PAB+ MICRO

phytron

Stepper Motor Power Stage with ServiceBus

Application Ranges

PAB+ is a high-performance stepper motor power stage with micro step resolution up to 1/256 step. PAB+ was designed for application ranges where smooth motor operation is important.

For special applications, e. g. vacuum motors, a TEO temperature measuring module can be connected to the a local bus port. The TEO module monitors the motor temperature in order to avoid damages by overheating.

The power stage operation parameters are directly entered by the customer via **Service-Bus**[1] interface – plug & play.

To employ PAB+, that means time saving: when putting into service and when changing parameters during operation.

[1] All phytron power stages with ServiceBus functions are labeled +.

The ServiceBus-Comm® Software

The PAB+ power stage is extremely user-friendly by ServiceBus-Comm for Windows®, the free configuration and parameterising software, which accesses the power stage via service bus interface.

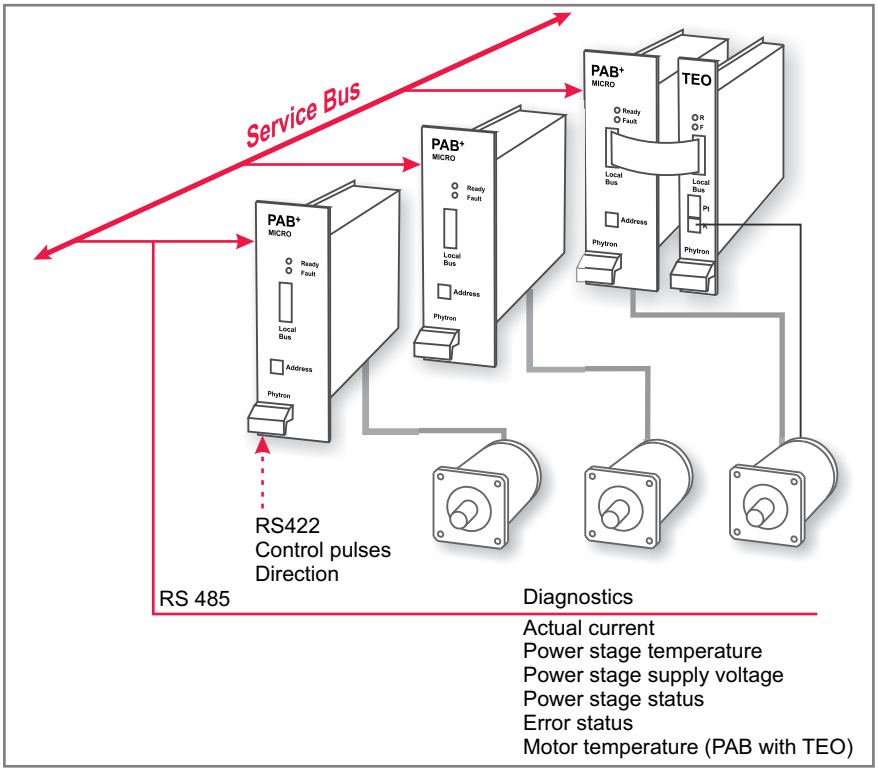
Individual configuration data, e. g. phase currents, step resolution and other operation parameters can be directly entered at the PC. The settings are permanently saved in the parameter memory of the power stage. Changes are possible at any time.

ServiceBus-Comm is a really user-friendly software due to clearly arranged menu windows and comfortable help functions.

Safe operation and trouble-free maintenance are warranted by several status messages and online diagnostic functions.

ServiceBus-Comm® is a registered trademark of the Phytron-Elektronik GmbH.

Overview: 3 Axes PAB+ with Service Bus, TEO Module and Stepper Motors



Technical Characteristics

- Micro step power stage for bipolar stepper motor control
- For 2-phase stepper motors with 4, 6 or 8 leads
- Phase currents up to 9 A_{PEAK}
- Individual setting of run, stop and boost current
- Motor voltage 24 to 70 V_{DC}, maximum 85 V_{DC}
- Step resolution from full step to 1/256 micro step
- Configuration by free ServiceBus-Comm software
- Control pulse and direction signals via RS422 or open collector
- Diagnostic LED
- 19" Europe-size plug-in board
- Optional:
  PAB with Local Bus interface to connect a TEO temperature measuring module for motor temperature monitoring

customized solutions in motion

phytron Power Stages

Dimensions

Accessory: TEO-Modul

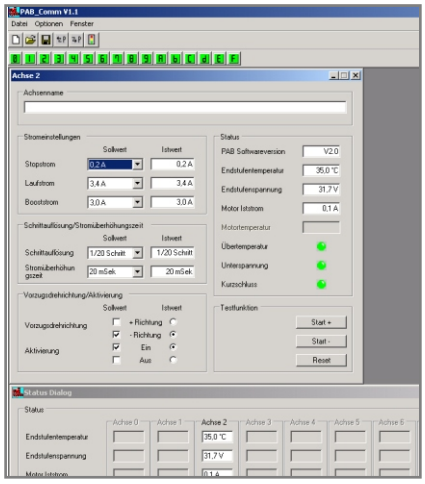
Separate motor temperature monitoring module for vacuum or cryo stepper motors

Design: Europe-size plug-in board
100 x 160 mm with front plate 3 U / 4 HP

For stepper motors with built-in type K thermal element or Pt 100 resistor sensor

Application ranges: vacuum technology, outgassing vacuum motors

ServiceBus-Comm® Software



Inputs

The RS 422 signal inputs are electrically insulated from the PAB supply voltage by optocoupler.

The signals are active when a current flows through the optocoupler.

Push-pull or open collector controlling

Controlling via push-pull drivers ensures high immunity against disturbances, thank to permanent current flow.

Input level: 5 V

Control pulses: Maximum step frequency 500 kHz, minimum pulse width 1 µs

Motor direction: When a current flows through the optocoupler, the motor turns in opposite direction to the selected preferential direction.

Boost: When a current flows through the optocoupler, the PAB sets the current to the programmed boost value.

Error Output

Opto-isolated open collector output
I_{max} = 20 mA, U_{max} = 30 V,
$U_{CE\ sat}$ at 20 mA < 1 V

The output opens in case of an error message:
– Overvoltage (short-circuit)
– Low voltage
– Overtemperature

At the same time, the motor is de-energized in order to avoid damages

Supply Voltage

Only one unregulated, smoothed +70 V_{DC} supply voltage is required for PAB board and stepper motor.

Stepper Motor

Two-phase stepper motors with 4, 6 or 8 leads

Maximum phase current: 9 A_{PEAK}

Minimum motor phase inductance: 0.5 mH

Connectors

- 48-pole connector
  (DIN 41612, type E)
  for wiring inputs, outputs,
  supply voltage and stepper motor
- 9-pol D-Sub connector
  for wiring a TEO temperature
  monitoring module

Accessories

- Front plate Al 2.5 mm, with handle
  EMC compliant surface
  128.4 * 25.1 mm (3 U / 8 HP)
- G-PAB adaptor board for
  easy connecting the PAB
  Connectors for motor cable,
  signal leads and supply voltage
- TEO motor temperature monitoring module

Ordering Code

	PAB⁺	93	- 70	MICRO
Type	PAB⁺ = Stepper motor power stage with ServiceBus			
Peak current		9 = 9 A		
Current regulation			3 = 4-quadrant current regulation	
Motor voltage			70 = 70 V (9 A peak current)	
Step resolution				MICRO = 1/1 to 1/256 step
Accessories	Front plate 3 U / 8 HP G-PAB adaptor board TEO module			

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