

Schematic diagram for MV Switchgear

GENERAL NOTES

ABBREVIATIONS & LEGEND


REFERENCE DRAWINGS

DESCRIPTION	DWG. No.
Overall Single Line Diagram (Basic)	LRSL-R1X-EL-SD-001
Electrical Design Criteria	LRSL-000-EL-DB-603
Architectural Block Diagram for PMS	LRSL-R1X-EL-BD-001
I/O List for PMS	LRSL-R1X-EL-LI-003
Specification for MV Switchgear	LRSL-000-EL-SP-613
Specification for Gas Generator	LRSL-000-EL-SP-619
Specification for PMS	LRSL-000-EL-SP-622
ATS LOGIC BLOCK DIAGRAM	LRSL-000-EL-LD-001

KEY PLAN

Rev	Date	PURPOSE OF ISSUE	Orig	By	Prep'd	Check'd	App'd	Company App'd
04	01-Aug-21	Approved for Construction	IOEC	-	S.Safari	A.Samadi	M.Aghaei	-
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CLIENT:



Iranian Offshore Oil Company
I.O.O.C.

CONTRACTOR:




IOEC INTELLIGENT SOLUTIONS INC.

SUB-CONTRACTOR:



TR
Consulting Engineers

Project No: 2-98-5365 Doc. Class: 2 Size: A3 Scale: N.T.S.

Project Name : Resalat Oil Field Development - Phase 1 (EPC-EPD)

TITLE :
Schematic diagram for MV Switchgear

DRAWING No. LRSL-R1X-EL-SM-001 SHT. NO. 1 OF 22 Rev. 04

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4	-	GENERAL NOTES & ABBREVIATIONS	X	X	X		
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8	TYPE F22	6.6KV GENERATOR INCOMING FEEDER	X	X	X		
9	TYPE F22	6.6KV GENERATOR INCOMING FEEDER	X	X	X		
10	TYPE F23	6.6KV MAIN SWITCHGEAR BUSTIE	X	X	X		X
11	TYPE F23	6.6KV MAIN SWITCHGEAR BUSTIE	X	X	X		X
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18	TYPE F31	2.2kv INCOMING FEEDER FROM TRANSFORMER	X	X	X		
19	TYPE F32	2.2KV BUSTIE	X	X	X		
20	TYPE F32	2.2KV BUSTIE	X	X	X		
21	TYPE F33	2.2KV MOTOR WITH TRANSFORMER FEEDER	X	X	X		
22	TYPE F33	2.2KV MOTOR WITH TRANSFORMER FEEDER	X	X	X		

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A
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A
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RELAY ANSI CODE	
1	MASTER ELEMENT
2	TIME-DELAY STARTING OR CLOSING RELAY
3	CHECKING OR INTERLOCKING RELAY
4	MASTER CONTACTOR
5	STOPPING DEVICE
6	STARTING CIRCUIT BREAKER
7	ANODE CIRCUIT BREAKER
8	CONTROL POWER DISCONNECTING DEVICE
9	REVERSING DEVICE
10	UNIT SEQUENCE SWITCH
11	MULTIFUNCTION DEVICE
12	OVERSPEED DEVICE
13	SYNCHRONUS-SPEED DEVICE
14	SPEED OR FREQUENCY MATCHING DEVICE
15	UNDERSPEED DEVICE
16	RESERVED FOR FUTURE APPLICATION
17	SHUNTING OR DISCHARGE SWITCH
18	ACCELERATING OR DECELERATING DEVICE
19	STARTING-TO-RUNNING TRANSITION CONTACTOR
20	ELECTRICALLY OPERATED VALVE
21	DISTANCE RELAY
22	EQUALIZER CIRCUIT BREAKER
23	TEMPERATURE CONTROL DEVICE
24	VOLTS PER HERTZ RELAY
25	SYNCHRONIZING OR SYNCHRONISM CHECK DEVICE
26	APPARATUS THERMAL DEVICE ALARM 26A APPARATUS THERMAL DEVICE TRIP 26T
27	UNDERVOLTAGE RELAY
27R	REMANENT UNDERVOLTAGE RELAY
27I	INSTANTANEOUS UNDERVOLTAGE RELAY
28	FLAME DETECTOR
29	ISOLATING CONTACTOR
30	ANNUNCIATE RELAY
31	SEPARATE EXCITATION DEVICE
32	DIRECTIONAL POWER RELAY
33	POSITION SWITCH
34	MASTER SEQUENCE DEVICE
35	BRUSH-OPERATING OR SLIP-RING SHORT-CIRCUITING DEVICE
36	POLARITY OR POLARIZING VOLTAGE DEVICE
37	UNDERCURRENT OR UNDERPOWER RELAY
38	TEMPERATURE PROTECTIVE DEVICE ALARM 38A TEMPERATURE PROTECTIVE DEVICE TRIP 38T
39	BEARING VIBRATION
40	FIELD RELAY
41	FIELD CIRCUIT BREAKER
42	RUNNING CIRCUIT BREAKER
43	MANUAL TRANSFER OR SELECTOR DEVICE
44	UNIT SEQUENCE STARTING RELAY
45	ATMOSPHERIC CONDITION MONITOR
46	REVERSE-PHASE OR PHASE BALANCE CURRENT RELAY
47	PHASE-SEQUENCE OR PHASE BALANCE VOLTAGE RELAY
48	INCOMPLETE SEQUENCE RELAY
49	OVERLOAD PROTECTION
49T	WINDING TEMPERATURE PROTECTIVE DEVICE
50	INSTANTANEOUS OVER-CURRENT RELAY
50G	INSTANTANEOUS GROUND FAULT RELAY (RESIDUAL CURRENT MEASURED BY A SINGLE CT)
50V	VOLTAGE RESTRAINED INSTANTANEOUS OVERCURRENT RELAY
50N	INSTANTANEOUS GROUND FAULT RELAY (RESIDUAL CURRENT MEASURED BY 3 CTs)
51	TIME OVERCURRENT RELAY
51N	TIME GROUND FAULT RELAY
51V	VOLTAGE RESTRAINED TIME OVERCURRENT RELAY
51G	(RESIDUAL CURRENT MEASURED BY 3 CTs) TIME GROUND FAULT RELAY
51LR	(RESIDUAL CURRENT MEASURED BY A SINGLE CT) LOCKED ROTOR RELAY
52	AC CIRCUIT BREAKER
53	EXCITER OR DC GENERATOR RELAY
54	TURNING GEAR ENGAGING DEVICE
55	POWER FACTOR RELAY
56	FIELD APPLICATION RELAY
57	SHOT-CIRCUITING OR GROUNDING DEVICE
58	RECTIFICATION FAILURE RELAY
59	OVERVOLTAGE RELAY
60	VOLTAGE OR CURRENT BALANCE RELAY
61	DENSITY SWITCH OR SENSOR
62	TIME-DELAY STOPPING OR OPENING RELAY
63	PRESSURE SWITCH
64	GROUND PROTECTIVE RELAY
64REF	RESTRICTED EARTH FAULT RELAY
64R	ROTOR PROTECTION
65	GOVERNOR
66	STARTS PER HOUR RELAY
67	DIRECTIONAL OVERCURRENT RELAY
67N	DIRECTIONAL EARTH FAULT RELAY
68	BLOCKING RELAY
69	PERMISSIVE CONTROL DEVICE
70	RHEOSTAT
71	LEVEL SWITCH
72	DC CIRCUIT BREAKER
73	LOAD-RESISTOR CONTACTOR
74	ALARM RELAY
75	POSITION CHANGING MECHANISM
76	DC OVERCURRENT RELAY
77	TELEMETRING DEVICE
78	PHASE-ANGLE MEASURING OR OUT-OF-STEP PROTECTIVE RELAY
79	AC RECLOSING RELAY
80	FLOW SWITCH
81	FREQUENCY RELAY
82	DC RECLOSING RELAY
83	AUTOMATIC SELECTIVE CONTROL OR TRANSFER RELAY
84	OPERATING MECHANISM
85	CARRIER OR PILOT-WIRE RECEIVER RELAY
86	LOCKOUT RELAY
86	LOCKOUT RELAY
87	DIFFERENTIAL PROTECTIVE RELAY
87L	LONGITUDE DIFFERENTIAL PROTECTIVE RELAY
87M	MOTOR DIFFERENTIAL PROTECTIVE RELAY
89	AUXILIARY MOTOR OR MOTOR GENERATOR
90	LINE SWITCH (DISCONNECTING SWITCH)
91	REGULATING DEVICE
92	VOLTAGE DIRECTIONAL RELAY
93	VOLTAGE AND POWER DIRECTIONAL RELAY
94	FIELD-CHANGING CONTACTOR
94X	HIGH SPEED, HEAVY DUTY AUXILIARY RELAY
95	TRIPPING OR TRIP-FREE RELAY
96	TRIP CIRCUIT SUPERVISION (TCS)
97	BUCHHOLZ RELAY

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ATS LOGIC BLOCK DIAGRAM					LRSL-000-EL-LD-001				
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					S.S.	A.S.	M.A.		
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CONTRACTOR:					SUB-CONTRACTOR:				
 IOEC					 INTELLIGENT SOLUTIONS INC. Consulting Engineers				
Project No: 2-98-5365			Doc. Class: 2	Size: A3	Scale: N.T.S.				
Project Name : Resalat Oil Field Development - Phase 1 (EPC-EPD)									
TITLE : Schematic diagram for MV Switchgear									
DRAWING No.	LRSL-R1X-EL-SM-001			SHT. NO.	3 OF 22		Rev. 04		

GENERAL NOTES & ABBREVIATIONS

GENERAL NOTES:

1. THIS DOCUMENT IS SHOWN ONLY TYPE OF METERING & PROTECTION FOR RATING OF ALL ELECTRICAL EQUIPMENT REFER TO RELEVANT SINGLE LINE DIAGRAM.
2. MECHANICAL & ELECTRICAL INTERLOCKING SHALL BE CONSIDERED BETWEEN EARTHING SWITCH AND CIRCUIT BREAKERS.
3. KEY TYPE (CASTELL TYPE KEY OR EQUIVALENT) INTERLOCKING SHALL BR PROVIDED FOR EARTH SWITCHES/CIRCUIT BREAKERS AND REMOTE BOARDS CIRCUIT BREAKERS/EARTH SWITCHES.
4. ALL EARTH SWITCHES SHALL BE PROVIDED WITH "ON" & "OFF" INDICATOR LAMPS.
5. PRESENTED ACCURACY CLASS AND SATURATION FACTOR OF CTs AND PTs IN THE DOCUMENT ARE AS MINIMUM AND WILL BE FINALIZED BY MANUFACTURER.
6. CLASS OF DIFFERENTIAL AND RESTRICTED EARTH FAULT PROTECTIONS CT'S SHALL BE CLASS X AND EXACT CHARACTERISTICS OF THESE CT'S SHALL BE SPECIFIED BY VENDOR.
7. FOR 6.6KV INCOMING CIRCUIT BREAKERS, SYNCHRONIZING PANEL SHALL BE UTILIZED TO SYNCHRONIZE GENERATOR WITH THE ELECTRICAL NETWORK AND AFTER THAT CB WILL BE CLOSED. IN THIS REGARDS, RELATED LOGIC HAS BEEN PRESENTED IN DOCUMENT "ATS LOGIC BLOCK DIAGRAM".
SYNCH CHECK FUNCTION (25) SHOULD BE PROVIDED IN 6.6KV SWITCHGEARS FOR ALL INCOMINGS AND BUS TIE CBs.
8. CLOSING OF BUS TIE CB OF 6.6KV SWITCHGEAR IS POSSIBLE IN THE CASE OF LIVE-DEAD BUSBAR OR DEAD-DEAD BUSBAR. SO SYNCHRONIZING WILL NOT BE USED FOR BUS TIE CB.
9. ALL MULTI FUNCTION PROTECTION RELAYS SHALL BE MICRO PROCESSOR BASE & PROGRAMMABLE TYPE.
10. ALL RELAYS ARE SHOWN IN SWITCHGEAR ARE IN SCOPE OF SWITCHGEAR VENDOR
11. SEPARATE LOCKOUT RELAY (86) SHALL BE PROVIDED AS SHOWN. LOCK OUT RELAYS SHALL BE HEAVY DUTY AND FAST ACTING TYPE.
12. ALL COILS SHALL BE DESIGNED SUCH THAT OPEN TO TRIP (FAIL SAFE) CONFIGURATION.
13. DATA EXCHANGE BETWEEN SWITCHGEARS AND PMS IS ACCORDING TO DOCUMENTS "ARCHITECTURAL BLOCK DIAGRAM FOR PMS" & "I/O LIST FOR PMS".
14. LCS (LOCAL CONTROL STATION), DIESEL GENERATOR, VFD AND RELATED PANEL WILL BE PROVIDED BY OTHERS.
15. ALL MCCs THAT SUPPLY BY VENDOR, IT SHALL BE FOLLOWED FROM THIS SCHEME DRAWING.
16. SPARE TERMINALS SHALL BE CONSIDERED ON BOTH OPENING AND CLOSING COILS OF CIRCUIT BREAKERS.
17. THE AMMETER FOR MOTOR STARTING FEEDERS SHALL BE SCALED UP TO 6*In.
18. LAMP TEST PUSH BUTTON SHALL BE PROVIDED FOR ALL SWITCHGEARS AND PANELS WITH LAMP SIGNALS.
- 19- ALL MEASURING CENTER SHALL BE CAPABLE TO SAVE AND PRESENT MAXIMUM DEMAND.

