

**CONVERDAN**  
ENGINEERING



# PASSION FOR POWER ELECTRONICS

Design and manufacturing of customized power electronics

# ONE-STOP PARTNER FOR POWER ELECTRONICS DESIGN AND MANUFACTURING

Converdan offers services in power electronics, ranging from custom product design to prototyping and sub-contract manufacturing of finished products.



## Product Development

Converdan engineers are masters of all disciplines within power electronics product development. The team is highly experienced in design, qualification and testing of virtually any type of power electronics product, ranging from 1-watt switch mode power supplies (SMPS) and motor controllers to high power UPS and inverter designs well into the megawatt range.



## Manufacturing

Converdan offers a complete solution for electronics manufacturing – specialized in power electronics. We manage all required processes from SMT component placement to final box build and test. Our manufacturing capabilities range from custom, low volume applications to multi-year OEM scale production.

# PLATFORM BASED PRODUCT DEVELOPMENT + LEAN MANUFACTURING = COST EFFICIENT PRODUCTS

Converdan technology platforms, based on generic hardware, converter control algorithms and software building blocks, have been developed and refined over more than 10 years, allowing us to develop products that match your specific requirements at minimum cost.

They are the basis for our unique platform based project model, that offers a wide range of advantages compared to traditional ways of product development for low to medium volume customized products:

- ⊖ Very short time to market.
- ⊖ Low business risks.
- ⊖ Cross-product pooling of components and strategic inventory yields lower prices and improved availability.
- ⊖ Fully industrialized design from day-one ensures:
  - ⊖ High product quality.
  - ⊖ Lean manufacturing, hence low cost.
  - ⊖ No specialized test and burn-in equipment required.
  - ⊖ Product lifecycle management at a fraction of the cost.
- ⊖ Field-proven and trusted technology.
- ⊖ Research into new technologies is not required to maintain a leading position.



ISSUE 2



## HIGH-PERFORMANCE GRID INVERTERS FOR DEMANDING WIND TURBINE APPLICATIONS



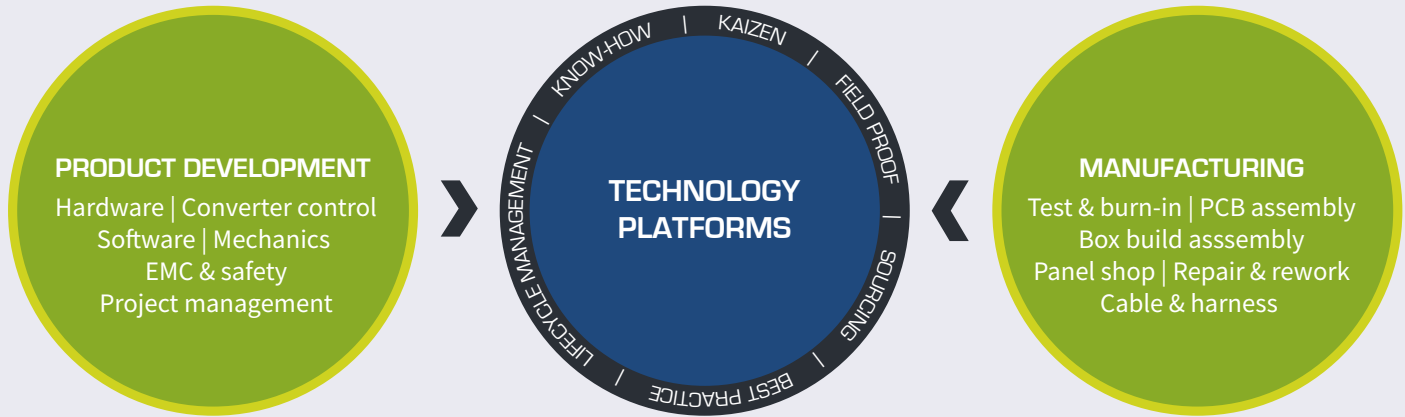
“Converdan is more a strategic partner than a simple supplier. They develop and produce high-quality power electronics and are among the leaders in the field.

