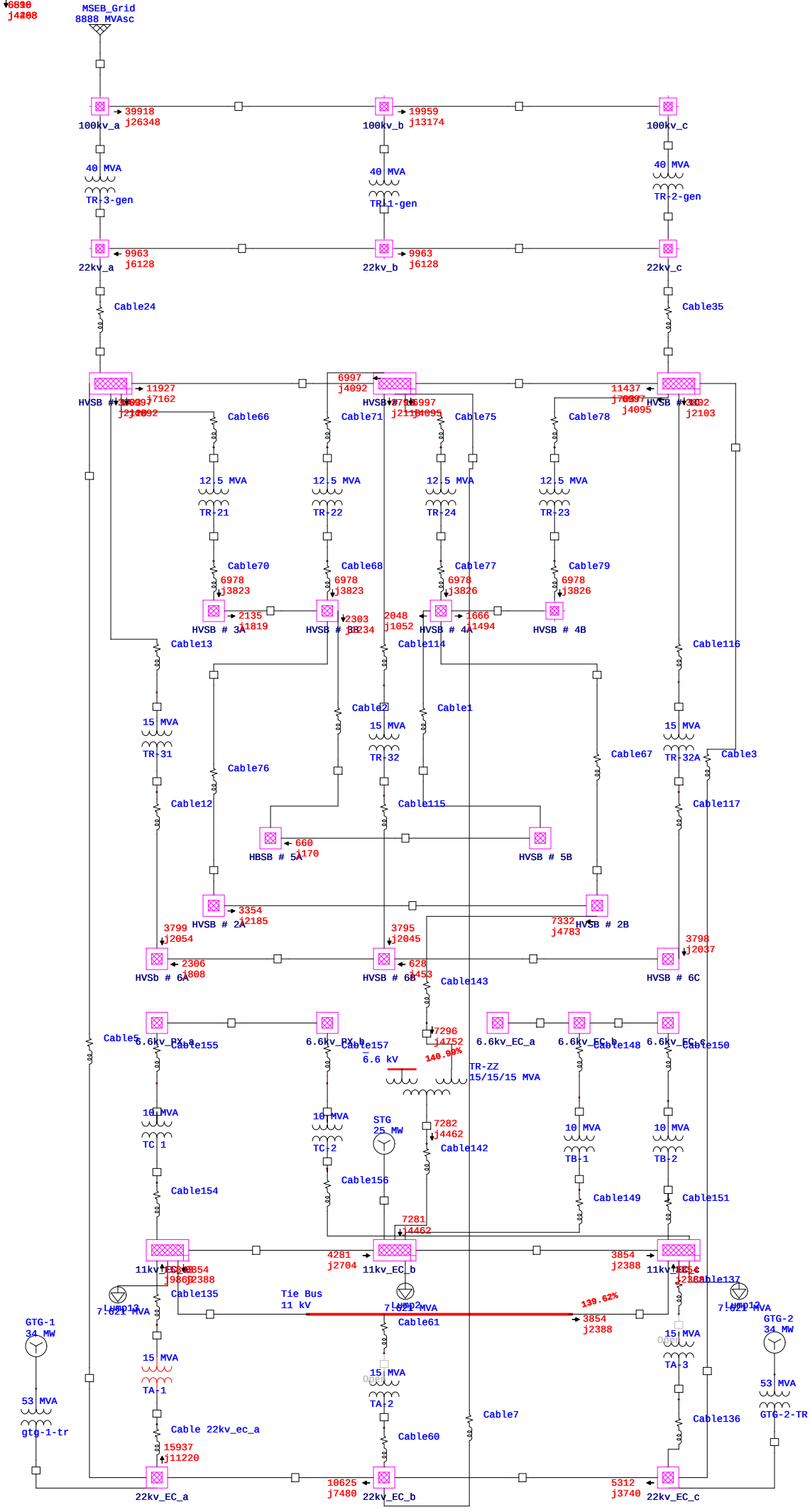
MSEB_Grid
8888 MVAsc
100kv_a
39918
j26348
100kv_b
19959
j13174
100kv_c
40 MVA
TR-3-gen
40 MVA
TR-1-gen
40 MVA
TR-2-gen
22kv_a
9963
j6128
22kv_b
9963
j6128
22kv_c
Cable24
Cable35
HVSB # 1A
11927
j7162
HVSB # 1B
6997
j4092
HVSB # 1C
11437
j6997
j4095
Cable66
Cable71
Cable75
Cable78
12.5 MVA
TR-21
12.5 MVA
TR-22
12.5 MVA
TR-24
12.5 MVA
TR-23
Cable70
6978
j3823
Cable68
6978
j3823
Cable77
6978
j3826
Cable79
6978
j3826
HVSB # 3A
2135
j1819
HVSB # 3B
2303
j1234
2048
j1052
HVSB # 4A
1666
j1494
HVSB # 4B
Cable13
Cable114
Cable116
15 MVA
TR-31
Cable2
15 MVA
TR-32
Cable1
15 MVA
TR-32A
Cable3
Cable76
Cable67
Cable12
Cable115
Cable117
HBSB # 5A
660
j170
HVSB # 5B
HVSB # 2A
3354
j2185
HVSB # 2B
7332
j4783
3799
j2054
3795
j2045
3798
j2037
HVSb # 6A
2306
j808
HVSB # 6B
628
j453
HVSB # 6C
Cable143
Cable5
6.6kv_PX_a
Cable155
6.6kv_PX_b
Cable157
6.6 kV
7296
j4752
140.90%
TR-ZZ
15/15/15 MVA
6.6kv_EC_a
6.6kv_EC_b
Cable148
6.6kv_EC_c
Cable150
10 MVA
TC 1
10 MVA
TC-2
STG
25 MW
7282
j4462
Cable142
10 MVA
TB-1
10 MVA
TB-2
Cable154
Cable156
Cable149
Cable151
7281
j4462
11kv_EC_a
4281
j2704
11kv_EC_b
3854
j2388
11kv_EC_c
Cable135
Tie Bus
11 kV
139.62%
3854
j2388
Cable137
Lump1a
7.021 MVA
Lump1b
7.021 MVA
Lump1c
7.021 MVA
Cable61
GTG-1
34 MW
GTG-2
34 MW
15 MVA
TA-1
15 MVA
TA-2
15 MVA
TA-3
53 MVA
gtg-1-tr
53 MVA
GTG-2-TR
Cable 22kv_ec_a
Cable60
Cable7
Cable136
15937
j11220
22kv_EC_a
10625
j7480
22kv_EC_b
5312
j3740
22kv_EC_c

