Procedimento di Valutazione Impatto Ambientale ex art. 23 D.Lgs. 152/2006 e Autorizzazione Unica ex art. 12 D.Lgs. 387/2003

Progetto Parco Solare Fotovoltaico Calapricello Comune di Taranto (TA)

Calcoli preliminari degli impianti del progetto definitivo

Corto Circuito

REDATTO DA / WRITTEN BY

Maurizio Vanti

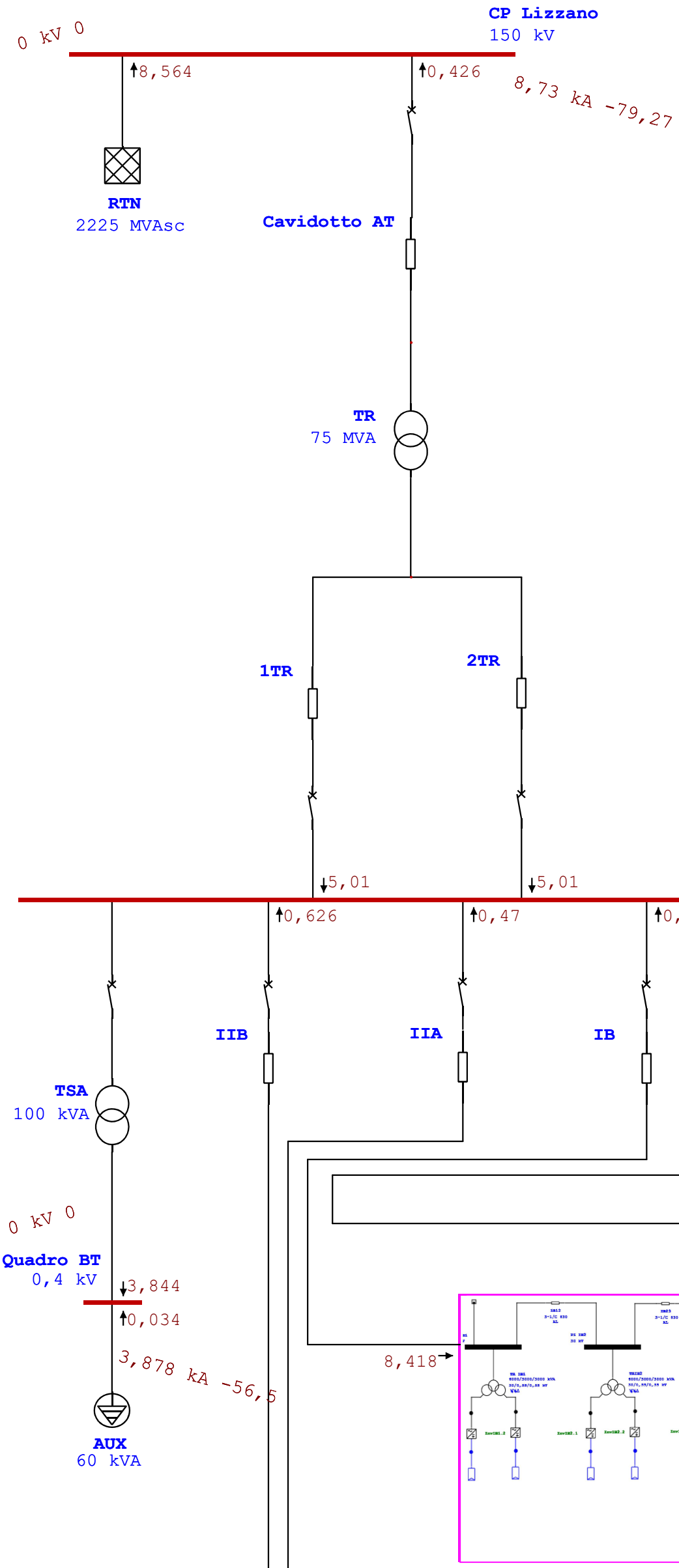
APPROVATO DA / APPROVED BY

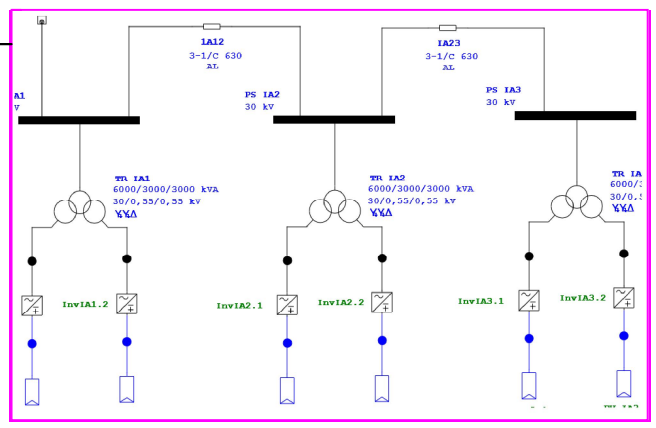
Marco Giannettoni

REVISIONE	N°	DATA/DATE
Prima Emissione	00	Luglio 2022

MARCO GIANNETTONI
21.07.2022
11:11:24
GMT+01:00

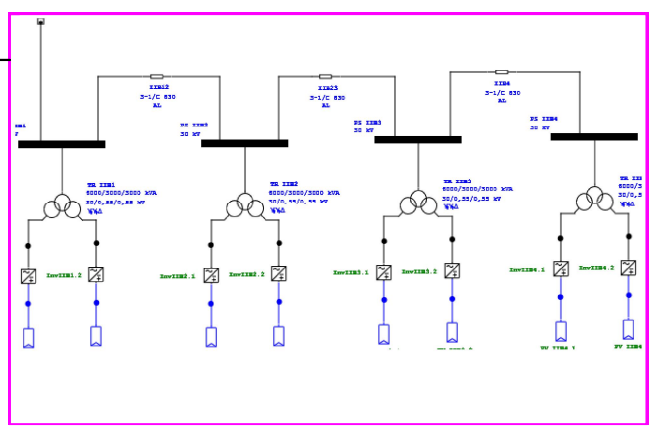
TASSARA MARCO
21.07.2022
11:18:01
GMT+01:00



