# static_error_K(sys)

Finds the static error constants of a system.

```
s = tf('s');

G = (s+1)/(s^2+3*s)
```

```
G =

    s + 1
  ---------
  s^2 + 3 s

Continuous-time transfer function.
```

```
ELAB.static_error_K(G, true)
```

```
Static error constants:
  Position:
    As s -> 0, G(s) -> K_p = Inf
  Velocity:
    As s -> 0, s*G(s) -> K_v = 0.33
  Acceleration:
    As s -> 0, s^2*G(s) -> K_a = 0.00
Steady-state error e_ss:
  Step: 0  Ramp: 1/K  Accel: Inf
ans = Inf
```

```
G = (s+2)*(s+3)/((s+1)*(s+4))
```

```
G =

  s^2 + 5 s + 6
  -------------
  s^2 + 5 s + 4

Continuous-time transfer function.
```

```
ELAB.static_error_K(G, true)
```

```
Static error constants:
  Position:
    As s -> 0, G(s) -> K_p = 1.50
  Velocity:
    As s -> 0, s*G(s) -> K_v = 0.00
  Acceleration:
    As s -> 0, s^2*G(s) -> K_a = 0.00
Steady-state error e_ss:
  Step: 1/(1+K)  Ramp: Inf  Accel: Inf
ans = 1.5000
```

```
G = (s^4+4*s^3+3*s^2+s)/(3*s^4+6*s^3+2*s^2)
```

```
G =

  s^4 + 4 s^3 + 3 s^2 + s
```

```
  ----------------------
   3 s^4 + 6 s^3 + 2 s^2

Continuous-time transfer function.
```

```
ELAB.static_error_K(G,true);
```

```
Static error constants:
  Position:
    As s -> 0, G(s) -> K_p = Inf
  Velocity:
    As s -> 0, s*G(s) -> K_v = 0.50
  Acceleration:
    As s -> 0, s^2*G(s) -> K_a = 0.00
Steady-state error e_ss:
  Step: 0  Ramp: 0  Accel: 1/K
```