

INTEGRATOR PACKAGE DATA SHEET

CONFIGURABLE CO₂ LASER PROCESSING SUB-SYSTEM FOR FASTER, EASIER OEM INTEGRATION

Novanta combines industry-leading laser, beam steering, and control technologies into configurable laser processing sub-systems designed to support a wide range of industrial manufacturing applications. From proven 2-axis scanning solutions through to advanced 3-axis architectures, OEMs can select the configuration that best meets their performance, field size, and application requirements.



FASTER MARKING & CODING

Fast, precise on-the-fly identification.



PRECISE CUTTING, SCORING, & PERFORATING

Clean, drift-free cuts on thin materials.



ABLATION & ENGRAVING

Fine-detail layer removal and permanent marking.



FLEXIBLE PACKAGING & CONVERTING

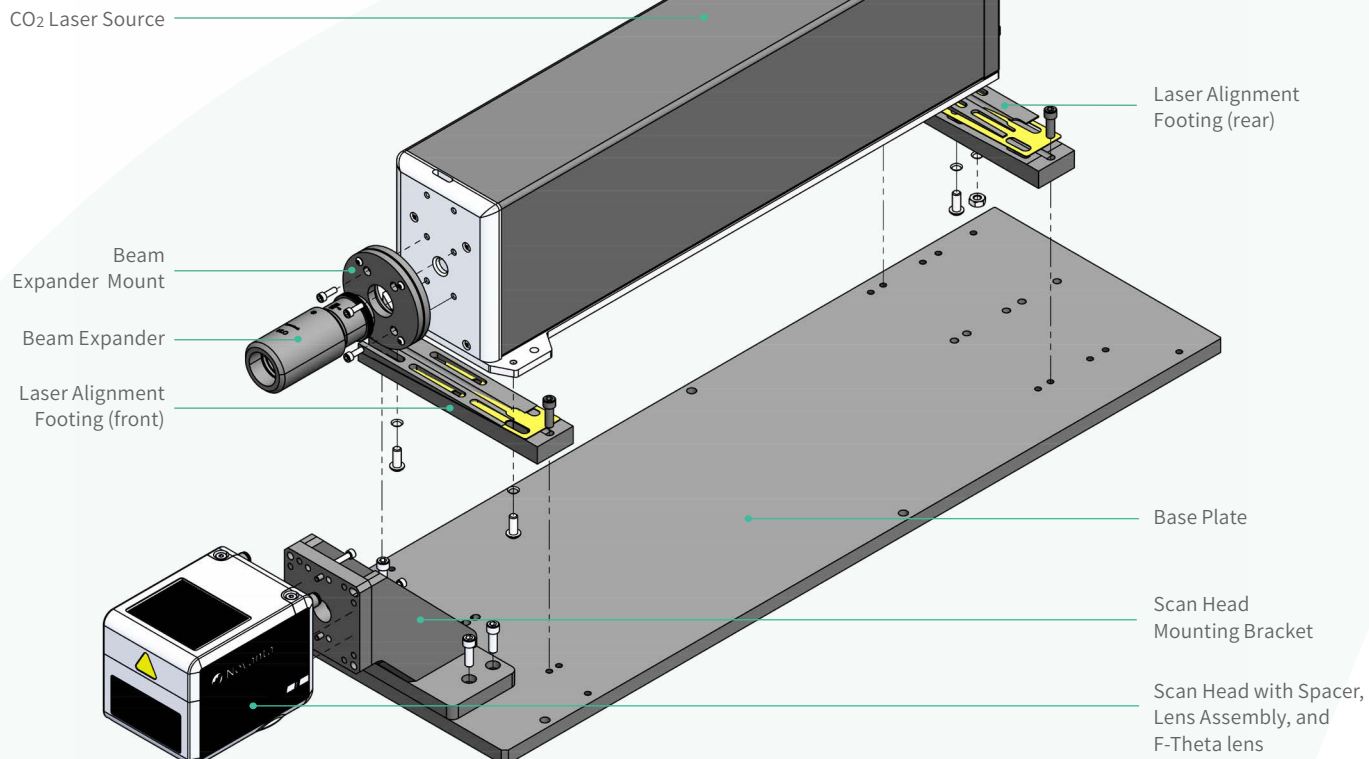
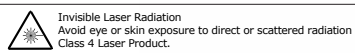
High-speed cutting, perforation, and film processing.