2-Winding Transformer Input Data

Transformer	Rating					Z Variation			% Tap Setting		Adjusted
ID	MVA	Prim. kV	Sec. kV	% Z	X/R	+ 5%	- 5%	% Tol.	Prim.	Sec.	% Z
gtg-1-tr	53.000	11.000	22.000	17.86	34.10	0	0	0	0	0	17.8600
GTG-2-TR	53.000	11.000	22.000	17.86	34.10	0	0	0	0	0	17.8600
TA-1	15.000	11.000	22.000	11.20	18.60	0	0	0	0	0	11.2000
TA-2	15.000	11.000	22.000	11.20	18.60	0	0	0	0	0	11.2000
TA-3	15.000	11.000	22.000	11.20	18.60	0	0	0	0	0	11.2000
TB-1	10.000	6.600	11.000	7.32	15.50	0	0	0	0	0	7.3200
TB-2	10.000	6.600	11.000	7.32	15.50	0	0	0	0	0	7.3200
TC 1	10.000	6.600	11.000	7.30	15.50	0	0	0	0	0	7.3000
TC-2	10.000	6.600	11.000	7.30	15.50	0	0	0	0	0	7.3000
TR-1	2.000	22.000	0.433	6.45	7.10	0	0	0	0	0	6.4500
TR-1-gen	40.000	100.000	22.000	14.30	27.30	0	0	0	0	0	14.3000
TR-2-gen	40.000	100.000	22.000	14.30	27.30	0	0	0	0	0	14.3000
TR-3	2.000	22.000	0.433	6.45	7.10	0	0	0	0	0	6.4500
TR-3-gen	40.000	100.000	22.000	14.30	27.30	0	0	0	0	0	14.3000
TR-4	2.000	22.000	0.433	6.50	7.10	0	0	0	0	0	6.5000
TR-6	2.000	22.000	0.433	6.38	7.10	0	0	0	0	0	6.3800
TR-7	2.000	22.000	0.433	6.35	7.10	0	0	0	0	0	6.3500
TR-9	2.000	22.000	0.433	6.51	7.10	0	0	0	0	0	6.5100
TR-11	2.000	6.600	0.433	6.33	7.10	0	0	0	0	0	6.3300
TR-13	2.000	6.600	0.433	6.33	7.10	0	0	0	0	0	6.3300
TR-14	2.000	6.600	0.400	6.31	7.10	0	0	0	0	0	6.3100
TR-16	2.000	6.600	0.400	6.31	7.10	0	0	0	0	0	6.3100
TR-17	2.000	6.600	0.433	6.41	7.10	0	0	0	0	0	6.4100
TR-19	2.000	6.600	0.433	6.41	7.10	0	0	0	0	0	6.4100
TR-21	12.500	22.000	6.600	10.74	18.60	0	0	0	0	0	10.7400
TR-22	12.500	22.000	6.600	10.74	18.60	0	0	0	0	0	10.7400
TR-23	12.500	22.000	6.600	10.74	18.60	0	0	0	0	0	10.7400
TR-24	12.500	22.000	6.600	10.74	18.60	0	0	0	0	0	10.7400
TR-26	2.000	22.000	0.433	6.44	7.10	0	0	0	0	0	6.4400
TR-27	2.000	22.000	0.433	6.44	7.10	0	0	0	0	0	6.4400
TR-30	2.000	6.600	0.433	7.05	7.10	0	0	0	0	0	7.0500
TR-31	15.000	22.000	11.000	11.00	18.60	0	0	0	0	0	11.0000
TR-32	15.000	22.000	11.000	11.00	18.60	0	0	0	0	0	11.0000
TR-32A	15.000	22.000	11.000	11.00	18.60	0	0	0	0	0	11.0000
TR-33	2.000	11.000	0.433	6.63	7.10	0	0	0	0	0	6.6300
TR-35	1.600	11.000	0.433	6.70	7.10	0	0	0	0	0	6.7000
TR-36	1.600	11.000	0.433	6.70	7.10	0	0	0	0	0	6.7000
TR-CH-A	1.600	11.000	0.433	6.50	7.10	0	0	0	0	0	6.5000

Transformer	Rating					Z Variation			% Tap Setting		Adjusted
ID	MVA	Prim. kV	Sec. kV	% Z	X/R	+ 5%	- 5%	% Tol.	Prim.	Sec.	% Z
TR-CH-B	1.600	11.000	0.433	6.50	7.10	0	0	0	0	0	6.5000
TR-CH-C	1.600	11.000	0.433	6.50	7.10	0	0	0	0	0	6.5000
TR-CP7-1	3.500	11.000	0.433	6.66	11.41	0	0	0	0	0	6.6600
TR-CP7-3	3.500	11.000	0.433	6.66	11.41	0	0	0	0	0	6.6600
TR-CP7-4	2.500	11.000	0.433	7.37	10.67	0	0	0	0	0	7.3700
TR-CP7-6	2.500	11.000	0.433	7.37	10.67	0	0	0	0	0	7.3700
TR DG Aux	0.315	6.600	0.433	4.49	4.70	0	0	0	0	0	4.4900
TR-DL2	1.350	6.600	0.433	5.80	7.10	0	0	0	0	0	5.8000
TR- DL3	2.250	6.600	0.433	7.45	10.67	0	0	0	0	0	7.4500
TR-DL4	2.250	6.600	0.433	7.45	10.67	0	0	0	0	0	7.4500
TR-LP-I	1.500	11.000	0.433	6.20	7.10	0	0	0	0	0	6.2000
TR-UTL1	2.500	11.000	0.433	7.20	10.67	0	0	0	0	0	7.2000
TR-UTL-2	2.500	11.000	0.433	7.20	10.67	0	0	0	0	0	7.2000

