```python
class GLB:  # 共有的变量，全局都可以使用的
    # class Gloabl_Init 主要是全局变量，在程序中以 GLB 的形式存在，以下均为 GLB 中的变量

    IDformat = '%04d'
    NTower = 5         # of towers = 5
    NSpan = 4          # of spans = 4
    NCable = 1         # of cables = 2
    dT = 1e-8
    Nt = 1000
    slg = 30

    Cir = {'dat': Cir_dat, 'num': Cir_num}

    GND = {
        'gnd': 2,          # GND mode;: 0 free-space, 1 PGD, 2 LSG
        'mur': 1,
        'epr': 4,
        'sig': 1e-3,
        'gndcha': 2        # GND mode;: 0 free-space, 1 PGD, 2 LSG
    }

    VFIT = {
        'fr',
        'rc',   # 内部导体阻抗
        'dc',   # order=3, r0+d0*s+sum(ri/s+di)
        'odc',  # 导体的 VFIT 阶数
        'rg',   # 接地阻抗
        'dg',   # order=3, r0+d0*s+sum(ri/s+di)
        'odg'
    }

    A = np.array([
        [-1, 1, 0, 0, 0],        # incidence matrix btw. span and tower
        [0, -1, 1, 0, 0],
        [0, 0, -1, 1, 0],
        [0, 0, -1, 0, 1]
    ])

    Acab = np.array([-1, 0, 0, 0, 1])      # underground cable btw T1 and T5


class towerdata  # Tower 的变量 部分继承于 Glb。
    Info = np.array([Tower No. 1,Type-01,10kV,0,0,0,0,0,0,1])
```

ID: Info[9]

```
T_GND = GLB['GND'] = {
                    'gnd': 2,        # GND mode;: 0 free-space, 1 PGD, 2 LSG
                    'mur': 1,
                    'epr': 4,
                    'sig': 1e-3,
                    'gndcha': 2      # GND mode;: 0 free-space, 1 PGD, 2 LSG
               }


Ats = np.array([-1,0,0,0])

CK_Para = {
    'A',
    'R',   #  内部导体阻抗
    'L',   # order=3, r0+d0*s+sum(ri/s+di)
    'C',   #  导体的 VFIT 阶数
    'G',   #  接地阻抗
    'P',   # order=3, r0+d0*s+sum(ri/s+di)
    'Cw'
    'Ht'
    'Vs'
    'ls'
    'Nle'
    'Swh'
}
WireP = np.array([0.0,-0.4,10,0.0,-0.4,9.8,nan,0.1,0,0,58000000,1,1,0,20000,1.0,1.0,2.0
0.0,0.1,10,0.0,0.1,9.8,nan,0.1,0,0,58000000,1,1,0,20000,2.0,3.0,4.0
0.0,0.6,10,0.0,0.6,9.8,nan,0.1,0,0,58000000,1,1,0,20000,3.0,5.0,6.0
0.0,-0.4,9.8,0.0,0.0,9.8,nan,0.1,0,0,58000000,1,1,0,20000,4.0,7.0,8.0
0.0,0.1,9.8,0.0,0.0,9.8,nan,0.1,0,0,58000000,1,1,0,20000,5.0,9.0,8.0
0.0,0.6,9.8,0.0,0.1,9.8,nan,0.1,0,0,58000000,1,1,0,20000,6.0,10.0,9.0
0.0,0.0,10.5,0.0,0.0,9.8,nan,0.1,0,0,58000000,1,1,0,20000,7.0,11.0,8.0
0.0,0.0,9.8,0.0,0.0,0.0,nan,0.1,0,0,58000000,1,1,0,20000,8.0,8.0,12.0
0.0,-0.4,10,0.5,0.0,1,nan,0.1,0,0,58000000,1,1,0,20000,9.0,1.0,13.0
0.0,0.1,10,0.5,0.0,1,nan,0.1,0,0,58000000,1,1,0,20000,10.0,3.0,14.0
0.0,0.6,10,0.5,0.0,1,nan,0.1,0,0,58000000,1,1,0,20000,11.0,5.0,15.0
0.0,0.0,9.8,0.5,0.0,1,nan,0.1,0,0,58000000,1,1,0,20000,12.0,8.0,16.0
])

Bran= {
    'list',
    'listdex',
    'pos'
```

```
        'num'
    }

Node = {
    'list',
    'listdex',
    'pos'
    'num'
    'com'
    'condex'
}

Meas= {
    'list',
    'listdex',
    'pos'
}

T2Smap={
    'head'
    'hspn'
    'hsid'
    'tail'
    'tspn'
    'tsid'
}

T2Cmap={
    'head'
    'hspn'
    'hsid'
    'tail'
    'tspn'
    'tsid'
}

Soc = {

}
```