

ANEXO 35

MODELOS DINÁMICOS

Datos de los Modelos de Generadores, Excitadores, Gobernadores y Estabilizadores de Panamá

/* BASE DE DATOS DE PANAMA

/* MODELO DE GENERADORES DE PANAMA

101,'GENSAL' ,B1, 4,0.02,0.02,2.69,1,0.99,0.833,0.3452,0.3100,0.16,0.19,0.343/
102,'GENSAL' ,B2, 4,0.02,0.02,2.69,1,0.99,0.833,0.3452,0.3100,0.16,0.19,0.343/
108,'GENSAL' ,B3, 5,0.07,0.08,2.96,1,0.90,0.570,0.4000,0.24,0.10,0.92,1.01/
97,'GENSAL' ,F1,9,0.06,0.09,4.50,1,1.02,0.54,0.3,0.155,0.12,0.2,0.67000/
98,'GENSAL' ,F2,9,0.06,0.09,4.50,1,1.02,0.54,0.3,0.155,0.12,0.2,0.67000/
99,'GENSAL' ,F3,9,0.06,0.09,4.50,1,1.02,0.54,0.3,0.155,0.12,0.2,0.67000/
94,'GENSAL' ,L1,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.11,0.1,0.1,0.50000/
95,'GENSAL' ,L2,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.11,0.1,0.1,0.50000/
90,'GENSAL' ,E1,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.11,0.1,0.1,0.50000/
91,'GENSAL' ,E2,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.11,0.1,0.1,0.50000/
134,'GENSAL' ,G1,5,0.02,0.09,1.398,1,1.09,0.84,0.47,0.36,0.14,0.19,0.59000/
135,'GENSAL' ,G2,5,0.02,0.09,1.398,1,1.09,0.84,0.47,0.36,0.14,0.19,0.59000/
136,'GENSAL' ,G3,5,0.02,0.09,1.398,1,1.09,0.84,0.47,0.36,0.14,0.19,0.59000/
140,'GENSAL' ,G1,5,0.02,0.09,2.233,1,1.01,0.63,0.33,0.33,0.12,0.19,0.59000/
140,'GENSAL' ,G2,5,0.02,0.09,2.233,1,1.01,0.63,0.33,0.33,0.12,0.19,0.59000/
140,'GENSAL' ,G3,5,0.02,0.09,2.233,1,1.01,0.63,0.33,0.33,0.12,0.19,0.59000/
141,'GENSAL' ,G4,5,0.02,0.09,2.210,1,1.01,0.78,0.38,0.38,0.12,0.19,0.59000/
141,'GENSAL' ,G5,5,0.02,0.09,1.991,1,1.10,0.78,0.38,0.38,0.12,0.19,0.59000/
141,'GENSAL' ,G6,5,0.02,0.09,1.991,1,1.10,0.78,0.38,0.38,0.12,0.19,0.59000/
142,'GENSAL' ,C1,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.30,0.1,0.1,0.50000/
143,'GENSAL' ,C2,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.30,0.1,0.1,0.50000/
193,'GENSAL' ,G1,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.30,0.1,0.1,0.50000/
193,'GENSAL' ,G2,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.30,0.1,0.1,0.50000/
193,'GENSAL' ,G3,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.30,0.1,0.1,0.50000/
204,'GENSAL' ,1 ,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.30,0.1,0.1,0.50000/
204,'GENSAL' ,2 ,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.30,0.1,0.1,0.50000/
106,'GENSAL' ,M1,4,6,0.035,0.031,0.93,0,1.46,0.80,0.334,0.2576,0.157,0.1,0.50000/
106,'GENSAL' ,M2,4,6,0.035,0.031,0.93,0,1.46,0.80,0.334,0.2576,0.157,0.1,0.50000/
106,'GENSAL' ,M3,4,6,0.035,0.031,0.93,0,1.46,0.80,0.334,0.2576,0.157,0.1,0.50000/
107,'GENSAL' ,M4,4,6,0.035,0.031,0.93,0,1.46,0.80,0.334,0.2576,0.157,0.1,0.50000/
107,'GENSAL' ,M5,4,6,0.035,0.031,0.93,0,1.46,0.80,0.334,0.2576,0.157,0.1,0.50000/
107,'GENSAL' ,M6,4,6,0.035,0.031,0.93,0,1.46,0.80,0.334,0.2576,0.157,0.1,0.50000/
75,'GENSAL' ,P1,3,33,0.021,0.084,0.6369,0,1.84,0.89,0.31,0.257,0.157,0.1,0.50000/
75,'GENSAL' ,P2,3,33,0.021,0.084,0.6369,0,1.84,0.89,0.31,0.257,0.157,0.1,0.50000/
75,'GENSAL' ,P3,3,33,0.021,0.084,0.6369,0,1.84,0.89,0.31,0.257,0.157,0.1,0.50000/
75,'GENSAL' ,P4,3,33,0.021,0.084,0.6369,0,1.84,0.89,0.31,0.257,0.157,0.1,0.50000/
75,'GENSAL' ,P5,3,33,0.021,0.084,0.6369,0,1.84,0.89,0.31,0.257,0.157,0.1,0.50000/
75,'GENSAL' ,P6,3,33,0.021,0.084,0.6369,0,1.84,0.89,0.31,0.257,0.157,0.1,0.50000/
76,'GENSAL' ,IP,3,33,0.021,0.084,0.6369,0,1.84,0.89,0.31,0.257,0.157,0.1,0.50000/
76,'GENSAL' ,2P,3,33,0.021,0.084,0.6369,0,1.84,0.89,0.31,0.257,0.157,0.1,0.50000/
76,'GENSAL' ,P0,3,33,0.021,0.084,0.6369,0,1.84,0.89,0.31,0.257,0.157,0.1,0.50000/
76,'GENSAL' ,P7,3,33,0.021,0.084,0.6369,0,1.84,0.89,0.31,0.257,0.157,0.1,0.50000/
76,'GENSAL' ,P8,3,33,0.021,0.084,0.6369,0,1.84,0.89,0.31,0.257,0.157,0.1,0.50000/
76,'GENSAL' ,P9,3,33,0.021,0.084,0.6369,0,1.84,0.89,0.31,0.257,0.157,0.1,0.50000/
116,'GENSAL' ,P1,5,3,0.038,0.149,0.971,0,1.53,0.830,0.332,0.223,0.14,0.1,0.50000/
116,'GENSAL' ,P2,5,3,0.038,0.149,0.971,0,1.53,0.830,0.332,0.223,0.14,0.1,0.50000/
116,'GENSAL' ,P3,5,3,0.038,0.149,0.971,0,1.53,0.830,0.332,0.223,0.14,0.1,0.50000/
70,'GENROU' ,J5,8,0.05,0.7,0.1,1.45,0,2.01,1.3,0.171,0.6,0.116,0.06,0.1,0.50000/
72,'GENROU' ,T8,5.936,0.022,0.541,0.045,1.45,0,2.078,1.931,0.188,0.377,0.129,0.162,0.1,0.50000/
73,'GENROU' ,V9,6,5,0.023,0.7,0.1,1.887,0,1.72,1.61,0.2,0.6,0.16,0.145,0.1,0.40000/
66,'GENROU' ,V2,5,1,0.02,0.7,0.1,4.45,0,1.41,1.35,0.156,0.6,0.12,0.06,0.1,0.50000/
67,'GENROU' ,V3,5,1,0.02,0.7,0.1,4.45,0,1.41,1.35,0.156,0.6,0.12,0.06,0.1,0.50000/
68,'GENROU' ,V4,5,1,0.02,0.7,0.1,4.45,0,1.41,1.35,0.156,0.6,0.12,0.06,0.1,0.50000/
71,'GENROU' ,J6,8,0.05,0.7,0.1,1.45,0,2.01,1.3,0.171,0.6,0.116,0.06,0.1,0.50000/
104,'GENROU' ,CO,7,0.025,0.60,0.05,1.35,0,2.50,2.30,0.25,0.40,0.20,0.06,0.1,0.50000/
113,'GENROU' ,GP,8,8,0.04,0.7,0.1,3.0,0,2.01,1,0.684,0.8,0.561,0.06,0.1,0.50000/
114,'GENROU' ,PG,8,8,0.04,0.7,0.1,3.0,0,2.01,1,0.684,0.8,0.561,0.06,0.1,0.50000/
126,'GENROU' ,G1,8,0.05,0.7,0.1,0.5414,0,1.56,1.51,0.23,0.23,0.14,0.06,0.1,0.50000/
127,'GENROU' ,G2,8,0.05,0.7,0.1,0.5414,0,1.56,1.51,0.23,0.23,0.14,0.06,0.1,0.50000/
128,'GENROU' ,G3,5,0.05,0.7,0.1,3.12,0,1.95,1.89,0.33,0.33,0.15,0.055,0.1,0.50000/
129,'GENROU' ,G4,5,0.05,0.7,0.1,4.73,0,1.95,1.95,0.3,0.3,0.16,0.05,0.1,0.50000/
130,'GENROU' ,G5,5,0.05,0.700,0.10,1.45,0,1.8,1.8,0.2,0.2,0.15,0.068,0.1,0.50000

