-Line data:

Name	Type	Length	R(1)	X(1)	C(1)	R(0)	X(0)	C(0)	Irmax (low)	Irmax (high)
		km	Ohm/...	Ohm/...	uF/...	Ohm/...	Ohm/...	uF/...	A	A
Eid Babiker-Izergab 2	ACSR 2 x 240 mm²	24	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Magirus-Local Market 1	ACSR 2 x 240 mm²	7.8	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Mahadia-Izergab 2	ACSR 2 x 240 mm²	8	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Mahadia-Izergab 1	ACSR 2 x 240 mm²	8	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Eid Babiker-Izergab 1	ACSR 2 x 240 mm²	24	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Khartoum North-Kuku 1	ACSR 2 x 350 mm²	4.5	0.0384	0.302	0.0095	0.3995	1.206	0.00653	1200	1200
Kilo X-Kuku 2	ACSR 1 x 350 mm²	14.6	0.087	0.379	0.0095	0.502	1.93	0.0043	780	780
Kilo X-Kuku 1	ACSR 1 x 350 mm²	14.6	0.087	0.379	0.0095	0.502	1.93	0.0043	780	780
Magirus-Local Market 2	ACSR 2 x 240 mm²	7.8	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Kilo X-Eid Babiker 2	ACSR 2 x 240 mm² - 220 kV	14	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Khartoum North-Kuku 4	Al 1 x 185 mm²	4.5	0.171	0.413	0.0094	0.31	1.48	0.0056	426	426
Khartoum North-Kuku 3	Al 1 x 185 mm²	4.5	0.171	0.413	0.0094	0.31	1.48	0.0056	426	426
Khartoum North-Kuku 2	ACSR 2 x 350 mm²	4.5	0.0384	0.302	0.0095	0.3995	1.206	0.00653	1200	1200
Rank-Rabak 1	ACSR 2 x 240 mm² - 220 kV	163.3	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Singa-Roseires 2	ACSR 1 x 400 mm²	178	0.076	0.403	0.00902	0.551	2.159	0.0044	850	850
Meringan-Sennar 2	ACSR 1 x 400 mm²	84	0.076	0.403	0.00902	0.551	2.159	0.0044	850	850
Meringan-Sennar 1	ACSR 1 x 400 mm²	84	0.076	0.403	0.00902	0.551	2.159	0.0044	850	850
Rabak-Mashkur 1	ACSR 2 x 240 mm² - 220 kV	107.2	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Jebel Aulia-Giad 2	ACSR 2 x 240 mm² - 220 kV	37	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Jebel Aulia-Giad 1	ACSR 2 x 240 mm² - 220 kV	37	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Kilo 3-Halfa	ACSR 1 x 120 mm²	55	0.255	0.386	0.0097	0.44	1.45	0.0057	345	345
Sennar-Sennar Hydro	ACSR 1 x 95 mm²	10	0.348	0.421	0.0086	0.546	1.38	0.0053	287	287
Hassa Heisa-Meringan	ACSR 1 x 95 mm²	55	0.348	0.421	0.0086	0.546	1.38	0.0053	287	287
Mashkur-Jebel Aulia 1	ACSR 2 x 240 mm² - 220 kV	147.7	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Mugran-Magirus 2	ACSR 2 x 240 mm²	11	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Kilo X-Bagair	ACSR 1 x 95 mm²	28	0.348	0.421	0.0086	0.546	1.38	0.0053	324	324
Giad-Meringan 2	ACSR 1 x 400 mm²	141	0.076	0.403	0.00902	0.551	2.159	0.0044	850	850
Khartoum North-Eid Babiker 1	ACSR 2 x 240 mm²	12	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Khartoum North-Eid Babiker 2	ACSR 2 x 240 mm²	12	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
El Kabashi-Eid Babiker 2	ACSR 2 x 240 mm² - 220 kV	30	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250

Name	Type	Length	R(1)	X(1)	C(1)	R(0)	X(0)	C(0)	Irmax (low)	Irmax (high)
		km	Ohm/...	Ohm/...	uF/...	Ohm/...	Ohm/...	uF/...	A	A
El Kabashi-Free Zone 1	ACSR 2 x 240 mm² - 220 kV	26	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
El Kabashi-Free Zone 2	ACSR 2 x 240 mm² - 220 kV	26	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Mugran-Magirus 1	ACSR 2 x 240 mm²	11	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Omdurman-Mugran 1	ACSR 2 x 240 mm²	9.7	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Omdurman-Mugran 2	ACSR 2 x 240 mm²	9.7	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Gamoeia-Jebel Aulia 2	ACSR 2 x 240 mm² - 220 kV	38	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Gamoeia-Jebel Aulia 1	ACSR 2 x 240 mm² - 220 kV	38	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
El Kabashi-Eid Babiker 1	ACSR 2 x 240 mm² - 220 kV	30	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Markhiyat-Gamoeia 2	ACSR 2 x 240 mm² - 220 kV	37	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Markhiyat-Gamoeia 1	ACSR 2 x 240 mm² - 220 kV	38	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Merowe Dam-Markhiyat 1	ACSR 4 x 325 mm²	346	0.028	0.276	0.013083	0.3445	0.981	0.00999	2128	2890
Merowe Dam-Markhiyat 2	ACSR 4 x 325 mm²	346	0.028	0.276	0.013083	0.3445	0.981	0.00999	2128	2890
Markhiyat-El Kabashi	ACSR 4 x 325 mm²	36.8	0.028	0.276	0.013083	0.3445	0.981	0.00999	2128	2890
Markhiyat-Mahadia 2	ACSR 2 x 240 mm² - 220 kV	20.5	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Markhiyat-Mahadia 1	ACSR 2 x 240 mm² - 220 kV	20.5	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Mahadia-Omdurman 2	ACSR 2 x 240 mm²	9.3	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Mahadia-Omdurman 1	ACSR 2 x 240 mm²	9.3	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Sennar Hydro-Mina Sharif	ACSR 1 x 95 mm²	69	0.348	0.421	0.0086	0.546	1.38	0.0053	287	287
Sennar Hydro-Hag Abdallah	ACSR 1 x 95 mm²	60	0.348	0.421	0.0086	0.546	1.38	0.0053	287	287
Meringan-Managil	ACSR 1 x 150 mm²	65.3	0.105	0.289	0.00965	0.315	0.867	0.0054	500	500
Sennar-Rabak	ACSR 1 x 95 mm²	96	0.348	0.421	0.0086	0.546	1.38	0.0053	287	287
Kilo X-Faroug 1	ACSR 2 x 240 mm²	14	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Meringan-Alfau	ACSR 1 x 95 mm²	71	0.348	0.421	0.0086	0.546	1.38	0.0053	287	287
Rosaries-Rank 1	ACSR 2 x 240 mm² - 220 kV	178.8	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Kilo X-Giad 2	ACSR 1 x 400 mm²	43	0.076	0.403	0.00902	0.551	2.159	0.0044	850	850
Kilo X-Eid Babiker 1	ACSR 2 x 240 mm² - 220 kV	14	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
El Girba-Kilo 3	ACSR 1 x 120 mm²	3	0.255	0.386	0.0097	0.44	1.45	0.0057	345	345
El Girba-Kassala	ACSR 1 x 120 mm²	95	0.255	0.386	0.0097	0.44	1.45	0.0057	460	460
Rabak-Tandalti 1	ACSR 2 x 240 mm² - 220 kV	111	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Meringan-Hag Abdallah	ACSR 1 x 95 mm²	35	0.348	0.421	0.0086	0.546	1.38	0.0053	287	287
Eid Babiker-Garri 1	ACSR 2 x 240 mm² - 220 kV	60	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Merowe Dam-Merowe Town 1	ACSR 1 x 480 mm²	34.55	0.067	0.302	0.01306	0.262	1.2	0.00575	850	850

