

Improved GE 1.X phase modules

Smarter retrofit choice
for GE 1.X turbines

CONVERTING TODAY INTO

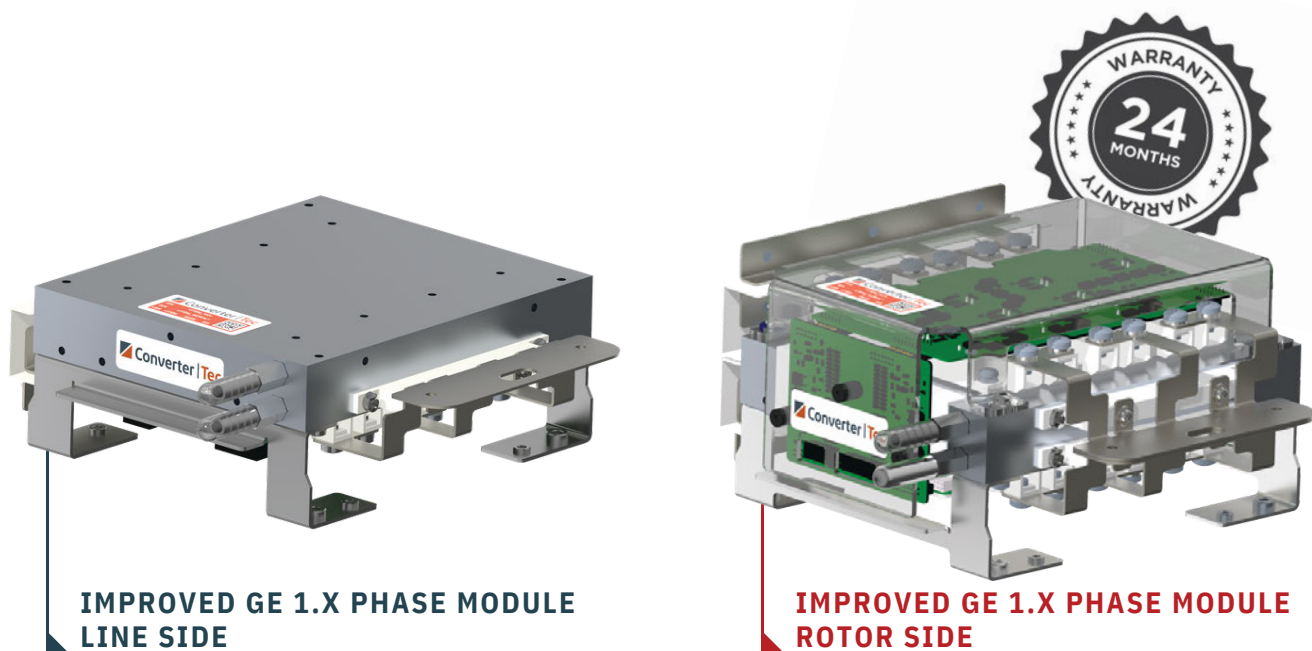
A GREENER TOMORROW

Designed to perform. **Built to last.**

GE 1.X turbines remain a core part of the global wind fleet. As these assets age, frequency converters are exposed to thermal stress, component fatigue, and spare-part challenges.

ConverterTec’s improved GE 1.X phase modules are engineered to address these realities. They combine state-of-the-art IGBT technology with validated design improvements to support higher availability, reduced operating stress, and extended converter longevity.

Developed as a retrofit solution for GE 1.X converters, the modules integrate seamlessly into existing systems while delivering measurable performance and reliability improvements over the original design.



Compatible **replacement references**

CT No.	Description		GE equivalent*
I-07460	IGBT - Line Side	Non-ESS GE 1.x	107W7460P001 104W4628P001 107W7458P001
I-07461	IGBT - Rotor Side	Non-ESS GE 1.x	107W7461P001 104W4629P001 107W7459P001
I-07462	IGBT - Line Side	ESS GE 1.x	107W7462P001 104W5419P001
I-07463	IGBT - Rotor Side	ESS GE 1.x	107W7463P001 104W5420P001

*commercial designation of GE

Direct replacement, **engineered for long-term operation.**

FIELD TESTED PERFORMANCE

Validated under real turbine conditions with zero module failures recorded to date.

