Novanta

Laser Processing Solutions

ASC & InScript

SYSTEM CONTROLLER SOLUTION

Powerful synchronization performance for laser systems.

Compatible with all ARGES' scan heads, lasers and sub-systems.

ASC & InScript
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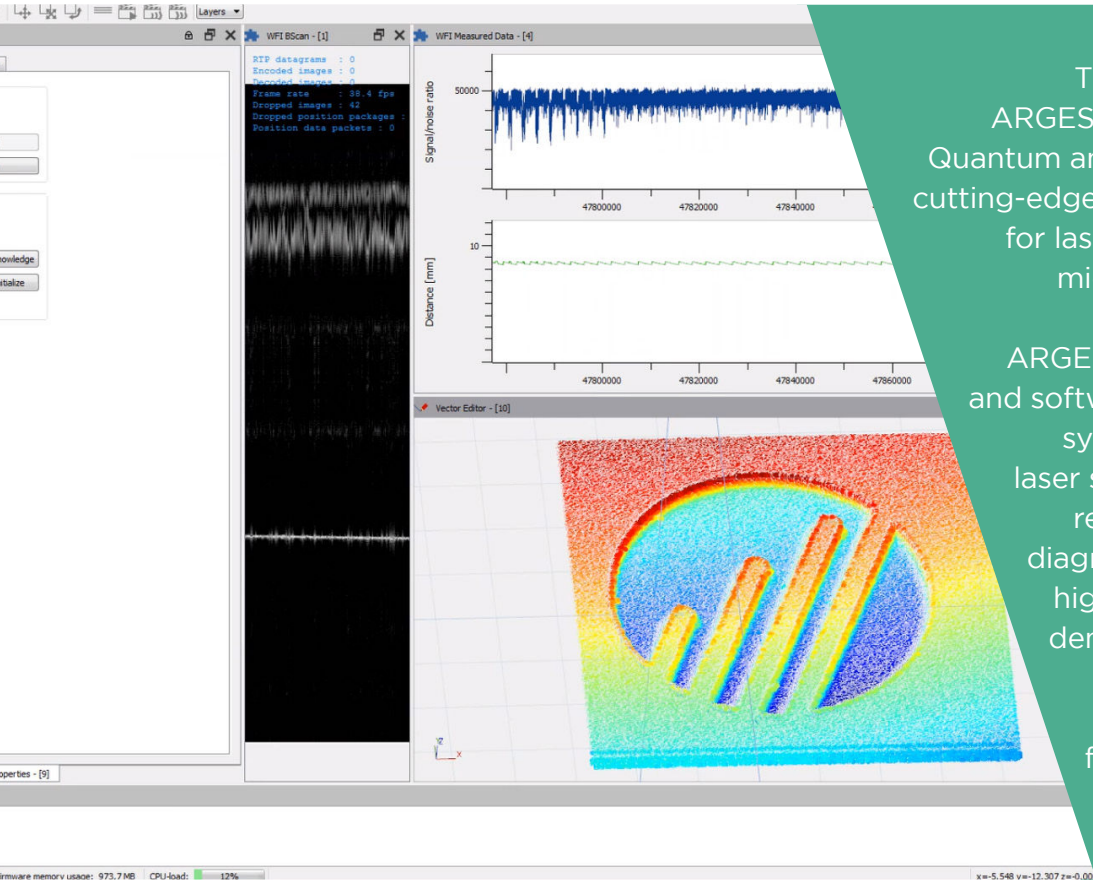