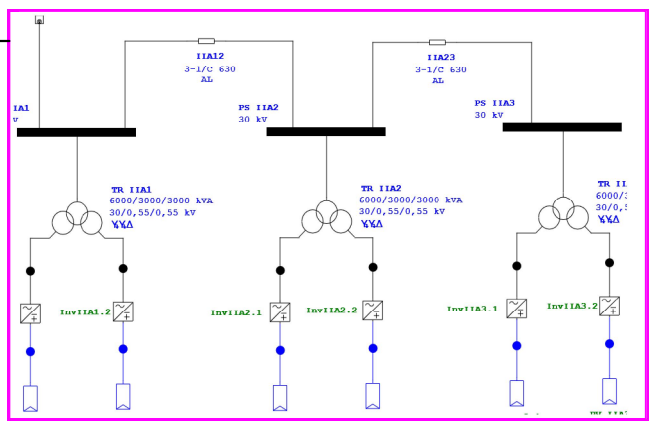


Dorsale IA

Dorsale IB

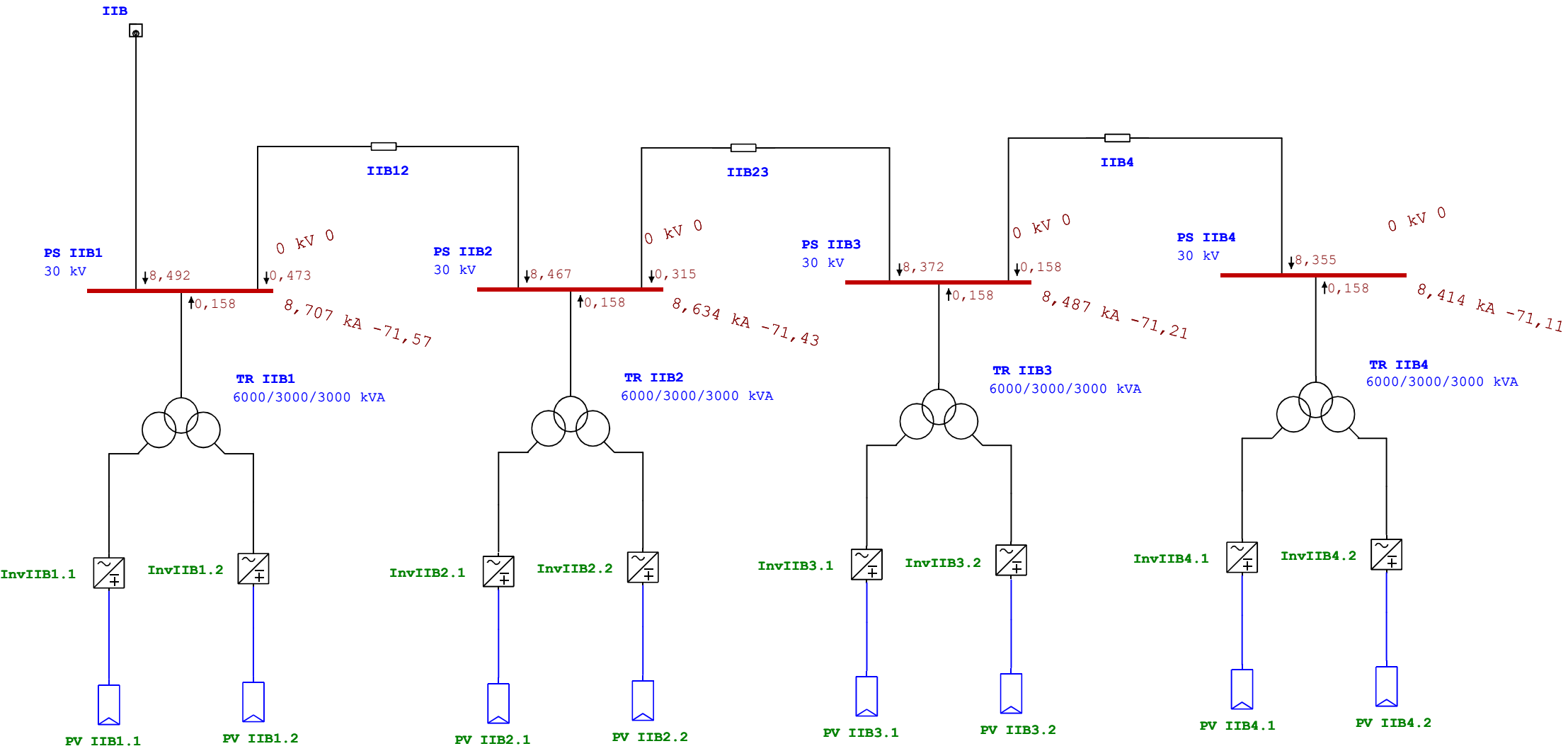


Dorsale IIB

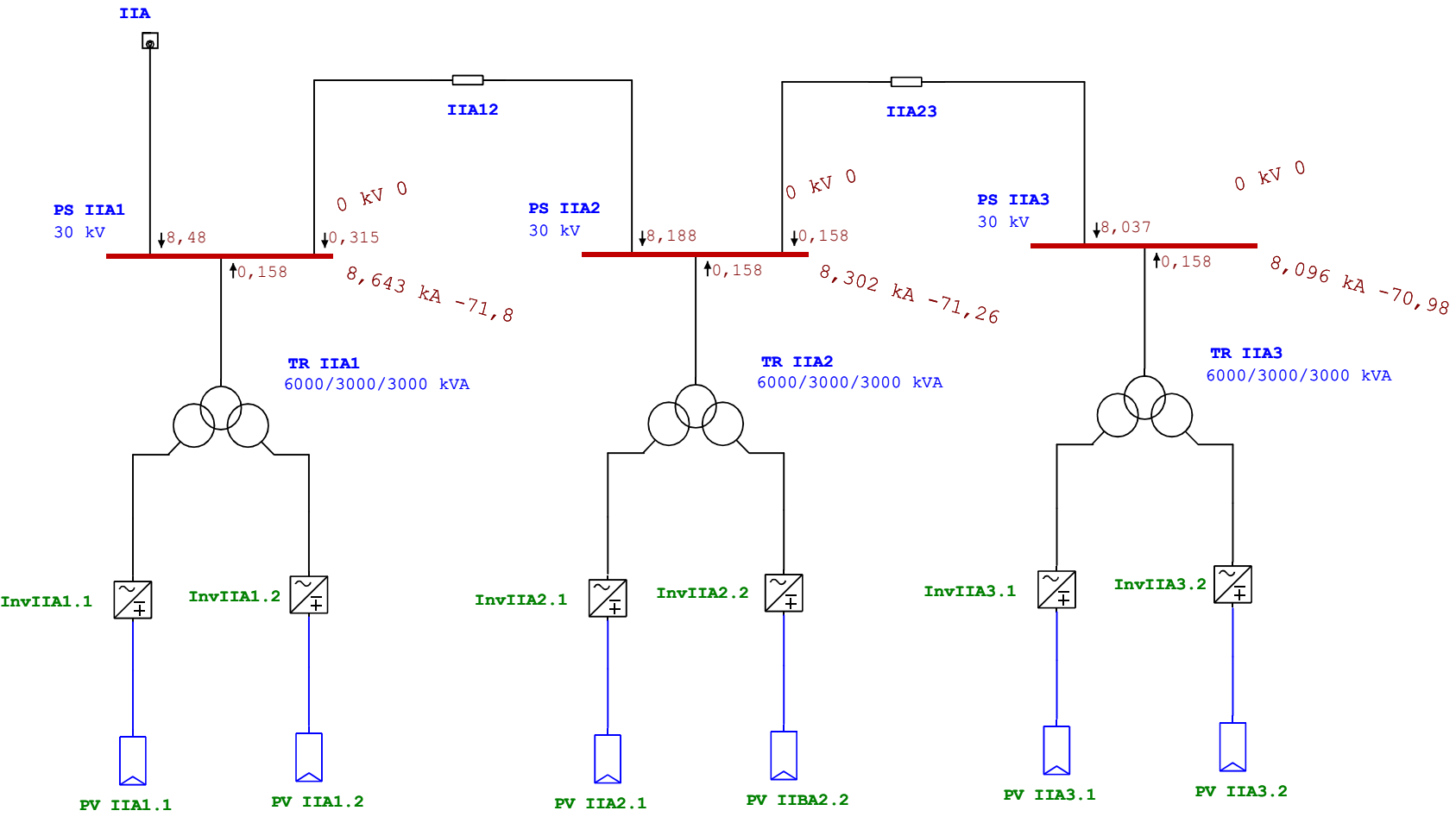


Dorsale IIA

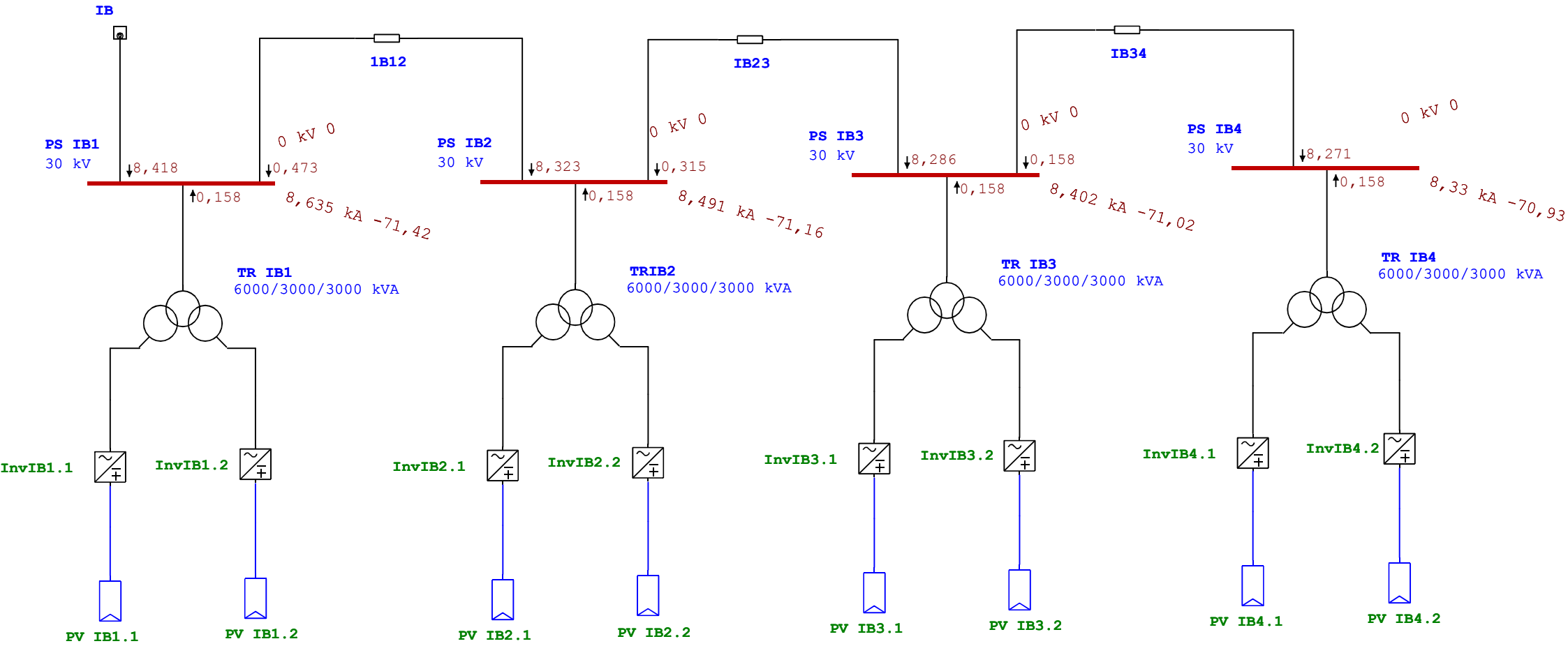
One-Line Diagram - SLD=>Dorsale IIB (Short-Circuit Analysis)



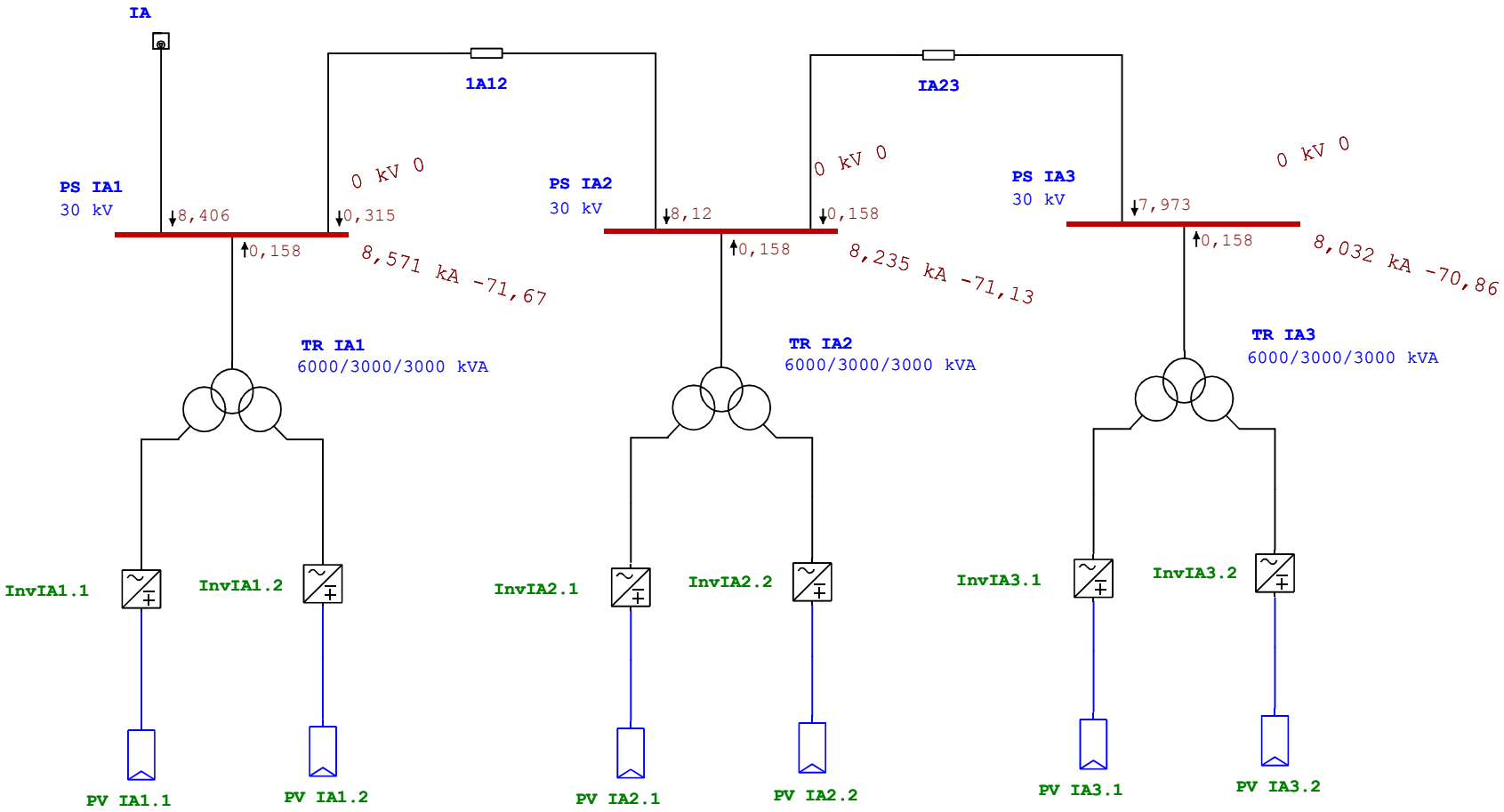
One-Line Diagram - SLD=>Dorsale IIA (Short-Circuit Analysis)



One-Line Diagram - SLD=>Dorsale IB (Short-Circuit Analysis)



One-Line Diagram - SLD=>Dorsale IA (Short-Circuit Analysis)



Electrical Transient Analyzer Program

Short-Circuit Analysis

IEC 60909 Standard

3-Phase, LG, LL, & LLG Fault Currents

	Swing	V-Control	Load	Total
Number of Buses:	1	0	46	47

	XFMR2	XFMR3	Reactor	Line/Cable	Impedance	Tie PD	Total
Number of Branches:	2	14	0	17	0	0	33

	Synchronous Generator	Power Grid	Synchronous Motor	Induction Machines	Lumped Load	Total
Number of Machines:	0	1	0	0	1	2

System Frequency:	50.00
Unit System:	Metric
Project Filename:	Calapricello_20201218
Output Filename:	C:\Users\Maurizio\Desktop\Modelli ETAP\Calapricello\Calapricello_rev001\Untitled.SI2S

Adjustments

Tolerance	Apply Adjustments	Individual /Global	Percent
Transformer Impedance:	Yes	Individual	
Reactor Impedance:	Yes	Individual	
Overload Heater Resistance:	No		
Transmission Line Length:	No		
Cable Length:	No		

Temperature Correction	Apply Adjustments	Individual /Global	Degree C
Transmission Line Resistance:	Yes	Global	20
Cable Resistance:	Yes	Global	20

Bus Input Data

Bus					Initial Voltage	
ID	Type	Nom. kV	Base kV	Sub-sys	%Mag.	Ang.
Bus2	Load	0.550	0.550	1	100.00	30.00
Bus3	Load	0.550	0.550	1	100.00	0.00
Bus4	Load	0.550	0.550	1	100.00	30.00
Bus5	Load	0.550	0.550	1	100.00	0.00
Bus6	Load	0.550	0.550	1	100.00	30.00
Bus7	Load	0.550	0.550	1	100.00	0.00
Bus8	Load	0.550	0.550	1	100.00	30.00
Bus9	Load	0.550	0.550	1	100.00	0.00
Bus13	Load	0.550	0.550	1	100.00	30.00
Bus14	Load	0.550	0.550	1	100.00	0.00
Bus15	Load	0.550	0.550	1	100.00	30.00
Bus16	Load	0.550	0.550	1	100.00	0.00
Bus17	Load	0.550	0.550	1	100.00	30.00
Bus18	Load	0.550	0.550	1	100.00	0.00
Bus19	Load	0.550	0.550	1	100.00	30.00
Bus20	Load	0.550	0.550	1	100.00	0.00
Bus21	Load	0.550	0.550	1	100.00	30.00
Bus22	Load	0.550	0.550	1	100.00	0.00
Bus23	Load	0.550	0.550	1	100.00	30.00
Bus24	Load	0.550	0.550	1	100.00	0.00
Bus27	Load	0.550	0.550	1	100.00	30.00
Bus28	Load	0.550	0.550	1	100.00	0.00
Bus35	Load	0.550	0.550	1	100.00	30.00
Bus36	Load	0.550	0.550	1	100.00	0.00
Bus37	Load	0.550	0.550	1	100.00	30.00
Bus38	Load	0.550	0.550	1	100.00	0.00
Bus39	Load	0.550	0.550	1	100.00	30.00
Bus40	Load	0.550	0.550	1	100.00	0.00
CP Lizzano	SWNG	150.000	150.000	1	100.00	0.00
PS IA1	Load	30.000	30.000	1	100.00	30.00
PS IA2	Load	30.000	30.000	1	100.00	30.00
PS IA3	Load	30.000	30.000	1	100.00	30.00
PS IB1	Load	30.000	30.000	1	100.00	30.00
PS IB2	Load	30.000	30.000	1	100.00	30.00
PS IB3	Load	30.000	30.000	1	100.00	30.00
PS IB4	Load	30.000	30.000	1	100.00	30.00
PS IIA1	Load	30.000	30.000	1	100.00	30.00
PS IIA2	Load	30.000	30.000	1	100.00	30.00
PS IIA3	Load	30.000	30.000	1	100.00	30.00
PS IIB1	Load	30.000	30.000	1	100.00	30.00
PS IIB2	Load	30.000	30.000	1	100.00	30.00

Bus					Initial Voltage	
ID	Type	Nom. kV	Base kV	Sub-sys	%Mag.	Ang.
PS IIB3	Load	30.000	30.000	1	100.00	30.00
PS IIB4	Load	30.000	30.000	1	100.00	30.00
Quadro BT	Load	0.400	0.410	1	100.00	60.00
Quadro principale MT	Load	30.000	30.000	1	100.00	30.00
Stallo AT	Load	150.000	150.000	1	100.00	0.00
TRsec	Load	30.000	30.000	1	100.00	30.00

47 Buses Total

All voltages reported by ETAP are in % of bus Nominal kV.
Base kV values of buses are calculated and used internally by ETAP.

