

## optiMEAS takes functional prototyping to the next level with F-Series 3D Printer

Founded in 2001, German company optiMEAS specializes in industrial digitalization, and is a go-to address for businesses looking for customized, holistic IoT solutions – from cloud-based monitoring and system detection, data supported services, to sensor and measurement data processing.

Through its highly advanced hardware and software technology solutions, optiMEAS enables customers to recognize machine failures and defaults ahead of time by guaranteeing around the clock monitoring of mobile and stationary systems. Its customer portfolio spans numerous sectors and includes global brands like Bosch, Deutsche Bahn, Fraunhofer and Siemens.

“

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Patrick Langfeld  
optiMEAS co-owner

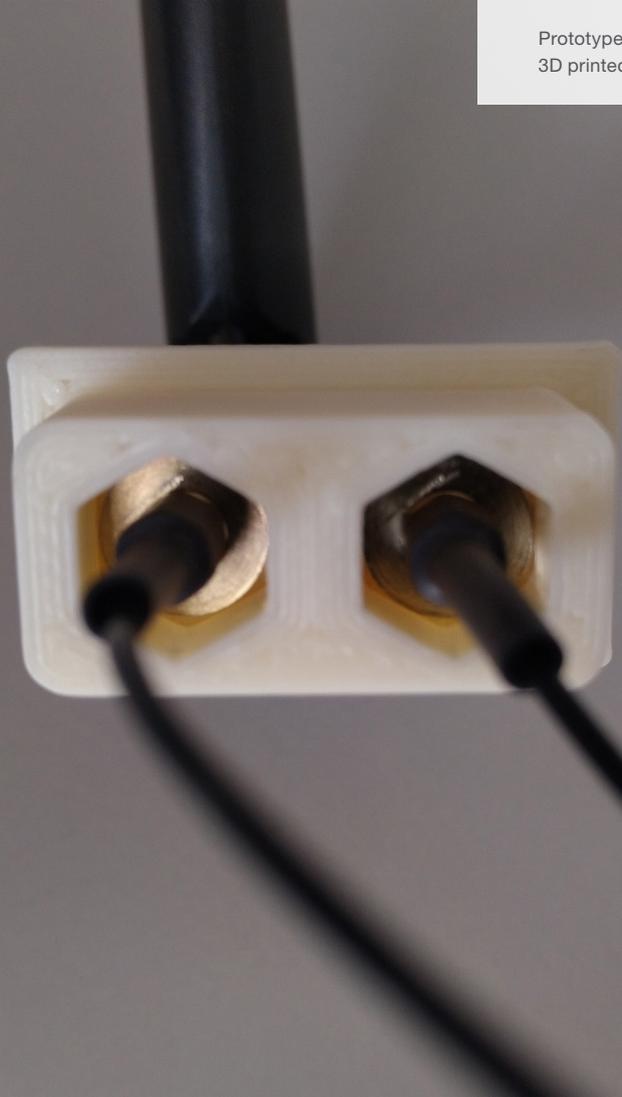


# Traditional Prototyping an Inherent Problem

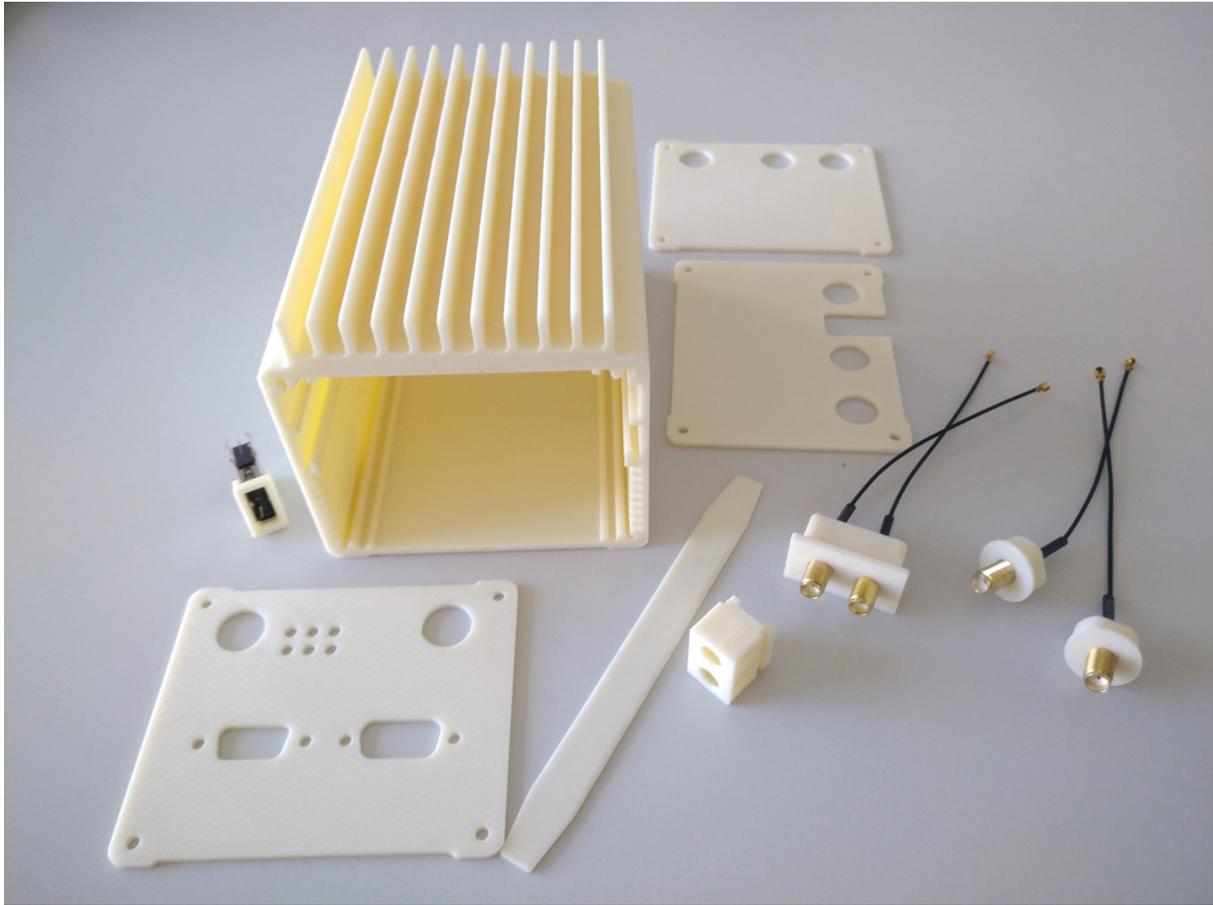
Known for providing highly detailed, customized electronic solutions, optiMEAS relies on fast and precise technology to ensure on-time production to meet its customers demanding requirements. The production of housings and front panels for its electronics hardware has traditionally proven to be a particularly lengthy process for optiMEAS. As functional prototypes need to be created to test design and operation, these tiny but vital parts can delay final design verification and

