|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **PI COMPENSATOR OF A BUCK CONVERTER** | | | | | | | | |
| **Various Detected Faults PI controller in the presence of faults with deviations ( >5% )** | | | | | | | | |
| **Injected Faults** | **=500** | | | | **=1000** | | | |
| **Optimal Order – 6th, =0.0162** | | **Optimal Order – 7th, =0.0161** | | **Optimal Order – 6th, =0.0164** | | **Optimal Order – 7th, =0.0162** | |
| **No. of Coefficients Out of Bound** | **Fault Detection Status** | **No. of Coefficients Out of Bound** | **Fault Detection Status** | **No. of Coefficients Out of Bound** | **Fault Detection Status** | **No. of Coefficients Out of Bound** | **Fault Detection Status** |
| Rf1 2%**↓** | 0 | **X** | 0 | **X** | 0 | **X** | 0 | **X** |
| Rf2 1% **↑** | 0 | **X** | 14 | **√** | 0 | **X** | 14 | **√** |
| R1 3% **↑** | 0 | **X** | 0 | **X** | 0 | **X** | 1 | **√** |
| Chf 3% **↓** | 0 | **X** | 12 | **√** | 0 | **X** | 14 | **√** |
| Rcomp1 2.5%  **↑** | 0 | **X** | 34 | **√** | 0 | **X** | 12 | **√** |
| Rcomp 3.5% **↓** | 0 | **X** | 0 | **X** | 0 | **X** | 0 | **X** |
| Ccomp2% **↑** | 0 | **X** | 15 | **√** | 0 | **X** | 11 | **√** |
| R1 2% **↓** | 0 | **X** | 0 | **X** | 0 | **X** | 0 | **X** |
| Rcomp1 1.5% **↓** | 0 | **X** | 0 | **X** | 0 | **X** | 1 | **√** |
| Rcomp 2%**↑** | 0 | **X** | 0 | **X** | 0 | **X** | 0 | **X** |