Line/Cable Input Data

ohms or siemens per 1000 m per Conductor (Cable) or per Phase (Line)

Line/Cable ID	Library	Size	Length Adj. (m)	Length % Tol.	#/Phase	T (°C)	R1	X1	Y1	R0	X0	Y0
1A12	20NALN1	630	950.0	0.0	1	20	0.0467966	0.0890000	0.0001539	0.1362137	1.9377780	0.0001557
1B12	20NALN1	630	400.0	0.0	1	20	0.0467966	0.0890000	0.0001539	0.0729855	1.6908890	0.0001557
1TR	33NCUS1	300	25.0	0.0	2	20	0.0627427	0.1210000		0.0997609	0.3073400	
2TR	33NCUS1	300	25.0	0.0	2	20	0.0627427	0.1210000		0.0997609	0.3073400	
Cavidotto AT	20NALS1	630	90.0	0.0	2	20	0.0467966	0.0890000	0.0001539	0.0555579	1.4328060	0.0001557
IA	20NALN1	630	4400.0	0.0	1	20	0.0467966	0.0890000	0.0001539	0.1650802	1.9377780	0.0001557
IA23	20NALN1	630	600.0	0.0	1	20	0.0467966	0.0890000	0.0001539	0.0820075	1.7524220	0.0001557
IB	20NALN1	630	4300.0	0.0	1	20	0.0467966	0.0890000	0.0001539	0.1650802	1.9377780	0.0001557
IB23	20NALN1	630	250.0	0.0	1	20	0.0467966	0.0890000	0.0001539	0.0651131	1.6134670	0.0001557
IB34	20NALN1	630	200.0	0.0	1	20	0.0467966	0.0890000	0.0001539	0.0622607	1.5751290	0.0001557
IIA	20NALN1	630	4200.0	0.0	1	20	0.0467966	0.0890000	0.0001539	0.1650802	1.9377780	0.0001557
IIA12	20NALN1	630	950.0	0.0	1	20	0.0467966	0.0890000	0.0001539	0.1362137	1.9377780	0.0001557
IIA23	20NALN1	630	600.0	0.0	1	20	0.0467966	0.0890000	0.0001539	0.0820075	1.7524220	0.0001557
IIB	20NALN1	630	4100.0	0.0	1	20	0.0467966	0.0890000	0.0001539	0.1650802	1.9377780	0.0001557
IIB4	20NALN1	630	200.0	0.0	1	20	0.0467966	0.0890000	0.0001539	0.0622607	1.5751290	0.0001557
IIB12	20NALN1	630	200.0	0.0	1	20	0.0467966	0.0890000	0.0001539	0.0622607	1.5751290	0.0001557
IIB23	20NALN1	630	400.0	0.0	1	20	0.0467966	0.0890000	0.0001539	0.0729855	1.6908890	0.0001557

Line / Cable resistances are listed at the specified temperatures.

2-Winding Transformer Input Data

Transformer	Rating					Z Variation			% Tap Setting		Adjusted	Phase Shift	
ID	MVA	Prim. kV	Sec. kV	% Z	X/R	+ 5%	- 5%	% Tol.	Prim.	Sec.	% Z	Type	Angle
TR	75.000	150.000	30.000	12.50	45.00	0	0	0	0	0	12.50	YNd	-30.00
TSA	0.100	30.000	0.400	4.00	1.50	0	0	0	0	2.500	4.00	Dyn	-30.00

2-Winding Transformer Grounding Input Data

Transformer	Rating			Grounding								
				Conn.	Primary				Secondary			
ID	MVA	Prim. kV	Sec. kV	Type	Type	kV	Amp	ohm	Type	kV	Amp	ohm
TR	75.000	150.000	30.000	Y/D	Solid							
TSA	0.100	30.000	0.400	D/Y					Solid			

3-Winding Transformer Input Data

Transformer	Rating			Tap	Impedance				Z Variation		Phase Shift	
ID	Winding	MVA	kV	%	% Z		X/R	MVAb	% Tol.	+ 5%	- 5%	Type	Angle
TR IA1	Primary:	6.000	30.000	0	Zps =	8.00	13.00	6.000	0	0	0		
	Secondary:	3.000	0.550	0	Zpt =	4.00	13.00	6.000	0			Std Pos. Seq.	0.0
	Tertiary:	3.000	0.550	0	Zst =	4.00	13.00	6.000	0			Std Pos. Seq.	-30.0
TR IA2	Primary:	6.000	30.000	0	Zps =	8.00	13.00	6.000	0	0	0		
	Secondary:	3.000	0.550	0	Zpt =	4.00	13.00	6.000	0			Std Pos. Seq.	0.0
	Tertiary:	3.000	0.550	0	Zst =	4.00	13.00	6.000	0			Std Pos. Seq.	-30.0
TR IA3	Primary:	6.000	30.000	0	Zps =	8.00	13.00	6.000	0	0	0		
	Secondary:	3.000	0.550	0	Zpt =	4.00	13.00	6.000	0			Std Pos. Seq.	0.0
	Tertiary:	3.000	0.550	0	Zst =	4.00	13.00	6.000	0			Std Pos. Seq.	-30.0
TR IB1	Primary:	6.000	30.000	0	Zps =	8.00	13.00	6.000	0	0	0		
	Secondary:	3.000	0.550	0	Zpt =	4.00	13.00	6.000	0			Std Pos. Seq.	0.0
	Tertiary:	3.000	0.550	0	Zst =	4.00	13.00	6.000	0			Std Pos. Seq.	-30.0
TR IB3	Primary:	6.000	30.000	0	Zps =	8.00	13.00	6.000	0	0	0		
	Secondary:	3.000	0.550	0	Zpt =	4.00	13.00	6.000	0			Std Pos. Seq.	0.0
	Tertiary:	3.000	0.550	0	Zst =	4.00	13.00	6.000	0			Std Pos. Seq.	-30.0

3-Winding Transformer Input Data

Transformer		Rating		Tap	Impedance				Z Variation		Phase Shift	
ID	Winding	MVA	kV	%	% Z	X/R	MVAb	% Tol.	+ 5%	- 5%	Type	Angle
TR IB4	Primary:	6.000	30.000	0	Zps = 8.00	13.00	6.000	0	0	0		
	Secondary:	3.000	0.550	0	Zpt = 4.00	13.00	6.000	0			Std Pos. Seq.	0.0
	Tertiary:	3.000	0.550	0	Zst = 4.00	13.00	6.000	0			Std Pos. Seq.	-30.0
TR IIA1	Primary:	6.000	30.000	0	Zps = 8.00	13.00	6.000	0	0	0		
	Secondary:	3.000	0.550	0	Zpt = 4.00	13.00	6.000	0			Std Pos. Seq.	0.0
	Tertiary:	3.000	0.550	0	Zst = 4.00	13.00	6.000	0			Std Pos. Seq.	-30.0
TR IIA2	Primary:	6.000	30.000	0	Zps = 8.00	13.00	6.000	0	0	0		
	Secondary:	3.000	0.550	0	Zpt = 4.00	13.00	6.000	0			Std Pos. Seq.	0.0
	Tertiary:	3.000	0.550	0	Zst = 4.00	13.00	6.000	0			Std Pos. Seq.	-30.0
TR IIA3	Primary:	6.000	30.000	0	Zps = 8.00	13.00	6.000	0	0	0		
	Secondary:	3.000	0.550	0	Zpt = 4.00	13.00	6.000	0			Std Pos. Seq.	0.0
	Tertiary:	3.000	0.550	0	Zst = 4.00	13.00	6.000	0			Std Pos. Seq.	-30.0
TR IIB1	Primary:	6.000	30.000	0	Zps = 8.00	13.00	6.000	0	0	0		
	Secondary:	3.000	0.550	0	Zpt = 4.00	13.00	6.000	0			Std Pos. Seq.	0.0
	Tertiary:	3.000	0.550	0	Zst = 4.00	13.00	6.000	0			Std Pos. Seq.	-30.0
TR IIB2	Primary:	6.000	30.000	0	Zps = 8.00	13.00	6.000	0	0	0		
	Secondary:	3.000	0.550	0	Zpt = 4.00	13.00	6.000	0			Std Pos. Seq.	0.0
	Tertiary:	3.000	0.550	0	Zst = 4.00	13.00	6.000	0			Std Pos. Seq.	-30.0
TR IIB3	Primary:	6.000	30.000	0	Zps = 8.00	13.00	6.000	0	0	0		
	Secondary:	3.000	0.550	0	Zpt = 4.00	13.00	6.000	0			Std Pos. Seq.	0.0
	Tertiary:	3.000	0.550	0	Zst = 4.00	13.00	6.000	0			Std Pos. Seq.	-30.0
TR IIB4	Primary:	6.000	30.000	0	Zps = 8.00	13.00	6.000	0	0	0		
	Secondary:	3.000	0.550	0	Zpt = 4.00	13.00	6.000	0			Std Pos. Seq.	0.0
	Tertiary:	3.000	0.550	0	Zst = 4.00	13.00	6.000	0			Std Pos. Seq.	-30.0
TRIB2	Primary:	6.000	30.000	0	Zps = 8.00	13.00	6.000	0	0	0		
	Secondary:	3.000	0.550	0	Zpt = 4.00	13.00	6.000	0			Std Pos. Seq.	0.0
	Tertiary:	3.000	0.550	0	Zst = 4.00	13.00	6.000	0			Std Pos. Seq.	-30.0

3-Winding Transformer Grounding Input Data

Transformer	Rating			Conn.	Grounding			
ID	Winding	MVA	kV	Type	Type	kV	Amp	ohm
TR IA1	Primary:	6.000	30.000	Wye	Solid			
	Secondary:	3.000	0.550	Wye	Solid			
	Tertiary:	3.000	0.550	Delta				
TR IA2	Primary:	6.000	30.000	Wye	Solid			
	Secondary:	3.000	0.550	Wye	Solid			
	Tertiary:	3.000	0.550	Delta				
TR IA3	Primary:	6.000	30.000	Wye	Solid			
	Secondary:	3.000	0.550	Wye	Solid			
	Tertiary:	3.000	0.550	Delta				
TR IB1	Primary:	6.000	30.000	Wye	Solid			
	Secondary:	3.000	0.550	Wye	Solid			
	Tertiary:	3.000	0.550	Delta				
TR IB3	Primary:	6.000	30.000	Wye	Solid			
	Secondary:	3.000	0.550	Wye	Solid			
	Tertiary:	3.000	0.550	Delta				
TR IB4	Primary:	6.000	30.000	Wye	Solid			
	Secondary:	3.000	0.550	Wye	Solid			
	Tertiary:	3.000	0.550	Delta				
TR IIA1	Primary:	6.000	30.000	Wye	Solid			
	Secondary:	3.000	0.550	Wye	Solid			
	Tertiary:	3.000	0.550	Delta				
TR IIA2	Primary:	6.000	30.000	Wye	Solid			
	Secondary:	3.000	0.550	Wye	Solid			
	Tertiary:	3.000	0.550	Delta				
TR IIA3	Primary:	6.000	30.000	Wye	Solid			
	Secondary:	3.000	0.550	Wye	Solid			
	Tertiary:	3.000	0.550	Delta				
TR IIB1	Primary:	6.000	30.000	Wye	Solid			
	Secondary:	3.000	0.550	Wye	Solid			
	Tertiary:	3.000	0.550	Delta				
TR IIB2	Primary:	6.000	30.000	Wye	Solid			
	Secondary:	3.000	0.550	Wye	Solid			
	Tertiary:	3.000	0.550	Delta				

3-Winding Transformer Grounding Input Data

Transformer	Rating			Conn.	Grounding			
ID	Winding	MVA	kV	Type	Type	kV	Amp	ohm
TR IIB3	Primary:	6.000	30.000	Wye	Solid			
	Secondary:	3.000	0.550	Wye	Solid			
	Tertiary:	3.000	0.550	Delta				
TR IIB4	Primary:	6.000	30.000	Wye	Solid			
	Secondary:	3.000	0.550	Wye	Solid			
	Tertiary:	3.000	0.550	Delta				
TRIB2	Primary:	6.000	30.000	Wye	Solid			
	Secondary:	3.000	0.550	Wye	Solid			
	Tertiary:	3.000	0.550	Delta				

