



16.09.2021

## Head of electronics development (d/f/m) Leiter Elektronik Entwicklung (d/w/m)

You want to build and grow an exciting tech start-up?  
You want to create the next standard for roof-top photovoltaics?  
You want to contribute to the fight against climate change?  
You are an experienced developer of power electronics?  
Apply now at JOKER Tech in Kassel!

### Our mission

It is our target to set the new standard for roof-top Photovoltaic systems.  
We are developing the smallest inverter in the world to be integrated into photovoltaics modules. The modules produce AC electricity and generate 10 % more energy. They are smart and easy to install.  
The key to low-cost and reliable inverters is our proprietary high-frequency technology, which enables drastic miniaturization and cost reduction, but is technologically quite challenging.  
Next year we will introduce our inverters to the market and immediately start expanding our product portfolio with new power electronics products.  
We are looking for a head of electronic development to lead our R&D site in Kassel. You will be reporting directly to the CTO and the CEO. Currently, the team includes 2 electronic engineers, a mechanical engineer, and a software developer.

### Your tasks

- Head a team of currently 4 R&D engineers and grow it to ~10 engineers
- Develop and debug power electronics
- Develop products from first prototypes to mass production
- Coordinate suppliers and OEM partners
- Lead certification activities
- ...and all kinds of other things that need to be done

### Your profile

- You are energetic and self-motivated
- You take ownership and accountability
- You are passionate about leading and guiding people
- You have minimum 5 years professional experience in hands-on electronics circuit design, ideally, with emphasis on power electronics and communication electronics.
- You have practical experience in assembling and debugging PCBs
- You have experience in product development
- You don't lose track of cost when designing a product
- You like building up structures
- You speak fluent English and decent German

## Contact

Julian Mattheis, +49 172 / 181 5519, [j.mattheis@joker.technology](mailto:j.mattheis@joker.technology), [www.joker.technology](http://www.joker.technology)

## Application

Please prepare a short power point presentation (to be handed in together with or 1 week after your application) about a hypothetical new product:

Assume, JOKER Tech wants to develop a new bi-directional inverter to be used with residential battery storage for private households

Functional description:

- The inverter should be compatible with BYD batteries B-Box Premium <https://www.eft-sys-tems.de/de/>
- The inverter communicates with the PV inverter and an energy meter that measures the energy flow at the point where the household is connected to the grid. It can use the existing JOKER Tech communication module.
- The information, when the inverter should charge / discharge the battery is provided from the PV inverters and the energy meter at the grid-connection point. The inverter should charge the battery when there is surplus power from PV generation and discharge the battery when the consumption is larger than the generated power.
- The inverter should be grid-forming so that it can be used for emergency back-up (to comply with anti-islanding regulations, an additional switch is required which is not included in the scope of supply of the battery inverter

Please answer the following topics in your presentation:

1. What kind of batteries would you choose: High voltage Battery-Box HVM-HVS or low-voltage 48 V Battery-Box LVL? Why?
2. What should be the power of the inverter? Should there be one model or a range with different power?
3. Should the inverter be 1-phase or 3-phase? Why?
4. What functionality should be included. Draw a block diagram of the inverter with the main functional blocks.
5. What kind of topology would you recommend for the bi-directional inverter? Please detail pros/cons
6. Which norms are relevant for the inverter (installation region: Germany)?
7. What cost do you expect for the product? Where do you see cost reduction potential?
8. What budget/manpower and how much time do you estimate you need to develop the inverter?
9. What are the main challenges?