PLUG-AND-PLAY INSTALLATION

Engineered as a true drop-in solution without rewiring, adapters, or software changes.

STATE-OF-THE-ART IGBT TECHNOLOGY

Modern semiconductor and driver design for superior electrical performance.

HIGHER AVAILABILITY AND EXTENDED LIFETIME

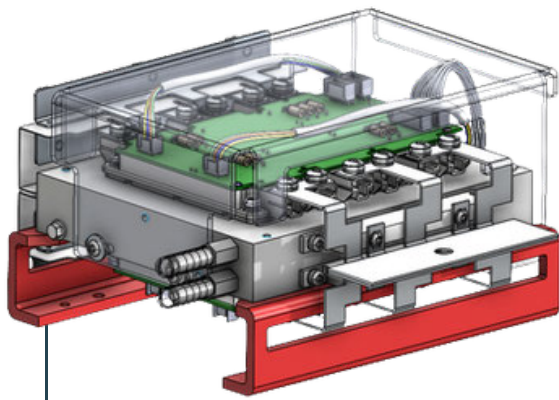
Reduced thermal and electrical stress supports longer service life.

COST-EFFICIENT RETROFIT ALTERNATIVE

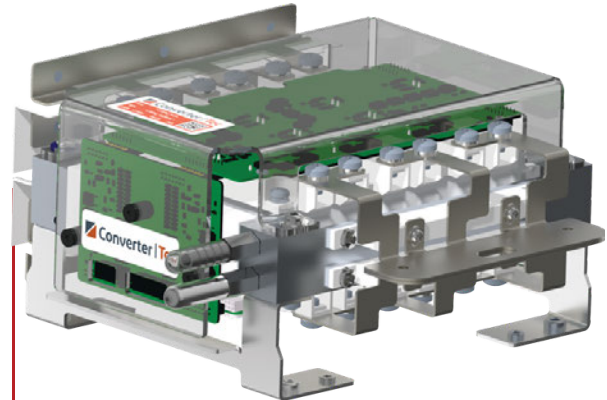
Strong performance without the cost and complexity of full converter replacement.

ESS AND NON-ESS COMPATIBILITY

Rotor- and line-side versions available for full GE 1.X coverage.



**ORIGINAL
REFERENCE PART**



**CONVERTERTEC REPLACEMENT
MODULES**

Our GE 1.X phase modules are engineered as a true 1:1 retrofit solution, allowing fast replacement without converter redesign. The modules integrate into the existing converter architecture and follow the same replacement logic familiar to service teams. At the same time, their internal design is optimized to support long-term operation and future serviceability.

Fast replacement

Plug-and-play replacement, installed exactly like the original module.

No system changes

No rewiring, no software updates, and no parameter changes required.

Built to extend asset value

Modern IGBT and PCB design supports reliable operation and longer converter lifetime.

Improvements that deliver measurable benefits

Lower junction temperatures for extended converter lifetime

Approximately 30 % higher thermal energy dissipation compared to the OEM solution results in enhanced cooling efficiency and improved thermal performance under operating conditions.

Higher efficiency with lower operating stress

Reduced electrical and thermal losses enable more efficient operation and lower stress on power-electronic components.

Greater electrical stability and reduced component fatigue

Up to 65–68 % reduction in overshoot behavior leads to smoother switching, reduced oscillations, and lower electrical stress.

Improved energy conversion efficiency over time

State-of-the-art IGBT and driver technology can increase electrical efficiency, supporting higher energy yield.

Reliable mixed-module operation

Stable current sharing ensures reliable operation in configurations combining original and ConverterTec modules.

Simplified internal design for safer installation and operation

In-house developed circuit boards replace cable routing via IGBTs, reducing fault-current risks and improving robustness.