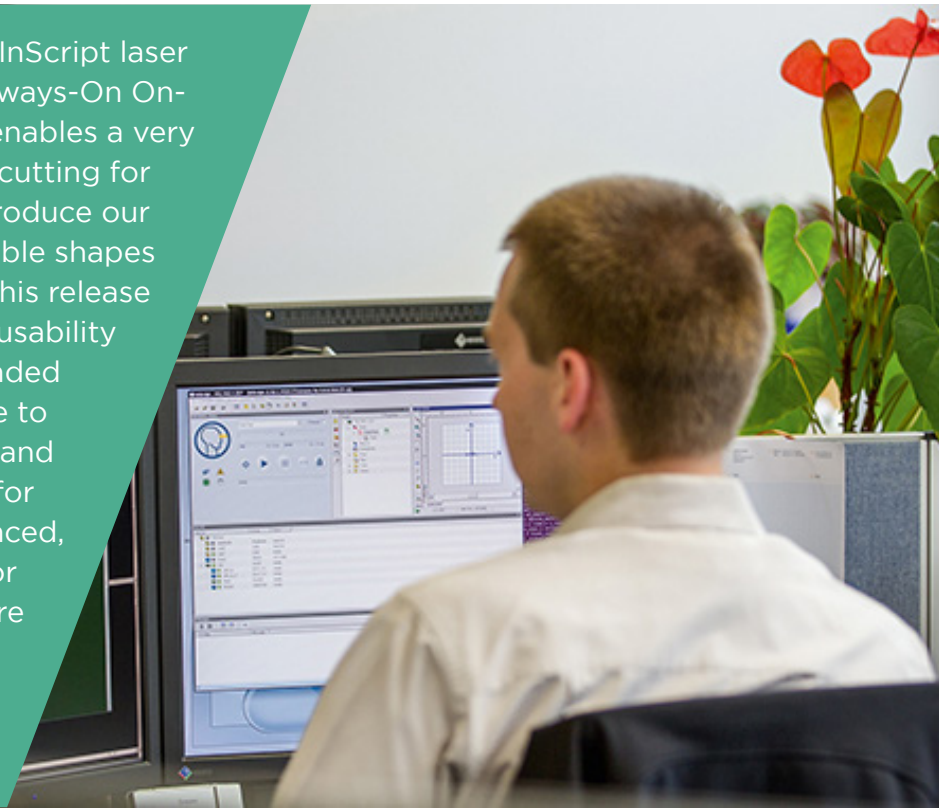
Through our photonics brands—ARGES, Cambridge Technology, Laser Quantum and Synrad— Novanta engineers cutting-edge components and sub-systems for laser-based diagnostic, analytical, micromachining and fine material processing applications. ARGES' next generation of controller and software solution features powerful synchronization tools to enhance laser system performance. Featuring real-time control signals, remote diagnostics and administration, and high accuracy and throughput for demanding applications, this laser controller solution empowers users with more control and flexibility to optimize their laser system.

Key Features

- Autonomously functioning device that does not require a host to carry out its processing tasks.
- ASC controller works seamlessly with our proprietary InScript software.
- Can be remotely diagnosed, administered and parameterized via Ethernet TCP/IP.
- Enhanced features to optimize complex industrial machining processes.
- Combination of highly configurable interfaces and processing units responds in real-time to external signals.
- InScript provides a user-friendly, object-oriented interface for integrating all external devices and defining complex processing steps.

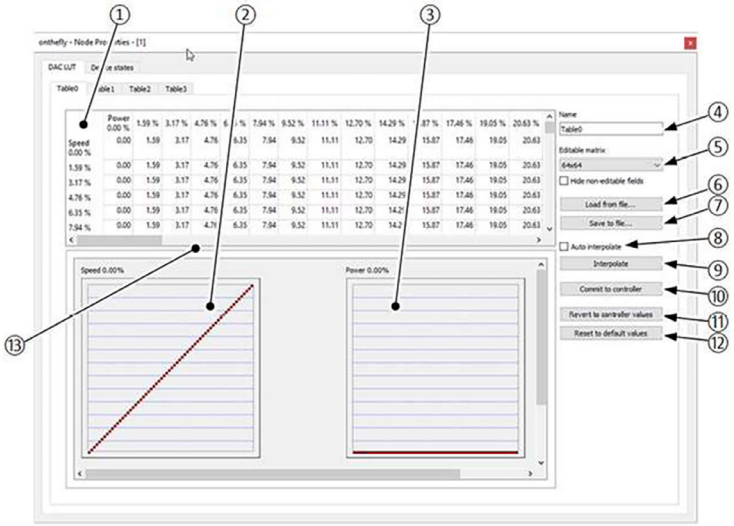
ASC & InScript
V5.0 FEATURE OVERVIEW

This latest release of our ASC and InScript laser controller solution provides our Always-On On-The-Fly (AO-OTF) feature, which enables a very fast MOTF process for battery foil cutting for the e-mobility market. We also introduce our laser power ramping and new wobble shapes to improve welding applications. This release also includes: a major feature and usability update for our OCT solution, extended our EtherCAT automation interface to provide users with more flexibility and a greater amount of process data for better process handling and enhanced, user-friendly Controller Services for managing and monitoring the entire laser scan system. Lastly, you can find major usability & stabilization patches for the ARGNET Series.