Name	Type	Length	R(1)	X(1)	C(1)	R(0)	X(0)	C(0)	Irmax (low)	Irmax (high)
		km	Ohm/...	Ohm/...	uF/...	Ohm/...	Ohm/...	uF/...	A	A
Kilo X-Faroug 2	ACSR 2 x 240 mm²	14	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Giad-Meringan 1	ACSR 1 x 400 mm²	141	0.076	0.403	0.00902	0.551	2.159	0.0044	850	850
Kilo X-Giad 1	ACSR 1 x 400 mm²	43	0.076	0.403	0.00902	0.551	2.159	0.0044	850	850
Debba-Dongola 1	ACSR 1 x 480 mm²	139.38	0.067	0.302	0.01306	0.262	1.2	0.00575	850	850
Merowe Town-Debba 2	ACSR 1 x 480 mm²	139.3	0.067	0.302	0.01306	0.262	1.2	0.00575	850	850
Merowe Town-Debba 1	ACSR 1 x 480 mm²	139.3	0.067	0.302	0.01306	0.262	1.2	0.00575	850	850
Merowe Dam-Merowe Town 2	ACSR 1 x 480 mm²	34.55	0.067	0.302	0.01306	0.262	1.2	0.00575	850	850
Atbara-Atbara (NEC) 2	ACSR 2 x 240 mm² - 220 kV	15	0.067	0.302	0.01306	0.262	1.2	0.00575	1250	1250
Giad-Hassa Heisa	ACSR 1 x 95 mm²	77	0.348	0.421	0.0086	0.546	1.38	0.0053	287	287
Bagair-Giad	ACSR 1 x 95 mm²	3	0.348	0.421	0.0086	0.546	1.38	0.0053	287	287
Debba-Dongola 2	ACSR 1 x 480 mm²	139.38	0.067	0.302	0.01306	0.262	1.2	0.00575	850	850
Eid Babiker-Garri 2	ACSR 2 x 240 mm² - 220 kV	60	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Singa-Roseires 1	ACSR 1 x 400 mm²	178	0.076	0.403	0.00902	0.551	2.159	0.0044	850	850
Atbara (NEC)-Shendi 2	ACSR 2 x 240 mm² - 220 kV	125	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Atbara (NEC)-Shendi 1	ACSR 2 x 240 mm² - 220 kV	125	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Kilo X - Local Market 1	ACSR 2 x 240 mm²	3	0.067	0.269	0.01306	0.262	1.044	0.00575	0	1250
Garri-Free Zone 2	ACSR 2 x 240 mm² - 220 kV	5	0.067	0.302	0.01306	0.262	1.2	0.005749	972	1250
Garri-Free Zone 1	ACSR 2 x 240 mm² - 220 kV	5	0.067	0.302	0.01306	0.262	1.2	0.005749	972	1250
Rosaries-Rank 2	ACSR 2 x 240 mm² - 220 kV	172.8	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Rank-Rabak 2	ACSR 2 x 240 mm² - 220 kV	163.3	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Hawata-Gedarif 2	ACSR 2 x 240 mm² - 220 kV	110	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Kuku-Khartoum East 1	ACSR 2 x 240 mm²	3.2	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Kuku-Khartoum East 2	ACSR 2 x 240 mm²	3.2	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Kilo X - Local Market 2	ACSR 2 x 240 mm²	3	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Rabak-Mashkur 2	ACSR 2 x 240 mm² - 220 kV	107.2	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Rabak-Tandalti 2	ACSR 2 x 240 mm² - 220 kV	111	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Singa-Hawata 2	ACSR 2 x 240 mm² - 220 kV	90	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Hawata-Gedarif 1	ACSR 2 x 240 mm² - 220 kV	110	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Sennar-Singa 1	ACSR 1 x 400 mm²	50	0.076	0.403	0.00902	0.551	2.159	0.0044	850	850
Sennar-Singa 2	ACSR 1 x 400 mm²	50	0.076	0.403	0.00902	0.551	2.159	0.0044	850	850
Umrawaba-Obeid 2	ACSR 2 x 240 mm² - 220 kV	126	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Tandalti-Umrawaba 1	ACSR 2 x 240 mm² - 220 kV	78.3	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250

