

ScanControlUnit (SCU)

The SCU is a control unit for scanning optics used in the implementation of remote laser applications.

The system can be used for stationary (fixed scanner) and dynamic (moved by industrial robot) applications. In dynamic systems, the robot and scanner movements can be synchronized by the SCU resulting in full 9 axis coordinated motion (on-the-fly application). The system consists of a control cabinet and the user software.

SCU control cabinet

The SCU is designed as a PC control cabinet system with keyboard drawer and fixed control panel. The robust control cabinet is suitable for use in industrial environments and fulfils the IEC 60529 (IP52) requirements with regard to dust and water protection. The uninterruptible power supply (UPS) ensures that the system is shut down in a controlled manner in case of a power outage.

SCU User Software

The user software is used for programming, control and monitoring of the welding process. Effective programming of the welding job is ensured through an intuitive user interface. The user can process the work piece with the robot program both on the basis of CAD files (STEP / IGES) and through a intuitive conventional teach-in process.

In addition to the processing geometry, various parameters can be controlled along the scanning process path in 3D, allowing highly accurate control of parameters including the laser power, travel speed, defocus and oscillation during operation.

On-the-fly processing can be used to optimize positioning coordination between the scanner and robot, minimizing cycle time. Thus the SCU ensures optimal interaction of the scanner, laser and robot and enables a drastic reduction of the cycle times over conventional scanner/robot processing methods.









Technical specifications

Dimensions	
Length	820 mm, 1000 mm with control panel opened
Width	600 mm, 900 mm with control panel opened
Height	1.900 mm
Weight	200 kg
Power supply	100 - 230 V, incl. UPS
Language versions	DE / EN
Available interfaces	
Scanner control	X, Y and Z axis movements
	XY2/100, 16 bit resolution
	SL2/100, 20 bit resolution
Laser	Power control via analogue voltage
	IPG, TRUMPF, ROFIN, LASERLINE and others
Robot	integration packages, incl. on the fly interface
	available, for:
	FANUC, ABB, KUKA and others
Bus communication	DeviceNet
	Profibus
	ProfiNet
Safety interface	Hardwired
	Profi Net-Safe
	DeviceNet-Safe



In a laser system, the SCU has to be integrated into the safety circuit of the overall system (interlock, emergency stop) to ensure safe operation of the overall system.

Additionally, the SCU must be integrated into the controller communication system as a slave. Control of the system, such as program selection, program start, etc. is performed via a higherlevel master controller. This is typically the robot controller or the cell controller. Numerous conventional bus systems are available for smooth and flexible integration.

An interface to the laser source must be implemented as well so that the SCU can control the laser power during operation in coordination with the scanner and/or robot movement.