2-Winding Transformer Load Tap Changer (LTC) Settings

Transformer	Connected Buses ("*" LTC Side)		Transformer Load Tap Changer Setting					
ID	Primary Bus ID	Secondary Bus ID	% Min. Tap	% Max. Tap	% Step	Regulated Bus ID	% V	kV
TA-1	* Bus236	Bus237	-10.00	10.00	1.250	Bus236	100.00	11.000
TA-2	* Bus43	Bus17	-10.00	10.00	1.250	Bus43	100.00	11.000
TA-3	* Bus238	Bus239	-10.00	10.00	1.250	Bus238	100.00	11.000
TR-1-gen	* 100kv_100kv_b	22kv_100kv_b	-10.00	10.00	1.250	100kv_100kv_b	100.00	100.000
TR-2-gen	* 100kv_100kv_c	22kv_100kv_c	-10.00	10.00	1.250	22kv_100kv_c	100.00	22.000
TR-3-gen	* 100kv_100kv_a	22kv_100kv_a	-10.00	10.00	1.250	22kv_100kv_a	100.00	22.000
TR-21	* n_tr-21	n_tr-21_2	-10.00	10.00	1.250	n_tr-21_2	100.00	6.600
TR-22	* n_tr-22	n_tr-22_2	-10.00	10.00	1.250	n_tr-22_2	100.00	6.600
TR-23	* n_tr-23	n_tr-23_2	-10.00	10.00	1.250	n_tr-23_2	100.00	6.600
TR-24	* n_tr-24	n_tr-24_2	-10.00	10.00	1.250	n_tr-24_2	100.00	6.600

3-Winding Transformer Input Data

Transformer	Rating			Tap	Impedance				Z Variation	
ID	Winding	MVA	kV	%	% Z	X/R	MVAb	% Tol.	+ 5%	- 5%
TR-ZZ	Primary:	15.000	11.000	0	Zps = 11.64	20.00	15.000	0	0	0
	Secondary:	15.000	6.600	0	Zpt = 11.42	20.00	15.000	0		
	Tertiary:	15.000	6.600	0	Zst = 11.37	18.60	15.000	0		

3-Winding Transformer Load Tap Changer (LTC) Settings

Transformer	LTC Side	Transformer Load Tap Changer Setting					
ID	Bus ID	% Min. Tap	% Max .Tap	% Step	Regulated Bus ID	% Voltage	kV

Line/Cable Input Data

Line/Cable			Ohms or Siemens per 1000 m per Conductor (Cable) or per Phase (Line)						
			Length						
ID	Library	Size	Length(m)	% Tol.	#/Phase	T (°C)	R	X	Y
CHW-A Cable	6.6NALS3	300	150.0	0.0	1	75	0.130000	0.105000	
CHW-B Cable	6.6NALS3	400	150.0	0.0	1	75	0.102000	0.090000	
CHW-C Cable	6.6NALS3	400	70.0	0.0	1	75	0.102000	0.090000	
FIB Incomer-2 Cable	33NCUN3	300	300.0	0.0	3	75	0.076302	0.105000	0.0000811
FIB- Incomer 1 Cable	33NCUN3	300	300.0	0.0	3	75	0.076302	0.105000	0.0000811