ABBREVIATIONS:

- MFR: MULTI FUNCTION RELAY
 MFM: MULTI FUNCTION METER
 PMS: POWER MANAGEMENT SYSTEM
 DCS: DISTRIBUTED CONTROL SYSTEM
 ESD: EMERGENCY SHUTDOWN
 EDG: EMERGENCY DIESEL GENERATOR
 CB: CIRCUIT BREAKER
 VCB: VACUUM CIRCUIT BREAKER
 ACB: AIR CIRCUIT BREAKER
 MCCB: MOLDED CASE CIRCUIT BREAKER
 MPCB: MOTOR PROTECTION CIRCUIT BREAKER
 MCB: MINIATURE CIRCUIT BREAKER
 VC: VACUUM CONTACTOR
 SWG: SWITCHGEAR
 ES: EARTH SWITCH
 UCP: UNIT CONTROL PACKAGE
 CT: CURRENT TRANSFORMER
 VT: VOLTAGE TRANSFORMER
 TCS: TRIP CIRCUIT SUPERVISION
 ATS: AUTOMATIC TRANSFER SYSTEM
 SFU: STRIKER PIN FUSE
 LCS: LOCAL CONTROL STATION

GENERAL NOTES


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I.O.O.C.

CONTRACTOR:  **IOEC**  **INTELLIGENT SOLUTIONS INC.** SUB-CONTRACTOR:  **TR Consulting Engineers**

Project No: 2-98-5365 Doc. Class: 2 Size: A3 Scale: N.T.S.

Project Name : Resalat Oil Field Development - Phase 1 (EPC-EPD)

TITLE : **Schematic diagram for MV Switchgear**

DRAWING No. LRSL-R1X-EL-SM-001 SHT. NO. 4 OF 22 Rev. 04

6.6KV SYSTEMS

GENERAL NOTES

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SUB-CONTRACTOR:



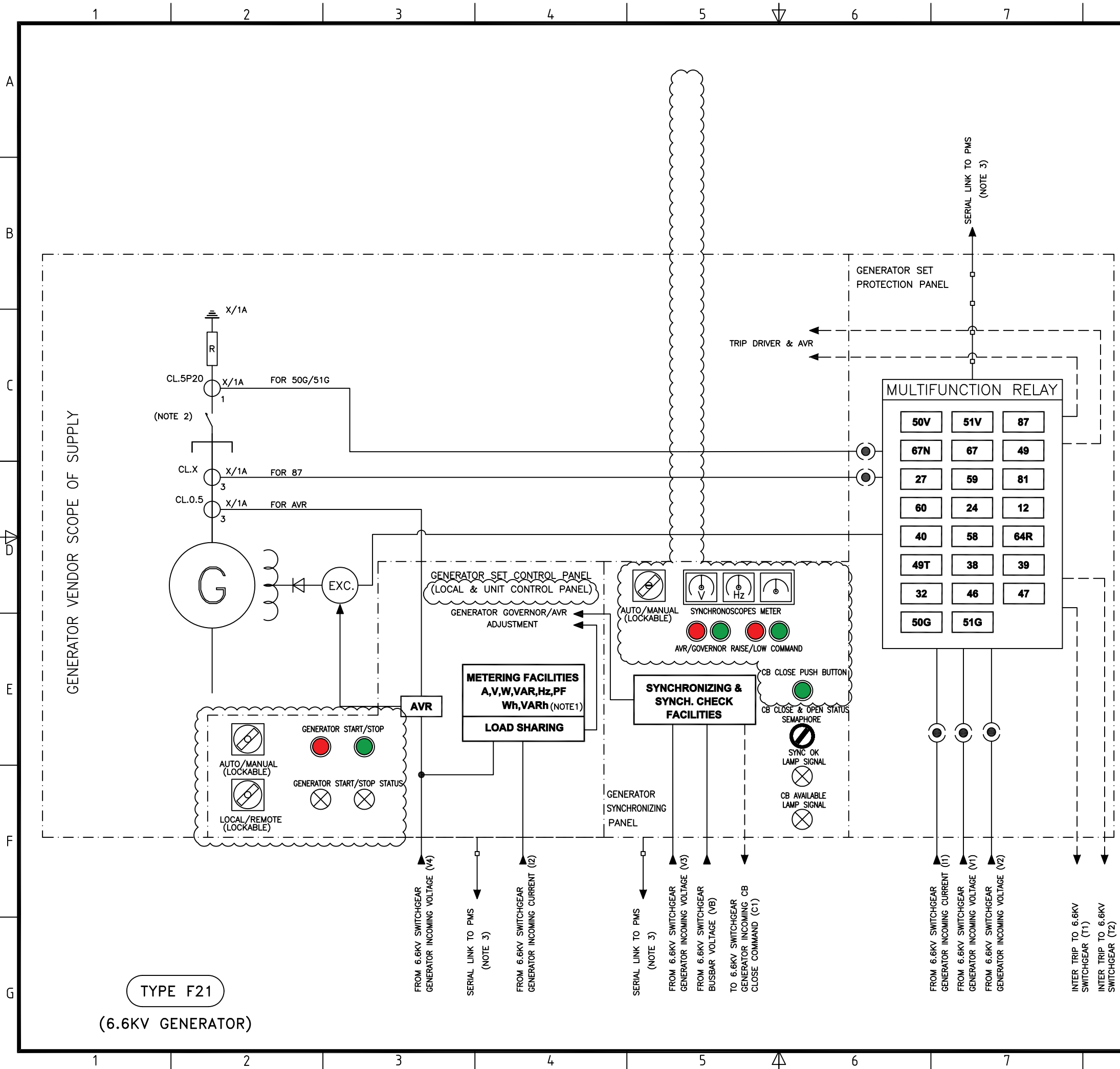
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DRAWING No. LRSL-R1X-EL-SM-001 SHT. NO. 5 OF 22 Rev. 04



GENERAL NOTES

- 1- ALL MEASURING CENTER SHALL BE CAPABLE TO SAVE AND PRESENT MAXIMUM DEMAND.
- 2- CONTACTOR SHALL BE CLOSED WHEN GENERATOR IS STARTING.
- 3- CONTROL, METERING AND PROTECTION SIGNALS OF GENERATORS WILL BE TRANSMITTED TO PMS FROM UNIT CONTROL PANEL OF GENERATORS WITH COMMUNICATION LINK, EXCEPT COMMANDS SIGNALS WHICH SHOULD BE HARDWIRE TYPE.

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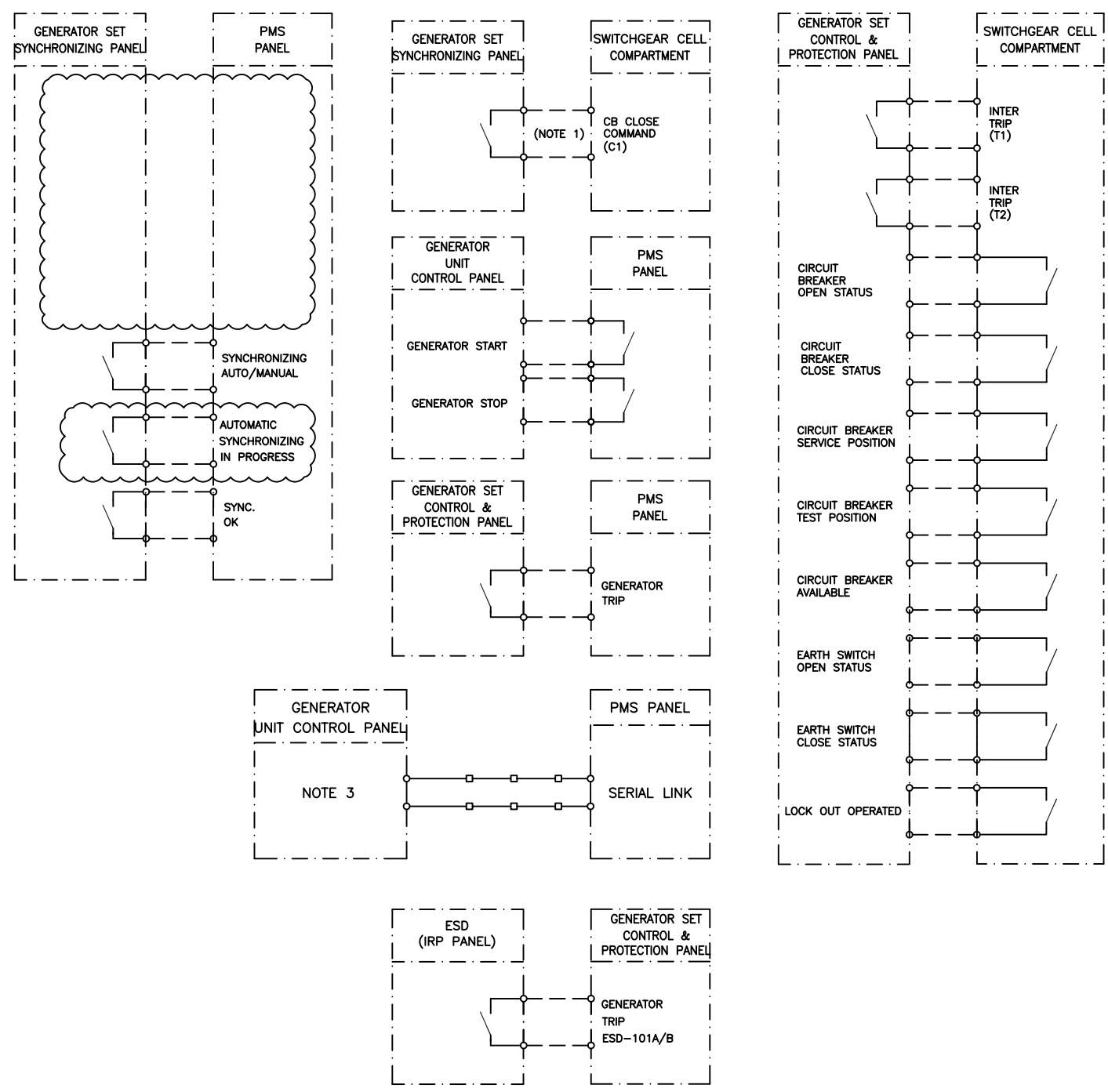
SUB-CONTRACTOR: **TR** Consulting Engineers

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DRAWING No. LRSL-R1X-EL-SM-001 SHT. NO. 6 OF 22 Rev. 04



TYPE F21
(6.6KV GENERATOR)

GENERAL NOTES

- 1- CLOSE COMMAND FROM GENERATOR SET SYNCHRONIZING PANEL TO RELATED CIRCUIT BREAKER FOR ALL INCOMINGS OF 6.6KV SWITCHGEAR SHALL BE CONSIDERED.
 - 2- CONTROL, METERING AND PROTECTION SIGNALS OF GENERATORS WILL BE TRANSMITTED TO PMS FROM UNIT CONTROL PANEL OF GENERATORS WITH COMMUNICATION LINK, EXCEPT COMMANDS SIGNALS WHICH SHOULD BE HARDWIRE TYPE.
- FOR LIST OF SIGNALS PLEASE REFER TO DOCUMENT "I/O LIST FOR PMS".

