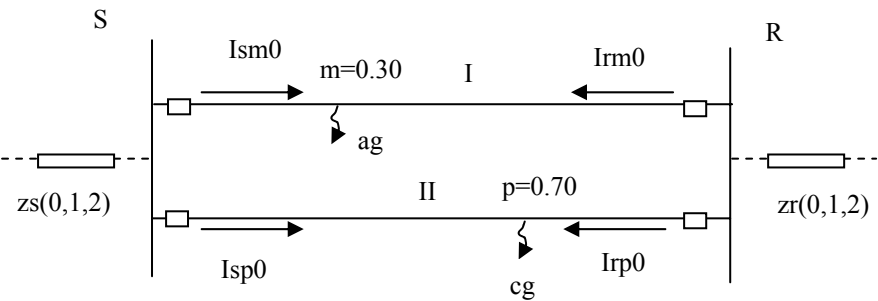


6.3 Programas con Salida Numérica.

Programa PC124:

Esquema:



Programa	PC124		
Entrada por Input	Un=220 kV, kE=1, L=220 km, Sccs=5000 MVA, Sccr=5000 MVA		
	Kr0=1		
	zsr= ∞		
Parámetro	Compensación 2l= Si		
	$k0 = z_{s0}/z_{r0} = 10$		
Falta Doble m, p	Falta m Línea SR I	m	0.30
		Tipo	ag
		Elemento	AG
		Rfm	0
		Rgm	--
	Falta p Línea SR II	p	0.70
		Tipo	cg
		Elemento	CG
		Rfp	0
		Rgp	--
Salida 4	Ohm-Volt-Amp (polar)		autoch01

Salida autoch01 del Programa PC124:

PC124

Esquema Linea Doble SR
Unominal kV: 400,220,132,66
Impedancia de Transferencia: Si,No
Compensacion 21: Si,No
Falta Simple m, o Doble m,p
Barras Ficticias Iniciales m,p
Esquema Normal, Sm fuera, Rm fuera

Falta m en Linea SR1, entre S y R

m=0.30

Falta p en Linea SR2, entre S y R

p=0.70

Unominal =220 (kV)
kE=E/Enominal =1
L=220.0(km)
Ibase=262431.94(kA)
Tipo de Falta, Simple(1), Doble(2) =2
Esquema, Normal(1), Sm fuera(2), Rm fuera(3) =1
Impedancia de Transferencia, Si(1), No(2) =2
Compensacion 21, Si(1), No(2) =1
Sccs =5000 (MVA)
Sccr =5000 (MVA)
Kr0 =1.0
k0 =10.0

m =0.30 Falta:ag Rfm(Ohm):0.00

p =0.70 Falta:cg Rfp(Ohm):0.00

Salida: pu(cart)=1, pu(polar)=2, Ohm-Volt-Amp(cart)=3,
Ohm-Volt-Amp(polar)=4 : 4

SALIDA 21, Ohm , polar

Nota: Componentes de Z >=10000 Ohm se representan por Inf

Nota: Componentes de Z <=-10000 Ohm se representan por -Inf

Sm= 27.83(78.7 °)(Ohm)
Rm= 64.95(78.7 °)(Ohm)
Sp= 64.95(78.7 °)(Ohm)
Rp= 27.83(78.7 °)(Ohm)

Sm_ZAB= 97.01(125.8°)(Ohm)
Sm_ZBC=1974.10(31.3 °)(Ohm)
Sm_ZCA= 86.71(62.3 °)(Ohm)
Sm_ZAG= 27.83(78.7 °)(Ohm)
Sm_ZBG= 187.95(-56.3°)(Ohm)
Sm_ZCG= 161.35(-163.3°)(Ohm)

Sp_ZAB=2200.89(-62.6°)(Ohm)
Sp_ZBC= 177.24(38.6 °)(Ohm)

Sp_ZCA= 167.74(102.6°)(Ohm)
 Sp_ZAG= 151.56(50.5 °)(Ohm)
 Sp_ZBG= 249.72(-64.7°)(Ohm)
 Sp_ZCG= 107.62(114.1°)(Ohm)

Rm_ZAB= 204.16(123.2°)(Ohm)
 Rm_ZBC=1912.46(-150.7°)(Ohm)
 Rm_ZCA= 199.82(58.1 °)(Ohm)
 Rm_ZAG= 81.24(31.0 °)(Ohm)
 Rm_ZBG= 99.62(-132.9°)(Ohm)
 Rm_ZCG= 86.91(107.1°)(Ohm)

Rp_ZAB=2273.99(115.9°)(Ohm)
 Rp_ZBC= 84.30(37.6 °)(Ohm)
 Rp_ZCA= 75.39(100.6°)(Ohm)
 Rp_ZAG= 82.40(-17.9°)(Ohm)
 Rp_ZBG= 89.42(-141.0°)(Ohm)
 Rp_ZCG= 27.83(78.7 °)(Ohm)

SALIDA 67N, Volt, Amp, polar

Sm_67N:	Vspol=104625	(V)	Ismop=2001	(A)	AngDirSm=-120.0°
Sp_67N:	Vspol=104625	(V)	Ispop=1194	(A)	AngDirSp=33.1 °
Rm_67N:	Vrpol=18615	(V)	Irmop=1140	(A)	AngDirRm=165.9°
Rp_67N:	Vrpol=18615	(V)	Irpop=2464	(A)	AngDirRp=-63.3°

SALIDA V(0,1,2), I(0,1,2) Volt-Amp polar

Vm0 = 73606(-169.3°)(V)
 Vm1 = 96752(2.1 °)(V)
 Vm2 = 26417(157.3°)(V)
 Vp0 = 66706(-71.5°)(V)
 Vp1 = 93008(-2.8 °)(V)
 Vp2 = 28886(77.6 °)(V)
 Vs0 = 34875(-155.3°)(V)
 Vs1 = 116578(-0.5 °)(V)
 Vs2 = 7261(141.8°)(V)
 Vr0 = 6205(-73.3°)(V)
 Vr1 = 116234(-1.1 °)(V)
 Vr2 = 7668(105.0°)(V)

Im0 = 1045(-92.4°)(A)
 Im1 = 1045(-92.4°)(A)
 Im2 = 1045(-92.4°)(A)
 Ip0 = 1211(48.1 °)(A)
 Ip1 = 1211(-71.9°)(A)
 Ip2 = 1211(168.1°)(A)
 Is0 = 360(-65.3°)(A)
 Is1 = 1084(-84.3°)(A)
 Is2 = 750(-128.2°)(A)
 Ir0 = 641(16.7 °)(A)
 Ir1 = 1138(-78.6°)(A)
 Ir2 = 792(-165.0°)(A)
 Ism0 = 667(-95.3°)(A)
 Ism1 = 732(-91.4°)(A)
 Ism2 = 701(-95.7°)(A)
 Isp0 = 398(57.8 °)(A)
 Isp1 = 369(-70.1°)(A)
 Isp2 = 409(164.7°)(A)

$I_{rm0} = 380(-87.4^\circ)(A)$
 $I_{rm1} = 313(-94.8^\circ)(A)$
 $I_{rm2} = 347(-85.8^\circ)(A)$
 $I_{rp0} = 821(43.4^\circ)(A)$
 $I_{rp1} = 842(-72.7^\circ)(A)$
 $I_{rp2} = 803(169.8^\circ)(A)$

SALIDA $V(a, b, c)$, $I(a, b, c)$ Volt, Amp Polar

$V_{ma} = 0(0.0^\circ)(V)$
 $V_{mb} = 169652(-132.4^\circ)(V)$
 $V_{mc} = 132846(140.6^\circ)(V)$
 $V_{pa} = 126603(-18.3^\circ)(V)$
 $V_{pb} = 160547(-110.7^\circ)(V)$
 $V_{pc} = 0(-76.0^\circ)(V)$
 $V_{sa} = 79961(-8.0^\circ)(V)$
 $V_{sb} = 152902(-126.9^\circ)(V)$
 $V_{sc} = 121678(132.6^\circ)(V)$

$V_{ra} = 116020(-0.4^\circ)(V)$
 $V_{rb} = 127873(-119.8^\circ)(V)$
 $V_{rc} = 104932(116.6^\circ)(V)$