151,'GENSAL' ,1 ,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.11,0.1,0.1,0.50000/
 301,'GENSAL' ,C1,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.30,0.1,0.1,0.50000/
 303,'GENSAL' ,S1,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.30,0.1,0.1,0.50000/
 304,'GENSAL' ,A1,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.30,0.1,0.1,0.50000/
 302,'GENSAL' ,P1,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.30,0.1,0.1,0.50000/
 305,'GENSAL' ,1 ,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.11,0.1,0.1,0.50000/
 305,'GENSAL' ,2 ,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.11,0.1,0.1,0.50000/
 305,'GENSAL' ,3 ,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.11,0.1,0.1,0.50000/
 307,'GENSAL' ,G1,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.30,0.1,0.1,0.50000/
 308,'GENSAL' ,G2,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.30,0.1,0.1,0.50000/
 311,'GENSAL' ,1 ,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.11,0.1,0.1,0.50000/
 311,'GENSAL' ,2 ,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.11,0.1,0.1,0.50000/
 312,'GENSAL' ,1 ,4,6,0.035,0.031,0.93,0,1,46,0.80,0.334,0.2576,0.157,0.1,0.50000/
 312,'GENSAL' ,2 ,4,6,0.035,0.031,0.93,0,1,46,0.80,0.334,0.2576,0.157,0.1,0.50000/
 312,'GENSAL' ,3 ,4,6,0.035,0.031,0.93,0,1,46,0.80,0.334,0.2576,0.157,0.1,0.50000/
 313,'GENSAL' ,1 ,4,6,0.035,0.031,0.93,0,1,46,0.80,0.334,0.2240,0.157,0.1,0.50000/
 313,'GENSAL' ,2 ,4,6,0.035,0.031,0.93,0,1,46,0.80,0.334,0.2240,0.157,0.1,0.50000/
 314,'GENSAL' ,1 ,4,6,0.035,0.031,0.93,0,1,46,0.80,0.334,0.2576,0.157,0.1,0.50000/
 314,'GENSAL' ,2 ,4,6,0.035,0.031,0.93,0,1,46,0.80,0.334,0.2576,0.157,0.1,0.50000/
 314,'GENSAL' ,3 ,4,6,0.035,0.031,0.93,0,1,46,0.80,0.334,0.2576,0.157,0.1,0.50000/
 315,'GENSAL' ,1 ,4,6,0.035,0.031,0.93,0,1,46,0.80,0.334,0.2576,0.157,0.1,0.50000/
 315,'GENSAL' ,2 ,4,6,0.035,0.031,0.93,0,1,46,0.80,0.334,0.2576,0.157,0.1,0.50000/
 316,'GENSAL' ,1 ,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.11,0.1,0.1,0.50000/
 316,'GENSAL' ,2 ,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.11,0.1,0.1,0.50000/
 317,'GENSAL' ,M1 ,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.30,0.1,0.1,0.50000/
 317,'GENSAL' ,M2 ,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.30,0.1,0.1,0.50000/
 318,'GENSAL' ,1 ,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.30,0.1,0.1,0.50000/
 319,'GENSAL' ,2 ,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.30,0.1,0.1,0.50000/
 340,'GENSAL' ,P1,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.11,0.1,0.1,0.50000/
 342,'GENSAL' ,1 ,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.11,0.1,0.1,0.50000/
 342,'GENSAL' ,2 ,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.11,0.1,0.1,0.50000/
 343,'GENSAL' ,1 ,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.11,0.1,0.1,0.50000/
 343,'GENSAL' ,2 ,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.11,0.1,0.1,0.50000/
 343,'GENSAL' ,3 ,7,0.06,0.09,2.44,1,1.09,0.62,0.2,0.11,0.1,0.1,0.50000/
 516,'GENSAL' ,G1,5,3,0.038,0.149,0.971,0,1,53,0.830,0.332,0.223,0.14,0.1,0.50000/
 516,'GENSAL' ,G2,5,3,0.038,0.149,0.971,0,1,53,0.830,0.332,0.223,0.14,0.1,0.50000/
 516,'GENSAL' ,G3,5,3,0.038,0.149,0.971,0,1,53,0.830,0.332,0.223,0.14,0.1,0.50000/
 517,'GENSAL' ,G4,5,3,0.038,0.149,0.971,0,1,53,0.830,0.332,0.223,0.14,0.1,0.50000/
 517,'GENSAL' ,G5,5,3,0.038,0.149,0.971,0,1,53,0.830,0.332,0.223,0.14,0.1,0.50000/
 517,'GENSAL' ,G6,5,3,0.038,0.149,0.971,0,1,53,0.830,0.332,0.223,0.14,0.1,0.50000/
 517,'GENSAL' ,G7,5,3,0.038,0.149,0.971,0,1,53,0.830,0.332,0.223,0.14,0.1,0.50000/