Especially in the product development phase, Converdan is hugely strong and quick to grasp ideas and translate them into real products. I have never experienced faster product development, while at the same time, the quality is top-notch.

Although we are not among their biggest customers, Converdan treats us equally. If we need help, they stand ready.”

Niels Hansen, CEO at Orbital A/S

# TECHNOLOGY PLATFORMS COVERING A WIDE RANGE OF CAPABILITIES...



The unique Converdan technology platforms, that have been developed and refined over more than 10 years, are the building blocks for our platform based product development.

Integrated into our platforms are strategically selected components, optimized manufacturing processes and capabilities, combined with extensive power electronics know-how, the use of best practices and field proven designs.

We have a team of focused power electronics professionals with many years of experience between them. They are backed by very well equipped development, test and manufacturing facilities.

Power electronics is a very multi-disciplinary field and we therefore cover a wide range of capabilities all of which are available in-house.

## ... COMBINED WITH INDUSTRY SPECIFIC POWER ELECTRONICS KNOWLEDGE

At Converdan we have extensive knowledge and experience in power electronics, discovering new advantages and creating unique solutions within our primary business areas: Industry, Renewables, Power Quality, E-mobility and Power Supplies.

We have industry specific experience from product and projects within the following:



### Industrial

- Motor drives (0.37 kW to 350kW+)
- Stepper-motor controllers
- Welding, plasma & corona inverters
- Soft starters
- Sensors and process control units
- Fault tolerant HW and SW



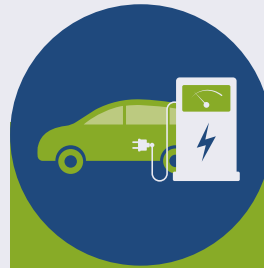
### Renewables

- Solar inverters for PV systems
- Wind turbine converters
- Fuel cell converters
- Grid feed-in technology
- Low and high power DC/DC converters
- Battery management systems



### Power Quality

- UPS
- PFC – Power Factor Correction frontends
- Active harmonic filters
- Passive harmonic filters
- SSW – Static transfer switches



### E-mobility

- Low voltage/ power traction converters
- High voltage/ power traction converters
- Battery chargers
- Battery stacks
- Automotive bus communication



### Power Supplies

- Isolated off-line supplies
- High power supplies
- High voltage input (up to 2,500 VDC) supplies
- Special purpose DC/DC
- Battery chargers
- High reliability supplies

## PLATFORM BASED PRODUCT DEVELOPMENT REDUCES PROJECT COSTS BY UP TO 75 %

Once a product has been put into production, no more than 5-10 % of the cost base can be changed. The design has been cast in concrete, and cost reductions can only be effectively achieved by costly re-engineering efforts.