HP-A Cable	6.6NALS3	300	70.0	0.0	1	75	0.130000	0.105000	
HP-C Cable	6.6NALS3	400	70.0	0.0	1	75	0.102000	0.090000	
Incomer-1 Cable	6.6NALS3	400	50.0	0.0	2	75	0.102000	0.090000	
Incomer-2 Cable	6.6NALS3	400	50.0	0.0	2	75	0.102000	0.090000	
LA Cable	6.6NALS3	300	100.0	0.0	4	75	0.130000	0.105000	
LB Cable	6.6NALS3	300	100.0	0.0	4	75	0.130000	0.105000	
LLP-J Cable	11NALS3	400	250.0	0.0	2	75	0.102000	0.090000	
LP-A Cable	6.6NALS3	300	70.0	0.0	1	75	0.130000	0.105000	
LP-B Cable	6.6NALS3	300	70.0	0.0	1	75	0.130000	0.105000	
LP-C Cable	6.6NALS3	300	70.0	0.0	1	75	0.130000	0.105000	
LP-D Cable	6.6NALS3	400	70.0	0.0	1	75	0.102000	0.090000	
LP-H Cable	6.6NALS3	400	70.0	0.0	1	75	0.102000	0.090000	
LP-K Cable	6.6NALS3	400	70.0	0.0	1	75	0.102000	0.090000	
McQy -1 Cable	6.6NALS3	400	12.2	0.0	1	75	0.102000	0.090000	
McQy-2 Cable	6.6NALS3	300	70.0	0.0	1	75	0.130000	0.105000	
McQy-3 Cable	6.6NALS3	300	70.0	0.0	1	75	0.130000	0.105000	
McQy-4 Cable	6.6NALS3	400	40.0	0.0	1	75	0.102000	0.090000	
McQy-5 Cable	6.6NALS3	400	70.0	0.0	1	75	0.102000	0.090000	
McQy-6 Cable	6.6NALS3	300	70.0	0.0	1	75	0.130000	0.105000	
Offsite-A Cable	6.6NALS3	300	150.0	0.0	1	75	0.130000	0.105000	
Offsite B Cable	6.6NALS3	400	150.0	0.0	1	75	0.102000	0.090000	
Offsite C Cable	6.6NALS3	400	150.0	0.0	1	75	0.102000	0.090000	
Offsite D Cable	6.6NALS3	400	70.0	0.0	1	75	0.102000	0.090000	
TA-1 Cable P	11NALS3	300	300.0	0.0	3	75	0.130000	0.105000	
TA-1 Cable S	22NALS3	300	250.0	0.0	3	75	0.130000	0.105000	
TA-2 Cable P	11NALS3	300	300.0	0.0	3	75	0.130000	0.105000	
TA-2 Cable S	22NALS3	300	250.0	0.0	3	75	0.130000	0.105000	
TA-3 Cable P	11NALS3	300	350.0	0.0	3	75	0.130000	0.105000	
TA-3 Cable S	22NALS3	300	250.0	0.0	2	75	0.130000	0.105000	
TB-1 Cable P	6.6NALS3	400	50.0	0.0	1	75	0.102000	0.090000	
TB-1 Cable S	11NALS3	400	150.0	0.0	1	75	0.102000	0.090000	
TB-2 Cable P	6.6NALS3	400	50.0	0.0	1	75	0.102000	0.090000	
TB-2 Cable S	11NALS3	400	150.0	0.0	1	75	0.102000	0.090000	

