

Small Wind Turbines

The International Electrotechnical Commission (IEC) has recently published the Third Edition of IEC 61400-2 (Wind turbines- Part 2: Small wind turbines).

The standard applies to wind turbines with a rotor swept area smaller than or equal to 200 m², generating electricity at a voltage below 1 000 V a.c. or 1 500 V d.c. for both on-grid and off-grid applications.

IEC 61400-2 deals with safety philosophy, quality assurance, and engineering integrity. It specifies requirements for the safety of small wind turbines (SWTs) including design, installation, maintenance and operation under specified external conditions. Its purpose is to provide the appropriate level of protection against damage from hazards from these systems during their planned lifetime.

The standard is concerned with all subsystems of SWTs such as protection mechanisms, internal electrical systems, mechanical systems, support structures, foundations and the electrical interconnection with the load. A small wind turbine system includes the wind turbine itself including support structures, the turbine controller, the charge controller / inverter (if required), wiring and disconnects, the installation and operation manual(s) and other documentation.

The Third Edition of IEC 61400-2 constitutes a technical revision. This edition includes the following significant technical changes with respect to the previous edition:

- The title has been modified to better reflect the scope;
- Restructured into part I (design evaluation) and part II (type testing) to harmonise use with IEC 61400-22 conformity testing and certification;
- Caution provided regarding the use of simplified equations;
- Added annex on other wind conditions;
- Added annex on tropical storms;
- Added annex on extreme environmental conditions;
- Added annex on EMC testing;
- Added annex on dynamic behaviour;
- Duration testing requirements modified;
- Added annex on standardised format consumer label;

IEC 61400-2, Third Edition, may be purchased from the National Standards Authority of Ireland. For further information, visit www.standards.ie.