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Find the *SCANLAB RTC3* at our website: *Click HERE*



power*SCAN* 70

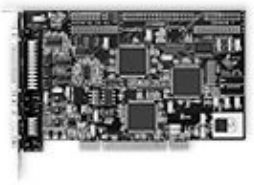


The power*SCAN* 70 - with a usable aperture of 70 mm - is designed for the fast positioning and deflection of laser beams in the multi-kW range.

The combination of the power*SCAN* 70 with the vario*SCAN* 80 from SCANLAB is well-suited for achieving large image fields and smallest focus diameters.

PC Interface Board RTC3

News



- Control of scan heads and lasers in real time
- PCI-bus interface
- 16-bit positioning resolution
- 10 µs output period
- Flexible configuration and programming of laser signals
- Standard: two additional analog outputs and an 8-bit digital output
- Software driver (DLL) for Windows 9x/Me/NT4/2000
- Automatic field correction
- Up to four RTCs in one PC
- Option for "marking on the fly" without additional extension boards
- Option for synchronous control of two scan heads
- Option for controlling a 3rd axis
- I/O extension board available

The RTC3 PC interface board provides digital control of laser scan systems via an IBM-compatible computer.

The RTC3 features a PCI-bus interface and a fast digital signal processor (DSP) providing high-performance control of lasers and scan heads in real time.

Scan head control commands are transferred from the PC to the RTC3 for storage in a list buffer. Upon receiving a start signal, the RTC3 begins processing the stored commands independently of the host computer.

The corresponding control signals are calculated in real time and transferred to the laser and scan head. Simultaneously, the PC can already begin transferring the next group of commands to the RTC3.

The laser control signals of the RTC3 allow straightforward adaptation to various laser types.

The standard version of the RTC3 supplies an 8-bit digital output and two analog outputs. Additional control possibilities can be realized via an optional I/O extension board.

Compared to the RTC2 predecessor board, optional RTC3 support for "on the fly" applications has been enhanced with numerous new functions.

When needed, a second output can be added to the RTC3 for synchronous control of two scan heads.

For more complex applications, the software driver supports the simultaneous use of up to four RTC3 boards in one PC.

Special software solutions for various applications are offered by several manufacturers.

Software Concept
The supplied software library (Windows DLL) provides the user with a set of commands that can be integrated into any user program.
The commands are transferred from the PC to the RTC3. There, they are placed in two list buffers with a capacity of 4000 commands each.
As soon as a list has been loaded, processing can begin - either via a software start command or upon receipt of an external start signal.
While the RTC3 is executing a list, loading of the next list can already begin. The PC and the laser scan system thus work in parallel.
After a list has been processed, the RTC3 can, if desired, automatically switch to the next list. Thus, continuous output of scan head data is achieved without idle time.
Program flow commands are available for implementing jumps, calls and returns within lists.

Scan Head Control
Stored commands are executed by the RTC3 in real time. In the process, the RTC3 divides each line segment to be traversed by the scan head into micro-vectors. Every

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10 µs, a micro vector is calculated and digitally transferred to the scan head. The transfer protocol conforms to the XY2-100 standard.

Laser Control
Control of the laser occurs synchronously with vector output. The laser mode (CO_2 or YAG) is selected via a software command. In CO_2 mode, two control signals with variable pulse width and period (Laser1 and Laser2) are available, in addition to the LaserOn (gate) signal. Thus, two-tube lasers can be controlled.
In YAG mode, a Q-switch modulation signal and an on/off signal for controlling the first-pulse killer are available. Lamp or diode current can be controlled via the programmable analog or digital output port.

Pixel Output
Synchronously with the scan head control signals, a pulse-width modulated LaserOn signal and an analog signal can be output. To reproduce raster images (bitmaps), one of these two signals (depending on the laser type) can be used to modulate laser energy at each pixel position for generating grey scale values.

Image Field Correction
With the help of the supplied correction file, image field distortion resulting from the arrangement of the mirrors and the used objective can be compensated.
Two correction tables can be loaded and used as needed. For example, separate correction tables can be used for a marking laser and a pilot laser.
When synchronously controlling two scan heads, gain, offset, rotation and mirror-imaging can be independently programmed.

I/O Extension Board (optional)
- 16-bit digital input (4 bits are opto-decoupled)
- 16-bit digital output (4 bits are opto-decoupled)
- 4 differential analog inputs (each with 10-bit resolution)
- 4 additional analog outputs (each with 10-bit resolution)

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