KEY FEATURES & ADVANTAGES

- **Save Integration Time and Resources** - pre-aligned and calibrated sub-system includes CO₂ laser source, 2-axis or 3-axis scan head, controller, software, accessories, and mounting hardware. Eliminates component compatibility issues, integration challenges, and run-around technical support.
- **Configured to Meet Your Needs** – multiple options for CO₂ laser power and wavelength, 2-axis and 3-axis scan heads, cooling, and specialized application tuning with guided selection advice from Novanta Application Engineers.
- **Advanced Large-Field Processing Capability** – 3-axis configurations powered by Vectria™ combine high-speed scanning with dynamic focus control to support larger processing areas, reduced part movement, and advanced laser manufacturing applications.
- **High Performance & Reliability** – designed and built using Novanta's industry-leading laser, beam steering, and control technologies. Each component is engineered for reliable operation and proven performance in demanding industrial applications.
- **Fast Uptime** – powerful ScanMaster™ controller and software package is easy to use and includes modern features that improve scanning accuracy and processing throughput. Harmonized shipping ensures quick arrival of all parts and components with easy out-of-the-box assembly and operation.
- **More System Configuration Options** - maintains more than 15 million vector moves with more than 7.5GB onboard storage space for standalone operations and remote administration, eliminating the need for an operating PC.
- **Sole Source** – single point-of-contact for purchasing, shipping, service, and technical support.

INTEGRATOR PACKAGE INCLUSIONS

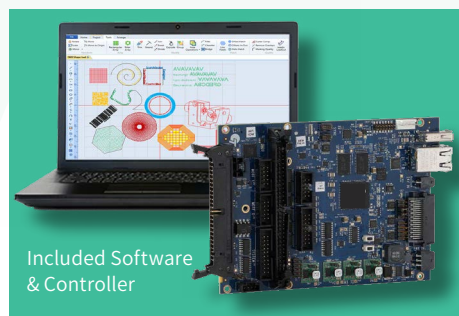


Also Included

- Connector Cables
- Assembly Instructions
- Power Supplies (laser & scan head)
- Tuning & Calibration

Not Included

- Chiller
- Coolant Hoses



KEY COMPONENT OPTIONS

CO₂ Laser Sources

Family	Power (W)	Wavelength (μm)	Cooling
48 Series	8 - 10	9.3, 10.6	Air, Water
v Series	30	9.3, 10.2, 10.6	Air, Water, Fan
vi Series*	30	9.3, 10.2, 10.6	Air, Water, Fan
ti Series	60, 80, 100	9.3, 10.2, 10.6	Air, Water, Fan
f Series	200	10.2, 10.6	Water
i Series	400, 500	10.2, 10.6	Water
p Series*	100 - 150 average / 300 - 600 peak	9.3, 10.2, 10.6	Water
	250 average / 750 - 800 peak	10.2, 10.6	Water
	400 average / 1000 peak	10.6	Water

* - Wavelength(s) options dependent on model selected

KEY COMPONENT OPTIONS (cont.)