/* MODELO DE GOBERNADORES DE PANAMA

101,'HYGOV' ,B1,0.03,0.8,14.5,0.03,1,0.167,0.893,0.266,1.15,1.36,0.5,0.08/
 102,'HYGOV' ,B2,0.03,0.8,14.5,0.03,1,0.167,0.893,0.266,1.15,1.36,0.5,0.08/
 108,'HYGOV' ,B3,0.03,0.8,14.5,0.03,1,0.167,0.870,0.260,1.15,1.36,0.5,0.08/
 97,'HYGOV' ,F1,0.03,0.5,11.8,0.03,0.2,0.167,0.95,0.05,1.85,1.05,0.5,0.08/
 98,'HYGOV' ,F2,0.03,0.5,11.8,0.03,0.2,0.167,0.95,0.05,1.85,1.05,0.5,0.08/
 99,'HYGOV' ,F3,0.03,0.5,11.8,0.03,0.2,0.167,0.95,0.05,1.85,1.05,0.5,0.08/
 94,'HYGOV' ,L1,0.03,1.0,14,0.025,0.2,0.167,1.2,0.01,2.8,1.05,0.5,0.08/
 95,'HYGOV' ,L2,0.03,1.0,14,0.025,0.2,0.167,1.2,0.01,2.8,1.05,0.5,0.08/
 90,'HYGOV' ,E1,0.03,1.0,16,0.025,0.2,0.167,1.2,0.01,2.52,1.05,0.5,0.08/
 91,'HYGOV' ,E2,0.03,1.0,16,0.025,0.2,0.167,1.2,0.01,2.52,1.05,0.5,0.08/
 134,'HYGOV' ,G1,0.03,1.0,16,0.025,0.2,0.167,0.923,0.05,2.52,1.05,0.5,0.08/
 135,'HYGOV' ,G2,0.03,1.0,16,0.025,0.2,0.167,0.923,0.05,2.52,1.05,0.5,0.08/
 136,'HYGOV' ,G3,0.03,1.0,16,0.025,0.2,0.167,0.923,0.05,2.52,1.05,0.5,0.08/
 73,'TGOV1' ,V9,0.06,0.05,0.859,0,0,1,3,0.00/
 66,'TGOV1' ,V2,0.06,0.05,0.851,0,0,1,3,0.00/
 67,'TGOV1' ,V3,0.06,0.05,0.851,0,0,1,3,0.00/
 68,'TGOV1' ,V4,0.06,0.05,0.851,0,0,1,3,0.00/
 128,'TGOV1' ,G3,0.03,0.05,0.74,0.327,1,3,0.00/
 129,'TGOV1' ,G4,0.03,0.05,0.74,0.1,1,3,0.00/
 70,'GAST' ,J5,0.04,0.05,0.05,3,1,2,0.84,0.05,0.5/
 71,'GAST' ,J6,0.04,0.05,0.05,3,1,2,0.84,0.05,0.5/
 72,'GAST' ,T8,0.04,0.05,0.05,3,1,2,0.7,0.05,0.5/
 104,'GAST' ,CO,0.03,0.015,0.2,5,1.05,0.67,0.84,0.05/
 113,'GAST' ,GP,0.04,0.2,0.05,3,1,2,0.69,0.05,0.5/
 114,'GAST' ,PG,0.04,0.2,0.05,3,1,2,0.69,0.05,0.5/
 126,'GAST' ,G1,0.03,0.01,0.05,3,1,2,0.74,0.05,0.5/
 127,'GAST' ,G2,0.03,0.01,0.05,3,1,2,0.74,0.05,0.5/

