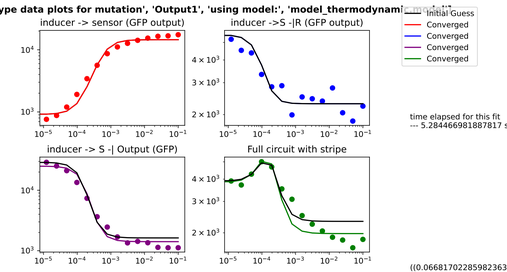
**['SM data type data plots for mutation', 'Output1', 'using model:', 'model_thermodynam**




time elapsed for this fit
--- 5.284466981887817 seconds ---

((0.06681702285982363, 0.06681702285982363), (5.466972031538808e-07, 5.466972031538808e-07), (18145.274574067 76, 18145.274574067 76), (381988244.4333938, 381988244.4333938), (14589.087744354982, 14589.087744354982), (0.40066868978976133, 0.40066868978976133), (0.009732436968536 63, 0.009732436968536 63), (8.404183514288889e-05, 8.404183514288889e-05), (587629.7486661357, 587629.7486661357), (0, None), (0, None), (0, None), (0, None), (1.4826334558626444, 1.4826334558626444))

Across all four plots:

RSS (converged)=0.28

RSS (initial)=0.355

RSS (% reduction)=0.559

```
             epsilon  Initial_guesses     Converged
P_b   0.000000e+00     6.681702e-02  6.681702e-02
P_u   0.000000e+00     5.466972e-07  5.466972e-07
K_12  0.000000e+00     1.814527e+04  1.814527e+04
C_pa  0.000000e+00     3.819882e+08  3.819882e+08
A_s   0.000000e+00     1.458909e+04  1.458909e+04
P_r   0.000000e+00     4.006687e-01  4.006687e-01
C_pt  0.000000e+00     9.732437e-03  9.732437e-03
K_t   0.000000e+00     8.404184e-05  8.404184e-05
A_r   0.000000e+00     5.876297e+05  5.876297e+05
P_o   2.191634e+11     2.011834e+12  2.230997e+12
C_pl  2.552535e-03     1.968035e-02  2.223289e-02
K_l  -5.230096e-07     1.281986e-06  7.589769e-07
A_o  -5.013232e+04     1.760143e+05  1.258820e+05
F_o   0.000000e+00     1.482633e+00  1.482633e+00
```

```
message: Optimization terminated successfully.
success: True
 status: 0
    fun: 0.280142079250172 5
      x: [ 6.682e-02  5.467e-07 ...  1.259e+05  1.483e+00]
    nit: 679
   nfev: 1493
 final_simplex: (array([[ 6.682e-02,  5.467e-07, ...,  1.259e+05,
                          1.483e+00],
                       [ 6.682e-02,  5.467e-07, ...,  1.259e+05,
                          1.483e+00],
                       ...,
                       [ 6.682e-02,  5.467e-07, ...,  1.259e+05,
                          1.483e+00],
                       [ 6.682e-02,  5.467e-07, ...,  1.259e+05,
                          1.483e+00]]), array([ 2.801e-01,  2.801e-01, ...,  2.801e-01,  2.801e-01]))
```