Scan Heads

# Axis	Powered By	Aperture (mm)	Working Distance ¹ (mm)			Quadratic Field Size (mm)			Typical Spot Size ² (μm)		
			Short	Typical	Long	Short	Typical	Long	Short	Typical	Long
2	MOVIA	10	100	200	300	65	130	195	240	485	730
	VERSIA	14	100	200	300	67	135	205	175	350	525
3	VECTRIA SD	30	250	500	700	266	500	686	349	579	764
	VECTRIA LD	30	450	1000	1750	453	966	1374	533	1045	1370

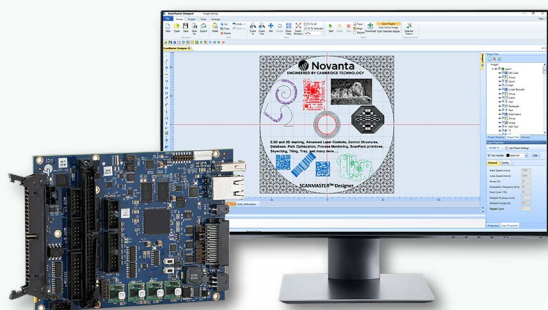
1 – Working Distance given as typical distance from bottom of scanner body to working area. Actual values can vary by up to ±3%

2 – Spot Size diameters given for collimated Gaussian beams with typical beam diameters and at $M^2=1.2$ and $\lambda = 10.6 \mu\text{m}$

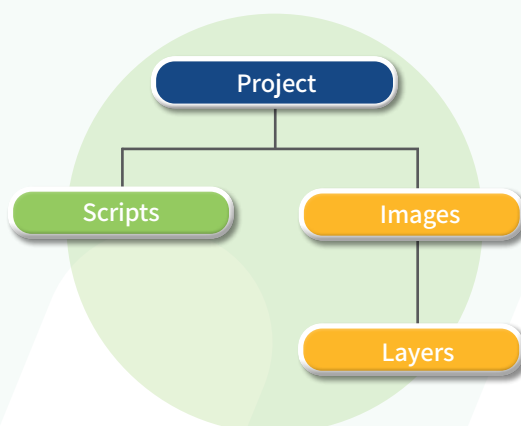
Controller & Software

ScanMaster™ Controller (SMC) - designed to work seamlessly with Novanta's Movia, Versia, and Vectria scan heads, while providing easy integration with an OEM's system. SMC is a self-contained controller that provides advanced hardware and software control technology to drive laser scanning systems using proprietary algorithms and predictive controls. The Ethernet connected SMC board permits remote embedding and control of a scan head and laser system. It can control two scan heads with concurrent laser timing control. It also provides integrated synchronization I/O for connection to factory automation equipment.

ScanMaster™ Designer (SMD) - powerful package of designer tools that conveniently support all standard file formats. With SMD you can create and scan virtually any image using graphical shapes, text, linear bar codes, 2D data matrix bar codes, QR-Codes, or imported raster images and graphics. SMD also features ScanScript, a powerful scripting language with a comprehensive library of commands for supporting any laser scanning scenario.

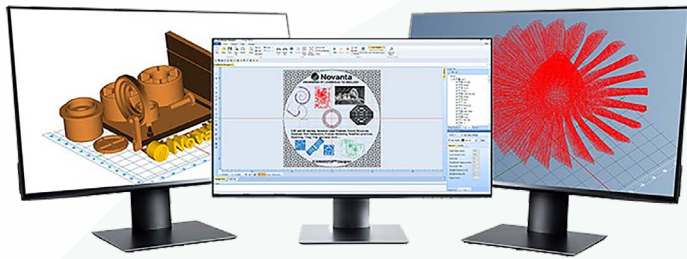


Basic System Architecture - the advantage of the SMD/SMC architecture is that it provides users with detailed laser processing control for multiple aspects of a project.



A job, represented in ScanMaster Designer as a Project consists of two entities — the Script and the Image. The Image is a drawing made up of one or more Layers that hold shapes and other elements (text strings, bar codes, and pictures). Layers simplify the creation of complex images and define the order of execution. The Script entity executes flow control, to support integration with the rest of the system, and to allow programmatic manipulation of Images and settings. There is no restriction on the number of Images and Scripts in a Project.

