**z\_all\_flag:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Node1\_IDa | Node2\_IDb | Phasec | Meas\_Typed | Accur\_Typee | Sigmaf |
| 1 | NaN | 1 | 1 | 1 | 0.1 |
| 1 | NaN | 2 | 1 | 1 | 0.1 |
| 2 | NaN | 3 | 3 | 3 | 0 |
| 3 | NaN | 2 | 4 | 2 | 30 |

a – Node1\_ID: is the ID of a Node measurement, or the ID of the first Node of a Branch measurement.

b – Node2\_ID: is the ID of the second Node of a Branch measurement. This value is NaN for a Node measurement.

c – Phase: Phase of the measurement. One, two or three.

d – Meas\_Type: Measurement Type. 1 – Voltage magnitude, 2 – Voltage angle, 3- Active power, 4 – Reactive power, 5 – Apparent power, 6 – Current.

e – Accur\_Type: Accuracy Type. 1 – Real value, 2 – Pseudo value, 3 – Virtual values

f – Sigma: The standard deviation of the measurement.

**z\_all\_data** are the corresponding values. Each column is a new time step.

In the example above:

1 row – Real voltage magnitude measurement at Node\_ID 1, phase 1 with a standard deviation of 0.1 V.

2 row – Real voltage magnitude measurement at Node\_ID 1, phase 2 with a standard deviation of 0.1 V.

3 row – Virtual active power value at Node\_ID 2, phase 3. (No standard devation)

4 row – Pseudo reactive power value at Node\_ID 3, phase 3 with a standard deviation of 30 var.

# LineInfo

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Name | Node1\_ID | Flag\_State1 | Node2\_ID | Flag\_State2 | r | x | c | r0\_r1 | x0\_x1 | c0 | l |
| ‘L1’ | 1 | 1 | 2 | 1 | 0.3264 | 0.3557 | 0 | 4 | 4 | 0 | 1 |

Node1\_ID and Node2\_ID are the IDs of the Nodes connected by the line (branch)

Flag\_State1 and Flag\_State2 defines if the line is open on any side. ‘1’ means closed, ‘0’ opened.

r is the series resistance in direct components per unit length in Ohm/km

x is the series reactance (inductive) in direct components per unit length in Ohm/km

c is the shunt capacitance in direct components per unit length in nF/km

r0\_r\_1 is the zero to direct component ratio of the series resistance in pu

x0\_x1 is the zero to direct component ratio of the series reactance (inductive) in pu

c0 is the shunt capacitance in zero components per unit length in nF/km

l is the line length in km