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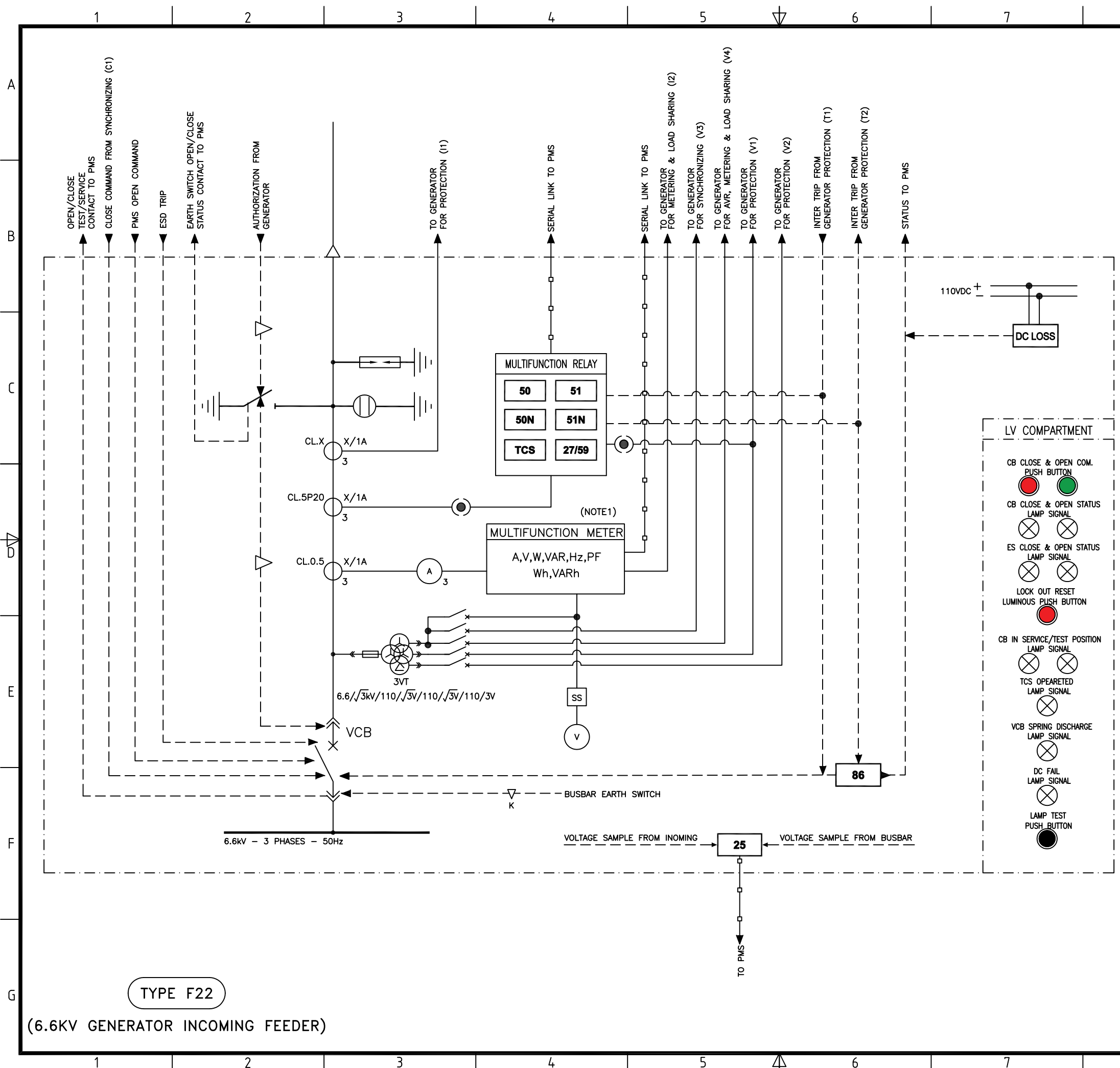
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Specification for PMS	LRSL-000-EL-SP-622
ATS LOGIC BLOCK DIAGRAM	LRSL-000-EL-LD-001

KEY PLAN

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00	23-Feb-21	Issued for Comment	IOEC	-	S.Safari	A.Samadi	M.Aghaei	-

CLIENT: Iranian Offshore Oil Company I.O.O.C.

CONTRACTOR: IOEC

INTELLIGENT SOLUTIONS INC.

SUB-CONTRACTOR: TR Consulting Engineers

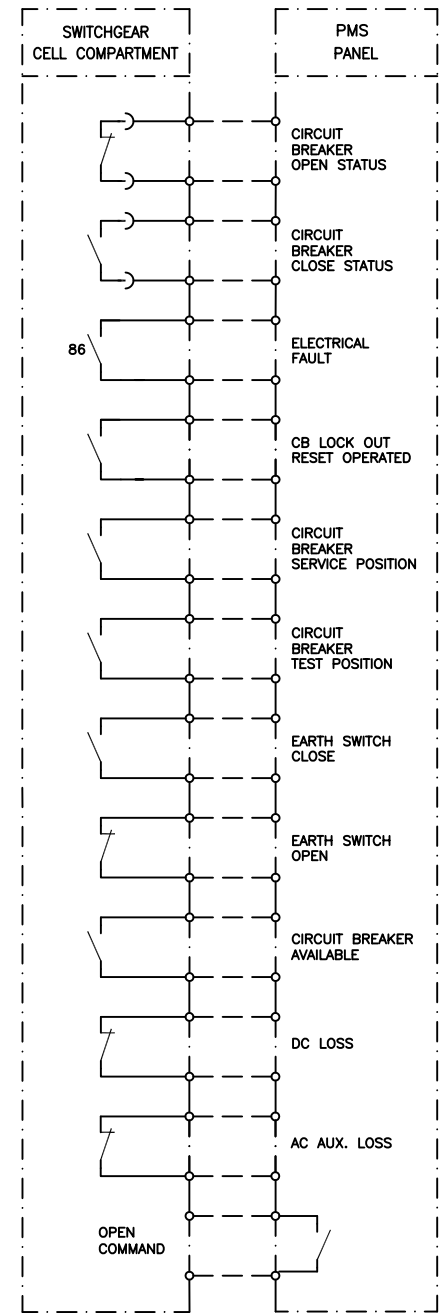
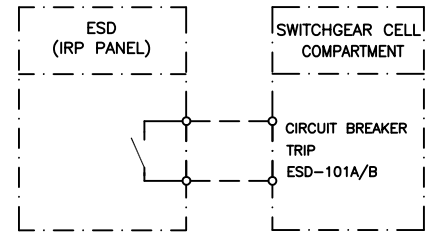
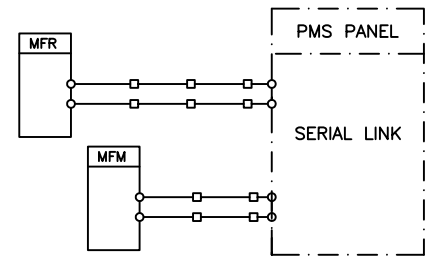
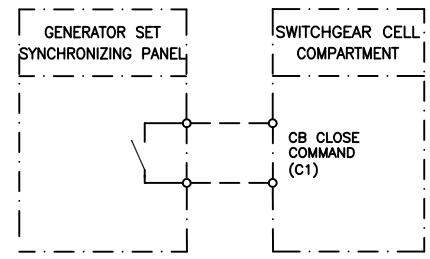
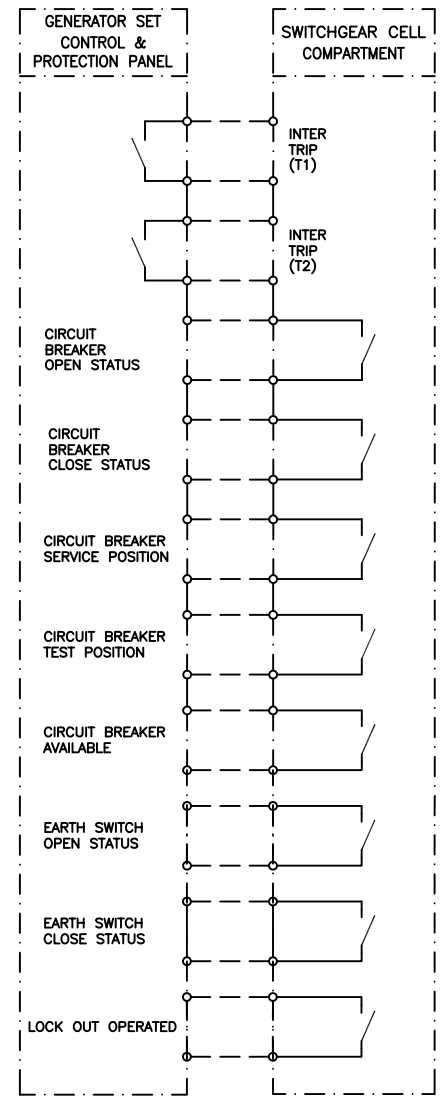
Project No: 2-98-5365 Doc. Class: 2 Size: A3 Scale: N.T.S.

Project Name : Resalat Oil Field Development - Phase 1 (EPC-EPD)

TITLE : Schematic diagram for MV Switchgear

DRAWING No. LRSL-R1X-EL-SM-001 SHT. NO. 8 OF 22 Rev. 04

TYPE F22
(6.6KV GENERATOR INCOMING FEEDER)



GENERAL NOTES


ABBREVIATIONS & LEGEND

REFERENCE DRAWINGS

DESCRIPTION	DWG. No.
Overall Single Line Diagram (Basic)	LRSL-R1X-EL-SD-001
Electrical Design Criteria	LRSL-000-EL-DB-603
Architectural Block Diagram for PMS	LRSL-R1X-EL-BD-001
I/O List for PMS	LRSL-R1X-EL-LI-003
Specification for MV Switchgear	LRSL-000-EL-SP-613
Specification for Gas Generator	LRSL-000-EL-SP-619
Specification for PMS	LRSL-000-EL-SP-622
ATS LOGIC BLOCK DIAGRAM	LRSL-000-EL-LD-001

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00	23-Feb-21	Issued for Comment	IOEC	-	S.Safari	A.Samadi	M.Aghaei	-

CLIENT:  **Iranian Offshore Oil Company**
I.O.O.C.

CONTRACTOR:  **IOEC**  **INTELLIGENT SOLUTIONS INC.** SUB-CONTRACTOR:  **TR Consulting Engineers**

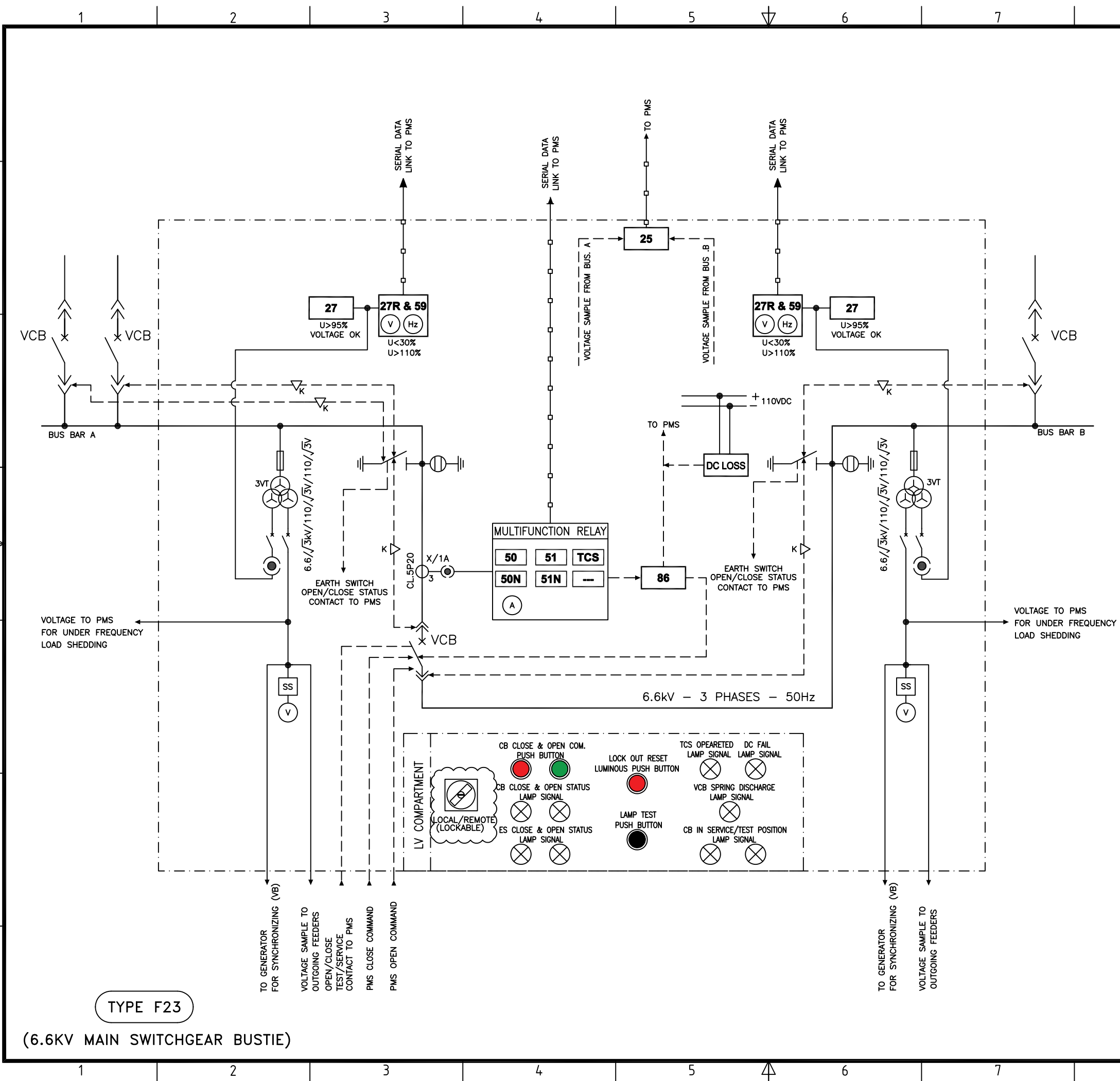
Project No: 2-98-5365 Doc. Class: 2 Size: A3 Scale: N.T.S.
Project Name : Resalat Oil Field Development - Phase 1 (EPC-EPD)