Name	Type	Length	R(1)	X(1)	C(1)	R(0)	X(0)	C(0)	Irmax (low)	Irmax (high)
		km	Ohm/...	Ohm/...	uF/...	Ohm/...	Ohm/...	uF/...	A	A
Tandalti-Umrawaba 2	ACSR 2 x 240 mm² - 220 kV	78.3	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Mashkur-Jebel Aulia 2	ACSR 2 x 240 mm² - 220 kV	147.7	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Hassa Hiesa-Genaid 1	ACSR 2 x 240 mm²	15	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Hassa Hiesa-Genaid 2	ACSR 2 x 240 mm²	15	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Shagara-Jebel Aulia 2	ACSR 2 x 240 mm²	36	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Shagara-Jebel Aulia 1	ACSR 2 x 240 mm²	36	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Umrawaba-Obeid 1	ACSR 2 x 240 mm² - 220 kV	126	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
El Fau-Gedaref	ACSR 1 x 95 mm²	153	0.348	0.421	0.0086	0.546	1.38	0.0053	287	287
Gedarif-Raweshda	ACSR 1x 95 mm² - 66 kV	38	0.348	0.397	0.00896	0.47	1.45	0.0057	0	370
Rawesda-Showak	ACSR 1x 95 mm² - 66 kV	32	0.348	0.397	0.00896	0.47	1.45	0.0057	287	287
El Girba-Showak	ACSR 1x 95 mm² - 66 kV	70	0.348	0.397	0.00896	0.47	1.45	0.0057	287	287
Shendi-Free Zone 1	ACSR 2 x 240 mm² - 220 kV	115	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Atbara-Merowe Dam	ACSR 4 x 325 mm²	236.7	0.028	0.276	0.013083	0.3445	0.981	0.00999	2128	2890
Atbara-Port Sudan	ACSR 1 x 480 mm²	448.92	0.067	0.302	0.01306	0.262	1.2	0.00575	850	850
Singa-Hawata 1	ACSR 2 x 240 mm² - 220 kV	90	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Shendi-Free Zone 2	ACSR 2 x 240 mm² - 220 kV	115	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Gamoeia-Banat 1	ACSR 2 x 240 mm²	16.5	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
Gamoeia-Banat 2	ACSR 2 x 240 mm²	16.5	0.067	0.269	0.01306	0.262	1.044	0.00575	1250	1250
JEBEL Aulia 33 SS-PS 1	ACSR 1 x 185 mm²	5	0.15	0.28	0.008913	0.45	0.9	0.003947	350	350
JEBEL Aulia 33 SS-PS 2	ACSR 1 x 185 mm²	5	0.15	0.28	0.008913	0.45	0.9	0.003947	350	350
Gedarif-Shehedi 1	ACSR 2 x 240 mm² - 220 kV	192	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250
Gedarif-Shehedi 2	ACSR 2 x 240 mm² - 220 kV	192	0.067	0.302	0.01306	0.262	1.2	0.00575	972	1250

-2W Transformer data

Name	Vector	Sr	Ur1	Ur2	Ukr(1)	ukr(0)	Tap side	Controlled bus	Tap act	Tap min	Tapr	Tap max	Delta U	U set
	Group	MVA	kV	kV	%	%							%	%
TR2-KN ST1	YNd11	41.25	110	11.8	12.2	12.2	Primary	Primary	7	1	9	17	1.25	100
TR2-KN GT1	Dyn1	23	33	11	10.9	11.5	Primary	Primary	9	1	9	17	1.25	100
TR2-Giad TR	YNyn0	60	215	33	15.15	15.15	Primary	Secondary	9	1	9	17	-1.25	100
TR2-KN GT4	Dyn1	60	110	11	9.61	11.7	Primary	Primary	9	1	9	17	1.25	100
TR2-KN ST4	YNd11	75	110	11	11.92	11.92	Primary	Primary	9	1	11	21	1.25	100
TR2-KN ST3	YNd11	75	110	11	11.92	11.92	Primary	Primary	9	1	11	21	1.25	100
TR2-KN ST2	YNd11	41.25	110	11.8	12.2	12.2	Primary	Primary	7	1	9	17	1.25	100
TR2-Kassala TR2	YNd11	5	66	11	8	8	Primary	Secondary	10	1	10	15	1.67	100
TR2-El Girba TR2	Dyn1	15	6	66	8.2	8.2	Secondary	Secondary	11	1	11	21	2.5	100
TR2-El Girba TR1	Dyn1	15	6	66	9.85	9.85	Secondary	Secondary	11	1	11	21	2.5	100
TR2-Garri 11	YNd1	50	220	11	13.6	13.6	Primary	Primary	9	1	9	17	1.11	100
TR2-Garri 10	YNd1	50	220	11	13.6	13.6	Primary	Primary	9	1	9	17	1.11	100
TR2-Sennar Hydro TR1	YNd11	10	116	11	11.2	11.2	Primary	Primary	14	1	14	27	0.77	100
TR2-Garri 12	YNd1	50	220	11	13.6	13.6	Primary	Primary	9	1	9	17	1.11	100
TR2-Sennar Hydro TR2	YNd11	10	116	11	11.2	11.2	Primary	Primary	14	1	14	27	0.77	100
TR2-Kassala TR1	YNd11	10	66	11	7.6	7.6	Primary	Secondary	10	1	10	19	1.67	100
TR2-KN ST6	YNd11	150	115	13.8	13	13	Primary	Primary	6	1	6	11	1.25	100
TR2-KN ST5	YNd11	150	115	13.8	13	13	Primary	Primary	6	1	6	11	1.25	100
TR2-Garri 3	YNd1	50	220	11	13.7	13.7	Primary	Primary	9	1	9	17	1.25	100
TR2-Garri 2	YNd1	50	220	11	13.7	13.7	Primary	Primary	9	1	9	17	1.25	100
TR2-Garri 1	YNd1	50	220	11	13.7	13.7	Primary	Primary	9	1	9	17	1.25	100
TR2-Garri 8	YNd1	50	220	11	13.6	13.6	Primary	Primary	9	1	9	17	1.25	100
TR2-Garri 6	YNd1	50	220	11	13.7	13.7	Primary	Primary	9	1	9	17	1.25	100
TR2-Garri 7	YNd1	50	220	11	13.6	13.6	Primary	Primary	9	1	9	17	1.25	100
TR2-Garri 5	YNd1	50	220	11	13.7	13.7	Primary	Primary	9	1	9	17	1.25	100
TR2-Garri 4	YNd1	50	220	11	13.7	13.7	Primary	Primary	9	1	9	17	1.25	100
TR2-Garri 9	YNd1	50	220	11	13.6	13.6	Primary	Primary	9	1	9	17	1.25	100
TR2-Garri 13	YNd1	70	220	11	15.2	15.2	Primary	Primary	9	1	9	17	1.25	100
TR2-Garri 14	YNd1	70	220	11	15.2	15.2	Primary	Primary	9	1	9	17	1.25	100
TR2-Jebel Aulia TR	YNd5	5	33	0.69	6	6	Primary	Primary	3	1	2	3	2.5	100