These improvements translate into extended converter lifetime, reduced failure risk, and more stable operation across the turbine lifecycle.

Performance comparison

Parameter	Original referencen	ConverterTec replacement
Thermal margin	Baseline	Increased
Electrical losses	Baseline	Reduced
Switching behavior	Baseline	Optimized
Diode stress	Baseline	Reduced

Plug-and-play installation with no system adjustments required

01

POWER DOWN AND ACCESS

The turbine and converter are safely shut down and the phase module is made accessible.

02

REMOVE THE ORIGINAL MODULE

Electrical connections, DC bus, AC connections, and cooling hoses are disconnected, and the original module is removed. Same interfaces and removal sequence as the GE module.

03

INSTALL THE CONVERTERTEC MODULE

Place the module and reconnect using the original interfaces. No rewiring, no adapters, and no software or parameter changes.

04

RETURN TO OPERATION

The system is powered up following standard procedures. Normal operation resumes with unchanged software and parameters.

Installation must be carried out by qualified technical personnel. Detailed installation manuals for ESS and Non-ESS versions are provided as part of the product documentation.

Designed for **real service conditions**

The plug-and-play installation concept is built to match real service conditions. By following the same procedure as the original module and requiring no system changes, the replacement minimizes downtime, reduces service risk, and supports fast, predictable return to operation.

Refurbishment & upgrade with performance improvements

In addition to new phase modules, we offer upgraded refurbishment for damaged original GE 1.X phase modules.

This service goes beyond standard repair. Original modules are refurbished using improved components, enhanced PCB solutions, and validated test procedures. The result is a technically strengthened module that supports continued operation and extended asset life.

Extended service life

Key components are renewed and upgraded to reduce future failure risk.

Improved robustness

Electrical and thermal stress is reduced compared to standard refurbishment.

Cost-efficient solution

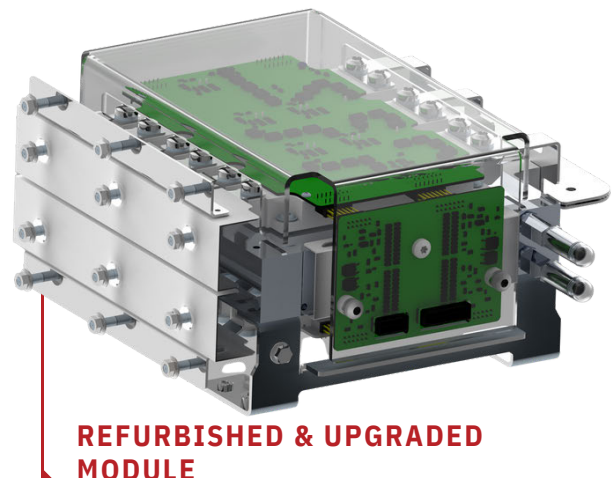
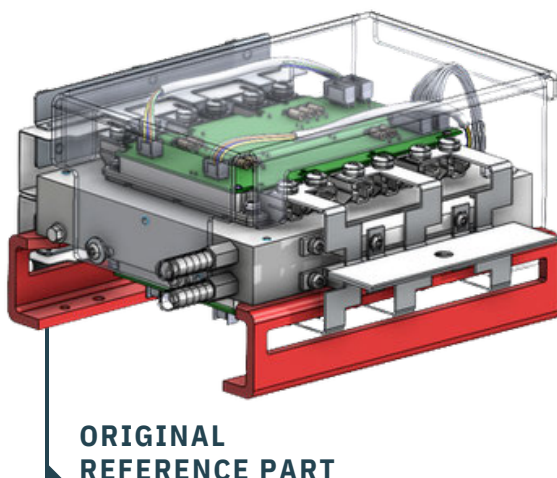
Lower capital expenditure while maintaining high reliability.

Validated performance

Each refurbished module is fully tested under operating conditions before return to service.

Warranty

Upgraded refurbished modules are supplied with a 24-month warranty.



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