$I_{ma} = 3135(-92.4^\circ)(A)$
 $I_{mb} = 0(11.4^\circ)(A)$
 $I_{mc} = 0(11.4^\circ)(A)$
 $I_{pa} = 0(-90.0^\circ)(A)$
 $I_{pb} = 0(33.7^\circ)(A)$
 $I_{pc} = 3633(48.1^\circ)(A)$
 $I_{sa} = 2006(-95.9^\circ)(A)$
 $I_{sb} = 96(172.7^\circ)(A)$
 $I_{sc} = 1253(53.1^\circ)(A)$
 $I_{ra} = 1139(-86.3^\circ)(A)$
 $I_{rb} = 96(-7.3^\circ)(A)$
 $I_{rc} = 2387(45.5^\circ)(A)$

$I_{sma} = 2099(-94.1^\circ)(A)$
 $I_{smb} = 48(172.7^\circ)(A)$
 $I_{smc} = 96(82.6^\circ)(A)$
 $I_{spa} = 113(119.9^\circ)(A)$
 $I_{spb} = 48(172.7^\circ)(A)$
 $I_{spc} = 1170(50.8^\circ)(A)$
 $I_{rma} = 1038(-89.1^\circ)(A)$
 $I_{rmb} = 48(-7.3^\circ)(A)$
 $I_{rmc} = 96(-97.4^\circ)(A)$
 $I_{rpa} = 113(-60.1^\circ)(A)$
 $I_{rpb} = 48(-7.3^\circ)(A)$
 $I_{rpc} = 2464(46.8^\circ)(A)$

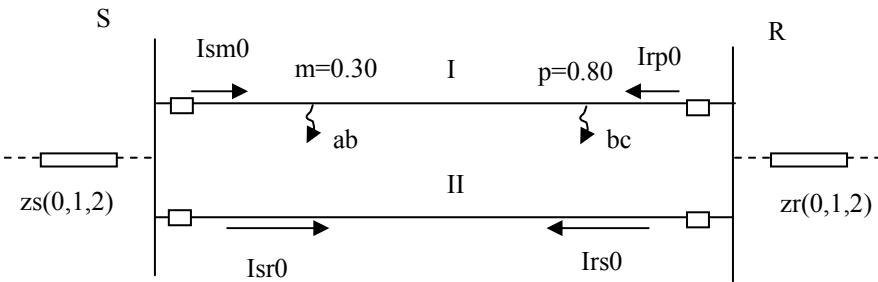
AUTOCHEQUEO DEL PROGRAMA PC124:

Extremo Sm(AG) :	Valor exacto:	Sm= 27.83 (78.7°) (Ohm)
	Valor medido:	Sm_ZAG= 27.83 (78.7°) (Ohm)
Extremo Rp(CG) :	Valor exacto:	Rp= 27.83 (78.7°) (Ohm)
	Valor exacto:	Rp_ZCG= 27.83 (78.7°) (Ohm)

Las Variables de Salida de los Programas con Salida Numérica están definidas en el apartado "Nomenclatura: Variables de Salida de los Programas con Salida Numérica" del Manual de Usuario.

Programa PC124ml:

Esquema:



Programa	PC124ml		
Entrada Standard	Un=220 kV, kE=1, L=220 km, Sccs=5000 MVA, Sccr=5000 MVA		
	Kr0=1		
	zsr=∞		
Parámetro	Compensación 21= No		
	k0 = zs0/zr0 = 10		
Falta Doble sobre la misma Línea m, p	Falta m Línea SR I	m	0.30
		Tipo	ab
		Elemento	AB
		Rfm	0
		Rgm	--
	Falta p Línea SR I	p	0.80
		Tipo	bc
		Elemento	BC
		Rfp	0
		Rgp	--
Salida 4	Ohm-Volt-Amp (polar)		autoch01

Salida autoch01 del Programa PC124ml:

PC124ml
FC124ml.m

Falta Doble sobre SR1. m<p
Barra m=3, Barra p=4
Esquema Normal
zsr si, no
Compensacion 21, Si, No

Falta m en Linea SR1, entre S y R

m=0.30

Falta p en Linea SR1, entre m y R

p=0.80

m =0.30 Falta:ab Rfm:0.00 Ohm
p =0.80 Falta:bc Rfp:0.00 Ohm

Unominal =220 (kV)
kE=E/Enominal =1
Impedancia de Transferencia, Si(1), No(2) =2
Compensacion 21, Si(1), No(2) =2
Sccs(MVA)=5000 Sccr(MVA)=5000
L(km)=220.0
Ibase(kA)=262.43
 Kr0=1.0
k0=10.0

Salida: pu(cart)=1, pu(polar)=2, Ohm-Volt-Amp(cart)=3,
 Ohm-Volt-Amp(polar)=4 : 4

SALIDA 21, Ohm , polar

Nota: Componentes de Z >=10000 Ohm se representan por Inf
Nota: Componentes de Z <=-10000 Ohm se representan por -Inf

Sm= 27.83(78.7 °)(Ohm)
Rp= 18.56(78.7 °)(Ohm)

Sm_ZAB= 27.83(78.7 °)(Ohm)
Sm_ZBC= 46.36(120.0°)(Ohm)
Sm_ZCA= 65.28(54.2 °)(Ohm)
Sm_ZAG= 36.48(57.6 °)(Ohm)
Sm_ZBG= 30.03(104.0°)(Ohm)
Sm_ZCG= 92.28(100.9°)(Ohm)

Sr_ZAB= 529.81(-52.9°)(Ohm)
Sr_ZBC= 409.58(51.4 °)(Ohm)
Sr_ZCA= 720.56(146.9°)(Ohm)
Sr_ZAG= 827.72(-130.7°)(Ohm)
Sr_ZBG= 401.09(4.5 °)(Ohm)
Sr_ZCG= 507.73(94.4 °)(Ohm)

Rp_ZAB= 36.80(34.8 °)(Ohm)
 Rp_ZBC= 18.56(78.7 °)(Ohm)
 Rp_ZCA= 48.64(114.0°)(Ohm)
 Rp_ZAG= 81.67(59.4 °)(Ohm)
 Rp_ZBG= 21.88(49.7 °)(Ohm)
 Rp_ZCG= 24.59(106.3°)(Ohm)

Rs_ZAB= 595.40(120.4°)(Ohm)
 Rs_ZBC= 329.85(-136.0°)(Ohm)
 Rs_ZCA= 691.53(-26.0°)(Ohm)
 Rs_ZAG= 909.68(52.1 °)(Ohm)
 Rs_ZBG= 386.19(171.2°)(Ohm)
 Rs_ZCG= 419.18(-82.2°)(Ohm)

SALIDA 67N, Volt, Amp, polar

Sm_67N:	Vspol=0	(V)	Ismop=0	(A)	AngDirSm=NaN	°
Sr_67N:	Vspol=0	(V)	Isrop=0	(A)	AngDirSr=NaN	°
Rp_67N:	Vpol=0	(V)	Irp0=0	(A)	AngDirRp=NaN	°
Rs_67N:	Vrpol=0	(V)	Irsop=0	(A)	AngDirRs=NaN	°

SALIDA V(0,1,2), I(0,1,2) Volt-Amp polar

Vm0 = 0(0.0 °)(V)
 Vm1 = 41308(10.1 °)(V)
 Vm2 = 41308(-109.9°)(V)
 Vp0 = 0(0.0 °)(V)
 Vp1 = 45048(-8.9 °)(V)
 Vp2 = 45048(-8.9 °)(V)
 Vs0 = 0(0.0 °)(V)
 Vs1 = 104306(-1.0 °)(V)
 Vs2 = 9707(-96.1°)(V)
 Vr0 = 0(0.0 °)(V)
 Vr1 = 99618(-3.3 °)(V)
 Vr2 = 14564(-4.4 °)(V)

Im0 = 0(0.0 °)(A)
 Im1 = 2451(-93.6°)(A)
 Im2 = 2451(-33.6°)(A)
 Ip0 = 0(0.0 °)(A)
 Ip1 = 2902(-71.3°)(A)
 Ip2 = 2902(108.7°)(A)
 Is0 = 0(0.0 °)(A)
 Is1 = 2355(-85.5°)(A)
 Is2 = 1003(-6.1 °)(A)
 Ir0 = 0(0.0 °)(A)
 Ir1 = 2909(-78.2°)(A)
 Ir2 = 1505(85.6 °)(A)
 Ism0 = 0(0.0 °)(A)
 Ism1 = 2309(-86.7°)(A)
 Ism2 = 1148(-12.7°)(A)
 Isr0 = 0(0.0 °)(A)
 Isr1 = 67(-39.3°)(A)
 Isr2 = 191(130.1°)(A)
 Irp0 = 0(0.0 °)(A)
 Irp1 = 2962(-77.4°)(A)
 Irp2 = 1646(90.3 °)(A)

