

I/O List for F&G System for Bibi Hakimeh Production Unit No.2

AFC

APPROVED FOR CONSTRUCTION

THIS SNAP IS NOT VALID WITHOUT SIGNATURE

Date: 2024/09/10    Name & sign: M.Setayesh  
NISOC Ref. Letter: 02/2294/269589

NO CONSTRUCTION PERMITTED UNLESS DRAWING APPROVED

F Number : 709750

Rev.	Status	Date	Document Status	Prepared by:	Checked by:	Approved by:	Client Approval
D00	IFI	05-Nov-2022	Issued For Information	S.Tabesh	B.Shamsedini	A.Samadi	
D01	IFI	26-Aug-2023	Issued For Information	H.Shahebrahimi	B.Shamsedini	A.Samadi	
D02	IFA	29-July-2024	Issued for Approval	S. Astan	B. Yadegari	M. Setayesh	
D03	AFC	07-Sep-2024	Approved for Construction	S. Astan	B. Yadegari	M. Setayesh	

Class: I

Status:  
IDC: Inter-Discipline Check  
IFC: Issued For Comment  
IFA: Issued For Approval  
IFR: Issued for Rivew  
AFD: Approved For Design  
AFC: Approved For Construction  
AFP: Approved For Purchase  
IFI: Issued For Information  
AB-R: As-Built for COMPANY Review  
AB-A: As-Built –Approved





NISOC

## Development Plan of 28 Reservoirs / BIBI HAKIMEH Oilfield (EPC)

ماشین سازی اراک  
MACHINE SAZI ARAK

ENGINEERING AND WELL SERVICES



شرکت مهندسی دریایالا

Contract No.:

053-073-9189

Project

Package

Contractor

Fac.

Disc.

Doc. Type

Ser. No.

Rev.

BH

17

SM

100

IN

LI

0720

D03

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### General Notes:

1- All Interface signals between ESD/F&G system will be considered after issue of F&G cause & Effect.

2- signal of Cause& Effect will be added after issue of F&G Cause & Effect

### LEGEND:

<b>Location:</b>	<b>L</b>	: Local	<b>I/O Type:</b>	<b>AI</b>	: Analog Input
	<b>LP</b>	: Local Panel		<b>AO</b>	: Analog Output
	<b>ITR</b>	: Instrument Technical Room		<b>DI</b>	: Digital Input
	<b>CCR</b>	: Central Control Room		<b>DO</b>	: Digital Output
	<b>MCC</b>	: Motor Control Center		<b>DOR</b>	: Digital Output Redundant
	<b>DCS</b>	: Distributed Control System		<b>AIR</b>	: Analog Input Redundant
	<b>ESD</b>	: Emergency Shutdown System		<b>AOR</b>	: Analog Output Redundant
	<b>UCP</b>	: Unit Control Panel		<b>DIR</b>	: Digital Input redundant
	<b>AUX</b>	: Auxiliary Console		<b>SDI</b>	: Serial Digital Input
	<b>IRP</b>	: Interposing Relay Panel		<b>SDO</b>	: Serial Digital Output
	<b>PLC</b>	: Programmable Logic Controller		<b>SAI</b>	: Serial Analog Input
	<b>RIO</b>	: Remote I/O DCS		<b>SAO</b>	: Serial Analog Output
	<b>MTU</b>	: Master Terminal Unit			
	<b>RTU</b>	: Remote Terminal Unit			
	<b>Common UCP</b>	: Common Unit Control Panel			
	<b>PCS</b>	: Process Control System			
	<b>FGS</b>	: Fire and Gas System			

**Signal Type:** 4-20mA (Loop Powered)

DC24V

### Reference Documents:

- Fire & Gas Detection Layout for Bibi Hakimeh Production UNIT No.2 (Building)	BH-17-SM-100-SA-PY-1020-D00
- Fire & Gas Detector Location Layout for Bibi Hakimeh Production Unit No.2(Process Area)	BH-17-SM-100-SA-PY-1022-D02
- Specification for Fire & Gas System	BH-17-SM-100-IN-SP-0059
-Specification for Fire & Gas Sensor and Devices	BH-17-SM-100-IN-SP-0054
-Control/ESD/F&G System Overall Block Diagram for PU2 & DU2	BH-17-SM-100-IN-BD-0706
-Fire & Gas Cause and Effect Diagram for Bibi Hakimeh Production Unit No.2	BH-17-SM-100-SA-DG-1024

ATIRIN RAD MEHR  
سهامی خاص  
شماره ثبت: ۴۱۴۵۵۰



Development Plan of 28 Reservoirs  
/ BIBI HAKIMEH Oilfield (EPC)