/* MODELO DE EXCITADORES DE PANAMA

101,'EXST1' ,B1,0.025,3,-3,0.0050,0.088,60,0.00133,6,-5.3,0.02,0.1,1.5/
102,'EXST1' ,B2,0.025,3,-3,0.0050,0.088,60,0.00133,6,-5.3,0.02,0.1,1.5/
108,'EXST1' ,B3,0.025,4,-1,0.0080,0.088,50,0.005,10,-10,0.02,0.10,1.5/
97,'EXST1' ,F1,0.025,3,-3,0.0080,0.088,60,0.00133,6,-5.3,0.0,0.0,3/
98,'EXST1' ,F2,0.025,3,-3,0.0080,0.088,60,0.00133,6,-5.3,0.0,0.0,3/
99,'EXST1' ,F3,0.025,3,-3,0.0080,0.088,60,0.00133,6,-5.3,0.0,0.0,3/
94,'EXST1' ,L1,0.025,3,-3,0.0080,0.088,80,0.0027,3,-3,0.02,0.1,1.5/
95,'EXST1' ,L2,0.025,3,-3,0.0080,0.088,80,0.0027,3,-3,0.02,0.1,1.5/
90,'EXST1' ,E1,0.025,3,-3,0.0080,0.088,100,0.0027,3,-3,0.02,0.1,1.5/
91,'EXST1' ,E2,0.025,3,-3,0.0080,0.088,100,0.0027,3,-3,0.02,0.1,1.5/
70,'IEEET2' ,J5,0.025,400,0.1,6.59,0,1,1.3,0.2,5,1.3,2.4,0.03,5,0.5/
71,'IEEET2' ,J6,0.025,400,0.1,6.59,0,1,1.3,0.2,5,1.3,2.4,0.03,5,0.5/
72,'ESST4B' ,T8,0,3.38,3.38,1,-0.87,0.01,1,0,1,-0.87,0,5.92,0,7.4,0.11,0,2/
73,'EXAC4' ,V9,0,0.2,-0.2,1.149,22.97,1000,0.002,5.236,-4.189,0/
66,'IEEET1' ,V2,0,217.03,1,3,-3,1,0.8,0.078,0.726,0,2.4,0.03,5,0.5/
67,'IEEET1' ,V3,0,126.37,1,3,-3,1,0.8,0.078,0.726,0,2.4,0.03,5,0.5/
68,'IEEET1' ,V4,0,126.37,1,2,0,1,0.8,0.078,0.726,0,2.4,0.03,5,0.5/
104,'EXAC1' ,CO,0,1,1,4000,0.05,56,0,1.5,0.025,0.4,0.1,2,1,9,0.001,10,0.01/
106,'ESAC8B' ,M1,0,100,150,25,0.03,1,0,10,0,1,1,3.8,1.36,4.5,1.5/
106,'ESAC8B' ,M2,0,100,150,25,0.03,1,0,10,0,1,1,3.8,1.36,4.5,1.5/
106,'ESAC8B' ,M3,0,100,150,25,0.03,1,0,10,0,1,1,3.8,1.36,4.5,1.5/
107,'ESAC8B' ,M4,0,100,150,25,0.03,1,0,10,0,1,1,3.8,1.36,4.5,1.5/
107,'ESAC8B' ,M5,0,100,150,25,0.03,1,0,10,0,1,1,3.8,1.36,4.5,1.5/
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116,'ESAC8B' ,P2,0,100,150,25,0.03,1,0,10,0,1,1,3.8,1.36,4.5,1.5/
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76,'SEXS' ,P9,0.1,10,100,0.05,0,2.5/
113,'SEXS' ,GP,0.2,10,100,0.05,0,4/
114,'SEXS' ,PG,0.2,10,100,0.05,0,4/
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127,'SEXS' ,G2,0.2,10,100,0.05,0,4/
128,'SEXS' ,G3,0.1,10,100,0.05,0,4/
129,'SEXS' ,G4,0.1,10,100,0.05,0,4/
130,'SEXS' ,G5,0.1,10,100,0.05,0,4/
134,'SEXS' ,G1,0.1,10,100,0.05,0,4/
135,'SEXS' ,G2,0.1,10,100,0.05,0,4/
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142,'EXST1' ,C1,0.02,10,-10,0.025,0.10,30,0.05,3.5,-3.1,0.06,0.1,1.5/
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 312,'ESAC8B' ,1 ,0,100,150,25,0.03,1,0,10,0,1,1,3.8,1.36,4.5,1.5/
 312,'ESAC8B' ,2 ,0,100,150,25,0.03,1,0,10,0,1,1,3.8,1.36,4.5,1.5/
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 313,'ESAC8B' ,1 ,0,100,150,25,0.03,1,0,10,0,1,1,3.8,1.36,4.5,1.5/
 313,'ESAC8B' ,2 ,0,100,150,25,0.03,1,0,10,0,1,1,3.8,1.36,4.5,1.5/
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 314,'ESAC8B' ,2 ,0,100,150,25,0.03,1,0,10,0,1,1,3.8,1.36,4.5,1.5/
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 315,'ESAC8B' ,2 ,0,100,150,25,0.03,1,0,10,0,1,1,3.8,1.36,4.5,1.5/
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 316,'EXST1' ,2 ,0.025,3,-3,0.0080,0.088,100,0.0027,3,-3,0.02,0.1,1.5/
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 342,'EXST1' ,2 ,0.025,3,-3,0.0080,0.088,100,0.0027,3,-3,0.02,0.1,1.5/
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 343,'EXST1' ,2 ,0.025,3,-3,0.0080,0.088,80,0.0027,3,-3,0.02,0.1,1.5/
 343,'EXST1' ,3 ,0.025,3,-3,0.0080,0.088,80,0.0027,3,-3,0.02,0.1,1.5/
 516 , 'ESAC8B' ,G1,0,100,150,25,0.03,1,0,10,0,1,1,3.8,1.36,4.5,1.5/
 516 , 'ESAC8B' ,G2,0,100,150,25,0.03,1,0,10,0,1,1,3.8,1.36,4.5,1.5/
 516 , 'ESAC8B' ,G3,0,100,150,25,0.03,1,0,10,0,1,1,3.8,1.36,4.5,1.5/

/* MODELO DE ESTABILIZADORES DE PANAMA

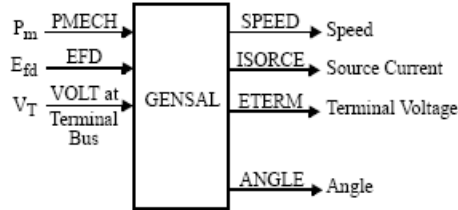
97,'STAB2A' ,F1,1.0,4.4,10,1.8,1,1.41,0.01,0.05/
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 99,'STAB2A' ,F3,1.0,4.4,10,1.8,1,1.41,0.01,0.05/
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 102,'STAB2A' ,B2,1.0,4.4,7.85,1.8,0.785,1.41,0.01,0.03/
 108,'STAB2A' ,B3,1.0,4.5,25,2.5,1,0.01,0.03/

MODELOS DE GENERADORES

GENSAL

Salient Pole Generator Model (Quadratic Saturation on d-Axis)

This model is located at system bus # _____ IBUS,
machine # _____ I.
This model uses CONs starting with # _____ J,
and STATEs starting with # _____ K.
The machine MVA is _____ for each of units =
_____ MBASE.
ZSORCE for this machine is _____ + j _____ on
the above MBASE.



CONs	#	Value	Description
J			T'_{do} (≥ 0) (sec)
J+1			T''_{do} (≥ 0) (sec)
J+2			T''_{qo} (≥ 0) (sec)
J+3			Inertia, H
J+4			Speed damping, D
J+5			X_d
J+6			X_q
J+7			X'_d
J+8			$X''_d = X''_q$
J+9			X_l
J+10			S(1.0)
J+11			S(1.2)

STATEs	#	Description
K		E'_q
K+1		Ψ''_q
K+2		ψ_{kd}
K+3		Δ speed (pu)
K+4		Angle (radians)

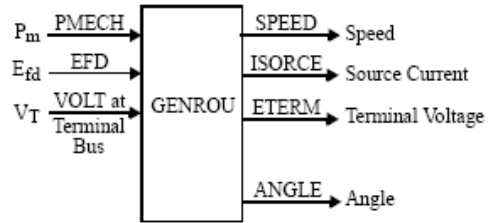
Note: X_d , X_q , X'_d , X''_d , X''_q , X_l , H, and D are in pu,
machine MVA base.
 X''_q must be equal to X''_d .

IBUS, 'GENSAL', I, T'_{do} , T''_{do} , T''_{qo} , H, D, X_d , X_q , X'_d , X''_d , X_l , S(1.0), S(1.2)/

GENROU

Round Rotor Generator Model (Quadratic Saturation)

This model is located at system bus # _____ IBUS,
 machine # _____ I.
 This model uses CONs starting with # _____ J,
 and STATEs starting with # _____ K,
 The machine MVA is _____ for each of _____
 units = _____ MBASE.
 ZSORCE for this machine is _____ + j _____ on
 the above MBASE



CONs	#	Value	Description
J			$T'_{do} (>0)$ (sec)
J+1			$T''_{do} (>0)$ (sec)
J+2			$T'_{qo} (>0)$ (sec)
J+3			$T''_{qo} (>0)$ (sec)
J+4			Inertia, H
J+5			Speed damping, D
J+6			X_d
J+7			X_q
J+8			X'_d
J+9			X'_q
J+10			$X''_d = X''_q$
J+11			X_l
J+12			S(1.0)
J+13			S(1.2)

STATEs	#	Description
K		E'_q
K+1		E'_d
K+2		ψkd
K+3		ψkq
K+4		Δ speed (pu)
K+5		Angle (radians)

Note: $X_d, X_q, X'_d, X'_q, X''_d, X''_q, X_l, H,$ and D are in pu,
 machine MVA base.
 X''_q must be equal to X''_d .