DAC LUT UI — Laser User Interface

As part of our AO-OTF feature, we release the DAC LUT UI for the individual configuration of a specific laser source for an optimal process result.

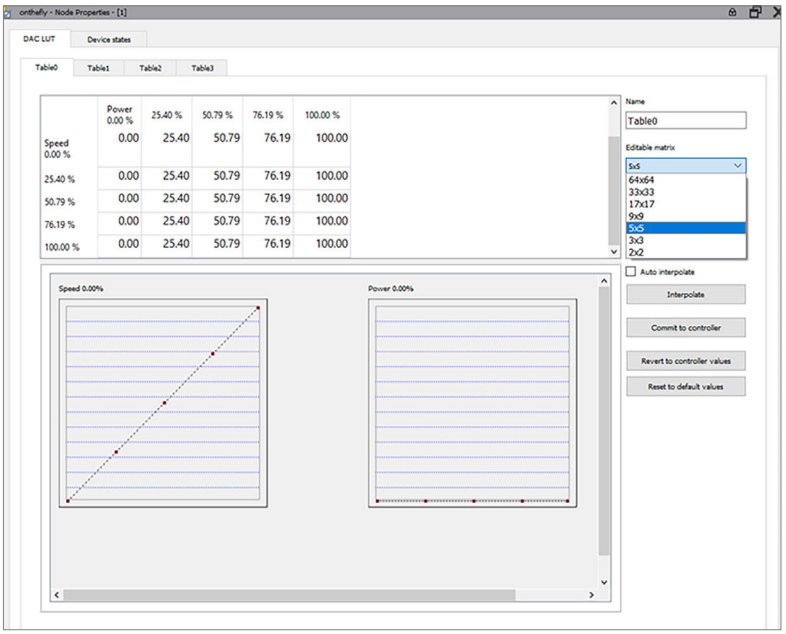


Legend

1. Table view of the DAC LUT values
2/3. Graphical representation of the DAC LUT
4. Name your table; see section Table names.
5. Size your table
6/7. Load / Save DAC LUT table
8. Automatic interpolation mode
9. Perform manual interpolation
10. Save current DAC LUT table to the controller
11. Revert the current DAC LUT table to last stored on controller
12. Reset the current DAC LUT table to default
13. Splitter to increase or decrease the table size

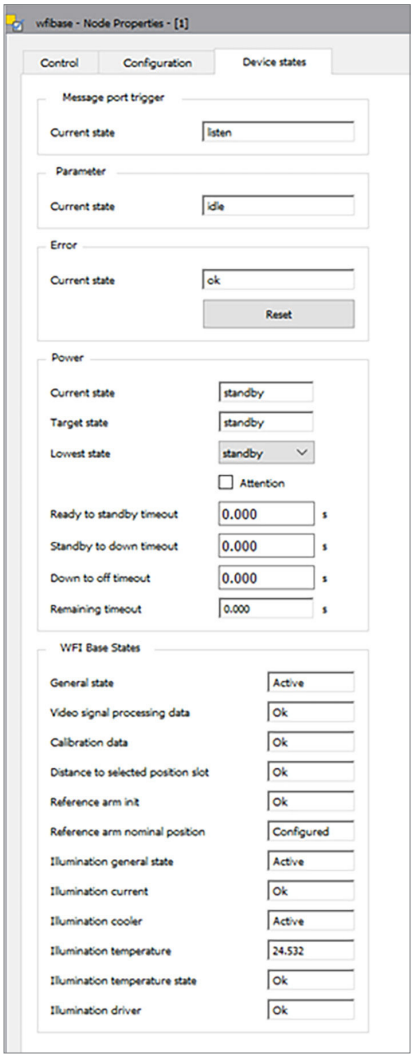
Fast switching between laser parameters during ongoing operation

It is possible to define four laser map settings in parallel and to switch between them in real time during the process, which enables particularly precise processing (see table 0 to table 3).



OCT Extension – Feature & Usability Update for the OCT.

We reworked our OCT device and our OCT job node to deliver improved features for better user experience. This release now includes better usability in terms of configuration and process interaction.

