

# UNITROL® 6000 Excitation systems

Setting the standard in technology  
and availabilityand availability



- Industry benchmark in availability
- Ultimate control performance keeps synchronous machine within safe limits
- Guaranteed grid code compliance through advanced PSS options, validated models and simulation services
- Hardware in the Loop simulator, to expedite tuning and site-testing
- Simple system operation, monitoring, and maintenance
- Pro-active life cycle management throughout the complete life-span of the equipment
- 24/7/365 technical support always within your reach, utilizing remote access platforms

# Setting the standard

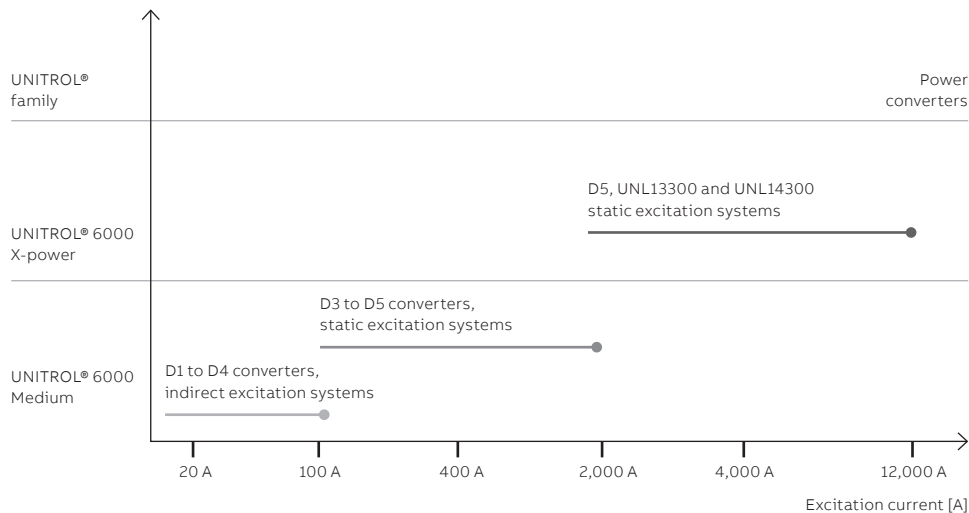
ABB UNITROL® excitation systems are a key component in many power generating units used by plant owners and operators to achieve reliability of operations, stability, and fast transient response of their assets, as per grid requirements.

The UNITROL® 6000 excitation systems series is specifically designed to serve a wide range of applications:

- Generators: steam, gas, nuclear and hydro power plants, nuclear emergency diesel
- Motors: steel mills, pulp and paper, chemical, natural gas production plants, refineries

UNITROL® 6000 for indirect and static excitation systems comes in the following versions:

- UNITROL® 6000 Medium
- UNITROL® 6000 X-power



# Hardware components

The system is based on the AC 800PEC high-performance processor family. It is an extension of ABB's 800xA control platform, developed to meet the fast control requirements of power electronics.

## Control

The AC 800PEC control system excels in very high processing speed, providing:

- Fast analog and digital process I/Os with a typical cycle time of 400  $\mu$ s
- Fast closed-loop control and regular process logic implemented in a single controller
- Low-speed I/Os with a typical cycle time of 10 ms
- Very fast programmable logic for converter pulse control and optical communication with cycle time down to 25 ns

## Power converter

The power converter of each channel is selected to meet the system requirements with respect to maximum field current and voltage. Stringent availability requirements are fulfilled with up to three redundant channels and provisions for online maintenance (optional). ABB has developed a range of thyristor power converters dedicated to direct (static) and indirect excitation systems, for example D1 to D5, UNL13300 and UNL14300.

## Main features (D1 to D5)

- Single- or three-phase AC supply voltage up to 1,080 V
- Rated supply frequency from 50 to 480 Hz (16 $\frac{2}{3}$  Hz on request)
- Low noise level of cooling fans  $\leq 70$  dB(A)
- Compact, fully integrated converter and control with an integrated service panel

## Main features (UNL14300)

- AC supply voltage up to 1,500 V
- High insulation test voltages up to 7.5 kV
- Low noise level of cooling fans  $\leq 70$  dB(A)
- Active current balance control
- Optional:
  - Redundant fans, replaceable during operation
  - "Draw-out" design for safe online repair and function tests

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01 D1–D5 power  
converter

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02 UNL14300  
power converter

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01

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02



# Service and support

For life cycle management or technical support, the worldwide network of UNITROL® specialists is at your service.

## Installation and commissioning

The professionalism, extensive experience, and multilingual skills of ABB's engineers ensure satisfactory installation and commissioning.

## Training

ABB University offers standard and customized training courses for UNITROL® 6000 excitation systems. Virtual and on-site training options are available. For detailed training programs, visit [www.abb.com/abbuniversity](http://www.abb.com/abbuniversity).

## Life cycle management

ABB's excitation systems life cycle management model helps the customers extend and maximize the life cycle of their assets at minimum costs. Depending on the product's life cycle phase, the service specialists recommend necessary

actions and approach the clients proactively to inform them of all maintenance, service, and upgrade requirements. We have a comprehensive Excitation Care program to cover all customer maintenance needs.

Examples of life cycle services:

- Technical support for optimized reliability
- Remote services
- Maintenance and repairs
- Extension, upgrades, and retrofits

Complete life cycle services are guaranteed for the active and classic phases. As soon as the system enters the limited phase, it is recommended to start planning an upgrade, or retrofit the equipment with ABB's latest technology.

