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| Model Name: Measurements | | |
| Name and affiliation of author or POC:  Reynaldo Salcedo, MIT Lincoln Laboratory | Model Symbol: | Accreditation (TRL?):  SimPowerSystems standard |
| Date of Publication:  3/15/2017 |
| Version Information:  1.0 |
| Model accessibility (open source, license, …):  Open source |
| Model Description and Theory of Operation:  Calculation of standard measured characteristics in an electric system based on instantaneous voltage and current probed at a point of interest. The block receives as input the signal output from the circuit breaker or the fast load shedding circuit breaker, and outputs calculated power, frequency, and normalized voltage quantities.  List of References:   * See SimPowerSystems documentation | | |
| Model Specifications:  The measurement block is implemented using the default Simulink and SimPowerSystems function blocks. It use Simulink PLL and PQ Calculation blocks, thus inheriting limitations.  Assumptions and Limitations   * Signal frequency should not be outside the 45Hz-70Hz range – PLL limitations * Near balanced power flow – uses phase-A to compute frequency and per-unit voltage | | |
| Interfacing Information (platform, input requirements, possible outputs):   1. Inputs:   Voltage and current measurements from the circuit breaker models   1. Outputs:   Voltage (VRMSLL), current (A), frequency (Hz), active power (kW), reactive power (kVAR), per-unit voltage (Vpu), and breaker status.   1. Electrical connections: 2. Parameters:   Ts (seconds) – Simulation sample time  Nominal Voltage (RMSLL) – Nominal voltage RMS line-to-line | | |
| Diagrammatic Representation of Model Internals: | | |
| Model Validation (technique used, evidence):  Output quantities were verified using hand-calculations | | |
| Simulation Platform, Solvers:  Matlab 2013a with Simscape. A discrete Tustin solver with 100us time step was used. | | |
| Known Issues:  N/A | | |
| Models which use this block:  Basic element for numerous distribution systems. | | |