Branch Connections

CKT/Branch		Connected Bus ID		% Impedance, Pos. Seq., 100 MVAb			
ID	Type	From Bus	To Bus	R	X	Z	Y
TR	2W XFMR	Stallo AT	TRsec	0.36	16.20	16.20	
TSA	2W XFMR	Quadro principale MT	Quadro BT	2169.92	3254.88	3911.88	
TR IA1	3W Xfmr	PS IA1	Bus27	430.15	5606.51	5622.98	
	3W Xfmr	PS IA1	Bus28	5.10	66.29	66.48	
	3W Xfmr	Bus27	Bus28	5.10	66.29	66.48	
TR IA2	3W Xfmr	PS IA2	Bus21	430.15	5606.51	5622.98	
	3W Xfmr	PS IA2	Bus22	5.10	66.29	66.48	
	3W Xfmr	Bus21	Bus22	5.10	66.29	66.48	
TR IA3	3W Xfmr	PS IA3	Bus23	430.15	5606.51	5622.98	
	3W Xfmr	PS IA3	Bus24	5.10	66.29	66.48	
	3W Xfmr	Bus23	Bus24	5.10	66.29	66.48	
TR IB1	3W Xfmr	PS IB1	Bus19	430.15	5606.51	5622.98	
	3W Xfmr	PS IB1	Bus20	5.10	66.29	66.48	
	3W Xfmr	Bus19	Bus20	5.10	66.29	66.48	
TR IB3	3W Xfmr	PS IB3	Bus15	430.15	5606.51	5622.98	
	3W Xfmr	PS IB3	Bus16	5.10	66.29	66.48	
	3W Xfmr	Bus15	Bus16	5.10	66.29	66.48	
TR IB4	3W Xfmr	PS IB4	Bus17	430.15	5606.51	5622.98	
	3W Xfmr	PS IB4	Bus18	5.10	66.29	66.48	
	3W Xfmr	Bus17	Bus18	5.10	66.29	66.48	
TR IIA1	3W Xfmr	PS IIA1	Bus39	430.15	5606.51	5622.98	
	3W Xfmr	PS IIA1	Bus40	5.10	66.29	66.48	
	3W Xfmr	Bus39	Bus40	5.10	66.29	66.48	
TR IIA2	3W Xfmr	PS IIA2	Bus35	430.15	5606.51	5622.98	
	3W Xfmr	PS IIA2	Bus36	5.10	66.29	66.48	
	3W Xfmr	Bus35	Bus36	5.10	66.29	66.48	
TR IIA3	3W Xfmr	PS IIA3	Bus37	430.15	5606.51	5622.98	
	3W Xfmr	PS IIA3	Bus38	5.10	66.29	66.48	
	3W Xfmr	Bus37	Bus38	5.10	66.29	66.48	
TR IIB1	3W Xfmr	PS IIB1	Bus2	430.15	5606.51	5622.98	
	3W Xfmr	PS IIB1	Bus3	5.10	66.29	66.48	
	3W Xfmr	Bus2	Bus3	5.10	66.29	66.48	
TR IIB2	3W Xfmr	PS IIB2	Bus4	430.15	5606.51	5622.98	
	3W Xfmr	PS IIB2	Bus5	5.10	66.29	66.48	
	3W Xfmr	Bus4	Bus5	5.10	66.29	66.48	
TR IIB3	3W Xfmr	PS IIB3	Bus6	430.15	5606.51	5622.98	

CKT/Branch		Connected Bus ID		% Impedance, Pos. Seq., 100 MVAb			
ID	Type	From Bus	To Bus	R	X	Z	Y
	3W Xfmr	PS IIB3	Bus7	5.10	66.29	66.48	
	3W Xfmr	Bus6	Bus7	5.10	66.29	66.48	
TR IIB4	3W Xfmr	PS IIB4	Bus8	430.15	5606.51	5622.98	
	3W Xfmr	PS IIB4	Bus9	5.10	66.29	66.48	
	3W Xfmr	Bus8	Bus9	5.10	66.29	66.48	
TRIB2	3W Xfmr	PS IB2	Bus13	430.15	5606.51	5622.98	
	3W Xfmr	PS IB2	Bus14	5.10	66.29	66.48	
	3W Xfmr	Bus13	Bus14	5.10	66.29	66.48	
1A12	Cable	PS IA2	PS IA1	0.49	0.94	1.06	0.1315845
1B12	Cable	PS IB2	PS IB1	0.21	0.40	0.45	0.0554040
1TR	Cable	TRsec	Quadro principale MT	0.01	0.02	0.02	
2TR	Cable	TRsec	Quadro principale MT	0.01	0.02	0.02	
Cavidotto AT	Cable	CP Lizzano	Stallo AT	0.00	0.00	0.00	0.6232949
IA	Cable	Quadro principale MT	PS IA1	2.29	4.35	4.92	0.6094440
IA23	Cable	PS IA3	PS IA2	0.31	0.59	0.67	0.0831060
IB	Cable	Quadro principale MT	PS IB1	2.24	4.25	4.80	0.5955930
IB23	Cable	PS IB3	PS IB2	0.13	0.25	0.28	0.0346275
IB34	Cable	PS IB4	PS IB3	0.10	0.20	0.22	0.0277020
IIA	Cable	Quadro principale MT	PS IIA1	2.18	4.15	4.69	0.5817420
IIA12	Cable	PS IIA2	PS IIA1	0.49	0.94	1.06	0.1315845
IIA23	Cable	PS IIA3	PS IIA2	0.31	0.59	0.67	0.0831060
IIB	Cable	Quadro principale MT	PS IIB1	2.13	4.05	4.58	0.5678910
IIB4	Cable	PS IIB4	PS IIB3	0.10	0.20	0.22	0.0277020
IIB12	Cable	PS IIB2	PS IIB1	0.10	0.20	0.22	0.0277020
IIB23	Cable	PS IIB3	PS IIB2	0.21	0.40	0.45	0.0554040

Power Grid Input Data

Power Grid ID	Connected Bus ID	Rating MVASC	Rating kV	% Impedance 100 MVA Base R	% Impedance 100 MVA Base X"	% Impedance 100 MVA Base R/X"	Grounding Type
RTN	CP Lizzano	2225.000	150.000	0.63560	4.44921	0.14	Wye - Solid

Total Connected Power Grids (= 1): 2225.000 MVA

Lumped Load Input Data

	Lumped Load						Motor Loads								
	Rating				% Load		Loading		% Impedance (Machine Base)			Grounding			mFact.
Lumped Load ID	kVA	kV	Amp	% PF	MTR	STAT	kW	kvar	R	X"	R/X"	Conn.	Type	Amp	MW/PP
AUX	60.0	0.400	86.60	85.00	6	94	3.06	1.90	6.46	15.37	0.42	Delta			0.00

Total Connected Lumped Loads (= 1): 60.0 kVA

SHORT- CIRCUIT REPORT

Fault at bus: **CP Lizzano**
Nominal kV = 150.000
Voltage c Factor = 1.10 (Maximum If)

Contribution		3-Phase Fault		Line-To-Ground Fault					Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus	To Bus	% V	kA	% Voltage at From Bus			kA Symm. rms		% Impedance on 100 MVA base			
ID	ID	From Bus	Symm. rms	Va	Vb	Vc	Ia	3I0	R1	X1	R0	X0
CP Lizzano	Total	0.00	8.730	0.00	98.31	94.32	9.418	9.418	9.03E-001	4.77E+000	4.32E-001	3.77E+000
Stallo AT	CP Lizzano	0.00	0.426	0.05	98.29	94.30	0.882	2.202	9.67E+001	2.32E+001	3.61E-001	1.62E+001
RTN	CP Lizzano	100.00	8.564	100.00	100.00	100.00	8.564	7.228	6.99E-001	4.89E+000	6.99E-001	4.89E+000
TRsec	Stallo AT	16.30	0.426	66.80	100.00	47.46	0.882	2.202 *	9.67E+001	2.32E+001	3.60E-001	1.62E+001

		3-Phase	L-G	L-L	L-L-G
Initial Symmetrical Current (kA, rms)	:	8.730	9.418	7.560	9.312
Peak Current (kA), Method C	:	20.271	21.868	17.555	21.623
Breaking Current (kA, rms, symm)	:		9.418	7.560	9.312
Steady State Current (kA, rms)	:	8.730	9.418	7.560	9.312

\# Indicates a fault current contribution from a three-winding transformer.
* Indicates a zero sequence fault current contribution (3I0) from a grounded Delta-Y transformer.

Fault at bus: **PS IA1**
Nominal kV = 30.000
Voltage c Factor = 1.10 (Maximum If)

Contribution		3-Phase Fault		Line-To-Ground Fault					Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus ID	To Bus ID	% V From Bus	kA Symm. rms	% Voltage at From Bus Va	Vb	Vc	kA Symm. rms Ia	3I0	% Impedance on 100 MVA base R1	X1	R0	X0
PS IA1	Total	0.00	8.571	0.00	106.94	92.83	8.633	8.633	7.77E+000	2.34E+001	1.88E+000	2.46E+001
PS IA2	PS IA1	0.16	0.315	12.34	100.07	88.77	1.358	3.797	6.70E+002	4.16E+001	4.09E+000	5.59E+001
Quadro principale MT	PS IA1	19.52	8.406	36.14	94.64	90.21	6.176	1.597	6.66E+000	2.43E+001	1.12E+001	1.33E+002
# Bus27	PS IA1	7.26	0.003	35.24	93.40	83.30	0.013	0.037	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus28	PS IA1	4.87	0.155	51.63	64.48	100.00	1.110	3.201 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
PS IA3	PS IA2	0.21	0.158	15.57	98.39	88.02	0.628	1.743	1.34E+003	8.17E+001	5.59E+000	7.72E+001
# Bus21	PS IA2	7.39	0.003	35.47	93.40	83.26	0.009	0.024	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus22	PS IA2	5.01	0.155	51.60	64.57	100.00	0.722	2.030 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
TRsec	Quadro principale MT	19.56	4.060	36.16	94.63	90.22	2.726	0.000	2.13E+000	4.22E+001		
TRsec	Quadro principale MT	19.56	4.060	36.16	94.63	90.22	2.726	0.000	2.13E+000	4.22E+001		
PS IB1	Quadro principale MT	19.88	0.507	44.30	91.45	88.70	0.435	0.533	3.37E+002	2.48E+001	9.38E+000	1.14E+002
PS IIA1	Quadro principale MT	19.78	0.381	43.58	91.61	88.85	0.350	0.504	4.49E+002	3.17E+001	9.96E+000	1.21E+002
PS IIB1	Quadro principale MT	19.86	0.507	44.31	91.42	88.71	0.441	0.561	3.37E+002	2.46E+001	8.94E+000	1.08E+002
Quadro BT	Quadro principale MT	20.74	0.000	66.60	102.50	64.54	0.000	0.000	1.73E+005	4.10E+005		
# Bus28	Bus27	4.87	4.148	51.63	64.48	100.00	2.602	2.040 *	2.76E+003	7.74E-001	5.10E+000	6.63E+001
InvIA1.1	Bus27	100.00	4.297	100.00	100.00	100.00	2.886	0.000	2.67E+003	4.00E-007		
InvIA1.2	Bus28	100.00	4.306	100.00	100.00	100.00	2.504	0.000	2.67E+003	4.00E-007		

		3-Phase	L-G	L-L	L-L-G
Initial Symmetrical Current (kA, rms)	:	8.571	8.633	7.422	9.171
Peak Current (kA), Method C	:	19.572	19.714	16.950	20.944
Breaking Current (kA, rms, symm)	:		8.633	7.422	9.171
Steady State Current (kA, rms)	:	8.570	8.633	7.422	9.171

\# Indicates a fault current contribution from a three-winding transformer.
* Indicates a zero sequence fault current contribution (3I0) from a grounded Delta-Y transformer.

Fault at bus: **PS IA2**
Nominal kV = 30.000
Voltage c Factor = 1.10 (Maximum If)

Contribution		3-Phase Fault		Line-To-Ground Fault					Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus ID	To Bus ID	% V From Bus	kA Symm. rms	% Voltage at From Bus Va	Vb	Vc	kA Symm. rms Ia	3I0	% Impedance on 100 MVA base R1	X1	R0	X0
PS IA2	Total	0.00	8.235	0.00	105.26	90.87	8.603	8.603	8.31E+000	2.43E+001	1.72E+000	2.29E+001
PS IA1	PS IA2	4.07	8.120	12.48	99.90	88.91	6.674	3.056	7.54E+000	2.50E+001	4.92E+000	6.43E+001
PS IA3	PS IA2	0.05	0.158	4.72	102.50	89.46	0.896	2.547	1.34E+003	8.17E+001	5.59E+000	7.72E+001
# Bus21	PS IA2	7.26	0.003	32.96	93.26	82.95	0.012	0.035	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus22	PS IA2	4.87	0.155	50.34	63.63	100.00	1.034	2.966 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
Quadro principale MT	PS IA1	22.81	8.070	39.85	92.76	89.82	5.957	1.010	6.66E+000	2.43E+001	1.12E+001	1.33E+002
# Bus27	PS IA1	7.86	0.003	35.34	93.00	83.68	0.009	0.024	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus28	PS IA1	6.01	0.149	52.25	63.98	100.00	0.719	2.023 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
# Bus23	PS IA3	7.30	0.003	33.04	93.26	82.94	0.011	0.029	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus24	PS IA3	4.91	0.155	50.33	63.66	100.00	0.886	2.518 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
# Bus22	Bus21	4.87	4.148	50.34	63.63	100.00	2.705	1.890 *	2.76E+003	7.74E-001	5.10E+000	6.63E+001
InvIA2.1	Bus21	100.00	4.297	100.00	100.00	100.00	2.993	0.000	2.67E+003	4.00E-007		
InvIA2.2	Bus22	100.00	4.306	100.00	100.00	100.00	2.597	0.000	2.67E+003	4.00E-007		

		3-Phase	L-G	L-L	L-L-G
Initial Symmetrical Current (kA, rms)	:	8.235	8.603	7.132	9.011
Peak Current (kA), Method C	:	18.525	19.353	16.043	20.272
Breaking Current (kA, rms, symm)	:		8.603	7.132	9.011
Steady State Current (kA, rms)	:	8.235	8.603	7.132	9.011

\# Indicates a fault current contribution from a three-winding transformer.
* Indicates a zero sequence fault current contribution (3I0) from a grounded Delta-Y transformer.