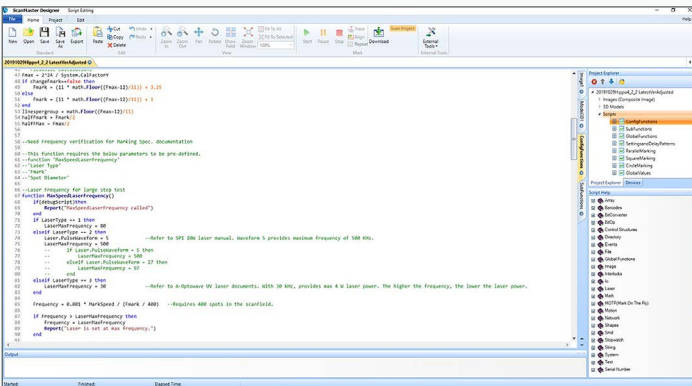
SMC/SMD HIGHLIGHTS



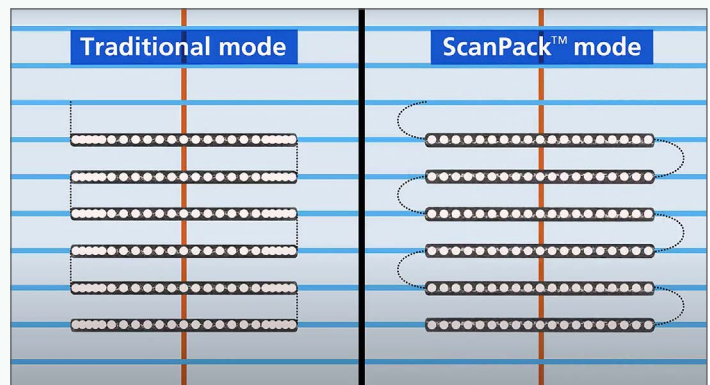
Single Software/Controller Solution – perfectly matched and designed in unison for optimal performance with built-in advanced application features.



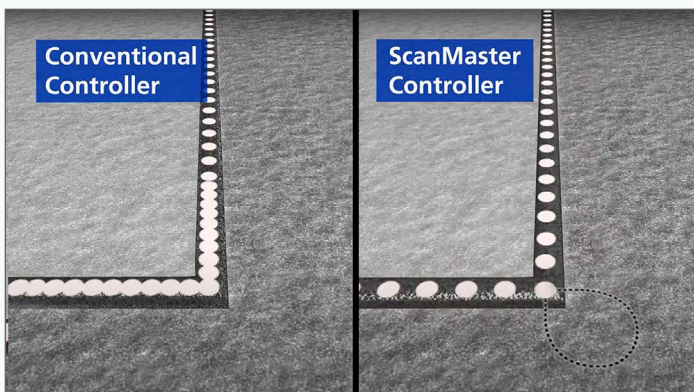
SyncMaster – advanced laser scanning head and XY linear stage synchronization expands work field size and fits production environments with unmatched accuracy and speed.



Built-In ScanScript – single solution for multiple applications includes application specific features.



ScanPack Trajectory Planning – intelligent trajectory planning delivers faster throughput with higher accuracy.



Skywriting – delivers uniform laser density when processing complex shapes and tight corners to avoid “burn marks” caused by over-processing.



Synchronization – high degree of stitching accuracy for multi-scanning head systems.

