


 <b>NISOC</b>	<b>Development Plan of 28 Reservoirs / BIBI HAKIMEH Oilfield (EPC)</b>								  
	I&C Power and Air Consumption List for PU2 & DU2								
Contract No.: 053-073-9189	Project	Package	Contractor	Fac.	Disc.	Doc. Type	Ser. No.	Rev.	Page 1 of 7
	BH	17	SM	100	IN	LI	0723	D04	

## I&C Power and Air Consumption List for PU2 & DU2

Rev.	Status	Date	Document Status	Prepared by:	Checked by:	Approved by:	Client Approval
D00	IFC	29.09.2021	Issued For Comment	M.A	S.Mo	A.R.Ma	
D01	IFA	03.10.2022	Issued For Approval	H.Esmaeillou	B.Shamsedini	A.Samadi	
D02	IFA	08.02.2023	Issued For Approval	H.Esmaeillou	B.Shamsedini	A.Samadi	
D03	IFA	10.26.2023	Issued For Approval	H.Esmaeillou	B.Shamsedini	A.Samadi	
D04	IFA	16-Oct-24	Issued For Approval	A.Babalou	B.Yadegari	M.Setayesh	

**Class: A**

**Status:**

**IDC:** Inter-Discipline Check

**IFC:** Issued For Comment

**IFA:** Issued For Approval

**IFR:** Issued for Riview

**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

  
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### References:

Doc Number	Title
BH-17-SM-100-IN-DC-0052	Instrument & Control/Safety System Design Criteria
BH-17-SM-100-IN-SP-0053	General Specification for Instrumentation
BH-17-SM-100-IN-LI-1740	Control System I/O List for Bibi Hakimeh Desalting Unit No.2
BH-17-SM-100-IN-LI-1741	ESD System I/O List for Bibi Hakimeh Desalting Unit No.2
BH-17-SM-100-SA-PY-1850	Fire & Gas Detector Location Layout for Bibi Hakimeh Desalting Unit No.2(Process Area)
BH-17-SM-100-IN-LI-1739	Instrument Index for Bibi Hakimeh Desalting Unit No.2
BH-17-SM-100-IN-LI-0718	Control System I/O List for Bibi Hakimeh Production Unit No.2
BH-17-SM-100-IN-LI-0719	ESD System I/O List for Bibi Hakimeh Production Unit No.2
BH-17-SM-100-SA-PY-1022	Fire & Gas Detector Location Layout for Bibi Hakimeh Production Unit No.2(Process Area)
BH-17-SM-100-IN-LI-0717	Instrument Index for Bibi Hakimeh Production Unit No.2
BH-17-SM-100-IN-RT-2422	Existing Instrumentation & Control System Report For BBH & Nargesi
IPS-E-PR- 330	Engineering Standard For Process Design Of Compressed Air Systems
IPS-G-IN- 200	General Standard For Instrument Air System

### Exclusions:

Power & Air consumption of following items has not been included in this document :

HVAC panel  
Safety panels such as CO2 panel,...  
Telecom consumers  
Local Panel of Packages

### Abbreviations

CCR	Central Control Room
PDP	Power Distribution Panel
FAC	Fire Alarm Control Panel
UCP	Unit Control Panel
F&G	Fire And Gas System
PCS	Process Control System
ESD	Emergency Shut Down



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



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**Instrument Air Consumption List**

Item	Consumer Description	Qty.	Consumption per Consumer ( Nm3/h)	Total Air Consumption Per Type	Remark
1	Control Valve	22	1.52	33.44	(Note-3)
2	On-off Valve including ESDV	21	1.52	31.92	(Note-3)
3	O2 Analyzer	1	0.5	0.5	(Note-4)
4	H2S Analyzer	2	5	10	(Note-4)
5	CO2 Analyzer	2	5	10	(Note-4)

Total Air Required with Contingency Reserve (20%)	104	Nm3/h
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**Notes :**

- Instrument air consumption for packaged skids is not included. It is estimated by Mechanical/Process based on information provided by package skid vendor.
- Deleted.
- Refer to IPS-E-PR- 330 and IPS-G-IN-200
- Air consumption is estimated based on previous projects and not from actual vendor data . This document shall be revised to indicate actual vendor data upon availability.





