

The 4500V IGBT Module Gate Drive is designed to drive 4500V IGBT modules that are available from a wide range of manufacturers. The 4500V Gate Drive comprises a module interface card, a core gate drive and a baseboard which carries the interfaces. The 4500V Gate Drive can be used with the Amantys Isolated DC DC Converter. Amantys Power Insight technology is incorporated to allow remote configuration and data download from the gate drives in a power converter. The 4500V Gate Drive can also drive up to three 190x140mm IGBT modules in parallel. The gate drive is suitable for 2-level and multi-level converters in a wide variety of applications.



4500V Gate Drive example with Isolated DC DC Converter

## Key Benefits

- Software configurable
  - Reduced inventory as one gate drive can support IGBT modules from multiple vendors
  - Simplified design and commissioning
- High power
  - Drive up to three 4500V IGBT modules in parallel
- Improved converter management
  - Multiple fault codes for error detection
- Fault code tracking
  - Monitor key parameters remotely and safely
  - Download fault codes from the gate drive
- Compatible with commercial alternatives
  - Feedback protocol configurable to legacy gate drives
- High reliability design and testing
  - Manufactured to ISO9001
  - Designed and tested to international standards for rail and motor drives
  - Conformal coating available on request

## Outline Specification

- Software configurable parameters
  - Turn on and turn off resistors ( $R_{gon}$ ,  $R_{goff}$ )
  - Soft turn off resistor ( $R_{goffsoft}$ )
  - Gate emitter Capacitor ( $C_{ge}$ )
  - Fault lock out time ( $t_{lock}$ )
  - Two level or three level mode
  - Optical transceiver drive current for extended lifetime
- Protection features
  - IGBT short circuit protection through desaturation protection
  - Under voltage lockout
  - Monitors all power rails for safe start-up with IGBT held off
  - Active clamping mechanism (two zone)
- LED status indication
- Insulation designed for rail traction and variable speed drive applications

## Applications

- Railway traction applications
- HVDC infrastructure
- Low and medium voltage converters
- Low and medium voltage motor drives
- Solar inverters
- Wind turbine converters

## Board Stack for Rapid Prototyping

The 4500V Gate Drive has been designed as a modular solution to be flexible and allow testing of single 4500V IGBT modules and up to three 190x140mm IGBT modules in parallel. In high volume application the 4500V Gate Drive can be optimised to meet specific customer requirements. For example the level of integration, mounting of the Gate Drive and features can all be optimised.



Medium voltage motor drives



Locomotive traction & marine drives



Wind turbine & solar inverters



High voltage DC infrastructure

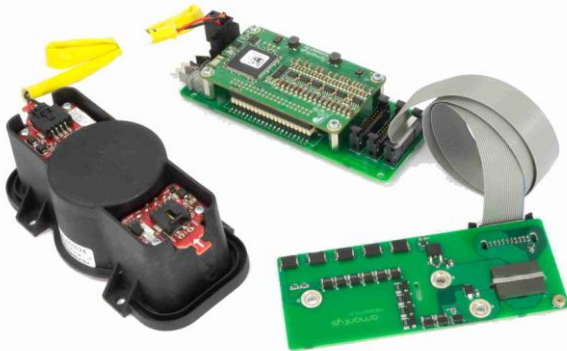
### Standards Compliance

The 4500V Gate Drive solution is compliant to the following standards:

- Designed to EN 50155 for railway applications
- Designed to IEC 61800-5-1 for variable speed drives
- Mechanical shock and vibration tested to IEC 61373
- EMC tested to EN 50121-3-2, EN 50121-5, IEC 61800-3
- Flammability rating to UL94V-0

### Isolated DC DC Converter

Amantys' Isolated DC DC Converter has been designed work with the 4500V Gate Drive to provide a high isolation power supply for medium voltage applications.



### Amantys Power Insight

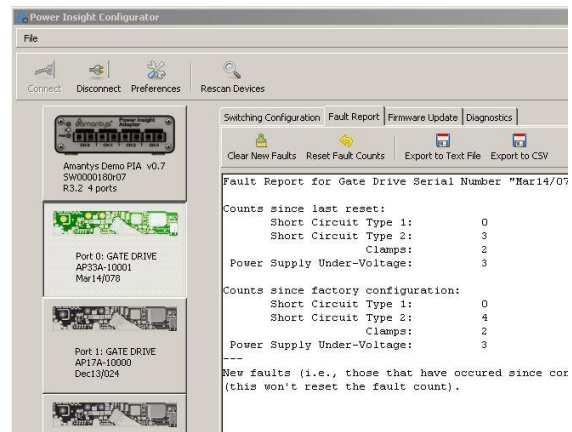
Amantys Power Insight technology provides two way communications from the central controller or Power Insight Adapter to the gate drive.



The converter designer can perform the following functions:

- Remote software configuration of the gate drive
- Examine a wide range of fault code outputs
- Monitor faults codes during the lifetime of the converter

The Power Insight Configurator is a Windows PC based software tool that can be used to configure a Power Insight enabled gate drive and monitor the fault reports generated by the gate drive



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