TR2-Jebel Aulia TR	YNd5	5	33	0.69	6	6	Primary	Primary	3	1	2	3	2.5	100
TR2-Jebel Aulia TR	YNd5	5	33	0.69	6	6	Primary	Primary	3	1	2	3	2.5	100
TR2-Jebel Aulia TR	YNd5	5	33	0.69	6	6	Primary	Primary	3	1	2	3	2.5	100
TR2-Jebel Aulia TR	YNd5	5	33	0.69	6	6	Primary	Primary	3	1	2	3	2.5	100
TR2-Jebel Aulia TR	YNd5	5	33	0.69	6	6	Primary	Primary	3	1	2	3	2.5	100
TR2-Jebel Aulia TR	YNd5	5	33	0.69	6	6	Primary	Primary	3	1	2	3	2.5	100
TR2-Jebel Aulia TR	YNd5	5	33	0.69	6	6	Primary	Primary	3	1	2	3	2.5	100

-3W Transformer data

Name	Vector	Sr12	Sr23	Sr31	Ur1	Ur2	Ur3	ukr12(1)	ukr23(1)	ukr31(1)	ukr12(0)	ukr23(0)	ukr31(0)
	Group	MVA	MVA	MVA	kV	kV	kV	%	%	%	%	%	%
TR3-Giad AT	YNy0d11	60	60	30	215	110	33	12.06	25.42	20.3	12.06	25.42	20.3
TR3-Kilo X AT2	YNyn0d11	100	100	15	215	110	11	6.02	9.52	2.43	6.02	9.52	2.43
TR3-Kilo X AT1	YNyn0d11	100	100	15	215	110	11	5.96	9.52	2.43	5.96	9.52	2.43
TR3-Meringan TR1	YNyn0d11	80	80	30	215	110	11	14.09	7.93	8.86	14.09	7.93	8.86
TR3-Meringan TR2	YNyn0d11	80	80	30	215	110	11	13.75	7.81	9.58	13.75	7.81	9.58
TR3-Eid Babiker TR1	YNy0d11	150	150	22.5	215	110	33	9.65	26.81	5.62	9.65	26.81	5.62
TR3-Mahadia 2	YNyn0d11	150	150	150	220	110	33	12.67	12.76	26.88	12.67	12.76	26.88
TR3-Mahadia 1	YNyn0d11	150	150	150	220	110	33	12.67	12.76	26.88	12.67	12.76	26.88
TR3-El Kabashi 1	YNyn0d11	300	300	75	500	220	33	16.8	24.08	10.6	16.8	24.08	10.6
TR3-Atbara 1	YNyn0d11	300	300	75	500	220	33	16.8	24.32	10.7	16.8	24.32	10.7
TR3-Makhiyat 2	YNyn0d11	300	300	75	500	220	33	16.97	24.56	10.84	16.97	24.56	10.84
TR3-Makhiyat 1	YNyn0d11	300	300	75	500	220	33	16.97	24.56	10.84	16.97	24.56	10.84
TR3-El Kabashi 2	YNyn0d11	300	300	75	500	220	33	16.8	24.08	10.6	16.8	24.08	10.6
TR3-Geradef TR1	YNyn0yn0	25	25	10	110	66	11	9.89	24.7	5.69	9.89	24.7	5.69
TR3-Sennar TR2	YNyn0d11	55	55	30	220	110	33	8	16.7	21.8	8	16.7	21.8
TR3-Sennar TR1	YNyn0d11	55	55	17.5	220	110	11	7.67	16.87	25.89	7.67	16.87	25.89
TR3-Merowe G3-4	YNd11d11	282	141	141	525	13.8	13.8	24.22	24.32	12.08	12.11	24.32	12.11
TR3-Rabak 2	YNyn0d11	100	100	15	220	110	11	14	12	4.13	14	12	4.13
TR3-Rabak 1	YNyn0d11	100	100	15	220	110	11	14	12	4.13	14	12	4.13
TR3-Merowe Auto TR1	YNyn0d11	150	150	141	500	220	33	11	21	32	11	21	32
TR3-Merowe Auto TR2	YNyn0d11	150	150	141	500	220	33	11	21	32	11	21	32
TR3-Merowe G1-2	YNd11d11	282	141	141	525	13.8	13.8	24.14	24.14	12.07	12.11	24.32	6.055
TR3-Geradef TR2	YNyn0d11	100	100	50	220	110	33	12	10	12	12	10	12
TR3-Eid Babiker TR2	YNy0d11	150	150	22.5	215	110	33	9.65	26.81	5.62	9.65	26.81	5.62
TR3-Merowe G5-6	YNd11d11	282	141	141	525	13.8	13.8	24.34	24.38	12.11	12.11	24.32	12.11
TR3-Merowe G7-8	YNd11d11	282	141	141	525	13.8	13.8	24.24	24.64	12.1	12.11	24.32	12.11
TR3-Merowe G9-10	YNd11d11	282	141	141	525	13.8	13.8	24.16	24.14	12.08	12.11	24.32	12.11
TR3-Roseires TR01 G1-2	YNd1d1	86	43	43	220	11	11	20.8	11.11	10.4	10.4	22.2	10.4
TR3-Roseires TR02 G4	YNd1d1	89	44.5	44.5	220	11	11	20.81	22.575	10.275	10.4	22.2	10.4
TR3-Roseires TR03 G5-6	YNd1d1	89	43	43	220	11	11	35.6	34.3	17.9	35.6	34.3	17.9
TR3-Roseires TR04 G3-7	YNd1d1	87	43.5	43.5	220	11	11	35.6	34.3	17.9	35.6	34.3	17.9
TR3-Atbara 2	YNyn0d11	300	300	75	500	220	33	16.8	24.32	10.7	16.8	24.32	10.7