TITLE : **Schematic diagram for MV Switchgear**

DRAWING No. LRSL-R1X-EL-SM-001 SHT. NO. 9 OF 22 Rev. 04

TYPE F22

(6.6KV GENERATOR INCOMING FEEDER)



GENERAL NOTES


ABBREVIATIONS & LEGEND

REFERENCE DRAWINGS

DESCRIPTION	DWG. No.
Overall Single Line Diagram (Basic)	LRSL-R1X-EL-SD-001
Electrical Design Criteria	LRSL-000-EL-DB-603
Architectural Block Diagram for PMS	LRSL-R1X-EL-BD-001
I/O List for PMS	LRSL-R1X-EL-LI-003
Specification for MV Switchgear	LRSL-000-EL-SP-613
Specification for Gas Generator	LRSL-000-EL-SP-619
Specification for PMS	LRSL-000-EL-SP-622
ATS LOGIC BLOCK DIAGRAM	LRSL-000-EL-LD-001

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CLIENT:
 **Iranian Offshore Oil Company**
 I.O.O.C.

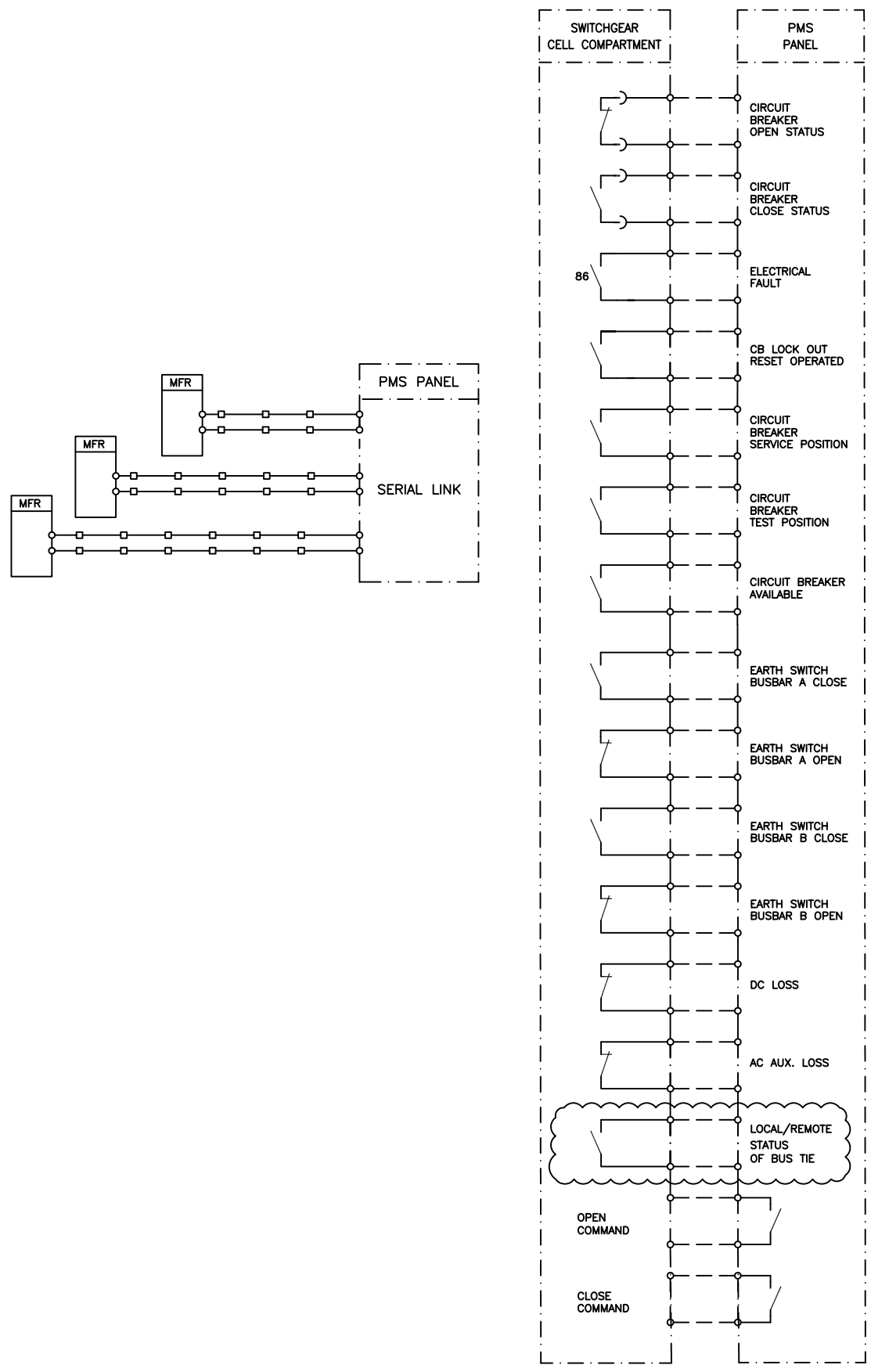
CONTRACTOR:
 **IOEC**

SUB-CONTRACTOR:
 **INTELLIGENT SOLUTIONS INC.**
 **TR Consulting Engineers**

Project No: 2-98-5365 Doc. Class: 2 Size: A3 Scale: N.T.S.
 Project Name : Resalat Oil Field Development - Phase 1 (EPC-EPD)

TITLE :
Schematic diagram for MV Switchgear

DRAWING No.	LRSL-R1X-EL-SM-001	SHT. NO.	10 OF 22	Rev.	04
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GENERAL NOTES

ABBREVIATIONS & LEGEND

REFERENCE DRAWINGS

DESCRIPTION	DWG. No.
Overall Single Line Diagram (Basic)	LRSL-R1X-EL-SD-001
Electrical Design Criteria	LRSL-000-EL-DB-603
Architectural Block Diagram for PMS	LRSL-R1X-EL-BD-001
I/O List for PMS	LRSL-R1X-EL-LI-003
Specification for MV Switchgear	LRSL-000-EL-SP-613
Specification for Gas Generator	LRSL-000-EL-SP-619
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ATS LOGIC BLOCK DIAGRAM	LRSL-000-EL-LD-001

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CLIENT: Iranian Offshore Oil Company
I.O.O.C.

CONTRACTOR: IOEC
SUB-CONTRACTOR: INTELLIGENT SOLUTIONS INC. Consulting Engineers

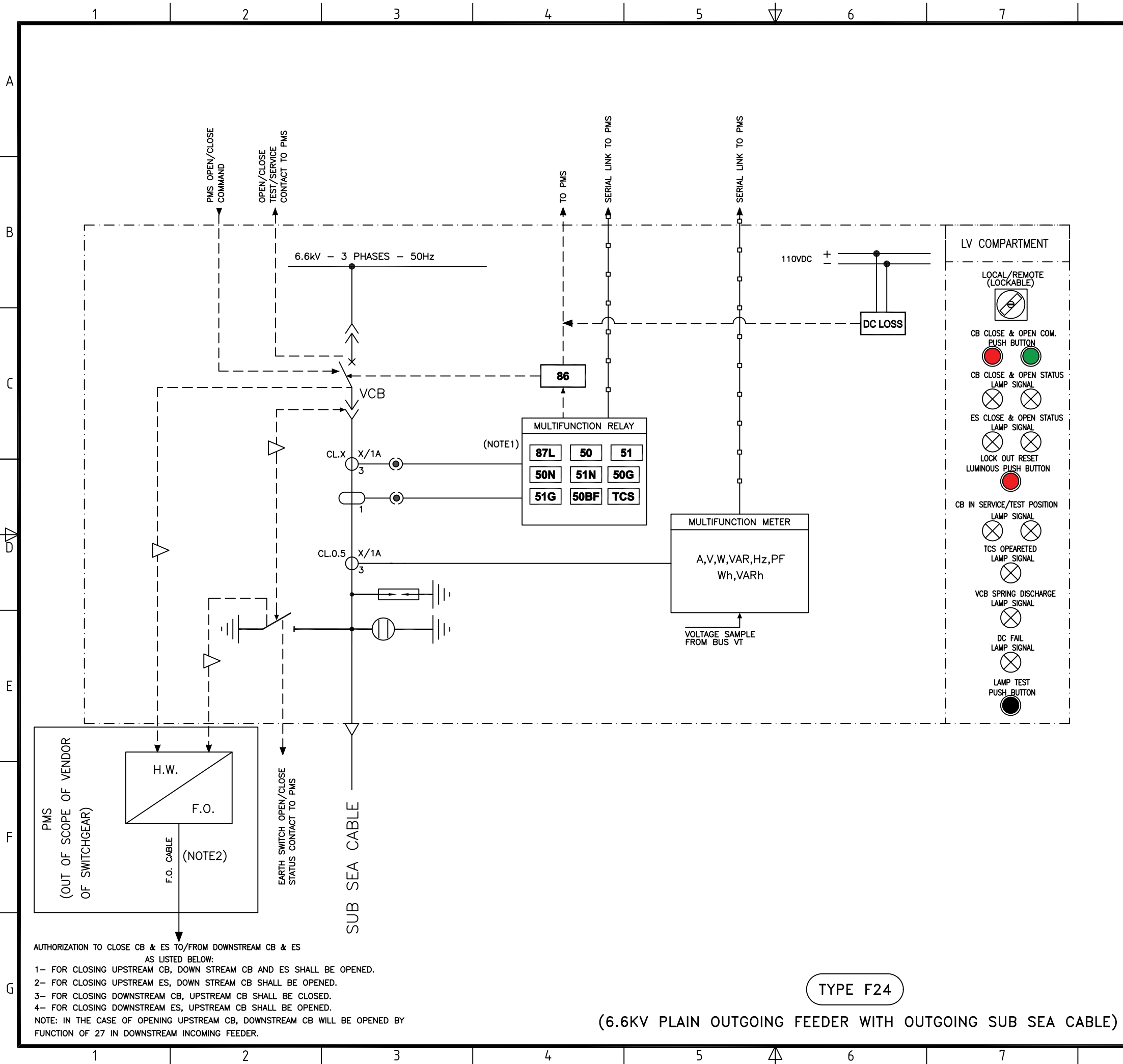
Project No: 2-98-5365 Doc. Class: 2 Size: A3 Scale: N.T.S.
Project Name : Resalat Oil Field Development - Phase 1 (EPC-EPD)

TITLE : Schematic diagram for MV Switchgear

DRAWING No. LRSL-R1X-EL-SM-001 SHT. NO. 11 OF 22 Rev. 04

TYPE F23

(6.6KV MAIN SWITCHGEAR BUSTIE)

