PROTECTION TRIP	EF PROTECTION TRIP	U.C PROTECTION TRIP
PROT DC SUPPLY/RELAY FAULTY	CONTROL DC SUPPLY FAIL	CB MOTOR DC SUPPLY FAIL	LBS1/2 LOCKOUT OPERATED	LBS1/2 CONDITION FAIL
UNBALANCE CURRENT RELAY1 TRIP	UNBALANCE CURRENT RELAY2 TRIP	VCR TCS FAULTY	SEF PROTECTION TRIP	

AVR TRANSFORMER ALARM WINDOW

AVR UV/OV BLOCK	AVR BLOCK	AVR DC SUPPLY FAIL	AVR1 RELAY FAULTY	
OLTC1 MOTOR SUPPLY FAIL	OLTC1 IN MIN/MAX TAP POS.	TR UNSAME TAP	OLTC1 AC SUPPLY FAIL	
AVR RELAY FAULTY				

GENERAL ALARM WINDOW

110V DC CHARGER FAULTY	110V MAIN LVDC OV/UV PROT.TRIP	110V MAIN LVDC EF PROT.TRIP	48V DC CHARGER FAULTY	48V MAIN LVDC EF PROT.TRIP
DC SUPPLY FAIL	AC SUPPLY FAIL	MAIN LVAC OV/UV PROT.TRIP	MAIN LVAC CONTROL/MOTOR SUPPLY FAIL	MAIN LVAC OUTGOINGS TRIPED
SYNCH. RELAY FAULTY	SYNCH. NOT OK	110V DC CHARGER EARTH FAULT OPERATED	MAIN LVAC INC TRIPED	RTU FAIL
ENERGY METER PANEL DC SUPPLY FAIL	MAIN LVAC EF PROT.TRIP			

63 KV LINE								ER (IN PROT.RELAY)
ITEM	DESCRIPTION	FROM/TO	TO/FROM					
			SUB			FR/ER	SCADA	
			ALARM	IND.	Urgent			
COMMAND								
1	DS-Q9 CLOSE COMMAND FROM SCADA	CONTROL PANEL				*	*	
2	DS-Q9 OPEN COMMAND FROM SCADA	CONTROL PANEL				*	*	
3	CB-Q0 CALL&CLOSE COMMAND FROM SCADA	CONTROL PANEL				*	*	*
4	CB-Q0 OPEN COMMAND FROM SCADA	CONTROL PANEL				*	*	*
5	DS-Q1 CLOSE COMMAND FROM SCADA	CONTROL PANEL				*	*	
6	DS-Q1 OPEN COMMAND FROM SCADA	CONTROL PANEL				*	*	
7	A/R ON COMMAND FROM SCADA	SCADA				*	*	*
8	A/R OFF COMMAND FROM SCADA	SCADA				*	*	*
9	CB-Q0 LOCKOUT RESET FROM SCADA	SCADA				*	*	*
10	CB CANCLE FROM SCADA	CONTROL PANEL				*	*	
INDICATION								
1	DS-Q9 IN LOCAL POS.	CONTROL PANEL	*	*		*	*	
2	DS Q1 LOCAL/REMOTE SWITCH IN LOCAL MODE	CONTROL PANEL	*	*		*	*	
3	CB LOCAL/REMOTE SWITCH IN LOCAL MODE	CONTROL PANEL	*	*		*	*	*
4	DS-Q9 CLOSE POS.	CONTROL PANEL		*		*	*	
5	DS-Q9 OPEN POS.	CONTROL PANEL		*		*	*	
6	ES-Q8 CLOSE POS.	CONTROL PANEL		*		*	*	
7	ES-Q8 OPEN POS.	CONTROL PANEL		*		*	*	
8	CB-Q0 CLOSE POS.	CONTROL PANEL		*		*	*	*
9	CB-Q0 OPEN POS.	CONTROL PANEL		*		*	*	*
10	DS-Q1 CLOSE POS.	CONTROL PANEL		*		*	*	
11	DS-Q1 OPEN POS.	CONTROL PANEL		*		*	*	
12	A/R IN ON POS.	CONTROL PANEL		*		*	*	
13	A/R IN OFF POS.	CONTROL PANEL		*		*	*	
14	SYNCH. AUTO/MANUAL/BYPASS SWITCH IN BYPASS MODE	CONTROL PANEL		*		*	*	
15	SYNCH. AUTO/MANUAL/BYPASS SWITCH IN AUTO MODE	CONTROL PANEL		*		*	*	
16	SYNCH. AUTO/MANUAL/BYPASS SWITCH IN MANUAL MODE	CONTROL PANEL		*		*	*	
17	A/R IN PROGRESS	PROT. PANEL		*		*	*	
18	BUS SECTION DS CLOSE POSITION	CONTROL PANEL		*		*	*	
19	BUS SECTION DS OPEN POSITION	CONTROL PANEL		*		*	*	
20	BUS SECTION DS LOCAL/REMOTE SWITCH IN LOCAL	CONTROL PANEL		*		*	*	
ALARM								
1	DISTANCE ZONE1 PROT. TRIP	PROT. PANEL	*		*		*	
2	DISTANCE ZONE2,3,4 PROT. TRIP	PROT. PANEL	*		*		*	
3	DISTANCE ZONE2 PROT. TRIP	PROT. PANEL	*		*		*	
4	DISTANCE ZONE3 PROT. TRIP	PROT. PANEL	*		*		*	
5	DISTANCE ZONE4 PROT. TRIP	PROT. PANEL	*		*		*	
6	DOC PROT. TRIP	PROT. PANEL	*		*		*	
7	DEF PROT. TRIP	PROT. PANEL	*		*		*	*
8	OV PROT. TRIP	PROT. PANEL	*		*		*	
9	UV PROT. TRIP	PROT. PANEL	*		*		*	
10	DISTANCE 3PHASE PROT. TRIP	PROT. PANEL	*		*		*	
11	SOTF PROT. TRIP	PROT. PANEL	*		*		*	
12	CBF STAGE1 PROT. TRIP	PROT. PANEL	*				*	
13	CBF STAGE2 PROT. TRIP	PROT. PANEL	*				*	
14	CB LOCKOUT OPERATED	PROT. PANEL	*		*		*	*
15	TCS FAULTY	PROT. PANEL	*		*		*	
16	TCS1 FAULTY	PROT. PANEL	*		*		*	*
17	TCS2 FAULTY	PROT. PANEL	*		*		*	
18	MAIN PROT. SUPPLY FAIL	PROT. PANEL	*		*		*	
19	MAIN PROT. DC SUPPLY FAIL	PROT. PANEL	*		*		*	*
20	MAIN PROT. RELAY FAULTY	PROT. PANEL	*		*		*	
21	BACKUP PROT. SUPPLY FAIL	PROT. PANEL	*		*		*	
22	BACKUP PROT. DC SUPPLY FAIL	PROT. PANEL	*		*		*	*
23	BACKUP PROT. RELAY FAULTY	PROT. PANEL	*		*		*	
24	CVT MCB/FUSE FAIL	CONTROL PANEL	*				*	

63 KV LINE								ER (IN PROT.RELAY)
ITEM	DESCRIPTION	FROM/TO	TO/FROM					
			SUB			FR/ER	SCADA	
			ALARM	IND.	Urgent			
25	CVT MCB FAIL	CONTROL PANEL/SV	*			*	*	*
26	CVT METER. FUSE FAIL OPERATED	+Q1	*			*	*	
27	CB/DS/ES MOTOR SUPPLY FAIL	CONTROL PANEL	*			*	*	*
28	CB/DS/ES AC SUPPLY FAILURE	PROT. PANEL	*					
29	CB SF6 PRESSURE LOW	CONTROL PANEL	*				*	*
30	CB SF6 BLOCK	CONTROL PANEL	*		*		*	
31	CB SPRING CHARGE FAIL	CONTROL PANEL	*				*	
32	CONTROL DC SUPPLY FAIL	CONTROL PANEL	*			*	*	
33	LINE HEAT/LIGHT AC SUPPLY FAIL	CONTROL PANEL	*			*	*	
34	LINE FOLLOWER RELAY FAULTY	PROT. PANEL	*					
35	LINE A/R OPERATED	PROT. PANEL	*				*	
36	LINE A/R UNSUCCESSFUL	PROT. PANEL	*					
37	LINE A/R BLOCK	PROT. PANEL	*					
MEASURMENT								
1	LINE VOLTAGE METERING					*	*	
2	LINE MW METERING					*	*	
3	LINE MVAR METERING					*	*	
4	BUS VLOTAGE					*	*	
5	BUS FREQ.					*	*	

