

Lead Controller Design Using Frequency Response

General Procedure

1. Choose K to get desired bandwidth spec w/o lead
2. Choose lead zero and pole to get desired PM
 - ▶ in general, we should first check PM with the K from 1, w/o lead, to see how much more PM we need
3. Check design and iterate until specs are met.

This is an intuitive procedure, but it's not very precise, requires trial & error.