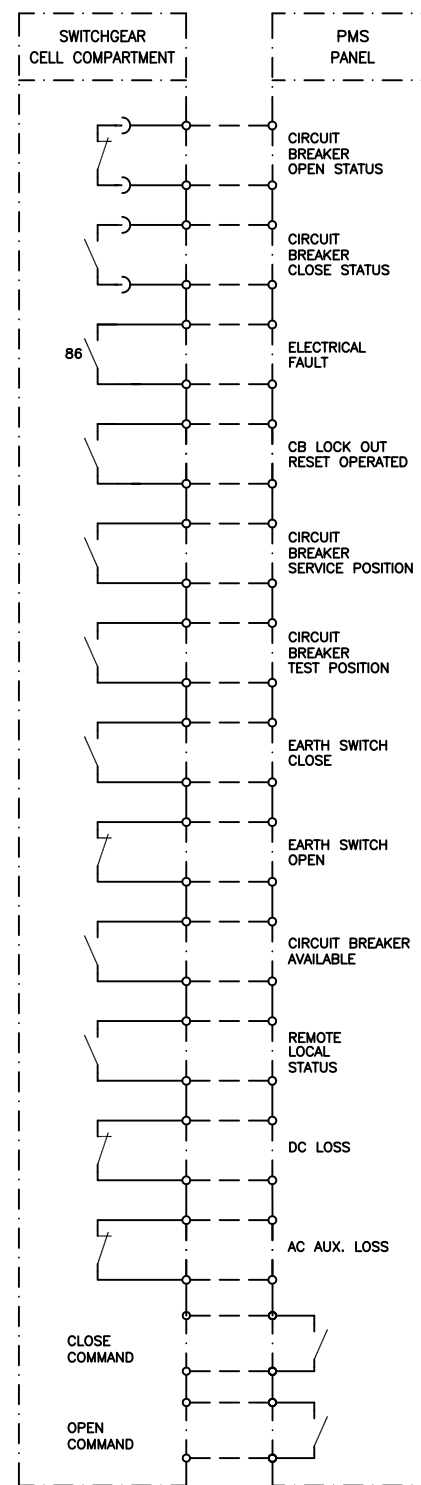
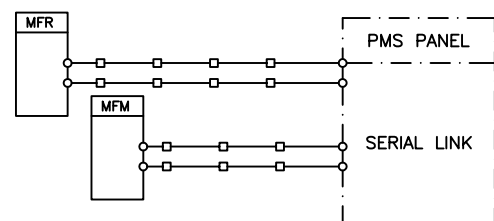
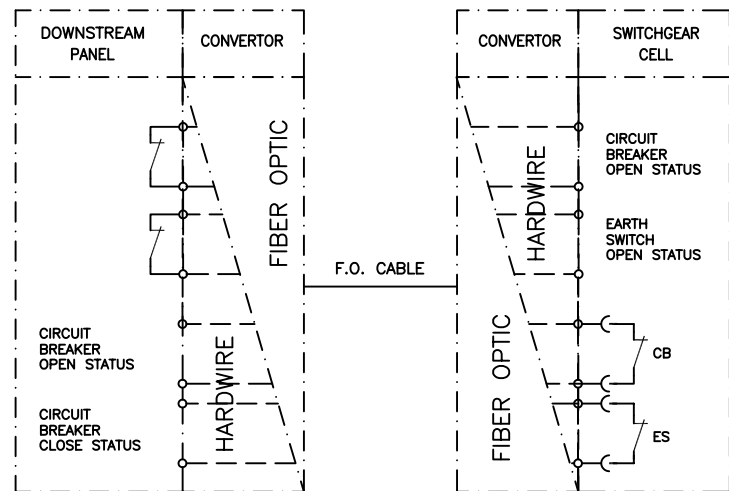


GENERAL NOTES																																																																					
1- LONGITUDE DIFFERENTIAL PROTECTION WILL BE USED FOR SUB SEA CABLES.																																																																					
2- FOR CB & ES CLOSING INTERLOCK BETWEEN UPSTREAM AND DOWNSTREAM SWITCHGEAR, A FIBER OPTIC LINK SHOULD BE UTILIZED. HARDWIRE CABLE FOR INTERLOCKING CAN NOT BE USED FOR SUB SEA CABLE. IN THIS REGARDS, CONVERTOR AND REMOTE TERMINAL UNIT OF PMS SYSTEM WILL BE USED TO CONVERT HARDWIRE SIGNALS TO FIBER AND VICE VERSA.																																																																					
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<p>CLIENT: Iranian Offshore Oil Company I.O.O.C.</p> <p>CONTRACTOR: IOEC</p> <p>INTelligent SOLUTIONS INC. </p> <p>SUB-CONTRACTOR: TR Consulting Engineers</p>																																																																					
Project No: 2-98-5365			Doc. Class: 2		Size: A3		Scale: N.T.S.																																																														
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DRAWING No.		LRSL-R1X-EL-SM-001			SHT. NO. 12 OF 22		Rev. 04																																																														

AUTHORIZATION TO CLOSE CB & ES TO/FROM DOWNSTREAM CB & ES AS LISTED BELOW:

- 1- FOR CLOSING UPSTREAM CB, DOWN STREAM CB AND ES SHALL BE OPENED.
- 2- FOR CLOSING UPSTREAM ES, DOWN STREAM CB SHALL BE OPENED.
- 3- FOR CLOSING DOWNSTREAM CB, UPSTREAM CB SHALL BE CLOSED.
- 4- FOR CLOSING DOWNSTREAM ES, UPSTREAM CB SHALL BE OPENED.

NOTE: IN THE CASE OF OPENING UPSTREAM CB, DOWNSTREAM CB WILL BE OPENED BY FUNCTION OF 27 IN DOWNSTREAM INCOMING FEEDER.



TYPE F24

(6.6KV PLAIN OUTGOING FEEDER WITH OUTGOING SUB SEA CABLE)

GENERAL NOTES


ABBREVIATIONS & LEGEND

REFERENCE DRAWINGS

DESCRIPTION	DWG. No.
Overall Single Line Diagram (Basic)	LRSL-R1X-EL-SD-001
Electrical Design Criteria	LRSL-000-EL-DB-603
Architectural Block Diagram for PMS	LRSL-R1X-EL-BD-001
I/O List for PMS	LRSL-R1X-EL-LI-003
Specification for MV Switchgear	LRSL-000-EL-SP-613
Specification for Gas Generator	LRSL-000-EL-SP-619
Specification for PMS	LRSL-000-EL-SP-622
ATS LOGIC BLOCK DIAGRAM	LRSL-000-EL-LD-001

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CLIENT:
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 I.O.O.C.

CONTRACTOR:
 **IOEC**

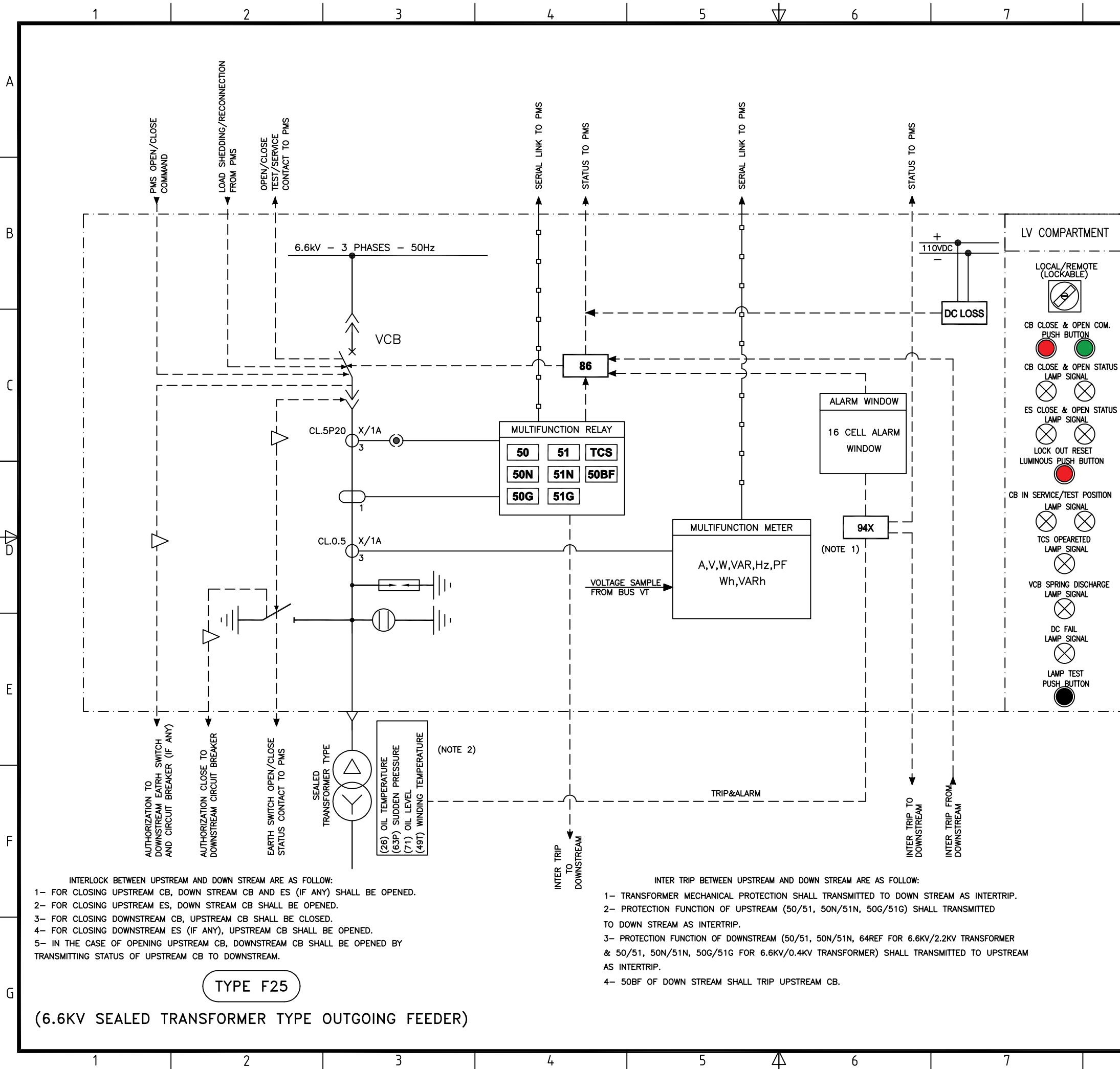
SUB-CONTRACTOR:
 **INTELLIGENT SOLUTIONS INC.**
 **TR Consulting Engineers**

Project No: 2-98-5365 Doc. Class: 2 Size: A3 Scale: N.T.S.

Project Name : Resalat Oil Field Development - Phase 1 (EPC-EPD)

TITLE :
Schematic diagram for MV Switchgear

DRAWING No. LRSL-R1X-EL-SM-001 SHT. NO. 13 OF 22 Rev. 04



GENERAL NOTES

- 1- HIGH SPEED AND HEAVY DUTY AUX. RELAYS (94X) SHOULD BE USED FOR REPEATING OF MECHANICAL PROTECTION OF TRANSFORMER (SUCH AS: WINDING TEMPERATURE, OIL LEVEL, SUDDEN PRESSURE AND ...).
- 2- DGPT 2 SHALL BE USED FOR MECHANICAL PROTECTION OF TRANSFORMERS.