شرکت مهندسی دریایالا

I/O List for F&G System for Bibi Hakimeh Production Unit No.2

Contract No.:	Project	Package	Contractor	Fac.	Disc.	Doc. Type	Ser. No.	Rev.
053-073-9189	BH	17	SM	100	IN	LI	0720	D03

I/O List for FGS

FGS															
AI				AO				DI				DO			
Single		Redandunt		Single		Redandunt		Single		Redandunt		Single		Redandunt	
IS	NIS	IS	NIS	IS	NIS	IS	NIS	IS	NIS	IS	NIS	IS	NIS	IS	NIS
0	0	0	61	0	0	0	0	0	0	0	19	0	0	0	44



NISOC

Development Plan of 28 Reservoirs  
/ BIBI HAKIMEH Oilfield (EPC)





I/O List for F&O System for Bibi Hakimeh Production Unit No. 2



شرکت مهندسی بهشتی

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Contract No.:		Project	Package	Contractor	Fac.	Disc.	Doc. Type		Ser. No.	Rev.		Page 5 of 6									
053-073-9189		BH	I7	SM	100	IN	LI		0720	D02											
Item	Tag Number	Loop Number	Description	Service	Reference No.	U/O Type	Device Type	System	From	To	Signal Type	I5/NIS	Low Range	High Range	High High	High	Low	Low Low	Set Point	Eng. Units	Remark
1	PJ2-FGD-01-01	PJ2-FGD-01-01	GAS DETECTOR	GAS K.O. VESSEL	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
2	PJ2-FGD-01-02	PJ2-FGD-01-02	GAS DETECTOR	P-705A/B	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
3	PJ2-FGD-01-03	PJ2-FGD-01-03	GAS DETECTOR	PIPE RACK	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
4	PJ2-FGD-01-04	PJ2-FGD-01-04	GAS DETECTOR	PIPE RACK	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
5	PJ2-FGD-01-05	PJ2-FGD-01-05	GAS DETECTOR	3rd. TEST BANK	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
6	PJ2-FGD-01-06	PJ2-FGD-01-06	GAS DETECTOR	2nd. TEST BANK	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
7	PJ2-FGD-01-07	PJ2-FGD-01-07	GAS DETECTOR	2nd. TEST BANK	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
8	PJ2-FGD-01-08	PJ2-FGD-01-08	GAS DETECTOR	V-2020	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
9	PJ2-FGD-01-09	PJ2-FGD-01-09	GAS DETECTOR	V-2020	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
10	PJ2-FGD-01-10	PJ2-FGD-01-10	GAS DETECTOR	V-2010	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
11	PJ2-FGD-01-11	PJ2-FGD-01-11	GAS DETECTOR	V-2028	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
12	PJ2-FGD-01-12	PJ2-FGD-01-12	GAS DETECTOR	V-2028	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
13	PJ2-FD-01-22	PJ2-FD-01-22	UNIVIR FLAME DETECTOR	PIPE RACK	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
14	PJ2-FD-01-23	PJ2-FD-01-23	UNIVIR FLAME DETECTOR	PIPE RACK	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
15	PJ2-FD-01-24	PJ2-FD-01-24	UNIVIR FLAME DETECTOR	PIPE RACK	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
16	PJ2-FD-01-25	PJ2-FD-01-25	UNIVIR FLAME DETECTOR	PIPE RACK	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
17	PJ2-FD-01-26	PJ2-FD-01-26	UNIVIR FLAME DETECTOR	PIPE RACK	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