IBUS, 'GENROU', I, $T'_{do}, T''_{do}, T'_{qo}, T''_{qo}, H, D, X_d, X_q, X'_d, X'_q, X''_d, X_l, S(1.0), S(1.2)$

MODELOS DE GOBERNADORES

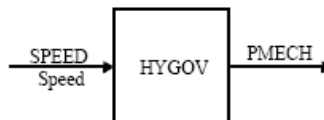
Power Technologies, Inc.

GOVERNOR MODEL DATA SHEETS
HYGOV

HYGOV

Hydro Turbine-Governor

This model is located at system bus # _____ IBUS,
machine # _____ I.
This model uses CONs starting with # _____ J,
and STATEs starting with # _____ K,
and VARs starting with # _____ L.

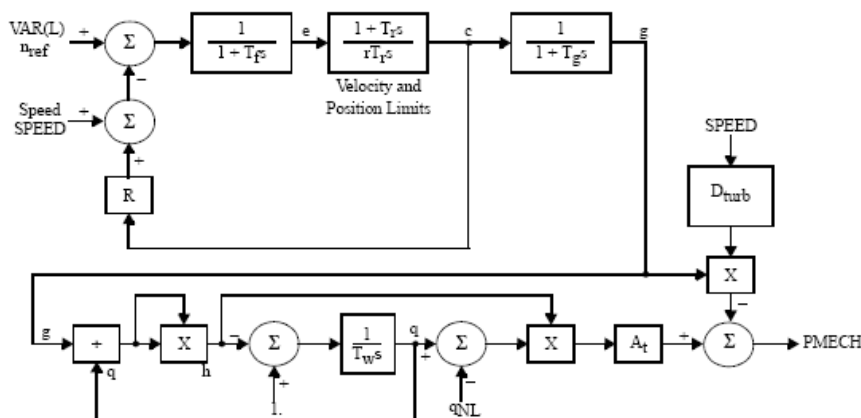


CONs	#	Value	Description
J			R, permanent droop
J+1			r, temporary droop
J+2			T_I (≥ 0) governor time constant
J+3			T_F (≥ 0) filter time constant
J+4			T_g (≥ 0) servo time constant
J+5			\pm VELM, gate velocity limit
J+6			G_{MAX} , maximum gate limit
J+7			G_{MIN} , minimum gate limit
J+8			T_W (≥ 0) water time constant
J+9			A_t , turbine gain
J+10			D_{turb} , turbine damping
J+11			q_{NL} , no load flow

STATEs	#	Description
K		e, filter output
K+1		c, desired gate
K+2		g, gate opening
K+3		q, turbine flow

VARs	#	Description
L		Speed reference
L+1		h, turbine head

IBUS, 'HYGOV', I, R, r, T_I , T_F , T_g , VELM, G_{MAX} , G_{MIN} , T_W , A_t , D_{turb} , q_{NL} /



TGOV1
Steam Turbine-Governor

This model is located at system bus #_____ IBUS,
machine #_____ I.
This model uses CONs starting with #_____ J,
and STATEs starting with #_____ K,
and VAR #_____ L.



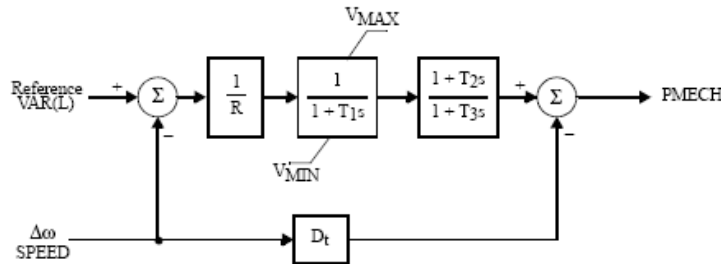
CONs	#	Value	Description
J			R
J+1			T ₁ (>0) (sec)
J+2			V _{MAX}
J+3			V _{MIN}
J+4			T ₂ (sec)
J+5			T ₃ (>0) (sec)
J+6			D _t

STATEs	#	Description
K		Valve opening
K+1		Turbine power

VAR	#	Description
L		Reference

Note: V_{MAX}, V_{MIN}, D_t are in per unit on generator base.
T₂/T₃ = high-pressure fraction.
T₃ = reheater time constant.

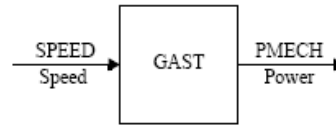
IBUS, 'TGOV1', I, R, T₁, V_{MAX}, V_{MIN}, T₂, T₃, D_t/



GAST

Gas Turbine-Governor

This model is located at system bus # _____ IBUS,
 machine # _____ I.
 This model uses CONs starting with # _____ J,
 and STATEs starting with # _____ K,
 and VAR # _____ L.

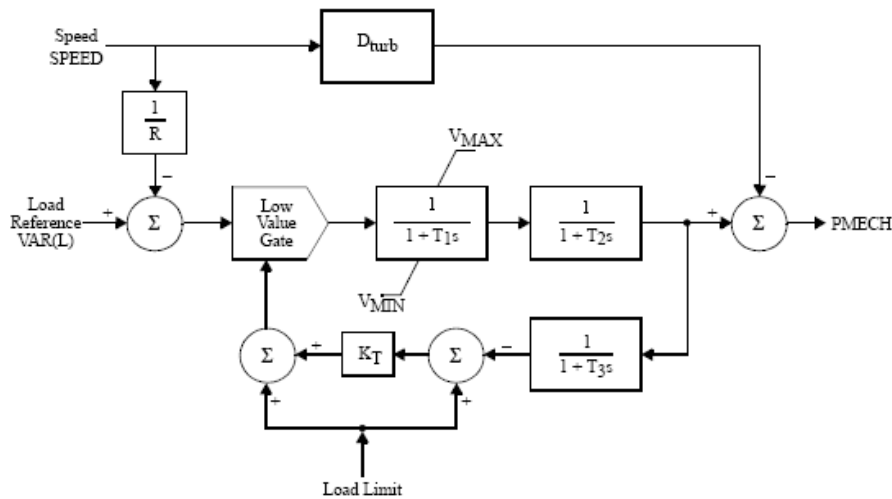


CONs	#	Value	Description
J			R (speed droop)
J+1			T ₁ (>0) (sec)
J+2			T ₂ (>0) (sec)
J+3			T ₃ (>0) (sec)
J+4			Ambient temperature load limit, AT
J+5			K _T
J+6			V _{MAX}
J+7			V _{MIN}
J+8			D _{turb}

STATEs	#	Description
K		Fuel valve
K+1		Fuel flow
K+2		Exhaust temperature

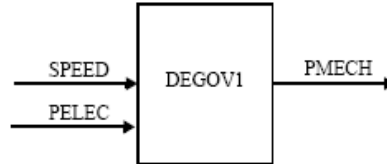
VAR	#	Description
L		Load reference

IBUS, 'GAST', I, R, T₁, T₂, T₃, AT, K_T, V_{MAX}, V_{MIN}, D_{turb}/



DEGOV1
Woodward Diesel Governor

This model is located at system bus # _____ IBUS,
machine # _____ I.
This model uses CONs starting with # _____ J,
and ICON # _____ M,
and STATES starting with # _____ K,
and VARs starting with # _____ L.