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### Power Consumption List (UPS - 110VAC)

Item No	Panel or Instrument Name	Power source/ Location	Cubicle QTY	110VAC UPS Typical Load, (Watt)	Total UPS Power Required, (Watt)	Heat Dissipation			Remark
						Total Watt	Coincidence factor	Total Heat Dissipation (Watt)	
1	PCS System & Marshaling	PDP / CCR	5	1250	6250	6250	50%	3125	
2	ESD System & Marshaling	PDP / CCR	3	1500	4500	4500	50%	2250	
3	ESD Matrix Panel	PDP / CCR	1	200	200	200	50%	100	
4	Work Station	PDP / CCR	5	300	1500	1500	50%	750	
5	Printer	PDP / CCR	2	0	0	0	20%	0	
6	Network Panel	PDP / CCR	1	800	800	800	50%	400	
7	PDP	PDP / CCR	1	500	500	500	50%	250	
8	BMS Panel	PDP / CCR	2	1500	3000	3000	50%	1500	
	Interposing Relay Panel	PDP / MCC	2	300	600	600			
9	Analyzer AT-0101	PDP / Field	1	300	300	-	-	-	
10	Analyzer AT-2201	PDP / Field	1	300	300	-	-	-	
11	Analyzer AT-2202	PDP / Field	1	300	300	-	-	-	
12	Analyzer AT-2203	PDP / Field	1	300	300	-	-	-	
13	Analyzer AT-2204	PDP / Field	1	300	300	-	-	-	

**Total UPS - 110VAC (Watt) - Without Spare**

**18850**




**Total Heat Dissipation (Watt) - Without Spare**

**8375**




#### Notes :

- Power consumption is estimated based on previous projects and not from actual vendor data. These data shall be revised to indicate actual vendor data upon availability.
- Since there is a space constraint in the existing control room, then design of control panels will be based on one-sided system and one-sided marshalling (in a common cabinet) with using the side of the panels.
- Power Consumption of each panel is consist of Relay, Isolator parrier, card ,channels, madules, fan , lightings,.... And this value is priliminary and will be finalized after receiving vendor data.

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		I&C Power and Air Consumption List for PU2 & DU2											
Contract No.: 053-073-9189		Project	Package	Contractor	Fac.	Disc.	Doc. Type	Ser. No.	Rev.	Page 6 of 7			
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<b>Power Consumption List (24 VDC)</b>													
Item No.	Panel or Instrument Name	Power source/ Location	Qty	Normal Loads @ 24VDC			Full Alarm Loads @ 24VDC			Heat Dissipation			Remark
				Load (mA)	Total DC Load Required (mA)	Total DC Power Required (Watt)	Load (mA)	Total DC Load Required (mA)	Total DC Power Required (Watt)	Load (Watt)	Coincidence factor	Total Heat Dissipation (Watt)	
1	Gas Detector	F&G Sys./ CCR	41	81	3321	80	405	16605	399	399	50%	199	
2	H2S GAS DETECTOR	F&G Sys./ CCR	40	52	2080	50	260	10400	250	250	50%	125	
3	LINEAR HEAT DETECTOR	F&G Sys./ CCR	6	50	300	7	60	360	9	9	50%	4	
4	UV/IR FLAME DETECTOR	F&G Sys./ CCR	63	85	5355	129	150	9450	227	227	50%	113	
5	Manual Call Point (Weather Proof Type)	F&G Sys./ CCR	25	5	125	3	10	250	6	6	50%	3	
6	Hydrogen Gas Detector/Sensor	F&G Sys./ CCR	1	200	200	5	300	300	7	7	50%	4	
7	Audible Alarm Sounder (Weather Proof)	F&G Sys./ CCR	14	0	0	0	200	2800	67	67	50%	34	
8	Fire Flashing Beacon (BLUE) Weather Proof Type	F&G Sys./ CCR	14	0	0	0	600	8400	202	202	50%	101	
9	Fire Flashing Beacon (RED) -Weather Proof Type	F&G Sys./ CCR	14	0	0	0	600	8400	202	202	50%	101	
10	Flammable Gas Flashing Beacon (Yellow) Weather Proof Type	F&G Sys./ CCR	14	0	0	0	600	8400	202	202	50%	101	
11	<del>F&amp;G System &amp; Marshaling</del>	<del>Battery Charger/CCR</del>	3	-	-	-	-	-	0	-	-	0	
12	F&G Matrix Panel	Battery Charger/CCR	1	-	-	200	-	-	200	200	50%	100	
13	FACP	Battery Charger/Switchgear Rooms	2	6500	13000	312	15000	30000	720	720	50%	360	
Total Continues Loads @ 24VDC (Watt)							785						
Total Intermittent Loads @ 24VDC (Watt)							1977						
Total Full Alarm Loads @ 24VDC (Watt) (Batteries will be able to supply the system for a period of five minuts)							2489						
Total Full Heat Dissipation							884						
<b>Notes :</b>													
1 Power Consumption of each panel is consist of Relay, Isolator parrier, card ,chanels, madules, fan , lighitings,.... And this value is priliminary and will be finalized after receiving vendor data.													