Fault at bus: **PS IA3**
Nominal kV = 30.000
Voltage c Factor = 1.10 (Maximum If)

Contribution		3-Phase Fault		Line-To-Ground Fault					Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus ID	To Bus ID	% V From Bus	kA Symm. rms	% Voltage at From Bus Va	Vb	Vc	kA Symm. rms Ia	3I0	% Impedance on 100 MVA base R1	X1	R0	X0
PS IA3	Total	0.00	8.032	0.00	107.57	92.35	8.085	8.085	8.64E+000	2.49E+001	1.90E+000	2.64E+001
PS IA2	PS IA3	2.52	7.973	10.45	102.36	90.07	6.961	4.832	8.25E+000	2.52E+001	3.04E+000	4.41E+001
# Bus23	PS IA3	7.26	0.003	35.46	93.62	83.10	0.013	0.038	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus24	PS IA3	4.87	0.155	51.37	64.84	100.00	1.116	3.216 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
PS IA1	PS IA2	6.49	7.918	20.78	98.29	88.83	6.126	2.438	7.54E+000	2.50E+001	4.92E+000	6.43E+001
# Bus21	PS IA2	7.44	0.003	36.94	93.47	83.54	0.010	0.028	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus22	PS IA2	5.30	0.151	52.54	65.10	100.00	0.832	2.366 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
# Bus24	Bus23	4.87	4.148	51.37	64.84	100.00	2.587	2.050 *	2.76E+003	7.74E-001	5.10E+000	6.63E+001
InvIA3.1	Bus23	100.00	4.297	100.00	100.00	100.00	2.884	0.000	2.67E+003	4.00E-007		
InvIA3.2	Bus24	100.00	4.306	100.00	100.00	100.00	2.503	0.000	2.67E+003	4.00E-007		

		3-Phase	L-G	L-L	L-L-G
Initial Symmetrical Current (kA, rms)	:	8.032	8.085	6.956	8.630
Peak Current (kA), Method C	:	17.914	18.032	15.514	19.248
Breaking Current (kA, rms, symm)	:		8.085	6.956	8.630
Steady State Current (kA, rms)	:	8.032	8.085	6.956	8.630

\# Indicates a fault current contribution from a three-winding transformer.
* Indicates a zero sequence fault current contribution (3I0) from a grounded Delta-Y transformer.

Fault at bus: **PS IB1**
Nominal kV = 30.000
Voltage c Factor = 1.10 (Maximum If)

Contribution		3-Phase Fault		Line-To-Ground Fault					Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus ID	To Bus ID	% V From Bus	kA Symm. rms	% Voltage at From Bus Va	Vb	Vc	kA Symm. rms Ia	3I0	% Impedance on 100 MVA base R1	X1	R0	X0
PS IB1	Total	0.00	8.635	0.00	102.47	88.84	9.478	9.478	7.81E+000	2.32E+001	1.32E+000	1.84E+001
PS IB2	PS IB1	0.10	0.473	6.57	98.90	87.33	1.990	5.506	4.47E+002	2.76E+001	2.10E+000	3.16E+001
Quadro principale MT	PS IB1	19.10	8.418	32.34	92.95	89.21	6.598	1.319	6.34E+000	2.43E+001	1.11E+001	1.32E+002
# Bus19	PS IB1	7.26	0.003	29.58	92.89	82.69	0.011	0.031	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus20	PS IB1	4.87	0.155	48.93	62.19	100.00	0.923	2.623 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
PS IB3	PS IB2	0.14	0.315	9.06	97.63	86.88	1.264	3.482	6.70E+002	4.08E+001	2.74E+000	3.81E+001
# Bus13	PS IB2	7.34	0.003	29.72	92.89	82.67	0.009	0.023	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus14	PS IB2	4.96	0.155	48.90	62.25	100.00	0.717	2.000 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
TRsec	Quadro principale MT	19.14	4.083	32.37	92.95	89.22	2.988	0.000	2.13E+000	4.22E+001		
TRsec	Quadro principale MT	19.14	4.083	32.37	92.95	89.22	2.988	0.000	2.13E+000	4.22E+001		
PS IA1	Quadro principale MT	19.36	0.383	38.79	90.50	88.35	0.353	0.414	4.49E+002	3.19E+001	1.03E+001	1.25E+002
PS IIA1	Quadro principale MT	19.35	0.383	38.71	90.52	88.36	0.356	0.428	4.49E+002	3.17E+001	9.96E+000	1.21E+002
PS IIB1	Quadro principale MT	19.43	0.510	39.34	90.38	88.26	0.454	0.477	3.37E+002	2.46E+001	8.94E+000	1.08E+002
Quadro BT	Quadro principale MT	20.31	0.000	63.38	102.50	62.21	0.000	0.000	1.73E+005	4.10E+005		
# Bus20	Bus19	4.87	4.148	48.93	62.19	100.00	2.864	1.672 *	2.76E+003	7.74E-001	5.10E+000	6.63E+001
InvIB1.1	Bus19	100.00	4.297	100.00	100.00	100.00	3.144	0.000	2.67E+003	4.00E-007		
InvIB1.2	Bus20	100.00	4.306	100.00	100.00	100.00	2.729	0.000	2.67E+003	4.00E-007		

		3-Phase	L-G	L-L	L-L-G
Initial Symmetrical Current (kA, rms)	:	8.635	9.478	7.478	9.745
Peak Current (kA), Method C	:	19.728	21.655	17.085	22.263
Breaking Current (kA, rms, symm)	:		9.478	7.478	9.745
Steady State Current (kA, rms)	:	8.635	9.478	7.478	9.745

\# Indicates a fault current contribution from a three-winding transformer.
* Indicates a zero sequence fault current contribution (3I0) from a grounded Delta-Y transformer.

Fault at bus: **PS IB2**
Nominal kV = 30.000
Voltage c Factor = 1.10 (Maximum If)

Contribution		3-Phase Fault		Line-To-Ground Fault					Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus ID	To Bus ID	% V From Bus	kA Symm. rms	% Voltage at From Bus Va	Vb	Vc	kA Symm. rms Ia	3I0	% Impedance on 100 MVA base R1	X1	R0	X0
PS IB2	Total	0.00	8.491	0.00	100.68	87.53	9.638	9.638	8.05E+000	2.36E+001	1.21E+000	1.64E+001
PS IB1	PS IB2	1.76	8.323	4.86	98.73	87.26	7.324	3.081	6.94E+000	2.45E+001	3.80E+000	5.13E+001
PS IB3	PS IB2	0.04	0.315	2.95	99.08	86.96	1.489	4.147	6.70E+002	4.08E+001	2.74E+000	3.81E+001
# Bus13	PS IB2	7.26	0.003	27.24	92.66	82.52	0.010	0.028	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus14	PS IB2	4.87	0.155	48.00	61.27	100.00	0.846	2.382 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
Quadro principale MT	PS IB1	20.53	8.274	33.18	91.71	89.08	6.601	1.023	6.34E+000	2.43E+001	1.11E+001	1.32E+002
# Bus19	PS IB1	7.22	0.003	28.29	92.51	82.84	0.009	0.024	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus20	PS IB1	4.97	0.152	48.82	61.34	100.00	0.729	2.034 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
PS IB4	PS IB3	0.06	0.158	4.08	98.49	86.77	0.727	2.020	1.34E+003	8.13E+001	5.18E+000	6.90E+001
# Bus15	PS IB3	7.29	0.003	27.30	92.66	82.51	0.009	0.025	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus16	PS IB3	4.90	0.155	47.99	61.30	100.00	0.753	2.103 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
# Bus14	Bus13	4.87	4.148	48.00	61.27	100.00	2.976	1.518 *	2.76E+003	7.74E-001	5.10E+000	6.63E+001
InvIB2.1	Bus13	100.00	4.297	100.00	100.00	100.00	3.252	0.000	2.67E+003	4.00E-007		
InvIB2.2	Bus14	100.00	4.306	100.00	100.00	100.00	2.822	0.000	2.67E+003	4.00E-007		

		3-Phase	L-G	L-L	L-L-G
Initial Symmetrical Current (kA, rms)	:	8.491	9.638	7.354	9.825
Peak Current (kA), Method C	:	19.270	21.873	16.688	22.297
Breaking Current (kA, rms, symm)	:		9.638	7.354	9.825
Steady State Current (kA, rms)	:	8.491	9.638	7.354	9.825

\# Indicates a fault current contribution from a three-winding transformer.
* Indicates a zero sequence fault current contribution (3I0) from a grounded Delta-Y transformer.

Fault at bus: **PS IB3**
Nominal kV = 30.000
Voltage c Factor = 1.10 (Maximum If)

Contribution		3-Phase Fault		Line-To-Ground Fault					Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus ID	To Bus ID	% V From Bus	kA Symm. rms	% Voltage at From Bus Va	Vb	Vc	kA Symm. rms Ia	3I0	% Impedance on 100 MVA base R1	X1	R0	X0
PS IB3	Total	0.00	8.402	0.00	100.88	87.53	9.517	9.517	8.19E+000	2.38E+001	1.23E+000	1.67E+001
PS IB2	PS IB3	1.09	8.286	4.13	99.05	87.13	7.852	4.785	7.45E+000	2.44E+001	2.35E+000	3.32E+001
PS IB4	PS IB3	0.02	0.158	1.28	100.17	87.27	0.821	2.304	1.34E+003	8.13E+001	5.18E+000	6.90E+001
# Bus15	PS IB3	7.26	0.003	27.42	92.70	82.50	0.010	0.028	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus16	PS IB3	4.87	0.155	48.01	61.38	100.00	0.852	2.399 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
PS IB1	PS IB2	2.83	8.234	8.51	97.41	87.01	7.111	2.685	6.94E+000	2.45E+001	3.80E+000	5.13E+001
# Bus13	PS IB2	7.21	0.003	28.09	92.61	82.70	0.009	0.024	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus14	PS IB2	4.88	0.153	48.52	61.43	100.00	0.744	2.076 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
# Bus17	PS IB4	7.27	0.003	27.44	92.70	82.50	0.010	0.027	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus18	PS IB4	4.88	0.155	48.01	61.39	100.00	0.811	2.278 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
# Bus16	Bus15	4.87	4.148	48.01	61.38	100.00	2.968	1.529 *	2.76E+003	7.74E-001	5.10E+000	6.63E+001
InvIB3.1	Bus15	100.00	4.297	100.00	100.00	100.00	3.245	0.000	2.67E+003	4.00E-007		
InvIB3.2	Bus16	100.00	4.306	100.00	100.00	100.00	2.816	0.000	2.67E+003	4.00E-007		

		3-Phase	L-G	L-L	L-L-G
Initial Symmetrical Current (kA, rms)	:	8.402	9.517	7.276	9.712
Peak Current (kA), Method C	:	18.992	21.512	16.447	21.954
Breaking Current (kA, rms, symm)	:		9.517	7.276	9.712
Steady State Current (kA, rms)	:	8.401	9.517	7.276	9.712

\# Indicates a fault current contribution from a three-winding transformer.
* Indicates a zero sequence fault current contribution (3I0) from a grounded Delta-Y transformer.

