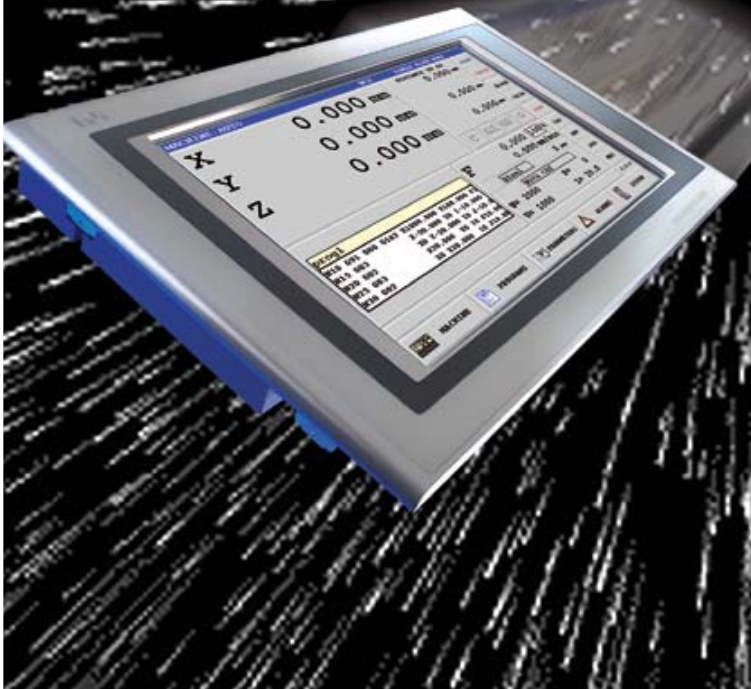


MORE THAN CNC



Standard CNCs use CNC axes for single axis functions, have a fixed graphical interface and communicate with the PLC via a number of so-called M-functions. This limits the functionality as well as the flexibility of CNC solutions. B&R incorporates PLC, single and multi axis motion via CNC, network and visualization functions into one device. This solution provides outstanding flexibility at an extremely competitive price.

Standard CNC functions consist of two parts: the core functionality for work piece processing and auxiliary functions for CNC adaptation to particular machine tools or work piece transport.

The main core functions are the interpretations of the work programs, which are written in compliance with the DIN66025 standard and contain the interpolation responsible for the coordinated movement of more than one CNC axis.

The auxiliary functions run on a PLC that executes the commands from the CNC interpreter thus preparing everything needed to carry out the work piece forming process.

Standard CNC Tuning

Usually the core functions can be adapted by setting parameters and additionally writing a PLC program. It may seem that PLC programming gives a lot of flexibility in adapting the CNC to a particular machine. On further inspection though, this proves incorrect. The bottleneck in this case is the limited interface between the

core functions and the PLC program. The so-called M-functions and sets of additional parameters comprise the base of this interface.

If more flexibility and functionalities are desired, very expensive CNC solutions are required. However, these solutions still feature only a limited number of core functions and an embedded PLC interface.

Integrated CNC Automation by B&R

The new CNC solution from B&R differs in various ways. At first glance it offers all the standard function of a conventional CNC: core and auxiliary functions supported by standard visualization. Here is where the B&R solution starts to differ from the norm though. Machine specific functions are not added onto the standard functions retroactively. Rather than that single, ready-made modules are integrated into the project for a maximum of flexibility. This means that any desired module (i.e. cam disks as slave axes of the CNC axes, connection of remote I/Os via different bus systems, use of additional terminals, ...)

can be easily created and integrated into the project.

Application Example: Laser Cutting Machine

The original solution for this machine encompassed 3 separate controller systems:

- A CNC controller with drives for the X- and Y-axis of the table.
- A PLC controller for the Z-axis, which controls the movement of the cutting head in 2 operating modes: the regular positioning mode and the tracking mode. In tracking mode, the distance to the material surface is measured via a special sensor and then tracked with the PLC.
- A PLC controller for the laser.

Software

The Power Panel 200 easily fulfills all requirements necessary to control the entire machine using a integrated algorithm. The decisive advantage: any change to the cutting parameters immediately affects the laser subsystem and vice-versa. Better

yet, by creating a small cutting parameter database or a recipe system, the operator can easily adjust all three parts of the machine in a single step, by simply selecting the parameters of the material in question.

An Outstanding Solution

B&R has unified PLC, CNC, single axis and laser control functionalities into a single device, the Power Panel 200. The operator can therefore utilize an intuitive and easy-to-operate user interface, that can be adapted to customer demands quickly and easily.



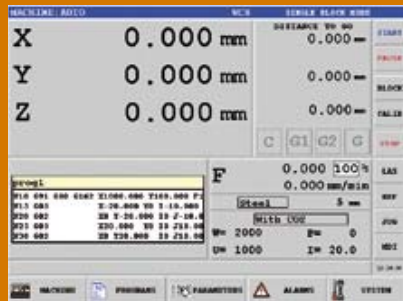
Alexey Fedorov
Sales
B&R Russia

“B&R offers the basis for integrated solutions with hardware like ACOPOS, Power Panel, remote I/Os and the corresponding software. This integration encourages the development of controller solutions for a variety of different machines.”

The decisive advantage is the integration of machine specific functions into the user interface, thereby affording very high ease of use.

The machine specific screens contain all the information required to adjust and control the machine in question. Adapting the CNC to new machine types is a matter of days and allows for easy integration of customer specific visualization and operating elements. In all, this solution provides the customers with level of flexibility that was previously unavailable.”

THE SOFTWARE



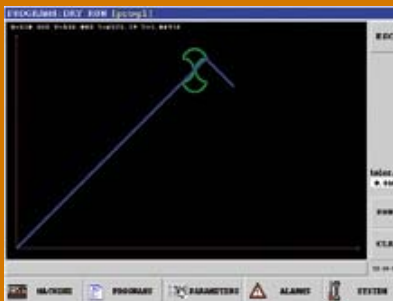
Auto Mode



Program Manager



Path Program Editor



Dry Run Graphical Interface



Laser Control Screen