ABBREVIATIONS & LEGEND



REFERENCE DRAWINGS

DESCRIPTION	DWG. No.
Overall Single Line Diagram (Basic)	LRSL-R1X-EL-SD-001
Electrical Design Criteria	LRSL-000-EL-DB-603
Architectural Block Diagram for PMS	LRSL-R1X-EL-BD-001
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CONTRACTOR: IOEC
 SUB-CONTRACTOR: INTELLIGENT SOLUTIONS INC. TR Consulting Engineers

Project No: 2-98-5365 Doc. Class: 2 Size: A3 Scale: N.T.S.
 Project Name : Resalat Oil Field Development - Phase 1 (EPC-EPD)

TITLE : Schematic diagram for MV Switchgear

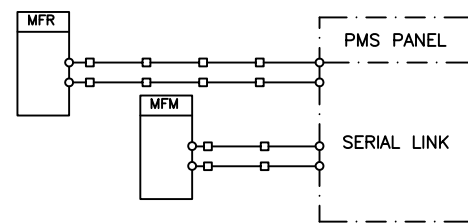
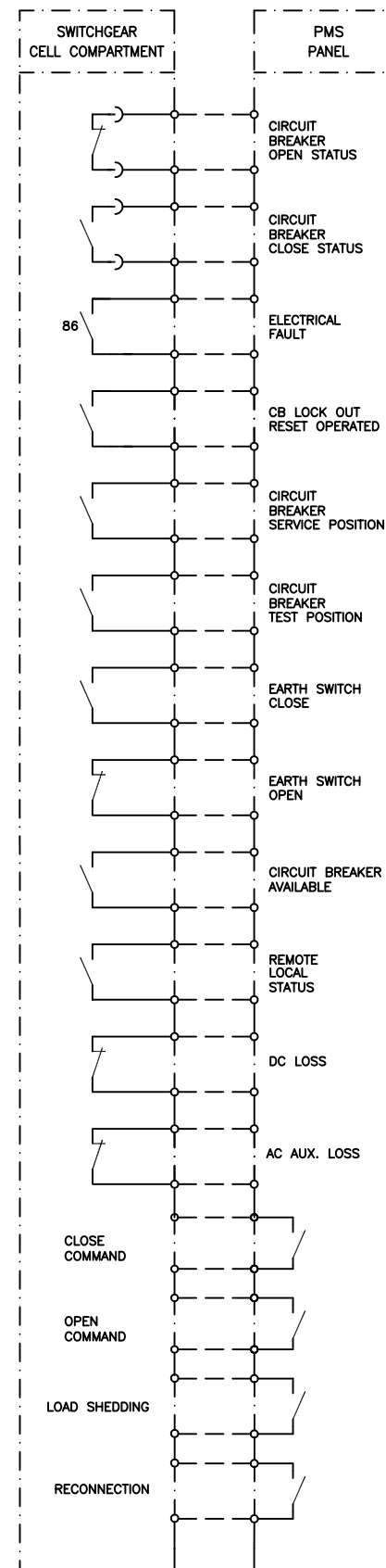
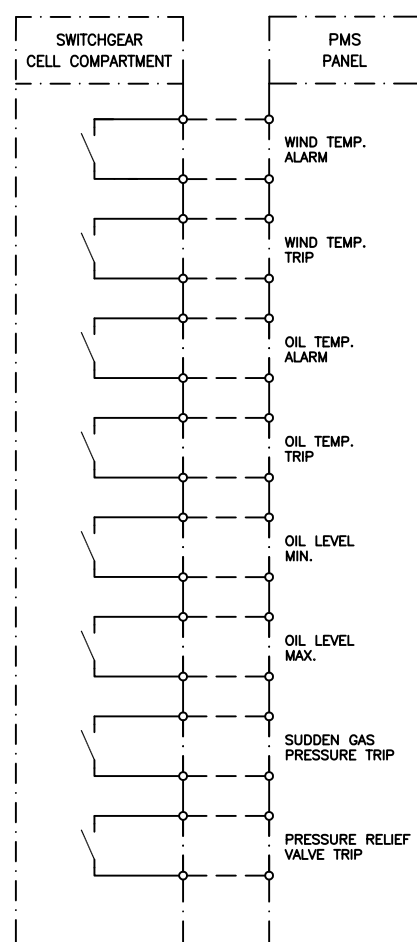
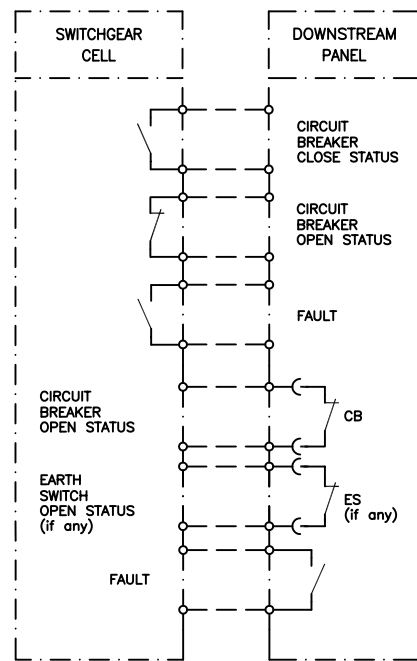
DRAWING No. LRSL-R1X-EL-SM-001 SHT. NO. 14 OF 22 Rev. 04

- INTERLOCK BETWEEN UPSTREAM AND DOWN STREAM ARE AS FOLLOW:
- 1- FOR CLOSING UPSTREAM CB, DOWN STREAM CB AND ES (IF ANY) SHALL BE OPENED.
 - 2- FOR CLOSING UPSTREAM ES, DOWN STREAM CB SHALL BE OPENED.
 - 3- FOR CLOSING DOWNSTREAM CB, UPSTREAM CB SHALL BE CLOSED.
 - 4- FOR CLOSING DOWNSTREAM ES (IF ANY), UPSTREAM CB SHALL BE OPENED.
 - 5- IN THE CASE OF OPENING UPSTREAM CB, DOWNSTREAM CB SHALL BE OPENED BY TRANSMITTING STATUS OF UPSTREAM CB TO DOWNSTREAM.

- INTER TRIP BETWEEN UPSTREAM AND DOWN STREAM ARE AS FOLLOW:
- 1- TRANSFORMER MECHANICAL PROTECTION SHALL TRANSMITTED TO DOWN STREAM AS INTERTRIP.
 - 2- PROTECTION FUNCTION OF UPSTREAM (50/51, 50N/51N, 50G/51G) SHALL TRANSMITTED TO DOWN STREAM AS INTERTRIP.
 - 3- PROTECTION FUNCTION OF DOWNSTREAM (50/51, 50N/51N, 64REF FOR 6.6KV/2.2KV TRANSFORMER & 50/51, 50N/51N, 50G/51G FOR 6.6KV/0.4KV TRANSFORMER) SHALL TRANSMITTED TO UPSTREAM AS INTERTRIP.
 - 4- 50BF OF DOWN STREAM SHALL TRIP UPSTREAM CB.

TYPE F25

(6.6KV SEALED TRANSFORMER TYPE OUTGOING FEEDER)



TYPE F25

(6.6KV SEALED TRANSFORMER TYPE OUTGOING FEEDER)

GENERAL NOTES


ABBREVIATIONS & LEGEND

REFERENCE DRAWINGS

DESCRIPTION	DWG. No.
Overall Single Line Diagram (Basic)	LRSL-R1X-EL-SD-001
Electrical Design Criteria	LRSL-000-EL-DB-603
Architectural Block Diagram for PMS	LRSL-R1X-EL-BD-001
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ATS LOGIC BLOCK DIAGRAM	LRSL-000-EL-LD-001

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CLIENT:
 **Iranian Offshore Oil Company**
 I.O.O.C.

CONTRACTOR:
 **IOEC**
 **INTELLIGENT SOLUTIONS INC.**
 SUB-CONTRACTOR:
 **TR Consulting Engineers**

Project No: 2-98-5365 Doc. Class: 2 Size: A3 Scale: N.T.S.
 Project Name : Resalat Oil Field Development - Phase 1 (EPC-EPD)

TITLE :
Schematic diagram for MV Switchgear

DRAWING No. LRSL-R1X-EL-SM-001 SHT. NO. 15 OF 22 Rev. 04

2.2KV SYSTEMS

GENERAL NOTES

ABBREVIATIONS & LEGEND


REFERENCE DRAWINGS

DESCRIPTION	DWG. No.
Overall Single Line Diagram (Basic)	LRSL-R1X-EL-SD-001
Electrical Design Criteria	LRSL-000-EL-DB-603
Architectural Block Diagram for PMS	LRSL-R1X-EL-BD-001
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02	13-Jun-21	Issued for Approval	IOEC	-	S.Safari	A.Samadi	M.Aghaei	-
01	28-Mar-21	Issued for Approval	IOEC	-	S.Safari	A.Samadi	M.Aghaei	-
00	23-Feb-21	Issued for Comment	IOEC	-	S.Safari	A.Samadi	M.Aghaei	-

CLIENT:



Iranian Offshore Oil Company
I.O.O.C.

CONTRACTOR:




IOEC INTELLIGENT SOLUTIONS INC.

SUB-CONTRACTOR:



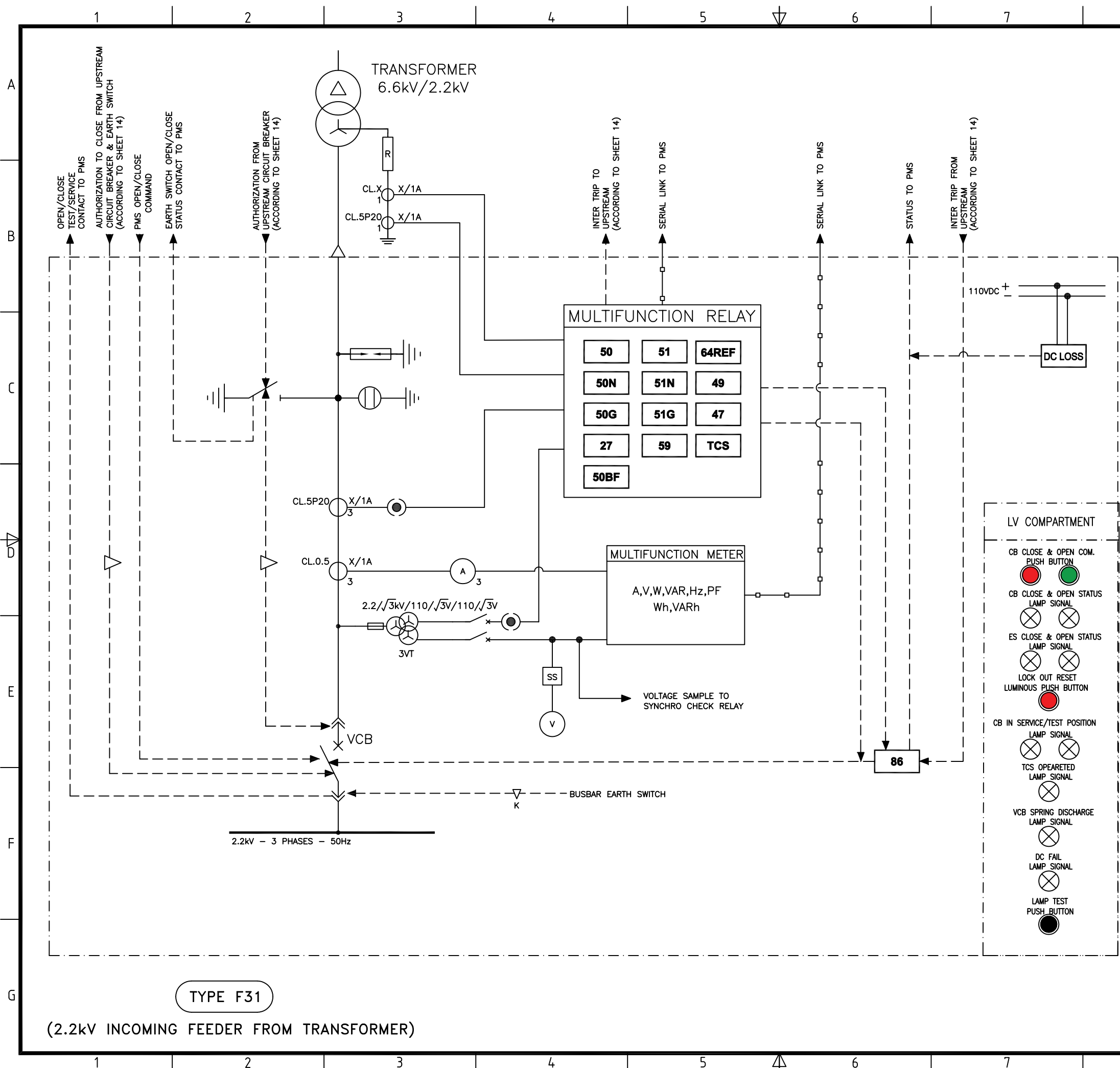
TR
Consulting Engineers

Project No: 2-98-5365 Doc. Class: 2 Size: A3 Scale: N.T.S.

