

IDS[®] WIND CONVERTER

IDS[®] AERO SG Converter Series

1500 kW to 5000 kW for Synchronous Generator (SG)



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- Compact Converter Including Latest Technology for SG
- High Efficiency: >97%
- Enhanced Temperature Range: -40°C to +50°C
- Extended Elevation up to 3500m above Sea Level (High Altitude Version HAV)
- Various Fault Ride Through Codes

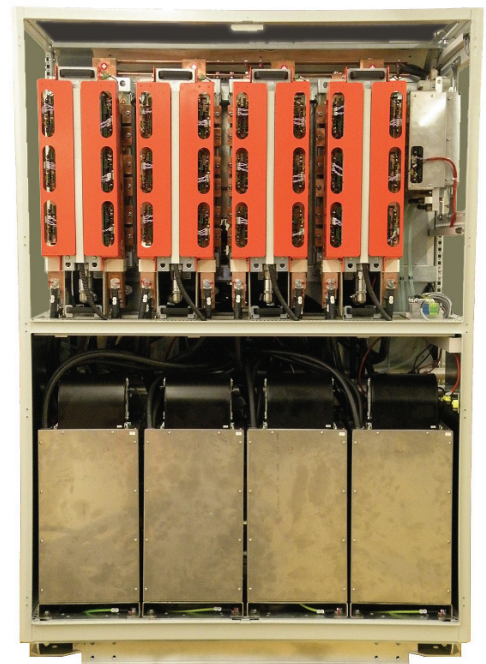
The IDS AERO SG wind turbine converter series with liquid cooling is used in grid connected wind energy applications. To minimize power loss during the conversion process, the IDS AERO SG converter's switching technology uses IGBTs.

IDS technology is approved in many years of net feeding applications especially in weak grid regions. All components and control algorithms have proven high efficiency and stability under demanding conditions. The IDS AERO SG converters are delivered fully parameterized and ready for use.

Gearless wind turbines are equipped with heavy slow speed permanently or electrically excited synchronous generators. Due to this concept they can operate within a wide speed range. IDS converter solutions for gearless wind turbines are in operation since 2001.

Features

- Available within a power range of 1.5 MW – 5 MW
- Power factor at nominal power, adjustable from 0.9 to 1 (inductive / capacitive)
- Grid: 690 VAC nominal voltage, from 1255 - 4185 A
- Efficiency > 97.0 %
- Remote Diagnostics (24 H / 7d) increases the reliability of the system by monitoring its parameter
- Fault Ride Through (FRT) function included and available for different country codes
- Assembled with standardized and successfully field tested IDS base modules: Due to this strategy converters with different size and options can be optimized to the customer's requirements in a very short time



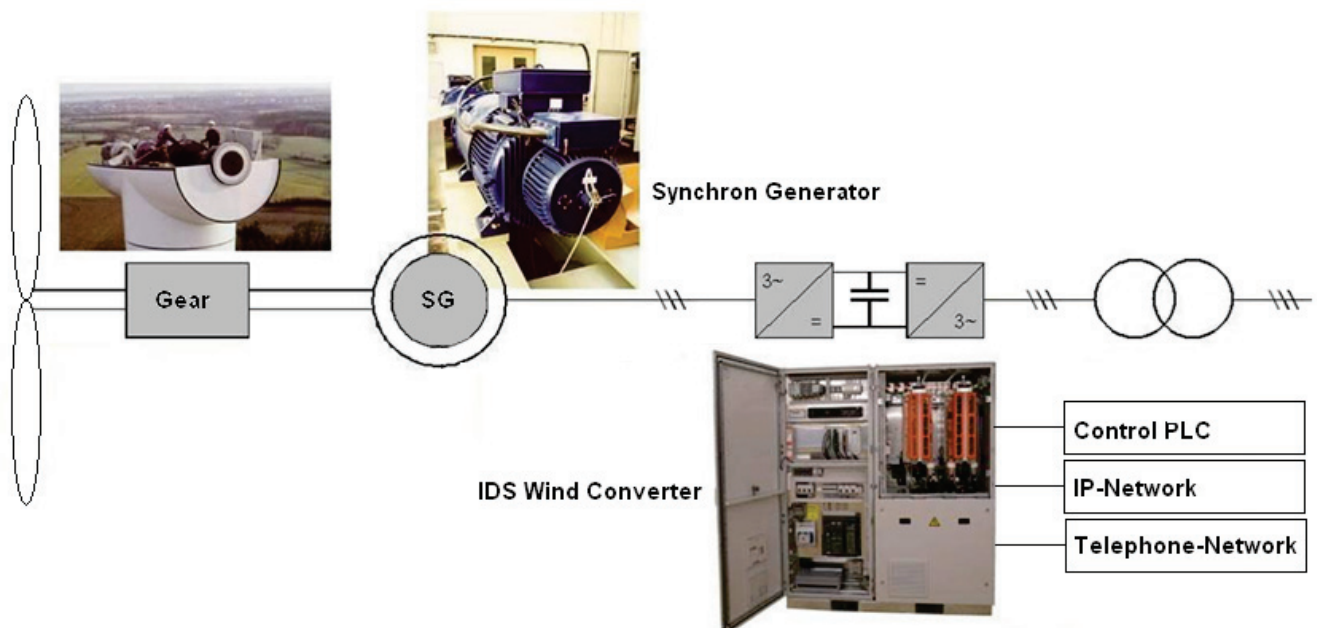
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IDS[®] AERO SG System