Imp0 = 0(0.0 °)(A)
 Imp1 = 317(26.5 °)(A)
 Imp2 = 1437(129.9°)(A)

SALIDA V(a,b,c), I(a,b,c) Volt,Amp Polar

Vma = 41308(-49.9°)(V)
 Vmb = 41308(-49.9°)(V)
 Vmc = 82616(130.1°)(V)
 Vpa = 90095(-8.9 °)(V)
 Vpb = 45048(171.1°)(V)
 Vpc = 45048(171.1°)(V)
 Vsa = 103891(-6.3 °)(V)
 Vsb = 96528(-117.7°)(V)
 Vsc = 113186(121.1°)(V)
 Vra = 114179(-3.4 °)(V)
 Vrb = 92943(-131.0°)(V)
 Vrc = 93445(124.5°)(V)

Ima = 4245(-63.6°)(A)
 Imb = 4245(116.4°)(A)
 Imc = 0(45.0 °)(A)
 Ipa = 0(0.0 °)(A)
 Ipb = 5027(-161.3°)(A)
 Ipc = 5027(18.7 °)(A)
 Isa = 2723(-64.3°)(A)
 Isb = 3184(142.7°)(A)
 Isc = 1448(21.2 °)(A)
 Ira = 1523(-62.3°)(A)
 Irb = 4128(176.4°)(A)
 Irc = 3580(17.7 °)(A)

Isma = 2848(-63.9°)(A)
 Ismb = 3215(138.4°)(A)
 Ismc = 1227(20.1 °)(A)
 Isra = 126(124.4°)(A)
 Isrb = 241(-122.2°)(A)
 Isrc = 223(26.7 °)(A)
 Irpa = 1398(-62.9°)(A)
 Irpb = 4248(179.3°)(A)
 Irpc = 3801(18.2 °)(A)
 Impa = 1398(117.1°)(A)
 Impb = 1744(-107.1°)(A)
 Impc = 1227(20.1 °)(A)

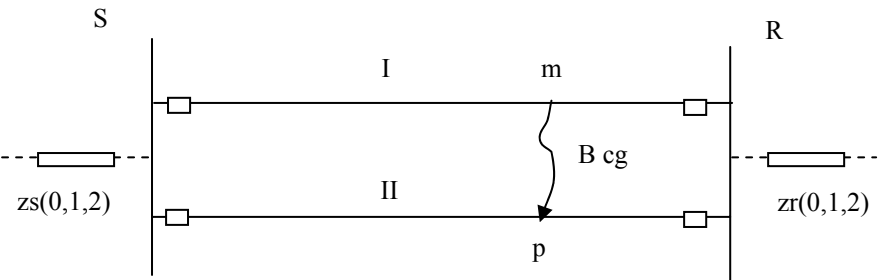
AUTOCHEQUEO DEL PROGRAMA PC124ml:

Extremo Sm(AB) :	Valor exacto:	Sm= 27.83 (78.7°) (Ohm)
	Valor medido:	Sm_ZAB= 27.83 (78.7°) (Ohm)
Extremo Rm(BC) :	Valor exacto:	Rp= 18.56 (78.7°) (Ohm)
	Valor exacto:	Rp_ZBC= 18.56 (78.7°) (Ohm)

Las Variables de Salida de los Programas con Salida Numérica están definidas en el apartado "Nomenclatura: Variables de Salida de los Programas con Salida Numérica" del Manual de Usuario.

Programa PC126M:

Esquema:



Programa	PC126M		
Entrada por Input	Un=220 kV, kE=1, L=220 km, Sccs=5000 MVA, Sccr=5000 MVA		
	Kr0=1		
	zsr= ∞		
	Compensación 21= Si		
Parámetro	k0 = zs0/zr0 = 10		
Falta Intercircuito m=p	m Línea SR I	m = p	0.70
		Tipo	Bcg
		Elemento	--
	p Línea SR II	Rf	0 Ohms
		Rg	0 Ohms
Salida 4	Ohm-Volt-Amp (polar)		autoch01

Salida autoch01 del Programa PC126M:

PC126M

Esquema Linea Doble SR

Unominal kV: 400,220,132,66

Eleccion: kE,L,Sccs,Sccr,Kr0,k0)

Ctes. de la Linea Doble, por Linea y por km, segun Unominal

Impedancia de Transferencia Si, No

Eleccion: (zsr1,Ksr0)

Compensacion 21, Si, No

Falta Intercircuito entre Lineas de igual Tension

m=p=0...1

Barra m=1, Barra p=2

Tipo de Falta: Aa=1,Bc=2,Cb=3,Aag=4,Bcg=5,Cbg=6,Aab=7,Bac=8,Cbc=9

Aabg=10,Bacg=11,Cbcg=12,Aabc=13,Aabcg=14,ABCabc=15,ABCabcg=16: 5

Unominal =220 (kV)

kE=E/Enominal =1

Impedancia de Transferencia,Si(1),No(2)=2

Compensacion 21,Si(1),No(2)=1

L=220.0(km)

Sccs=5000 (MVA)

Sccr=5000 (MVA)

Kr0=1.00

k0=10.00

Ibase=262431.94(A)

Falta:Bcg

Rf:0.00 (Ohm)

Rg:0.00 (Ohm)

Salida: pu(cart)=1, pu(polar)=2, Ohm-Volt-Amp(cart)=3,
Ohm-Volt-Amp(polar)=4 : 4

SALIDA 21, Ohm , polar

Nota: Componentes de Z >=10000 Ohm se representan por Inf

Nota: Componentes de Z <=-10000 Ohm se representan por -Inf

Sm=Sp= 64.95(78.7 °)(Ohm)

Rm=Rp= 27.83(78.7 °)(Ohm)

Sm_ZAB= 147.46(32.6 °)(Ohm)

Sm_ZBC= 124.34(91.6 °)(Ohm)

Sm_ZCA=1617.66(120.7°)(Ohm)

Sm_ZAG= 454.22(-113.1°)(Ohm)

Sm_ZBG= 64.95(78.7 °)(Ohm)

Sm_ZCG= 302.26(20.8 °)(Ohm)

Sp_ZAB=1642.42(25.3 °)(Ohm)

Sp_ZBC= 123.42(66.0 °)(Ohm)

Sp_ZCA= 145.23(128.0°)(Ohm)

Sp_ZAG= 404.01(-81.7°)(Ohm)

Sp_ZBG= 295.73(139.6°)(Ohm)

Sp_ZCG= 64.95(78.7 °)(Ohm)

Rm_ZAB= 70.03(31.0 °)(Ohm)
 Rm_ZBC= 59.66(96.3 °)(Ohm)
 Rm_ZCA=1549.99(-57.0°)(Ohm)
 Rm_ZAG= 104.78(-110.9°)(Ohm)
 Rm_ZBG= 27.83(78.7 °)(Ohm)
 Rm_ZCG= 83.14(4.4 °)(Ohm)

Rp_ZAB=1588.75(-157.3°)(Ohm)
 Rp_ZBC= 60.26(63.3 °)(Ohm)
 Rp_ZCA= 68.32(131.3°)(Ohm)
 Rp_ZAG= 99.54(-91.5°)(Ohm)
 Rp_ZBG= 78.90(148.6°)(Ohm)
 Rp_ZCG= 27.83(78.7 °)(Ohm)

SALIDA 67N, Volt, Amp, polar

Sm_67N:	Vspol=51947	(V)	Ismop=1281	(A)	AngDirSm=-10.5°
Sp_67N:	Vspol=51947	(V)	Ispop=1296	(A)	AngDirSp=-166.4°
Rm_67N:	Vrpol=16877	(V)	Irmop=3080	(A)	AngDirRm=-17.4°
Rp_67N:	Vrpol=16877	(V)	Irpop=3053	(A)	AngDirRp=-164.3°

SALIDA V(0,1,2), I(0,1,2) pu polar

Vm0 = 57845(35.4 °)(V)
 Vm1 = 84756(-5.4 °)(V)
 Vm2 = 35639(-33.2°)(V)
 Vp0 = 56646(-35.3°)(V)
 Vp1 = 85408(4.3 °)(V)
 Vp2 = 37837(32.9 °)(V)
 Vs0 = 17316(6.9 °)(V)
 Vs1 = 117435(-0.8 °)(V)
 Vs2 = 7099(9.7 °)(V)
 Vr0 = 5626(9.4 °)(V)
 Vr1 = 109787(-1.2 °)(V)
 Vr2 = 12697(7.7 °)(V)

