Base Load Power Hub (BLPH)

HEAT DISSIPATION CALCULATIONS

Document Number: 1723002197-EL-CAL-00049

Document Class: 3

ROSETTI MARINO

1	NO COMMENTS - APPROVED - WORK MAY PROCEED
2	MINOR COMMENTS - REVISE AND RESUBMIT - WORK MAY PROCEED
3	MAJOR COMMENTS – REJECTED – DO NOT PROCEED
4	APPROVAL NOT REQUIRED

NOTE: Approval doesn't relieve the supplier from mandatory compliance with contractual documents and specifications. Comments made do not imply acceptance of any cost or delivery impact.

Sign	Date
Luca Moeurle	23/09/2024

1	28/08/2024	Issue for Information (IFI)	L. Rossi	Flamminio	Sigismondi
0	13/03/2024	Issue for Information (IFI)	L. Rossi	Flamminio	Sigismondi
Rev.	Date	Description	Prepared	Reviewed	Approved

IMESA ELECTRICAL ENGINEERING IMESA Doc. 231115/SD/49

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

Revision / Change Log

Rev.	Description
0	Issue for Information (IFI)
1	Issue for Information (IFI)

HOLDS LIST

No.	Description
1	
2	
3	
4	

INDEX

1- SG-100D1.....4

2- SG-200N1.....5

3- SG-200D2.....7

4- DP-200N1.....8

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

"SG-100D1"

6,6KV - 50Hz - 630A

							Correction - k	Corrected - W	L (mt) used	n° pcs	Power Heat (W)
Bus-Bars Distribution MV (1//40X10)	In (A)=	**885**	Ib (A)=	**630**	MAX Bus-Bar Heat Power (W/m)	**52,99**	**1,00**	**53,0**	5,00	1	**264,93**
							Correction - k	**Corrected - W**		**n° Feeders**	**Power Heat (W)**
Feeder Electrolyser Package (3200kVA)	In (A)=	**630**	Ib (A)=	**280**	MAX Feeder Heat Power (W)=	**193,79**	**1,00**	**193,8**		1	**193,79**
Feeder Solar Package (500kVA)	In (A)=	**400**	Ib (A)=	**44**	MAX Feeder Heat Power (W)=	**159,31**	**1,00**	**159,3**		1	**159,31**
Feeder Bess Package (1250kVA)	In (A)=	**400**	Ib (A)=	**110**	MAX Feeder Heat Power (W)=	**176,30**	**1,00**	**176,3**		1	**176,30**
Feeder TRF (1600kVA)	In (A)=	**400**	Ib (A)=	**140**	MAX Feeder Heat Power (W)=	**33,30**	**1,00**	**33,3**		1	**33,30**
Bus Bars Measure	In (A)=	**0**	Ib (A)=	**0**	MAX Feeder Heat Power (W)=	**150,00**	**1,00**	**150,0**		1	**150,00**
Incomer 630	In (A)=	**630**	Ib (A)=	**630**	MAX Feeder Heat Power (W)=	**355,76**	**1,00**	**355,8**		1	**355,76**
Feeder Fuel Cell Package (1250kVA)	In (A)=	**400**	Ib (A)=	**110**	MAX Feeder Heat Power (W)=	**176,30**	**1,00**	**176,3**		1	**176,30**

SWBD Max Heat Power (W) =	**1.509,69**
"K" contemporaneity	**1,00**
SWBD Heat Power (W) =	**1.509,69**

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

"SG-200N1"

