



MSD2+

Stepper motor power stage with power supply and ServiceBus

MSD2+ is a power stage for bipolar control of 2 phase stepper motors. It is available up to 15 A_{PEAK} maximum phase current.

Besides full and half step the MSD2+ provides a resolution up to 1/20 MINI Step.

The power stage is set by the ServiceBus and can be set with more other parameters.

The current regulation by the patented SYNCHROCHOP principle ensures a smooth operation of the stepper motor and the torque for optimum use and also the Overdrive and Boost functions.

Noise suppression between control and power circuit is obtained by optocouplers for electrical isolation of the push-pull inputs from the supply voltage.

Application

As a powerful stepper motor power stage the MSD2+ is suitable for up to 800 Watts shaft power, especially for the handling of discrete components and machine service tasks as well as for high-throughput sorting and assembly machinery.

In Focus



Integrated Driver



ServiceBus



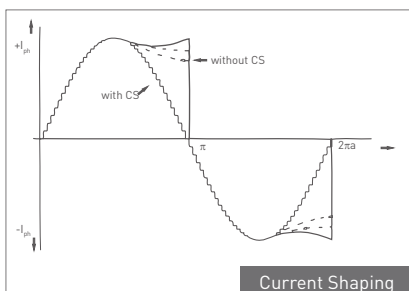
EL. Isolated

- stepper motor power stage for bipolar control of 2 phase stepper motors
- integrated power supply with operating voltage from 115 to 230 V_{AC}
- up to 15 A_{PEAK} max. phase current
- motor voltage 120 V_{DC}
- step resolution 1/1 to 1/20 step
- ServiceBus: parameterising and diagnostics online with ServiceBus-Comm®
- options:
 - motor brake
 - rack mounting
 - wall mounting

Highlights

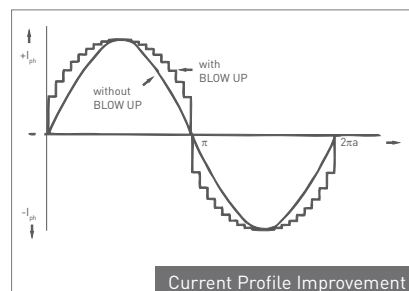
Current Shaping

The CS (Current Shaping) function allows adapting the actual current shape to the selected current curve over a wide frequency range.



BLOW UP

viour can be achieved - dependent on the motor type - by the current shape optimising BLOW UP function.



Industrial

Specification

Mechanical

Dimensions (W x H x D)	91,2 (14HP) x 280 (6U) x 230 mm
Weight	approx. 3 kg
Mounting	designed for installation into 19"/6U sub-rack or wall mounting

Features

Stepper motors	suitable for the control of 2 phase stepper motors with 4, (6) or 8 lead wiring
Power range, Phase currents	max. 15.4 A _{PEAK}
Supply voltage	120 V _{DC} (motor voltage) (mains) are generated internally from 115 to 250 V _{AC} .
Adjustable step resolution	full step, half step, 1/4, 1/10, 1/20 of a full step
Cable length	motor : shielded: 50 m max. signal: shielded: 100 m max.
Diagnosable errors	over-/undervoltage (< 40 V _{DC} or > 160 V _{DC}), overtemperature (T > 85 °C), overcurrent, short circuit

Interfaces

Analogue outputs	A, B, C, D for a 2 phase stepper motor
Digital outputs	optically insulated from the motor voltage, type Open-Collector Darlington; I _{max} = 20 mA, U _{max} = 45 V, U _{CEsat} at 20 mA < 0.6 V Error
Inputs	all inputs are designed for push-pull driver with 5 V level : Control pulses, Motor direction, Boost, Deactivation, Reset, Brake

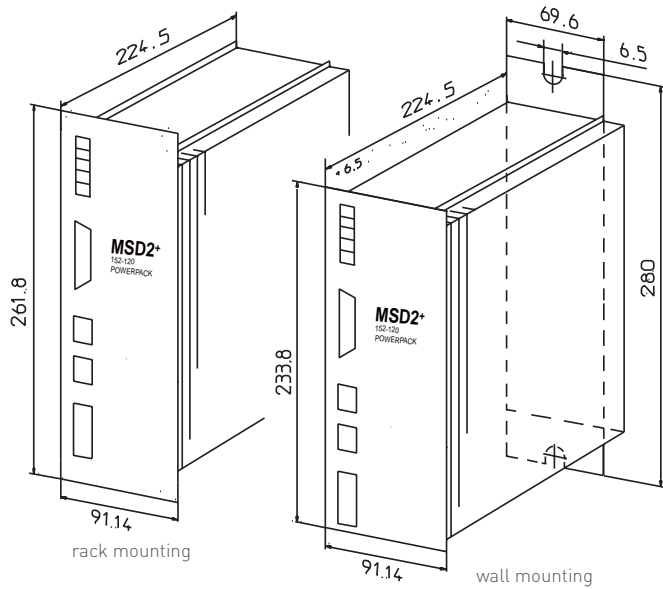
Communication and Programming

Parameterisation interface via ServiceBus	run-, stop-, Boost current, step resolution, current delay time, current shaping, chopper frequency, Overdrive switching frequency, input- and output logic, pref. direction, Reset, deactivation
Diagnostics interface via ServiceBus	current setting, power stage temperature, power stage status, error inquiry
Operating software	Phytron ServiceBus-Comm® for Windows®