Im0 = 1453(173.3°)(A)
 Im1 = 1453(-66.7°)(A)
 Im2 = 1453(53.3 °)(A)
 Ip0 = 1448(23.7 °)(A)
 Ip1 = 1448(-96.3°)(A)
 Ip2 = 1448(143.7°)(A)
 Is0 = 179(96.9 °)(A)
 Is1 = 1006(-80.2°)(A)
 Is2 = 733(99.7 °)(A)
 Ir0 = 581(99.4 °)(A)
 Ir1 = 1799(-82.2°)(A)
 Ir2 = 1312(97.7 °)(A)
 Ism0 = 427(176.4°)(A)
 Ism1 = 518(-67.8°)(A)
 Ism2 = 475(59.2 °)(A)
 Isp0 = 432(20.4 °)(A)
 Isp1 = 512(-92.7°)(A)
 Isp2 = 484(139.3°)(A)
 Irm0 = 1027(172.0°)(A)
 Irm1 = 935(-66.1°)(A)
 Irm2 = 982(50.5 °)(A)
 Irp0 = 1018(25.1 °)(A)
 Irp1 = 938(-98.3°)(A)
 Irp2 = 967(145.9°)(A)

SALIDA V(a,b,c), I(a,b,c) Volt,Amp Polar

Vma = 161497(2.1 °)(V)
 Vmb = 0(180.0°)(V)
 Vmc = 96528(101.9°)(V)
 Vpa = 163243(-2.0 °)(V)
 Vpb = 95690(-104.8°)(V)
 Vpc = 0(180.0°)(V)
 Vsa = 141621(0.6 °)(V)
 Vsb = 104724(-117.0°)(V)
 Vsc = 106772(113.5°)(V)
 Vra = 127895(0.1 °)(V)
 Vrb = 101839(-125.5°)(V)
 Vrc = 100050(121.4°)(V)

Ima = 0(0.0 °)(A)
 Imb = 4358(173.3°)(A)
 Imc = 0(123.7°)(A)
 Ipa = 0(-116.6°)(A)
 Ipb = 0(-9.5 °)(A)
 Ipc = 4345(23.7 °)(A)
 Isa = 94(-73.7°)(A)
 Isb = 1531(177.9°)(A)
 Isc = 1547(21.5 °)(A)
 Ira = 94(106.3°)(A)
 Irb = 2835(170.8°)(A)
 Irc = 2800(24.9 °)(A)

Isma = 47(-73.7°)(A)
 Ismb = 1418(175.8°)(A)
 Ismc = 125(10.2 °)(A)
 Ispa = 47(-73.7°)(A)
 Ispb = 125(-157.3°)(A)
 Ispc = 1425(22.5 °)(A)
 Irma = 47(106.3°)(A)
 Irmb = 2942(172.1°)(A)
 Irmc = 125(-169.8°)(A)
 Irpa = 47(106.3°)(A)
 Irpb = 125(22.7 °)(A)
 Irpc = 2921(24.3 °)(A)

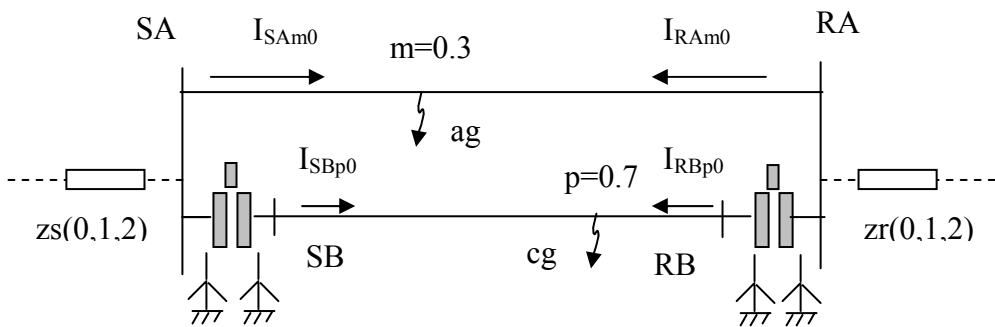
AUTOCHEQUEO DEL PROGRAMA PC126M:

Extremo Sm(BG) :	Valor exacto:	Sm= 64.95 (78.7°) (Ohm)
	Valor medido:	Sm_ZBG= 64.95 (78.7°) (Ohm)
Extremo Rm(BG) :	Valor exacto:	Rm= 27.83 (78.7°) (Ohm)
	Valor exacto:	Rm_ZBG= 27.83 (78.7°) (Ohm)
Extremo Sp(CG) :	Valor exacto:	Sp= 64.95 (78.7°) (Ohm)
	Valor medido:	Sp_ZCG= 64.95 (78.7°) (Ohm)
Extremo Rp(CG) :	Valor exacto:	Rp= 27.83 (78.7°) (Ohm)
	Valor exacto:	Rp_ZCG= 27.83 (78.7°) (Ohm)

Las Variables de Salida de los Programas con Salida Numérica están definidas en el apartado "Nomenclatura: Variables de Salida de los Programas con Salida Numérica" del Manual de Usuario.

Programa PC128:

Esquema:



Programa	PC128			
Entrada por Input	UAn=220 kV, UBn=66 kV, kE=1, LA=LB=66 km, Sccs=5000 MVA, Sccr=5000 MVA, Kr0=1			
	Sp=120 MVA, Ss=120 MVA, St=40 MVA, Up=220 kV, Us=66 kV, Ut=33 kV, tccps=12 %, tccpt=5%, tccest=2 %			
	zsr=∞			
	Compensación 21= Si			
Parámetro	k0 = zs0/zr0 = 10			
Falta Doble m,p	Falta m	m	0.3	
		Tipo	ag	
		Línea SA-RA	Elemento	AG
			Rfm	0
			Rgm	--
	Falta p	p	0.7	
		Tipo	cg	
		Línea SB-RB	Elemento	CG
			Rfp	0
			Rgp	--
Salida 4	Ohm-Volt-Amp (polar)		autoch01	

Salida autoch01 del Programa PC128:

PC128

Esquema Linea Doble SR

Unominal AT kV: 220

Unominal BT kV: 66

Ctes. de la Linea Doble, por Linea y por km, segun Unominal

Eleccion Ctes. del Tf

Tf AT/BT/T: Neutro a Tierra en AT y BT

Eleccion: kE, LA=LB=L, Sccs, Sccr, Kr0, k0

Impedancia de Transferencia Si, No

Eleccion: (zsr1, Ksr0)

Compensacion 21, Si, No

Falta Doble: Linea AT, m=0...1 y Linea BT, p=0...1

UA(kV)=220

UB(kV)=66

LA(km)=66.00

LB(km)=66.00

kE=E/Enominal =1

Sccs=5000

Sccr=5000

Kr0=1.00

k0=10.00

Impedancia de Transferencia, Si(1), No(2) =2

Compensacion 21, Si(1), No(2) =1

m =0.30

Falta:ag Rfm(Ohm):0.00

p =0.70 Falta:cg Rfp(Ohm):0.00 SAm =1.64 +i(8.19)

RAm =3.83 +i(19.10)

p =0.70

SBp = 9.96+i(18.26)

RBp = 4.27+i(7.82)

Salida: pu(cart)=1, pu(polar)=2, Ohm-Volt-Amp(cart)=3,
Ohm-Volt-Amp(polar)=4 : 4

SALIDA 21, Ohm , polar

Nota: Componentes de Z >=10000 Ohm se representan por Inf

Nota: Componentes de Z <=-10000 Ohm se representan por -Inf

SAm= 8.35(78.7 °)(Ohm)

RAm= 19.48(78.7 °)(Ohm)

SBp= 20.80(61.4 °)(Ohm)

RBp= 8.91(61.4 °)(Ohm)

SAm_ZAB= 42.47(108.4°)(Ohm)

SAm_ZBC=2867.66(1.1 °)(Ohm)

SAm_ZCA= 43.61(36.4 °)(Ohm)

SAm_ZAG= 8.35(78.7 °)(Ohm)

SAm_ZBG= 60.01(-103.3°)(Ohm)

SAm_ZCG= 76.27(161.4°)(Ohm)