18	PJ2-FD-01-27	PJ2-FD-01-27	UNIVIR FLAME DETECTOR	PIPE RACK	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
19	PJ2-FD-01-28	PJ2-FD-01-28	UNIVIR FLAME DETECTOR	P-705A/B	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
20	PJ2-LHD-01-01	PJ2-LHD-01-01	LINEAR HEAT DETECTOR	FOR EXISTING DEGASSING TANK(Leght: 50m)	BH-17-5M-100-SA-PY-1022	DIR	Conventional	FGS	L	FGS	24 Vdc	NIS									
21	PJ2-LHD-01-02	PJ2-LHD-01-02	LINEAR HEAT DETECTOR	FOR EXISTING TEST TANK(Leght: 35m)	BH-17-5M-100-SA-PY-1022	DIR	Conventional	FGS	L	FGS	24 Vdc	NIS									
22	PJ2-LHD-01-03	PJ2-LHD-01-03	LINEAR HEAT DETECTOR	FOR PRODUCTION TANK(Leght: 55m)	BH-17-5M-100-SA-PY-1022	DIR	Conventional	FGS	L	FGS	24 Vdc	NIS									
23	PJ2-RG-01-01	PJ2-RG-01-01	YELLOW FLASHING/ROTATING BEACON	FLAMMABLE GAS DETECTION, DESALTING UNIT NO.2	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
24	PJ2-RG-01-02	PJ2-RG-01-02	YELLOW FLASHING/ROTATING BEACON	FLAMMABLE GAS DETECTION, AIR COMPRESSORS AREA	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
25	PJ2-RG-01-03	PJ2-RG-01-03	YELLOW FLASHING/ROTATING BEACON	FLAMMABLE GAS DETECTION, PIPE RACK	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
26	PJ2-RG-01-04	PJ2-RG-01-04	YELLOW FLASHING/ROTATING BEACON	FLAMMABLE GAS DETECTION, ALONG THE ROAD	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
27	PJ2-RG-01-05	PJ2-RG-01-05	YELLOW FLASHING/ROTATING BEACON	FLAMMABLE GAS DETECTION, ALONG THE ROAD	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
28	PJ2-RG-01-06	PJ2-RG-01-06	YELLOW FLASHING/ROTATING BEACON	TOXIC GAS DETECTION, FIRE FIGHTING SHED.	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
29	PJ2-RG-01-07	PJ2-RG-01-07	YELLOW FLASHING/ROTATING BEACON	FLAMMABLE GAS DETECTION, ALONG THE ROAD	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
30	PJ2-RF-01-01	PJ2-RF-01-01	RED FLASHING/ROTATING BEACON	FLAMMABLE GAS DETECTION, DESALTING UNIT NO.2	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
31	PJ2-RF-01-02	PJ2-RF-01-02	RED FLASHING/ROTATING BEACON	FIRE DETECTION, AIR COMPRESSORS AREA	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
32	PJ2-RF-01-03	PJ2-RF-01-03	RED FLASHING/ROTATING BEACON	FIRE DETECTION, PIPE RACK	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
33	PJ2-RF-01-04	PJ2-RF-01-04	RED FLASHING/ROTATING BEACON	FIRE DETECTION, ALONG THE ROAD	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
34	PJ2-RF-01-05	PJ2-RF-01-05	RED FLASHING/ROTATING BEACON	FIRE DETECTION, ALONG THE ROAD	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
35	PJ2-RF-01-06	PJ2-RF-01-06	RED FLASHING/ROTATING BEACON	TOXIC GAS DETECTION, FIRE FIGHTING SHED.	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
36	PJ2-RF-01-07	PJ2-RF-01-07	RED FLASHING/ROTATING BEACON	FIRE DETECTION, ALONG THE ROAD	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
37	PJ2-RT-01-01	PJ2-RT-01-01	BLUE FLASHING/ROTATING BEACON	FLAMMABLE GAS DETECTION, DESALTING UNIT NO.2	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