production of electronic solutions by weeks or even months.

Recognizing the need to address prototyping lead-times and maintain smooth overall production timeframes, optiMEAS co-owner Patrick Langfeld decided to investigate industrial 3D printing technology with the objective to optimize design workflow and shorten prototyping lead times.



Prototype of an isolator for an SMA double socket, designed and 3D printed by optiMEAS on an F-Series 3D Printer



Housing prototype, 3D printed by optiMEAS to test form and function before committing to the production of larger quantities with an Aluminium extrusion process

“The difficulty was finding the right technology to fit into a small office-friendly environment, while also ensuring industrial-grade 3D printing results at fast speeds,” says Patrick Langfeld. “For housing prototypes, we wanted to test the aesthetics as much as the geometric functionality – so dimensional accuracy, repeatability and access to industrial-grade materials was a definite prerequisite for us”.

Based on these requirements and having researched the options available, the company ultimately found the [F-Series 3D printer](#) perfectly corresponded to its criteria.”

With its FDM 3D printer, optiMEAS is able to access industrial materials for its functional prototype production, ideal for geometric accuracy and durability. For housing parts, optiMEAS traditionally created metal prototypes to test form and function, before producing final

parts in the same material, but this presented irksome challenges.

“The problem we faced with the development of metal prototypes was twofold,” comments Langfeld. “First, they are not cost effective in small quantities; only for large volume orders – which is not ideal when you mostly work with customized solutions. The other and even more crucial challenge was the lengthy turnaround times. For a customized housing prototype, it could take weeks, if not months, until we had the prototype in our hands – and that’s without potential further design iterations.”

Servicing global customers that expect customized solutions with very short turnaround times, 3D printing technology has enabled Patrick Langfeld and his team to optimize the design workflow.



3D printed prototype of a USB port

## Significant Time and Cost Savings

“We have been 3D printing the electrical housing prototypes on our F-Series, and the results are great,” says Langfeld. “For smaller prototype parts, we are seeing lead time reduction from around a month down to just one day. Compared to prototyping with traditional manufacturing methods, 3D printing results in time savings of up to 95%. In terms of costs, we are also enjoying some impressive quantifiable benefits, with small prototypes from industrial-grade polymers costing 50% less than the previous metal alternatives. It is safe to say it has transformed our in-house prototype production.”

With its plug-and-print approach, the F-Series can print prototypes around the clock at optiMEAS, ensuring even last-minute design iterations are possible in the shortest timeframe. According to Langfeld, the GrabCAD Print

Software used by optiMEAS in symbiosis with the F-Series not only allows easy operation, but also aids in delivering optimum print results through its existing intuitive set-up and optimal material- and printer- specific preselection.

Such has been the company’s success, that it is considering the technology for series production of certain parts – including housings for data loggers or tracking systems.

“We are excited to see where the journey with 3D printing takes us, as we are only at the start of optimizing the technology for our design and production processes,” says Langfeld. “With the F-Series 3D printer’s ability to repeatably 3D print complex geometries in materials that could qualify for final part production, it is most likely that we will move 3D printing to part production alongside prototyping within our business in the future.”

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