SBp_ZAB= 409.51(-108.6°)(Ohm)
 SBp_ZBC= 48.66(27.5 °)(Ohm)
 SBp_ZCA= 45.96(88.9 °)(Ohm)
 SBp_ZAG= 12.61(44.5 °)(Ohm)
 SBp_ZBG= 15.46(-83.3°)(Ohm)
 SBp_ZCG= 17.16(131.5°)(Ohm)

RAm_ZAB= 74.70(104.7°)(Ohm)
 RAm_ZBC=2861.78(-179.4°)(Ohm)
 RAm_ZCA= 77.72(36.7 °)(Ohm)
 RAm_ZAG= 25.19(68.7 °)(Ohm)
 RAm_ZBG= 100.99(-58.3°)(Ohm)
 RAm_ZCG= 98.07(-174.2°)(Ohm)

RBp_ZAB= 438.80(70.8 °)(Ohm)
 RBp_ZBC= 22.54(19.1 °)(Ohm)
 RBp_ZCA= 22.49(79.4 °)(Ohm)
 RBp_ZAG= 29.07(-44.8°)(Ohm)
 RBp_ZBG= 32.44(-172.6°)(Ohm)
 RBp_ZCG= 8.91(61.4 °)(Ohm)

SALIDA 67N, Volt, Amp, polar

SAm_67N:	VSApol=162830	(V)	ISAmop=3160	(A)	AngDirSA=-32.4°
SBp_67N:	VSBpol=15074	(V)	ISBpop=272	(A)	AngDirSB=23.7 °
RAm_67N:	VRApol=35508	(V)	IRAmop=4022	(A)	AngDirRA=-82.4°
RBp_67N:	VRBpol=7316	(V)	IRBpop=3593	(A)	AngDirRB=25.5 °

SALIDA V(0,1,2), I(0,1,2) pu polar

Vm0 = 75838(174.1°)(V)
 Vm1 = 100847(-3.0 °)(V)
 Vm2 = 25408(-174.2°)(V)
 Vp0 = 17525(-66.5°)(V)
 Vp1 = 25196(-0.7 °)(V)
 Vp2 = 7961(72.2 °)(V)
 VSA0 = 54277(157.3°)(V)
 VSA1 = 112770(-2.2 °)(V)
 VSA2 = 13539(-171.4°)(V)
 VRA0 = 11836(173.1°)(V)
 VRA1 = 117319(-1.9 °)(V)
 VRA2 = 8547(-177.0°)(V)
 VSB0 = 5025(158.0°)(V)
 VSB1 = 32954(0.2 °)(V)
 VSB2 = 2148(-163.4°)(V)
 VRB0 = 2439(-132.1°)(V)
 VRB1 = 32667(2.7 °)(V)
 VRB2 = 1066(44.3 °)(V)

Im0 = 2290(-74.3°)(A)
 Im1 = 2290(-74.3°)(A)
 Im2 = 2290(-74.3°)(A)
 Ip0 = 1229(69.4 °)(A)
 Ip1 = 1229(-50.6°)(A)
 Ip2 = 1229(-170.6°)(A)
 Is0 = 561(-112.7°)(A)
 Is1 = 1546(-73.2°)(A)
 Is2 = 1399(-81.4°)(A)
 Ir0 = 1223(-96.9°)(A)
 Ir1 = 1088(-68.0°)(A)
 Ir2 = 883(-87.0°)(A)

```

ISAm0=    1053(-55.1°)(A)
ISAm1=    1438(-74.3°)(A)
ISAm2=    1425(-76.0°)(A)
ISBp0=      91(1.7 °)(A)
ISBp1=     374(-58.4°)(A)
ISBp2=     449(179.8°)(A)
IRAm0=    1341(-89.3°)(A)
IRAm1=     852(-74.2°)(A)
IRAm2=     866(-71.4°)(A)
IRBp0=    1198(73.4 °)(A)
IRBp1=     860(-47.2°)(A)
IRBp2=     789(-165.2°)(A)

```

SALIDA V(a,b,c), I(a,b,c) Volt,Amp Polar

```

Vma  =      0(176.4°)(V)
Vmb  =   151038(-139.9°)(V)
Vmc  =  163977(132.5°)(V)
Vpa  =   35721(-14.3°)(V)
Vpb  =   41714(-109.1°)(V)
Vpc  =      0(76.0 °)(V)
VSAa =   51340(16.5 °)(V)
VSAb =  132596(-140.1°)(V)
VSAc =  165292(126.2°)(V)
VRAa =   97013(-1.8 °)(V)
VRAb =  125982(-123.3°)(V)
VRAc =  129025(119.3°)(V)
VSBa =   26271(3.0 °)(V)
VSBb =   34267(-124.7°)(V)
VSBc =   38511(122.5°)(V)
VRBa =   31762(0.9 °)(V)
VRBb =   35276(-120.0°)(V)
VRBc =   31135(127.7°)(V)

```

```

Ima  =   6870(-74.3°)(A)
Imb  =      0(29.7 °)(A)
Imc  =      0(29.7 °)(A)
Ipa  =      0(-49.9°)(A)
Ipb  =      0(71.6 °)(A)
Ipc  =   3687(69.4 °)(A)
Isa  =   3409(-82.6°)(A)
Isb  =    948(131.6°)(A)
Isc  =   1211(112.3°)(A)
Ira  =   3120(-84.3°)(A)
Irb  =    756(-129.8°)(A)
Irc  =    267(170.6°)(A)

```

```

ISAm=   3870(-69.8°)(A)
ISAmb=   537(64.0 °)(A)
ISAmc=   607(66.9 °)(A)
ISBpa=   354(-117.4°)(A)
ISBpb=   402(-98.5°)(A)
ISBpc=   873(55.5 °)(A)
IRAm=   3027(-80.0°)(A)
IRAmb=   537(-116.0°)(A)
IRAmc=   607(-113.1°)(A)
IRBpa=   354(62.6 °)(A)
IRBpb=   402(81.5 °)(A)
IRBpc=  2847(73.6 °)(A)

```

AUTOCHEQUEO DEL PROGRAMA PC128:

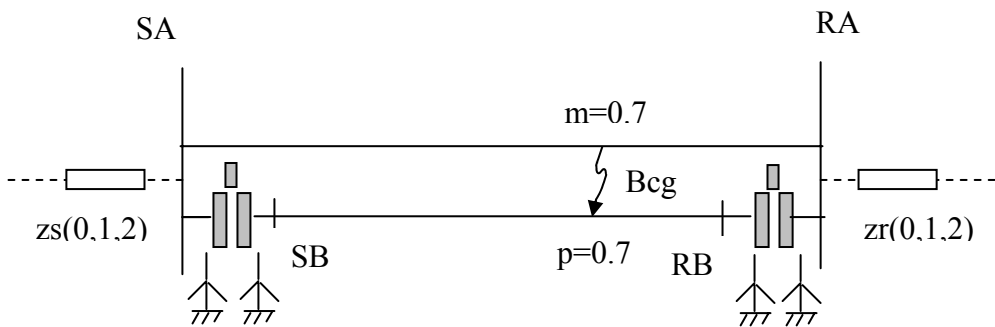
Extremo SAm(AG) : Valor exacto: SAm= 8.35 (78.7°) (Ohm)
 Valor medido: SAm_ZAG= 8.35 (78.7°) (Ohm)

Extremo RBp(BG) : Valor exacto: RBp= 8.91 (61.4°) (Ohm)
 Valor exacto: RBp_ZCG= 8.91 (61.4°) (Ohm)

Las Variables de Salida de los Programas con Salida Numérica están definidas en el apartado "Nomenclatura: Variables de Salida de los Programas con Salida Numérica" del Manual de Usuario.

