



CNC Control MAXI 6



WELL-PROVEN STANDARD

For several decades PAUL has developed their CNC controls in-house in order to keep complete control over both the functionality and maintenance of their systems. User friendliness and flexibility based on our customers' requirements and our many years of experience have been achieved through the PAUL CNC controls.

Like the Version 5 software, the MAXI 6 is also based on the LINUX operating system profiting from numerous benefits:

- Real time capability**
 Reaction times to events on the machines are less than one millisecond
- High computing speed**
 Required for calculation of mathematical tasks, such as optimization variants
- Multi-tasking capability**
 Simultaneous execution of several processes and tasks
- Stability of operating system**
 Stable basis for complex, yet user-friendly machine controls
- Flexibility**
 Implementation of customized solutions



Fig. 1 Operating terminal of MAXI 6 control with touch screen



Fig. 2 Simple and workshop-oriented operation of the MAXI 6 control



Fig. 3 Tux, the LINUX penguin and the Java label stand for open source software systems

THE PAUL ETHERCAT® BUS MODULE PBM1

The Version 6 of the MAXI control introduces the PAUL Bus Module PBM1 for the data exchange between sensors/actuators and the control. Data exchange is via an up-to-date, standard Ethernet interface making it compatible with computer networks. This ensures fast and uniform networking of line components.

The bus module, developed in-house by PAUL, allows the modular construction and flexible extension of CNC controls configured to each specific customer's requirements. Each customer is supplied with his own tailor-made control, while using standard components.

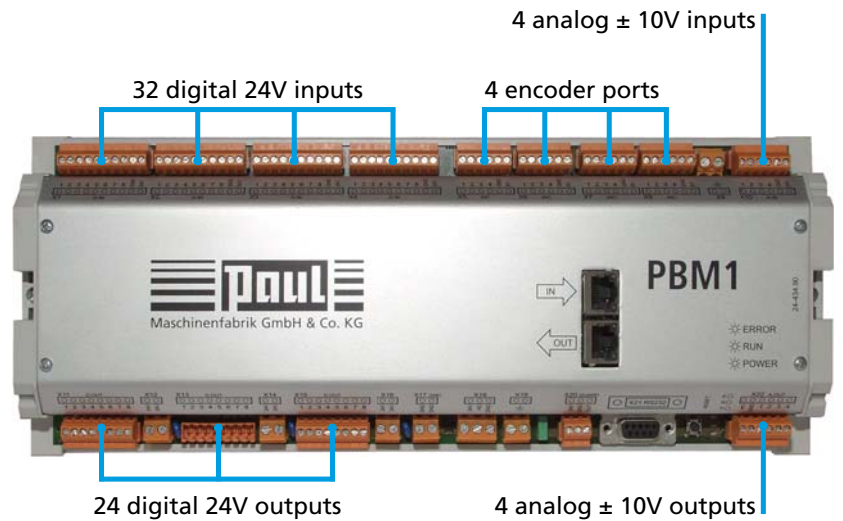


Fig. 4 Connections of the PAUL PBM1 bus module

Benefits of the bus system

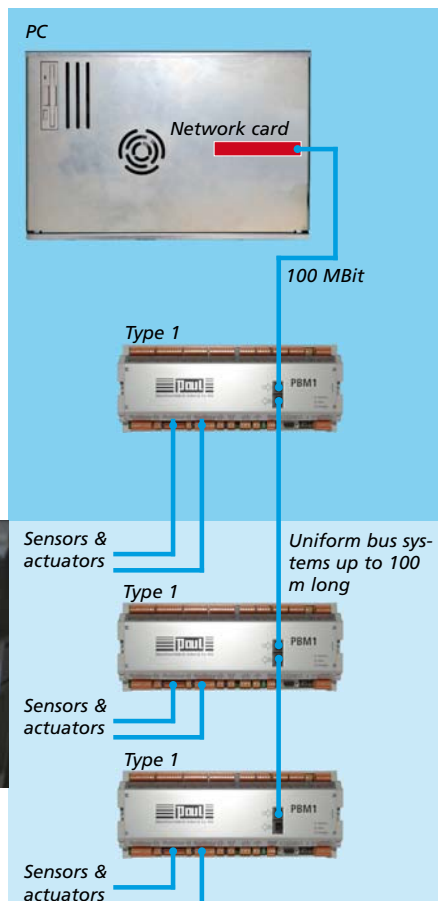
- Communication with control components of other manufacturers via the EtherCAT standard (www.ethercat.org), e.g. servo controllers, triangulation measuring heads, etc.
- High data transmission rate (reaction time 250 µs)
- Less cabling required between components and control
- Support of current multi-core processors
- Quick and easy replacement of individual bus components
- Reduction of error sources