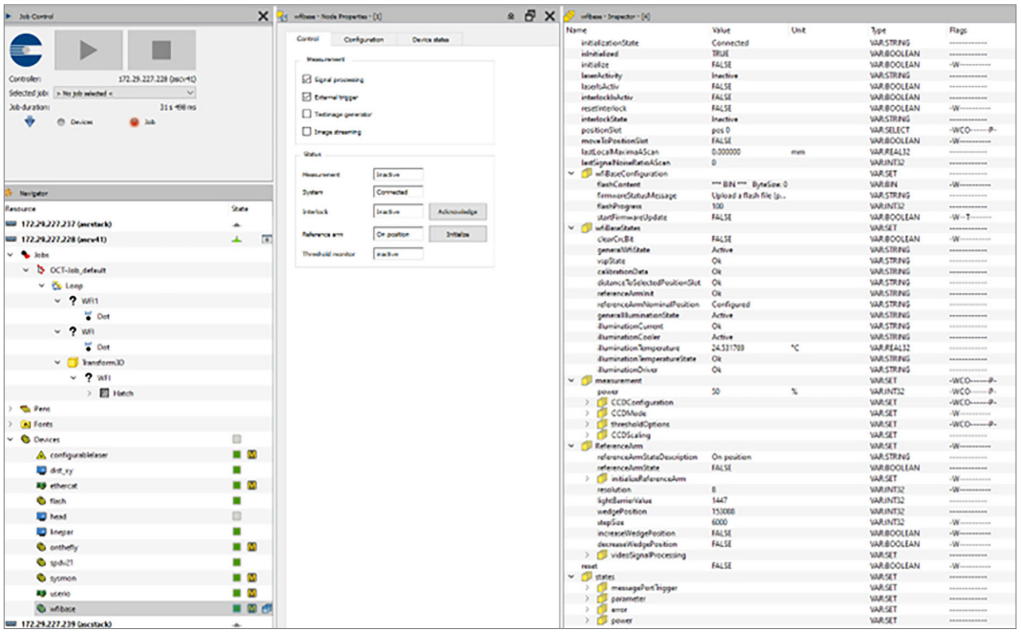


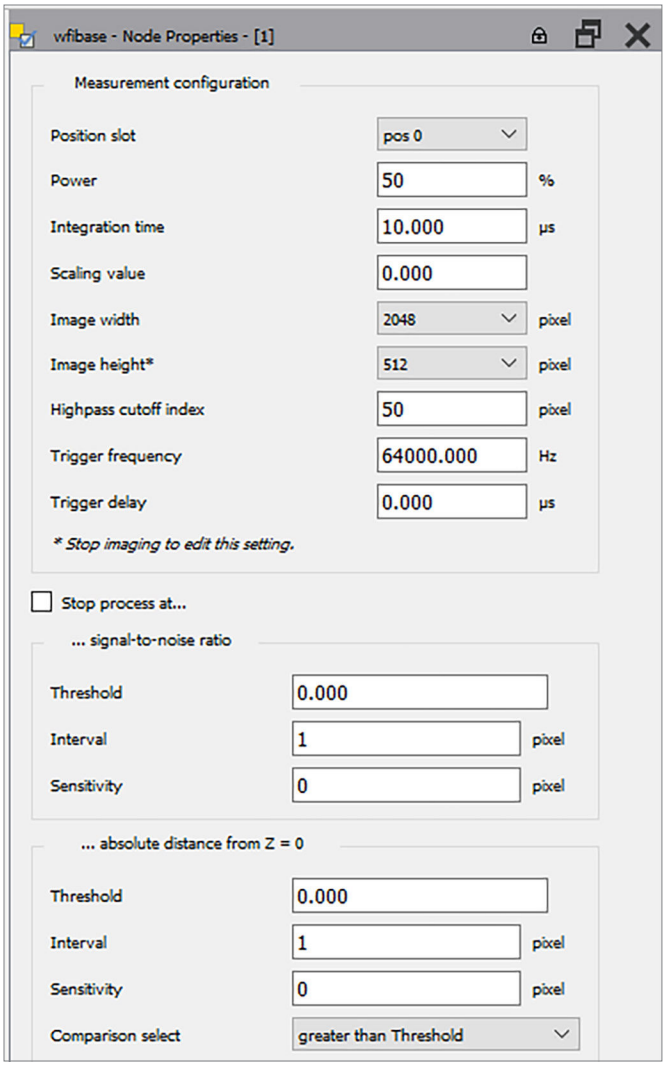
Auto Start/Stop

We provide a power state machine for easier interaction with the OCT. By means of a power-state machine, OCT measurement is automatically activated or deactivated during a complex job output.

Enhanced OCT Job Node

Reworked user interface with user-friendly overview to keep everything in view.