Name	Vector	Sr12	Sr23	Sr31	Ur1	Ur2	Ur3	ukr12(1)	ukr23(1)	ukr31(1)	ukr12(0)	ukr23(0)	ukr31(0)
	Group	MVA	MVA	MVA	kV	kV	kV	%	%	%	%	%	%
TR3-Geradef TR3	YNyn0yn0	25	25	10	110	66	11	10	26.25	6	10	26.25	6
TR3-Geradef TR4	YNyn0d11	100	100	50	220	110	33	12	10	12	12	10	12
TR3-Jebel Aulia 1	YNyn0d11	150	150	50	220	110	34.5	13	10	8.17	13	10	8.17
TR3-Jebel Aulia 2	YNyn0d11	150	150	50	220	110	34.5	13	10	8.17	13	10	8.17
TR3-Kilo X AT3	YNyn0d11	100	100	15	215	110	11	6	9.52	2.43	6	9.52	2.43
TR3-Gamoeia 2	YNyn0d1	150	150	50	220	115	34.5	13	10	8.17	13	10	8.17
TR3-Gamoeia 1	YNyn0d1	150	150	50	220	115	34.5	13	10	8.17	13	10	8.17
TR3-Kuku 1	YNy0d11	30	30	7.5	110	33	11	12.26	7.69	5.45	12.26	7.69	5.45
TR3-Kuku 2	YNy0d11	30	30	7.5	110	33	11	12.26	7.7	5.44	12.26	7.69	5.45
TR3-Kuku 3	YNy0d11	30	30	7.5	110	33	11	12.22	7.69	5.43	12.26	7.69	5.45

-3W Transformer, Regulation Parameters

Name	On-load Tap changer	Tap side	Regulated node	Tap act	Tap min	Tapr	Tap max	Delta u %	U set %
TR3-Giad AT	0	Primary		9	1	9	17	-1.25	98
TR3-Kilo X AT2	0	Primary		13	1	10	19	1.25	98
TR3-Kilo X AT1	0	Primary		13	1	10	19	1.25	98
TR3-Meringan TR1	1	Primary	Mar-01	10	1	10	19	1.67	98
TR3-Meringan TR2	1	Primary	Mar-01	10	1	10	19	1.67	98
TR3-Eid Babiker TR1	1	Primary	IBA1	9	1	9	17	1.25	98
TR3-Mahadia 2	1	Primary	MHD1	9	1	9	17	1.25	96
TR3-Mahadia 1	1	Primary	MHD1	9	1	9	17	1.25	96
TR3-El Kabashi 1	1	Primary	KAB2	9	1	9	21	1.25	100
TR3-Atbara 1	1	Primary	ATB2	9	1	9	21	1.25	100
TR3-Makhiyat 2	1	Primary	MRK2	9	1	9	21	1.25	100
TR3-Makhiyat 1	1	Primary	MRK2	9	1	9	21	1.25	100
TR3-El Kabashi 2	1	Primary	KAB2	9	1	9	21	1.25	100
TR3-Geradef TR1	1	Primary	GDF66	10	1	10	19	1.67	106
TR3-Sennar TR2	1	Primary	SENJ1	11	1	11	21	0.75	100
TR3-Sennar TR1	1	Primary	SENJ1	11	1	11	21	0.75	100
TR3-Merowe G3-4	0	Primary		3	1	3	5	-2.5	100
TR3-Rabak 2	1	Primary	RBK1	9	1	9	17	1.25	98
TR3-Rabak 1	1	Primary	RBK1	9	1	9	17	1.25	98
TR3-Merowe Auto TR1	1	Primary	MWAIS2	8	1	8	15	2	100
TR3-Merowe Auto TR2	1	Primary	MWAIS2	8	1	8	15	2	100
TR3-Merowe G1-2	0	Primary		3	1	3	5	-2.5	100
TR3-Geradef TR2	1	Primary	GDF1	11	1	11	21	0.568	98
TR3-Eid Babiker TR2	1	Primary	IBA1	9	1	9	17	1.25	98
TR3-Merowe G5-6	0	Primary		3	1	3	5	-2.5	100
TR3-Merowe G7-8	0	Primary		3	1	3	5	-2.5	100
TR3-Merowe G9-10	0	Primary		3	1	3	5	-2.5	100
TR3-Roseires TR01 G1-2	0	Primary		3	1	3	5	2.5	0
TR3-Roseires TR02 G4	0	Primary		3	1	3	5	2.5	0
TR3-Roseires TR03 G5-6	0	Primary		3	1	3	5	2.5	0
TR3-Roseires TR04 G3-7	0	Primary		3	1	3	5	2.5	0
TR3-Atbara 2	1	Primary	ATB2	9	1	9	21	1.25	100
TR3-Geradef TR3	1	Primary	GDF66	10	1	10	19	1.67	106
TR3-Geradef TR4	1	Primary	GDF1	11	1	11	21	0.568	98
TR3-Jebel Aulia 1	1	Primary	JAS1	9	1	9	17	1.25	98
TR3-Jebel Aulia 2	1	Primary	JAS1	9	1	9	17	1.25	98
TR3-Kilo X AT3	0	Primary		13	1	10	19	1.25	98
TR3-Gamoeia 2	1	Primary	GAM1	9	1	9	17	1.25	98
TR3-Gamoeia 1	1	Primary	GAM1	9	1	9	17	1.25	98
TR3-Kuku 1	1	Primary	KUK3	9	1	9	17	1.25	103
TR3-Kuku 2	1	Primary	KUK3	9	1	9	17	1.25	103
TR3-Kuku 3	1	Primary	KUK3	9	1	9	17	1.25	103