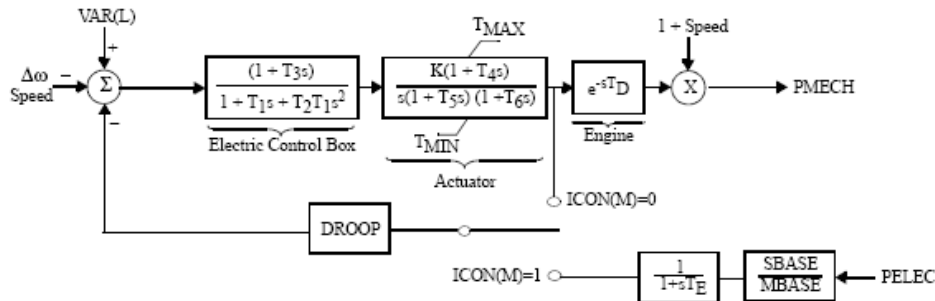
ICON	#	Value	Description
M			Droop control: 0 = Throttle feedback 1 = Electric power feedback

STATES	#	Description
K		Electric control box 1
K+1		Electric control box 2
K+2		Actuator 1
K+3		Actuator 2
K+4		Actuator 3
K+5		Power transducer

CONs	#	Value	Description
J			T ₁ (sec)
J+1			T ₂ (sec)
J+2			T ₃ (sec)
J+3			K
J+4			T ₄ (sec)
J+5			T ₅ (sec)
J+6			T ₆ (sec)
J+7			T _D (0 ≤ T _D ≤ 12 * DELT) (sec)
J+8			T _{MAX}
J+9			T _{MIN}
J+10			Droop
J+11			T _E

VARs	#	Description
L		Reference
L+1		Delay table
.		
.		
.		
.		
.		
.		
.		
.		
L+13		

IBUS, 'DEGOV1', I, Droop Control, T₁, T₂, T₃, K, T₄, T₅, T₆, T_D, T_{MAX}, T_{MIN}/, Droop, T_E/

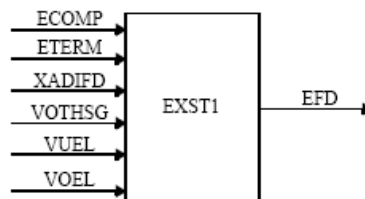


MODELOS DE EXCITADORES

EXST1

IEEE Type ST1 Excitation System

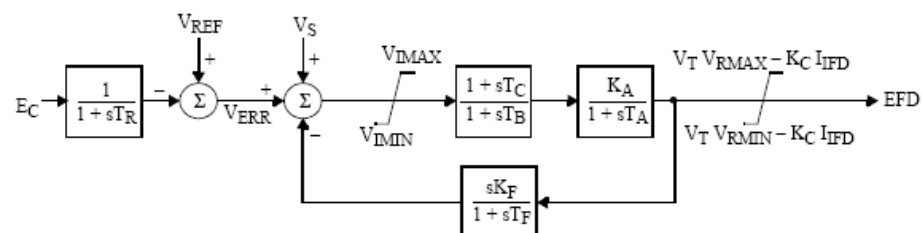
This model is located at system bus # _____ IBUS,
machine # _____ I.
This model uses CONs starting with # _____ J,
and STATEs starting with # _____ K.



CONs	#	Value	Description
J			T_R
J+1			V_{IMAX}
J+2			V_{IMIN}
J+3			T_C
J+4			T_B (sec)
J+5			K_A
J+6			T_A (sec)
J+7			V_{RMAX}
J+8			V_{RMIN}
J+9			K_C
J+10			K_F
J+11			T_F (> 0) (sec)

STATEs	#	Description
K		$V_{measured}$
K+1		Lead lag
K+2		V_R
K+3		Feedback

IBUS, 'EXST1', I, T_R , V_{IMAX} , V_{IMIN} , T_C , T_B , K_A , T_A , V_{RMAX} , V_{RMIN} , K_C , K_F , T_F

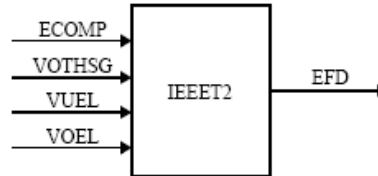


$$V_S = VOTHSG + VUEL + VOEL$$

IEEE T2

IEEE Type 2 Excitation System

This model is located at system bus # _____ IBUS,
machine # _____ I.
This model uses CONs starting with # _____ J,
and STATEs starting with # _____ K,
and VAR # _____ L.



CONs	#	Value	Description
J			T_R (sec)
J+1			K_A
J+2			T_A (sec)
J+3			V_{RMAX} or zero
J+4			V_{RMIN}
J+5			K_E
J+6			T_E (>0) (sec)
J+7			K_F
J+8			T_{F1} (>0) (sec)
J+9			T_{F2} (>0) (sec)
J+10			E_1
J+11			$S_E(E_1)$
J+12			E_2
J+13			$S_E(E_2)$

STATEs	#	Description
K		Sensed V_T
K+1		Regulator output, V_R
K+2		Exciter output, EFD
K+3		First feedback integrator
K+4		Second feedback integrator

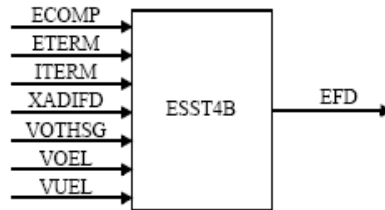
VARs	#	Description
L		K_E

IBUS, 'IEEE T2', I, T_R , K_A , T_A , V_{RMAX} , V_{RMIN} , K_E , T_E , K_F , T_{F1} , T_{F2} , E_1 , $S_E(E_1)$, E_2 , $S_E(E_2)$

ESST4B

IEEE Type ST4B Potential or Compounded Source-Controlled Rectifier Exciter

This model is located at system bus # _____ IBUS,
machine # _____ I.
This model uses CONs starting with # _____ J,
and STATEs starting with # _____ K.



