

SAM USC

The USC cards are SAM compatible hardware modules for driving a 2- or 3-axes laser scan system.

USC-1, USC-2 and USC-3 - the USB scanner controllers

Due to their compactness and I/O capabilities the USC cards are easy to integrate and allow to control a complete machinery over a single communication line. Together with the Flash option, flexible embedded solutions can be implemented. Short execution cycle times make the USC cards perfectly suitable for high performance applications.

features:

USC-1 · USC-2 · USC-3

General

- USB 1.1 – 2.0 connection to PC
- realtime calculation of laser and scanner signals
- online grid correction with 10 μ s cycle time

Scanner Control

- X, Y, Z channel
- XY2-100 digital interface

Power

- +5 V / max. 1.6 A

Laser Control

- control signals for almost every type of laser
- optocoupler TTL level/10 mA output current
- 2 x analog channels with 2.5 V, 5 V, 10 V output range (USC-1: 8bit, USC-2 and USC-3: 12 bit resolution)
- 1 x 8 bit TTL level output port

External Control

- 6 opto-insulated inputs and outputs
- RS 232 interface
- encoder inputs for marking on the fly

additional features:

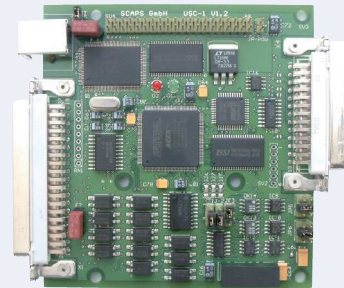
USC-2 · USC-3

- pins and size compatible to USC-1
- Ethernet connection to PC
- Flash option on board
- on board configuration setup
- additional scan head connector for controlling up to 3 scan heads
- 2 x 10 bit analog input channels
- additional 10 TTL level inputs and 10 TTL level outputs
- second RS 232 interface
- 6 outputs / 3 inputs TTL level to control stepper motors
- integrated stepper controller for 6 axes, 3 of them with interpolated movement
- additional differential encoder inputs for marking on the fly
- additional marking on the fly modes: buffered mode, rotation mode, analog mode
- pause function
- battery buffered real time clock
- bitmap marking with up to 800 kHz
- advanced control for endless cutting

additional features:

USC-3

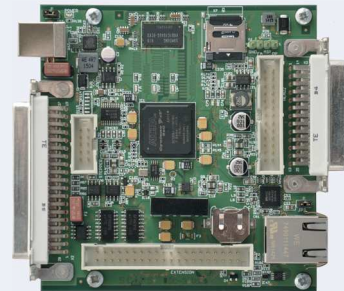
- pins and size compatible to USC-2
- additional Linux running on dual ARM core
- 1 GB Ethernet
- Micro SD Card with 4 GB Flash Memory
- 256 MB DDR3 RAM
- optimized performance for Flash functions
- scan head interface: XY2-100 and XY-SCAPS
- bidirectional XY-SCAPS interface to SCAPS DSD



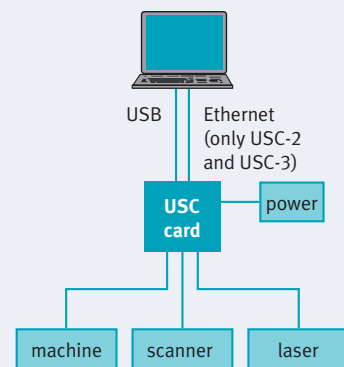
USC-1 (dimension 95 x 100 mm)



USC-2 (dimension 95 x 100 mm)



USC-3 (dimension 95 x 100 mm)



USC system integration

USC Hardware Options

Flash

With the Flash option the USC-2 and USC-3 cards can be used as stand alone units. The Flash option is on board and can be activated with the license key.

General

- 1 GB Flash (USC-3: 4 GB)
- job download via USB or Ethernet
- Ethernet/RS232 command interface (set text, transformations, power, ...)
- TELNET and FTP available
- G-Code compatible interface
- suitable for marking on the fly applications
- multiple job select by digital inputs
- date/time objects
- serial numbers
- dynamic DataMatrix generation

DSD – the Digital Servo Driver

The DSD is a hardware module for building up digital driver based scanning systems. Due to the full digital approach and its small size, very compact and innovative solutions can be realized. DSD hardware consists of DSI and DSC board which can be easily mounted on each other.

General

- compact format
- one DSD can drive two galvanometer scanners
- different types of DSI boards available (for galvos with capacitive, optical and digital encoders)
- extension connector for customized solutions
- XY2-100 and bidirectional XY-SCAPS interface
- optimized scanning performance
- auto tuning of galvos
- overshoot protection
- error detection
- low power consumption

Advanced features using XY-SCAPS and USC-3:

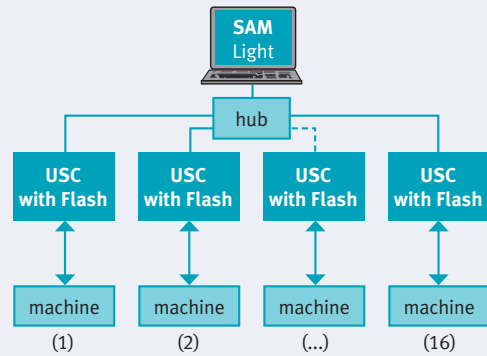
- dynamic pulse and power control
- switch between different tuning parameters
- read and show real scanner positions

Power

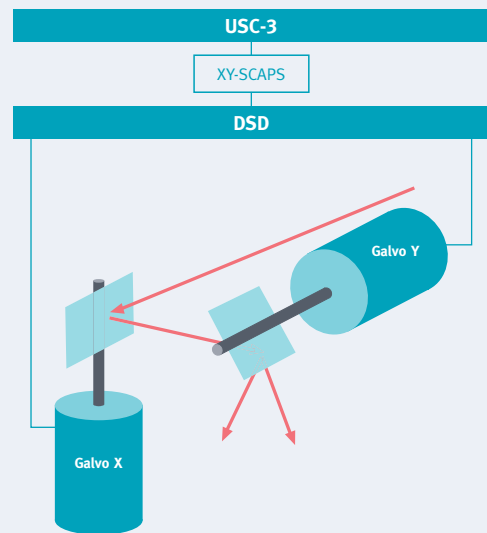
- typically 15 - 36 Volt



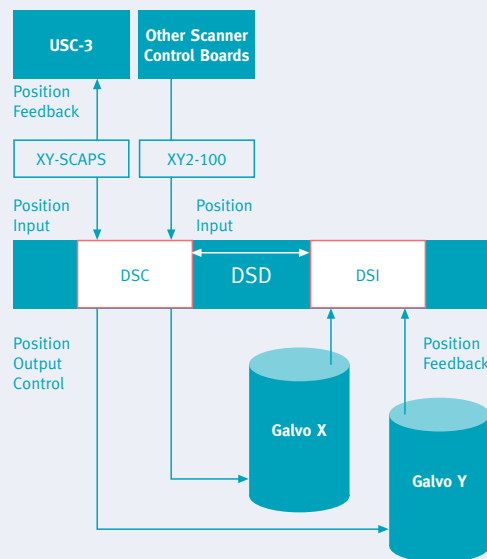
DSD (board size 78 x 66 mm)



multi card setup



system overview DSD and USC-3



DSD, DSC, DSI data flow