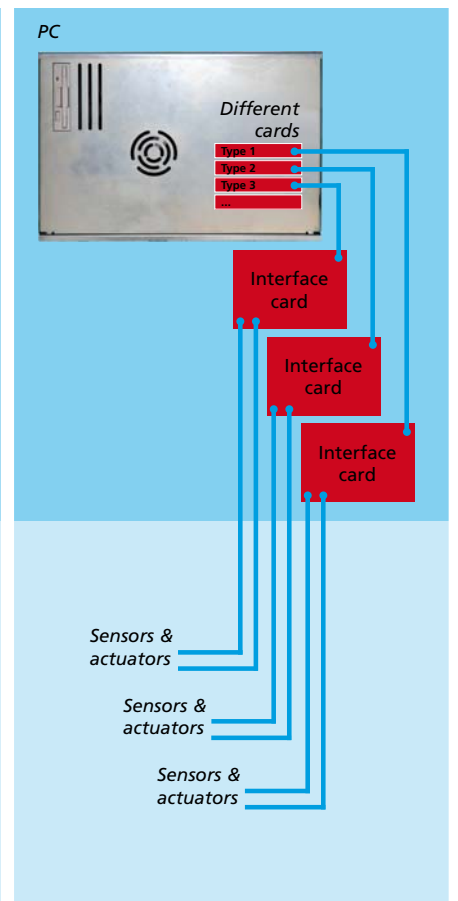
Fig. 5 Connection of the PAUL PBM1 bus module via Ethernet cable

PAUL is a member of the **EtherCAT** Technology Group ¹⁾

Control via Bus System



Conventional Control



Control cabinet or electrical cabinet

Machine or line component

1) EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

MAXI 6 IN DETAIL

OPERATION

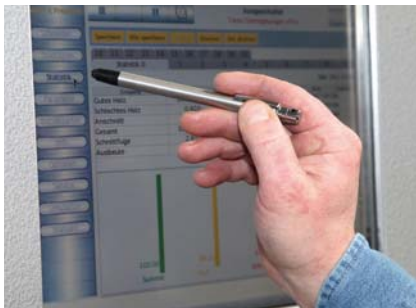


Fig. 6 Input on the touch panel using a pen

The operation of the MAXI 6 control is either effected using a conventional keyboard and mouse or a convenient 15" touch screen actuated by the touch of a finger or pen. All control elements are accommodated in the stylish yet durable steel operating terminal developed by Paul in-house. The keyboard is located within a dust-resistant, retractable

tray. Limited conventional keys are required for switching on/off or actuating automatic functions, like the emergency stop complete the operating concept of the MAXI 6 control.

LINUX OPERATING SYSTEM

Since the MAXI 6 CNC control is based on multi-core, high-performance, processors operating under the LINUX system, it offers a multitude of possibilities. Many functions and communication protocols used in current PCs are now possible with the MAXI 6.

- This technology offers numerous features and benefits:
- Maximum safety through an encrypted VPN connection or password protected access to the machine
- Control with independent web server on Java™ basis
- FTP programs for data uploads and downloads

- Remote maintenance and diagnostic access to the system via Intranet or Internet using network, DSL or modem connections
- Minimum requirements on optional workstations (PC with Internet browser)
- Digital operating instructions available on the terminal
- User-dependent access authorization
- Support of up-to-date protocols (e.g. TCP/IP) and different data formats (ASCII files as standard)
- Data transfer to ERP systems (option)

CUSTOMIZED SOLUTIONS

The control functions are customized and programmed to each individual requirement. Each customer will get the functions and features required for their specific needs. The following standard features are included:

- PC-based system with high processing power and LINUX operating system with real-time capability

- Comprehensive self-diagnosis of the sensors and actuators of the system
- Simulation possibilities
- Display of service information in plain text
- Graphic user interface in the user's language
- Input via touch panel and dust-resistant keyboard with mouse
- Input and storage of cutting lists, machine parameters, job orders and



- worksheets from a networked office computer
- Data exchange (import and export) via networks, USB stick or diskette
- No data loss when switching off or in case of a power failure

Further optional and special features will leave no customer requirement unfulfilled.