400/230V - 50Hz - 2500A							Correction - k	Corrected - W	L (mt) used	n° pcs	Power Heat (W)
Bus-Bars Distribution LV (2//80X15)	In (A)=	2646	Ib (A)=	2500	MAX Bus-Bar Heat Power (W/m)=	139,06	0,60	83,4	8,90	1	742,59
Bus-Bars Distribution LV (1//60X6)	In (A)=	900	Ib (A)=	300	MAX Bus-Bar Heat Power (W/m)=	13,35	0,60	8,0	12,00	1	96,12
							Correction - k	Corrected - W		n° Feeders	Power Heat (W)
Incomer Transformer	In (A)=	3200	Ib (A)=	2500	MAX Feeder Heat Power (W)=	620,37	1,00	620,4		1	620,37
BESS PCS Cabinet	In (A)=	40	Ib (A)=	17,41	MAX Feeder Heat Power (W)=	6,93	1,00	6,9		1	6,93
Fuel Cell Auxiliary Load	In (A)=	63	Ib (A)=	32,84	MAX Feeder Heat Power (W)=	13,75	1,00	13,7		1	13,75
Electrolyser Auxiliary Load	In (A)=	630	Ib (A)=	497	MAX Feeder Heat Power (W)=	67,45	1,00	67,5		1	67,45
BESS LV1 Cabinet (+DISTR 1)	In (A)=	40	Ib (A)=	18,12	MAX Feeder Heat Power (W)=	7,30	1,00	7,3		1	7,30
BESS LV2 Cabinet (+DISTR 2)	In (A)=	40	Ib (A)=	18,12	MAX Feeder Heat Power (W)=	7,30	1,00	7,3		1	7,30
Water Package	In (A)=	160	Ib (A)=	107	MAX Feeder Heat Power (W)=	47,77	1,00	47,8		1	47,77
Instrument Air Package 01A	In (A)=	160	Ib (A)=	112,24	MAX Feeder Heat Power (W)=	52,31	1,00	52,3		1	52,31
Instrument Air Package 01B	In (A)=	160	Ib (A)=	112,24	MAX Feeder Heat Power (W)=	52,31	1,00	52,3		1	52,31
Crane	In (A)=	63	Ib (A)=	40,14	MAX Feeder Heat Power (W)=	16,81	1,00	16,8		1	16,81
Welding Sockets (Top Deck)	In (A)=	160	Ib (A)=	126,15	MAX Feeder Heat Power (W)=	57,00	1,00	57,0		1	57,00
Welding Sockets (Lower Deck)	In (A)=	160	Ib (A)=	126,15	MAX Feeder Heat Power (W)=	57,00	1,00	57,0		1	57,00
HVAC panels - HV/MV Room	In (A)=	40	Ib (A)=	34,1	MAX Feeder Heat Power (W)=	19,49	1,00	19,5		1	19,49
HVAC panels - LV Room	In (A)=	40	Ib (A)=	34,1	MAX Feeder Heat Power (W)=	16,99	1,00	17,0		1	16,99
HVAC panels - UPS Room	In (A)=	63	Ib (A)=	61	MAX Feeder Heat Power (W)=	41,31	1,00	41,3		1	41,31
HVAC panels - ITER	In (A)=	63	Ib (A)=	61	MAX Feeder Heat Power (W)=	41,31	1,00	41,3		1	41,31
Impressed Current Cathodic Protection (ICCP) System	In (A)=	40	Ib (A)=	23,8	MAX Feeder Heat Power (W)=	10,78	1,00	10,8		1	10,78
AC UPS PAS - 30min - UP-200F3 - Line A	In (A)=	100	Ib (A)=	65	MAX Feeder Heat Power (W)=	25,10	1,00	25,1		1	25,10
AC UPS PAS - 30min - UP-200F3 - Line B	In (A)=	100	Ib (A)=	65	MAX Feeder Heat Power (W)=	25,10	1,00	25,1		1	25,10

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy

"SG-200N1"

400/230V - 50Hz - 2500A

							Correction - k	Corrected - W	L (mt) used	n° pcs	Power Heat (W)
AC UPS PAS - 30min - UP-200F3 - Bypass	In (A)=	100	Ib (A)=	65,1	MAX Feeder Heat Power (W)=	25,17	1,00	25,2		1	25,17
AC UPS F&G - 8h - UP-200F4 - Line A	In (A)=	63	Ib (A)=	32,5	MAX Feeder Heat Power (W)=	9,03	1,00	9,0		1	9,03
AC UPS F&G - 8h - UP-200F4 - Line B	In (A)=	63	Ib (A)=	32,5	MAX Feeder Heat Power (W)=	9,03	1,00	9,0		1	9,03
AC UPS F&G - 8h - UP-200F4 - Bypass	In (A)=	63	Ib (A)=	32,5	MAX Feeder Heat Power (W)=	9,03	1,00	9,0		1	9,03
DC Battery System - Switchgears Control - Feeder A	In (A)=	63	Ib (A)=	16	MAX Feeder Heat Power (W)=	2,19	1,00	2,2		1	2,19
DC Battery System - Switchgears Control - Feeder B	In (A)=	63	Ib (A)=	16	MAX Feeder Heat Power (W)=	2,19	1,00	2,2		1	2,19
Navaid System - Feeder A	In (A)=	63	Ib (A)=	7	MAX Feeder Heat Power (W)=	0,42	1,00	0,4		1	0,42
Navaid System - Feeder B	In (A)=	63	Ib (A)=	7	MAX Feeder Heat Power (W)=	0,42	1,00	0,4		1	0,42
DB - Lighting & Small Power - BoP	In (A)=	100	Ib (A)=	24	MAX Feeder Heat Power (W)=	6,79	1,00	6,8		1	6,79
SEA WATER PUMP A	In (A)=	20	Ib (A)=	12	MAX Feeder Heat Power (W)=	18,39	1,00	18,4		1	18,39
SEA WATER PUMP B	In (A)=	20	Ib (A)=	12	MAX Feeder Heat Power (W)=	18,39	1,00	18,4		1	18,39
SPARE (40A)	In (A)=	40	Ib (A)=	40	MAX Feeder Heat Power (W)=	25,88	1,00	25,9		8	207,01