Line/Cable Input Data

Line/Cable			Ohms or Siemens per 1000 m per Conductor (Cable) or per Phase (Line)						
			Length						
ID	Library	Size	Length(m)	% Tol.	#/Phase	T (°C)	R	X	Y
TC-1 Cable P	6.6NALS3	400	20.0	0.0	2	75	0.102000	0.090000	
TC-1 Cable S	11NALS3	400	500.0	0.0	2	75	0.102000	0.090000	
TC-2 Cable P	6.6NALS3	400	20.0	0.0	2	75	0.102000	0.090000	
TC-2 Cable S	11NALS3	400	500.0	0.0	2	75	0.102000	0.090000	
Tie-1 Cable	22NALS3	300	1200.0	0.0	3	75	0.130000	0.105000	
Tie-2 Cable	22NALS3	300	1200.0	0.0	3	75	0.130000	0.105000	
Tie-3 Cable	22NALS3	300	1200.0	0.0	3	75	0.130000	0.105000	
Tie-4 Cable	22NALS3	300	1600.0	0.0	3	75	0.130000	0.105000	
TR-1 Cable P	22NALS3	300	700.0	0.0	1	75	0.130000	0.105000	
TR-3 Cable P	22NALS3	300	700.0	0.0	1	75	0.130000	0.105000	
TR-4 Cable P	22NALS3	300	35.0	0.0	1	75	0.130000	0.105000	
TR-6 Cable P	22NALS3	300	35.0	0.0	1	75	0.130000	0.105000	
TR-7 Cable P	22NALS3	300	35.0	0.0	1	75	0.130000	0.105000	
TR-9 Cable P	22NALS3	300	35.0	0.0	1	75	0.130000	0.105000	
TR-11 Cable P	6.6NALS3	400	300.0	0.0	1	75	0.102000	0.090000	
TR-13 Cable P	6.6NALS3	400	300.0	0.0	1	75	0.102000	0.090000	
TR-14 Cable P	6.6NALS3	400	300.0	0.0	1	75	0.102000	0.090000	
TR-15 Cable P	6.6NALS3	400	300.0	0.0	1	75	0.102000	0.090000	
TR-16 Cable P	6.6NALS3	400	300.0	0.0	1	75	0.102000	0.090000	
TR-17 Cable P	6.6NALS3	400	700.0	0.0	1	75	0.102000	0.090000	
TR-19 Cable P	6.6NALS3	400	700.0	0.0	1	75	0.102000	0.090000	
TR-21 Cable P	22NALS3	300	100.0	0.0	1	75	0.130000	0.105000	
TR-21 Cable S	6.6NALS3	400	100.0	0.0	2	75	0.102000	0.090000	
TR-22 Cable P	22NALS3	300	100.0	0.0	1	75	0.130000	0.105000	
TR-22 Cable S	6.6NALS3	400	100.0	0.0	2	75	0.102000	0.090000	
TR-23 Cable P	22NALS3	300	100.0	0.0	1	75	0.130000	0.105000	
TR-23 Cable S	6.6NALS3	400	100.0	0.0	2	75	0.102000	0.090000	
TR-24 Cable P	22NALS3	300	100.0	0.0	1	75	0.130000	0.105000	
TR-24 Cable S	6.6NALS3	400	100.0	0.0	2	75	0.102000	0.090000	
TR-26 Cable P	22NALS3	300	213.4	0.0	1	75	0.130000	0.105000	
TR-27 Cable P	22NALS3	300	700.0	0.0	1	75	0.130000	0.105000	
TR-30 Cable P	6.6NALS3	400	50.0	0.0	1	75	0.102000	0.090000	
TR-31 Cable P	22NALS3	400	100.0	0.0	2	75	0.102000	0.090000	
TR-31 Cable S	11NALS1	630	100.0	0.0	3	75	0.060600	0.086000	
TR-32A Cable P	22NALS3	400	100.0	0.0	2	75	0.102000	0.090000	
TR-32A Cable S	11NALS3	400	100.0	0.0	2	75	0.102000	0.090000	
TR-32 Cable P	22NALS3	300	100.0	0.0	2	75	0.130000	0.105000	
TR-32 Cable S	11NALS1	630	100.0	0.0	2	75	0.060600	0.086000	