Programa PC128M:

Esquema:



Programa	PC128M		
Entrada por Input	UAn=220 kV, UBn=66 kV, kE=1, LA=LB=66 km, Sccs=5000 MVA, Sccr=5000 MVA, Kr0=1		
	Sp=120 MVA, Ss=120 MVA, St=40 MVA, Up=220 kV, Us=66 kV, Ut=33 kV, tccps=12 %, tccpt=5%, tccst=2 %		
	zsr= ∞		
	Compensación 21= Si		
Parámetro	k0 = zs0/zr0 = 10		
Falta Intercircuito m=p	m: Línea SA-RA	m = p	0.7
		Tipo	Bcg
		Elemento	--
	p:Línea SB-RB	Rf	0 Ohms
		Rg	0 Ohms
Salida 4	Ohm-Volt-Amp (polar)		autoch01

Salida autoch01 del Programa PC128M:

Tipo de Falta: Aa=1, Bc=2, Cb=3, Aag=4, Bcg=5, Cbg=6, Aab=7, Bac=8, Cbc=9

Aabg=10, Bacg=11, Cbcg=12, Aabc=13, Aabcg=14, ABCabc=15, ABCabcg=16: 5

UA(kV)=220
 UB(kV)=66
 LA(km)=66.00
 LB(km)=66.00
 kE=E/Enominal =1
 Sccs=5000
 Sccr=5000
 Kr0=1.00
 k0=10.00
 Impedancia de Transferencia, Si(1), No(2) =2
 Compensacion 21, Si(1), No(2) =1
 m =0.70
 Falta:Bcg
 Rf:0.00
 Rg:0.00
 SAm =3.83 +i(19.10)
 RAm =1.64 +i(8.19)

Salida: pu(cart)=1, pu(polar)=2, Ohm-Volt-Amp(cart)=3,
 Ohm-Volt-Amp(polar)=4 : 4

SALIDA 21, Ohm , polar

Nota: Componentes de Z >=10000 Ohm se representan por Inf
 Nota: Componentes de Z <=-10000 Ohm se representan por -Inf

SAm= 19.48(78.7 °)(Ohm)
 RAm= 8.35(78.7 °)(Ohm)
 SBp= 20.80(61.4 °)(Ohm)
 RBp= 8.91(61.4 °)(Ohm)

SAm_ZAB= 62.00(35.4 °)(Ohm)
 SAm_ZBC= 56.16(101.6°)(Ohm)
 SAm_ZCA=2082.04(98.9 °)(Ohm)
 SAm_ZAG= 260.39(-152.8°)(Ohm)
 SAm_ZBG= 19.48(78.7 °)(Ohm)
 SAm_ZCG= 214.31(-40.5°)(Ohm)

SBp_ZAB= 361.08(0.9 °)(Ohm)
 SBp_ZBC= 28.15(71.8 °)(Ohm)
 SBp_ZCA= 40.70(128.2°)(Ohm)
 SBp_ZAG= 36.44(-137.6°)(Ohm)
 SBp_ZBG= 22.69(96.3 °)(Ohm)
 SBp_ZCG= 20.80(61.4 °)(Ohm)

RAm_ZAB= 35.69(33.1 °)(Ohm)
 RAm_ZBC= 31.38(107.9°)(Ohm)
 RAm_ZCA=2055.95(-80.9°)(Ohm)
 RAm_ZAG= 33.39(-133.2°)(Ohm)
 RAm_ZBG= 8.35(78.7 °)(Ohm)
 RAm_ZCG= 30.33(-19.1°)(Ohm)

RBp_ZAB= 347.38(176.7°)(Ohm)
 RBp_ZBC= 13.59(70.9 °)(Ohm)
 RBp_ZCA= 21.36(125.3°)(Ohm)
 RBp_ZAG= 14.20(-137.2°)(Ohm)
 RBp_ZBG= 8.78(99.8 °)(Ohm)
 RBp_ZCG= 8.91(61.4 °)(Ohm)

SALIDA 67N, Volt, Amp, polar

SAm_67N:	VSApol=105743 (V)	ISAmop=2167 (A)	AngDirSAm=-29.3°
SBp_67N:	VSBpol=6895 (V)	ISBpop=1605 (A)	AngDirSBp=-162.8°
RAm_67N:	VRApol=60100 (V)	IRAmop=6498 (A)	AngDirRAm=-78.8°
RBp_67N:	VRBpol=3151 (V)	IRBpop=3465 (A)	AngDirRBp=66.2 °

SALIDA V(0,1,2), I(0,1,2) pu polar

Vm0 = 65570(47.9 °)(V)
 Vm1 = 93724(-3.6 °)(V)
 Vm2 = 30444(-45.1°)(V)
 Vp0 = 24236(-4.7 °)(V)
 Vp1 = 24405(17.0 °)(V)
 Vp2 = 15948(6.7 °)(V)
 VSA0 = 35248(35.5 °)(V)
 VSA1 = 115100(-1.7 °)(V)
 VSA2 = 10281(-31.1°)(V)
 VRA0 = 20033(59.0 °)(V)
 VRA1 = 107982(-2.5 °)(V)
 VRA2 = 16159(-34.7°)(V)
 VSB0 = 2298(30.7 °)(V)
 VSB1 = 34462(2.6 °)(V)
 VSB2 = 5638(-33.9°)(V)
 VRB0 = 1050(140.6°)(V)
 VRB1 = 32178(5.7 °)(V)
 VRB2 = 9538(-27.9°)(V)

Im0 = 2833(166.6°)(A)
 Im1 = 2833(-73.4°)(A)
 Im2 = 2833(46.6 °)(A)
 Ip0 = 1665(33.4 °)(A)
 Ip1 = 1665(-86.6°)(A)
 Ip2 = 1665(153.4°)(A)
 Is0 = 364(125.5°)(A)
 Is1 = 1284(-74.3°)(A)
 Is2 = 1062(58.9 °)(A)
 Ir0 = 2070(149.0°)(A)
 Ir1 = 2037(-76.1°)(A)
 Ir2 = 1669(55.3 °)(A)
 ISAm0= 722(-173.8°)(A)
 ISAm1= 1111(-72.1°)(A)
 ISAm2= 1058(49.3 °)(A)
 ISBp0= 535(47.9 °)(A)
 ISBp1= 597(-88.0°)(A)
 ISBp2= 588(142.8°)(A)
 IRAm0= 2166(160.2°)(A)
 IRAm1= 1722(-74.3°)(A)
 IRAm2= 1777(45.0 °)(A)
 IRBp0= 1155(26.8 °)(A)
 IRBp1= 1069(-85.7°)(A)
 IRBp2= 1093(159.1°)(A)

SALIDA V(a,b,c), I(a,b,c) Volt,Amp Polar

Vma = 160377(7.6 °)(V)
 Vmb = 0(90.0 °)(V)
 Vmc = 127712(102.3°)(V)
 Vpa = 63716(6.3 °)(V)
 Vpb = 15878(-54.9°)(V)
 Vpc = 0(180.0°)(V)
 VSAa = 152999(4.4 °)(V)
 VSAb = 74236(-115.2°)(V)
 VSAc = 121937(106.6°)(V)
 VRAa = 131510(1.4 °)(V)
 VRAb = 74104(-128.8°)(V)
 VRAc = 119086(117.0°)(V)
 VSBa = 41086(-0.5 °)(V)
 VSBb = 27360(-119.5°)(V)
 VSBc = 35178(128.0°)(V)
 VRBa = 39642(-0.8 °)(V)
 VRBb = 23946(-126.9°)(V)
 VRBc = 35181(141.9°)(V)

Ima = 0(45.0 °)(A)
 Imb = 8498(166.6°)(A)
 Imc = 0(153.4°)(A)
 Ipa = 0(-123.7°)(A)
 Ipb = 0(-9.5 °)(A)
 Ipc = 4996(33.4 °)(A)
 Isa = 686(-2.5 °)(A)
 Isb = 2597(165.9°)(A)
 Isc = 1232(13.4 °)(A)
 Ira = 568(125.9°)(A)
 Irb = 5678(161.9°)(A)
 Irc = 1051(67.3 °)(A)

ISAm= 457(-46.7°)(A)
 ISAmb= 2866(173.0°)(A)
 ISAmc= 453(-33.7°)(A)
 ISBpa= 180(119.8°)(A)
 ISBpb= 259(158.8°)(A)
 ISBpc= 1692(33.8 °)(A)
 IRAm= 457(133.3°)(A)
 IRAmb= 5659(163.4°)(A)
 IRAmc= 453(146.3°)(A)
 IRBpa= 180(-60.2°)(A)
 IRBpb= 259(-21.2°)(A)
 IRBpc= 3304(33.3 °)(A)

AUTOCHEQUEO DEL PROGRAMA PC128M:

Extremo SAm(BG) :	Valor exacto:	SAm= 19.48 (78.7°) (Ohm)
	Valor medido:	SAm_ZBG= 19.48 (78.7°) (Ohm)
Extremo RAm(BG) :	Valor exacto:	RAm= 8.35 (78.7°) (Ohm)
	Valor exacto:	RAm_ZBG= 8.35 (78.7°) (Ohm)
Extremo SBp(CG) :	Valor exacto:	SBp= 20.80 (61.4°) (Ohm)
	Valor medido:	SBp_ZCG= 20.80 (61.4°) (Ohm)
Extremo RBp(CG) :	Valor exacto:	RBp= 8.91 (61.4°) (Ohm)
	Valor exacto:	RBp_ZCG= 8.91 (61.4°) (Ohm)

Las Variables de Salida de los Programas con Salida Numérica están definidas en el apartado "Nomenclatura: Variables de Salida de los Programas con Salida Numérica" del Manual de Usuario.