Fault at bus: **PS IB4**
Nominal kV = 30.000
Voltage c Factor = 1.10 (Maximum If)

Contribution		3-Phase Fault		Line-To-Ground Fault					Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus ID	To Bus ID	% V From Bus	kA Symm. rms	% Voltage at From Bus Va	Vb	Vc	kA Symm. rms Ia	3I0	% Impedance on 100 MVA base R1	X1	R0	X0
PS IB4	Total	0.00	8.330	0.00	102.22	88.21	9.232	9.232	8.30E+000	2.40E+001	1.30E+000	1.84E+001
PS IB3	PS IB4	0.87	8.271	4.25	100.18	87.60	8.325	6.643	7.94E+000	2.43E+001	1.74E+000	2.56E+001
# Bus17	PS IB4	7.26	0.003	29.01	92.91	82.55	0.011	0.030	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus18	PS IB4	4.87	0.155	48.53	62.08	100.00	0.904	2.559 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
PS IB2	PS IB3	1.96	8.215	8.09	98.53	87.26	7.538	4.407	7.45E+000	2.44E+001	2.35E+000	3.32E+001
# Bus15	PS IB3	7.22	0.003	29.55	92.85	82.70	0.010	0.026	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus16	PS IB3	4.88	0.154	48.92	62.14	100.00	0.787	2.210 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
# Bus18	Bus17	4.87	4.148	48.53	62.08	100.00	2.890	1.631 *	2.76E+003	7.74E-001	5.10E+000	6.63E+001
InvIB4.1	Bus17	100.00	4.297	100.00	100.00	100.00	3.175	0.000	2.67E+003	4.00E-007		
InvIB4.2	Bus18	100.00	4.306	100.00	100.00	100.00	2.755	0.000	2.67E+003	4.00E-007		

		3-Phase	L-G	L-L	L-L-G
Initial Symmetrical Current (kA, rms)	:	8.330	9.232	7.214	9.485
Peak Current (kA), Method C	:	18.773	20.805	16.258	21.375
Breaking Current (kA, rms, symm)	:		9.232	7.214	9.485
Steady State Current (kA, rms)	:	8.330	9.232	7.214	9.485

\# Indicates a fault current contribution from a three-winding transformer.
* Indicates a zero sequence fault current contribution (3I0) from a grounded Delta-Y transformer.

Fault at bus: **PS IIA1**
Nominal kV = 30.000
Voltage c Factor = 1.10 (Maximum If)

Contribution		3-Phase Fault		Line-To-Ground Fault					Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus ID	To Bus ID	% V From Bus	kA Symm. rms	% Voltage at From Bus Va	Vb	Vc	kA Symm. rms Ia	3I0	% Impedance on 100 MVA base R1	X1	R0	X0
PS IIA1	Total	0.00	8.643	0.00	106.92	92.95	8.697	8.697	7.65E+000	2.33E+001	1.87E+000	2.44E+001
Quadro principale MT	PS IIA1	18.80	8.480	35.31	94.79	90.20	6.237	1.649	6.56E+000	2.41E+001	1.09E+001	1.29E+002
PS IIA2	PS IIA1	0.16	0.315	12.36	100.05	88.85	1.360	3.804	6.70E+002	4.16E+001	4.09E+000	5.59E+001
# Bus39	PS IIA1	7.26	0.003	35.28	93.38	83.33	0.013	0.037	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus40	PS IIA1	4.87	0.155	51.69	64.46	100.00	1.112	3.207 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
TRsec	Quadro principale MT	18.83	4.095	35.33	94.79	90.20	2.747	0.000	2.13E+000	4.22E+001		
TRsec	Quadro principale MT	18.83	4.095	35.33	94.79	90.20	2.747	0.000	2.13E+000	4.22E+001		
PS IA1	Quadro principale MT	19.07	0.384	43.17	91.61	88.74	0.353	0.507	4.49E+002	3.19E+001	1.03E+001	1.25E+002
PS IB1	Quadro principale MT	19.16	0.512	43.82	91.47	88.62	0.442	0.556	3.37E+002	2.48E+001	9.38E+000	1.14E+002
PS IIB1	Quadro principale MT	19.14	0.512	43.82	91.44	88.63	0.449	0.585	3.37E+002	2.46E+001	8.94E+000	1.08E+002
Quadro BT	Quadro principale MT	20.00	0.000	66.43	102.50	64.26	0.000	0.000	1.73E+005	4.10E+005		
PS IIA3	PS IIA2	0.21	0.158	15.60	98.37	88.10	0.629	1.747	1.34E+003	8.17E+001	5.59E+000	7.72E+001
# Bus35	PS IIA2	7.39	0.003	35.51	93.38	83.30	0.009	0.024	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus36	PS IIA2	5.01	0.155	51.67	64.55	100.00	0.723	2.034 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
# Bus40	Bus39	4.87	4.148	51.69	64.46	100.00	2.601	2.044 *	2.76E+003	7.74E-001	5.10E+000	6.63E+001
InvIIA1.1	Bus39	100.00	4.297	100.00	100.00	100.00	2.882	0.000	2.67E+003	4.00E-007		
InvIIA1.2	Bus40	100.00	4.306	100.00	100.00	100.00	2.502	0.000	2.67E+003	4.00E-007		

		3-Phase	L-G	L-L	L-L-G
Initial Symmetrical Current (kA, rms)	:	8.643	8.697	7.485	9.239
Peak Current (kA), Method C	:	19.805	19.928	17.152	21.170
Breaking Current (kA, rms, symm)	:		8.697	7.485	9.239
Steady State Current (kA, rms)	:	8.643	8.697	7.485	9.239

\# Indicates a fault current contribution from a three-winding transformer.
* Indicates a zero sequence fault current contribution (3I0) from a grounded Delta-Y transformer.

Fault at bus: **PS IIA2**
Nominal kV = 30.000
Voltage c Factor = 1.10 (Maximum If)

Contribution		3-Phase Fault		Line-To-Ground Fault					Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus	To Bus	% V	kA	% Voltage at From Bus			kA Symm. rms		% Impedance on 100 MVA base			
ID	ID	From Bus	Symm. rms	Va	Vb	Vc	Ia	3I0	R1	X1	R0	X0
PS IIA2	Total	0.00	8.302	0.00	105.30	91.01	8.657	8.657	8.19E+000	2.41E+001	1.72E+000	2.28E+001
PS IIA1	PS IIA2	4.11	8.188	12.60	99.88	89.01	6.721	3.089	7.43E+000	2.48E+001	4.89E+000	6.39E+001
PS IIA3	PS IIA2	0.05	0.158	4.73	102.53	89.58	0.899	2.557	1.34E+003	8.17E+001	5.59E+000	7.72E+001
# Bus35	PS IIA2	7.26	0.003	33.06	93.25	82.99	0.012	0.035	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus36	PS IIA2	4.87	0.155	50.43	63.65	100.00	1.038	2.977 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
Quadro principale MT	PS IIA1	22.14	8.138	39.24	92.86	89.78	6.004	1.041	6.56E+000	2.41E+001	1.09E+001	1.29E+002
# Bus39	PS IIA1	7.87	0.003	35.46	92.99	83.72	0.009	0.024	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus40	PS IIA1	6.02	0.149	52.36	63.99	100.00	0.719	2.024 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
# Bus37	PS IIA3	7.30	0.003	33.14	93.25	82.98	0.011	0.030	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus38	PS IIA3	4.91	0.155	50.42	63.67	100.00	0.889	2.527 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
# Bus36	Bus35	4.87	4.148	50.43	63.65	100.00	2.700	1.897 *	2.76E+003	7.74E-001	5.10E+000	6.63E+001
InvIIA2.1	Bus35	100.00	4.297	100.00	100.00	100.00	2.987	0.000	2.67E+003	4.00E-007		
InvIIA2.2	Bus36	100.00	4.306	100.00	100.00	100.00	2.593	0.000	2.67E+003	4.00E-007		

		3-Phase	L-G	L-L	L-L-G
Initial Symmetrical Current (kA, rms)	:	8.302	8.657	7.190	9.070
Peak Current (kA), Method C	:	18.734	19.535	16.224	20.467
Breaking Current (kA, rms, symm)	:		8.657	7.190	9.070
Steady State Current (kA, rms)	:	8.302	8.657	7.190	9.070

\# Indicates a fault current contribution from a three-winding transformer.
* Indicates a zero sequence fault current contribution (3I0) from a grounded Delta-Y transformer.

Fault at bus: **PS IIA3**
Nominal kV = 30.000
Voltage c Factor = 1.10 (Maximum If)

Contribution		3-Phase Fault		Line-To-Ground Fault					Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus ID	To Bus ID	% V From Bus	kA Symm. rms	% Voltage at From Bus Va	Vb	Vc	kA Symm. rms Ia	3I0	% Impedance on 100 MVA base R1	X1	R0	X0
PS IIA3	Total	0.00	8.096	0.00	107.62	92.51	8.131	8.131	8.52E+000	2.47E+001	1.90E+000	2.63E+001
PS IIA2	PS IIA3	2.55	8.037	10.52	102.38	90.19	7.002	4.864	8.13E+000	2.51E+001	3.03E+000	4.40E+001
# Bus37	PS IIA3	7.26	0.003	35.59	93.61	83.14	0.013	0.038	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus38	PS IIA3	4.87	0.155	51.48	64.87	100.00	1.121	3.229 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
PS IIA1	PS IIA2	6.55	7.983	20.94	98.27	88.91	6.165	2.463	7.43E+000	2.48E+001	4.89E+000	6.39E+001
# Bus35	PS IIA2	7.44	0.003	37.07	93.46	83.58	0.010	0.028	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus36	PS IIA2	5.30	0.151	52.65	65.13	100.00	0.835	2.374 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
# Bus38	Bus37	4.87	4.148	51.48	64.87	100.00	2.582	2.058 *	2.76E+003	7.74E-001	5.10E+000	6.63E+001
InvIIA3.1	Bus37	100.00	4.297	100.00	100.00	100.00	2.877	0.000	2.67E+003	4.00E-007		
InvIIA3.2	Bus38	100.00	4.306	100.00	100.00	100.00	2.497	0.000	2.67E+003	4.00E-007		

		3-Phase	L-G	L-L	L-L-G
Initial Symmetrical Current (kA, rms)	:	8.096	8.131	7.011	8.685
Peak Current (kA), Method C	:	18.109	18.187	15.683	19.426
Breaking Current (kA, rms, symm)	:		8.131	7.011	8.685
Steady State Current (kA, rms)	:	8.096	8.131	7.011	8.685

\# Indicates a fault current contribution from a three-winding transformer.
* Indicates a zero sequence fault current contribution (3I0) from a grounded Delta-Y transformer.

Fault at bus: **PS IIB1**
Nominal kV = 30.000
Voltage c Factor = 1.10 (Maximum If)

Contribution		3-Phase Fault		Line-To-Ground Fault					Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus ID	To Bus ID	% V From Bus	kA Symm. rms	% Voltage at From Bus Va	Vb	Vc	kA Symm. rms Ia	3I0	% Impedance on 100 MVA base R1	X1	R0	X0
PS IIB1	Total	0.00	8.707	0.00	101.63	88.42	9.686	9.686	7.69E+000	2.31E+001	1.26E+000	1.73E+001
Quadro principale MT	PS IIB1	18.38	8.492	30.95	92.75	89.05	6.731	1.306	6.23E+000	2.41E+001	1.08E+001	1.28E+002
PS IIB2	PS IIB1	0.05	0.473	3.24	99.85	87.69	2.097	5.824	4.47E+002	2.74E+001	1.97E+000	2.88E+001
# Bus2	PS IIB1	7.26	0.003	28.62	92.75	82.67	0.011	0.030	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus3	PS IIB1	4.87	0.155	48.62	61.75	100.00	0.892	2.526 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
TRsec	Quadro principale MT	18.41	4.119	30.98	92.75	89.06	3.055	0.000	2.13E+000	4.22E+001		
TRsec	Quadro principale MT	18.41	4.119	30.98	92.75	89.06	3.055	0.000	2.13E+000	4.22E+001		
PS IA1	Quadro principale MT	18.64	0.387	37.46	90.32	88.21	0.359	0.417	4.49E+002	3.19E+001	1.03E+001	1.25E+002
PS IB1	Quadro principale MT	18.73	0.515	38.01	90.23	88.11	0.457	0.457	3.37E+002	2.48E+001	9.38E+000	1.14E+002
PS IIA1	Quadro principale MT	18.62	0.387	37.37	90.34	88.23	0.363	0.432	4.49E+002	3.17E+001	9.96E+000	1.21E+002
Quadro BT	Quadro principale MT	19.57	0.000	62.67	102.50	61.58	0.000	0.000	1.73E+005	4.10E+005		
PS IIB3	PS IIB2	0.12	0.315	7.51	97.64	86.87	1.297	3.579	6.70E+002	4.10E+001	2.88E+000	4.11E+001
# Bus4	PS IIB2	7.30	0.003	28.69	92.75	82.66	0.010	0.026	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus5	PS IIB2	4.91	0.155	48.60	61.78	100.00	0.790	2.219 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
# Bus3	Bus2	4.87	4.148	48.62	61.75	100.00	2.910	1.610 *	2.76E+003	7.74E-001	5.10E+000	6.63E+001
InvIIB1.1	Bus2	100.00	4.297	100.00	100.00	100.00	3.187	0.000	2.67E+003	4.00E-007		
InvIIB1.2	Bus3	100.00	4.306	100.00	100.00	100.00	2.766	0.000	2.67E+003	4.00E-007		

		3-Phase	L-G	L-L	L-L-G
Initial Symmetrical Current (kA, rms)	:	8.707	9.686	7.541	9.910
Peak Current (kA), Method C	:	19.963	22.207	17.289	22.721
Breaking Current (kA, rms, symm)	:		9.686	7.541	9.910
Steady State Current (kA, rms)	:	8.707	9.686	7.541	9.910

\# Indicates a fault current contribution from a three-winding transformer.
* Indicates a zero sequence fault current contribution (3I0) from a grounded Delta-Y transformer.