Operating Conditions

Temperature	operation: +4 to +40 °C (we suggest additional cooling with higher operating temperatures) storage: -25 to +55 °C transport: -25 to +85 °C
Degree of pollution	level 2 acc. to EN 50178
Relative humidity	5 – 85 % class 3K3 non condensing
Protection class	IP 20
EMC immunity / EMC emission	acc. to EN 50178: high-voltage current acc. to EN 61000-6-1, 2, 3, 4: EMC and RFI immunity
Approval	CE

Dimensions



Dimensions in mm

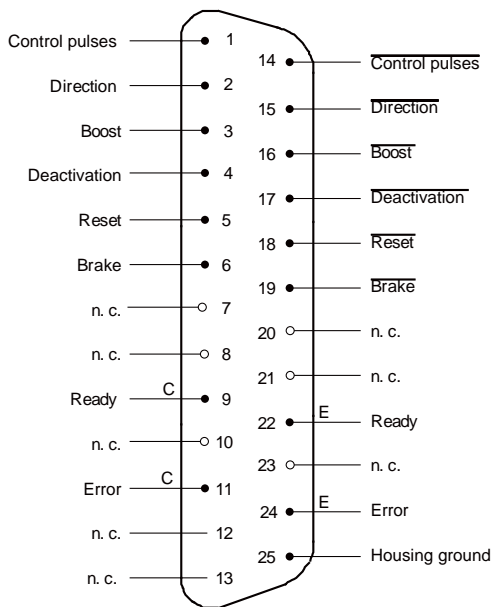
Motor brake

MSD2+ supports the operation of stepper motors with a 24 V / max. 1 A_{DC} permanent magnet motor brake.

The braking effect of the motor brake is controlled via the brake input (I/O-Signal). If this input BRAKE (connector) is activated the brake is supplied with current and the braking effect is suppressed.

If an error signal occurs or the DEACTIVATION input is active, the brake supply is interrupted, i.e. the brake activated.

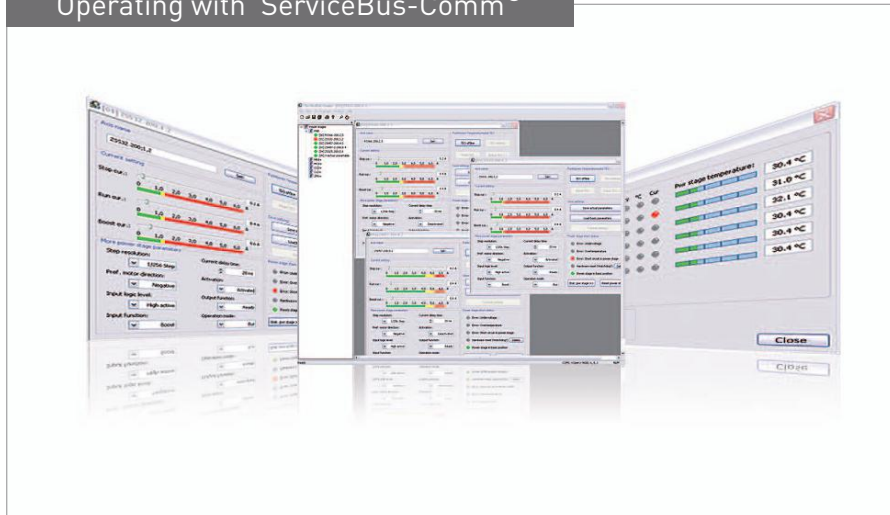
The brake has to be connected to the motor connector BRAKE. The brake is supplied by the screw terminals U_{br} and 0 V.



pin assignment

Industrial

Operating with ServiceBus-Comm®



USB-RS485 Converter

- dimensions (W x H x D): 55 x 30 x 24 cm (without connector)
- material: ABS, black
- RS485: 4-wire read-/write up to max. 32 bus participants, length up to 1200 m (with cable termination)
- data rate: up to 2.5 MBit/s
- power supply: 70 mA (via USB interface)

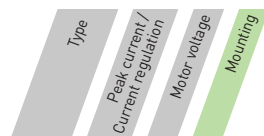


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- Extent of Supply (included):
- connector cable: Type USB A-A, 180 cm (connection RS485 to MSD2⁺)
 - driver CD

Ordering Code

The variable elements of the product are displayed in colour.



Ordering code MSD2⁺ - 152 - 120 - W

Options		
Mounting	W R	MSD2 ⁺ for wall mounting MSD2 ⁺ for rack mounting

Extent of Supply

- Connector set
- A CD-ROM with ServiceBus-Comm software and USB driver

Optional Accessories

- ServiceBus cable
- USB cable
- USB-RS 485 converter

Any questions? Please contact us.

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