SWBD Max Heat Power (W) =	2.333,12
"K" contemporaneity	1,00
SWBD Heat Power (W) =	2.333,12

"SG-200D2"

800/460V - 50Hz - 630A

							Correction - k	Corrected - W	L (mt) used	n° pcs	Power Heat (W)
Incoming / Outgoimg Cables [300mmq]	In (A)=	635	Ib (A)=	630	MAX Bus-Bar Heat Power (W/m)	76,32	1,00	76,3	1,90	1	145,02
							Correction - k	Corrected - W		n° Feeders	Power Heat (W)
Incoming from Solar Farm	In (A)=	1250	Ib (A)=	630	MAX Feeder Heat Power (W)=	143,37	1,00	143,4		1	143,37

SWBD Max Heat Power (W) =	288,38
"K" contemporaneity	1,00
SWBD Heat Power (W) =	288,38

"DP-200N1"

400/230V - 50Hz - 63A

							Correction - k	Corrected - W	L (mt) used	n° pcs	Power Heat (W)
Bus-Bars Distribution STQ (1//20X5)	In (A)=	**340**	Ib (A)=	**63**	MAX Bus-Bar Heat Power (W/m)	**2,12**	**1,00**	**2,1**	**2,00**	1	**4,24**
							Correction - k	**Corrected - W**		**n° Feeders**	**Power Heat (W)**
Incoming [XT2N-160, EkipDip(In=63A)-LSI]	In (A)=	**63**	Ib (A)=	**63**	MAX Feeder Heat Power (W)=	**19,51**	**1,00**	**19,5**		1	**19,51**
MCB + Contactor Feeder [4P-50A]	In (A)=	**50**	Ib (A)=	**50**	MAX Feeder Heat Power (W)=	**35,02**	**1,00**	**35,0**		1	**35,02**
MCB Feeder [4P-10A]	In (A)=	**10**	Ib (A)=	**10**	MAX Feeder Heat Power (W)=	**9,29**	**1,00**	**9,3**		2	**18,58**
MCB Feeder [2P-20A]	In (A)=	**20**	Ib (A)=	**20**	MAX Feeder Heat Power (W)=	**12,52**	**1,00**	**12,5**		3	**37,56**
MCB Feeder [2P-10A]	In (A)=	**10**	Ib (A)=	**10**	MAX Feeder Heat Power (W)=	**6,19**	**1,00**	**6,2**		4	**24,77**
MCB Feeder [2P-6A]	In (A)=	**6**	Ib (A)=	**6**	MAX Feeder Heat Power (W)=	**2,95**	**1,00**	**2,9**		21	**61,93**
RCBO Feeder [2P-20A]	In (A)=	**20**	Ib (A)=	**20**	MAX Feeder Heat Power (W)=	**13,80**	**1,00**	**13,8**		8	**110,40**
RCBO Feeder [2P-16A]	In (A)=	**16**	Ib (A)=	**16**	MAX Feeder Heat Power (W)=	**12,39**	**1,00**	**12,4**		2	**24,78**
RCBO + Contactor Feeder [2P-16A]	In (A)=	**16**	Ib (A)=	**16**	MAX Feeder Heat Power (W)=	**13,35**	**1,00**	**13,4**		8	**106,81**

SWBD Max Heat Power (W) =	**443,58**
"K" contemporaneity	**0,31**
SWBD Heat Power (W) =	**137,51**

This document undergoes an issuance cycle within EDMS Fusionlive". Its distribution is electronically controlled. Once printed shall be considered as "NOT CONTROLLED" copy