POWER TRANSFORMER								ER (IN PROT.RELAY)
ITEM	DESCRIPTION	FROM/TO	TO/FROM					
			SUB			FR/ER	SCADA	
			ALARM	IND.	Urgent			
COMMAND								
1	CB-Q0 CLOSE/CALL COMMAND FROM SCADA	control panel				*	*	*
2	CB-Q0 OPEN COMMAND FROM SCADA	control panel				*	*	*
3	DS-Q1 CLOSE COMMAND FROM SCADA	control panel				*	*	
4	DS-Q1 OPEN COMMAND FROM SCADA	control panel				*	*	
5	CB-Q0 LOCKOUT RESET FROM SCADA	control panel				*	*	*
INDICATION								
1	CB-Q0 CLOSE POS.	control panel		*		*	*	*
2	CB-Q0 OPEN POS.	control panel		*		*	*	*
3	CB-Q0/DS-Q1 IN LOCAL POS.	control panel		*		*	*	*
4	DS-Q1 CLOSE POS.	control panel		*		*	*	
5	DS-Q1 OPEN POS.	control panel		*		*	*	
6	OLTC IN LOCAL POS.	AVR PANEL		*		*	*	*
ALARM								
1	DIFF. PROT. TRIP	PROT. PANEL	*		*	*	*	
2	DIFF. SUB1 PROT. TRIP	PROT. PANEL			*	*	*	
3	DIFF. SUB2 PROT. TRIP	PROT. PANEL			*	*	*	
4	HV REF PROT. TRIP	PROT. PANEL	*		*	*	*	
5	LV REF PROT. TRIP	PROT. PANEL	*		*	*	*	
6	HV OC PROT. TRIP	PROT. PANEL	*		*	*	*	
7	HV EF PROT. TRIP	PROT. PANEL	*		*	*	*	
8	HV CBF STGAE STAGE1 PROT. OPERATED	PROT. PANEL	*		*	*	*	
9	HV CBF STAGE STAGE2 PROT. OPERATED	PROT. PANEL	*		*	*	*	
10	HV TCS FAULTY	PROT. PANEL	*			*	*	*
11	HV TCS1 FAULTY	PROT. PANEL				*	*	
12	HV TCS2 FAULTY	PROT. PANEL				*	*	
13	HV LOCKOUT OPERATED	PROT. PANEL	*	*	*	*	*	*
14	MAIN.TR BUCHHOLZ TRIP	PROT. PANEL	*		*	*	*	*
15	MAIN.TR PRESSURE RELIEF TRIP	PROT. PANEL	*		*	*	*	
16	MAIN.TR WINDING TRMP. TRIP	PROT. PANEL	*		*	*	*	
17	MAIN.TR OIL TEMP. TRIP	PROT. PANEL	*		*	*	*	
18	MAIN.TR NON-RETURN VALVE TRIP	PROT. PANEL	*		*	*	*	
19	MAIN.TR BUCHHOLZ ALARM	control panel	*			*	*	*
20	MAIN.TR WINDING TEMP ALARM	control panel	*			*	*	
21	MAIN.TR OIL TEMP ALARM	control panel	*			*	*	
22	MAIN.TR OIL LEVEL ALARM	control panel	*			*	*	
23	MAIN.TR AIR DETECTOR ALARM	control panel	*			*	*	
24	MAIN.TR COOLING SYSTEM FAIL ALARM	control panel	*		*	*	*	
25	OLTC PROT. TRIP	PROT. PANEL	*		*	*	*	*
26	OLTC JOHNSON PROT. TRIP	PROT. PANEL				*	*	
27	OLTC PRESSURE RELIEF PROT. TRIP	PROT. PANEL				*	*	
28	OLTC OIL LEVEL ALARM	control panel	*		*	*	*	
29	AUX.TR BUCHHOLZ TRIP	PROT. PANEL	*		*	*	*	*
30	AUX.TR PRESSURE RELIEF TRIP	PROT. PANEL	*		*	*	*	
31	AUX.TR OIL TEMP TRIP	PROT. PANEL	*		*	*	*	
32	AUX.TR BUCHHOLZ ALARM	control panel	*			*	*	
33	AUX.TR OIL TEMP ALARM	control panel	*			*	*	
34	TR. FOLLOWER RELAY FAULTY	control panel	*			*	*	
35	MAIN PROT. DC SUPPLY FAIL/RELAY FAULTY	PROT. PANEL	*		*	*	*	*
36	MAIN PROT. DC SUPPLY FAIL	PROT. PANEL				*	*	
37	RELAY FAULTY	PROT. PANEL				*	*	
38	BACKUP PROT. DC SUPPLY FAIL	PROT. PANEL	*			*	*	*
39	CB MOTOR DC SUPPLY FAIL	control panel	*			*	*	*
40	CONTROL DC SUPPLY FAIL	control panel	*			*	*	
41	CB SF6 PRESSURE LOW	control panel	*			*	*	*
42	CB SF6 BLOCK	control panel	*		*	*	*	
43	HV SPRING CHARGE FAIL	control panel	*			*	*	
44	MAIN TR. AC SUPPLY FAIL	control panel	*			*	*	

POWER TRANSFORMER								ER (IN PROT.RELAY)
ITEM	DESCRIPTION	FROM/TO	TO/FROM					
			SUB			FR/ER	SCADA	
			ALARM	IND.	Urgent			
MEASURMENT								
1	TR BCD TAP POSITION					*	*	MODBUS
2	TR 4-20mA TAP POSITION							
4	TR WINDING TEMP							
3	TR OIL TEMP							
4	AUX.TR MW METERING							
5	AUX.TR MVAR METERING							

63 KV BUS SECTION							
ITEM	DESCRIPTION	FROM/TO	TO/FROM				
			SUB			FR/ER	SCADA
			ALARM	IND.	Urgent		
INDICATION							
1	DS CLOSE POS.	CONTROL PANEL		*		*	*
2	DS OPEN POS.	CONTROL PANEL		*		*	*
3	DS LOCAL/REMOTE IN LOCAL POS.	CONTROL PANEL		*		*	*

