

The future of production technology with ultrasound Mastering complexity through digitalisation

PLASTIC WELDING

METAL WELDING

CUTTING

CLEANING

SIEVING



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01 Lutz Lehmann, Project Manager Digitalisation at Telsonic: 'I will contribute my practical experience from the automotive industry to the further digitalisation of ultrasonic systems and help to transform complex methods and developments into practical functions.'

Digitalisation in production is not a short-term trend, but is gaining momentum. Continuously recording and analysing relevant data leads to decisive gains in knowledge in order to better understand interrelationships and interactions and to control complex production processes more efficiently. As a result, costs can be reduced, processes accelerated and resources freed up for other tasks.

However, digitalisation is also a challenge and requires a high degree of flexibility in the production technology used. This also applies to ultrasonic welding systems. In order to exploit the potential of digitalisation both today and in the future, hardware and software must be perfectly coordinated so that data from a wide variety of sources can be recorded and made available in real time. At the same time, the use of the ultrasonic welding system should remain manageable, be as simple as possible for the user and be flexibly integrated into the respective production system. As the following example shows, this can certainly be achieved.

The Swiss Telsonic Group has been represented with industrial ultrasonic systems in Europe, America and Asia since 1966. Innovative, high-quality products 'made in Switzerland' have helped the ultrasonic experts to gain a technical lead in many applications. The introduction of the TelsoFlex

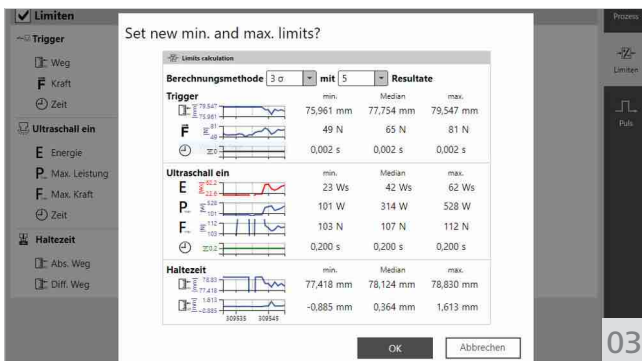
technology platform laid the foundation for comprehensive digitalisation in ultrasonic welding, on which the 'Weld Control by TelsoAssist' function modules are based.

The software connects the hardware of the ultrasonic systems for metal or plastic welding with the user interfaces and offers the necessary flexibility and stability to record a wide range of data relating to the welding process and make it available in real time. It therefore forms a stable basis not only for all current functions, but also for all future data-driven functions.



02 Die Software TelsoFlex bildet die Grundlage für Ausschichtungs- und Digitalisierungsprozesse als beim Ultraschallschweißen. [Hier](#)

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03 Automated limit value setting and adjustable process parameters for maximum quality assurance with the Quality Sigma app.

More than just data

But data alone is not everything. That's why the ultrasonic specialists have created TelsoAssist, a toolbox that extracts practical information from the data collected. The corresponding function packages, for example for error prevention, traceability or planning service work, are constantly being further developed to support the utilisation of the ultrasonic systems. The focus here is on reducing operating and maintenance costs and providing a consistent user experience. Operation should remain consistent, even when new, improved functions are added.

The course has been set for this, as Lutz Lehmann (Fig. 1), Digitalisation Project Manager at Telsonic since April 2024, reports: 'Before joining Telsonic AG, I worked for more than two decades at Dräxlmaier, a leading company in the automotive industry, where I was able to gain practical experience in almost all aspects of production technology with ultrasound. The move to Telsonic is an opportunity to contribute my user experience to the development of ultrasonic systems. I will contribute to transforming complex methods and developments into practical functions.'

Simplicity instead of complexity as the key to success

A shortage of skilled labour and the resulting increased need to relieve personnel resources of unproductive tasks are important issues not only in the automotive industry, but also in packaging technology and the medical industry. In addition, there are increasing demands on quality management for the production of safety-relevant products. TelsoAssist already offers a great deal of practical support in this area. The Commissioning Log tool, for example, helps to ensure that the ultrasonic system is functioning correctly. During operation, monitoring functions detect impermissible deviations at an early stage (Fig. 3). To this end, current measured values are constantly compared with validated, permanently updated reference data to prevent errors from occurring in the first place. A concrete example of this is provided by a company in the electronics industry, which was able to reduce the reject rate by 25 % by utilising the monitoring functions of TelsoAssist. The ultrasonic systems can also be configured easily and securely via a web interface and integrated into systems. The 'MES Connector' simplifies the connection

of Telsonic systems to customer production systems (MES). Customers can customise the interface to their MES themselves, allowing them to design their systems individually without having to rely on Telsonic. The 'MES Connector' offers ready-made functions for reacting to events, recording orders, sending messages, creating logs and retrieving data. The MES Connector is a JAVA open source software that runs parallel to the Telso®Flex software on the machine's PC.

Lutz Lehmann emphasises that one thing should always be borne in mind: 'When using software, simplicity is the key to success. Complexity must be manageable. This means turning data into clear and comprehensible functions that allow the end user to reduce effort and open up new degrees of freedom.' Users receive comprehensive support through the visualisation and monitoring of data and statuses as well as the logging of deviations. Workflows are designed in such a way that they significantly reduce the familiarisation period and, if necessary, assist with specific recommendations to maintain production.

Continuous further development

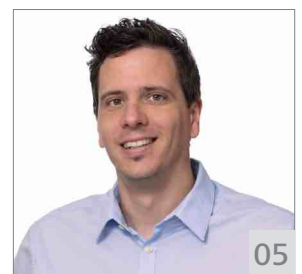
Through continuous development, ever more powerful functions, some of which are still visionary today, will be added and seamlessly integrated into the software and its user interface. The use of ultrasonic welding systems can thus become a long-term investment in the digital future. The direction has already been set. New function modules are already being developed. Data processing will become increasingly differentiated and enable an overview and control of dynamic events through real-time data processing. Context-related visualisation helps to master complexity and only shows what is important at any given time. Practical relevance is intended to simplify the use of technology without having to compromise on the performance of functions. 'To achieve this practical relevance, direct contact with integrators and end users is crucial. 'I am looking forward to as many personal discussions and intensive technical dialogue as possible,' concludes Lutz Lehmann.

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