Fault at bus: **PS IIB2**
Nominal kV = 30.000
Voltage c Factor = 1.10 (Maximum If)

Contribution		3-Phase Fault		Line-To-Ground Fault					Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus ID	To Bus ID	% V From Bus	kA Symm. rms	% Voltage at From Bus Va	Vb	Vc	kA Symm. rms Ia	3I0	% Impedance on 100 MVA base R1	X1	R0	X0
PS IIB2	Total	0.00	8.634	0.00	100.81	87.83	9.753	9.753	7.81E+000	2.32E+001	1.21E+000	1.64E+001
PS IIB1	PS IIB2	0.89	8.467	2.50	99.78	87.66	7.514	3.416	6.72E+000	2.41E+001	3.58E+000	4.69E+001
PS IIB3	PS IIB2	0.07	0.315	4.65	98.33	86.90	1.404	3.894	6.70E+002	4.10E+001	2.88E+000	4.11E+001
# Bus4	PS IIB2	7.26	0.003	27.53	92.64	82.59	0.010	0.028	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus5	PS IIB2	4.87	0.155	48.19	61.33	100.00	0.856	2.415 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
Quadro principale MT	PS IIB1	19.11	8.418	31.48	92.12	88.99	6.724	1.155	6.23E+000	2.41E+001	1.08E+001	1.28E+002
# Bus2	PS IIB1	7.18	0.003	28.06	92.57	82.75	0.010	0.026	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus3	PS IIB1	4.84	0.154	48.61	61.36	100.00	0.795	2.235 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
PS IIB4	PS IIB3	0.08	0.158	5.70	97.79	86.73	0.685	1.896	1.34E+003	8.13E+001	5.18E+000	6.90E+001
# Bus6	PS IIB3	7.31	0.003	27.63	92.65	82.57	0.009	0.023	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus7	PS IIB3	4.93	0.155	48.17	61.37	100.00	0.710	1.974 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
# Bus5	Bus4	4.87	4.148	48.19	61.33	100.00	2.962	1.539 *	2.76E+003	7.74E-001	5.10E+000	6.63E+001
InvIIB2.1	Bus4	100.00	4.297	100.00	100.00	100.00	3.236	0.000	2.67E+003	4.00E-007		
InvIIB2.2	Bus5	100.00	4.306	100.00	100.00	100.00	2.809	0.000	2.67E+003	4.00E-007		

		3-Phase	L-G	L-L	L-L-G
Initial Symmetrical Current (kA, rms)	:	8.634	9.753	7.477	9.942
Peak Current (kA), Method C	:	19.726	22.284	17.083	22.716
Breaking Current (kA, rms, symm)	:		9.753	7.477	9.942
Steady State Current (kA, rms)	:	8.633	9.753	7.477	9.942

\# Indicates a fault current contribution from a three-winding transformer.
* Indicates a zero sequence fault current contribution (3I0) from a grounded Delta-Y transformer.

Fault at bus: **PS IIB3**
Nominal kV = 30.000
Voltage c Factor = 1.10 (Maximum If)

Contribution		3-Phase Fault		Line-To-Ground Fault					Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus ID	To Bus ID	% V From Bus	kA Symm. rms	% Voltage at From Bus Va	Vb	Vc	kA Symm. rms Ia	3I0	% Impedance on 100 MVA base R1	X1	R0	X0
PS IIB3	Total	0.00	8.487	0.00	101.27	87.90	9.532	9.532	8.04E+000	2.36E+001	1.24E+000	1.71E+001
PS IIB4	PS IIB3	0.02	0.158	1.31	100.54	87.62	0.839	2.362	1.34E+003	8.13E+001	5.18E+000	6.90E+001
PS IIB2	PS IIB3	1.77	8.372	6.75	98.30	87.20	7.829	4.682	7.31E+000	2.42E+001	2.42E+000	3.48E+001
# Bus6	PS IIB3	7.26	0.003	27.99	92.74	82.56	0.011	0.029	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus7	PS IIB3	4.87	0.155	48.27	61.58	100.00	0.871	2.459 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
# Bus8	PS IIB4	7.27	0.003	28.02	92.74	82.56	0.010	0.027	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus9	PS IIB4	4.88	0.155	48.27	61.59	100.00	0.829	2.335 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
PS IIB1	PS IIB2	2.65	8.320	8.86	97.53	87.16	7.139	2.730	6.72E+000	2.41E+001	3.58E+000	4.69E+001
# Bus4	PS IIB2	7.25	0.003	29.08	92.60	82.88	0.008	0.023	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus5	PS IIB2	5.00	0.152	49.09	61.67	100.00	0.694	1.930 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
# Bus7	Bus6	4.87	4.148	48.27	61.58	100.00	2.940	1.567 *	2.76E+003	7.74E-001	5.10E+000	6.63E+001
InvIIB3.1	Bus6	100.00	4.297	100.00	100.00	100.00	3.218	0.000	2.67E+003	4.00E-007		
InvIIB3.2	Bus7	100.00	4.306	100.00	100.00	100.00	2.793	0.000	2.67E+003	4.00E-007		

		3-Phase	L-G	L-L	L-L-G
Initial Symmetrical Current (kA, rms)	:	8.487	9.532	7.350	9.742
Peak Current (kA), Method C	:	19.263	21.637	16.683	22.113
Breaking Current (kA, rms, symm)	:		9.532	7.350	9.742
Steady State Current (kA, rms)	:	8.486	9.532	7.350	9.742

\# Indicates a fault current contribution from a three-winding transformer.
* Indicates a zero sequence fault current contribution (3I0) from a grounded Delta-Y transformer.

Fault at bus: **PS IIB4**
Nominal kV = 30.000
Voltage c Factor = 1.10 (Maximum If)

Contribution		3-Phase Fault		Line-To-Ground Fault					Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus ID	To Bus ID	% V From Bus	kA Symm. rms	% Voltage at From Bus Va	Vb	Vc	kA Symm. rms Ia	3I0	% Impedance on 100 MVA base R1	X1	R0	X0
PS IIB4	Total	0.00	8.414	0.00	102.58	88.59	9.252	9.252	8.15E+000	2.38E+001	1.32E+000	1.87E+001
PS IIB3	PS IIB4	0.88	8.355	4.23	100.54	87.94	8.327	6.607	7.78E+000	2.41E+001	1.78E+000	2.62E+001
# Bus8	PS IIB4	7.26	0.003	29.53	92.94	82.62	0.011	0.031	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus9	PS IIB4	4.87	0.155	48.78	62.26	100.00	0.921	2.614 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
PS IIB2	PS IIB3	2.63	8.300	10.51	97.85	87.33	7.522	4.314	7.31E+000	2.42E+001	2.42E+000	3.48E+001
# Bus6	PS IIB3	7.22	0.003	30.08	92.88	82.77	0.010	0.026	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus7	PS IIB3	4.87	0.154	49.18	62.32	100.00	0.805	2.266 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
# Bus9	Bus8	4.87	4.148	48.78	62.26	100.00	2.866	1.666 *	2.76E+003	7.74E-001	5.10E+000	6.63E+001
InvIIB4.1	Bus8	100.00	4.297	100.00	100.00	100.00	3.150	0.000	2.67E+003	4.00E-007		
InvIIB4.2	Bus9	100.00	4.306	100.00	100.00	100.00	2.734	0.000	2.67E+003	4.00E-007		

		3-Phase	L-G	L-L	L-L-G
Initial Symmetrical Current (kA, rms)	:	8.414	9.252	7.287	9.521
Peak Current (kA), Method C	:	19.038	20.934	16.488	21.545
Breaking Current (kA, rms, symm)	:		9.252	7.287	9.521
Steady State Current (kA, rms)	:	8.413	9.252	7.287	9.521

\# Indicates a fault current contribution from a three-winding transformer.
* Indicates a zero sequence fault current contribution (3I0) from a grounded Delta-Y transformer.

Fault at bus: **Quadro BT**
Nominal kV = 0.400
Voltage c Factor = 1.10 (Maximum If)

Contribution		3-Phase Fault		Line-To-Ground Fault					Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus ID	To Bus ID	% V From Bus	kA Symm. rms	% Voltage at From Bus Va	Vb	Vc	kA Symm. rms Ia	3I0	% Impedance on 100 MVA base R1	X1	R0	X0
Quadro BT	Total	0.00	3.878	0.00	99.97	100.16	3.873	3.873	2.15E+003	3.25E+003	2.17E+003	3.25E+003
Quadro principale MT	Quadro BT	97.09	3.844	97.37	97.28	97.56	3.851	3.873 *	2.18E+003	3.27E+003	2.17E+003	3.25E+003
AUX	Quadro BT	100.00	0.034	100.00	100.00	100.00	0.023	0.000	1.71E+005	4.06E+005		
TRsec	Quadro principale MT	97.09	0.025	97.37	97.28	97.56	0.014	0.000	4.24E+003	5.37E+002		
TRsec	Quadro principale MT	97.09	0.025	97.37	97.28	97.56	0.014	0.000	4.24E+003	5.37E+002		
PS IA1	Quadro principale MT	97.09	0.002	97.37	97.28	97.56	0.001	0.000	2.15E+002	4.55E+004		
PS IB1	Quadro principale MT	97.09	0.003	97.37	97.28	97.56	0.002	0.000	7.19E+001	3.42E+004		
PS IIA1	Quadro principale MT	97.09	0.002	97.37	97.28	97.56	0.001	0.000	2.34E+002	4.55E+004		
PS IIB1	Quadro principale MT	97.09	0.003	97.37	97.28	97.56	0.002	0.000	9.82E+001	3.42E+004		

		3-Phase	L-G	L-L	L-L-G
Initial Symmetrical Current (kA, rms)	:	3.878	3.873	3.359	3.879
Peak Current (kA), Method C	:	6.337	6.329	5.488	6.339
Breaking Current (kA, rms, symm)	:		3.873	3.359	3.879
Steady State Current (kA, rms)	:	3.844	3.873	3.359	3.879

\# Indicates a fault current contribution from a three-winding transformer.
* Indicates a zero sequence fault current contribution (3I0) from a grounded Delta-Y transformer.

Fault at bus: **Quadro principale MT**
Nominal kV = 30.000
Voltage c Factor = 1.10 (Maximum If)

Contribution		3-Phase Fault		Line-To-Ground Fault					Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus	To Bus	% V	kA	% Voltage at From Bus			kA Symm. rms		% Impedance on 100 MVA base			
ID	ID	From Bus	Symm. rms	Va	Vb	Vc	Ia	3I0	R1	X1	R0	X0
Quadro principale MT	Total	0.00	10.515	0.00	112.40	101.94	9.172	9.172	5.15E+000	1.95E+001	2.41E+000	2.91E+001
TRsec	Quadro principale MT	0.04	5.010	0.03	112.40	101.96	2.913	0.000	2.13E+000	4.22E+001		
TRsec	Quadro principale MT	0.04	5.010	0.03	112.40	101.96	2.913	0.000	2.13E+000	4.22E+001		
PS IA1	Quadro principale MT	1.09	0.470	32.46	95.42	88.78	0.843	2.140	4.49E+002	3.19E+001	1.03E+001	1.25E+002
PS IB1	Quadro principale MT	1.42	0.626	34.89	94.58	88.15	0.964	2.347	3.37E+002	2.48E+001	9.38E+000	1.14E+002
PS IIA1	Quadro principale MT	1.04	0.470	32.08	95.56	88.88	0.867	2.216	4.49E+002	3.17E+001	9.96E+000	1.21E+002
PS IIB1	Quadro principale MT	1.35	0.626	34.97	94.51	88.14	1.002	2.469	3.37E+002	2.46E+001	8.94E+000	1.08E+002
Quadro BT	Quadro principale MT	0.90	0.000	66.66	102.50	60.69	0.000	0.000	1.73E+005	4.10E+005		
Stallo AT	TRsec	76.72	10.019	89.05	91.21	100.00	5.826	0.000	1.06E+000	2.11E+001		
PS IA2	PS IA1	1.25	0.313	36.26	93.91	87.91	0.476	1.155	6.70E+002	4.16E+001	4.09E+000	5.59E+001
# Bus27	PS IA1	8.23	0.003	44.11	93.64	84.97	0.005	0.011	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus28	PS IA1	5.86	0.154	57.22	67.72	100.00	0.364	0.974 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
PS IB2	PS IB1	1.52	0.469	36.80	93.81	87.78	0.668	1.583	4.47E+002	2.76E+001	2.10E+000	3.16E+001
# Bus19	PS IB1	8.53	0.003	44.28	93.72	84.91	0.004	0.009	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus20	PS IB1	6.16	0.154	57.19	67.88	100.00	0.294	0.754 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
PS IIA2	PS IIA1	1.20	0.313	36.00	93.99	87.97	0.489	1.196	6.70E+002	4.16E+001	4.09E+000	5.59E+001
# Bus39	PS IIA1	8.18	0.003	44.08	93.63	84.98	0.005	0.012	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus40	PS IIA1	5.81	0.154	57.22	67.69	100.00	0.375	1.008 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
PS IIB2	PS IIB1	1.40	0.470	35.94	94.11	87.96	0.709	1.716	4.47E+002	2.74E+001	1.97E+000	2.88E+001
# Bus2	PS IIB1	8.47	0.003	44.26	93.70	84.92	0.004	0.009	7.73E+004	5.01E+003	4.35E+002	5.67E+003
# Bus3	PS IIB1	6.10	0.154	57.20	67.85	100.00	0.290	0.744 *	1.36E+003	8.24E+001	5.10E+000	6.63E+001
AUX	Quadro BT	102.50	0.035	102.50	102.50	102.50	0.018	0.000	1.71E+005	4.06E+005		

		3-Phase	L-G	L-L	L-L-G
Initial Symmetrical Current (kA, rms)	:	10.515	9.172	9.106	10.440
Peak Current (kA), Method C	:	26.433	23.057	22.892	26.246
Breaking Current (kA, rms, symm)	:		9.172	9.106	10.440
Steady State Current (kA, rms)	:	10.515	9.172	9.106	10.440

\# Indicates a fault current contribution from a three-winding transformer.
* Indicates a zero sequence fault current contribution (3I0) from a grounded Delta-Y transformer.