مـونـکـو ایــران
Monenco Iran

شرکت سهامی برق منطقه‌ای یزد

20 KV INCOMING								
ITEM	DESCRIPTION	FROM/TO	TO/FROM					ER (IN PROT.RELAY)
			SUB			FR/ER	SCADA	
			ALAR	IND.	Urgent			
COMMAND								
1	JT-Q0 CALL & CLOSE COMMAND FROM SCADA	CONTROL PANEL				*	*	*
2	JT-Q0 OPEN COMMAND FROM SCADA	CONTROL PANEL				*	*	*
3	JT-Q0 LOCKOUT RESET FROM SCADA	CONTROL PANEL				*	*	*
4	CB CANCLE FROM SCADA	CONTROL PANEL				*	*	
INDICATION								
1	JT-Q0 CLOSE POS.	CONTROL PANEL		*		*	*	*
2	JT-Q0 OPEN POS.	CONTROL PANEL		*		*	*	*
3	JT-Q0 IN LOCAL POS.	CONTROL PANEL		*		*	*	*
4	JT-Q0 IN TEST POS.	CONTROL PANEL		*		*	*	
5	JT-Q0 IN SERVICE POS.	CONTROL PANEL		*		*	*	
6	JT-Q8 CLOSE POS.	CONTROL PANEL		*		*	*	
7	JT-Q8 OPEN POS.	CONTROL PANEL		*		*	*	
ALARM								
1	LV OC PROT. TRIP	PROT. PANEL	*		*	*	*	
2	LV EF PROT. TRIP	PROT. PANEL	*		*	*	*	
3	LV SEF STAGE1 PROT. TRIP	PROT. PANEL	*		*	*	*	
4	LV SEF STAGE2 PROT. TRIP	PROT. PANEL	*		*	*	*	
5	LV OV PROT. TRIP	PROT. PANEL	*		*	*	*	
6	LV UV PROT. TRIP	PROT. PANEL	*		*	*	*	
7	LV TCS FAULTY	PROT. PANEL	*		*	*	*	
8	LV TCS1 FAULTY	PROT. PANEL	↑		*	*	*	*
9	LV TCS2 FAULTY	PROT. PANEL	↑		*	*	*	
10	LV LOCKOUT OPERATED	PROT. PANEL	*		*	*	*	*
11	BUS1 FREQ./OC LOAD SHEDDING PROT. OPERATED	L.S. PANEL	*		*	*	*	*
12	BUS1 FREQ.OC LOAD SHEDDING PROT. BLOCK	L.S. PANEL	*			*	*	
13	FREQUENCY/ OC LOAD SHEDDING FAIL	L.S. PANEL	*			*	*	
14	BUS1 FREQ./OC LOAD SHEDDING DC SUPPLY FAIL	L.S. PANEL	↑			*	*	*
15	BUS1 FREQ./OC LOAD SHEDDING RELAY FAULTY	L.S. PANEL	↑			*	*	
16	CB MOTOR DC SUPPLY FAIL	PROT. PANEL/LV COMP.	*			*	*	*
20	CONTROL DC SUPPLY FAIL	PROT. PANEL/LV COMP.	*			*	*	*
21	HEAT/LIGHT AC SUPPLY FAIL	PROT. PANEL/LV COMP.	*			*	*	*
22	PT FAIL	PROT. PANEL/LV COMP.	*			*	*	
23	PT IN TEST POSITION	PROT. PANEL/LV COMP.	↑			*	*	
24	LV PT MCB/FUSE FAIL	PROT. PANEL/LV COMP.	↑			*	*	*
25	LV PT PROT. FUSE FAIL OPERATED	PROT. PANEL/LV COMP.	↑			*	*	
26	LV PT METER. FUSE FAIL OPERATED	PROT. PANEL/LV COMP.	↑			*	*	
27	CB SPRING CHARGE FAIL	PROT. PANEL/LV COMP.	*			*	*	*
28	BACK DOOR OPEN OPERTEAD	LV COMP.	*			*	*	
29	CURRENT LOAD SHEDDING OFF	LOAD SHEDDING PANEL	*			*	*	
MEASURMENT								
1	LV MW METERING					+	+	
2	LV MVAR METERING							
3	LV VOLTAGE METERING							

VCR							
ITEM	DESCRIPTION	FROM/TO	TO/FROM				
			SUB			FR/ER	SCADA
			ALARM	IND.	Urgent		
COMMAND							
1	CB CLOSE &Call COMMAND	VCR PANEL				*	*
2	CB OPEN COMMAND	VCR PANEL				*	*
3	LBS1 CLOSE COMMAND	VCR PANEL				*	*
4	LBS1 OPEN COMMAND	VCR PANEL				*	*
5	LBS2 CLOSE COMMAND	VCR PANEL				*	*
6	LBS2 OPEN COMMAND	VCR PANEL				*	*
7	VCR1 MASTER MODE	VCR PANEL				*	*
8	VCR2 MASTER MODE	VCR PANEL				*	*
9	LBS1/2 LOCKOUT RESET COMMAND	VCR PANEL				*	*
INDICATION							
1	ES CLOSE POSITION	CONTROL PANEL		*		*	*
2	ES OPEN POSITION	CONTROL PANEL		*		*	*
3	CB CLOSE POSITION	CONTROL PANEL		*		*	*
4	CB OPEN POSITION	CONTROL PANEL		*		*	*
5	CB LOCAL/REMOTE SWITCH IN LOCAL MODE	CONTROL PANEL		*		*	*
6	LBS1 CLOSE POSITION	CONTROL PANEL		*		*	*
7	LBS1 OPEN POSITION	CONTROL PANEL		*		*	*
8	LBS2 CLOSE POSHTION	CONTROL PANEL		*		*	*
9	LBS2 OPEN POSITION	CONTROL PANEL		*		*	*
10	LBS1/2 LOCAL/REMOTE SWITCH IN REMOTE	CONTROL PANEL		*		*	*
11	LBS1/2 LOCAL/REMOTE SWITCH IN LOCAL POSITION	CONTROL PANEL		*		*	*
12	CONTROL LBS1/2 IN AUTO MODE (CONTROL PANEL)	CONTROL PANEL		*		*	*
13	CONTROL LBS1/2 IN MANUAL MODE (CONTROL	CONTROL PANEL		*		*	*
ALARM							
1	CB SPRING CHARGE FAIL	VCR PANEL	*			*	*
2	AC SUPPLY FAILURE	VCR PANEL	*			*	*
3	OC PROTECTION TRIP	VCR PANEL	*			*	*
4	EF PROTECTION TRIP	VCR PANEL	*			*	*
5	SEF PROTECTION TRIP	VCR PANEL	*			*	*
6	U.C PROTECTION TRIP	VCR PANEL	*			*	*
7	PROT DC SUPPLY/RELAY FAULTY	VCR PANEL	*			*	*
8	PROT RELAY FAULTY	VCR PANEL	↑			*	*
9	PROT DC SUPPLY	VCR PANEL	↑			*	*
10	DC SUPPLY FAILURE	VCR PANEL	*			*	*
11	CB MOTOR DC SUPPLY FAIL	VCR PANEL	*			*	*
12	LBS1/2 LOCKOUT OPERATED	VCR PANEL	*			*	*
13	LBS1/2 CONDITION FAIL	VCR PANEL	*			*	*
10	VCR TCS FAULTY	VCR PANEL	*			*	*
14	UNBALANCE CURRENT RELAY1 TRIP	VCR PANEL	*			*	*
15	UNBALANCE CURRENT RELAY2 TRIP	VCR PANEL	*			*	*