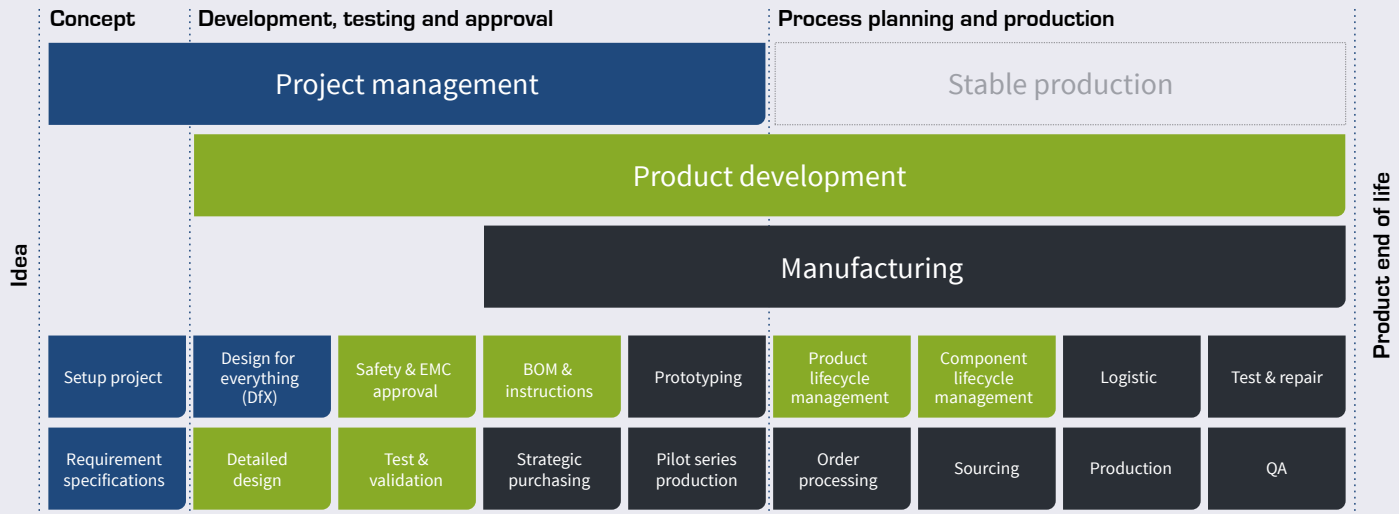
Realizing that typically 80-90 % of all product features like cost, quality, lead times etc. are determined by decisions made during the engineering phases, it becomes apparent that work in these project phases should be very thorough and cover all important aspects. Unfortunately, all this adds significantly to project cost and will increase time-to-market. To experienced product managers and engineers alike, there has always been a trade-off between low project costs and low product costs - but this changes with a Converdan partnership...

### Partner with Converdan to...

- Stay competitive and agile with the shortest possible **Time-to-Market** - we design and manufacture customized products using a platform based approach, which combines components, processes and know-how to create the perfect balance of performance and cost.
- Ensure market leading **Product Lifetime Cost** – we extensively apply Design for Everything (DfX) principles and best practices.
- Optimize **Product Lifecycle Management** – continue to get support from the engineers who designed your product, and the manufacturing team producing it.
- Benefit from our **Continual Improvement** program - play an active role in shaping our technology platforms to better suit your future needs and demands.



# OUR PROJECT MANAGEMENT MODEL INTEGRATES PRODUCT DEVELOPMENT AND MANUFACTURING



Converdan sees your product development project as a total business project, not a technical exercise. Naturally, our project management model reflects that approach to product development. Sound project management is key to the delivery of your product to market on schedule.

Our project managers have many years of experience with power electronics projects large and small, and pay particular attention to the fact, that a power electronics product demands true integrated product development with cross-functional disciplines such as hardware, control engineering, embedded software, mechanics, manufacturing and testing to be completed successfully.



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## CONVERDAN – WE ARE POWER ELECTRONICS SPECIALISTS

For more than a decade, Converdán has designed and manufactured power electronics products. We serve customers across a broad range of industries, with products spanning from 1-watt power supplies to converters in the megawatt class.

Our modern manufacturing facilities are specialized in power electronics products, and we handle low volume as well as high volume multi-year OEM contracts equally well. To us, every customer, every project and every product, large or small, means a big deal.

We can design and build a customized product for you in an astonishingly short time, by applying our unique project model as well as our knowledge and expertise within power electronics. When working with us, you experience levels of project agility you would not think possible.

By utilizing our unique technology and product platforms and sharing components across many different products, the cost for customized products can compete and even outperform off-the-shelf standard products, with the added benefit of a perfect match to your specific requirements.

We believe that you will want to work with one of the leaders in the field of customized power electronics. Join in with the Converdán way - a true, cooperative strategic partnership - and you will quickly see that we are not just a supplier, we can be a part of your business, bringing a lot of added value and certainty.



# CONVERDAN



## ENGINEERING

We have a passion for power electronics - a key technology needed to meet the challenge of energy for the future – and we are determined to influence change for the better.

We bring customized products to life, achieving new

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levels of project agility, reduced business risk, short time-to-market and low product cost.

We design and manufacture high-quality customized power electronics for industrial, renewables, e-mobility, power quality and power supply applications.