RECOMMENDED APPLICATIONS

Marking & Coding

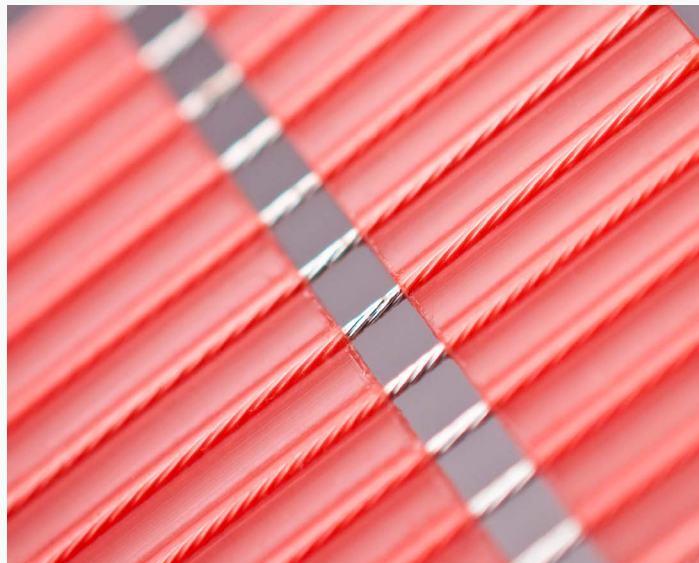
Novanta Integrator Packages excel at marking and coding applications. A wide range of CO₂ laser power options matched with a scan head and industry leading controller/software, is ideally suited for single piece, batch processing, and high-speed applications.

Hatching Support – elaborate pattern support including checkerboard and helix with automatic hatch capability to produce vivid graphics and text.

Flexible File Import – import raster and vector images with automatic parameter set assignment.

Mark-on-the-Fly – stand-alone operation with real-time bar code and text rendering.

Tray Marking – unique step & repeat capability to extend the marking area for batch processing systems.



Converting

Laser processing systems are quickly becoming more popular in converting applications due to their flexibility, lower change-over costs, and lack of added consumables. Novanta's SMD/SMC solution optimizes laser processing systems for converting operations with practical features for system builders.

On-the-Fly Operability – highly precise synchronization between the source laser and scanning head delivers accurate cutting, scoring, and perforating patterns for in-motion and roll-to-roll systems.

Tiling – a step and repeat process that enables processing of areas larger than the laser processing area by synchronizing the laser processing sub-system with the movement of the processing bed.

Speed Compensation – automatic adjustment of laser parameters to match the speed of in-motion systems.



Material Processing

Laser material processing is broad and diverse. Novanta Integrator Packages are versatile and flexible, with exceptional cutting, scoring, perforating, ablating, and engraving performance.

ScanPack – improves throughput by optimizing scanner movement trajectory, eliminating the need for delay settings.

Skywriting – eliminates laser over-processing that causes burn marks and excessive edge melt by delivering uniform laser density.

Wobble – for sensitive welding applications, a repeating circular pattern distributes laser energy evenly across the wobble vector.

Hatching – elaborate pattern support enables complex laser patterning, especially useful for ablation to modify surface textures.

SyncMaster – expands work field size with advanced laser scanning head and XY linear stage synchronization.

DIMENSIONS



Integrator Package	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
MOVIA / vi Series	702.01	203.2	170.54	14.4
VERSA / ti Series	948.81	241.3	176.25	24.9
VECTRIA / i501	1840	356	425	111.1

The table highlights three example integrator packages. Many other configurations are available. Contact us to identify the most suitable solution for your application. CAD files are also available for all supported configurations.

WHY CHOOSE NOVANTA?

- Increase manufacturing output without compromising precision
- Accelerate innovation with a fully integrated technology stack
- Reduce development risk and time-to-market
- Build for the future with a scalable platform

CONTACT US

Americas, Asia Pacific
Novanta Headquarters
Bedford, USA
P +1-781-266-5700

Europe, Middle East, Africa
Novanta Europe GmbH
Wackersdorf, Germany
+49 9431 7984-0

Milan, Italy
P +39-039-793-710

China
Novanta Sales & Service Office
Shenzhen, China
P +86-755-8280-5395

Suzhou, China
P +86-512-6283-7080

Japan
Novanta Service & Sales Office
Tokyo, Japan
P +81-3-5753-2460