

DotX Wind Turbine Controller (DWTC)

Introduction

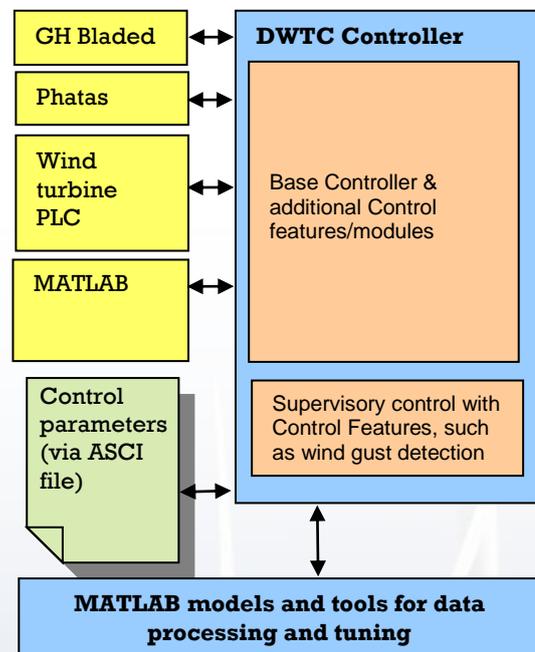
The DotX Wind Turbine Controller (DWTC) is a certification ready controller that minimises both fatigue and ultimate loads, while optimizing power output. The benefits of this controller are:

- optimal Power – wind Velocity (PV) curve
- same controller, coded in ANSI C, is directly applicable in load calculations and in wind turbine PLC
- fully tested in the field and in commercial wind turbines

Controller details

The controller has different control modules/features which can be switched on or off, among which:

- Optimal power and generator speed control
- Individual Pitch Control (0P, 1P and 2P) for reducing loads on the nacelle and blades
- Active tower motion damping to reduce tower fatigue
- Active drive train damping to reduce fatigue of the drive train
- Finite-State Machine based supervisory control
- Extreme wind gust detection and control for ultimate load reduction
- Model based fault detection (reducing ultimate loads)
- Additional control features: DotX continues to develop new control features to reduce both DEFL and extreme loads, and improve power production. Please check out our website for an overview of the current ones, and their effect on loads and performance.



Tuning features

Several tools are available for tuning:

- Automatic generation of initial tuning settings
- Offline data analysis tools for fine-tuning, such as FFT
- Pre-defined notch filters, low pass filters, etc.
- Optional logging of all internal controller states and signals for improved data analysis
- Automatic test signal generation for wind turbines in the field, to compare field tests with model tests