Salida autoch01 del Programa PC128Ma:

PC128Ma

Falta Multicircuito, Lineas a Distintas Tensiones (m=p)

Barra m=1, Barra p=2

Tipo de Falta: Aa=1, Bc=2, Cb=3, Aag=4, Bcg=5, Cbg=6, Aab=7, Bac=8, Cbc=9

Aabg=10, Bacg=11, Cbcg=12, Aabc=13, Aabcg=14, ABCabc=15, ABCabcg=16: 5

UA(kV)=220

UB(kV)=66

LA(km)=66.00

LB(km)=66.00

kE=E/Enominal =1

Sccs=5000

Sccr=5000

Kr0=1.00

k0=10.00

Impedancia de Transferencia, Si(1), No(2) =2

Compensacion 21, Si(1), No(2) =1

m =0.70

Falta:Bcg

Rf:0.00

Rg:0.00

SAm =3.83 +i(19.10)

RAm =1.64 +i(8.19)

Salida: pu(cart)=1, pu(polar)=2, Ohm-Volt-Amp(cart)=3,
Ohm-Volt-Amp(polar)=4 : 4

SALIDA 21, Ohm , polar

Nota: Componentes de Z >=10000 Ohm se representan por Inf

Nota: Componentes de Z <=-10000 Ohm se representan por -Inf

SAm= 19.48(78.7 °)(Ohm)

RAm= 8.35(78.7 °)(Ohm)

SBp= 20.80(61.4 °)(Ohm)

RBp= 8.91(61.4 °)(Ohm)

SAm_ZAB= 65.09(41.3 °)(Ohm)

SAm_ZBC= 60.35(107.3°)(Ohm)

SAm_ZCA=2244.88(97.8 °)(Ohm)

SAm_ZAG= 197.88(-75.9°)(Ohm)

SAm_ZBG= 19.48(78.7 °)(Ohm)

SAm_ZCG= 181.09(24.5 °)(Ohm)

SBp_ZAB= 379.29(6.9 °)(Ohm)

SBp_ZBC= 30.89(71.4 °)(Ohm)

SBp_ZCA= 43.61(126.9°)(Ohm)

SBp_ZAG= 32.20(-136.3°)(Ohm)

SBp_ZBG= 24.06(99.5 °)(Ohm)

SBp_ZCG= 20.80(61.4 °)(Ohm)

RAm_ZAB= 37.30(39.5 °)(Ohm)
 RAm_ZBC= 33.98(114.0°)(Ohm)
 RAm_ZCA=2218.61(-81.9°)(Ohm)
 RAm_ZAG= 31.12(-136.1°)(Ohm)
 RAm_ZBG= 8.35(78.7 °)(Ohm)
 RAm_ZCG= 30.91(-23.0°)(Ohm)

RBp_ZAB= 362.85(-177.0°)(Ohm)
 RBp_ZBC= 15.18(69.1 °)(Ohm)
 RBp_ZCA= 22.79(123.7°)(Ohm)
 RBp_ZAG= 13.03(-137.3°)(Ohm)
 RBp_ZBG= 9.57(104.0°)(Ohm)
 RBp_ZCG= 8.91(61.4 °)(Ohm)

SALIDA 67N, Volt, Amp, polar

SAm_67N:	VSApol=129781	(V)	ISAmop=1341	(A)	AngDirSAm=-90.0°
SBp_67N:	VSBpol=2229	(V)	ISBpop=1024	(A)	AngDirSBp=0.0 °
RAm_67N:	VRApol=64995	(V)	IRAmop=6714	(A)	AngDirRAm=-90.0°
RBp_67N:	VRBpol=8052	(V)	IRBpop=3697	(A)	AngDirRBp=0.0 °

SALIDA V(0,1,2), I(0,1,2) pu polar

Vm0 = 67232(53.3 °)(V)
 Vm1 = 95045(-1.8 °)(V)
 Vm2 = 28625(-50.4°)(V)
 Vp0 = 24108(-9.9 °)(V)
 Vp1 = 25028(15.8 °)(V)
 Vp2 = 14523(6.4 °)(V)
 VSA0 = 43260(67.6 °)(V)
 VSA1 = 115505(-1.2 °)(V)
 VSA2 = 9556(-36.4°)(V)
 VRA0 = 21665(72.4 °)(V)
 VRA1 = 108674(-1.7 °)(V)
 VRA2 = 15045(-40.1°)(V)
 VSB0 = 743(-125.4°)(V)
 VSB1 = 34575(2.8 °)(V)
 VSB2 = 5227(-36.5°)(V)
 VRB0 = 2684(-151.1°)(V)
 VRB1 = 32355(5.9 °)(V)
 VRB2 = 8816(-30.0°)(V)

Im0 = 2684(161.6°)(A)
 Im1 = 2684(-78.4°)(A)
 Im2 = 2684(41.6 °)(A)
 Ip0 = 1547(34.4 °)(A)
 Ip1 = 1547(-85.6°)(A)
 Ip2 = 1547(154.4°)(A)
 Is0 = 447(157.6°)(A)
 Is1 = 1217(-78.3°)(A)
 Is2 = 987(53.6 °)(A)
 Ir0 = 2238(162.4°)(A)
 Ir1 = 1928(-80.2°)(A)
 Ir2 = 1554(49.9 °)(A)
 ISAm0= 447(157.6°)(A)
 ISAm1= 1052(-76.9°)(A)
 ISAm2= 1000(44.2 °)(A)
 ISBp0= 341(54.6 °)(A)
 ISBp1= 559(-87.4°)(A)
 ISBp2= 542(143.4°)(A)

IRAm0= 2238(162.4°)(A)
 IRAm1= 1633(-79.4°)(A)
 IRAm2= 1685(40.1 °)(A)
 IRBp0= 1232(28.9 °)(A)
 IRBp1= 989(-84.6°)(A)
 IRBp2= 1020(160.2°)(A)

SALIDA V(a,b,c), I(a,b,c) Volt,Amp Polar

Vma = 156107(10.7 °)(V)
 Vmb = 0(76.0 °)(V)
 Vmc = 136929(103.9°)(V)
 Vpa = 62413(3.9 °)(V)
 Vpb = 18978(-61.8°)(V)
 Vpc = 0(63.4 °)(V)
 VSAA = 143255(12.9 °)(V)
 VSAb = 64946(-130.6°)(V)
 VSAc = 145507(109.2°)(V)
 VRAa = 126918(3.5 °)(V)
 VRAb = 74451(-130.0°)(V)
 VRAc = 125961(118.0°)(V)
 VSba = 38356(-3.0 °)(V)
 VSBb = 30481(-120.8°)(V)
 VSBc = 35631(132.3°)(V)
 VRBa = 37541(-3.6 °)(V)
 VRBb = 26955(-125.2°)(V)
 VRBc = 35490(144.7°)(V)

Ima = 0(14.0 °)(A)
 Imb = 8051(161.6°)(A)
 Imc = 0(159.4°)(A)
 Ipa = 0(-104.0°)(A)
 Ipb = 0(26.6 °)(A)
 Ipc = 4641(34.4 °)(A)
 Isa = 477(-28.5°)(A)
 Isb = 2634(165.4°)(A)
 Isc = 894(4.8 °)(A)
 Ira = 803(-177.5°)(A)
 Irb = 5707(163.6°)(A)
 Irc = 467(105.5°)(A)

ISAmA= 564(-16.1°)(A)
 ISAmB= 2497(162.6°)(A)
 ISAmC= 606(-7.6 °)(A)
 ISBpa= 216(168.5°)(A)
 ISBpb= 361(-179.5°)(A)
 ISBpc= 1411(34.3 °)(A)
 IRAmA= 564(163.9°)(A)
 IRAmB= 5555(161.2°)(A)
 IRAmC= 606(172.4°)(A)
 IRBpa= 216(-11.5°)(A)
 IRBpb= 361(0.5 °)(A)
 IRBpc= 3230(34.4 °)(A)

