|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Info type | P Controller | PD Controller | PI Controller | PID Controller | PIDF Controller | PDF Controller |
| Rise Time | 0.05885 | 0.038187 | 0.10877 | 0.071248 | 0.070981 | 0.037973 |
| Settling Time | 0.57336 | 0.21607 | 0.49079 | 0.31512 | 0.31561 | 0.21564 |
| Settling Min | 0.54317 | 0.67301 | 0.91204 | 0.91183 | 0.92306 | 0.6704 |
| Settling Max | 0.89389 | 0.92504 | 1.0976 | 1.0682 | 1.0672 | 0.92392 |
| Overshoot | 37.1986 | 24.5415 | 9.7624 | 6.8172 | 6.7243 | 24.732 |
| Undershoot | 0 | 0 | 0 | 0 | 0 | 0 |
| Peak | 0.89389 | 0.92504 | 1.0976 | 1.0682 | 1.0672 | 0.92392 |
| Peak Time | 0.15077 | 0.089999 | 0.23085 | 0.14184 | 0.14025 | 0.089887 |
| Umax | 437.7165 | Inf | 310.6495 | Inf | 30872.26 | 93632.65 |
| EssStep | 0.34847 | 0.25725 | 0 | 0 | 0 | 0.25927 |
| EssRamp | Inf | Inf | -0.10418 | -0.05646 | -0.05708 | Inf |
| Gm | 9.8811 | Inf | 11.1148 | Inf | 38.4646 | 39.8322 |
| Pm | 60.0521 | 60.0086 | 60 | 60.0008 | 60.0003 | 60 |
| Wcg | 34.4987 | Inf | 27.1423 | Inf | 217.0343 | 327.1503 |
| Wcp | 18.3519 | 30.8153 | 10.9777 | 19.7042 | 19.7044 | 30.8196 |
| Vm | 0.53443 | 0.69208 | 0.58396 | 0.69222 | 0.68836 | 0.689 |
| Wvm | 26.5172 | 46.2437 | 18.7948 | 31.7808 | 31.8196 | 46.2806 |
| Smax | 1.8712 | 1.4449 | 1.7124 | 1.4446 | 1.4527 | 1.4514 |

% The output is a structure containing the following fields:

%

% RiseTime --> Time it takes the system to rise from 10% to 90% of the

% final value.

% SettlingTime --> Time it takes the system to settle to within 2% of the

% final value.

% SettlintMin --> Minimum value of output once the response has risen.

% SettlingMax --> Maximum value of output once the response has risen.

% Overshoot --> Percent overshoot relative to the final value.

% Undershoot --> Percent undershoot

% Peak --> Peak absolute value of output.

% PeakTime --> Time where Peak occurs.

% Umax --> Peak control effort for unit step input

%

% EssStep --> Steady state error for a unit step input

% EssRamp --> Steady state error for a unit ramp input

%

% Gm --> Gain margin in dB

% PM --> Phase margin in degrees

% Wcg --> Gain crossover frequency in rad/s

% Wcp --> Phase crossover frequency in rad/s

% Vm --> Vector margin

% Wvm --> Vector margin frequency

%

% Smax --> Peak sensitivity