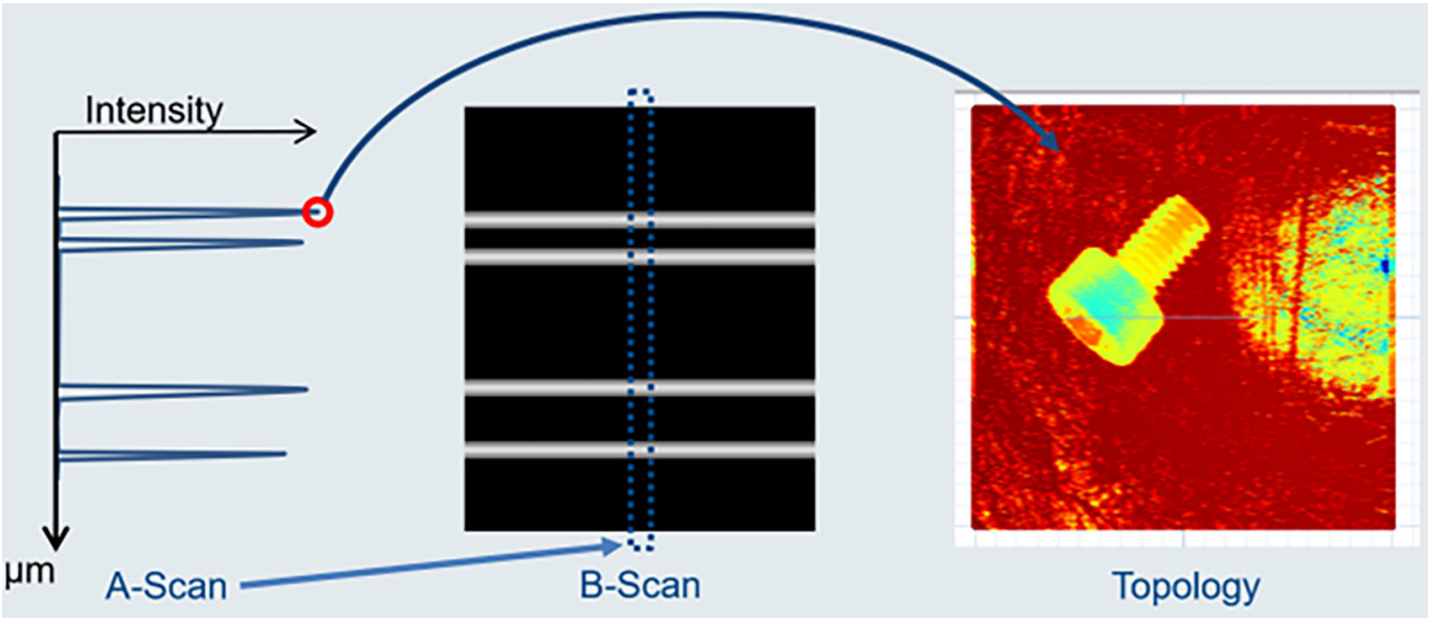
Increased Flexible OCT A-Scan Rate

Configurable OCT A-scan rate to achieve higher OCT resolution. With the newest implementation, A-Scan trigger frequencies of up to 64 KHz are possible.

Our A-Scan / B-Scan Principle

One sample point generates one complete A-Scan. Max. 64,000 A-Scans/s. One A-Scan is one line of pixels in the B-Scan. The A-Scan view in InScript is the middle line of the B-Scan view. The depth of the highest peak in each A-Scan is the depth of each point in the Topology view.

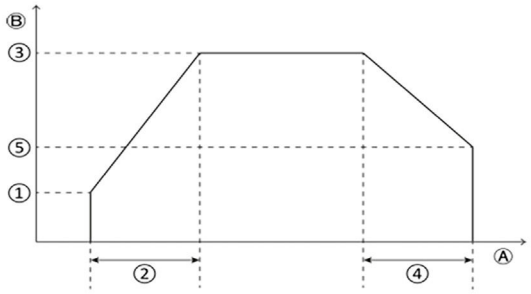
See below:



