Use Case: Derating Control

Scope:

This function is responsible about derating of the inverter. The Motor Control Derating functionalities consider;

- Operating range of the electric motor
- Temperature of the electric motor
- Temperature of the inverter
- Power limits

Inputs/Outputs/Tunable Parameters:


Microsoft Excel Worksheet

Task:

Could you prepare the motor control derating algorithm in Matlab/Simulink?

Could you explain the steps you are following?

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Requirements:

- Inputs separated for motor operation and generator operation.
- Derated torque values coming from different function taken as input.
- Minimum of these inputs for the motor operation goes to gradient limiter and then goes to output as derated torque for motor operation.
- Maximum of these inputs for the generator operation goes to gradient limiter also and then goes to output as derated torque for generator operation.
- After the limit calculation please use a block to arbitrate in the model.
- Derated factor is calculated as requested torque divided by derated request torque.
- Also, derating status shall calculate in the subsystem. This signal indicates the which derating done according to which part or parts of the system. It is done by comparing the torque map output and derated torque signals coming from different parts of the system. Status signal is 16 bit signal and each bit is related with different part of the derating function.