-Synchronous Machine data

Name	Sr	Ur	cosphi	xd sat	xd' sat	xd" sat	x(2)	x(0)	Turbo	LF Type	P Gen	Q Gen	U reg	Q min	Q max	P min	P max	Slack Portion
-	MVA	kV	-	%	%	%	%	%	-	-	MW	Mvar	%	Mvar	Mvar	MW	MW	%
Rosaries G1	44.5	11	0.9	123	44	30	30	24	0	PV	40	0	105	-25	30	22	40	0
KN GT1	23.5	11	0.8	216	20	14.2	14.2	8	1	PV	17	0	105	-9	10.6	5	17	0
KN ST3	75	11	0.8	227	23	14.8	14.8	8.88	1	PV	60	0	105	-40	45	30	55	0
KN ST1	41.25	11	0.8	163	24	16.7	16.7	8	1	PV	30	0	105	-20	22.5	15	30	0
Garri I G1	41.3	11	0.9	160	24	16	16	8	1	PV	37.17	0	103	-25	30	0	38	0
Merowe G3	140	13.8	0.9	88.3	27.5	18	19.6	15.2	0	PV	100	24.94147	103	-70	80	0	125	0
Rosaries G7	43	11	0.9	87	27	23	23	24	0	PV	40	0	105	-25	30	22	39	0
Rosaries G6	43	11	0.9	87	27	23	23	24	0	PV	40	0	105	-25	30	22	39	0
Rosaries G5	43	11	0.9	87	27	23	23	24	0	PV	40	0	105	-25	30	22	39	0
Rosaries G3	44.5	11	0.9	123	44	30	30	24	0	PV	40	0	105	-25	30	22	40	0
Rosaries G4	43	11	0.9	87	27	23	23	24	0	PV	40	0	105	-25	30	22	39	0
Rosaries G2	44.5	11	0.9	123	44	30	30	24	0	PV	40	0	105	-25	30	22	40	0
Garri II G8	41.3	11	0.85	160	24	16	16	8	1	PV	37.17	0	103	-25	30	0	35	0
Garri II G7	41.3	11	0.85	160	24	16	16	8	1	PV	37.17	0	103	-25	30	0	38	0
El Girba Diesel GT1	4.5	6.6	0.8	114	31	20	20	5	1	PQ	2.7	1.6	0	-9	10.4	0	17.5	0
Sennar G2	9.4	11	0.8	102	30	20	20	16	0	PQ	7.5	5	0	-5	5.6	0	7.5	0
Sennar G1	9.4	11	0.8	102	30	20	20	16	0	PQ	7.5	5	0	-5	5.6	0	7.5	0
Kassala G1-4	9.5	11	0.8	375	21.5	12	12	5	1	PQ	8	7	0	-3	3.7	0	4.9	0
Garri II ST4	41.3	11	0.85	160	24	16	16	8	1	PV	37.17	0	103	-25	30	0	35	0
Garri I G4	41.3	11	0.9	160	24	16	16	8	1	PV	37.17	0	103	-25	30	0	38	0
Garri I G3	41.3	11	0.9	160	24	16	16	8	1	PV	37.17	0	103	-25	30	0	38	0
Garri I ST1	41.3	11	0.9	160	24	16	16	8	1	PV	37.17	0	103	-25	30	0	38	0
Garri I G2	41.3	11	0.9	160	24	16	16	8	1	PV	37.17	0	103	-25	30	0	38	0
KN GT4	25	11	0.8	216	20	14.2	14.2	8	1	PV	17	0	105	-9	10.6	5	17	0
Merowe G4	140	13.8	0.9	88.3	27.5	18	19.6	15.2	0	PV	100	24.94147	103	-70	80	0	125	0
Garri II ST3	41.3	11	0.85	160	24	16	16	8	1	PV	37.17	0	103	-25	30	0	38	0
Garri II G6	41.3	11	0.85	160	24	16	16	8	1	PV	37.17	0	103	-25	30	0	38	0
Garri II G5	41.3	11	0.9	160	24	16	16	8	1	PV	37.17	0	103	-25	30	0	38	0
Garri I ST2	41.3	11	0.9	160	24	16	16	8	1	PV	37.17	0	103	-25	30	0	38	0
KN ST4	75	11	0.8	227	23	14.8	14.8	8.88	1	PV	60	40	105	-40	45	30	55	0
KN ST2	41.25	11	0.8	163	24	16.7	16.7	8	1	PV	30	0	105	-20	22.5	15	30	0

Name	Sr	Ur	cosphi	xd sat	xd' sat	xd" sat	x(2)	x(0)	Turbo	LF Type	P Gen	Q Gen	U reg	Q min	Q max	P min	P max	Slack Portion
-	MVA	kV	-	%	%	%	%	%	-	-	MW	Mvar	%	Mvar	Mvar	MW	MW	%
KN ST6	137.5	11	0.85	122	17.4	13.4	13.4	8	1	PV	110	50	105	-60	70	0	100	50
KN ST5	137.5	11	0.85	122	17.4	13.4	13.4	8	1	PV	110	0	105	-60	70	0	100	50
Merowe G2	140	13.8	0.9	88.3	27.5	18	19.6	15.2	0	SL	100.65	42.3911	103	-70	80	0	125	0
Merowe G1	140	13.8	0.9	88.3	27.5	18	19.6	15.2	0	SL	100.65	42.3911	103	-70	80	0	125	0
Merowe G5	140	13.8	0.9	88.3	27.5	18	19.6	15.2	0	PV	100	24.94147	103	-70	80	0	125	0
Merowe G6	140	13.8	0.9	88.3	27.5	18	19.6	15.2	0	PV	100	24.94147	103	-70	80	0	125	0
Merowe G7	140	13.8	0.9	88.3	27.5	18	19.6	15.2	0	PV	100	24.94147	103	-70	80	0	125	0
Merowe G8	140	13.8	0.9	88.3	27.5	18	19.6	15.2	0	PV	100	24.94147	103	-70	80	0	125	0
Merowe G9	140	13.8	0.9	88.3	27.5	18	19.6	15.2	0	PV	100	24.94147	103	-70	80	0	125	0
Merowe G10	140	13.8	0.9	88.3	27.5	18	19.6	15.2	0	PV	100	24.94147	103	-70	80	0	125	0
Garri IIII ST09	70	11	0.85	160	24	16	16	8	1	PV	60	0	103	-25	30	0	35	0
Garri IIII ST10	70	11	0.85	160	24	16	16	8	1	PV	60	0	103	-25	30	0	35	0
El Girba Kap GT1	6.6	6.6	0.8	114	31	20	20	5	1	PQ	4	2.3	0	-9	10.4	0	17.5	0
El Girba Diesel GT2	3.5	6.6	0.8	114	31	20	20	5	1	PQ	2.1	1.2	0	-9	10.4	0	17.5	0
El Girba pump 2	2.6	6.6	0.8	114	31	20	20	5	1	PQ	1.6	0.9	0	-9	10.4	0	17.5	0
El Girba pump 1	2.6	6.6	0.8	114	31	20	20	5	1	PQ	1.6	0.9	0	-9	10.4	0	17.5	0
El Girba Kap GT2	6.6	6.6	0.8	114	31	20	20	5	1	PQ	4	2.3	0	-9	10.4	0	17.5	0
El Girba pump 3	2.6	6.6	0.8	114	31	20	20	5	1	PQ	1.6	0.9	0	-9	10.4	0	17.5	0
G-Shehedi	200	220	0.85	160	28	31	31	20	1	PQ	200	-50	0	-150	150	0	200	0