Laser Power Ramping

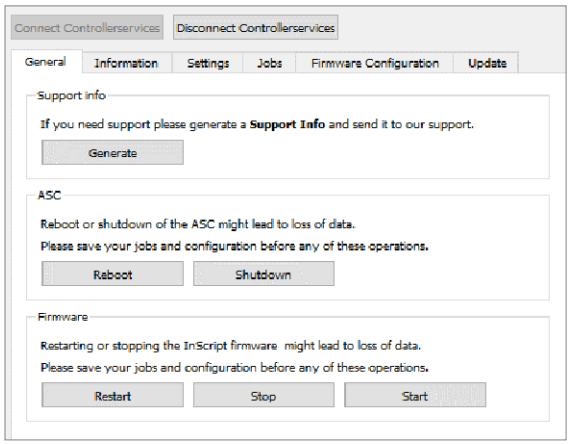
User-friendly capable by adjusting the laser power during process and making it easy to interact with the process parameters. This extension is part of our Linepar Device and is extending our line segments parameter functionality in terms of pulse duration and frequency control for line segments.

Laser power ramping is mainly used to prevent excessive material removal or scorching while cutting or welding and when the laser output overlaps.

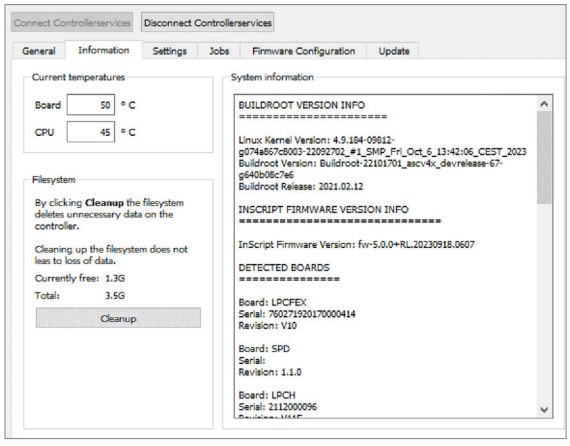


Description: (A) Time in milliseconds or Length in millimeters, (B) Percentage of laser output power, (1) Start power factor, (2) Rise time or Rise length, (3) Power factor, (4) Fall time or Fall length, (5) End power factor

Enhanced Controller Services



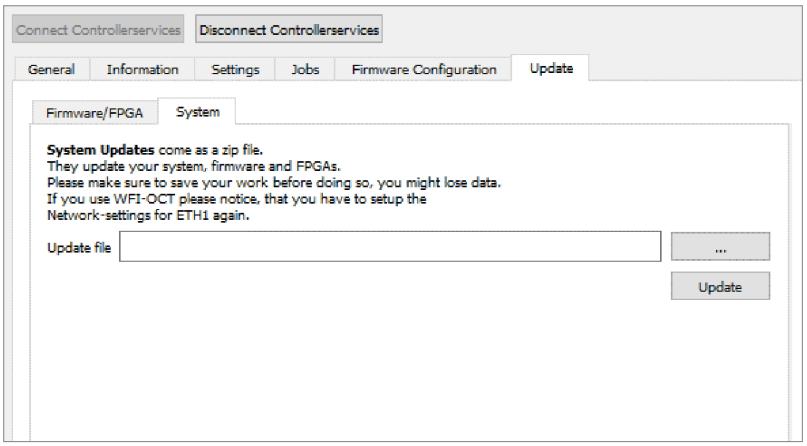
Extended Controller Monitoring and Health CareFunctionality.



System Health Monitoring

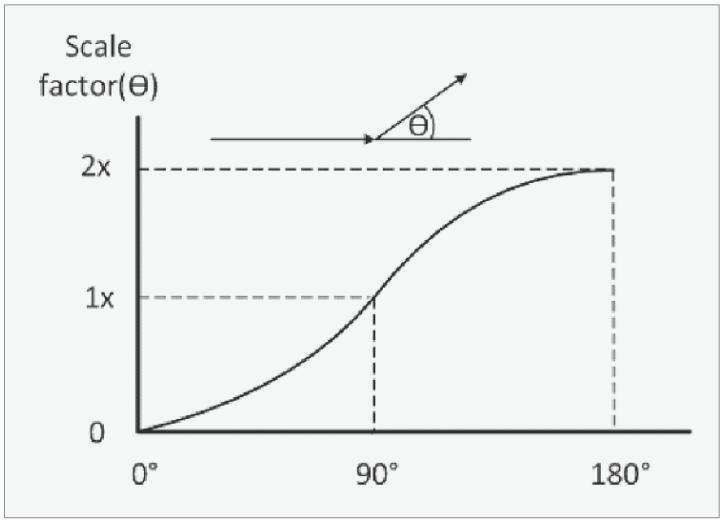
One-Click Update Controller Solution

Select a file and all system components of the controller, like the OS, the firmware and the FPGAs are updated fully automatically, and an update protocol is provided.