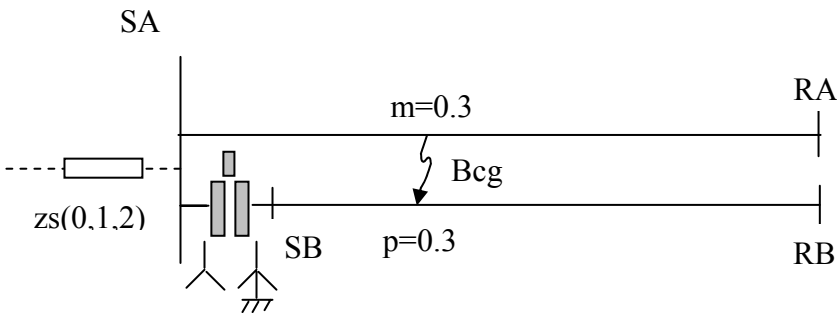
AUTOCHEQUEO DEL PROGRAMA PC128Ma:

Extremo SAm(BG) :	Valor exacto:	SAm= 19.48 (78.7°) (Ohm)
	Valor medido:	SAm_ZBG= 19.48 (78.7°) (Ohm)
Extremo RAm(BG) :	Valor exacto:	RAm= 8.35 (78.7°) (Ohm)
	Valor exacto:	RAm_ZBG= 8.35 (78.7°) (Ohm)
Extremo SBp(CG) :	Valor exacto:	SBp= 20.80 (61.4°) (Ohm)
	Valor medido:	SBp_ZCG= 20.80 (61.4°) (Ohm)
Extremo RBp(CG) :	Valor exacto:	RBp= 8.91 (61.4°) (Ohm)
	Valor exacto:	RBp_ZCG= 8.91 (61.4°) (Ohm)

Las Variables de Salida de los Programas con Salida Numérica están definidas en el apartado "Nomenclatura: Variables de Salida de los Programas con Salida Numérica" del Manual de Usuario.

Programa PC28Mb:

Esquema:



Programa	PC128Mb		
Entrada por Input	UAn=220 kV, UBn=66 kV, kE=1, LA=LB=66 km, Scs=5000 MVA, Ks0=1		
	Sp=120 MVA, Ss=120 MVA, St=40 MVA, Up=220 kV, Us=66 kV, Ut=33 kV, tccps=12 %, tccpt=5%, tccst=2 %		
	Compensación 21= Si		
Falta Intercircuito m=p	m: Línea SA-RA	m = p	0.3
		Tipo	Bcg
		Elemento	--
	p:Línea SB-RB	Rf	0 Ohms
		Rg	0 Ohms
Salida 4	Ohm-Volt-Amp (polar)		autoch01

Salida autoch01 del Programa PC28Mb:

PC28Mb

FC28Mb.m

Falta Multicircuito, Lineas a Distintas Tensiones (m=p)

Barra m=3, Barra p=4

Tipo de Falta: Aa=1, Bc=2, Cb=3, Aag=4, Bcg=5, Cbg=6, Aab=7, Bac=8, Cbc=9

Aabg=10, Bacg=11, Cbcg=12, Aabc=13, Aabcg=14, ABCabc=15, ABCabcg=16: 5

UA =220 (kV)

UB =66 (kV)

LA=66 (km)

LB=66 (km)

kE=E/Enominal =1

Sccs=5000

Ks0=1.00

Compensacion 21, Si(1), No(2) =1

m =0.30

Falta:Bcg

Rf:0.00

Rg:0.00

Salida: pu(cart)=1, pu(polar)=2, Ohm-Volt-Amp(cart)=3,
Ohm-Volt-Amp(polar)=4 : 4

SALIDA 21, Ohm , polar

Nota: Componentes de Z >=10000 Ohm se representan por Inf

Nota: Componentes de Z <=-10000 Ohm se representan por -Inf

SAm= 8.35(78.7 °)(Ohm)

SARA= 27.83(78.7 °)(Ohm)

SBp= 8.91(61.4 °)(Ohm)

SBRB= 29.71(61.4 °)(Ohm)

SAm_ZAB= 32.12(37.6 °)(Ohm)

SAm_ZBC= 28.44(113.5°)(Ohm)

SAm_ZCA= Inf(36.2 °)(Ohm)

SAm_ZAG= 37.70(-132.5°)(Ohm)

SAm_ZBG= 8.35(78.7 °)(Ohm)

SAm_ZCG= 36.43(-13.9°)(Ohm)

SBp_ZAB= Inf(153.6°)(Ohm)

SBp_ZBC= 13.79(73.7 °)(Ohm)

SBp_ZCA= 22.62(124.7°)(Ohm)

SBp_ZAG= 12.78(-140.5°)(Ohm)

SBp_ZBG= 8.46(99.6 °)(Ohm)

SBp_ZCG= 8.91(61.4 °)(Ohm)

SALIDA 67N, Volt, Amp, polar

SAm_67N: VSApol=54902 (V)

ISAmop=5672 (A)

AngDirSAm=-90.0°

SBp_67N: VSBpol=6766 (V)

ISBpop=3106 (A)

AngDirSBp=0.0 °

SALIDA V(0,1,2), I(0,1,2) pu polar

Vm0 = 59080(50.7 °)(V)
 Vm1 = 90353(-2.4 °)(V)
 Vm2 = 32495(-49.7°)(V)
 Vp0 = 24711(-6.3 °)(V)
 Vp1 = 23785(16.7 °)(V)
 Vp2 = 15403(1.9 °)(V)
 VSA0 = 18301(71.0 °)(V)
 VSA1 = 106132(-2.1 °)(V)
 VSA2 = 17229(-39.9°)(V)
 VSB0 = 2255(-143.7°)(V)
 VSB1 = 31499(6.1 °)(V)
 VSB2 = 9582(-32.4°)(V)

Im0 = 1891(161.0°)(A)
 Im1 = 1891(-79.0°)(A)
 Im2 = 1891(41.0 °)(A)
 Ip0 = 1035(36.3 °)(A)
 Ip1 = 1035(-83.7°)(A)
 Ip2 = 1035(156.3°)(A)
 Is0 = 1891(161.0°)(A)
 Is1 = 2200(-79.7°)(A)
 Is2 = 1780(50.1 °)(A)
 ISAm0= 1891(161.0°)(A)
 ISAm1= 1891(-79.0°)(A)
 ISAm2= 1891(41.0 °)(A)
 ISBp0= 1035(36.3 °)(A)
 ISBp1= 1035(-83.7°)(A)
 ISBp2= 1035(156.3°)(A)

SALIDA V(a,b,c), I(a,b,c) Volt,Amp Polar

Vma = 149698(6.6 °)(V)
 Vmb = 0(90.0 °)(V)
 Vmc = 125381(106.9°)(V)
 Vpa = 62908(4.2 °)(V)
 Vpb = 16837(-49.5°)(V)
 Vpc = 0(123.7°)(V)
 VSAA = 125259(1.1 °)(V)
 VSAB = 73117(-130.4°)(V)
 VSAC = 121042(119.7°)(V)
 VSBa = 37728(-4.8 °)(V)
 VSBb = 24979(-124.6°)(V)
 VSBc = 34926(145.7°)(V)

Ima = 0(0.0 °)(A)
 Imb = 5672(161.0°)(A)
 Imc = 0(135.0°)(A)
 Ipa = 0(-108.4°)(A)
 Ipb = 0(0.0 °)(A)
 Ipc = 3106(36.3 °)(A)
 Isa = 311(-143.7°)(A)
 Isb = 5854(163.5°)(A)
 Isc = 621(36.3 °)(A)

ISAm= 0(-45.0°)(A)
 ISAmb= 5672(161.0°)(A)
 ISAmc= 0(90.0°)(A)
 ISBpa= 0(-90.0°)(A)
 ISBpb= 0(0.0°)(A)
 ISBpc= 3106(36.3°)(A)

AUTOCHEQUEO DEL PROGRAMA PC28Mb:

Extremo SAm(BG) :	Valor exacto:	SAm= 8.35 (78.7°) (Ohm)
	Valor medido:	SAm_ZBG= 8.35 (78.7°) (Ohm)
Extremo SBp(CG) :	Valor exacto:	SBp= 8.91 (61.4°) (Ohm)
	Valor exacto:	SBp_ZCG= 8.91 (61.4°) (Ohm)

Las Variables de Salida de los Programas con Salida Numérica están definidas en el apartado "Nomenclatura: Variables de Salida de los Programas con Salida Numérica" del Manual de Usuario.