Fault at bus: **Stallo AT**
Nominal kV = 150.000
Voltage c Factor = 1.10 (Maximum If)

Contribution		3-Phase Fault		Line-To-Ground Fault					Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus	To Bus	% V	kA	% Voltage at From Bus			kA Symm. rms		% Impedance on 100 MVA base			
ID	ID	From Bus	Symm. rms	Va	Vb	Vc	Ia	3I0	R1	X1	R0	X0
Stallo AT	Total	0.00	8.727	0.00	98.39	94.34	9.405	9.405	9.04E-001	4.77E+000	4.31E-001	3.79E+000
CP Lizzano	Stallo AT	0.04	8.561	0.19	98.30	94.30	8.548	7.206	7.00E-001	4.90E+000	7.00E-001	4.92E+000
TRsec	Stallo AT	16.30	0.426	66.83	100.00	47.50	0.885	2.211 *	9.67E+001	2.32E+001	3.60E-001	1.62E+001
RTN	CP Lizzano	100.00	8.561	100.00	100.00	100.00	8.548	7.206	6.99E-001	4.89E+000	6.99E-001	4.89E+000
Quadro principale MT	TRsec	16.31	1.065	66.83	100.00	47.49	0.663	0.000	1.90E+002	8.89E+001		
Quadro principale MT	TRsec	16.31	1.065	66.83	100.00	47.49	0.663	0.000	1.90E+002	8.89E+001		

		3-Phase	L-G	L-L	L-L-G
Initial Symmetrical Current (kA, rms)	:	8.727	9.405	7.558	9.304
Peak Current (kA), Method C	:	20.260	21.835	17.546	21.601
Breaking Current (kA, rms, symm)	:		9.405	7.558	9.304
Steady State Current (kA, rms)	:	8.727	9.405	7.558	9.304

\# Indicates a fault current contribution from a three-winding transformer.
* Indicates a zero sequence fault current contribution (3I0) from a grounded Delta-Y transformer.

Fault at bus: **TRsec**
Nominal kV = 30.000
Voltage c Factor = 1.10 (Maximum If)

Contribution		3-Phase Fault		Line-To-Ground Fault					Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus	To Bus	% V	kA	% Voltage at From Bus			kA Symm. rms		% Impedance on 100 MVA base			
ID	ID	From Bus	Symm. rms	Va	Vb	Vc	Ia	3I0	R1	X1	R0	X0
TRsec	Total	0.00	10.519	0.00	112.41	101.98	9.171	9.171	5.15E+000	1.95E+001	2.41E+000	2.92E+001
Quadro principale MT	TRsec	0.01	1.096	0.04	112.39	101.96	1.837	4.585	1.93E+002	1.39E+001	4.83E+000	5.83E+001
Quadro principale MT	TRsec	0.01	1.096	0.04	112.39	101.96	1.837	4.585	1.93E+002	1.39E+001	4.83E+000	5.83E+001
Stallo AT	TRsec	76.71	10.023	89.05	91.21	100.00	5.826	0.000	1.06E+000	2.11E+001		
PS IA1	Quadro principale MT	1.10	0.470	32.50	95.42	88.79	0.842	2.140	4.49E+002	3.19E+001	1.03E+001	1.25E+002
PS IB1	Quadro principale MT	1.43	0.626	34.92	94.58	88.16	0.964	2.346	3.37E+002	2.48E+001	9.38E+000	1.14E+002
PS IIA1	Quadro principale MT	1.05	0.470	32.11	95.56	88.89	0.867	2.216	4.49E+002	3.17E+001	9.96E+000	1.21E+002
PS IIB1	Quadro principale MT	1.36	0.626	35.00	94.51	88.15	1.002	2.468	3.37E+002	2.46E+001	8.94E+000	1.08E+002
Quadro BT	Quadro principale MT	0.91	0.000	66.67	102.50	60.71	0.000	0.000	1.73E+005	4.10E+005		
CP Lizzano	Stallo AT	76.72	2.005	89.06	91.22	100.00	1.009	0.000	9.99E+000	2.60E+000		

		3-Phase	L-G	L-L	L-L-G
Initial Symmetrical Current (kA, rms)	:	10.519	9.171	9.110	10.441
Peak Current (kA), Method C	:	26.449	23.060	22.906	26.255
Breaking Current (kA, rms, symm)	:		9.171	9.110	10.441
Steady State Current (kA, rms)	:	10.518	9.171	9.110	10.441

\# Indicates a fault current contribution from a three-winding transformer.
* Indicates a zero sequence fault current contribution (3I0) from a grounded Delta-Y transformer.

Short-Circuit Summary Report

3-Phase, LG, LL, LLG Fault Currents

Bus		3-Phase Fault			Line-to-Ground Fault				Line-to-Line Fault				*Line-to-Line-to-Ground			
ID	kV	I"k	ip	Ik	I"k	ip	Ib	Ik	I"k	ip	Ib	Ik	I"k	ip	Ib	Ik
CP Lizzano	150.000	8.730	20.271	8.730	9.418	21.868	9.418	9.418	7.560	17.555	7.560	7.560	9.312	21.623	9.312	9.312
PS IA1	30.000	8.571	19.572	8.570	8.633	19.714	8.633	8.633	7.422	16.950	7.422	7.422	9.171	20.944	9.171	9.171
PS IA2	30.000	8.235	18.525	8.235	8.603	19.353	8.603	8.603	7.132	16.043	7.132	7.132	9.011	20.272	9.011	9.011
PS IA3	30.000	8.032	17.914	8.032	8.085	18.032	8.085	8.085	6.956	15.514	6.956	6.956	8.630	19.248	8.630	8.630
PS IB1	30.000	8.635	19.728	8.635	9.478	21.655	9.478	9.478	7.478	17.085	7.478	7.478	9.745	22.263	9.745	9.745
PS IB2	30.000	8.491	19.270	8.491	9.638	21.873	9.638	9.638	7.354	16.688	7.354	7.354	9.825	22.297	9.825	9.825
PS IB3	30.000	8.402	18.992	8.401	9.517	21.512	9.517	9.517	7.276	16.447	7.276	7.276	9.712	21.954	9.712	9.712
PS IB4	30.000	8.330	18.773	8.330	9.232	20.805	9.232	9.232	7.214	16.258	7.214	7.214	9.485	21.375	9.485	9.485
PS IIA1	30.000	8.643	19.805	8.643	8.697	19.928	8.697	8.697	7.485	17.152	7.485	7.485	9.239	21.170	9.239	9.239
PS IIA2	30.000	8.302	18.734	8.302	8.657	19.535	8.657	8.657	7.190	16.224	7.190	7.190	9.070	20.467	9.070	9.070
PS IIA3	30.000	8.096	18.109	8.096	8.131	18.187	8.131	8.131	7.011	15.683	7.011	7.011	8.685	19.426	8.685	8.685
PS IIB1	30.000	8.707	19.963	8.707	9.686	22.207	9.686	9.686	7.541	17.289	7.541	7.541	9.910	22.721	9.910	9.910
PS IIB2	30.000	8.634	19.726	8.633	9.753	22.284	9.753	9.753	7.477	17.083	7.477	7.477	9.942	22.716	9.942	9.942
PS IIB3	30.000	8.487	19.263	8.486	9.532	21.637	9.532	9.532	7.350	16.683	7.350	7.350	9.742	22.113	9.742	9.742
PS IIB4	30.000	8.414	19.038	8.413	9.252	20.934	9.252	9.252	7.287	16.488	7.287	7.287	9.521	21.545	9.521	9.521
Quadro BT	0.400	3.878	6.337	3.844	3.873	6.329	3.873	3.873	3.359	5.488	3.359	3.359	3.879	6.339	3.879	3.879
Quadro principale MT	30.000	10.515	26.433	10.515	9.172	23.057	9.172	9.172	9.106	22.892	9.106	9.106	10.440	26.246	10.440	10.440
Stallo AT	150.000	8.727	20.260	8.727	9.405	21.835	9.405	9.405	7.558	17.546	7.558	7.558	9.304	21.601	9.304	9.304
TRsec	30.000	10.519	26.449	10.518	9.171	23.060	9.171	9.171	9.110	22.906	9.110	9.110	10.441	26.255	10.441	10.441

All fault currents are in rms kA. Current ip is calculated using Method C.

* LLG fault current is the larger of the two faulted line currents.

Sequence Impedance Summary Report

Bus		Positive Seq. Imp. (ohm)			Negative Seq. Imp. (ohm)			Zero Seq. Imp. (ohm)			Fault Zf (ohm)		
ID	kV	Resistance	Reactance	Impedance	Resistance	Reactance	Impedance	Resistance	Reactance	Impedance	Resistance	Reactance	Impedance
CP Lizzano	150.000	2.03165	10.72145	10.91225	2.03165	10.72145	10.91225	0.97105	8.48197	8.53737	0.00000	0.00000	0.00000
PS IA1	30.000	0.69914	2.11020	2.22301	0.69914	2.11020	2.22301	0.16958	2.21211	2.21860	0.00000	0.00000	0.00000
PS IA2	30.000	0.74822	2.18927	2.31360	0.74822	2.18927	2.31360	0.15512	2.05659	2.06243	0.00000	0.00000	0.00000
PS IA3	30.000	0.77779	2.24087	2.37202	0.77779	2.24087	2.37202	0.17105	2.37363	2.37979	0.00000	0.00000	0.00000
PS IB1	30.000	0.70304	2.09139	2.20640	0.70304	2.09139	2.20640	0.11870	1.65162	1.65588	0.00000	0.00000	0.00000
PS IB2	30.000	0.72462	2.12359	2.24382	0.72462	2.12359	2.24382	0.10888	1.47502	1.47904	0.00000	0.00000	0.00000
PS IB3	30.000	0.73752	2.14440	2.26768	0.73752	2.14440	2.26768	0.11026	1.50428	1.50831	0.00000	0.00000	0.00000
PS IB4	30.000	0.74736	2.16162	2.28717	0.74736	2.16162	2.28717	0.11689	1.65465	1.65877	0.00000	0.00000	0.00000
PS IIA1	30.000	0.68836	2.09409	2.20433	0.68836	2.09409	2.20433	0.16872	2.19981	2.20628	0.00000	0.00000	0.00000
PS IIA2	30.000	0.73742	2.17321	2.29492	0.73742	2.17321	2.29492	0.15476	2.05165	2.05748	0.00000	0.00000	0.00000
PS IIA3	30.000	0.76698	2.22483	2.35333	0.76698	2.22483	2.35333	0.17076	2.37007	2.37621	0.00000	0.00000	0.00000
PS IIB1	30.000	0.69184	2.07583	2.18809	0.69184	2.07583	2.18809	0.11353	1.55642	1.56056	0.00000	0.00000	0.00000
PS IIB2	30.000	0.70262	2.09196	2.20680	0.70262	2.09196	2.20680	0.10932	1.47738	1.48142	0.00000	0.00000	0.00000
PS IIB3	30.000	0.72324	2.12529	2.24498	0.72324	2.12529	2.24498	0.11203	1.53957	1.54364	0.00000	0.00000	0.00000
PS IIB4	30.000	0.73309	2.14252	2.26446	0.73309	2.14252	2.26446	0.11861	1.68645	1.69062	0.00000	0.00000	0.00000
Quadro BT	0.400	0.03615	0.05462	0.06551	0.03615	0.05462	0.06551	0.03648	0.05471	0.06576	0.00000	0.00000	0.00000
Quadro principale MT	30.000	0.46382	1.75157	1.81194	0.46382	1.75157	1.81194	0.21653	2.62279	2.63172	0.00000	0.00000	0.00000
Stallo AT	150.000	2.03403	10.72511	10.91629	2.03403	10.72511	10.91629	0.96963	8.51644	8.57146	0.00000	0.00000	0.00000
TRsec	30.000	0.46319	1.75107	1.81129	0.46319	1.75107	1.81129	0.21715	2.62471	2.63368	0.00000	0.00000	0.00000