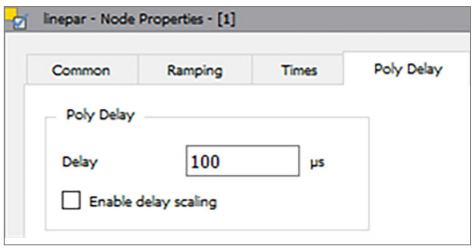


Polyline Delay

Our Polyline Delay enables higher accuracy with laser on in corners. Especially when outputting polygons, the galvos in the scan head can make abrupt turns that can create undesirable arcs. The poly delay function can be used to compensate for these arcs by introducing delays in the commanded scan head position stream at these curves. Typically, the time required to reach the target is proportional to the change in angle between successive vector segments. Smaller angles require less time, while larger angles require more time. This proportionality is automatically managed when delay scaling is enabled.



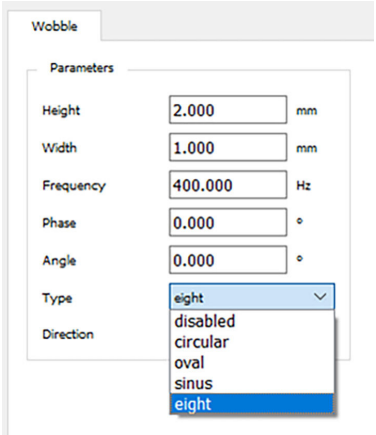
We use raised cosine function used for poly delay scaling. With enabled delay scaling the delay time will be automatically adjusted proportionally to the angular change of the vector segments. The scaling is done using a raised cosine function.



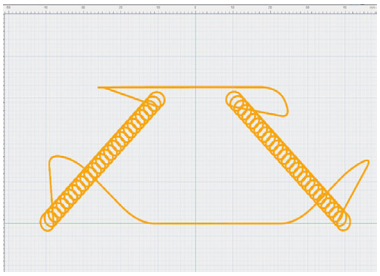
User interface in the Linepar device

Wobble Extension

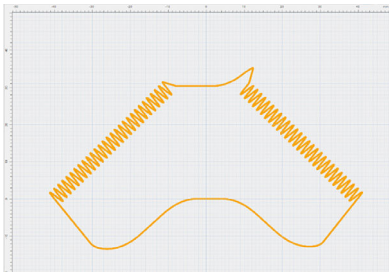
We extended our Wobble portfolio with new wobble shapes to improve welding applications. For some applications, the line width created directly by the laser beam is too narrow. For this reason, the laser beam trajectory can be superimposed with a circular, oval, sinusoidal, or eight-shaped movement, referred to as wobble – that way the resulting line width can be widened.