  
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Power Consumption (Non- UPS - 230VAC)										
Item No	Panel or Instrument Name	Power source/ Location	QTY	230VAC Non- UPS Typical Load, (Watt)	Total 230VAC Non- UPS Power Required, (Watt)	Heat Dissipation			Remark	
						Total Watt	Coincidence factor	Total Heat Dissipation (Watt)		
	Analyzer AT-0101	Field	4	-	-	-	-	-	Moved to UPS	
	Analyzer AT-2201	Field	4	-	-	-	-	-	Moved to UPS	
	Analyzer AT-2202	Field	4	-	-	-	-	-	Moved to UPS	
	Analyzer AT-2203	Field	4	-	-	-	-	-	Moved to UPS	
	Analyzer AT-2204	Field	4	-	-	-	-	-	Moved to UPS	
1	PCS System & Marshaling	EL panel / CCR	5	1000	5000	-	-	-		
2	ESD System & Marshaling	EL panel / CCR	3	1000	3000	-	-	-		
3	PRINTER	EL panel / CCR	2	1000	2000	-	-	-		
4	FGS	EL panel / CCR	3	1000	3000					
5	BMS UCP	EL panel / CCR	2	1000	2000					
6	Interposing Relay Panel	EL panel / MCC	2	1000	2000	-	-	-		
7	LCPs in field	EL panel / Field	10	500	5000	-	-	-		
8	LG-2101	EL panel / Field	1	60	60	-	-	-		
9	LG-2102A	EL panel / Field	1	60	60	-	-	-		
10	LG-2102B	EL panel / Field	1	60	60	-	-	-		
11	LG-2103A	EL panel / Field	1	60	60	-	-	-		
12	LG-2103B	EL panel / Field	1	60	60	-	-	-		
13	LG-2105	EL panel / Field	1	60	60	-	-	-		
14	LG-2106A	EL panel / Field	1	60	60	-	-	-		
15	LG-2106B	EL panel / Field	1	60	60	-	-	-		
16	LG-2107	EL panel / Field	1	60	60	-	-	-		
17	LG-2109	EL panel / Field	1	60	60	-	-	-		
18	LG-2111A	EL panel / Field	1	60	60	-	-	-		
19	LG-2111B	EL panel / Field	1	60	60	-	-	-		
20	LG-7201	EL panel / Field	1	60	60	-	-	-		
21	LG-7211	EL panel / Field	1	60	60	-	-	-		
22	LG-8201A	EL panel / Field	1	60	60	-	-	-		
23	LG-8201B	EL panel / Field	1	60	60	-	-	-		