-Synchronous Machine, Dynamic Parameters

Name	Model	Machine type	H	xd	xd'	xd''	xq	xq'	xq''	Td'	Td''	Tq''	Td0'	Td0''	Tq0'	Tq0''	Tdc
-			s	%	%	%	%	%	%	s	s	s	s	s	s	s	s
Rosaries G1	Special (EQPAR)	Salient pole	4.5	89	26	21	54	0	22	0	0	0	4.67	0.05	0	0.07	0
KN GT1	Special (EQPAR)	Round rotor	7.92	216	20	14.2	210	30	15	0	0	0	5.34	0.05	0.59	0.05	0
KN ST3	Special (EQPAR)	Round rotor	3.976	230	23	14.8	210	55	16	0	0	0	7.69	0.04	0.96	0.048	0
KN ST1	Special (EQPAR)	Round rotor	3.155	163.4	23.2	17	160	48	16	0	0	0	7.2	0.05	0.9	0.048	0
Garri I G1	Special (EQPAR)	Round rotor	2.675	90	30.2	36.5	69	30	34.1	0	0	0	1.589	0.047	0	0.013	0
Merowe G3	Special (EQPAR)	Salient pole	3.35	88.3	27.5	18	60.1	0	21.3	2.452	0.069	0.062	8.843	0.089	0	0.219	0
Rosaries G7	Special (EQPAR)	Salient pole	4.5	89	26	21	54	0	22	0	0	0	4.67	0.05	0	0.07	0
Rosaries G6	Special (EQPAR)	Salient pole	4.5	89	26	21	54	0	22	0	0	0	4.67	0.05	0	0.07	0
Rosaries G5	Special (EQPAR)	Salient pole	4.5	89	26	21	54	0	22	0	0	0	4.67	0.05	0	0.07	0
Rosaries G3	Special (EQPAR)	Salient pole	4.5	89	26	21	54	0	22	0	0	0	4.67	0.05	0	0.07	0
Rosaries G4	Special (EQPAR)	Salient pole	4.5	89	26	21	54	0	22	0	0	0	4.67	0.05	0	0.07	0
Rosaries G2	Special (EQPAR)	Salient pole	4.5	89	26	21	54	0	22	0	0	0	4.67	0.05	0	0.07	0
Garri II G8	Special (EQPAR)	Round rotor	3.23	95.3	31.2	28.3	57.3	30	40.2	0	0	0	2.315	0.037	0	0.05	0
Garri II G7	Special (EQPAR)	Round rotor	3.23	95.3	31.2	28.3	57.3	30	40.2	0	0	0	2.315	0.037	0	0.05	0
El Girba Diesel GT1	Special (EQPAR)	Round rotor	1	185	89	23.5	89	0	22	0	0	0	4.8	0.02	0	0.08	0
Sennar G2	Special (EQPAR)	Salient pole	2.22	102	30	20	65	30	25	0	0	0	5	0.041	0	0.074	0
Sennar G1	Special (EQPAR)	Salient pole	2.22	102	30	20	65	30	25	0	0	0	5	0.041	0	0.074	0
Kassala G1-4	Transient	Round rotor	3	91	20	0	55	54.6	0	0	0	0	6	0.03	1.5	0.07	0
Garri II ST4	Special (EQPAR)	Round rotor	3.23	95.3	31.2	28.3	57.3	30	40.2	0	0	0	2.315	0.037	0	0.05	0
Garri I G4	Special (EQPAR)	Round rotor	3.23	95.3	20	11	155.1	40	11	0	0	0	2.315	0.037	0	0.05	0
Garri I G3	Special (EQPAR)	Round rotor	3.23	95.3	31.2	28.3	57.3	30	40.2	0	0	0	2.315	0.037	0	0.05	0
Garri I ST1	Special (EQPAR)	Round rotor	3.23	95.3	31.2	28.3	57.3	30	40.2	0	0	0	2.315	0.037	0	0.05	0
Garri I G2	Special (EQPAR)	Round rotor	3.23	95.3	26	24	54	30	21	0	0	0	2.315	0.037	0	0.05	0
KN GT4	Classical	Round rotor	7.92	216	20	14.2	210	30	15	0	0	0	5.34	0.05	0.59	0.05	0
Merowe G4	Special (EQPAR)	Salient pole	3.35	88.3	27.5	18	60.1	0	21.3	2.452	0.069	0.062	8.843	0.089	0	0.219	0
Garri II ST3	Special (EQPAR)	Round rotor	3.23	95.3	31.2	28.3	57.3	30	40.2	0	0	0	2.315	0.037	0	0.05	0
Garri II G6	Special (EQPAR)	Round rotor	3.23	95.3	31.2	28.3	57.3	30	40.2	0	0	0	2.315	0.037	0	0.05	0
Garri II G5	Special (EQPAR)	Round rotor	3.23	95.3	18	13.2	57.3	30	40.2	0	0	0	2.315	0.037	0	0.05	0
Garri I ST2	Special (EQPAR)	Round rotor	3.39	93	31.2	28.3	57.3	30	40.2	0	0	0	2.598	0.036	0	0.03	0
KN ST4	Special (EQPAR)	Round rotor	3.976	230	23	14.8	210	55	16	0	0	0	7.69	0.04	0.96	0.048	0
KN ST2	Special (EQPAR)	Round rotor	3.155	163.4	23.2	17	160	48	16	0	0	0	7.2	0.05	0.9	0.048	0