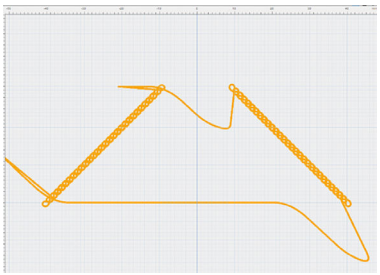
Implemented wobble shapes



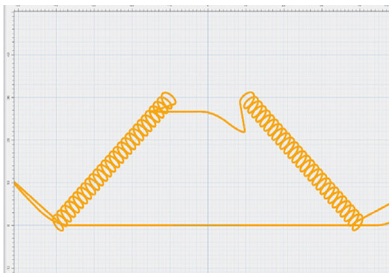
Circular



Sinus



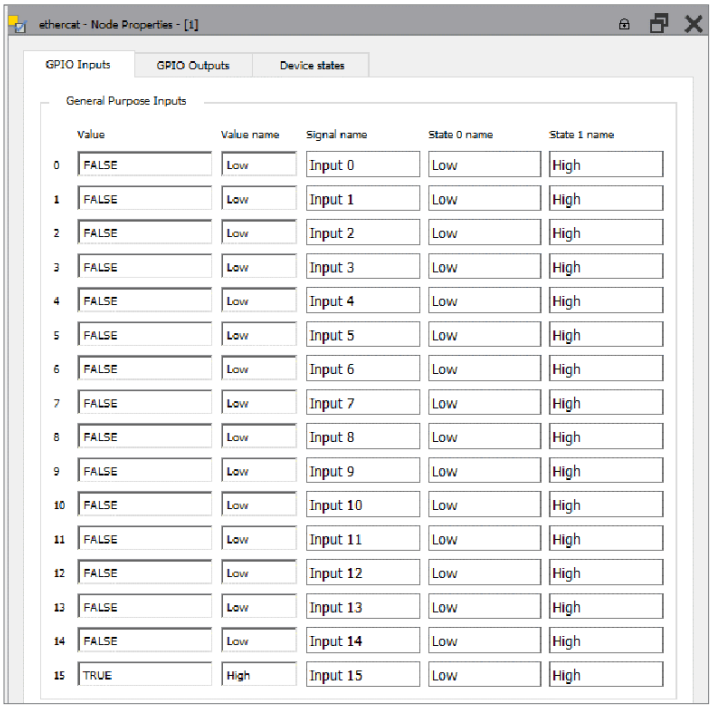
Eight

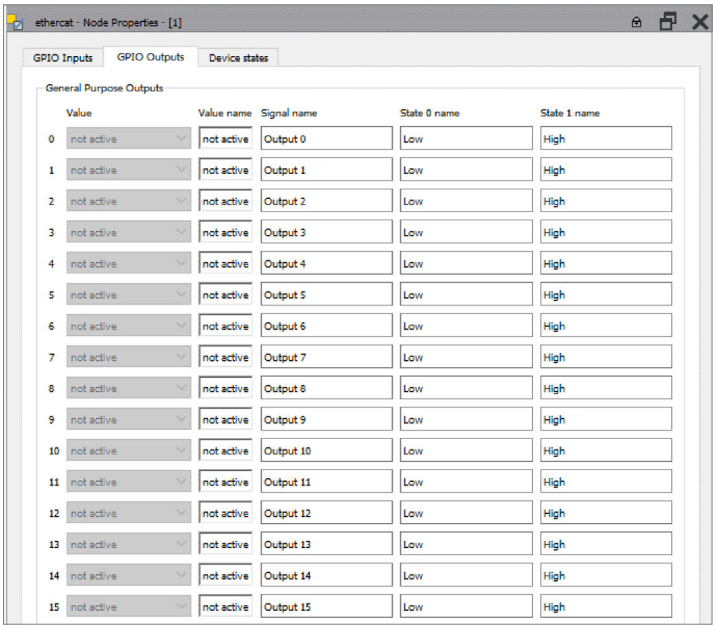


Oval

EtherCAT Extension

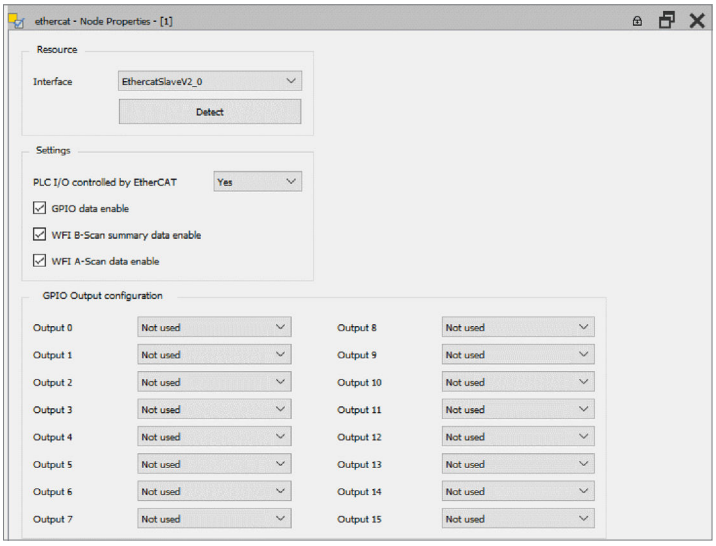
With this release, more process data is available via EtherCAT. The full GPIO Input/Output variables is now available via EtherCAT.





Structure Your EtherCAT Data

Configure data either provided via EtherCAT or non-EtherCAT. This allows the data to be optimally adapted to the application desired.



Stability Patch – Critical Bug-Fixes & Usability Features

This release includes major usability patches for core components of the system such as the Vector Editor, the SFC Wizard, the Timed Signal Stream Views and various other components included. In addition, the release version includes major stability and performance patches that enable more efficient and user-friendly work experience.