CONs	#	Value	Description
J			T_R (sec)
J+1			K_{PR}
J+2			K_{IR}
J+3			V_{RMAX}
J+4			V_{RMIN}
J+5			T_A (sec)
J+6			K_{PM}
J+7			K_{IM}
J+8			V_{MMAX}
J+9			V_{MMIN}
J+10			K_G
J+11			K_P
J+12			K_I
J+13			V_{BMAX}
J+14			K_C
J+15			X_L
J+16			THETAP

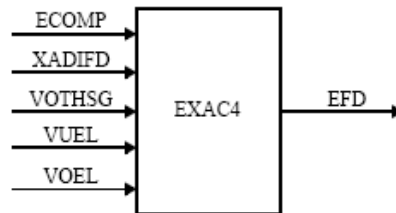
STATEs	#	Description
K		Sensed V_T
K+1		Regulator integrator
K+2		Regulator output, V_R
K+3		V_M

IBUS, 'ESST4B', I, T_R , K_{PR} , K_{IR} , V_{RMAX} , V_{RMIN} , T_A , K_{PM} , K_{IM} , V_{MMAX} , V_{MMIN} , K_G , K_P , K_I , V_{BMAX} , K_C , X_L , THETAP/

EXAC4

IEEE Type AC4 Excitation System

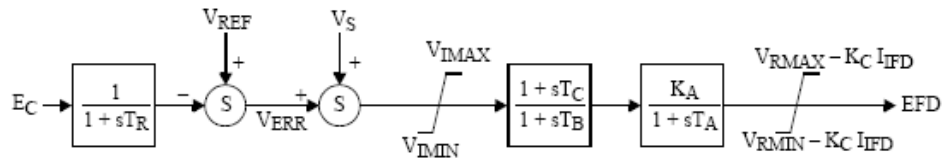
This model is located at system bus # _____ IBUS,
 machine # _____ I.
 This model uses CONs starting with # _____ J,
 and STATEs starting with # _____ K.



CONs	#	Value	Description
J			T_R
J+1			V_{MAX}
J+2			V_{MIN}
J+3			T_C
J+4			T_B (sec)
J+5			K_A
J+6			T_A
J+7			V_{RMAX}
J+8			V_{RMIN}
J+9			K_C

STATEs	#	Description
K		$V_{measured}$
K+1		Lead lag
K+2		V_R

IBUS, 'EXAC4', I, T_R , V_{MAX} , V_{MIN} , T_C , T_B , K_A , T_A , V_{RMAX} , V_{RMIN} , K_C

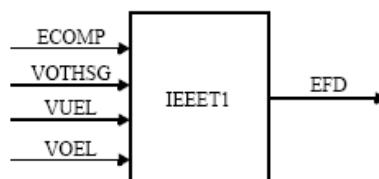


$V_S = V_{OTHSG} + V_{UEL} + V_{OEL}$

IEEE1

IEEE Type 1 Excitation System

This model is located at system bus # _____ IBUS,
machine # _____ I.
This model uses CONs starting with # _____ J,
and STATEs starting with # _____ K,
and VAR # _____ L.



CONs	#	Value	Description
J			T_R (sec)
J+1			K_A
J+2			T_A (sec)
J+3			V_{RMAX} or zero
J+4			V_{RMIN}
J+5			K_E or zero
J+6			T_E (>0) (sec)
J+7			K_F
J+8			T_F (>0) (sec)
J+9		0	Switch
J+10			E_1
J+11			$S_E(E_1)$
J+12			E_2
J+13			$S_E(E_2)$

STATEs	#	Description
K		Sensed V_T
K+1		Regulator output, V_R
K+2		Exciter output, EFD
K+3		Rate feedback integrator

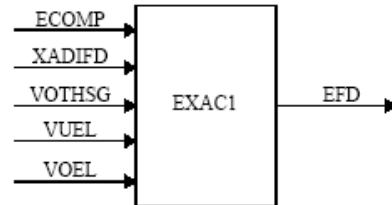
VAR	#	Description
L		K_E

IBUS, 'IEEE1', I, T_R , K_A , T_A , V_{RMAX} , V_{RMIN} , K_E , T_E , K_F , T_F , 0, E_1 , $S_E(E_1)$, E_2 , $S_E(E_2)$

EXAC1

IEEE Type AC1 Excitation System

This model is located at system bus #_____ IBUS,
machine #_____ I.
This model uses CONs starting with #_____ J,
and STATEs starting with #_____ K.



CONs	#	Value	Description
J			T_R (sec)
J+1			T_B (sec)
J+2			T_C (sec)
J+3			K_A
J+4			T_A (sec)
J+5			V_{RMAX}
J+6			V_{RMIN}
J+7			$T_E > 0$ (sec)
J+8			K_F
J+9			$T_F > 0$ (sec)
J+10			K_C
J+11			K_D
J+12			K_E
J+13			E_1
J+14			$S_E(E_1)$
J+15			E_2
J+16			$S_E(E_2)$

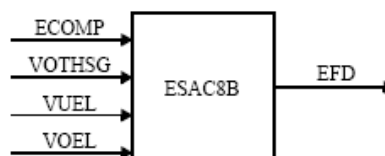
STATEs	#	Description
K		Sensed E_T
K+1		Lead lag
K+2		Regulator output
K+3		V_E
K+4		Feedback output

IBUS, 'EXAC1', I, T_R , T_B , T_C , K_A , T_A , V_{RMAX} , V_{RMIN} , T_E , K_F , T_F , K_C , K_D , K_E , E_1 , $S_E(E_1)$, E_2 , $S_E(E_2)$

ESAC8B

Basler DECS

This model is located at system bus # _____ IBUS,
machine # _____ I.
This model uses CONs starting with # _____ J,
and STATES starting with # _____ K,
and VAR # _____ L.

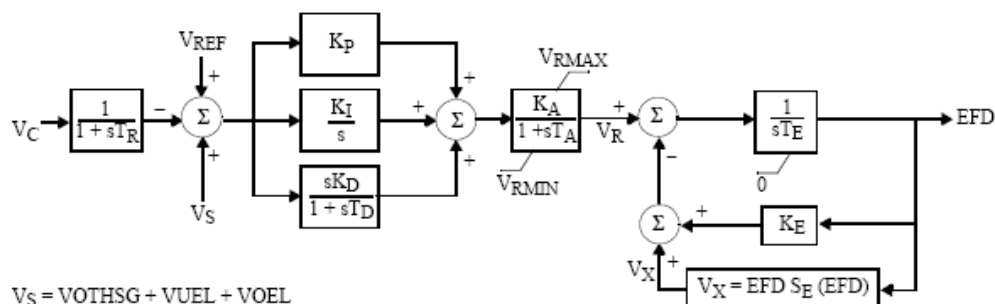


CONs	#	Value	Description
J		T_R (sec)	
J+1		K_P	
J+2		K_I	
J+3		K_D	
J+4		T_D (sec)	
J+5		K_A	
J+6		T_A	
J+7		V_{RMAX} or zero	
J+8		V_{RMIN}	
J+9		$T_E > 0$ (sec)	
J+10		K_E or zero	
J+11		E_1	
J+12		$S_E(E_1)$	
J+13		E_2	
J+14		$S_E(E_2)$	