Project Name : Resalat Oil Field Development - Phase 1 (EPC-EPD)

TITLE :
Schematic diagram for MV Switchgear

DRAWING No. LRSL-R1X-EL-SM-001 SHT. NO. 16 OF 22 Rev. 04



TYPE F31

(2.2kV INCOMING FEEDER FROM TRANSFORMER)

GENERAL NOTES

ABBREVIATIONS & LEGEND

REFERENCE DRAWINGS

DESCRIPTION	DWG. No.
Overall Single Line Diagram (Basic)	LRSL-R1X-EL-SD-001
Electrical Design Criteria	LRSL-000-EL-DB-603
Architectural Block Diagram for PMS	LRSL-R1X-EL-BD-001
I/O List for PMS	LRSL-R1X-EL-LI-003
Specification for MV Switchgear	LRSL-000-EL-SP-613
Specification for Gas Generator	LRSL-000-EL-SP-619
Specification for PMS	LRSL-000-EL-SP-622
ATS LOGIC BLOCK DIAGRAM	LRSL-000-EL-LD-001

KEY PLAN

Rev	Date	PURPOSE OF ISSUE	Orig	By	Prep'd	Check'd	App'd	Company App'd
04	01-Aug-21	Approved for Construction	IOEC	-	S.Safari	A.Samadi	M.Aghaei	-
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00	23-Feb-21	Issued for Comment	IOEC	-	S.Safari	A.Samadi	M.Aghaei	-

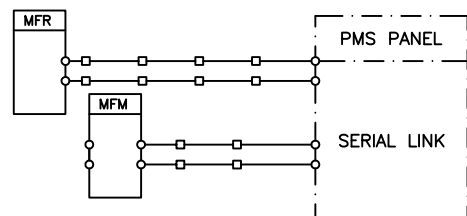
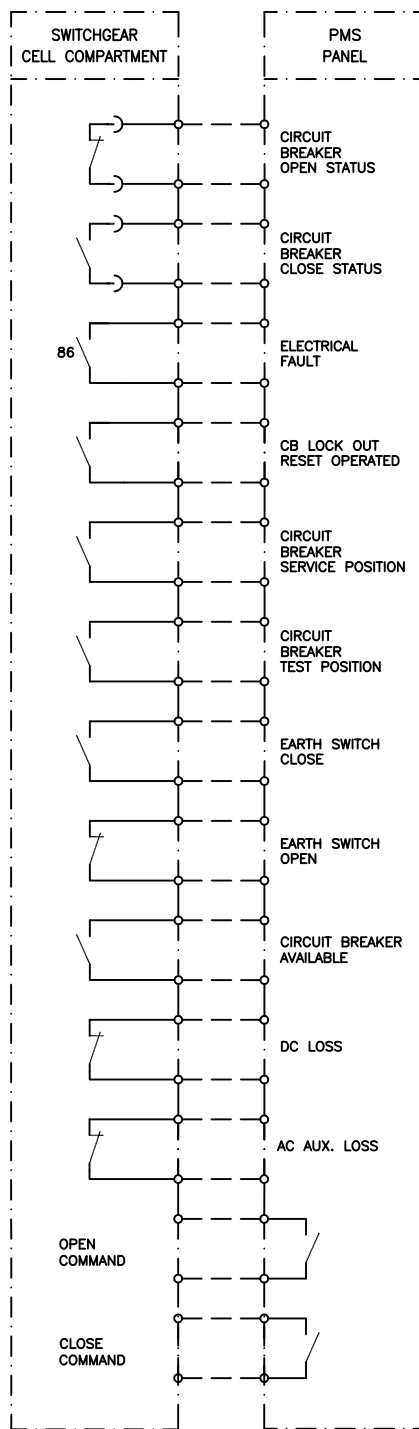
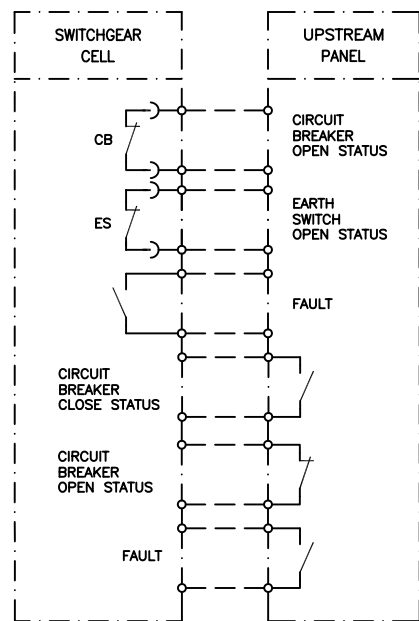
CLIENT: Iranian Offshore Oil Company I.O.O.C.

CONTRACTOR: IOEC
 SUB-CONTRACTOR: INTELLIGENT SOLUTIONS INC. TR Consulting Engineers

Project No: 2-98-5365 Doc. Class: 2 Size: A3 Scale: N.T.S.
 Project Name : Resalat Oil Field Development - Phase 1 (EPC-EPD)

TITLE : Schematic diagram for MV Switchgear

DRAWING No. LRSL-R1X-EL-SM-001 SHT. NO. 17 OF 22 Rev. 04



TYPE F31

(2.2kV INCOMING FEEDER FROM TRANSFORMER)

GENERAL NOTES

ABBREVIATIONS & LEGEND

REFERENCE DRAWINGS

DESCRIPTION	DWG. No.
Overall Single Line Diagram (Basic)	LRSL-R1X-EL-SD-001
Electrical Design Criteria	LRSL-000-EL-DB-603
Architectural Block Diagram for PMS	LRSL-R1X-EL-BD-001
I/O List for PMS	LRSL-R1X-EL-LI-003
Specification for MV Switchgear	LRSL-000-EL-SP-613
Specification for Gas Generator	LRSL-000-EL-SP-619
Specification for PMS	LRSL-000-EL-SP-622
ATS LOGIC BLOCK DIAGRAM	LRSL-000-EL-LD-001

KEY PLAN

Rev	Date	PURPOSE OF ISSUE	Orig	By	Prep'd	Check'd	App'd	Company App'd
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00	23-Feb-21	Issued for Comment	IOEC	-	S.Safari	A.Samadi	M.Aghaei	-

CLIENT:  Iranian Offshore Oil Company
I.O.O.C.

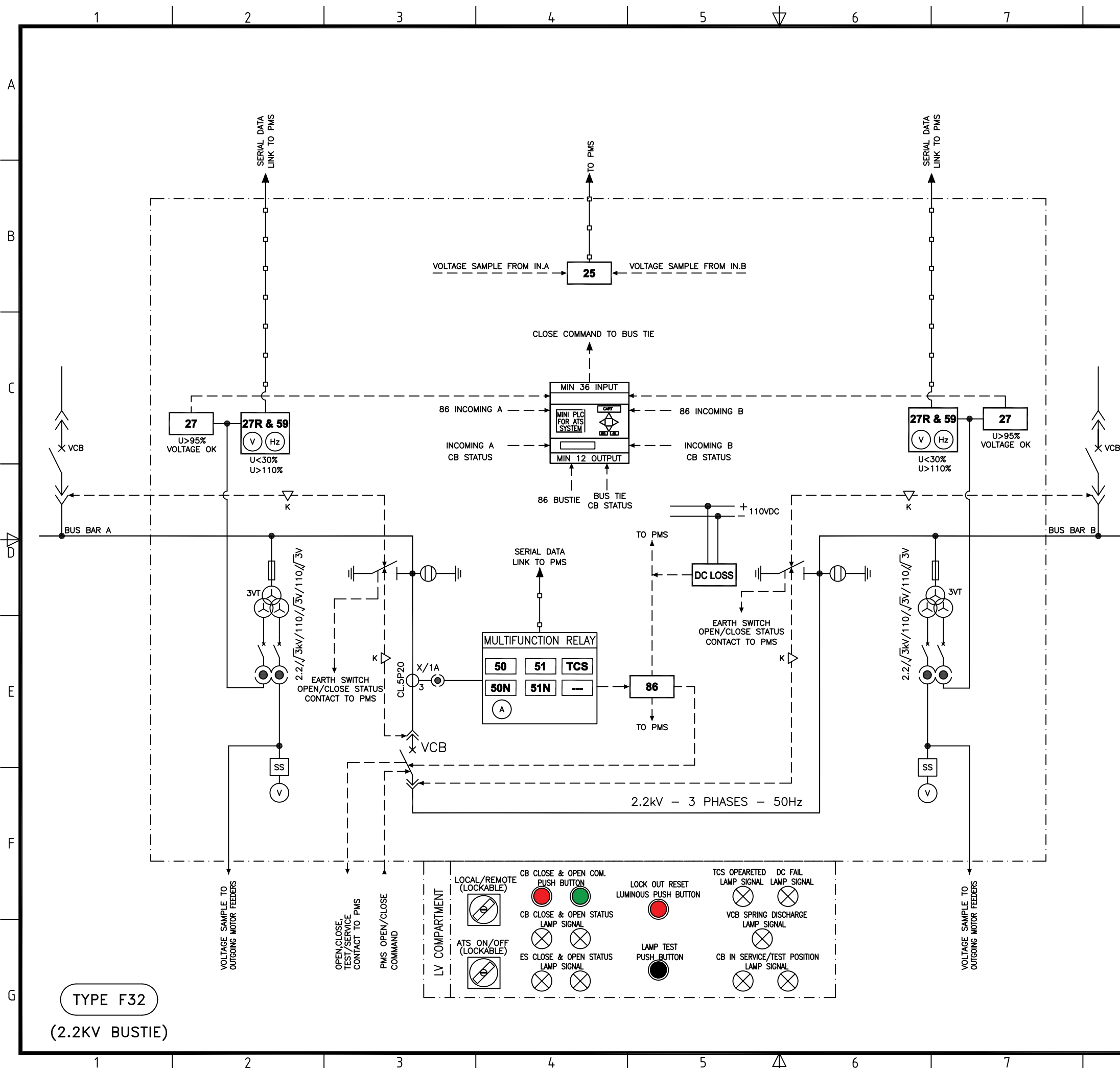
CONTRACTOR:  IOEC  INTELLIGENT SOLUTIONS INC. SUB-CONTRACTOR:  TR Consulting Engineers

Project No: 2-98-5365 Doc. Class: 2 Size: A3 Scale: N.T.S.

Project Name : Resalat Oil Field Development - Phase 1 (EPC-EPD)

TITLE : Schematic diagram for MV Switchgear

DRAWING No. LRSL-R1X-EL-SM-001 SHT. NO. 18 OF 22 Rev. 04



TYPE F32
(2.2KV BUSTIE)

GENERAL NOTES

ABBREVIATIONS & LEGEND

REFERENCE DRAWINGS

DESCRIPTION	DWG. No.
Overall Single Line Diagram (Basic)	LRSL-R1X-EL-SD-001
Electrical Design Criteria	LRSL-000-EL-DB-603
Architectural Block Diagram for PMS	LRSL-R1X-EL-BD-001
I/O List for PMS	LRSL-R1X-EL-LI-003
Specification for MV Switchgear	LRSL-000-EL-SP-613
Specification for Gas Generator	LRSL-000-EL-SP-619
Specification for PMS	LRSL-000-EL-SP-622
ATS LOGIC BLOCK DIAGRAM	LRSL-000-EL-LD-001

KEY PLAN

Rev	Date	PURPOSE OF ISSUE	Orig	By	Prep'd	Check'd	App'd	Company App'd
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00	23-Feb-21	Issued for Comment	IOEC	S.Safari	A.Samadi	M.Aghaei		

CLIENT: Iranian Offshore Oil Company I.O.O.C.

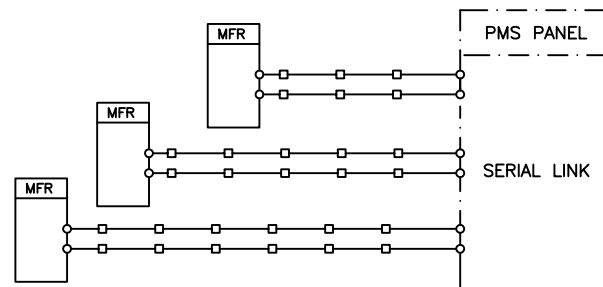
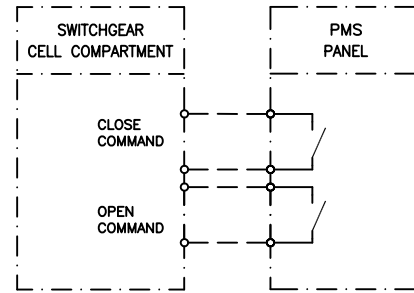
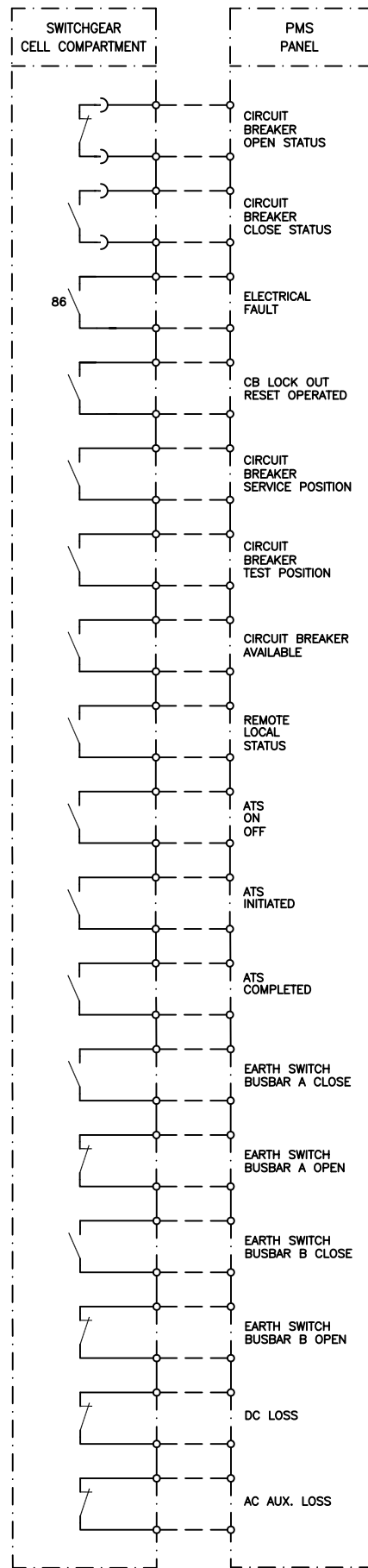
CONTRACTOR: IOEC

INTelligent SOLUTIONS INC.