63KV GENERAL							
ITEM	DESCRIPTION	FROM/TO	TO/FROM				
			SUB			FR/ER	SCADA
			ALARM	IND.	Urgent		
COMMAND							
1	MAIN LV AC CB-Q01 CLOSE COMMAND FROM SCADA	LV AC PANEL				*	*
2	MAIN LV AC CB-Q01 OPEN COMMAND FROM SCADA	LV AC PANEL				*	*
3	MAIN LV AC CB-Q02 CLOSE COMMAND FROM SCADA	LV AC PANEL				*	*
4	MAIN LV AC CB-Q02 OPEN COMMAND FROM SCADA	LV AC PANEL				*	*
5	MAIN LV AC AUTO MODE COMMAND FROM SCADA	LV AC PANEL				*	*
6	MAIN LV AC MANUAL MODE COMMAND FROM SCADA	LV AC PANEL				*	*
7	SYNCH. AUTO MODE COMMAND FROM SCADA	CONTROL PANEL				*	*
8	SYNCH. MANUAL MODE COMMAND FROM SCADA	CONTROL PANEL				*	*
9	SYNCH. BYPASS MODE COMMAND FROM SCADA	CONTROL PANEL				*	*
INDICATION							
1	SUB/SCADA IN SUB POS.	CONTROL PANEL		*		*	*
2	SUB/SCADA IN SCADA POS.	CONTROL PANEL		*		*	*
3	MAIN LV AC CB-Q01 CLOSE POS.	LV AC PANEL		*		*	*
4	MAIN LV AC CB-Q01 OPEN POS.	LV AC PANEL		*		*	*
5	MAIN LV AC CB-Q02 CLOSE POS.	LV AC PANEL		*		*	*
6	MAIN LV AC CB-Q02 OPEN POS.	LV AC PANEL		*		*	*
7	MAIN LV AC AUTO/MAN. IN AUTO MODE	LV AC PANEL		*		*	*
8	MAIN LV AC AUTO/MAN. IN MANUAL MODE	LV AC PANEL		*		*	*
9	SYNCH. AUTO/MAN./BYPASS IN AUTO MODE	CONTROL PANEL		*		*	*
10	SYNCH. AUTO/MAN./BYPASS IN MANUAL MODE	CONTROL PANEL		*		*	*
11	SYNCH. AUTO/MAN./BYPASS IN BYPASS MODE	CONTROL PANEL		*		*	*
12	110V LV DC CB CLOSE POS.	LV DC PANEL		*		*	*
13	110V LV DC CB OPEN POS.	LV DC PANEL		*		*	*
14	48V LV DC CB CLOSE POS.	LV DC PANEL		*		*	*
15	48V LV DC CB OPEN POS.	LV DC PANEL		*		*	*
ALARM							
1	COMMON CONTROL PANEL DC SUPPLY FAIL	CONTROL PANEL	*			*	*
2	AC SUPPLY FAIL	CONTROL PANEL	*		*	*	*
3	DC SUPPLY FAIL	CONTROL PANEL	*		*	*	*
4	ENERGY METER PANEL DC SUPPLY FAIL	EM PANEL	*			*	*
5	110V DC CHARGER FAULTY	DC CHARGER PANEL	*		*	*	*
6	110V DC CHARGER EARTH FAULT OPERATED	DC CHARGER PANEL	*			*	*
7	MAIN LVAC OV/UV PROT.TRIP	LV AC PANEL	*		*	*	*
8	MAIN LVAC EF PROT.TRIP	LV AC PANEL	*		*	*	*
9	MAIN LVAC CONTROL/MOTOR SUPPLY FAIL	LV AC PANEL	*		*	*	*
10	MAIN LVAC INC TRIPED	LV AC PANEL	*			*	*
11	MAIN LVAC OUTGOINGS TRIPED	LV AC PANEL	*		*	*	*
12	110V MAIN LVDC OV/UV PROT.TRIP	LV DC PANEL	*		*	*	*
13	110V MAIN LVDC EF PROT.TRIP	LV DC PANEL	*		*	*	*
14	RTU FAIL	RTU PANEL	*			*	*
15	SYNCH. NOT OK	CONTROL PANEL	*		*	*	*
16	SYNCH. RELAY FAULTY	CONTROL PANEL	*		*	*	*
17	SYNCH. DC SUPPLY FAIL	CONTROL PANEL	*			*	*
18	SYNCH. NOT OK	CONTROL PANEL	*			*	*
19	48V DC CHARGER FAULTY	DC CHARGER PANEL	*		*	*	*
20	48V DC MCCB TRIP	DC CHARGER PANEL	*			*	*
21	48V MAIN LVDC OV/UV PROT.TRIP	LV DC PANEL	*			*	*
22	48V MAIN LVDC EF PROT.TRIP	LV DC PANEL	*		*	*	*

POWER TRANSFORMER (AVR)							
ITEM	DESCRIPTION	FROM/TO	TO/FROM				
			SUB			FR/ER	SCADA
			ALARM	IND.	Urgent		
COMMAND							
1	AVR AUTO MODE COMMAND FROM SCADA	AVR PANL				*	*
2	AVR MANUAL MODE COMMAND FROM SCADA	AVR PANL				*	*
3	AVR MASTER MODE COMMAND FROM SCADA	AVR PANL				*	*
4	AVR INDIVIDUAL MODE COMMAND FROM SCADA	AVR PANL				*	*
5	AVR RISER COMMAND FROM SCADA	AVR PANL				*	*
6	AVR LOWER COMMAND FROM SCADA	AVR PANL				*	*
7	AVR EMERGENCY STOP	AVR PANL				*	*
INDICATION							
1	AVR AUTO/MAN. AUTO MODE	AVR PANL		*		*	*
2	AVR AUTO/MAN. IN MANUAL MODE	AVR PANL		*		*	*
3	AVR MASTER/IND./SLAVE IN MASTER MODE	AVR PANL		*		*	*
4	AVR MASTER/IND./SLAVE IN INDIVIDUAL MODE	AVR PANL		*		*	*
5	AVR IN PROGRESS	AVR PANL		*		*	*
6	AVR AUTO/MANUAL IN MANUAL MODE	AVR PANL		*		*	*
7	AVR AUTO/MANUAL IN AUTO MODE	AVR PANL		*		*	*
8	O.L.T.C. TAP POSITION	AVR PANL		*		*	*
9	O.L.T.C. IN LOCAL POSITION	AVR PANL		*		*	*
ALARM							
1	AVR UV/OV BLOCK	AVR PANL	*		*	*	*
2	AVR BLOCK	AVR PANL	*		*	*	*
3	AVR OC BLOCK	AVR PANL	*		*	*	*
4	AVR DC SUPPLY FAIL	AVR PANL	*		*	*	*
5	AVR RELAY FAULTY	AVR PANL	*		*	*	*
6	OLTC MOTOR SUPPLY FAIL	AVR PANL	*		*	*	*
7	OLTC IN MIN/MAX TAP POS.	AVR PANL	*			*	*
8	TR UNSAME TAP	AVR PANL	*			*	*
9	OLTC AC SUPPLY FAIL	AVR PANL	*		*	*	*