38	PJ2-RT-01-02	PJ2-RT-01-02	BLUE FLASHING/ROTATING BEACON	TOXIC GAS DETECTION, AIR COMPRESSORS AREA	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
39	PJ2-RT-01-03	PJ2-RT-01-03	BLUE FLASHING/ROTATING BEACON	TOXIC GAS DETECTION, PIPE RACK	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
40	PJ2-RT-01-04	PJ2-RT-01-04	BLUE FLASHING/ROTATING BEACON	TOXIC GAS DETECTION, ALONG THE ROAD	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
41	PJ2-RT-01-05	PJ2-RT-01-05	BLUE FLASHING/ROTATING BEACON	TOXIC GAS DETECTION, ALONG THE ROAD	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
42	PJ2-RT-01-06	PJ2-RT-01-06	BLUE FLASHING/ROTATING BEACON	TOXIC GAS DETECTION, FIRE FIGHTING SHED.	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
43	PJ2-RT-01-07	PJ2-RT-01-07	BLUE FLASHING/ROTATING BEACON	TOXIC GAS DETECTION, ALONG THE ROAD	BH-17-5M-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS									
44	PJ2-MCP-01-01	PJ2-MCP-01-01	MANUAL ALARM CALL POINT	FLAMMABLE GAS DETECTION, DESALTING UNIT NO.2	BH-17-5M-100-SA-PY-1022	DIR	Conventional	FGS	L	FGS	24 Vdc	NIS									
45	PJ2-MCP-01-02	PJ2-MCP-01-02	MANUAL ALARM CALL POINT	CONTROL ROOM AREA	BH-17-5M-100-SA-PY-1022	DIR	Conventional	FGS	L	FGS	24 Vdc	NIS									
46	PJ2-MCP-01-03	PJ2-MCP-01-03	MANUAL ALARM CALL POINT	AIR COMPRESSORS AREA	BH-17-5M-100-SA-PY-1022	DIR	Conventional	FGS	L	FGS	24 Vdc	NIS									
47	PJ2-MCP-01-04	PJ2-MCP-01-04	MANUAL ALARM CALL POINT	PIPE RACK	BH-17-5M-100-SA-PY-1022	DIR	Conventional	FGS	L	FGS	24 Vdc	NIS									
48	PJ2-MCP-01-05	PJ2-MCP-01-05	MANUAL ALARM CALL POINT	NEAR TEST BANK'S	BH-17-5M-100-SA-PY-1022	DIR	Conventional	FGS	L	FGS	24 Vdc	NIS									
49	PJ2-MCP-01-06	PJ2-MCP-01-06	MANUAL ALARM CALL POINT	PT-G10/LAKE K.O DRUM PIT)	BH-17-5M-100-SA-PY-1022	DIR	Conventional	FGS	L	FGS	24 Vdc	NIS									
50	PJ2-MCP-01-07	PJ2-MCP-01-07	MANUAL ALARM CALL POINT	SH-G10/FIRE FIGHTING SHED)	BH-17-5M-100-SA-PY-1022	DIR	Conventional	FGS	L	FGS	24 Vdc	NIS									
51	PJ2-MCP-01-08	PJ2-MCP-01-08	MANUAL ALARM CALL POINT	ALONG THE ROAD	BH-17-5M-100-SA-PY-1022	DIR	Conventional	FGS	L	FGS	24 Vdc	NIS									
52	PJ2-MCP-01-09	PJ2-MCP-01-09	MANUAL ALARM CALL POINT	FIRE FIGHTING SHED.	BH-17-5M-100-SA-PY-1022	DIR	Conventional	FGS	L	FGS	24 Vdc	NIS									
53	PJ2-MCP-01-10	PJ2-MCP-01-10	MANUAL ALARM CALL POINT	ALONG THE ROAD	BH-17-5M-100-SA-PY-1022	DIR	Conventional	FGS	L	FGS	24 Vdc	NIS									
54	PJ2-MCP-01-11	PJ2-MCP-01-11	MANUAL ALARM CALL POINT	ALONG THE ROAD	BH-17-5M-100-SA-PY-1022	DIR	Conventional	FGS	L	FGS	24 Vdc	NIS									
55	PJ2-FGD-01-13	PJ2-FGD-01-13	GAS DETECTOR	V-2018	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
56	PJ2-FGD-01-14	PJ2-FGD-01-14	GAS DETECTOR	3rd. STAGE A.BANK.	BH-17-5M-100-SA-PY-1022	AIR	Conventional	FGS	L	FGS	4.20 mA	NIS	0	100	50	20				NIEL	
57	PJ2-FGD-01-15	PJ2-FGD-01-15	GAS DETECTOR	3rd. STAGE A.BANK.	BH-17-5M-100-SA-PY-1022	AIR</															