Line/Cable Input Data

Line/Cable			Ohms or Siemens per 1000 m per Conductor (Cable) or per Phase (Line)						
			Length						
ID	Library	Size	Length(m)	% Tol.	#/Phase	T (°C)	R	X	Y
TR-33 Cable P	11NALS3	400	700.0	0.0	1	75	0.102000	0.090000	
TR-35 Cable P	11NALS3	400	700.0	0.0	1	75	0.102000	0.090000	
TR-36 Cable P	11NALS3	400	700.0	0.0	1	75	0.102000	0.090000	
TRANE-A Cable	6.6NALS3	400	70.0	0.0	1	75	0.102000	0.090000	
TRANE B Cable	6.6NALS3	400	70.0	0.0	1	75	0.102000	0.090000	
TR-CH-A Cable P	11NALS3	400	150.0	0.0	1	75	0.102000	0.090000	
TR-CH-B Cable P	11NALS3	400	150.0	0.0	1	75	0.102000	0.090000	
TR-CH-C Cable P	11NALS3	400	150.0	0.0	1	75	0.102000	0.090000	
TR-CP7-1 Cable P	11NALS3	400	450.0	0.0	1	75	0.102000	0.090000	
TR-CP7-3 Cable P	11NALS3	400	450.0	0.0	1	75	0.102000	0.090000	
TR-CP7-6 Cable P	11NALS3	400	450.0	0.0	1	75	0.102000	0.090000	
TR-CP7 4 Cable P	11NALS3	400	450.0	0.0	1	75	0.102000	0.090000	
TR-DG Aux Cable P	6.6NALS3	400	50.0	0.0	1	75	0.102000	0.090000	
TR-DL2 Cable P	6.6NALS3	400	700.0	0.0	1	75	0.102000	0.090000	
TR-DL3 Cable P	6.6NALS3	400	700.0	0.0	1	75	0.102000	0.090000	
TR-DL4 Cable P	6.6NALS3	400	700.0	0.0	1	75	0.102000	0.090000	
TR-LP-I Cable P	11NALS3	400	30.0	0.0	1	75	0.102000	0.090000	
TR-UTL-1 Cable P	11NALS3	400	110.0	0.0	1	75	0.102000	0.090000	
TR-UTL-2 Cable P	11NALS3	400	110.0	0.0	1	75	0.102000	0.090000	
TR ZZ Cable P	6.6NALS3	400	1200.0	0.0	3	75	0.102000	0.090000	
TR ZZ Cable S	6.6NALS3	300	50.0	0.0	2	75	0.130000	0.105000	

Line / Cable resistances are listed at the specified temperatures.