SUB-CONTRACTOR: TR Consulting Engineers

Project No: 2-98-5365 Doc. Class: 2 Size: A3 Scale: N.T.S.
 Project Name : Resalat Oil Field Development - Phase 1 (EPC-EPD)
 TITLE : Schematic diagram for MV Switchgear

DRAWING No.	LRSL-R1X-EL-SM-001	SHT. NO.	19 OF 22	Rev.	04
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TYPE F32
(2.2KV BUSTIE)

GENERAL NOTES


ABBREVIATIONS & LEGEND

REFERENCE DRAWINGS

DESCRIPTION	DWG. No.
Overall Single Line Diagram (Basic)	LRSL-R1X-EL-SD-001
Electrical Design Criteria	LRSL-000-EL-DB-603
Architectural Block Diagram for PMS	LRSL-R1X-EL-BD-001
I/O List for PMS	LRSL-R1X-EL-LI-003
Specification for MV Switchgear	LRSL-000-EL-SP-613
Specification for Gas Generator	LRSL-000-EL-SP-619
Specification for PMS	LRSL-000-EL-SP-622
ATS LOGIC BLOCK DIAGRAM	LRSL-000-EL-LD-001

KEY PLAN

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CLIENT:
 **Iranian Offshore Oil Company**
 I.O.O.C.

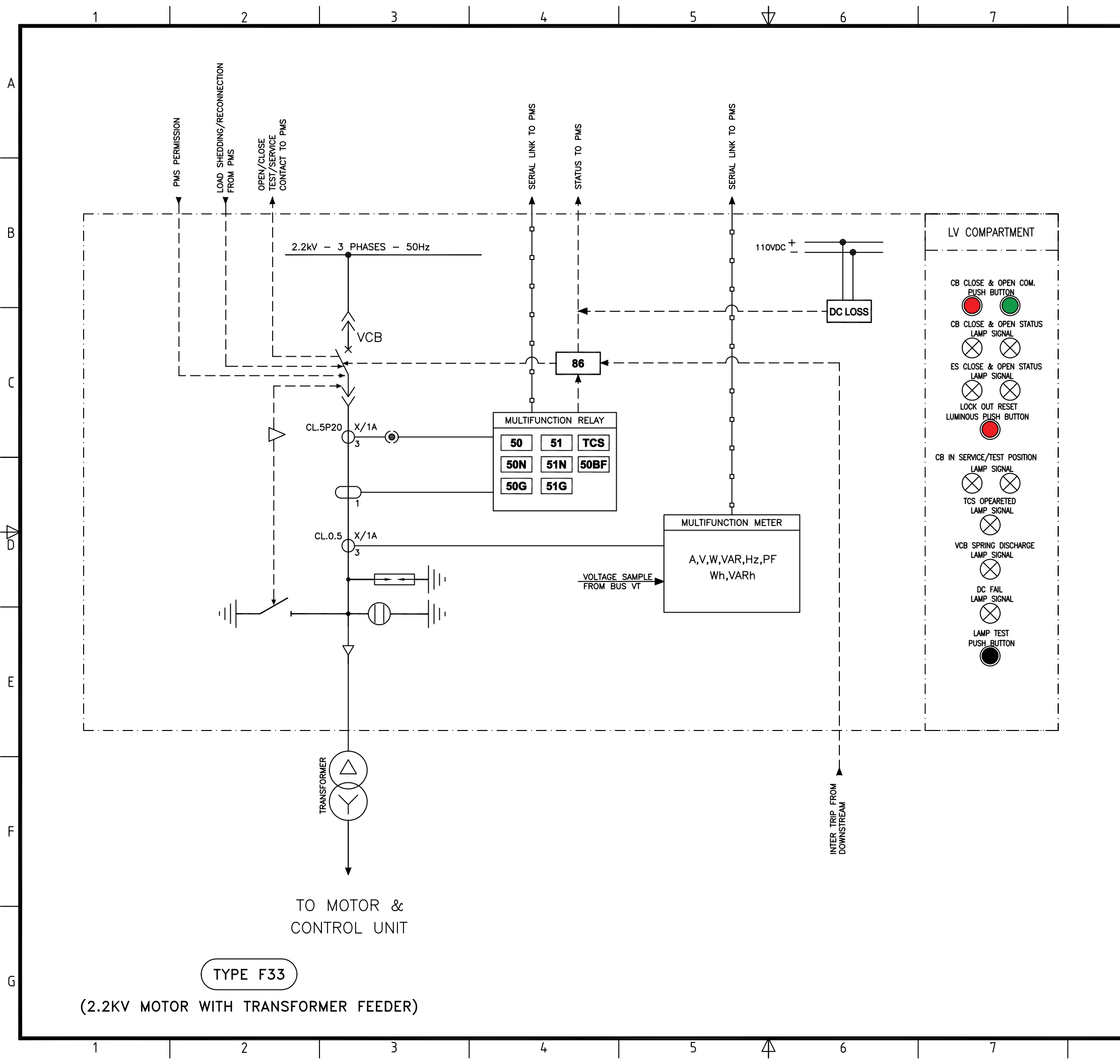
CONTRACTOR:
 **IOEC**

SUB-CONTRACTOR:
 **INTELLIGENT SOLUTIONS INC.**
 **TR Consulting Engineers**

Project No: 2-98-5365 Doc. Class: 2 Size: A3 Scale: N.T.S.
 Project Name : Resalat Oil Field Development - Phase 1 (EPC-EPD)

TITLE :
Schematic diagram for MV Switchgear

DRAWING No. LRSL-R1X-EL-SM-001 SHT. NO. 20 OF 22 Rev. 04



TYPE F33

(2.2KV MOTOR WITH TRANSFORMER FEEDER)

GENERAL NOTES

1- HIGH SPEED AND HEAVY DUTY AUX. RELAYS (94X) SHOULD BE USED FOR REPEATING OF MECHANICAL PROTECTION OF TRANSFORMER (SUCH AS: WINDING TEMPERATURE, OIL LEVEL, SUDDEN PRESSURE AND ...). BESIDES, AUX. RELAYS WITH FLAG (94Y) SHOULD BE USED FOR TRANSFORMER MECHANICAL PROTECTION INDICATION ON PANEL FRONT VIEW.

ABBREVIATIONS & LEGEND

REFERENCE DRAWINGS

DESCRIPTION	DWG. No.
Overall Single Line Diagram (Basic)	LRSL-R1X-EL-SD-001
Electrical Design Criteria	LRSL-000-EL-DB-603
Architectural Block Diagram for PMS	LRSL-R1X-EL-BD-001
I/O List for PMS	LRSL-R1X-EL-LI-003
Specification for MV Switchgear	LRSL-000-EL-SP-613
Specification for Gas Generator	LRSL-000-EL-SP-619
Specification for PMS	LRSL-000-EL-SP-622
ATS LOGIC BLOCK DIAGRAM	LRSL-000-EL-LD-001

KEY PLAN

Rev	Date	PURPOSE OF ISSUE	Orig	By	Prep'd	Check'd	App'd	Company App'd
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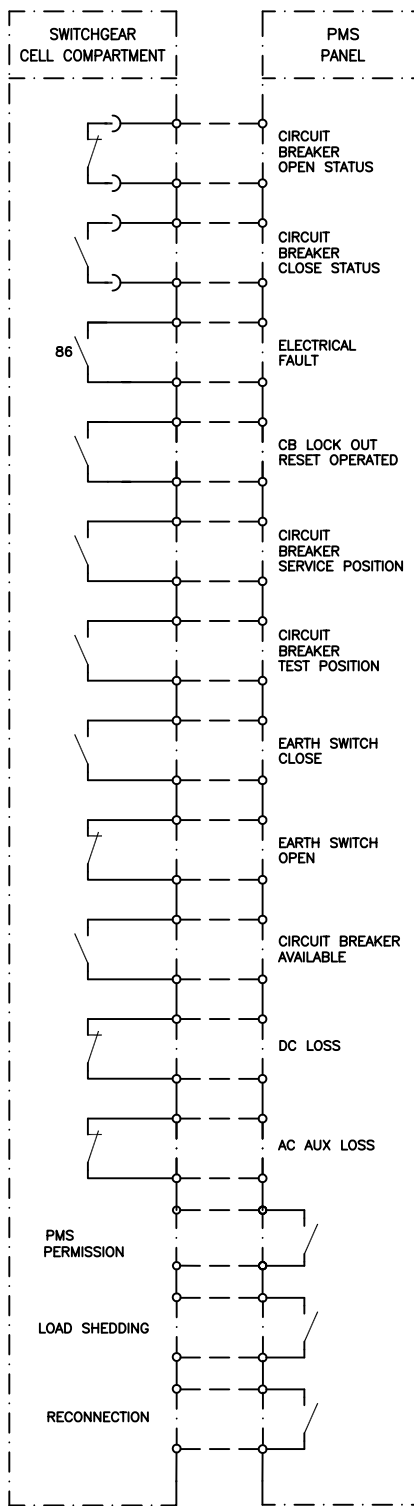
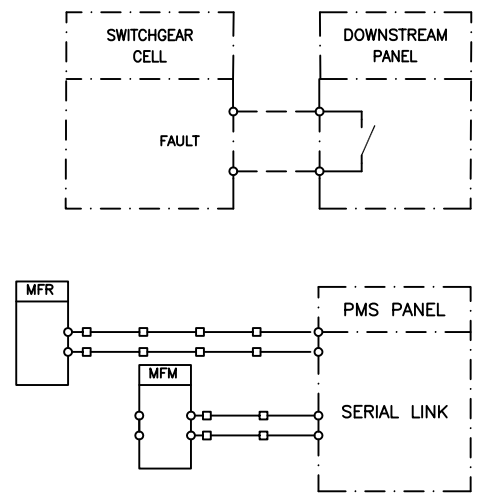
CLIENT: Iranian Offshore Oil Company I.O.O.C.

CONTRACTOR: IOEC
 SUB-CONTRACTOR: INTELLIGENT SOLUTIONS INC. TR Consulting Engineers

Project No: 2-98-5365 Doc. Class: 2 Size: A3 Scale: N.T.S.
 Project Name : Resalat Oil Field Development - Phase 1 (EPC-EPD)

TITLE : Schematic diagram for MV Switchgear

DRAWING No.	LRSL-R1X-EL-SM-001	SHT. NO.	21 OF 22	Rev.	04
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TYPE F33
(2.2KV MOTOR WITH TRANSFORMER FEEDER)

GENERAL NOTES

ABBREVIATIONS & LEGEND

REFERENCE DRAWINGS

DESCRIPTION	DWG. No.
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CLIENT: Iranian Offshore Oil Company I.O.O.C.

CONTRACTOR: IOEC INTELLIGENT SOLUTIONS INC. SUB-CONTRACTOR: TR Consulting Engineers

Project No: 2-98-5365 Doc. Class: 2 Size: A3 Scale: N.T.S.
Project Name : Resalat Oil Field Development - Phase 1 (EPC-EPD)

TITLE :
Schematic diagram for MV Switchgear

DRAWING No. LRSL-R1X-EL-SM-001 SHT. NO. 22 OF 22 Rev. 04