System Advantages

- Active drive train compensation for mechanical oscillation damping
- Active harmonics compensation
- Automatic grid voltage control (AVR)
- The converter controls the reactive power (power factor, leading and lagging)
- Tested with a wide range of generator suppliers
- System compatibility with energy storage systems
- Highly reliable due to advanced control strategies
- Monitoring, diagnostics and parameter setting by communication interface
- Internal or external power supply for control
- Operation password protected in several access levels
- Variable rotor voltage / frequency control by the converter
- No inrush current during grid connection
- The converter controls power and torque of the generator following a torque setpoint from the turbine control system (PLC)
- Reduction of mechanical stress by drive train oscillation damping
- Extended ambient temperature range (-40°C... +50°C)
- High altitude version for installation height up to 3500 m above sea level without derating
- Customer tailored service and maintenance contract

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Converter Advantages

- Compact cabinet
- Monitored surge protectors on line side
- Residual current protection
- Wide voltage operation range
- Monitoring interface: TCP/IP, GSM or line modem, VCU Display
- Communication interface: CANopen, Interbus, Profibus
- Protection class IP44,54,65 optionally according to customer requirements

Converter Components

- IGBT power stacks with capacitor bank
- Rectifier and DC/DC converter (depending on topology)
- Pre-charge unit
- Brake unit
- Grid circuit breaker
- Grid filter (with optional water cooled filter resistors and inductors)
- Control unit
- Excitation unit
- Optional surge protector unit for reliable
- Protection of semiconductors against short transient grid overvoltage.

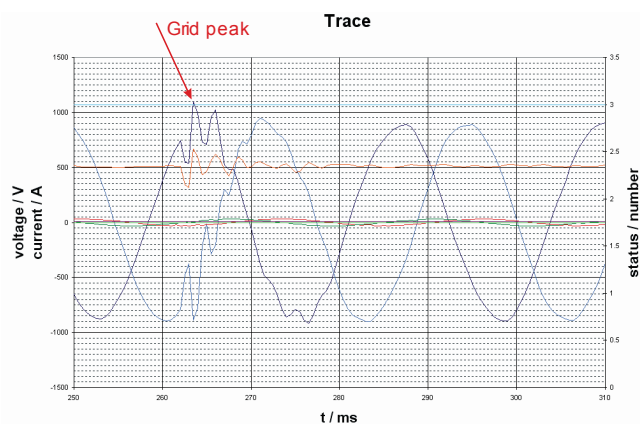
Remote Diagnostics, 24 hours / 7 days possible

The IDS AERO converter is designed to work maintenance free over the lifetime in the specified wide working range. Nevertheless experience with the grid quality shows that extreme situations can occur.

IDS offers a full service to guarantee the highest possible system availability. You do not have to worry about warning messages of your inverter. IDS experts continuously monitor your system remotely and start adequate actions. Many problems can even be diagnosed before a system actually fails.



IDS - Remote Diagnostics Center



Example of a Fault Record with Grid Voltage Peaks

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IDS[®] MMI and Remote Diagnostics

IDS IntegralDrive32 software running on a laptop computer communicates with the DCS control unit, thus enabling parameter setting and diagnostics. The IDS Remote Diagnostic System communicates with the DCS control unit via a communication interface. Power yield, parameters and system status can be read out from a Remote Diagnostic Center.

Available Versions

Converter Types	Nominal AC Power [kW]	Grid Voltage [V AC]	Dimensions L x W x H [mm]	Weight [tons]
AERO 2000 SG	1500-2000	690	1460 x 1340 x 2100	2.3 - 2.8
AERO 2000 SG-HAV	1500-2000	690	1460 x 1340 x 2100	2.3 - 2.8
AERO 2000 SG-OS	1500-2000	690	1460 x 1340 x 2100	2.3 - 2.8
AERO 3000 SG	2500-3000	690	2120 x 1340 x 2100	3.4 - 3.9
AERO 3000 SG-HAV	2500-3000	690	2120 x 1340 x 2100	3.4 - 3.9
AERO 3000 SG-OS	2500-3000	690	2120 x 1340 x 2100	3.4 - 3.9
AERO 4000 SG	3500-4000	690	2590 x 1340 x 2100	4.5 - 5.0
AERO 4000 SG-HAV	3500-4000	690	2590 x 1340 x 2100	4.5 - 5.0
AERO 4000 SG-OS	3500-4000	690	2590 x 1340 x 2100	4.5 - 5.0
AERO 5000 SG	4500-5000	690	2920 x 1340 x 2100	5.6 - 6.1
AERO 5000 SG-HAV	4500-5000	690	2920 x 1340 x 2100	5.6 - 6.1
AERO 5000 SG-OS	4500-5000	690	2920 x 1340 x 2100	5.6 - 6.1

Note:

SG: for Synchronous Generator

HAV: for High Altitude Version (extended elevation range up to 3500m)

OS: for Offshore installations

Subject to change, August 2010

Ordering Information

For technical or commercial information please contact the IDS sales office

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