framatome

Smart System for Welding

Monitoring and Diagnostic device for welding parameters

Develop, diagnose and master your welding processes.

Challenge

Mastering welding processes is the key factor to reach a high quality of the welds in particular for highly demanding products. Cost of non-quality and the related delays in the production can easily put a project at risk. Also developing new welding processes might be time consuming if the welding parameters and their influence are not known or not precisely evaluated. The efficient management of a welding process can only be achieved with reliable information on the welding parameters, their traceability and deep analyses.

Solution

As a manufacturer of highly demanding nuclear components, we have put our long experience and expertise in the development of the Smart System for Welding (SSW). This system monitors, records and efficiently computes all relevant parameters, in order to optimize your welding process. The SSW is a flexible and efficient tool that allows you to:

- Record, monitor and film your welding parameters and process in real time
- Precisely visualize the weld pool behavior
- Understand welding process behaviors by performing in-depth analyses and by computing of the recorded data
- Check and calibrate your welding equipment
- Use it on every welding devices for all brands and technologies

The user friendly and intuitive user interface allows to quickly switch from standard to tailor-made configurations to cover all your welding process.

Framatome's SSW device is available as monitoring and surveillance system for your production line in order to keep a traceability of all your welds, trigger alarms, and to perform statistical analysis for an early detection of deviations.

Additionally, our welding experts can provide comprehensive support at any stage of your welding process.

Your performance
is **our** everyday **commitment**

instrumentation device and software

Synchronized acquisition of welding parameters and welding video

Customer benefits

- Speed up development of welding process.
- Quick diagnostics of welding issues through real time access to welding parameters and visualization of weld pool.
- Cost optimization and risk mitigation trough early recognition of deviations.
- Improved efficiency through user friendly and universal device.

Key figures

Diagnostic time typically reduced by **10** for welding process issues.

Technical information

A system developed by welders for welders.

Supported welding technologies: GTAW, GMAW, SAW, Plasma, Hybrid LASER

Channels :

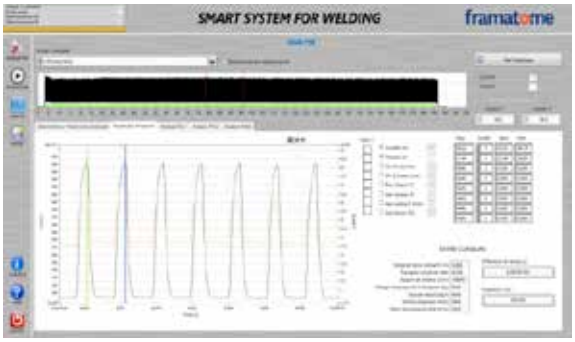
- 4 analog inputs dedicated to welding parameters (current, voltage, wire speed, gas flow)
- 2 analog inputs (0-20V): additional sensors
- 1 channel for thermocouple acquisition (K type)
- 1 welding camera interface
- 1 clock output: synchronization with external acquisition chassis
- 1 trigger output for camera (standard, high speed, welding current or voltage threshold)
- 1 analog output 0-10V
- 2 power outputs: 24V and 12V

Optional:

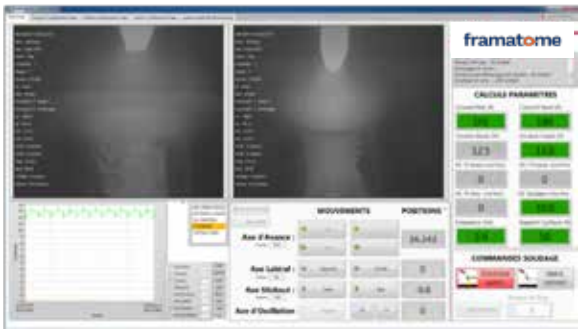
- Up to 8 additional analog inputs to support further sensors for welding monitoring:
  - Hall effect sensor
  - Wire speed sensor
  - Gas flow sensor
  - Welding speed sensor
  - ...and others on demand
- Welding camera
- High frequency arc ignition insulation box
- Wiring with lengths adapted to customer needs
- Hard transport case

SSW device also available as production line monitoring and surveillance system.

Standard SSW device configuration, front view



Analysis of welding curves with computed characteristics



Production monitoring of welding process and alarm panel

References

Nuclear Industry:

- Framatome's own factories
- ORANO
- Alpha Laval

Aerospace industry:

- Safran

Research institutes:

- AFH (Additive Factory Hub)

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