KN ST6	Special (EQPAR)	Round rotor	6.14	197	27	24	190	48	20	0	0	0	8.2	0.035	0.997	0.035	0
KN ST5	Special (EQPAR)	Round rotor	6.14	197	27	24	190	48	20	0	0	0	8.2	0.035	0.997	0.035	0
Merowe G2	Special (EQPAR)	Salient pole	3.35	88.3	27.5	18	60.1	0	21.3	2.452	0.069	0.062	8.843	0.089	0	0.219	0
Merowe G1	Special (EQPAR)	Salient pole	3.35	88.3	27.5	18	60.1	0	21.3	2.452	0.069	0.062	8.843	0.089	0	0.219	0
Merowe G5	Special (EQPAR)	Salient pole	3.35	88.3	27.5	18	60.1	0	21.3	2.452	0.069	0.062	8.843	0.089	0	0.219	0
Merowe G6	Special (EQPAR)	Salient pole	3.35	88.3	27.5	18	60.1	0	21.3	2.452	0.069	0.062	8.843	0.089	0	0.219	0
Merowe G7	Special (EQPAR)	Salient pole	3.35	88.3	27.5	18	60.1	0	21.3	2.452	0.069	0.062	8.843	0.089	0	0.219	0
Merowe G8	Special (EQPAR)	Salient pole	3.35	88.3	27.5	18	60.1	0	21.3	2.452	0.069	0.062	8.843	0.089	0	0.219	0
Merowe G9	Special (EQPAR)	Salient pole	3.35	88.3	27.5	18	60.1	0	21.3	2.452	0.069	0.062	8.843	0.089	0	0.219	0
Merowe G10	Special (EQPAR)	Salient pole	3.35	88.3	27.5	18	60.1	0	21.3	2.452	0.069	0.062	8.843	0.089	0	0.219	0
Garri IIII ST09	Special (EQPAR)	Round rotor	3.23	166	31.2	28.3	57.3	30	40.2	0	0	0	2.315	0.037	0	0.05	0
Garri IIII ST10	Special (EQPAR)	Round rotor	3.23	166	18	13.2	57.3	30	40.2	0	0	0	2.315	0.037	0	0.05	0
El Girba Kap GT1	Special (EQPAR)	Round rotor	3.5	113.8	30.6	20.5	68.3	0	20	0	0	0	6	0.05	0	0.1	0
El Girba Diesel GT2	Special (EQPAR)	Round rotor	1.1	185	89	23.5	89	0	22	0	0	0	4.8	0.02	0	0.08	0
El Girba pump 2	Special (EQPAR)	Round rotor	4	128	32	25	92	0	31.5	0	0	0	5.2	0.05	0	0.06	0
El Girba pump 1	Special (EQPAR)	Round rotor	4	128	32	25	92	0	31.5	0	0	0	5.2	0.05	0	0.06	0
El Girba Kap GT2	Special (EQPAR)	Round rotor	3.5	113.8	30.6	20.5	68.3	0	20	0	0	0	6	0.05	0	0.1	0
El Girba pump 3	Special (EQPAR)	Round rotor	4	128	32	25	92	0	31.5	0	0	0	5.2	0.05	0	0.06	0
G-Shehedi	Classical	Round rotor	10	0	28	0	0	0	0	0	0	0	0	0	0	0	0

-Asynchronous Machine data:

Name	Pr	Sr	Ur	Ir	cosphi	eta	Ia/Ir	cosphi start	Ma/Mr	Mk/Mr	Rm	Rs/Rr	sr	LF type	P oper	Q oper
	MW	MVA	kV	kA	-						Ohm	kgm2	%		MW	Mvar
Jebel Aulia Hydro G1	4.13	5.115	0.69	4.2795	0.85	0.95	6.5	0.3	1.7	2.2	0.004296	1	2.3	PQ oper	-3.8	2.355
Jebel Aulia Hydro G2	4.13	5.115	0.69	4.2795	0.85	0.95	6.5	0.3	1.7	2.2	0.004296	1	2.3	PQ oper	-3.8	2.355
Jebel Aulia Hydro G3	4.13	5.115	0.69	4.2795	0.85	0.95	6.5	0.3	1.7	2.2	0.004296	1	2.3	PQ oper	-3.8	2.355
Jebel Aulia Hydro G4	4.13	5.115	0.69	4.2795	0.85	0.95	6.5	0.3	1.7	2.2	0.004296	1	2.3	PQ oper	-3.8	2.355
Jebel Aulia Hydro G5	4.13	5.115	0.69	4.2795	0.85	0.95	6.5	0.3	1.7	2.2	0.004296	1	2.3	PQ oper	-3.8	2.355
Jebel Aulia Hydro G6	4.13	5.115	0.69	4.2795	0.85	0.95	6.5	0.3	1.7	2.2	0.004296	1	2.3	PQ oper	-3.8	2.355
Jebel Aulia Hydro G7	4.13	5.115	0.69	4.2795	0.85	0.95	6.5	0.3	1.7	2.2	0.004296	1	2.3	PQ oper	-3.8	2.355
Jebel Aulia Hydro G8	4.13	5.115	0.69	4.2795	0.85	0.95	6.5	0.3	1.7	2.2	0.004296	1	2.3	PQ oper	-3.8	2.355

-Shunt data:

Name	Type	Ur	Q(1)	Regulation
		kV	MVar	
KN 33 Cap		33	-5	fixed
Hassa Heisa 11 Cap		110	-5	fixed
Bagair 11 Cap		110	-5	fixed
Omdurman 11 Cap		110	-2.5	fixed
Debba 22 Rea		220	20	fixed
Port Sudan 22 Rea	2x15 MVar	220	30	fixed
Gedaref 33 4 Rea		33	15	fixed
Obeid 22 Rea	2x15 MVar	220	30	fixed
Mashkur 22 Rea	2x15 MVar	220	30	fixed
Rabak 22 Rea	2x15 MVar	220	30	fixed
Rank 22 Rea	2x15 MVar	220	30	fixed
Sennar1 22 Rea	2x15 MVar	220	30	fixed
Rosaries 11 8 Rea		11	15	fixed
Rosaries 11 1 Rea		11	15	fixed
Tandalti 22 Rea	2x15 MVar	220	30	fixed
Umrawaba 22 Rea	2x15 MVar	220	30	fixed
Markhyiat 50 Rea	2x15 MVar	500	30	fixed
Izergab 11 Cap		110	-5	fixed
Kilox 22 Rea	2x15 MVar	220	30	fixed
Singa 22 Rea	2x15 MVar	220	30	fixed
Gedaref 33 2 Rea		33	15	fixed
Eid Babiker 11 Rea		110	15	fixed
Mahadia 11 Cap		110	-5	fixed