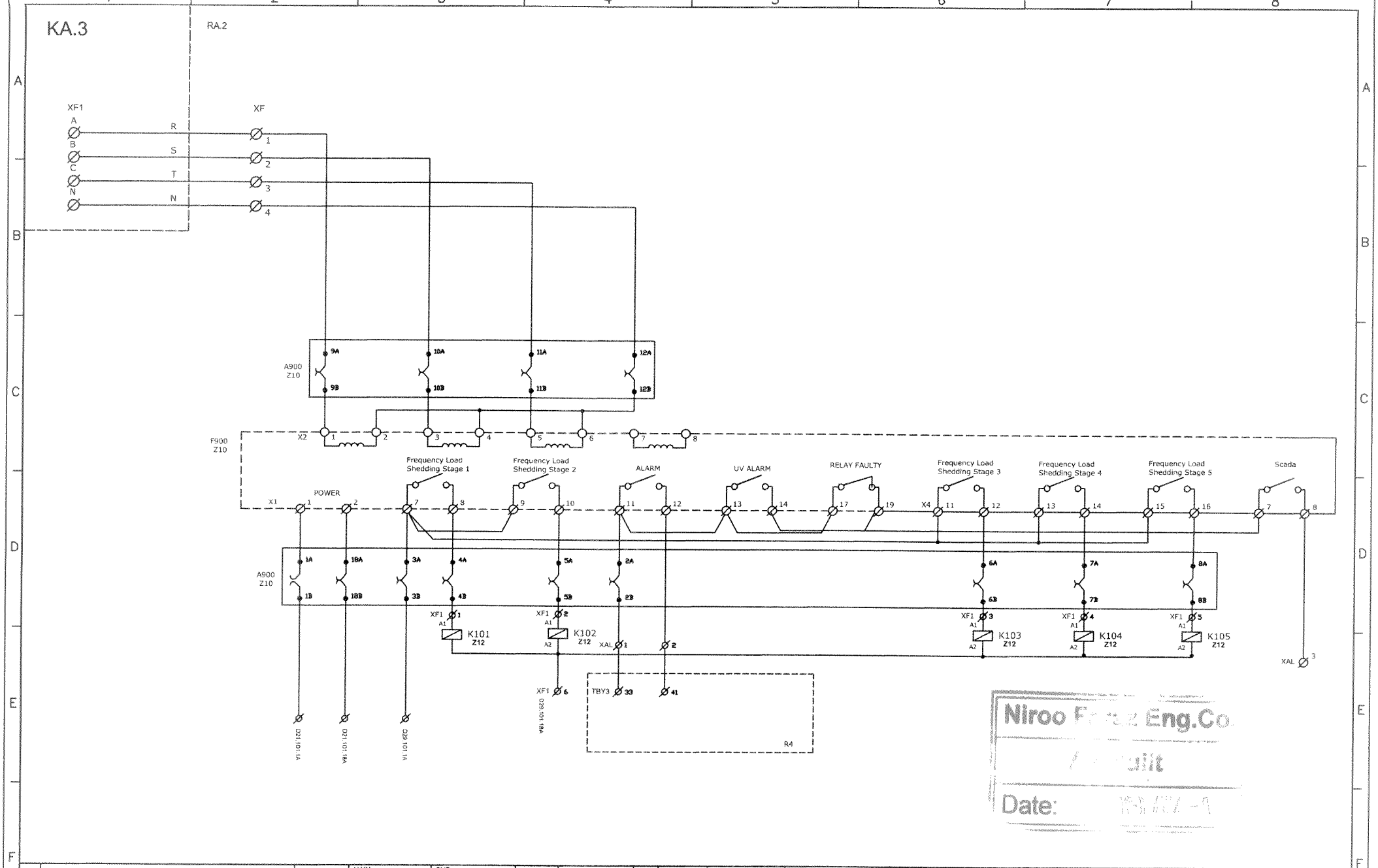
ARDAKAN 63/20KV SUBSTATION

SCHEMATIC DIAGRAM

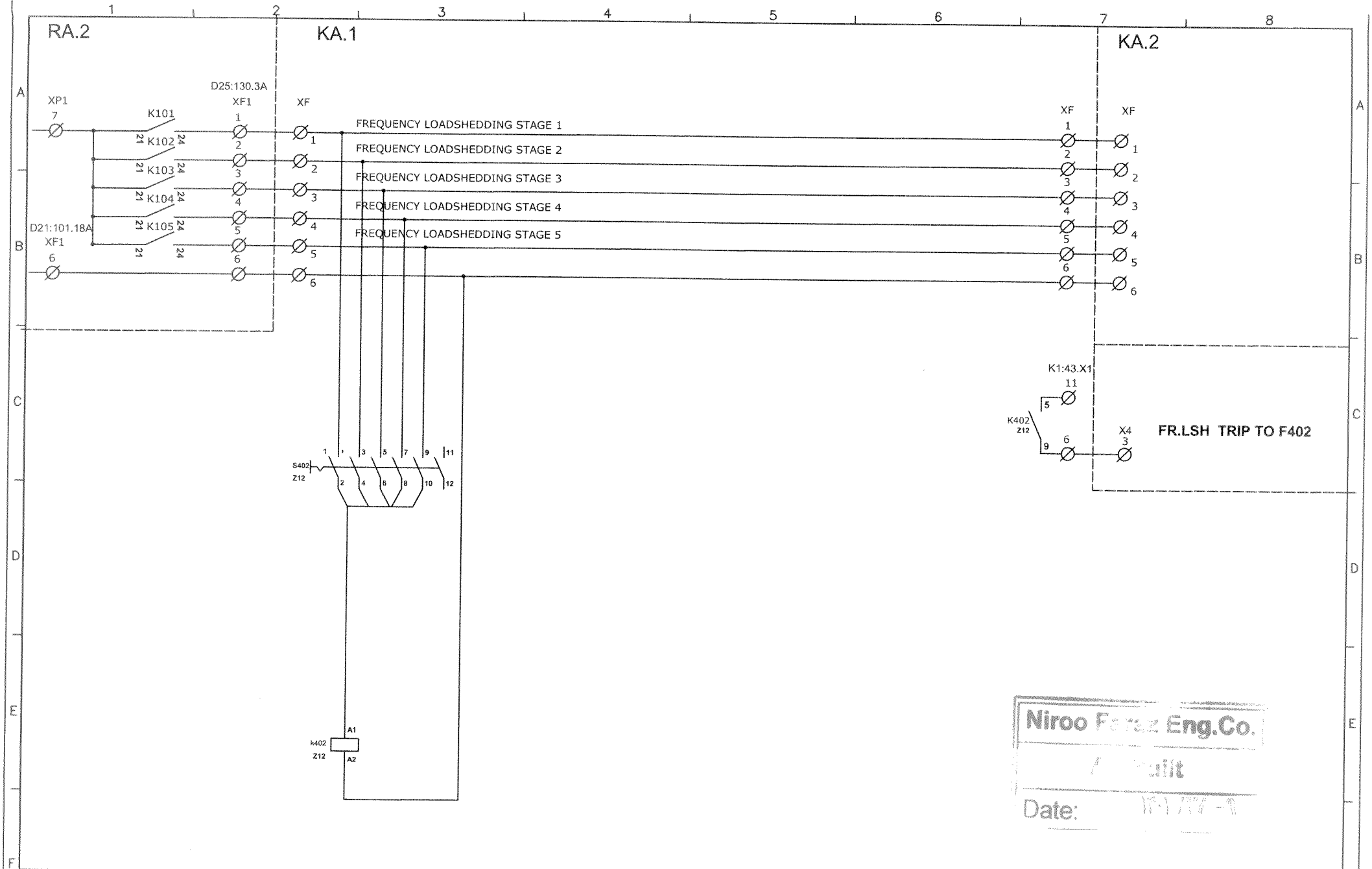
FREQUENCY LOAD SHEDDING

=RA.2

			MAIN CONTRACTOR :	SUB CONTRACTORS :	DESIGNED:	M.Maleksabet	DATE:	00.10.19	CONSULTANT:	CLIENT : ISLAMIC REPUBLIC OF IRAN MINISTRY OF ENERGY Y.R.E.C YAZD REGIONAL ELECTRIC COMPANY	TITLE: ARDAKAN 63/20 FREQUENCY (IMPROVEMENT)	FARAB DWG NO.	PANEL NAME.
					DRAWN:	M.Maleksabet	DATE:	00.10.19				FARANIROO DWG NO.	SH. NO.:
					CHECKED:	A.Khavari	DATE:	00.10.19					
E					APPR.1:	M.Khajepour	DATE:	00.10.19				FILE NO.	SH. CONT.:
Z					APPR.2:		DATE:						
REV.		DATE			SCALE:	N.T.S	UNIT:						

