

GH Bladed

GH Bladed Price List

GH Bladed is an integrated software package with a Windows-based graphical user interface which allows the user to carry out the full range of performance and loading calculations required for the design and certification of wind turbines, both onshore and offshore. The software is supplied as a base module with a series of optional modules available to meet the specific requirements of each client.

Base Module

Provides a full aeroelastic model of a wind turbine with multiple configuration options for all major components and systems including a monopile offshore support structure. Includes interface to an external user-defined controller, and models of electrical connection to the network. Comprehensive modelling of wind and marine environmental conditions, and calculation capabilities including modal analysis, steady state performance and loads, dynamic simulation of loading and response for all turbine states and fault conditions. The base module also provides powerful batch, post-processing, graphics and reporting facilities.

Price: £30,000

Linearisation Module

Derives a linearised model of the wind turbine in state space form. The linearised model may be calculated for a series of operating points and output in a form suitable for controller design using, for example, MATLAB.

Price: £4,500

Seismic Module

Allows the full aeroelastic model of the wind turbine to be excited by ground motion corresponding to an earthquake. Synthetic or measured earthquake events can be used as input and the resulting loads calculated taking full account of non-linear effects, such as the interaction of the turbine control and safety system and the rotor aerodynamics.

Price: £3,000

Hardware Test Module

Provides the capability for real time simulation so that GH Bladed can be used as a virtual wind turbine for the testing and commissioning of controller hardware. The module also offers interactive controller test plan creation and management, and automated test report generation.

Price: £14,000*

Advanced Processing Module

To meet the requirements of the new edition of the IEC 61400 design standard, this module provides the capability for extrapolation of ultimate loads to specified return period. For offshore calculations, a wind and wave scatter diagram can be used to automatically generate simulation batch lists and set up post processing. The module makes it much easier to set up multiple simulations to cope with the larger number of calculations required by the standard.

Price: £6,000

Advanced Transmission Interface Module

Allows GH Bladed simulations to include user-defined gearbox dynamics of arbitrary complexity. The user-defined gearbox models can be coded in any convenient language and are linked to GH Bladed through a well-documented DLL interface. The gearbox model may be non-linear and time-varying, and may include discontinuities, for example frictional stick-slip and backlash. Only torsional degrees of freedom are allowed initially.

Price: £6,000

Offshore Support Structure Module

Provides enhanced capability for modelling offshore wind turbines:

- Multiple member support structures; with particular application to deep water offshore turbine design, the user is able to specify an arbitrary 3D space frame support structure.
- Pile foundation model; to improve the modelling of pile foundations a 'P-Y' model is included, capable of modelling the non-linear stiffness of different soil strata at user-specified depths.

Price: £12,000

WindFarmer Link Module

Allows GH Bladed to link with GH WindFarmer providing a new approach to calculating wind turbine fatigue loads at specific wind farm sites. The approach offers a highly automated, rigorous and reliable treatment of wind farm wake and topographical effects and has been verified by Germanischer Lloyd WindEnergie.

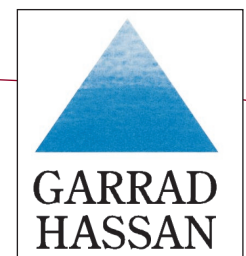
Price: £12,000

* This price excludes customisation of the controller test module to meet client specific requirements.

All prices are exclusive of VAT and are subject to our standard terms and conditions.

April 2009

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Australia, Canada, China, Denmark, England, France, Germany, India, Italy,
Japan, Mexico, Netherlands, New Zealand, Portugal, Scotland, Spain, Turkey, USA



Documentation

GH Bladed is supplied complete with comprehensive documentation consisting of on-line help, user manual and theory manual.

Language

The software and the documentation are supplied in English.

Discounts

Additional copies of GH Bladed are available at a discount. Please contact us concerning special rates for multiple copy or network options.

Training, Support and Upgrades

All software modules will be supported by expert staff on a full time basis.

Free on-line technical support for 12 months is included with the purchase of GH Bladed. During this period any upgrades will be made available to the user free of charge. Further technical support and upgrades to the software are available for an annual fee of 12.5% of the list price.

Full training in GH Bladed is available and can be tailored to meet your needs.

Educational Licence

An educational version of the GH Bladed base module is available to legitimate educational establishments. This version is suitable for teaching of wind turbine technology, has reduced capabilities relative to the commercial version of the code and is supplied without technical support and upgrades. Please contact us for more information regarding the educational version of Bladed.

Delivery (free)

The software is delivered to you free of charges for transportation, packaging and insurance. Any taxes or fees that may be levied by your government for the import of the software have to be paid by you or your import agent. Any taxes or fees levied by the government of the United Kingdom on the export of the software will be paid by us.

More Information

Futher details about GH Bladed are available from: www.garradhassan.com/products/ghbladed/

A demonstration version is available on request by email to: bladed@garradhassan.com

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GH BLADED ORDER FORM

Please send this form by email, post, or fax to the address below Orders will be processed on receipt of payment.

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 Website: www.garradhassan.com

Product/Module	Cost per copy	Number of copies*	Cost
Base Module	£30,000		
Linearisation Module #	£4,500		
Seismic Module #	£3,000		
Hardware Test Module †	£14,000		
Advanced Processing Module #	£6,000		
Advanced Transmission Interface Module #	£6,000		
Offshore Support Structure Module #	£12,000		
WindFarmer Link Module #	£12,000		
# Requires the Base Module			
* See section on discounts			
** All prices are exclusive of VAT and are subject to our standard terms and conditions.	VAT if applicable **		
† This price excludes customisation of the controller test module to meet client specific requirements.	TOTAL COST:		

April 2009

Payment either by cheque with your order in GBP, made payable to Garrad Hassan and Partners Ltd, or by bank transfer to: HSBC Bank plc, 2 Cannon Street, Bedminster, Bristol BS3 1BW, United Kingdom; Sort code: 40-05-15, Account number: 35452796, Swift code: MIDLGB22, Account name: Garrad Hassan and Partners Ltd. IBAN: GB92 MIDL 4005 1535 4527 96

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VAT registration number (required for EU orders)

Name of main user Email

Please provide the name and email address of your software Licence Form signatory, if different from above.

Name of signatory Email