

$h$	$f(k+h)$	$f(k-h)$	$\Delta f$	$\partial f / \partial Kp\_h(fw)$	$\partial f / \partial Kp\_h(cen)$
$10^{-1}$	—	—	—	—	—
$10^{-2}$	3.660184895	4.188900746	0.649251824	64.9251824	-26.43579257
$10^{-3}$	2.98921458	3.038949284	-0.02171849092	-21.71849092	-24.86735209
$10^{-4}$	3.008637763	3.013091788	-0.002295307343	-22.95307343	-22.2701223
$10^{-5}$	3.010396061	3.010866503	-0.0005370091387	-53.70091387	-23.52205981
$10^{-6}$	3.010946055	3.010920014	1.298432543e-05	12.98432543	13.02045775
$10^{-7}$	3.010934378	3.010931768	1.307531608e-06	13.07531608	13.05117726
$10^{-8}$	3.010933201	3.01093294	1.302322987e-07	13.02322987	13.02323585
$10^{-9}$	3.010933084	3.010933058	1.302527908e-08	13.02527908	13.02517849
$10^{-10}$	3.010933072	3.010933069	1.306585062e-09	13.06585062	13.0400446
$10^{-11}$	3.010933071	3.010933076	1.347957301e-10	13.47957301	-266.8232968
$10^{-12}$	3.010933071	3.010933071	1.34914302e-11	13.4914302	13.43480882
$10^{-13}$	3.010933071	3.010933071	3.854694341e-12	38.54694341	13.12727704
$10^{-14}$	3.010933071	3.010933071	4.916511642e-12	491.6511642	237.1658425
$10^{-15}$	3.010933076	3.010933071	5.615786058e-09	5615786.058	2807889.921
$10^{-16}$	3.010933071	3.010933071	5.000000414e-12	50000.00414	25028.86787
$10^{-17}$	3.010933071	3.010933071	5.000000414e-12	500000.0414	-599.5204333
$10^{-18}$	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  $Kp\_h$ , gains  $Kph0.0544697\_{Kih0.0076355\_{Kpth1.6802\_{Kith2.01171\_{Kdth-1.64786\_{KpV2.05882}}$