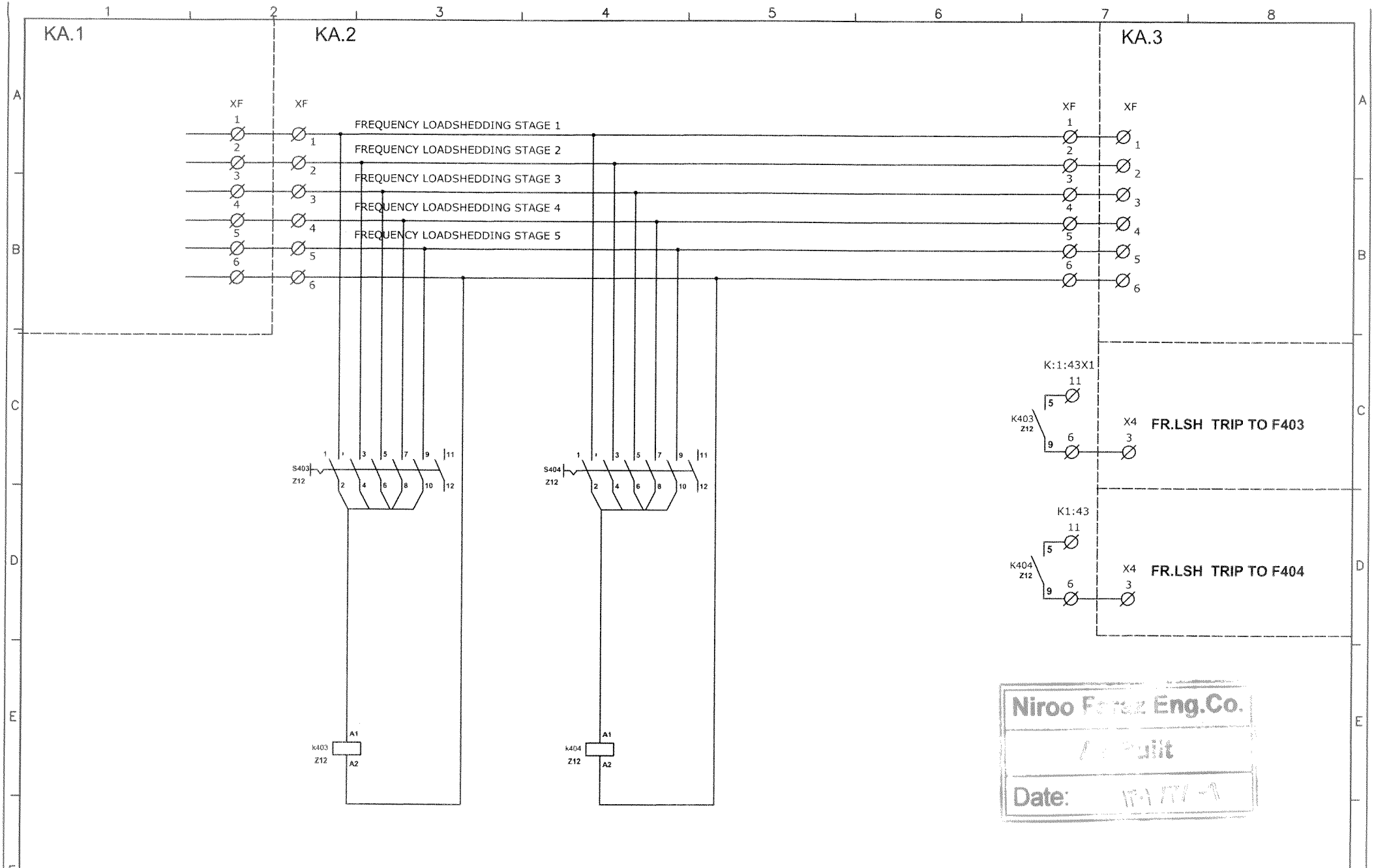


E		MAIN CONTRACTOR :	SUB CONTRACTORS :	DESIGNED:	M.Maleksabet	DATE:	00.10.19	CONSULTANT:	CLIENT : YAZD B.O.O GENERATION COMPANY	TITLE: ARDAKAN 63/20 FREQUENCY	FARAB DWG NO. / PANEL NAME.
Z				DRAWN:	M.Maleksabet	DATE:	00.10.19				FARANIROO DWG NO. / SH. NO.: M10
REV.	DATE			CHECKED:	A.Khavari	DATE:	00.10.19				FILE NO. / SH. CONT.: M11
				APPR.1:	M.Khajepour	DATE:	00.10.19				
				APPR.2:		DATE:					
				SCALE:	N.T.S	UNIT:					



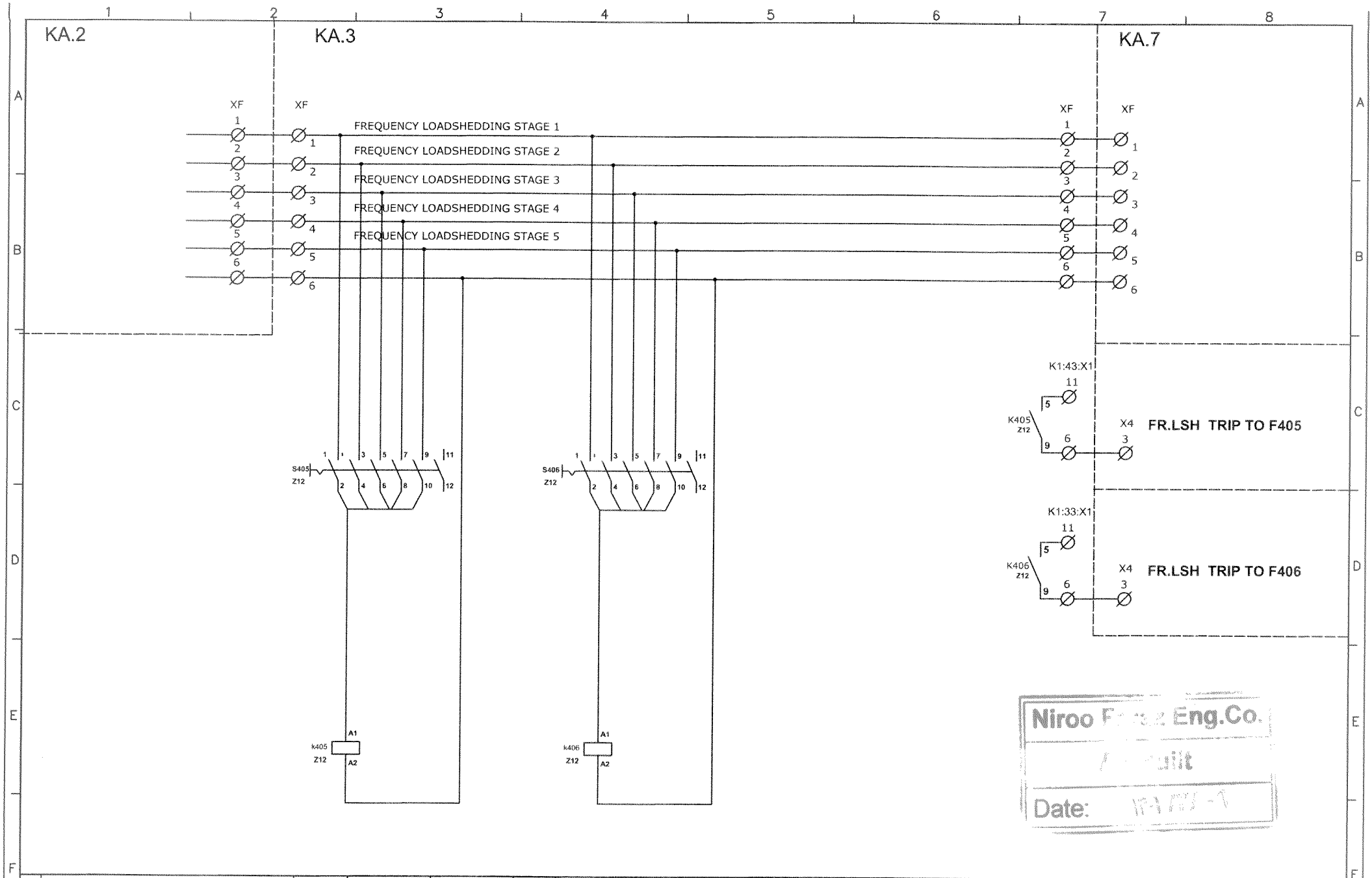
Niroo Faraz Eng.Co.
Date:

REV.	DATE	MAIN CONTRACTOR :	SUB CONTRACTORS :	DESIGNED:	M.Maleksabet	DATE:	00.10.19	CONSULTANT:	CLIENT : ISLAMIC REPUBLIC OF IRAN MINISTRY OF ENERGY Y.R.E.C YAZD REGIONAL ELECTRIC COMPANY	TITLE: ARDAKAN 63/20 FREQUENCY (IMPROVEMENT)	FARAB DWG NO.	PANEL NAME.	
				DRAWN:	M.Maleksabet	DATE:	00.10.19				FARANIROO DWG NO.	SH. NO.: M11	
				CHECKED:	A.Khavari	DATE:	00.10.19						
				APPR.1:	M.Khajepour	DATE:	00.10.19				FILE NO.	SH. CONT.: M12	
				APPR.2:		DATE:							
				SCALE:	N.T.S	UNIT:							



