

Useful link with terms

<ftp://197.155.77.3/sourceforge/e/el/electricdss/OpenDSS/OpenDSSManual.pdf>

## Transformer Properties

-phases – Number of phases the transformer has, default is 3.

Example: phases=1

-bank – Name of the bank this transformer is part of.

Example: bank=reg1

-Xhl – Use this to specify the percent reactance, H-L (winding 1 to winding 2).

Example: XLH=0.01

-kVAs – Use this to specify the kVA ratings of all windings at once using an array.

Example: kVAs=[1666 1666]

-buses – Use this to specify all the bus connections at once using an array.

Example: New Transformer.T1 buses = "Hibus, lowbus"

-kVs – Use this to specify the kV ratings of all windings at once using an array.

Example: kVs=[2.4 2.4]

-%loadloss – Percent load loss at full load. The %R of the High and Low windings(1 and 2) are adjusted to agree at rated kVA loading

Example: %loadloss=0.01

-transformer – Name of transformer element to which the Regcontrol is connected. Do not specify full object name; "Transformer" is assumed for the object class

Example: transformer=Reg1

-winding – Number of windings the transformer has, default is set to 2

Example: winding = 2

-vreg – Voltage regulator setting, in VOLTS, for the winding being controlled. Multiplying this value times the ptratio should yield the voltage across the WINDING of the controlled transformer. Default is 120.0

Example: vreg=122

-band – Bandwidth in VOLTS for the controlled bus (see help for ptratio property). Default is 3.0

Example: band=2

-ptratio – Ratio of the PT that converts the controlled winding voltage to the regulator voltage. Default is 60. If the winding is Wye, the line-to-neutral voltage is used. Else, the line-to-line voltage is used.

Example: ptratio=20

-ctprim – Rating, in Amperes, of the primary CT rating for converting the line amps to control amps. The typical default secondary ampere rating is 0.2 Amps (check with manufacturer specs).

Example: ctprim=700

-R – R setting on the line drop compensator in the regulator, expressed in VOLTS.

Example: R=3

-X – X setting on the line drop compensator in the regulator, expressed in VOLTS.

Example: X=9

## LineCode Properties

-nphases – Number of phases, default is 3

Example: nphases=3

-BaseFreq - Base frequency at which the impedance values are specified. Default = 60Hz.

Example: BaseFreq = 60

-Rmatrix – Series resistance matrix, ohms per unit length.

Example: rmatrix = ( 0.3465 | 0.1560 0.3375 | 0.1580 0.1535 0.3414 )

-Xmatrix – Series reactance matrix, ohms per unit length.

Example: xmatrix = ( 1.0179 | 0.5017 1.0478 | 0.4236 0.3849 1.0348 )

-Units - {mi | km | kft | m | ft | in | cm} Length units. If not specified, it is assumed that the units correspond to the length being used in the Line models.

Example: units=mi

## Load Definitions

-Bus1 - Name of bus to which the load is connected. Include node definitions if the terminal conductors are connected abnormally. 3-phase Wye-connected loads have 4 conductors; Delta-connected have 3. Wye-connected loads, in general, have one more conductor than phases. 1-phase Delta has 2 conductors; 2-phase has 3. The remaining Delta, or line-line, connections have the same number of conductors as phases.

Example: Bus1=671.1.2.3

-Phases - No. of phases this load.

Example: Phases = 3

-Conn - {wye | y | LN} for Wye (Line-Neutral) connection; {delta | LL} for Delta (Line-Line) connection. Default = wye.

Example: Conn=Delta

-Model - Integer defining how the load will vary with voltage (see "Power Conversion Elements" for more details). The load models currently implemented are:

1. Constant P and constant Q (default): Commonly used for power flow studies
2. Constant Z (or constant Impedance)
3. Constant P and quadratic Q
4. We probably won't use.
5. Constant I (or constant current magnitude) sometimes used or rectifier load.
6. Constant P and fixed Q (at the nominal value)

Example: Model=1

-kV - Base voltage for load. For 2- or 3-phase loads, specified in phase-to-phase kV. For all other loads, the actual kV across the load branch. If wye (star) connected, then specify phase-to-neutral (L-N). If delta or phase-to-phase connected, specify the phase-to-phase (L-L) kV.

Example: kV=4.16

-kW - nominal active power, kW, for the load. Total of all phases. See kVA.

-kVA - Definition of the Base load in kVA, total all phases. This is intended to be used in combination with the power factor (PF) to determine the actual load. Legal ways to define base load (kW and kvar):

kW, PF

kW, kvar

kVA, PF

Example: kW=1155 kvar=660

## Line Definitions

-Phases - No. of phases. Default = 3. A line has the same number of conductors per terminal as it has phases. Neutrals are not explicitly modeled unless declared as a “phase”, and the impedance matrices must be augmented accordingly. For example, a three- phase line has a 3x3 Z matrix with the neutral reduced, or a 4x4 Z matrix with the neutral retained.

Example: Phases=3

-bus1 - Name of bus for terminal 1. Node order definitions optional.

Example: Bus1=RG60.1.2.3

-bus2 - Name of bus for terminal 2.

Example: Bus2=632.1.2.3

-linecode - Name of an existing LineCode object containing impedance definitions.

Example: LineCode=mtx601

-Length - Length multiplier to be applied to the impedance data.

Example: Length=2000

-Units - Length Units = {none | mi | kft | km | m | Ft | in | cm } Default is None - assumes length units match impedance units.

Example: units=ft

## Switch Definitions

-switch - {y/n | T/F} Default= no/false. Designates this line as a switch for graphics and algorithmic purposes. SIDE EFFECT: Sets R1=0.001 X1=0.0. You must reset if you want something different.

Example: switch=y

-r1 - positive-sequence resistance, ohms per unit length.

Example: r1=1e-4

-r0 - zero-sequence resistance, ohms per unit length.

Example: r0=1e-4

-x1 - positive-sequence reactance, ohms per unit length.

Example: x1=0.000

-x0 - zero-sequence reactance, ohms per unit length.

Example: x0=0.000

-c1 - positive-sequence capacitance, nanofarads per unit length. Setting any of R1, R0, X1, X0, C1, C0 forces the program to use the symmetrical component line definition. See also Cmatrix and B1

Example: c1=0.000

-c0 - zero-sequence capacitance, nanofarads per unit length.

Example: c0=0.000