

SMART GRID SYSTEM CHEAT SHEET

PLC (tap changer)	PLC (capacitor bank)
alg. con. states	alg. con. states
yTT	yTC
cont. states	cont. states
xTT	xTC
discrete states	discrete states
tresT	tresC
onT	onC
parameters	parameters
tauT	tauC

SUPERVISOR (PLC)

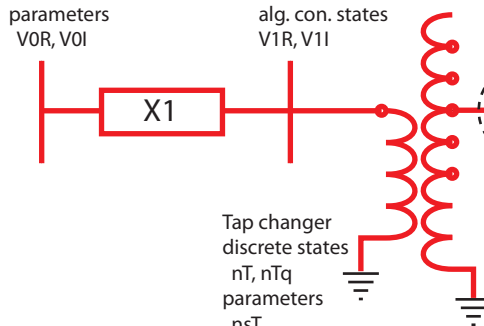
Tap switch controller	
DES (UMDES)	DAE (MATLAB)
T6_sup	DYNAMICS
events: E_tap	dTimerT
T_timer	JACOBIAN
events: tton,ttoff,ttstop	jTimerT
EVENT TRIGGERS: eTimerT, eNetwork	

Capacitor bank controller	
DES (UMDES)	DAE (MATLAB)
C6_sup	DYNAMICS
events: E_cap	dTimerC
C_timer	JACOBIAN
events: tcon,tcoff,tcstop	jTimerC
EVENT TRIGGERS: eTimerC, eCapacitor	

Network	
DES (UMDES)	DAE (MATLAB)
T_switch	DYNAMICS
events: tf,tp,tm	dNetwork
T_sensor	JACOBIAN
events: vn,vm,vp	jNetwork
EVENT TRIGGERS: eNetwork, PLC	

Node 0 (slack)
parameters
V0R, V0I

Node 1
alg. con. states
V1R, V1I



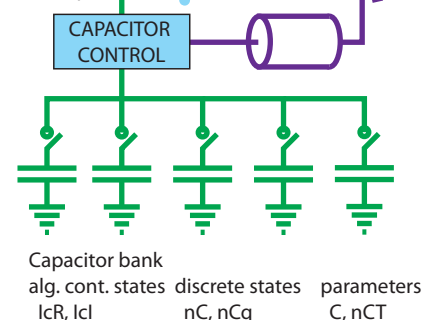
Random perturbations
probability model
frequency function f

Load	
DES (UMDES)	DAE (MATLAB)
	DYNAMICS
	dLoad
	JACOBIAN
	jLoad

Node 3
alg. con. states
V3R, V3I

PQ load (water pump)
alg. con. states
Pd, Qd
cont. states
xd
parameters
Tp, Ps, Pt

Capacitor bank	
DES (UMDES)	DAE (MATLAB)
C_switch	DYNAMICS
events: cf,cp,cm	dCapacitor
cpp, cmm	JACOBIAN
C_sensor	jCapacitor
events: qn,qm,qp	
EVENT TRIGGERS: eCapacitor, PLC	



Turbine	
DES (UMDES)	DAE (MATLAB)
	DYNAMICS
	dTurbine
	JACOBIAN
	jTurbine

SMART GRID SIMULATION FLOW CHART