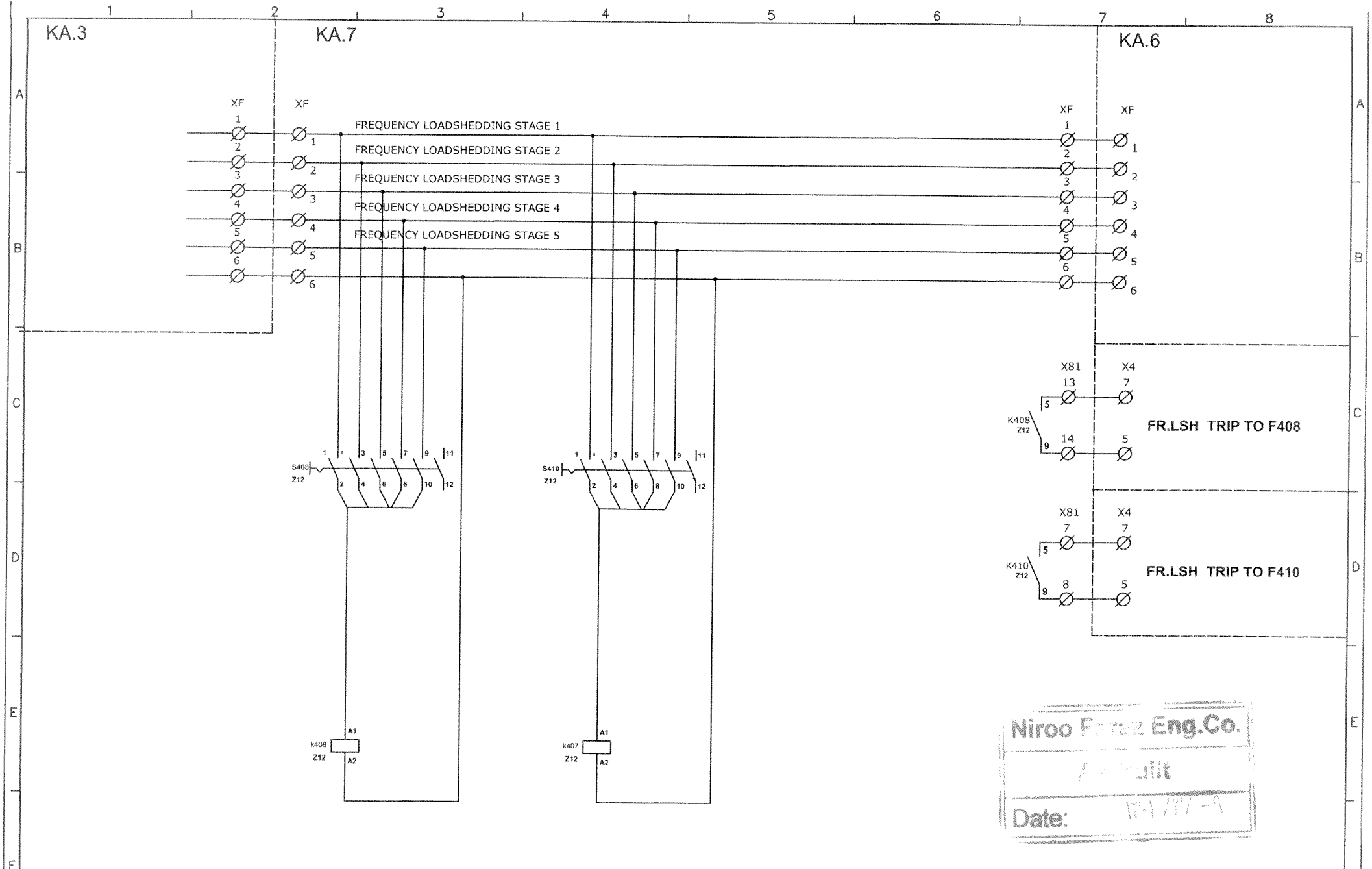
Niroo Faraz Eng.Co.
As Built
Date:

			MAIN CONTRACTOR :	SUB CONTRACTORS :	DESIGNED:	M.Maleksabet	DATE:	00.10.19	CONSULTANT:	CLIENT : ISLAMIC REPUBLIC OF IRAN MINISTRY OF ENERGY Y.R.E.C YAZD REGIONAL ELECTRIC COMPANY	TITLE: ARDAKAN 63/20 FREQUENCY (IMPROVEMENT)	FARAB DWG NO.	PANEL NAME.
					DRAWN:	M.Maleksabet	DATE:	00.10.19				FARANIROO DWG NO.	SH. NO.: M12
E					CHECKED:	A.Khavari	DATE:	00.10.19					
Z					APPR.1:	M.Khajepour	DATE:	00.10.19				FILE NO.	SH. CONT.: M13
REV.		DATE			APPR.2:		DATE:						
					SCALE:	N.T.S	UNIT:						



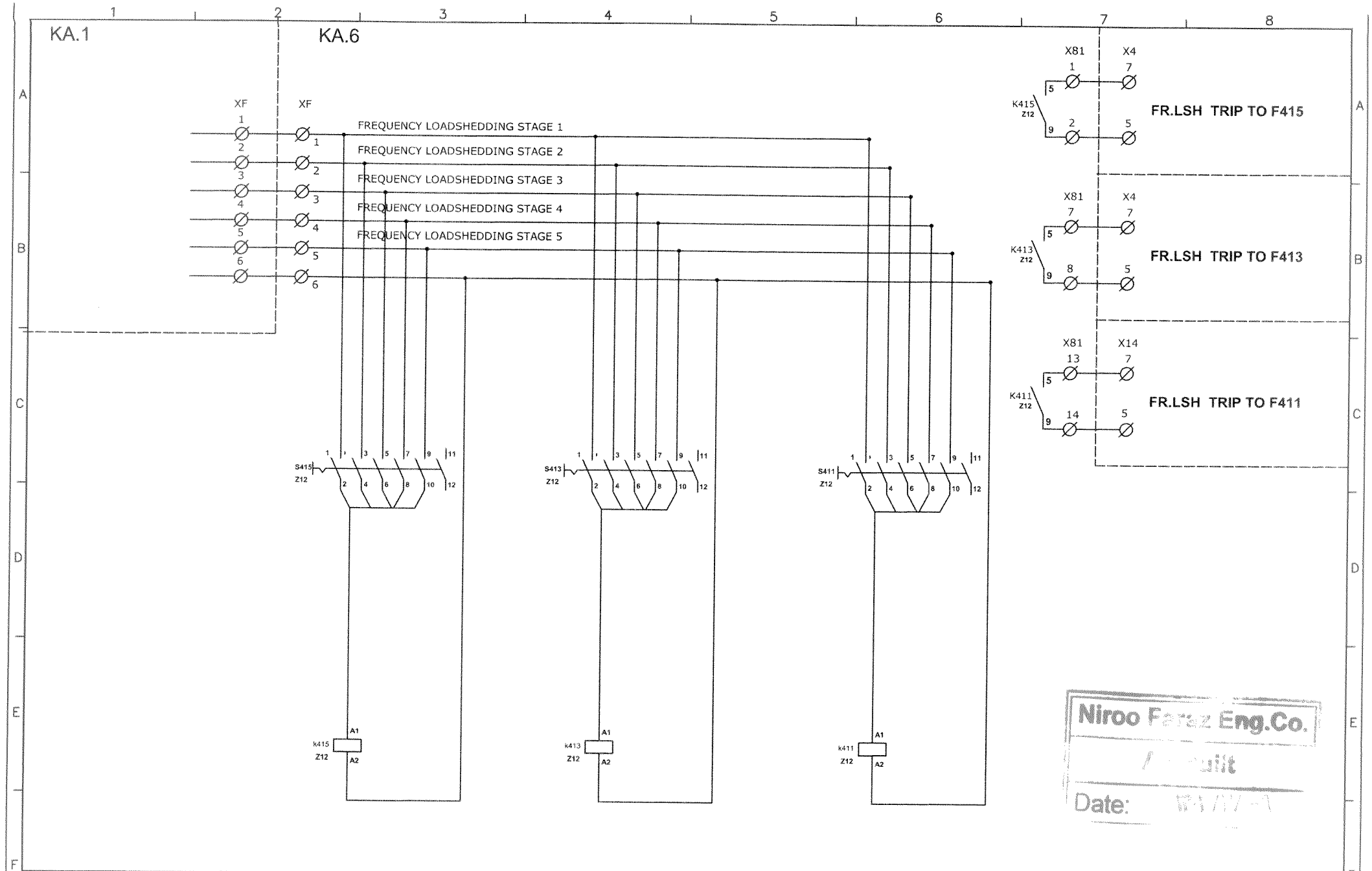
Niroo F... Eng.Co.
...uilt
Date: ...