STATES	#	Description
K		Sensed V_T
K+1		Integral controller
K+2		Derivative controller
K+3		Voltage regulator
K+4		Exciter output, EFD

VAR	#	Description
L		K_E

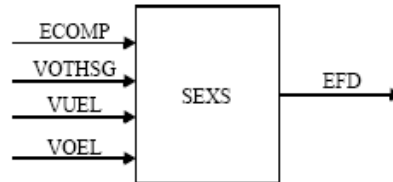
IBUS, 'ESAC8B', I, T_R , K_P , K_I , K_D , T_D , K_A , T_A , V_{RMAX} , V_{RMIN} , T_E , K_E , E_1 , $S_E(E_1)$, E_2 , $S_E(E_2)$



SEXS

Simplified Excitation System

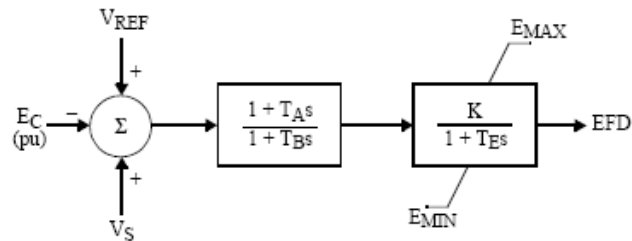
This model is located at system bus # _____ IBUS,
machine # _____ I.
This model uses CONs starting with # _____ J,
and STATEs starting with # _____ K.



CONs	#	Value	Description
J			T_A/T_B
J+1			$T_B (>0)$ (sec)
J+2			K
J+3			T_E (sec)
J+4			E_{MIN} (pu on EFD base)
J+5			E_{MAX} (pu on EFD base)

STATEs	#	Description
K		First integrator
K+1		Second integrator

IBUS, 'SEXS', I, T_A/T_B , T_B , K, T_E , E_{MIN} , E_{MAX}



$$V_S = VOTHSG + VUEL + VOEL$$

MODELOS DE ESTABILIZADORES

STABILIZER AND EXCITATION LIMITER MODEL DATA SHEETS

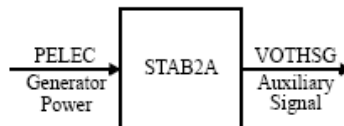
Power Technologies, Inc.

STAB2A

STAB2A

Power Sensitive Stabilizing Unit (ASEA)

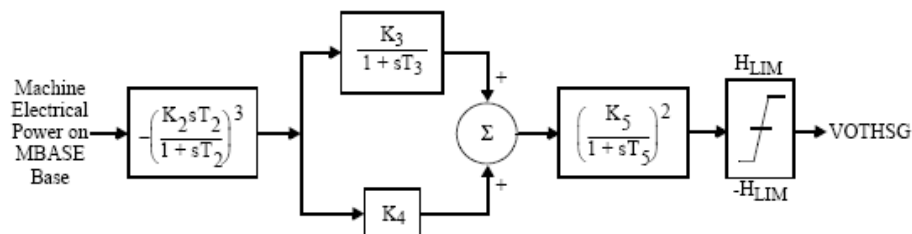
This model is located at system bus # _____ IBUS,
 machine # _____ I.
 This model uses CONs starting with # _____ J,
 and STATEs starting with # _____ K.



CONs	#	Value	Description
J			K_2
J+1			T_2 (sec) ($\neq 0$)
J+2			K_3
J+3			T_3 (sec) ($\neq 0$)
J+4			K_4
J+5			K_5
J+6			T_5 (sec) ($\neq 0$)
J+7			H_{LIM}

STATEs	#	Description
K		Implicit
K+1		Integration
K+2		State
K+3		Variables

IBUS, 'STAB2A', I, K_2 , T_2 , K_3 , T_3 , K_4 , K_5 , T_5 , H_{LIM}



MODELOS DE RELEVADORES

LOAD CHARACTERISTIC AND LOAD RELAY MODEL DATA SHEETS

Power Technologies, Inc.

LDSHxx

LDSHBL, LDSHOW, LDSHZN, LDSHAR, LDSHAL

Underfrequency Load Shedding Model

DYRE Data Record:

I, 'LDSHxx', LID f_1 , t_1 , $frac_1$, f_2 , t_2 , $frac_2$, f_3 , t_3 , $frac_3$, T_b /

LID is an explicit load identifier or may be '*' for application to loads of any ID associated with the subsystem type.

Model suffix "xx"	"I" Description
BL	Bus number
OW	Owner number
ZN	Zone number
AR	Area number
AL	0

CONs	Value	Description
J		f_1 , first load shedding point (Hz)
J+1		t_1 , first point pickup time (sec)
J+2		$frac_1$, first fraction of load to be shed
J+3		f_2 , second load shedding point (Hz)
J+4		t_2 , second fraction pickup time (sec)
J+5		$frac_2$, second fraction of load to be shed
J+6		f_3 , third load shedding point (Hz)
J+7		t_3 , third point pickup time (sec)
J+8		$frac_3$, third fraction of load to be shed
J+9		T_b , breaker time (sec)

Reserved ICONs	Description
N	First point delay flag
N+1	First point time-out flag
N+2	First timer status
N+3	Second point delay flag
N+4	Second point time-out flag
N+5	Second timer status
N+6	Third point delay flag
N+7	Third point time-out flag
N+8	Third timer status

VARs	Description
L	First timer memory
L+1	Second timer memory
L+2	Third timer memory

LVSHBL, LVSHOW, LVSHZN, LVSHAR, LVSHAL

Undervoltage Load Shedding Model

DYRE Data Record:

I, 'LVSHxx', LID, JBUS, V1, T1, F1, V2, T2, F2, V3, T3, F3, TB/

LID is an explicit load identifier or may be '*' for application to loads of any ID associated with the subsystem type.

Model suffix "xx"	"I" Description
BL	Bus number
OW	Owner number
ZN	Zone number
AR	Area number
AL	0

ICONs	Value	Description
M		JBUS, remote bus number where voltage is measured*

* Set JBUS = 0, if remote bus is same as the local bus to which the load is connected.

CONs	Value	Description
J		V1, first load shedding point (pu)
J+1		T1, first point pickup time (sec)
J+2		F1, first fraction of load to be shed
J+3		V2, second load shedding point (pu)
J+4		T2, second fraction pickup time (sec)
J+5		F2, second fraction of load to be shed
J+6		V3, third load shedding point (pu)
J+7		T3, third point pickup time (sec)
J+8		F3, third fraction of load to be shed
J+9		TB, breaker time (sec)

VARs	Description
L	First timer memory
L+1	Second timer memory
L+2	Third timer memory

Reserved ICONs	Description
N	First point delay flag
N+1	First point time-out flag
N+2	First timer status
N+3	Second point delay flag
N+4	Second point time-out flag
N+5	Second timer status
N+6	Third point delay flag
N+7	Third point time-out flag
N+8	Third timer status