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Item	Tag Number	Loop Number	Description	Service	Reference No.	I/O Type	Device Type	System	From	To	Signal Type	IS/NIS	Low Range	High Range	High High	High	Low	Low Low	Set Point	Eng. Units	Remark																				
99	P12-HOR-01-02	P12-HOR-01-02A	TWO TONE SOUNDER	AIR COMPRESSORS AREA	BH-17-SM-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS																													
100	P12-HOR-01-02	P12-HOR-01-02B	TWO TONE SOUNDER	AIR COMPRESSORS AREA	BH-17-SM-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS																													
101	P12-HOR-01-03	P12-HOR-01-03A	TWO TONE SOUNDER	PIPE RACK	BH-17-SM-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS																													
102	P12-HOR-01-03	P12-HOR-01-03B	TWO TONE SOUNDER	PIPE RACK	BH-17-SM-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS																													
103	P12-HOR-01-04	P12-HOR-01-04A	TWO TONE SOUNDER	ALONG THE ROAD	BH-17-SM-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS																													
104	P12-HOR-01-04	P12-HOR-01-04B	TWO TONE SOUNDER	ALONG THE ROAD	BH-17-SM-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS																													
105	P12-HOR-01-05	P12-HOR-01-05A	TWO TONE SOUNDER	ALONG THE ROAD	BH-17-SM-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS																													
106	P12-HOR-01-05	P12-HOR-01-05B	TWO TONE SOUNDER	ALONG THE ROAD	BH-17-SM-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS																													
107	P12-HOR-01-06	P12-HOR-01-06A	TWO TONE SOUNDER	FIRE FIGHTING SHED.	BH-17-SM-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS																													
108	P12-HOR-01-06	P12-HOR-01-06B	TWO TONE SOUNDER	FIRE FIGHTING SHED.	BH-17-SM-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS																													
109	P12-HOR-01-07	P12-HOR-01-07A	TWO TONE SOUNDER	ALONG THE ROAD	BH-17-SM-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS																													
110	P12-HOR-01-07	P12-HOR-01-07B	TWO TONE SOUNDER	ALONG THE ROAD	BH-17-SM-100-SA-PY-1022	DOR	Conventional	FGS	L	FGS	24 Vdc	NIS																													
111	P2-HGD-02-01	P2-HGD-02-01	HYDROGEN GAS DETECTOR	UPS ROOM	BH-17-SM-100-SA-PY-1020	DIR	Conventional	FGS	Battery Room		FGS	24 Vdc	NIS																												
112	P2-FACP-01-01	P2-FACP-01-01	PIE ALARM SIGNAL	FACP for Switchgear and Transformer Room	BH-17-SM-100-SA-PY-1022	DIR	Conventional	FGS	FACP		FGS	24 Vdc	NIS																												
113	P2-FACP-01-02	P2-FACP-01-02	ALARM SIGNAL	FACP for Switchgear and Transformer Room	BH-17-SM-100-SA-PY-1022	DIR	Conventional	FGS	FACP		FGS	24 Vdc	NIS																												
114	P2-FACP-01-03	P2-FACP-01-03	FIRE SIGNAL	FACP for Switchgear and Transformer Room	BH-17-SM-100-SA-PY-1022	DIR	Conventional	FGS	FACP		FGS	24 Vdc	NIS																												
115	P2-FACP-01-04	P2-FACP-01-04	FAULT SIGNAL	FACP for Switchgear and Transformer Room	BH-17-SM-100-SA-PY-1022	DIR	Conventional	FGS	FACP		FGS	24 Vdc	NIS																												
116	P2-XXA-CO	P2-XXA-CO	Common Audible Pre Alarm	F&G MATRIX PANEL	BH-18-SM-100-SA-PY-0361	DOR	Conventional	FGS	Control Room		FGS	24 Vdc	NIS																												
117	P2-XAB-CO	P2-XAB-CO	Common Fire Status On Concerned Fire Zone	F&G MATRIX PANEL	BH-18-SM-100-SA-PY-0361	DOR	Conventional	FGS	Control Room		FGS	24 Vdc	NIS																												
118	P2-GDA-CO	P2-GDA-CO	Common Flammable Gas Status On Concerned Fire Zone	F&G MATRIX PANEL	BH-18-SM-100-SA-PY-0361	DOR	Conventional	FGS	Control Room		FGS	24 Vdc	NIS																												
119	P2-TDA-CO	P2-TDA-CO	Common Toxic Gas Status On Concerned Fire Zone	F&G MATRIX PANEL	BH-18-SM-100-SA-PY-0361	DOR	Conventional	FGS	Control Room		FGS	24 Vdc	NIS																												
120	P2-FDA-CO	P2-FDA-CO	Common Fire Status On Concerned Fire Zone	F&G MATRIX PANEL	BH-18-SM-100-SA-PY-0361	DOR	Conventional	FGS	Control Room		FGS	24 Vdc	NIS																												
121	P2-MCA-CO	P2-MCA-CO	Common Manual Call Point Status On Concerned Fire Zone	F&G MATRIX PANEL	BH-18-SM-100-SA-PY-0361	DOR	Conventional	FGS	Control Room		FGS	24 Vdc	NIS																												
122	P2-BATT-02-01	P2-BATT-02-01	BATTERY BOOST CHARGE STOPPING	Battery Room	BH-18-SM-100-SA-PY-0362	DOR	Conventional	FGS	Battery room		FGS	25 Vdc	NIS																												
123	P2-BATT-02-02	P2-BATT-02-02	BATTERY FEEDER ISOLATION	Battery Room	BH-18-SM-100-SA-PY-0363	DOR	Conventional	FGS	Battery room		FGS	26 Vdc	NIS																												
124	P2-BD-02-HVAC-OFF	P2-BD-02-HVAC-OFF	HVAC OFF COMMAND	Switchgear and Transformer Room	BH-18-SM-100-SA-PY-0365	DOR	Conventional	FGS	HVAC		FGS	28 Vdc	NIS																												