			MAIN CONTRACTOR :	SUB CONTRACTORS :	DESIGNED:	M.Maleksabet	DATE:	00.10.19	CONSULTANT:	CLIENT : ISLAMIC REPUBLIC OF IRAN MINISTRY OF ENERGY Y.R.E.C YAZD REGIONAL ELECTRIC COMPANY	TITLE: ARDAKAN 63/20 FREQUENCY (IMPROVEMENT)	FARAB DWG NO.	PANEL NAME.
					DRAWN:	M.Maleksabet	DATE:	00.10.19					
					CHECKED:	A.Khavari	DATE:	00.10.19			FARANIROO DWG NO.	SH. NO.: M13
E					APPR.1:	M.Khajepour	DATE:	00.10.19				
Z					APPR.2:		DATE:				FILE NO.	SH. CONT.: M14
REV.		DATE			SCALE:	N.T.S	UNIT:					



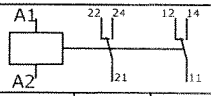
Niroo Faraz Eng.Co.
As built
Date:

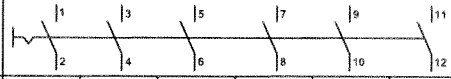
E			MAIN CONTRACTOR :	SUB CONTRACTORS :	DESIGNED:	M.Maleksabet	DATE:	00.10.19	CONSULTANT:	CLIENT : ISLAMIC REPUBLIC OF IRAN MINISTRY OF ENERGY Y.R.E.C YAZD REGIONAL ELECTRIC COMPANY	TITLE: ARDAKAN 63/20 FREQUENCY (IMPROVEMENT)	FARAB DWG NO.	PANEL NAME.
Z					DRAWN:	M.Maleksabet	DATE:	00.10.19				FARANIROO DWG NO.	SH. NO.: M14
REV.		DATE			CHECKED:	A.Khavari	DATE:	00.10.19				FILE NO.	SH. CONT.: M15
					APPR.1:	M.Khajepour	DATE:	00.10.19					
					APPR.2:		DATE:						
					SCALE:	N.T.S	UNIT:						



Niroo Faraz Eng.Co.
Built
Date:

REV.	DATE	MAIN CONTRACTOR :	SUB CONTRACTORS :	DESIGNED: M.Maleksabet	DATE: 00.10.19	CONSULTANT:	CLIENT : ISLAMIC REPUBLIC OF IRAN MINISTRY OF ENERGY Y.R.E.C YAZD REGIONAL ELECTRIC COMPANY	TITLE: ARDAKAN 63/20 FREQUENCY (IMPROVEMENT)	FARAB DWG NO. / PANEL NAME.
				DRAWN: M.Maleksabet	DATE: 00.10.19				FARANIROO DWG NO. / SH. NO.: M15
				CHECKED: A.Khavari	DATE: 00.10.19				
				APPR.1: M.Khajepour	DATE: 00.10.19				FILE NO. / SH. CONT.: M16
				APPR.2:	DATE:				
				SCALE: N.T.S	UNIT:				

QTY	DESCRIPTION	LOCATION	FUNCTION	DESIGNATION	SYMBOL/ADDRESS				
	APLICATION: AUXILIARY RELAY								
	TYPE:40.52	RA.2	FR LSH STAGE1	K101	M10	M10			
	MANUFACTURE: FINDER	RA.2	FR LSH STAGE2	K102	M10	M10			
	CURRENT RATING(A): 8 A	RA.2	FR LSH STAGE3	K103	M10	M10			
		RA.2	FR LSH STAGE4	K104	M10	M10			
	AC VOLTAGE RATING (RMS): 250 V	RA.2	FR LSH STAGE5	K105	M10	M10			
		KA.1	F402 FR.LSH TRIP	S402	M11	M11			
		KA.2	F403 FR.LSH TRIP	S403	M12	M12			
	AUX. DC SUPPLY (V): 110 V	KA.2	F404 FR.LSH TRIP	S404	M12	M12			
		KA.3	F405 FR.LSH TRIP	S405	M13	M13			
	SETTING RANGE: SEE CATALOG	KA.3	F406 FR.LSH TRIP	S406	M13	M13			
		KA.7	F408 FR.LSH TRIP	S408	M14	M14			
		KA.7	F410 FR.LSH TRIP	S410	M14	M14			
		KA.6	F411 FR.LSH TRIP	S411	M15	M15			
		KA.6	F413 FR.LSH TRIP	S413	M15	M15			
		KA.6	F415 FR.LSH TRIP	S415	M15	M15			

QTY	DESCRIPTION	LOCATION	FUNCTION	DESIGNATION	SYMBOL/ADDRESS						
	APLICATION: SELECTOR SWITCH										
	TYPE: G012MZ16GL1	KA.1	F402 STAGE SELECTOR	S402	M11	M11	M11	M11	M11		
	MANUFACTURE: TRS	KA.2	F403 STAGE SELECTOR	S403	M12	M12	M12	M12	M12		
		KA.2	F404 STAGE SELECTOR	S404	M12	M12	M12	M12	M12		
	CURRENT RATING(A): 16 A	KA.3	F405 STAGE SELECTOR	S405	M13	M13	M13	M13	M13		
		KA.3	F406 STAGE SELECTOR	S406	M13	M13	M13	M13	M13		
	AC VOLTAGE RATING 690 V	KA.7	F408 STAGE SELECTOR	S408	M14	M14	M14	M14	M14		
		KA.7	F410 STAGE SELECTOR	S410	M14	M14	M14	M14	M14		
	SETTING RANGE: SEE CATALOG	KA.6	F411 STAGE SELECTOR	S411	M15	M15	M15	M15	M15		
		KA.6	F413 STAGE SELECTOR	S413	M15	M15	M15	M15	M15		
		KA.6	F415 STAGE SELECTOR	S415	M15	M15	M15	M15	M15		

Niroo Faraz Eng.Co.
Approved
Date: ۹۸/۷/۱

REV.	DATE	MAIN CONTRACTOR :	SUB CONTRACTORS :	DESIGNED: M.Maleksabet	DATE: 00.10.19	CONSULTANT:	CLIENT : ISLAMIC REPUBLIC OF IRAN MINISTRY OF ENERGY Y.R.E.C YAZD REGIONAL ELECTRIC COMPANY	TITLE: ARDAKAN 63/20 FREQUENCY (IMPROVEMENT)	FARAB DWG NO.	PANEL NAME.
				DRAWN: M.Maleksabet	DATE: 00.10.19				FARAMIROO DWG NO.	SH. NO.: Z12
				CHECKED: A.Khavari	DATE: 00.10.19				FILE NO.	SH. CONT.: ---
				APPR.1: M.Khajepour	DATE: 00.10.19					
				APPR.2:	DATE:					
				SCALE: N.T.S	UNIT:					