

h	$f(k + h)$	$f(k - h)$	Δf	$\partial f / \partial Ki_th(fw)$	$\partial f / \partial Ki_th(cen)$
10^{-1}	3.011902417	3.016203099	0.0009693460396	0.009693460396	-0.02150341267
10^{-2}	3.010460397	3.011028127	-0.0004726736336	-0.04726736336	-0.028386487
10^{-3}	3.010846073	3.010549405	-8.699745424e-05	-0.08699745424	0.1483341036
10^{-4}	3.010635641	3.010677394	-0.0002974296922	-2.974296922	-0.2087655522
10^{-5}	3.010970354	3.010895666	3.728382372e-05	3.728382372	3.734438478
10^{-6}	3.010936804	3.010929341	3.733752237e-06	3.733752237	3.731609023
10^{-7}	3.010933444	3.010932703	3.73433096e-07	3.73433096	3.706388725
10^{-8}	3.010933108	3.010933033	3.734984944e-08	3.734984944	3.733570098
10^{-9}	3.010933074	3.010933072	3.732961495e-09	3.732961495	0.9301128756
10^{-10}	3.010933071	3.010933076	3.734585974e-10	3.734585974	-24.29550561
10^{-11}	3.010933071	3.010933071	3.885425315e-11	3.885425315	3.885114452
10^{-12}	3.010933071	3.010933071	4.952482868e-12	4.952482868	4.853895064
10^{-13}	3.010933071	3.010933071	0	0	-0.5373479439
10^{-14}	3.010933076	3.010933071	5.60076252e-09	560076.252	280039.6137
10^{-15}	3.010933071	3.010933071	0	0	0
10^{-16}	3.010933071	3.010933071	0	0	0
10^{-17}	3.010933071	3.010933071	0	0	0
10^{-18}	3.010933071	3.010933071	0	0	0
10^{-19}	3.010933071	3.010933071	0	0	0
10^{-20}	3.010933071	3.010933071	0	0	0
10^{-21}	3.010933071	3.010933071	0	0	0
10^{-22}	3.010933071	3.010933071	0	0	0

Table 1: Step size study for Ki_th, gains Kph0.0544697_Kih0.0076355_Kpth1.6802_Kith2.01171_Kdth-1.64786_KpV2.05882